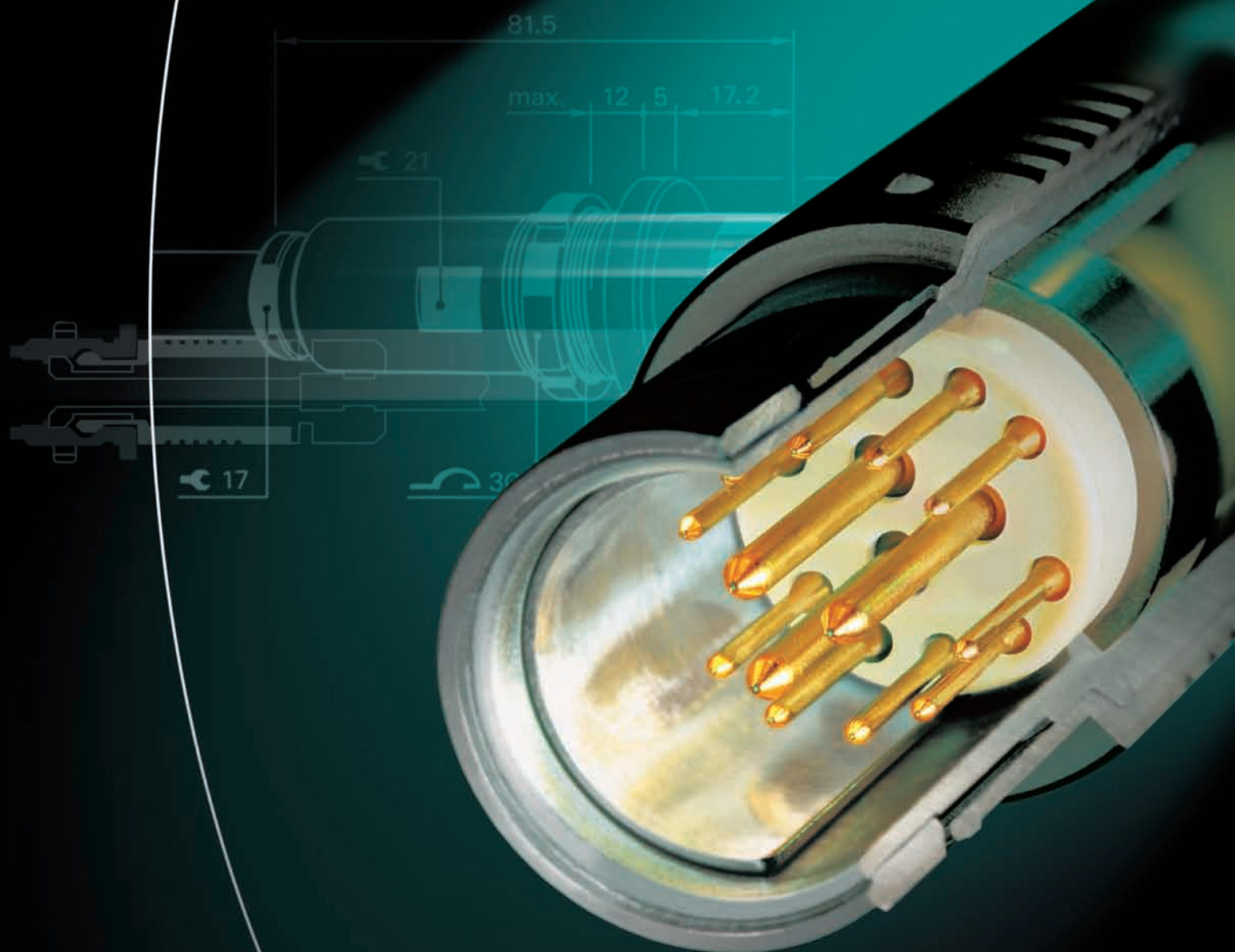


Edition 5.2

fischer connectors

General Catalogue



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	Protective covers, bend reliefs, spacers, insulating, coding and grounding washers, crimp contacts, nuts	J
Wire Gauge Conversion (AWG)		
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	Questionnaire	R
Terms	Warranty and Disclaimer	
Index	Table of contents	S

A

Example: S 104 A056-130+

S	Locking plug	D	Panel receptacle	DG	Completely threaded receptacle
SA	Plug with lanyard	DEE	Hermetic panel receptacle	DGP	Completely threaded receptacle with PCB contacts
SC	Clic-Loc™ plug	DEU	IP68 sealed receptacle	WDE	Hermetic bulk-head feedthrough for connection of 2 plugs
SS	Short plug	DB	Front projecting receptacle	K	Cable receptacle
SV	Tamperproof plug	DBEE	Hermetic, front projecting receptacle	KE	Sealed cable receptacle
SOV	Non-locking plug	DBEU	IP68 sealed, front projecting receptacle	DK	Panel-mounted cable receptacle
SF	Non-locking panel plug	DBP	Rear-mounted panel receptacle	DKBE	Sealed rear-mounted cable receptacle
SFE	Hermetic, non-locking panel plug	DBPC	Rear-mounted receptacle, right-angle PCB contacts	DKE	Sealed, panel-mounted cable receptacle
SFU	IP68 sealed, non-locking panel plug	DBPE	Hermetic, rear-mounted panel receptacle		
WS	Right-angle plug (replaced by WSO)	DBPU	IP68 sealed, rear mounted panel receptacle		
WSE	Sealed right-angle plug (replaced by WSO)				
WSO	Sealed right-angle plug				

S

104

A

056

-130

+

Connector Style

Contact Protection

As a general rule ^②

A Plugs have pins.
Receptacles have sockets.

Z Plugs have sockets.
Receptacles have pins.

Contact Configuration

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

Options

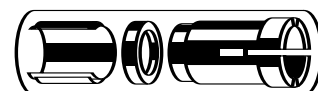
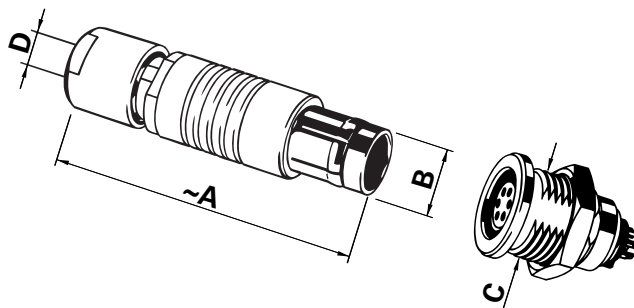
See table of standardized suffixes on page A3.

Cable Clamp Set

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

Connector Size

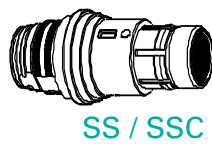
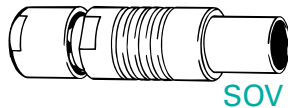
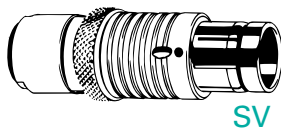
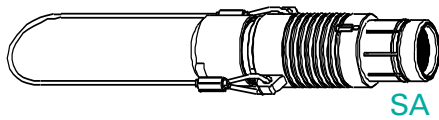
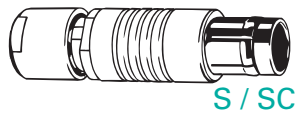
Series	Dimension ①			Cable Diameter D _{max}
	A	B	C	
101	27	5	7	5.1
102	35	7	9	4.7
103	46	9	12	6.7
1031	48	10	14	7.2
104	50	12	15	8.7
105	60	15	18	10.7
1051	80	19	20	16.5
106	78	27	32	19.2
107	110	30	35	22.7



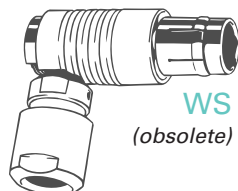
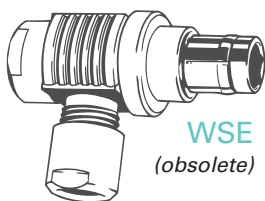
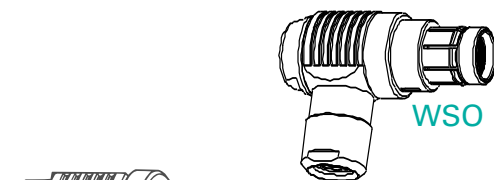
① General dimensions of unsealed standard connectors.

② Except certain high voltage connectors listed in section C. See also page L4.

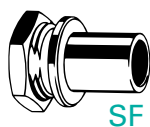
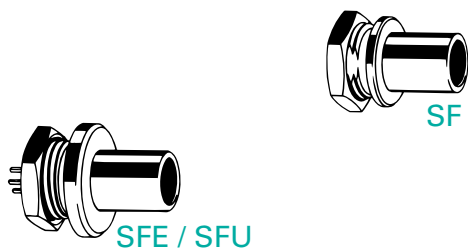
Plug



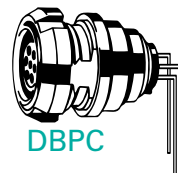
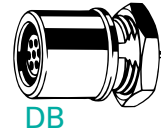
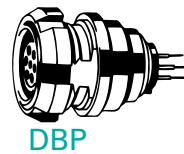
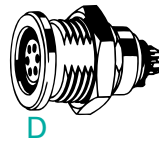
Right-angle plug



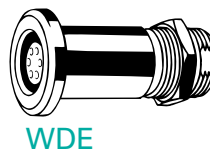
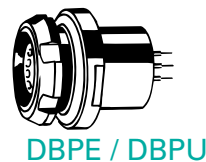
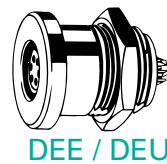
Panel plug



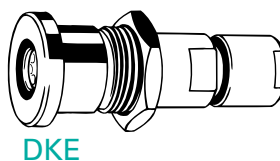
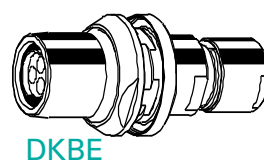
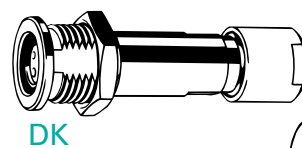
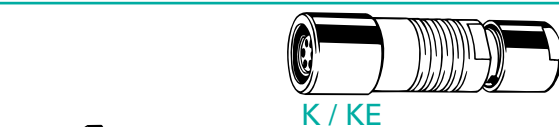
Receptacle



Receptacle and Bulkhead feedthrough



Cable receptacle



A

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
		natural	red	-150	-151	-152	-153	-154	-155	-156	-157	—
	crimp	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 of all Series:

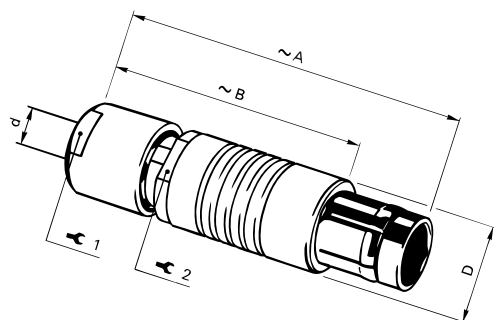
(For mixed contact connectors see page H8)

S 102 A017 / 4.7 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

SE 102 A017 / 4.3



S Locking plug SC Clic-Loc™ plug

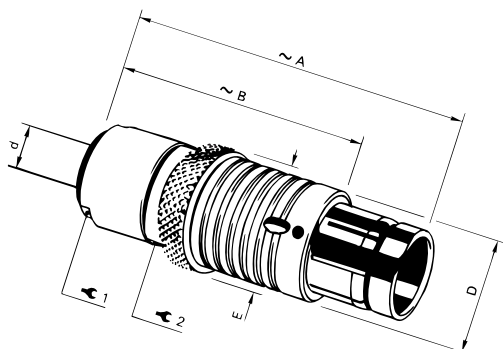


Unlike the fully-locking «S» plugs, the «SC» Clic-Loc™ plug snaps into the receptacle with a friction lock.

Series	A	B	D	d _{max}		Y ₁	Y ₂
				Unsealed	Sealed		
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.

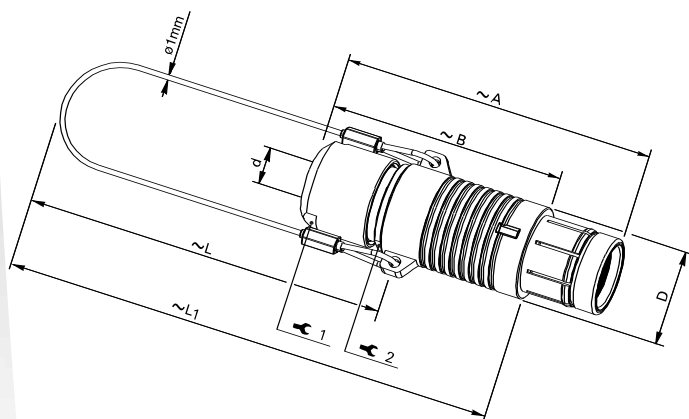
SV Tamper-proof plug



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

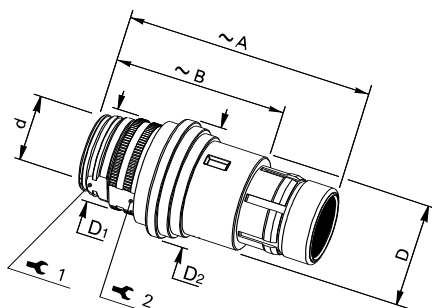
Series	A	B	D	E	d _{max}		Y ₁	Y ₂
					Unsealed	Sealed		
102	36	26	9	11	4.7	4.3	7	7
103	46	35	12	13	6.7	6.2	10	10
1031	Please contact us for additional information							
104	50	38	15	20	8.7	8.7	12	13
105	62	47	18	22	10.7	10.7	15	16
106	80	55	30	35	19.2	19.2	22	—
107	110	85	34	38	22.7	22.7	32	32

SA Plug with lanyard



Series	A	B	D	d _{max}		L	L ₁	Y ₁	Y ₂
				Unsealed	Sealed				
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 Information» on page L6.

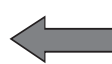
SS
SSC
Short plug**Short Clic-Loc™ plug**

Series	A	B	D	D ₁	D ₂	d _{max}	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								

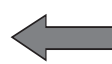
B**Cable attachment possibilities:**

- Heat shrink or boots
- Overmoulding

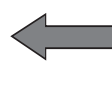
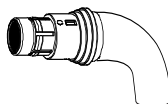
Tables below give some references of various suppliers for heat shrink and boots.

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	ATUM16/4-0	4
1031		
104		
105	ATUM3/4-0	6
1051	ATUM1-0 or ATUM24/6-0	8 / 6

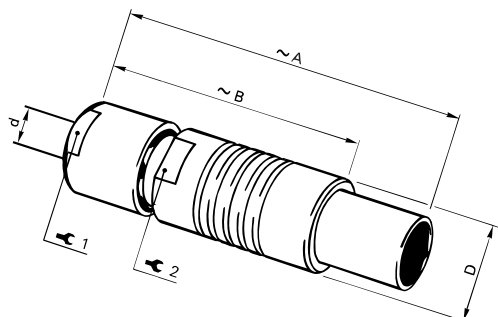
Type2: straight boots

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	104-4... (104-4-B7WM250)	3.8			202D211... (202D211-25-0)	6.4
1031						
104						
105	105-4... (105-4-B7WM250)	5.6	202A121... (202A121-25-225)	5.3	202D221... (202D221-25-0)	7.4
1051						

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	1108-4... (1108-4-B7WM250)	3.8		
1031				
104				
105	1106-4... (1106-4-B7WM250)	5.6	222A121... (222A121-25-225)	5.3
1051				

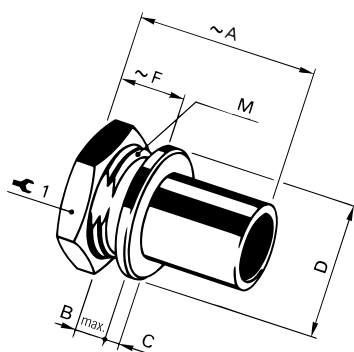
SOV Non-locking plug



Series	A	B	D	d ^{max}		Y ₁	Y ₂
				Unsealed	Sealed		
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 Information» on page L6.

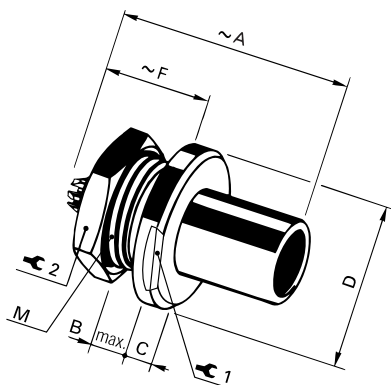
SF Non-locking panel plug



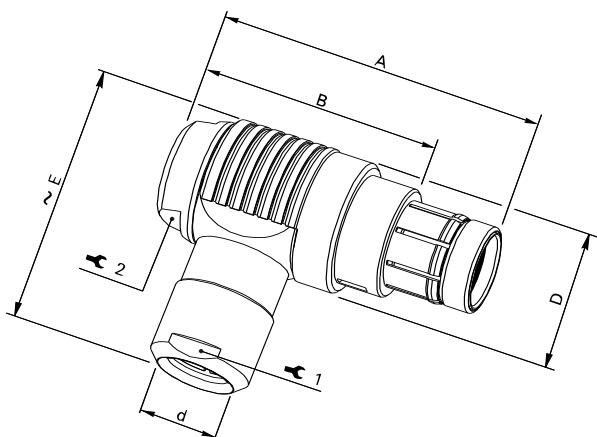
Series	A	B _{max}	C	D	F	M	Y ₁
102	20	4	1.5	10	8.5	9x0.5	11
103	23.5	3	1.5	14	11	12x1	14
1031	25	4	2	16	13	14x1	17
104	27	3	2	18	13	15x1	17
105	29	5.5	1.2	22	13	16x1	19
106	42.5	5.5	2.5	34	11.5	30x1	TX00.106 ①
107	50	6	3	36	22	32x1	TX00.106 ①

① 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

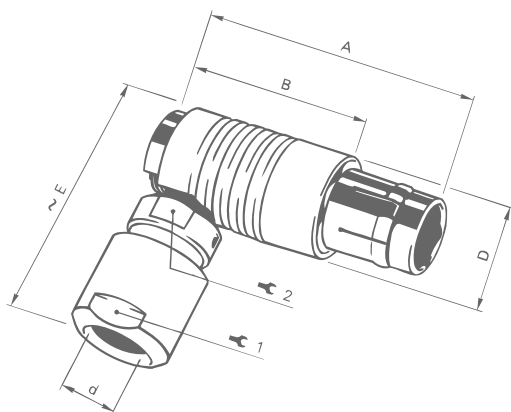


Series	A	B _{max}	C	D	F	M	Y ₁	Y ₂
102	21	2.5	3	13	8	9x0.5	9	11
103	26	5	2.5	17	12	12x1	—	14
1031	Please contact us for additional information							
104	28	7.5	3	22	13	16x1	—	19
105	32	6	4	27	13	20x1	—	25
106	Please contact us for additional information							
107								

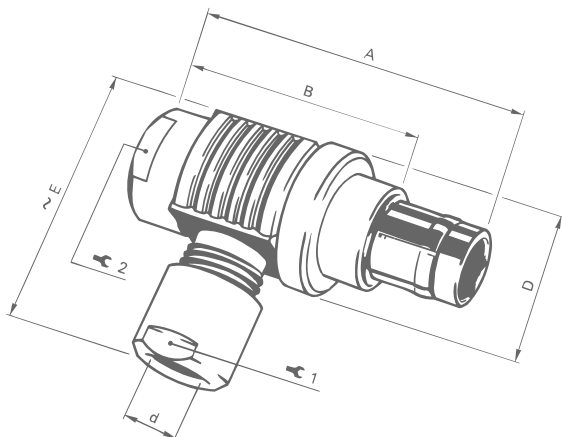
WSO Right-angle plug (Sealed or unsealed, depending on the type of cable clamp)


Series	A	B	D	¹ d _{max}	E	Y ₁	Y ₂
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							

¹ The acceptable maximum diameter (d_{max}) depends on the type of cable clamp (sealed or unsealed), see «Cable Clamp Sets for WSO» page H9.

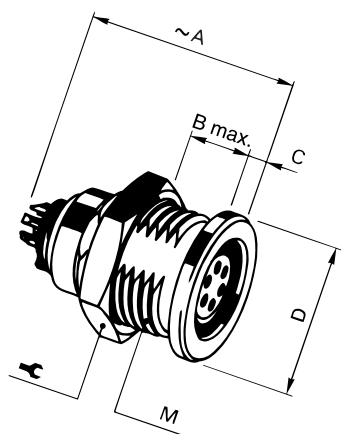
WS Right-angle plug (replaced by WSO)


Series	A	B	D	d _{max}	E	Y ₁	Y ₂
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	d _{max}	E	Y ₁	Y ₂
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

D Panel receptacle

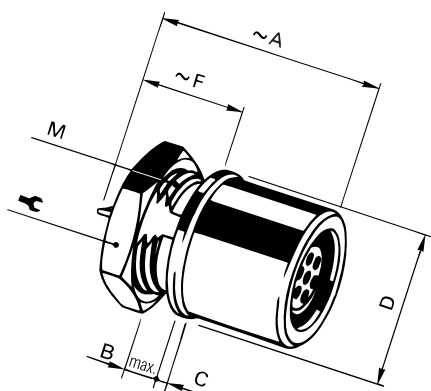


High Voltage receptacles are listed in section C.

Series	A	B _{max}	C	D	M	Wrench
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.

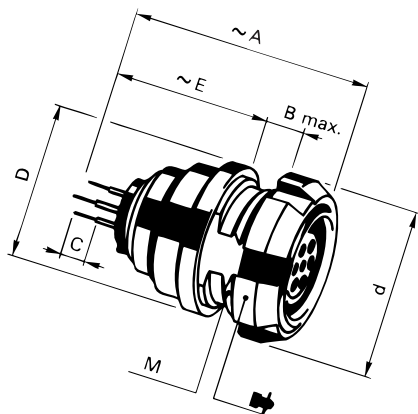
DB Front projecting receptacle



Series	A	B _{max}	C	D	F	M	Wrench
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	Please contact us for additional information						

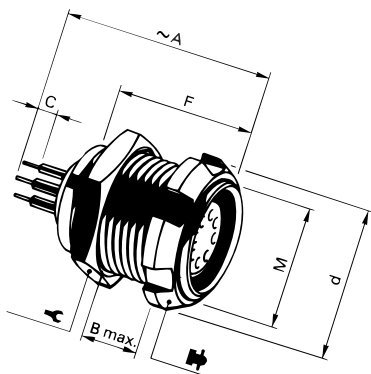
The «DB» style allows the use of a protective sleeve on the mating straight plug thus providing a certain sealing.
See «General Environmental Protection» on page M4.

DBP Rear-mounted panel receptacle

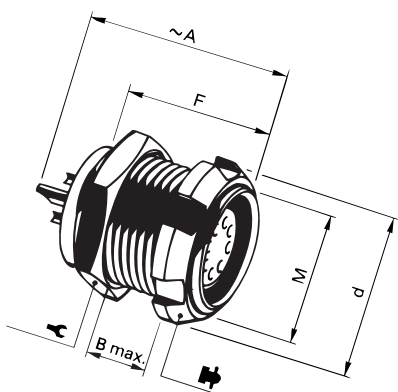


Series	A ①	B _{max}	C ①	D	d	E ①	M	Wrench ②
102	20	3.5	2.54	11	12	13	9x0.5	TC00.000
103	23	4	2.54	14	15	15	12x1	TF00.001
1031	23	3	2.54	16	18	16	14x1	TG00.001
104	26	5	2.54	19	19	15	15x1	TK00.000
105	30	12	2.54	22	23	13	18x1	TP00.011
106	Please contact us for additional information							
107	Please contact us for additional information							

- ① Solder pin length and diameter may vary in the same series.
Please ask for exact sizes of dimensions A, C and E.
- ② Assembly tools for decorative slotted nuts are listed in section K.

