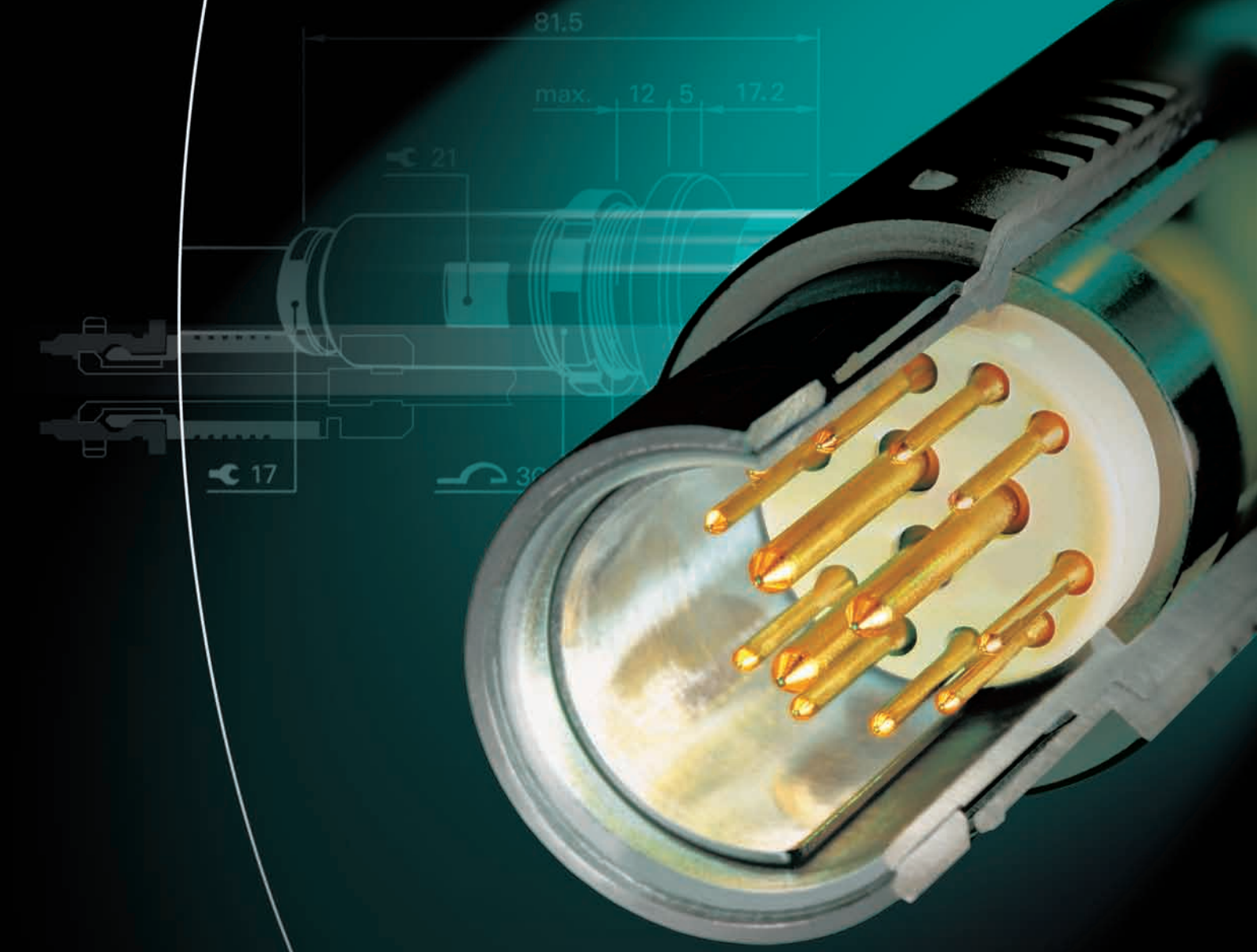
Edition 5.2

fischer connectors

General Catalogue



fischer CONNECTORS

Fischer CONNECTORS

Fischer CONNECTORS

SUMMARY

Ordering Information	Part number system and definitions, Body styles	A
Mechanical Specifications	Coaxial, triaxial, and multipole, Rear-mounted receptacles right-angle PCB contacts	B
	High voltage	C
Electrical Specifications	Coaxial and triaxial	D
	Multipole	E
	Mixed contacts	F
Thermocouple Connectors	Types and thermocouple materials	G
Cable Clamp Sets	Clamps for screened and unscreened cables, for sealed connectors and insulating clamps	H
Accessories **Wire Gauge Conversion (AWG)**	Protective covers, bend reliefs, spacers, insulating, coding and grounding washers, crimp contacts, nuts	J
Assembly Tools	Wrenches and crimping tools, contact insertion and extraction tools	K
Technical Information	General mechanical and electrical ratings	L
	Hermetic sealing and environmental protection	M
Mounting Instructions	General cable assembly instructions Panel cut-out dimensions	N
Assembly Instructions	Coaxial and triaxial	O
	Multipole and high voltage multipole	P
Recommended Cables	Table of coax and triax cable groups	Q
Special Requirements **Terms**	Questionnaire Warranty and Disclaimer	R
Index	Table of contents	S

A

Example: S 104 A056-130+

S	Locking plug
SA	Plug with lanyard
SC	Clic-Loc™ plug
SS	Short plug
SV	Tamperproof plug
SOV	Non-locking plug
SF	Non-locking panel plug
SFE	Hermetic, non-locking panel plug
SFU	IP68 sealed, non-locking panel plug
WS	Right-angle plug *(replaced by WSO)*
WSE	Sealed right-angle plug *(replaced by WSO)*
WSO	Sealed right-angle plug

D	Panel receptacle
DEE	Hermetic panel receptacle
DEU	IP68 sealed receptacle
DB	Front projecting receptacle
DBEE	Hermetic, front projecting receptacle
DBEU	IP68 sealed, front projecting receptacle
DBP	Rear-mounted panel receptacle
DBPC	Rear-mounted receptacle, right-angle PCB contacts
DBPE	Hermetic, rear-mounted panel receptacle
DBPU	IP68 sealed, rear mounted panel receptacle

DG	Completely threaded receptacle
DGP	Completely threaded receptacle with PCB contacts
WDE	Hermetic bulk-head feedthrough for connection of 2 plugs
K	Cable receptacle
KE	Sealed cable receptacle
DK	Panel-mounted cable receptacle
DKBE	Sealed rear-mounted cable receptacle
DKE	Sealed, panel-mounted cable receptacle

S — **Connector Style**

104 — **Connector Size**

Series	Dimension ❶ A	B	C	Cable Diameter Dmax
101	27	5	7	5.1
102	35	7	9	4.7
103	46	9	12	6.7
1031	48	10	14	7.2
104	50	12	15	8.7
105	60	15	18	10.7
1051	80	19	20	16.5
106	78	27	32	19.2
107	110	30	35	22.7

A — **Contact Protection**

As a general rule ❷

A Plugs have pins. Receptacles have sockets.

Z Plugs have sockets. Receptacles have pins.

056 — **Contact Configuration**

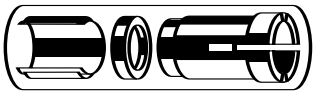
See table of electrical ratings for corresponding type and series in sections D through F.

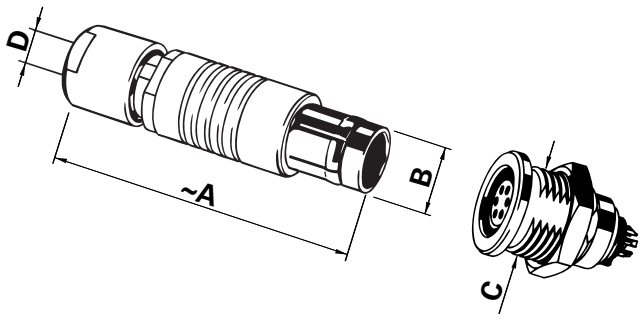
-130 — **Options**

See table of standardized suffixes on page A3.

+ — **Cable Clamp Set**

See «Ordering Information» on page A3 and «Cable Clamp Sets», section H.



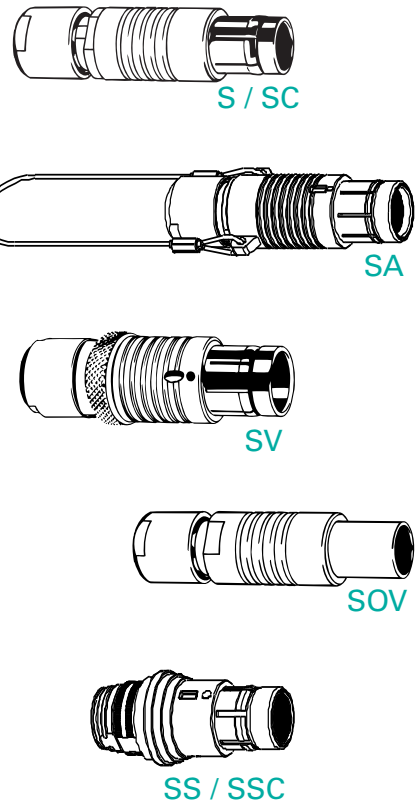


❶ General dimensions of unsealed standard connectors.

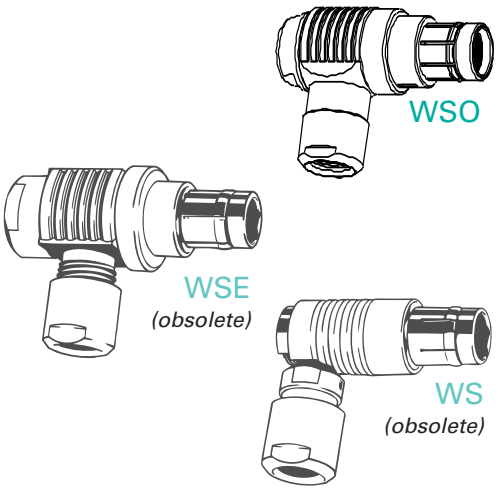
❷ Except certain high voltage connectors listed in section C. See also page L4.

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

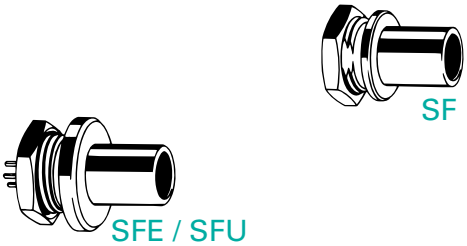
Plug



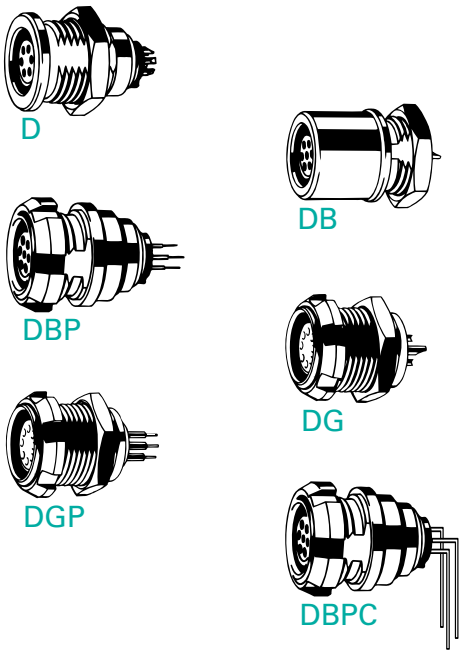
Right-angle plug



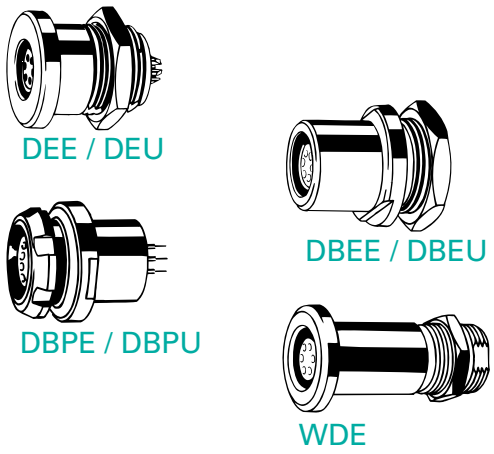
Panel plug



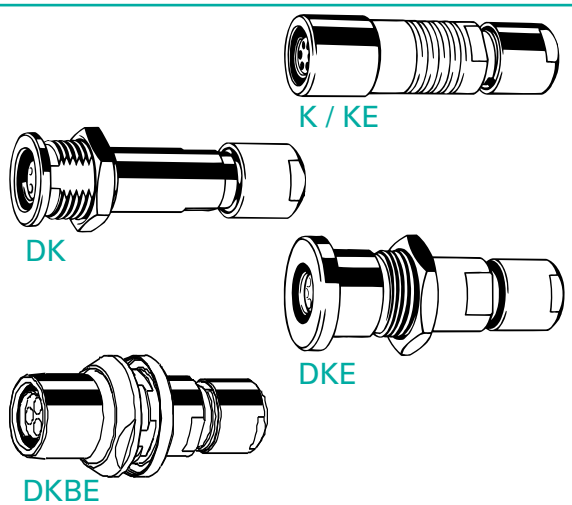
Receptacle



Receptacle and Bulkhead feedthrough



Cable receptacle



Standardized Suffixes (Standard Code 1)

Insulator Material	Contact Termin.	Chrome Plating	Guide Mark	Standard	Strain Relief Color for Cable Connectors							DBP, DBPE, DBPU with solder contacts
					White	Black	Green	Blue	Yellow	Red	Grey	
PTFE	solder	natural	red	-60	-61	-62	-63	-64	-65	-66	-67	-69
		black	white	-70	-71	-72	-73	-74	-75	-76	-77	-79
PBT	solder	natural	red	-80	-81	-82	-83	-84	-85	-86	-87	-89
		black	white	-90	-91	-92	-93	-94	-95	-96	-97	-99
	crimp	natural	red	-100	-101	-102	-103	-104	-105	-106	-107	—
		black	white	-110	-111	-112	-113	-114	-115	-116	-117	—
PEEK	solder	matt	—	-120	-121	-122	-123	-124	-125	-126	-127	-129
		natural	red	-130	-131	-132	-133	-134	-135	-136	-137	-139
		black	white	-140	-141	-142	-143	-144	-145	-146	-147	-149
	crimp	natural	red	-150	-151	-152	-153	-154	-155	-156	-157	—
		black	white	-160	-161	-162	-163	-164	-165	-166	-167	—

Clamp Set Distribution Guide for Cable Connectors

Series	Multipole and Triax Connectors	Coax , Mixed and High Voltage Connectors
101	S, K, DK - Clamp sets are included	S, K, DK - Clamp sets are included
102 **103** **1031** **104** **105** **106** **107**	S, SA, SC, SV, SOV, WS, WSE, WSO, K, DK, DKBE KE, DKE } Clamp sets should be ordered separately, selected from pages H1 - H7 and H9 - H10	Clamp sets are included, but clamp diameter should be added to the connector part number, separated by a '/ ' Mixed coax and high voltage connectors are listed on page H8.

The following list describes the different types of clamp systems available:

Type **«S»** for Shielded cable, when the shield is to be terminated to the connector body. Shielded clamps can also be used for unshielded cable.

Type **«U»** for Unshielded cable, or where the shield is not to be terminated to the connector body. These clamps are available for series 102 through 105 and are slightly easier to assemble as there is only one piece instead of three.

Type **«E»** for Environmental applications, where the interface between cable and connector body must be sealed. This type of clamp can be used for both shielded and unshielded cables.

Part number examples for Multipole and Triax:

*Plug **S 104 A056-130** for cable of diameter 6.7mm*

Shielded: *Plug:* *S 104 A056-130+*
Cable clamp: *E3 104.3 / 6.7 + B*

Unshielded: *Plug:* *S 104 A056-130+*
Cable clamp: *E3 104.6 / 6.7*

Sealed: *Plug:* *S 104 A056-130+*
Cable clamp: *E3 104.2 / 6.7 + B*

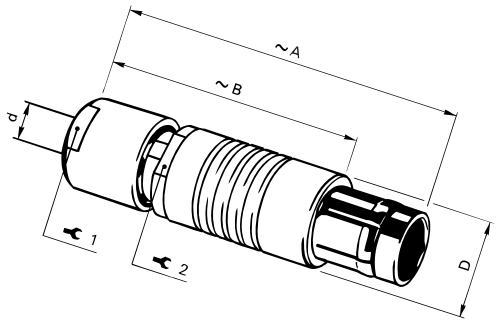
Part number examples for coax connectors ofall Series:
(For mixed contact connectors see page H8)

S 102 A017 / 4.7
SE 102 A017 / 4.3

For non-sealed coax connectors, the diameters are selected from the tables for shielded clamps «S» and for sealed coax connectors from the tables «E» on pages H1 - H7

B

S Locking plug
SC Clic-Loc™ plug

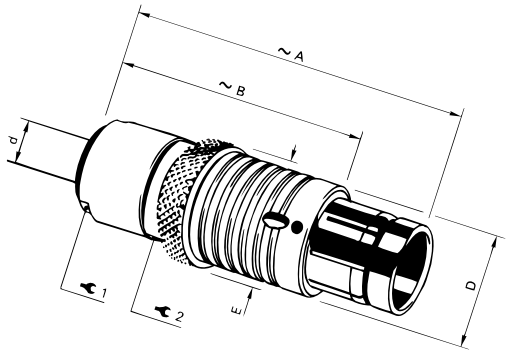


Unlike the fully-locking «S» plugs, the «SC» Clic-Loc™ plug snaps into the receptacle with a friction lock.

Series	A	B	D	dmax Unsealed	dmax Sealed	Y_1	Y_2
102	36	26	9	4.7	4.3	7	7
103	46	35	12	6.7	6.2	10	10
1031	48	38	13	7.2	6.7	12	11
104	50	38	15	8.7	8.7	12	13
105	62	47	18	10.7	10.7	15	16
106	80	55	28	19.2	19.2	22	—
107	110	85	34	22.7	22.7	32	32

The dimensions in this section B are valid for coaxial, triaxial, and multipole connectors as well as for multipole high voltage connectors.
For coaxial high voltage connectors with mixed contacts see section C.

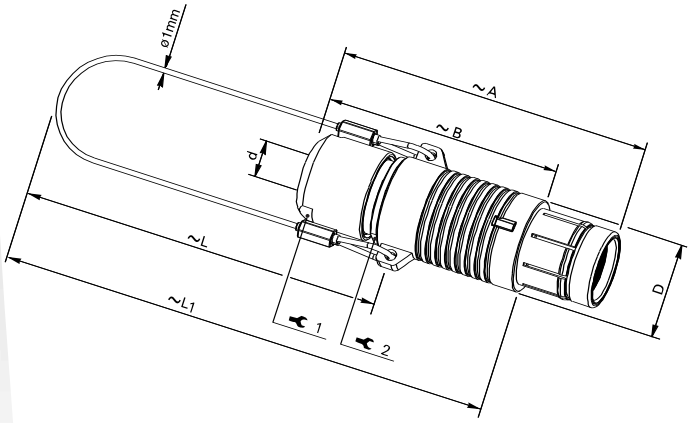
SV Tamper-proof plug



A knurled locking ring with a set screw prevents unauthorized or unintentional disengagement.

Series	A	B	D	E	dmax Unsealed	dmax Sealed	Y_1	Y_2
102	36	26	9	11	4.7	4.3	7	7
103	46	35	12	13	6.7	6.2	10	10
1031	*Please contact us for additional information*							
104	50	38	15	20	8.7	8.7	12	13
105	62	47	18	22	10.7	10.7	15	16
106	80	55	30	35	19.2	19.2	22	—
107	110	85	34	38	22.7	22.7	32	32

SA Plug with lanyard

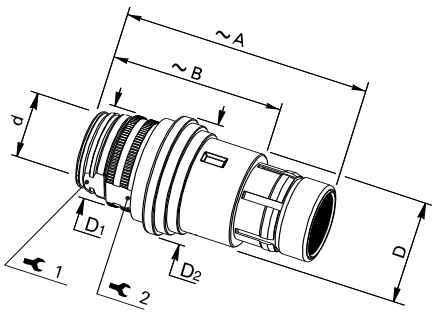


Series	A	B	D	dmax Unsealed	dmax Sealed	L	L_1	Y_1	Y_2
102	36	26	9	4.7	4.3	50	67	7	7
103	46	35	12	6.7	6.2	60	74	10	10
1031	48	38	13	6.7	6.7	55	77	12	11
104	50	38	15	8.7	8.7	65	83	12	13
105	62	47	18	10.7	10.7	70	96	15	16
106	*Please contact us for additional information*								
107									

For cable clamp sets see «Ordering Information» on page A3 and «Technical Infomation» on page L6.

B

SS Short plug
SSC Short Clic-Loc™ plug



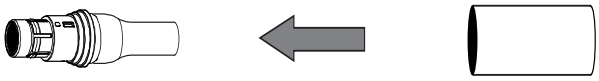
Series	A	B	D	D_1	D_2	dmax	Y_1	Y_2
102	30	20	9	9.5	12	3.8	7	8
103	33	22	12	12.5	15	6	10	11
1031	33	23	12.4	13	15.5	6.2	10	11
104	38	26	15	15.3	18	8	12	13
105	44	29	18	18.4	21	10	15	16
106	*Please contact us for additional information*							
107								

Cable attachement possibilities:

- Heat shrink or boots
- Overmoulding

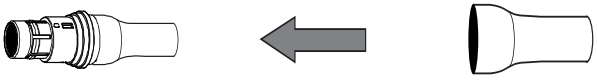
Tables below give some references of various suppliers for heat shrink and boots.

Type1: straight tubes



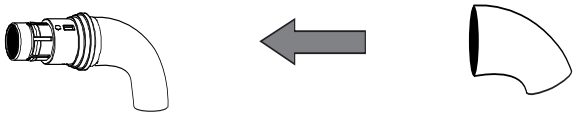
Series	Raychem adhesive lined tube shrink ratio 3:1 or 4:1	Min cable sheath diameter
102	ATUM1/2-0 or ATUM12/3-0	4 / 3
103 1031 104	ATUM16/4-0	4
105	ATUM3/4-0	6
1051	ATUM1-0 or ATUM24/6-0	8 / 6

Type2: straight boots



Series	Hellermann Tyton 100 Series w.lip (MIL style)	Min cable sheath diameter	Raychem 202A Series no lip	Min cable sheath diameter	Raychem 202D Series strain relief w.lip	Min cable sheath diameter
102	113-4... (113-4-B7WM250)	2.0	202A111... (202A111-25-225)	3.8	–	–
103 1031 104	104-4... (104-4-B7WM250)	3.8			202D211... (202D211-25-0)	6.4
105 1051	105-4... (105-4-B7WM250)	5.6	202A121... (202A121-25-225)	5.3	202D221... (202D221-25-0)	7.4

Type1: right angle boots

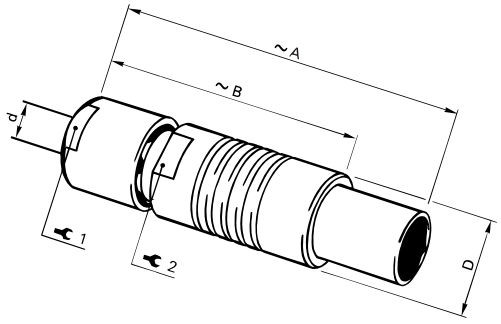


Series	Hellermann Tyton 1100 Series w.lip (MIL style)	Min cable sheath diameter	Raychem 222 Series no lip	Min cable sheath diameter
102	1181-4... (1181-4-B7WM250)	2.0	222A111... (222A111-25-225)	3.8
103 1031 104	1108-4... (1108-4-B7WM250)	3.8		
105 1051	1106-4... (1106-4-B7WM250)	5.6	222A121... (222A121-25-225)	5.3

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

B

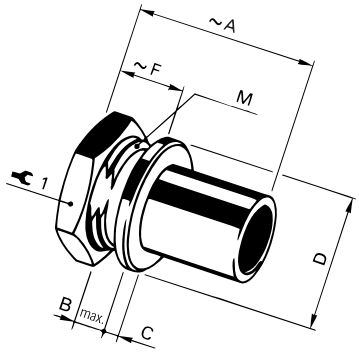
SOV Non-locking plug



Series	A	B	D	dmax Unsealed	dmax Sealed	Y1	Y2
102	36	26	9	4.7	4.3	7	7
103	46	35	12	6.7	6.2	10	10
1031	48	38	13	6.7	6.2	12	11
104	50	38	15	8.7	8.7	12	13
105	62	47	18	10.7	10.7	15	16
106	*Please contact us for additional information*						
107							

For cable clamp sets see «Ordering Information» on page A3 and «Technical Infomation» on page L6.

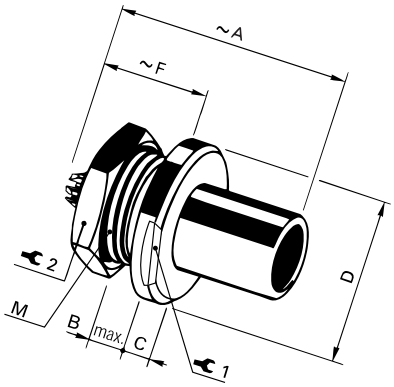
SF Non-locking panel plug



Series	A	Bmax	C	D	F	M	Y1	
102	20	4	1.5	10	8.5	9x0.5	11	
103	23.5	3	1.5	14	11	12x1	14	
1031	25	4	2	16	13	14x1	17	
104	27	3	2	18	13	15x1	17	
105	29	5.5	1.2	22	13	16x1	19	
106	42.5	5.5	2.5	34	11.5	30x1	TX00.106	❶
107	50	6	3	36	22	32x1	TX00.106	❶

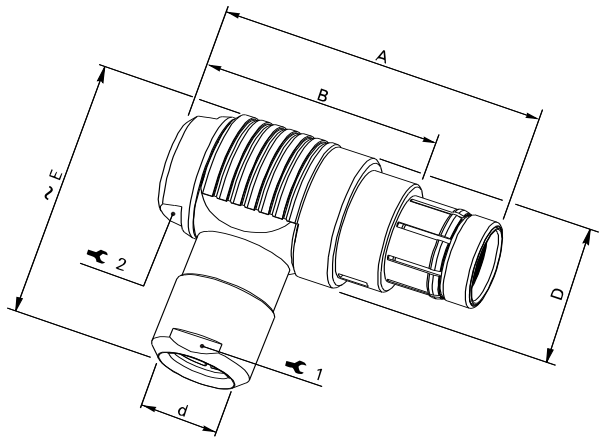
❶ Panel plugs of series 106 and 107 are supplied with slotted nuts.
For nut dimensions see «Accessories», section J.
For wrenches see «Assembly Tools», section K.

SFE Hermetic, non-locking panel plug
SFU IP68 sealed non-locking panel plug



Series	A	Bmax	C	D	F	M	Y1	Y2
102	21	2.5	3	13	8	9x0.5	9	11
103	26	5	2.5	17	12	12x1	—	14
1031	*Please contact us for additional information*							
104	28	7.5	3	22	13	16x1	—	19
105	32	6	4	27	13	20x1	—	25
106	*Please contact us for additional information*							
107								

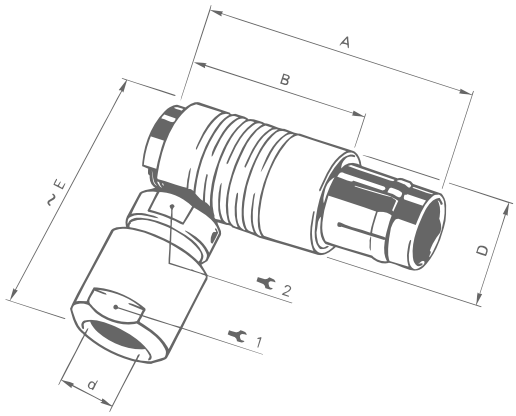
WSO Right-angle plug (Sealed or unsealed, depending on the type of cable clamp)



Series	A	B	D	❶ dmax	E	Y1	Y2
102	33	23	12	4.7	25	7	8
103	38	27	15	6.7	31	10	11
1031	39	29	17	6.7	33	12	12
104	45	32	19	8.7	37	12	14
105	53	38	23	10.7	45	15	17
106	*Please contact us for additional information*						
107							

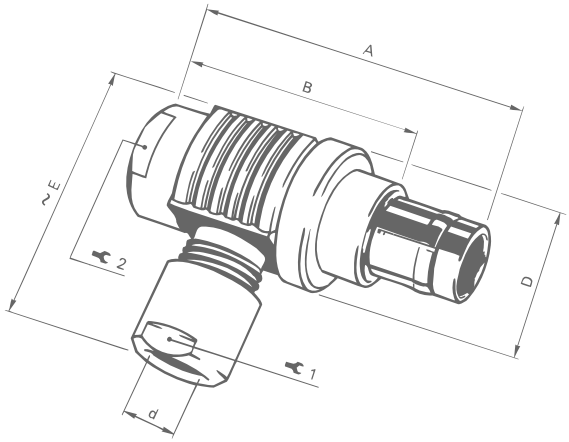
❶ The acceptable maximum diameter (**d***max*) depends on the type of cable clamp (sealed or unsealed), see «Cable Clamp Sets for WSO» page H9.

WS Right-angle plug (replaced by WSO)



Series	A	B	D	dmax	E	Y1	Y2
102	28	18	9	4.7	23	7	–
103	33	22	12	6.7	30	10	–
1031	36	26	13	6.7	32	10	–
104	36	24	15	8.7	39	12	–
105	52	37	18	10.7	40	15	–
106	67	42	28	19.2	67	22	24
107	85	60	34	22.7	77	32	–

WSE Sealed right-angle plug (replaced by WSO)

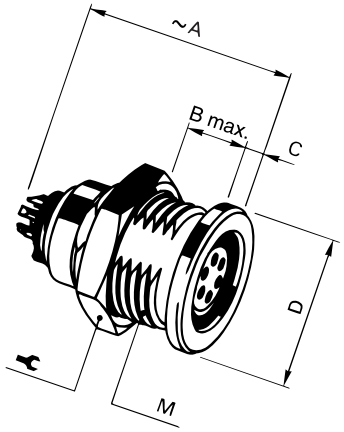


Series	A	B	D	dmax	E	Y1	Y2
102	35	25	13	4.3	26	7	8
103	41	30	17	6.2	32	10	11
1031	42	32	17	6.2	34	10	12
104	47	35	22	8.7	37	12	14
105	54	39	27	10.7	43	15	17
106	81	56	40	19.2	67	25	28
107	101	76	45	22.7	79	32	32

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

B

D Panel receptacle

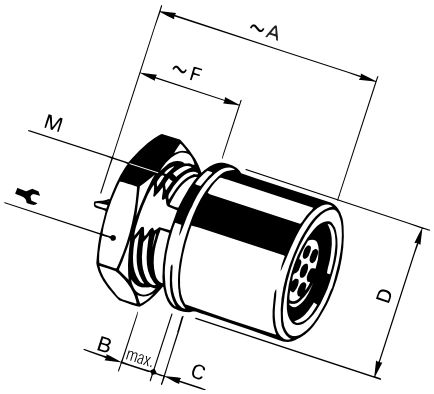


High Voltage receptacles are listed in section C.

Series	A	B*max*	C	D	M	
102	19	9	1.5	11	9x0.5	11
103	23	8	1.5	14	12x1	14
1031	25	10	2	16	14x1	17
104	25	11	2.2	19	15x1	17
105	32	15	2	22	18x1	22
106	50	18	3	37	32x1	TX00.106
107	46	18	4	40	35x1	TX00.107

Receptacles of series 106 and 107 are supplied with slotted nuts.
For nut dimensions see «Accessories», section J.
For wrenches see «Assembly Tools», section K.

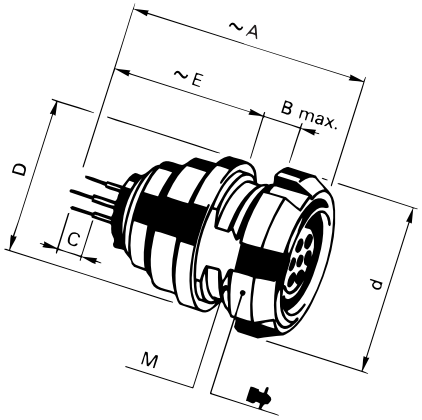
DB Front projecting receptacle



Series	A	B*max*	C	D	F	M	
102	18	3	1	11	7	9x0.5	11
103	21	4	1.5	14	10	12x1	14
1031	*Please contact us for additional information*						
104	26	3	2.5	19	11	16x1	19
105	33	7	2	22	14	18x1	22
106	*Please contact us for additional information*						
107							

The «DB» style allows the use of a protective sleeve on the mating straight plug thus providing a certain sealing.
See «General Environmental Protection» on page M4.

DBP Rear-mounted panel receptacle

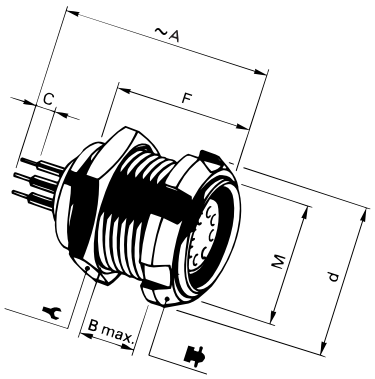


Series	A ❶	B*max*	C ❶	D	d	E ❶	M	❷
102	20	3.5	2.54	11	12	13	9x0.5	TC00.000
103	23	4	2.54	14	15	15	12x1	TF00.001
1031	23	3	2.54	16	18	16	14x1	TG00.001
104	26	5	2.54	19	19	15	15x1	TK00.000
105	30	12	2.54	22	23	13	18x1	TP00.011
106	*Please contact us for additional information*							
107								

❶ Solder pin length and diameter may vary in the same series.
Please ask for exact sizes of dimensions A, C and E.
❷ Assembly tools for decorative slotted nuts are listed in section K.

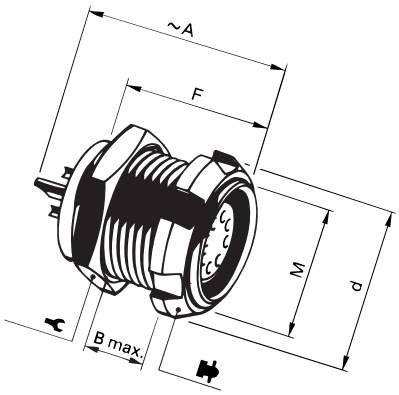
B

DGP Completely threaded receptacle with PCB contacts



Serie	A ❶	B*max*	C ❶	d	F	M	🔧	🔧 ❷
102	20	6	2.54	12	13	9x0.5	11	TC00.000
103	23	7	2.54	15	14	12x1	14	TF00.001
1031	23	7	2.54	18	18	14x1	17	TG00.001
104	26	9	2.54	19	18	15x1	17	TK00.000
105	30	15	2.54	23	24	18x1	22	TP00.011
106	*Please contact us for additional information*							
107								

DG Completely threaded receptacle



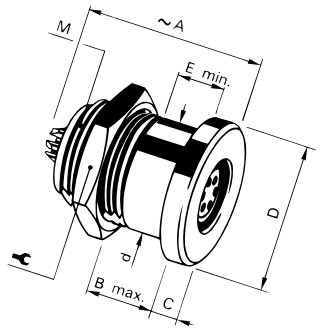
Serie	A	B*max*	d	F	M	🔧	🔧 ❷
102	18	6	12	13	9x0.5	11	TC00.000
103	23	7	15	14	12x1	14	TF00.001
1031	25	7	18	18	14x1	17	TG00.001
104	24	9	19	18	15x1	17	TK00.000
105	32	15	23	24	18x1	22	TP00.011
106	*Please contact us for additional information*						
107							

The bodies of the «DGP» and the «DG» are fully threaded, with the flange being replaced by a decorative slotted nut, allowing adjustment between PC Board and panel. The «DGP» is only available with PCB contacts. The «DG» is equipped with solder contacts and provides an aesthetic, uniform panel layout together with the DGP.

❶ Solder contact length and diameter may vary in the same series.
Please ask for exact sizes of dimensions A, C and E.
❷ Assembly tools for decorative slotted nuts are listed in section K.

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

DEE Hermetic panel receptacle
DEU IP68 sealed panel receptacle



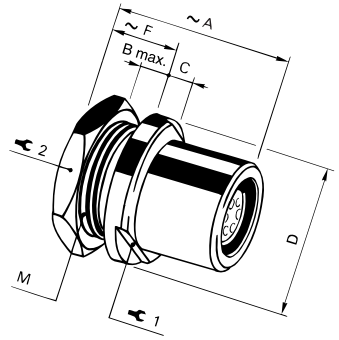
For details concerning the degree of sealing see section M.
For high voltage receptacles see section C.

For panel thickness less than **E***min*, spacers are available, listed under «Accessories», section J.

	Series	A	B*max*	C	D	d	E*min*	M	
	102	20	12	2	14	10	8	9x0.5	11
	103	23	11.5	3	18	14	8	14x1	17
	1031	25	15.5	2.5	19	14	6.5	14x1	17
	104	25	15.5	4	22	16	8	16x1	19
	105	33	18	4	27	20	10.5	20x1	25
❶	**106**	50	24	5	41	34	19	32x1	TX00.106
❶	**107**	47	22	5	45	36	19.2	35x1	TX00.107

❶ Receptacles of series 106 and 107 are supplied with slotted nuts.
For nut dimensions see «Accessories», section J.
Assembly tools see section K.

DBEE Hermetic, front projecting receptacle
DBEU IP68 sealed, front projecting receptacle

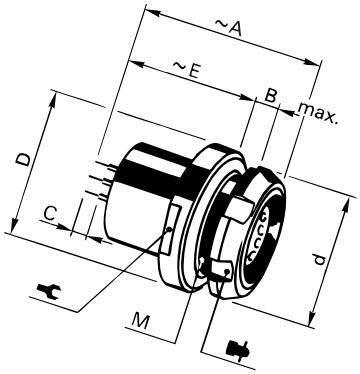


The «DBEE» and «DBEU» style allows the use of a protective sleeve on the mating straight plug, thus providing a protection to the plug as shown on page M4.

	Series	A	B*max*	C	D	F	M	Y_1	Y_2
	102	20	3.5	2	14	7	9x0.5	—	11
	103	23	4	3	18	11	14x1	14	17
	1031	24	4	2.5	19	12	14x1	—	17
	104	30	3.5	4	22	9	16x1	17	19
	105	32	5	4	27	13	18x1	22	22
❶	**106**	50	6.5	7	40	24	32x1	—	TX00.106
❶	**107**	47	5	5	45	23	35x1	38	TX00.107

For details about sealing see section M.

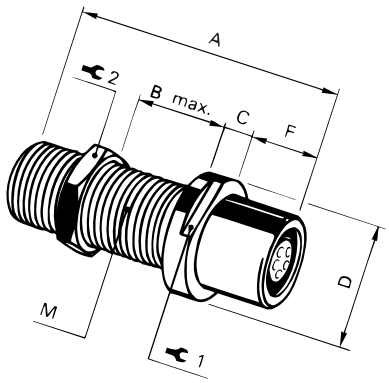
DBPE Hermetic, rear-mounted panel receptacle
DBPU IP68 sealed, rear-mounted panel receptacle



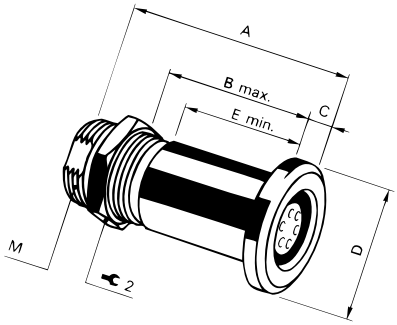
Series	A ❷	B*max*	D	d	E ❷	C ❷	M		❸
102	20	3.5	14	12	13	2.54	9x0.5	11	TC00.000
103	26	3	18	18	18	2.54	14x1	—	TG00.001
1031	22	3	19	18	15	2.54	14x1	—	TG00.001
104	26	4	22	20	18	2.54	16x1	—	TK00.002
105	30	5	27	25	20	2.54	20x1	—	TP00.005
106	*Please contact us for additional information*								
107									

❷ Solder pin length and diameter may vary in the same series. Please ask for exact sizes of dimensions A, C and E.
❸ Assembly tools for decorative slotted nuts are listed in section K.

