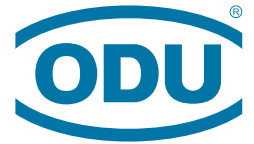


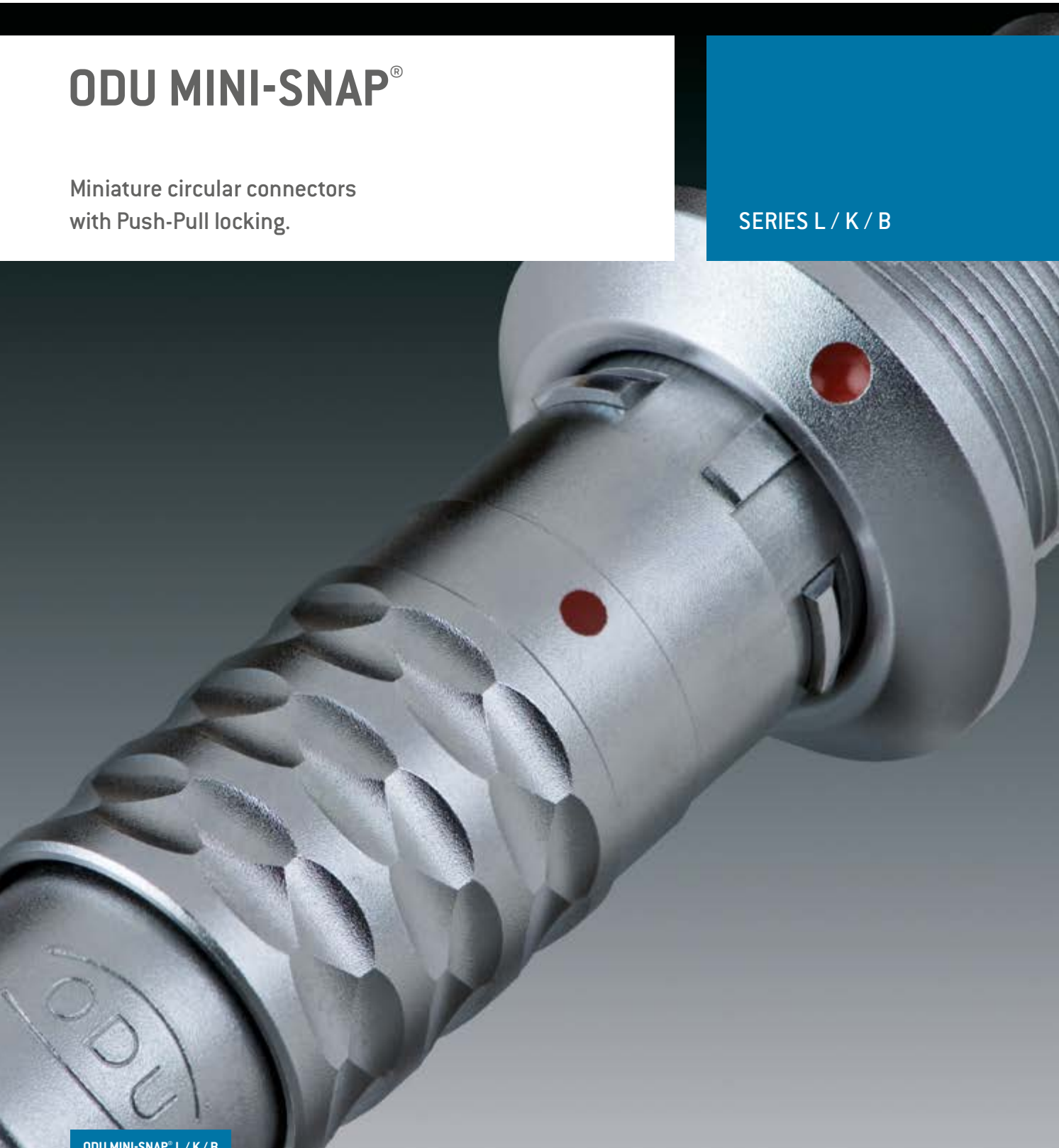
A PERFECT ALLIANCE.



# ODU MINI-SNAP<sup>®</sup>

Miniature circular connectors  
with Push-Pull locking.

SERIES L / K / B



ODU MINI-SNAP<sup>®</sup> L / K / B

ODU MINI-SNAP<sup>®</sup> F

ODU AMC<sup>®</sup>

ODU MEDI-SNAP<sup>®</sup>

ODU MINI-SNAP<sup>®</sup> PC

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# ODU MINI-SNAP® L / K / B

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## FEATURES

- Quick and easy mating and demating
- Blind mating and demating in difficult-to-reach places
- Low space requirements on the receptacles
- Definite and secure locking conditions
- Robotic mating and demating possible
- Easy cleaning of the connector plug housing possible
- High connector density
- Low power requirement

---

## APPLICATIONS

- Medical
- Industrial
- Test and measurement
- Military and security
- Energy
- eMobility



All shown connectors are according to IEC 61984:2008 (VDE 0627:2009); connectors without breaking capacity (COC).

ODU MINI-SNAP is UL-approved under file E110586.  
MIL specification: Tests carried out (see page 170).

All dimensions are in mm.  
Some figures are for illustrative purposes only.  
Subject to change without notice. Errors and omissions excepted.  
We reserve the right to change our products and their technical specifications at any time in the interest of technical improvement.  
This publication supersedes all prior publications.

This publication is also available as a PDF file that can be downloaded from [www.odu-usa.com](http://www.odu-usa.com).

Issue: 2018-04

### Data transmission protocols

These ODU specific connectors can transmit common data transmission protocols such as USB® 2.0, USB® 3.1 Gen1, CAT 5, CAT 6<sub>x</sub> and Ethernet, but they are not USB®, CAT- and Ethernet-standard connectors.

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# A PERFECT ALLIANCE.

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**CREATING CONNECTIONS, BUILDING ALLIANCES, COLLABORATING INTO THE FUTURE:** WHETHER TWO TECHNICAL COMPONENTS COME TOGETHER TO FORM A UNIT OR PEOPLE COME TOGETHER TO STRIVE FOR GREAT RESULTS – THE KEY IS TO ASPIRE IN ACHIEVING SUPERB RESULTS. THIS GOAL DRIVES OUR WORK. **PERFECT CONNECTIONS THAT INSPIRE AND DELIVER ON THE PROMISES.**



# INGENIOUS IDEAS PERFECT SOLUTIONS

ODU'S PRODUCT PORTFOLIO.



## COMPACT MODULAR CONNECTOR SOLUTIONS

- Application-specific hybrid interface
- For manual mating and automatic docking
- The highest packing density
- Flexible modular construction
- Multitude of data transmission modules
- Variety of locking options available
- For the transmission of signals, power, high current, high voltage, coax, high-speed data, fiber optics and other media such as air or fluid.
- Mating cycles scalable as required from 10,000 to over 100,000 (1 million)



## PUSH-PULL CIRCULAR CONNECTORS

- Circular connector series in robust metal or plastic housing
- Contacts for soldering, crimping and PCB termination
- Optional selectable Push-Pull locking ensuring a secure connection at all times as well as easy to release Break-Away function
- 2 up to 55 contacts
- IP 50 to IP 69
- Autoclavable for medical applications
- Hybrid inserts for combined transmission



## ELECTRICAL CONTACTS

- Versatile connector technologies
- Outstanding reliability, lifetime and durability
- Up to 1 million mating cycles
- Current-carrying capacity of up to 2,400 amperes and more
- Rugged contact systems, suitable even for harsh environments
- Economical solutions for automatic processing

# MORE THAN A CONNECTION

OUR KNOW-HOW FOR YOUR SUCCESS.

All shown connectors are according to DIN EN 61984:2009 connectors without breaking capacity (COC)!

General tolerances to DIN ISO 2768-mK		Tolerances to DIN ISO 8015	
2013	date	name	designation
prep.	11.06.	Unterblum	Break-A
app.			
norm.			

## HIGH PERFORMANCE CONNECTOR TECHNOLOGY FOR DEMANDING KEY MARKETS

Customers rely on ODU technology wherever first-class, high-performance connector solutions are required. All our skills go into our products to ensure your success. In addition to the top quality, reliable stability and maximum flexibility in customer-specific requirements, our products also stand for dynamics, reliability, safety, precision, efficiency and sustainability. And they guarantee unrestricted functionality for the final product due to our high quality connectors. ODU – A PERFECT ALLIANCE.




## APPLICATION-SPECIFIC SOLUTIONS

Demands that can't be pigeon-holed call for creative specialists who think outside the box. ODU offers the type of expertise that focuses solely on the specific requirements of our customers. For every development order we get, we not only perform a thorough check to make sure it's feasible, we intensively incorporate our customers in the ongoing design process. This guarantees an impressive, custom-fit final result. Our solutions are frequently based on the modifications of our products, especially for the ODU MINI-SNAP and ODU-MAC connectors.



ODU MINI-SNAP<sup>®</sup>

# THE COMPLETE SERIES OF ODU PUSH-PULL CONNECTORS AT A GLANCE

	Keying	Size	No. of possible mechanical keyings	Plug diameter in mm	Max. cable diameter in mm	Number of max. contacts	Solder	Crimp	PCB	IP protection degree IEC 60529:2013 in mated condition	IP protection degree IEC 60529:2013 in unmated condition	From page
<b>ODU MINI-SNAP® L</b> 	Pin and groove	00	4	6.4	3.5	04	•	•	•	IP 50	Up to IP 68	<a href="#">22</a>
		0	8	9	5.6	10						
		1	8	11.5	7.7	16						
		2	8	14.5	9.9	26						
		3	8	17.5	11.9	30						
		4	8	25	16	40						
<b>ODU MINI-SNAP® K</b> 	Pin and groove	0	8	11	5	10	•	•	•	Up to IP 68	Up to IP 68	<a href="#">74</a>
		1	8	13	7	16						
		2	8	16	9	26						
		3	8	19	10.5	30						
		4	8	25	14	40						
<b>ODU MINI-SNAP® B</b> 	Pin and groove	0	8	9.4	5	10	•	•	•	IP 68	Up to IP 68	<a href="#">114</a>
		1	9	12	7	16						
		2	10	15	9	26						
		3	13	18	10.5	30						

## FURTHER PRODUCTS OF THE ODU PUSH-PULL CONNECTOR SERIES.



- Versatile keying possibilities – in terms of color and mechanical
- Low weight
- 14 contacts
- IP 64
- Shielded version (BG 2) available
- Simplest assembly
- Autoclaveable / sterilisable model

- Keying over half-shell
- 2–27 contacts
- Low weight
- IP 67
- 3 sizes
- Plastic connector plug housing

- Keying over half-shell
- 2–27 contacts / mixed inserts
- 5 sizes
- IP 50 and IP 68 with same outer diameter possible
- Contacts for solder, crimp and PCB termination

- Keying over insulator
- 2–10 contacts / mixed inserts
- 3 sizes
- IP 50 and IP 68 with same outer diameter possible
- Contacts for solder, crimp and PCB termination

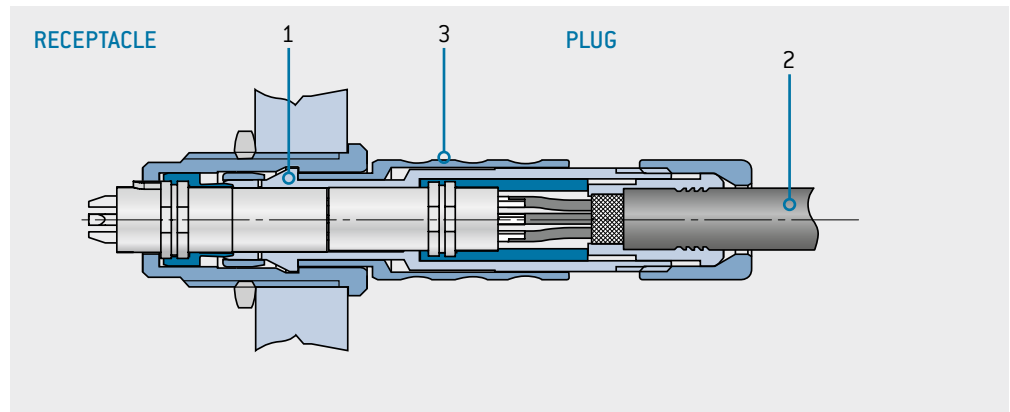
- Push-Pull and Break-Away version
- 3–55 contacts
- 6 sizes
- Watertight – IP 68
- Easy-Clean and High-Density version
- Tested acc. MIL
- Low weight (aluminium connector plug housing)

# FUNCTIONAL PRINCIPLE OF THE PUSH-PULL LOCKING

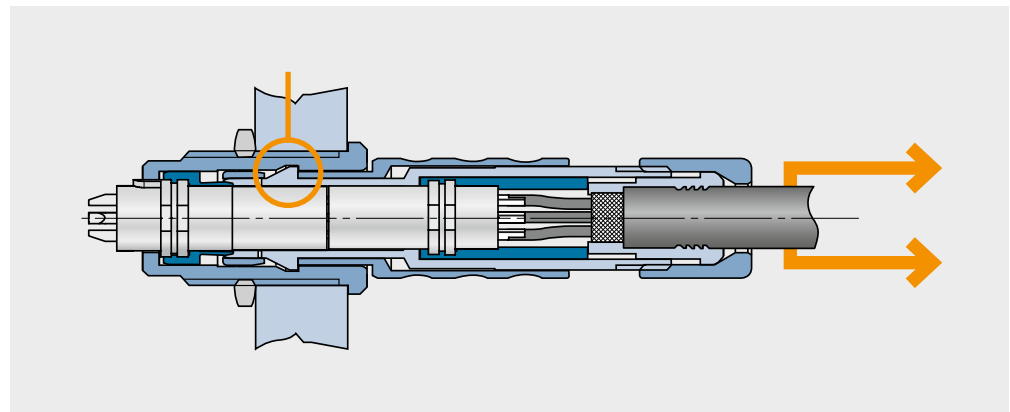
Push-Pull locking systems have a highly user-friendly locking mechanism. When the connector is mated with the receptacle, the connector's locking fingers (1) will lock into place in the receptacle and form a dependable connection between both parts. It cannot be separated by pulling on the connector's cable (2). Instead, the connector can easily be separated from the receptacle by pulling on the outer housing (3). Push-pull connectors from ODU are available in 6 different standard sizes with diameters from 6.4 mm to 25 mm.

You can read about the precise functioning of the locking mechanism in the relevant series.

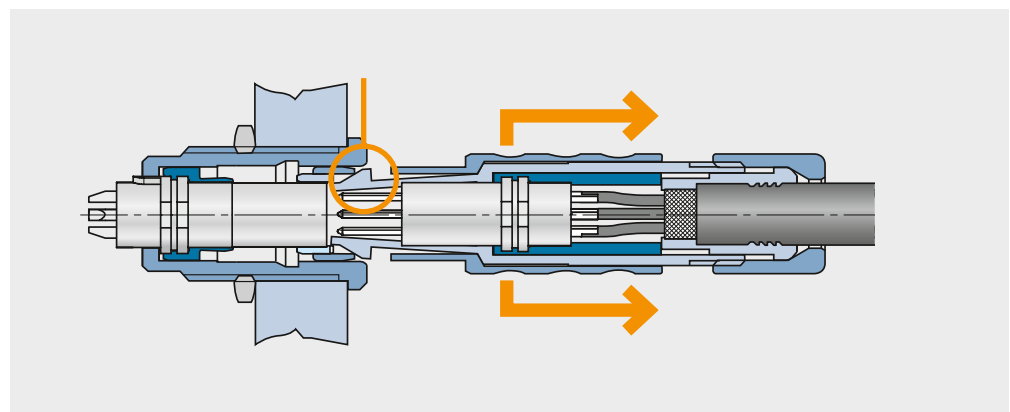
Connector in **mated** condition



Pulling on the cable or back nut will lock the "fingers" firmly in place in the receptacle's locking groove. This prevents the connector from being disconnected.



But pulling on the **outer housing** will cause the fingers to emerge from the locking groove, making it easy to disconnect the connector.





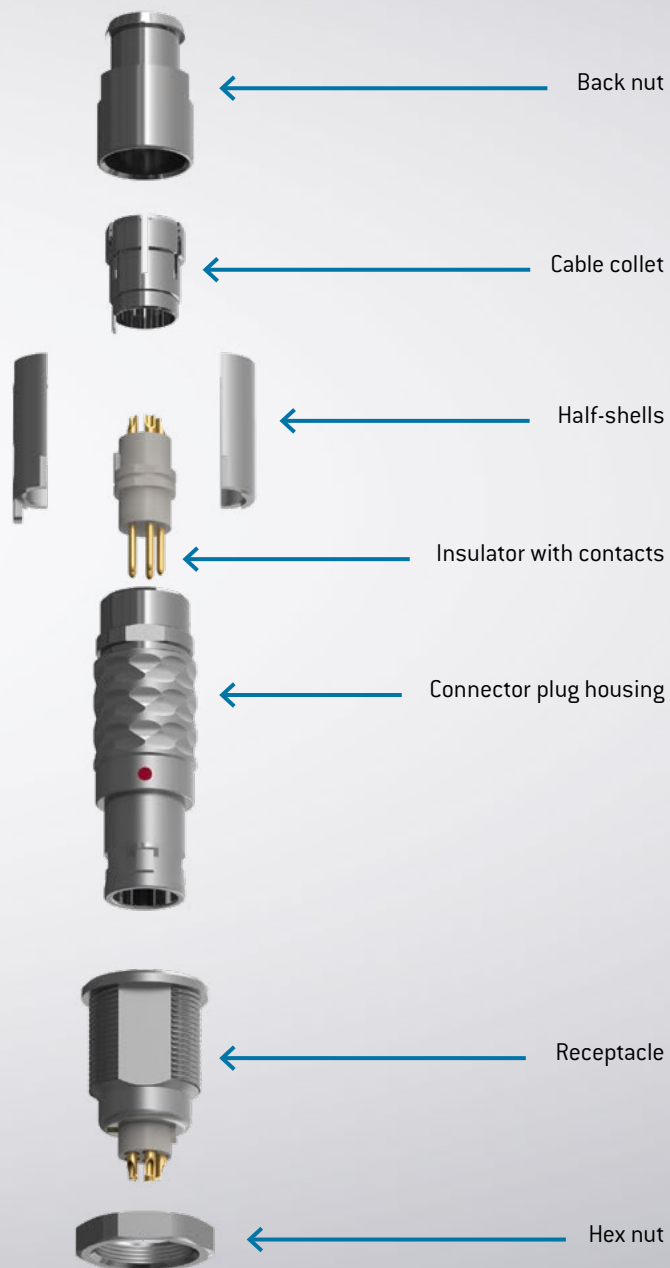
ODU MINI-SNAP®

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# BIT BY BIT TO THE PERFECT CONNECTION

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ODU offers you high-quality connectors and comprehensive service for the complete assembly. From connectors to watertight grouting, we provide the complete system from a single source.













ODU MINI-SNAP®

# SUMMARY ODU MINI-SNAP® SERIES L

The ODU MINI-SNAP Series L is keyed by pin and groove. These Push-Pull circular connectors can be configured in many different ways: a wide variety of sizes and termination types and contact inserts are available.

- Keying over pin and groove
- 2–40 contacts/mixed inserts
- Up to 6 sizes and 3 termination types
- Choice of numerous plugs and receptacles
- IP 50 and IP 68<sup>1</sup> available
- 5,000 mating cycles and more
- Contacts for solder, crimp and PCB termination

STRAIGHT PLUG		P.28
IP 50		S 1
		S 2
		A 1
		A 2

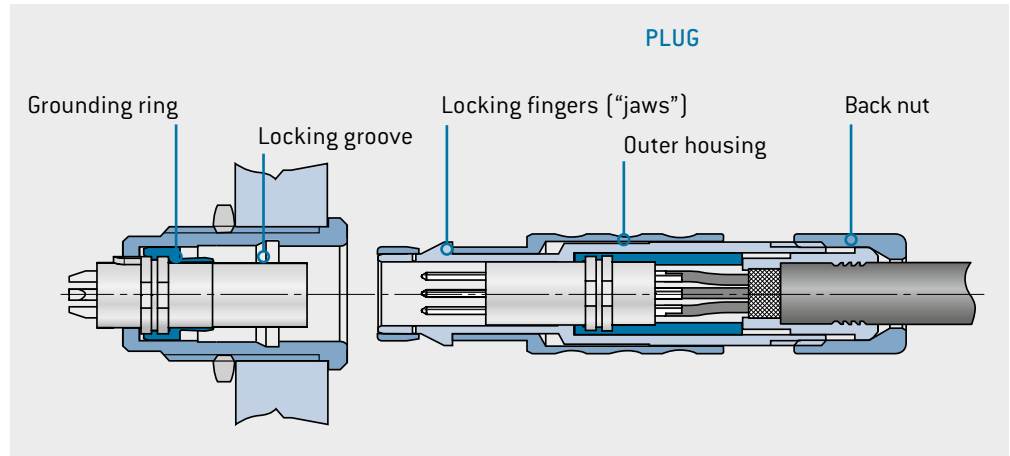
PANEL-MOUNTED PLUG		P.30
IP 50		A A
IP 68 <sup>1</sup>		A D

RIGHT-ANGLED PLUG		P.31
IP 50		W 1
		W 2

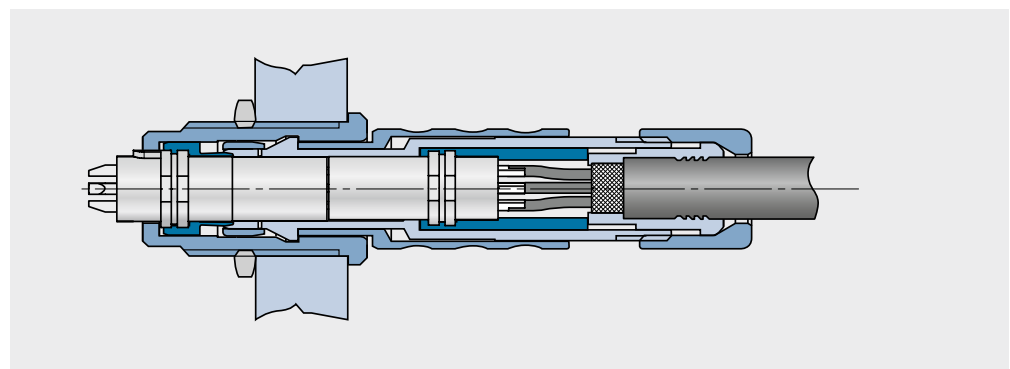
<sup>1</sup>IP 68 in reference to the tightness of the end device in unmated condition.

# THE LP LOCKING PRINCIPLE SERIES L

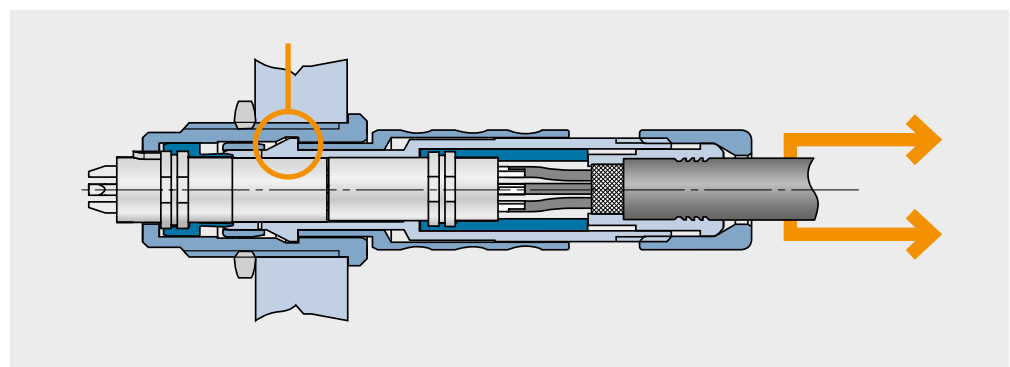
Connector  
in **unmated** condition



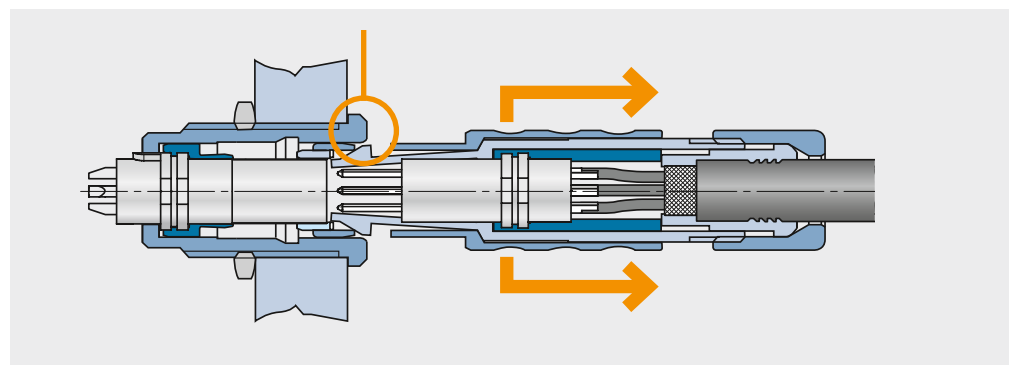
Connector  
in **mated** condition



Pulling on the cable or back nut will lock the "fingers" firmly in place in the receptacle's locking groove. This prevents the connector from being disconnected.



But pulling on the **outer housing** will cause the "fingers" to emerge from the locking groove, making it **easy to disconnect** the connector.



# STRAIGHT PLUG



**S 1 0** **STYLE: 1** **IP 50**

With standard back nut

**S 2 S** **STYLE: 2** **IP 50**

With back nut for cable bend relief<sup>1</sup>

Size	L1 mm	L2 mm	D mm	SW A mm	S1 SW B mm	S2 SW B mm
00	≈ 28	≈ 20	6.4	5.5	5	5
0	≈ 36	≈ 26	9	8	7	7
1	≈ 43	≈ 32	11.5	10	10	10
2	≈ 50	≈ 38	14.5	13	12	13
3	≈ 61	≈ 46	17.5	15	14	15
4	≈ 76	≈ 58	25	21	20	20

**TECHNICAL DATA**

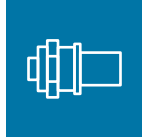
• Contact configuration from page 40.

**C** **0** **1** **2** **3** **4** **5** **6** **7** **8** **9** **10** **11** **12** **13** **14** **15** **16** **17** **18** **19**

**L C - P - O**

<sup>1</sup> Please order cable bend reliefs separately, see page 70.

# PANEL-MOUNTED PLUG



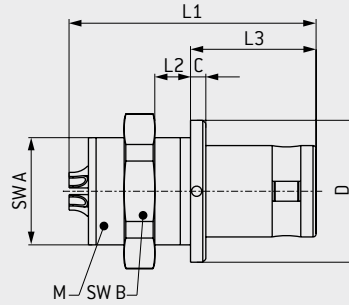
Suitable for creating a docking connection between 2 devices.