DGP Completely threaded receptacle with PCB contacts


Serie	A ①	B _{max}	C ①	d	F	M	Y	②
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								

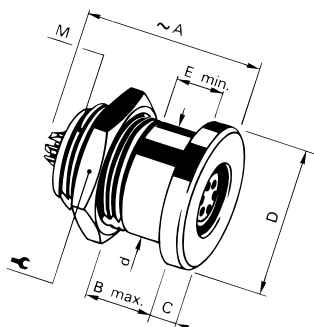
DG Completely threaded receptacle


Serie	A	B _{max}	d	F	M	Y	②
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.

- ① Solder contact length and diameter may vary in the same series. Please ask for exact sizes of dimensions A, C and E.
- ② Assembly tools for decorative slotted nuts are listed in section K.

DEE Hermetic panel receptacle
DEU IP68 sealed panel receptacle



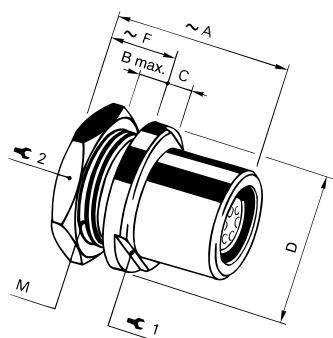
For details concerning the degree of sealing see section M.
For high voltage receptacles see section C.

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	Y
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
① 106	50	24	5	41	34	19	32x1	TX00.106
① 107	47	22	5	45	36	19.2	35x1	TX00.107

- ① 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

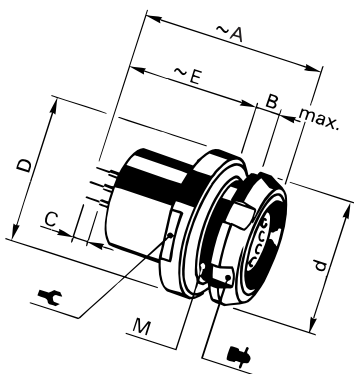


The «DBEE» and «DBEU» style allows the use of a protective sleeve on the mating straight plug, thus providing a protection to the plug as shown on page M4.

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
① 106	50	6.5	7	40	24	32x1	—	TX00.106
① 107	47	5	5	45	23	35x1	38	TX00.107

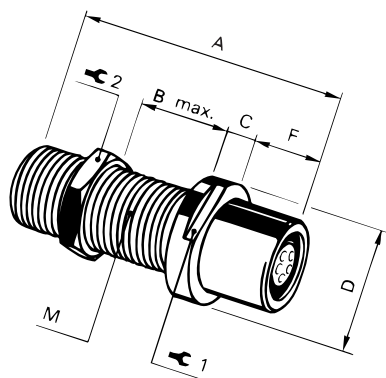
For details about sealing see section M.

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

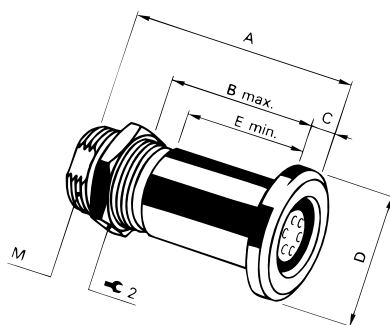


Series	A ②	B _{max}	D	d	E ②	C ②	M	Y	Z ③
102	20	3.5	14	12	13	2.54	9x0.5	11	TC00.000
103	26	3	18	18	18	2.54	14x1	—	TG00.001
1031	22	3	19	18	15	2.54	14x1	—	TG00.001
104	26	4	22	20	18	2.54	16x1	—	TK00.002
105	30	5	27	25	20	2.54	20x1	—	TP00.005
106	Please contact us for additional information								
107									

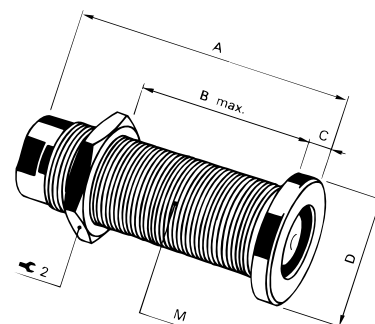
- ② Solder pin length and diameter may vary in the same series. Please ask for exact sizes of dimensions A, C and E.
③ Assembly tools for decorative slotted nuts are listed in section K.

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
① 104	2	40	34	4	22	22	—	15x1	—	17
105	3	62	47	4	27	—	—	20x1	—	25
② 106	2	74	39	12	42	30	—	32x1	—	TX00.106
② 107	2	92	76	5	45	20	—	36x1	—	TX00.107

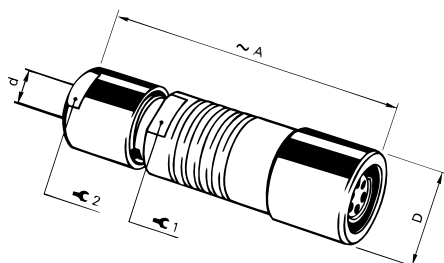
The bulkhead feedthrough connector allows the traversal of a panel with electrical signals and power via two cable plugs.

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.

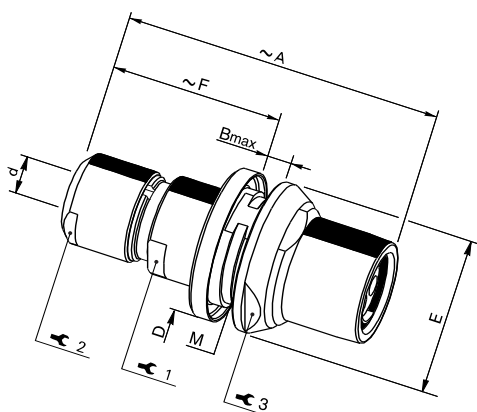
- ① Unlike the other series, the flange side of the «WDE 104» body (Fig.2) does not contain an interfacial O-ring seal between the feedthrough and the mating plug.
- ② Feedthroughs of series 106 and 107 are supplied with slotted nuts. For nut dimensions see «Accessories», section J. Wrenches see under «Assembly Tools», section K.

K Cable receptacle ①
KE Sealed cable receptacle ①



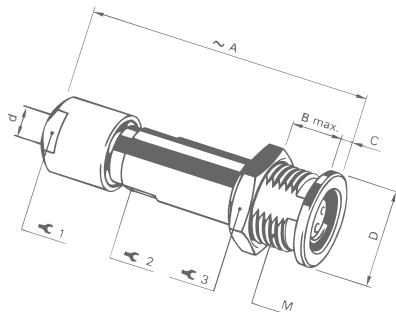
Series	A	D	d_{max}		Y ₁	Y ₂
			K	KE		
102	35	10	4.7	4.3	7	7
103	43	13	6.7	6.2	10	10
1031	46	13.5	6.7	6.7	11	12
104	50	16	8.7	8.7	13	12
105	60	19	10.7	10.7	16	15
106	79	33	19.2	19.2	25	25
107	105	36	22.7	22.7	32	32

DKBE Sealed rear-mounted cable receptacle ①



Series	A	B _{max}	D	E	F	d _{max}	M	Y ₁	Y ₂	Y ₃
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

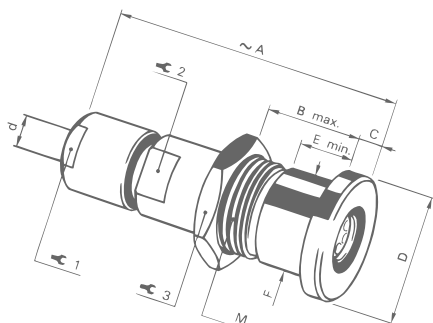
① For cable clamp sets see «Ordering Information» on page A3 and «Technical Information» on page L6.

DK Panel-mounted cable receptacle ②
(replaced by DKBE)


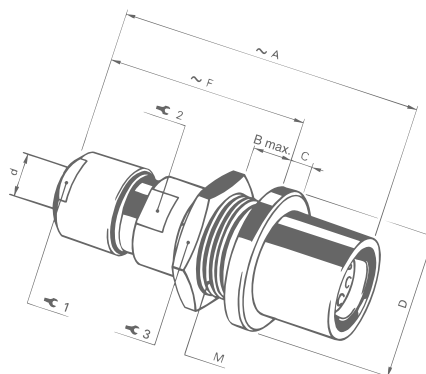
Series	A	B _{max}	C	D	d _{max}	M	Y ₁	Y ₂	Y ₃
102	35	9	1.5	11	4.7	9x0.5	7	—	11
103	44	10	1.5	14	6.7	12x1	10	9	14
1031	Please contact us for additional information								
104	50	11	2	19	8.7	15x1	12	12	17
105	60	16	2	22	10.7	18x1	15	14	22
106	80	21	3	37	19.2	32x1	25	25	TX00.106
107	105	17	4	40	22.7	35x1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

DKE Sealed, panel-mounted cable receptacle ②
(replaced by DKBE)

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



Type 1



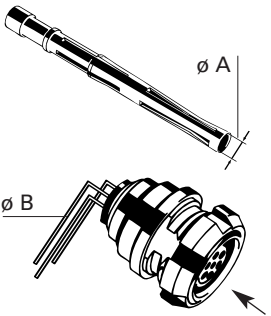
Type 2

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
106	2	85	9	7	37	—	56	19.2	30x1	25	25	TX00.106
107	2	110	21	5	45	—	84	22.7	35x1	32	30	TX00.107

① «DK» and «DKE» of series 106 and 107 are supplied with slotted nuts.

② For cable clamp sets see «Ordering Information» on page A3 and «Technical Information» on page L6.

B

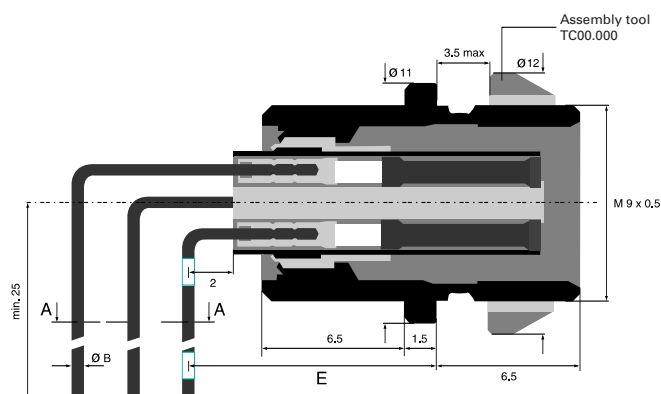
 Type «A»	DBPC SERIES 102 103 1031 REFERENCE NUMBER	Number of Contacts	Diameter A [mm]	Diameter B [mm]	Length E [mm] (page B12)	Insulator Material
	102					
	DBPC 102 A051	2	0.9	0.6	12.8	PEEK ●
	DBPC 102 A052	3	0.9	0.6	12.8	PEEK ●
	DBPC 102 A053	4	0.7	0.5	11.3	PEEK ●
	DBPC 102 A054	5	0.7	0.5	11.3	PEEK ●
	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

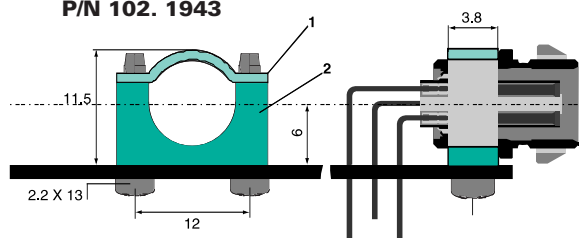


Accessory Mounting clamp

Enables mounting directly to PCB with two 2.2 x 13 screws

Improves grounding of body to the PCB

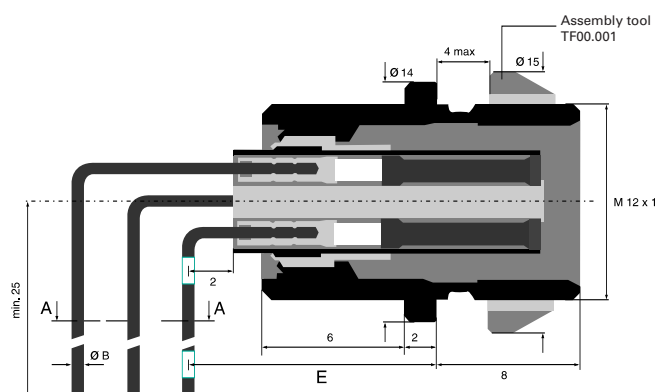
P/N 102.1943



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

Sectional View A-A see on page B13

DBPC 103

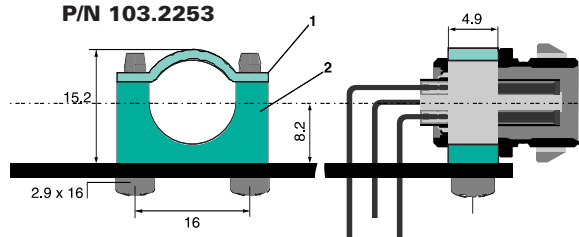


Accessory Mounting clamp

Enables mounting directly to PCB with two 2.9 x 16 screws

Improves grounding of body to the PCB

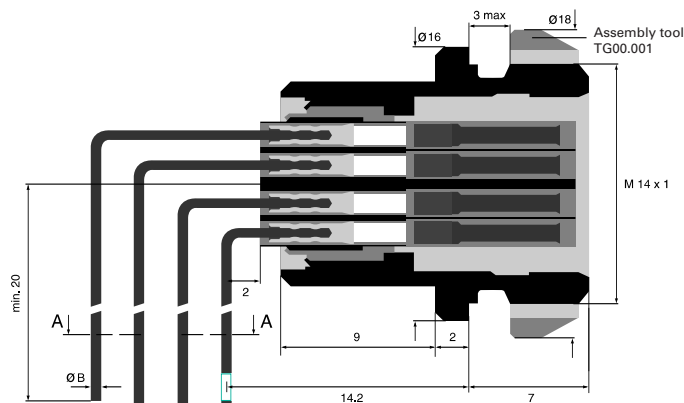
P/N 103.2253



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

Sectional View A-A see on page B13

DBPC 1031

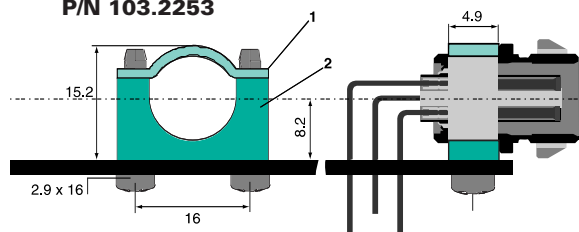


Accessory Mounting clamp

Enables mounting directly to PCB with two 2.9 x 16 screws

Improves grounding of body to the PCB

P/N 103.2253



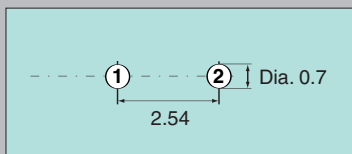
Material: **1** - Copper nickel plated
2 - PBT

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

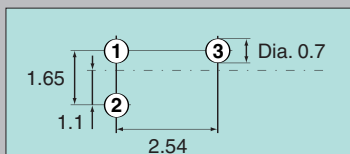
B

102

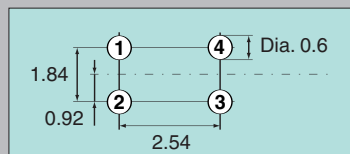
DBPC 102 A051



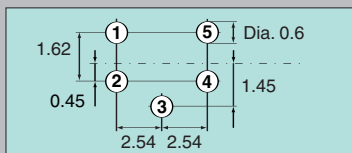
DBPC 102 A052



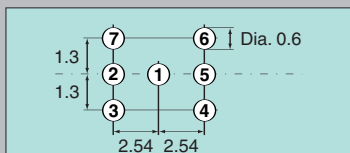
DBPC 102 A053



DBPC 102 A054

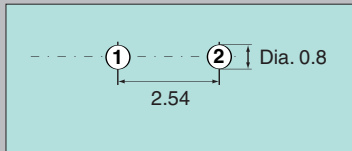


DBPC 102 A056

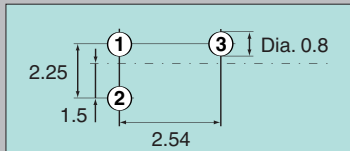


103

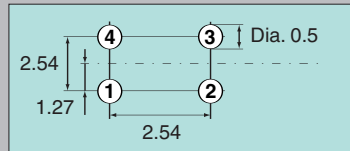
DBPC 103 A051



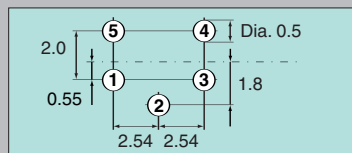
DBPC 103 A052



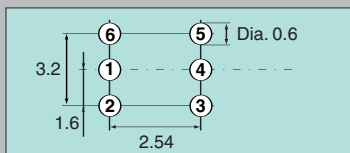
DBPC 103 A053



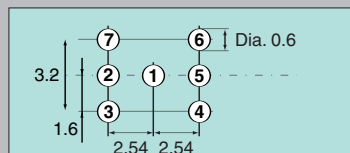
DBPC 103 A054



DBPC 103 A056

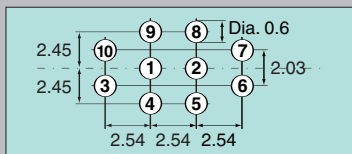


DBPC 103 A057

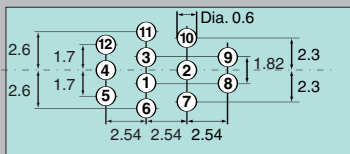


1031

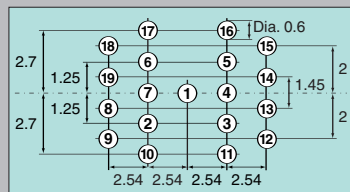
DBPC 1031 A010



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.

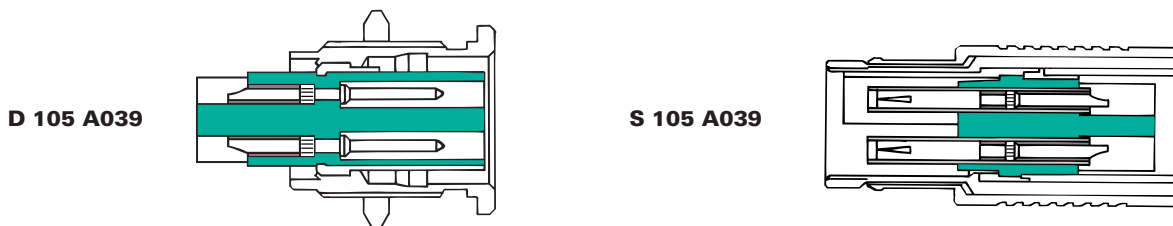
Type «A»: The contacts of the receptacle are recessed to reduce the possibility of electric shock in the unmated position.
This version should be used when the voltage is sourced from the receptacle.

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

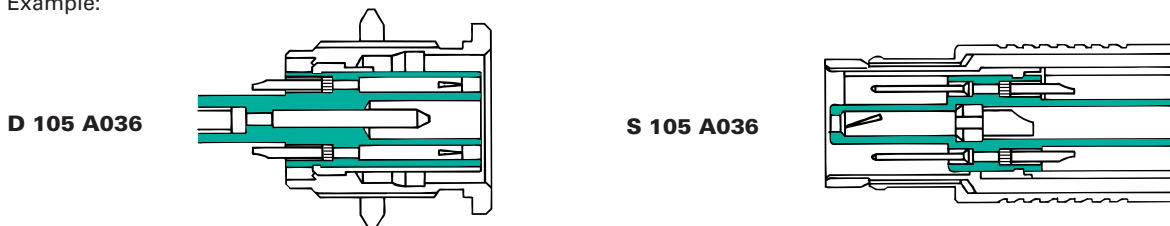
Example:



This also applies to the mixed HT connectors:

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

Example:



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.

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.

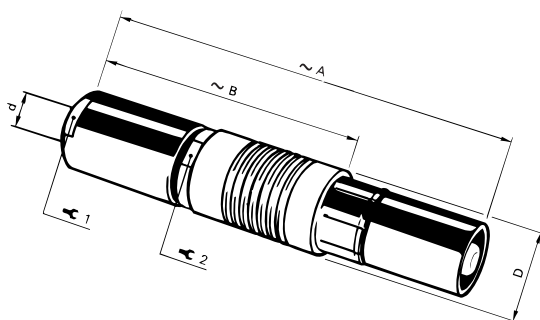
**Suitable coax cables are indicated in the column «Cable Group» in section D.
The cable specifications are listed on page Q1.**

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.

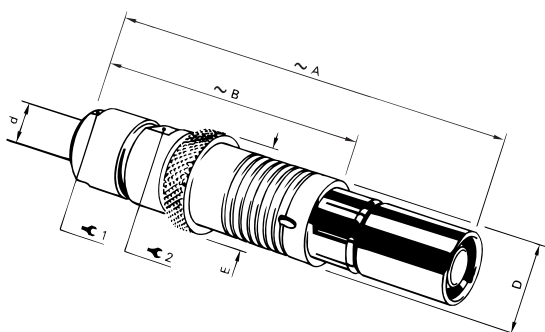
For non-sealed coax connectors, the collet diameter has to be selected from the tables of type «S», and for sealed coax connectors from the tables of type «E» on pages H1 - H7.

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).



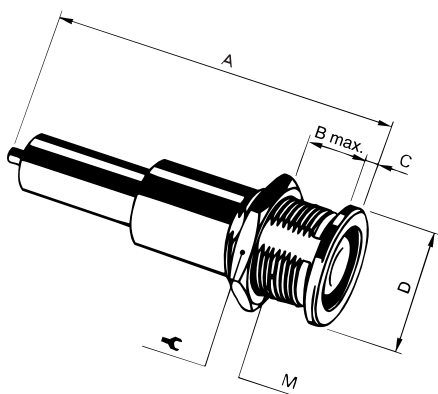
TYPE	A	B	D	E ①	d _{max} S / SV	SE / SVE	Y ₁	Y ₂
102 A018 102 Z018	36	25	9	11	4.7	4.3	7	7
102 A025 102 Z025	60	46	9	—	5.2	—	—	②
103 A023 103 Z023	45	34	12	13	6.7	6.2	10	10
104 A010 104 Z010	50	38	15	20	8.7	8.7	12	13
105 A004 105 Z004	62	47	18	22	10.7	10.7	15	16
105 A005 105 Z005	62	47	18	22	10.7	10.7	15	16
105 A049 105 Z049	90	60	18	22	10.7	—	15	16
105 A108 ③	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 ④	32

① The diameter «E» is only valid for the body styles «SV» and «SVE».

② Cable screen and jacket (e.g. RG-58) are retained by hex-crimp to the plug shell.

③ For improved safety, the center contact is further recessed than in the S 105 A049.

④ Two wrenches with an opening of 32 mm are required for SV/SVE 107 series.

D Panel receptacle

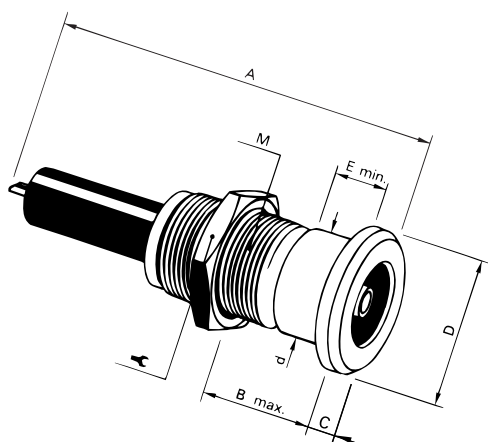
TYPE	A	B _{max}	C	D	M	Y
102 A018 102 Z018	24	8	1.5	11	9x0.5	11
102 A025 102 Z025	45	7	2	11	9x0.5	11
103 A023 103 Z023	27	7	1.5	14	12x1	14
104 A010 104 Z010	39	10	2.5	19	15x1	17
105 A004 105 Z004	46	15	2	22	18x1	22
① 105 A005 105 Z005	46	15	2	22	18x1	22
① 105 A049 105 Z049	63 68	13	2	22	18x1	22
105 A108	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

① 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	Y
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.