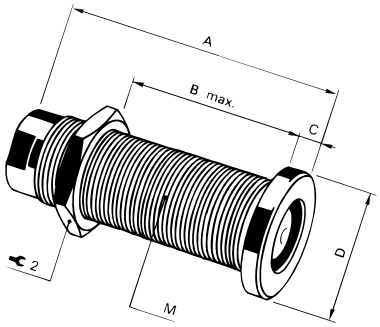
WDE Hermetic bulkhead feedthrough for connection of two plugs



Type 1



Type 2



Type 3

	Serie	Type	A	B*max*	C	D	E*min*	F	M	Y_1	Y_2
	102	1	39	23	4	14	—	9	9x0.5	11	11
	103	1	40	23	4	17	—	10	12x1	—	14
	1031	*Please contact us for additional information*									
	104	1	40	21	4	22	—	12	15x1	17	17
❶	**104**	2	40	34	4	22	22	—	15x1	—	17
	105	3	62	47	4	27	—	—	20x1	—	25
❷	**106**	2	74	39	12	42	30	—	32x1	—	TX00.106
❷	**107**	2	92	76	5	45	20	—	36x1	—	TX00.107

The bulkhead feedthrough connector allows the traversal of a panel with electrical signals and power 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, see «Contact Protection» on page L4.

Dimension «**B***max*» specifies the maximum panel thickness. For panels thinner than the unthreaded section «**E***min*» shown in Fig. 2, we can provide spacers as shown in «Accessories», section J.

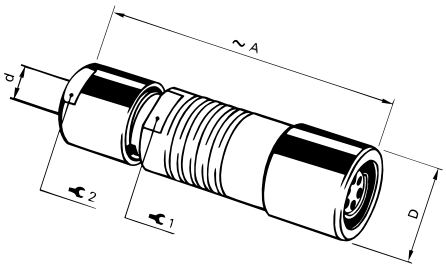
❶ Unlike the other series, the flange side of the «WDE 104» body (Fig.2) does not contain an interfacial O-ring seal between the feedthrough and the mating plug.

❷ Feedthroughs of series 106 and 107 are supplied with slotted nuts.
For nut dimensions see «Accessories», section J.
Wrenches see under «Assembly Tools», section K.

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

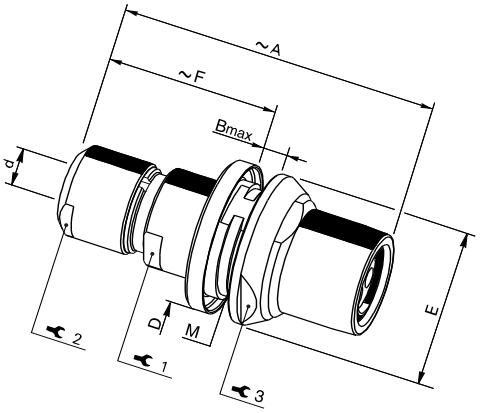
B

K **Cable receptacle** ❶
KE **Sealed cable receptacle** ❶



Series	A	D	dmax K	dmax KE	Y1	Y2
102	35	10	4.7	4.3	7	7
103	43	13	6.7	6.2	10	10
1031	46	13.5	6.7	6.7	11	12
104	50	16	8.7	8.7	13	12
105	60	19	10.7	10.7	16	15
106	79	33	19.2	19.2	25	25
107	105	36	22.7	22.7	32	32

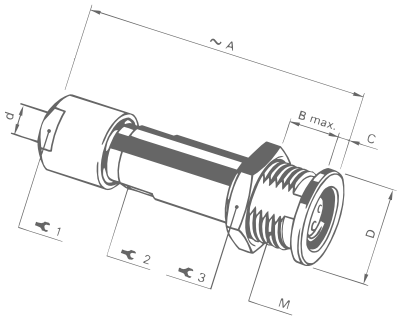
DKBE **Sealed rear-mounted cable receptacle** ❶



Series	A	Bmax	D	E	F	dmax	M	Y1	Y2	Y3
102	35	3.5	16	16	19	4.3	12x1	7	7	13
103	43	4	19	20	24	6.2	15x1	10	10	17
1031	46	4	21	20	28	6.7	16x1	11	12	17
104	50	5	23	23	27.5	8.7	18x1	13	12	20
105	60	5	28	27	34	10.7	22x1	16	15	24
106	101	6.5	41	40	69	19.2	34x1	25	25	36
107	105	8	45	45	71	22.7	38x1	30	32	40

❶ For cable clamp sets see «Ordering Information» on page A3 and «Technical Infomation» on page L6.

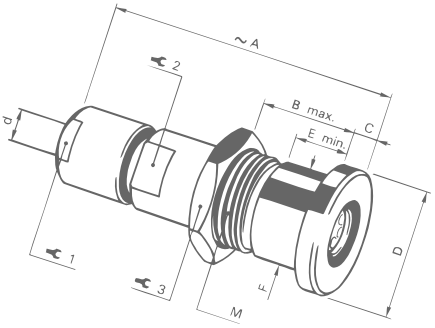
DK Panel-mounted cable receptacle ❷ (replaced by DKBE)



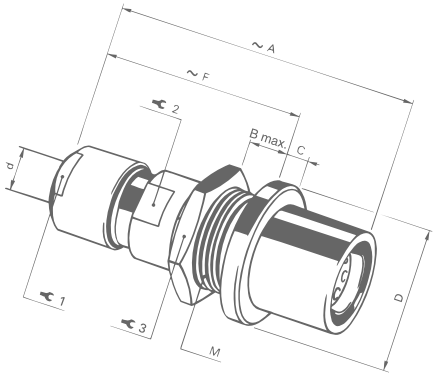
	Series	A	B*max*	C	D	d*max*	M	Y 1	Y 2	Y 3
	102	35	9	1.5	11	4.7	9x0.5	7	—	11
	103	44	10	1.5	14	6.7	12x1	10	9	14
	1031	*Please contact us for additional information*								
	104	50	11	2	19	8.7	15x1	12	12	17
	105	60	16	2	22	10.7	18x1	15	14	22
❶	**106**	80	21	3	37	19.2	32x1	25	25	TX00.106
❶	**107**	105	17	4	40	22.7	35x1	32	30	TX00.107

DKE Sealed, panel-mounted cable receptacle ❷ (replaced by DKBE)

For wall thickness less than **E***min* (Fig.1) we offer spacers, listed under «Accessories», section J.



Type 1



Type 2

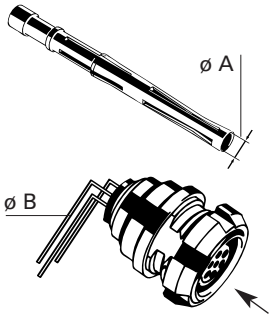
	Series	Type	A	B*max*	C	D	E*min*	F	d*max*	M	Y 1	Y 2	Y 3
	102	1	35	12	2	14	9	10	4.3	9x0.5	7	7	11
	103	1	45	14	3	18	9	14	6.2	14x1	10	10	17
	1031	*Please contact us for additional information*											
	104	2	50	8	3	22	—	34	8.7	16x1	12	13	19
	105	2	61	9	4	27	—	42	10.7	20x1	15	16	25
❶	**106**	2	85	9	7	37	—	56	19.2	30x1	25	25	TX00.106
❶	**107**	2	110	21	5	45	—	84	22.7	35x1	32	30	TX00.107

❶ «DK» and «DKE» of series 106 and 107 are supplied with slotted nuts.

❷ For cable clamp sets see «Ordering Information» on page A3 and «Technical Infomation» on page L6.

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

B



Type «A»

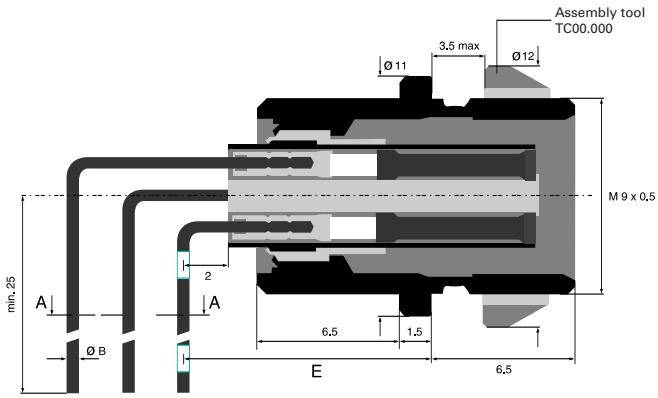
DBPC SERIES 102 / 103 / 1031 REFERENCE NUMBER	Number of Contacts	Diameter **A** [mm]	Diameter **B** [mm]	Length **E** [mm] (page B12)	Insulator Material
102					
DBPC 102 A051	2	0.9	0.6	12.8	PEEK ●
DBPC 102 A052	3	0.9	0.6	12.8	PEEK ●
DBPC 102 A053	4	0.7	0.5	11.3	PEEK ●
DBPC 102 A054	5	0.7	0.5	11.3	PEEK ●
DBPC 102 A056	7	0.5	0.5	11.3	PEEK ●
103					
DBPC 103 A051	2	1.3	0.8	14	PEEK ●
DBPC 103 A052	3	1.3	0.8	14	PEEK ●
DBPC 103 A053	4	0.9	0.5	12.3	PEEK ●
DBPC 103 A054	5	0.9	0.5	12.8	PEEK ●
DBPC 103 A056	6	0.7	0.6	12.8	PEEK ●
DBPC 103 A057	7	0.7	0.6	12.8	PEEK ●
1031					
DBPC 1031 A010	10	0.7	0.5	14.2	PEEK ●
DBPC 1031 A012	12	0.7	0.5	14.2	PEEK ●
DBPC 1031 A019	19	0.5	0.5	14.2	PEEK ●

Electrical specifications see section E.

«Contacts Layout» see on page B13.

● = Standard

DBPC 102

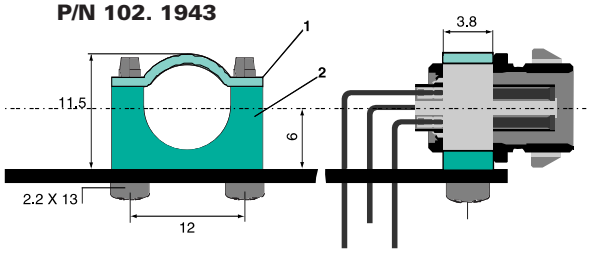


Accessory Mounting clamp

Enables mounting directly to PCB with two 2.2 x 13 screws

Improves grounding of body to the PCB

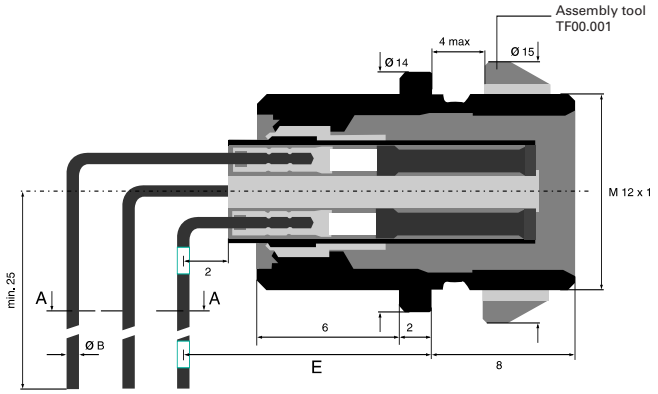
P/N 102. 1943



Material: **1** - Copper nickel plated
2 - PBT

Sectional View A-A see on page B13

DBPC 103

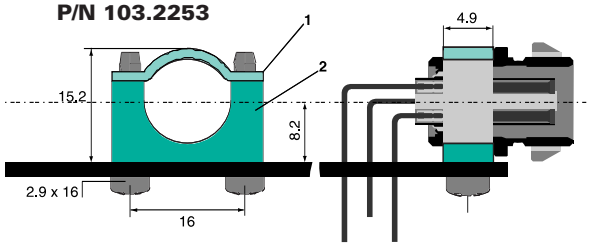


Accessory Mounting clamp

Enables mounting directly to PCB with two 2.9 x 16 screws

Improves grounding of body to the PCB

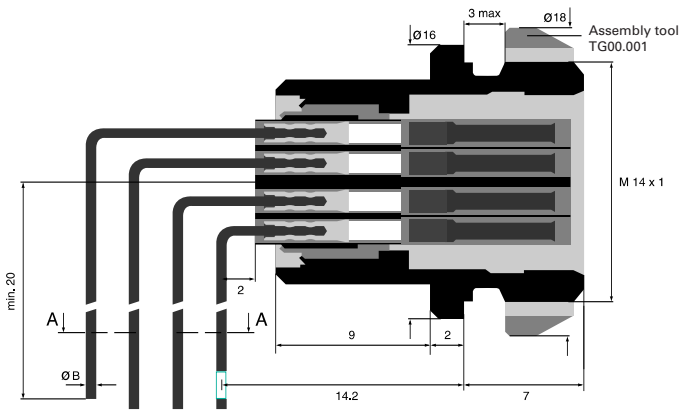
P/N 103.2253



Material: **1** - Copper nickel plated
2 - PBT

Sectional View A-A see on page B13

DBPC 1031

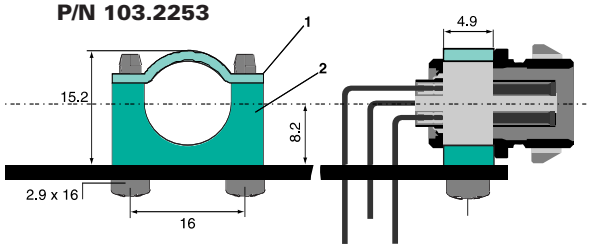


Accessory Mounting clamp

Enables mounting directly to PCB with two 2.9 x 16 screws

Improves grounding of body to the PCB

P/N 103.2253



Material: **1** - Copper nickel plated
2 - PBT

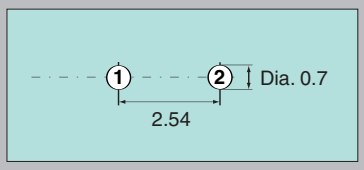
All dimensions shown are in millimeters and are for reference only.

B

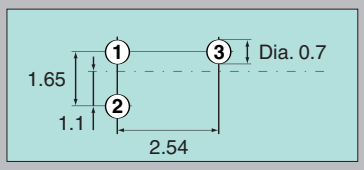
Contacts Layout, Sectional View A - A (See page B12)

102

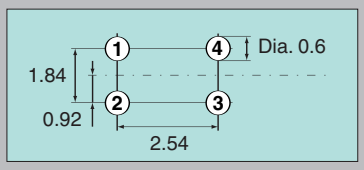
DBPC 102 A051



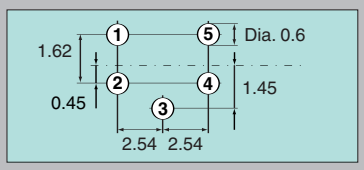
DBPC 102 A052



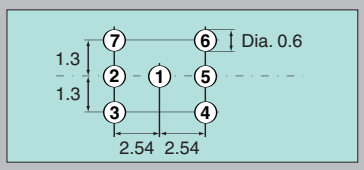
DBPC 102 A053



DBPC 102 A054

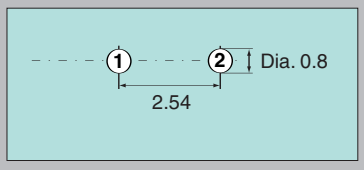


DBPC 102 A056

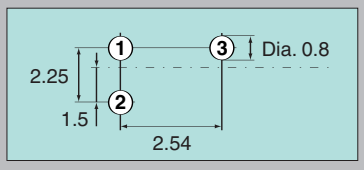


103

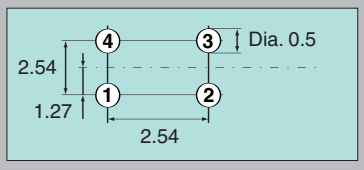
DBPC 103 A051



DBPC 103 A052



DBPC 103 A053



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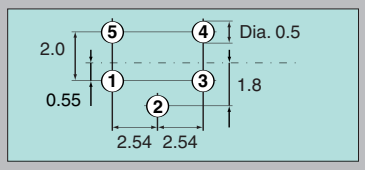
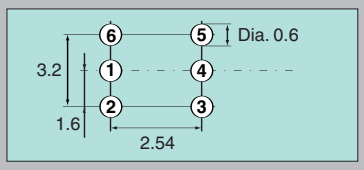


DBPC 103 A056



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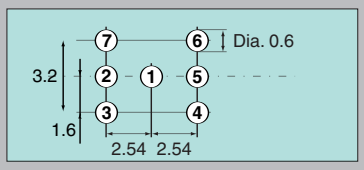
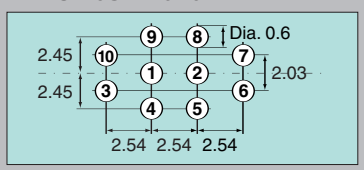
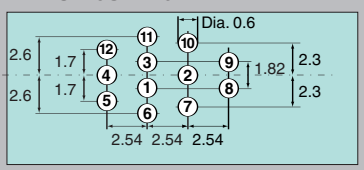


1031

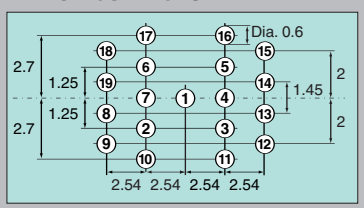
DBPC 1031 A010



DBPC 1031 A012



DBPC 1031 A019



The mechanical specifications of high voltage connectors are listed separately in the three sections.
The electrical specifications are included with the standard connector types as:

- **Coaxial high voltage connectors under «Coax, Triax», section D**
- **Multipole high voltage connectors under «Multipole», section E**
- **Mixed high/low voltage connectors under «Mixed Contacts», section F**

Type «A» and «Z»

With high voltage connectors, it is essential to pay attention to the differences between type «A» and «Z» connectors.

Type «A»: The contacts of the receptacle are recessed to reduce the possibility of electric shock in the unmated position. This version should be used when the voltage is sourced from the receptacle.

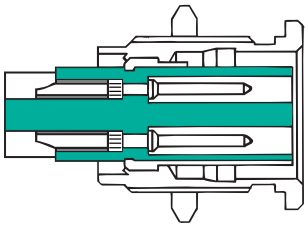
Type «Z»: The contacts of the plug are recessed to reduce the possibility of electric shock in the unmated position. This version should be used when the voltage is sourced from the plug.

Protected contacts are usually female contacts recessed in the insulator. In some high voltage connectors, however, it is safer to recess the male contacts. In these cases, the plug type «A» is equipped with female contacts and the receptacle with protected male contacts. This applies to the multipole HT connector series:

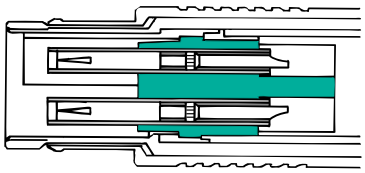
104 A062, 105 A039, 105 A057, 106 A013 and 107 A034

Example:

D 105 A039



S 105 A039

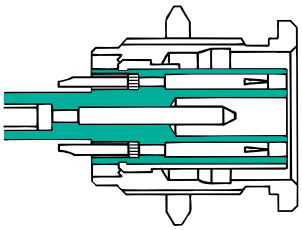


This also applies to the mixed HT connectors:

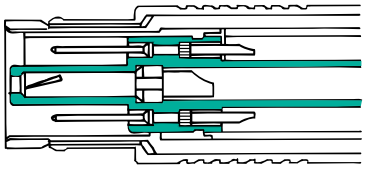
105 A020, 105 A036, 105 A060, 105 A127 and 106 A014

Example:

D 105 A036



S 105 A036



Tamper-Proof Connectors SV/SVE

To avoid unauthorized or unintentional disengagement of connectors, we offer plugs with an integral safety locking ring. When tightened, this knurled ring will prevent unmating of the plug. For an even greater level of safety, this ring can be immobilized with a simple hex wrench. This feature is especially suited for applications involving high voltage or current. For outside dimensions see pages B1 and C2.

Cable Clamp Sets

Coaxial high voltage connectors are supplied with standard metal clamps.

Most of the high voltage multipole and mixed contact connectors are fitted with insulating, one-piece clamps for optimal high voltage ratings. The termination of a cable screen to the connector shell and/or sealing of the cable to the connector shell is not possible with this clamp type. See «Insulating Cable Clamps» on page H8.

For terminating a shield or an anti-corona coating, metal collets for some cable diameters are available on request. Insulating collets see on page H8.

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

C

High voltage coaxial connectors are listed in the tables of «Electrical Specifications» in section D and are marked by «HT» in the column «Number of Contacts».

The types which deviate from the standard dimensions are listed below

When ordering these types of connectors, please always indicate the diameter of the cable dielectric.

This diameter is required additionally to the collet diameter in order to adapt the insulator to the cable.

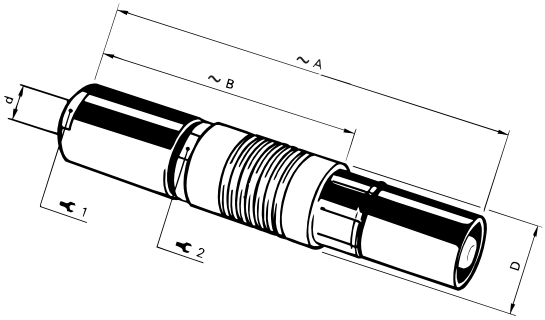
Suitable coax cables are indicated in the column «Cable Group» in section D.
The cable specifications are listed on page Q1.

If required, we will supply adapter sleeves which must be placed over the cable dielectric during assembly in order to guarantee proper performance.

For coaxial connectors, metal cable clamps are required with inner diameters as indicated for the appropriate series on pages H1 - H7.

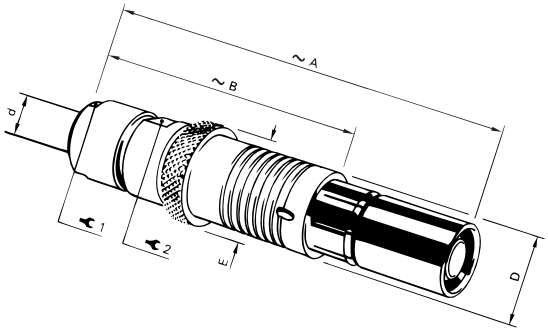
For non-sealed coax connectors, the collet diameter has to be selected from the tables of type «S», and for sealed coax connectors from the tables of type «E» on pages H1 - H7.

S **Locking plug**
SE **Sealed locking plug**



SV **Tamper-proof plug**
SVE **Sealed tamper-proof plug**

A knurled locking ring with a set screw avoids unauthorized or unintentional disengagement (see also page C1).



TYPE	A	B	D	E ❶	dmax S / SV	dmax SE / SVE	Y_1	Y_2
102 A018 102 Z018	36	25	9	11	4.7	4.3	7	7
102 A025 102 Z025	60	46	9	—	5.2	—	—	❷
103 A023 103 Z023	45	34	12	13	6.7	6.2	10	10
104 A010 104 Z010	50	38	15	20	8.7	8.7	12	13
105 A004 105 Z004	62	47	18	22	10.7	10.7	15	16
105 A005 105 Z005	62	47	18	22	10.7	10.7	15	16
105 A049 105 Z049	90	60	18	22	10.7	—	15	16
105 A108 ❸	100	60	18	—	10.7	—	15	16
107 A003 107 Z003	110	85	34	38	22.7	—	32	32
107 A004	137	112	34	38	22.7	—	30	32
107 A017 107 Z017	137	112	34	38	22.7	22.7	30 ❹	32

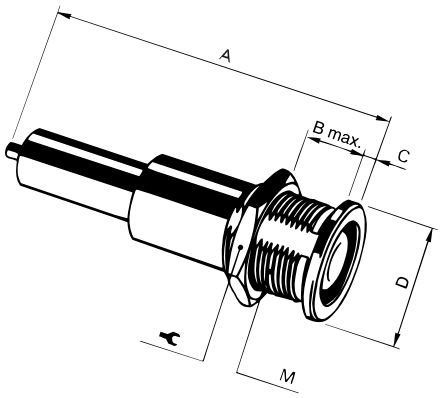
❶ The diameter «E» is only valid for the body styles «SV» and «SVE».

❷ Cable screen and jacket (e.g. RG-58) are retained by hex-crimp to the plug shell.

❸ For improved safety, the center contact is further recessed than in the S 105 A049.

❹ Two wrenches with an opening of 32 mm are required for SV/SVE 107 series.

D Panel receptacle



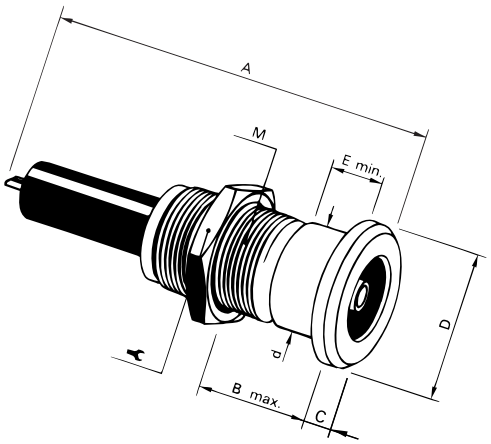
TYPE	A	B*max*	C	D	M	
102 A018 **102 Z018**	24	8	1.5	11	9x0.5	11
102 A025 **102 Z025**	45	7	2	11	9x0.5	11
103 A023 **103 Z023**	27	7	1.5	14	12x1	14
104 A010 **104 Z010**	39	10	2.5	19	15x1	17
105 A004 **105 Z004**	46	15	2	22	18x1	22
❶ **105 A005** **105 Z005**	46	15	2	22	18x1	22
❶ **105 A049** **105 Z049**	63 68	13	2	22	18x1	22
105 A108	59	13	2	22	18x1	22
107 A003 **107 Z003**	72	18	4	40	35x1	TX00.107
107 A004	89	18	4	40	35x1	TX00.107
107 A017 **107 Z017**	89	18	4	40	35x1	TX00.107

❶ Also available with an optional micro switch.

When ordering these receptacles, please always indicate the diameter of the cable dielectric.

The receptacles of the 102 through 105 series are supplied with hex-nuts, receptacles of the 106 and 107 series with slotted nuts.
For nut dimensions see «Accessories» in section J; for wrenches see «Assembly Tools» in section K.

DEE Hermetic panel receptacle



For vacuum sealed coax receptacles, PEEK should be specified for insulating material (see section D).

TYPE	A	B*max*	C	D	d	E*min*	M	
102 A018 **102 Z018**	26	12	2	14	10	8	9x0.5	11
102 A025 **102 Z025**	45	7	2	15	—	0.5	11x0.75	14
103 A023 **103 Z023**	39 38	12	3	18	14	8	14x1	17
104 A010 **104 Z010**	41 40	16	4	22	16	8	16x1	19
105 A005 **105 Z005**	46 50	18	4	27	20	10.5	20x1	25
105 A049 **105 Z049**	72 74	30	4	27	20	10.5	20x1	25
107 A003 **107 Z003**	73	22	5	45	36	19.2	35x1	TX00.107
107 A017 **107 Z017**	90 95	22	5	45	36	19.2	35x1	TX00.107

For wall thickness less than «**E***min*» we offer spacers, listed under «Accessories», section J.

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

C

Multipole high voltage connectors are marked with «HT» in the tables of «Electrical Specifications», section E.

S **Locking plug**

SE **Sealed locking plug**

The multipole high voltage plugs have the same outer dimensions as the standard plugs shown on page B1.

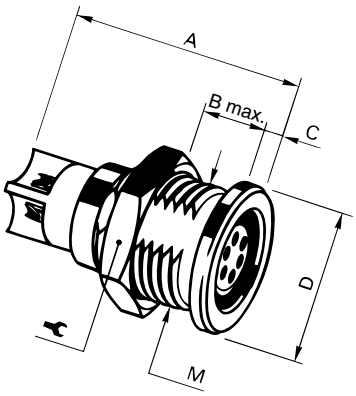
The choice of type «A» and «Z» contacts is especially important for high voltage connectors.

Important !
An «A» type connector will not mate with a «Z» type connector. See page C1 and «Contact Protection» on page L4.

Most of the multipole high voltage connectors are supplied with insulating cable clamps. Tables of these types and of the available collet diameters are shown on page H8.
The termination of a cable screen to the connector shell is not possible with these insulating clamps. However, some connector types are available with special metal clamps which allow termination of the cable screen.

S, SE 107 A034: The seven female contacts are supplied separatelly and must be inserted after being soldered. For this purpose, we recommend tool No TP00.000, shown on page K3.

D **Panel receptacle**



TYPE	A	B*max*	C	D	M	
104 A062 **104 Z062**	28	10.5	2.25	19	15x1	17
104 A083	31	10.5	2.25	19	15x1	17
105 A039 **105 Z039**	34	15	2	22	18x1	22
105 A112	34	15	2	22	18x1	22
105 A057	33	15	2	22	18x1	22
106 A013 **106 Z013**	51	18	3	37	32x1	TX00.106
107 A034	63	18	4	40	35x1	TX00.107

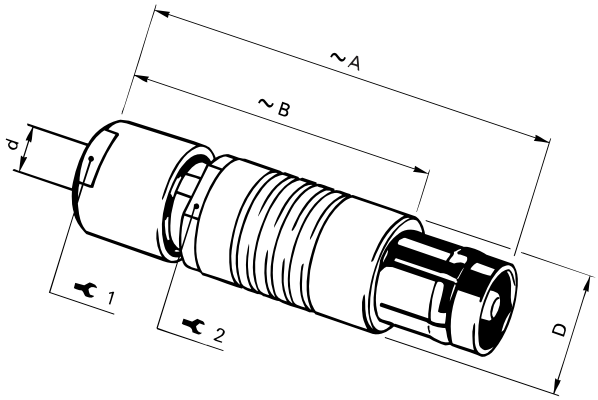
Receptacles of 106 and 107 series are supplied with slotted nuts.
For nut dimensions see «Accessories», section J.
For wrenches see «Assembly Tools», section K.

Other connector styles and contact configurations are available on request.

MECHANICAL SPECIFICATIONS

Mixed high and low voltage connectors are marked «HT» in the table of «Electrical Specifications», section F.

S Locking plug



TYPE	A	B	D	dmax	1	2
105 A036	62	47	18	10.7	15	16
105 A060	62	47	18	10.7	15	16
106 A014	80	55	28	19.2	22	—

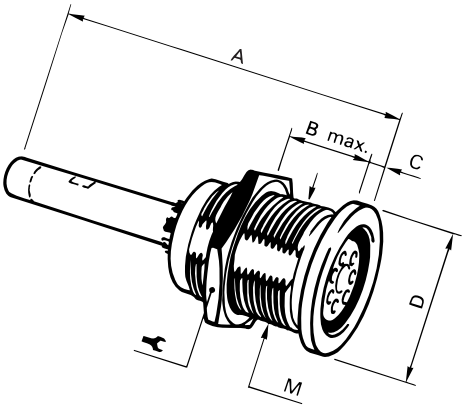
For insertion of female high voltage contacts which have to be assembled after wiring, we recommend tool No TP00.000, shown on page K3.

Please note that the plugs of this group have a different shape than those of the standard version.

These connectors are supplied with insulating cable clamps. The available inner diameters are listed on page H8.

The connection of a cable screen and/or a sealed cable entry is not possible with this clamp type. Some of these types, however, can be delivered with special metal clamps, allowing the clamping of a cable screen.

D Panel receptacle



	TYPE	A	Bmax	C	D	M	
	105 A036	55	15	2	22	18x1	22
	105 A060	55	15	2	22	18x1	22
❶	**106 A014**	48.5	18	3	37	32x1	TX00.106

❶ The D 106 A014 is supplied with a slotted nut.
The required hook spanner No TX00.106 is shown on page K1.

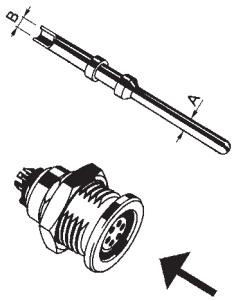
For insertion of male high voltage contacts which have to be assembled after wiring, we recommend tool No TP00.001, shown on page K3.

105 Series

The high voltage center contact is retained in a special insulator. To achieve proper high voltage performance, the window for soldering of the wire has to be covered by the supplied insulating tube, which must be placed over the cable before soldering.

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

D



COAX TRIAX

SERIES
101
102

REFERENCE NUMBER

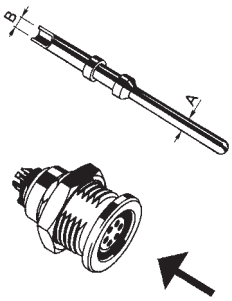
	REFERENCE NUMBER	Connector Type	Cable Group ❶	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for: Solder	Crimp	PCB solder	Impedance [Ω]	Test Voltage [kV] in mated position PTFE Insulator: AC rms: Center contact to Outer contact	AC rms: Outer contact to Body	DC: Center contact to Outer contact	DC: Outer contact to Body	Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
	101															
	101 A004	*See catalogue Series 101 (NIM-CAMAC)*														
	101 A005	TRIAX		0.6	0.5	PEEK	●				0.8	1.0	1.0	1.0	2.0	3.0
		Executions on request														
	102															
	102 A001	COAX	1 3 5	1.6	1.2	PTFE	●				1.8	—	2.5	—	10	14
	102 A002 **102 Z002**	COAX	1 2 3	0.9	0.8	PTFE	●			50	3.0	—	5.0	—	7.0	10
	102 A017	COAX	1 2 3	0.7	0.6	PTFE PEEK	● ○			75	1.7	—	2.8	—	5.0	7.0
	102 A018 **102 Z018**	COAX HT	1 2	0.9	0.8	PTFE PEEK	● ●	● ●			5.0	—	8.0	—	7.0	10
	102 A025 **102 Z025**	COAX HT	4	0.9	0.8	PTFE	●	❷ ●		50	10	—	15	—	7.0	10
	102 A014	TRIAX	11	0.9	0.8	PTFE	●				1.1	1.2	1.5	1.7	7.0	10
	102 A021	TRIAX	11	0.9	0.8	PTFE	●			50	1.2	1.0	1.7	1.5	7.0	10

❶ See list of recommended cables on page Q1.

● = Standard ○ = Option

❷ Plug: Center contact - crimp / Outer contact - crimp ferrule
Receptacle: Center contact - solder / Outer contact - washer with solder tag

ELECTRICAL SPECIFICATIONS



COAX TRIAX

SERIES
103
104

REFERENCE NUMBER

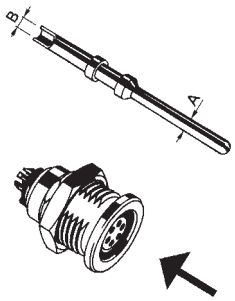
REFERENCE NUMBER	Connector Type	Cable Group ❶	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for: Solder	Crimp	PCB solder	Impedance [Ω]	Test Voltage [kV] in mated position PTFE Insulator: AC rms: Center contact to Outer contact	AC rms: Outer contact to Body	DC: Center contact to Outer contact	DC: Outer contact to Body	Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
103															
103 A001 **103 Z001**	COAX	3 4 5	2.0	2.0	PTFE	●				2.2	—	4.2	—	13	19
103 A002 **103 Z002**	COAX	1 2 6	1.3	1.2	PTFE PAI	● ○			75	3.8	—	5.4	—	8.5	12
103 A023 **103 Z023**	COAX HT	4 6	1.3	1.2	PTFE PEEK PAI	○ ● ○			50	6.0	—	10	—	8.5	12
103 A026	COAX	4 5 6	1.6	1.9	PTFE	●			50	1.8	—	2.4	—	10	15
103 A015	TRIAX	12	1.3	1.0	PTFE PEEK	○ ●				1.2	1.5	1.6	2.4	8.5	12
103 A042	TRIAX	11	0.7	0.6	PTFE	❷ ●			50	0.8	1.0	1.0	1.5	2.0	3.0
104															
104 A002	COAX	6 7	1.6	1.9	PTFE	●			75	4.8	—	6.8	—	10	15
104 A010 **104 Z010**	COAX HT	4 5 6 7	2.0	1.9	PTFE PAI	○ ●				7.0	—	10	—	9.0	13
104 A012	COAX	4 5 6 7	4.0	2.5	PTFE PEEK	○ ●				2.7	—	4.3	—	15	22
104 A060	COAX	4 5 6 7	2.0	1.9	PTFE PEEK	○ ●			50	4.5	—	6.5	—	9.0	13

❶ See list of recommended cables on page Q1.

❷ Center contact - solder; 1. screen - crimp; 2. screen - clamp

● = Standard ○ = Option

D

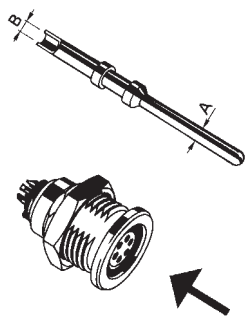


COAX TRIAX SERIES 105 1051 107 REFERENCE NUMBER	Connector Type	Cable Group ❶	Contact Diameter A [mm]	Wire Barrel Diameter B [mm]	Insulating Material	Contact Termination for: Solder	Crimp	PCB solder	Impedance [Ω]	Test Voltage [kV] in mated position PTFE Insulator: AC rms: Center contact to Outer contact	AC rms: Outer contact to Body	DC: Center contact to Outer contact	DC: Outer contact to Body	Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
105															
105 A002 **105 Z002**	COAX	5 6 7 8	3.0	2.8	PTFE PEEK	●			50	4.8	—	7.0	—	21	30
105 A090 **105 Z090**	COAX	6 7	1.3	1.2	PTFE	●			75	6.4	—	11	—	9.0	13
105 A004 **105 Z004**	COAX HT	5 7 8	4.0	3.0	PTFE PEEK	● ●			40	9.0	—	13	—	22	32
105 A005 **105 Z005**	COAX HT ❷	4 6 7	2.0	2.1	PTFE PEEK PAI	●			75	9.0	—	14	—	14	20
105 A049 **105 Z049**	COAX HT ❷	4 6 7 8	2.0	2.3	PTFE PEEK PAI	●				12	—	25	—	25	35
105 A108	COAX HT ❸	4 6 7 8	2.0	2.5	PTFE PEEK	● ●				14	—	20	—	18	25
1051															
1051 A004	TRIAX ❹	—	1.6	1.0 1.5 2.5	PTFE	●	●		75	1.7	1.0	2.6	1.5	14	20
107															
107 A003 **107 Z003**	COAX HT	7 8 9	4.0	2.8	PTFE	●			75	14	—	25	—	30	45
107 A004	COAX HT	7 8 9	4.0	2.8	PTFE	●			75	30	—	50	—	30	45
107 A017 **107 Z017**	COAX HT	7 8 9 10	5.0	5.1	PTFE PAI	● ○			50	30	—	50	—	40	60

● = Standard ○ = Option

❶ See list of recommended cables on page Q1.
❷ Receptacles are available with an optional micro switch.
❸ Plug and receptacle contain additionally recessed contacts.
❹ For detailed information, please ask for Triax Camera Connector Catalogue.