A A

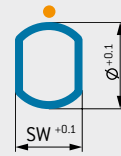
## STYLE: A

IP 50

With hex nut, without locking, installation from front of panel



### Panel cut-out



● Keying indication

Size	L1 <sup>1</sup> mm	L2 mm	L3 mm	C mm	D mm	SW A mm	SW B mm	M mm	Panel cut-out	
									SW mm	Ø mm
C 00	≈ 17.5	≈ 4.5	9	1	8	6.3	9	7 × 0.5	6.4	7.1
0	≈ 21	≈ 3.5	11.2	1.2	10	8.2	11	9 × 0.5	8.3	9.1
1	≈ 26.2	≈ 7	12.3	1.5	14	10.5	14	12 × 1	10.6	12.1
2	≈ 27.5	≈ 7	13.8	1.8	18	13.5	17	15 × 1	13.6	15.1
3	≈ 34.5	≈ 9	17	2	22	16.5	22	18 × 1	16.6	18.1
4	≈ 37.1	≈ 8	20.5	2.5	28	23.5	30	25 × 1	23.6	25.1

### TECHNICAL DATA

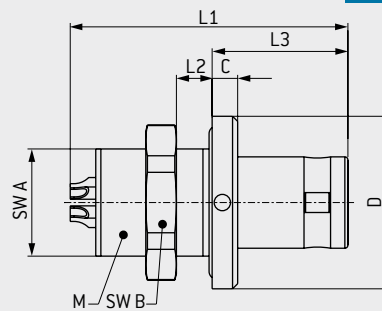
- IP 50 in reference to the tightness of the end device.
- Anti-rotation feature.
- Contact configuration from page 40.
- PCB layouts, see page 41.

A D

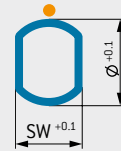
## STYLE: D

IP 68

With hex nut, without locking, installation from front of panel



### Panel cut-out



● Keying indication

Size	L1 <sup>1</sup> mm	L2 mm	L3 mm	C mm	D mm	SW A mm	SW B mm	M mm	Panel cut-out	
									SW mm	Ø mm
0	≈ 23.5	≈ 5.5	12	2	13	8.2	11	9 × 0.5	8.3	9.1
1	≈ 29.5	≈ 8	13.3	2.5	17	10.5	14	12 × 1	10.6	12.1
2	≈ 30.5	≈ 7	14.8	2.8	19.5	13.5	17	15 × 1	13.6	15.1
3	≈ 35	≈ 7.5	18	3	24	16.5	22	18 × 1	16.6	18.1

### TECHNICAL DATA

- IP 68 in reference to the tightness of the end device, also in unmated condition.
- Anti-rotation feature.
- No crimp contact possible.
- Contact configuration from page 40.
- PCB layouts, see page 41.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

L C - P - 0 0

<sup>1</sup> L1 = maximum length including contact insert.





# RECEPTACLE

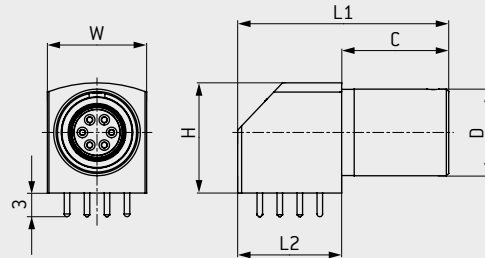
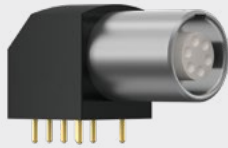


G F

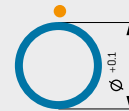
## STYLE: F

IP 50

Right-angled receptacle  
(without thread)



Panel cut-out



● Keying indication

Size	L1 mm	L2 mm	C mm	H mm	W mm	D mm	Max. no. of contacts	Panel cut-out Ø mm
C 00	17.5	7	10.5	7	7	6.8	4	6.9
0	24.8	13.2	11.6	12.7	11.6	9	7	9
1	26.8	13.2	13.6	14	12.6	11	10	11

C  
0  
1

### TECHNICAL DATA

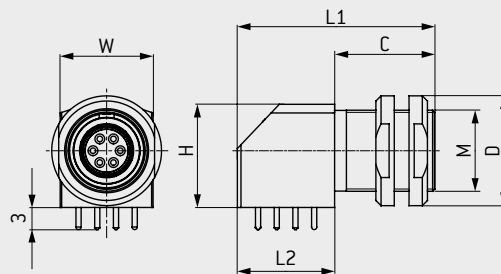
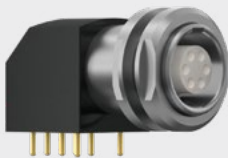
- Contact configuration from page 40.
- PCB layouts, see page 41.
- Only straight PCB contact possible.
- Alternatively, shield termination is available via screw connection.

G G

## STYLE: G

IP 50

Right-angled receptacle  
(with thread)



Panel cut-out



● Keying indication

Size	L1 mm	L2 mm	C mm	H mm	W mm	M mm	D mm	Max. no. of contacts	Panel cut-out Ø mm
0	24.8	13.2	11.6	12.7	11.6	9 × 0.5	11.5	7	9
1	26.8	13.2	13.6	14	12.6	11 × 0.5	14.9	10	11

0  
1

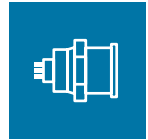
### TECHNICAL DATA

- Contact configuration from page 40.
- PCB layouts, see page 41.
- Only straight PCB contact possible.
- Alternatively, shield termination is available via screw connection.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

L C - P - 0 0 0

# RECEPTACLE

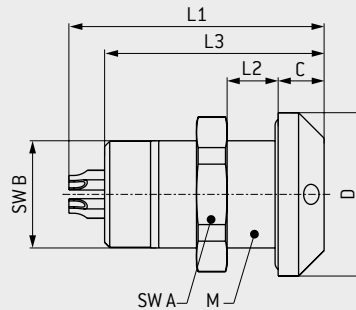


G L

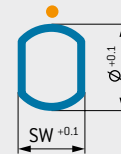
## STYLE: L

Installation from front of panel

IP 68<sup>3</sup>



Panel cut-out



● Keying indication

Size	L1 <sup>1</sup> mm	L2 mm	L3 <sup>2</sup> mm	M mm	D mm	SW A mm	SW B mm	C mm	Panel cut-out		
									SW mm	Ø mm	
C	00	≈ 18	≈ 8	14.5	7 × 0.5	11	9	6.3	1.5	6.4	7.1
0	0	≈ 22.5	≈ 7.5	16.5	9 × 0.5	13	11	8.2	3	8.3	9.1
1	1	≈ 27	≈ 9	21.5	12 × 1	16	14	10.5	4.5	10.6	12.1
2	2	≈ 29.5	≈ 8	24.5	15 × 1	20	17	13.5	4	13.6	15.1

### TECHNICAL DATA

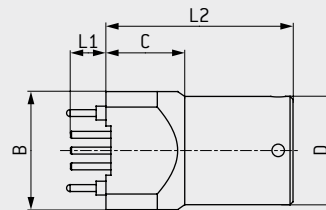
- IP 68 in reference to the tightness of the end device, also in unmated condition.
- Anti-rotation feature.
- Contact configuration from page 40.
- No crimp contacts possible.
- Only straight PCB contact possible.
- PCB layouts, see page 41.

G P

## STYLE: P

PCB receptacle

IP 50



### TECHNICAL DATA

- IP 50 in reference to the tightness of the end device.
- Anti-rotation feature.
- Contact configuration from page 40.
- PCB layouts, see page 41.

Size	L1 mm	L2 mm	B mm	C mm	D mm
C	00	2.6	14	7	6.8
0	0	4.5	15	8	9
1	1	3.6	19	8	11

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

L C - P - 0 0 0

<sup>1</sup> L1 = maximum length including contact insert. <sup>2</sup> L3 = length of connector plug housing. <sup>3</sup> Note: tight, grouted receptacle, see page 163.

# CONTACT INSERTS (SIZE 00)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>4</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	Solder	L	M	C	C	0	0.5	4	0.6	0.8	1.100	0.366	0.4	28	0.08		
		PCB <sup>3</sup>	Q	R	C	0	0							0.5	-	-		
0	3	Solder	L	M	C	C	0	0.5	4	0.5	0.7	1.100	0.366	0.4	28	0.08		
		PCB <sup>3</sup>	Q	R	C	0	0							0.5	-	-		
0	4	Solder	L	M	C	C	0	0.5	4	0.4	0.6	0.900	0.300	0.4	28	0.08		
		PCB <sup>3</sup>	Q	R	C	0	0							0.5	-	-		

<sup>1</sup> Derating factor, see page 167.

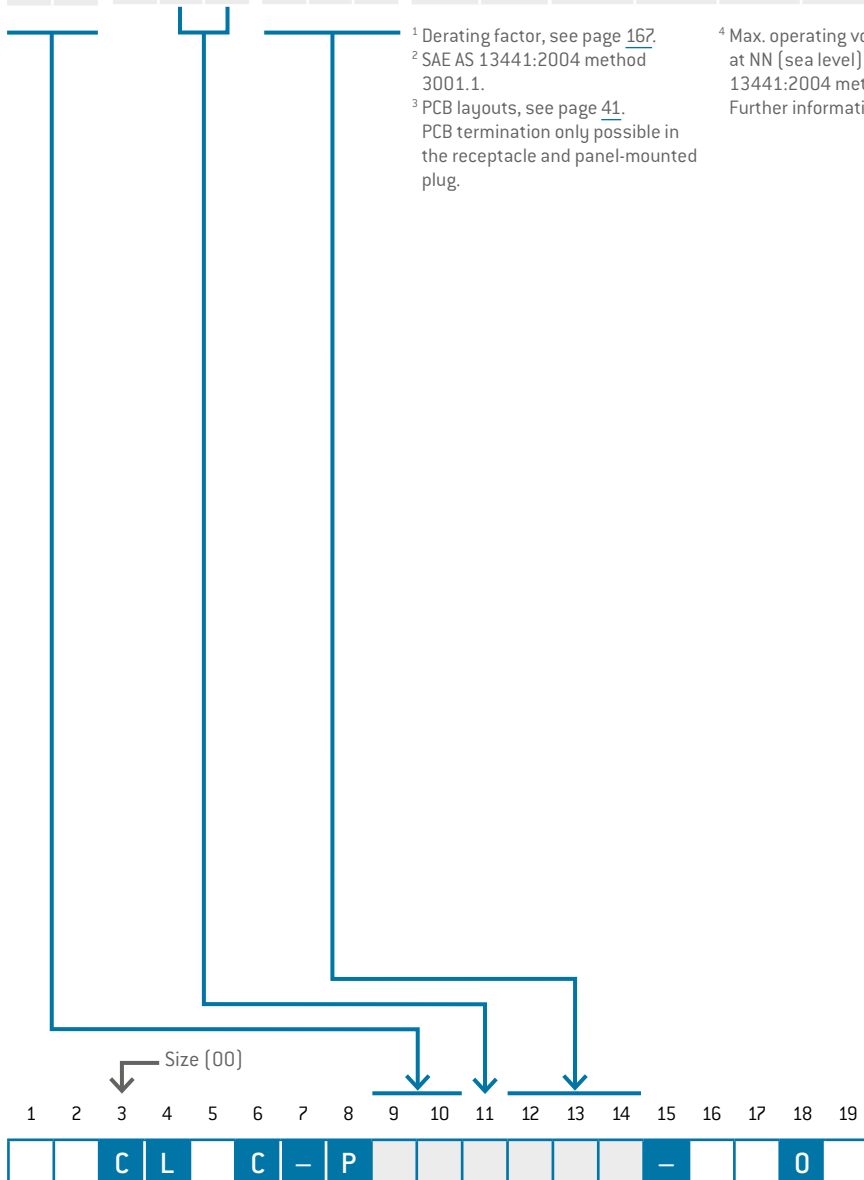
<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> PCB layouts, see page 41.  
PCB termination only possible in the receptacle and panel-mounted plug.

<sup>4</sup> Max. operating voltage

at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.

Further information on page 168.



# CONTACT INSERTS (SIZE 0)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	Solder	L	M	J	G	0	0.9	7.5	1	1	1.500	0.500	0.85	22	0.38		
		Crimp <sup>3</sup>	N	P	J	H	0		10	0.7	0.7	1.100	0.366	–	20–24	0.50–0.25		
		PCB <sup>4</sup>	Q	R	J	O	0		7.5	1	1	1.500	0.500	0.7	–	–		
0	3	Solder	L	M	J	G	0	0.9	7.5	0.8	1	1.200	0.400	0.85	22	0.38		
		Crimp <sup>3</sup>	N	P	J	H	0		10	0.5	0.7	0.600	0.200	–	20–24	0.50–0.25		
		PCB <sup>4</sup>	Q	R	J	O	0		7.5	0.8	1	1.200	0.400	0.7	–	–		
0	4	Solder	L	M	F	G	0	0.7	7.5	0.6	0.8	0.900	0.300	0.85	22	0.38		
					F	D	0		6	0.8	1			0.6	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.6	0.8			–	22–26	0.38–0.15		
0	5	Solder	L	M	F	G	0	0.7	7.5	0.5	0.6	0.600	0.200	0.85	22	0.38		
					F	D	0		6	0.7	0.8	1.100	0.366	0.6	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.5	0.6	0.600	0.200	–	22–26	0.38–0.15		
0	6	Solder	L	M	C	C	0	0.5	4	0.7	0.8	0.900	0.300	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	0			0.8	0.5			–	–			

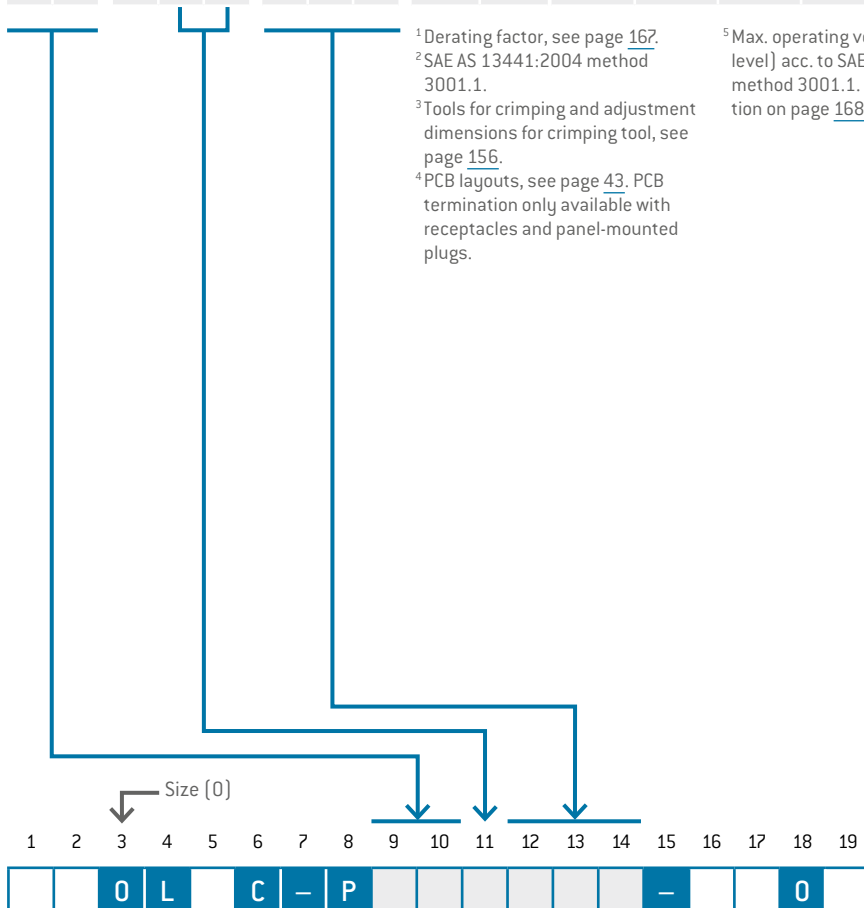
<sup>1</sup> Derating factor, see page 167.

<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 43. PCB termination only available with receptacles and panel-mounted plugs.

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1. Further information on page 168.



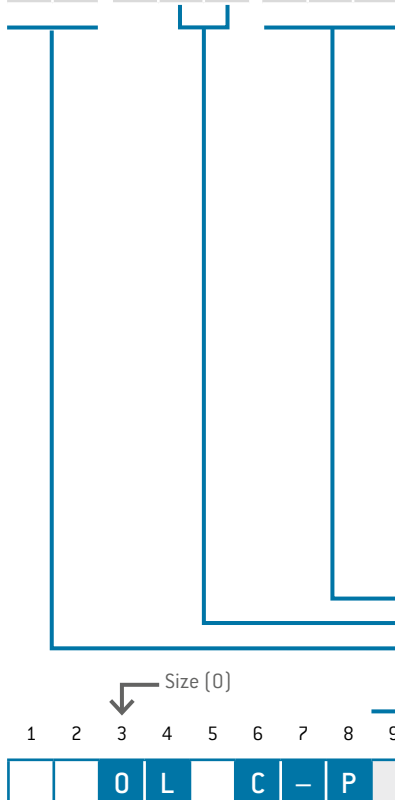
# CONTACT INSERTS (SIZE 0)



Number of contacts	Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area		
	Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				mm	AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	7	Solder	L	M	C	C	0	0.5	4	0.7	0.8	0.900	0.300	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	0											
0	9	Solder	L	M	C	C	0	0.5	4	0.4	0.8	0.600	0.200	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	0											
1	0 <sup>8</sup>	Solder	L	M	C	C	9	0.5	4	0.3	0.7	0.600	0.200	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	9											

## SPECIFIC INSERTS FOR HIGH DATA TRANSMISSION RATES

0	4	Solder	L	M	F	G	0	0.7	7.5	0.6	0.8	0.900	0.300	0.85	22	0.38			Ethernet <sup>6,10</sup> Type CAT 5 <sup>10</sup> up to 100 Mbit			
					F	D	0		6	0.8	1			0.6	26	0.15						
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.6	0.8			–	22–26	0.38–0.15						
		PCB <sup>4</sup>	Q	R	F	C	0		6	0.8	1			–	28–32	0.09–0.04						
U	4	Solder	–	M	F	G	0	0.7	7.5	0.6	0.8	0.900	0.300	0.85	22	0.38			USB <sup>9</sup> 2.0 <sup>7,10</sup>			
		Crimp <sup>3</sup>	–	P	F	G	0													–	22–26	0.38–0.15
0	4	Solder	L	–	F	G	0	0.7	7.5	0.6	0.8	0.900	0.300	0.85	22	0.38			USB <sup>9</sup> 2.0 <sup>7,10</sup>			
		Crimp <sup>3</sup>	N	–	F	G	0													–	22–26	0.38–0.15
		PCB <sup>4</sup>	Q	–	F	O	0													0.5	–	–
1	0 <sup>8</sup>	Solder	A	B	M	M	9	4×0.5	5	0.3	0.6	0.600	0.200	0.7	24	0.25			USB <sup>9</sup> 3.1 Gen1 <sup>7,9,10</sup>			
								6×0.3						0.45	28	0.08						



<sup>1</sup> Derating factor, see page 167.

<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 45. PCB termination only available with receptacles and panel-mounted plugs.

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1. Further information on page 168.

<sup>6</sup> ISO/IEC 11801:2017.

Further information on request.

<sup>7</sup> Acc. Universal Serial Bus 3.2 Spec.:2017

Further information on request.

<sup>8</sup> Not compatible to competition.

<sup>9</sup> For style S1, S2, A1, A2, K1, K2 and G6 possible. For a cable diameter from 5.5 to 6 mm possible.

<sup>10</sup> Concerning data transmission protocols please note page 2.

# CONTACT INSERTS (SIZE 1)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	Solder	L	M	P	N	0	1.3	15	1	1.1	1.650	0.550	1.4	18	1		
					P	H	0		12					1.1	20	0.5		
		Crimp <sup>3</sup>	N	P	P	L	0		15					–	18–20	1.00–0.50		
		PCB <sup>4</sup>	Q	R	P	0	0		12					0.7	–	–		
0	3	Solder	L	M	P	N	0	1.3	15	0.8	1	1.000	0.333	1.4	18	1		
					P	H	0		12	0.9	1.1	1.500	0.500	1.1	20	0.5		
		Crimp <sup>3</sup>	N	P	P	L	0		15	0.8	1	1.000	0.333	–	18–20	1.00–0.50		
		PCB <sup>4</sup>	Q	R	P	0	0		12	0.9	1.1	1.500	0.500	0.7	–	–		
0	4	Solder	L	M	J	G	0	0.9	7.5	1	1.4	1.500	0.500	0.85	22	0.38		
					J	H	0		10	0.7	1.1	1.000	0.333	–	20–24	0.50–0.25		
		Crimp <sup>3</sup>	N	P	J	G	0		7.5	1	1.4	1.500	0.500	–	22–26	0.38–0.15		
		PCB <sup>4</sup>	Q	R	J	0	0		7.5	0.7	–	–	–	–	–			
0	5	Solder	L	M	J	H	0	0.9	10	0.6	0.9	1.000	0.333	1.1	20	0.50		
					J	G	0		7.5	0.9	1.2	1.350	0.450	0.85	22	0.38		
		Crimp <sup>3</sup>	N	P	J	H	0		10	0.6	0.9	1.000	0.333	–	20–24	0.50–0.25		
		PCB <sup>4</sup>	Q	R	J	G	0		7.5	0.9	1.2	1.350	0.450	–	22–26	0.38–0.15		
0	6	Solder	L	M	F	G	0	0.7	7.5	0.7	1	1.000	0.333	0.85	22	0.38		
					F	D	0		6	0.9	1.2	1.200	0.400	0.65	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.7	1	1.000	0.333	–	22–26	0.38–0.15		
		PCB <sup>4</sup>	Q	R	F	C	0		6	0.9	1.2	1.200	0.400	–	28–32	0.09–0.04		
					F	0	0					0.5	–	–				

<sup>1</sup> Derating factor, see page 167.

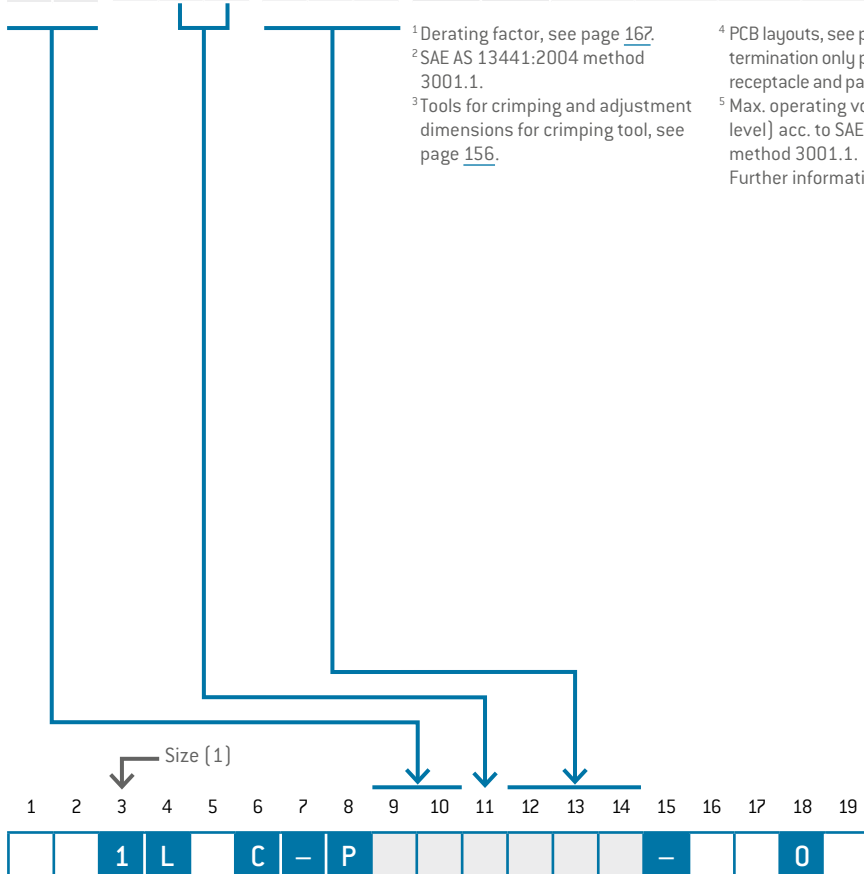
<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 47. PCB termination only possible in the receptacle and panel-mounted plug.

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.

Further information on page 168.



# CONTACT INSERTS (SIZE 1)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	7	Solder	L	M	F	G	0	0.7	7.5	0.7	1	1.000	0.333	0.85	22	0.38		
					F	D	0		6	0.9	1.2	1.200	0.400	0.65	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.7	1	1.000	0.333	–	22–26	0.38–0.15		
					F	C	0		6	0.9	1.2	1.200	0.400	–	28–32	0.09–0.04		
0	8	Solder	L	M	F	G	0	0.7	7.5	0.4	0.9	0.900	0.300	0.85	22	0.38		
					F	D	0		6	0.6	1.1	1.000	0.333	0.65	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.4	0.9	0.900	0.300	–	22–26	0.38–0.15		
					F	C	0		6	0.6	1.1	1.000	0.333	–	28–32	0.09–0.04		
1	0	Solder	L	M	C	D	0	0.5	4	0.3	1	0.600	0.200	0.65	26	0.15		
					C	C	0											
		PCB <sup>4</sup>	Q	R	C	O	0			0.5	–	–	–	–				
					C	O	0											
1	4	Solder	L	M	C	C	0	0.5	4	0.5	0.9	0.900	0.300	0.45	28	0.08		
					PCB <sup>4</sup>	Q	R											
1	6	Solder	L	M	C	C	0	0.5	4	0.4	0.9	0.900	0.300	0.45	28	0.08		
					PCB <sup>4</sup>	Q	R											

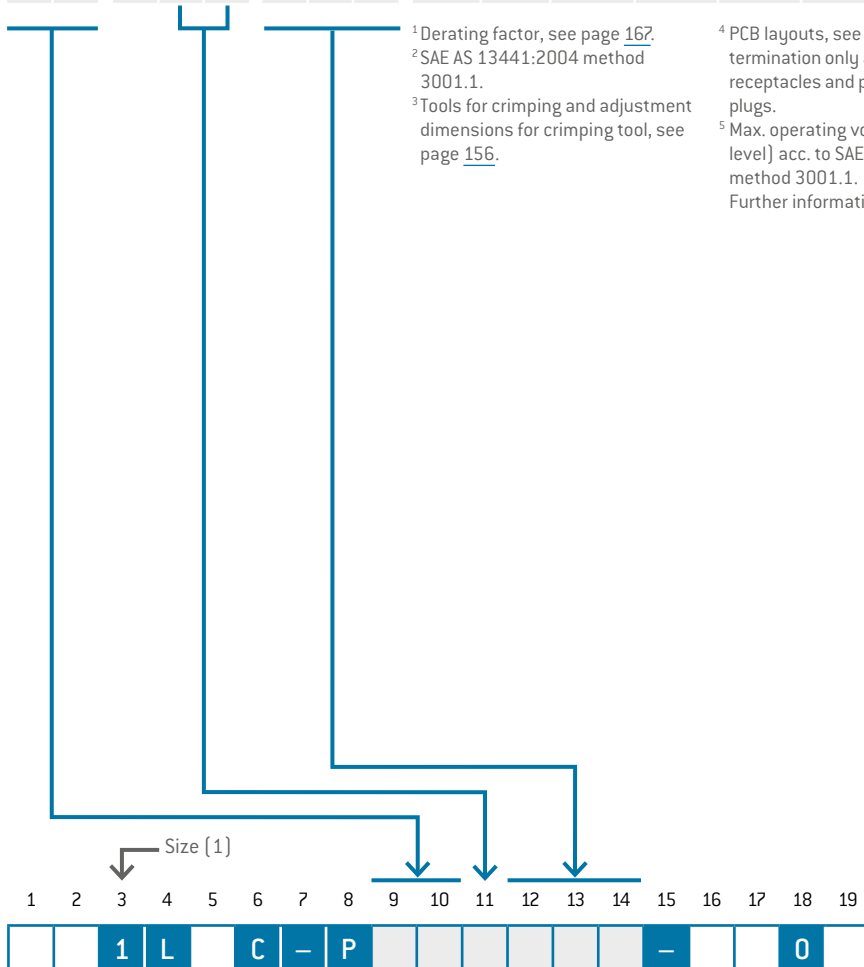
<sup>1</sup> Derating factor, see page 167.

