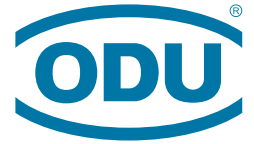


A PERFECT ALLIANCE.



# ODU MEDI-SNAP®

Miniature circular connectors with  
Push-Pull locking as well as Break-Away function

PLASTIC HOUSING  
METAL HOUSING



ODU MEDI-SNAP®

ODU MINI-SNAP® F

ODU MINI-SNAP® L/K/B

ODU MINI-SNAP® PC

ODU MINI-MED®

ODU AMC®

---

# ODU MEDI-SNAP®

---

## FEATURES

- 75 % lighter than comparable metal connectors
- Easy installation and maintenance
- Space-saving design
- High chemical resistance
- Fully sterilizable
- Quick mating with Push-Pull locking
- Easy-to-release Break-Away function

---

## APPLICATIONS

- Medical
- Industrial
- Digital test and measurement



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

All shown connectors with the exemption of Special Contact Inserts are rated to safety extra low voltage (SELV) less than 50 V AC / 75 V DC, according to IEC 61140:2016 (VDE 0140-1:2016).

For more details, please refer to page 118.

ODU MEDI-SNAP® is UL-approved under File E110586.

Issue: 2022-03

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

Printed on certified recycled paper.



# TABLE OF CONTENTS

Clickable page numbers

<b>THE ODU CORPORATE GROUP</b> .....	<b>4</b>
<b>PRODUCT INFORMATION</b> .....	<b>10</b>
ODU Connector Portfolio at a glance .....	12
The circular connector ODU MEDI-SNAP® with plastic and metal housing .....	13
Push-Pull locking functionality .....	14
Break-Away locking functionality .....	14
Product features at a glance .....	15
Turned contacts .....	15
<b>CONFIGURATION GUIDELINE</b> .....	<b>16</b>
Connector configuration – step by step .....	18
<b>ODU MEDI-SNAP® WITH PLASTIC HOUSING SIZE 1</b> .....	<b>22</b>
Summary .....	24
Styles .....	26
Codings .....	37
Contact inserts and PCB layouts .....	38
Cable collet system .....	44
Accessories .....	45
<b>ODU MEDI-SNAP® BREAK-AWAY PLUGS SIZE 1</b> .....	<b>52</b>
Summary .....	54
Styles .....	55
Codings .....	56
Contact inserts .....	57
Accessories .....	58
<b>ODU MEDI-SNAP® WITH PLASTIC HOUSING SIZE 2</b> .....	<b>60</b>
Summary .....	62
Styles .....	64
Codings .....	68
Contact inserts and PCB layouts .....	69
Cable collet system .....	72
Accessories .....	73
<b>ODU MEDI-SNAP® BREAK-AWAY PLUGS SIZE 2</b> .....	<b>78</b>
Summary .....	80
Styles .....	81
Codings .....	82
Contact inserts .....	83
Accessories .....	84
<b>ODU MEDI-SNAP® WITH METAL HOUSING SIZE 1</b> .....	<b>86</b>
Summary .....	88
Styles .....	90
Codings .....	94
Contact inserts and PCB layouts .....	95
Cable collet system .....	100
Accessories .....	101
<b>TOOLS, CRIMP INFORMATION, PROCESSING INSTRUCTIONS, ACCESSORIES</b> .....	<b>106</b>
Crimping tools/assembly tools .....	108
Spanner wrench .....	110
Wrench for device front nuts .....	110
Removal tools for crimp-clip-contacts .....	111
<b>TECHNICAL INFORMATION</b> .....	<b>112</b>
International protection classes acc. IEC 60529:2013 (VDE 0470-1:2014-09) .....	114
Explanations and details of safety requirement, inspections, and voltage data .....	115
Housing materials and insulator materials .....	119
Termination technologies .....	120
Conversions/AWG .....	121
Current load of turned contacts .....	122
Autoclaving of ODU MEDI-SNAP® .....	123
Technical terms .....	124

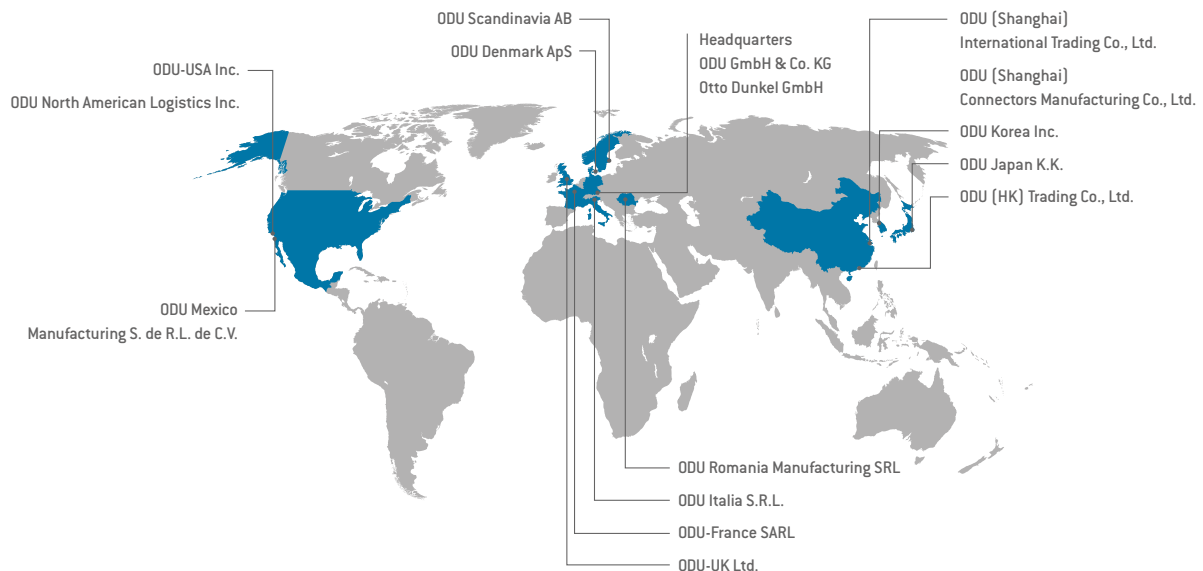
# A PERFECT ALLIANCE

## ODU group overview

- Almost 80 years of experience in the connector technology
- 2,300 employees worldwide
- Sales subsidiaries in China, Denmark, France, Germany, Hong Kong, Italy, Japan, Korea, Romania, Sweden, UK and the US as well as 5 production and logistics sites
- All technologies under one roof: Design and development, machine tool and special machine construction, injection, stamping, turning, surface technology, assembly and cable assembly

As of February 2021

## Worldwide customer proximity







## Certificates & approvals

- ISO 9001
- IATF 16949
- ISO 13485
- ISO 14001
- ISO 50001
- Wide range of UL, CSA, VG and VDE approvals
- UL Wiring Harnesses certified

For a complete list of our certifications and approvals, please visit our website.

## ODU serves the markets



# PRODUCT PORTFOLIO

## Circular Connectors

- Circular connector series in robust metal or plastic housing
- Different locking systems available: Push-Pull and Screw-Lock options or Break-Away for quick release
- Contacts for soldering, crimping and PCB termination
- 2 up to 55 contacts and protection classes IP50 to IP69
- Autoclavable for medical applications
- Hybrid inserts for combined transmission



## Cable Assembly

- One point of contact for the complete solution
- State-of-the-art manufacturing facilities for small, medium and high volumes at production sites worldwide
- Overmolding in silicone, hot-melt and high-pressure procedures
- Customer-specific labeling and cable printing
- Wide range of standard cables and accessories available
- Rapid prototyping and fast customer samples



## Electrical Contacts

- Versatile contact technologies with high reliability and durability
- Current-carrying capacity of up to 2,400 A
- Rugged and universal contact systems
- Stamping technology for customer-specific high volume solutions
- Very high vibration and low, stable contact resistance







## Modular Connectors

- Application-specific hybrid interface
- Manual mating and automatic docking
- Flexible modular design and highest packing density
- High variety of locking options
- Mating cycles scalable as required from 10,000 to over 100,000 (1 million)
- Transmission of signals, power, high current, high voltage, HF signals (coax), media, high-speed data or fiber optics



## Mass Interconnect Solutions

- For testing printed circuit boards (PCBs) and electronically assembled units
- Innovative engagement option: electromechanical version with remote control available
- 8 tensioning points stop the frame distortion
- Maximum flexibility with ODU-MAC® modules and signal blocks
- Adapter frame (ITA) with tolerance compensation
- Easy maintenance access for a simple and fast modification

# FINDING BEST SOLUTIONS

SUPPORT FROM START TO FINISH –  
WE ARE HAPPY TO ADVISE YOU

[sales@odu.de](mailto:sales@odu.de)





## ODU EXPRESS

ODU Express products are proven ODU standard products with the advantage of fast availability.

It refers to the worldwide availability of many ODU product groups and circular connectors: from 150 pieces in 15 working days or less, anywhere in the world.

Like in a supermarket, samples are now kept in stock.

We therefore recommend to use ODU Express for time-sensitive projects in particular. Our customer consultants are happy to advise you on current delivery times.

### ODU Product Finder

It lists thousands of connectors along with their data sheet and STP files.



[odu-productfinder.com](https://www.odu-productfinder.com)

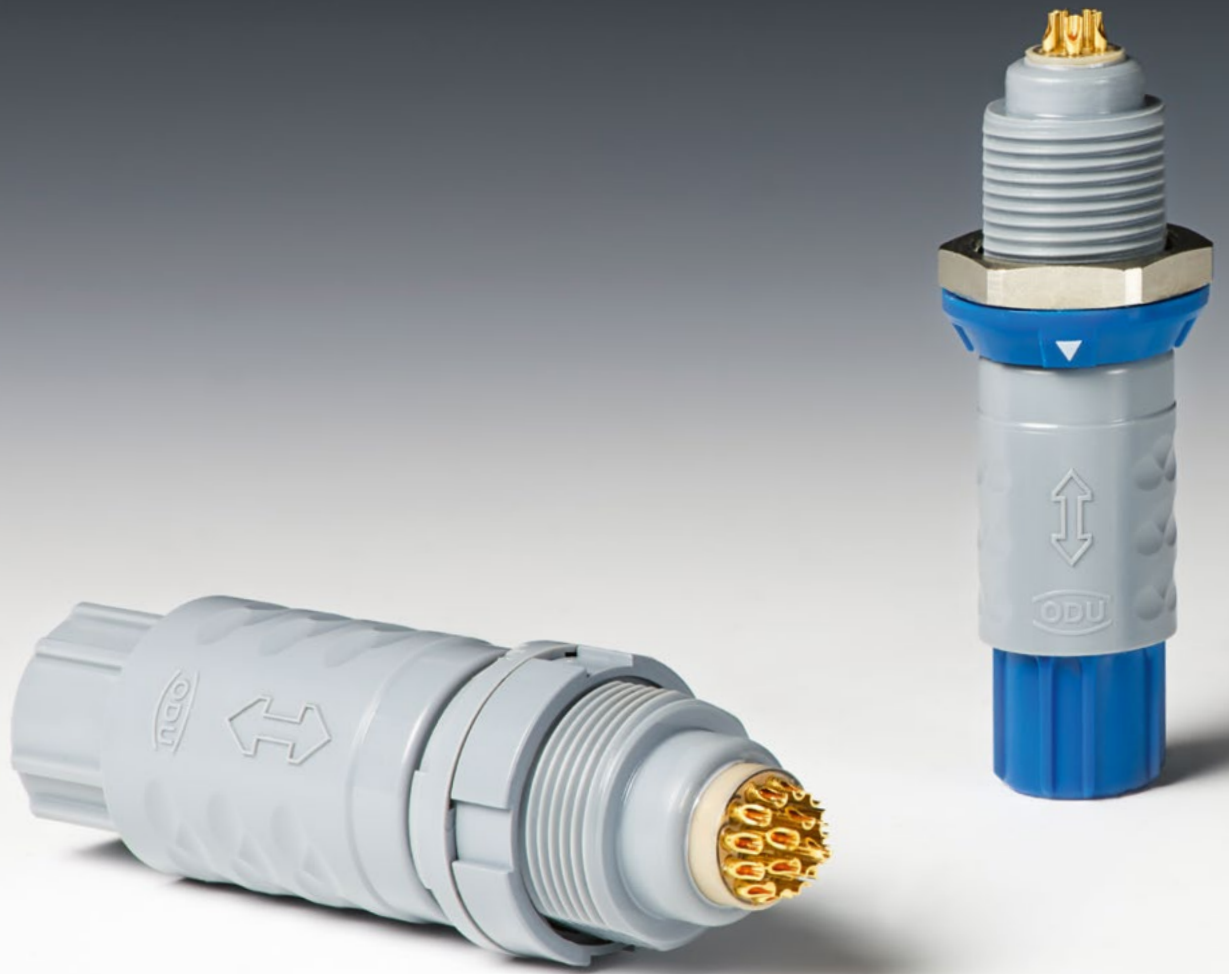


### ODU Product sample box

See, feel and test our products before you order.

Choose your configuration in the ODU product finder.





ODU MEDI-SNAP®







## PRODUCT INFORMATION

ODU Connector Portfolio at a glance .....	<a href="#">12</a>
The circular connector ODU MEDI-SNAP® with plastic and metal housing .....	<a href="#">13</a>
Push-Pull locking functionality .....	<a href="#">14</a>
Break-Away locking functionality .....	<a href="#">14</a>
Product features at a glance .....	<a href="#">15</a>
Turned contacts .....	<a href="#">15</a>

# ODU CONNECTOR PORTFOLIO AT A GLANCE

	Coding	Size	No. of possible mechanical codings	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	Housing material	From page
<b>ODU MEDI-SNAP® PLASTIC</b>													
	Pin and groove	1	6	13.7	6.5	14	•	•	•	Up to IP67	Up to IP68	PSU Gray, Black PEI Black	<a href="#">24</a>
	Pin and groove	2	3	18.5	9.2	26	•		•	Up to IP64	IP50	PSU Gray	<a href="#">62</a>
<b>ODU MEDI-SNAP® METAL</b>													
	Pin and groove	1	3	14	6.5	14	•	•	•	Up to IP64	Up to IP68	Metal (Brass)	<a href="#">88</a>

## ADDITIONAL ODU PUSH-PULL CIRCULAR CONNECTOR SERIES:



- Coding over pin and groove
- 2–40 contacts
- 6 sizes
- IP50 and IP68
- Contacts for solder, crimp and PCB termination

- Coding over half-shell
- 2–27 contacts
- Low weight
- IP67
- 3 sizes
- Plastic connector plug housing

- Coding over half-shell
- 2–27 contacts / mixed inserts
- 5 sizes
- IP50 and IP68 with same outer diameter possible
- Contacts for solder, crimp and PCB termination

- Coding over insulator
- 2–10 contacts / mixed inserts
- 3 sizes
- IP50 and IP68 with same outer diameter possible
- Contacts for solder, crimp and PCB termination

- Push-Pull and Break-Away version
- 3–55 contacts
- 6 sizes
- Watertight – IP68
- Easy-Clean and High-Density version
- Tested acc. MIL
- Low weight (aluminium connector plug housing)



# THE CIRCULAR CONNECTOR MEDI-SNAP® WITH PLASTIC AND METAL HOUSING



The ODU MEDI-SNAP® combines distinctive coding options with 2,000 / 5,000 mating cycles depending on the connector style. The efficient plastic connector is available both with user-friendly Push-Pull locking and the easy-to-release Break-Away function, which comes as a premolded plug & play solution. The ODU MEDI-SNAP® portfolio offers also a High-Voltage solution for up to 1,000 V AC / 16 A including a hot-plugging prevention.

Its space-saving product design enables top performance even in the smallest available construction space. Because of its plastic housing, this connector is up to 75 % lighter than comparable metal products. The great diversity makes the ODU MEDI-SNAP® perfectly suited to your requirements in medical technology, industrial electronics as well as digital test and measurement technology.

The IEC 60601-1:2012 (VDE 0750-1:2013-12) standard has special requirements. In detail it defines strict requirements in regards to protection against electrical shock of medical devices and their components for both patients and operators. The various protection measures (MOP: Means Of Protection) are described in detail from [page 25](#) and [63](#).

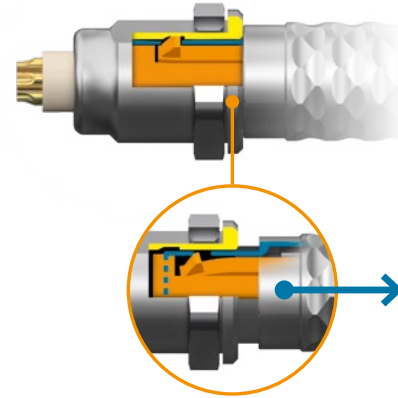
## VERSATILE CONFIGURATION OPTIONS

There are 8 color codings, up to 6 mechanical codings, 2 sizes, 3 termination types and a wide range of different contact inserts available.

## PUSH-PULL LOCKING FUNCTIONALITY

The proven Push-Pull locking ensures establishing connections easily in less than a second. It is **self-securing** – this means that an accidental release by pulling on the cable can be precluded. During the mating process, the connector’s locking claws will lock into place in the corresponding grooves in the receptacle and form a dependable connection between the connector and the receptacle. Consequently, when the connection is properly established, an unintentional demating of the connection by pulling on the cable cannot take place. The connection can only be released deliberately, by just pulling back the connector’s outer sleeve.

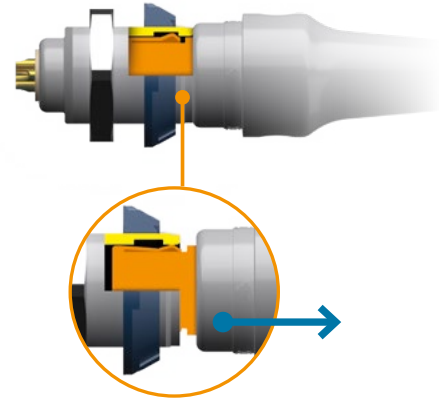
ODU MEDI-SNAP® Push-Pull connectors from ODU are available in 2 different standard sizes with diameters from 13.7 mm to 18.5 mm.



## BREAK-AWAY LOCKING FUNCTIONALITY

The efficient Break-Away locking allows an easy mating and demating of connections within fractions of a second just like the Push-Pull locking. But furthermore it also features an **emergency release** which enables demating the connection when needed by pulling on the cable. During mating, the connector’s locking claws will lock into place in the corresponding grooves in the receptacle and form a dependable connection between the connector and the receptacle. The sloping shape of the locking claws ensures the “breaking away” of the connection when the connector or cable is pulled with a defined force.

ODU MEDI-SNAP® Break-Away connectors are available in 2 different standard sizes in diameters from 13.4 to 18 mm.



# PRODUCT FEATURES AT A GLANCE

## WIDE VARIETY OF DESIGNS

- Plastic housing in two sizes
- Metal housing in one size
- Outer diameter of 13.4 mm to 18.5 mm
- 2 to 26 contacts
- IP50, IP64 and IP67 in mated condition / IP68 in unmated condition
- Overmolded as well as freely configurable solutions

## APPLICATIONS AND MATERIALS

The ODU MEDI-SNAP® housings are available in plastic (PSU Gray / Black as well as PEI Black) or brass. Special material housing in PSU White or PEI Gray available on request.