ELECTRICAL SPECIFICATIONS



Type «A»

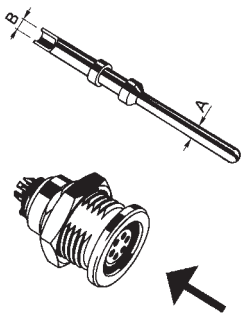
SERIES 102 REFERENCE NUMBER	Number of contacts	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for			Impedance [Ω]	Test Voltage [kV] in mated position				Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
									AC rms		DC			
102					Solder	Crimp ❶	PCB solder		Contact to Body	Contact to Contact	Contact to Body	Contact to Contact		
102 A051 **102 Z051**	2	0.9	0.8	PEEK	●	●	●		1.3	1.7	1.8	2.4	6.3	9.2
102 A052 **102 Z052**	3	0.9	0.8	PEEK	●		●		1.3	1.3	1.8	1.6	5.5	8.2
102 A053 **102 Z053**	4	0.7	0.6	PEEK	●	●	●		1.2	1.2	1.7	1.8	3.8	5.5
102 A054 **102 Z054**	5	0.7	0.6	PEEK	●	●	●		0.8	1.0	1.3	1.8	3.6	5.2
102 A056 **102 Z056**	7	0.5	0.4	PEEK	●	●	●		0.8	1.0	1.3	1.8	1.5	2.0

● = Standard

❶ Plugs with crimp contacts must be used with unshielded clamps only, see on page H1.

For contact numbering see section P.

E



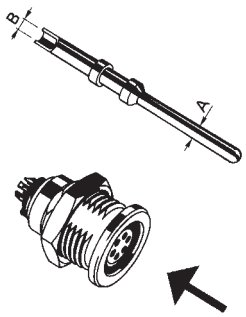
Type «A»

SERIES 103 1031 REFERENCE NUMBER	Number of contacts	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for			Impedance [Ω]	Test Voltage [kV] in mated position				Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
									AC rms		DC			
					Solder	Crimp	PCB solder		Contact to Body	Contact to Contact	Contact to Body	Contact to Contact		
103														
103 A051 103 Z051	2	1.3	1.2	PEEK	●	●	●		1.5	2.2	2.2	3.0	9.0	13
103 A052 103 Z052	3	1.3	1.2	PEEK	●		●		1.2	1.5	1.8	2.0	8.5	12
103 A053 103 Z053	4	0.9	0.8	PEEK	●		●		1.2	1.6	2.0	2.4	5.0	7.0
103 A054 103 Z054	5	0.9	0.8	PEEK	●	●	●		1.1	1.4	1.9	2.2	4.8	6.8
103 A056 103 Z056	6	0.7	0.6	PEEK	●	●	●		1.0	1.3	2.0	2.0	3.5	5.2
103 A057 103 Z057	7	0.7	0.6	PEEK	●	●	●		1.0	1.3	2.0	2.0	3.2	5.0
103 A058 103 Z058	8	0.7	0.6	PEEK	●		●		0.8	1.1	1.4	1.9	2.5	3.8
103 A062 103 Z062	12	0.5	0.4	PEEK	●		●		0.9	1.2	1.5	1.8	1.5	2.0
1031														
1031 A010 1031 Z010	10	0.7	0.6	PEEK	●	●	●		1.4	1.5	2.0	2.2	3.2	4.5
1031 A012 1031 Z012	12	0.7	0.6	PEEK	●	●	●		1.4	1.5	2.0	2.2	3.0	4.2
1031 A019 1031 Z019	19	0.5	0.4	PEEK	●	●	●		1.2	0.9	2.0	1.5	1.8	2.5

For contact numbering see section P.

● = Standard

ELECTRICAL SPECIFICATIONS



Type «A»

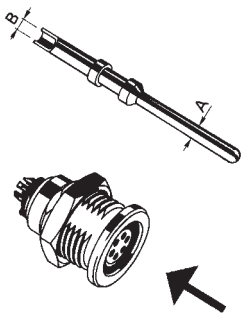
SERIES **104**

REFERENCE NUMBER **104**

	Number of contacts	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for			Impedance [Ω]	Test Voltage [kV] in mated position				Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
									AC rms		DC			
					Solder	Crimp	PCB solder		Contact to Body	Contact to Contact	Contact to Body	Contact to Contact		
104 A085 **104 Z085**	1	5.0	6.0	PTFE	●				1.8	—	2.8	—	35	50
104 A051 **104 Z051**	2	1.6	1.8	PEEK PTFE	● ○		● ○		1.8	2.2	2.8	3.2	15	20
104 A040 **104 Z040**	3	1.6	1.8	PEEK PBT	○ ●	 ●			1.6	2.0	2.6	3.0	13	18
104 A083 **104 Z083**	3 { 1 2 HT	1.6 0.9	1.8 0.8	PTFE	●				2.2 4.0	4.5 4.0	3.5 6.0	6.5 6.0	12 5.5	18 8.0
104 A037 **104 Z037**	4	1.3	1.2	PEEK	●	●	●		1.8	2.2	2.5	3.0	8.0	12
104 A087 **104 Z087**	4 { 2 2	2.3 0.9	2.4 0.8	PBT	●		●		1.5 2.0	1.6	2.2 2.8	2.5	20 2.0	28 3.0
104 A062 **104 Z062**	4 HT	0.9	0.8	PEEK	●				4.5	4.5	7.5	7.5	5.5	8.0
104 A053 **104 Z053**	5	1.3	1.2	PEEK	●		●		1.4	1.7	2.4	2.7	7.5	11

● = Standard ○ = Option

For contact numbering see section P.



Type «A»

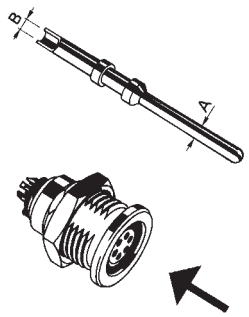
SERIES 104 REFERENCE NUMBER	Number of contacts	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for: Solder	Crimp	PCB solder	Impedance [Ω]	Test Voltage [kV] in mated position: AC rms: Contact to Body	AC rms: Contact to Contact	DC: Contact to Body	DC: Contact to Contact	Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
104														
104 A065 **104 Z065**	6	0.9	0.8	PEEK	●	●	●		1.7	2.0	2.4	2.6	4.5	6.5
104 A054 **104 Z054**	7	0.9	0.8	PEEK	●		●		1.5	❶ 1.8 2.1	2.2	❶ 2.0 2.8	4.5	6.5
104 A066 **104 Z066**	8	0.9	0.8	PEEK	●	●	●		1.5	1.5	2.5	2.5	4.4	6.2
104 A055 **104 Z055**	9 { 1 8	1.3 0.9	1.2 0.8	PEEK	●		●		2.4 1.4	2.2 1.5	3.8 2.0	3.6 2.4	8.0 4.0	12 6.0
104 A056 **104 Z056**	11	0.9	0.8	PEEK	●	●	●		1.4	1.5	2.1	2.2	4.0	5.8
104 A086 **104 Z086**	16	0.7	0.6	PEEK	●	●	●		1.0	1.5	1.6	2.2	2.8	4.0
104 A092 **104 Z092**	19	0.7	0.6	PEEK	●	●	●		0.8	1.2	1.2	1.8	2.5	3.5

● = Standard

❶ Test voltages between the contacts with shortest distance.

For contact numbering see section P.

ELECTRICAL SPECIFICATIONS



Type «A»

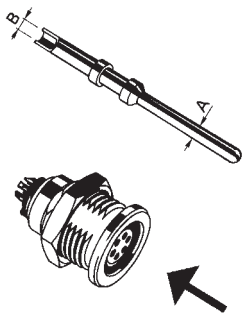
SERIES 105 REFERENCE NUMBER	Number of contacts	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for			Impedance [Ω]	Test Voltage [kV] in mated position				Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
									AC rms		DC			
					Solder	Crimp	PCB solder		Contact to Body	Contact to Contact	Contact to Body	Contact to Contact		
105														
105 A051 **105 Z051**	2	2.0	2.0	PEEK	●				2.5	3.0	4.0	4.0	18	26
105 A087 **105 Z087**	2	3.0	3.1	PEEK	●				1.2	1.6	2.3	3.0	20	30
105 A052 **105 Z052**	3	2.0	2.0	PEEK	●				2.0	2.5	3.0	3.5	16	23
105 A057	3 HT	1.3	1.2	PTFE	●				4.5	6.0	6.0	8.0	10	14
105 A053 **105 Z053**	4	2.0	2.0	PEEK	●				1.8	1.8	2.6	2.6	14	20
105 A112 ❶	4 HT + 1	1.3 2.0	1.2 2.0	PTFE	●				4.5 2.0	4.5 4.5	7.0 3.0	7.0 7.0	8.0	12
105 A039 **105 Z039**	5 HT	1.3	1.2	PTFE	●				4.5	4.5	7.0	7.0	7.5	11
105 A054 ❶ **105 Z054**	7 { 1 6	2.0 1.3	2.0 1.2	PEEK	●				3.0 1.8	2.0 1.5	4.0 2.5	3.0 2.0	19 5.0	25 7.0
105 A067 **105 Z067**	8	1.3	1.2	PEEK PTFE	● ○				1.7	2.0	2.5	2.8	7.2	10
105 A101 ❶	9 { 1 8	2.0 1.3	2.1 1.2	PEEK	●		●		3.0 1.8	2.0 1.5	4.0 2.5	3.0 2.0	19 4.0	25 5.0

● = Standard ○ = Option

❶ Contact dia 2.0 is positioned to make contact first and break last.

For contact numbering see section P.

E



Type «A»

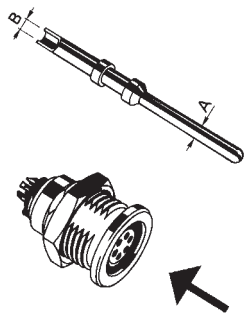
SERIES 105 REFERENCE NUMBER	Number of contacts	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for: Solder	Crimp	PCB solder	Impedance [Ω]	Test Voltage [kV] in mated position: AC rms: Contact to Body	AC rms: Contact to Contact	DC: Contact to Body	DC: Contact to Contact	Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
105														
105 A062 **105 Z062**	10	1.3	1.2	PEEK	●	●	●		1.7	2.0	2.5	2.7	6.3	9.0
105 A069 **105 Z069**	12	1.3	1.2	PEEK	●		●		1.4	1.5	1.8	2.0	5.5	8.0
105 A104 ❶ **105 Z104**	13 { 3 10	1.3 0.7	1.2 0.6	PEEK	●				2.5 1.3	1.5 1.5	3.8 1.8	2.2 2.2	10 1	14 1
105 A127	13 { 3 HT 10	1.3 0.7	1.2 0.6	PEEK		●			*Conforms to IEC 60601 Please contact us for additional information*					
105 A058 **105 Z058**	15	0.9	0.8	PEEK	●	●	●		1.4	1.6	1.8	2.2	3.7	5.3
105 A110 ❷ **105 Z110**	16 { 4 12	1.6 0.7	1.8 0.6	PEEK	●		●		1.6 1.0	1.3 1.2	2.8 1.5	2.1 2.0	10 0.5	14 1
105 A038 **105 Z038**	18	0.9	0.8	PEEK	●	●	●		1.4	1.6	1.8	2.2	3.2	4.5
105 A093 **105 Z093**	24	0.7	0.6	PBT	●		●		1.2	1.5	1.5	2.0	2.5	3.5
105 A102 **105 Z102**	27	0.7	0.6	PEEK	●	●	●		1.2	1.5	1.5	2.0	2.2	3.0

● = Standard

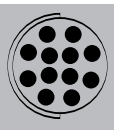
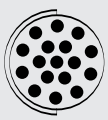
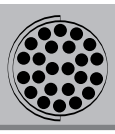
❶ Contacts with diameter 1.3 mm are positioned to make contact first and break last.
❷ Contacts with diameter 1.6 mm are positioned to make contact first and break last.

For contact numbering see section P.

ELECTRICAL SPECIFICATIONS



Type «A»

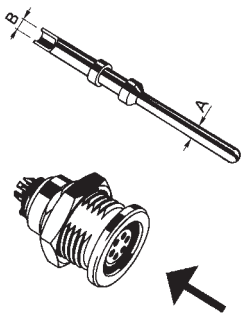
SERIES 106 REFERENCE NUMBER	Number of contacts	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for: Solder	Crimp	PCB solder	Impedance [Ω]	Test Voltage [kV] in mated position: AC rms: Contact to Body	AC rms: Contact to Contact	DC: Contact to Body	DC: Contact to Contact	Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
106														
106 A003 ❶ **106 Z003**	3	2.3	2.1	PTFE ● PEEK ○					3.5	5.0	6.0	6.5	18	26
106 A013 **106 Z013**	6 HT	1.3	1.2	PTFE ●					8.0	8.0	12	12	8.0	12
106 A007 ❶❷ **106 Z007**	7	2.0	2.0	PTFE ● PEEK ○					2.5	3.0	4.5	4.5	14	20
106 A019 **106 Z019**	8	2.0	2.0	PTFE ● PEEK ○					2.2	2.2	4.0	3.0	13	19
 **106 A015** **106 Z015**	12	2.0	2.0	PTFE ● PEEK ○					1.8	2.2	2.5	3.0	11	16
 **106 A018** **106 Z018**	17	1.3	1.2	PTFE ● PEEK ○					1.8	2.2	2.5	3.0	5.5	8.0
 **106 A017** **106 Z017**	24	1.3	1.2	PTFE ● PEEK ○					1.8	1.5	2.5	2.1	5.0	7.0

● = Standard ○ = Option

❶ The contact solder cups are specially insulated.

❷ Contact Number 1 is positioned to make contact first and break last.

For contact numbering see section P.



Type «A»

SERIES 107 REFERENCE NUMBER	Number of contacts	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for: Solder	Crimp	PCB solder	Impedance [Ω]	Test Voltage [kV] in mated position: AC rms: Contact to Body	AC rms: Contact to Contact	DC: Contact to Body	DC: Contact to Contact	Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
107														
107 A013	4	2.3	2.6	PTFE ● / PEEK ○					6.5	7.0	10	11	18	26
107 A018 **107 Z018**	6	2.3	2.6	PTFE ● / PEEK ○					4.5	4.5	6.0	6.0	18	25
107 A034	7 HT	2.0	2.0	PTFE ●					8.0	7.5	14	14	14	20
107 A015 **107 Z015**	19	2.0	2.0	PTFE ● / PEEK ○					2.0	2.5	2.5	3.2	9.5	13
107 A051 **107 Z051**	27	1.3	1.2	PTFE ● / PEEK ○					2.0	2.0	3.0	3.2	5.0	7.5
107 A052 **107 Z052**	40	1.3	1.2	PTFE ● / PEEK ○					1.8	1.5	2.5	2.0	4.5	6.5
107 A023 **107 Z023**	55 { 8	1.3	1.2	PTFE ●					2.0	1.8	2.8	2.5	5.0	7.0
	55 { 47	0.9	0.8	PEEK ○					1.7	1.5	2.5	2.1	2.0	3.0

● = Standard ○ = Option

For contact numbering see section P.

ELECTRICAL SPECIFICATIONS

Mixed Single & Multipole Connectors with Coaxial or High Voltage Contacts

Type «A»	SERIES 104 / 105 / 106 REFERENCE NUMBER	Connector Type	Cable Group ❶	Contact Diameter **A** [mm]	Wire Barrel Diameter **B** [mm]	Insulating Material	Contact Termination for: Solder	Crimp	PCB solder	Impedance [Ω]	Test Voltage [kV] in mated position: AC rms: Contact to Body	AC rms: Contact to Contact	DC: Contact to Body	DC: Contact to Contact	Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
	104															
	104 A078	COAX +1	1	0.7 0.9	0.6 0.8	PTFE	● ●	●		50	1.8 0.8	— —	3.0 1.6 ❷	— —	3.0 6.0	4.0 9.0
	104 A093	COAX +4	1	0.7 0.7	0.6 0.6	PTFE	● ●	●		50	1.8 0.8	— 1.0	3.0 1.0 ❷	— 1.4	3.0 3.0	4.0 4.0
	105															
	105 A074	COAX +1	4	1.3 1.3	1.0 1.1	PTFE	● ●	●		50	4.5 1.6	— —	6.0 2.0 ❷	— —	9.0 9.0	12 12
	105 A089	COAX +4	4	1.3 0.9	1.0 0.75	PTFE	● ●	●		50	4.5 1.5	— 2.0	6.0 2.3 ❷	— 2.8	9.0 5.0	12 7.0
	105 A095	COAX +9	1	0.7 0.9	0.55 0.75	PTFE	● ●	●		50	1.8 1.9	— 1.5	3.5 2.2 ❷	— 2.5	3.0 4.0	4.0 6.0
	105 A020	1 HT +2		2.0 1.3	2.0 1.1	PTFE	● ●				6.0 1.8	6.0 3.8	14 2.5	14 5.0	16 10	20 12
	105 A036	1 HT +4		2.0 1.3	2.0 1.1	PEEK	● ●				6.0 1.8	6.0 2.0	14 2.5	14 3.0	15 9.0	18 12
	105 A060	1 HT +7		2.0 1.3	2.0 1.1	PTFE	● ●				6.0 1.8	6.0 1.6	14 3.0	14 2.8	12 8.0	16 10
	106															
	106 A014	2 HT +6		2.0 1.3	2.4 1.1	PTFE	●				7.0 2.2	15 2.6	14 5.0	23 4.0	12 7.5	16 9.0

● = Standard

For more choice, please refer to the «Hybrid Connectors» catalogue.

❶ See list of recommended cables on page Q1.

❷ Test voltages between contact and body as well as between contact and coaxial outer contact.

CONNECTORS FOR THERMOCOUPLES

Fischer Connectors SA manufactures connectors in several body styles and sizes which are specifically designed for thermocouple applications. Most of these are also available in environmentally sealed versions, with either the «A» or «Z» contact polarity.

The selection of the correct thermocouple contact materials is important in minimizing measurement errors. We can supply the following contact types suitable for thermocouple applications:

- Contacts made of different thermocouple materials
- Gold-plated copper alloy contacts

For connectors with cable clamps, two versions are available:

- «M» version for semi-rigid cables in stainless steel tubes (Thermocoax®)
- «P» version for flexible compensation and extension cables

Version «M»
This version of the 102 series is designed to accept semi-rigid cables in stainless steel tubes (Thermocoax®). To facilitate assembly, the contact block of these connectors has a metal sleeve to which the thermocouple tubing is soldered. The cable entry diameter «D» should be added to the reference number, which can be selected from the table on page G2. Available body styles are shown in section A. Cable entries are available in increments of 0.5 mm from 0.6 to 3.1 mm diameter.

Example: Panel mounted cable receptacle, 2 pole; NiCr - Ni, PTFE insulator, for 1.5 mm diameter semi-rigid cable.
Part Number is DK 102 A005-M / 1.5

Note: Standard Thermocoax® cables up to 1 mm diameter are now delivered with a 3 mm diameter crimp ferrule with reinforced wires, providing easier assembly. This type of Thermocoax® requires the use of the version «P» connectors.

Version «P»
This version of the 102 series thermocouple connectors is furnished with a one-piece clamp which is designed to secure the flexible cables typically used for compensation or extension. It may also be used for Thermocoax ® cables with crimp ferrule termination.

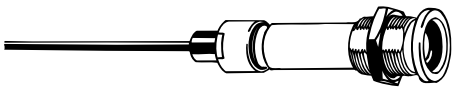
To order, the reference number of the thermocouple can be selected from the table on page G2 and the body style prefix from section A.

For cable connectors, the part numbers of the cable clamp sets should be added as a second line item. These cable clamp sets are listed in the tables «U» on pages H1 - H5.

Example: Straight plug, 2 pole, Fe - CuNi, PTFE insulator, for flexible cable with outer diameter of 4.5 mm:
Part Number of the plug: « S 102 A009 » and for the cable clamp: « E3 102.5 / 4.5 »

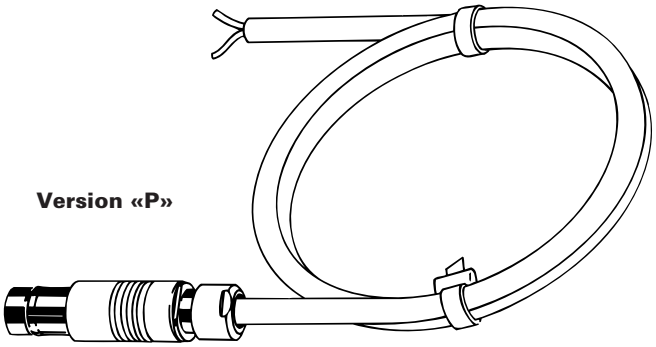
102 Series

Version «M»
for THERMOCOAX ®

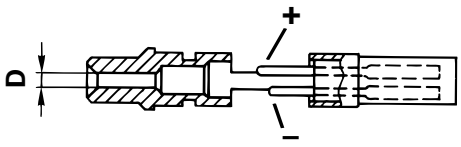


Contact block of version «M» for semi-rigid cables

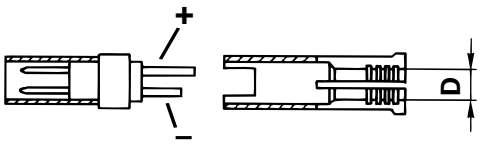
Version «P»



Contact block and cable clamp of version «P» for compensation cables and THERMOCOAX® ≤ 1 mm diameter



D = Cable diameter max. 3.1 mm



D = Cable clamp sets are ordered from tables «U» in section H

In all versions, the longer contact termination is the electrically positive material.

SERIES
102
103
104

Number of Contacts	Contact Diameter [mm]	Designation and Contact Material			Insulator Material	Reference Number
		ANSI	IEC	+ Designation –		
102						
2	0.9	K ❶	NiCr - Ni NiCr - NiAl	Nickel/Chrom - Nickel Chromel - Alumel	PTFE	102 A005
					Ceramic	102 A006
2	0.9	–	+ CuZn Ni/Au	Copper Alloy Nickel/gold plated	PTFE	102 A007
					Ceramic	102 A008
2	0.9	J	Fe - CuNi	Iron - Constantan	PTFE	102 A009
2	0.9	T	Cu - CuNi	Copper - Constantan	PTFE	102 A016
103						
2	1.3	J	Fe - CuNi	Iron - Constantan	PTFE	103 A011
2	1.3	K ❶	NiCr - Ni NiCr - NiAl	Nickel/Chrome - Nickel Chromel - Alumel	PTFE	103 A025
2	1.3	T	Cu - CuNi	Copper - Constantan	PTFE	103 A030
104						
2	1.6	J	Fe - CuNi	Iron - Constantan	PTFE	104 A057
2	1.6	K ❶	NiCr - Ni NiCr - NiAl	Nickel/Chrome - Nickel Chromel - Alumel	PTFE	104 A061
4	1.3	J	Fe - CuNi	Iron - Constantan	PTFE	104 A035
4	1.3	K ❶	NiCr - Ni NiCr - NiAl	Nickel/Chrome - Nickel Chromel - Alumel	PTFE	104 A036

❶ The designation «K» is applicable for both NiCr - Ni and for the registered trade name Chromel - Alumel®.
Chromel is an alloy of 80% Ni and 20% Cr; Alumel is an alloy of 95% Ni and small quantities of Mn, Al, Si, and others.
Chromel (+) is non-magnetic. Alumel (-) is magnetic up to 170°C

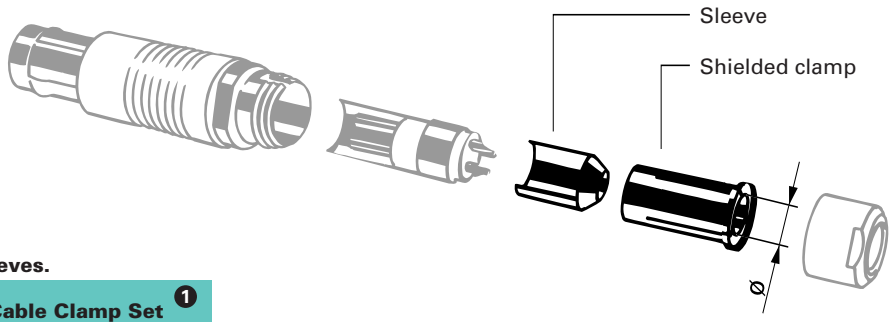
THERMOCOAX® is a registered trade name of PHILIPS

The above thermocouple alloys are in conformity with the Standards per (ANSI) IEC 60584.

Additionally to the plug «S» and the receptacle «D», other body styles like «SE, WS, WSE, DEE» etc. are available on request, and as type «Z».

S

Shielded

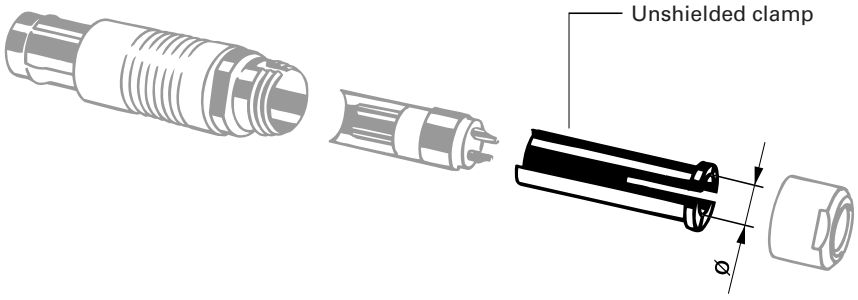


Shielded cable clamps with sleeves.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶
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	102.248 + A

U

Unshielded

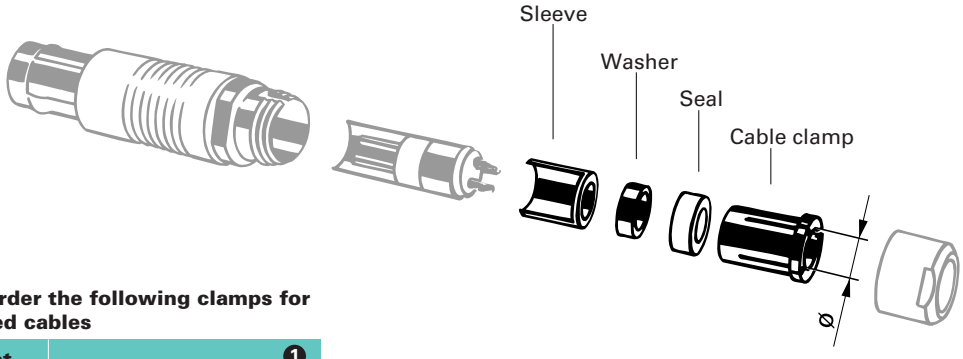


Unshielded, one-piece cable clamps.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶
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

E

Environmental

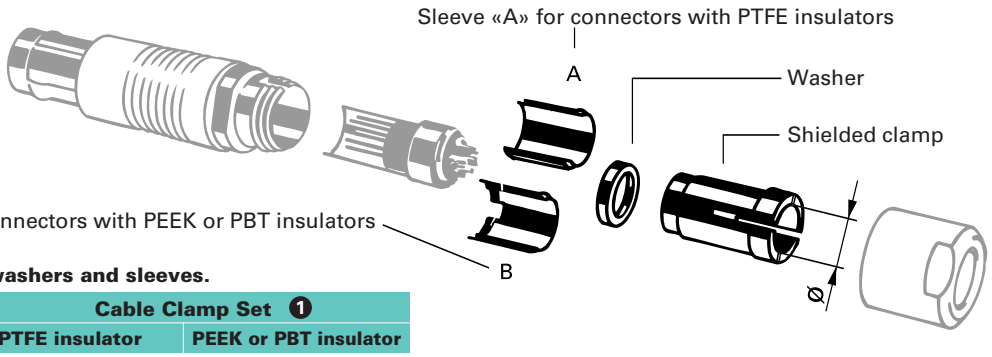


To seal connectors order the following clamps for shielded or unshielded cables

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶
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

❶ For ordering information see page A3.
For technical details see pages L6 and N2.

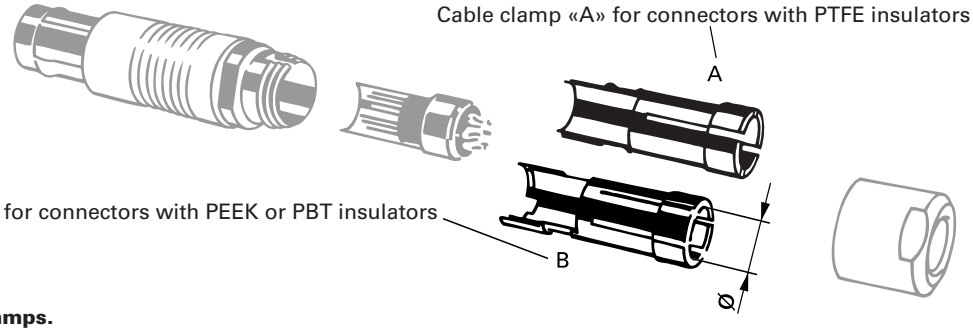
S
Shielded



Shielded cable clamps with washers and sleeves.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		PTFE insulator	PEEK or PBT insulator
1.7 - 2.2	2.2	E31 103.1/2.2 + A	E31 103.1/2.2 + B
2.2 - 2.7	2.7	E31 103.1/2.7 + A	E31 103.1/2.7 + B
2.7 - 3.2	3.2	E31 103.1/3.2 + A	E31 103.1/3.2 + B
3.2 - 3.7	3.7	E31 103.1/3.7 + A	E31 103.1/3.7 + B
3.7 - 4.2	4.2	E31 103.1/4.2 + A	E31 103.1/4.2 + B
4.2 - 4.7	4.7	E31 103.1/4.7 + A	E31 103.1/4.7 + B
4.7 - 5.2	5.2	E31 103.1/5.2 + A	E31 103.1/5.2 + B
5.2 - 5.7	5.7	E31 103.1/5.7 + A	E31 103.1/5.7 + B
5.7 - 6.2	6.2	E31 103.1/6.2 + A	E31 103.1/6.2 + B
6.2 - 6.7	6.7	E31 103.1/6.7 + A	E31 103.1/6.7 + B

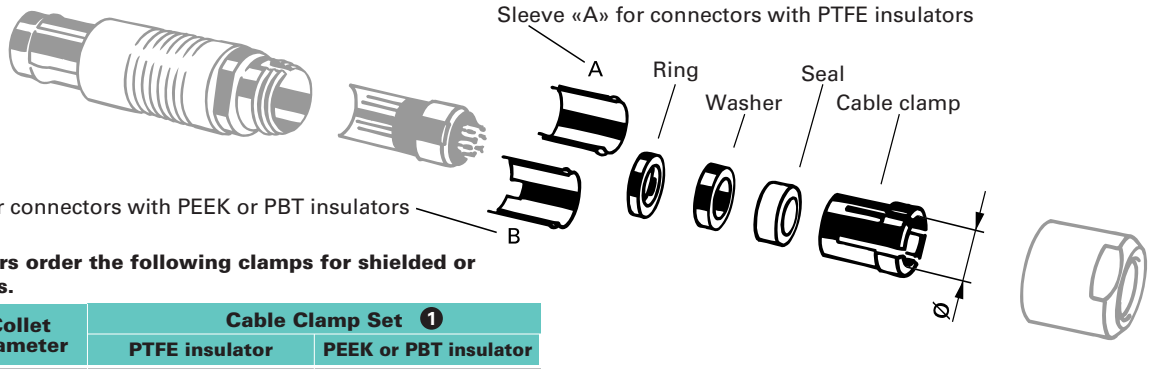
U
Unshielded



Unshielded, one-piece cable clamps.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		PTFE insulator	PEEK or PBT insulator
2.2 - 3.2	3.2	E3 103.5/3.2	E3 103.6/3.2
3.2 - 4.2	4.2	E3 103.5/4.2	E3 103.6/4.2
4.2 - 4.7	4.7	E3 103.5/4.7	E3 103.6/4.7
4.7 - 5.2	5.2	E3 103.5/5.2	E3 103.6/5.2
5.2 - 5.7	5.7	E3 103.5/5.7	E3 103.6/5.7
5.7 - 6.2	6.2	E3 103.5/6.2	E3 103.6/6.2
6.2 - 6.7	6.7	E3 103.5/6.7	E3 103.6/6.7

E
Environmental



To seal connectors order the following clamps for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		PTFE insulator	PEEK or PBT insulator
1.7 - 2.2	2.2	E31 103.2/2.2 + A	E31 103.2/2.2 + B
2.2 - 2.7	2.7	E31 103.2/2.7 + A	E31 103.2/2.7 + B
2.7 - 3.2	3.2	E31 103.2/3.2 + A	E31 103.2/3.2 + B
3.2 - 3.7	3.7	E31 103.2/3.7 + A	E31 103.2/3.7 + B
3.7 - 4.2	4.2	E31 103.2/4.2 + A	E31 103.2/4.2 + B
4.2 - 4.7	4.7	E31 103.2/4.7 + A	E31 103.2/4.7 + B
4.7 - 5.2	5.2	E31 103.2/5.2 + A	E31 103.2/5.2 + B
5.2 - 5.7	5.7	E31 103.2/5.7 + A	E31 103.2/5.7 + B
5.7 - 6.2	6.2	E31 103.2/6.2 + A	E31 103.2/6.2 + B

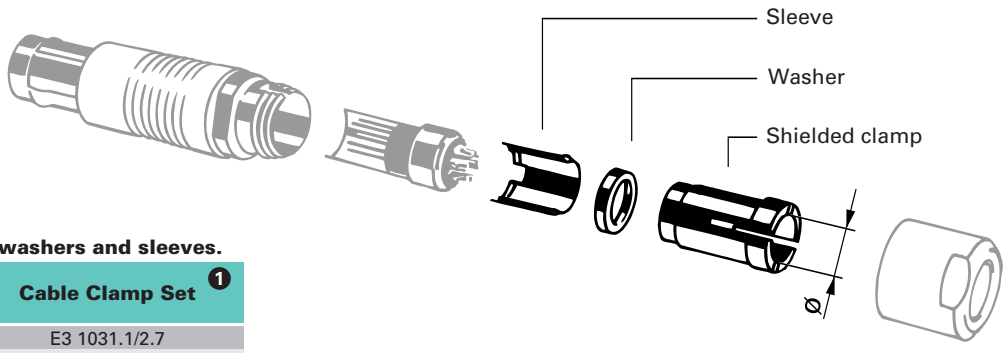
H

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

❶ For ordering information see page A3.
For technical details see pages L6 and N2.

S

Shielded



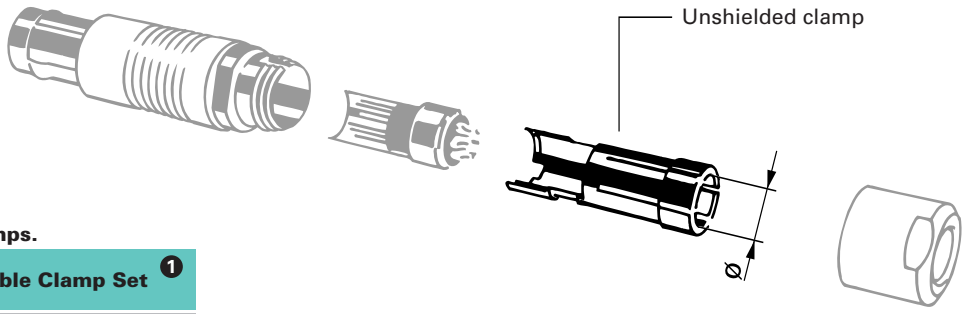
Shielded cable clamps with washers and sleeves.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶
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

U

Unshielded

H

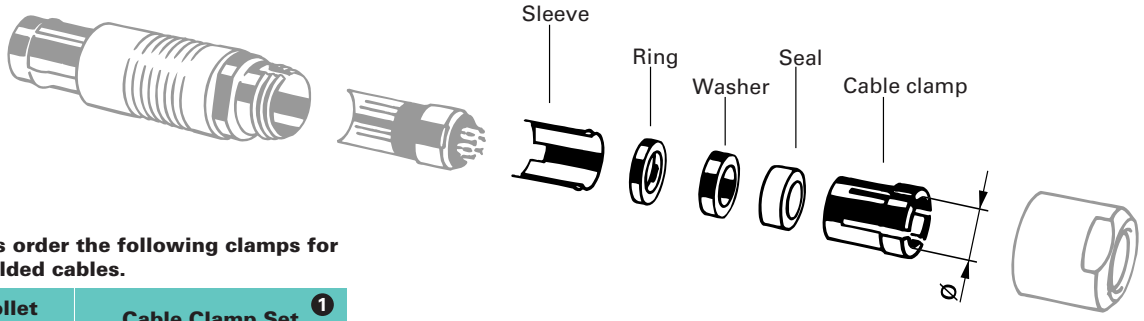


Unshielded, one-piece cable clamps.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶
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

E

Environmental



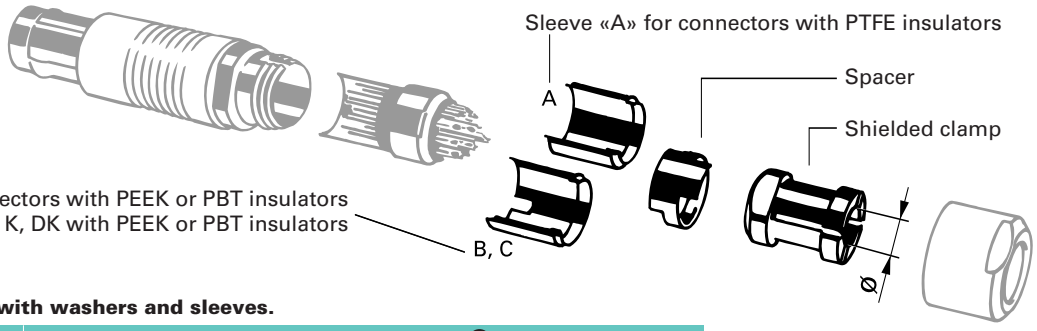
To seal connectors order the following clamps for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶
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

❶ For ordering information see page A3.
For technical details see pages L6 and N2.

S

Shielded

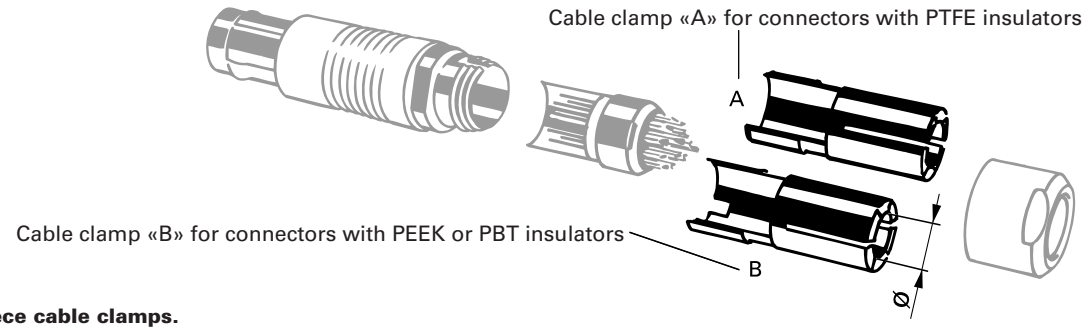


Shielded cable clamps with washers and sleeves.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶		
		PTFE insulator	PEEK / PBT insulators	
			Plug	K, DK
2.9 - 4.0	4.0	E3 104.1/4.0 + A	E3 104.3/4.0 + B	E3 104.4/4.0 + C
4.0 - 4.7	4.7	E3 104.1/4.7 + A	E3 104.3/4.7 + B	E3 104.4/4.7 + C
4.7 - 5.7	5.7	E3 104.1/5.7 + A	E3 104.3/5.7 + B	E3 104.4/5.7 + C
5.7 - 6.7	6.7	E3 104.1/6.7 + A	E3 104.3/6.7 + B	E3 104.4/6.7 + C
6.7 - 7.7	7.7	E3 104.1/7.7 + A	E3 104.3/7.7 + B	E3 104.4/7.7 + C
7.7 - 8.7	8.7	E3 104.1/8.7 + A	E3 104.3/8.7 + B	E3 104.4/8.7 + C

U

Unshielded

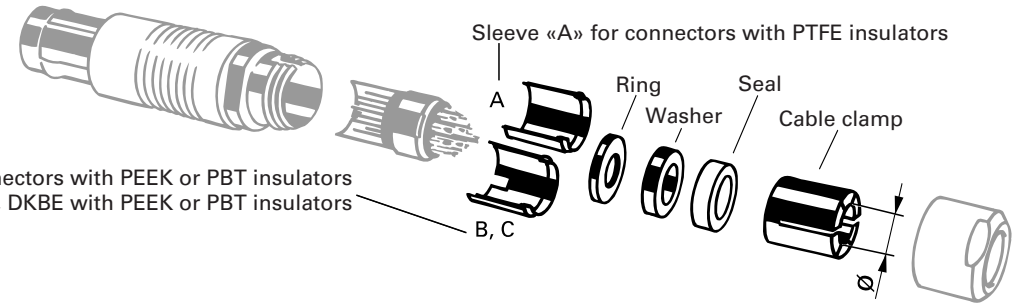


Unshielded, one-piece cable clamps.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		PTFE insulator	PEEK / PBT insulators
3.2 - 4.2	4.2	E3 104.5/4.2	-
4.2 - 4.7	4.7	E3 104.5/4.7	E3 104.6/4.7
4.7 - 5.7	5.7	E3 104.5/5.7	E3 104.6/5.7
5.7 - 6.7	6.7	E3 104.5/6.7	E3 104.6/6.7
6.7 - 7.7	7.7	E3 104.5/7.7	E3 104.6/7.7
7.7 - 8.2	8.2	E3 104.5/8.2	E3 104.6/8.2
8.2 - 8.7	8.7	E3 104.5/8.7	E3 104.6/8.7

E

Environmental



To seal connectors order the following clamps for shielded or unshielded cables.