<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 49. PCB termination only available with receptacles and panel-mounted plugs.

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1. Further information on page 168.



# CONTACT INSERTS (SIZE 1)



Number of contacts	Contact type			Part number key	Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
	Termination	Socket	Pin				Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece

## SPECIFIC INSERTS FOR HIGH DATA TRANSMISSION RATES

Ethernet <sup>6,7</sup> Type CAT 5 <sup>7</sup> up to 100 Mbit	0	4	Solder			J	G	0	0.9	7.5	1	1.4	1.500	0.500	0.85	22	0.38		
			L	M	J										G	0	–		
			Crimp <sup>3</sup>	N	P	J	G	0											
			PCB <sup>4</sup>	Q	R	J	0	0							0.7	–	–		
Ethernet <sup>6,7</sup> Type CAT 5 <sup>7</sup> up to 1 Gbit	D	8	Solder			C	D	0	0.5	6	0.5	1	1.000	0.333	0.65	26	0.15		
			L	M	C <th>D</th> <th>0</th> <th>–</th> <th>–</th>										D	0	–		
			PCB <sup>4</sup>	Q	R	C	0	0						0.5	–	–			

<sup>1</sup> Derating factor, see page 167.

<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 51. PCB termination only available with receptacles and panel-mounted plugs.

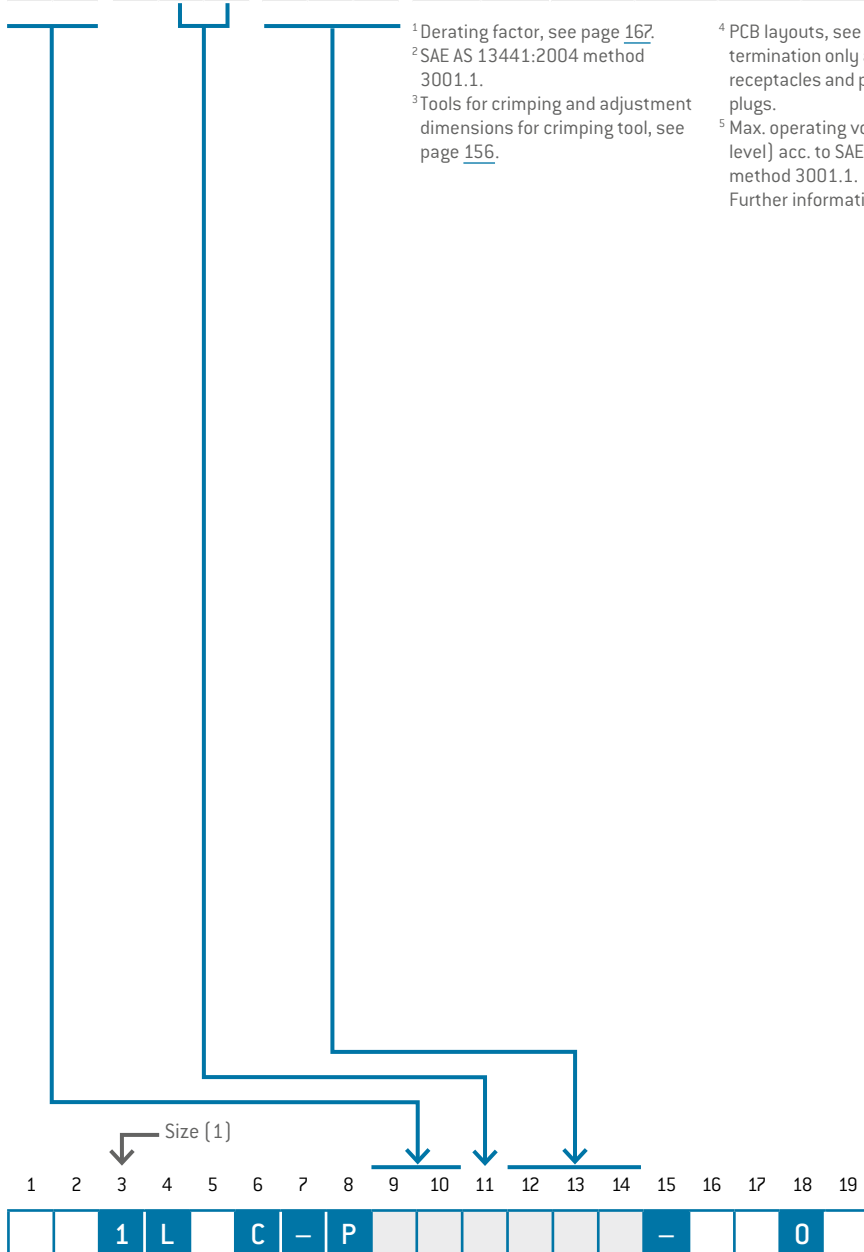
<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.

Further information on page 168.

<sup>6</sup> ISO/IEC 11801:2017.

Further information on request.

<sup>7</sup> Concerning data transmission protocols please note page 2.





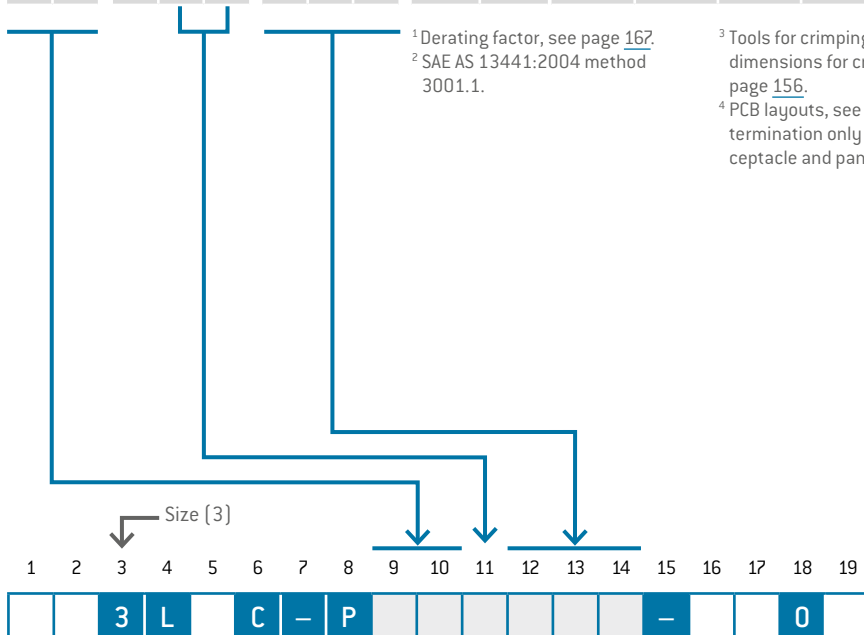




# CONTACT INSERTS (SIZE 3)



Number of contacts	Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
	Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
1	Solder	L	M	J	H	0	0.9	10	0.7	0.9	1.000	0.333	1.1	20	0.50		
				J	G	0		7.5	1	1.2	1.350	0.450	0.85	22	0.38		
	Crimp <sup>3</sup>	N	P	J	H	0		10	0.7	0.9	1.000	0.333	–	20–24	0.50–0.25		
				J	G	0		7.5	1	1.2	1.350	0.450	–	22–26	0.38–0.15		
PCB <sup>4</sup>	Q	R	J	O	0	–	–	–	–	–	–	–	–	–	–	–	
1	Solder	L	M	J	H	0	0.9	10	0.7	0.9	1.000	0.333	1.1	20	0.50		
				J	G	0		7.5	0.9	1.1	1.350	0.450	0.85	22	0.38		
	Crimp <sup>3</sup>	N	P	J	H	0		10	0.7	0.9	1.000	0.333	–	20–24	0.50–0.25		
				J	G	0		7.5	0.9	1.1	1.350	0.450	–	22–26	0.38–0.15		
PCB <sup>4</sup>	Q	R	J	O	0	–	–	–	–	–	–	–	–	–	–	–	
2	Solder	L	M	F	G	0	0.7	7.5	0.8	1.2	1.000	0.333	0.85	22	0.38		
				F	D	0		6	1	1.4	1.100	0.366	0.6	26	0.15		
	Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.8	1.2	1.000	0.333	–	22–26	0.38–0.15		
				F	C	0		6	1	1.4	1.100	0.366	–	28–32	0.09–0.04		
PCB <sup>4</sup>	Q	R	F	O	0	–	–	–	–	–	–	–	–	–	–	–	
2	Solder	L	M	F	G	0	0.7	7.5	0.7	1	1.000	0.333	0.85	22	0.38		
				F	D	0		6	0.9	1.2	1.100	0.366	0.6	26	0.15		
	Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.7	1	1.000	0.333	–	22–26	0.38–0.15		
				F	C	0		6	0.9	1.2	1.100	0.366	–	28–32	0.09–0.04		
PCB <sup>4</sup>	Q	R	F	O	0	–	–	–	–	–	–	–	–	–	–	–	
2	Solder	L	M	F	G	0	0.7	7.5	0.5	0.9	0.900	0.300	0.85	22	0.38		
				F	D	0		6	0.7	1.1	1.000	0.333	0.6	26	0.15		
	Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.5	0.9	0.900	0.300	–	22–26	0.38–0.15		
				F	C	0		6	0.7	1.1	1.000	0.333	–	28–32	0.09–0.04		
PCB <sup>4</sup>	Q	R	F	O	0	–	–	–	–	–	–	–	–	–	–	–	
3	Solder	L	M	F	G	0	0.7	7.5	0.4	1	0.900	0.300	0.85	22	0.38		
				F	D	0		6	0.6	1.2			0.6	26	0.15		
	Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.4	1			–	22–26	0.38–0.15		
				F	C	0		6	0.6	1.2			–	28–32	0.09–0.04		
PCB <sup>4</sup>	Q	R	F	O	0	–	–	–	–	–	–	–	–	–	–	–	



<sup>1</sup> Derating factor, see page 167.  
<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 59. PCB termination only possible in the receptacle and panel-mounted plug

<sup>5</sup> Max. operating voltage at NN (see level) acc. to SAE AS 13441:2004 method 3001.1.

Further information on page 168.

# CONTACT INSERTS (SIZE 4)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	7 <sup>5</sup>	Solder	L	M	T	S	9	2	24	1.5	1.6	1.350	0.450	2.40	12	2.50		
		T	0	9	18	2.1	2.2		1.650	0.550	1.85				1.5			
		PCB <sup>3</sup>	Q	R	T	0	9		0.7	-	-				-	-		
3	0	Solder	L	M	J	G	0	0.9	7.5	0.8	1.7	1.575	0.520	0.85	22	0.38		
		PCB <sup>3</sup>	Q	R	J	0	0							0.7	-	-		
4	0	Solder	L	M	F	G	0	0.7	7.5	0.6	1.5	0.900	0.300	0.85	22	0.38		
		F	D	0	6	0.8	1.7		1.000	0.333	0.6			26	0.15			
		PCB <sup>3</sup>	Q	R	F	0	0		0.5	-	-			-	-			

<sup>1</sup> Derating factor, see page 167.

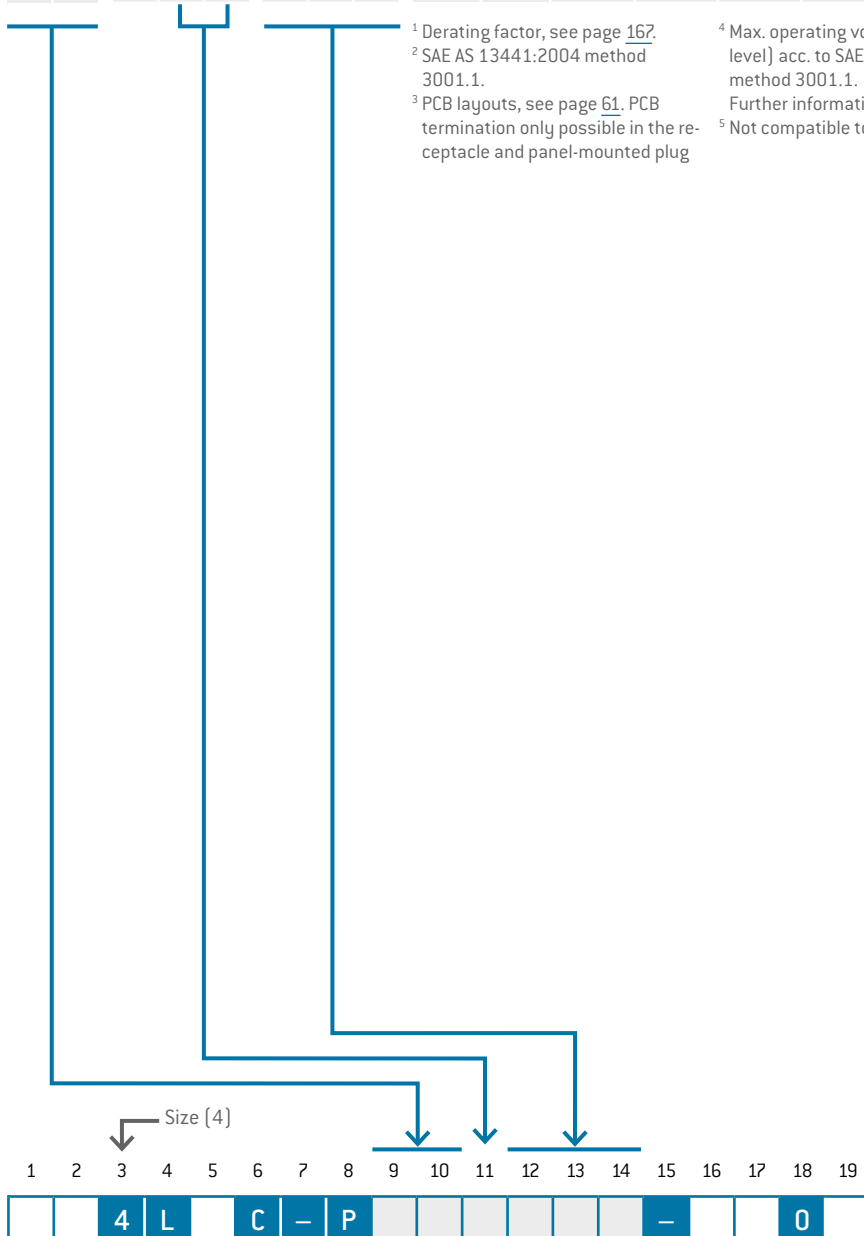
<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> PCB layouts, see page 61. PCB termination only possible in the receptacle and panel-mounted plug

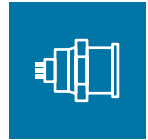
<sup>4</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.

Further information on page 168.

<sup>5</sup> Not compatible to competition.

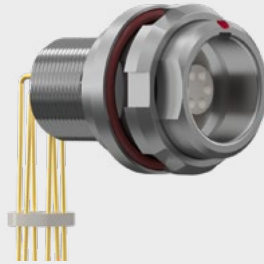


# RIGHT-ANGLED PCB CONTACTS IN THE RECEPTACLE



A

**RIGHT-ANGLED PCB CONTACT**  
for style G5, G8, GK and GA



**TECHNICAL DATA**

- Pin version on request.
- PCB layouts, see page [41](#).

Contact diameter	Termination diameter
0.5	0.5
0.7	0.6
0.9	0.6
1.3	0.8
1.6	0.8
2	0.8

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

L C - P 0 0 - 0 0 0

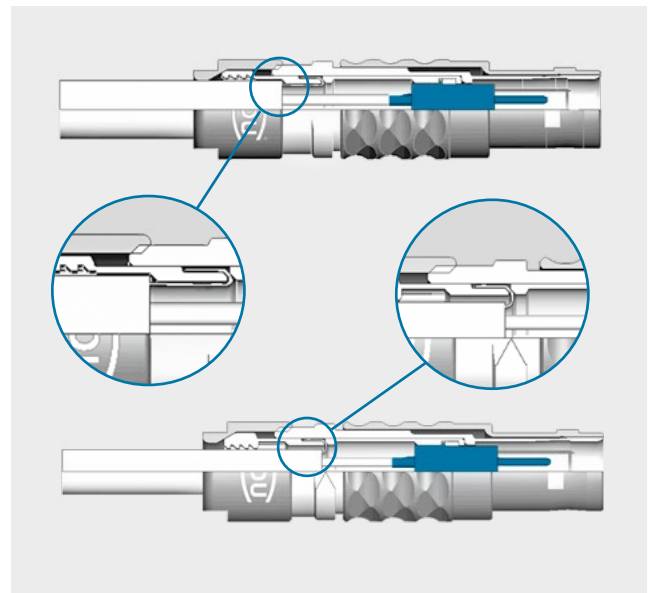
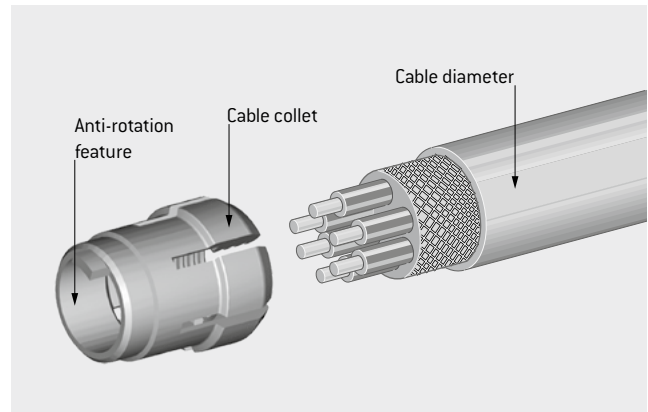
# CABLE COLLET SYSTEM



		Cable diameter mm	Size					
			00	0	1	2	3	4
1	0	> 0.5 – 1	•					
1	5	> 1 – 1.5	•					
2	0	1.5 – 2	•					
2	2	1.5 – 2.2		•	•			
2	5	2 – 2.5	•					
3	0	2.5 – 3	•					
3	2	2 – 3.2		•	•	•		
3	5	> 3 – 3.5	• <sup>1</sup>					
4	2	> 3 – 4.2		•	•	•	•	
5	2	> 4 – 5.2		• <sup>1</sup>	•	•	•	
5	6	> 5 – 5.6		• <sup>1</sup>				
6	2	> 5 – 6.2			•	•	•	•
7	2	> 6 – 7.2			• <sup>1</sup>	•	•	•
7	7	> 7 – 7.7			• <sup>1</sup>			
8	0	> 7 – 8						•
8	2	> 7 – 8.2				•	•	
9	2	> 8 – 9.2				• <sup>1</sup>	•	•
9	9	> 9 – 9.9				0 <sup>1</sup>		
0	2	> 9 – 10.2					•	
0	2	> 9.1 – 10.5						•
1	1	> 10 – 11						•
1	2	> 10 – 11.2					• <sup>1</sup>	
1	9	> 11 – 11.9					0 <sup>1</sup>	•
1	3	> 12 – 13						•
1	4	> 13 – 14						• <sup>1</sup>
1	5	> 14 – 15						• <sup>1</sup>
1	6	> 15 – 16						• <sup>1</sup>
0	0	Without cable collet system (on request)						

**APPLICATION:** For all plugs and in-line receptacles and for receptacle style 6.

**USE:** Cable collet with integrated shielding terminal for transmission of the shielding.



<sup>1</sup> It's possible that the cable collet cannot be covered completely over the cable.

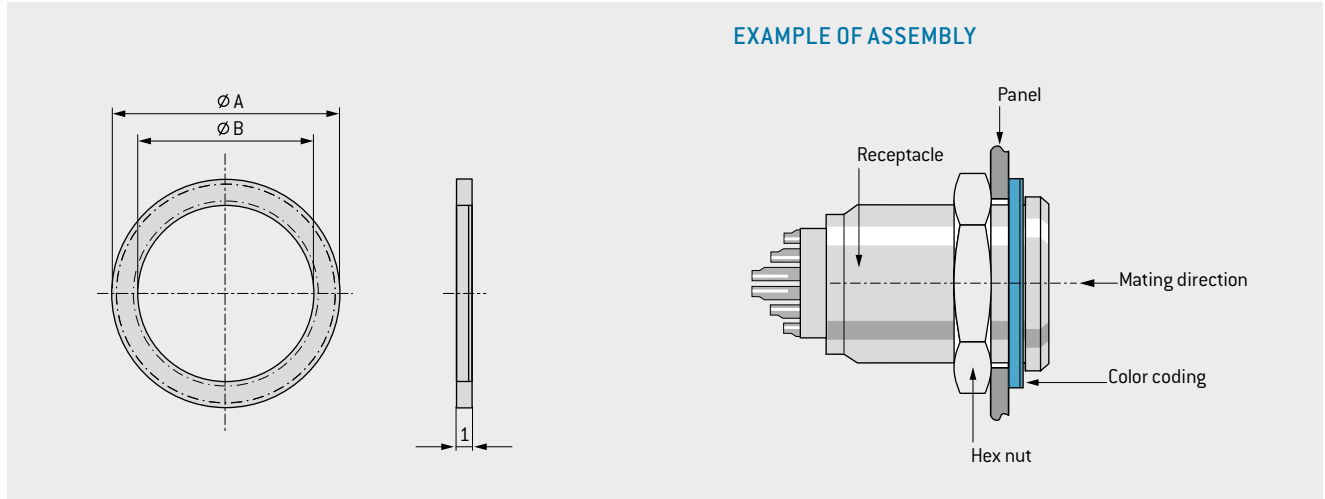
o These cable diameters are not deliverable for applications with cable bend reliefs

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

L C - P - O

For assembly instructions, please refer to our website: [www.odu-connectors.com/downloads/assembly-instructions](http://www.odu-connectors.com/downloads/assembly-instructions)

# COLOR CODING RINGS



Material: Plastic PA66.

## SIZES

Thread	Part number	Ø A mm	Ø B mm
M7	713.422.____.922.007	11	7.1
M9	700.422.____.922.009	13.5	9.1
M12	701.422.____.922.012	17	12.1
M14	701.422.____.922.014	20	14.1
M15	702.422.____.922.015	22	15.1
M16	702.422.____.922.016	23	16.1
M18	703.422.____.922.018	25	18.1
M20	703.422.____.922.020	28	20.1

## COLORS

Color code	Color	RAL no. <sup>1</sup> (similar)
202	Red	3020
203	White	9010
204	Yellow	1016
205	Green	6029
206	Blue	5002
207	Gray	7005
208	Black	9005



## HOW TO PLACE THE RIGHT ORDER:

This shows you how the part number of the color coding rings is composed. In the first step, select the size and note the part number. Put the color code and part number together depending on your choice of color (see example).

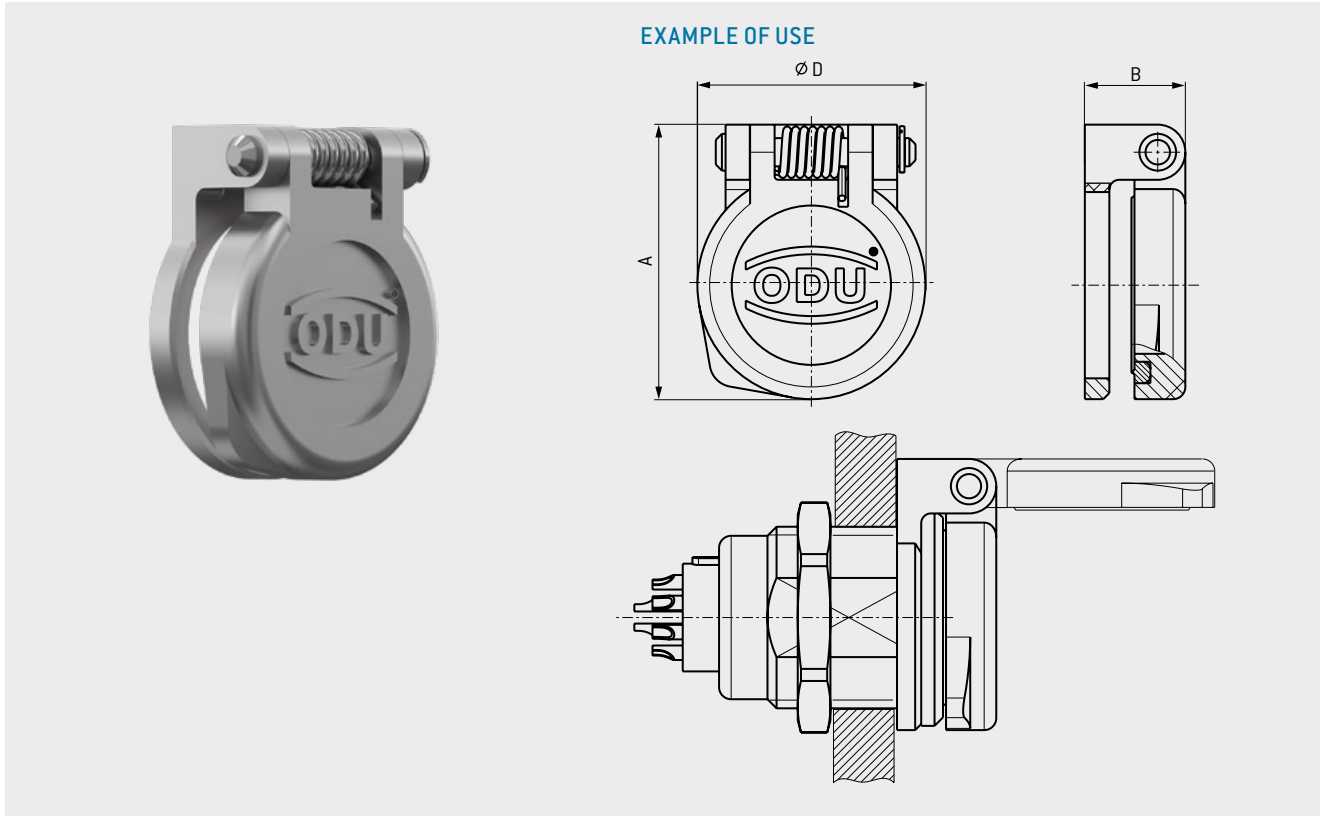
<b>STEP 1:</b>	<b>Choose size</b>	700.422.____.922.015
<b>STEP 2:</b>	<b>Choose color</b>	...202...
<b>STEP 3:</b>	<b>Completed part number</b>	700.422.202.922.015

<sup>1</sup> Because of different raw materials, the colors may slightly differ from RAL numbers.