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 !

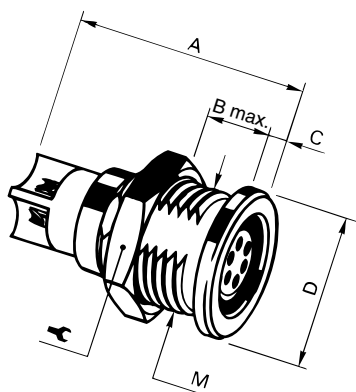
An «A» type connector will not mate with a «Z» type connector. See page C1 and «Contact Protection» on page L4.

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 separately and must be inserted after being soldered. For this purpose, we recommend tool No TP00.000, shown on page K3.

D Panel receptacle



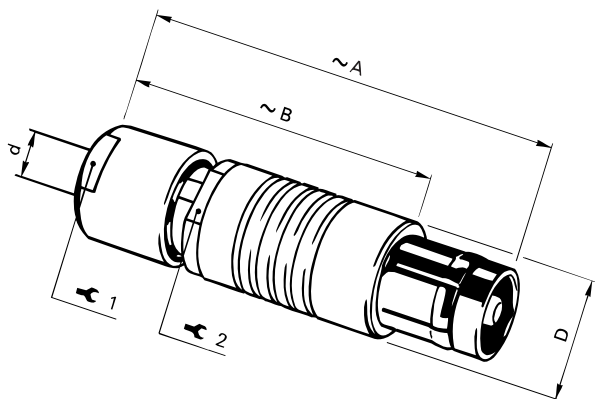
TYPE	A	B _{max}	C	D	M	Wrench
104 A062 104 Z062	28	10.5	2.25	19	15x1	17
104 A083	31	10.5	2.25	19	15x1	17
105 A039 105 Z039	34	15	2	22	18x1	22
105 A112	34	15	2	22	18x1	22
105 A057	33	15	2	22	18x1	22
106 A013 106 Z013	51	18	3	37	32x1	TX00.106
107 A034	63	18	4	40	35x1	TX00.107

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.

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

S Locking plug



TYPE	A	B	D	d _{max}	Y ₁	Y 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	—

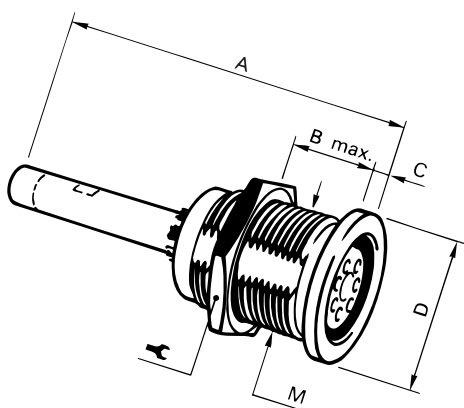
For insertion of female high voltage contacts which have to be assembled after wiring, we recommend tool No TP00.000, shown on page K3.

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



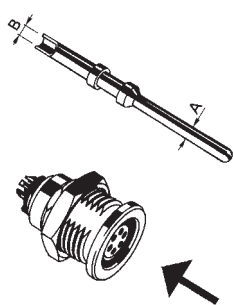
TYPE	A	B _{max}	C	D	M	Y
105 A036	55	15	2	22	18x1	22
105 A060	55	15	2	22	18x1	22
① 106 A014	48.5	18	3	37	32x1	TX00.106

① 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.



COAX TRIAX

SERIES

101

102

REFERENCE
NUMBER

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

●

2

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

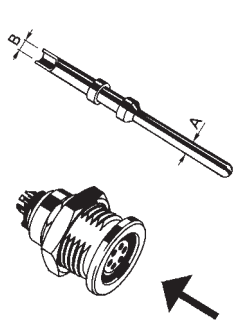
10

① See list of recommended cables on page Q1.

● = Standard

○ = Option

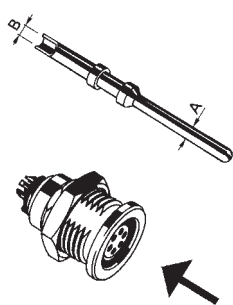
② Plug: Center contact - crimp / Outer contact - crimp ferrule
Receptacle: Center contact - solder / Outer contact - washer with solder tag

	COAX TRIAX	Connector Type	Cable Group 1	Contact Diameter A [mm]	Wire Barrel Diameter B [mm]	Insulating Material	Contact Termination for			Impedance [Ω]	Test Voltage [kV] in mated position PTFE Insulator				Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
	Solder						Crimp	PCB solder	AC rms		DC					
									Center contact to Outer contact		Outer contact to Body	Center contact to Outer contact	Outer contact to Body			
REFERENCE NUMBER																
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	2 ●			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

1 See list of recommended cables on page Q1.

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

● = Standard ○ = Option



COAX TRIAx

SERIES

105

1051

107

REFERENCE
NUMBER

105

105 A002
105 Z002

Connector Type

Cable Group **①**

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

DC

Center contact to
Outer contact

Outer contact to
Body

Center contact to
Outer contact

Outer contact to
Body

Max. Admissible Current [A]
at 20°C Temperature Rise

Max. Admissible Current [A]
at 40°C Temperature Rise



1051

1051 A004

Connector Type

Cable Group **①**

Contact Diameter **A** [mm]

Wire Barrel Diameter **B** [mm]

Insulating Material

Solder

Crimp

PCB solder

Impedance [Ω]

Test Voltage [kV]
in mated position
PTFE Insulator

AC rms

DC

Center contact to
Outer contact

Outer contact to
Body

Center contact to
Outer contact

Outer contact to
Body

Max. Admissible Current [A]
at 20°C Temperature Rise

Max. Admissible Current [A]
at 40°C Temperature Rise



107

107 A003
107 Z003

Connector Type

Cable Group **①**

Contact Diameter **A** [mm]

Wire Barrel Diameter **B** [mm]

Insulating Material

Solder

Crimp

PCB solder

Impedance [Ω]

Test Voltage [kV]
in mated position
PTFE Insulator

AC rms

DC

Center contact to
Outer contact

Outer contact to
Body

Center contact to
Outer contact

Outer contact to
Body

Max. Admissible Current [A]
at 20°C Temperature Rise

Max. Admissible Current [A]
at 40°C Temperature Rise



① See list of recommended cables on page Q1.

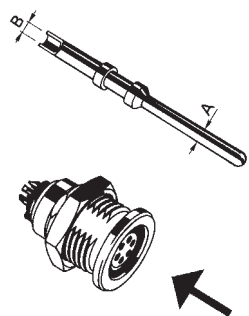
② Receptacles are available with an optional micro switch.

③ Plug and receptacle contain additionally recessed contacts.

④ For detailed information, please ask for Triax Camera Connector Catalogue.

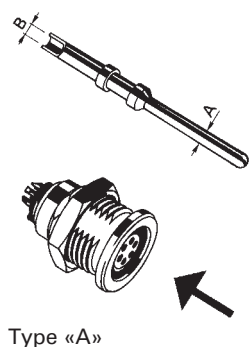
● = Standard

○ = Option

 Type «A»	SERIES 102 REFERENCE NUMBER 102	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
						Solder	Crimp 1	PCB solder		AC rms		DC			
										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

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



SERIES
103
1031

REFERENCE
NUMBER

103

103 A051
103 Z051

103 A052
103 Z052

103 A053
103 Z053

103 A054
103 Z054

103 A056
103 Z056

103 A057
103 Z057

103 A058
103 Z058

103 A062
103 Z062

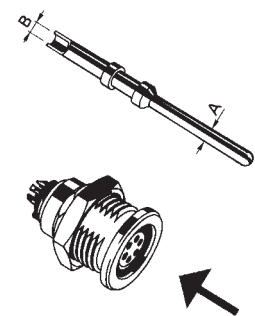
1031

1031 A010
1031 Z010

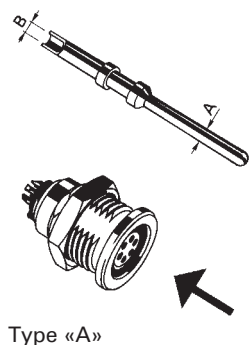
1031 A012
1031 Z012

1031 A019
1031 Z019

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
				Solder	Crimp	PCB solder		AC rms		DC			
								Contact to Body	Contact to Contact	Contact to Body	Contact to Contact		
2	1.3	1.2	PEEK	●	●	●		1.5	2.2	2.2	3.0	9.0	13
3	1.3	1.2	PEEK	●		●		1.2	1.5	1.8	2.0	8.5	12
4	0.9	0.8	PEEK	●		●		1.2	1.6	2.0	2.4	5.0	7.0
5	0.9	0.8	PEEK	●	●	●		1.1	1.4	1.9	2.2	4.8	6.8
6	0.7	0.6	PEEK	●	●	●		1.0	1.3	2.0	2.0	3.5	5.2
7	0.7	0.6	PEEK	●	●	●		1.0	1.3	2.0	2.0	3.2	5.0
8	0.7	0.6	PEEK	●		●		0.8	1.1	1.4	1.9	2.5	3.8
12	0.5	0.4	PEEK	●		●		0.9	1.2	1.5	1.8	1.5	2.0
10	0.7	0.6	PEEK	●	●	●		1.4	1.5	2.0	2.2	3.2	4.5
12	0.7	0.6	PEEK	●	●	●		1.4	1.5	2.0	2.2	3.0	4.2
19	0.5	0.4	PEEK	●	●	●		1.2	0.9	2.0	1.5	1.8	2.5

 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
						Solder	Crimp	PCB solder		AC rms		DC			
										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 $\begin{cases} 1 \\ 2 \text{ HT} \end{cases}$	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 $\begin{cases} 2 \\ 2 \end{cases}$	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

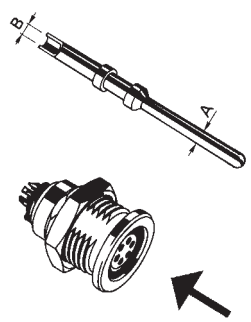
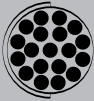
● = Standard ○ = Option



SERIES
104

REFERENCE
NUMBER

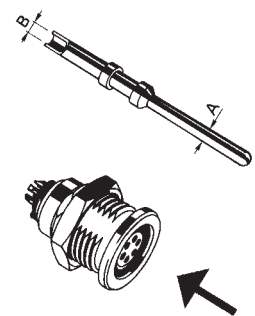
104

 Type «A»	SERIES 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
	Solder					Crimp	PCB solder	AC rms		DC					
								Contact to Body		Contact to Contact	Contact to Body	Contact to Contact			
REFERENCE NUMBER	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	^① 1.8 2.1		^① 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 $\left\{ \begin{array}{l} 1 \\ 8 \end{array} \right.$	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

^① Test voltages between the contacts with shortest distance.

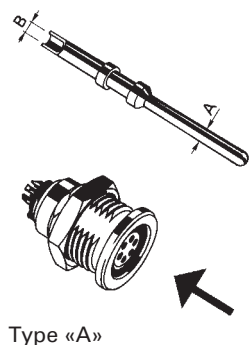
For contact numbering see section P.

 Type «A»	SERIES 105 REFERENCE NUMBER 105	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
						Solder	Crimp	PCB solder		AC rms		DC			
										Contact to Body	Contact to Contact	Contact to Body	Contact to Contact		
	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 ^①	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 105 Z054 ^①	7 $\begin{cases} 1 \\ 6 \end{cases}$	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 ^①	9 $\begin{cases} 1 \\ 8 \end{cases}$	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

① Contact dia 2.0 is positioned to make contact first and break last.

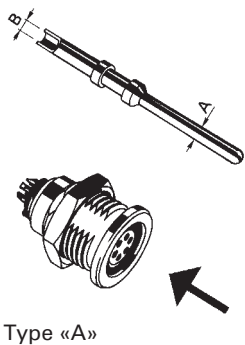
For contact numbering see section P.



SERIES
105

REFERENCE
NUMBER

105

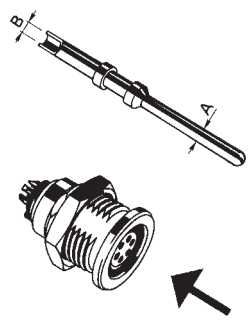
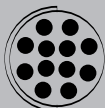
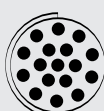
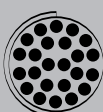
	SERIES 105	Number of contacts	Contact Diameter A [mm]	Wire Barrel Diameter B [mm]	Insulating Material	Contact Termination for			Impedance [Ω]	Test Voltage [kV] in mated position				Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise	
	REFERENCE NUMBER					Solder	Crimp	PCB solder		AC rms		DC				
										Contact to Body	Contact to Contact	Contact to Body	Contact to Contact			
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 105 Z104 ^①	13 $\begin{cases} 3 \\ 10 \end{cases}$	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 $\begin{cases} 3 \text{ HT} \\ 10 \end{cases}$	1.3 0.7	1.2 0.6	PEEK		●		<i>Conforms to IEC 60601 Please contact us for additional information</i>							
	105 A058 105 Z058	15	0.9	0.8	PEEK	●	●	●			1.4	1.6	1.8	2.2	3.7	5.3
	105 A110 105 Z110 ^②	16 $\begin{cases} 4 \\ 12 \end{cases}$	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

① Contacts with diameter 1.3 mm are positioned to make contact first and break last.

② Contacts with diameter 1.6 mm are positioned to make contact first and break last.

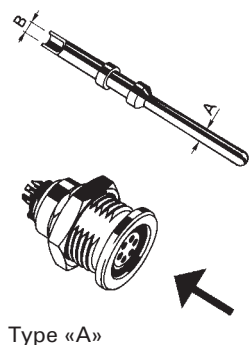
For contact numbering see section P.

● = Standard

 Type «A»	SERIES 106 REFERENCE NUMBER 106	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
						Solder	Crimp	PCB solder		AC rms		DC			
										Contact to Body	Contact to Contact	Contact to Body	Contact to Contact		
	106 A003 106 Z003 ^①	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 106 Z007 ^{① ②}	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

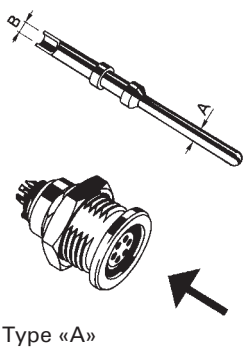
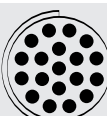
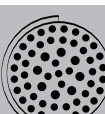
① The contact solder cups are specially insulated.
 ② Contact Number 1 is positioned to make contact first and break last.
 For contact numbering see section P.



SERIES
107

REFERENCE
NUMBER

107

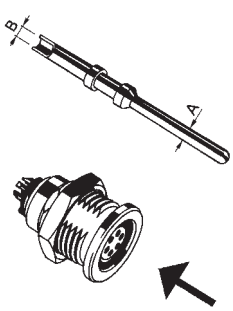
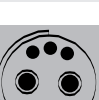
	SERIES 107	Number of contacts	Contact Diameter A [mm]	Wire Barrel Diameter B [mm]	Insulating Material	Contact Termination for			Impedance [Ω]	Test Voltage [kV] in mated position				Max. Admissible Current [A] at 20°C Temperature Rise	Max. Admissible Current [A] at 40°C Temperature Rise
	Solder					Crimp	PCB solder	AC rms		DC					
								Contact to Body		Contact to Contact	Contact to Body	Contact to Contact			
REFERENCE NUMBER	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 $\begin{cases} 8 \\ 47 \end{cases}$	1.3 0.9	1.2 0.8	PTFE PEEK	● ○				2.0 1.7	1.8 1.5	2.8 2.5	2.5 2.1	5.0 2.0	7.0 3.0

● = Standard ○ = Option

ELECTRICAL SPECIFICATIONS

Mixed Single & Multipole Connectors
with Coaxial or High Voltage Contacts



	SERIES 104 105 106 REFERENCE NUMBER	Connector Type	Cable Group 1	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	
							Solder	Crimp	PCB solder		AC rms		DC				
											Contact to Body	Contact to Contact	Contact to Body	Contact to Contact			
104																	
	104 A078	COAX +1	1	0.7 0.9	0.6 0.8	PTFE	● ●	●		50	1.8 0.8	— —	3.0 1.6 2	— —	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 2	— 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 2	— —	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 2	— 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 2	— 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.**

¹ See list of recommended cables on page Q1.

² Test voltages between contact and body as well as between contact and coaxial outer contact.

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.

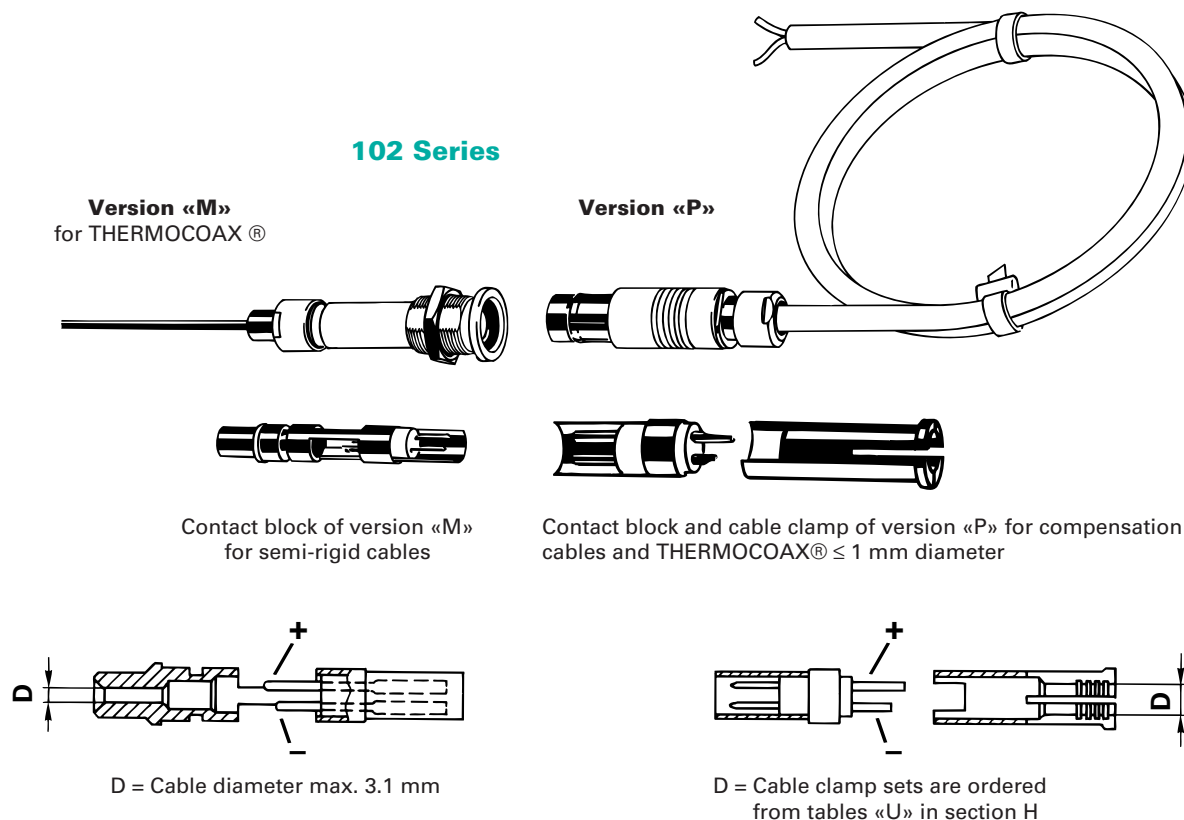
Version «P»

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.

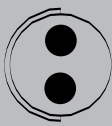
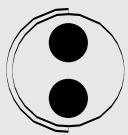
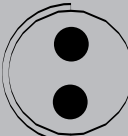
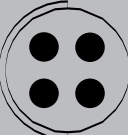
To order, the reference number of the thermocouple can be selected from the table on page G2 and the body style prefix from section A.

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 »



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 ^①	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 ^①	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 ^①	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 ^①	NiCr - Ni NiCr - NiAl	Nickel/Chrome - Nickel Chromel - Alumel	PTFE	104 A036

① 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

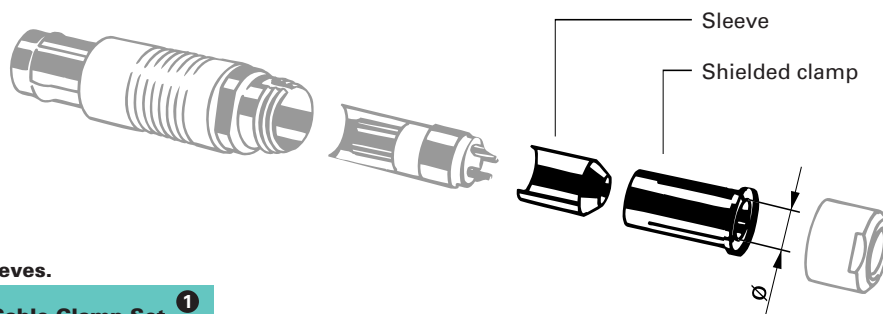
THERMOCOAX® is a registered trade name of PHILIPS

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

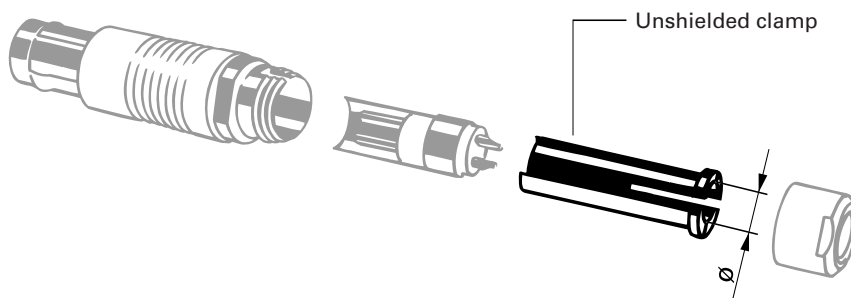


Shielded cable clamps with sleeves.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ¹
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

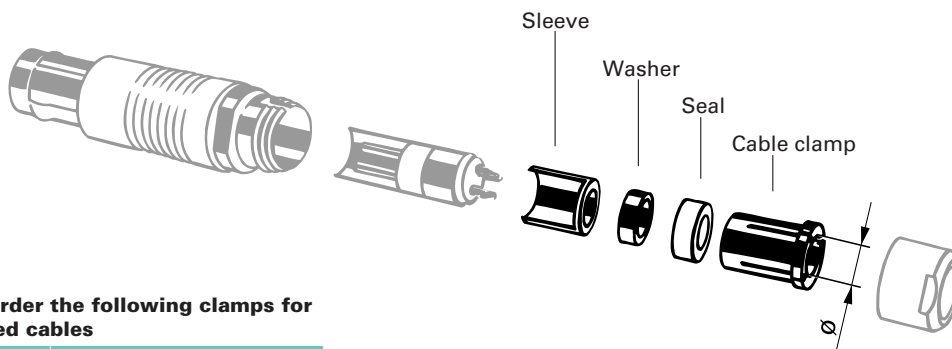


Unshielded, one-piece cable clamps.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ¹
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