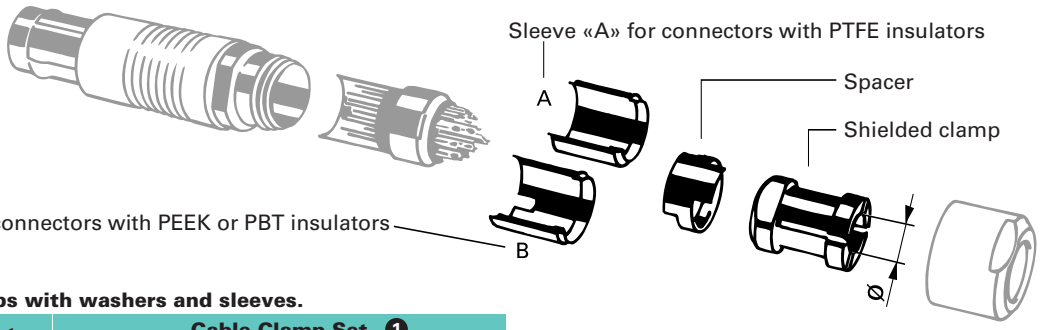
Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶		
		PTFE insulator	PEEK / PBT insulators	
			Plug	KE, DKE, DKBE
2.9 - 4.0	4.0	E3 104.2/4.0 + A	E3 104.2/4.0 + B	E3 104.2/4.0 + C
4.0 - 4.7	4.7	E3 104.2/4.7 + A	E3 104.2/4.7 + B	E3 104.2/4.7 + C
4.7 - 5.7	5.7	E3 104.2/5.7 + A	E3 104.2/5.7 + B	E3 104.2/5.7 + C
5.7 - 6.7	6.7	E3 104.2/6.7 + A	E3 104.2/6.7 + B	E3 104.2/6.7 + C
6.7 - 7.7	7.7	E3 104.2/7.7 + A	E3 104.2/7.7 + B	E3 104.2/7.7 + C
7.7 - 8.7	8.7	E3 104.2/8.7 + A	E3 104.2/8.7 + B	E3 104.2/8.7 + C

H

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

❶ For ordering information see page A3.
For technical details see pages L6 and N2.

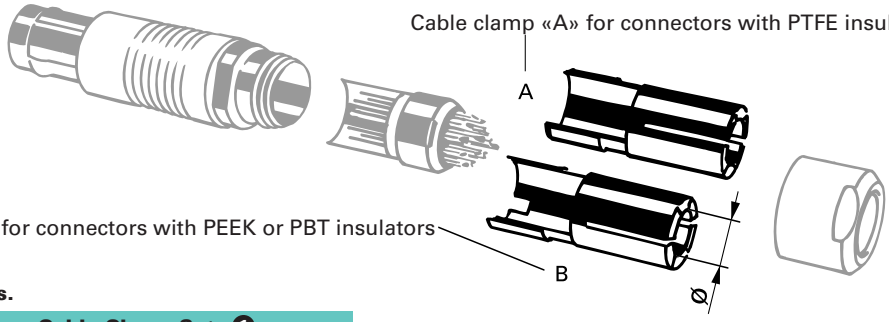
S
Shielded



Shielded cable clamps with washers and sleeves.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		PTFE insulator	PEEK / PBT insulators
3.2 - 4.2	4.2	E3 105.1/4.2 + A	E3 105.1/4.2 + B
4.2 - 5.2	5.2	E3 105.1/5.2 + A	E3 105.1/5.2 + B
5.2 - 6.2	6.2	E3 105.1/6.2 + A	E3 105.1/6.2 + B
6.2 - 7.2	7.2	E3 105.1/7.2 + A	E3 105.1/7.2 + B
7.2 - 8.2	8.2	E3 105.1/8.2 + A	E3 105.1/8.2 + B
8.2 - 9.2	9.2	E3 105.1/9.2 + A	E3 105.1/9.2 + B
9.2 - 10.0	10.0	E3 105.1/10.0 + A	E3 105.1/10.0 + B
10.0 - 10.7	10.7	E3 105.1/10.7 + A	E3 105.1/10.7 + B

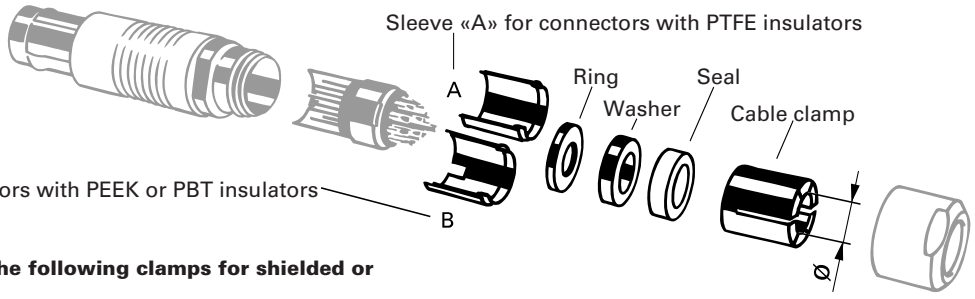
U
Unshielded



Unshielded, one-piece cable clamps.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		PTFE insulator	PEEK / PBT insulators
2.5 - 3.5	3.5	E3 105.5/3.5	E3 105.6/3.5
3.5 - 4.5	4.5	E3 105.5/4.5	E3 105.6/4.5
4.5 - 5.5	5.5	E3 105.5/5.5	E3 105.6/5.5
5.5 - 6.5	6.5	E3 105.5/6.5	E3 105.6/6.5
6.5 - 7.5	7.5	E3 105.5/7.5	E3 105.6/7.5
7.5 - 8.5	8.5	E3 105.5/8.5	E3 105.6/8.5
8.5 - 9.5	9.5	E3 105.5/9.5	E3 105.6/9.5
9.5 - 10.5	10.5	E3 105.5/10.5	E3 105.6/10.5

E
Environmental

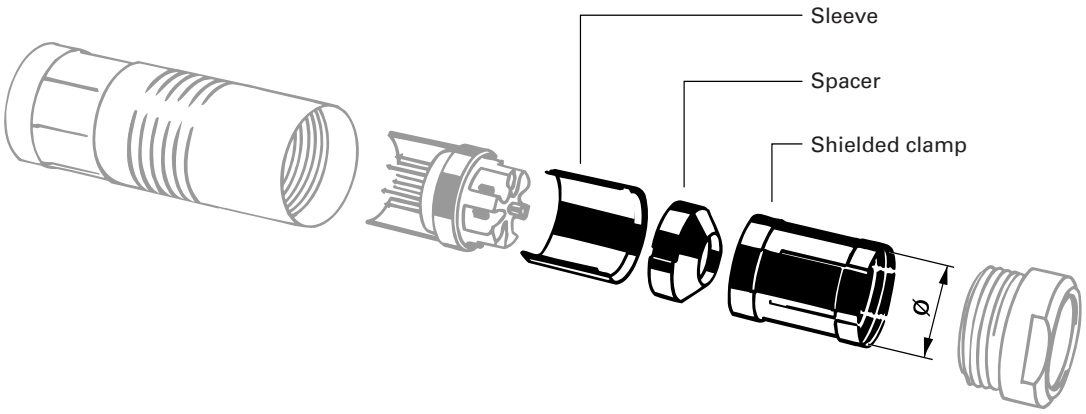


To seal connectors order the following clamps for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		PTFE insulator	PEEK / PBT insulators
3.2 - 4.2	4.2	E31 105.2/4.2 + A	E31 105.2/4.2 + B
4.2 - 5.2	5.2	E31 105.2/5.2 + A	E31 105.2/5.2 + B
5.2 - 6.2	6.2	E31 105.2/6.2 + A	E31 105.2/6.2 + B
6.2 - 7.2	7.2	E31 105.2/7.2 + A	E31 105.2/7.2 + B
7.2 - 8.2	8.2	E31 105.2/8.2 + A	E31 105.2/8.2 + B
8.2 - 9.2	9.2	E31 105.2/9.2 + A	E31 105.2/9.2 + B
9.2 - 10.0	10.0	E31 105.2/10.0 + A	E31 105.2/10.0 + B
10.0 - 10.7	10.7	E31 105.2/10.7 + A	E31 105.2/10.7 + B

❶ For ordering information see page A3.
For technical details see pages L6 and N2.

S
Shielded



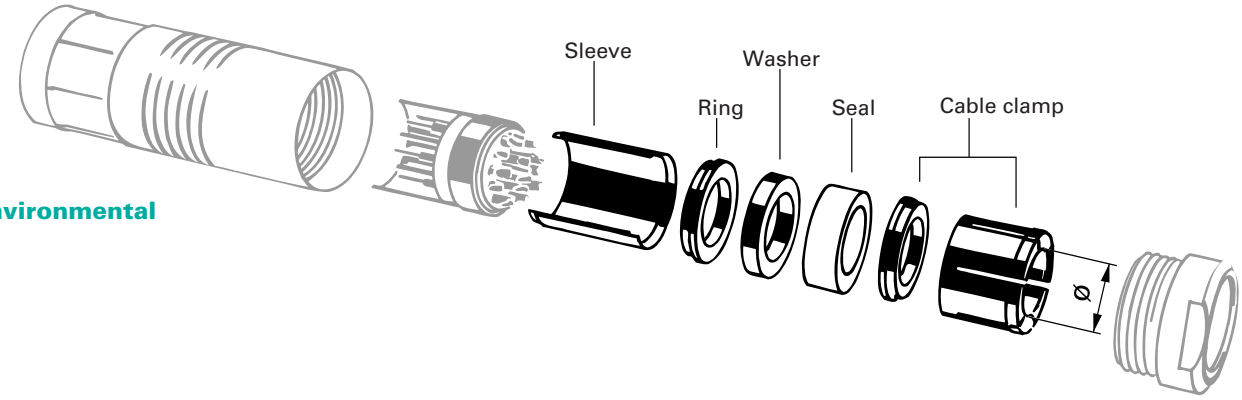
Shielded cable clamps and spacers for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		Standard	DKBE
4.2 - 5.2	5.2	E3 106.1/5.2	E3 106.3/5.2
5.2 - 6.2	6.2	E3 106.1/6.2	E3 106.3/6.2
6.2 - 7.2	7.2	E3 106.1/7.2	E3 106.3/7.2
7.2 - 8.2	8.2	E3 106.1/8.2	E3 106.3/8.2
8.2 - 9.2	9.2	E3 106.1/9.2	E3 106.3/9.2
9.2 -10.2	10.2	E3 106.1/10.2	E3 106.3/10.2
10.2 -11.2	11.2	E3 106.1/11.2	E3 106.3/11.2
11.2 -12.2	12.2	E3 106.1/12.2	E3 106.3/12.2

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		Standard	DKBE
12.2 - 13.2	13.2	E3 106.1/13.2	E3 106.3/13.2
13.2 - 14.2	14.2	E3 106.1/14.2	E3 106.3/14.2
14.2 - 15.2	15.2	E3 106.1/15.2	E3 106.3/15.2
15.2 - 16.2	16.2	E3 106.1/16.2	E3 106.3/16.2
16.2 - 17.2	17.2	E3 106.1/17.2	E3 106.3/17.2
17.2 - 18.2	18.2	E3 106.1/18.2	E3 106.3/18.2
18.2 - 19.2	19.2	E3 106.1/19.2	E3 106.3/19.2

H

E
Environmental



To seal connectors order the following clamps for shielded or unshielded cables.

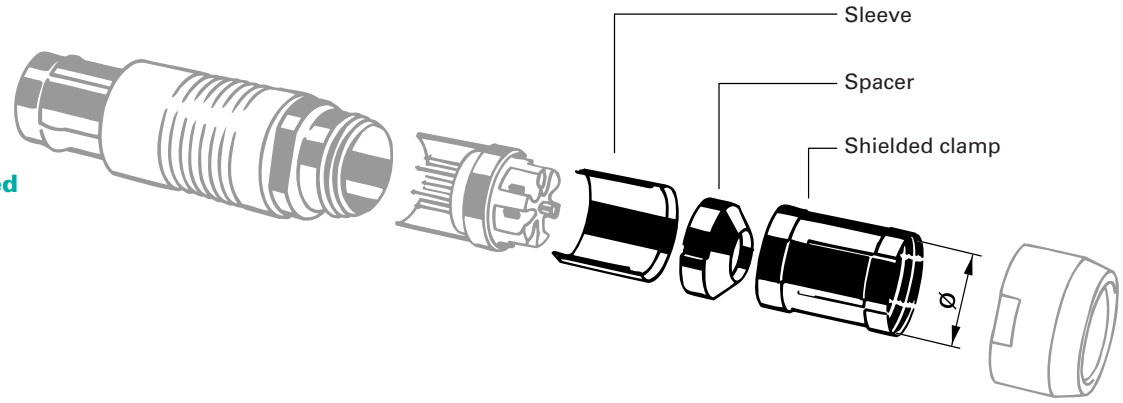
Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		Standard	DKBE
4.2 - 5.2	5.2	E3 106.2/5.2	E3 106.4/5.2
5.2 - 6.2	6.2	E3 106.2/6.2	E3 106.4/6.2
6.2 - 7.2	7.2	E3 106.2/7.2	E3 106.4/7.2
7.2 - 8.2	8.2	E3 106.2/8.2	E3 106.4/8.2
8.2 - 9.2	9.2	E3 106.2/9.2	E3 106.4/9.2
9.2 -10.2	10.2	E3 106.2/10.2	E3 106.4/10.2
10.2 -11.2	11.2	E3 106.2/11.2	E3 106.4/11.2
11.2 -12.2	12.2	E3 106.2/12.2	E3 106.4/12.2

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶	
		Standard	DKBE
12.2 - 13.2	13.2	E3 106.2/13.2	E3 106.4/13.2
13.2 - 14.2	14.2	E3 106.2/14.2	E3 106.4/14.2
14.2 - 15.2	15.2	E3 106.2/15.2	E3 106.4/15.2
15.2 - 16.2	16.2	E3 106.2/16.2	E3 106.4/16.2
16.2 - 17.2	17.2	E3 106.2/17.2	E3 106.4/17.2
17.2 - 18.2	18.2	E3 106.2/18.2	E3 106.4/18.2
18.2 - 19.2	19.2	E3 106.2/19.2	E3 106.4/19.2

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

❶ For ordering information see page A3.
For technical details see pages L6 and N2.

S
Shielded



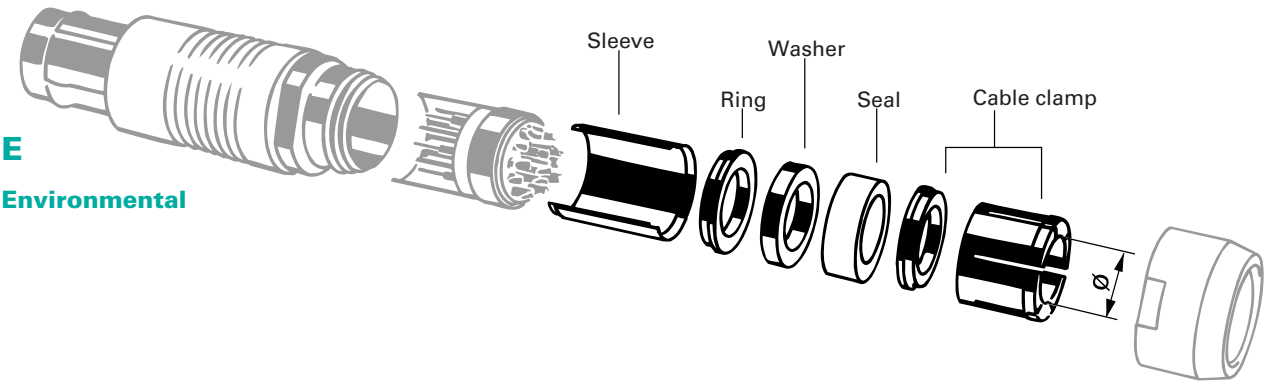
Shielded cable clamps and spacers for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶
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
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

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶
14.2 - 15.2	15.2	E3 107.1/15.2
15.2 - 16.2	16.2	E3 107.1/16.2
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

H

E
Environmental



To seal connectors order the following clamps for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶
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
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

Cable Dia. Range	Collet Diameter	Cable Clamp Set ❶
14.2 - 15.2	15.2	E3 107.2/15.2
15.2 - 16.2	16.2	E3 107.2/16.2
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

❶ For ordering information see page A3.
For technical details see pages L6 and N2.

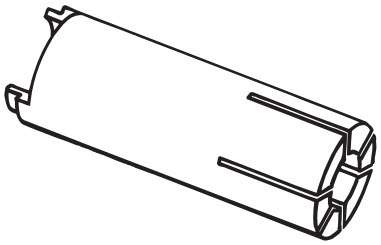
INSULATING CABLE CLAMPS

High voltage multipole connectors, as well as a number of connectors containing contact configuration with mixed high voltage and coaxial contacts, are equipped with Polyoxymethylene (Delrin®) collet type cable clamps. The required diameter should be added to the connector part number by selecting the collet diameter according to the cable clamping range under «Cable Dia.» as shown in the following tables.

Example: 104 Series 4 pole high voltage plug for use with 5.5 mm dia. cable.

The part number should be: S 104 A062 / 5.7-UI

The cable clamp part number is only required when ordering clamps separately.



Material:
POM (polyoxy-methylene) Delrin ®

104 SERIES

Cable Diameter	Collet Diameter	Cable Clamp
2.4 - 3.4	3.4	104.1469
3.0 - 4.0	4.0	104.1280
3.6 - 4.6	4.6	104. 277
4.7 - 5.7	5.7	104.1278
4.7 - 6.6	6.6	104. 276
5.8 - 7.7	7.7	104.1276
6.2 - 8.1	8.1	104.1298
6.7 - 8.6	8.6	104. 275

CONNECTOR TYPES WITH INSULATED CABLE CLAMPS

Multipole High Voltage	Multipole with HT Contact	Multipole with Coax Contact
104 A062 104 Z062		104 A078
104 A083		104 A093

105 SERIES

Cable Diameter	Collet Diameter	Cable Clamp
2.8 - 4.2	4.2	105.1010
4.1 - 5.5	5.5	105.1356
5.1 - 6.5	6.5	105. 793
6.1 - 7.5	7.5	105. 921
6.6 - 8.0	8.0	105.1111
7.1 - 8.5	8.5	105. 794
8.3 - 9.7	9.7	105.1124
9.1 -10.5	10.5	105. 795

Multipole High Voltage	Multipole with HT Contact	Multipole with Coax Contact
105 A039 105 Z039	105 A020	105 A074 105 Z074
105 A057	105 A036 105 A060	105 A089
105 A112		105 A095

106 SERIES

Cable Diameter	Collet Diameter	Cable Clamp
4.3 - 5.7	5.7	106.1279
5.3 - 6.7	6.7	106.1278
5.8 - 7.2	7.2	106.1277
7.8 - 9.2	9.2	106. 249
9.8 -11.2	11.2	106. 248
11.8 -13.2	13.2	106. 247
13.8 -15.2	15.2	106. 246
14.8 -17.2	17.2	106. 245
17.1 -18.5	18.5	106. 244

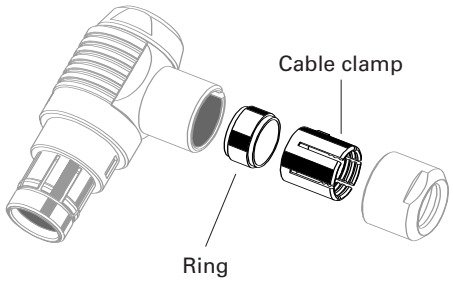
Multipole High Voltage	Multipole with HT Contact	Multipole with Coax Contact
106 A013 106 Z013	106 A014	

Insulating clamps for other cable diameters and shapes are available on request.

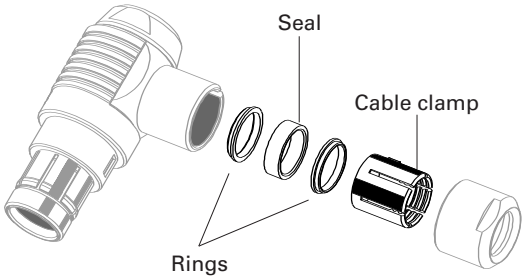
All dimensions shown are in millimeters and are for reference only.

CABLE CLAMP SETS FOR WSO

WSO *Unsealed*



WSO *Sealed*



102

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ Unsealed	Sealed
1.5 - 2.1	2.1	E3 102.12/2.1	E3 102.13/2.1
2.1 - 2.6	2.6	E3 102.12/2.6	E3 102.13/2.6
2.6 - 3.1	3.1	E3 102.12/3.1	E3 102.13/3.1
3.1 - 3.6	3.6	E3 102.12/3.6	E3 102.13/3.6
3.6 - 4.1	4.1	E3 102.12/4.1	E3 102.13/4.1
4.1 - 4.3	4.3	E3 102.12/4.3	E3 102.13/4.3
4.3 - 4.7	4.7	E3 102.12/4.7	-

103

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ Unsealed	Sealed
1.7 - 2.2	2.2	E3 103.12/2.2	E3 103.13/2.2
2.2 - 2.7	2.7	E3 103.12/2.7	E3 103.13/2.7
2.7 - 3.2	3.2	E3 103.12/3.2	E3 103.13/3.2
3.2 - 3.7	3.7	E3 103.12/3.7	E3 103.13/3.7
3.7 - 4.2	4.2	E3 103.12/4.2	E3 103.13/4.2
4.2 - 4.7	4.7	E3 103.12/4.7	E3 103.13/4.7
4.7 - 5.2	5.2	E3 103.12/5.2	E3 103.13/5.2
5.2 - 5.7	5.7	E3 103.12/5.7	E3 103.13/5.7
5.7 - 6.2	6.2	E3 103.12/6.2	E3 103.13/6.2
6.2 - 6.7	6.7	E3 103.12/6.7	-

1031

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ Unsealed	Sealed
2.2 - 2.7	2.7	E3 1031.12/2.7	E3 1031.13/2.7
2.7 - 3.2	3.2	E3 1031.12/3.2	E3 1031.13/3.2
3.2 - 3.7	3.7	E3 1031.12/3.7	E3 1031.13/3.7
3.7 - 4.2	4.2	E3 1031.12/4.2	E3 1031.13/4.2
4.2 - 4.7	4.7	E3 1031.12/4.7	E3 1031.13/4.7
4.7 - 5.2	5.2	E3 1031.12/5.2	E3 1031.13/5.2
5.2 - 5.7	5.7	E3 1031.12/5.7	E3 1031.13/5.7
5.7 - 6.2	6.2	E3 1031.12/6.2	E3 1031.13/6.2
6.2 - 6.7	6.7	E3 1031.12/6.7	E3 1031.13/6.7
6.7 - 7.2	7.2	E3 1031.12/7.2	-

104

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ Unsealed	Sealed
2.9 - 4.0	4.0	E3 104.12/4.0	E3 104.13/4.0
4.0 - 4.7	4.7	E3 104.12/4.7	E3 104.13/4.7
4.7 - 5.7	5.7	E3 104.12/5.7	E3 104.13/5.7
5.7 - 6.7	6.7	E3 104.12/6.7	E3 104.13/6.7
6.7 - 7.7	7.7	E3 104.12/7.7	E3 104.13/7.7
7.7 - 8.7	8.7	E3 104.12/8.7	E3 104.13/8.7

105

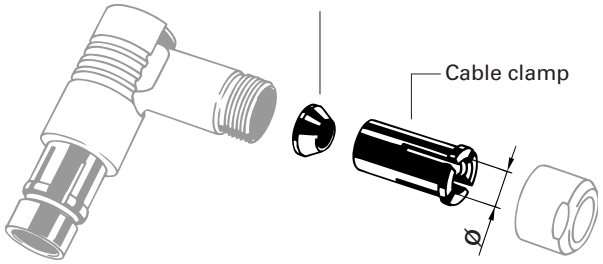
Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ Unsealed	Sealed
3.2 - 4.2	4.2	E3 105.12/4.2	E3 105.13/4.2
4.2 - 5.2	5.2	E3 105.12/5.2	E3 105.13/5.2
5.2 - 6.2	6.2	E3 105.12/6.2	E3 105.13/6.2
6.2 - 7.2	7.2	E3 105.12/7.2	E3 105.13/7.2
7.2 - 8.2	8.2	E3 105.12/8.2	E3 105.13/8.2
8.2 - 9.2	9.2	E3 105.12/9.2	E3 105.13/9.2
9.2 - 10.0	10.0	E3 105.12/10.0	E3 105.13/10.0
10.0 - 10.7	10.7	E3 105.12/10.7	E3 105.13/10.7

❶ For ordering information see page A3.
For technical details see pages L6 and N2.

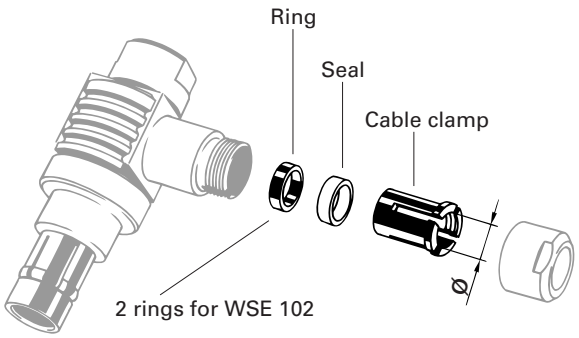
WS

Spacer for { WS 102 - included in clamp set
WS 106 - P/N 106.666
WS 107 - P/N 107.666

No spacer in other series



WSE



102

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ WS	WSE
1.5 - 2.1	2.1	E3 102.10/2.1	E3 102.11/2.1
2.1 - 2.6	2.6	E3 102.10/2.6	E3 102.11/2.6
2.6 - 3.1	3.1	E3 102.10/3.1	E3 102.11/3.1
3.1 - 3.6	3.6	E3 102.10/3.6	E3 102.11/3.6
3.6 - 4.1	4.1	E3 102.10/4.1	E3 102.11/4.1
4.1 - 4.3	4.3	E3 102.10/4.3	E3 102.11/4.3
4.3 - 4.7	4.7	E3 102.10/4.7	—

103/1031

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ WS	WSE
1.7 - 2.2	2.2	E3 103.10/2.2	E3 103.11/2.2
2.2 - 2.7	2.7	E3 103.10/2.7	E3 103.11/2.7
2.7 - 3.2	3.2	E3 103.10/3.2	E3 103.11/3.2
3.2 - 3.7	3.7	E3 103.10/3.7	E3 103.11/3.7
3.7 - 4.2	4.2	E3 103.10/4.2	E3 103.11/4.2
4.2 - 4.7	4.7	E3 103.10/4.7	E3 103.11/4.7
4.7 - 5.2	5.2	E3 103.10/5.2	E3 103.11/5.2
5.2 - 5.7	5.7	E3 103.10/5.7	E3 103.11/5.7
5.7 - 6.2	6.2	E3 103.10/6.2	E3 103.11/6.2
6.2 - 6.7	6.7	E3 103.10/6.7	—

104

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ WS	WSE
2.9 - 4.0	4.0	E3 104.10/4.0	E3 104.11/4.0
4.0 - 4.7	4.7	E3 104.10/4.7	E3 104.11/4.7
4.7 - 5.7	5.7	E3 104.10/5.7	E3 104.11/5.7
5.7 - 6.7	6.7	E3 104.10/6.7	E3 104.11/6.7
6.7 - 7.7	7.7	E3 104.10/7.7	E3 104.11/7.7
7.7 - 8.7	8.7	E3 104.10/8.7	E3 104.11/8.7

105

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ WS	WSE
3.2 - 4.2	4.2	E3 105.10/4.2	E3 105.11/4.2
4.2 - 5.2	5.2	E3 105.10/5.2	E3 105.11/5.2
5.2 - 6.2	6.2	E3 105.10/6.2	E3 105.11/6.2
6.2 - 7.2	7.2	E3 105.10/7.2	E3 105.11/7.2
7.2 - 8.2	8.2	E3 105.10/8.2	E3 105.11/8.2
8.2 - 9.2	9.2	E3 105.10/9.2	E3 105.11/9.2
9.2 - 10.0	10.0	E3 105.10/10.0	E3 105.11/10.0
10.0 - 10.7	10.7	E3 105.10/10.7	E3 105.11/10.7

106

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ WS	WSE
4.2 - 5.2	5.2	E32 106.1/5.2	E31 106.3/5.2
5.2 - 6.2	6.2	E32 106.1/6.2	E31 106.3/6.2
6.2 - 7.2	7.2	E32 106.1/7.2	E31 106.3/7.2
7.2 - 8.2	8.2	E32 106.1/8.2	E31 106.3/8.2
8.2 - 9.2	9.2	E32 106.1/9.2	E31 106.3/9.2
9.2 - 10.2	10.2	E32 106.1/10.2	E31 106.3/10.2
10.2 - 11.2	11.2	E32 106.1/11.2	E31 106.3/11.2
11.2 - 12.2	12.2	E32 106.1/12.2	E31 106.3/12.2
12.2 - 13.2	13.2	E32 106.1/13.2	E31 106.3/13.2
13.2 - 14.2	14.2	E32 106.1/14.2	E31 106.3/14.2
14.2 - 15.2	15.2	E32 106.1/15.2	E31 106.3/15.2
15.2 - 16.2	16.2	E32 106.1/16.2	E31 106.3/16.2
16.2 - 17.2	17.2	E32 106.1/17.2	E31 106.3/17.2
17.2 - 18.2	18.2	E32 106.1/18.2	E31 106.3/18.2
18.2 - 19.2	19.2	106.1210	E31 106.3/19.2

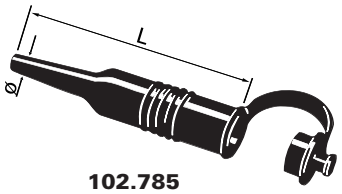
107

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ❶ WS	WSE
5.7 - 7.2	7.2	E32 107.1/7.2	E31 107.3/7.2
7.2 - 8.2	8.2	E32 107.1/8.2	E31 107.3/8.2
8.2 - 9.2	9.2	E32 107.1/9.2	E31 107.3/9.2
9.2 - 10.2	10.2	E32 107.1/10.2	E31 107.3/10.2
10.2 - 11.2	11.2	E32 107.1/11.2	E31 107.3/11.2
11.2 - 12.2	12.2	E32 107.1/12.2	E31 107.3/12.2
12.2 - 13.2	13.2	E32 107.1/13.2	E31 107.3/13.2
13.2 - 14.2	14.2	E32 107.1/14.2	E31 107.3/14.2
14.2 - 15.2	15.2	E32 107.1/15.2	E31 107.3/15.2
15.2 - 16.2	16.2	E32 107.1/16.2	E31 107.3/16.2
16.2 - 17.2	17.2	E32 107.1/17.2	E31 107.3/17.2
17.2 - 18.2	18.2	E32 107.1/18.2	E31 107.3/18.2
18.2 - 19.2	19.2	E32 107.1/19.2	E31 107.3/19.2
19.2 - 20.2	20.2	E32 107.1/20.2	E31 107.3/20.2
20.2 - 21.2	21.2	E32 107.1/21.2	E31 107.3/21.2
21.2 - 22.7	22.7	E32 107.1/22.7	E31 107.3/22.7

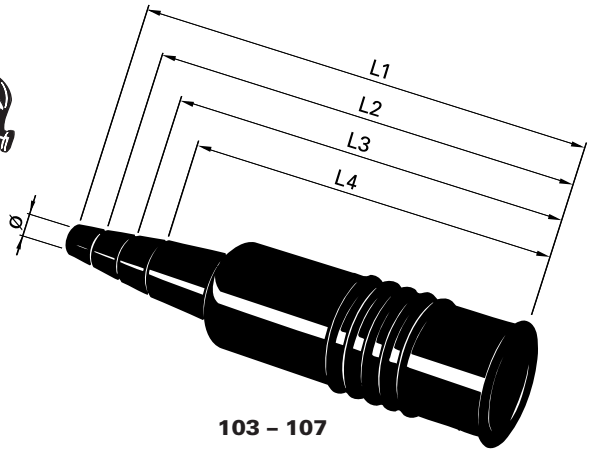
H

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

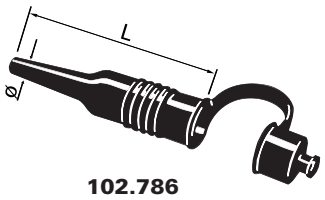
❶ For ordering information see page A3.
For technical details see pages L6 and N2.



102.785



103 – 107



102.786

Material - TPE (Thermoplastic elastomer)

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Protective Sleeve for S, SC, SOV

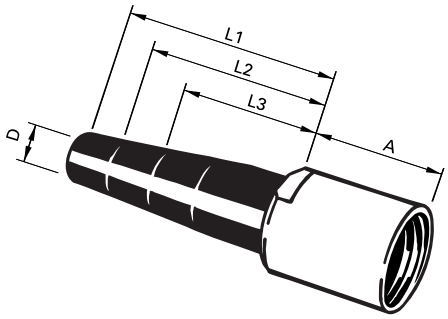
Series	Part Number	L	Cable Outlet Diameter
102	102.785	L = 56	1.8 - 4.5
103	103.861	L1 = 68 L2 = 63 L3 = 58 L4 = 53	3.0 - 4.1 4.2 - 5.1 5.2 - 6.1 6.2 - 6.5
1031	1031.855	L1 = 69 L2 = 64 L3 = 59 L4 = 54	3.0 - 4.1 4.2 - 5.1 5.2 - 6.1 6.2 - 6.5
104	104.861	L1 = 83 L2 = 76 L3 = 70 L4 = 63	4.0 - 5.1 5.2 - 6.1 6.2 - 7.1 7.2 - 8.5
105	105.1545	L1 = 104 L2 = 96 L3 = 88 L4 = 80	3.5 - 5.6 5.7 - 7.6 7.7 - 8.6 8.7 -10.5
106	106.226	L1 = 123 L2 = 112 L3 = 102 L4 = 92	6.0 -10.4 10.5 -13.4 13.5 -16.4 16.5 -19
107	107.808	L1 = 170 L2 = 160 L3 = 150 L4 = 140 L5 = 130	7.0 -10.4 10.5 -13.4 13.5 -16.4 16.5 -19.4 19.5 -22.5

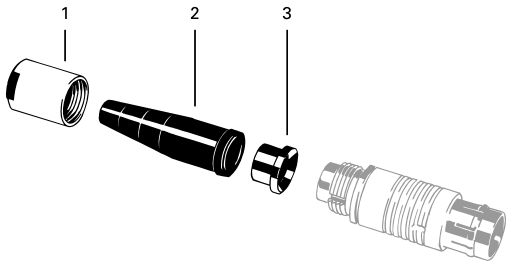
Protective Sleeve for K, KE

Series	Part Number	L	Cable Outlet Diameter
102	102.786	L = 47	1.8 - 4.5
103	103.886	L1 = 60 L2 = 55 L3 = 50 L4 = 45	3.0 - 4.1 4.2 - 5.1 5.2 - 6.1 6.2 - 6.5
1031	1031.860	L1 = 61 L2 = 56 L3 = 51 L4 = 46	3.0 - 4.1 4.2 - 5.1 5.2 - 6.1 6.2 - 6.5
104	104.862	L1 = 68 L2 = 61 L3 = 55 L4 = 48	4.0 - 5.1 5.2 - 6.1 6.2 - 7.1 7.2 - 8.5
105	105.1546	L1 = 88 L2 = 80 L3 = 72 L4 = 64	3.5 - 5.6 5.7 - 7.6 7.7 - 8.6 8.7 -10.5
106	106.405	L1 = 110 L2 = 99 L3 = 89 L4 = 79	6.0 -10.4 10.5 -13.4 13.5 -16.4 16.5 -19
107	107.809	L1 = 146 L2 = 136 L3 = 126 L4 = 116 L5 = 106	7.0 -10.4 10.5 -13.4 13.5 -16.4 16.5 -19.4 19.5 -22.5

These protective sleeves for straight cable plugs and cable receptacles have grooved cable bend reliefs which can be shortened according to cable diameters. The lengths of the protections and the corresponding cable diameters are listed above.

CLAMP NUT WITH CABLE BEND RELIEF





Material:

1 Clamp nut: Nickel and chromium plated brass
2 Bend relief: TPE (Thermoplastic elastomer)
3 Bushing: Nickel plated brass

These cable bend reliefs cannot be assembled with the clamp nuts supplied with the standard connectors. Therefore, the cable bend reliefs are supplied as sub-assemblies.

102 SERIES

Two types of cable bend reliefs with different diameters are available.