# HINGED COVER



Suitable for all receptacles style G1.

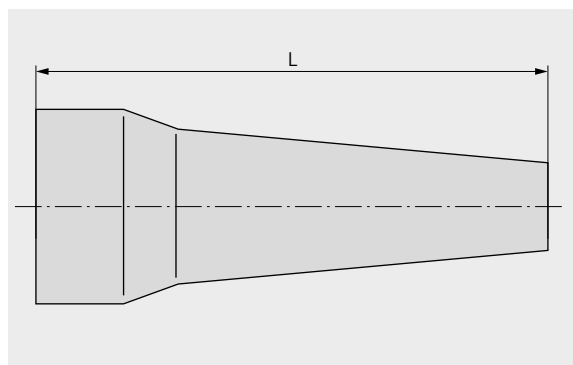


Size	Part number	A mm	B mm	Ø D mm
0	700.096.001.926.007	13.3	5.5	11
1	701.096.001.926.007	17.1	6.3	14.2
2	702.096.001.926.007	22.4	8.2	18.5
3	703.096.001.926.007	26.5	8.2	22.5

# SILICONE CABLE BEND RELIEFS



Size	Part number	Dim. L mm	Cable jacket (∅ outside)	
			min.	max.
00	713.023.____.965.005	19	0.5	1.5
	713.023.____.965.015		1.5	2.5
	713.023.____.965.025		2.5	3.5
0	700.023.____.965.020	27	2	2.5
	700.023.____.965.025		2.5	3
	700.023.____.965.030		3	3.5
	700.023.____.965.035		3.5	4
	700.023.____.965.040		4	4.5
	700.023.____.965.045		4.5	5
1	701.023.____.965.025	30	2.5	3
	701.023.____.965.030		3	3.5
	701.023.____.965.035		3.5	4
	701.023.____.965.040		4	5
	701.023.____.965.050		5	6
	701.023.____.965.060		6	6.5
2	702.023.____.965.025	36	2.5	3
	702.023.____.965.030		3	3.5
	702.023.____.965.035		3.5	4
	702.023.____.965.040		4	5
	702.023.____.965.050		5	6
	702.023.____.965.060		6	7
	702.023.____.965.070		7	8
	702.023.____.965.080		8	9
3	703.023.____.965.040	42	4	5
	703.023.____.965.050		5	6
	703.023.____.965.060		6	7
	703.023.____.965.070		7	8
	703.023.____.965.080		8	9
	703.023.____.965.090		9	10
	703.023.____.965.100		10	11
	703.023.____.965.110		11	12
4	704.023.____.965.080	60	8	10
	704.023.____.965.100		10	12
	704.023.____.965.120		12	14
	704.023.____.965.140		14	16



### TEMPERATURE RANGE

Silicone: -50 °C up to +200 °C, short-term up to +230 °C  
Autoclaveable

### COLORS

Color code	Color	RAL no. <sup>1</sup> (similar)
202	Red	3020
203	White	9010
204	Yellow	1016
205	Green	6029
206	Blue	5002
207	Gray	7005
208	Black	9005

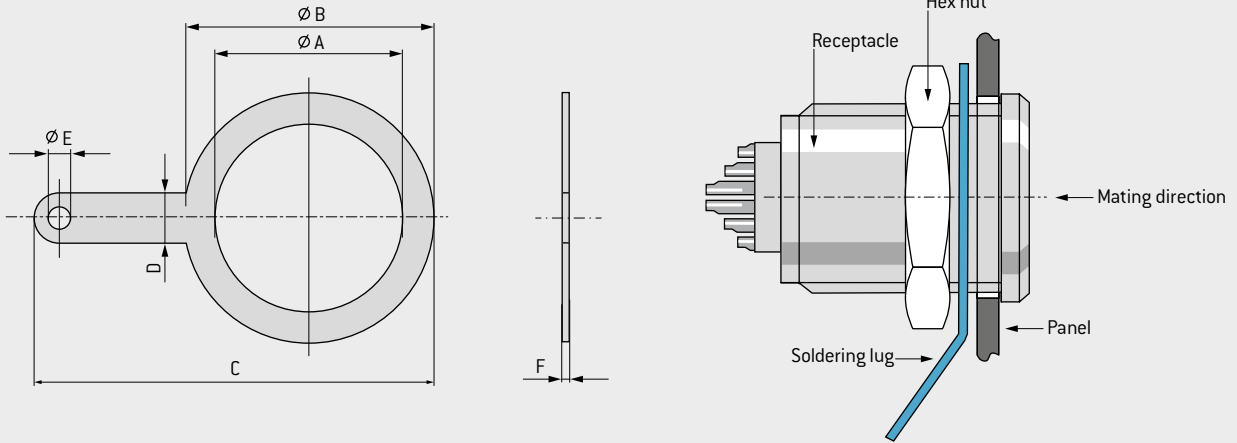


<sup>1</sup> Because of different raw materials, the colors may slightly differ from RAL numbers.

# SOLDERING LUGS



EXAMPLE OF ASSEMBLY



Thread	Part number	Ø A mm	Ø B mm	C mm	D mm	Ø E mm	F mm
M7	713.140.246.301.000	7.4	10	17	4	1.8	0.3
M9	700.140.246.301.000	9.7	13.2	21.6	4	1.6	0.5
M12	701.140.246.301.000	12.2	17	27.5	4	1.6	0.5
M14	715.140.246.301.000	14.1	18	27	4	2	0.5
M15	702.140.246.301.000	15.2	20	32	4	1.6	0.5
M16	721.140.246.301.000	16.2	20	32	4	1.6	0.5
M18	703.140.246.301.000	18.2	25	39	4	1.6	0.5
M20	722.140.246.301.000	20.2	25	39	4	1.6	0.5
M25	704.140.246.301.000	25.6	35	51	5	2.1	0.6

Silver-plated surface



ODU MINI-SNAP®

# SUMMARY ODU MINI-SNAP® SERIES K

The ODU MINI-SNAP Series K is keyed by pin and groove. These Push-Pull circular connectors can be configured in many different ways: a wide variety of sizes and termination types and contact inserts are available.

- Keying over pin and groove
- 2–40 contacts/mixed inserts
- Up to 5 sizes and 3 termination types
- Choice of numerous plugs and receptacles
- IP 68
- 5,000 mating cycles and more
- Contacts for solder, crimp and PCB termination

STRAIGHT PLUG		P.80
IP 68 <sup>1</sup>		S 1
		S 2
		A 1
		A 2

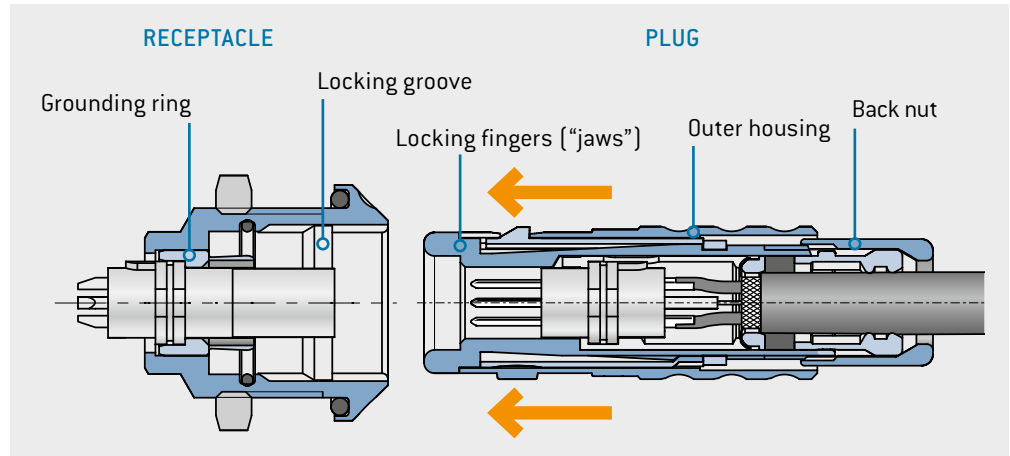
PANEL-MOUNTED PLUG		P.82
IP 68 <sup>1</sup>		A A
IP 68 <sup>2</sup>		A D

RIGHT-ANGLED PLUG		P.83
IP 68 <sup>2</sup>		W 1
		W 2

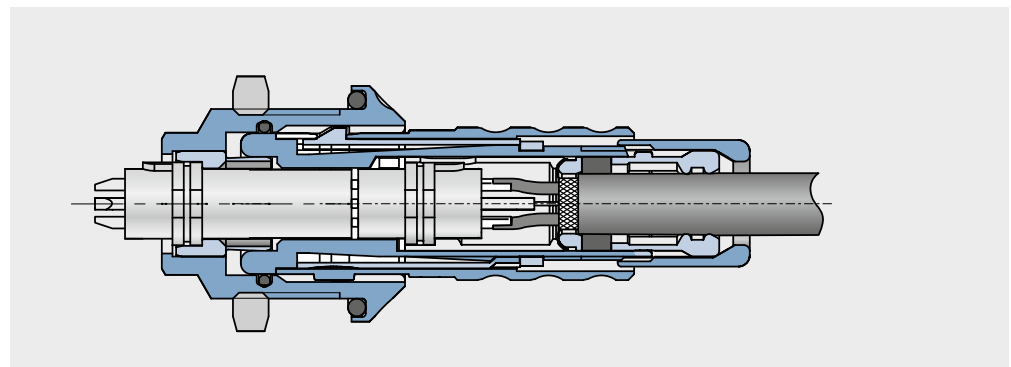
<sup>1</sup>IP 68 when mated. <sup>2</sup>IP 68 when mated or unmated.

# THE LP LOCKING PRINCIPLE SERIES K

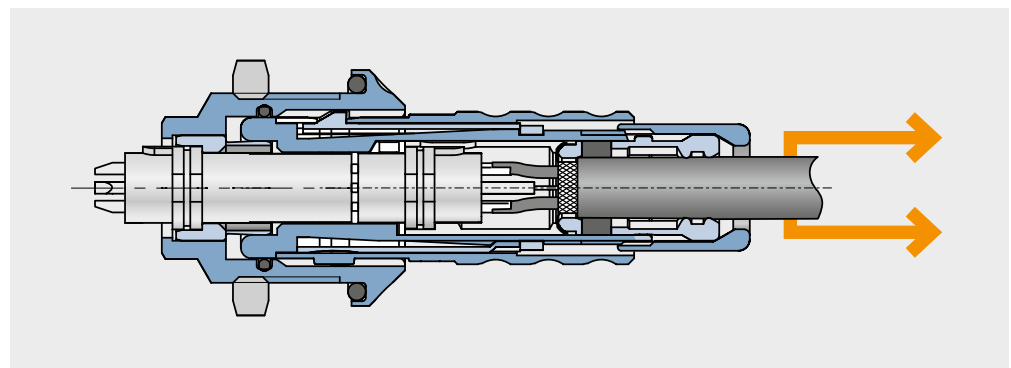
Connector  
in **unmated** condition



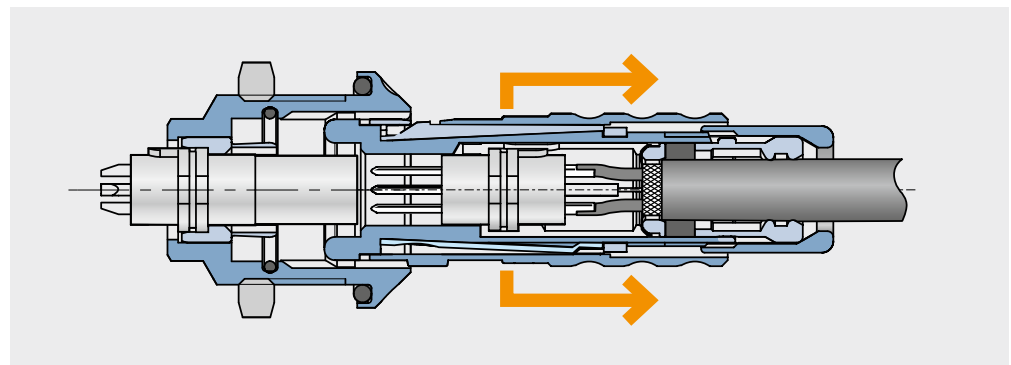
Connector  
in **mated** condition



Pulling on the cable or back nut will lock the "fingers" firmly in place in the receptacle's locking groove. This prevents the connector from being disconnected.



But pulling on the **outer housing** will cause the "fingers" to emerge from the locking groove, making it **easy to disconnect** the connector.



# STRAIGHT PLUG



S 1 0 **STYLE: 1** IP 68

With standard back nut

S 2 S **STYLE: 2** IP 68

With back nut for cable bend relief<sup>1</sup>

Size	L1 mm	L2 mm	D mm	S1 SW mm	S2 SW mm
0	≈ 37	≈ 26	11	7	7
1	≈ 44	≈ 30	13	10	10
2	≈ 50	≈ 34	16	12	13
3	≈ 60	≈ 40	19	14	15
4	≈ 73	≈ 52	25	20	20

**TECHNICAL DATA**

- IP 68 in mated condition.
- Contact configuration from page 90.

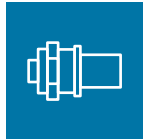
0 1 2 3 4

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

K C - P - 0

<sup>1</sup>Please order cable bend reliefs separately, see page 111.

# PANEL-MOUNTED PLUG

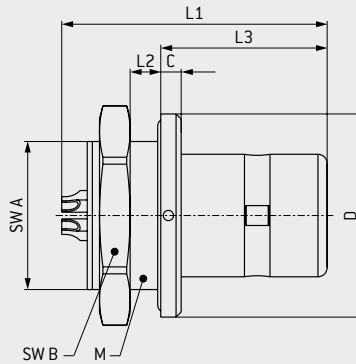


Suitable for creating a docking connection between 2 devices (e.g. a charging station).

A A

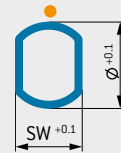
### STYLE: A

With hex nut, without locking, installation from front of panel



IP 68

### Panel cut-out



● Keying indication

Size	L1 <sup>1</sup> mm	L2 mm	L3 mm	M mm	C mm	D mm	SW A mm	SW B mm	Panel cut-out	
									SW mm	Ø mm
1	28	≈ 4	16.3	16 × 1	2	20	14.5	18.5	14.6	16.1
2	32	≈ 4.5	19	20 × 1	2.7	25	18.5	25	18.6	20.1

### TECHNICAL DATA

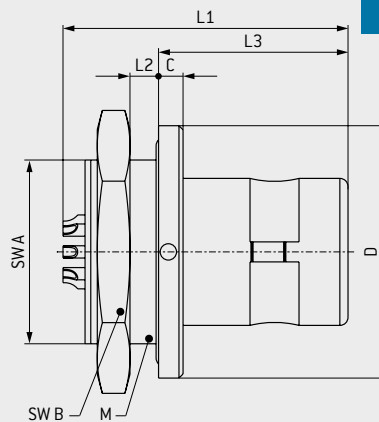
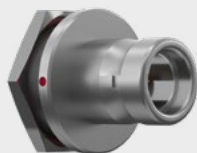
- IP 68 in mated condition.
- Anti-rotation feature.
- Contact configuration from page 90.
- PCB layouts, see page 91.

1  
2

A D

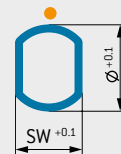
### STYLE: D

With hex nut, without locking, installation from front of panel



IP 68

### Panel cut-out



● Keying indication

Size	L1 <sup>1</sup> mm	L2 mm	L3 mm	M mm	C mm	D mm	SW A mm	SW B mm	Panel cut-out	
									SW mm	Ø mm
3	36	≈ 4	23.2	24 × 1	3	31	22.5	30	22.6	24.1

### TECHNICAL DATA

- IP 68 in mated and unmated condition.
- Anti-rotation feature.
- No crimp contact possible.
- Contact configuration from page 90.
- PCB layouts, see page 91.

3

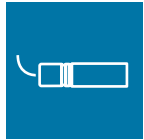
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

K C - P - O

<sup>1</sup> L1 = maximum length including contact insert.

# IN-LINE RECEPTACLE

Suitable for creating a cable-cable connection.



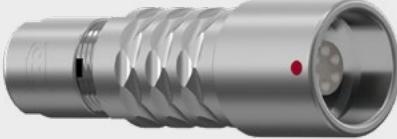
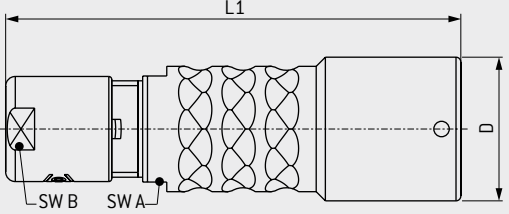
K 1

0

STYLE: 1

IP 68

With standard back nut

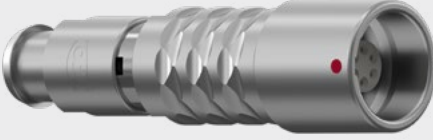
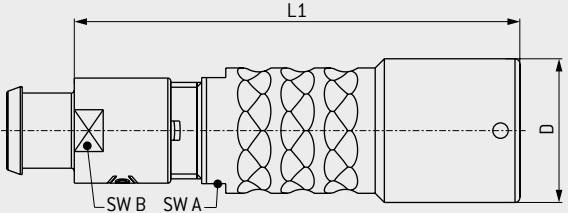
K 2

S

STYLE: 2

IP 68

With back nut for cable bend relief<sup>1</sup>

Size	L1 mm	D mm	SW A mm	K1 SW B mm	K2 SW B mm
0	≈ 39	13	9	7	7
1	≈ 47	15	11	10	10
2	≈ 54	19	14	12	13
3	≈ 64	23	16.5	14	15
4	≈ 79	29	22	20	20

**TECHNICAL DATA**

- IP 68 in mated condition.
- Contact configuration from page 90.

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

K

C

-

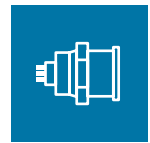
P

-

0

<sup>1</sup> Please order cable bend reliefs separately, see page 111.

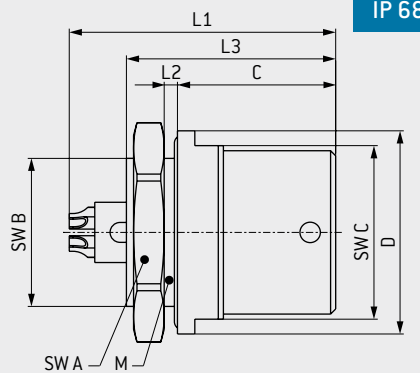
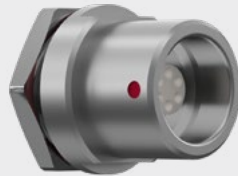
# RECEPTACLE



G 4

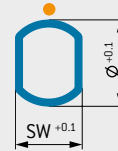
## STYLE: 4

Installation from front of panel with low installation depth



IP 68

Panel cut-out



● Keying indication

Size	L1 <sup>1</sup> mm	L2 mm	L3 <sup>2</sup> mm	M mm	D mm	SW A mm	SW B mm	SW C mm	C mm	Panel cut-out	
										SW mm	Ø mm
1	≈ 28	≈ 1.5	20.5	16 × 1	20	19	14.5	17	15.5	14.6	16.1
2	≈ 31	≈ 2	23	20 × 1	25	24	18.5	20	17	18.6	20.1

1  
2

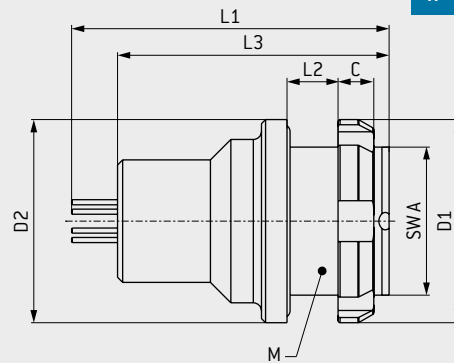
## TECHNICAL DATA

- IP 68 in mated condition.
- Anti-rotation feature.
- Contact configuration from page 90.
- PCB layouts, see page 91.
- Only straight PCB contact possible.

G 8

## STYLE: 8

With slotted mounting nut, installation from rear of panel



IP 68<sup>3</sup>

Panel cut-out



● Keying indication

Size	L1 <sup>1</sup> mm	L2 mm	L3 <sup>2</sup> mm	M mm	D 1 mm	D 2 mm	SW A mm	C mm	Panel cut-out	
									SW mm	Ø mm
1	≈ 32	≈ 6	26.6	16 × 1	20	20	14.5	3.5	14.6	16.1
2	≈ 34	≈ 6	27	20 × 1	25	25	18.5	3.5	18.6	20.1
3 <sup>4</sup>	≈ 39	≈ 7	32.7	24 × 1	30	31	22.5	4.5	22.6	24.1
4	≈ 42	≈ 6	35.5	30 × 1	41.5	37	28.5	7	28.6	30.1

1  
2  
3  
4

## TECHNICAL DATA

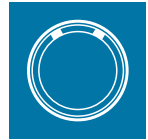
- IP 68 in mated and unmated condition.
- Anti-rotation feature.
- No crimp contact possible.
- Contact configuration from page 90.
- Right-angled PCB contact possible, see page 106.
- Note: assembly wrench, see page 158.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

K C - P - O O

<sup>1</sup> L1 = maximum length including contact insert. <sup>2</sup> L3 = length of connector plug housing. <sup>3</sup> Note: tight, grouted receptacle, see page 163. <sup>4</sup> Note: size 3 with round nut.

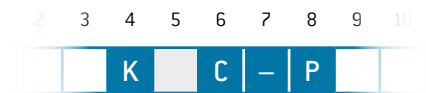
# KEYINGS



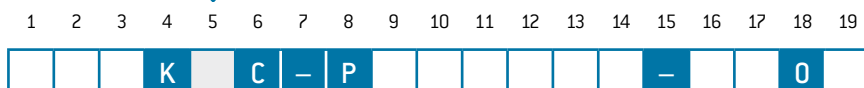
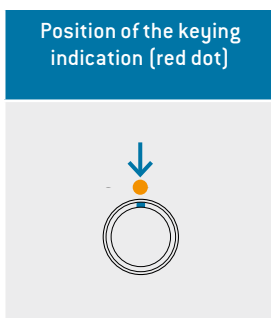
	Angle	Receptacle front view	Size				
			0	1	2	3	4
O	0°		•	•	•	•	•
A	30°		•	•	•	•	o
C	45°		•	•	•	o	o
F	60°		•	•	•	o	o
H	75°		o	o	o	o	o
K	95°		o	o	o	o	o
Q	120°		o	o	o	o	o
W	145°		o	o	o	o	o

	Housing material	
C	Standard	Cu-alloy / matt chromate
S	On request	Cu-alloy / black chromate

Special materials and surfaces on request.



• Standard  
o On request



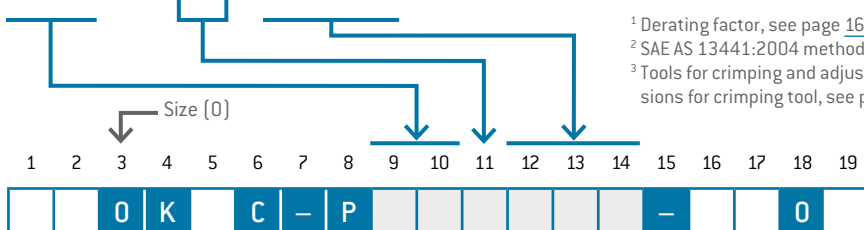
# CONTACT INSERTS (SIZE 0)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	Solder	L	M	J	G	0	0.9	7.5	1	0.9	1.500	0.500	0.85	22	0.38		
		Crimp <sup>3</sup>	N	P	J	H	0		10	0.7	0.6	1.100	0.366	–	20–24	0.50–0.25		
		PCB <sup>4</sup>	Q	R	J	O	0		7.5	1	0.9	1.500	0.500	–	22–26	0.38–0.15		
														0.7	–	–		
0	3	Solder	L	M	J	G	0	0.9	7.5	0.8	0.8	1.200	0.400	0.85	22	0.38		
		Crimp <sup>3</sup>	N	P	J	H	0		10	0.5	0.5	0.600	0.200	–	20–24	0.50–0.25		
		PCB <sup>4</sup>	Q	R	J	O	0		7.5	0.8	0.8	1.200	0.400	–	22–26	0.38–0.15		
														0.7	–	–		
0	4	Solder	L	M	F	G	0	0.7	7.5	0.6	0.6	0.900	0.300	0.85	22	0.38		
					F	D	0		6	0.8	0.8			0.6	26	0.15		
		Crimp <sup>3</sup>	N	P	F	C	0		7.5	0.6	0.6			–	22–26	0.38–0.15		
		PCB <sup>4</sup>	Q	R	F	O	0		6	0.8	0.8			–	28–32	0.09–0.04		
0	5	Solder	L	M	F	G	0	0.7	7.5	0.5	0.5	0.600	0.200	0.85	22	0.38		
					F	D	0		6	0.7	0.7	1.100	0.366	0.6	26	0.15		
		Crimp <sup>3</sup>	N	P	F	C	0		7.5	0.5	0.5	0.600	0.200	–	22–26	0.38–0.15		
		PCB <sup>4</sup>	Q	R	F	O	0		6	0.7	0.7	1.100	0.366	–	28–32	0.09–0.04		
0	6	Solder	L	M	C	C	0	0.5	4	0.7	0.7	0.900	0.300	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	0							0.5	–	–		
0	7	Solder	L	M	C	C	0	0.5	4	0.7	0.7	0.900	0.300	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	0							0.5	–	–		
0	9	Solder	L	M	C	C	0	0.5	4	0.4	0.7	0.600	0.200	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	0							0.5	–	–		
1	0 <sup>8</sup>	Solder	L	M	C	C	9	0.5	4	0.3	0.5	0.600	0.200	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	9							0.5	–	–		

## SPECIFIC INSERTS FOR HIGH DATA TRANSMISSION RATES

0	4	Solder	L	M	F	G	0	0.7	7.5	0.6	0.6	0.900	0.300	0.85	22	0.38			Ethernet <sup>6,9</sup> Type CAT 5 <sup>9</sup> up to 100 Mbit
					F	D	0		6	0.8	0.8			0.6	26	0.15			
		Crimp <sup>3</sup>	N	P	F	C	0		7.5	0.6	0.6			–	22–26	0.38–0.15			
		PCB <sup>4</sup>	Q	R	F	O	0		6	0.8	0.8			–	28–32	0.09–0.04			
U	4	Solder	–	M	F	G	0	0.7	7.5	0.6	0.6	0.900	0.300	0.85	22	0.38			USB* 2.0 <sup>7,9</sup>
		Crimp <sup>3</sup>	–	P	F	G	0							–	22–26	0.38–0.15			
0	4	Solder	L	–	F	G	0	0.7	7.5	0.6	0.6	0.900	0.300	0.85	22	0.38			USB* 2.0 <sup>7,9</sup>
		Crimp <sup>3</sup>	N	–	F	G	0							–	22–26	0.38–0.15			
		PCB <sup>4</sup>	Q	–	F	O	0							0.5	–	–			



<sup>1</sup> Derating factor, see page 167.