The variety of the ODU MEDI-SNAP® allows it to adapt to your requirements in medical technology, industrial electronics as well as digital measurement and testing technology.

Under general application conditions, the temperature range of the ODU MEDI-SNAP® lies between -50 °C and a maximum of +120 °C, even up to +134 °C in the case of autoclavable connectors (see page [123](#)).

# TURNUED CONTACTS

Turned contacts are available in diameter 0.5 mm to 2 mm in the following termination types:

**Solder, crimp and PCB.**

Mating cycles	> 5.000
Material	Brass
Plating	Au

## TERMINATION TECHNOLOGIES

	Insulator material PEEK	Contact material BRASS
Crimp termination <sup>1</sup>	•	•
Solder termination	•	•
PCB termination (on PCB)	•	•

<sup>1</sup> Crimp-clip contacts available with diameters of 0.7 mm and 0.9 mm

## STANDARD PIN CONTACTS



Information on diameters, termination types and current carrying capacity can be found after the inserts.



ODU MEDI-SNAP®



## CONFIGURATION GUIDELINE

Connector configuration – step by step

---

# BIT BY BIT TO THE PERFECT CONNECTION

---

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



← Back nut



← Cable collet



← Insulator with contacts



← Connector plug housing



← Receptacle



← Hex nut

# YOUR WAY TO AN INDIVIDUAL CONNECTION:

## HOW TO CONFIGURE WITH THE PART NUMBER KEY.

This shows you how ODU's part number key is composed. In the first part of the configuration, select the connector plug housing (such as style and size) of the connector. In the middle part of the part number key, you configure the contact insert and then the cable entry.

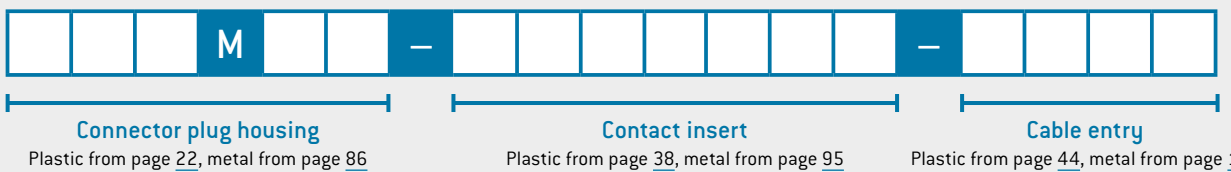
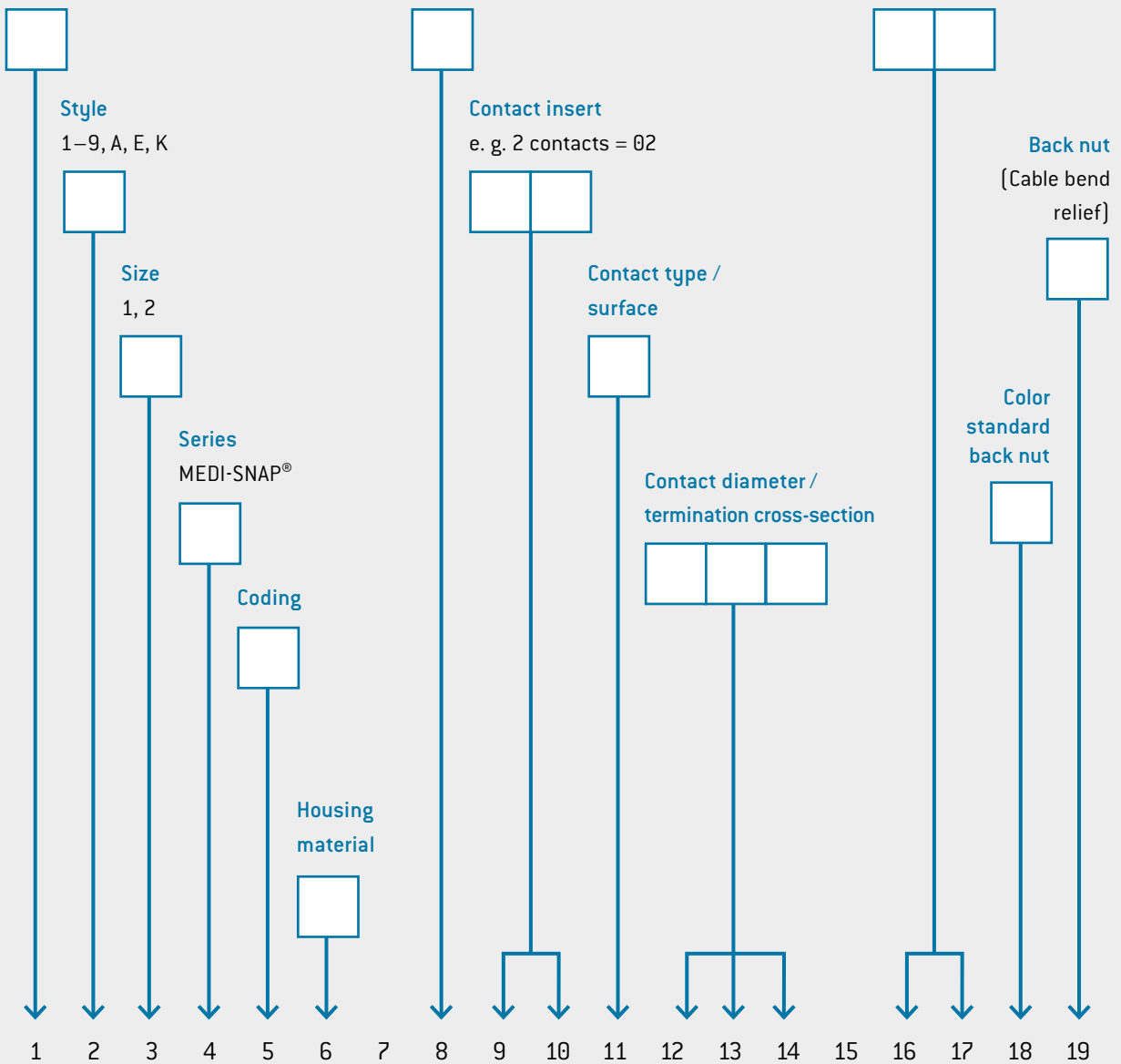
### Type

- A = Break-Away connector
- G = Receptacle
- K = In-line receptacle
- S = Plug
- W = Right-angled plug

### Insulator material<sup>1</sup>

- P = PEEK (standard)
- T = PBT

### Cable collet system



<sup>1</sup> Other insulation materials on request

# CORRECT CONFIGURING – STEP BY STEP

The perfect product for you in just a few steps. These step-by-step instructions show you how to configure your own individual product with the ODU part number key based on a sample configuration.



Connector in style 1 / size 1 / series ODU MEDI-SNAP® / coding 0° / connector plug housing plastic, Gray / insulator PEEK / 14 contacts / pin (solder) Au / termination cross-section AWG 28 / cable diameter 5.3–6.5 mm / standard back nut in the color Blue

## 1. STEP: SERIES (SEE POSITION 4)

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



## 2. STEP: STYLE (SEE POSITIONS 1, 2 AND 19)

SEE PAGE 26

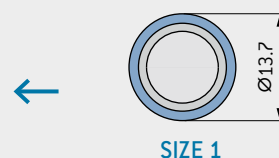
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
S	1		M			—								—				0



## 3. STEP: SIZE (SEE POSITION 3)

SEE PAGE 22

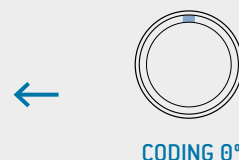
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
S	1	1	M			—								—				0



## 4. STEP: CODING (SEE POSITION 5)

SEE PAGE 37

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



## 5. STEP: HOUSING MATERIAL (SEE POSITION 6)

SEE PAGE 37

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





6. STEP: INSULATOR MATERIAL (SEE POSITION 8)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
S	1	1	M	0	7	-	P							-				0



7. STEP: CONTACT INSERT (SEE POSITIONS 9 AND 10)

SEE PAGE 38

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
S	1	1	M	0	7	-	P	1	4					-				0



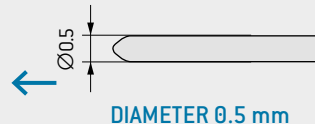
8. STEP: CONTACT TYPE / SURFACE (SEE POSITION 11)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
S	1	1	M	0	7	-	P	1	4	M				-				0



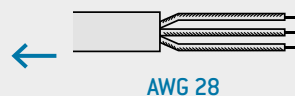
9. STEP: CONTACT DIAMETER (SEE POSITION 12)

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



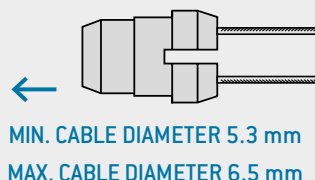
10. STEP: TERMINATION CROSS-SECTION (SEE POSITIONS 13 AND 14)

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



11. STEP: CABLE COLLET SYSTEM (SEE POSITIONS 16 AND 17)

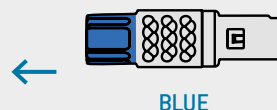
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
S	1	1	M	0	7	-	P	1	4	M	C	C	0	-	6	5		0



12. STEP: COLOR STANDARD BACK NUT (SEE POSITION 18)

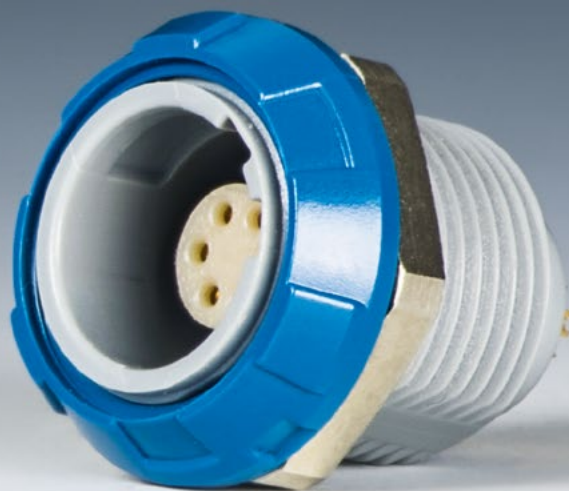
SEE PAGE 45

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





ODU MEDI-SNAP®






## ODU MEDI-SNAP® WITH PLASTIC HOUSING SIZE 1

Summary .....	<a href="#">24</a>
Styles .....	<a href="#">26</a>
Codings .....	<a href="#">37</a>
Contact inserts and PCB layouts .....	<a href="#">38</a>
Cable collet system .....	<a href="#">44</a>
Accessories .....	<a href="#">45</a>

# SUMMARY ODU MEDI-SNAP® PLASTIC HOUSING SIZE 1

The ODU MEDI-SNAP® with plastic housing in size 1 is coded by pin and groove. These circular connectors can have a variety of configurations: numerous styles of connectors, receptacles and in-line receptacles as well as various termination types, contact inserts and color codings.

- Coding over pin and groove
- 7 color codings
- 6 mechanical codings
- 2–14 contacts
- 3 termination types
- Contacts for solder, crimp and PCB termination
- A selection of numerous connectors as well as receptacles and in-line receptacles
- IP50 / IP64 and IP67 available in mated condition
- Up to 5,000 mating cycles

STRAIGHT PLUG – PUSH-PULL		P. 26	2,000 mating cycles
IP50		S	1
		S	2
IP64		S	4


RIGHT-ANGLED PLUG – PUSH-PULL		P. 28	2,000 mating cycles
IP50		W	1
		W	2

NEW! Chapter Break-Away Plugs from page 52	BREAK-AWAY PLUG		P. 29	5,000 mating cycles
	IP67		A	5

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

**IN-LINE RECEPTACLE** P. 30 **5,000** mating cycles

**IEC 60601-1: 2 MOOP<sup>1</sup> and 1 MOPP<sup>1</sup>**  
**IP50**



K	1
K	2

**RECEPTACLE** P. 31 **5,000** mating cycles


**IEC 60601-1: 2 MOOP<sup>1</sup> and 1 MOPP<sup>1</sup>**  
**IP50**



G	1
G	5
G	6
(On request)	
G	8

**RECEPTACLE** P. 33 **5,000** mating cycles

**IEC 60601-1: 2 MOOP<sup>1</sup> and 2 MOPP<sup>1</sup>**  
**IP50**




G	9
---	---

**IEC 60601-1: 2 MOOP<sup>1</sup> and 2 MOPP<sup>1</sup>**  
**IP64 / IP67**



G	4
G	E

**IEC 60601-1: 2 MOOP<sup>1</sup> and 2 MOPP<sup>1</sup>**  
**IP64 / IP67 / IP68<sup>2</sup>**



G	A
---	---

**ONE-PIECE RECEPTACLE** P. 36 **5,000** mating cycles

**IEC 60601-1: 1 MOOP<sup>1</sup> and 0 MOPP<sup>1</sup>**  
**IP50**



G	2
---	---

## IEC 60601-1:2012

### MEANS OF OPERATOR PROTECTION (MOOP) / MEANS OF PATIENT PROTECTION (MOPP)

Table is valid for working voltage of medical device max. 250 V AC (degree of pollution 2).  
For working voltage of connectors see insert configuration.

MOOP / MOPP	Clearance distance to the test finger mm	Creepage distances to the test finger mm	Test voltage V AC
1 MOOP	≥ 2	≥ 2.5	1,500
2 MOOP	≥ 4	≥ 5	3,000
1 MOPP	≥ 2.5	≥ 4	1,500
2 MOPP	≥ 5	≥ 8	4,000

The information refers to all plugs in mated condition on page 24.

<sup>1</sup>As per IEC 60601-1:2012 [VDE 0750-1:2013-12] <sup>2</sup> IP68 in unmated condition

# STRAIGHT PLUG



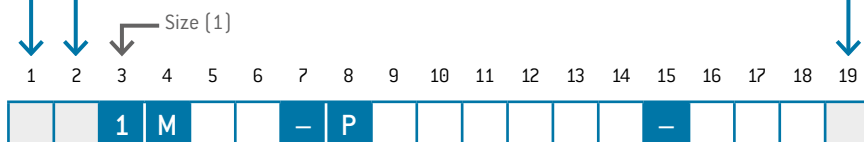
Push-Pull styles

S	1	0	<b>STYLE: 1</b>	IP50
With standard back nut				

S	2	S	<b>STYLE: 2</b>	IP50
With back nut <sup>1</sup> for cable bend relief <sup>2</sup>				

**TECHNICAL DATA**

- Contact configuration from page 38
- Explanation of the degrees of protection (see page 114)
- S1 with color coding


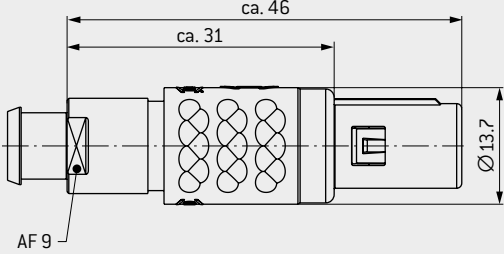


<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 50).

# STRAIGHT PLUG



Push-Pull styles

S	4	S	<b>STYLE: 4</b>	<b>IP64</b>
			With back nut <sup>1</sup> for cable bend relief <sup>2</sup>	
				

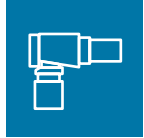
**TECHNICAL DATA**

- Contact configuration from page 38
- Explanation of the degrees of protection (see page 114)
- IP64 in combination with receptacle style 4/E/A (in mated condition)

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

<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 50).

# RIGHT-ANGLED PLUG



Push-Pull styles

W	1	Ø	<b>STYLE: 1</b>	<b>IP50</b>
With standard back nut				

W	2	S	<b>STYLE: 2</b>	<b>IP50</b>
With back nut <sup>1</sup> for cable bend relief <sup>2</sup>				

**TECHNICAL DATA**

- Contact configuration from page 38
- Explanation of the degrees of protection (see page 114)
- W1 with color coding

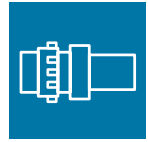
Size [1]

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

<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 50).



# BREAK-AWAY CONNECTOR



## Break-Away styles

A 5

STYLE: 5

IP67

Attachable connector

### TECHNICAL DATA

- Contact inserts (starting on page [57](#))
- Explanation of the degrees of protection (starting on page [114](#))
- IP50 as straight version (see page [59](#))
- IP67 with overmolding in combination receptacle style 4/E/A (see page [59](#))
- IP67 as right-angled version in an assembled and potted condition and in combination with receptacle style 4/E/A (see page [58](#))
- The complete housing with molded insulators made of plastic<sup>1</sup>
- Break-Away connectors available in PSU
- May not be inserted into metal housing
- Suited for all ODU MEDI-SNAP<sup>®</sup> receptacles and in-line receptacles made of plastic
- Available with solder contacts

**NEW!**  
Chapter **Break-Away Plugs**  
from page 52

Size [1]


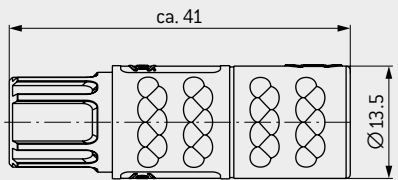
1	2	3	4	5	6	7	8 <sup>1</sup>	9	10	11	12	13	14	15	16	17	18	19
		1	M				-	0						-	0	0	0	0


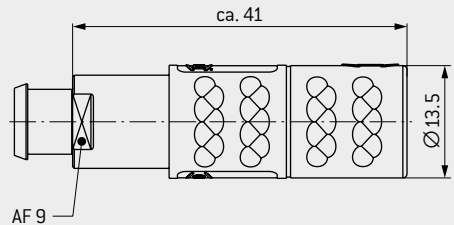
<sup>1</sup> In the case of this style, the connector housing as well as the insulator are made of the housing material PSU.

# IN-LINE RECEPTACLE



Suitable for creating a cable-cable connection

K	1	Ø	<b>STYLE: 1</b>	<b>IP50</b>
<p>With standard back nut</p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>				

K	2	S	<b>STYLE: 2</b>	<b>IP50</b>
<p>With back nut<sup>1</sup> for cable bend relief<sup>2</sup></p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>				

**TECHNICAL DATA**

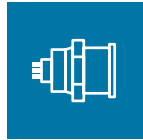
- Contact configuration from page 38
- Explanation of the degrees of protection (see page 114)
- K1 with color coding

Size [1]

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

<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 50).