A = 10
L1 = 21

For natural chromium plated cable connectors (Standard)

Part Number for cable diameter		Bend Relief Color
1.5 - 3.4	3.5 - 4.5	
E4 102.190.2	E4 102.192.2	black
E4 102.190.3	E4 102.192.3	green
E4 102.190.4	E4 102.192.4	blue
E4 102.190.5	E4 102.192.5	yellow
E4 102.190.6	E4 102.192.6	red
E4 102.190.7	E4 102.192.7	grey

For black chromium plated cable connectors

Part Number for cable diameter		Bend Relief Color
1.5 - 3.4	3.5 - 4.5	
E4 102.191.2	E4 102.193.2	black
E4 102.191.3	E4 102.193.3	green
E4 102.191.4	E4 102.193.4	blue
E4 102.191.5	E4 102.193.5	yellow
E4 102.191.6	E4 102.193.6	red
E4 102.191.7	E4 102.193.7	grey

103 SERIES

For natural chromium plated cable connectors (Standard)

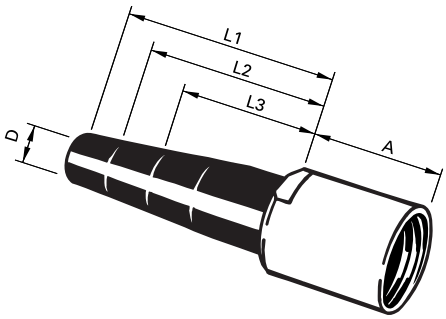
Part Number for cable diameter	Bend Relief Color
E4 103.190.1	white
E4 103.190.2	black
E4 103.190.3	green
E4 103.190.4	blue
E4 103.190.5	yellow
E4 103.190.6	red
E4 103.190.7	grey

	Length	D = Cable Dia.
A	17	6.6
L1	26	3.0 - 4.0
L2	21	4.0 - 5.0
L3	16	5.0 - 6.2

For black chromium plated cable connectors

Part Number for cable diameter	Bend Relief Color
E4 103.191.1	white
E4 103.191.2	black
E4 103.191.3	green
E4 103.191.4	blue
E4 103.191.5	yellow
E4 103.191.6	red
E4 103.191.7	grey

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



1031 SERIES

For natural chromium plated cable connectors (Standard)

Part Number for cable diameter	Bend Relief Color
E4 1031.190.1	white
E4 1031.190.2	black
E4 1031.190.3	green
E4 1031.190.4	blue
E4 1031.190.5	yellow
E4 1031.190.6	red
E4 1031.190.7	grey

	Length	D = Cable Dia.
A	18	6.6
L1	26	3.0 - 4.0
L2	21	4.0 - 5.0
L3	16	5.0 - 6.5

For black chromium plated cable connectors

Part Number for cable diameter	Bend Relief Color
E4 1031.191.1	white
E4 1031.191.2	black
E4 1031.191.3	green
E4 1031.191.4	blue
E4 1031.191.5	yellow
E4 1031.191.6	red
E4 1031.191.7	grey

***IMPORTANT:* For WS / WSE 1031, use 103 version.**

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104 SERIES

For natural chromium plated cable connectors (Standard)

Part Number for cable diameter	Bend Relief Color
E4 104.190.1	white
E4 104.190.2	black
E4 104.190.3	green
E4 104.190.4	blue
E4 104.190.5	yellow
E4 104.190.6	red
E4 104.190.7	grey

	Length	D = Cable Dia.
A	18	8.4
L1	31	4.0 - 5.0
L2	25	5.0 - 6.5
L3	18	6.0 - 7.5

For black chromium plated cable connectors

Part Number for cable diameter	Bend Relief Color
E4 104.191.1	white
E4 104.191.2	black
E4 104.191.3	green
E4 104.191.4	blue
E4 104.191.5	yellow
E4 104.191.6	red
E4 104.191.7	grey

105 SERIES

For natural chromium plated cable connectors (Standard)

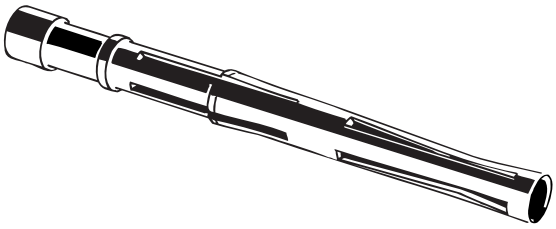
Part Number for cable diameter	Bend Relief Color
E4 105.190.1	white
E4 105.190.2	black
E4 105.190.3	green
E4 105.190.4	blue
E4 105.190.5	yellow
E4 105.190.6	red
E4 105.190.7	grey

	Length	D = Cable Dia.
A	21	10.6
L1	37	4.0 - 5.0
L2	31	5.5 - 6.5
L3	24	7.0 - 8.5
L4	18	8.5 -10.5

For black chromium plated cable connectors

Part Number for cable diameter	Bend Relief Color
E4 105.191.1	white
E4 105.191.2	black
E4 105.191.3	green
E4 105.191.4	blue
E4 105.191.5	yellow
E4 105.191.6	red
E4 105.191.7	grey

CONTACT SIZE
WIRE GAUGE CONVERSION



Crimp style connectors are supplied with the appropriate quantity of crimp contacts. However, replacement contacts may be ordered according to table below.

Crimp contacts can be removed from the contact block by means of extraction tools (see page K3).

Crimp contacts - wire size and tool chart

Size [mm]	Polarity	Max Wire (AWG)	Series					Crimp Tool	Positioner
			102	103	1031	104	105		
0.5	male	28-32	200.2113					TX00.240	TX00.300
	male	28-32			200.2172		200.2172	TX00.240	TX00.301
	female	28-32	200.2114					TX00.240	TX00.302
	female	28-32			200.2183			TX00.240	TX00.303
	female	28-32					200.2412	TX00.240	TX00.324
0.7	male	24-28	200.1682	200.1682	200.1682	200.1682	200.1682	TX00.240	TX00.304
	female	24-28	200.1683	200.1683	200.1683	200.1683		TX00.240	TX00.305
	female	24-28					200.2050	TX00.240	TX00.306
0.9	male	22-26		200.2248		200.2248		TX00.240	TX00.307
	male	22-26					200.2350	TX00.240	TX00.308
	female	22-26		200.1856		200.1856		TX00.240	TX00.309
	female	22-26					200.2143	TX00.240	TX00.310
1.3	male	18-24				200.2402		TX00.240	TX00.311
	female	18-24				200.2214		TX00.240	TX00.312
1.6	male	14-18				200.1653	200.1653	TX00.242	TX00.313
	female	14-18				200.1654	200.1654	TX00.242	TX00.314

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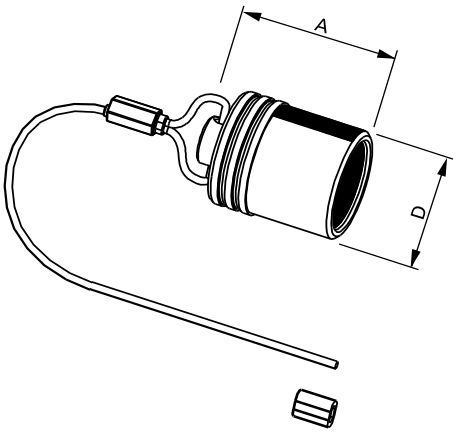
Solder contacts - wire size and conversion table

Contact Diameter		Contact	Maximum Wire Diameter			Wire Stranding	Sectional Area		
[mm]	[inch]	Size	[mm]	[inch]	AWG	[mm]	[mm²]	[inch²]	circ. mils
0.5	0.0197	24	0.4 0.32	0.0157 0.0125	26 (1) 30 (19/42)	1 x 0.4 19 x 0.06	0.13 0.06	0.00020 0.00009	253 119
0.7	0.0276	22	0.6 0.51	0.0236 0.020	23 (1) 26 (19/38)	1 x 0.6 19 x 0.10	0.25 0.15	0.00040 0.00024	511 304
0.9	0.0354	19	0.8 0.8	0.0315 0.0315	20 (1) 22 (19/34)	1 x 0.8 19 x 0.16	0.50 0.38	0.00080 0.00059	1020 754
1.3	0.0512	16	1.2 1.02	0.0472 0.040	17 (1) 20 (19/32)	1 x 1.15 19 x 0.20	1.0 0.62	0.00161 0.00096	2052 1216
1.6	0.0630	14	1.83 1.8	0.0720 0.0710	13 (1) 14 (19/27)	1 x 1.8 19 x 0.36	2.6 2.0	0.00407 0.00301	5183 3830
2.0	0.0787	12	2.05 1.8	0.0808 0.0710	12 (1) 14 (19/27)	1 x 2.05 19 x 0.36	3.3 2.0	0.00513 0.00301	6527 3830
2.3	0.0906	11	2.6 2.4	0.1019 0.0930	10 (1) 12 (19/25)	1 x 2.6 19 x 0.45	5.3 3.0	0.00816 0.00478	10382 6087
3.0	0.118	9	2.9 2.94	0.115 0.116	10 (37/26) 10 (49/27)	37 x 0.40 49 x 0.36	4.8 5.0	0.00735 0.00774	9353 9878
5.0	0.197	5	5.9 5.9	0.232 0.232	4 (133/25) 4 (259/27)	133 x 0.46 259 x 0.36	21.7 26.6	0.03352 0.04103	42613 52214

Above mentioned wire diameters may vary slightly depending on connector series and style.
Please contact us when the exact solder cup diameter is required for a specific connector.

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

Sealing Caps for Plugs



These metal caps are fitted with an O-ring seal.

They protect and seal the mating face of the plugs.

Material - Nickel or Black chromium plated brass (ISO CuZn39Pb3)

Series	❶ Part Number ❷ Natural mat Plated	Black chrome Plated	O-ring material	A	D	Stainless-Steel Cable ø	Length	Covering material	Crimp Ferrule
102	102.1948	102.1952	FPM	14.5	10	1	100	FEP	300.922
103	103.2274	103.2277	FPM	21	14	1	100	FEP	300.922
1031	1031.825	1031.827	FPM	20	15	1	100	FEP	300.922
104	104.715	104.717	FPM	21	15.6	1	150	FEP	300.922
105	105.3002	105.3006	FPM	29	20	1	150	FEP	300.922
106	106.813	106.815	FPM	37	33	1	250	FEP	300.922
107	107.2312	107.2314	FPM	42	38	1	300	FEP	300.922

FPM - VITON® FEP - TEFLON®

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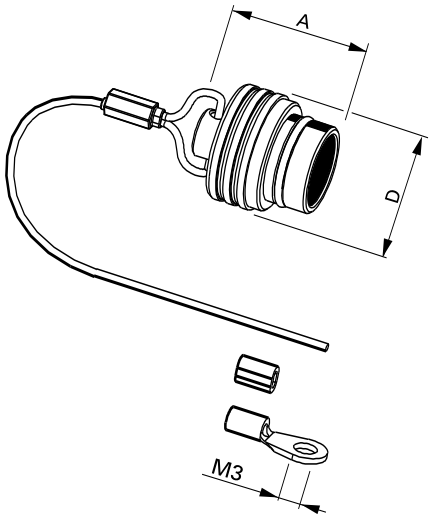
To attach the ferrule or the crimp lug to the stainless-steel cable, use a crimp tool, a vice or a pair of pliers with parallel jaws

Sealing Caps for Receptacles



These metal caps are fitted with an O-ring seal.

They protect and seal the mating face of the receptacles.

Material - Nickel or Black chromium plated brass (ISO CuZn39Pb3)

Series	❶ Part Number ❷ Natural mat Plated	Black chrome Plated	O-ring material	A	D	Stainless-Steel Cable ø	Length	Covering material	Crimp Ferrule	Crimp Lug
102	102.1947	102.1951	NBR	15	11	1	100	FEP	300.922	300.299
103	103.2273	103.2276	NBR	15	13	1	100	FEP	300.922	300.299
1031	1031.824	1031.826	NBR	17	15	1	100	FEP	300.922	300.299
104	104.714	104.716	NBR	17.5	16	1	150	FEP	300.922	300.299
105	105.3001	105.3005	NBR	21	19	1	150	FEP	300.922	300.299
106	106.812	106.814	NBR	24	31	1	250	FEP	300.922	300.299
107	107.2311	107.2313	NBR	26	36	1	300	FEP	300.922	300.299

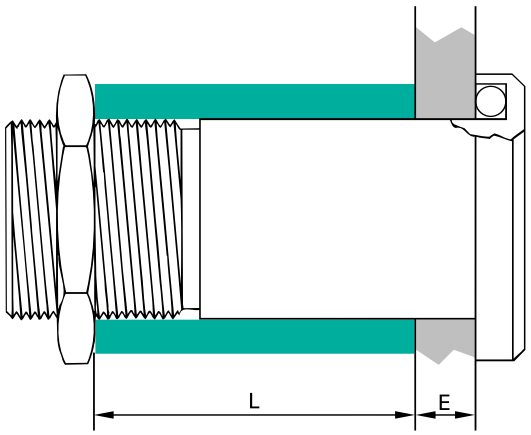
NBR - Nitrile® FEP - TEFLON®

❶ Assembled with natural plastic covered stainless steel cable.
❷ Assembled with black plastic covered stainless steel cable.

Spacers for WDE

Material - Aluminum

In order to keep the outer connector diameter as small as possible, the WDE's of 106 and 107 series cannot be totally threaded.
Spacers are available to permit mounting on bulkheads thinner than the unthreaded section of the body as indicated by «**E***min*» of Type 2 on page B8.



WDE 106

E	L	Part No
0.5 - 8.5	30.0	106.560
8.0 - 16.0	22.5	106.561
15.5 - 23.5	15.0	106.562
23.0 - 31.0	7.5	106.563

WDE 107

E	L	Part No
1.5 - 4	18.5	107.556
4.5 - 7	15.5	107.557
7.5 - 10	12.5	107.558
10.5 - 13	9.5	107.559
13.5 - 16	6.5	107.560
16.5 - 19	3.5	107.561

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Spacers for DEE, DEU and DKE

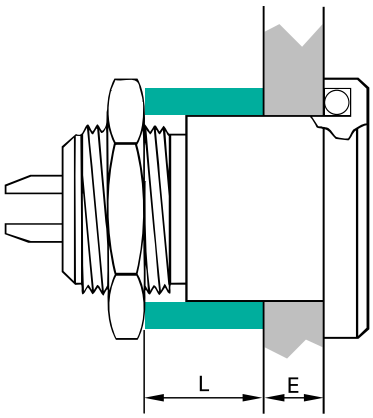
Spacers are available for DEE, DEU and DKE to permit mounting on panels thinner than the unthreaded section of the body as shown on page B7 and on page B10, for the DKE.

DEE / DEU / DKE 102

E	L	Part No
0.5 - 3.0	8.5	102.550
2.5 - 5.5	6.0	102.551
5.0 - 8.0	3.5	102.552

DEE / DEU / DKE 103
DEE / DEU 1031

E	L	Part No
0.5 - 3.0	8.5	103.550
2.5 - 5.5	6.0	103.551
5.0 - 8.0	3.5	103.552



DEE / DEU 104

E	L	Part No
0.5 - 3.0	8.5	104.550
2.5 - 5.5	6.0	104.551
5.0 - 8.0	3.5	104.552

DEE / DEU 105

E	L	Part No
0.5 - 5.0	12.0	105.1121
3.5 - 8.5	8.5	105.1122
7.0 - 12.0	5.0	105.1123

DEE / DEU 106

E	L	Part No
0.5 - 5.5	19.0	106.550
5.0 - 10.0	14.5	106.551
9.5 - 14.5	10.0	106.552
14.0 - 19.0	5.5	106.553

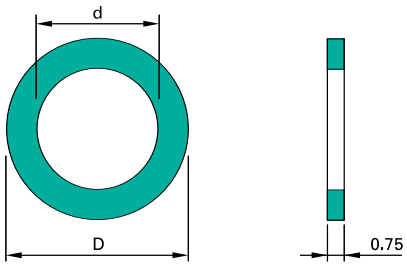
DEE / DEU 107

E	L	Part No
1 - 4	18.5	107.556
4 - 7	15.5	107.557
7 - 10	12.5	107.558
10 - 13	9.5	107.559
13 - 16	6.5	107.560
16 - 19	3.5	107.561

Material - Aluminum

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

Color Coding Washers for connector styles D, DB, DBP, DG, DGP, DK and SF



These washers can be mounted between the receptacle flange and the panel.

They are used as an identification aid with similar color cable bend reliefs.

Material - PVC (polyvinyl chloride)

Part Numbers of washers

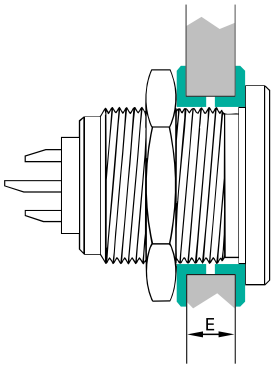
Color	102	103	1031	104 ❶	105 ❷
white	102.681	103.781	1031.781	104.981	105.2281
black	102.682	103.782	1031.782	104.982	105.2282
green	102.683	103.783	1031.783	104.983	105 2283
blue	102.684	103.784	1031.784	104.984	105.2284
yellow	102.685	103.785	1031.785	104.985	105.2285
red	102.686	103.786	1031.786	104.986	105.2286
grey	102.687	103.787	1031.787	104.987	105.2287

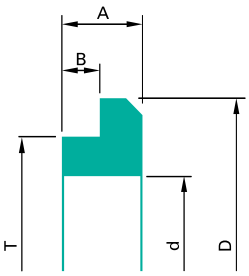
Series	102	103	1031	104 ❶	105 ❷
ø D	14.5	18	20	23	26
ø d	9.0	12	14	15	18

❶ The connector style DB 104 requires an inner diameter d = 16 mm
❷ The connector style SF 105 requires an inner diameter d = 16 mm

J

Insulating / Color Coding Washers





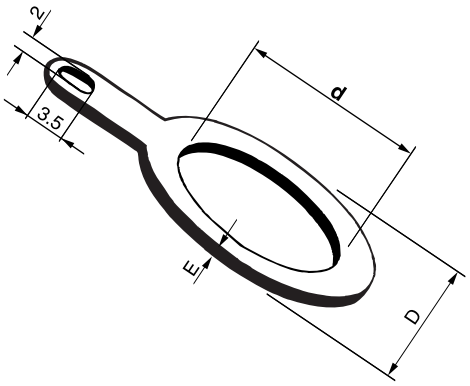
These washers are mounted on both sides of the panel cut-out. They are used to isolate the connector body electrically from the panel, as well as an identification aid with similar color cable bend reliefs.

Material
101, 102 Series - ABS (acrylonitrile butadiene-styrene)
103, 104 Series - POM (polyoxymethylene) Delrin®

Part No	ø D	ø d	ø T	A	B	E min.	E max.	Color	Material	For Type
101.381	10	7	8.9	1.7	0.7	1.5	5.5	white	ABS	D 101
101.382	10	7	8.9	1.7	0.7	1.5	5.5	red	ABS	D 101
101.383	10	7	8.9	1.7	0.7	1.5	5.5	black	ABS	D 101
102.791	12	9	10.6	1.5	0.6	1.3	6.5	white	ABS	D 102
102.792	12	9	10.6	1.5	0.6	1.3	6.5	black	ABS	D 102
102.793	12	9	10.6	1.5	0.6	1.3	6.5	green	ABS	D 102
102.794	12	9	10.6	1.5	0.6	1.3	6.5	blue	ABS	D 102
102.795	12	9	10.6	1.5	0.6	1.3	6.5	yellow	ABS	D 102
102.796	12	9	10.6	1.5	0.6	1.3	6.5	red	ABS	D 102
102.797	12	9	10.6	1.5	0.6	1.3	6.5	grey	ABS	D 102
102.399	13	9	11.0	2.0	1.0	2.1	6.5	black	POM	D 102
103.382	15	12	13.9	2.0	1.0	2.1	5.0	white	POM	D 103
103.383	15	12	13.9	2.0	1.0	2.1	5.0	black	POM	D 103
103.593	19	14	15.0	1.5	1.0	2.1	3.0	black	POM	DBEE 103
104.377	19	15	17.0	2.0	1.0	2.1	8.5	black	POM	D 104

GROUNDING WASHERS
CABLE CLAMP NUTS

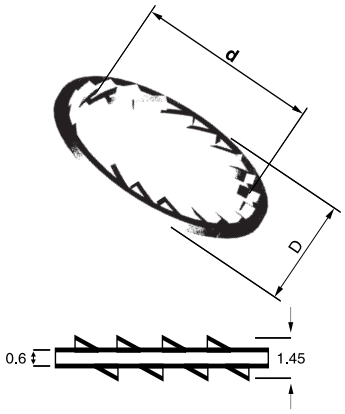
Grounding washers for panel connectors



d	D	E	Part Number
9	13	0.5	102.680
10	14	0.5	102.679
12	16	0.5	103.385
14	18	0.5	1031.315
15	20	0.5	104.680
16	21	0.5	104.679
18	23	0.5	105.680
20	25	0.5	105.679

Material - Brass, ISO CuZn37
Copper and tin plated

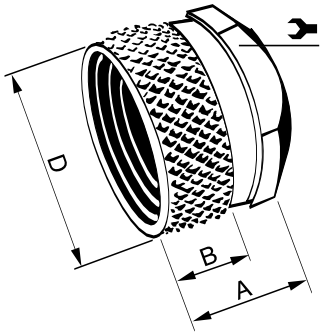
Locking Washer



d	D	Part Number
9	12.0	300.874
12	15.0	300.875
14	17.5	300.876
15	18.5	300.877
16	20.0	300.878
18	23.0	300.879
20	26.0	300.880
25	33.0	1052.338

Material - Brass, ISO CuZn37
Copper and tin plated

Knurled Clamp Nuts



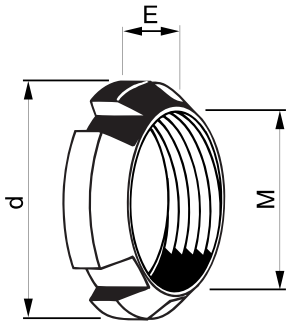
The outside is partially knurled in order to give a good grip to a shrinkable tube, acting as cable bend relief.

Series	Part Number		A	B	D	
	Natural mat chrome	Black Chrome				
102	102.1869	—	6	3.0	9	7
103	103.2092	—	11	5.5	12	10
1031	1031.248	—	12	5.5	13	12
104	104.2103	104.2104	11	5.5	15	12
105	105.2626	105.2627	14	7.5	18	15

Material - Brass (ISO CuZn39Pb3),
Nickel and chromium plated

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

Decorative Slotted Nuts

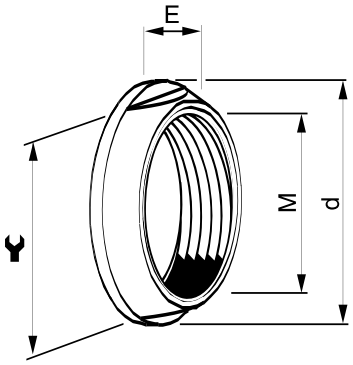


Material - Brass (ISO CuZn39Pb3), Nickel and chromium plated

Rear-mounted panel receptacles like DBP, DBPC, DBPE, DBPU, DG and DGP are supplied with this type of nuts.

Thread Size	d	E	P/N natural mat chrome	P/N black chrome	Assembly Tool
M 9x0.5	12	3.0	102.1417	102.1571	TC00.000
M 12x1	15	4.0	103.597	103.1993	TF00.001
M 14x1	18	4.0	1031.541	1031.542	TG00.001
M 15x1	19	4.0	104.697	104.698	TK00.000
M 16x1	20	4.0	104.1729	104.1643	TK00.002
M 18x1	23	5.0	105.1901	105.2084	TP00.011
M 20x1	25	5.0	105.2018	105.2085	TP00.005
M 22x1	28	5.5	105.1905	105.1976	TR00.004

Decorative Slotted Nuts (DKBE)



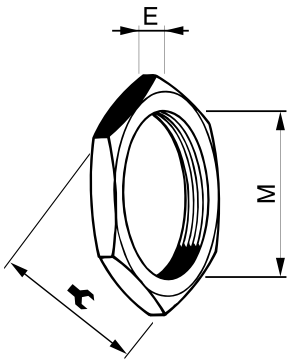
Material - Brass (ISO CuZn39Pb3), Nickel and chromium plated

These nuts are supplied to all DKBE.

Thread Size	d	E	P/N natural mat chrome	P/N black chrome	Nut aross flats
M 12x1	16	3.5	102.1989	102.1990	13
M 15x1	20	4.0	103.2294	103.2295	17
M 16x1	20	4.0	1031.1350	1031.1351	17
M 18x1	23	4.5	104.2585	104.2586	20
M 22x1	27	4.5	105.3037	105.3038	24
M 34x1	40	5.5	106.1604	106.1605	36
M 38x1	45	6.0	107.2333	107.2334	40

J

Hex Nuts



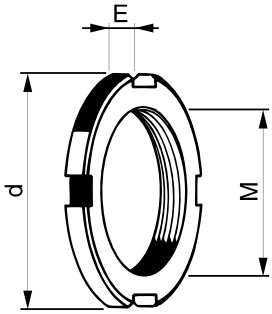
Material - Nickel plated brass (ISO CuZn39Pb3)

Hexagon nuts are supplied for all front-mounted connectors, and as rear nut of DG and DGP style bodies.

Thread Size	E	Part Number	Nut across flats	Assembly Tool
M 7x0.5	2	101.395	9	TX00.009
M 9x0.5	3	102.395	11	TX00.011
M 9x0.5	2	102.1697	11	TX00.011
M 12x1	3	103.395	14	TX00.014
M 14x1	3	103.580	17	TX00.017
M 15x1	3	104.392	17	TX00.017
M 16x1	3	104.595	19	TX00.019
M 18x1	3	105.257	22	TX00.022
M 20x1	4	105.724	25	TX00.025

Nut types for 1051, 106 and 107 series see below.

Slotted Nuts

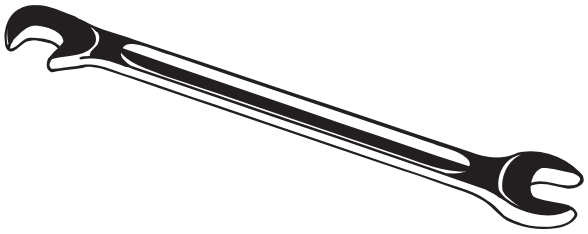


Material - Nickel plated brass (ISO CuZn39Pb3)

Slotted nuts are supplied with all panel mounted connectors of the 1051, 106 and 107 series.

Thread Size	d	E	Part Number	Assembly Tool
M 14x1	18	3	103.598	–
M 25x1	30	5	105.865	TX00.105
M 28x1	32	6	1051.611	TX00.105
M 30x1	36	6	106.395	TX00.106
M 32x1	38	6	106.397	TX00.106
M 35x1	40	9	107.395	TX00.107
M 36x1	42	9	107.397	TX00.107

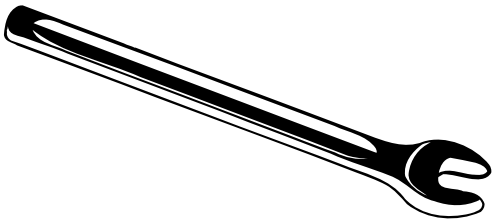
Double-End Open Spanners
Extra thin



Material - Chrome Alloy Steel, Chrome plated
Fork Angles - 15° and 75°

Opening Across Flats	Length	Fork Thickness	Part Number
5	68	2.0	TX00.005
7	90	2.0	TX00.007
8	96	2.3	TX00.008
9	102	2.5	TX00.009
10	104	2.5	TX00.010
11	114	2.5	TX00.011
12	122	3.0	TX00.012
13	122	3.0	TX00.013
14	130	3.0	TX00.014

Open-End Spanners
Extra thin

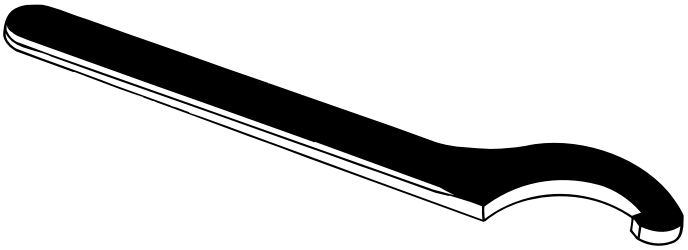


Material - Chrome Vanadium Steel, Chrome plated
Fork Angle - 15°

Opening Across Flats	Length	Fork Thickness	Part Number
15	145	5.2	TX00.015
16	160	3.2	TX00.016
17	160	5.5	TX00.017
19	175	6.0	TX00.019
22	196	6.5	TX00.022
25	216	7.0	TX00.025
27	216	7.0	TX00.027
30	240	7.5	TX00.030
32	270	8.0	TX00.032

K

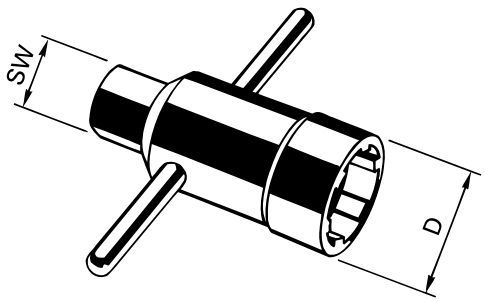
Hook Spanners
For side slotted nuts



Material - Hardened Tool Steel, Gunmetal finish

Thread Size	Nut Outer Diameter	Part Number
M 28 x 1	30 - 33	TX00.105
M 30 x 1 M 32 x 1	34 - 38	TX00.106
M 35 x 1 M 36 x 1	39 - 43	TX00.107

Nutdriver with T-Handle and Hex Drive
For decorative slotted nuts

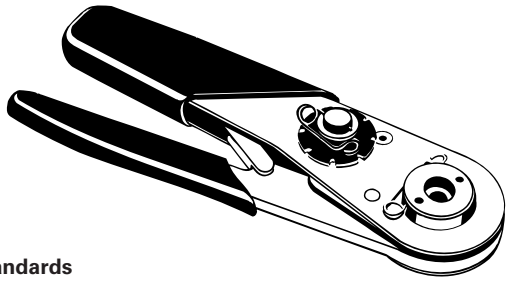


Material - Hardened Tool Steel, Nickel plated

Thread Size	Nut Outer Diameter	D	Hex Drive	Part Number
M 9 x 0.5	12	15	7	TC00.000
M 12 x 1	15	18	10	TF00.001
M 14 x 1	18	21	10	TG00.001
M 15 x 1	19	22	12	TK00.000
M 16 x 1	20	23	12	TK00.002
M 18 x 1	23	26	12	TP00.011
M 20 x 1	25	28	12	TP00.005
M 22 x 1	28	32	12	TR00.004

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

Crimp Tool ULTRA PRECISION for closed C crimp termination



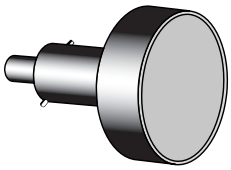
Standards
IEC 60203 / DIN 41 611, Part 3
MIL-C-22520, Class I, Type 1

Contact Dia.	C Crimp Tool	Part Number
0.5 0.7 0.9 1.3	BALMAR 18 - 000 or DANIELS MH - 800	TX00.240
1.6	BUCHANAN 615 708	TX00.242

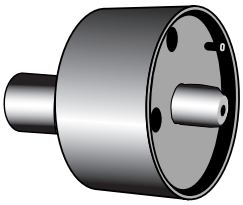
The best choice of precision crimp tools for highly reliable eight indenter crimping per US-MIL, IEC and DIN Specifications. Positioners have to be ordered according to contact.

Positioner FISCHER

For crimp tool TX00.240



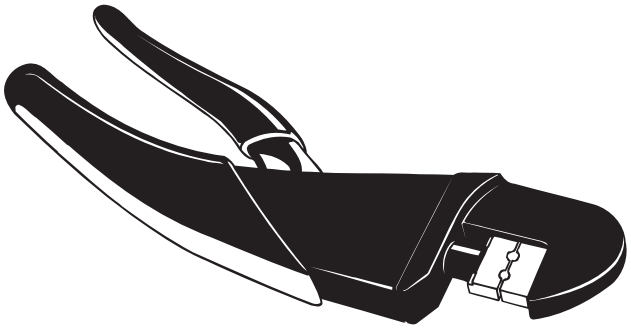
For crimp tool TX00.242



For the choice of Fischer positioner, please refer to page J4.

K

Crimp Tool for coaxial cable



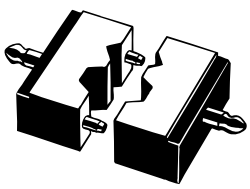
Standards
MIL-C-22520, Class I, Type 2

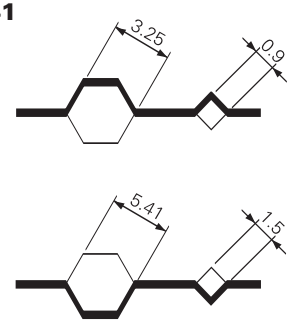
Part Number TX00.241 - ERMA 29020

Precision crimp tool without dies for hexagon and square crimping. A light weight tool with handle span of only 130 mm. Weight (without dies): 0.75 kg

For crimping dies not larger than 8.23 mm across flats.
Maximum crimping dies: IEC 60803-G; BSI size G.

Crimping Dies for precision crimp tool P/N TX00.241





HEXAGON CRIMP for coaxial cables

TX00.250 Special crimping dies for coaxial cables of cable group 1 (RG-174 etc.).
The hexagon corresponds to IEC 60803-B.

TX00.251 Special crimping dies for coaxial cables of cable group 4 (RG-58 etc.).
The hexagon corresponds to IEC 60803-D.

Table of cable groups see page Q1

TOOLS FOR CRIMP CONTACTS AND HIGH VOLTAGE CONTACTS

Contact Insertion Tool

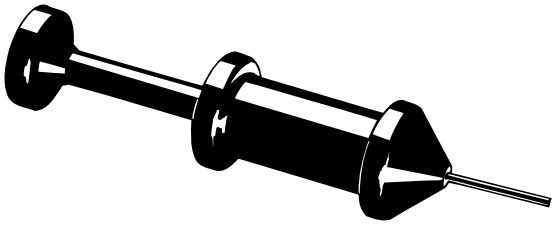
Contact Dia.	Part Number
0.5	TX00.214
0.7	TX00.210
0.9	TX00.211
1.3	TX00.273

Tool for inserting male and female removable, crimp contacts into the contact block.

Especially recommended for small gauge and fragile wires.

Material - Handle: POM (black Delrin®)
Fork: Tool Steel, chrome plated

Contact Extraction Tool



Contact Dia.	Part Number
0.5	TX00.213
0.7	TX00.200
0.9	TX00.205
1.3	TX00.212
1.6	TX00.201

Coax Insert No	Part Number
E22 200.48	TX00.275
E22 200.49	
E22 200.55	
E22 200.56	
E22 200.71	TX00.274

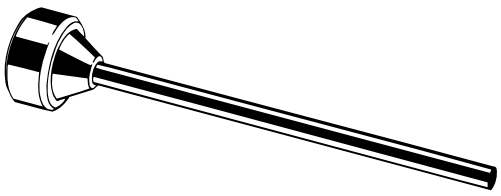
Tool for extracting male and female removable, crimp contacts from the contact block.

The sleeve of this tool is pushed over the contact, thereby releasing the contact retaining mechanism. The tool plunger is then pushed to eject the contact.

Material - Housing and Plunger: POM (black Delrin®)
Sleeve: Stainless Steel
Slide: Tool Steel

K

Assembly Tool for male contacts with outside thread



TP00.001

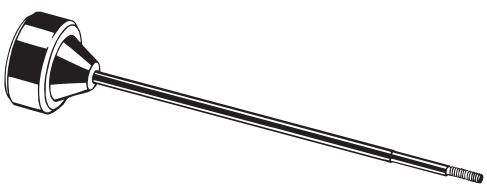
Tool for special, male contacts (e.g. contact P/N E22 200.15) which are inserted only after termination to a wire.

Slip tool through the contact mounting hole from the mating side of the contact block. Screw the tool onto the terminated contact and pull firmly until the contact is locked into the contact block.

Attention: Once contact P/N E22 200.15 has been inserted into the contact block, it cannot be removed.

Length: 75 mm
Inside thread: M3
Material: Stainless Steel

Assembly Tool for female contacts with inside thread



TP00.000

Tool for special, female contacts (e.g. contact P/N E22 200.14) which are inserted only after termination to a wire.

Slip tool through the contact mounting hole from the mating side of the contact block. Screw the tool into the terminated contact and pull firmly until the contact is locked into the contact block.

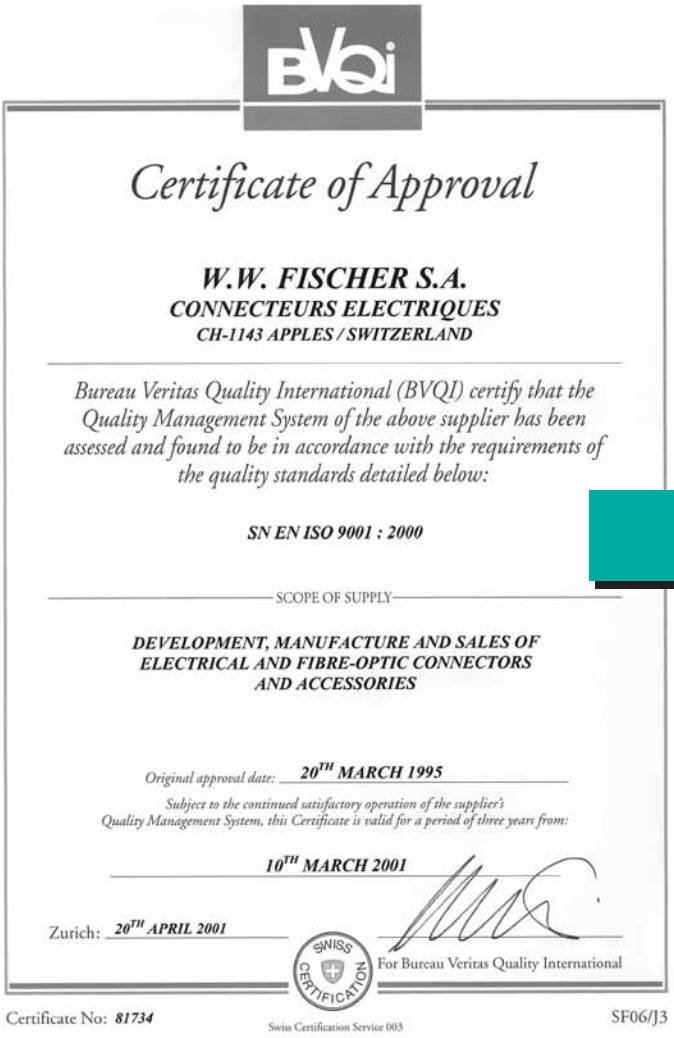
Attention: Once contact P/N E22 200.14 has been inserted into the contact block, it cannot be removed.

Length: 75 mm
Outside thread: M1.7
Material: Stainless Steel

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

L

SN EN ISO 9001:2000



Certificate of Approval

W.W. FISCHER S.A.
CONNECTEURS ELECTRIQUES
CH-1143 APPLES / SWITZERLAND

Bureau Veritas Quality International (BVQI) certify that the Quality Management System of the above supplier has been assessed and found to be in accordance with the requirements of the quality standards detailed below:

SN EN ISO 9001 : 2000

SCOPE OF SUPPLY

DEVELOPMENT, MANUFACTURE AND SALES OF ELECTRICAL AND FIBRE-OPTIC CONNECTORS AND ACCESSORIES

Original approval date: 20TH MARCH 1995

Subject to the continued satisfactory operation of the supplier's Quality Management System, this Certificate is valid for a period of three years from:

10TH MARCH 2001

Zurich: 20TH APRIL 2001

For Bureau Veritas Quality International

Certificate No: 81734

Swiss Certification Service 003

SF06/J3

SN EN ISO 14001:1996

Certificate of Approval

W.W. FISCHER S.A.
CONNECTEURS ELECTRIQUES
CH-1143 APPLES / SWITZERLAND

Bureau Veritas Quality International (BVQI) certify that the Environmental Management System of the above operator has been assessed and found to be in accordance with the requirements of the environmental standards and operational scope detailed below:

SN EN ISO 14001 : 1996

OPERATIONAL SCOPE

DEVELOPMENT, MANUFACTURE AND SALES OF ELECTRICAL AND FIBRE-OPTIC CONNECTORS AND ACCESSORIES

Original approval date: 10TH MARCH 2001

Subject to the continued satisfactory operation of the supplier's Environmental Management System, this Certificate is valid for a period of three years from:

10TH MARCH 2001

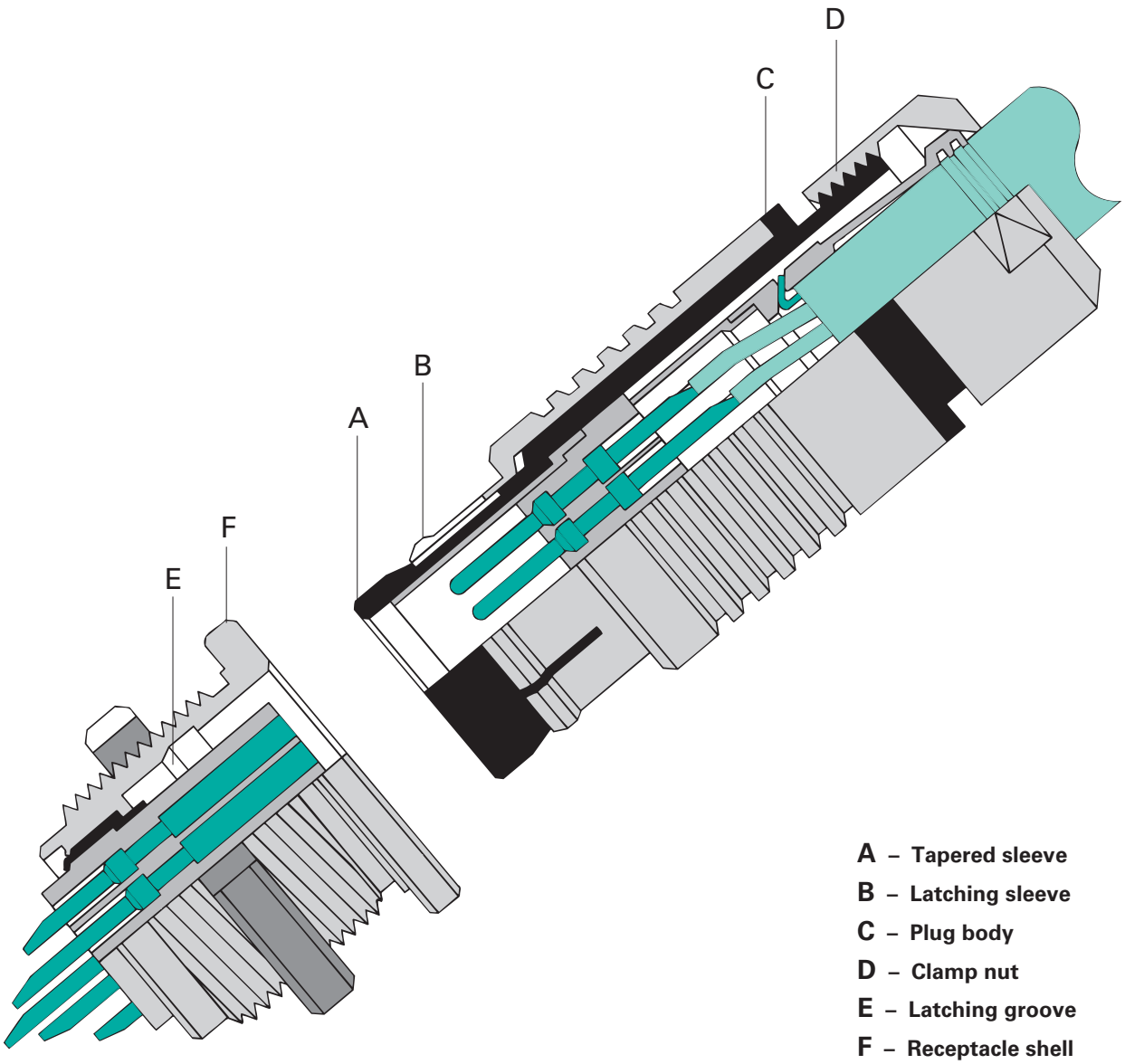
Zurich: 20TH MARCH 2001

For Bureau Veritas Quality International

Certificate No: 81734

Swiss Certification Service 031

SF06/Z



A – Tapered sleeve
B – Latching sleeve
C – Plug body
D – Clamp nut
E – Latching groove
F – Receptacle shell

The values given in this catalogue are measured under standard environmental conditions. They shall not be translated for other applications without previous examination of the corresponding standards.