<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 91. PCB termination only possible in the receptacle and panel-mounted plug

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1. Further information on page 168.

<sup>6</sup> ISO/IEC 11801:2017.

Further information on request.

<sup>7</sup> Acc. Universal Serial Bus 3.2 Spec.:2017. Further information on request.

<sup>8</sup> Not compatible to competition.

<sup>9</sup> Concerning data transmission protocols please note page 2.

# CONTACT INSERTS (SIZE 1)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	Solder	L	M	P	N	0	1.3	15	1	0.7	1.650	0.550	1.4	18	1		
					P	H	0		12					1.1	20	0.5		
		Crimp <sup>3</sup>	N	P	P	L	0		15					–	18–20	1.00–0.50		
		PCB <sup>4</sup>	Q	R	P	0	0		12					0.7	–	–		
0	3	Solder	L	M	P	N	0	1.3	15	0.8	0.6	1.000	0.333	1.4	18	1.00		
					P	H	0		12	0.9	0.7	1.500	0.500	1.1	20	0.50		
		Crimp <sup>3</sup>	N	P	P	L	0		15	0.8	0.6	1.000	0.333	–	18–20	1.00–0.50		
		PCB <sup>4</sup>	Q	R	P	0	0		12	0.9	0.7	1.500	0.500	0.7	–	–		
0	4	Solder	L	M	J	G	0	0.9	7.5	1	1.1	1.500	0.500	0.85	22	0.38		
					J	H	0		10	0.7	0.8	1.000	0.333	–	20–24	0.50–0.25		
		Crimp <sup>3</sup>	N	P	J	G	0		7.5	1	1.1	1.500	0.500	–	22–26	0.38–0.15		
0	5	Solder	L	M	J	H	0	0.9	10	0.6	0.6	1.000	0.333	1.1	20	0.50		
					J	G	0		7.5	0.9	0.9	1.350	0.450	0.85	22	0.38		
		Crimp <sup>3</sup>	N	P	J	H	0		10	0.6	0.6	1.000	0.333	–	20–24	0.50–0.25		
		PCB <sup>4</sup>	Q	R	J	G	0		7.5	0.9	0.9	1.350	0.450	–	22–26	0.38–0.15		
0	6	Solder	L	M	F	G	0	0.7	7.5	0.7	0.7	1.000	0.333	0.85	22	0.38		
					F	D	0		6	0.9	0.9	1.200	0.400	0.65	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.7	0.7	1.000	0.333	–	22–26	0.38–0.15		
		PCB <sup>4</sup>	Q	R	F	C	0		6	0.9	0.9	1.200	0.400	–	28–32	0.09–0.04		
					F	O	0						0.5	–	–			

<sup>1</sup> Derating factor, see page 167.

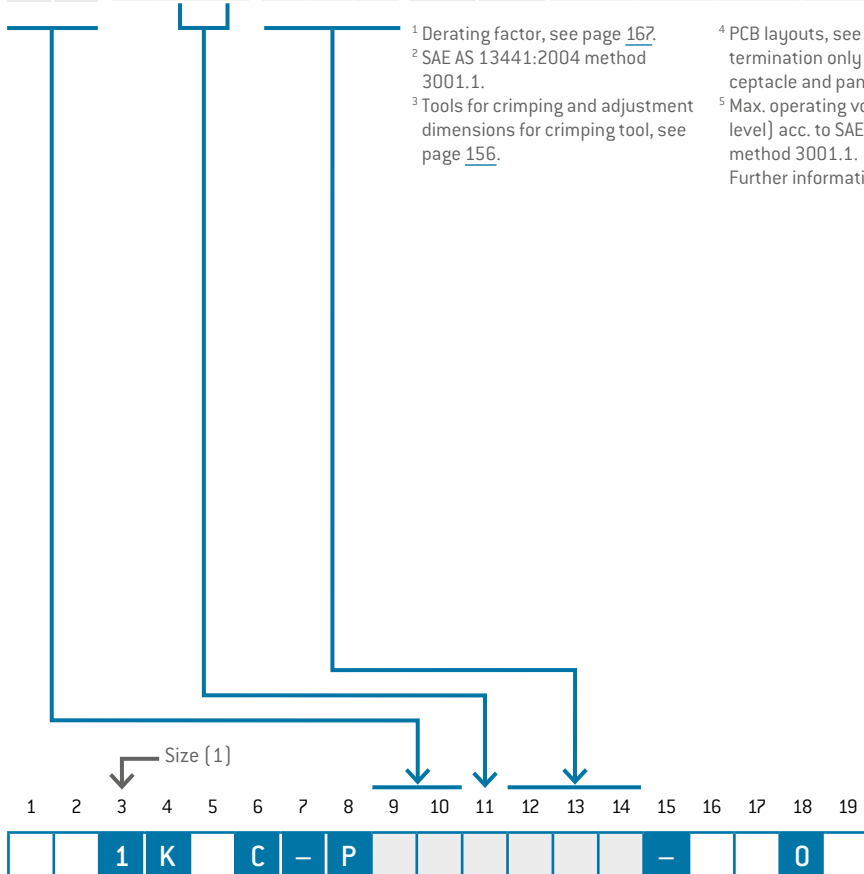
<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 93. PCB termination only possible in the receptacle and panel-mounted plug

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.

Further information on page 168..



# CONTACT INSERTS (SIZE 1)



Number of contacts	Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
	Termination	Socket	Pin	F	G	O			Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	Solder	L	M	F	G	O	0.7	7.5	0.7	0.7	1.000	0.333	0.85	22	0.38		
				F	D	O		6	0.9	0.9	1.200	0.400					
	Crimp <sup>3</sup>	N	P	F	G	O		7.5	0.7	0.7	1.000	0.333	–	22-26	0.38-0.15		
				F	C	O		6	0.9	0.9	1.200	0.400	–	28-32	0.09-0.04		
0	Solder	L	M	F	G	O	0.7	7.5	0.4	0.6	0.900	0.300	0.85	22	0.38		
				F	D	O		6	0.6	0.8	1.000	0.333					
	Crimp <sup>3</sup>	N	P	F	G	O		7.5	0.4	0.6	0.900	0.300	–	22-26	0.38-0.15		
				F	C	O		6	0.6	0.8	1.000	0.333	–	28-32	0.09-0.04		
1	Solder	L	M	C	D	O	0.5	6	0.3	0.7	0.600	0.200	0.65	26	0.15		
				C	C	O		4	0.5	0.9	1.000	0.333					
	Crimp <sup>3</sup>	N	P	F	G	O		7.5	0.4	0.6	0.900	0.300	–	22-26	0.38-0.15		
				F	C	O		6	0.6	0.8	1.000	0.333	–	28-32	0.09-0.04		
1	Solder	L	M	C	C	O	0.5	4	0.5	0.6	0.900	0.300	0.45	28	0.08		
				C	O	O		4	0.5	0.6	0.900	0.300					
	Crimp <sup>3</sup>	N	P	F	G	O		7.5	0.4	0.6	0.900	0.300	–	22-26	0.38-0.15		
				F	C	O		6	0.6	0.8	1.000	0.333	–	28-32	0.09-0.04		
1	Solder	L	M	C	C	O	0.5	4	0.4	0.6	0.900	0.300	0.45	28	0.08		
				C	O	O		4	0.4	0.6	0.900	0.300					
	Crimp <sup>3</sup>	N	P	F	G	O		7.5	0.4	0.6	0.900	0.300	–	22-26	0.38-0.15		
				F	C	O		6	0.6	0.8	1.000	0.333	–	28-32	0.09-0.04		

## SPECIFIC INSERTS FOR HIGH DATA TRANSMISSION RATES

0	4	Solder	L	M	J	G	O	0.9	7.5	1	1.1	1.500	0.500	0.85	22	0.38			Ethernet <sup>6,7</sup> Type CAT 5 <sup>7</sup> up to 100 Mbit
		Crimp <sup>3</sup>	N	P	J	G	O							–	22-26	0.38-0.15			
		Print <sup>4</sup>	Q	R	J	O	O							0.7	–	–			
D	8	Solder	L	M	C	D	O	0.5	4	0.5	0.7	1.000	0.333	0.65	26	0.15			Ethernet <sup>6,7</sup> Type CAT 5 <sup>7</sup> up to 1 Gbit
		Print <sup>4</sup>	Q	R	C	O	O							0.5	–	–			

<sup>1</sup> Derating factor, see page 167.

<sup>2</sup> SAE AS 13441:2004 method 3001.1.

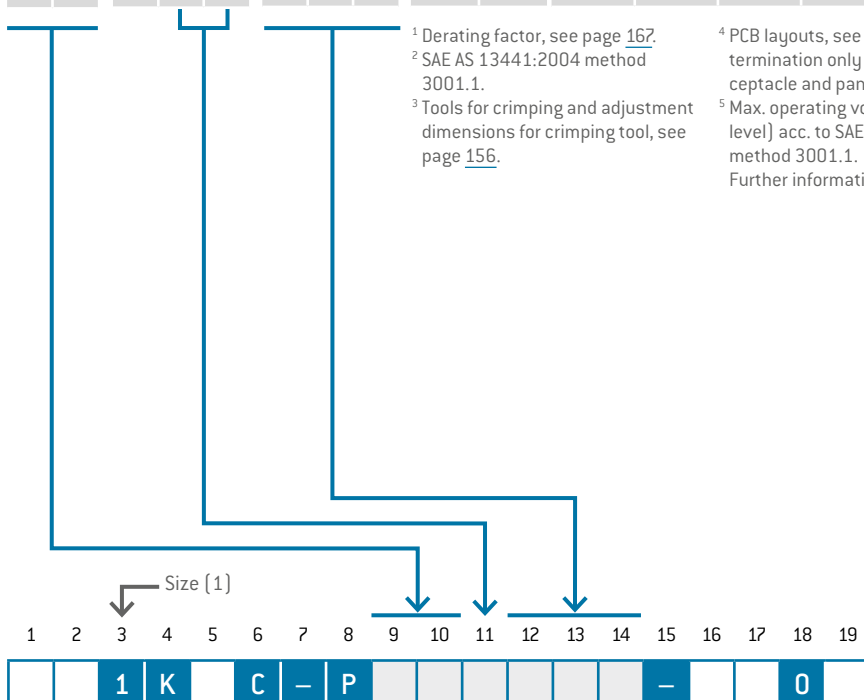
<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 95. PCB termination only possible in the receptacle and panel-mounted plug  
<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.  
Further information on page 168.

<sup>6</sup> ISO/IEC 11801:2017.

Further information on request.

<sup>7</sup> Concerning data transmission protocols please note page 2.





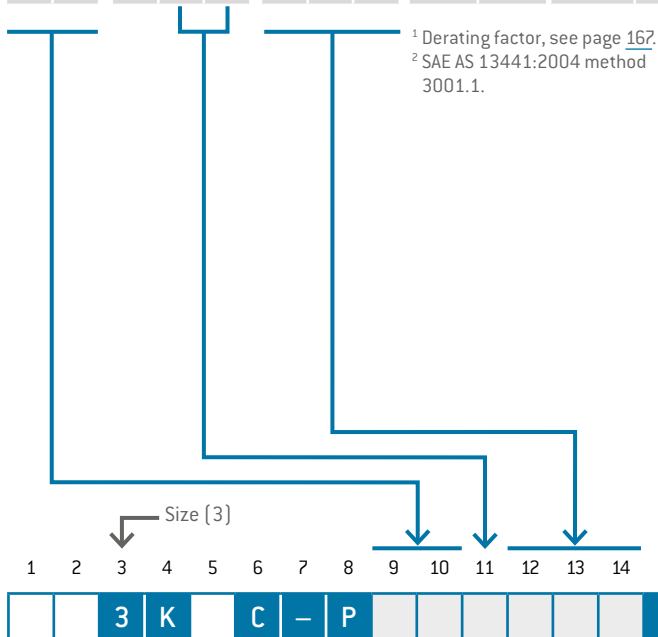




# CONTACT INSERTS (SIZE 3)



Number of contacts	Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area				
	Termination	Socket	Pin	J	H	O			Contact to contact mm	Contact to housing mm				kVeff	kVrms	mm	AWG	mm <sup>2</sup>	Pin piece	Socket piece
1	Solder	L	M	J	H	O	0.9	10	0.7	0.6	1.000	0.333	1.1	20	0.50					
				J	G	O		7.5	1	0.9	1.350	0.450	0.85	22	0.38					
	Crimp <sup>3</sup>	N	P	J	H	O		10	0.7	0.6	1.000	0.333	–	20–24	0.50–0.25					
				J	G	O		7.5	1	0.9	1.350	0.450	–	22–26	0.38–0.15					
PCB <sup>4</sup>	Q	R	J	O	O	–	–	–	–	–	–	–	–	–	–	–				
1	Solder	L	M	J	H	O	0.9	10	0.7	0.6	1.000	0.333	1.1	20	0.50					
				J	G	O		7.5	0.9	0.8	1.350	0.450	0.85	22	0.38					
	Crimp <sup>3</sup>	N	P	J	H	O		10	0.7	0.6	1.000	0.333	–	20–24	0.50–0.25					
				J	G	O		7.5	0.9	0.8	1.350	0.450	–	22–26	0.38–0.15					
PCB <sup>4</sup>	Q	R	J	O	O	–	–	–	–	–	–	–	–	–	–	–				
2	Solder	L	M	F	G	O	0.7	7.5	0.8	0.9	1.000	0.333	0.85	22	0.38					
				F	D	O		6	1	1.1	1.100	0.366	0.6	26	0.15					
	Crimp <sup>3</sup>	N	P	F	G	O		7.5	0.8	0.9	1.000	0.333	–	22–26	0.38–0.15					
				F	C	O		6	1	1.1	1.100	0.366	–	28–32	0.09–0.04					
PCB <sup>4</sup>	Q	R	F	O	O	–	–	–	–	–	–	–	–	–	–	–				
2	Solder	L	M	F	G	O	0.7	7.5	0.7	1.7	1.000	0.333	0.85	22	0.38					
				F	D	O		6	0.9	1.9	1.100	0.366	0.6	26	0.15					
	Crimp <sup>3</sup>	N	P	F	G	O		7.5	0.7	1.7	1.000	0.333	–	22–26	0.38–0.15					
				F	C	O		6	0.9	1.9	1.100	0.366	–	28–32	0.09–0.04					
PCB <sup>4</sup>	Q	R	F	O	O	–	–	–	–	–	–	–	–	–	–	–				
2	Solder	L	M	F	G	O	0.7	7.5	0.5	0.6	0.900	0.300	0.85	22	0.38					
				F	D	O		6	0.7	0.8	1.000	0.333	0.6	26	0.15					
	Crimp <sup>3</sup>	N	P	F	G	O		7.5	0.5	0.6	0.900	0.300	–	22–26	0.38–0.15					
				F	C	O		6	0.7	0.8	1.000	0.333	–	28–32	0.09–0.04					
PCB <sup>4</sup>	Q	R	F	O	O	–	–	–	–	–	–	–	–	–	–	–				
3	Solder	L	M	F	G	O	0.7	7.5	0.4	0.7	0.900	0.300	0.85	22	0.38					
				F	D	O		6	0.6	0.9			0.6	26	0.15					
	Crimp <sup>3</sup>	N	P	F	G	O		7.5	0.4	0.7			–	22–26	0.38–0.15					
				F	C	O		6	0.6	0.9			–	28–32	0.09–0.04					
PCB <sup>4</sup>	Q	R	F	O	O	–	–	–	–	–	–	–	–	–	–	–				



<sup>1</sup> Derating factor, see page 167.  
<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.  
<sup>4</sup> PCB layouts, see page 103. PCB termination only possible in the receptacle and panel-mounted plug

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.  
 Further information on page 168.

# CONTACT INSERTS (SIZE 4)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	7 <sup>5</sup>	Solder	L	M	T	S	9	2	24	1.5	1	1.350	0.450	2.40	12	2.50		
			T	0	9	18	2.1		1.6	1.650	0.550	1.85	14	1.5				
		PCB <sup>3</sup>	Q	R	T	0	9	0.7	–	–	–	–	–	–	–	–		
3	0	Solder	L	M	J	G	0	0.9	7.5	0.8	1	1.575	0.520	0.85	22	0.38		
			PCB <sup>3</sup>	Q	R	J	0							0	0.5	–		
4	0	Solder	L	M	F	G	0	0.7	7.5	0.6	0.8	0.900	0.300	0.85	22	0.38		
			F	D	0	6	0.8		1	1.000	0.333	0.6	26	0.15				
		PCB <sup>3</sup>	Q	R	F	0	0	0.5	–	–	–	–	–	–				

<sup>1</sup> Derating factor, see page 167.

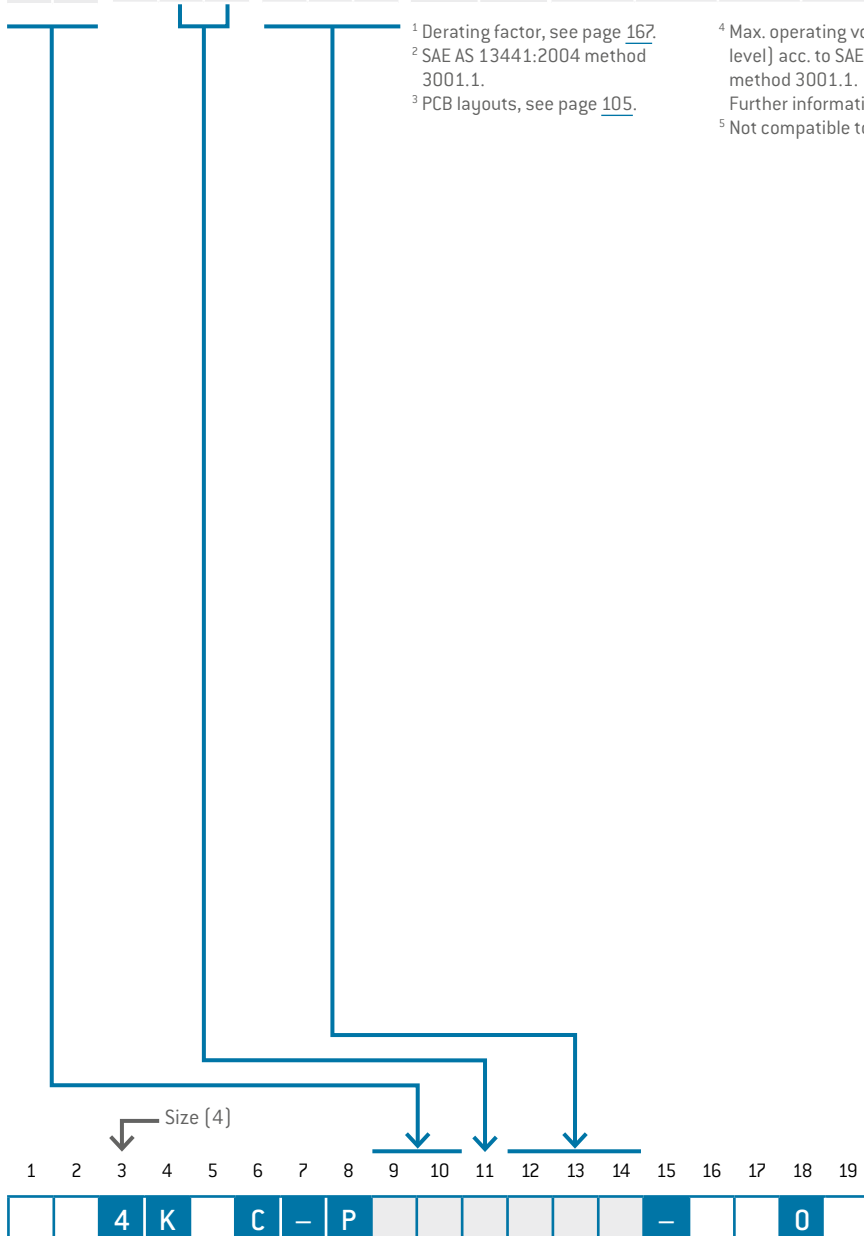
<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> PCB layouts, see page 105.

<sup>4</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.

Further information on page 168.

<sup>5</sup> Not compatible to competition.

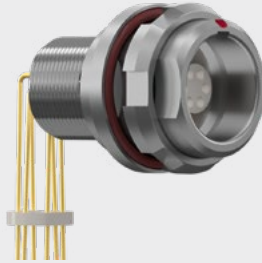


# RIGHT-ANGLED PCB CONTACTS IN THE RECEPTACLE



A

**RIGHT-ANGLED PCB CONTACT**  
for style G3 and G8



**TECHNICAL DATA**

- Pin version on request.
- PCB layouts, see page [91](#).

Contact diameter	Termination diameter
0.5	0.5
0.7	0.6
0.9	0.6
1.3	0.8
1.6	0.8
2	0.8

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

			K		C	-	P						0	0	-		0	0	0
--	--	--	---	--	---	---	---	--	--	--	--	--	---	---	---	--	---	---	---

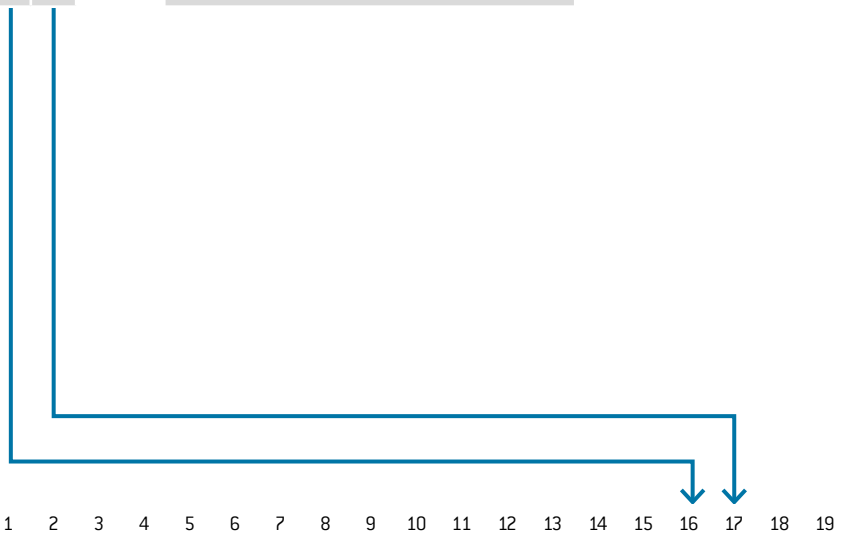
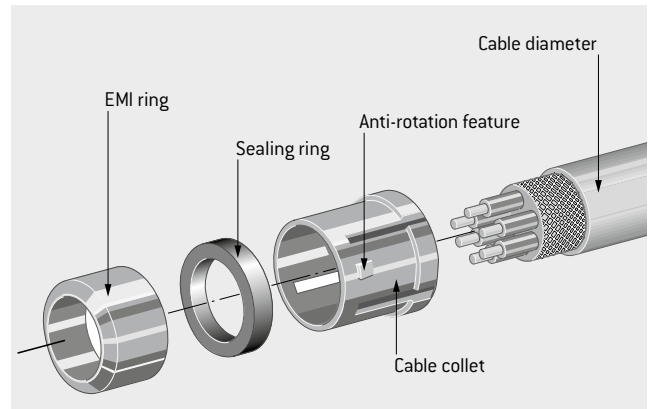
# CABLE COLLET SYSTEM



		Cable diameter	Size					
		mm	0	1	2	3	4	
1	5	> 1 – 1.5		•				
2	0	> 1.5 – 2	•	•				
2	5	> 2 – 2.5	•	•				
3	0	> 2.5 – 3	•	•	•			
3	5	> 3 – 3.5	•	•	•	•		
4	0	> 3.5 – 4	•	•	•	•		
4	5	> 4 – 4.5	•	•	•	•		
5	0	> 4.5 – 5	•	•	•	•		
5	5	> 5 – 5.5		•	•	•		
6	0	> 5.5 – 6		•	•	•		
6	5	> 6 – 6.5		•	•	•		
7	0	> 6.5 – 7		•	•	•		
7	5	> 7 – 7.5			•	•	•	
8	0	> 7.5 – 8			•	•		
8	5	> 8 – 8.5			•	•	•	
9	0	> 8.5 – 9			•	•		
9	5	> 9 – 9.5				•	•	
0	1	> 9.5 – 10				•		
0	2	> 10 – 10.5				•	•	
0	3	> 10.5 – 11.5					•	
1	4	> 13.5 – 14					•	
0	0	Without cable collet system (on request)						

**APPLICATION:** For all plugs and in-line receptacles and for receptacle style 6 and 7.

**USE:** Cable collet for strain relief; sealing ring for cable seal; EMI ring for transmission of the shielding.



1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
				K		C	-	P										

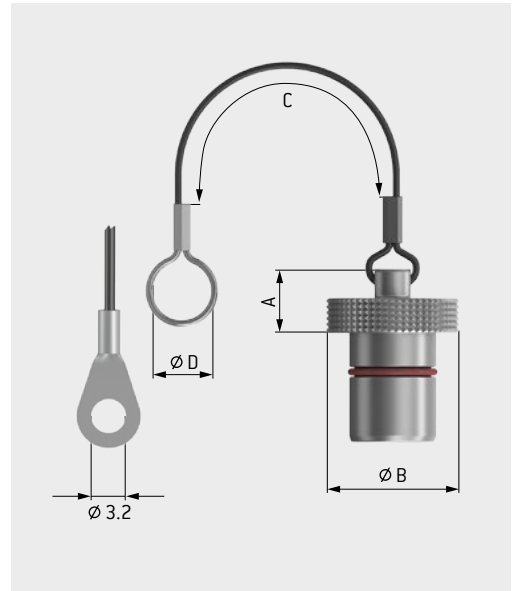
For assembly instructions please refer to our website: [www.odu-connectors.com/downloads/assembly-instructions](http://www.odu-connectors.com/downloads/assembly-instructions)

# PROTECTIVE COVERS



## FOR RECEPTACLE TYPES

Size	Part number	A	Ø B	C	Ø D
		mm	mm	mm	mm
0	720.097.007.215._00	8	15	70	6
1	721.097.007.215._00	9	18.5	75	8
2	722.097.007.215._00	9	21.5	85	10
3	723.097.007.215._00	9.6	24	120	12
4	724.097.007.215._00	11.2	31.5	140	16

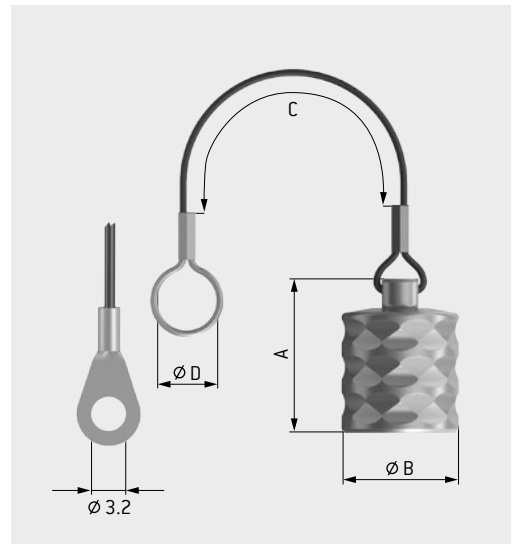


Lanyard material	
0	Polyamide lanyard with loop
1	Stainless steel lanyard with loop
2	Polyamide lanyard with solder lug
3	Stainless steel lanyard with solder lug

Surface matt chromate

## FOR PLUG (IP 68)

Size	Part number	A	Ø B	C	Ø D
		mm	mm	mm	mm
0	720.097.004.215._0_	16	14	70	6
1	721.097.004.215._0_	21	16	75	8
2	722.097.004.215._0_	21.5	20	85	10
3	723.097.004.215._0_	25.5	24	130	12
4	724.097.004.215._0_	28	30	140	16



Lanyard material	
0	Polyamide lanyard with loop
1	Stainless steel lanyard with loop
2	Polyamide lanyard with solder lug
3	Stainless steel lanyard with solder lug

Surface matt chromate

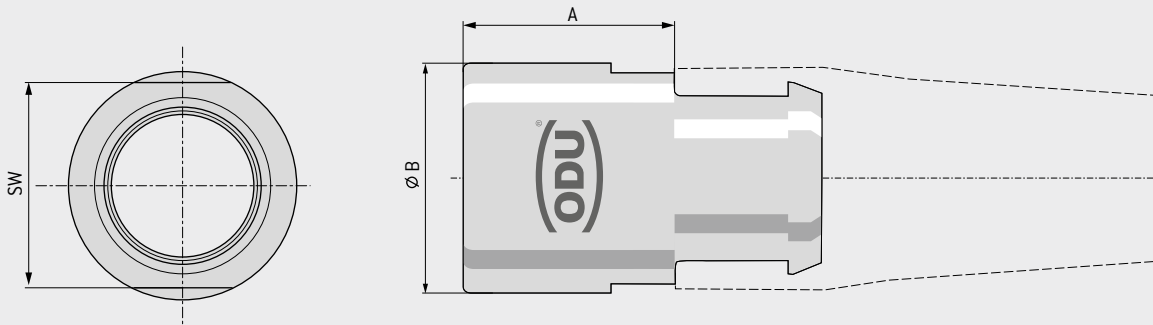
Size	Keyings (see page 88)							
	0	A	C	F	H	K	Q	W
0	•	•	•	•	o	o	o	o
1	•	•	•	•	o	o	o	o
2	•	•	•	•	o	o	o	o
3	•	•	o	o	o	o	o	o
4	•	o	o	o	o	o	o	o

• Standard, o On request.