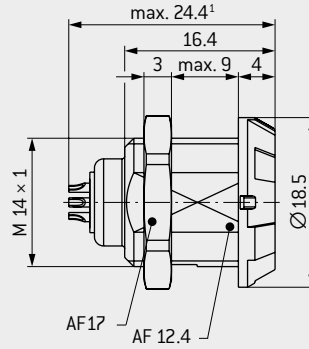
# RECEPTACLE



G 1

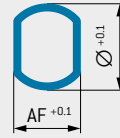
## STYLE: 1

For front panel installation



IP50

## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14.1 mm

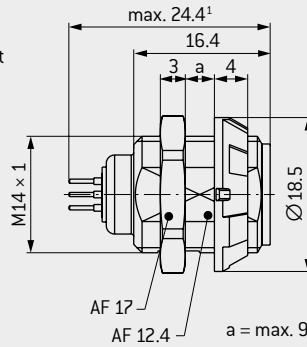
### TECHNICAL DATA

- Contact inserts and PCB layouts (see page 38)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding

G 5

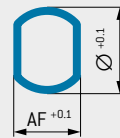
## STYLE: 5

Receptacle with continuous thread, can be installed from front or rear; extension in front of panel is adjustable



IP50

## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14.1 mm

### TECHNICAL DATA

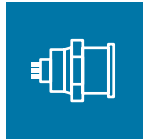
- Contact inserts and PCB layouts (see page 38)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding
- Right-angled PCB contact possible (see page 42)

Size [1]

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

<sup>1</sup> Depending on the insert

# RECEPTACLE



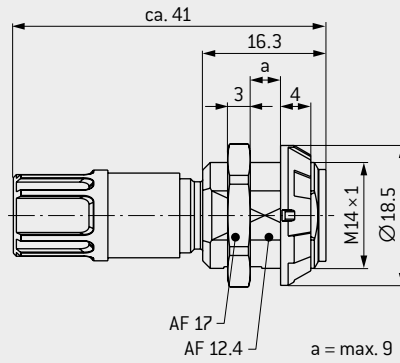
G 6

**STYLE: 6**

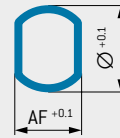
ON REQUEST

IP50

With strain relief, suitable for front and rear installation



PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14.1 mm

**TECHNICAL DATA**

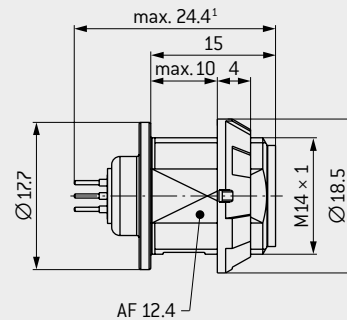
- Contact inserts and PCB layouts (see page 38)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding

G 8

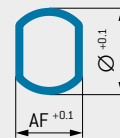
**STYLE: 8**

IP50

For rear panel installation



PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14.1 mm

**TECHNICAL DATA**

- Contact inserts and PCB layouts (see page 38)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding
- Right-angled PCB contact possible (see page 42)

Size [1]

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

<sup>1</sup> Depending on the insert

# RECEPTACLE



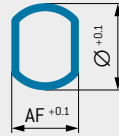
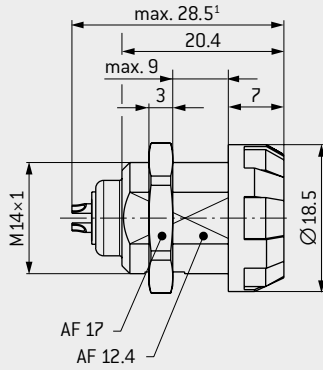
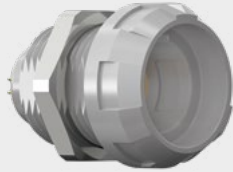
G 9

**STYLE: 9**

For front panel installation

**IP50**

**PANEL CUT-OUT**



AF : 12.5 mm  
Ø : 14.1 mm

**TECHNICAL DATA**

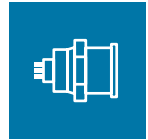
- Contact inserts and PCB layouts (see page 38)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- Receptacle made of PSU material is available in Gray and Black, other colors on request.

Size [1]

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

<sup>1</sup> Depending on the insert

# RECEPTACLE

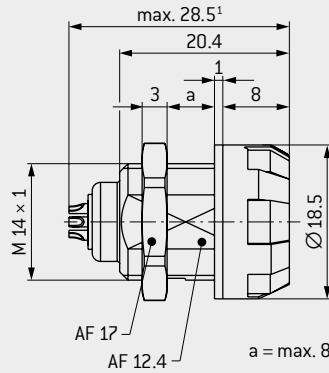
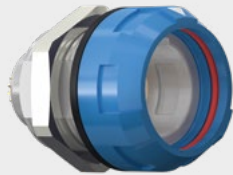


G 4

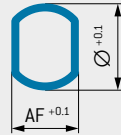
## STYLE: 4

For front panel installation

IP64/67



## PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14.1 mm

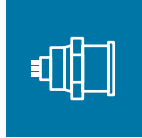
### TECHNICAL DATA

- Contact inserts and PCB layouts (see page 38)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- IP64 in combination with connector style 4 in mated condition (page 27)
- IP67 in combination with Break-Away Plug style 5 as right-angled version in an assembled and potted condition (page 55)
- IP67 in combination with Break-Away Plug style 5 as overmolded version (page 59)
- Anti-rotation feature
- With color coding

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

¹ Depending on the insert

# RECEPTACLE

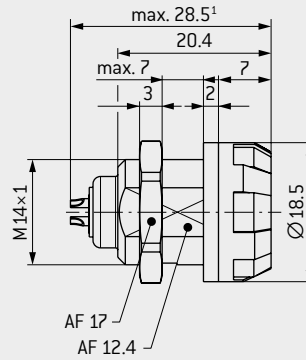
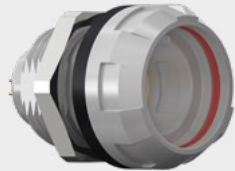


G E

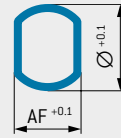
## STYLE: E

For front panel installation

IP64/67



### PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14.1 mm

### TECHNICAL DATA

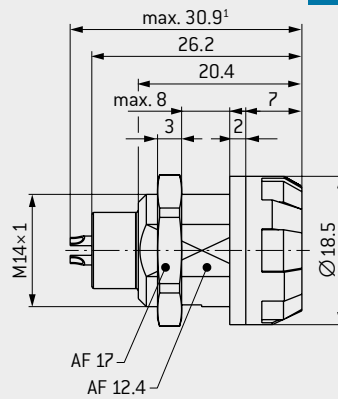
- Contact inserts and PCB layouts (see page 38)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- IP64 in combination with connector style 4 in mated condition (page 27)
- IP67 in combination with Break-Away Plug style 5 as right-angled version in an assembled and potted condition (page 55)
- IP67 in combination with Break-Away Plug style 5 as overmolded version (page 59)
- Anti-rotation feature
- Receptacle made of PSU material is available in Gray and Black, other colors on request

G A

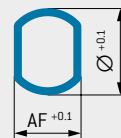
## STYLE: A

For front panel installation

IP64/67/68<sup>2</sup>



### PANEL CUT-OUT



AF : 12.5 mm  
Ø : 14.1 mm

### TECHNICAL DATA

- Contact inserts and PCB layouts (see page 38)
- Explanation of the degrees of protection (see page 114)
- IP68 in reference to the tightness of the end device
- IP64 in combination with connector style 4 in mated condition (page 27)
- IP67 in combination with Break-Away Plug style 5 as right-angled version in an assembled and potted condition (page 55)
- IP67 in combination with Break-Away Plug style 5 as overmolded version (page 29)
- Anti-rotation feature
- Receptacle made of PSU material is available in Gray and Black, other colors on request

Size [1]

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

<sup>1</sup> Depending on the insert <sup>2</sup> IP68 in unmated condition

# RECEPTACLE

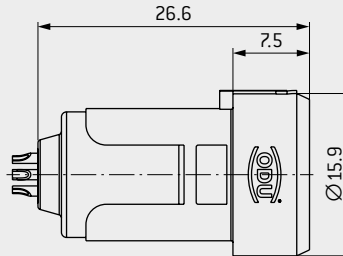


G 2

**STYLE: 2**

**IP50**

One-piece receptacle



**PANEL CUT-OUT**



Ø: 13.1 mm

**TECHNICAL DATA**

- Contact configuration from page 38
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device (min. panel thickness 4 mm)
- One-piece receptacle available in PSU
- The complete housing with molded insulators made of plastic<sup>1</sup>
- Anti-rotation feature
- Snap-in assembly

Protective cover for receptacle style G2, IP50



Protective cover for termination area on page 49

Size [1]

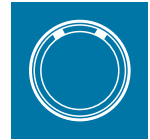
1	2	3	4	5	6	7	8 <sup>1</sup>	9	10	11	12	13	14	15	16	17	18	19
		1	M				-	0						-	0	0	0	0

<sup>1</sup> In the case of this style, the connector housing as well as the insulator are made of the housing material PSU.



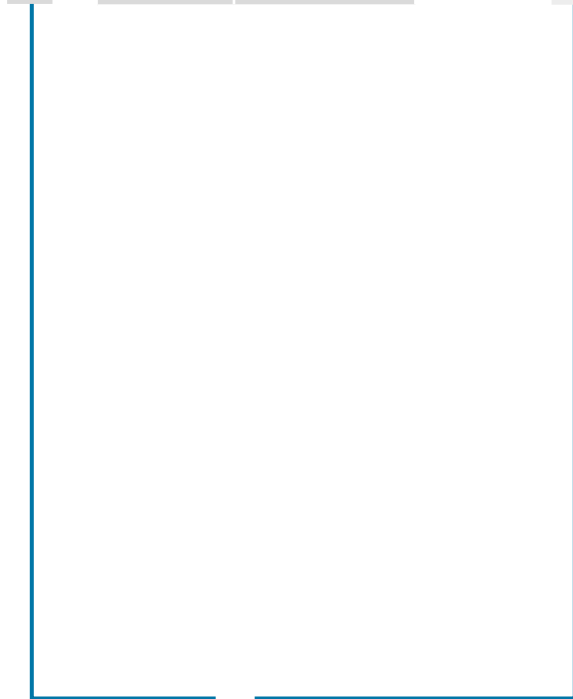
# CODINGS

# HOUSING MATERIAL



	Angle	Receptacle front view
Ø	0°	
A	40°	
C	60°	
E	80°	
H	170°	
J	205°	

	Housing material <sup>1</sup>	Biocompatible material <sup>3</sup>
7	Plastic, Gray (PSU)	●
8	Plastic, Black (PSU)	●
S	Plastic, Black (PEI), autoclavable <sup>2</sup>	not available
3	Plastic, White (PSU)	not available
G	Plastic, Gray (PEI), autoclavable <sup>2</sup>	●



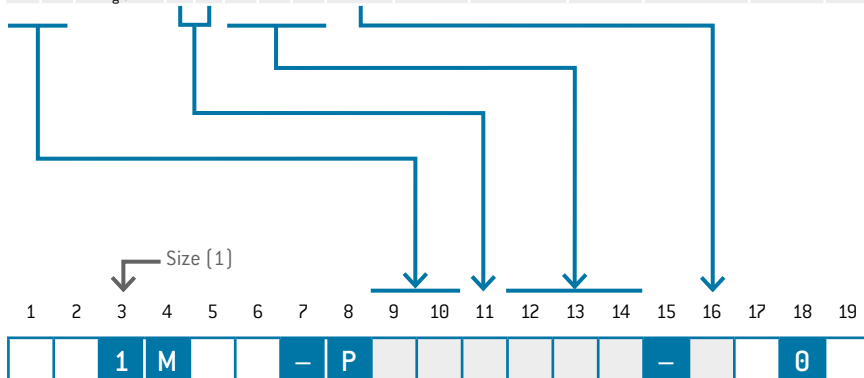
<sup>1</sup> Styles A5 and G2 only available with housing material PSU  
<sup>2</sup> More detailed information on the topic of "autoclaving" on page 123  
<sup>3</sup> Biocompatibility acc. to DIN EN ISO 10993:  
 DIN EN ISO 10993-5:2009-10: Tests for in vitro cytotoxicity. Testing determines whether toxic components from the material cause cell damage.  
 DIN EN ISO 10993-10:2014-10: Tests for irritation and skin sensitization. The test for skin irritations and skin sensitization is designed to determine irritating and sensitizing characteristics of medical products.  
 DIN EN ISO 10993-11:2018-09: Tests for systemic toxicity.  
 DIN EN ISO 10993-18:2009-08: Chemical characterization of medical device materials within a risk management process.

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

# CONTACT INSERTS



Number of contacts	Contact type		Part number key insert			Contact style	Contact diameter mm	Single contact nominal current <sup>1</sup> A	Nominal current insert A	Clearance and creepage distance contact to contact mm	Test voltage <sup>2</sup> SAE kV DC	Termination cross-section		View on termination area				
	Termination	Socket	Pin										mm	AWG	mm <sup>2</sup>	Pin piece	Socket piece	
0	2	Solder	L	M	P N 0 P H 0	0	1.3	15	15	1	1.6	1.4	18	1				
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		P 0 0	A		12	12	1.3	1.9	1.1 0.7 0.8	20 – –	0.5 – –				
0	3 <sup>5</sup>	Solder	L	M	P N 9 P H 9	0	1.3	15	15	0.9	1.6	1.4	18	1				
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		P 0 9	A		12	12	1.2	1.9	1.1 0.7 0.8	20 – –	0.5 – –				
0	4	Solder	L	M	J H 0 J G 0	0	0.9	10	10	0.9	1.6	1.1	20	0.5				
					J H 0 J G 0			7.5	7.5	1.2	1.9	0.85	22	0.38				
		Crimp <sup>3</sup>	N	P	J H 0 J G 0	0		10	10	0.9	1.6	–	20–24	0.5–0.25				
					J H 0 J G 0			7.5	7.5	1.2	1.9	–	22–26	0.38–0.15				
Print straight <sup>4</sup> Angled <sup>4</sup>	Q		J 0 0	A	7.5	7.5	1.2	1.9	0.7 0.6	– –	– –							
0	5	Solder	L	M	J H 0 J G 0	0	0.9	10	7.5	0.5	1.35	1.1	20	0.5				
					J H 0 J G 0			7.5	5.6	0.8	1.6	0.85	22	0.38				
		Crimp <sup>3</sup>	N	P	J H 0 J G 0	0		10	7.5	0.5	1.35	–	20–24	0.5–0.25				
					J H 0 J G 0			7.5	5.6	0.8	1.6	–	22–26	0.38–0.15				
Print straight <sup>4</sup> Angled <sup>4</sup>	Q		J 0 0	A	7.5	7.5	1.2	1.9	0.7 0.6	– –	– –							
0	6	Solder	L	M	F G 0 F D 0	0	0.7	7.5	5.6	0.65	1.35	0.85	22	0.38				
					F G 0 F D 0			6	4.5	0.85	1.6	0.65	26	0.15				
		Crimp <sup>3</sup>	N	P	F G 0 F D 0	0		7.5	5.6	0.65	1.35	–	22–26	0.38–0.15				
					F G 0 F D 0			6	4.5	0.85	1.6	0.5 0.6	– –					
Print straight <sup>4</sup> Angled <sup>4</sup>	Q		F 0 0	A	6	4.5	0.85	1.6	0.5 0.6	– –	– –							
0	7	Solder	L	M	F G 0 F D 0	0	0.7	7.5	4.9	0.65	1.35	0.85	22	0.38				
					F G 0 F D 0			6	3.9	0.85	1.6	0.65	26	0.15				
		Crimp <sup>3</sup>	N	P	F G 0 F D 0	0		7.5	4.9	0.65	1.35	–	22–26	0.38–0.15				
					F G 0 F D 0			6	3.9	0.85	1.6	0.5 0.6	– –					
Print straight <sup>4</sup> Angled <sup>4</sup>	Q		F 0 0	A	6	3.9	0.85	1.6	0.5 0.6	– –	– –							
0	8	Solder	L	M	F G 0 F D 0	0	0.7	7.5	4.9	0.4	1.2	0.85	22	0.38				
					F G 0 F D 0			6	3.9	0.6	1.6	0.65	26	0.15				
		Crimp <sup>3</sup>	N	P	F G 0 F D 0	0		7.5	4.9	0.4	1.2	–	22–26	0.38–0.15				
					F G 0 F D 0			6	3.9	0.6	1.6	0.5 0.6	– –					
Print straight <sup>4</sup> Angled <sup>4</sup>	Q		F 0 0	A	6	3.9	0.6	1.6	0.5 0.6	– –	– –							
0	9	Solder	L	M	C D 0 C C 0	0	0.5	6	3.9	0.45	1.2	0.65	26	0.15				
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		C 0 0	A		4	2.6	0.65	1.35	0.45 0.5	28 –	0.08 –				
1	0	Solder	L	M	C D 0 C C 0	0	0.5	6	3.3	0.3	0.75	0.65	26	0.15				
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		C 0 0	A		4	2.2	0.5	1.35	0.45 0.5	28 –	0.08 –				
1	2 <sup>5</sup>	Solder	L	M	C D 9 C C 9	0	0.5	6	3.3	0.4	1.2	0.65	26	0.15				
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		C 0 9	A		4	2.2	0.5	1.2	0.45 0.5	28 –	0.08 –				
1	4	Solder	L	M	C D 0 C C 0	0	0.5	6	3	0.3	0.75	0.65	26	0.15				
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		C 0 0	A		4	2	0.5	1.2	0.45 0.5	28 –	0.08 –				



The socket is installed in the [in-line] receptacle; the pin is installed in the plug. **Reversed gender variants on request.**

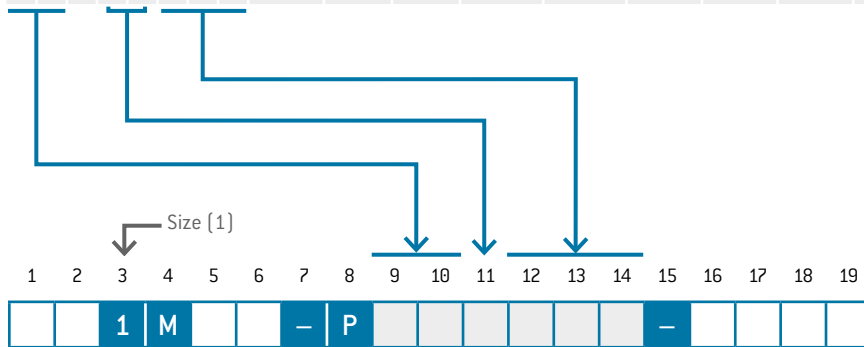
<sup>1</sup> Derating factor, see page 122  
<sup>2</sup> SAE AS 13441:2004 method 3001.1  
<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 108  
<sup>4</sup> PCB layouts (see page 41); print termination only available for receptacle styles 5 and 8  
<sup>5</sup> Not compatible to competition

# SPECIAL-CONTACT INSERT



Special-contact inserts are available only in combination with plastic housing.