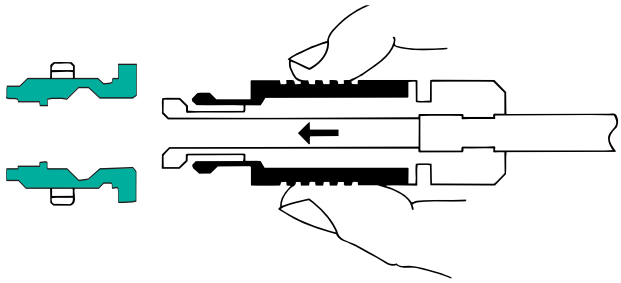
Please also observe the local environmental regulations.

Some connectors shown herein are intended for use in areas of high frequencies and high voltages. Suitable safety precautions should be taken to ensure that people do not come into contact with powered conductors during installation and operation.

Every effort has been made to ensure that this catalogue is accurate at the time of printing. **Fischer Connectors** reserves the right to make any modification according to the state of the art without notice and without obligation to replace or manufacture obsolete items.

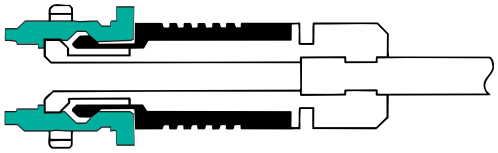
All dimensions shown are in millimeters and are for reference only.

FISCHER Automatic Latching - How it Works

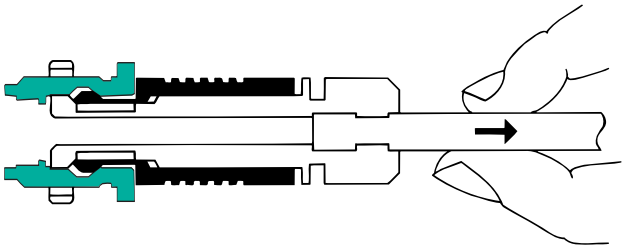


The drawing shows the longitudinal section of a receptacle and a plug in the unmated position.

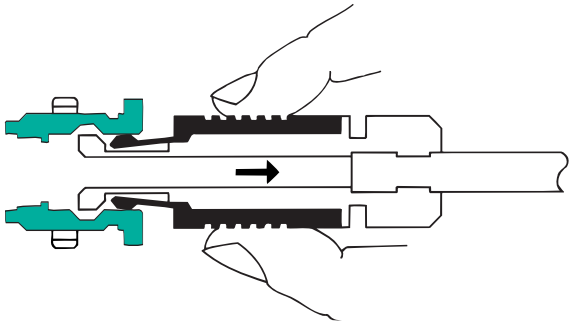
The latching sleeve of the plug has a fixed amount of lengthwise play along the body. The flexible fingers which extend from this sleeve possess bevelled protrusions.



When the connectors are mated, these protrusions are firmly captivated by the receptacle's internal latching groove.



If the attached cable or clamp nut is pulled, the tapered sleeve is forced under the sliding sleeve, holding the fingers even more tightly into the receptacle's latching groove. The more the cable or connector body is pulled, the more the locking pressure increases.



Pulling lengthwise on the plug's latching sleeve unmates the connectors by allowing the fingers to deflect free of the latching groove.

All **FISCHER** connectors contain this reliable, patented self-latching feature. However, non-latching cable plugs are provided under the designation «SOV» and «SOVE». Panel plugs «SF» and «SFE» are non-latching by design.

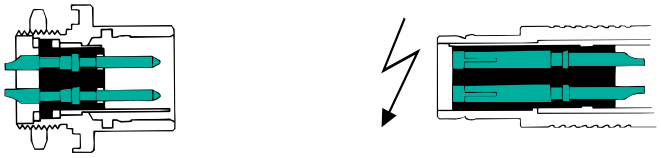
Contact Protection, Type «A» and «Z»

To protect users from contact with dangerous voltages, most **FISCHER** connectors exist in two versions; the standard type «A» and the inverted type «Z».

Type «A» Standard
The contacts of the receptacle are protected against accidental touch. This version is recommended when voltage is present on the receptacle.

Receptacle «D» **Plug «S»**

Type «Z»
The contacts of the plug are protected against accidental touch. This version is recommended when voltage is present on the plug.

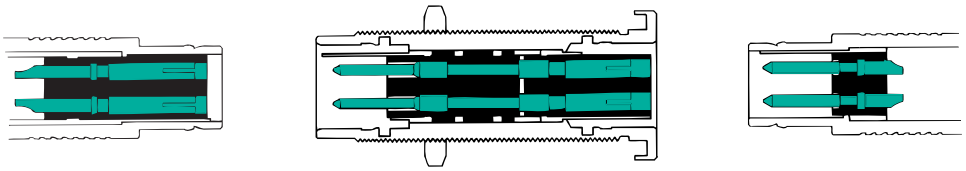


IMPORTANT

An «A» type connector can never be mated with a «Z» type connector.

The letter code before the series number always determines the type of housing. 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. For the exceptions see «High Voltage Connectors» in section C.

Bulkhead Feed-through 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 «Z» plug (S) **WDE, type «AZ»** **Type «A» 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.

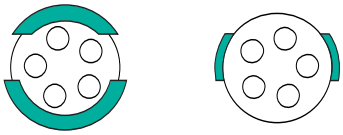
Connector Keying and Orientation

Code 1
(Standard)

Receptacle **Plug**

Orientation during mating is achieved by means of arc-shaped metal guides which ensure exact polarization of the connectors.
This highly reliable design prevents any contact damage caused by miskeying.

Code 2



In order to avoid mismating with connectors of the same type, the arc-shaped guides are available with a differently shaped pattern as Code 2.

For availability of this and other keying options please contact us.

This self alignment when mating does not necessarily require guide marks on the connectors. However, most connectors are available with a guide mark if desired. Standard colors are red for natural chromium-plated housings and white for black chromium-plated housings.

For further differentiation, we recommend the colored cable bend reliefs combined with coding washers, available in the same colors. These items are listed under «Accessories» in section J.

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

FISCHER Contacts

The **FISCHER** contact design is highly reliable. It features a very low and constant contact resistance, tested to more than 5000 mating cycles. These outstanding results are based on the following design features:

- Closed and bevelled contact entrance prevents deformation of spring surfaces.
- Four 90° offset spring loaded lamellas guarantee superb wiping contact with the male pin. The contact force is 100% checked by microprocessor-controlled automatic testers. This is important because the service life depends more on the contact force than on the thickness of the gold plating.
- All contacts are screw machined. Standard female contacts are fabricated from special spring bronze (ISO CuSn4Pb4Zn4, ASTM C54400). The terminations of the standard crimp contacts are selectively soft-annealed.
- A hard, homogeneous gold is plated over a smooth nickel layer. The standard surface treatment of the contact pins and sockets consists of 1 µm gold according to MIL-G-45204 type I, class 1 on top of 4 µm nickel according to QQ-N-290, class 2, measured on the functional surfaces. Other plating types and thicknesses are available.

Types of Contact Terminations

The tables of «Electrical Specifications» show the available types of terminations. Most multipole contact configurations of series 102 through 105 can also be supplied with solder termination for printed circuits. The solder pins of these contacts are undercut to a diameter of 0.5 mm (0.02 in) with some exceptions to 0.635 mm (0.025 in).

Crimp contacts are also available and come in various sizes suitable for a variety of wire gauges. A complete summary including the AWG range is listed under «Accessories» and crimping tools are listed under «Assembly Tools».

For large quantity users, the crimp termination technique offers certain advantages. Frequently, faster assembly is possible using less skilled labor. Another advantage lies in the ability to replace contacts. For all connector insulators we use high quality engineering plastic material. However, Teflon (PTFE) insulators are not used for crimp connector as its relative softness will not reliably retain the crimp style contacts.

The quality of a crimp connection depends primarily on the permanent deformation of the crimp barrel and the consistently reproducible crimp force. Our crimp contacts undergo a selective high-frequency annealing process in order to soften the bronze in the crimp area only.

Naturally, only proven, high precision crimp tools should be used. We offer a full line for your convenience.

For **FISCHER** multipole connectors, we suggest that you use only the closed, 8 crimp indenter according to MIL-C-22520, class I, type 1, which guarantees a gas tight crimp as long as the tool is properly adjusted.

Coaxial connectors are also available with crimp contacts, but the center contact can be square crimped. The cable shield can be hex crimped, both according to MIL-C-22520, class I, type 2.

Cable Clamp Sets

FISCHER connectors provides a robust and reliable system for ensuring excellent cable retention and strain relief. A collet style clamp system is used to retain the cable over a relatively large jacket surface area. This prevents damage to small diameter and delicate conductors. The following list describes the different types of clamp systems available.

Type **«S»** — For Shielded cable, when the shield is to be terminated to the connector body. Shielded clamps can also be used for unshielded cable..

Type **«U»** — For Unshielded cable, or where the shield is not to be terminated to the connector body. These clamps are available for series 102 through 105 and are slightly easier to assemble as there is only one piece instead of three.

Type **«E»** — For both shielded and unshielded cables, where the interface between cable and connector body must be sealed.

For WS, WSE and WSO — Cable clamp sets for right-angle connectors listed on page H9 and H10.

For all body styles with mixed contacts:

Type **«UI»** — One piece, insulating collet type clamps made of POM (DELRIN®) are required for mixed coax and high voltage connectors of series 104 through 106, listed on page H8.

Coaxial connectors require the type «S» clamps for non-sealed connectors and the type «E» clamps for sealed connectors. The collet diameter has to be selected from the appropriate tables on pages H1 - H7 to complete the connector part number.

To promote maximum reliability, the **FISCHER** cable clamp system requires that it be properly sized to the jacket diameter of the cable. Therefore, it is very important that the cable diameter and its tolerances are accurately known when specifying the appropriate clamp set. If in doubt about choosing the correct cable clamp, please contact us.

Multipole connectors of series 102 - 107 are delivered with shipping spacer in lieu of the clamp set. The required cable clamp sets are ordered separately and are supplied in plastic tubes. During assembly, the spacer is replaced by the clamp set. This accelerates cable termination and also reduces inventory for those customers requiring multiple clamp sizes.

To select cable clamp sets, see available diameters in section H and ordering information on page A3.

Materials and Surface Treatment

The standard **FISCHER** connector shells are nickel plated brass with a natural matte chrome finish. Black chrome finish is available as an option. See table of Standardized Suffixes on page A3.

Internal piece parts are nickel plated brass. When warranted by an extreme environment, in most cases type 316L stainless steel can be substituted for all metal parts.

	Material		Coating	
Piece Parts	**Designation**	**ISO Standards**	**Finish**	**US Standards**
Shell (Housing) Clamp nut Decorative slotted nut	Brass	CuZn39Pb3	3 - 6 µm Ni + 1 - 3 µm Cr	SAE-AMS-QQ-N-290 SAE-AMS-QQ-N-320
Plug body Cable clamp Inner Sleeve Spacers and Rings Nuts and Washers	Brass	CuZn39Pb3	>3 µm chemical Ni	MIL-C-26074E classe 1
Male solder contacts Male crimp contacts Female contacts	Brass Bronze Bronze	CuZn39Pb3 CuSn4Pb4Zn4 CuSn4Pb4Zn4	5 - 7 µm Ni + 1 µm Au	AMS 2422D ASTM B488 (MIL-G-45204 type I)

Other materials and surface treatments are available on request.

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

Insulating Materials

Contact blocs 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 Specifications» in section D through F. Ceramics and other dielectrics are available on special order.

In the following reference list we also included POM (Delrin®), which is mainly used for sealing accessories and insulating cable clamps, but not as contact bloc material.

International Symbol	Chemical Name	Trade Name
PAI	Polyamide-imide	Torlon
PBT	Polybutylene-terephthalate	Celanex, Valox, Crastin, Ultradur, ...
PEEK	Polyether-etherketone	PEEK
PTFE	Polytetra-fluorethylene	Teflon, Hostaflon, ...
POM	Polyoxy-methylene	Delrin, Hostaform, Celcon, ...

The following chart shows characteristic values of these engineering plastic materials.

Characteristics ❶	Standards ASTM	Standards Internat.	DIN	Unit of Measure	PAI	PBT	PEEK	PTFE
Volume resistivity	D-257	IEC 93	53 482	Ω cm	10^{17}	$> 10^{14}$	$> 10^{16}$	10^{18}
Dielectric strength (3 mm sample)	D-149	IEC 243	53 481	kV/mm	23	19	19	20
Dielectric constant at 10 kHz	D-150	IEC 250	53 483		3.5	3.9	3.3	2.1
Dielectric loss tangent at 1 MHz	D-150	IEC 250	53 483		0.009	0.016	0.003	0.0003
Tensile strength	D-638	ISO R527	53 455	N/mm^2	190	120	130	27
Flexural strenght at 23 °C	D-790	ISO R178	53 452	N/mm^2	215	170	200	no breakage
Flexural modulus at 23 °C	D-790	ISO R178	53 457	kN/mm^2	4.6	8.0	6.5	0.54
Maximum continuous temperature	UL-746			°C	260	140	250	250
Flammability rating (2 mm sample)	D-635	UL-94			V-0	V-0	V-0	V-0
Limiting oxygen index, LOI	D-2863	ISO 4589		% O	43	31	35	95
Moisture absorption, 24 hrs at 23 °C	D-570	ISO R62A	53 495	%	0.28	0.2	0.3	0.01
Steam sterilization ❷					limited	limited	very good	very good
Ionizing radiation resistance Co60				Rad	10^{9}	10^{8}	10^{9}	10^{4}
Natural color / other color					greenish	(black)	gray-beige	white

1 N/mm^2 = 1 MPa = 10.2 kg/cm^2 1 kN/mm^2 = 1 GPa = 102 kg/mm^2 100 Rad = 1 Gy (Gray) = 1 J/kg

❶ These typical values are based on manufacturers' data. The use of connectors under certain environmental conditions requires specific tests that take into consideration all the specifications of all the materials used.

❷ **FISCHER**'s own experimental values to be taken as a guide only.

ASTM American Society for Testing Material
DIN Deutsches Institut für Normung
IEC Internationale Elektrotechnische Kommission
ISO Internationale Organisation für Standardisation
UL Underwriters Laboratories

Elastomer Seals

Sealed connectors are fitted with O-rings and cable sealing gaskets. For O-rings, the standard material are:

- Viton ® for O-rings
- TPE (Thermoplastic Elastomers) for cable sealings, protective sleeves and strain reliefs.

Please note that as an elastomer reaches its lower temperature limit, it becomes rigid and loses the flexibility required for connector mating and unmating. If sealed connectors have to be manipulated at low temperatures, the O-ring in the mating area has to be of a material with a considerably lower temperature limit.

The elastomers listed below represent presently available materials, which **FISCHER** can substitute when required by an application. Not all materials are available in all shapes and sizes so please check with us for details.

Compound and Trade Name	Chemical Name	Temperature Range (ASTM D-1414)	Excellent resistance to
NBR BUNA N	Acrylonitrile-Butadiene rubber	-30°C to +110°C	Weather, ozone, fuels, oils
NBR per MIL-P-25732	Acrylonitrile-Butadiene rubber	-54°C to +135°C	Weather, ozone, fuels, mineral oil based hydraulic fluids, Military applications
FPM (VITON)	Fluoro Elastomer	-20°C to +200°C	Acids, weather, ozone, fuels, mineral and Silicone oils, high vaccum, gamma rays
CR (NEOPRENE)	Polychloroprene Elastomer	-40°C to +100°C	Alcohol, ammonia, chlorine, ozone, FREON, soda, vegetable and Silicone oils
EPDM, EPM or EPR	Ethylene-Propylene Diene Elastomer	-50°C to +160°C	Alcohol, weather, hot water, vapour, brake fluids, detergents, gamma rays
TPE-S, TPE-O (Thermoplastic Elastomer)	Styrene-Ethylene-Butadiene-Styrene	-70°C to +130°C	Very resistant, except to aromated and chlorinated hydrocarbons

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.

Listed below are our recommended operating temperature ranges:

Standard plugs and receptacles	Operating Temperature Limits	
	Long Term	Short Term
Contact block of PAI and PEEK	-65°C to +200°C	+220°C
Contact block of PTFE	-65°C to +160°C	+175°C
Contact block of PBT	-65°C to +135°C	+150°C
Connectors with sealed cable clamp	-65°C to +135°C	+175°C
Receptacles DEE, DEU, DBEE, DBEU, DBPE, DBPU, WDE	-25°C to +135°C ❶	+175°C
DELRIN (POM) accessories	-40°C to +100°C	-50°C to +150°C

❶ For lower temperature ranges see «Elastomer Seals» on this page.

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

Operating Voltages (Rated Voltage)

The test voltages (dielectric withstanding voltage) listed under «Electrical Specifications» are readings measured in our laboratory according to IEC 60512-2, test 4a (Voltage proof). This standard is equivalent to the German DIN 41 640, section 8 as well as to US standards MIL-STD-202, method 301 and MIL-STD-1344, method 3001.
The test results can also be related to the British Standard BS 9520, paragraph 1.2.4.5 (Voltage proof).

All tests are carried out under standard temperature and pressure. All other conditions require the appropriate derating factors in conformance to the applicable standards.

If no other restrictive standards or local environmental regulations are to be applied, we recommend the calculation of the rated voltages according to IEC 60130-1, also specified in BS 9520, paragraph 1.1.12.3 (c). For connectors up to 1 kV rated voltage, this method of calculation also corresponds to the recommendation of MIL-STD-1344, method 3001.

Connectors for rated voltages up to and including 1 kV:

$$\text{Operating voltage} = \frac{\text{Test voltage}}{3}$$ with minimum test voltage of 500 V

Connectors for rated voltages higher than 1 kV:

$$\text{Operating voltage} = \frac{\text{Test voltage}}{1.5}$$ with minimum test voltage of 3 kV

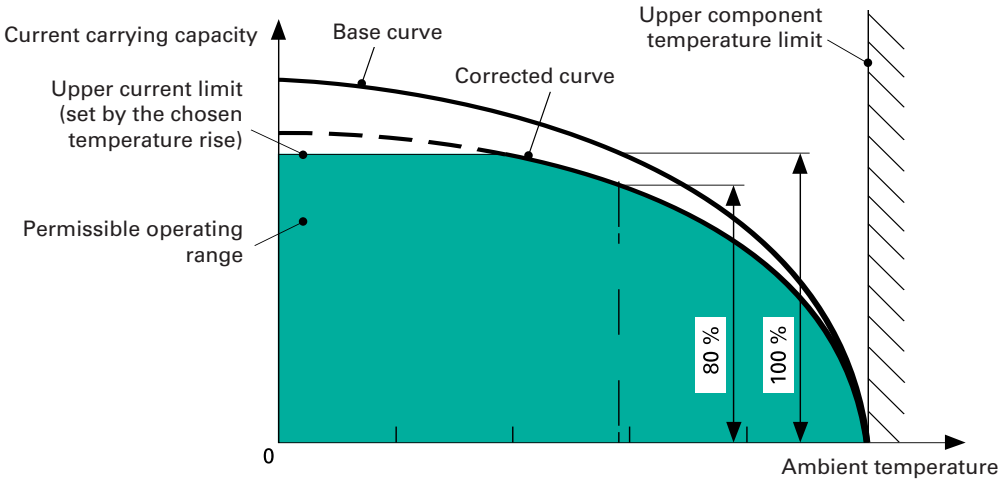
IEC 60512 : Standard of the International Electrotechnical Commission: «Electromechanical components for electronic equipment»
IEC 60130 : Includes connectors for frequencies below 3 MHz.
BS 9520 : British Standard Specification for Electrical connectors of assessed quality for d.c. and low frequency application.

Current Rating (Maximum admissible current)

The current-carrying capacities, listed under «Electrical Specifications» were calculated in our test laboratory according to IEC 60512-3, test 5a (Temperature rise) and 5b (Current - temperature derating), equivalent to DIN 41 640, sections 11 and 3.

The preferred values in these standards are 20°C, 30°C and 40°C temperature rise above the ambient temperature. While cable manufacturers specify the maximum admissible current at 20°C, some manufacturers of connectors specify the values at 40 °C temperature rise. We list both values in our catalogue.

When selecting a connector, attention must be paid to the fact that the temperature rise caused by current must be added to the ambient temperature and that the resulting value may not exceed the upper component limit, listed under «Operating Temperatures» on page L8.
In the picture below, the corrected derating curve shows that the current must approach zero when the upper component temperature limit has been reached.



Current capacity (derating curve)

The values of the maximum admissible current, listed under «Electrical Specifications», are valid for each contact, wired with the largest possible conductor cross-section. For coaxial and triaxial connectors, the current is valid for the center and the outer contact.

Depending on the conductor cross-section, single contacts can carry a higher current if remaining contacts carry correspondingly lesser loads. As general guideline a single contact can carry twice the current value indicated in our tables.

Due to the measuring method, cable heating has a considerable influence on the connector current capacity.
Please contact us if you require more detailed information.

For voltage and current ratings of right angle plugs «WS, WSE, WSO» and bulkhead feedthroughs «WDE», please consult us.

HERMETICALLY SEALED AND PRESSURE TIGHT CONNECTORS

Hermetically sealed and pressure-tight connectors are one of our specialties. Based on decades of experience, we can deliver almost any type of connector in a hermetically sealed version.

Please note that our sealed and unsealed connectors have identically dimensioned mating areas and thus are intermateable.

Distinction must be made between liquidtight and gastight connectors limiting the gas-tightness to fixed connectors (receptacles and panel plugs) and their mounting areas.

IEC 60529, BS 5490 and DIN 40 050 standards classify the degree of «Ingress Protection» (IP), from water (dripping water, splashed water, streaming water and continuous immersion) as well as protection from dust.
Our range of liquidtight connectors includes styles like DEU, DBEU, DBPU and similar. Liquidtight connectors are rated IP68 to a depth ≥ 1m in water.

Hermetically sealed connectors are gastight. Therefore they exceed the **IP68** rating (which is a definition limited to liquids). Hermetically sealed connectors can be used under water to a depth of 80 meters (or more with protective covers. However specific testy is then required)

The sealing material limits the working temperature range to approximately -25°C to +135°C. We highly recommend that the application falls within these limits. If not, please check with us about using special materials.

FISCHER connectors are sealed in the following fashion:
(refer to the illustrations on page M2):

		Sealing mechanism	Sealing technology
a	DEE, DBEE, DBPE, SFE and WDE	Connectors are sealed even unmated or unprotected. Gastight contact insulation	Proprietary Glass epoxy composite material + O-ring seal *
b	DEE, DBEE, DBPE, DKE, DKBE, SFE and WDE	Panel seal	O-ring seal *
c	All receptacles and cable receptacles	Sealing of two connectors when mated	O-ring seal *
d	S, SC, SV, SOV, WSE WSO, DKE, DKBE and KE	Sealing of cable clamp	Elastomer sealing ring adjusted to cable ø
e	DEU, DBEU, DBPU	Liquidtigth sealing even unmated or unprotected	High performance potting resin

* O-ring seals made of VITON® are standard. Other elastomers are available on request.

The IEC standard defines the gas-tightness of connectors in terms of leakage rates ranging between a few mm^3/hr. and a few cm^3/hr. The MIL-C-38999 (USAF) requires in class Y a leakage rate which at a pressure differential of 1 atmosphere does not exceed the value of 0.36 mm^3/hr. (≤ 0.01 μft^3/hr.).

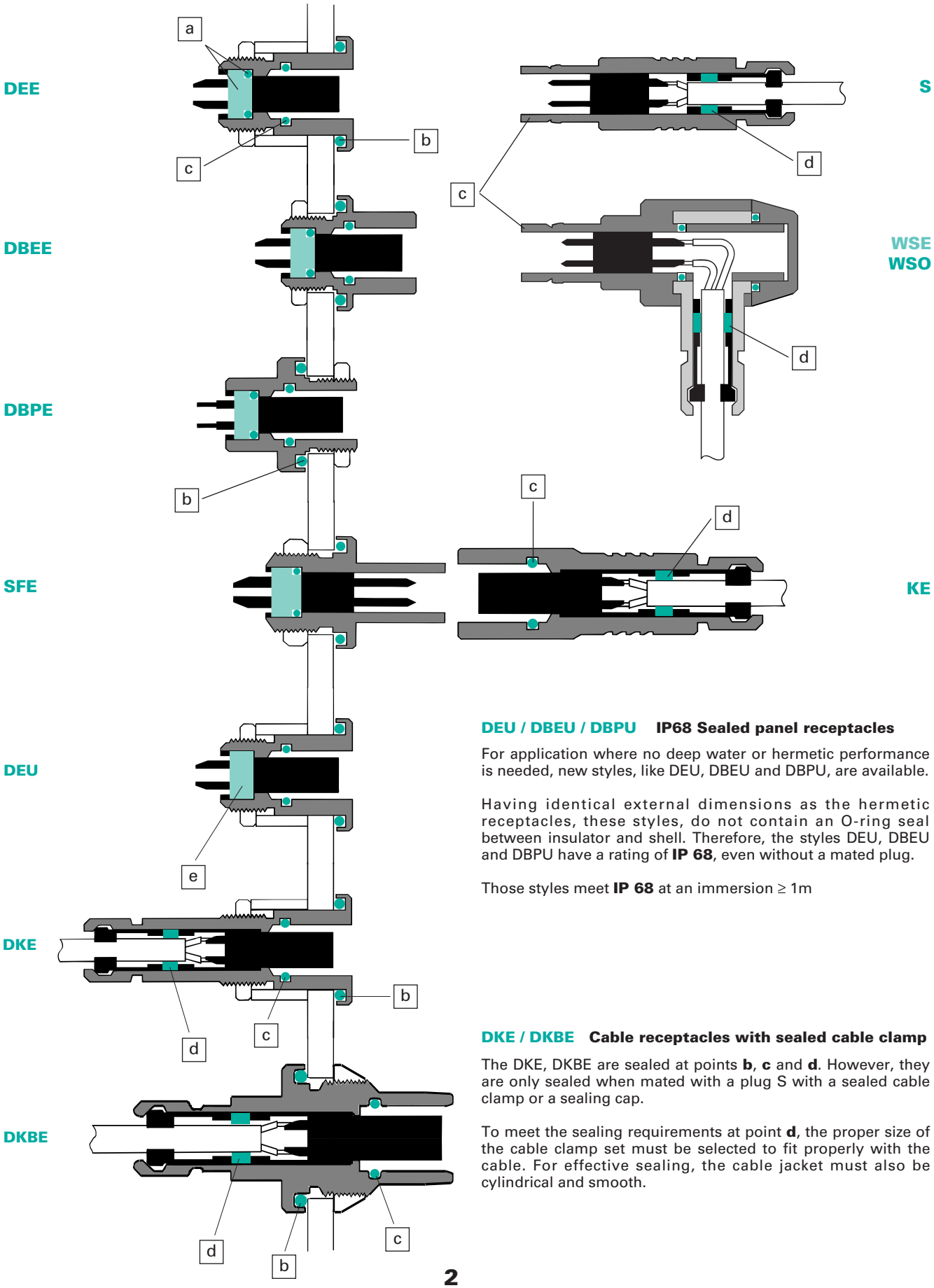
Our hermetically sealed connectors meet all requirements of the relevant standards. At the highest sealing level, the leakage rate is between 0.004 and 0.036 mm^3/hour. The leakage rate of our sealed connectors is therefore much lower than required by the US MIL Standards and exceeds the IEC Standards by a factor 100.

Prior to shipment, all hermetically sealed receptacles, panel plugs and feed-through connectors are subject to a vacuum test. Helium is used as a tracer gas, and this non-destructive test is carried out similarly to MIL STD 1344, Method 100B, and IEC standards 60068-2-17 Test Qk: «Sealing tracer gas method with mass spectrometer» (Test method 3, Alternative b). In this test, the vacuum chamber is sealed by the test connector and the spectrometer shows the leakage rate directly. **FISCHER** tests for less than **10^{-8} mbar l/s** or, according to SI-System, ≤10^{-3} Pa cm^3/s. If needed, the residual leakage can be tested for values ≤10^{-9} mbar l/s or ≤10^{-4} Pa cm^3/s.

All panel connectors, with the exception of a few coaxial and high voltage connectors, are available in hermetically sealed versions.

HERMETICALLY SEALED CONNECTORS

Fixed connectors | **Free connectors**



M

DEU / DBEU / DBPU IP68 Sealed panel receptacles

For application where no deep water or hermetic performance is needed, new styles, like DEU, DBEU and DBPU, are available.

Having identical external dimensions as the hermetic receptacles, these styles, do not contain an O-ring seal between insulator and shell. Therefore, the styles DEU, DBEU and DBPU have a rating of **IP 68**, even without a mated plug.

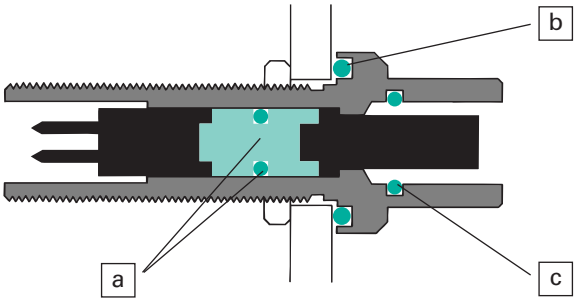
Those styles meet **IP 68** at an immersion ≥ 1m

DKE / DKBE Cable receptacles with sealed cable clamp

The DKE, DKBE are sealed at points **b**, **c** and **d**. However, they are only sealed when mated with a plug S with a sealed cable clamp or a sealing cap.

To meet the sealing requirements at point **d**, the proper size of the cable clamp set must be selected to fit properly with the cable. For effective sealing, the cable jacket must also be cylindrical and smooth.

WDE



Type «AZ» is the standard version of the WDE. The flange side mates with an «A» type plug, and the threaded side mates with a «Z» type plug.

In the inverted type «ZA» of the WDE the contact block is mounted in the opposite direction. Therefore it mates with a type «Z» plug at the flange side and with a type «A» plug at the threaded end (see also page L4).

While both sides of the WDE are equipped for self-latching, only the flange side contains a sealing O-ring in the mating area. Whether sealed plugs must be used depends on the application. Sealed plug are not required when the connectors are not exposed to environmental conditions requiring protection.

Fixed connectors

The fixed connector types DEE, DBEE, DBPE, SFE and WDE meet all requirements for sealing at points **a**, **b** and **c** listed on page M1. They are hermetically sealed even in unmated position, whether mounted or not. However, proper mounting in a bulkhead with a smooth and flat surface is a prerequisite for proper sealing to an enclosure.

Free connectors

The plugs S and WSO are sealed at points **c** and **d**, page M1, but the sealing is only effective when connected to a connector with interface o-ring **c**.
To seal properly at **d**, the cable diameter must match the cable collet and sealing ring. The cable jacket must also be cylindrical and smooth.

Protective covers for sealing of unmated, free connectors are available and come complete with an O-ring seal.

However, if the contacts must also remain accessible for steam or chemical sterilization, the connector must be potted with an elastomer such as silicone elastomer in order to avoid liquid or steam penetration.

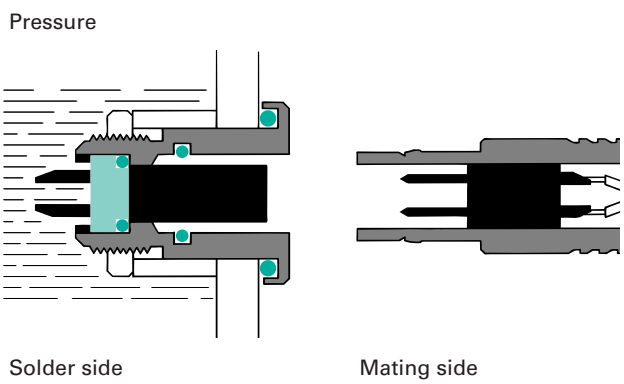
For the sealed cable receptacles KE, DKE and DKBE, the same conditions apply as described above for S and WSO.

M

Pressure Differentials

Our standard hermetically sealed, fixed connectors will withstand a pressure differential of at least 8 bars, or 0.8 MPa according to SI-System. However, a greater differential can be obtained if the higher pressure is on the solder side of the receptacle.

In order to determine the highest possible pressure for a particular type of connector, please contact us.



General Environmental Protection

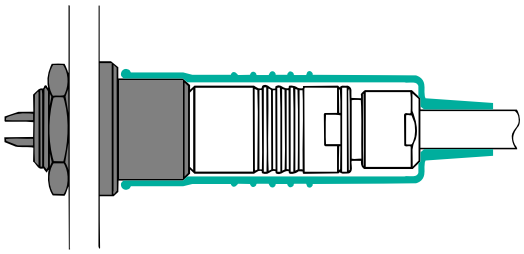
In many applications where only a protection against dust or liquid splash is required, an unsealed connector shrouded with a flexible protective sleeve will perform effectively. Additionally, connectors can be protected with sealing caps while unmated.

Protective sleeves and caps are also very effective in preventing dirt, mud or other foreign matter from fouling, shorting, or damaging the contacts. Mechanical damage from impact on hard surfaces can also be minimized with the use of this accessories.

The following plug types are suitable for use with protective sleeves:

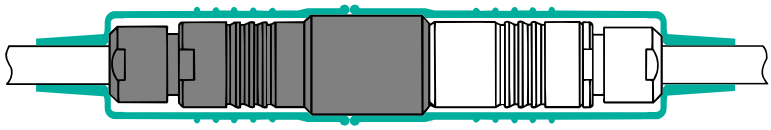
S Locking plug
SC Clic-Loc™ plug
SOV Non-locking plug
K Cable receptacle
KE Sealed cable receptacle

} listed under «Accessories» on page J1.



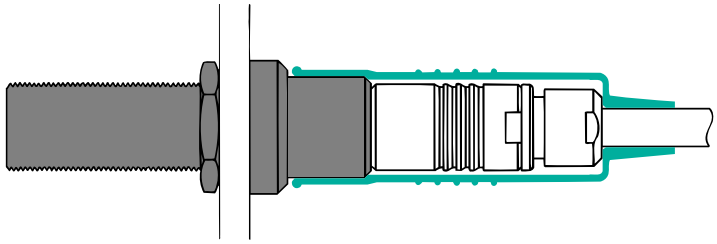
Front projecting receptacles DB, DBEE or DBEU and plug with protective sleeve

The front end of the plug's protective sleeve encloses the projecting portion of the receptacle DB, DBEE, DBEU.



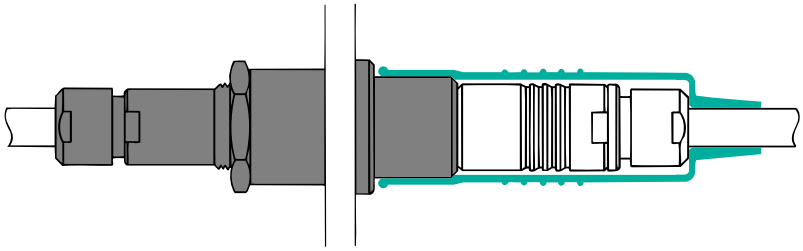
Plug and cable receptacle K or KE, both with protective sleeves

The front end of the plug's protective sleeves encloses the front of the receptacle K or KE.



Bulk-head feedthrough WDE and plug with protective sleeve

The front end of the protective sleeve encloses the projecting portion of the WDE.
The combination is only possible for WDE Series 102, 103 and 104 (Type 1, page B8).

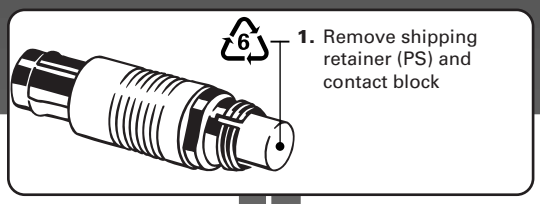


Panel mounted cable receptacle DKE, DKBE and plug with protective sleeve

The front end of the protective sleeve encloses the projecting portion of the DKE and DKBE.
The combination is only possible for DKE, DKBE Series 104, 105, 106 and 107.

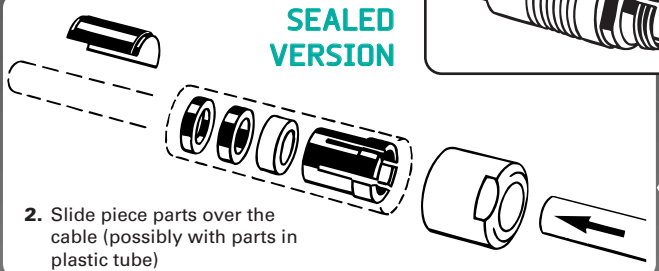
Tamper-proof plugs SV and SA cannot be equipped with protective sleeves.