# BACK NUT FOR CABLE BEND RELIEFS



EXAMPLE OF ASSEMBLY



Size	Part number	A	Ø B	SW
		mm	mm	mm
0	700.022.1173___.002	8	8.9	7
1	701.022.1173___.002	10	10.9	10
2	702.022.1173___.002	11.5	13.9	13
3	753.022.1173___.002	11.5	16.9	15
4	704.022.1173___.002	15	23	20

Surface	
15	Cu-alloy / matt chrome plated
11	Cu-alloy / black chrome plated
04	Cu-alloy / nickel







ODU MINI-SNAP®

# SUMMARY ODU MINI-SNAP® SERIES B

The ODU MINI-SNAP Series B is keyed by pin and groove. These Push-Pull circular connectors can be configured in many different ways: a wide variety of sizes and termination types and contact inserts are available.

- Keying over pin and groove
- 2–30 contacts/mixed inserts
- Up to 4 sizes and 3 termination types
- Choice of numerous plugs and receptacles
- IP 68
- 5,000 mating cycles and more
- Contacts for solder, crimp and PCB termination

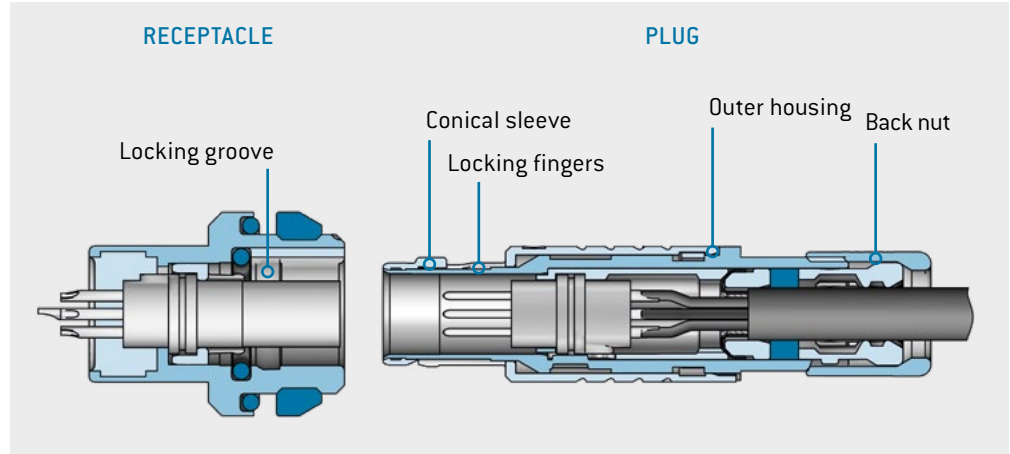
STRAIGHT PLUG		P.120
IP 68 <sup>1</sup>		S 3
		S 4

RIGHT-ANGLED PLUG		P.121
IP 68 <sup>1</sup>		W 3
		W 4

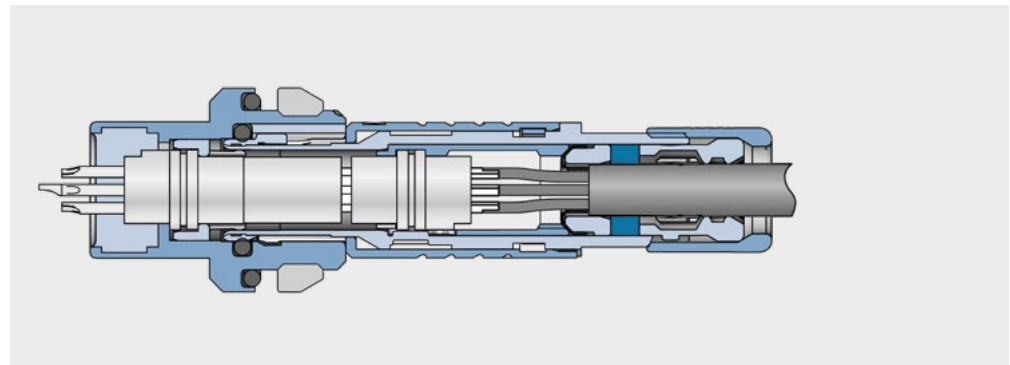
<sup>1</sup>IP 68 when mated. <sup>2</sup>IP 68 when mated or unmated.

# THE FP LOCKING PRINCIPLE SERIES B

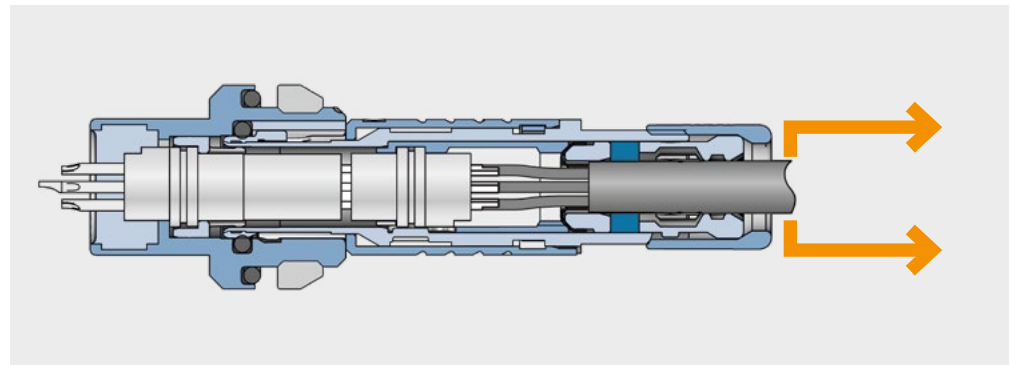
Connector  
in **unmated** condition



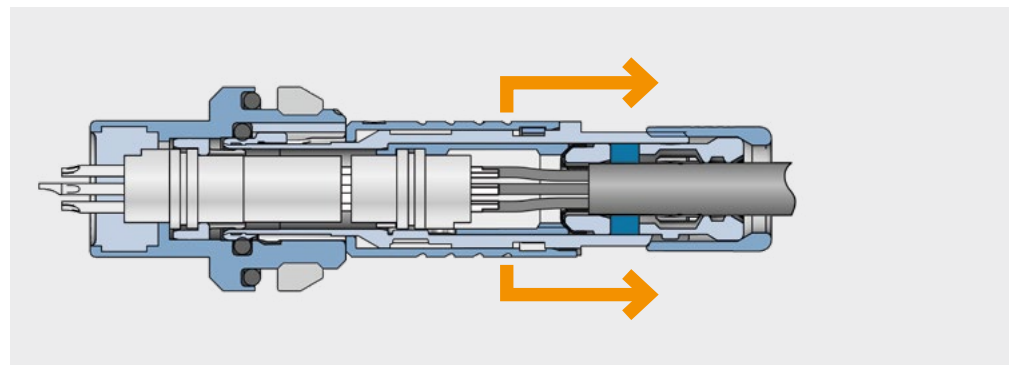
Connector  
in **mated** condition



Pulling on the cable or back nut will lock the “fingers” firmly in place in the receptacle’s locking groove. This prevents the connector from being disconnected.



But pulling on the **outer housing** will cause the “fingers” to emerge from the locking groove, making it **easy to disconnect** the connector.



# STRAIGHT PLUG



**S 3 0** **STYLE: 3** **IP 68**

Watertight, with standard back nut

**S 4 S** **STYLE: 4** **IP 68**

Watertight, with back nut for cable bend relief<sup>1</sup>

Size	L1 mm	L2 mm	D mm	SW A mm	S3 SW B mm	S4 SW B mm
0	≈ 40	≈ 30	9.4	8	7	7
1	≈ 49	≈ 38	12	10	10	10
2	≈ 53	≈ 41	15	13	12	13
3	≈ 61	≈ 46	18	16	15	15

**TECHNICAL DATA**

• Contact configuration from page 126.

0 1 2 3

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

**B C - P - O**

<sup>1</sup> Please order cable bend reliefs separately, see page 149.

# IN-LINE RECEPTACLE



Suitable for creating a cable-cable connection.


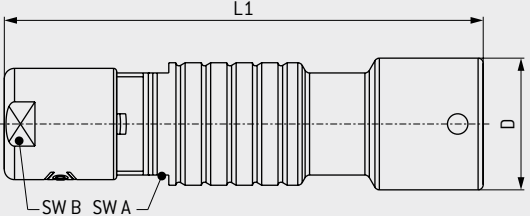
K 3

0

STYLE: 3

IP 68

Watertight, with standard back nut


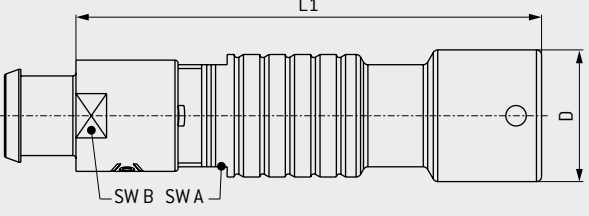
K 4

S

STYLE: 4

IP 68

Watertight, with back nut for cable bend relief<sup>1</sup>

Size	L1 mm	D mm	SW A mm	K3 SW B mm	K4 SW B mm
0	≈ 39	10	8	7	7
1	≈ 46	13	10	10	10
2	≈ 50	16	13	12	13
3	≈ 60	19	16	15	15

**TECHNICAL DATA**

- IP 68 in mated condition.
- Contact configuration from page [126](#).

0

1

2

3

4

5

6

7

8

9

10

11

12

13

14

15

16

17

18

19

B

C

-

P

-

0

<sup>1</sup> Please order cable bend reliefs separately, see page [149](#).

# RECEPTACLE

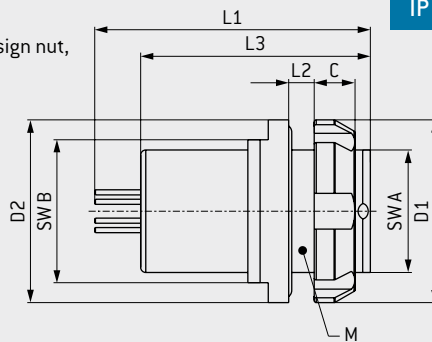


G 8

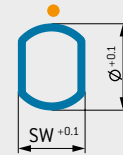
## STYLE: 8

IP 68

Tight installation receptacle<sup>3</sup> with design nut, installation from rear of panel



Panel cut-out



● Keying indication

Size	L1 <sup>1</sup> mm	L2 mm	L3 <sup>2</sup> mm	M mm	D1 mm	D2 mm	C mm	SW A mm	SW B mm	Panel cut-out mm	
										SW	Ø
0	≈ 22.5	≈ 3.5	18.5	10 × 0.5	15	14.5	3	9	12	9.1	10.1
1	≈ 27	≈ 4	22.5	14 × 1	18	18	4	12	14	12.1	14.1
2	≈ 29.5	≈ 3	23	16 × 1	22	21	5	15	18	15.1	16.1
3	≈ 32	≈ 6	26.5	20 × 1	25	26	5	18	–	18.1	20.1

### TECHNICAL DATA

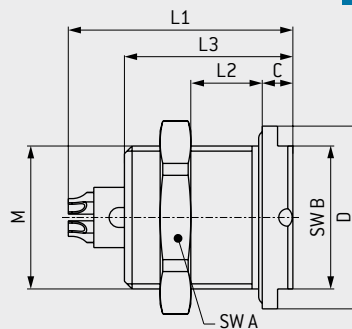
- IP 68 in mated and unmated condition.
- Anti-rotation feature.
- Contact configuration from page 126.
- No crimp contacts possible.
- Assembly wrench, see tools on page 158.
- Right-angled PCB contact possible, see page 142.
- PCB layouts, see page 127.

G E

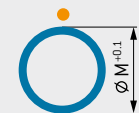
## STYLE: E

IP 68

Tight receptacle, installation from front of panel



Panel cut-out



● Keying indication

Size	L1 <sup>1</sup> mm	L2 mm	L3 <sup>2</sup> mm	M mm	D mm	SW A mm	SW B mm	C mm	Panel cut-out Ø mm
0	≈ 20	≈ 8	14.5	11 × 0.75	15.5	13	12	3	11.1
1	≈ 24	≈ 10	16.5	14 × 1	18	17	14	3	14.1
2	≈ 27	≈ 11	18.5	17 × 1	22	19	17	4	17.1

### TECHNICAL DATA

- IP 68 in mated condition.
- Contact configuration from page 126.
- PCB layouts, see page 127.

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

B C - P - 0 0

<sup>1</sup> L1 = maximum length including contact insert. <sup>2</sup> L3 = length of connector plug housing. <sup>3</sup> Note: tight, grouted receptacle, see page 163.



# CONTACT INSERTS (SIZE 0)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	7	Solder	L	M	C	C	0	0.5	4	0.7	0.8	0.900	0.300	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	0											
0	9	Solder	L	M	C	C	0	0.5	4	0.4	0.8	0.600	0.200	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	0											
1	0 <sup>6</sup>	Solder	L	M	C	C	9	0.5	4	0.3	0.7	0.600	0.200	0.4	28	0.08		
		PCB <sup>4</sup>	Q	R	C	O	9											

## SPECIFIC INSERTS FOR HIGH DATA TRANSMISSION RATES

Ethernet <sup>7,9</sup> Type CAT 5 <sup>9</sup> up to 100Mbit	0	4	Solder	L	M	F	G	0	0.7	7.5	0.6	0.8	0.900	0.300	0.85	22	0.38		
						F	D	0		6	0.8	1			0.6	26	0.15		
			Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.6	0.8			-	22-26	0.38-0.15		
			PCB <sup>4</sup>	Q	R	F	C	0		6	0.8	1			-	28-32	0.09-0.04		
USB <sup>8</sup> 2.0 <sup>8,9</sup>	U	4	Solder	-	M	F	G	0	0.7	7.5	0.6	0.8	0.900	0.300	0.85	22	0.38		
			Crimp <sup>3</sup>	-	P	F	G	0							-	22-26	0.38-0.15		
USB <sup>8</sup> 2.0 <sup>8,9</sup>	0	4	Solder	L	-	F	G	0	0.7	7.5	0.6	0.8	0.900	0.300	0.85	22	0.38		
			Crimp <sup>3</sup>	N	-	F	G	0							-	22-26	0.38-0.15		
			PCB <sup>4</sup>	Q	-	F	O	0							0.5	-	-		

<sup>1</sup> Derating factor, see page 167.

<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 129. PCB termination only possible in the receptacle and panel-mounted plug

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.

Further information on page 168.

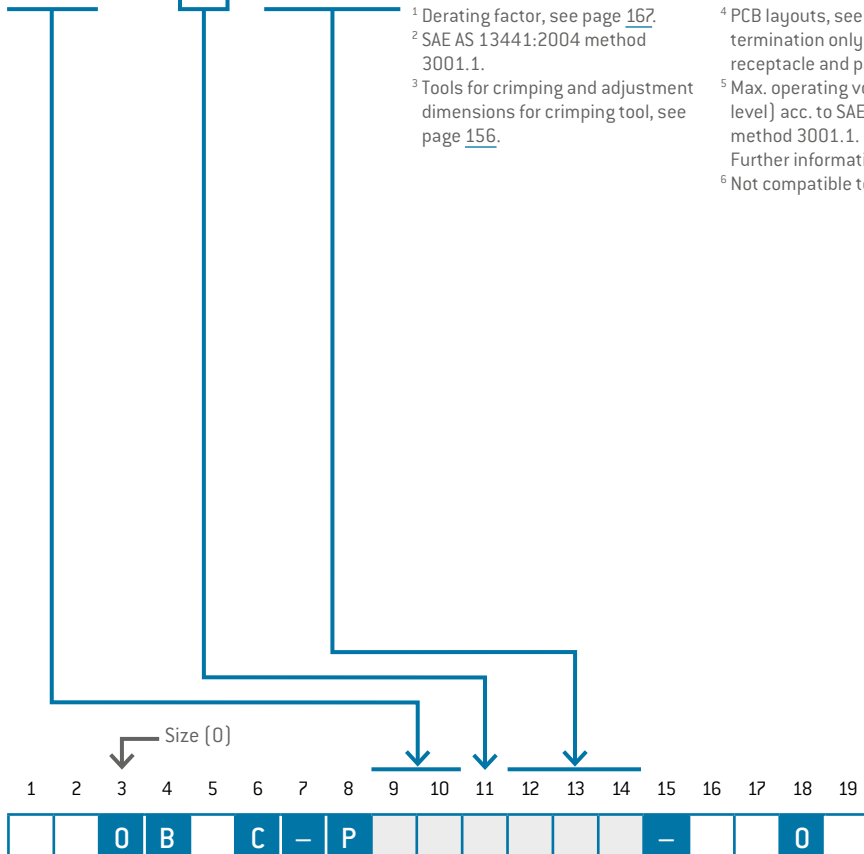
<sup>6</sup> Not compatible to competition.

<sup>7</sup> ISO/IEC 11801:2017.

Further information on request.

<sup>8</sup> Acc. Universal Serial Bus 3.2 Spec.:2017. Further information on request.

<sup>9</sup> Concerning data transmission protocols please note page 2.



# CONTACT INSERTS (SIZE 1)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	Solder	L	M	P	N	0	1.3	15	1	1.1	1.650	0.550	1.4	18	1		
					P	H	0		12					1.1	20	0.5		
		Crimp <sup>3</sup>	N	P	P	L	0		15					–	18–20	1.00–0.50		
		PCB <sup>4</sup>	Q	R	P	0	0		12					0.7	–	–		
0	3	Solder	L	M	P	N	0	1.3	15	0.8	1	1.000	0.333	1.4	18	1		
					P	H	0		12	0.9	1.1	1.500	0.500	1.1	20	0.50		
		Crimp <sup>3</sup>	N	P	P	L	0		15	0.8	1	1.000	0.333	–	18–20	1.00–0.50		
		PCB <sup>4</sup>	Q	R	P	0	0		12	0.9	1.1	1.500	0.500	0.7	–	–		
0	4	Solder	L	M	J	G	0	0.9	7.5	1	1.4	1.500	0.500	0.85	22	0.38		
					J	H	0		10	0.7	1.1	1.000	0.333	–	20–24	0.50–0.25		
		Crimp <sup>3</sup>	N	P	J	G	0		7.5	1	1.4	1.500	0.500	–	22–26	0.38–0.15		
		PCB <sup>4</sup>	Q	R	J	0	0		7.5	0.7	–	–	–	–	–			
0	5	Solder	L	M	J	H	0	0.9	10	0.6	0.9	1.000	0.333	1.1	20	0.50		
					J	G	0		7.5	0.9	1.2	1.350	0.450	0.85	22	0.38		
		Crimp <sup>3</sup>	N	P	J	H	0		10	0.6	0.9	1.000	0.333	–	20–24	0.50–0.25		
		PCB <sup>4</sup>	Q	R	J	G	0		7.5	0.9	1.2	1.350	0.450	–	22–26	0.38–0.15		
0	6	Solder	L	M	F	G	0	0.7	7.5	0.7	1	1.000	0.333	0.85	22	0.38		
					F	D	0		6	0.9	1.2	1.200	0.400	0.6	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.7	1	1.000	0.333	–	22–26	0.38–0.15		
		PCB <sup>4</sup>	Q	R	F	C	0		6	0.9	1.2	1.200	0.400	–	28–32	0.09–0.04		
													0.5	–	–			

<sup>1</sup> Derating factor, see page 167.

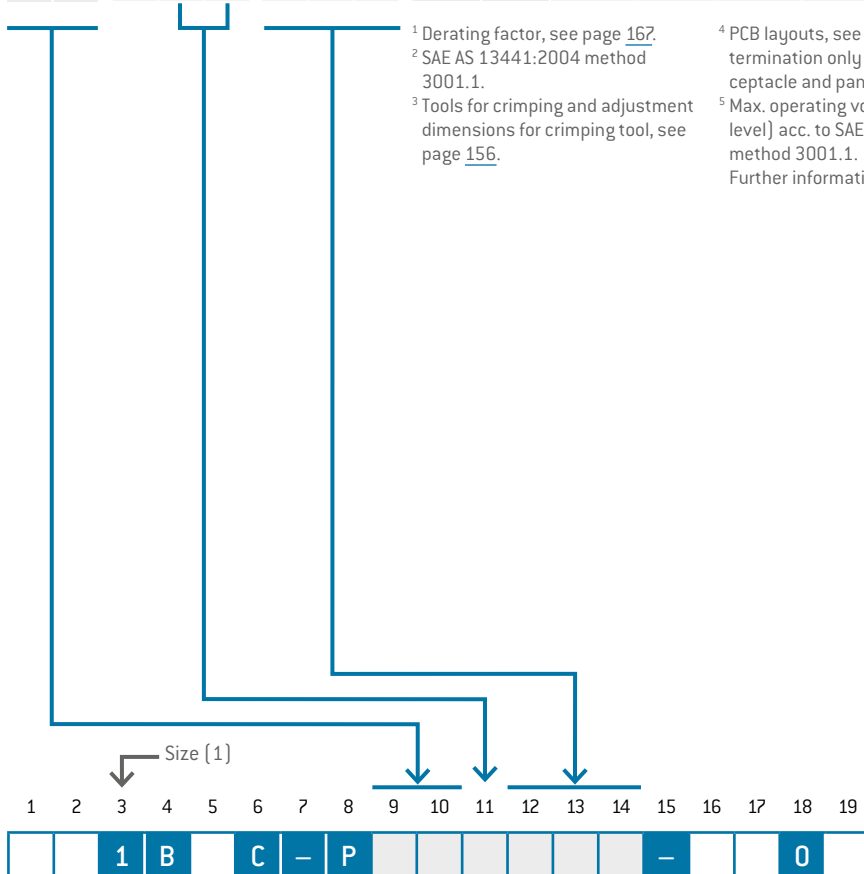
<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 131. PCB termination only possible in the receptacle and panel-mounted plug

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.

Further information on page 168.