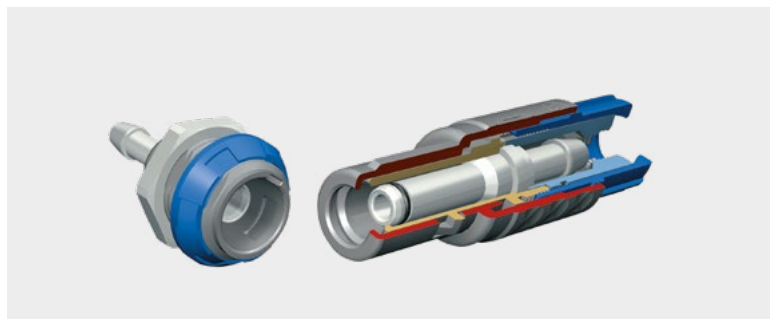
Number of contacts	Contact type		Part number key insert			Contact diameter mm	Single contact nominal current A	Nominal current insert A	Clearance and creepage distance contact to contact		Contact-to-contact voltage					Termination diameter		View on termination area				
	Termination	Socket	Pin	J	N				θ	mated mm	unmated mm	Operating voltage <sup>1,2,3</sup> IEC V/RMS	Test voltage <sup>2,4</sup> IEC kV/RMS	Test voltage <sup>5</sup> SAE kV/DC	Test voltage <sup>4</sup> IEC kV/RMS	Test voltage <sup>5</sup> SAE kV/DC	mm	AWG	mm <sup>2</sup>	Pin piece	Socket piece	
0	3	Solder	L	M	J	N	θ	1 × 0.9 (first mate last break) 2 × 0.9	10	9	4.7	2	230	5	6.75	3	4.5	1.4	18	1		



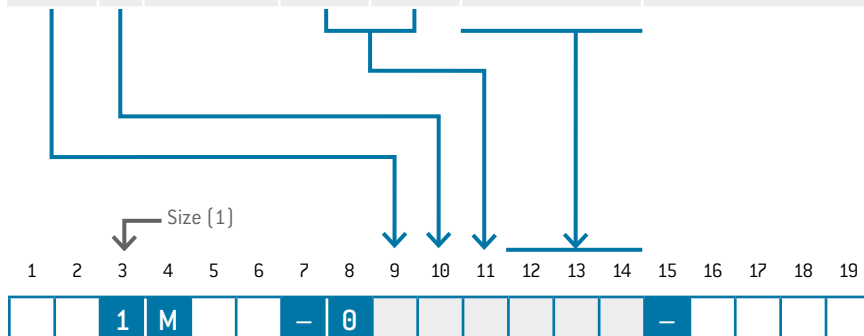
The socket is installed in the plug; the pin is installed in the receptacle.

<sup>1</sup> In the case of the pin piece, voltage may only be applied in mated condition.  
<sup>2</sup> IEC 60664-1:2007 (VDE 0110-1:2008-01): Overvoltage category III  
<sup>3</sup> IEC 60664-1:2007 (VDE 0110-1:2008-01): Pollution degree 3  
<sup>4</sup> Surge voltage  
<sup>5</sup> SAE 13441:2004 method 3001.1

# MEDIA FEED THROUGH



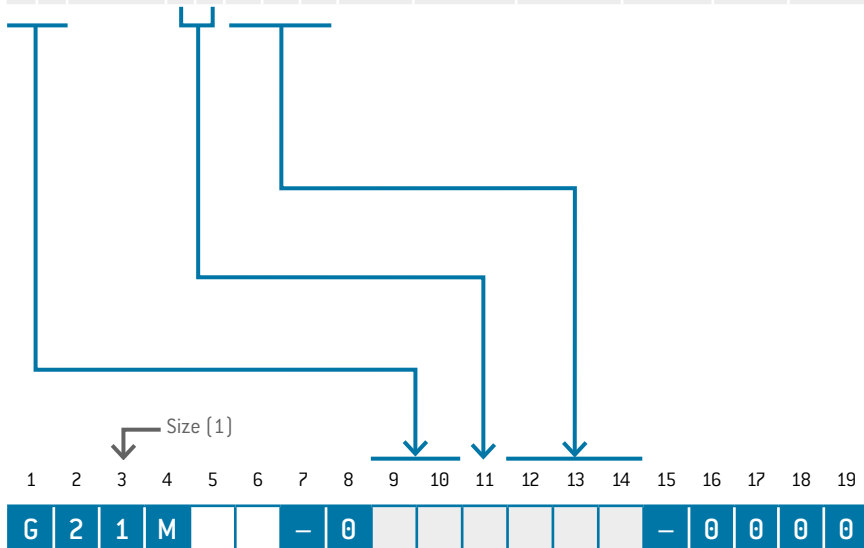
Media feed through	Feed through		Contact type		Part number key insert			Contact inner diameter mm	Working pressure max. bar	Termination diameter mm	Tube diameter max. mm
	1	Not shut off	Socket	Pin	1	1	θ				
F	A	Shut off	B	S	On request			1.9	2	4	6



# CONTACT INSERTS STYLE G2



Polzahl		Termination	Contact type		Part number key insert			Contact diameter mm	Single contact nominal current <sup>1</sup> A	Nominal current insert A	Clearance and creepage distance contact to contact mm	Test voltage <sup>2</sup>		Operating voltage <sup>3,4</sup> V RMS	Termination diameter mm	Termination cross-section		View on termination area	
			Socket	Pin									SAE kV DC			IEC kV RMS	AWG	mm <sup>2</sup>	Pin piece
0	2	Solder	A		P	H	0	1.3	12	12	1.3	1.9	0.67	48	1.1	20	0.5		
0	3	Solder	A		P	H	9	1.3	12	12	1.2	1.9	0.67	48	1.1	20	0.5		
0	4	Solder	A		J	G	0	0.9	7.5	7.5	1.2	1.9	0.67	48	0.85	22	0.38		
0	5	Solder	A		J	G	0	0.9	7.5	5.6	0.8	1.6	0.67	35	0.85	22	0.38		
0	6	Solder	A		F	D	0	0.7	6	4.5	0.85	1.6	0.67	36	0.65	26	0.15		
0	7	Solder	A		F	D	0	0.7	6	3.9	0.85	1.6	0.67	36	0.65	26	0.15		
0	8	Solder	A	B	F	D	0	0.7	6	3.9	0.6	1.6	0.67	32	0.65	26	0.15		
0	9	Solder	A		C	C	0	0.5	4	2.6	0.65	1.35	0.67	33	0.45	28	0.08		
1	0	Solder	A		C	C	0	0.5	4	2.2	0.5	1.35	0.67	25	0.45	28	0.08		
1	2	Solder	A		C	C	9	0.5	4	2.2	0.5	1.2	0.67	25	0.45	28	0.08		
1	4	Solder	A	B	C	C	0	0.5	4	2	0.5	1.2	0.67	25	0.45	28	0.08		



The sockets are installed in the receptacle style 2.

<sup>1</sup> Derating factor, see page 122

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

<sup>3</sup> IEC 60664-1:2007 (VDE 0110-1:2008-01):  
Overvoltage category III

<sup>4</sup> IEC 60664-1:2007 (VDE 0110-1:2008-01):  
Pollution degree 2

<sup>5</sup> Surge voltage

# PCB LAYOUTS



For PCB contacts (Size 1)

PLASTIC HOUSING  
SIZE 1

	Straight	90° right-angled		Straight	90° right-angled
	Contact borehole: $\varnothing 0.8$ mm	Contact borehole: $\varnothing 0.9$ mm		Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.7$ mm
2 contacts			8 contacts		
3 contacts	Contact borehole: $\varnothing 0.8$ mm 	Contact borehole: $\varnothing 0.9$ mm 	9 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
4 contacts	Contact borehole: $\varnothing 0.8$ mm 	Contact borehole: $\varnothing 0.7$ mm 	10 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
5 contacts	Contact borehole: $\varnothing 0.8$ mm 	Contact borehole: $\varnothing 0.7$ mm 	12 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
6 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 	14 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
7 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 			

All specifications are only valid for socket inserts, pin inserts on request. Further PCB layouts upon request

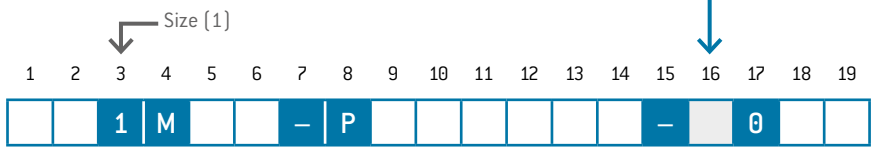
# RIGHT-ANGLED PCB CONTACTS IN THE RECEPTACLE



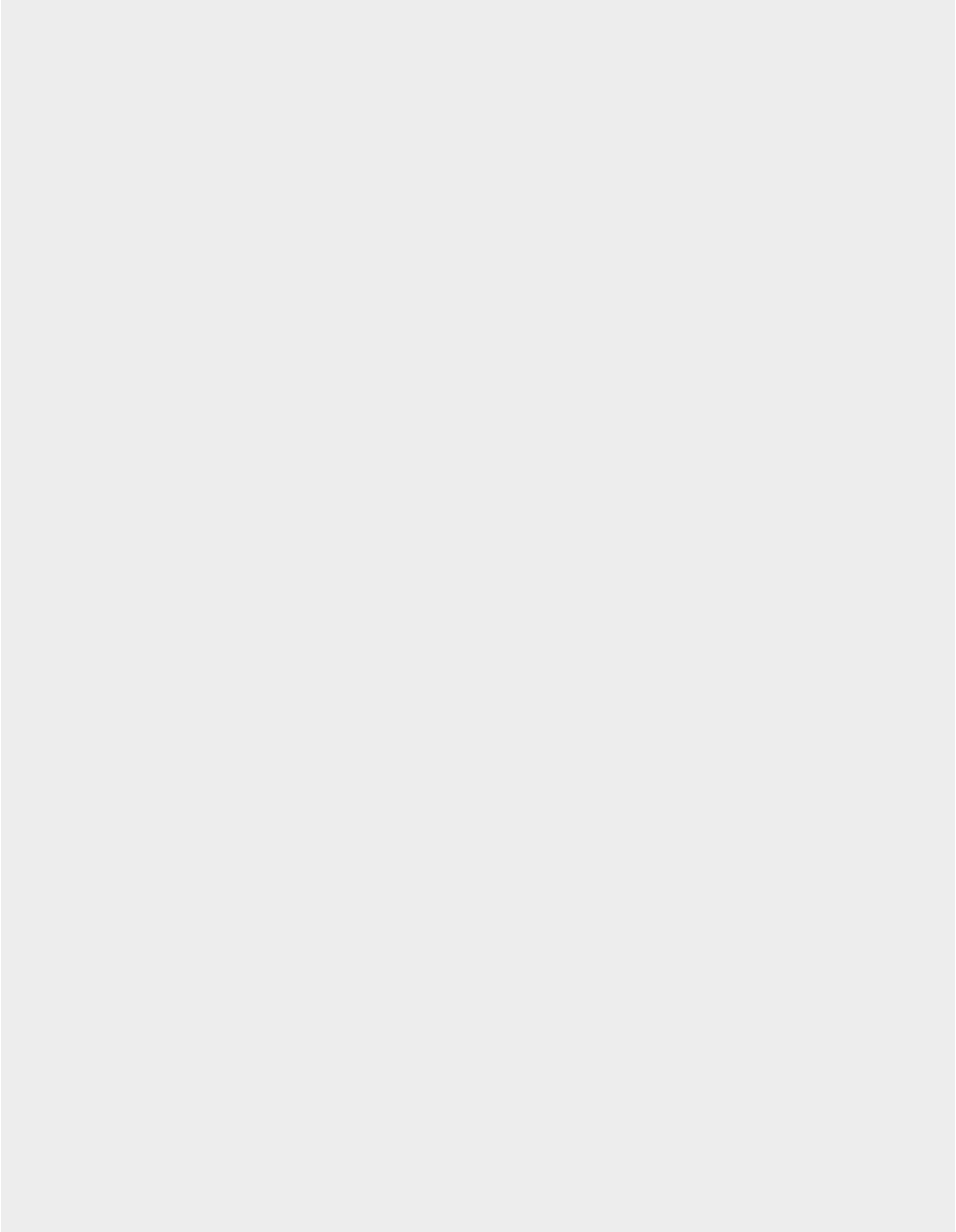
**Technical Data**

- PCB layouts, see page [41](#)

Contact diameter	Termination diameter
mm	mm
0.5	0.5
0.7	0.6
0.9	0.6
1.3	0.8

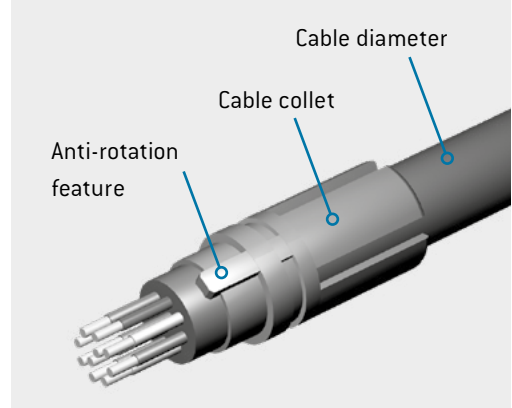


# FOR YOUR NOTES



# CABLE COLLET SYSTEM

For plugs, in-line receptacles as well as receptacles of style 6

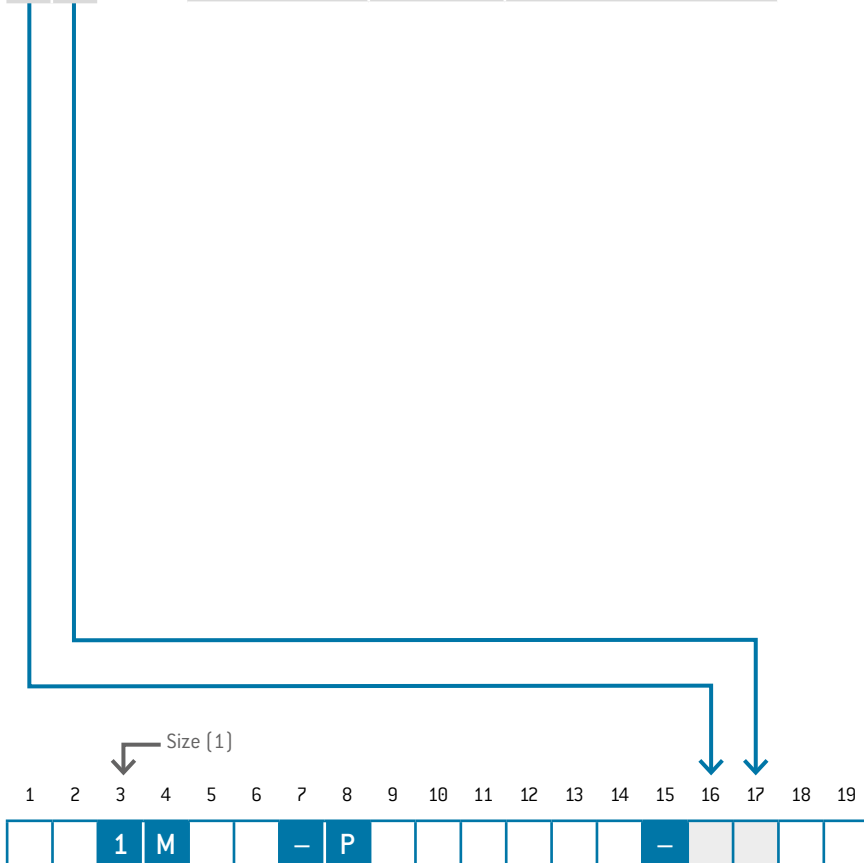


Cable diameter mm	Material	Part number
> 2.7–3.9	PSU	KM1.020.121.934.007
> 4.0–5.2		KM1.020.122.934.007
> 5.3–6.5		KM1.020.123.934.007
> 2.7–3.9	PEI	KM1.020.121.933.008
> 4.0–5.2		KM1.020.122.933.008
> 5.3–6.5		KM1.020.123.933.008

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

**USE:** cable collet for strain relief

3	9
5	2
6	5
3	9
5	2
6	5





# COLOR CODINGS

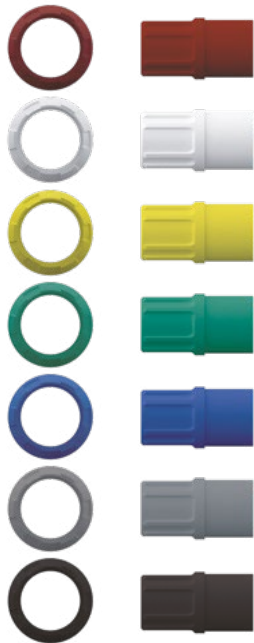


Color coding possibility of the back nut (for plugs, right-angled plugs, in-line receptacles) and the front nut (for receptacles style 6).

Back nuts for cable bend relief have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.