GENERAL CABLE ASSEMBLY INSTRUCTIONS



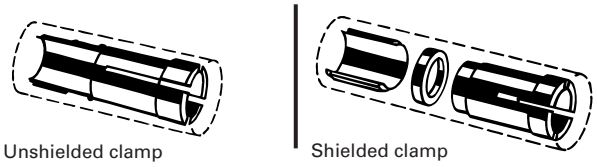
1. Remove shipping retainer (PS) and contact block

SEALED VERSION



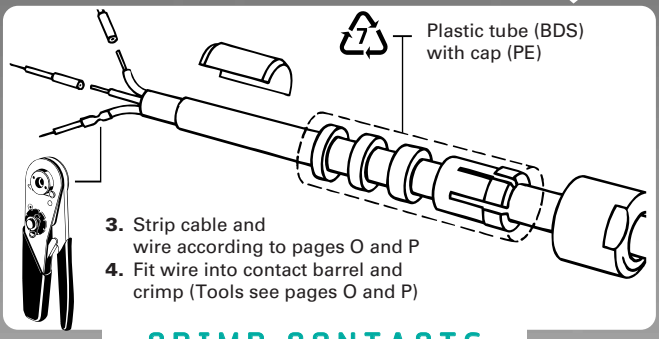
2. Slide piece parts over the cable (possibly with parts in plastic tube)

UNSEALED VERSION



Unshielded clamp

Shielded clamp

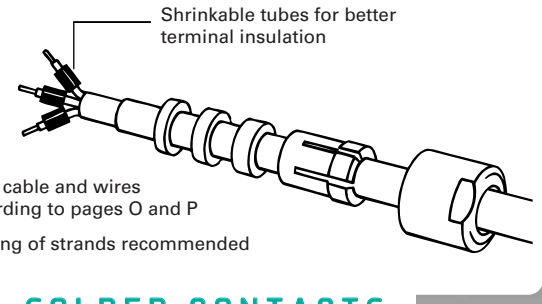


Plastic tube (BDS) with cap (PE)

3. Strip cable and wire according to pages O and P

4. Fit wire into contact barrel and crimp (Tools see pages O and P)

CRIMP CONTACTS

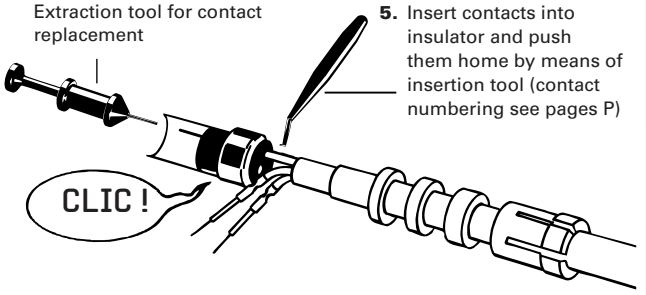


Shrinkable tubes for better terminal insulation

3'. Strip cable and wires according to pages O and P

4'. Tinning of strands recommended

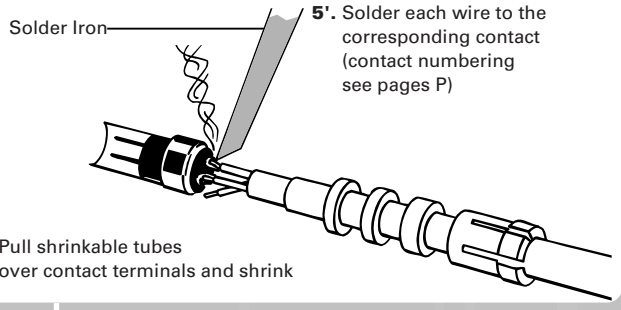
SOLDER CONTACTS



Extraction tool for contact replacement

5. Insert contacts into insulator and push them home by means of insertion tool (contact numbering see pages P)

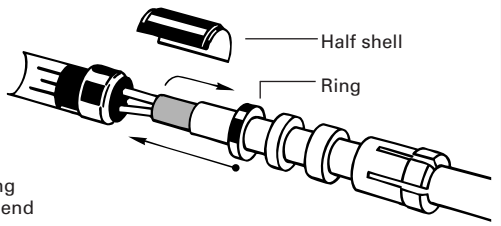
CLIC !



Solder Iron

5'. Solder each wire to the corresponding contact (contact numbering see pages P)

Pull shrinkable tubes over contact terminals and shrink



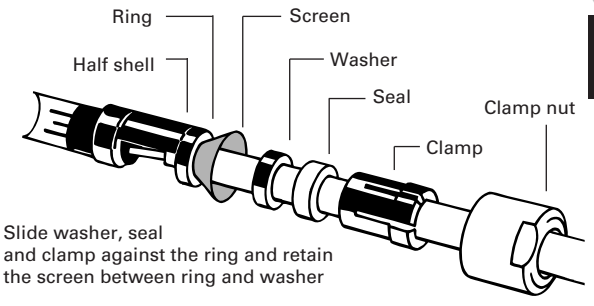
Half shell

Ring

6. Slide the ring to the front end

7. Bend cable screen outwards

8. Insert half shell and retain with the ring



Ring

Screen

Half shell

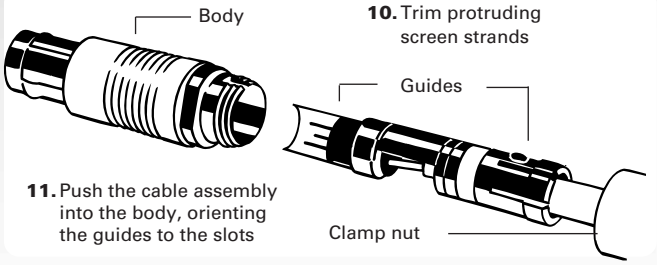
Washer

Seal

Clamp nut

Clamp

9. Slide washer, seal and clamp against the ring and retain the screen between ring and washer



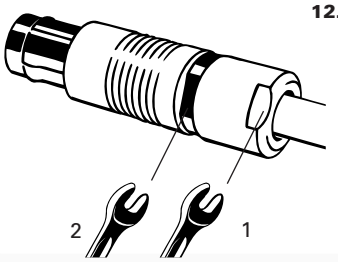
Body

10. Trim protruding screen strands

Guides

Clamp nut

11. Push the cable assembly into the body, orienting the guides to the slots



2

1

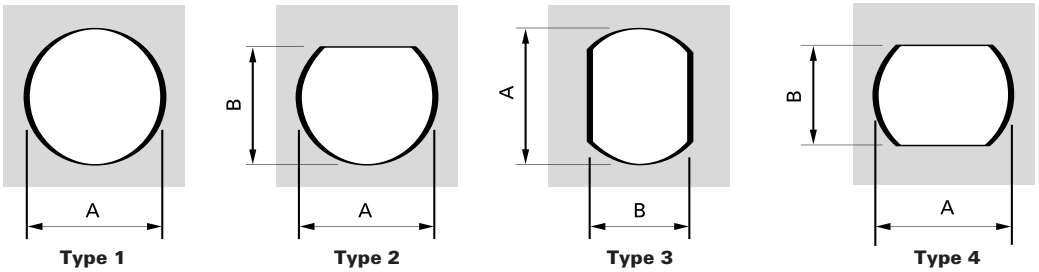
12. Screw clamp nut to the body and tighten by means of wrenches (see pages O and P)

The assembly is now finished.

N

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

Panel Cut-Out



Body Style	102			103			1031			104			105			106			107		
	Type	A	B	Type	A	B	Type	A	B	Type	A	B	Type	A	B	Type	A	B	Type	A	B
SF	4	9.1	8.1	2	12.1	11.2	3	14.1	12.1	2	15.1	14.2	1	16.1	—	1	30.2	—	1	32.2	—
SFE	1	9.1	—	2	12.1	11.2	3	14.1	12.1	2	16.1	15.3	2	20.1	19.1	—	—	—	1	32.2	—
D	2	9.1	8.5	2	12.1	11.2	3	14.1	12.1	2	15.1	14.2	2	18.1	17.3	2	32.2	31	2	35.2	34
DEE, DEU	1	10.1	—	1	14.1	—	1	14.1	—	1	16.1	—	1	20.1	—	1	34.2	—	1	36.2	—
DB	2	9.1	8.5	2	12.1	11.2	—	—	—	1	16.1	—	2	18.1	17.3	2	32.2	31	2	35.2	34
DBEE, DBEU	1	9.1	—	1	14.1	—	2	14.1	13.2	1	16.1	—	1	18.1	—	2	32.2	31	1	35.2	—
DBP	2	9.1	8.5	2	12.1	11.2	3	14.1	12.1	2	15.1	14.2	2	18.1	17.3	—	—	—	2	35.2	34
DBPC	2	9.1	8.5	2	12.1	11.2	3	14.1	12.1	—	—	—	—	—	—	—	—	—	—	—	—
DBPE	1	9.1	—	2	14.1	13.3	3	14.1	12.1	2	16.1	15.3	2	20.1	19.1	2	32.2	31	2	35.2	34
DBPU	4	9.1	7.9	2	14.1	13.3	3	14.1	12.1	2	16.1	15.3	2	20.1	19.1	2	32.2	31	2	35.2	34
DG	2	9.1	8.5	2	12.1	11.2	3	14.1	12.1	2	15.1	14.2	2	18.1	17.3	—	—	—	—	—	—
DGP	2	9.1	8.5	2	12.1	11.2	3	14.1	12.1	2	15.1	14.2	2	18.1	17.3	—	—	—	—	—	—
WDE	1	9.1	—	1	12.1	—	—	—	—	1	15.1	—	1	20.1	—	1	32.2	—	1	36.2	—
DK	2	9.1	8.5	2	12.1	11.2	—	—	—	2	15.1	14.2	2	18.1	17.3	2	32.2	31	2	35.2	34
DKBE	4	12.1	10.1	4	15.1	13.2	3	16.1	14.2	4	18.1	16.2	4	22.1	19.7	4	34.2	32.7	4	38.2	36.2
DKE	1	10.1	—	1	14.1	—	—	—	—	1	16.1	—	1	20.1	—	2	30.2	29	2	35.2	34

Standard Tolerances	ISO 2768-1 - DIN 7168-f - SN 258440-f			
Dimensions [mm]	0.5 ... 6	>6 ... 30	>30 ... 120	>120 ... 400
General tolerances (fine)	± 0.05	± 0.1	± 0.15	± 0.2

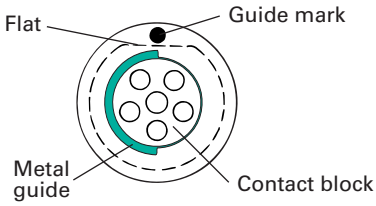
Orientation of mounting flats to guide sleeve position

1. Connectors with standard code 1

Connectors are here seen from the front side which is the mating face. The orientations of the contact blocks to the arc-shaped guides are shown in section P, but always from the wiring side. The following rules are only valid for standard versions. Other orientations of guides and/or guide marks may exist as special options.

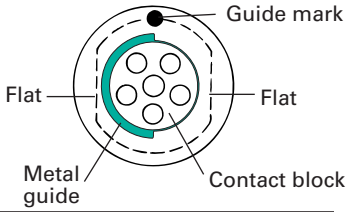
1.1 Fixed Connectors for cut-out according to Type 2

All connector types «A» and «Z» for D-hole mounting per Type 2 above have the arc-shaped guide on the left side when the mounting flat is in the 12 o'clock position. A standard connector mounted in this hole will have its guide mark at the 12 o'clock position.



1.2 Fixed Connectors for cut-out according to Type 3

All above shown connector types «A» and «Z» for double-D hole mounting per Type 3 above, have the arc-shaped guide oriented in parallel to the two flats. A standard connector mounted in this hole will have its guide mark at the 12 o'clock position when the arc-shaped guide is placed to the left side of the connector.



2. Connectors with special code 2

See «Connector Keying and Orientation» on page L4.
Please refer to drawings of these special connectors.

Recommended nut tightening torque values [Nm]

Body Style	102	103	1031	104	105	1051	106	107
S, SA, SC, SOV, SV	0.6	1.0	1.5	2.0	3.5	4.5	8	10
SF	1.3	2.5	3.0	4.0	5.0	—	14	15
SFE	1.3	2.5	—	5.0	6.5	—	—	15
WS, WSE, WSO ❶	0.5	1.0	1.5	2.0	3.5	—	8	10
	1.0	1.3	—	2.5	4.5	—	10	13
D, DBP, DG, DGP	1.3	2.5	3.0	4.0	6.0	7.5	15	16
DEE, DEU	1.3	3.0	3.0	4.5	6.5	9	15	16
DB	1.3	2.5	—	4.5	6.0	12	15	16
DBEE, DBEU	1.3	3.0	3.0	4.5	6.0	—	15	16
DBPE, DBPU	1.3	3.0	3.0	4.5	6.5	—	14	—
DKBE ❶	0.6	1.0	1.5	2.0	3.5	4.5	8	10
	1.5	3.0	3.5	4.5	6.0	7.5	10	12
WDE	1.3	2.5	—	4.0	6.5	—	16	17
K, KE	0.6	1.0	1.5	2.0	3.5	4.5	8	10
DK ❶	0.6	1.0	—	2.0	3.5	—	8	10
	1.3	2.5	—	4.0	6.5	—	14	16
DKE ❶	0.6	1.0	—	2.0	3.5	—	8	10
	1.3	3.0	—	4.5	6.5	—	15	16

The quality of the front panel surface under the nut as well as the caracteristics of the cable sheath may indfluence the values. Tests have to be made to evaluate exact values.

❶ The first value in this zone corresponds to the tightening torque value for the cable clamp nut.

Recommendation:

To secure the cable clamp nut, we recommended the use of threadlocking adhesive.

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

	COAX SERIES 102 REFERENCE NUMBER	Cable Clamp *	A	B	C	Crimping Tool P / N	A) Positioner B) Crimp Dies P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
	102 A001	S	12	15	6					7	7	0.6
		E	12	15	6					7	7	0.6
	102 A002	S	9.5	12	2					7	7	0.6
		E	9.5	12	2					7	7	0.6
	102 A017 **102 Z017**	S	6	8.5	2					7	7	0.6
		E	5	7	2					7	7	0.6
	102 A018 **102 Z018**	S	9.5	12	2					7	7	0.6
	102 A025 **102 Z025** (RG58 cable)						B					
		S	21	29	4.5	TX00.241	TX00.251					

* S - Shielded cable clamp
E - Sealed cable clamp

All specifications are typical and have to be adjusted according to the cable construction and dimensions.
For details see page L6.

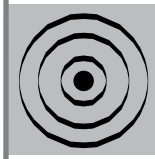
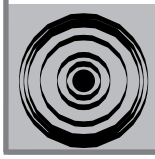
CABLE ASSEMBLY INSTRUCTIONS

	COAX SERIES 103 104 REFERENCE NUMBER	Cable Clamp *	A	B	C		Crimping Tool P / N	A) Positioner B) Crimp Dies P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
	103												
	103 A001 **103 Z001**	S	9	11	4						10	10	1
		E	9	11	4						10	10	1
	103 A002 **103 Z002**	S	10	12	2.5						10	10	1
		E	10	12	2.5						10	10	1
	103 A023 **103 Z023**	S	12	14	2.8						10	10	1
		E	12	14	2.8						10	10	1
	103 A026	S	6.5	8.5	4						10	10	1
		E	6.5	8.5	4						10	10	1
	104												
	104 A002	S	15.5	18.5	2.5						12	13	2
		E	13	16	2.5						12	13	2
	104 A010 **104 Z010**	S	16	19	3						12	13	2
		E	13	16	3						12	13	2
	104 A012	S	12	16	4						12	13	2
		E	10	13	4						12	13	2
	104 Z012	S	14	18	3.5						12	13	2
		E	12	15	3.5						12	13	2
	104 A060 **104 Z060**	S	16	19	3						12	13	2
		E	13	16	3						12	13	2
	104 A085-1 **104 Z085-1**	S	—	—	5.5						12	13	2

* S - Shielded cable clamp
E - Sealed cable clamp

All specifications are typical and have to be adjusted according to the cable construction and dimensions.
For details see page L6.

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

	COAX SERIES 105 107 REFERENCE NUMBER	Cable Clamp *	A	B	C		Crimping Tool P / N	A) Positioner B) Crimp Dies P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size W_1	Wrench Size W_2	Torque [Nm]
	105												
	105 A002 **105 Z002**	S	14	18	4						15	16	3.5
		E	14	18	4						15	16	3.5
	105 A090	S	14	18	3						15	16	3.5
		E	14	18	3						15	16	3.5
	105 A004 **105 Z004**	S	16	28	6						15	16	3.5
		E	17	22	6						15	16	3.5
	105 A005 **105 Z005**	S	15	19	4						15	16	3.5
		E	11	15	4						15	16	3.5
	105 A049 **105 Z049**						Contact assembly tool:						
		S	24	30	3		D 105 A049		TP00.000		15	16	3.5
							S 105 Z049		TP00.000				
	105 A108						Contact assembly tool:						
		S	22	26	3		S 105 A108		TP00.001		15	16	3.5
							D 105 A108		TP00.000				
	107												
	**107 A003** **107 Z003**	S	44	50	5						32	32	10
		E	44	50	5						32	32	10
	107 A004	S	69	77	5						30	32	10
	**107 A017** **107 Z017**	S	72	80	7						30	32	10
		E	66	74	5						30	32	10
		S	62	70	7						30	32	10
		E	57	65	7						30	32	10

* S - Shielded cable clamp
E - Sealed cable clamp

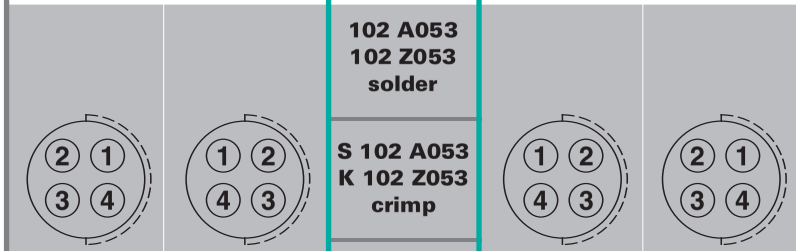
All specifications are typical and have to be adjusted according to the cable construction and dimensions.
For details see page L6.

	TRIAX SERIES 101 102 103 REFERENCE NUMBER	Cable Clamp *	A	B	C	D	Crimping Tool P / N	A) Positioner B) Crimp Dies P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
	101												
	101 A005	S	1.5	4	6	7					5		0.5
	102												
	102 A014	S	2.4	5	5	7.5					7	7	0.6
		E	2.4	4.5	4.5	5.5					7	7	0.6
	102 A021	S	2.5	5	5	7.5					7	7	0.6
		E	2.5	5	4.5	5.5					7	7	0.6
	103												
	103 A015	S	3	6.5	8.5	10.5					10	10	1
		E	3	6.5	8.5	10.5					10	10	1

* S - Shielded cable clamp
E - Sealed cable clamp

All specifications are typical and have to be adjusted according to the cable construction and dimensions.
For details see page L6.

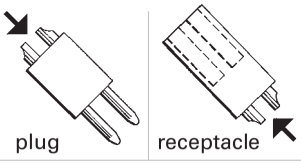
All dimensions shown are in millimeters and are for reference only.

plug / receptacle (Type «A»)	plug / receptacle (Type «Z»)	SERIES 102 — REFERENCE NUMBER	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
		102 A051 102 Z051 solder	S	2	7	2.5	2					7	7	0.6
			U	2	7	–	2					7	7	0.6
			E	2	5	2	2					7	7	0.6
		102 A052 102 Z052 solder	S	3	7	2.5	2					7	7	0.6
			U	3	7	–	2					7	7	0.6
			E	3	5	2	2					7	7	0.6
		**102 A053 102 Z053 solder**	S	4	7	2.5	2					7	7	0.6
			U	4	7	–	2					7	7	0.6
			E	4	5	2	2					7	7	0.6
		S 102 A053 K 102 Z053 crimp	U	4	9	–	3	TX00.240	❶	TX00.210	TX00.200	7	7	0.6
		S 102 Z053 K 102 A053 solder	U	4	9	–	3	TX00.240	❶	TX00.210	TX00.200	7	7	0.6

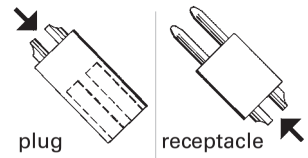
All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

❶ see page J4



Type «A»



Type «Z»

SERIES **102**

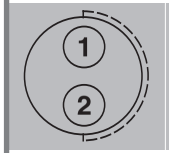
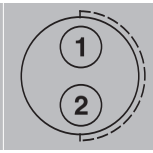
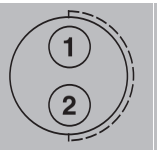
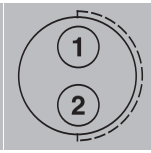
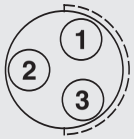
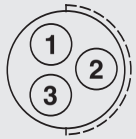
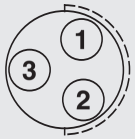
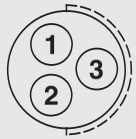
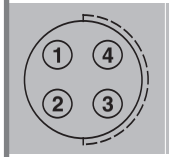
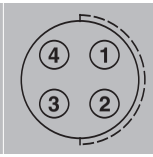
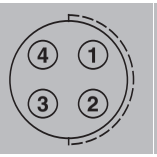
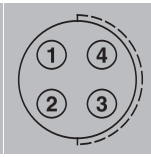
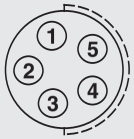
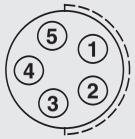
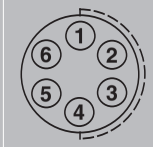
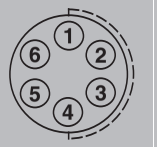
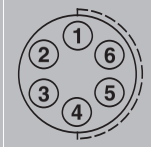
REFERENCE NUMBER	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
102 A054 102 Z054 solder	S	5	7	2.5	2					7	7	0.6
	U	5	7	–	2					7	7	0.6
	E	5	5	2	2					7	7	0.6
S 102 A054 K 102 Z054 crimp	U	5	9	–	3	TX00.240	❶	TX00.210	TX00.200	7	7	0.6
S 102 Z054 K 102 A054 crimp	U	5	9	–	3	TX00.240	❶	TX00.210	TX00.200	7	7	0.6
102 A056 102 Z056 solder	S	7	6	7.5	2.5	2				7	7	0.6
			1	6.5	2.5	2				7	7	0.6
	U	7	6	7.5	–	2				7	7	0.6
			1	6.5	–	2				7	7	0.6
	E	7	6	6	2	2				7	7	0.6
			1	5	2	2				7	7	0.6
102 A056 102 Z056 crimp	U	7	7	–	2.5	TX00.240	❶	TX00.214	TX00.213	7	7	0.6

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

❶ see page J4

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

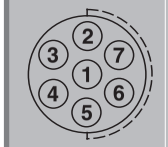
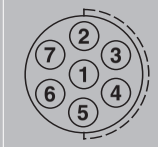
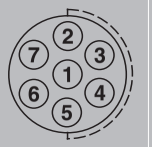
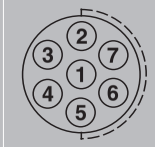
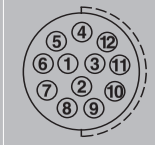
plug	receptacle	SERIES 103	plug	receptacle	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool	Positioner	Insertion Tool	Extraction Tool	Wrench Size 1	Wrench Size 2	Torque
Type «A»		REFERENCE NUMBER	Type «Z»							P / N	P / N	P / N	P / N			[Nm]
		**103 A051 103 Z051 solder**			S	2	8	2.5	2.5					10	10	1.0
					U	2	8	–	2.5					10	10	1.0
					E	2	8	2	2.5					10	10	1.0
		**103 A052 103 Z052 solder**			S	3	8	2.5	2.5					10	10	1.0
					U	3	8	–	2.5					10	10	1.0
					E	3	8	2	2.5					10	10	1.0
		**103 A053 103 Z053 solder**			S	4	8.5	2.5	2.5					10	10	1.0
					U	4	9.5	–	2.5					10	10	1.0
					E	4	8.5	2	2.5					10	10	1.0
		**103 A054 103 Z054 solder**			S	5	8.5	2.5	2.5					10	10	1.0
					U	5	9.5	–	2.5					10	10	1.0
					E	5	8.5	2	2.5					10	10	1.0
		**103 A056 103 Z056 solder**			S	6	8.5	2.5	2					10	10	1.0
					U	6	8.5	–	2					10	10	1.0
					E	6	9	2	2					10	10	1.0
		103 A056 103 Z056 crimp			S	6	12.5	2.5	3	TX00.240	❶	TX00.210	TX00.200	10	10	1.0
					U	6	8.5	–	3	TX00.240	❶	TX00.210	TX00.200	10	10	1.0
					E	6	12.5	2	3	TX00.240	❶	TX00.210	TX00.200	10	10	1.0

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

❶ see page J4

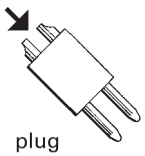
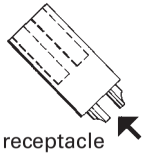
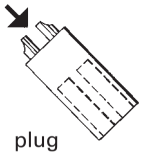
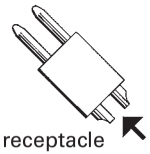
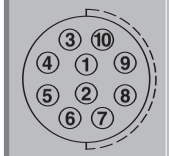
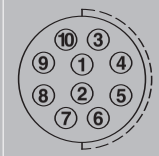
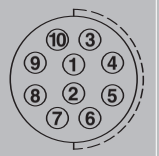
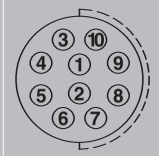
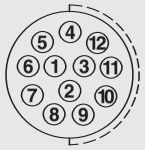
All dimensions shown are in millimeters and are for reference only.

plug	receptacle	SERIES 103 REFERENCE NUMBER	plug	receptacle	Cable Clamp *	Number of Contacts		L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»			**Type «Z»**														
		**103 A057 103 Z057 solder**			S	7	6	8.5	2.5	2					10	10	1.0
							1	6.5	2.5	2					10	10	1.0
					U	7	6	9	–	2					10	10	1.0
							1	7	–	2					10	10	1.0
					E	7	6	9	2	2					10	10	1.0
							1	7	2	2					10	10	1.0
		103 A057 103 Z057 crimp			S	7		12.5	2.5	3	TX00.240	❶	TX00.210	TX00.200	10	10	1.0
					U	7		9	–	3	TX00.240	❶	TX00.210	TX00.200	10	10	1.0
					E	7		12.5	2	3	TX00.240	❶	TX00.210	TX00.200	10	10	1.0
		103 A058 103 Z058 solder			S	8	7	8.5	2.5	2					10	10	1.0
							1	6.5	2.5	2					10	10	1.0
					U	8	7	9	–	2					10	10	1.0
							1	7	–	2					10	10	1.0
					E	8	7	9	2	2					10	10	1.0
							1	7	2	2					10	10	1.0
		103 A062 103 Z062 solder			S	12	9	8.5	2.5	2					10	10	1.0
							3	6.5	2.5	2					10	10	1.0
					U	12	9	9	–	2					10	10	1.0
							3	7	–	2					10	10	1.0
					E	12	9	8.5	2	2					10	10	1.0
							3	6.5	2	2					10	10	1.0

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

❶ see page J4

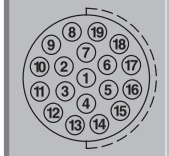
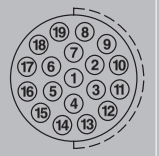
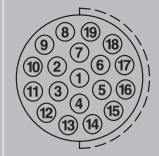
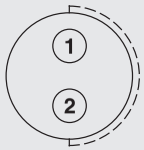
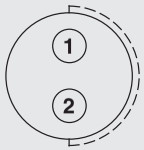
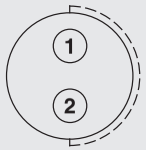
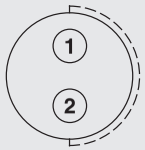
 plug	 receptacle	SERIES **1031** REFERENCE NUMBER	 plug	 receptacle	Cable Clamp *	Number of Contacts		L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»			**Type «Z»**															
		**1031 A010 1031 Z010 solder**			S	10	8	11	2	2					11	12	1.5
							2	9.5	2	2					11	12	1.5
					U	10	8	11	–	2					11	12	1.5
							2	9.5	–	2					11	12	1.5
					E	10	8	9	2	2					11	12	1.5
							2	7.5	2	2					11	12	1.5
		1031 A010 1031 Z010 crimp			S	10		16	2	3	TX00.240	❶	TX00.210	TX00.200	11	12	1.5
					U	10		16	–	3	TX00.240	❶	TX00.210	TX00.200	11	12	1.5
					E	10		14	2	3	TX00.240	❶	TX00.210	TX00.200	11	12	1.5
		1031 A012 1031 Z012 solder			S	12	9	11	2	2					11	12	1.5
							3	9.5	2	2					11	12	1.5
					U	12	9	11	–	2					11	12	1.5
							3	9.5	–	2					11	12	1.5
					E	12	9	9	2	2					11	12	1.5
							3	7.5	2	2					11	12	1.5
		1031 A012 1031 Z012 crimp			S	12		16	2	3	TX00.240	❶	TX00.210	TX00.200	11	12	1.5
					U	12		16	–	3	TX00.240	❶	TX00.210	TX00.200	11	12	1.5
					E	12		14	2	3	TX00.240	❶	TX00.210	TX00.200	11	12	1.5

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

❶ see page J4

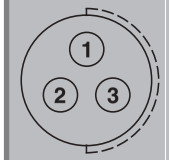
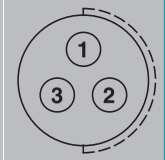
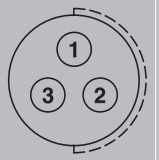
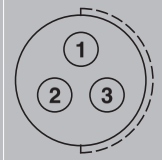
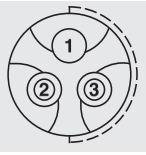
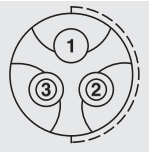
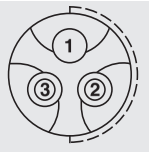
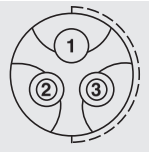
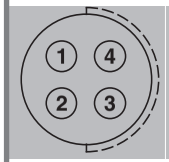
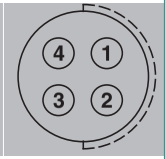
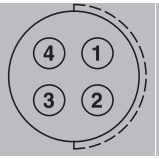
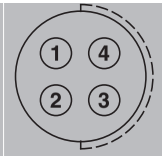
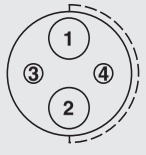
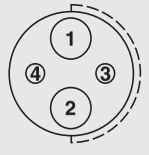
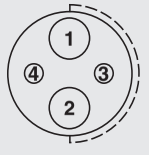
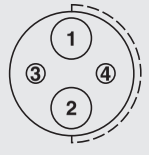
All dimensions shown are in millimeters and are for reference only.

plug	receptacle	SERIES 1031 / 104 REFERENCE NUMBER	plug	receptacle	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»			**Type «Z»**													
		**1031 A019 1031 Z019 solder**			S	19	12	12	2	2					11	12	1.5
							6	10	2	2					11	12	1.5
							1	8.5	2	2					11	12	1.5
					U	19	12	12	–	2					11	12	1.5
							6	10	–	2					11	12	1.5
							1	8.5	–	2					11	12	1.5
					E	19	12	10	2	2					11	12	1.5
							6	8	2	2					11	12	1.5
							1	6.5	2	2					11	12	1.5
		1031 A019 1031 Z019 crimp			S	19		16	2	3	TX00.240	❶	TX00.214	TX00.213	11	12	1.5
					U	19		16	–	3	TX00.240	❶	TX00.214	TX00.213	11	12	1.5
					E	19		14	2	3	TX00.240	❶	TX00.214	TX00.213	11	12	1.5
		**104 A051 104 Z051 solder**			S	2		11	2.5	3.5					12	13	2.0
					U	2		11	–	3.5					12	13	2.0
					E	2		11	2.5	3.5					12	13	2.0

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

❶ see page J4

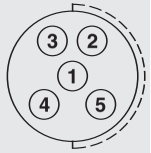
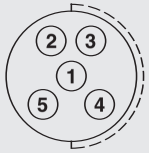
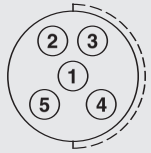
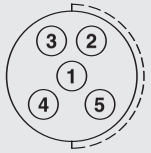
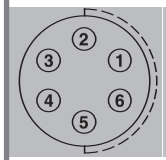
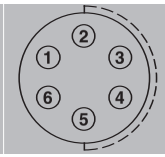
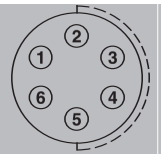
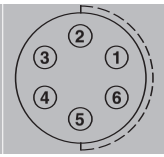
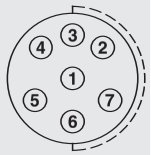
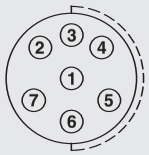
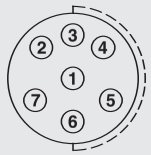
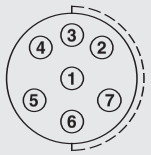
plug	receptacle	SERIES 104	plug	receptacle	Cable Clamp *	Number of Contacts		L	B	C	Crimping Tool	Positioner	Insertion Tool	Extraction Tool	Wrench Size SW_1	Wrench Size SW_2	Torque
Type «A»		REFERENCE NUMBER	Type «Z»								P / N	P / N	P / N	P / N			[Nm]
		**104 A040 104 Z040 solder**			S	3		11	2.5	3.5					12	13	2.0
					U	3		11	–	3.5					12	13	2.0
					E	3		11	2.5	3.5					12	13	2.0
		104 A040 104 Z040 crimp			S	3		12	2.5	5	TX00.242	❶		TX00.201	12	13	2.0
					U	3		12	–	5	TX00.242	❶		TX00.201	12	13	2.0
					E	3		12	2.5	5	TX00.242	❶		TX00.201	12	13	2.0
		**104 A083 104 Z083 solder**			S/U	3	1	15	15	–					12	13	2.0
							2	12	–	2					12	13	2.0
					E	3	1	12	12	–					12	13	2.0
							2	4	–	2					12	13	2.0
		**104 A037 104 Z037 solder**			S	4		10	2.5	2.5					12	13	2.0
					U	4		10	–	2.5					12	13	2.0
					E	4		10	2.5	2.5					12	13	2.0
		**104 A087 104 Z087 solder**			S	4	2	9	2.5	2					12	13	2.0
							2	10	2.5	3.5					12	13	2.0
					U	4	2	9	–	2					12	13	2.0
							2	10	–	3.5					12	13	2.0
					E	4	2	9	2.5	2					12	13	2.0
							2	10	2.5	3.5					12	13	2.0

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

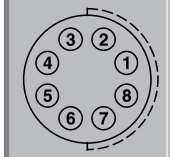
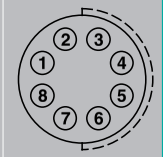
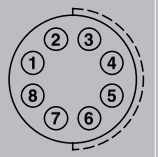
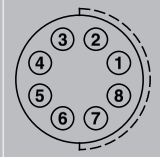
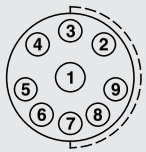
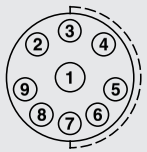
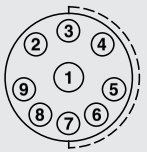
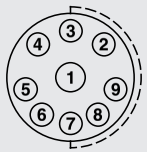
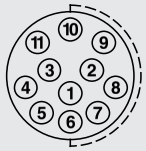
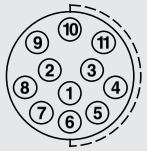
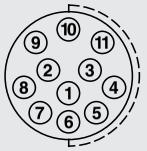
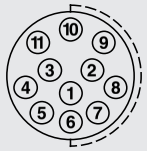
❶ see page J4

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

plug	receptacle	SERIES 104 REFERENCE NUMBER	plug	receptacle	Cable Clamp *	Number of Contacts		L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»			**Type «Z»**														
		104 A062 104 Z062 solder	See page P21														
		**104 A053 104 Z053 solder**			S	5	1	8	2.5	2.5					12	13	2.0
							4	10	2.5	2.5					12	13	2.0
					U	5	1	8	–	2.5					12	13	2.0
							4	10	–	2.5					12	13	2.0
					E	5	1	8	2.5	2.5					12	13	2.0
							4	10	2.5	2.5					12	13	2.0
		**104 A065 104 Z065 solder**			S	6		10	2.5	2					12	13	2.0
					U	6		10	–	2					12	13	2.0
					E	6		10	2.5	2					12	13	2.0
		**104 A054 104 Z054 solder**			S	7	1	7	2.5	2					12	13	2.0
							6	9	2.5	2					12	13	2.0
					U	7	1	7	–	2					12	13	2.0
							6	9	–	2					12	13	2.0
					E	7	1	7	2.5	2					12	13	2.0
							6	9	2.5	2					12	13	2.0

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

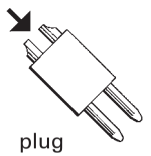
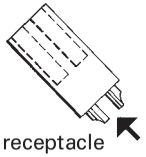
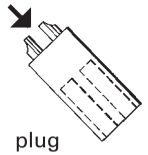
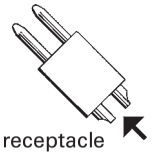
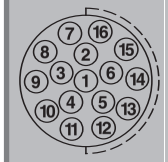
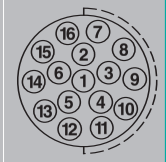
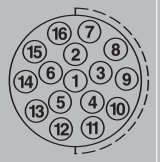
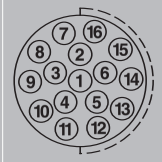
plug	receptacle	SERIES 104	plug	receptacle	Cable Clamp *	Number of Contacts		L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»		REFERENCE NUMBER	Type «Z»														
		**104 A066 104 Z066 solder**			S	8		9	2.5	2					12	13	2.0
					U	8		9	–	2					12	13	2.0
					E	8		9	2.5	2					12	13	2.0
		104 A066 104 Z066 crimp			S	8		16	2.5	3.5	TX00.240	❶	TX00.211	TX00.205	12	13	2.0
					U	8		16	–	3.5	TX00.240	❶	TX00.211	TX00.205	12	13	2.0
					E	8		16	2.5	3.5	TX00.240	❶	TX00.211	TX00.205	12	13	2.0
		**104 A055 104 Z055 solder**			S	9	1	8.5	2.5	3					12	13	2.0
							8	10.5	2.5	2					12	13	2.0
					U	9	1	10	–	3					12	13	2.0
							8	12	–	2					12	13	2.0
					E	9	1	8.5	2.5	3					12	13	2.0
							8	10.5	2.5	2					12	13	2.0
		**104 A056 104 Z056 solder**			S	11	3	7	2.5	2					12	13	2.0
							8	9	2.5	2					12	13	2.0
					U	11	3	9	–	2					12	13	2.0
							8	11	–	2					12	13	2.0
					E	11	3	8.5	2.5	2					12	13	2.0
							8	10.5	2.5	2					12	13	2.0
		104 A056 104 Z056 crimp			S	11		14.5	2.5	3	TX00.240	❶	TX00.211	TX00.205	12	13	2.0
					U	11		12	–	3	TX00.240	❶	TX00.211	TX00.205	12	13	2.0
					E	11		14.5	2.5	3	TX00.240	❶	TX00.211	TX00.205	12	13	2.0

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

❶ see page J4

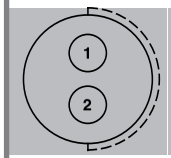
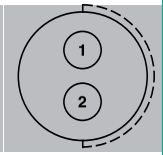
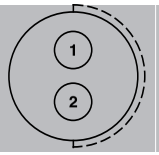
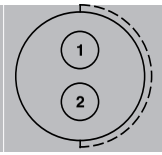
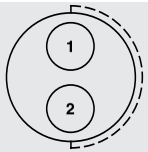
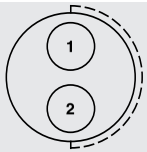
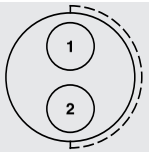
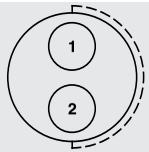
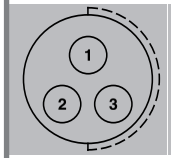
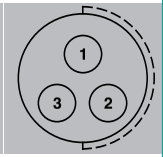
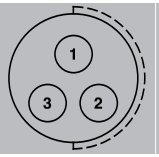
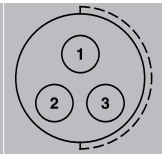
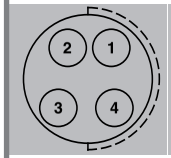
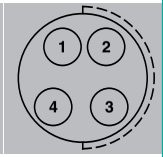
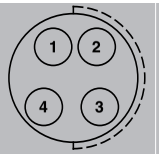
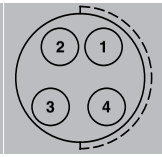
All dimensions shown are in millimeters and are for reference only.