# CONTACT INSERTS (SIZE 2)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin	Termination	Socket	Pin			Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	2	Solder	L	M	T	S	0	2	24	1.3	0.9	1.800	0.600	2.4	12	2.5		
		Crimp <sup>3</sup>	N	P	T	0	0		18	1.6	1.2	2.100	0.700	1.85	14	1.5		
		PCB <sup>4</sup>	Q	R	T	0	0							0.7	-	-		
0	3	Solder	L	M	S	N	0	1.6	16	1.7	1.5	2.400	0.800	1.4	18	1.00		
		Crimp <sup>3</sup>	N	P	S	N	0		21	1.5	1.3	1.950	0.650	-	14-18	1.50-1.00		
		PCB <sup>4</sup>	Q	R	S	L	0		16	1.7	1.5	2.400	0.800	0.7	-	-		
0	4	Solder	L	M	P	N	0	1.3	15	1.5	1.3	1.800	0.600	1.4	18	1.00		
		Crimp <sup>3</sup>	N	P	P	H	0		12	1.8	1.6	1.950	0.650	1.1	20	0.50		
		PCB <sup>4</sup>	Q	R	P	L	0		15	1.5	1.3	1.800	0.600	-	18-20	1.00-0.50		
0	5	Solder	L	M	P	H	0	1.3	15	1.1	1.2	1.500	0.500	1.4	18	1.00		
		Crimp <sup>3</sup>	N	P	P	L	0		12	1.6	1.7	1.800	0.600	1.1	20	0.50		
		PCB <sup>4</sup>	Q	R	P	H	0		15	1.1	1.2	1.500	0.500	-	18-20	1.00-0.50		
0	6	Solder	L	M	P	N	0	1.3	15	0.8	1	1.100	0.366	1.4	18	1.00		
		Crimp <sup>3</sup>	N	P	P	H	0		12	1.3	1.5	1.500	0.500	1.1	20	0.50		
		PCB <sup>4</sup>	Q	R	P	L	0		15	0.8	1	1.100	0.366	-	18-20	1.00-0.50		
0	7	Solder	L	M	P	H	0	1.3	15	0.9	1	1.100	0.366	1.4	18	1.00		
		Crimp <sup>3</sup>	N	P	P	L	0		12	1.3	1.4	1.800	0.600	1.1	20	0.50		
		PCB <sup>4</sup>	Q	R	P	H	0		15	0.9	1	1.100	0.366	-	18-20	1.00-0.50		
0	8	Solder	L	M	J	H	0	0.9	10	1	0.9	1.500	0.500	1.1	20	0.50		
		Crimp <sup>3</sup>	N	P	J	G	0		7.5	1.2	1.1			0.85	22	0.38		
		PCB <sup>4</sup>	Q	R	J	H	0		10	1	0.9			-	20-24	0.50-0.25		
1	0	Solder	L	M	J	G	0	0.9	10	0.7	0.9	0.900	0.300	1.1	20	0.50		
		Crimp <sup>3</sup>	N	P	J	H	0		7.5	1	1.2	1.500	0.500	0.85	22	0.38		
		PCB <sup>4</sup>	Q	R	J	G	0		10	0.7	0.9	0.900	0.300	-	20-24	0.50-0.25		

<sup>1</sup> Derating factor, see page 167.

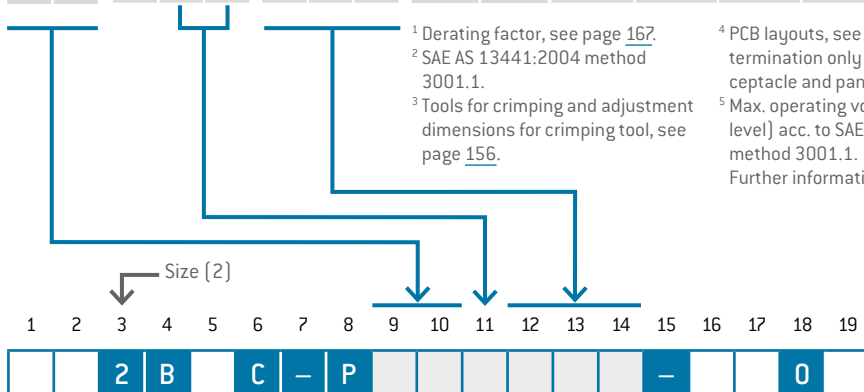
<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 135. PCB termination only possible in the receptacle and panel-mounted plug

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.

Further information on page 168.





# CONTACT INSERTS (SIZE 3)



Number of contacts		Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area	
		Termination	Socket	Pin						Contact to contact mm	Contact to housing mm				AWG	mm <sup>2</sup>	Pin piece	Socket piece
0	3	Solder	L	M	T	S	0	2	24	1.8	1.5	1.800	0.600	2.4	12	2.5		
		PCB <sup>4</sup>	Q	R	T	0	0		18	2	1.7			1.85	14	1.5		
														0.7	–	–		
0	4	Solder	L	M	T	S	0	2	24	1.4	1.2	1.650	0.550	2.4	12	2.5		
		PCB <sup>4</sup>	Q	R	T	0	0		18	1.6	1.4			1.85	14	1.5		
														0.7	–	–		
0	7	Solder	L	M	S	N	0	1.6	16	1.5	1.6	1.800	0.600	1.4	18	1.00		
		Crimp <sup>3</sup>	N	P	S	N	0		21	1.1	1.2			–	14–18	1.50–1.00		
		PCB <sup>4</sup>	Q	R	S	L	0		16	1.5	1.6			–	18–20	1.00–0.50		
					S	0	0							0.7	–	–		
0	8	Solder	L	M	P	N	0	1.3	15	1.1	1.3	1.350	0.450	1.4	18	1.00		
					P	H	0		12	1.4	1.6	1.650	0.550	1.1	20	0.50		
		Crimp <sup>3</sup>	N	P	P	L	0		15	1.1	1.3	1.350	0.450	–	18–20	1.00–0.50		
		PCB <sup>4</sup>	Q	R	P	H	0		12	1.4	1.6	1.650	0.550	–	20–24	0.50–0.25		
					P	0	0					0.7	–	–				
1	0	Solder	L	M	P	N	0	1.3	15	0.9	1.1	1.100	0.366	1.4	18	1.00		
					P	H	0		12	1.2	1.4	1.350	0.450	1.1	20	0.50		
		PCB <sup>4</sup>	Q	R	P	0	0					1	1.2	0.7	–	–		
1	4	Solder	L	M	J	H	0	0.9	10	0.8	1	1.000	0.333	1.1	20	0.50		
					J	G	0		7.5	1.1	1.3	1.350	0.450	0.85	22	0.38		
		Crimp <sup>3</sup>	N	P	J	H	0		10	0.8	1	1.000	0.333	–	20–24	0.50–0.25		
		PCB <sup>4</sup>	Q	R	J	G	0		7.5	1.1	1.3	1.350	0.450	–	22–26	0.38–0.15		
					J	0	0					0.7	–	–				

<sup>1</sup> Derating factor, see page 167.

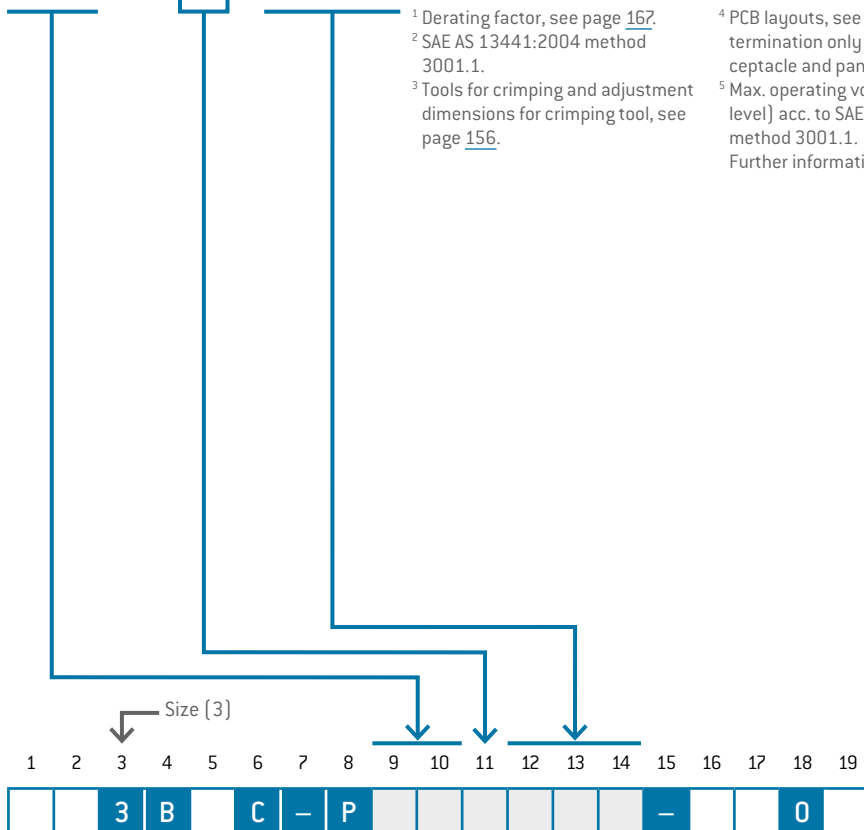
<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 139. PCB termination only possible in the receptacle and panel-mounted plug

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1.

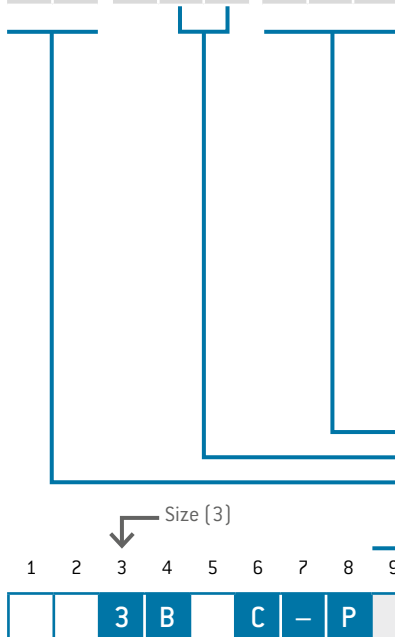
Further information on page 168.



# CONTACT INSERTS (SIZE 3)



Number of contacts	Contact type			Part number key			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Clearance and creepage distance		Test voltage <sup>2</sup> kVeff	Nominal voltage <sup>5</sup> kVrms	Termination diameter mm	Termination cross-section		View on termination area		
	Termination	Socket	Pin	J	H	O			Contact to contact mm	Contact to housing mm				mm	AWG	mm <sup>2</sup>	Pin piece	Socket piece
1	6	Solder	L	M	J	H	0	0.9	10	0.7	0.9	1.000	0.333	1.1	20	0.50		
					J	G	0		7.5	1	1.2	1.350	0.450	0.85	22	0.38		
	Crimp <sup>3</sup>	N	P	J	H	0	10		0.7	0.9	1.000	0.333	–	20–24	0.50–0.25			
				J	G	0	7.5		1	1.2	1.350	0.450	–	22–26	0.38–0.15			
1	8	Solder	L	M	J	H	0	0.9	10	0.7	0.9	1.000	0.333	1.1	20	0.50		
					J	G	0		7.5	0.9	1.1	1.350	0.450	0.85	22	0.38		
		Crimp <sup>3</sup>	N	P	J	H	0		10	0.7	0.9	1.000	0.333	–	20–24	0.50–0.25		
					J	G	0		7.5	0.9	1.1	1.350	0.450	–	22–26	0.38–0.15		
2	0	Solder	L	M	F	H	0	0.7	7.5	0.8	1.2	1.000	0.333	0.85	22	0.38		
					F	D	0		6	1	1.4	1.100	0.366	0.6	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.8	1.2	1.000	0.333	–	22–26	0.38–0.15		
					F	C	0		6	1	1.4	1.100	0.366	–	28–32	0.09–0.04		
2	2	Solder	L	M	F	G	0	0.7	7.5	0.7	1	1.000	0.333	0.85	22	0.38		
					F	D	0		6	0.9	1.2	1.100	0.366	0.6	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.7	1	1.000	0.333	–	22–26	0.38–0.15		
					F	C	0		6	0.9	1.2	1.100	0.366	–	28–32	0.09–0.04		
2	6	Solder	L	M	F	G	0	0.7	7.5	0.5	0.9	0.900	0.300	0.85	22	0.38		
					F	D	0		6	0.7	1.1	1.000	0.333	0.6	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.5	0.9	0.900	0.300	–	22–26	0.38–0.15		
					F	C	0		6	0.7	1.1	1.000	0.333	–	28–32	0.09–0.04		
3	0	Solder	L	M	F	G	0	0.7	7.5	0.4	1	0.900	0.300	0.85	22	0.38		
					F	D	0		6	0.6	1.2			0.6	26	0.15		
		Crimp <sup>3</sup>	N	P	F	G	0		7.5	0.4	1			–	22–26	0.38–0.15		
					F	C	0		6	0.6	1.2			–	28–32	0.09–0.04		
PCB <sup>4</sup>	Q	R	F	O	0													
			F	O	0													



<sup>1</sup> Derating factor, see page 167.

<sup>2</sup> SAE AS 13441:2004 method 3001.1.

<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 156.

<sup>4</sup> PCB layouts, see page 141. PCB termination only possible in the receptacle and panel-mounted plug

<sup>5</sup> Max. operating voltage at NN (sea level) acc. to SAE AS 13441:2004 method 3001.1. Further information on page 168.

# RIGHT-ANGLED PCB CONTACTS IN THE RECEPTACLE



A

**RIGHT-ANGLED PCB CONTACT**  
for style G8



**TECHNICAL DATA**

- Pin version on request.
- PCB layouts, see page [127](#).

Contact diameter	Termination diameter
0.5	0.5
0.7	0.6
0.9	0.6
1.3	0.8
1.6	0.8
2	0.8

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19

**B** **C** - **P** **0** **0** - **0** **0** **0**

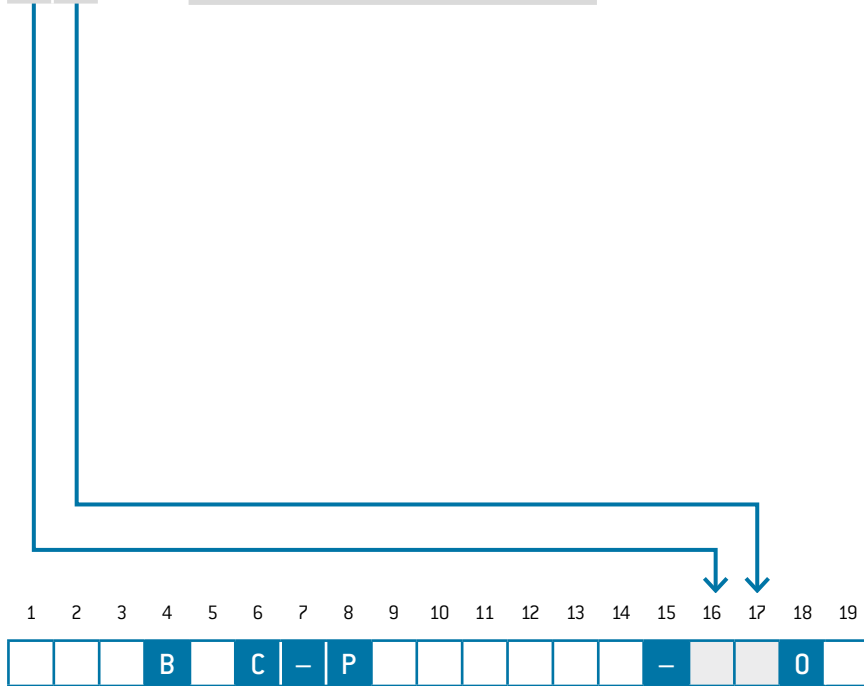
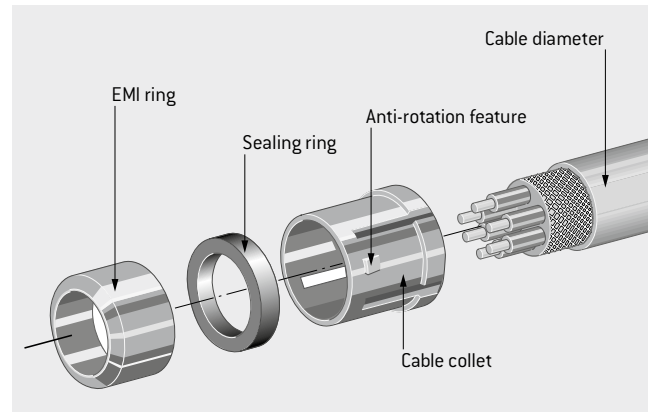
# CABLE COLLET SYSTEM



		Cable diameter mm	Size			
			0	1	2	3
1	5	> 1 – 1.5		•		
2	0	> 1.5 – 2	•	•		
2	5	> 2 – 2.5	•	•		
3	0	> 2.5 – 3	•	•	•	
3	5	> 3 – 3.5	•	•	•	•
4	0	> 3.5 – 4	•	•	•	•
4	5	> 4 – 4.5	•	•	•	•
5	0	> 4.5 – 5	•	•	•	•
5	5	> 5 – 5.5		•	•	•
6	0	> 5.5 – 6		•	•	•
6	5	> 6 – 6.5		•	•	•
7	0	> 6.5 – 7		•	•	•
7	5	> 7 – 7.5			•	•
8	0	> 7.5 – 8			•	•
8	5	> 8 – 8.5			•	•
9	0	> 8.5 – 9			•	•
9	5	> 9 – 9.5				•
0	1	> 9.5 – 10				•
0	2	> 10 – 10.5				•
0	0	Without cable collet system (on request)				

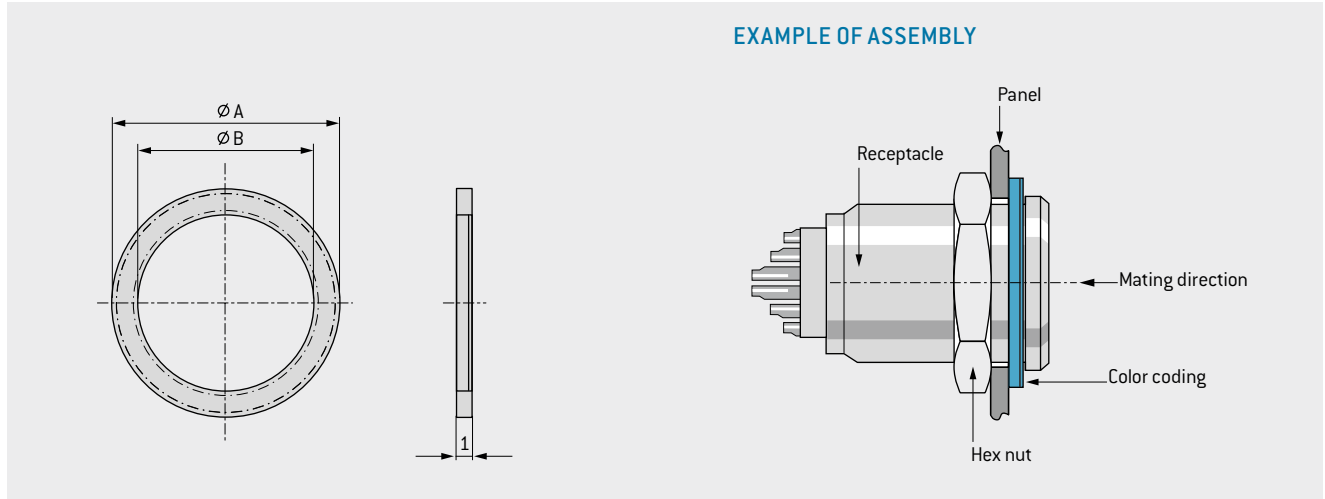
**APPLICATION:** For all plugs and in-line receptacles and for receptacles style 6 and 7.

**USE:** Cable collet for strain relief; EMI ring for transmission of the shielding.



For assembly instructions please refer to our website: [www.odu-connectors.com/downloads/assembly-instructions](http://www.odu-connectors.com/downloads/assembly-instructions)

# COLOR CODING RINGS



Material: Plastic PA66.

## SIZES

Thread	Part number	Ø A mm	Ø B mm
M 9	700.422.____.922.009	13.5	9.1
M 10	700.422.____.922.010	16.5	10.1
M 14	701.422.____.922.014	20	14.1
M 16	702.422.____.922.016	23	16.1
M 18	703.422.____.922.018	25	18.1
M 20	703.422.____.922.020	28	20.1

## COLORS

Color code	Color	RAL no. <sup>1</sup> (similar)
202	Red	3020
203	White	9010
204	Yellow	1016
205	Green	6029
206	Blue	5002
207	Gray	7005
208	Black	9005



## HOW TO PLACE THE RIGHT ORDER:

This shows you how the part number of the color coding rings is composed. In the first step, select the size and note the part number. Put the color code and part number together depending on your choice of color [see example].

<b>STEP 1:</b>	<b>Choose size</b>	700.422.____.922.015
<b>STEP 2:</b>	<b>Choose color</b>	...202...
<b>STEP 3:</b>	<b>Completed part number</b>	700.422.202.922.015

<sup>1</sup> Because of different raw materials, the colors may slightly differ from RAL numbers.

# PROTECTIVE COVERS

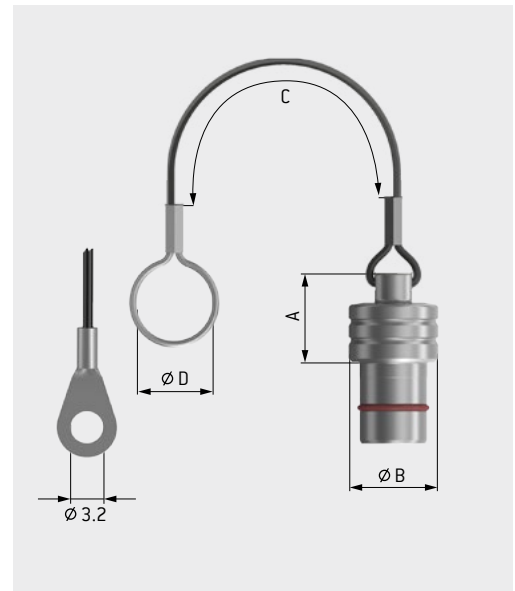


## FOR RECEPTACLES (IP 68)

Size	Part number	A	Ø B	C	Ø D
		mm	mm	mm	mm
0	700.097.007.215._00	10	10	70	8
1	701.097.007.215._00	12	12	75	10
2	702.097.007.215._00	15	15	85	13
3	703.097.007.215._00	17	18	100	16

Lanyard material	
0	Polyamide lanyard with loop
1	Stainless steel lanyard with loop
2	Polyamide lanyard with solder lug
3	Stainless steel lanyard with solder lug

Surface matt chromate

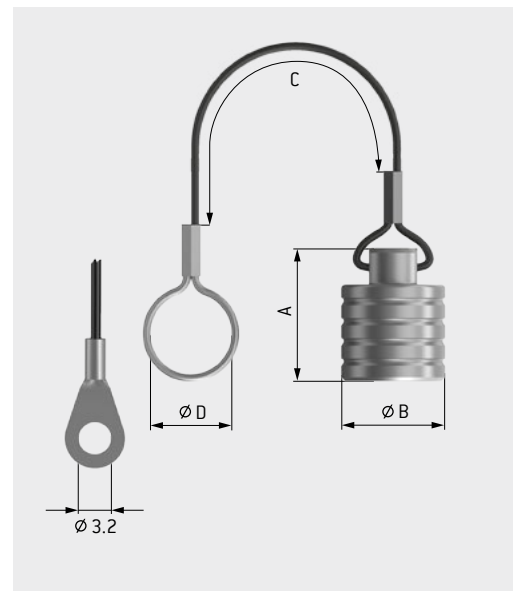


## FOR PLUG (IP 68)

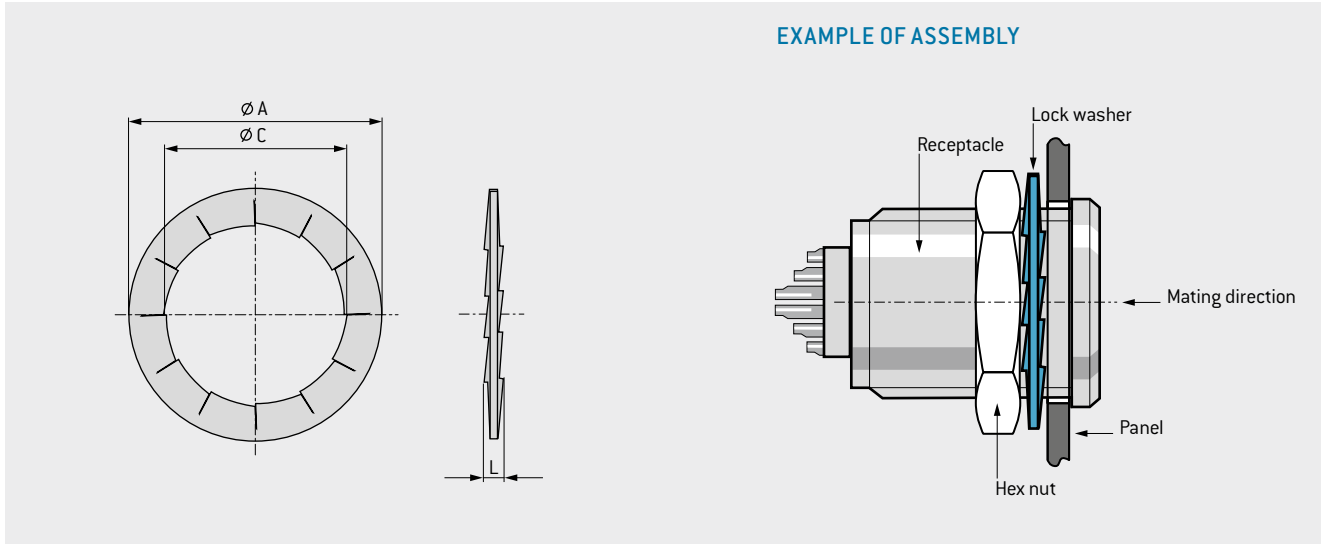
Size	Part number	A	Ø B	C	Ø D
		mm	mm	mm	mm
0	700.097.004.215._00	15.5	10.5	70	8
1	701.097.004.215._00	16.5	13	75	10
2	702.097.004.215._00	18.5	16	85	13
3	703.097.004.215._00	21	19	100	16

Lanyard material	
0	Polyamide lanyard with loop
1	Stainless steel lanyard with loop
2	Polyamide lanyard with solder lug
3	Stainless steel lanyard with solder lug

Surface matt chromate



# LOCK WASHERS



Thread	Part number	Ø A mm	Ø C mm	L mm
M9	945.000.001.000.046	12.5	9.1	1
M14	945.000.001.000.070	19.5	14.2	1.1
M16	945.000.001.000.072	21.5	16.1	1.1
M18	945.000.001.000.049	25	18.1	1.1
M20	945.000.001.000.121	25	20.1	1.1

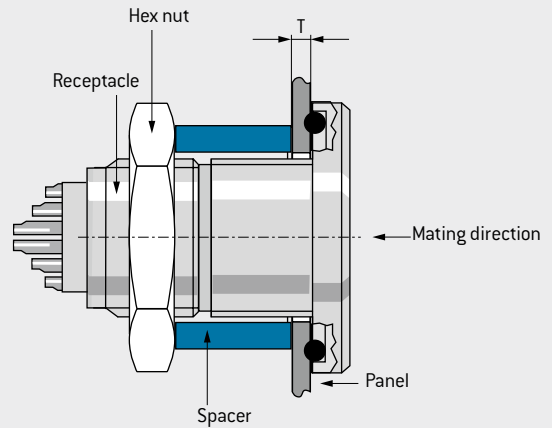
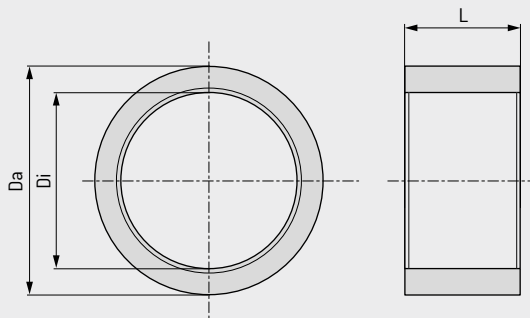
Nickel plated surface

# DISTANCE RINGS FOR WALL-THICKNESS ADJUSTMENT



**FOR RECEPTACLES STYLE 2<sup>1</sup>**

**EXAMPLE OF ASSEMBLY**



Size	Part number	Da mm	Di mm	L mm	T mm
0	700.123.102.304.000	13	10.3	7	1 – 6
1	701.123.102.304.000	17	14.3	12	0.5 – 6
1	701.123.102.304.001	17	14.3	6	6 – 16
2	702.123.102.304.000	21	16.3	8	1 – 8
3	703.123.102.304.000	25	20.3	11.5	0.5 – 7

Material: brass

Surface: nickel

<sup>1</sup> See page 123.