	Color	Similar RAL systems		Material
		Design	Classic	
2	Red	030 40 40	3002	Plastic (PSU)
3	White	000 90 00	9003	
4	Yellow	095 90 59	1016	
5	Green	170 60 50	6032	
6	Blue	250 40 40	5019	
7	Gray	000 55 00	7045	Plastic (PSU/PEI)
8	Black	000 25 00	9004	



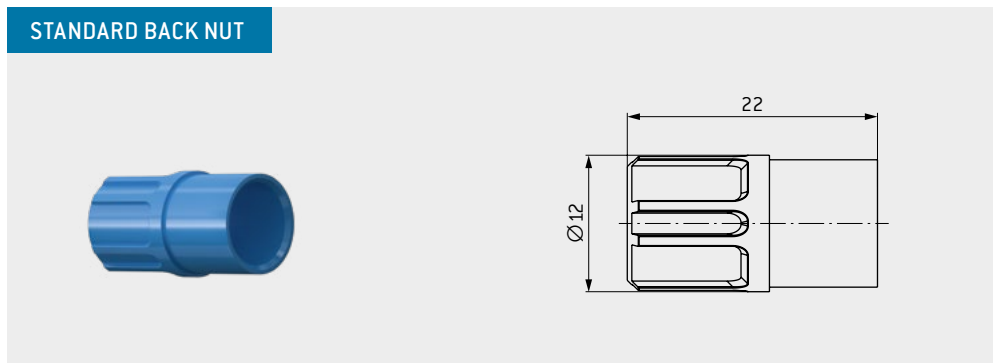
Size [1]

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

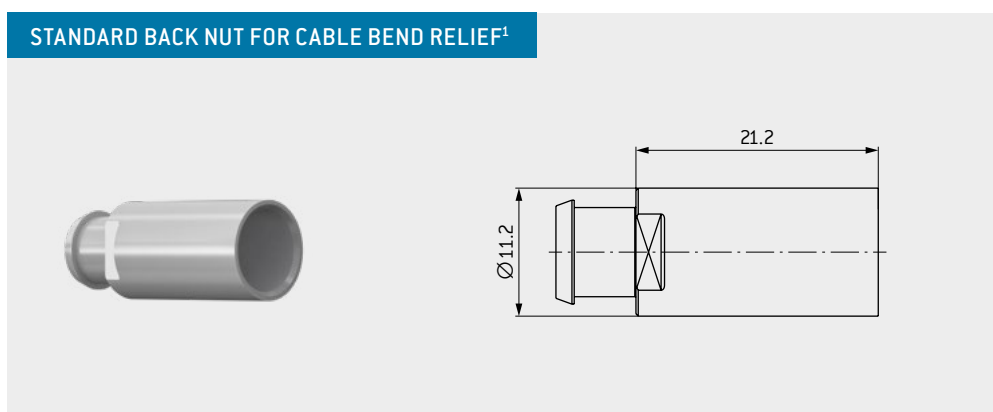
# DEFINITION OF THE BACK NUTS



Applicable to all straight plugs, right-angled plugs, in-line receptacles as well as receptacles of style 6



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.111.934.002	PSU	Red	030 40 40	3002
KM1.020.111.934.003		White	000 90 00	9003
KM1.020.111.934.004		Yellow	095 90 59	1016
KM1.020.111.934.005		Green	170 60 50	6032
KM1.020.111.934.006		Blue	250 40 40	5019
KM1.020.111.934.007		Gray	000 55 00	7045
KM1.020.111.934.008		Black	000 25 00	9004
KM1.020.111.933.008	PEI	Black	000 25 00	9004



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.113.934.007	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.020.113.934.008		Black	000 25 00	9004
KM1.020.113.933.008	PEI	Black	000 25 00	9004

<sup>1</sup> Silicone cable bend reliefs have to be ordered separately [see page 50]. <sup>2</sup> Additional colors on request

# DEFINITION OF THE BACK NUTS

Applicable to all straight plugs, right-angled plugs, in-line receptacles



**STANDARD BACK NUT FOR CABLE BEND RELIEF FOR PLUG IP64<sup>1</sup>**

Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.026.113.934.107	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.026.113.934.108		Black	000 25 00	9004
KM1.026.113.933.108	PEI	Black	000 25 00	9004

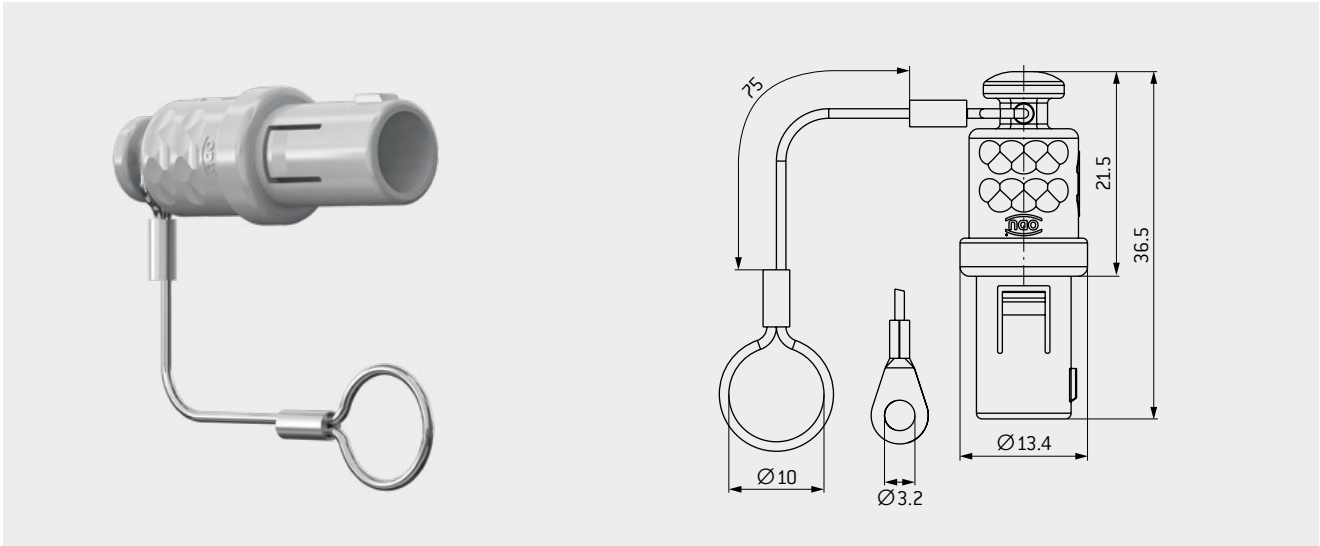
**STANDARD BACK NUT FOR OVERMOLDING** **ON REQUEST**

Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.114.934.007	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.020.114.934.008		Black	000 25 00	9004
KM1.020.114.933.008	PEI	Black	000 25 00	9004

<sup>1</sup> Silicone cable bend reliefs have to be ordered separately [see page 50]. <sup>2</sup> Additional colors on request

# PROTECTIVE COVER

Applicable to receptacles and in-line receptacles with plastic housing

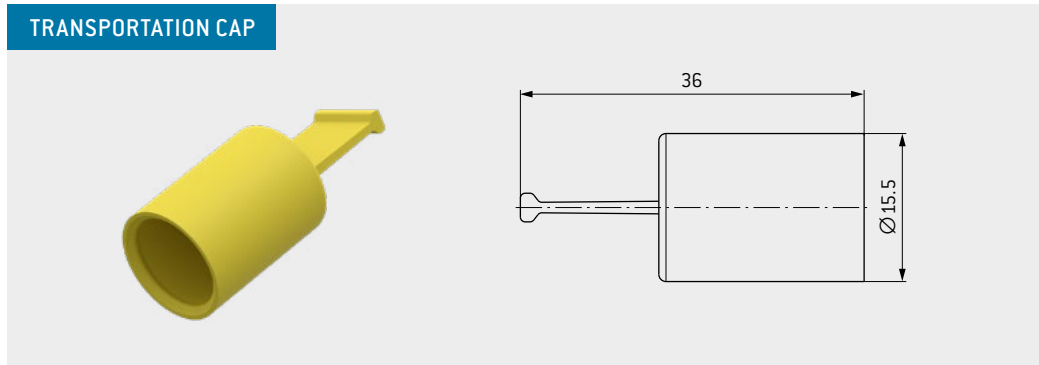


Part number	Material	Color	
		Cover	Polyamide lanyard
KM1.097.0_6.934._02	PSU	Red	White
KM1.097.0_6.934._03	PSU	White	White
KM1.097.0_6.934._04	PSU	Yellow	White
KM1.097.0_6.934._05	PSU	Green	White
KM1.097.0_6.934._06	PSU	Blue	White
KM1.097.0_6.934._07	PSU	Gray	White
KM1.097.0_6.934._08	PSU	Black	Black
KM1.097.0_6.933._08	PEI	Black	Black

Coding		Lanyard material	
0	0°	0	Polyamide lanyard with loop
A	40°	1	Stainless steel lanyard with loop
C	60°	2	Polyamide lanyard with solder lug
E	80°	3	Stainless steel lanyard with solder lug
H	170°		
J	205°		

# TRANSPORTATION CAP

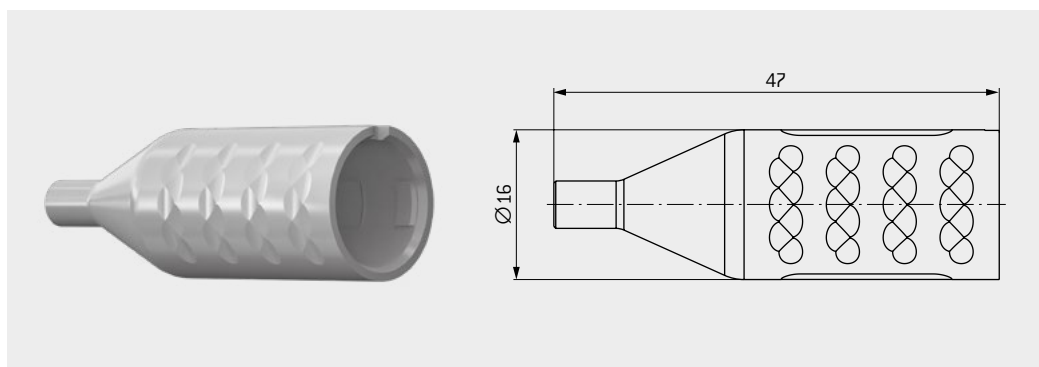
Applicable to all straight plugs, right-angled plugs as well as break-away plugs



Part number	Material	Color	Similar RAL systems	
			Design	Classic
922.000.002.000.075	TPE	Yellow	095 90 59	1016

# PROTECTIVE COVER

Applicable to the styles G2 and A5

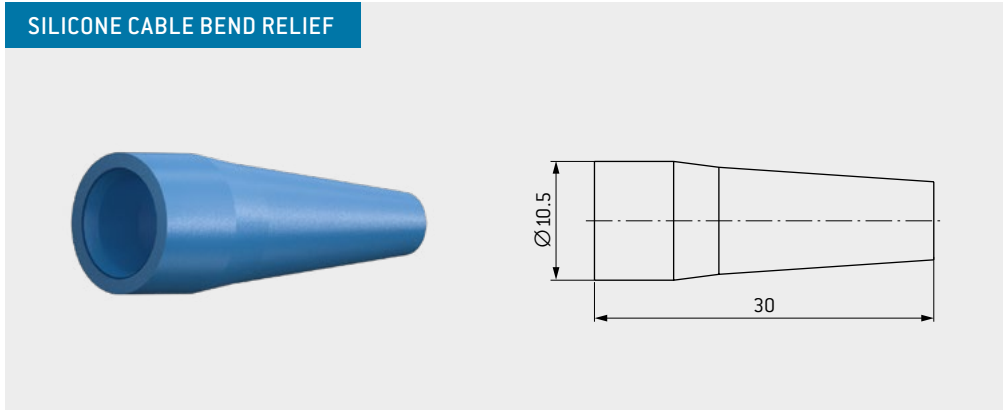


Part number	Material	Color
KM1.013._.934.007	PSU	Gray <sup>1</sup>

	Ø for cable exit
500	2.5
501	2.7
502	2.8
504	1.7

<sup>1</sup> Additional colors on request

# SILICONE CABLE BEND RELIEF



## TEMPERATURE RANGE

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

## COLORS

Part number	Cable jacket (Ø outside)	
	min.	max.
701.023.____.965.025	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

Color code	Color	RAL-Nr. <sup>1</sup> (similar) Classic
202	Red	3020
203	White	9010
204	Yellow	1016
205	Green	6032
206	Blue	5002
207	Gray	7005
208	Black	9005



The silicone cable bend reliefs must always be ordered separately.

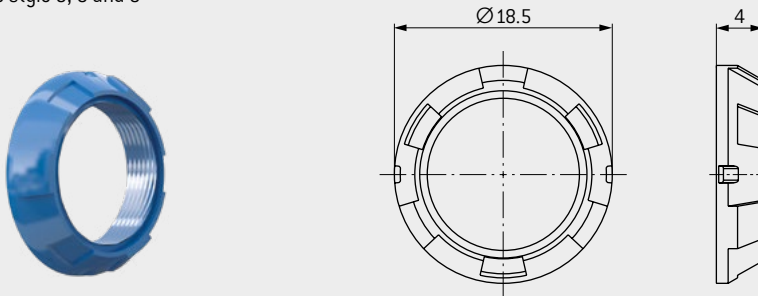
<sup>1</sup> Because of differing basic materials, the colors may differ slightly from RAL numbers.

# NUTS



## FRONT NUT

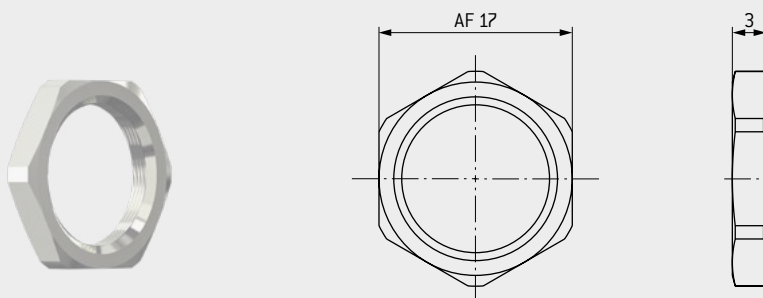
For receptacle style 5, 6 and 8



Part number	Material	Color	Similar RAL system Design
KM1.311.002.934.002	PSU	Red	030 40 40
KM1.311.002.934.003		White	000 90 00
KM1.311.002.934.004		Yellow	095 90 59
KM1.311.002.934.005		Green	170 60 50
KM1.311.002.934.006		Blue	250 40 40
KM1.311.002.934.007		Gray	000 55 00
KM1.311.002.934.008		Black	000 25 00
KM1.311.002.933.008	PEI	Black	000 25 00

## HEX NUT

For receptacle style 1, 4, 5, 6, 9, E and A



Part number	Material
021.310.115.304.000	Nickel-plated brass



ODU MEDI-SNAP®





## ODU MEDI-SNAP® BREAK-AWAY PLUGS SIZE 1

Summary .....	<a href="#">54</a>
Styles .....	<a href="#">55</a>
Codings .....	<a href="#">56</a>
Contact inserts .....	<a href="#">57</a>
Accessories .....	<a href="#">58</a>

# SUMMARY ODU MEDI-SNAP® BREAK-AWAY PLUGS

## 1. CONNECTOR SELECTION

The diagram illustrates four connector options. At the top, a central connector is shown with icons for a drop, a lightning bolt, a signal, and a drop. Below it, four options are presented:

- SILICONE-OVERMOLDED SYSTEM SOLUTION**
  - Avoids stick-slip effect<sup>1</sup>
  - Smooth overmolding transition
  - Autoclavable
- NEW! STRAIGHT VERSION**
  - High level of assembly flexibility
- ANGLED VERSION**
  - Place-saving product design
- OVERMOLDED VERSION**
  - Highly economical system solution

## 2. CABLE SELECTION

The diagram shows two cable selection options:

- + Sophisticated medical cables**
- + Standard cables for medical and industrial electronics applications**

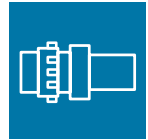
## 3. READY-MADE CABLE ASSEMBLY

for **medical technology applications**

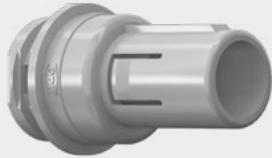
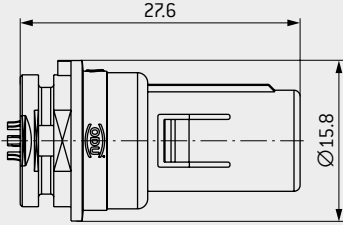
**Test and measurement and medical applications**



# BREAK-AWAY CONNECTOR



## Break-Away styles

A	5	<b>STYLE: 5</b>	<b>IP67</b>
		<p><b>Attachable Connector</b></p> <div style="display: flex; justify-content: space-around; align-items: center;">   </div>	

### TECHNICAL DATA

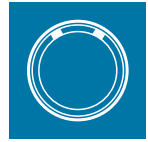
- Contact inserts (starting on page [57](#))
- Explanation of the degrees of protection (starting on page [114](#))
- IP50 as straight version (see page [59](#))
- IP67 with overmolding in combination receptacle style 4/E/A (see page [59](#))
- IP67 as right-angled version in an assembled and potted condition and in combination with receptacle style 4/E/A (see page [58](#))
- The complete housing with molded insulators made of plastic<sup>1</sup>
- Break-Away connectors available in PSU
- May not be inserted in metal housing.
- Suited for all ODU MEDI-SNAP<sup>®</sup> receptacles and in-line receptacles made of plastic
- Available with solder contacts

1	2	3	4	5	6	7	8 <sup>1</sup>	9	10	11	12	13	14	15	16	17	18	19
		1	M			-	0						-	0	0	0	0	

<sup>1</sup> In the case of this style, the connector housing as well as the insulator are made of the housing material PSU.

# CODINGS

# HOUSING MATERIAL

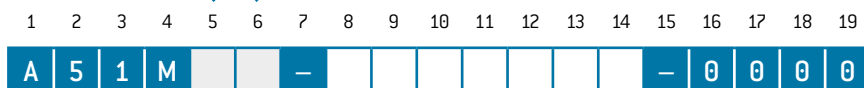


	Angle	Receptacle front view
0	0°	
A	40°	
C	60°	
E	80°	
H	170°	
J	205°	

	Housing material	Biocompatible material <sup>1</sup>
7	Standard Plastic, Gray (PSU)	●
8	Standard Plastic, Black (PSU)	●
3	Standard Plastic, White (PSU)	not available

Further housing materials on request

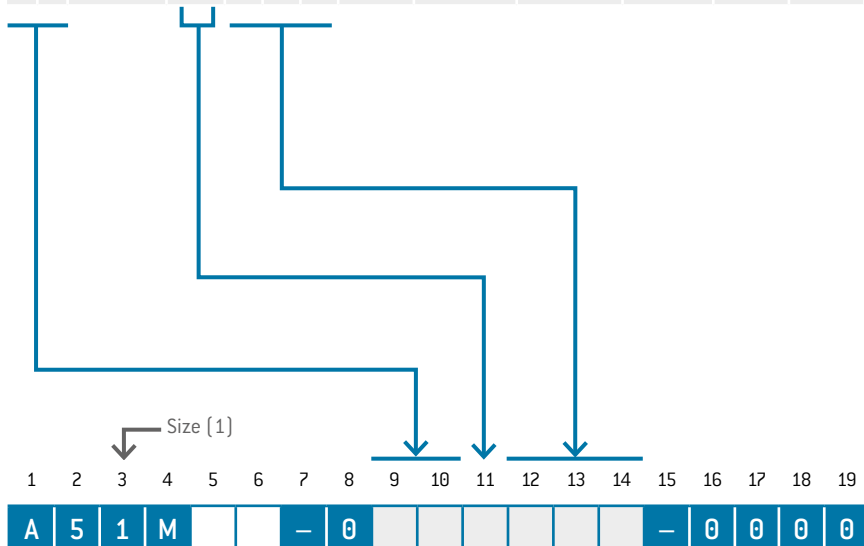
<sup>1</sup>Biocompatibility acc. to DIN EN ISO 10993:  
 DIN EN ISO 10993-5:2009-10: Tests for in vitro cytotoxicity. Testing determines whether toxic components from the material cause cell damage.  
 DIN EN ISO 10993-10:2014-10: Tests for irritation and skin sensitization. The test for skin irritations and skin sensitization is designed to determine irritating and sensitizing characteristics of medical products.  
 DIN EN ISO 10993-11:2018-09: Tests for systemic toxicity.  
 DIN EN ISO 10993-18:2009-08: Chemical characterization of medical device materials within a risk management process.