 plug	 receptacle	SERIES **104**	 plug	 receptacle	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»		REFERENCE NUMBER	**Type «Z»**													
		**104 A086 104 Z086 solder**			S	16	1	6.5	2.5	2					12	13	2.0
							5	8.5	2.5	2					12	13	2.0
							10	10.5	2.5	2					12	13	2.0
					U	16	1	9	–	2					12	13	2.0
							5	11	–	2					12	13	2.0
							10	13	–	2					12	13	2.0
					E	16	1	6.5	2.5	2					12	13	2.0
							5	8.5	2.5	2					12	13	2.0
							10	10.5	2.5	2					12	13	2.0
		104 A086 104 Z086 crimp			S	16		15.5	2.5	3	TX00.240	❶	TX00.210	TX00.200	12	13	2.0
					U	16		15.5	–	3	TX00.240	❶	TX00.210	TX00.200	12	13	2.0
					E	16		15.5	2.5	3	TX00.240	❶	TX00.210	TX00.200	12	13	2.0
		104 A092 104 Z092 solder			S	19	1	6.5	2.5	2					12	13	2.0
							6	8.5	2.5	2					12	13	2.0
							12	10.5	2.5	2					12	13	2.0
					U	19	1	9	–	2					12	13	2.0
							6	11	–	2					12	13	2.0
							12	13	–	2					12	13	2.0
					E	19	1	6.5	2.5	2					12	13	2.0
							6	8.5	2.5	2					12	13	2.0
							12	10.5	2.5	2					12	13	2.0
		104 A092 104 Z092 crimp			S	19		15.5	2.5	3	TX00.240	❶	TX00.210	TX00.200	12	13	2.0
					U	19		15.5	–	3	TX00.240	❶	TX00.210	TX00.200	12	13	2.0
					E	19		15.5	2.5	3	TX00.240	❶	TX00.210	TX00.200	12	13	2.0

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

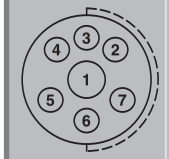
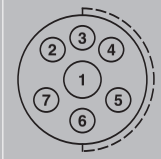
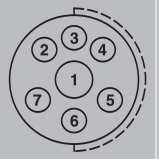
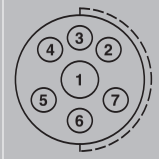
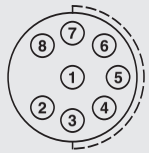
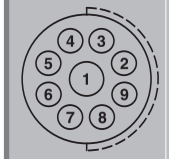
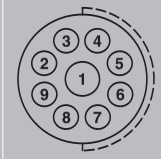
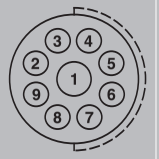
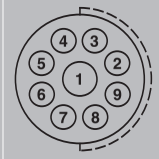
❶ see page J4

plug	receptacle	SERIES 105	plug	receptacle	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»		REFERENCE NUMBER	**Type «Z»**													
		**105 A051 105 Z051 solder**			S	2	12	2.5	3.5					15	16	3.5
					U	2	12	–	3.5					15	16	3.5
					E	2	14	2.5	3.5					15	16	3.5
		**105 A087 105 Z087 solder**			S	2	13	2.5	5					15	16	3.5
					U	2	15	–	5					15	16	3.5
					E	2	13	2.5	5					15	16	3.5
		**105 A052 105 Z052 solder**			S	3	12	2.5	3.5					15	16	3.5
					U	3	12	–	3.5					15	16	3.5
					E	3	14	2.5	3.5					15	16	3.5
		105 A057	See page P21													
		**105 A053 105 Z053 solder**			S	4	12	2.5	3.5					15	16	3.5
					U	4	12	–	3.5					15	16	3.5
					E	4	14	2.5	3.5					15	16	3.5
		105 A112 solder	See page P21													
		105 A039 solder														

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

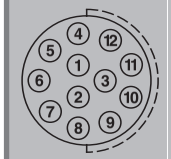
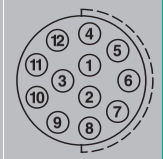
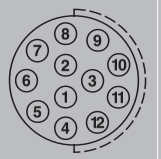
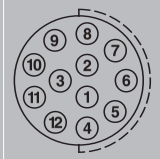
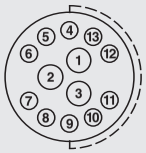
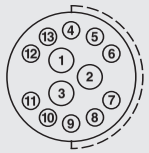
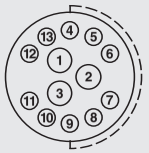
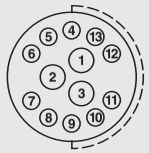
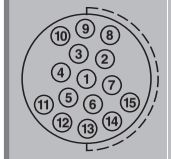
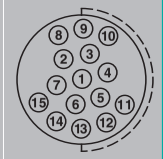
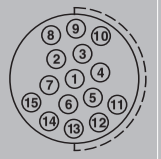
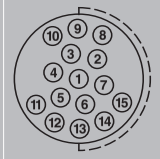
* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

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

plug	receptacle	SERIES 105	plug	receptacle	Cable Clamp *	Number of Contacts		L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»		REFERENCE NUMBER	**Type «Z»**														
		**105 A054 105 Z054 solder**			S	7	1	12	2.5	4					15	16	3.5
							6	14.5	2.5	3					15	16	3.5
					U	7	1	14	–	4					15	16	3.5
							6	16.5	–	3					15	16	3.5
					E	7	1	12	2.5	4					15	16	3.5
							6	14.5	2.5	3					15	16	3.5
		105 A067 105 Z067 solder			S	8	1	12	2.5	3					15	16	3.5
							7	14	2.5	3					15	16	3.5
					U	8	1	14	–	3					15	16	3.5
							7	16	–	3					15	16	3.5
					E	8	1	11	2.5	3					15	16	3.5
							7	13	2.5	3					15	16	3.5
		**105 A101 105 Z101 solder**			S	9	1	12	2.5	4					15	16	3.5
							8	14.5	2.5	3					15	16	3.5
					U	9	1	14	–	4					15	16	3.5
							8	16.5	–	3					15	16	3.5
					E	9	1	12	2.5	4					15	16	3.5
							8	14.5	2.5	3					15	16	3.5
		105 A062 105 Z062 solder			S	10	2	12	2.5	3					15	16	3.5
							8	14	2.5	3					15	16	3.5
					U	10	2	14	–	3					15	16	3.5
							8	16	–	3					15	16	3.5
					E	10	2	11	2.5	3					15	16	3.5
							8	13	2.5	3					15	16	3.5

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

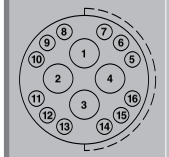
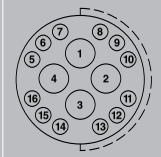
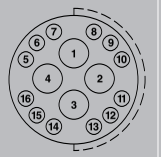
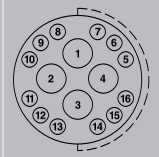
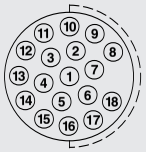
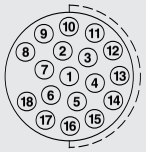
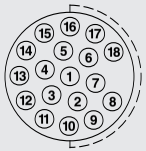
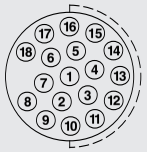
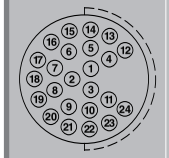
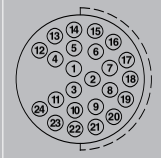
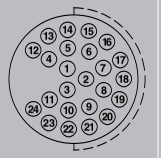
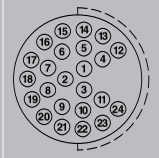
* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

plug	receptacle	SERIES 105	plug	receptacle	Cable Clamp *	Number of Contacts		L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»		REFERENCE NUMBER	Type «Z»														
		**105 A069 105 Z069 solder**			S	12	3	11	2.5	3					15	16	3.5
							9	13	2.5	3					15	16	3.5
					U	12	3	12	–	3					15	16	3.5
							9	14	–	3					15	16	3.5
					E	12	3	11	2.5	3					15	16	3.5
							9	13	2.5	3					15	16	3.5
		**105 A104 105 Z104 solder**			S	13	3	11	2.5	3					15	16	3.5
							10	11	2.5	2					15	16	3.5
					U	13	3	12	–	3					15	16	3.5
							10	12	–	2					15	16	3.5
					E	13	3	11	2.5	3					15	16	3.5
							10	11	2.5	2					15	16	3.5
		**105 A058 105 Z058 solder**			S	15	1	8	2.5	2					15	16	3.5
							6	10	2.5	2					15	16	3.5
							8	12	2.5	2					15	16	3.5
					U	15	1	10	–	2					15	16	3.5
							6	12	–	2					15	16	3.5
							8	14	–	2					15	16	3.5
					E	15	1	8	2.5	2					15	16	3.5
							6	10	2.5	2					15	16	3.5
							8	12	2.5	2					15	16	3.5

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

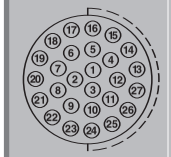
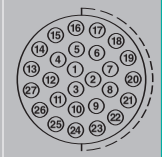
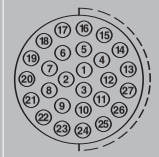
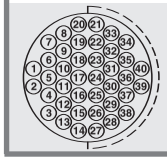
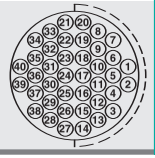
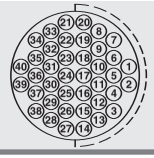
All dimensions shown are in millimeters and are for reference only.

plug	receptacle	SERIES 105 REFERENCE NUMBER	plug	receptacle	Cable Clamp *	Number of Contacts		L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»			**Type «Z»**														
		**105 A110 105 Z110 solder**			S	16	4	14	2.5	4.5					15	16	3.5
							12	15	2.5	2					15	16	3.5
					U	16	4	16	–	4.5					15	16	3.5
							12	18	–	2.5					15	16	3.5
					E	16	4	14	2.5	4.5					15	16	3.5
							12	15	2.5	2					15	16	3.5
		**105 A038 105 Z038 solder**			S	18	1	8	2.5	2					15	16	3.5
							6	10	2.5	2					15	16	3.5
							11	12	2.5	2					15	16	3.5
					U	18	1	10	–	2					15	16	3.5
							6	12	–	2					15	16	3.5
							11	14	–	2					15	16	3.5
					E	18	1	8	2.5	2					15	16	3.5
							6	10	2.5	2					15	16	3.5
							11	12	2.5	2					15	16	3.5
		105 A038 105 Z038 crimp			S	18		19	2.5	3	TX00.240	❶	TX00.211	TX00.205	15	16	3.5
					U	18		19	–	3	TX00.240	❶	TX00.211	TX00.205	15	16	3.5
					E	18		19	2.5	3	TX00.240	❶	TX00.211	TX00.205	15	16	3.5
		**105 A093 105 Z093 solder**			S	24	3	10	2.5	2					15	16	3.5
							8	12	2.5	2					15	16	3.5
							13	14	2.5	2					15	16	3.5
					U	24	3	11	–	2					15	16	3.5
							8	13	–	2					15	16	3.5
							13	15	–	2					15	16	3.5
					E	24	3	10	2.5	2					15	16	3.5
							8	12	2.5	2					15	16	3.5
							13	14	2.5	2					15	16	3.5

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

❶ see page J4

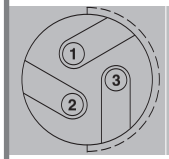
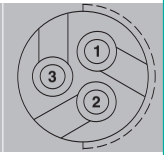
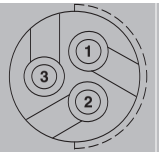
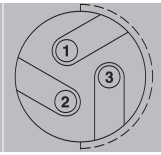
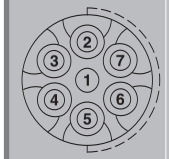
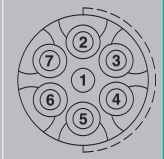
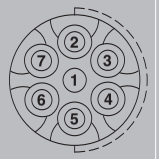
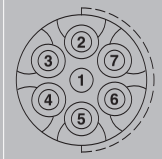
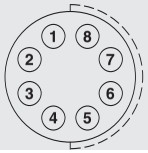
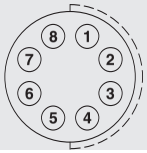
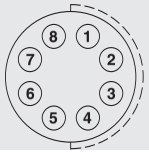
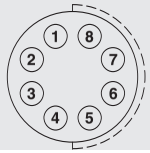
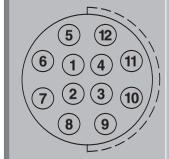
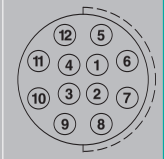
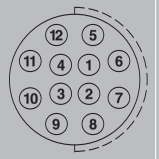
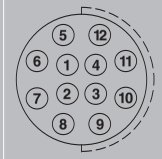
plug	receptacle	SERIES 105	plug	receptacle	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»		REFERENCE NUMBER	**Type «Z»**													
		**105 A102 105 Z102 solder**			S	27 3	10	2.5	2					15	16	3.5
						27 9	12	2.5	2					15	16	3.5
						27 15	14	2.5	2					15	16	3.5
					U	27 3	11	–	2					15	16	3.5
						27 9	13	–	2					15	16	3.5
						27 15	15	–	2					15	16	3.5
					E	27 3	10	2.5	2					15	16	3.5
						27 9	12	2.5	2					15	16	3.5
						27 15	14	2.5	2					15	16	3.5
		105 A102 105 Z102 crimp			S	27	20	2.5	3	TX00.240	❶	TX00.210	TX00.200	15	16	3.5
					U	27	22	–	3	TX00.240	❶	TX00.210	TX00.200	15	16	3.5
					E	27	20	2.5	3	TX00.240	❶	TX00.210	TX00.200	15	16	3.5
		**105 A122 105 Z122 crimp**			S	40	20	2.5	3	TX00.240	❶	TX00.214	TX00.213	15	16	3.5
					U	40	22	–	3	TX00.240	❶	TX00.214	TX00.213	15	16	3.5
					E	40	20	2.5	3	TX00.240	❶	TX00.214	TX00.213	15	16	3.5

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

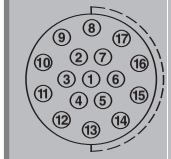
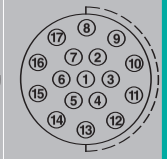
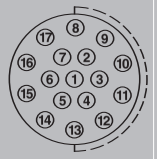
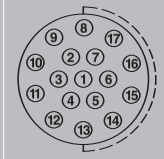
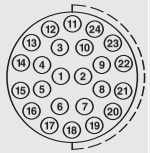
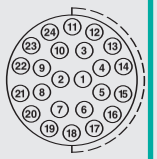
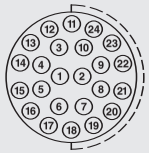
❶ see page J4

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

plug	receptacle	SERIES 106 REFERENCE NUMBER	plug	receptacle	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»			**Type «Z»**													
		**106 A003 106 Z003 solder**			S	3	25	5	4					22		8
					U	3	25	–	4					22		8
					E	3	18	5	4					22		8
		106 A013 106 Z013 solder	See page P21													
		**106 A007 106 Z007 solder**			S	7	1	18	5	4					22		8
							6	25	5	4					22		8
					U	7	1	18	–	4					22		8
							6	25	–	4					22		8
					E	7	1	13	5	4					22		8
							6	20	5	4					22		8
		**106 A019 106 Z019 solder**			S	8		20	5	4					22		8
					U	8		20	–	4					22		8
					E	8		15	5	4					22		8
		**106 A015 106 Z015 solder**			S	12	4	20	5	4					22		8
							8	22	5	4					22		8
					U	12	4	20	–	4					22		8
							8	22	–	4					22		8
					E	12	4	13	5	4					22		8
							8	15	5	4					22		8

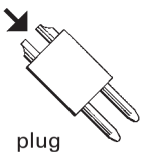
All specifications are typical and have to be adjusted according to the cable construction and dimensions.

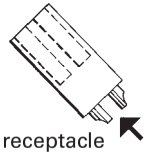
* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

plug	receptacle	SERIES 106	plug	receptacle	Cable Clamp *	Number of Contacts		L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»		REFERENCE NUMBER	Type «Z»														
		**106 A018 106 Z018 solder**			S	17	1	13	5	3					22		8
							6	15	5	3					22		8
							10	17	5	3					22		8
					U	17	1	13	–	3					22		8
							6	15	–	3					22		8
							10	17	–	3					22		8
					E	17	1	8	5	3					22		8
							6	10	5	3					22		8
							10	12	5	3					22		8
		**106 A017 106 Z017 solder**			S	24	2	13	5	3					22		8
							8	15	5	3					22		8
							14	17	5	3					22		8
					U	24	2	13	–	3					22		8
							8	15	–	3					22		8
							14	17	–	3					22		8
					E	24	2	8	5	3					22		8
							8	10	5	3					22		8
							14	12	5	3					22		8

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

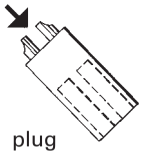


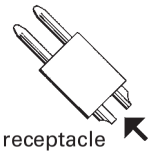


Type «A»

SERIES **107**

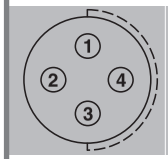
REFERENCE NUMBER

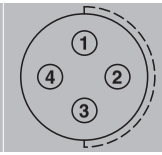


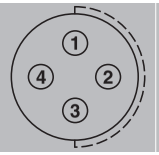


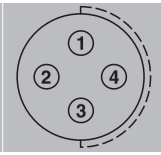
Type «Z»

Cable Clamp *	Number of Contacts		L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
S	4		40	5	3					32	32	10
U	4		25	–	3					32	32	10
E	4		35	3	3					32	32	10
S	6		40	5	3					32	32	10
U	6		25	–	3					32	32	10
E	6		35	3	3					32	32	10
S	19	1	35	5	4					32	32	10
		6	37	5	4					32	32	10
		12	39	5	4					32	32	10
U	19	1	25	–	4					32	32	10
		6	27	–	4					32	32	10
		12	29	–	4					32	32	10
E	19	1	30	3	4					32	32	10
		6	32	3	4					32	32	10
		12	36	3	4					32	32	10

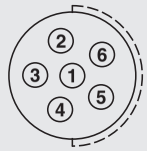


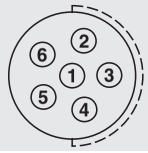


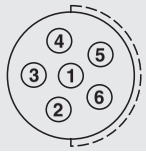


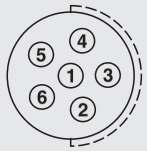


107 A013
107 Z013
solder









107 A018
107 Z018
solder

107 A034
107 Z034
solder

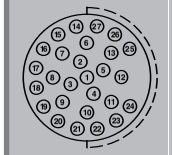
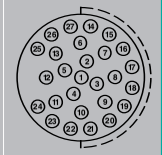
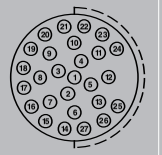
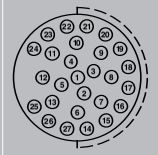
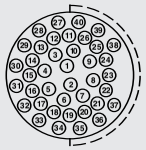
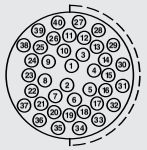
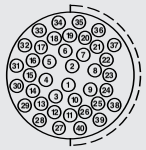
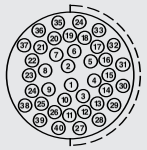
See page P21

107 A015
107 Z015
solder

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

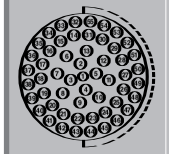
* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

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

plug	receptacle	SERIES 107	plug	receptacle	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»		REFERENCE NUMBER	Type «Z»													
		**107 A051 107 Z051 solder**			S	27	1	33	5	3					32	32	10
							4	35	5	3					32	32	10
							8	37	5	3					32	32	10
							14	39	5	3					32	32	10
					U	27	1	23	–	3					32	32	10
							4	25	–	3					32	32	10
							8	27	–	3					32	32	10
							14	29	–	3					32	32	10
					E	27	1	28	3	3					32	32	10
							4	30	3	3					32	32	10
							8	32	3	3					32	32	10
							14	34	3	3					32	32	10
		**107 A052 107 Z052 solder**			S	40	2	33	5	3					32	32	10
							8	35	5	3					32	32	10
							16	37	5	3					32	32	10
							14	39	5	3					32	32	10
					U	40	2	23	–	3					32	32	10
							8	25	–	3					32	32	10
							16	27	–	3					32	32	10
							14	29	–	3					32	32	10
					E	40	2	28	3	3					32	32	10
							8	30	3	3					32	32	10
							16	32	3	3					32	32	10
							14	34	3	3					32	32	10

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

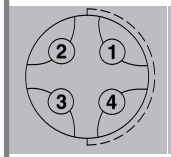
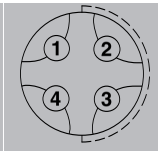
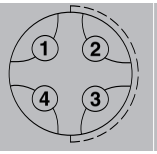
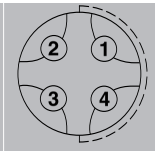
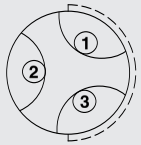
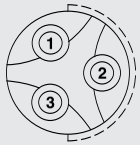
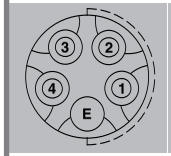
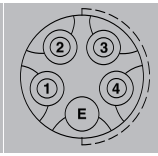
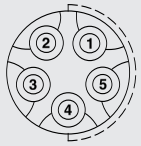
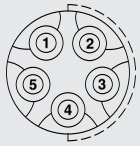
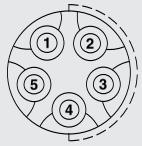
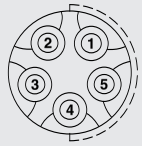
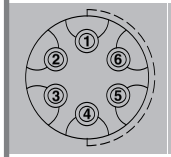
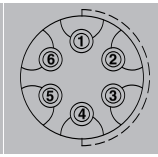
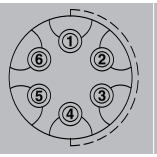
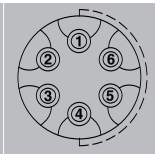
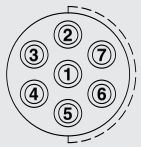
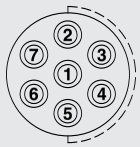
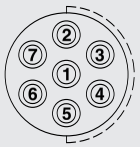
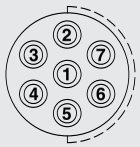
* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

plug	receptacle	SERIES 107	plug	receptacle	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»		REFERENCE NUMBER	Type «Z»													
		**107 A023 107 Z023 solder**			S	55	5	33	3	2					32	32	10
							8	36	3	3					32	32	10
							19	37	3	2					32	32	10
							23	39	3	2					32	32	10
					U	55	5	23	–	2					32	32	10
							8	26	–	3					32	32	10
							19	27	–	2					32	32	10
							23	29	–	2					32	32	10
					E	55	5	26	3	2					32	32	10
							8	29	3	3					32	32	10
							19	30	3	2					32	32	10
							23	32	3	2					32	32	10

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

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

plug	receptacle	SERIES HT	plug	receptacle	Cable Clamp *	Number of Contacts	L	B	C	Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
Type «A»		REFERENCE NUMBER	Type «Z»													
		**104 A062 104 Z062 solder**			S	4	15	2.5	2					12	13	2.0
					UI	4	10	–	2					12	13	2.0
		**105 A057 solder**			S	3	10	4	3					14	16	3.5
					UI	3	14	–	3					14	16	3.5
					E	3	10	4	3					14	16	3.5
		**105 A112 solder**			S	4 + E	24	2.5	3					15	16	3.5
					UI	4 + E	24	–	3					15	16	3.5
					E	4 + E	20	2.5	3					15	16	3.5
		**105 A039 105 Z039 solder**			S	5	24	2.5	3					15	16	3.5
					UI	5	24	–	3					15	16	3.5
					E	5	20	2.5	3					15	16	3.5
		**106 A013 106 Z013 solder**			S	6	16	5	3					22		8
					UI	6	16	–	3					22		8
		**107 A034 107 Z034 solder**			S	7	43	5	4					32	32	10
					UI	7	35	–	4	(S + SE 107 A034)		TP00.000		32	32	10
					E	7	38	3	4					32	32	10

All specifications are typical and have to be adjusted according to the cable construction and dimensions.

* **S** - Shielded cable clamp
UI - Insulating cable clamp
E - Sealed cable clamp

For details see page L6

CABLE GROUPS FOR COAXIAL, TRIAXIAL & MIXED CONNECTORS

Gr. No	Designation US MIL-C-17	Impedance ohms	Center Conductor Construction		Center Conductor ∅ [mm]	Dielectric ∅ [mm]	Dielectric Material	Cable Screen ∅ [mm]	Cable Screen Material	Cable Jacket ∅ [mm]	Cable Jacket Material	IEC Publication 60096-2 or Manufacturer
0	RG-178B/U	50±2	7 x 0.1	AcCuAg	0.3	0.84	PTFE	1.3	CuAg	1.8	FEP	50-1-1
	RG-196A/U	50±2	7 x 0.1	AcCuAg	0.3	0.84	PTFE	1.3	CuAg	2.0	PTFE	50-1-2
1	RG-174A/U	50±2	7 x 0.16	AcCu	0.48	1.5	PE	2.0	CuSn	2.8	PVC	
	RG-174/U	50±2	7 x 0.16	AcCu	0.48	1.5	PE	2.0	CuSn	2.6	PVC	50-2-1
	RG-178B/U	50±2	7 x 0.1	AcCuAg	0.3	0.84	PTFE	1.3	CuAg	1.8	FEP	50-1-1
	RG-188A/U	50±2	7 x 0.18	AcCuAg	0.54	1.5	PTFE	2.0	CuAg	2.6	FEP	50-2-3
	RG-196A/U	50±2	7 x 0.1	AcCuAg	0.3	0.84	PTFE	1.3	CuAg	2.0	PTFE	50-1-2
	RG-316/U	50±2	7 x 0.18	AcCuAg	0.54	1.5	PTFE	2.0	CuAg	2.5	FEP	50-2-2
	RG-179B/U	75±3	7 x 0.1	AcCuAg	0.3	1.5	PTFE	2.0	CuAg	2.6	FEP	75-2-1
	LiYCY 1 x 0.14 mm²	❶	18 x 0.1	CuSn	0.5	1.1	PVC	1.6	CuSn	2.4	PVC	
	LifYCY 1 x 0.04 mm²	❷	20 x 0.05	CuSn	0.4	0.8	PVC	1.3	CuSn	1.6	PVC	
2	RG-180B/U	95±5	7 x 0.1	AcCuAg	0.3	2.6	PTFE	3.1	CuAg	3.6	FEP	
	BELDEN 8218	75±3	7 x 0.14	AcCu	0.43	2.54	PE	3.0	CuSn	3.81	PVC	Belden(USA)
3	RG-122/U	50±2	27 x 0.13	CuSn	0.8	2.5	PE	3.2	CuSn	4.1	PVC	
	LiYCY 1 x 0.25 mm²	❶	14 x 0.15	CuSn	0.66	1.3	PVC	1.8	CuSn	2.6	PVC	
	LiYCY 1 x 0.38 mm²	❷	19 x 0.16	CuSn	0.8	1.4	PVC	2.0	CuSn	2.9	PVC	
4	RG-58C/U	50±2	19 x 0.18	CuSn	0.9	2.95	PE	3.6	CuSn	5.0	PVC	50-3-1
	RG-141A/U	50±2	1 x 0.95	AcCuAg	0.95	2.95	PTFE	3.6	CuAg	4.8	PTFE	50-3-7
	RG-142B/U	50±2	1 x 0.95	AcCuAg	0.95	2.95	PTFE	4.3	2 x CuAg	5.0	FEP	
	RG-303/U	50±2	1 x 0.95	AcCuAg	0.95	2.95	PTFE	3.6	CuAg	4.3	FEP	
	RG-400/U	50±2	19 x 0.2	CuAg	1.0	2.95	PTFE	4.3	2 x CuAg	5.0	FEP	
5	GORE GCX 03533	50±5%	19 x 0.2	CuAg	1.02	2.64	Gore-Tex	3.15	CuAg	3.8	FEP	Gore (D)
	LiYCY 1 x 0.50 mm²	❶	16 x 0.2	CuSn	0.95	1.8	PVC	2.4	CuSn	3.1	PVC	
	LiYCY 1 x 0.75 mm²	❶	24 x 0.2	CuSn	1.2	2.0	PVC	2.6	CuSn	3.2	PVC	
	LifYCY 1 x 0.50 mm²	❷	256 x 0.05	CuSn	1.0	2.0	PVC	2.6	CuSn	3.2	PVC	
	LifYCY 1 x 0.75 mm²	❷	384 x 0.05	CuSn	1.2	2.2	PVC	2.8	CuSn	3.6	PVC	
6	RG-59B/U	75±3	1 x 0.6	AcCu	0.6	3.7	PE	4.5	Cu	6.1	PVC	
	RG-223/U	50±2	1 x 0.89	CuAg	0.89	2.95	PE	4.2	2 x CuAg	5.4	PVC	50-3-5
	RG-302/U	75±3	1 x 0.64	AcCuAg	0.64	3.7	PTFE	4.4	CuAg	5.1	FEP	75-4-6
7	RG-212/U	50±2	1 x 1.35	CuAg	1.35	4.7	PE	6.2	2 x CuAg	8.5	PVC	
	RG-222/U	50±2	1 x 1.37	CrNi	1.37	4.7	PE	6.2	2 x CuAg	8.5	PVC	
	SUHNER G 05232	50±2	7 x 0.5	Cu	1.5	4.8	PE	5.6	Cu	7.4	PVC	Suhner (CH)
	RG-6A/U	75±3	1 x 0.73	AcCu	0.73	4.7	PE	6.2	CuAg	8.5	PVC	
8	RG-115A/U	50±2	7 x 0.75	CuAg	2.25	6.5	PTFE	8.0	2 x CuAg	10.5	PTFE	
	RG-165/U	50±2	7 x 0.82	CuAg	2.46	7.25	PTFE	8.0	CuAg	10.4	PTFE	50-7-8
	RG-213/U	50±2	7 x 0.75	Cu	2.25	7.25	PE	8.2	Cu	10.3	PVC	50-7-1
	RG-11A/U	75±3	7 x 0.4	CuSn	1.2	7.25	PTFE	8.2	Cu	10.3	PVC	75-7-1
9	RG-214/U	50±2	7 x 0.75	CuAg	2.25	7.25	PE	8.7	2 x CuAg	10.8	PVC	
	RG-217/U	50±2	1 x 2.7	Cu	2.7	9.4	PE	11.2	2 x Cu	13.8	PVC	
	RG-280/U	50±2	1 x 2.9	Cu	2.9	8.3	PTFE	9.8	2 x CuAg	12.2	PVC	
	RG-12A/U	75±3	RG-11A/U armoured with zinc plated steel braid						11.8	FeZn		
	RG-34B/U	75±3	7 x 0.62	Cu	1.86	11.5	PE	12.4	Cu	16.0	PVC	
10	RG-177/U	50±2	1 x 5.0	Cu	5.0	17.3	PE	18.8	2 x CuAg	22.7	PVC	
	RG-218/U	50±2	1 x 5.0	Cu	5.0	17.3	PE	18.6	Cu	22.1	PVC	50-17-1
	RG-164/U	75±3	1 x 2.65	Cu	2.65	17.3	PE	18.6	Cu	22.1	PVC	75-17-1
11	RG-403/U	50±2	7 x 0.1	AcCuAg	0.3	0.84	PTFE	1.3	CuAg	1.9	FEP	Habia (UK)
	Triaxial				2. screen and jacket:			2.4	CuAg	3.1	FEP	
	RG-178	50±2	7 x 0.1	AcCuAg	0.3	1.6	PTFE	1.8	CuAg	2.6	FEP	Filotex (F)
	Type Triax				2. screen and jacket:			2.9	CuAg	3.6	FEP	
	SUHNER G 02332	50±2	7 x 0.15	Cu	0.49	1.5	PE	2.0	Cu	2.55	PVC	Suhner (CH)
	Triaxial				2. screen and jacket:			3.0	Cu	4.25	PVC	
12	BELDEN 9222	50±2	7 x 0.32	CuSn	0.93	2.95	PE	3.5	CuSn	4.65	PE	Belden (USA)
	RG-58 Type Triax				2. screen and jacket:			5.2	CuSn	6.1	PVC	
13	ALPHA 9850	75±3	1 x 0.52	AcCu	0.52	3.71	FPE	4.5	Cu	-	PE	Alpha (UK)
	RG-59 Type Triax				2. screen and jacket:				Cu	8.0	PVC	
14	BELDEN 9267	75±3	1 x 0.84	Cu	0.84	3.71	FPE	4.5	Cu	7.4	PE	Belden (USA)
	RG-59 Type Triax				2. screen and jacket:			7.9	Cu	9.2	CSM	

❶ Insulated, stranded wires with screen and jacket, standardized by the German VDE 0812, for low frequency applications when no defined impedance is required.

❷ Insulated, highly flexible stranded wires with screen and jacket, for low frequency applications when no defined impedance is required.

Legend

Cu	Plain copper wire
CuAg	Silver plated copper wire
CuSn	Tin plated copper wire
StCu	Copper-clad steel wire
StCuAg	Copper-clad steel wire, silver plated
FEP	Fluorethylenepropylene
FPE	Foam polyethylene
PE	Polyethylene
PTFE	Polytetrafluorethylene
PVC	Polyvinyl chloride
CSM	Hypalon ® (DuPont)

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

SPECIAL REQUIREMENTS

Company / Name: ..... Date: .....

.....

Address: .....

If your particular need for special connectors is not included in any of our catalogues, we shall be pleased to submit to you with the minimum of delay, and naturally without charges, a design meeting your requirements.
In order to avoid any loss of time asking you for further details, please provide us with the fullest information possible, such as:

1. Multipole, coaxial or mixed connectors .....
2. Body styles required .....
3. Number of contacts .....
4. Working or test voltages, AC or DC .....
5. Max. current per contact .....
6. Frequency range .....
7. Impedance .....
8. Other feed-through requirements .....
9. Construction and dimensions of cable .....
10. Limitation on size or space available .....
    .....
11. Application .....
    .....
12. Conditions of operation:
    a) Temperature .....
    b) Degree of sealing in water or gas .....
    c) Radiation resistance .....
13. Special features .....
    .....
14. Price limits .....
15. Quantities expected .....
    a) short term requirement .....
    b) yearly required quantities .....
16. Desired delivery dates .....
    a) for the proposal of a solution .....
    b) for how many prototypes .....
    c) for the first production run .....

R

Please include any relevant drawing of the cable and/or sketches of your proposed design.
We and our representatives are at your entire disposal to examine your particular problems.

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INDEX

Accessories J1-J9
- cable bend relief J2-J3
- caps, sealing J5
- color, identification washers J7
- contact size, wire gauge conversion J4
- grounding washers J8
- insulating washers J7
- knurled clamp nuts J8, J9
- sleeves, sealing J1, M4
- spacers J6

Assembly and Mounting
- cable instructions N1, O1-P21
- mounting instructions N2
- mounting nuts J8, J9
- nut driver K1
- panel cut-out dimensions N2
- spanners K1
- tools, contact extraction K3, O1-P21
- tools, contact insertion K3, O1-P21
- tools, crimp K2, K3, O1-P21
- tools, crimp positioners K2, J4, P1-P20
- torque, mounting N3, O1-P21
- wrenches K1

Body Style A1-A2

CAMAC Connectors D1

Cable clamp sets
- see «Clamps»

Clamps
- insulating C1, C4-C5, H8, L6
- types, general A1, H1-H10
- type «S» for shielded cable A1, A3, H1-H7, L6
- type «U» for unshielded cable A1, A3, H1-H7, L6
- type «E» sealed, for all cables A1, A3, H1-H7, L6
- For WSO H9, L6
- For WS/WSE H10, L6

Coax and Triax cables D1-D3, F1
- cable groups, recommended cables Q1

Contacts
- crimp D1-F1, J4, L5, N1
- diameter D1-F1, J4
- equivalent wire gauge J4
- insertion tools K2, K3, O1-P21
- maximum wire gauge J4, D1-F1
- numbering P1-P21
- p.c.b. style D1-D3, E1-E8, L5
- plating L6
- solder L5, N1
- termination types L5
- thermocouple G1, G2

Dimensions A1, B1-B10, C2-C5

Feedthrough - Double-ended
- WDE - hermetic sealed A2, B8, L4, M1-M4

High Voltage
- coax C2, C3, D1-D3
- contact protection A1, C1, L4
- dimension C1-C5, P21
- mixed contact C5, F1
- multipole style C4, E3-E8

Insulating Material D1-F1, L7

Keying and Orientation L4, N2

Latching Mechanism L3

Materials
- elastomers, technical characteristics L8
- metal, technical characteristics L6
- plastic, technical characteristics L7-L8

Ordering Information A1, A3

Plating and surface treatment L6

Plugs - Cable Mount
- S - locking A2, B1, C1-C5, M4
- SA - with lanyard A2, B1
- SC - Clic-Loc™ A2, B1, M4
- SOV - non-locking A2, B2, M4
- SV - tamper-proof A2, B1, C1-C2
- SS - short A2, B2
- WS - right-angle A2, B4
- WSE - sealed, right-angle A2, B4, M1-M3
- WSO - sealed, right-angle A2, B4, M1-M3

Plugs - Panel Mount
- SF - standard, non-locking A2, B3
- SFE - hermetic, non-locking A2, B3, M1-M2
- SFU - IP68 sealed, non-locking A2, B3

Quality, Certificate of Approval L1

Questionnaire, Special Requirements R1

Ratings
- current D1-F1, L9
- derating curve, current L9
- dielectric strength L7
- IEC L7, L9
- impedance D1-D3, F1
- IP M1-M3
- radiation resistance L7
- residual leakage M1
- temperature L7-L9
- volume resistivity L7
- voltage, operating L9
- voltage, test D1-F1, L9

Receptacles - Cable Mount
- K - standard A2, B9, M4
- KE - sealed A2, B9, M1-M4

Receptacles - Panel Mount
- D - standard, flush mounted A2, B5, C1-C5
- DB - front projecting A2, B5, M4
- DBEE - hermetic, front projecting A2, B7, M1-M4
- DBEU - IP68 sealed, front projecting A2, B7, M2, M4
- DBP - rear mounted A2, B5
- DBPC - right-angle p.c.b. contacts A2, B11, B12
- DBPE - hermetic, rear mounted A2, B7, M1-M3
- DBPU - IP68 sealed, rear mounted A2, B7, M1-M3
- DEE - hermetic, flush mounted A2, B7, C3, M1-M3
- DEU - sealed per IP68 A2, B7, M1-M3
- DG - completely threaded, solder contacts A2, B6
- DGP - completely threaded, p.c.b. contacts A2, B6
- DK - with cable clamp A2, B10
- DKBE - sealed rear-mounted cable receptacle A2, B9, M1-M4
- DKE - sealed with cable clamp A2, B10, M1-M4

Sealed Connectors M1-M4

Sectional view of plug and receptacle L2

Thermocouple G1-G2

Triax Camera Connectors D3

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