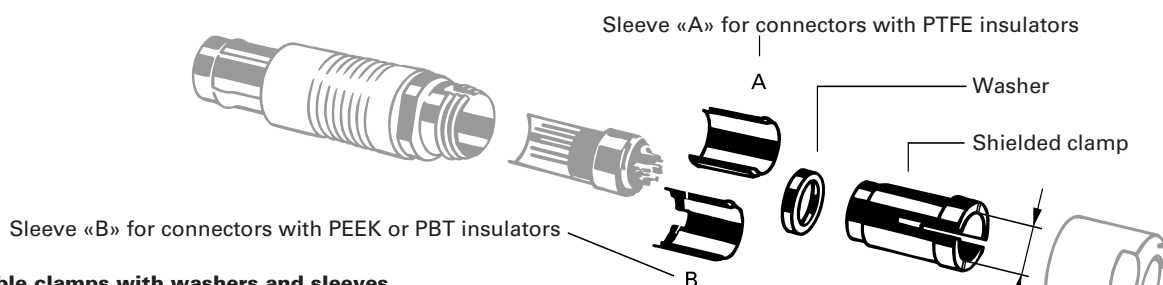
E

Environmental

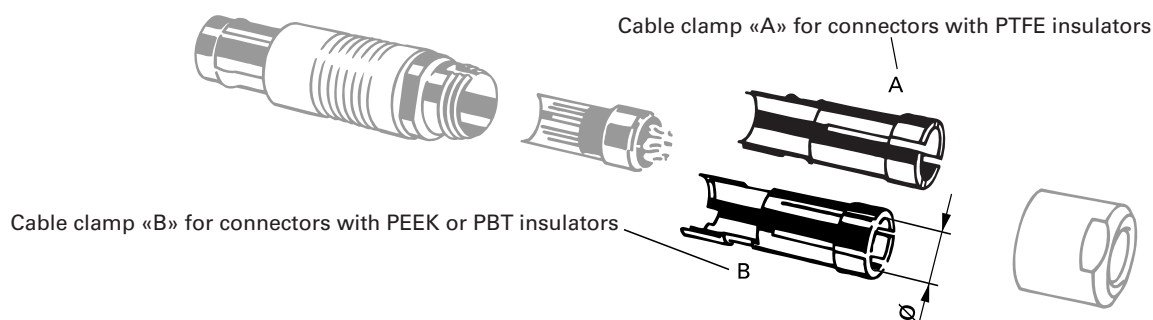


To seal connectors order the following clamps for shielded or unshielded cables

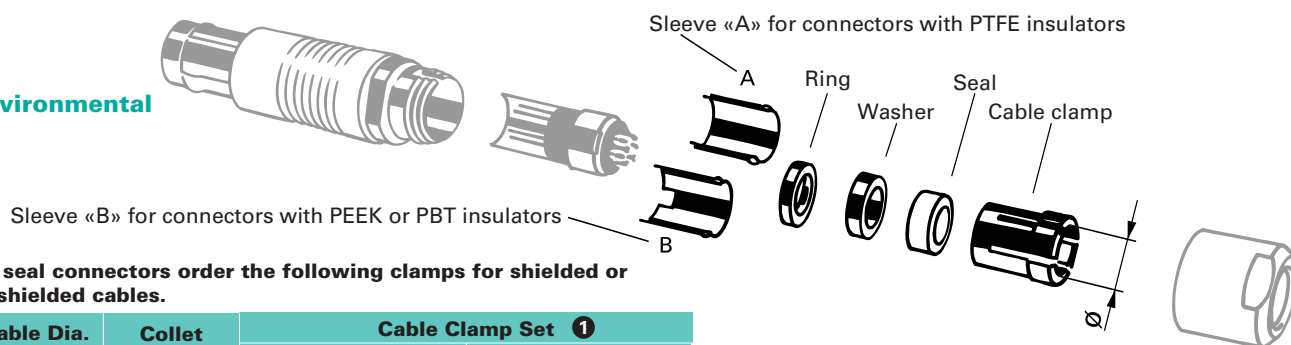
Cable Dia. Range	Collet Diameter	Cable Clamp Set ¹
1.5 - 2.1	2.1	E31 102.2/2.1 + B
2.1 - 2.6	2.6	E31 102.2/2.6 + B
2.6 - 3.1	3.1	E31 102.2/3.1 + B
3.1 - 3.6	3.6	E31 102.2/3.6 + B
3.6 - 4.1	4.1	E31 102.2/4.1 + B
4.1 - 4.3	4.3	E31 102.2/4.3 + B

S**Shielded****Shielded cable clamps with washers and sleeves.**

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①	
		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.**

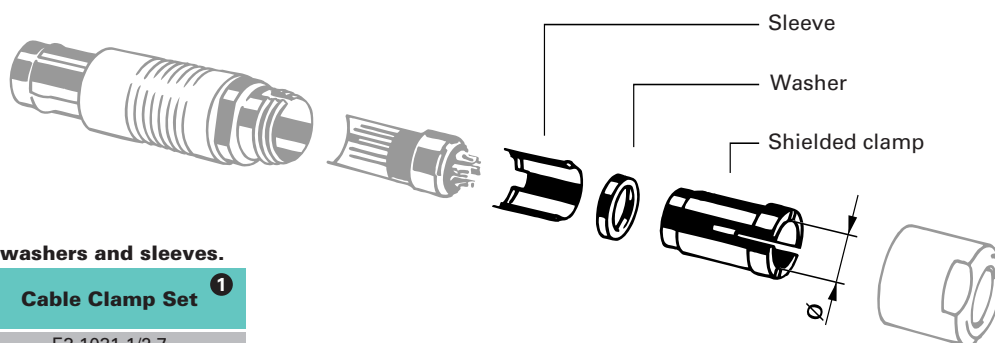
Cable Dia. Range	Collet Diameter	Cable Clamp Set ①	
		PTFE insulator	PEEK or PBT insulator
2.2 - 3.2	3.2	E3 103.5/3.2	E3 103.6/3.2
3.2 - 4.2	4.2	E3 103.5/4.2	E3 103.6/4.2
4.2 - 4.7	4.7	E3 103.5/4.7	E3 103.6/4.7
4.7 - 5.2	5.2	E3 103.5/5.2	E3 103.6/5.2
5.2 - 5.7	5.7	E3 103.5/5.7	E3 103.6/5.7
5.7 - 6.2	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 ①	
		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

S

Shielded

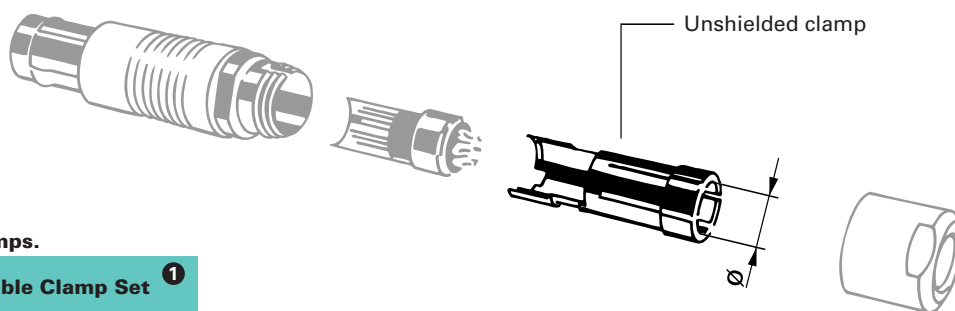


Shielded cable clamps with washers and sleeves.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ¹
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

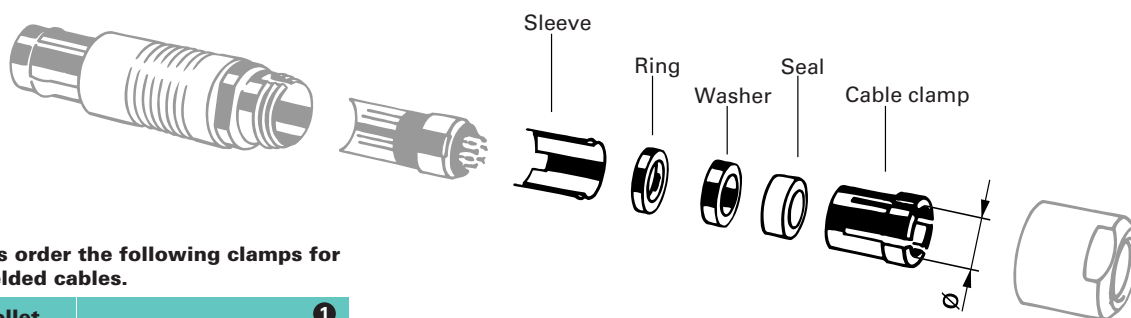


Unshielded, one-piece cable clamps.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ¹
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

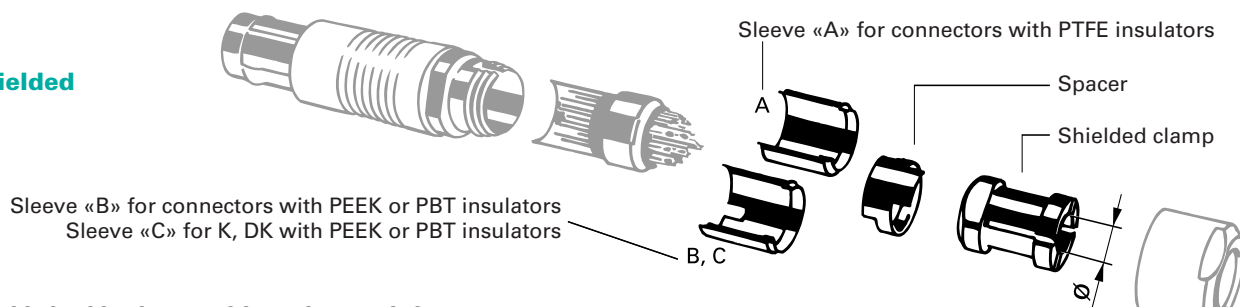


To seal connectors order the following clamps for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ¹
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

S

Shielded

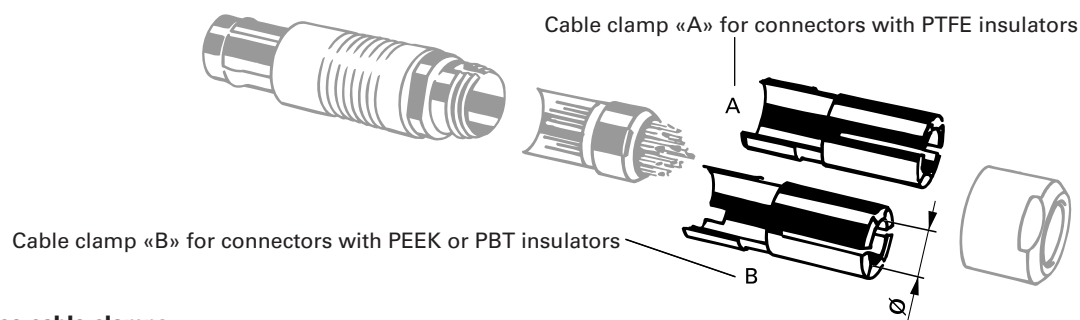


Shielded cable clamps with washers and sleeves.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①		
		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

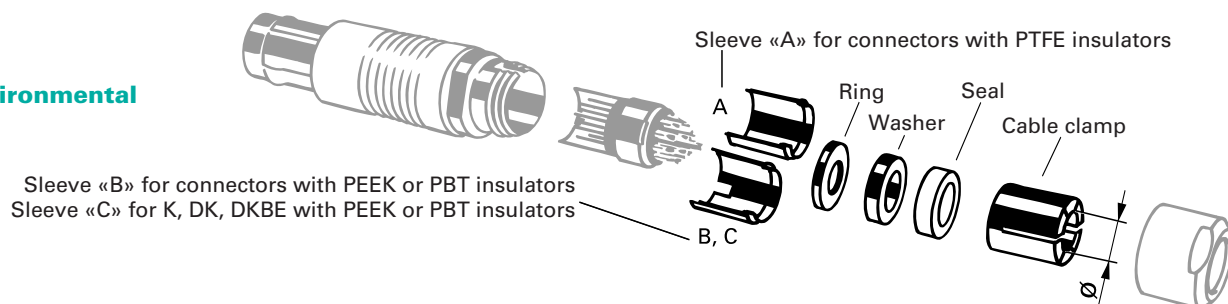


Unshielded, one-piece cable clamps.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①	
		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

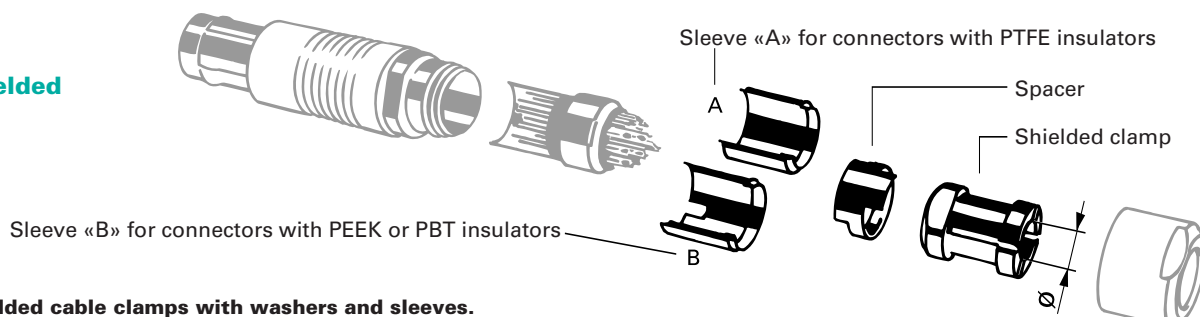


To seal connectors order the following clamps for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①		
		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

S

Shielded

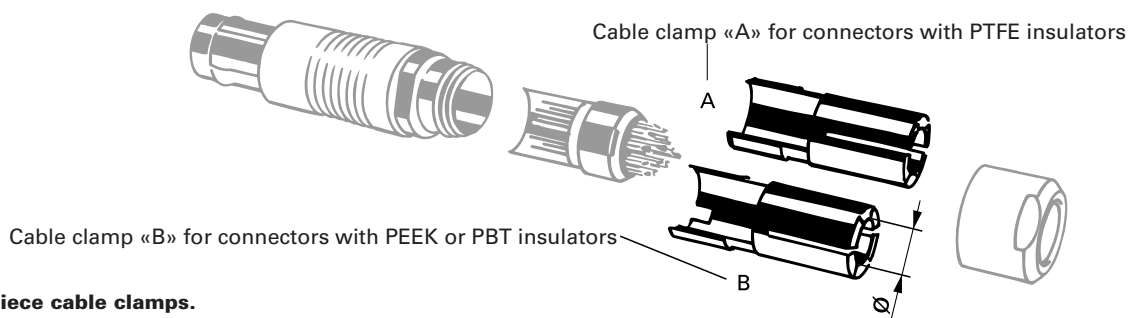


Shielded cable clamps with washers and sleeves.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①	
		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

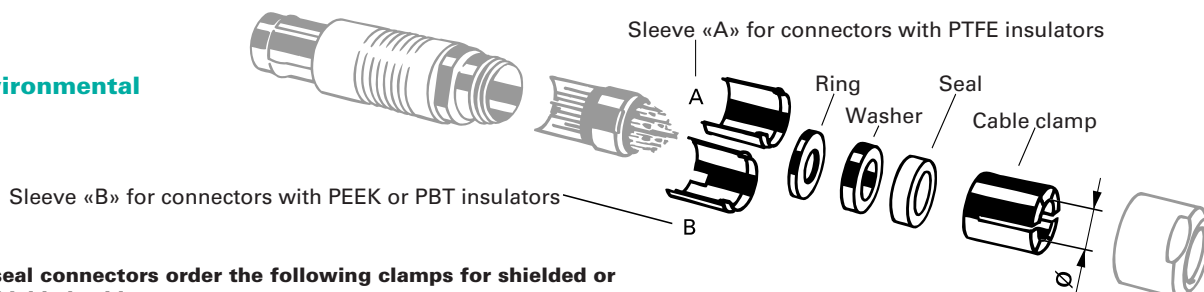


Unshielded, one-piece cable clamps.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①	
		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

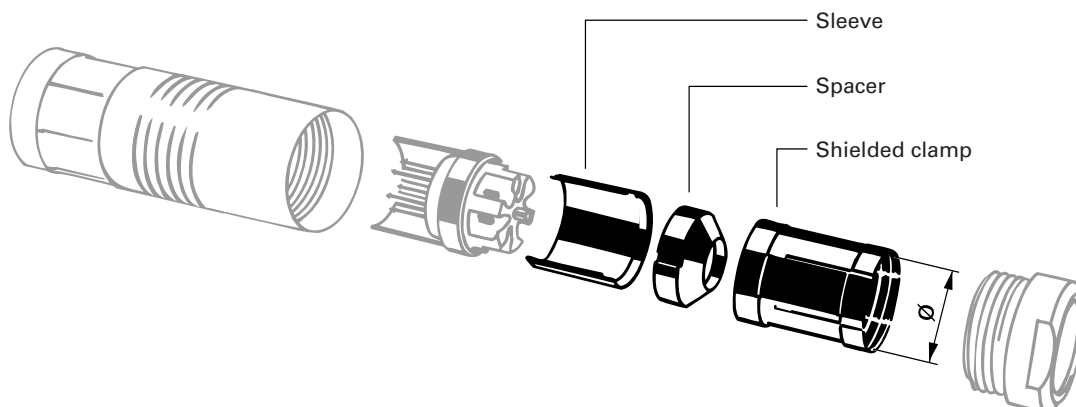


To seal connectors order the following clamps for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①	
		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

S

Shielded



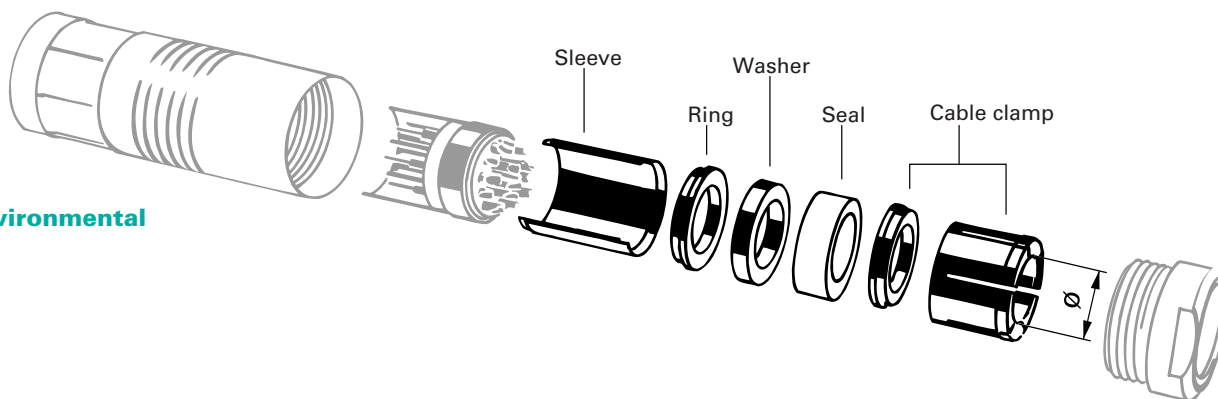
Shielded cable clamps and spacers for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①	
		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 ①	
		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

E

Environmental

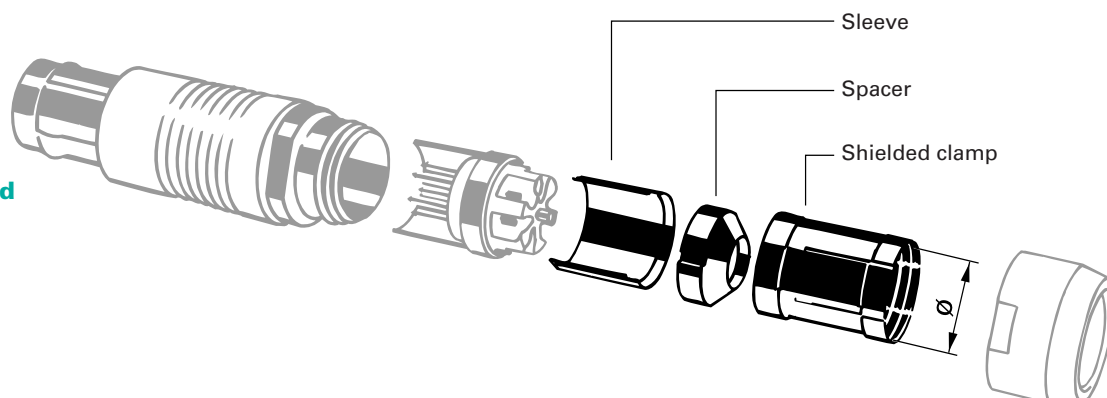


To seal connectors order the following clamps for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①	
		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 ①	
		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

S Shielded

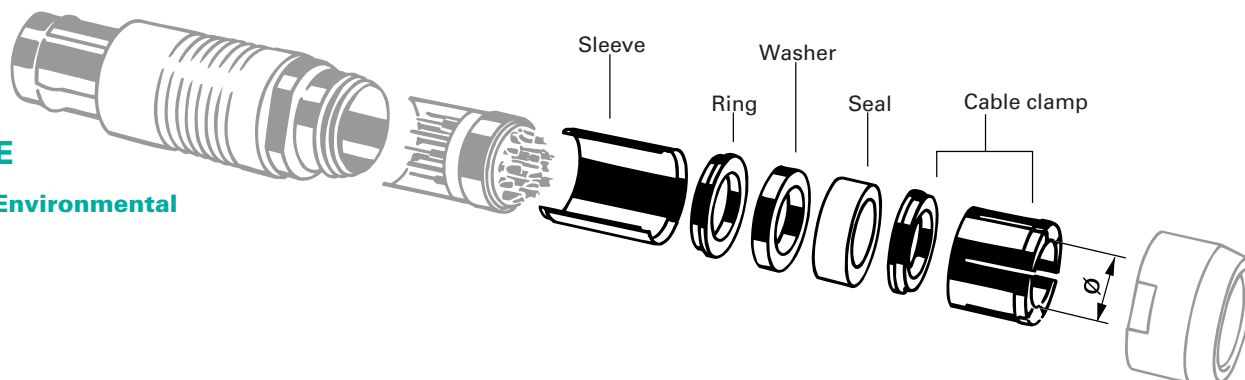


Shielded cable clamps and spacers for shielded or unshielded cables.

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①
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 ①
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

E Environmental



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

Cable Dia. Range	Collet Diameter	Cable Clamp Set ①
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 ①
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

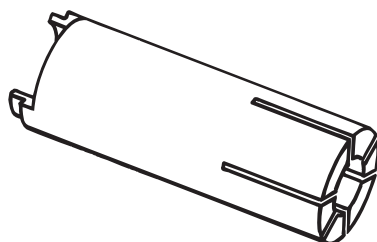
INSULATING CABLE CLAMPS

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 A089
105 A112	105 A060	105 A095

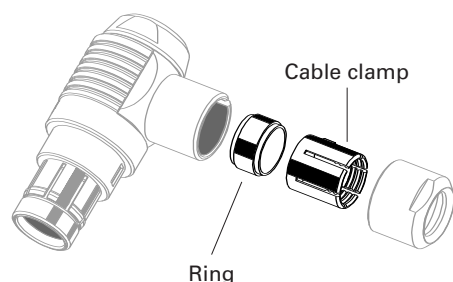
106 SERIES

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

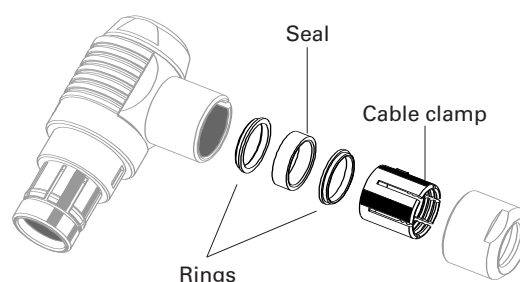
Multipole High Voltage	Multipole with HT Contact	Multipole with Coax Contact
106 A013 106 Z013	106 A014	

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

WSO Unsealed



WSO Sealed



102

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ①	
		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	-

104

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ①	
		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

103

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ①	
		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	-

105

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ①	
		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

1031

Cable Dia. Range	Clamp Diameter	Cable Clamp Set ①	
		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	-

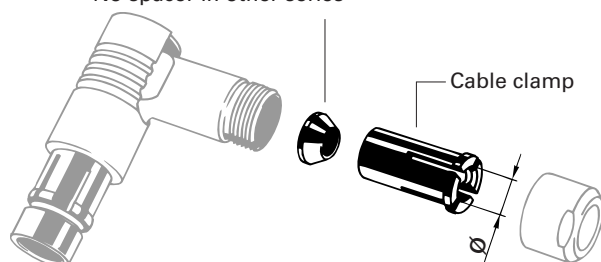
① For ordering information see page A3.
For technical details see pages L6 and N2.