# CONTACT INSERTS STYLES A5



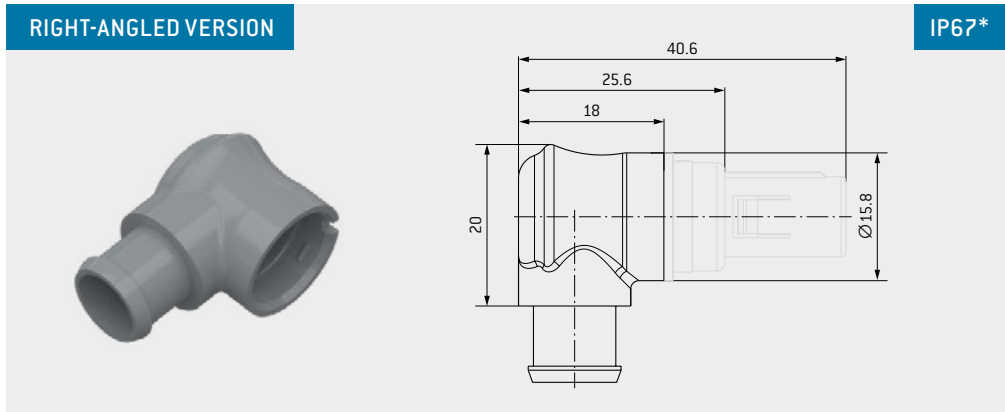
Polzahl	Contact type		Part number key insert				Contact diameter	Single contact nominal current <sup>1</sup>	Nominal current insert	Clearance and creepage distance contact to contact	Test voltage <sup>2</sup>	Termination diameter	Termination cross-section		View on termination area
	Termination	Pin					mm	A	A	mm	SAE kV DC	mm	AWG	mm <sup>2</sup>	Pin piece
0	2	Solder	B	P	H	0	1.3	12	12	1.3	1.9	1.1	20	0.5	
0	3	Solder	B	P	H	9	1.3	12	12	1.2	1.9	1.1	20	0.5	
0	4	Solder	B	J	G	0	0.9	7.5	7.5	1.2	1.9	0.85	22	0.38	
0	5	Solder	B	J	G	0	0.9	7.5	5.6	0.8	1.6	0.85	22	0.38	
0	6	Solder	B	F	D	0	0.7	6	4.5	0.85	1.6	0.65	26	0.15	
0	7	Solder	B	F	D	0	0.7	6	3.9	0.85	1.6	0.65	26	0.15	
0	8	Solder	B	F	D	0	0.7	6	3.9	0.6	1.6	0.65	26	0.15	
0	9	Solder	B	C	C	0	0.5	4	2.6	0.65	1.35	0.45	28	0.08	
1	0	Solder	B	C	C	0	0.5	4	2.2	0.5	1.35	0.45	28	0.08	
1	2	Solder	B	C	C	9	0.5	4	2.2	0.5	1.2	0.45	28	0.08	
1	4	Solder	B	C	C	0	0.5	4	2	0.5	1.2	0.45	28	0.08	



The pins are installed in the plug style 5.

<sup>1</sup> Derating factor, see page 122  
<sup>2</sup> SAE AS 13441:2004 method 3001.1

# ACCESSORIES FOR BREAK-AWAY PLUG



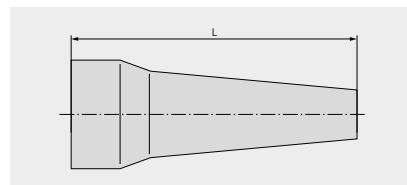
Assembly instruction available on the product data sheet.

\*IP67 in assembled and potted condition / potting for strain relief necessary.

Part number	Material	Color	Similar RAL systems	
			Design	Classic
026.KM1.013.701.003	PSU	White	000 90 00	9003
026.KM1.013.701.007	PSU	Gray	000 55 00	7045
026.KM1.013.701.008	PSU	Black	000 25 00	9004

## SILICONE CABLE BEND RELIEFS

Part number	Dim. L mm	Cable jacket (∅ outside)	
		min.	max.
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



### TEMPERATURE RANGE

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

Color code	Color	RAL no. <sup>1</sup> [similar]
202	Red	3020
203	White	9010
204	Yellow	1016
205	Green	6032
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.

# ACCESSORIES FOR BREAK-AWAY PLUG



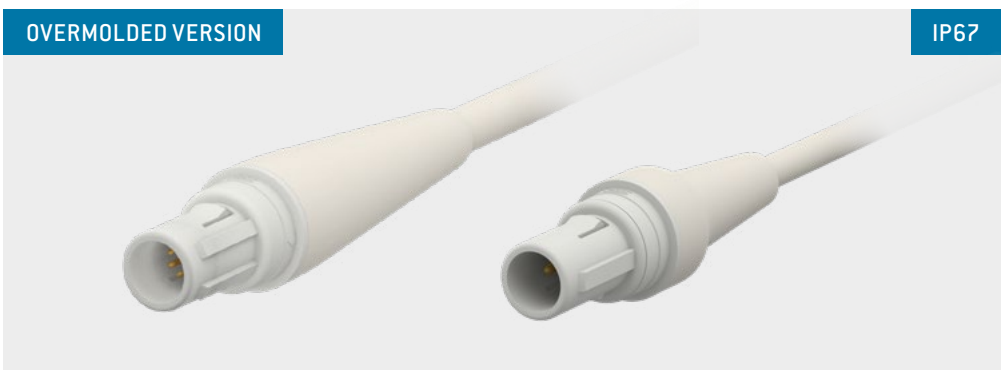
**STRAIGHT VERSION**
**IP50**

Assembly instruction available on the product data sheet.

Straight version includes cable collet system for strain relief.

Part number	Cable diameter mm	Color code	Color	Similar RAL systems
				Design
026.KM1.129.9__025	> 1.5 – 2.5	07	Gray	000 55 00
026.KM1.129.9__037	> 2.5 – 3.7	08	Black	000 25 00
026.KM1.129.9__049	> 3.7 – 4.9			
026.KM1.129.9__060	> 4.9 – 6.0			

BREAK-AWAY  
SIZE 1



All Break-Away Plugs can be ordered as a standard system solution with different overmolding materials and cable materials.



ODU MEDI-SNAP®







## ODU MEDI-SNAP® WITH PLASTIC HOUSING SIZE 2

Summary .....	<a href="#">62</a>
Styles .....	<a href="#">64</a>
Codings .....	<a href="#">68</a>
Contact inserts and PCB layouts .....	<a href="#">69</a>
Cable collet system .....	<a href="#">72</a>
Accessories .....	<a href="#">73</a>

# SUMMARY ODU MEDI-SNAP® PLASTIC HOUSING SIZE 2

The ODU MEDI-SNAP® with plastic housing in size 2 is coded by pin and groove. These circular connectors can have a variety of configurations: numerous styles of connectors and receptacles as well as various termination types, contact inserts and color codings.

- Coding over pin and groove
- 8 color codings
- 3 mechanical codings
- 3–26 contacts
- 2 termination types
- Contacts for solder and PCB termination
- A selection of numerous connectors and receptacles
- IP50 and IP64 available in mated condition
- Up to 5,000 mating cycles

STRAIGHT PLUG – PUSH-PULL		P. 64	2,000 mating cycles
IP50		S	1
IP50 / 64		S	4

NEW! Chapter Break-Away Plugs from page 78	BREAK-AWAY PLUG		P. 65	2,000 mating cycles
	IP64		A	5

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

RECEPTACLE		P. 66	5,000 mating cycles
<b>IEC 60601-1:</b> 2 MOOP <sup>1</sup> and 1 MOPP <sup>1</sup> <b>IP50</b>		G	1
<b>IEC 60601-1:</b> 2 MOOP <sup>1</sup> and 2 MOPP <sup>1</sup> <b>IP64</b>		G	4
<b>IEC 60601-1:</b> 2 MOOP <sup>1</sup> and 1 MOPP <sup>1</sup> <b>IP50</b>		G	5

## IEC 60601-1:2012

### MEANS OF OPERATOR PROTECTION (MOOP) / MEANS OF PATIENT PROTECTION (MOPP)

Table is valid for working voltage of medical device max. 250 V AC (degree of pollution 2).  
 For working voltage of connectors see insert configuration.

MOOP / MOPP	Clearance distance to the test finger mm	Creepage distances to the test finger mm	Test voltage V AC
1 MOOP	≥ 2	≥ 2.5	1,500
2 MOOP	≥ 4	≥ 5	3,000
1 MOPP	≥ 2.5	≥ 4	1,500
2 MOPP	≥ 5	≥ 8	4,000


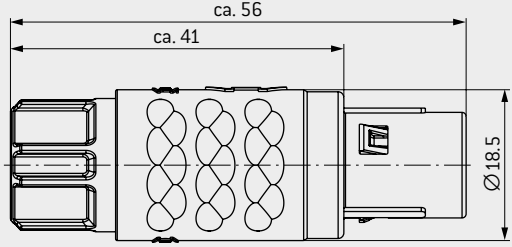

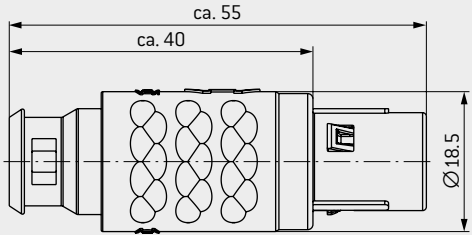
The information refers to all plugs in mated condition on page 56.

<sup>1</sup>Acc. IEC 60601-1:2012 [VDE 0750-1:2013-12]

# STRAIGHT PLUG

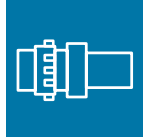


## Push-Pull styles

S	1	0	STYLE: 1	IP50															
			With standard back nut																
																			
<b>TECHNICAL DATA</b>																			
<ul style="list-style-type: none"> <li>• Contact configuration from page 69</li> <li>• Explanation of the degrees of protection (see page 114)</li> <li>• Only available in Gray</li> <li>• With color coding</li> </ul>																			
S	4	S	STYLE: 4	IP50/64															
			With back nut <sup>1</sup> for cable bend relief <sup>2</sup>																
																			
<b>TECHNICAL DATA</b>																			
<ul style="list-style-type: none"> <li>• Contact configuration from page 69</li> <li>• Explanation of the degrees of protection (see page 114)</li> <li>• IP50 in combination with receptacle style 1 and 5 (in mated condition)</li> <li>• IP64 in combination with receptacle style 4 (in mated condition)</li> <li>• Only available in Gray</li> <li>• Alternative style S2 with IP50</li> </ul>																			
			Size [2]																
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
		2	M			7	-	P						-					

<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 76).

# BREAK-AWAY CONNECTOR



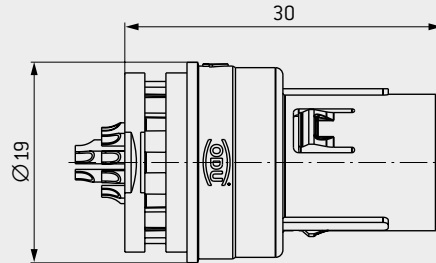
## Break-Away styles

A 5

### STYLE: 5

IP64

Attachable Connector



### TECHNICAL DATA

- Contact configuration from page 83
- Explanation of the degrees of protection (see page 114)
- IP50 as straight version (see page 84)
- IP64 with overmolding in combination receptacle style 4
- The complete housing with molded insulators made of plastic<sup>1</sup>
- Break-Away Plugs available in PSU
- Available with solder contacts
- Available with 5, 16 or 26 contacts configuration, other configurations upon request
- Coding available in C = 60°, other codings on request

**NEW!**

Chapter **Break-Away Plugs**  
from page 78

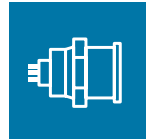
Size [2]

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

A 5 2 M C 7 - 0 - 0 0 0 0

<sup>1</sup>In the case of this style, the connector housing as well as the insulator are made of the housing material PSU.

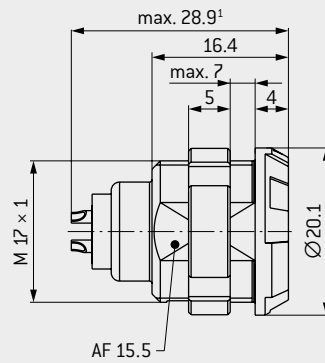
# RECEPTACLE



G 1

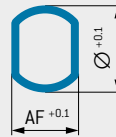
## STYLE: 1

For front panel installation



IP50

## PANEL CUT-OUT



AF : 15.6 mm  
Ø : 17.1 mm

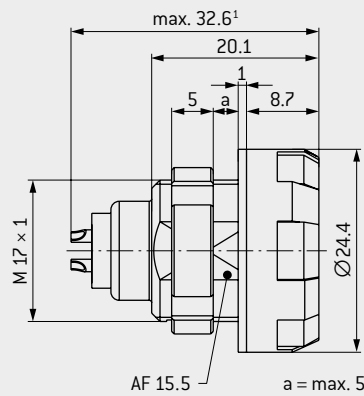
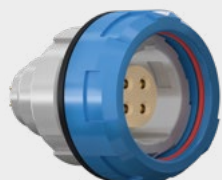
### TECHNICAL DATA

- Contact inserts and PCB layouts (see page 69)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- Front flange in color of housing
- Color coding on request

G 4

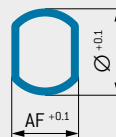
## STYLE: 4

For front panel installation



IP64

## PANEL CUT-OUT



AF : 15.6 mm  
Ø : 17.1 mm

### TECHNICAL DATA

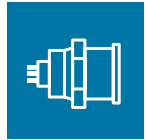
- Contact inserts and PCB layouts (see page 69)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- IP64 in combination with connector style 4 in mated condition
- IP64 in combination with Break-Away Plug style 5 as overmolded version (see page 84)
- With color coding

Size [2]

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

<sup>1</sup> Depending on the insert

# RECEPTACLE

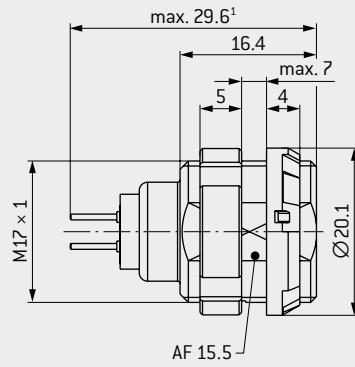


G 5

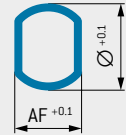
**STYLE: 5**

For front or rear panel installation

**IP50**



**PANEL CUT-OUT**



AF : 15.6 mm  
 Ø : 17.1 mm

**TECHNICAL DATA**

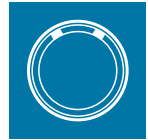
- Contact inserts and PCB layouts (see page 69)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding
- Right-angled PCB contact possible (see page 71)

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

¹ Depending on the insert

# CODINGS

# HOUSING MATERIAL



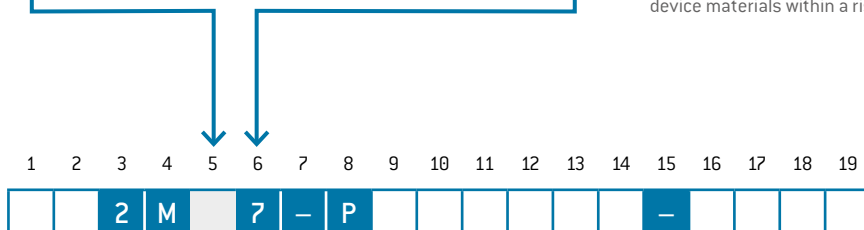
	Angle	Receptacle front view
C	60°	
E	80°	
F	90°	

Further codings on request

		Housing material	Biocompatible material <sup>1</sup>
7	Standard	Plastic, Gray (PSU)	●
8	On request	Plastic, Black (PSU)	●
9	On request	Plastic, Orange (PSU)	not available

Further housing materials on request

<sup>1</sup>Biocompatibility acc. to DIN EN ISO 10993:  
 DIN EN ISO 10993-5:2009-10: Tests for in vitro cytotoxicity. Testing determines whether toxic components from the material cause cell damage.  
 DIN EN ISO 10993-10:2014-10: Tests for irritation and skin sensitization. The test for skin irritations and skin sensitization is designed to determine irritating and sensitizing characteristics of medical products.  
 DIN EN ISO 10993-11:2018-09: Tests for systemic toxicity.  
 DIN EN ISO 10993-18:2009-08: Chemical characterization of medical device materials within a risk management process.

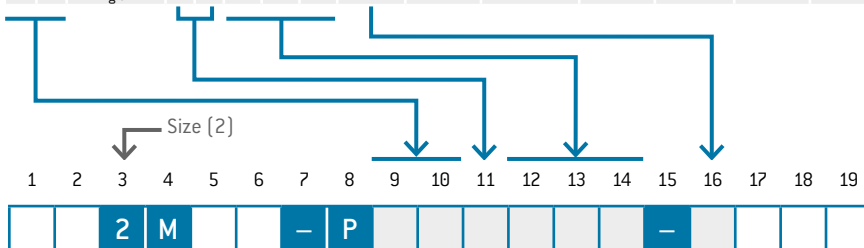




# CONTACT INSERTS



Number of contacts	Contact type		Part number key insert			Contact style	Contact diameter mm	Single contact nominal current <sup>1</sup> A	Nominal current insert A	Clearance and creepage distance contact to contact mm	Test voltage <sup>2</sup> SAE KV DC	Termination diameter mm	Termination cross-section		View on termination area			
	Termination	Socket	Pin	P	N								0	AWG	mm <sup>2</sup>	Pin piece	Socket piece	
0	4	Solder	L	M	P	N	0	0	15	15	1.6	3	1.4	18	1			
					P	H	0						1.1	20	0.5			
			Q		0	0	A						0.7	–	–			0.8
1	2	Solder	L	M	F	G	0	0	0.7	3.75	0.8	1.6	0.85	22	0.38			
					F	D	0						0.65	26	0.15			
			Q		0	0	A						0.7	–	–			0.6
1	6	Solder	L	M	F	G	0	0	0.7	3	0.7	1.6	0.85	22	0.38			
					F	D	0						0.65	26	0.15			
			Q		0	0	A						0.7	–	–			0.6
1	9	Solder	L	M	F	G	0	0	0.7	3.4	0.5	1.35	0.85	22	0.38			
					F	D	0						0.65	26	0.15			
			Q		0	0	A						0.7	–	–			0.6
2	6	Solder	L	M	C	C	0	0	0.5	4	1.6	0.5	1.35	0.45	28	0.08		
					C	0	0							0.5	–	–		
			Q		0	0	A							0.5	–	–		



The socket is installed in the receptacle; the pin is installed in the plug. **Reversed gender variants on request.**

<sup>1</sup> Derating factor, see page 122

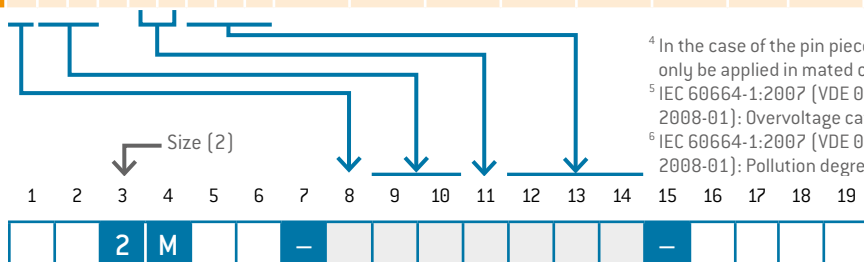
<sup>2</sup> SAE AS 13441:2004 method 3001.1

<sup>3</sup> PCB layouts, see page 70; print termination only available for receptacle style 5

## SPECIAL-CONTACT INSERT

Special-contact inserts are available only in combination with plastic housing.