ODU MINI-SNAP®

# CRIMPING TOOLS / ASSEMBLY TOOLS



**PART NUMBER CRIMPING TOOL**  
080.000.051.000.000

Part number positioner,  
see table.

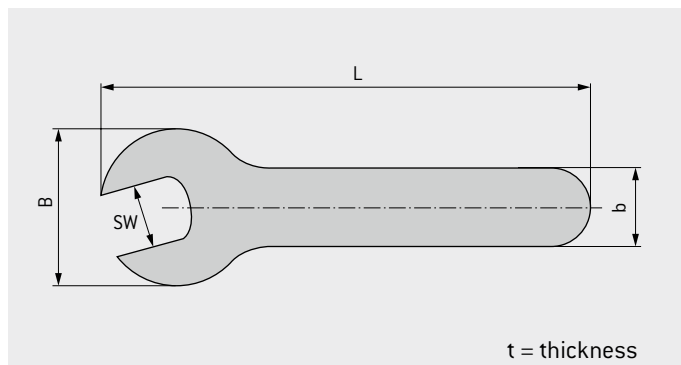
## PROCESSING TOOL FOR CRIMP CONTACTS

Digital adjustment, multiposition

Size	Number of contacts	Contact diameter mm	Termination cross-section		Adjustment dim. mm	Positioner	Positioning setting		Removal tool
			AWG	mm <sup>2</sup>			Pin	Socket	
0	4-5	0.7	28-32	0.09-0.04	0.57	080.000.051.105.000	1	2	087.7CC.070.001.000
	4-5	0.7	22-26	0.38-0.15	0.67	080.000.051.105.000	1	2	087.7CC.070.001.000
	2-3	0.9	22-26	0.38-0.15	0.67	080.000.051.105.000	3	4	087.7CC.090.001.000
	2-3	0.9	20-24	0.5-0.25	0.67	080.000.051.105.000	3	4	087.7CC.090.001.000
1	6-8	0.7	28-32	0.09-0.04	0.57	080.000.051.105.000	1	5	087.7CC.070.001.000
	6-8	0.7	22-26	0.38-0.15	0.67	080.000.051.105.000	1	5	087.7CC.070.001.000
	4-5	0.9	22-26	0.38-0.15	0.67	080.000.051.105.000	3	6	087.7CC.090.001.000
	4-5	0.9	20-24	0.5-0.25	0.67	080.000.051.105.000	3	6	087.7CC.090.001.000
	2-3	1.3	18-20	1-0.5	1.12	080.000.051.105.000	7	8	087.7CC.130.001.000
2	12-19	0.7	28-32	0.09-0.04	0.57	080.000.051.106.000	1	2	087.7CC.070.001.000
	12-19	0.7	22-26	0.38-0.15	0.67	080.000.051.106.000	1	2	087.7CC.070.001.000
	8-10	0.9	22-26	0.38-0.15	0.67	080.000.051.106.000	3	4	087.7CC.090.001.000
	8-10	0.9	20-24	0.5-0.25	0.67	080.000.051.106.000	3	4	087.7CC.090.001.000
	4-7	1.3	20-24	0.5-0.25	0.67	080.000.051.106.000	5	6	087.7CC.130.001.000
	4-7	1.3	18-20	1-0.5	1.12	080.000.051.106.000	5	6	087.7CC.130.001.000
	3	1.6	18-20	1-0.5	1.12	080.000.051.107.000	1	2	087.7CC.160.001.000
	3	1.6	18	1.5-1	1.12	080.000.051.107.000	1	2	087.7CC.160.001.000
	3	1.6	14-16	1.5-1	1.3	080.000.051.107.000	1	2	087.7CC.160.001.000
	2	2	18	1.5-1	1.12	080.000.051.107.000	3	4	087.7CC.200.002.000
2	2	14-16	1.5-1	1.3	080.000.051.107.000	3	4	087.7CC.200.002.000	
3	20-30	0.7	28-32	0.09-0.04	0.57	080.000.051.106.000	1	7	087.7CC.070.001.000
	20-30	0.7	22-26	0.38-0.15	0.67	080.000.051.106.000	1	7	087.7CC.070.001.000
	14-18	0.9	22-26	0.38-0.15	0.67	080.000.051.106.000	3	8	087.7CC.090.001.000
	14-18	0.9	20-24	0.5-0.25	0.67	080.000.051.106.000	3	8	087.7CC.090.001.000
	8-10	1.3	20-24	0.5-0.25	0.67	080.000.051.106.000	5	9	087.7CC.130.001.000
	8-10	1.3	18-20	1-0.5	1.12	080.000.051.106.000	5	9	087.7CC.130.001.000
	7	1.6	18-20	1-0.5	1.12	080.000.051.107.000	1	5	087.7CC.160.001.000
	7	1.6	18	1.5-1	1.12	080.000.051.107.000	1	5	087.7CC.160.001.000
	7	1.6	14-16	1.5-1	1.3	080.000.051.107.000	1	5	087.7CC.160.001.000

# SPANNER WRENCH

Part number	Dimensions in mm				
	SW	t	B	L	b
598.700.001.016.000	5	1.5	16	92	8
598.700.001.015.000	5.5	1.5	16	92	8
598.700.001.021.000	6	2	16	92	8
598.700.001.011.000	7	2	16	92	8
598.700.001.001.000	8	2	16	92	8
598.700.001.022.000	9	2	21.5	102	9
598.700.001.002.000	10	2	21.5	102	9
598.700.001.012.000	11	2	24.5	115	10
598.700.001.003.000	12	2.5	24.5	115	10
598.700.001.017.000	12.5	4	24.5	115	10
598.700.001.004.000	13	2.5	30.5	98	16.5
598.700.001.005.000	14	2.5	30.5	98	16.5
598.700.001.006.000	15	3	35.5	145	15
598.700.001.007.000	16	3	35.5	145	15
598.700.001.008.000	17	3	35.5	145	15
598.700.001.023.000	18	3	42	172	16
598.700.001.013.000	19	3	42	172	16
598.700.001.009.000	20	3	42	172	16
598.700.001.018.000	21	3	42	172	16
598.700.001.010.000	22	3	47	119	23.5
598.700.001.014.000	24	3	54	119	23.5
598.700.001.024.000	27	3	55	150	25
598.700.001.019.000	30	3	50	150	25
598.700.001.020.000	31	3	50	150	25



# NUTDRIVER FOR SLOTTED MOUNTING NUT



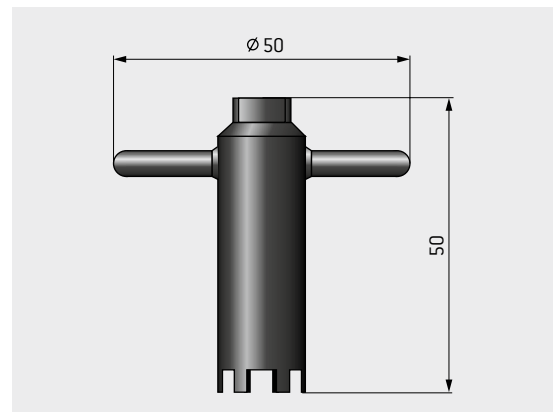
Nutdriver	Thread
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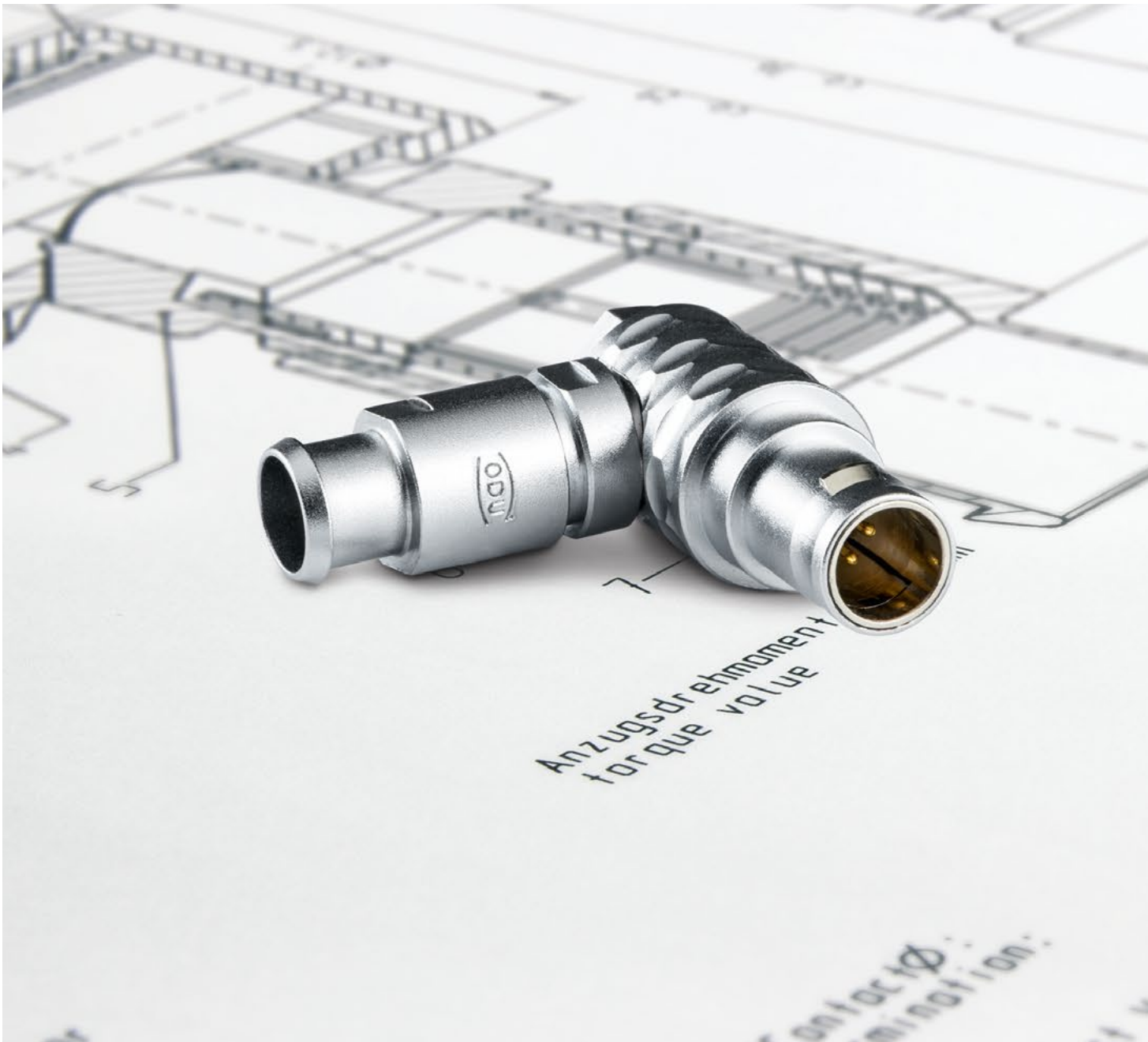
SUITABLE FOR STYLE 8 / SERIES L AND B:

700.098.002.000.000	M 9 × 0.5
700.098.001.000.000	M 10 × 0.5
700.098.001.000.000	M 12 × 1
701.098.002.000.000	M 14 × 1
701.098.001.000.000	M 15 × 1
702.098.001.000.000	M 16 × 1
702.098.001.000.000	M 18 × 1
703.098.001.000.000	M 20 × 1

SUITABLE FOR STYLE 3 / SERIES K:

701.098.002.000.000	M 14 × 1
721.098.001.000.000	M 16 × 1
703.098.001.000.000	M 20 × 1
724.098.001.000.000	M 30 × 1





ODU MINI-SNAP®

# INTERNATIONAL PROTECTION CLASSES

Acc. IEC 60529:2013 (VDE 0470-1:2014).



Code letters (International Protection)		First code number (Degrees of protection against access to hazardous parts respectively against solid foreign objects)		Second code number (Degrees of protection against water)	
IP		6		5	
Code number	Protection against access to hazardous parts / Protection against ingress of solid foreign objects			Code number	Protection against harmful effects due to the ingress of water
0	No protection		No protection against contact / No protection against solid foreign objects	0	No protection against water
1	Protection against large foreign objects		Protection against contact with the back of the hand / Protection against solid foreign objects $\varnothing \geq 50$ mm	1	Protection against dripping water
2	Protection against medium-sized foreign objects		Protection against contact with the fingers / Protection against solid foreign objects $\varnothing \geq 12.5$ mm	2	Protection against angular dripping water (from angles)
3	Protection against small foreign objects		Protection against contact with tools / Protection against solid foreign objects $\varnothing \geq 2.5$ mm	3	Protection against spray water
4	Protection against granular foreign objects		Protection against contact with a wire / Protection against solid foreign objects $\varnothing \geq 1.0$ mm	4	Protection against splashing water
5	Dustproof		Protection against contact with a wire / Protection against uncontrolled ingress of dust	5	Protection against water jet
6	Dustproof		Protection against contact with a wire / Complete protection against ingress of dust	6	Protection against powerful water jet
				7	Protection against the effects of temporary immersion in water
				8	Protection against the effects of continuous immersion in water
				9	Protection against high pressure water jet featuring high temperatures

# HOUSING MATERIALS / SURFACES



Component	Material designation	Surface
Connector plug housing Back nut Decorative slotted mounting nut	Cu-alloy	Cr <sup>1</sup>
Cable collet EMI ring Half-shell Lock washer Nut Retainer Ring	Cu-alloy	Ni
Contact pin (solder/PCB) Contact socket (solder/PCB) Contact pin (crimp) Contact socket (crimp)	Cu-alloy	Au

ODU MINI-SNAP connector plug housings are made of brass, nickel plated and then matt chrome plated. Nickel and black chrome plated connector plug housings are available upon request as special materials. The internal parts are made of nickel plated brass.

## INSULATOR MATERIALS (COMPLIANT TO ROHS 2011/65/EU)

	Norm	Unit	PEEK
Dielectric strength	IEC 60243-1:2013 (VDE 0303-21:2014)	KV/mm	19
Operation temperature	ASTM D 149:2009	°C	-50/+250
Flammability rating	UL-94:2013	-	V-0
Comparative tracking index CTI	IEC 60112:2009 (VDE 0303-11:2010)		175

<sup>1</sup> Black chrome plated on request. Choice in the part number key, see page 39 (series L), page 88 (series K), page 125 (series B).

# CONVERSIONS/AWG (AMERICAN WIRE GAUGE)



Circular wire					
AWG	Diameter		Cross-section mm <sup>2</sup>	Weight kg/km	Max. resistance Ω/km
	Inch	mm			
10 (1)	0.1020	2.5900	5.2700	47.000	3.45
10 (37/26)	0.1109	2.7500	4.5300	43.600	4.13
12 (1)	0.0808	2.0500	3.3100	29.500	5.45
12 (19/25)	0.0895	2.2500	3.0800	28.600	6.14
12 (37/28)	0.0858	2.1800	2.9700	26.300	6.36
14 (1)	0.0641	1.6300	2.0800	18.500	8.79
14 (19/27)	0.0670	1.7000	1.9400	18.000	9.94
14 (37/30)	0.0673	1.7100	1.8700	17.400	10.50
16 (1)	0.0508	1.2900	1.3100	11.600	13.94
16 (19/29)	0.0551	1.4000	1.2300	11.000	15.70
18 (1)	0.0403	1.0200	0.8200	7.320	22.18
18 (19/30)	0.0480	1.2200	0.9600	8.840	20.40
20 (1)	0.0320	0.8130	0.5200	4.610	35.10
20 (7/28)	0.0366	0.9300	0.5600	5.150	34.10
20 (19/32)	0.0384	0.9800	0.6200	5.450	32.00
22 (1)	0.0252	0.6400	0.3240	2.890	57.70
22 (7/30)	0.0288	0.7310	0.3540	3.240	54.80
22 (19/34)	0.0307	0.7800	0.3820	3.410	51.80
24 (1)	0.0197	0.5000	0.1960	1.830	91.20
24 (7/32)	0.0230	0.5850	0.2270	2.080	86.00
24 (19/36)	0.0252	0.6400	0.2400	2.160	83.30
26 (1)	0.1570	0.4000	0.1220	1.140	147.00
26 (7/34)	0.0189	0.4800	0.1400	1.290	140.00
26 (19/38)	0.0192	0.4870	0.1500	1.400	131.00
28 (1)	0.0126	0.3200	0.0800	0.716	231.00
28 (7/36)	0.0150	0.3810	0.0890	0.813	224.00
28 (19/40)	0.0151	0.3850	0.0950	0.931	207.00
30 (1)	0.0098	0.2500	0.0506	0.451	374.00
30 (7/38)	0.0115	0.2930	0.0550	0.519	354.00
30 (19/42)	0.0123	0.3120	0.0720	0.622	310.00
32 (1)	0.0080	0.2030	0.0320	0.289	561.00
32 (7/40)	0.0094	0.2400	0.0350	0.340	597.10
32 (19/44)	0.0100	0.2540	0.0440	0.356	492.00
34 (1)	0.0063	0.1600	0.0201	0.179	951.00
34 (7/42)	0.0083	0.2110	0.0266	0.113	1,491.00
36 (1)	0.0050	0.1270	0.0127	0.072	1,519.00
36 (7/44)	0.0064	0.1630	0.0161	0.130	1,322.00
38 (1)	0.0040	0.1000	0.0078	0.072	2,402.00
40 (1)	0.0031	0.0800	0.0050	0.043	3,878.60
42 (1)	0.0028	0.0700	0.0038	0.028	5,964.00
44 (1)	0.0021	0.0540	0.0023	0.018	8,660.00

The American Wire Gauge (AWG) is based on the principle that the cross-section of the wire changes by 26% from one gauge number to the next. The AWG numbers decrease as the wire diameter increases, while the AWG numbers increase as the wire diameter decreases. This only applies to solid wire.

However, stranded wire is predominately used in practice. This has the advantage of a longer service life under bending and vibration as well as greater flexibility in comparison with solid wire.

Stranded wires are made of multiple, smaller-gauge wires (higher AWG number). The stranded wire then receives the AWG numbers of a solid wire with the next closest cross-section to that of the stranded wire. In this case, the cross-section of the stranded wire refers to the sum of the copper cross-sections of the individual wires.

Accordingly, strands with the same AWG number but different numbers of wires differ in cross-section. For instance, an AWG 20 strand of 7 AWG 28 wires has a cross-section of 0.563 mm<sup>2</sup>, while an AWG 20 strand of 19 AWG 32 wires has a cross-section of 0.616 mm<sup>2</sup>.

Source: Gore & Associates, Plainfield

# OPERATING VOLTAGE



Acc. SAE AS 13441:2004 method 3001.1

The values specified in the catalog correspond to SAE AS 13441:2004 method 3001.1. The table values were determined according to EIA 364-20E:2015. The inserts were tested while mated, and the test current was applied to the pin insert.

75 % of the dielectric withstanding voltage is used for the further calculation. The operating voltage is 1/3 of this value.

All tests were conducted at normal indoor climate and apply up to an altitude of 2,000 m. If there are any deviations, the reduction factors are to be factored in according to the applicable standards. Test voltage:  
Dielectric withstanding voltage  $\times 0.75$  Operating voltage: Dielectric withstanding voltage  $\times 0.75 \times 0.33$

## ATTENTION:

With certain applications, the safety requirements for electrical devices are very strict in terms of operating voltage. In such cases, the operating voltage is defined according to the clearance and creepage distances between parts which could be touched.

When selecting such a connector, please contact us and let us know the safety standard which the product must meet.

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Test voltage: Dielectric withstanding voltage  $\times 0.75$

Operating voltage: Dielectric withstanding voltage  $\times 0.75 \times 0.33$

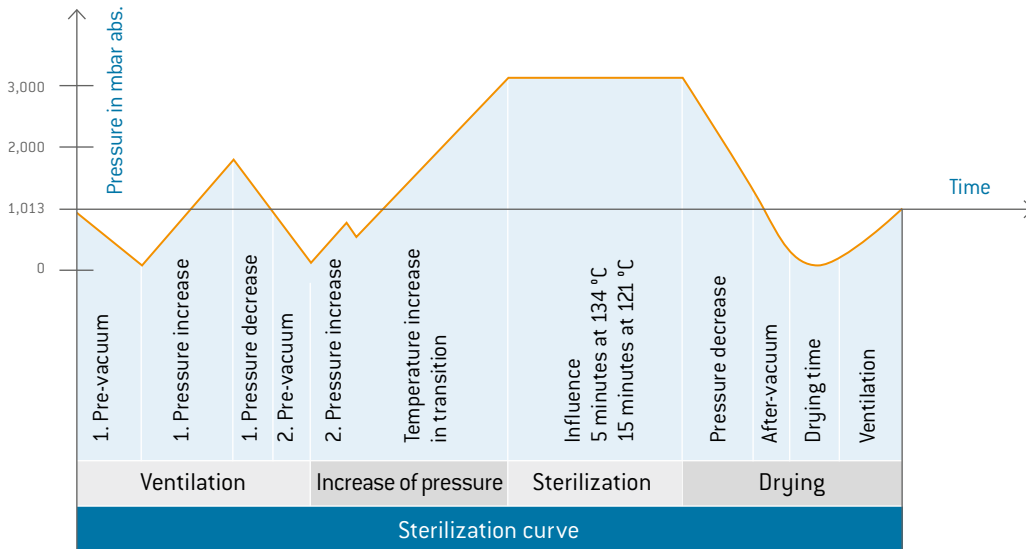
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# AUTOCLAVING OF ODU MINI-SNAP®



We can also provide ODU MINI-SNAP connectors for the following sterilization procedures upon request: steam sterilization via pre-vacuum or gravity method. The connectors are tested in autoclaves for 500 cycles at 134 °C in accordance with DIN EN 13060:2015.

**Please consult our technical team for the further sterilization procedure.**



## TEST STANDARD

In terms of the quality approval, sizes 0 and 3 were subjected to environmental and mechanical tests pursuant to MIL and passed them flawlessly.

Definition	Standard
High temperature	MIL-STD-810G w/Change 1:2014 method 501.6
Low temperature	MIL-STD-810G w/Change 1:2014 method 502.6
Temperature shock	MIL-STD-810G w/Change 1:2014 method 503.6
Humidity	MIL-STD-810G w/Change 1:2014 method 507.6
Salt fog	MIL-STD-810G w/Change 1:2014 method 509.6
Shock	MIL-STD-810G w/Change 1:2014 method 516.7
Vibration	MIL-STD-1344A method 2005.1 (IV)
Watertightness IP 68	IEC 60529:2013 (VDE 0470-1:2014)

# TECHNICAL TERMS



## FIXED CONNECTORS

Intended for mounting on a fixed surface such as a frame, dock, device or wall (with ODU also receptacle or panel-mounted plug).

## FREE CONNECTORS

Intended for mounting on free ends of mobile leads and cables (with ODU also connectors, plugs, in-line receptacles).

## INSULATOR

Part of a connector which separates conductive parts with different potentials from one another; usually identical to the contact carrier.

## KEYING (ORIENTATION)

Arrangement with which differing polarization of otherwise identical connectors prevents interchangeability. This is a good idea if two or more identical connectors are attached to the same device (see also compatible connectors, see pages [39](#), [88](#), [125](#)).

## LOWERMOST LIMIT TEMPERATURE

The lowest permissible temperature at which a connector may be operated. At ODU MINI-SNAP, it amounts to  $-40\text{ }^{\circ}\text{C}$ .

## MATING AND DEMATING FORCE

The force required to fully insert or withdraw pluggable elements without the influence of a coupling or locking device.

## MATING CYCLES

Mechanical actuation of connectors and plug devices via push and pull action. A mating cycle consists of one insertion and withdrawal action. ODU's standard value for the ODU MINI-SNAP series is 5,000 mating cycles.

## MAX. CONTINUOUS CURRENT

The metrologically determined amperage at room temperature (approx.  $20\text{ }^{\circ}\text{C}$ ) which increases the contact temperature to the limit temperature. The values specified in the catalog apply to either individual contacts or completely assembled inserts / modules, as indicated.

## NOMINAL SINGLE CONTACT CURRENT LOAD

The current-carrying capacity which each individual contact can be loaded with on its own (see page [167](#)).

## NOMINAL VOLTAGE

The voltage which the manufacturer specifies for a connector and relates to the operating and performance features.

## OPERATING TEMPERATURE FOR ODU MINI-SNAP

Range between the uppermost and lowermost temperature limits.  $-40\text{ }^{\circ}\text{C}$  to  $+120\text{ }^{\circ}\text{C}$  (see page [15](#)).

## OPERATING VOLTAGE

The nominal voltage of the power source for which the connector is being used. The operating voltage may not be higher than the nominal voltage of the connector.

## PCB (A.K.A. "PRINTED CIRCUIT BOARD")

A PCB is a carrier for electronic components. It serves the purposes of mechanical mounting and electrical connection.

## PCB TERMINATION

Production of a conductive connection between the PCB and an element in through-hole assembly, THT (through-hole technology).

## RATED CURRENT (NOMINAL CURRENT)

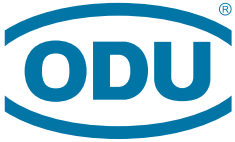
See page [167](#).

## RATED VOLTAGE

According to IEC 60664-1:2007 (VDE 0110-1:2008) standard "Value of a voltage which is specified by the manufacturer for a component, device or operating medium and relates to the operating and performance features."

## SOLDER CONNECTION (SOLDER TERMINATION)

Termination technology in which a molten additional metal (solder) with a lower melting point than the base materials to be connected is used to attach two metallic materials to one another.



A PERFECT ALLIANCE.

## ODU GROUP WORLDWIDE



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**Mexico** ODU Mexico Manufacturing S.R.L. de C.V.  
**Romania** ODU Romania Manufacturing S.R.L.  
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www.odu-usa.com/contact



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