CABLE CLAMP SETS FOR WS/WSE

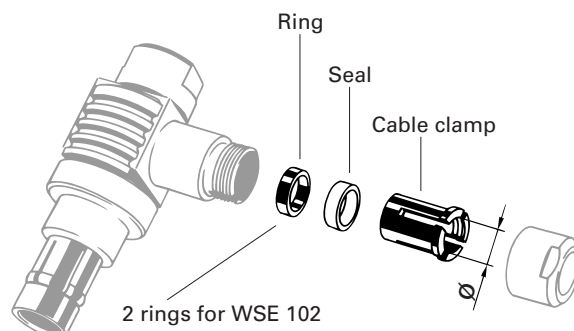
WS

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 ① WS	Cable Clamp Set ① 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 ① WS	Cable Clamp Set ① 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 ① WS	Cable Clamp Set ① 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

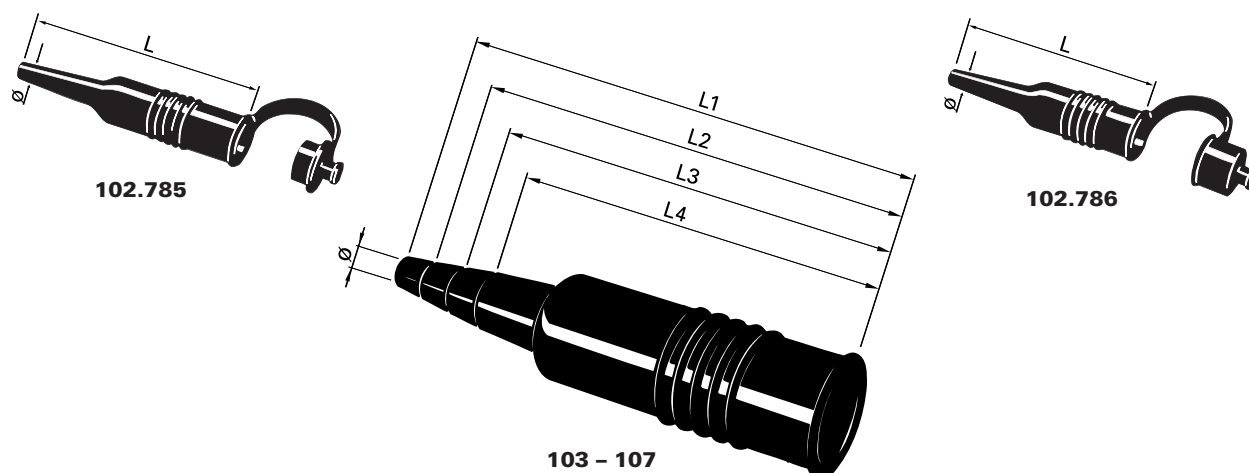
Cable Dia. Range	Clamp Diameter	Cable Clamp Set ① WS	Cable Clamp Set ① WSE
3.2 - 4.2	4.2	E3 105.10/4.2	E3 105.11/4.2
4.2 - 5.2	5.2	E3 105.10/5.2	E3 105.11/5.2
5.2 - 6.2	6.2	E3 105.10/6.2	E3 105.11/6.2
6.2 - 7.2	7.2	E3 105.10/7.2	E3 105.11/7.2
7.2 - 8.2	8.2	E3 105.10/8.2	E3 105.11/8.2
8.2 - 9.2	9.2	E3 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 ① WS	Cable Clamp Set ① 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 ① WS	Cable Clamp Set ① 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



Material - TPE (Thermoplastic elastomer)

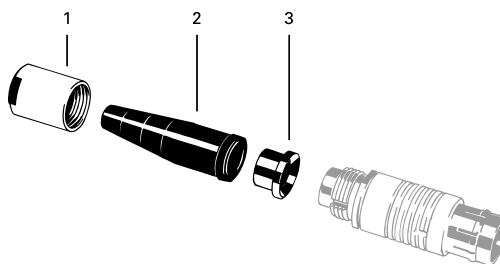
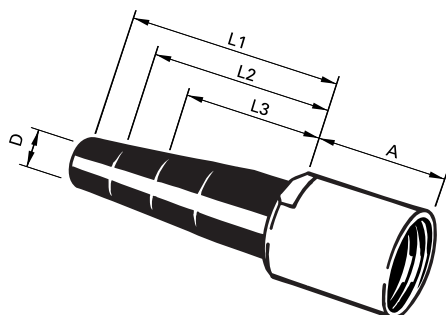
Protective Sleeve for S, SC, SOV

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.

**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.

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

A = 10

L1 = 21

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

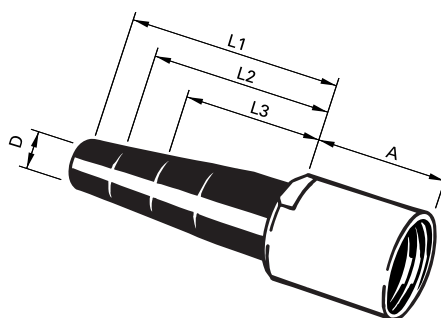
103 SERIES**For natural chromium plated cable connectors (Standard)**

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	L1	
17	26	6.6
21	21	3.0 - 4.0
16	16	4.0 - 5.0
		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



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.

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

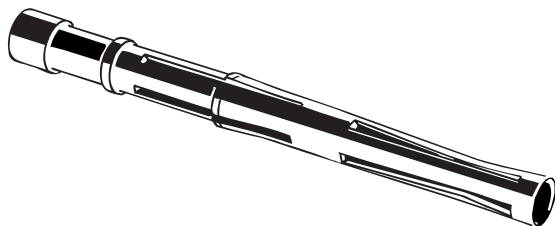
**For natural chromium plated
cable connectors (Standard)**

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



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

J

Solder contacts - wire size and conversion table

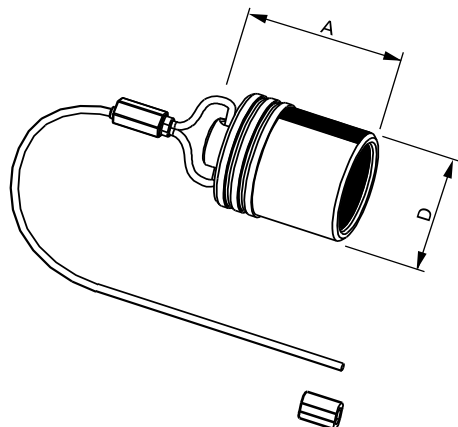
Contact Diameter		Contact Size	Maximum Wire Diameter			Wire Stranding [mm]	Sectional Area		
[mm]	[inch]		[mm]	[inch]	AWG		[mm²]	[inch²]	circ. mils
0.5	0.0197	24	0.4	0.0157	26 (1)	1 x 0.4	0.13	0.00020	253
			0.32	0.0125	30 (19/42)	19 x 0.06	0.06	0.00009	119
0.7	0.0276	22	0.6	0.0236	23 (1)	1 x 0.6	0.25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

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	Part Number		O-ring material	A	D	Stainless-Steel Cable			Crimp Ferrule
	1 Natural mat Plated	2 Black chrome Plated				ø	Length	Covering material	
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

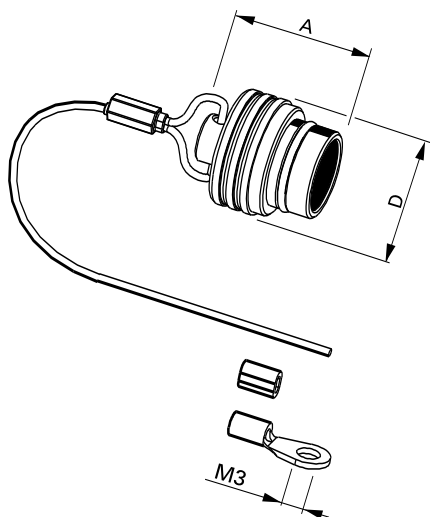
FPM - VITON®

FEP - TEFLON®

J

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	Part Number		O-ring material	A	D	Stainless-Steel Cable			Crimp Ferrule	Crimp Lug
	1 Natural mat Plated	2 Black chrome Plated				ø	Length	Covering material		
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®

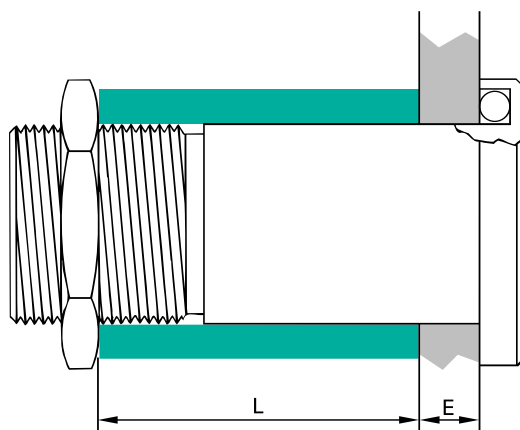
- ① Assembled with natural plastic covered stainless steel cable.
- ② Assembled with black plastic covered stainless steel cable.

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

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

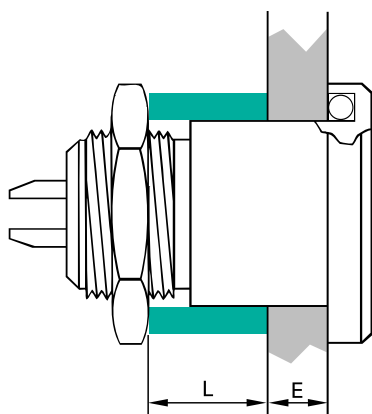
E	L	Part No
0.5 - 5.0	12.0	105.1121
3.5 - 8.5	8.5	105.1122
7.0 - 12.0	5.0	105.1123

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

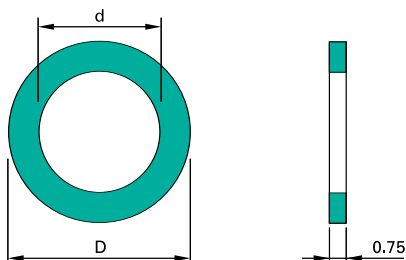
DEE / DEU 107

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

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 ¹	105 ²
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 ¹	105 ²
ø D	14.5	18	20	23	26
ø d	9.0	12	14	15	18

¹ The connector style DB 104 requires an inner diameter d = 16 mm

² The connector style SF 105 requires an inner diameter d = 16 mm

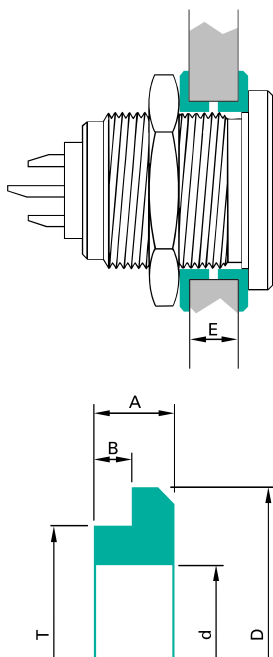
Insulating / Color Coding Washers

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

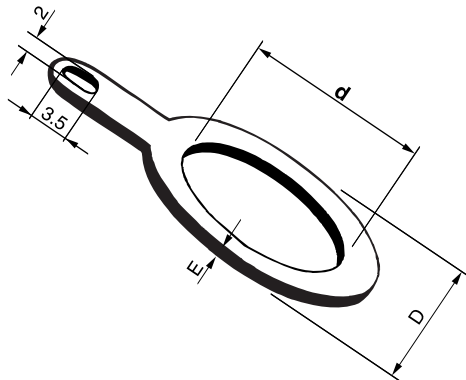
101, 102 Series - ABS (acrylonitrile butadiene-styrene)

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

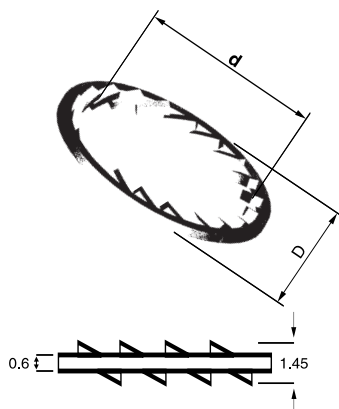
Grounding washers for panel connectors



Material - Brass, ISO CuZn37
Copper and tin plated

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

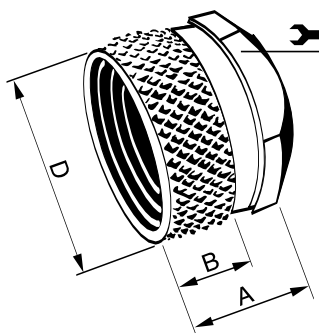
Locking Washer



Material - Brass, ISO CuZn37
Copper and tin plated

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

Knurled Clamp Nuts

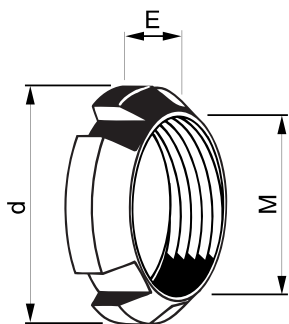


Material - Brass (ISO CuZn39Pb3),
Nickel and chromium plated

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	Y
	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

Decorative Slotted Nuts

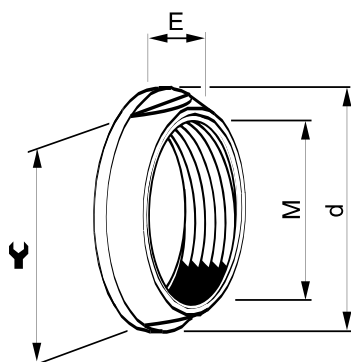


Material - Brass (ISO CuZn39Pb3),
Nickel and chromium plated

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)

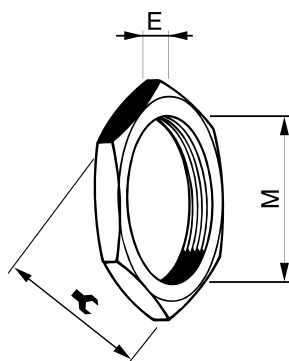


Material - Brass (ISO CuZn39Pb3),
Nickel and chromium plated

These nuts are supplied to all DKBE.

Thread Size	d	E	P/N natural mat chrome	P/N black chrome	Nut across 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

Hex Nuts



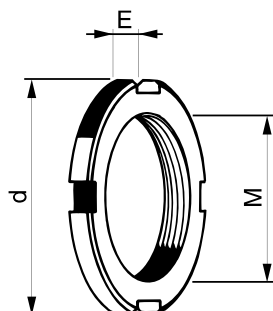
Material - Nickel plated brass (ISO CuZn39Pb3)

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

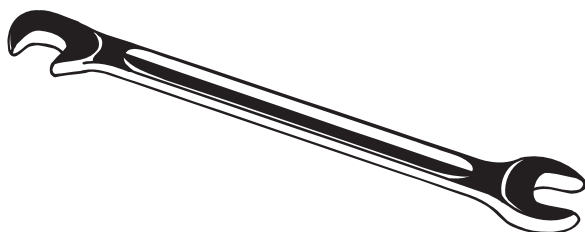


Material - Nickel plated brass (ISO CuZn39Pb3)

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

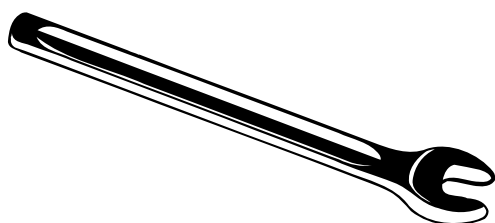
Double-End Open Spanners
Extra thin



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

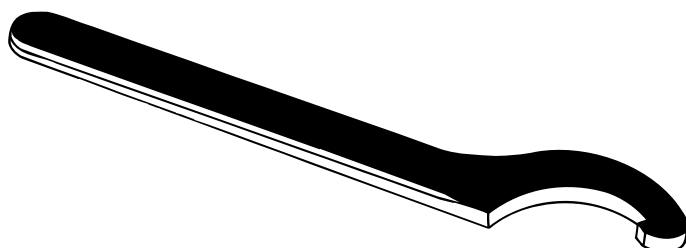
Open-End Spanners
Extra thin



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

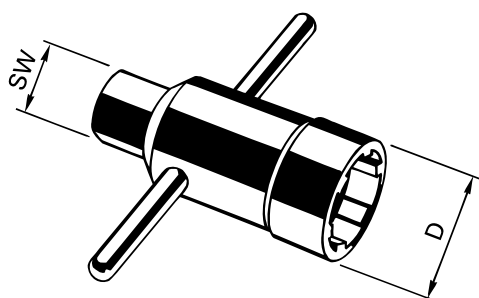
Hook Spanners
For side slotted nuts



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	34 - 38	TX00.106
M 32 x 1		
M 35 x 1	39 - 43	TX00.107
M 36 x 1		

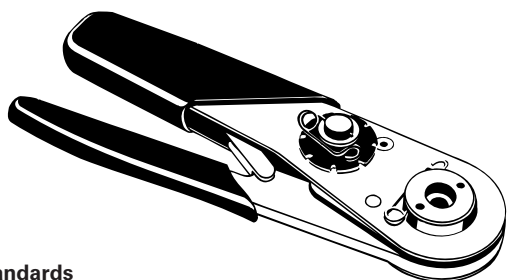
Nutdriver with T-Handle and Hex Drive
For decorative slotted nuts



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

Crimp Tool ULTRA PRECISION for closed C crimp termination



Standards

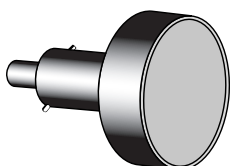
IEC 60203 / DIN 41 611, Part 3
MIL-C-22520, Class I, Type 1

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

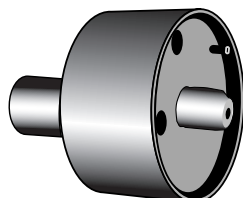
The best choice of precision crimp tools for highly reliable eight indenter crimping per US-MIL, IEC and DIN Specifications. Positioners have to be ordered according to contact.

Positioner FISCHER

For crimp tool
TX00.240

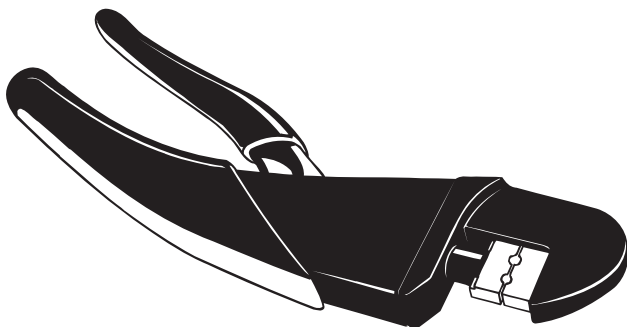


For crimp tool
TX00.242



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

Crimp Tool for coaxial cable



Standards

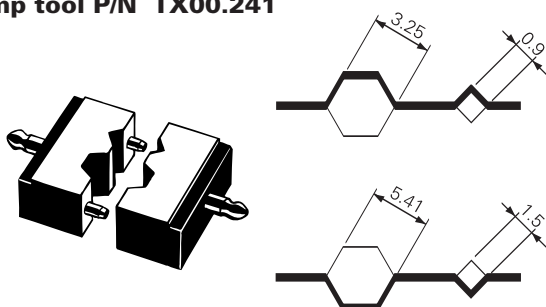
MIL-C-22520, Class I, Type 2

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



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.

HEXAGON CRIMP for coaxial cables

Table of cable groups see page Q1

Contact Insertion Tool



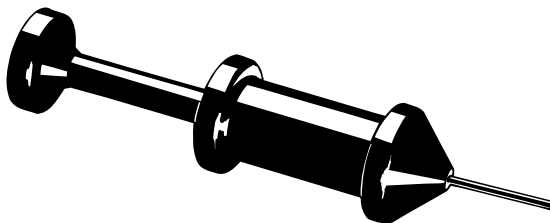
Contact Dia.	Part Number
0.5	TX00.214
0.7	TX00.210
0.9	TX00.211
1.3	TX00.273

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

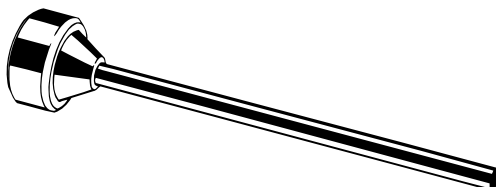
Coax Insert No	Part Number
E22 200.48	TX00.275
E22 200.49	
E22 200.55	
E22 200.56	
E22 200.71	TX00.274

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

Assembly Tool for male contacts with outside thread



TP00.001

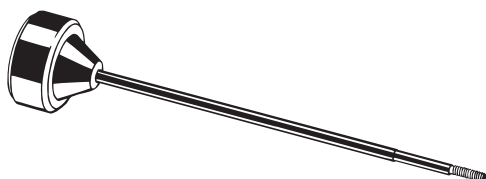
Tool for special, male contacts (e.g. contact P/N E22 200.15) which are inserted only after termination to a wire.