Insulator material <sup>10</sup>	Number of contacts	Contact type		Part number key insert			Contact diameter mm	Single contact nominal current A	Nominal current insert A	Clearance and creepage distance contact to contact		Contact-to-contact voltage				Termination diameter mm	Termination cross-section		View on termination area			
		Termination	Socket	Pin	T	S				0	mated mm	unmated mm	Operating voltage <sup>4,5,6</sup> IEC V RMS	Test voltage <sup>4,7</sup> IEC KV	Test voltage <sup>13</sup> SAE KV DC		Test voltage <sup>6,7</sup> IEC KV	Test voltage <sup>13</sup> SAE KV DC	mm	AWG	mm <sup>2</sup>	Pin piece
P	0	3 <sup>8</sup>	Solder	L	M	T	S	0	22	22	4.7	2	230	5	6.75	3	4.5	2.4	14	2.5		
HIGH-VOLTAGE SOLUTION	T	0	5	Solder	L <sup>11</sup>	P	Q	9	16	12	9.9	3.2	600 <sup>9</sup>	7.4 <sup>9</sup>	5.2	5 <sup>9</sup>	3.5	1.9	16	1.5		



<sup>4</sup> In the case of the pin piece, voltage may only be applied in mated condition.

<sup>5</sup> IEC 60664-1:2007 (VDE 0110-1:2008-01): Overvoltage category III

<sup>6</sup> IEC 60664-1:2007 (VDE 0110-1:2008-01): Pollution degree 3

<sup>7</sup> Surge voltage

<sup>8</sup> The socket is installed in the plug; the pin is installed in the receptacle.

<sup>9</sup> Voltage may only be applied to fully assembled and potted connectors in mated condition.

<sup>10</sup> P: PEEK / T: PBT; Sterilization (autoclaving) see p. ...

<sup>11</sup> 4 x socket / 1 x pin

<sup>12</sup> 1 x socket / 4 x pin

<sup>13</sup> SAE 13441:2004 method 3001.1

# PCB LAYOUTS

For PCB contacts (Size 2)



	Straight	90° right-angled
	Contact borehole: $\varnothing 0.8$ mm	Contact borehole: $\varnothing 0.9$ mm
4 contacts		
	Contact borehole: $\varnothing 0.8$ mm	Contact borehole: $\varnothing 0.7$ mm
12 contacts		
	Contact borehole: $\varnothing 0.8$ mm	
16 contacts		
	Contact borehole: $\varnothing 0.8$ mm	
19 contacts		
	Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.6$ mm
26 contacts		

All specifications are only valid for socket inserts, pin inserts on request.  
Further PCB layouts upon request

# RIGHT-ANGLED PCB CONTACTS IN THE RECEPTACLE



A

## RIGHT-ANGLED PCB CONTACT

IP50

For style G5



### TECHNICAL DATA

- PCB layouts, see page 70

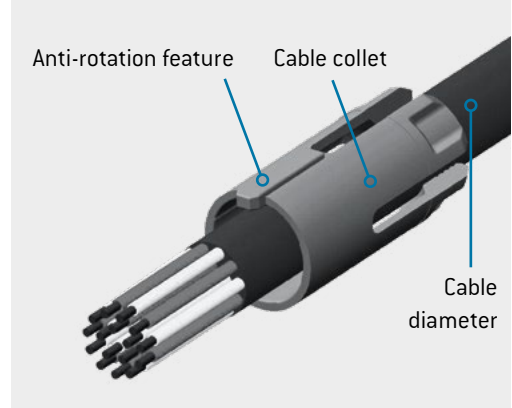
Contact diameter	Termination diameter
mm	mm
0.5	0.5
0.7	0.6
1.3	0.8

Size [2]

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

# CABLE COLLET SYSTEM

For plug parts



Cable diameter mm	Material	Part number
> 3.2 – 5.4	PSU	KM2.020.121.934.007
> 5.4 – 7.4		KM2.020.122.934.007
> 7.4 – 9.2		KM2.020.123.934.007

**APPLICATION:** for all plug parts

**USE:** cable collet for strain relief

5	4
7	4
9	2

Size [2]

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

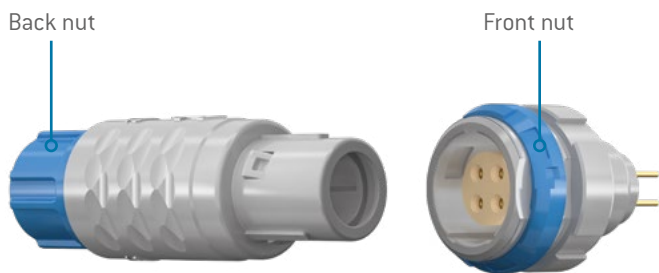
# COLOR CODINGS



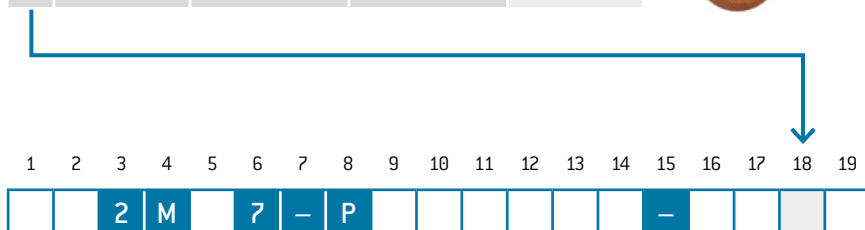
Color coding of the front nut only for receptacles G4 and G5

Color coding of the back nut only for straight plug S1

The color coding for plug style 4 is based on the cable bend relief.

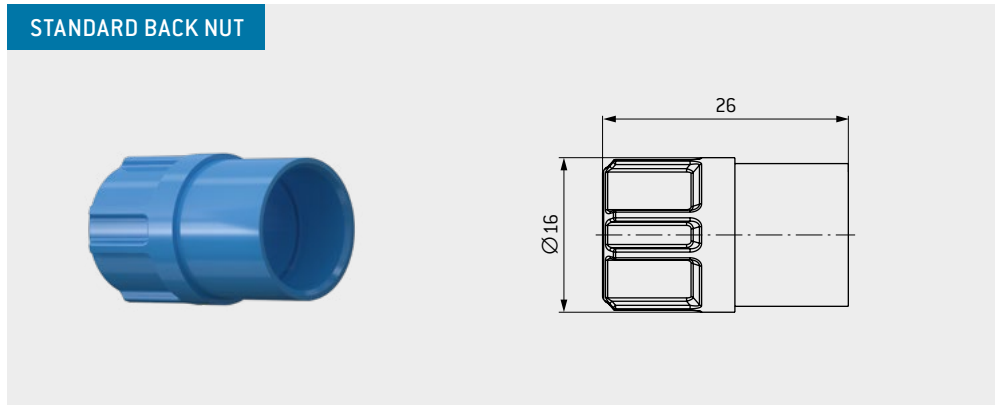


	Color	Similar RAL systems		Material
		Design	Classic	
2	Red	030 40 40	3002	Plastic (PSU)
3	White	000 90 00	9003	
4	Yellow	095 90 59	1016	
5	Green	170 60 50	6032	
6	Blue	250 40 40	5019	
7	Gray	000 55 00	7045	
8	Black	000 25 00	9004	
9	Orange	050 60 80	2003	

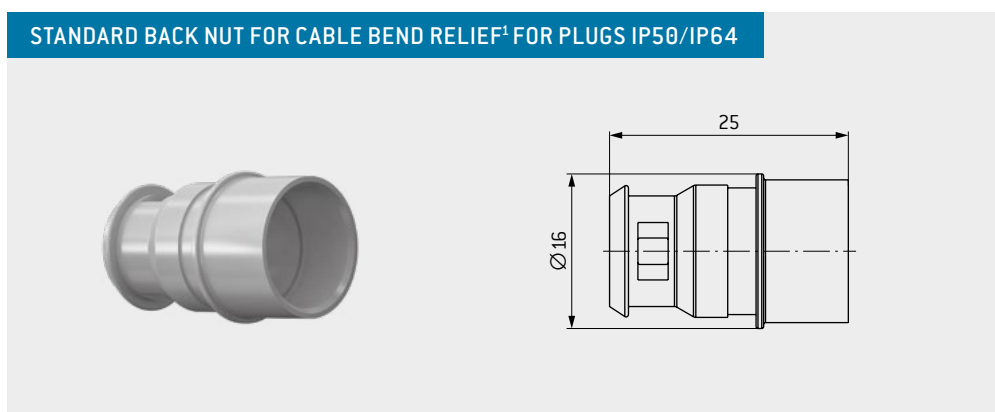


# DEFINITION OF THE BACK NUTS

Applicable to all straight plug parts



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM2.020.111.934.002	PSU	Red	030 40 40	3002
KM2.020.111.934.003		White	000 90 00	9003
KM2.020.111.934.004		Yellow	095 90 59	1016
KM2.020.111.934.005		Green	170 60 50	6032
KM2.020.111.934.006		Blue	250 40 40	5019
KM2.020.111.934.007		Gray	000 55 00	7045
KM2.020.111.934.008		Black	000 25 00	9004
KM2.020.111.934.009		Orange	050 60 80	2003

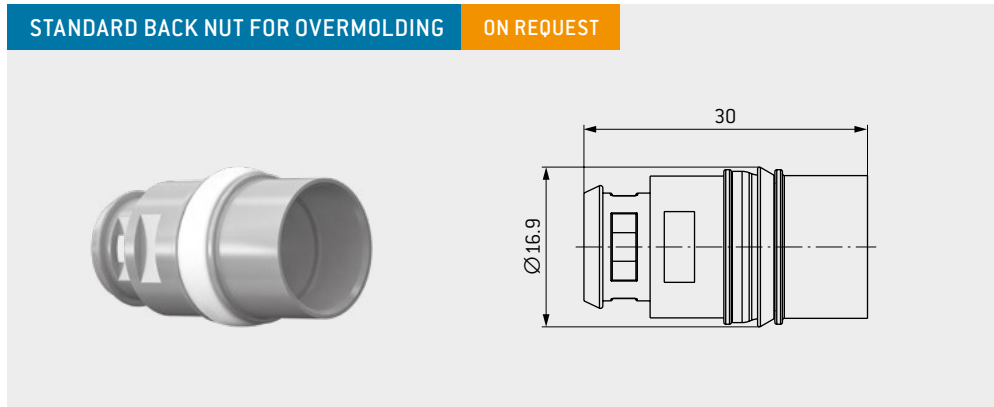


Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM2.026.112.934.007	PSU	Gray	000 55 00	7045

<sup>1</sup> Cable bend reliefs have to be ordered separately [see page 76].

# DEFINITION OF THE BACK NUTS

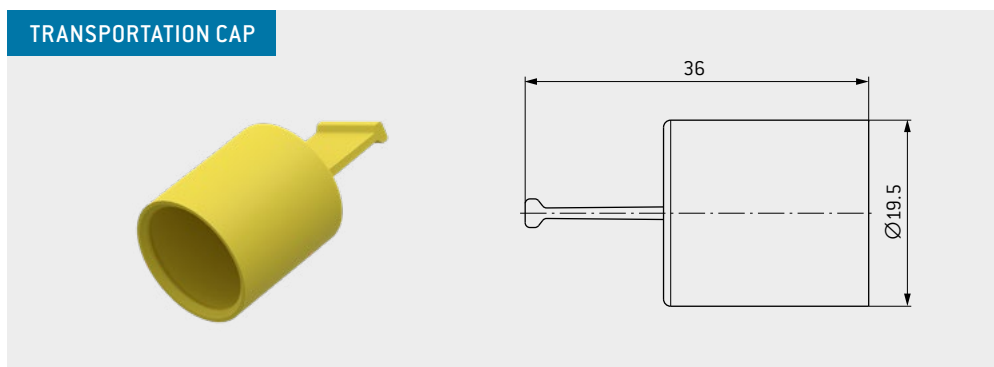
Applicable to all straight plug parts



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM2.026.113.934.007	PSU	Gray	000 55 00	7045
KM2.026.113.934.107 <sup>1</sup>	PSU	Gray	000 55 00	7045

# TRANSPORTATION CAP

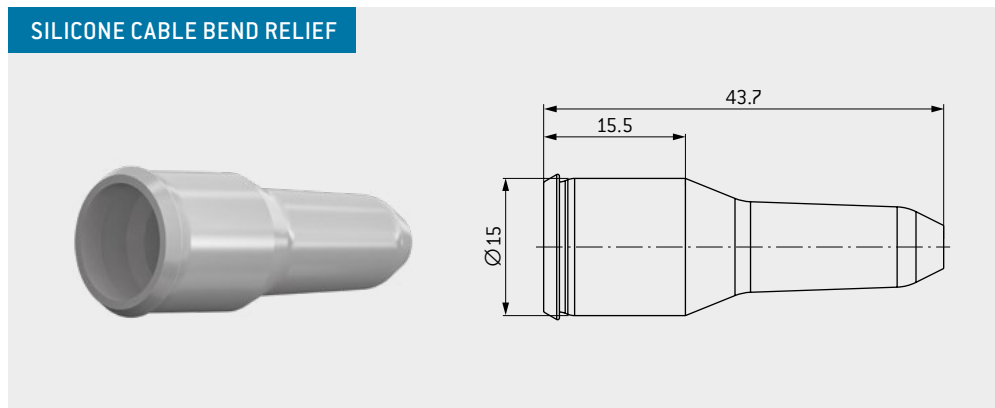
Applicable to all straight plugs as well as break-away plugs



Part number	Material	Color	Similar RAL systems	
			Design	Classic
922.000.002.000.079	TPE	Yellow	095 90 59	1016

<sup>1</sup> IP64 with connector style 4

# SILICONE CABLE BEND RELIEF



## TEMPERATURE RANGE

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

Autoclavable

## COLORS

Part number	Cable jacket (Ø outside)	
	min.	max.
KM2.023.____.965.032	3.2	4.7
KM2.023.____.965.047	4.7	6.2
KM2.023.____.965.062	6.2	7.7
KM2.023.____.965.077	7.7	9.2

Color code	Color	RAL no. <sup>1</sup> (similar) Classic
207	Gray	7000
208	Black	9005



The silicone cable bend reliefs must always be ordered separately.

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

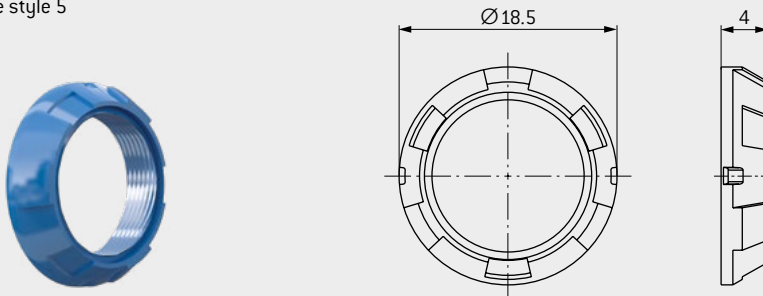


# NUTS



## FRONT NUT

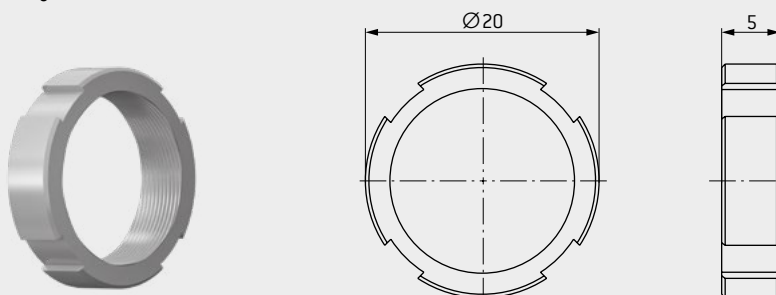
For receptacle style 5



Part number	Material	Color	Similar RAL system Design
KM2.311.002.934.002	PSU	Red	030 40 40
KM2.311.002.934.003		White	000 90 00
KM2.311.002.934.004		Yellow	095 90 59
KM2.311.002.934.005		Green	170 60 50
KM2.311.002.934.006		Blue	250 40 40
KM2.311.002.934.007		Gray	000 55 00
KM2.311.002.934.008		Black	000 25 00
KM2.311.002.934.009		Orange	050 60 80

## MOUNTING NUT

For receptacle style 1, 4 and 5



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM2.311.001.933.007	PEI	Gray	000 55 00	7045



ODU MEDI-SNAP®

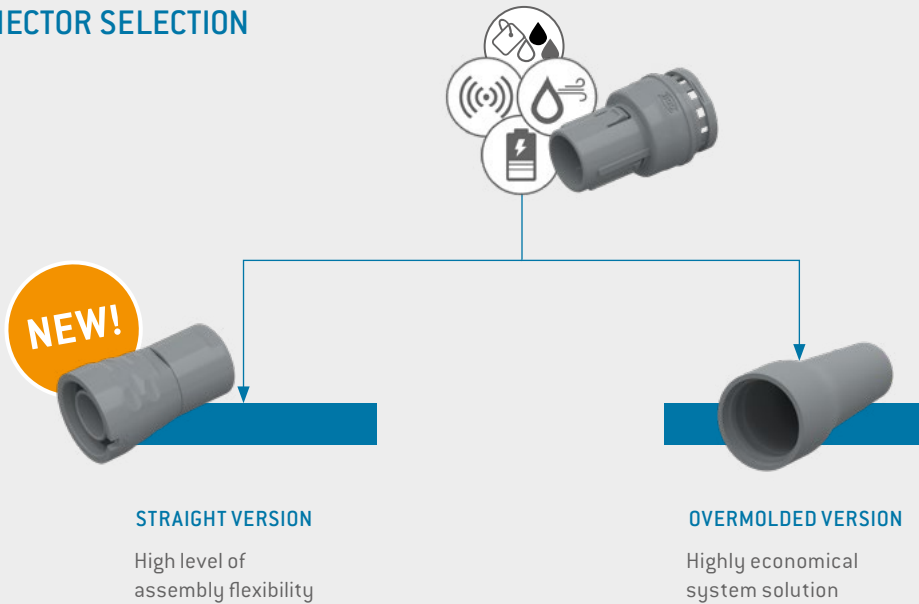


## ODU MEDI-SNAP® BREAK-AWAY PLUGS SIZE 2

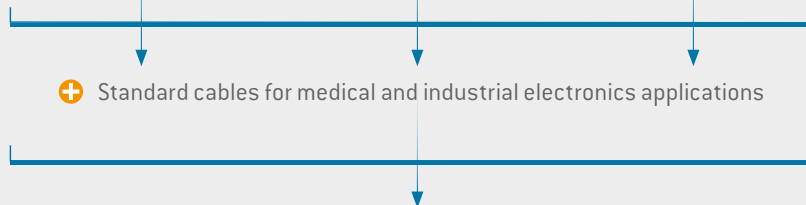
Summary .....	<a href="#">80</a>
Styles .....	<a href="#">81</a>
Codings .....	<a href="#">82</a>
Contact inserts .....	<a href="#">83</a>
Accessories .....	<a href="#">84</a>

# SUMMARY ODU MEDI-SNAP® BREAK-AWAY PLUGS

## 1. CONNECTOR SELECTION



## 2. CABLE SELECTION



## 3. READY-MADE CABLE ASSEMBLY

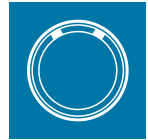
Industrial and medical applications





# CODINGS

# HOUSING MATERIAL



	Angle	Receptacle front view
C	60°	

Further codings on request

		Housing material	Biocompatible material <sup>1</sup>
7	Standard	Plastic, Gray (PSU)	●
8	On request	Plastic, Black (PSU)	●

Further housing materials on request

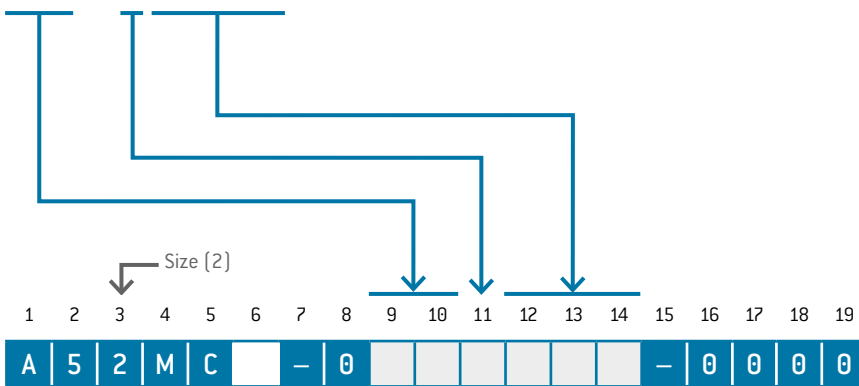
<sup>1</sup> Biocompatibility acc. to DIN EN ISO 10993:  
 DIN EN ISO 10993-5:2009-10: Tests for in vitro cytotoxicity. Testing determines whether toxic components from the material cause cell damage.  
 DIN EN ISO 10993-10:2014-10: Tests for irritation and skin sensitization. The test for skin irritations and skin sensitization is designed to determine irritating and sensitizing characteristics of medical products.  
 DIN EN ISO 10993-11:2018-09: Tests for systemic toxicity.  
 DIN EN ISO 10993-18:2009-08: Chemical characterization of medical device materials within a risk management process.