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



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 9001:2000



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
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Zurich: **20TH MARCH 2001**



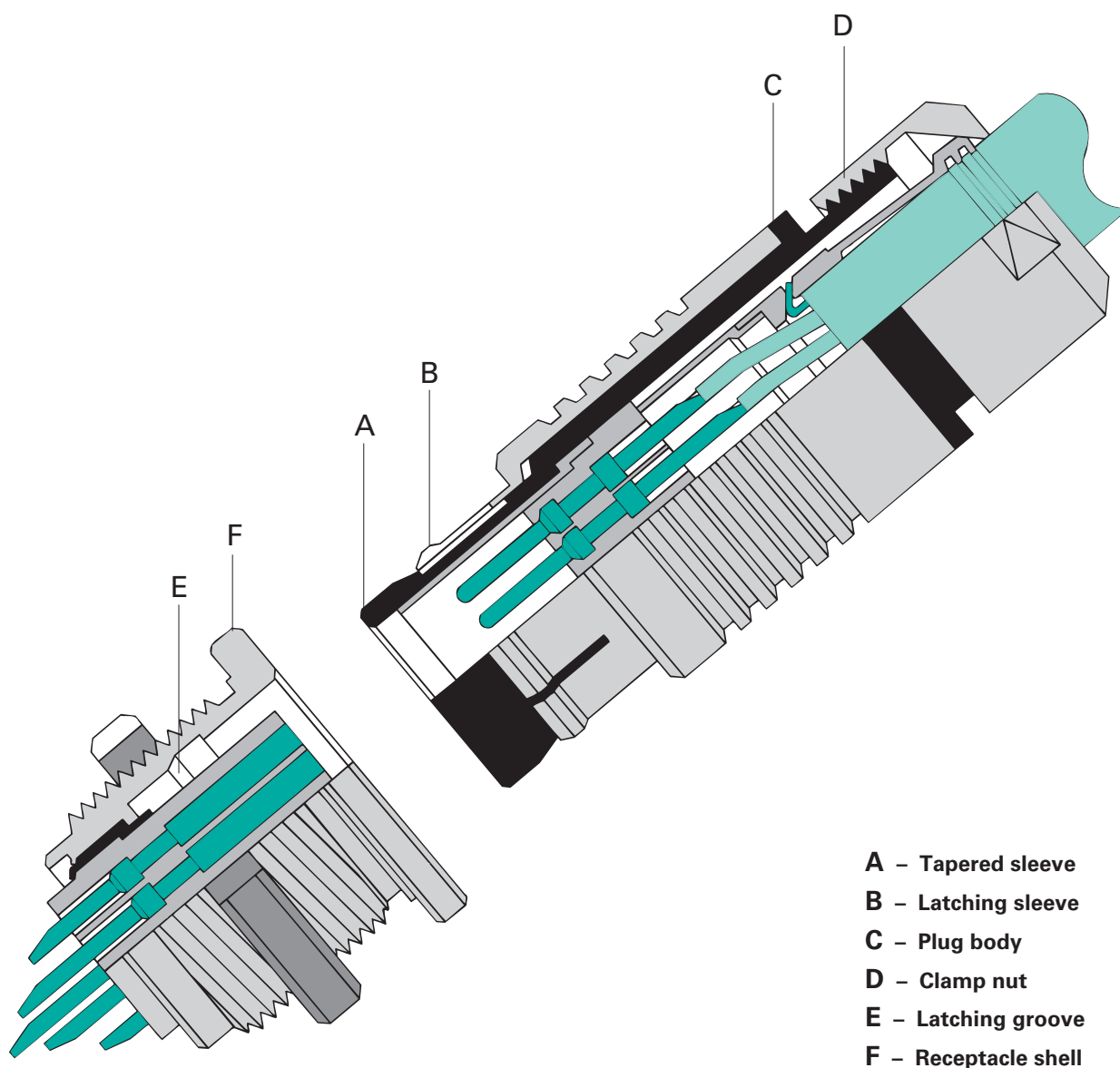
For Bureau Veritas Quality International

Certificate No: **81734**

Swiss Certification Service 031

SF06/Z

SN EN ISO 14001:1996



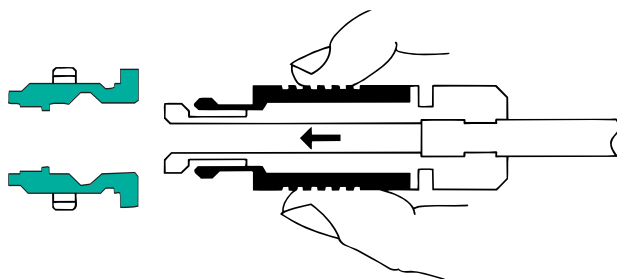
The values given in this catalogue are measured under standard environmental conditions. They shall not be translated for other applications without previous examination of the corresponding standards.

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.

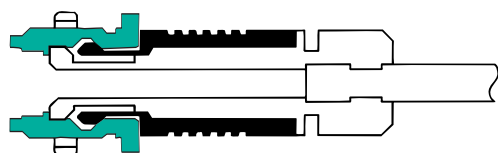
Every effort has been made to ensure that this catalogue is accurate at the time of printing. **Fischer Connectors** reserves the right to make any modification according to the state of the art without notice and without obligation to replace or manufacture obsolete items.

FISCHER Automatic Latching - How it Works

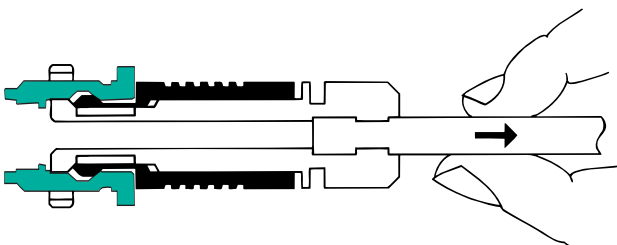


The drawing shows the longitudinal section of a receptacle and a plug in the unmated position.

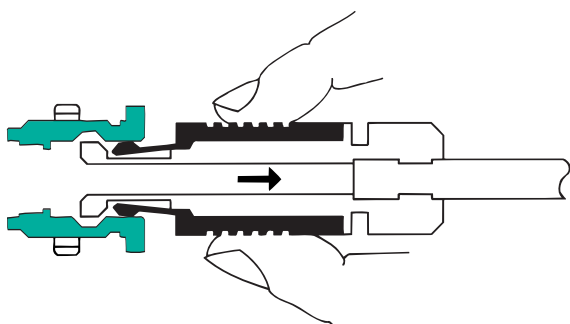
The latching sleeve of the plug has a fixed amount of lengthwise play along the body. The flexible fingers which extend from this sleeve possess bevelled protrusions.



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.

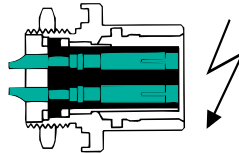
All **FISCHER** connectors contain this reliable, patented self-latching feature. However, non-latching cable plugs are provided under the designation «SOV» and «SOVE». Panel plugs «SF» and «SFE» are non-latching by design.

Contact Protection, Type «A» and «Z»

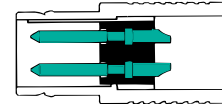
To protect users from contact with dangerous voltages, most **FISCHER** connectors exist in two versions; the standard type «A» and the inverted type «Z».

Type «A» Standard

The contacts of the receptacle are protected against accidental touch. This version is recommended when voltage is present on the receptacle.



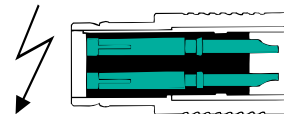
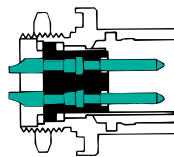
Receptacle «D»



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.

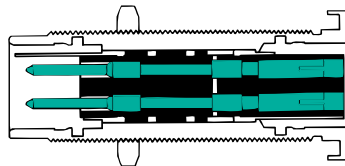
The letter code before the series number always determines the type of housing. A plug «S» has the same housing in type «A» as in type «Z», but type «A» comes with unprotected contacts while type «Z» is equipped with touch-protected contacts. In most cases these are female contacts which are recessed in the insulator. For the exceptions see «High Voltage Connectors» in section C.

Bulkhead Feed-through WDE

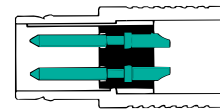
Type «AZ» is the standard version of the WDE. The flange side accepts an «A» type plug, and the threaded side accepts a «Z» type plug.



Type «Z» plug (S)



WDE, type «AZ»

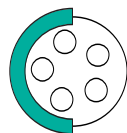


Type «A» plug (S)

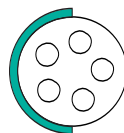
The «ZA» version of the WDE accepts a type «Z» plug at the flange side and accepts a type «A» plug at the threaded end.

Connector Keying and Orientation

Code 1 (Standard)



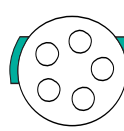
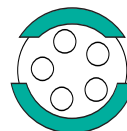
Receptacle



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.

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 (DELTRIN®) 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.

Piece Parts	Material		Coating	
	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.

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 ①	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 strength 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 ②					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

$$1 \text{ N/mm}^2 = 1 \text{ MPa} = 10.2 \text{ kg/cm}^2$$

$$1 \text{ kN/mm}^2 = 1 \text{ GPa} = 102 \text{ kg/mm}^2$$

$$100 \text{ Rad} = 1 \text{ Gy (Gray)} = 1 \text{ J/kg}$$

① 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.

② 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 vacuum, 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 ¹	+175°C
DELIN (POM) accessories	-40°C to +100°C	-50°C to +150°C

¹ For lower temperature ranges see «Elastomer Seals» on this page.

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:

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

Connectors for rated voltages higher than 1 kV:

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

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.

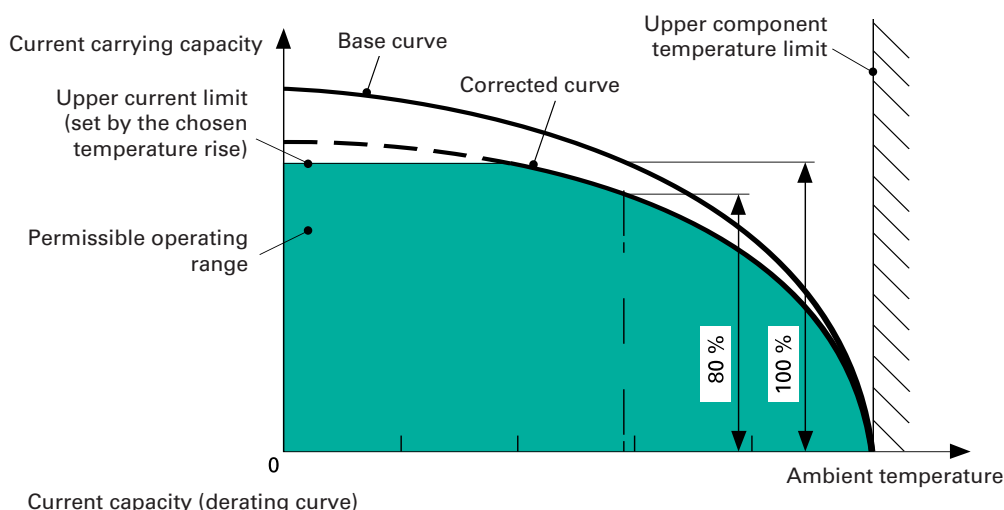
Current Rating (Maximum admissible current)

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.



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 ≥ 1 m 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 test is then required)

The sealing material limits the working temperature range to approximately -25°C to $+135^{\circ}\text{C}$. 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 $\varnothing$
e	DEU, DBEU, DBPU	Liquidtight sealing even unmated or unprotected	High performance potting resin

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

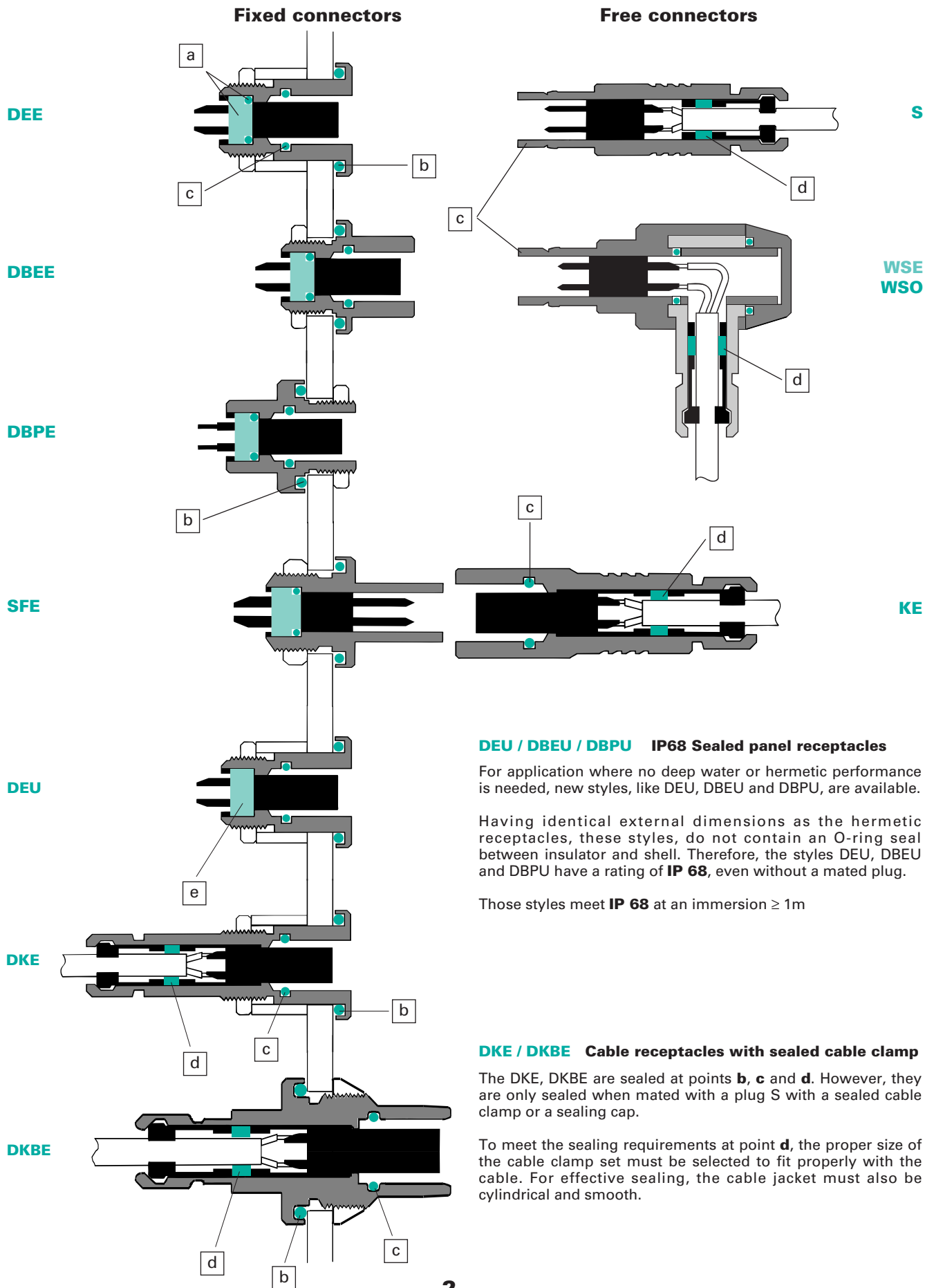
The IEC standard defines the gas-tightness of connectors in terms of leakage rates ranging between a few $\text{mm}^3/\text{hr.}$ and a few $\text{cm}^3/\text{hr.}$ The MIL-C-38999 (USAF) requires in class Y a leakage rate which at a pressure differential of 1 atmosphere does not exceed the value of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

Our hermetically sealed connectors meet all requirements of the relevant standards. At the highest sealing level, the leakage rate is between 0.004 and $0.036 \text{ mm}^3/\text{hour}$. 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, $\leq 10^{-3} \text{ Pa cm}^3/\text{s}$. If needed, the residual leakage can be tested for values $\leq 10^{-9} \text{ mbar l/s}$ or $\leq 10^{-4} \text{ Pa cm}^3/\text{s}$.

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

HERMETICALLY SEALED CONNECTORS



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.

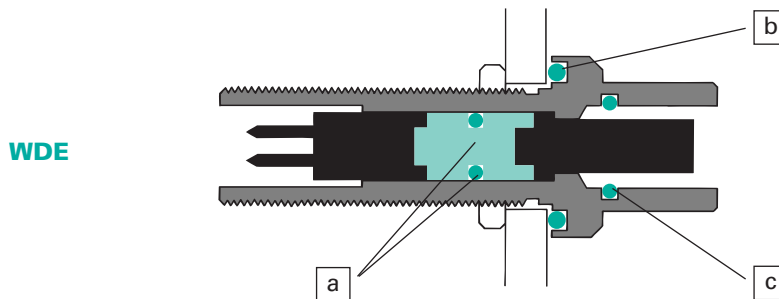
Having identical external dimensions as the hermetic receptacles, these styles, do not contain an O-ring seal between insulator and shell. Therefore, the styles DEU, DBEU and DBPU have a rating of **IP 68**, even without a mated plug.

Those styles meet **IP 68** at an immersion $\geq 1\text{m}$

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.



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.

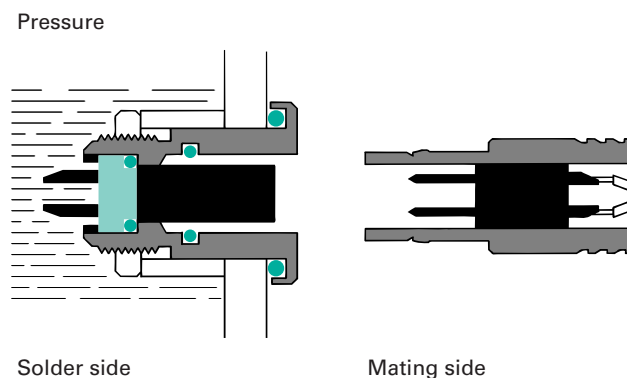
However, if the contacts must also remain accessible for steam or chemical sterilization, the connector must be potted with an elastomer such as silicone elastomer in order to avoid liquid or steam penetration.

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

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.



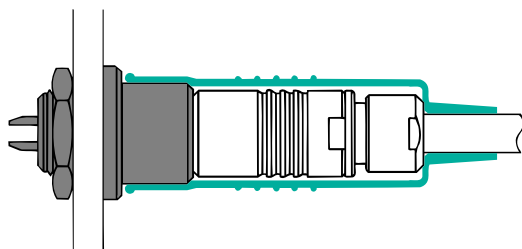
General Environmental Protection

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.

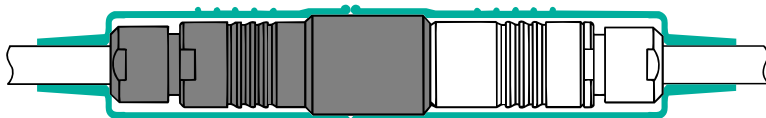
The following plug types are suitable for use with protective sleeves:

S	Locking plug	}	listed under «Accessories» on page J1.
SC	Clic-Loc™ plug		
SOV	Non-locking plug		
K	Cable receptacle		
KE	Sealed cable receptacle		



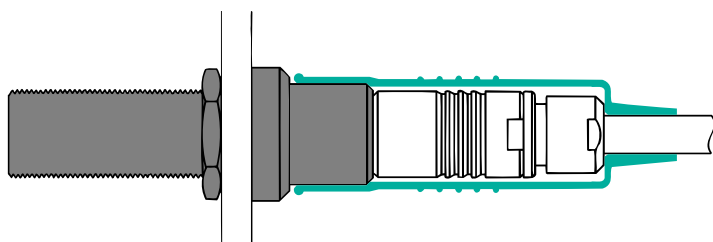
Front projecting receptacles DB, DBEE or DBEU and plug with protective sleeve

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



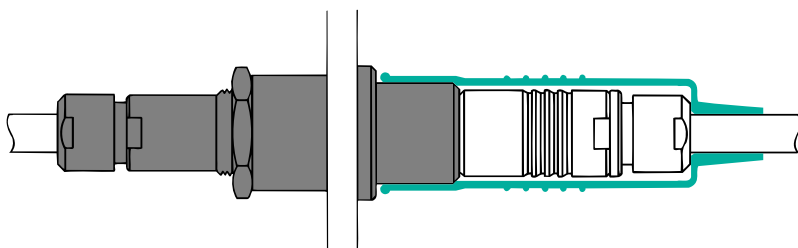
Plug and cable receptacle K or KE, both with protective sleeves

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).

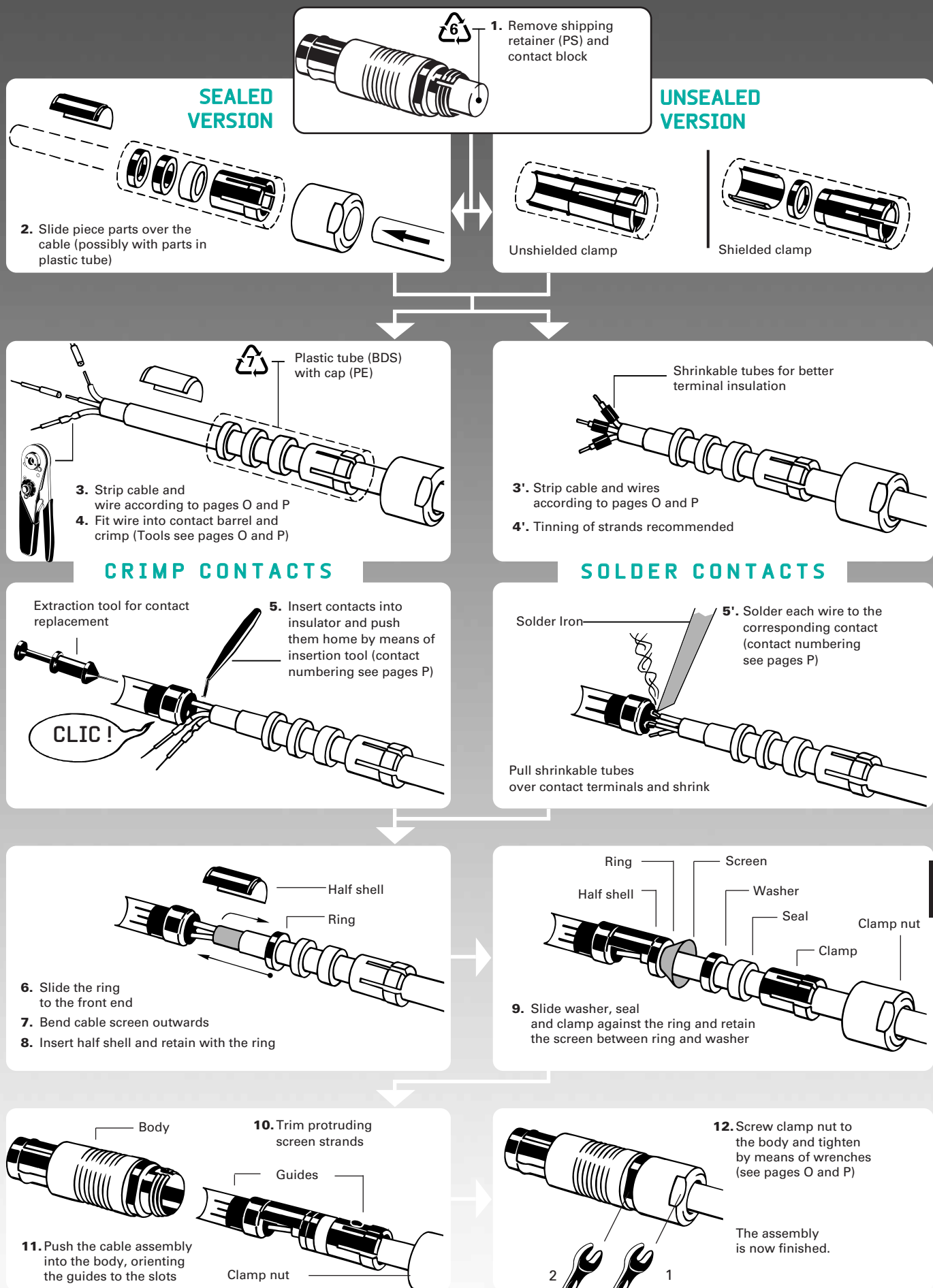


Panel mounted cable receptacle DKE, DKBE and plug with protective sleeve

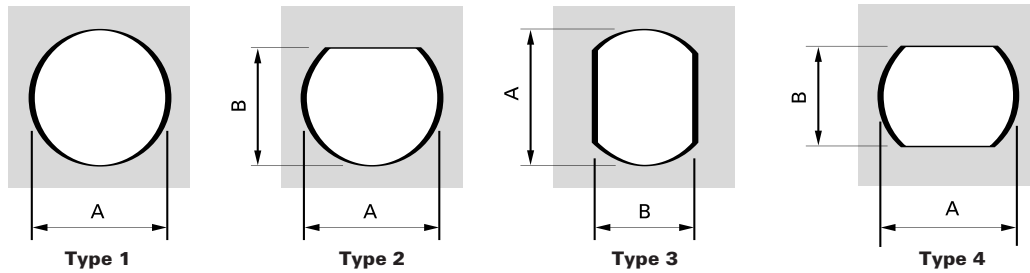
The front end of the protective sleeve encloses the projecting portion of the DKE and DKBE.
The combination is only possible for DKE, DKBE Series 104, 105, 106 and 107.

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

GENERAL CABLE ASSEMBLY INSTRUCTIONS



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	

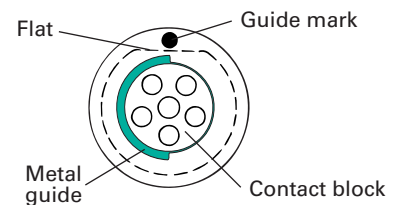
Orientation of mounting flats to guide sleeve position

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.

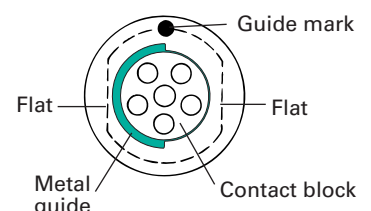
1.1 Fixed Connectors for cut-out according to Type 2

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.

NUT TIGHTENING TORQUE VALUES

Recommended nut tightening torque values [Nm]

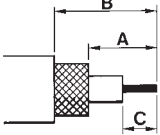
Body Style	102	103	1031	104	105	1051	106	107
S, SA, SC, SOV, SV	0.6	1.0	1.5	2.0	3.5	4.5	8	10
SF	1.3	2.5	3.0	4.0	5.0	—	14	15
SFE	1.3	2.5	—	5.0	6.5	—	—	15
WS, WSE, WSO ❶	0.5	1.0	1.5	2.0	3.5	—	8	10
	1.0	1.3	—	2.5	4.5	—	10	13
D, DBP, DG, DGP	1.3	2.5	3.0	4.0	6.0	7.5	15	16
DEE, DEU	1.3	3.0	3.0	4.5	6.5	9	15	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 characteristics of the cable sheath may influence 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.

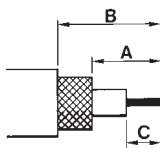
Recommendation:

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

	COAX SERIES 102	Cable Clamp *					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]
			A	B	C								
	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					

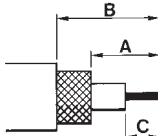
* S - Shielded cable clamp
E - Sealed cable clamp

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

	COAX SERIES 103 104 REFERENCE NUMBER	Cable Clamp *				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]
			A	B	C							
	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

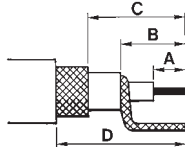
* S - Shielded cable clamp
E - Sealed cable clamp

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

	COAX SERIES 105 107 REFERENCE NUMBER	Cable Clamp *					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]	
			A	B	C									
			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	S	24	30	3	Contact assembly tool: D 105 A049			TP00.000			15	16	3.5
						S 105 Z049			TP00.000					
	105 A108	S	22	26	3	Contact assembly tool: 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

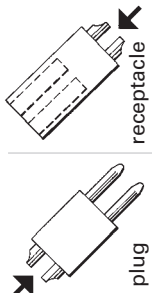
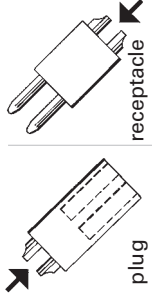
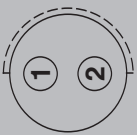
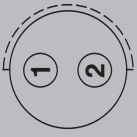
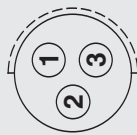
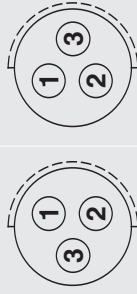
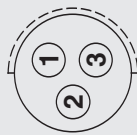
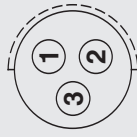
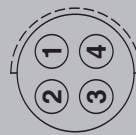
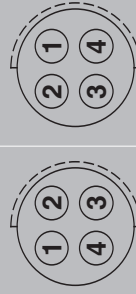
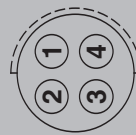
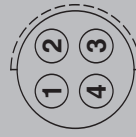
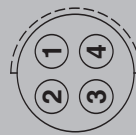
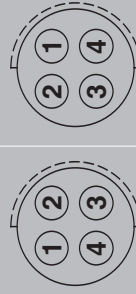
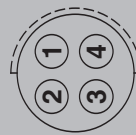
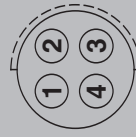
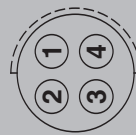
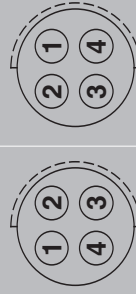
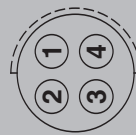
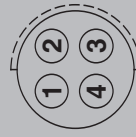
* S - Shielded cable clamp
E - Sealed cable clamp

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

TRIAX		Cable Clamp *				Crimping Tool	A) Positioner B) Crimp Dies	Insertion Tool	Extraction Tool	Wrench Size	Wrench Size	Torque
SERIES						P / N	P / N	P / N	P / N	1	2	[Nm]
101		A	B	C	D							
REFERENCE NUMBER												
	101 A005	S 1.5	4	6	7					5		0.5
	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 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

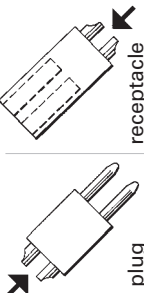
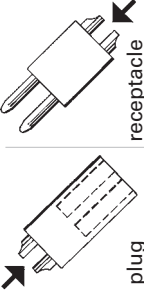
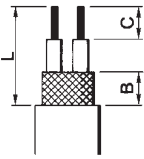
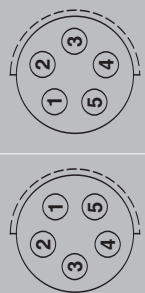
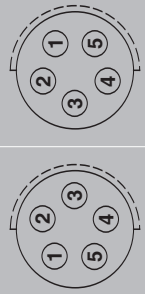
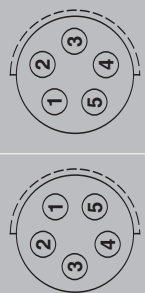
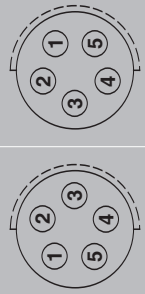
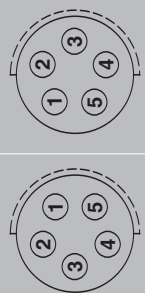
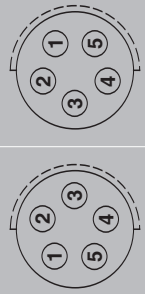
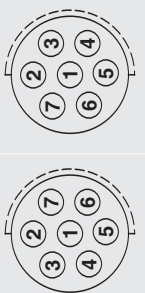
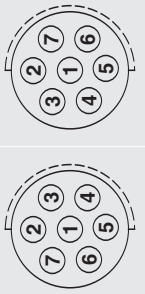
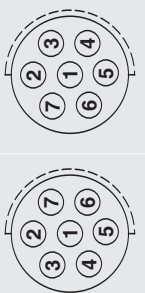
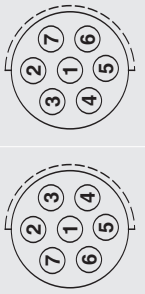
All specifications are typical and have to be adjusted according to the cable construction and dimensions.
For details see page L6.

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

1 see page J4

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

* **S** - Shielded cable clamp
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 For details see page L6

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

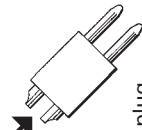
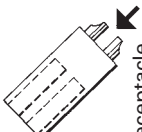
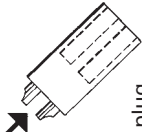
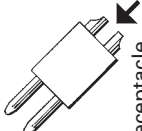
1 see page J4

SOLDER	Type «A»	Type «Z»	Cable Clamp *	Number of Contacts	Cable Clamp Dimensions			Crimping Tool	Positioner	Insertion Tool	Extraction Tool	Wrench Size	Wrench Size	Torque
					L	B	C							
103 A051 103 Z051 solder			S U E	2 2 2	8 8 8	2.5 — 2	2.5 2.5 2.5					10 10 10	2 10 10	1.0 1.0 1.0
			S U E	3 3 3	8 8 8	2.5 — 2	2.5 2.5 2.5					10 10 10	10 10 10	1.0 1.0 1.0
			S U E	4 4 4	8.5 9.5 8.5	2.5 — 2	2.5 2.5 2.5					10 10 10	10 10 10	1.0 1.0 1.0
103 A054 103 Z054 solder			S U E	5 5 5	8.5 9.5 8.5	2.5 — 2	2.5 2.5 2.5					10 10 10	10 10 10	1.0 1.0 1.0
			S U E	6 6 6	8.5 8.5 9	2.5 — 2	2 2 2					10 10 10	10 10 10	1.0 1.0 1.0
			S U E	6 6 6	12.5 8.5 12.5	2.5 — 2	3 3 3	TX00.240 TX00.210 TX00.210	1 1 1	TX00.210 TX00.210 TX00.210			10 10 10	10 10 10

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

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

1 see page J4

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

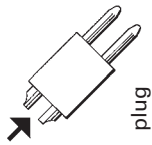
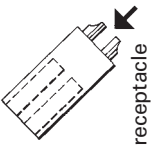
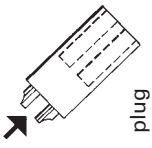
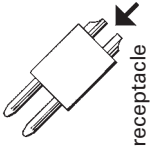
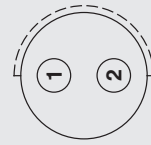
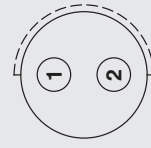
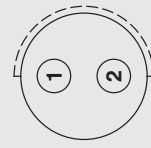
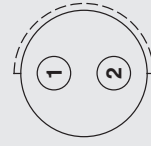
All specifications are typical and have to be adjusted according to the cable construction and dimensions.

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

① see page J4

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

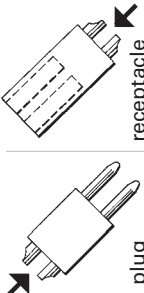
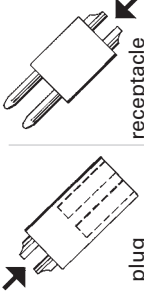
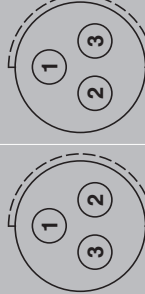
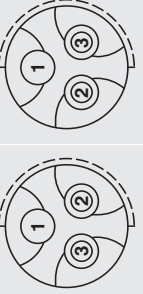
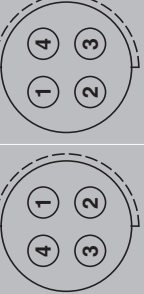
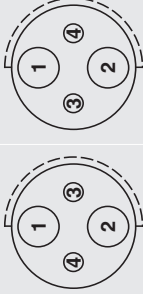
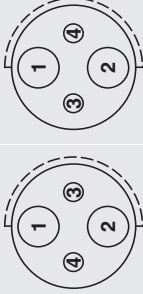
All specifications are typical and have to be adjusted according to the cable construction and dimensions.

Type «A»		Type «Z»		Cable Clamp *	Number of Contacts	Dimensions			Crimping Tool	Positioner	Insertion Tool	Extraction Tool	Wrench Size	Wrench Size	Torque	
plug	receptacle	plug	receptacle			L	B	C								
SERIES 1031 104					S	12	12	2	2					11	12	1.5
						19	10	2	2							
						1	8.5	2	2							
						12	12	—	2							
1031 A019 1031 Z019 solder					U	19	6	10	2					11	12	1.5
						1	8.5	—	2							
						12	10	2	2							
						19	6	8	2							
1031 A019 1031 Z019 crimp					E	19	6	6.5	2	2				11	12	1.5
						19	16	2	3							
						19	16	—	3							
						19	14	2	3							
104 A051 104 Z051 solder					S	2	11	2.5	3.5					12	13	2.0
					U	2	11	—	3.5							
						2	11	2.5	3.5							
					E	2	11	2.5	3.5							

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

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

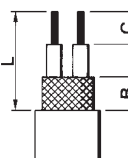
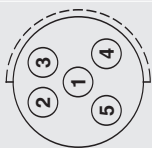
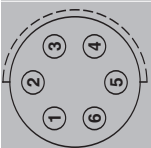
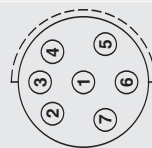
1 see page J4

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

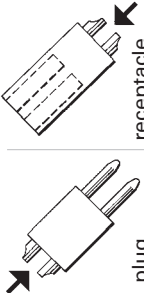
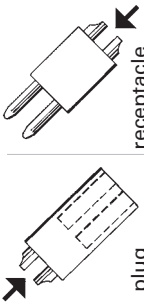
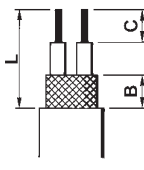
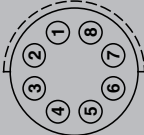
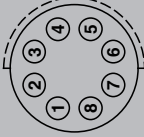
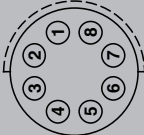
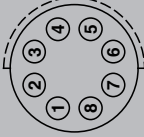
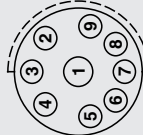
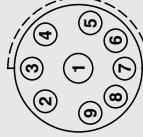
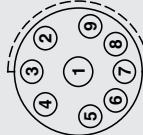
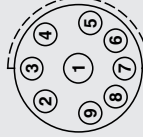
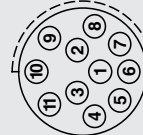
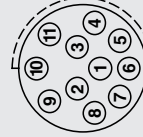
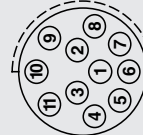
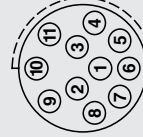
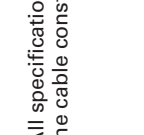
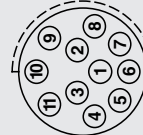
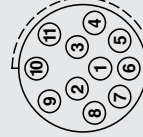
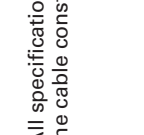
* S - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

1 see page J4

Type «A»		Type «Z»		Cable Clamp *	Number of Contacts					Crimping Tool	Positioner	Insertion Tool	Extraction Tool	Wrench Size 	Wrench Size 	Torque [Nm]
SERIES	REFERENCE NUMBER	plug	receptacle				L	B	C							
104	104 A062 104 Z062 solder	See page P21														
	104 A053 104 Z053 solder															
	104 A065 104 Z065 solder															
	104 A054 104 Z054 solder															

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

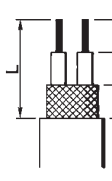
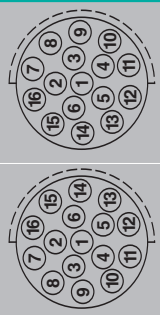
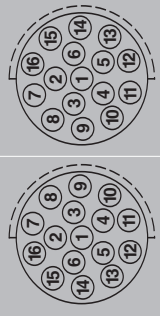
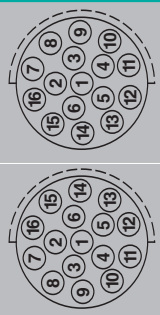
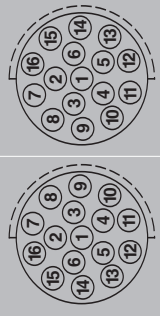
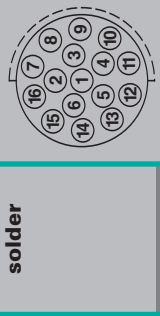
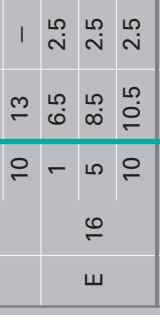
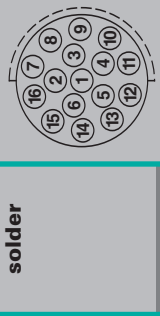
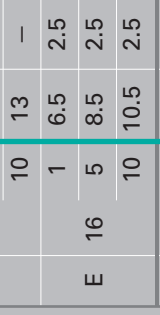
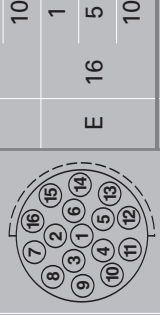
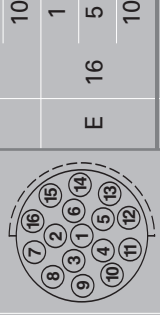
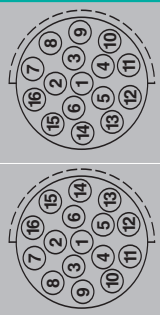
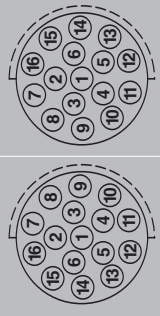
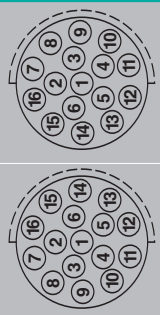
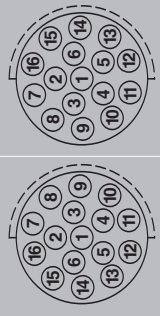
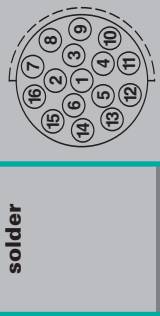
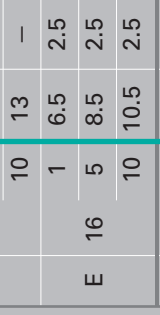
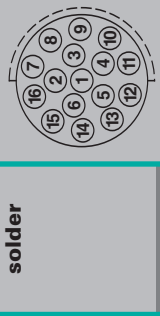
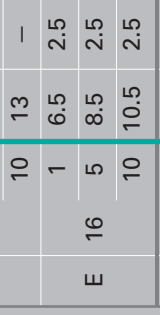
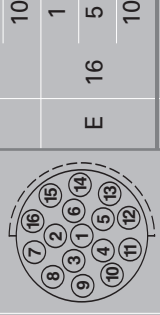
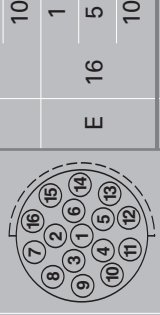
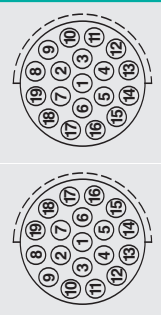
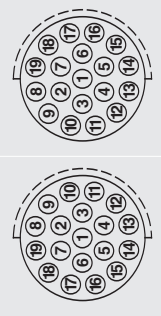
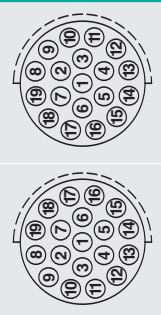
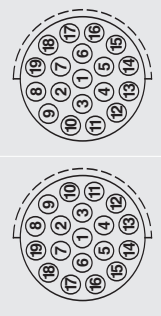
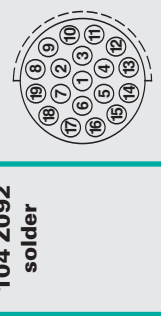
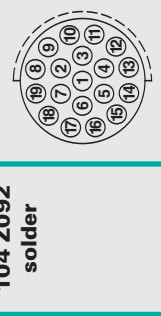
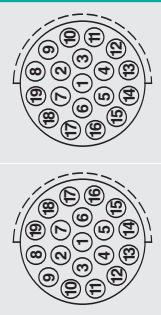
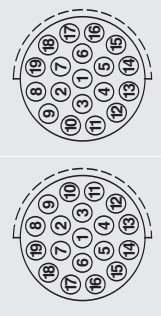
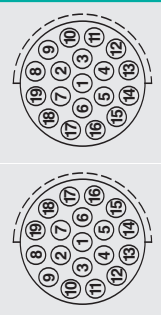
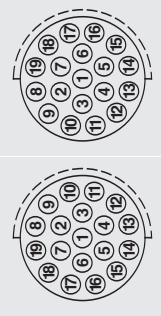
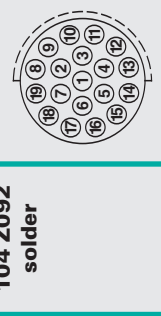
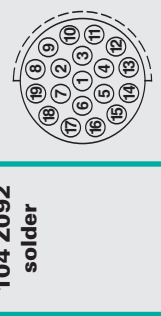
* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
 For details see page L6

Type «A»	Type «Z»	Cable Clamp *	Number of Contacts	Dimensions			Crimping Tool	Positioner	Insertion Tool	Extraction Tool	Wrench Size 	Wrench Size 	Torque [Nm]
				L	B	C							
SERIES 104 			S 8 U 8 E 8			2 2 2	TX00.240 TX00.240 TX00.240	1 1 1	TX00.211 TX00.211 TX00.211	P / N P / N P / N	 	12 12 12	2.0 2.0 2.0
104 A066 104 Z066 solder			S 8 U 8 E 8			3.5 3.5 3.5	TX00.240 TX00.240 TX00.240	1 1 1	TX00.211 TX00.211 TX00.211	P / N P / N P / N	 	12 12 12	2.0 2.0 2.0
104 A055 104 Z055 solder			S 9 U 9 E 9			3 3 3	TX00.240 TX00.240 TX00.240	1 1 1	TX00.211 TX00.211 TX00.211	P / N P / N P / N	 	12 12 12	2.0 2.0 2.0
104 A056 104 Z056 solder			S 11 U 11 E 11			2 2 2	TX00.240 TX00.240 TX00.240	1 1 1	TX00.211 TX00.211 TX00.211	P / N P / N P / N	 	12 12 12	2.0 2.0 2.0
104 A056 104 Z056 crimp			S 11 U 11 E 11			3 3 3	TX00.240 TX00.240 TX00.240	1 1 1	TX00.211 TX00.211 TX00.211	P / N P / N P / N	 	12 12 12	2.0 2.0 2.0

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

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

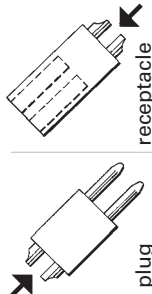
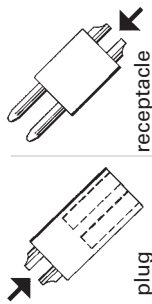
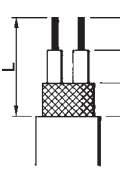
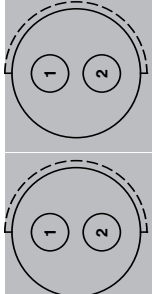
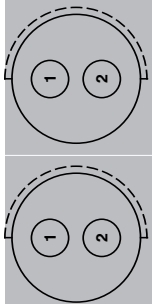
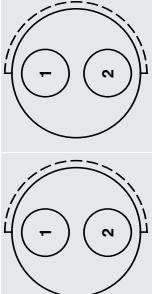
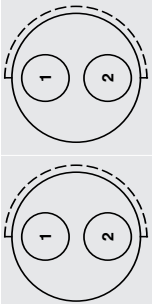
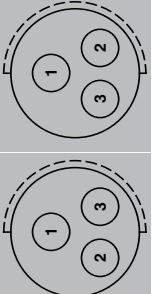
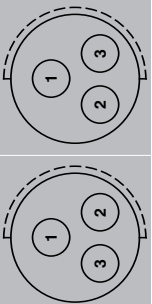
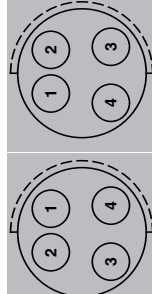
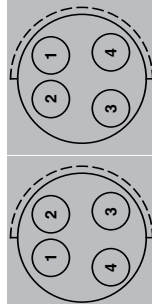
1 see page J4

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

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

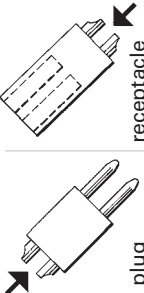
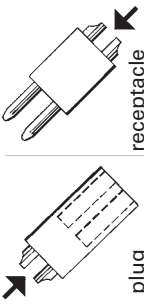
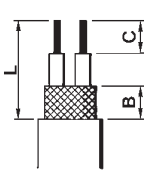
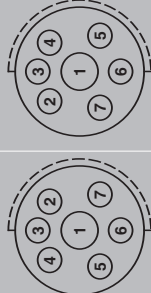
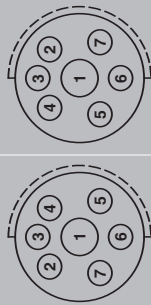
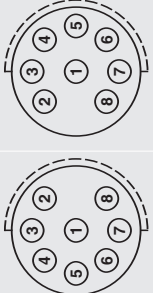
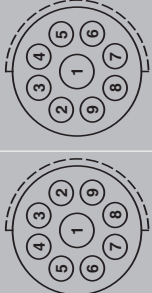
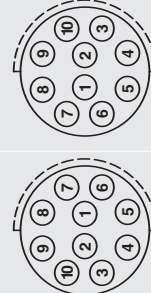
* S - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

1 see page J4

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

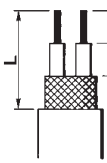
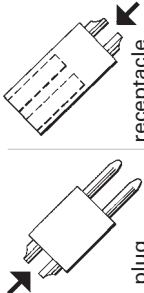
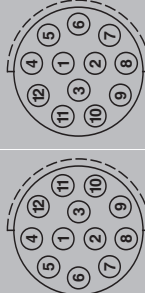
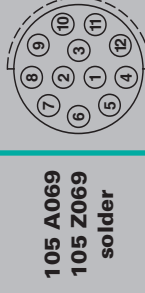
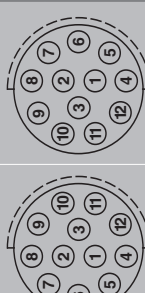
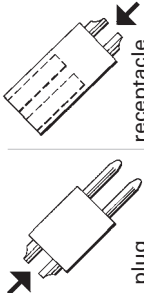
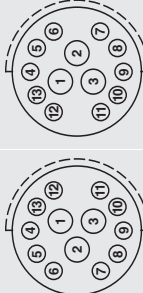
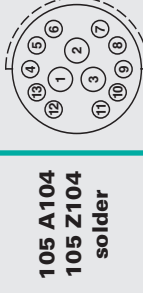
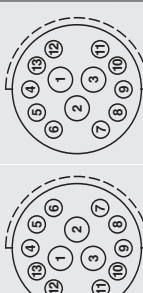
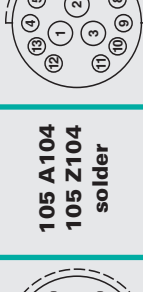
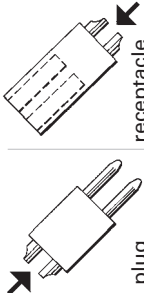
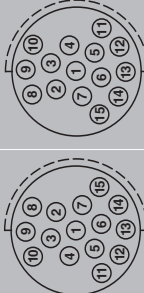
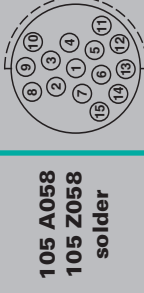
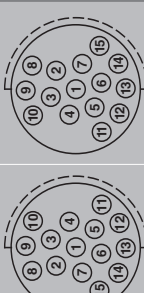
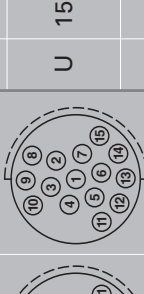
* S - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

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

 Type «A»	 Type «Z»	Cable Clamp *	Number of Contacts	 L B C			Crimping Tool	Positioner	Insertion Tool	Extraction Tool	Wrench Size 	Wrench Size 	Torque [Nm]
				L	B	C							
SERIES 105	REFERENCE NUMBER 105 A054 105 Z054 solder			S	7	1					15	16	3.5
		105 A067 105 Z067 solder		S	8	1					15	16	3.5
		105 A101 105 Z101 solder		S	9	1					15	16	3.5
		105 A062 105 Z062 solder		S	10	2					15	16	3.5

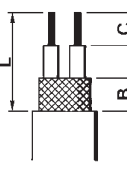
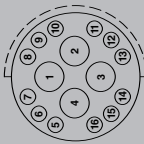
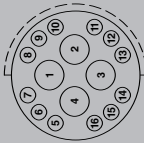
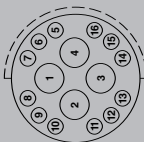
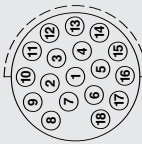
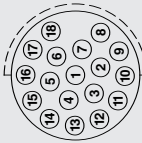
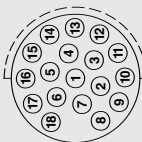
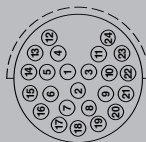
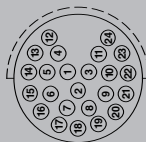
All specifications are typical and have to be adjusted according to the cable construction and dimensions.

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

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

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

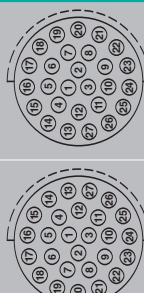
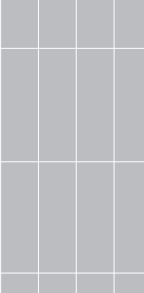
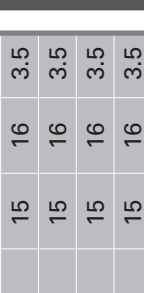
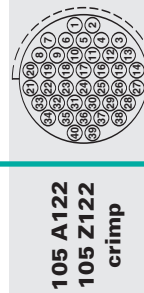
* S - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

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

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* S - Shielded cable clamp
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 For details see page L6

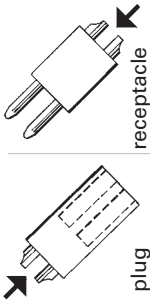
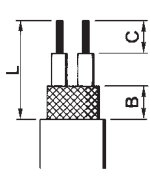
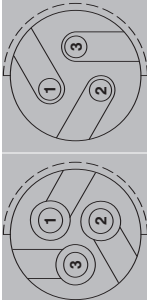
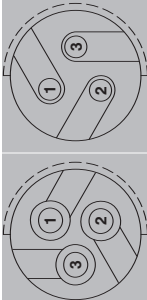
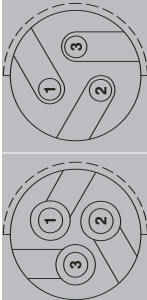
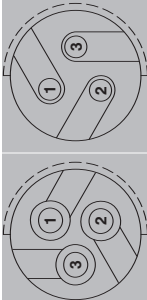
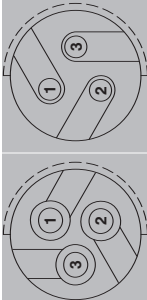
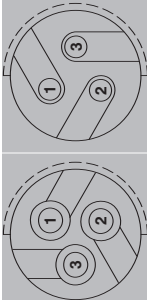
① see page J4

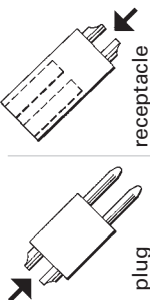
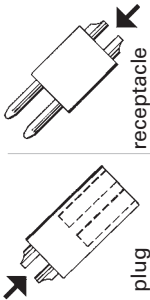
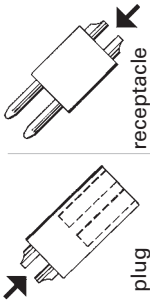
Type «A»		Type «Z»		Cable Clamp *	Number of Contacts	Diagram			Crimping Tool P / N	Positioner P / N	Insertion Tool P / N	Extraction Tool P / N	Wrench Size 1	Wrench Size 2	Torque [Nm]
plug	receptacle	plug	receptacle			L	B	C							
SERIES 105		REFERENCE NUMBER													
				S	3	10	2.5	2					15	16	3.5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

1 see page J4

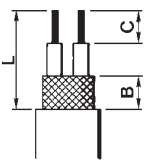
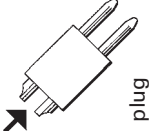
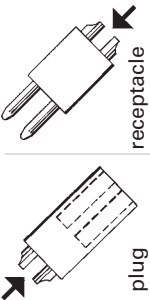
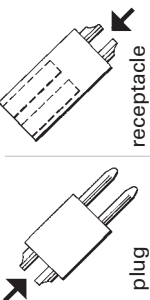
Cable Clamp *	Type «Z» 	Number of Contacts				Crimping Tool	Positioner	Insertion Tool	Extraction Tool	Wrench Size 	Wrench Size 	Torque [Nm]
			L	B	C							
S U E		3	25	5	4					22		8
		3	25	—	4					22		8
		3	18	5	4					22		8
S U E		7	18	5	4					22		8
		6	25	5	4					22		8
		1	18	—	4					22		8
E 7		6	25	—	4					22		8
		1	13	5	4					22		8
		7	20	5	4					22		8
S U E		8	20	5	4					22		8
		8	20	—	4					22		8
		8	15	5	4					22		8
S U E		4	20	5	4					22		8
		8	22	5	4					22		8
		4	20	—	4					22		8
E 12		8	22	—	4					22		8
		4	13	5	4					22		8
		12	15	5	4					22		8

Cable Clamp *	Type «A» 	REFERENCE NUMBER	Type «Z» 	Number of Contacts	Cable Clamp *	Type «Z» 	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	Solder	S
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All specifications are typical and have to be adjusted according to the cable construction and dimensions.

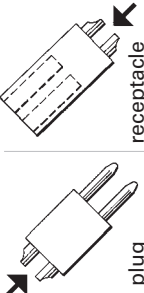
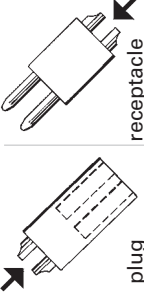
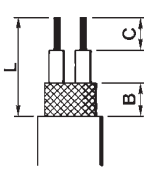
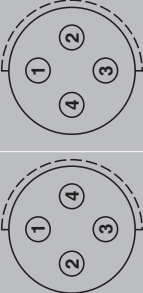
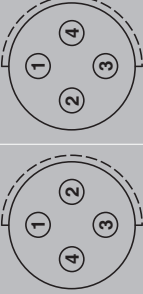
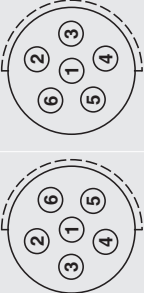
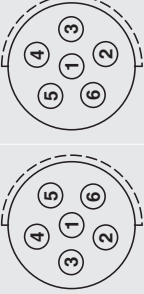
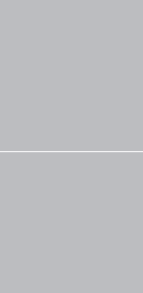
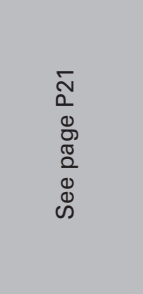
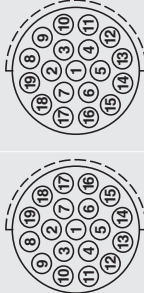
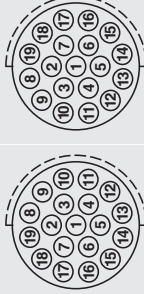
S - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp

For details see page L6

Type «A»	Type «Z»	Cable Clamp *	Number of Contacts					Torque [Nm]	
				L	B	C	A		
 Series 106	 106 A018 106 Z018 solder	S	1	13	5	3	8		
			6	15	5	3	8		
			10	17	5	3	8		
			1	13	—	3	8		
			6	15	—	3	8		
			10	17	—	3	8		
		E	1	8	5	3	8		
			6	10	5	3	8		
			10	12	5	3	8		
			 106 A017 106 Z017 solder	S	2	13	5	3	8
					8	15	5	3	8
					14	17	5	3	8
2	13	—			3	8			
8	15	—			3	8			
14	17	—			3	8			
U	2	8		5	3	8			
	8	10		5	3	8			
	14	12		5	3	8			

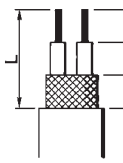
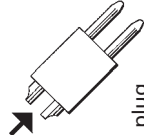
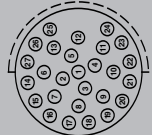
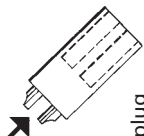
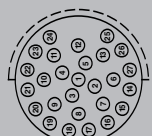
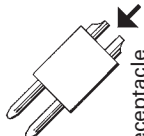
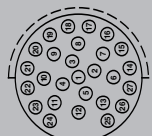
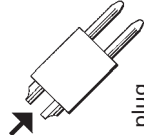
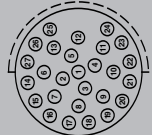
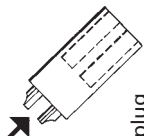
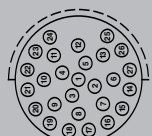
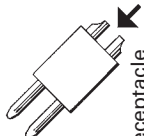
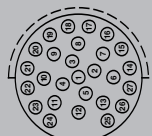
* S - Shielded cable clamp
 U - Unshielded cable clamp
 E - Sealed cable clamp
 For details see page L6

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

 Type «A»	 Type «Z»	Cable Clamp *	Number of Contacts	 L B C			Crimping Tool	Positioner	Insertion Tool	Extraction Tool	Wrench Size 	Wrench Size 	Torque [Nm]
				L	B	C							
SERIES 107	REFERENCE NUMBER 107 A013 107 Z013 solder			S	4	3					32	32	10
	107 A018 107 Z018 solder			S	6	3					32	32	10
	107 A034 107 Z034 solder												
	107 A015 107 Z015 solder			S	19	4					32	32	10
				U	19	4					32	32	10
				E	19	4					32	32	10

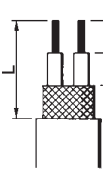
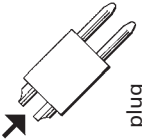
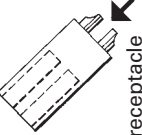
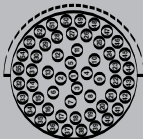
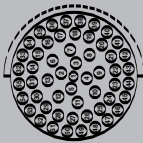
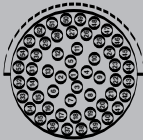
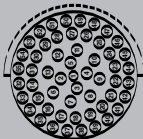
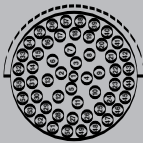
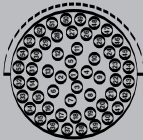
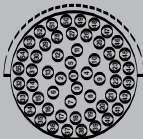
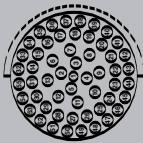
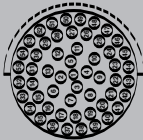
* **S** - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
 For details see page L6

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

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

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

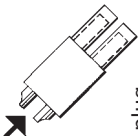
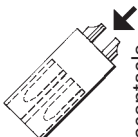
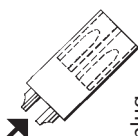
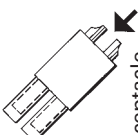
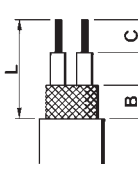
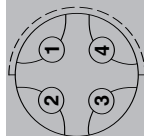
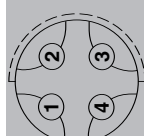
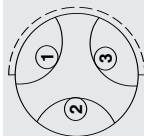
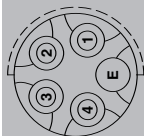
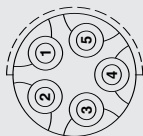
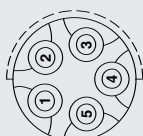
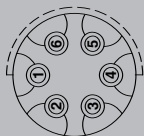
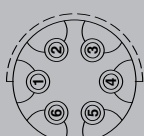
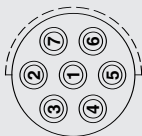
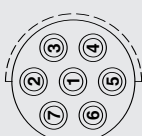
* S - Shielded cable clamp
U - Unshielded cable clamp
E - Sealed cable clamp
For details see page L6

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

 	Type «A»	SERIES HT	REFERENCE NUMBER	 	Cable Clamp *	Number of Contacts					Crimping Tool	Positioner	Insertion Tool	Extraction Tool	Wrench Size 	Wrench Size 	Torque [Nm]	
							L	B	C									
		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						32	32	10		
	E				7	38	3	4						(S + SE 107 A034)	TP00.000	32	32	10

* **S** - Shielded cable clamp
UI - Insulating cable clamp
E - Sealed cable clamp
 For details see page L6

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

CABLE GROUPS FOR COAXIAL, TRIAxIAL & MIXED CONNECTORS



Gr. No	Designation US MIL-C-17	Impedance ohms	Center Conductor			Dielectric		Cable Screen		Cable Jacket		IEC Publication 60096-2 or Manufacturer
			Construction		Ø [mm]	Ø [mm]	Material	Ø [mm]	Material	Ø [mm]	Material	
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	50-2-1
	RG-174/U	50±2	7 x 0.16	AcCu	0.48	1.5	PE	2.0	CuSn	2.6	PVC	50-1-1
	RG-178B/U	50±2	7 x 0.1	AcCuAg	0.3	0.84	PTFE	1.3	CuAg	1.8	FEP	50-2-3
	RG-188A/U	50±2	7 x 0.18	AcCuAg	0.54	1.5	PTFE	2.0	CuAg	2.6	FEP	50-1-2
	RG-196A/U	50±2	7 x 0.1	AcCuAg	0.3	0.84	PTFE	1.3	CuAg	2.0	PTFE	50-2-2
	RG-316/U	50±2	7 x 0.18	AcCuAg	0.54	1.5	PTFE	2.0	CuAg	2.5	FEP	75-2-1
	RG-179B/U	75±3	7 x 0.1	AcCuAg	0.3	1.5	PTFE	2.0	CuAg	2.6	FEP	
	LiYCY 1 x 0.14 mm²	①	18 x 0.1	CuSn	0.5	1.1	PVC	1.6	CuSn	2.4	PVC	
	LiYCY 1 x 0.04 mm²	②	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(USA)
	BELDEN 8218	75±3	7 x 0.14	AcCu	0.43	2.54	PE	3.0	CuSn	3.81	PVC	
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	①	14 x 0.15	CuSn	0.66	1.3	PVC	1.8	CuSn	2.6	PVC	
	LiYCY 1 x 0.38 mm²	②	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	①	16 x 0.2	CuSn	0.95	1.8	PVC	2.4	CuSn	3.1	PVC	
	LiYCY 1 x 0.75 mm²	①	24 x 0.2	CuSn	1.2	2.0	PVC	2.6	CuSn	3.2	PVC	
	LiYCY 1 x 0.50 mm²	②	256 x 0.05	CuSn	1.0	2.0	PVC	2.6	CuSn	3.2	PVC	
	LiYCY 1 x 0.75 mm²	②	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	50-3-5 75-4-6
	RG-223/U	50±2	1 x 0.89	CuAg	0.89	2.95	PE	4.2	2 x CuAg	5.4	PVC	
	RG-302/U	75±3	1 x 0.64	AcCuAg	0.64	3.7	PTFE	4.4	CuAg	5.1	FEP	
7	RG-212/U	50±2	1 x 1.35	CuAg	1.35	4.7	PE	6.2	2 x CuAg	8.5	PVC	Suhner (CH)
	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	
	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	50-7-8 50-7-1 75-7-1
	RG-165/U	50±2	7 x 0.82	CuAg	2.46	7.25	PTFE	8.0	CuAg	10.4	PTFE	
	RG-213/U	50±2	7 x 0.75	Cu	2.25	7.25	PE	8.2	Cu	10.3	PVC	
	RG-11A/U	75±3	7 x 0.4	CuSn	1.2	7.25	PTFE	8.2	Cu	10.3	PVC	
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	16.0		
	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	50-17-1 75-17-1
	RG-218/U	50±2	1 x 5.0	Cu	5.0	17.3	PE	18.6	Cu	22.1	PVC	
	RG-164/U	75±3	1 x 2.65	Cu	2.65	17.3	PE	18.6	Cu	22.1	PVC	
11	RG-403/U Triaxial	50±2	7 x 0.1	AcCuAg	0.3	0.84	PTFE	1.3	CuAg	1.9	FEP	Habia (UK)
						2. screen and jacket:		2.4	CuAg	3.1	FEP	
	RG-178 Type Triax	50±2	7 x 0.1	AcCuAg	0.3	1.6	PTFE	1.8	CuAg	2.6	FEP	Filotex (F)
						2. screen and jacket:		2.9	CuAg	3.6	FEP	
12	SUHNER G 02332 Triaxial	50±2	7 x 0.15	Cu	0.49	1.5	PE	2.0	Cu	2.55	PVC	Suhner (CH)
						2. screen and jacket:		3.0	Cu	4.25	PVC	
12	BELDEN 9222 RG-58 Type Triax	50±2	7 x 0.32	CuSn	0.93	2.95	PE	3.5	CuSn	4.65	PE	Belden (USA)
						2. screen and jacket:		5.2	CuSn	6.1	PVC	
13	ALPHA 9850 RG-59 Type Triax	75±3	1 x 0.52	AcCu	0.52	3.71	FPE	4.5	Cu	-	PE	Alpha (UK)
						2. screen and jacket:				8.0	PVC	
14	BELDEN 9267 RG-59 Type Triax	75±3	1 x 0.84	Cu	0.84	3.71	FPE	4.5	Cu	7.4	PE	Belden (USA)
						2. screen and jacket:		7.9	Cu	9.2	CSM	

- ① Insulated, stranded wires with screen and jacket, standardized by the German VDE 0812, for low frequency applications when no defined impedance is required.
- ② 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)

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

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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see «Clamps»			
Clamps		Ratings	
insulating	C1, C4-C5, H8, L6	current	D1-F1, L9
types, general	A1, H1-H10	derating curve, current	L9
type «S» for shielded cable	A1, A3, H1-H7, L6	dielectric strength	L7
type «U» for unshielded cable	A1, A3, H1-H7, L6	IEC	L7, L9
type «E» sealed, for all cables	A1, A3, H1-H7, L6	impedance	D1-D3, F1
For WSO	H9, L6	IP	M1-M3
For WS/WSE	H10, L6	radiation resistance	L7
		residual leakage	M1
Coax and Triax cables	D1-D3, F1	temperature	L7-L9
cable groups, recommended cables	Q1	volume resistivity	L7
		voltage, operating	L9
		voltage, test	D1-F1, L9
Contacts		Receptacles - Cable Mount	
crimp	D1-F1, J4, L5, N1	K - standard	A2, B9, M4
diameter	D1-F1, J4	KE - sealed	A2, B9, M1-M4
equivalent wire gauge	J4		
insertion tools	K2, K3, O1-P21	Receptacles - Panel Mount	
maximum wire gauge	J4, D1-F1	D - standard, flush mounted	A2, B5, C1-C5
numbering	P1-P21	DB - front projecting	A2, B5, M4
p.c.b. style	D1-D3, E1-E8, L5	DBEE - hermetic, front projecting	A2, B7, M1-M4
plating	L6	DBEU - IP68 sealed, front projecting	A2, B7, M2, M4
solder	L5, N1	DBP - rear mounted	A2, B5
termination types	L5	DBPC - right-angle p.c.b. contacts	A2, B11, B12
thermocouple	G1, G2	DBPE - hermetic, rear mounted	A2, B7, M1-M3
		DBPU - IP68 sealed, rear mounted	A2, B7, M1-M3
Dimensions	A1, B1-B10, C2-C5	DEE - hermetic, flush mounted	A2, B7, C3, M1-M3
		DEU - sealed per IP68	A2, B7, M1-M3
Feedthrough - Double-ended		DG - completely threaded, solder contacts	A2, B6
WDE - hermetic sealed	A2, B8, L4, M1-M4	DGP - completely threaded, p.c.b. contacts	A2, B6
		DK - with cable clamp	A2, B10
High Voltage		DKBE - sealed rear-mounted cable receptacle	A2, B9, M1-M4
coax	C2, C3, D1-D3	DKE - sealed with cable clamp	A2, B10, M1-M4
contact protection	A1, C1, L4		
dimension	C1-C5, P21	Sealed Connectors	M1-M4
mixed contact	C5, F1		
multipole style	C4, E3-E8	Sectional view of plug and receptacle	L2
Insulating Material	D1-F1, L7	Thermocouple	G1-G2
Keying and Orientation	L4, N2	Triax Camera Connectors	D3



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