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

# CONTACT INSERTS STYLE A5



Number of contacts	Contact type		Part number key insert				Contact diameter mm	Single contact nominal current <sup>1</sup> A	Nominal current insert A	Clearance and creepage distance contact to contact mm		Test voltage <sup>2</sup> SAE KV DC	Termination diameter mm	Termination cross-section		View on termination area  Pin piece
	Termination	Pin								AWG	mm <sup>2</sup>					
1	6	Solder	M	F	G	0	0.7	7.5	3.8	0.5	1.35	0.85	22	0.38		
2	6	Solder	M	C	D	0	0.5	6	2.4	0.4	0.825	0.65	26	0.15		



The pins are installed in the plug style 5.

**CAUTION: Style A5 (5-pos.) mateable with the following receptacles:**

- G12MC7-P05LMM9-0001
- G42MC7-P05LMM9-0071
- G52MC7-P05LMM9-0002

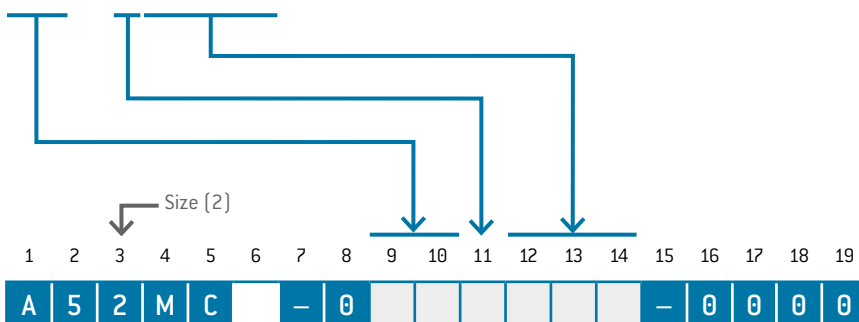
Other variants upon request.

<sup>1</sup> Derating factor, see page 122

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

# SPECIAL-CONTACT INSERT STYLE A5

Number of contacts	Contact type		Part number key insert				Contact diameter mm	Single contact nominal current A	Nominal current insert A	Clearance and creepage distance contact to contact mm		Contact-to-contact voltage				Termination diameter mm	Termination cross-section		View on termination area  Pin piece	
	Termination	Pin								operating voltage <sup>3,4,5</sup> IEC V RMS	mated	unmated	Test voltage <sup>6</sup> IEC KV	Test voltage <sup>6</sup> SAE KV DC	Test voltage <sup>6</sup> IEC KV		Test voltage <sup>6</sup> SAE KV DC	AWG		mm <sup>2</sup>
0	5 <sup>7</sup>	Solder	M	M	M	9	1 × 1.3 (first mate last break) 2 × 1.3	16	12	8.2	1.8	320 <sup>7</sup>	1.25	2.5	1.25	2.5	1.85	16	1.5	
							2 × 0.9	10	7.5	8.2	1.8		1.25	2.5	1.25	2.5	1.1	20	0.5	



<sup>3</sup> In the case of the pin piece, voltage may only be applied in mated condition.

<sup>4</sup> IEC 60664-1:2007 (VDE 0110-1:2008): Overvoltage category III

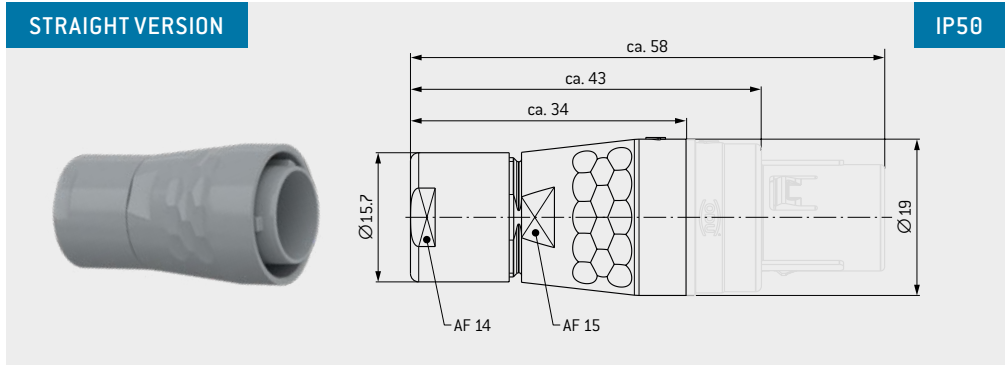
<sup>5</sup> IEC 60664-1:2007 (VDE 0110-1:2008): Pollution degree 3

<sup>6</sup> Surge voltage

<sup>7</sup> Voltage may only be applied to fully assembled and potted connectors in mated condition.

<sup>8</sup> SAE 13441:2004 method 3001.1

# ACCESSORIES FOR BREAK-AWAY PLUG



Assembly instruction available on the product data sheet.

Straight version includes cable collet system for strain relief.

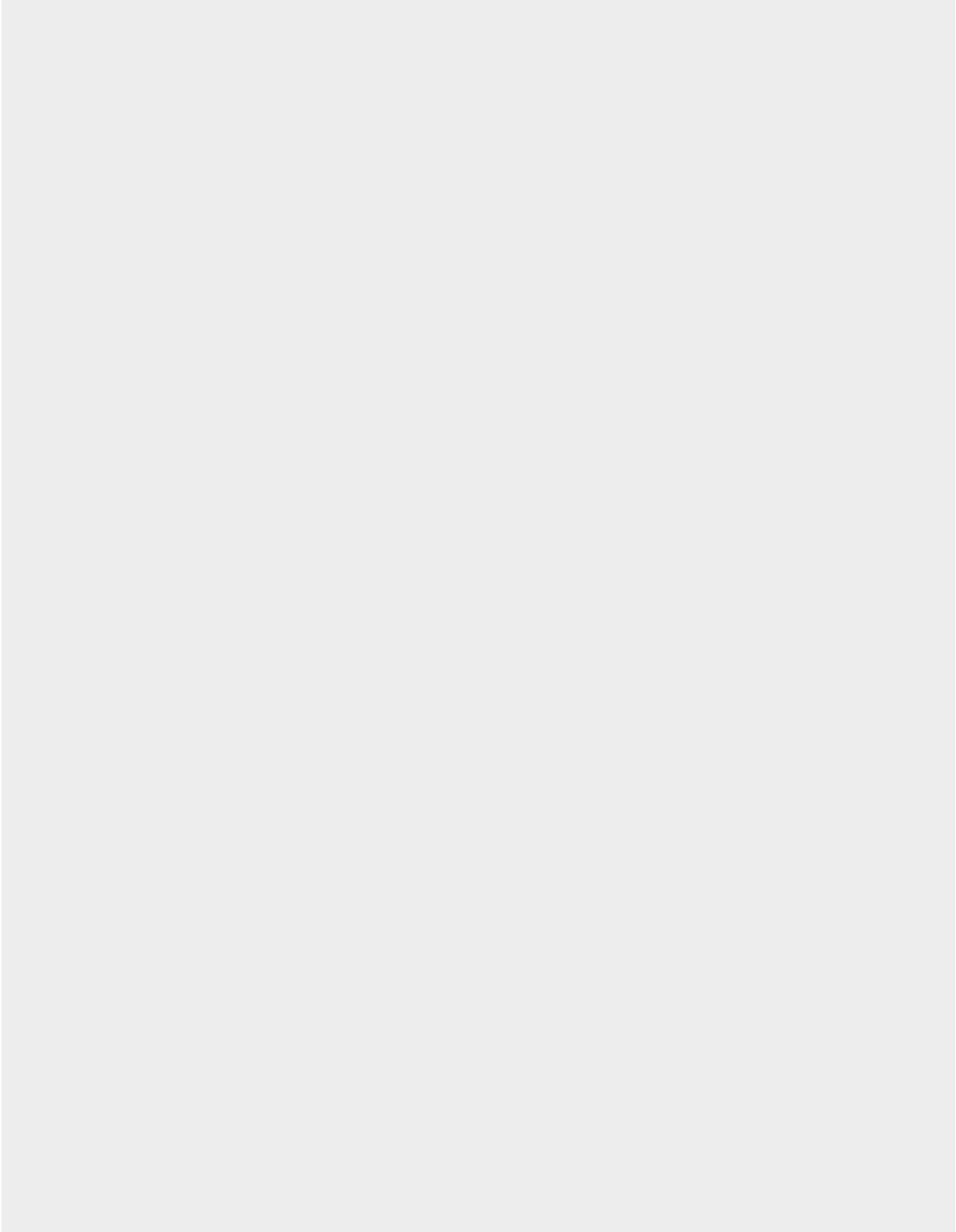
Part number	Cable diameter mm	Color code	Color	Similar RAL systems
				Design
026.KM2.129.9__045	> 3.1 – 4.5	07	Gray	000 55 00
026.KM2.129.9__060	> 4.5 – 6.0	08	Black	000 25 00
026.KM2.129.9__075	> 6.0 – 7.5			
026.KM2.129.9__090	> 7.5 – 9.0			



All Break-Away Plugs can be ordered as a standard system solution with different overmolding materials and cable materials.



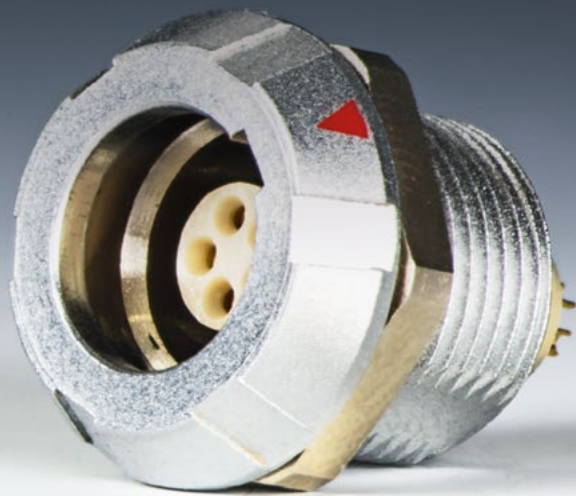
# FOR YOUR NOTES





ODU MEDI-SNAP®

[Table of contents](#)



## ODU MEDI-SNAP® WITH METAL HOUSING

Summary .....	<u>88</u>
Styles .....	<u>90</u>
Codings .....	<u>94</u>
Contact inserts and PCB layouts .....	<u>95</u>
Cable collet system .....	<u>100</u>
Accessories .....	<u>101</u>

# SUMMARY ODU MEDI-SNAP<sup>®</sup> METAL HOUSING

The ODU MEDI-SNAP<sup>®</sup> with metal housing in size 1 is coded by pin and groove. These circular connectors can have a variety of configurations: numerous styles of connectors, receptacles and in-line receptacles as well as various termination types, contact inserts and color codings.

- Compatible with plastic finish
- Robust housing finish
- Coding over pin and groove
- 7 color codings
- 3 mechanical codings
- 2–14 contacts
- 3 termination types
- Contacts for solder, crimp and PCB termination
- A selection of numerous connectors as well as receptacles and in-line receptacles
- IP50 and IP64 available in mated condition
- Up to 5,000 mating cycles

**NOTE**

The ODU MEDI-SNAP<sup>®</sup> Break-Away connector A5 in size 1 is not generally mateable on metal receptacles.

STRAIGHT PLUG – PUSH-PULL		2,000 mating cycles	P. 90
IP50		S	1
		S	2
IP64		S	4

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

RECEPTACLE – PUSH-PULL		5,000 mating cycles	P. 91
IP50		G	1
		G	5
IP64 / IP68 <sup>1</sup>		G	A
IP50		G	K

IN-LINE RECEPTACLE		5,000 mating cycles	P. 93
IP50		K	5
		K	6

<sup>1</sup>IP68 in reference to the tightness of the end device in unmated condition

# STRAIGHT PLUG



## Push-Pull styles

S	1	Ø	<b>STYLE: 1</b>	IP50
With standard back nut				

S	2	S	<b>STYLE: 2</b>	IP50
With back nut <sup>1</sup> for cable bend relief <sup>2</sup>				

S	4	S	<b>STYLE: 4</b>	IP64
With back nut <sup>1</sup> for cable bend relief <sup>2</sup>				

**TECHNICAL DATA**

- Contact configuration from page 95
- Explanation of the degrees of protection (see page 114)
- Color coding for S1 possible
- IP64 in combination with receptacle style 4 (in mated condition)

Size [1]

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

<sup>1</sup> Back nuts for cable bend reliefs have to be ordered in the same color as the connector housing. The color coding is based on the cable bend relief.  
<sup>2</sup> Cable bend reliefs have to be ordered separately (see page 104).


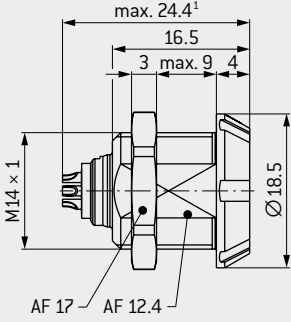
# RECEPTACLE



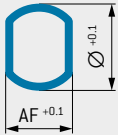
G 1

**STYLE: 1** **IP50**

For front panel installation

**PANEL CUT-OUT**



AF : 12.5 mm  
Ø : 14.1 mm


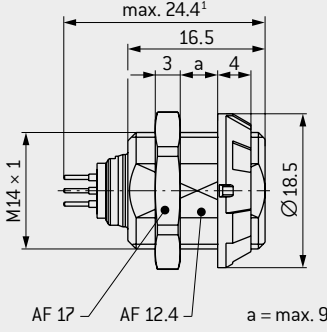
**TECHNICAL DATA**

- Contact inserts and PCB layouts (see page 95)
- Explanation of the degrees of protection (see page 114)
- Anti-rotation feature
- IP50 in reference to the tightness of the end device

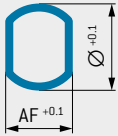
G 5

**STYLE: 5** **IP50**

Receptacle with continuous thread, can be installed from front or rear; extension in front of panel is adjustable

**PANEL CUT-OUT**



AF : 12.5 mm  
Ø : 14.1 mm

**TECHNICAL DATA**

- Contact inserts and PCB layouts (see page 95)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding
- Right-angled PCB contact possible (see page 98)

Size [1]

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

¹ Depending on the insert

# RECEPTACLE



G A

**STYLE: A** **IP64/68**

For front panel installation

**PANEL CUT-OUT**

AF : 12.5 mm  
Ø : 14.1 mm

**TECHNICAL DATA**

- Contact inserts and PCB layouts (see page 95)
- Explanation of the degrees of protection (see page 114)
- IP64 in combination with connector style 4 in mated condition (page 78)
- IP68 in reference to the tightness of the end device in unmated condition
- Anti-rotation feature

G K

**STYLE: K** **IP50**

For rear panel installation

**PANEL CUT-OUT**

AF : 12.5 mm  
Ø : 14.1 mm

**TECHNICAL DATA**

- Contact inserts and PCB layouts (see page 95)
- Explanation of the degrees of protection (see page 114)
- IP50 in reference to the tightness of the end device
- Anti-rotation feature
- With color coding
- Right-angled PCB contact possible (see page 98)

Size [1]

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

		1	M		C	-	P										0	0
--	--	---	---	--	---	---	---	--	--	--	--	--	--	--	--	--	---	---

¹ Depending on the insert

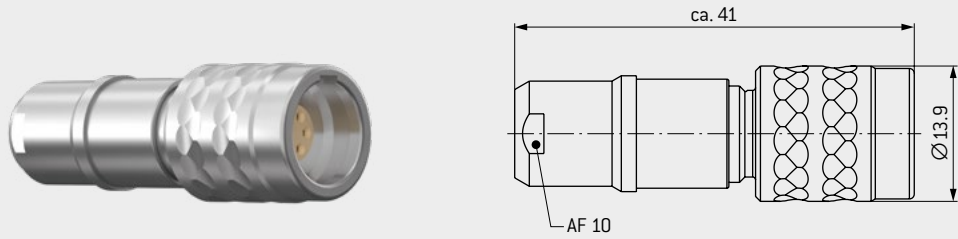


# IN-LINE RECEPTACLE



K	5	0	STYLE: 5	ON REQUEST	IP50
---	---	---	----------	------------	------

With standard back nut

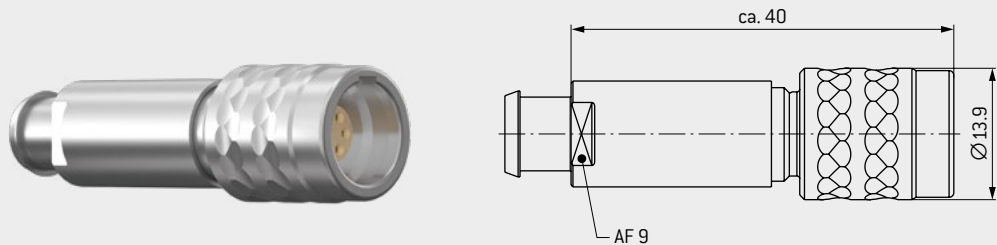


**TECHNICAL DATA**

- Contact configuration from page 95
- Explanation of the degrees of protection (see page 114)
- Color coding via back nut possible (see page 101)

K	6	S	STYLE: 6	ON REQUEST	IP50
---	---	---	----------	------------	------

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



**TECHNICAL DATA**

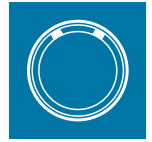
- Contact configuration from page 95
- Explanation of the degrees of protection (see page 114)

Size [1]

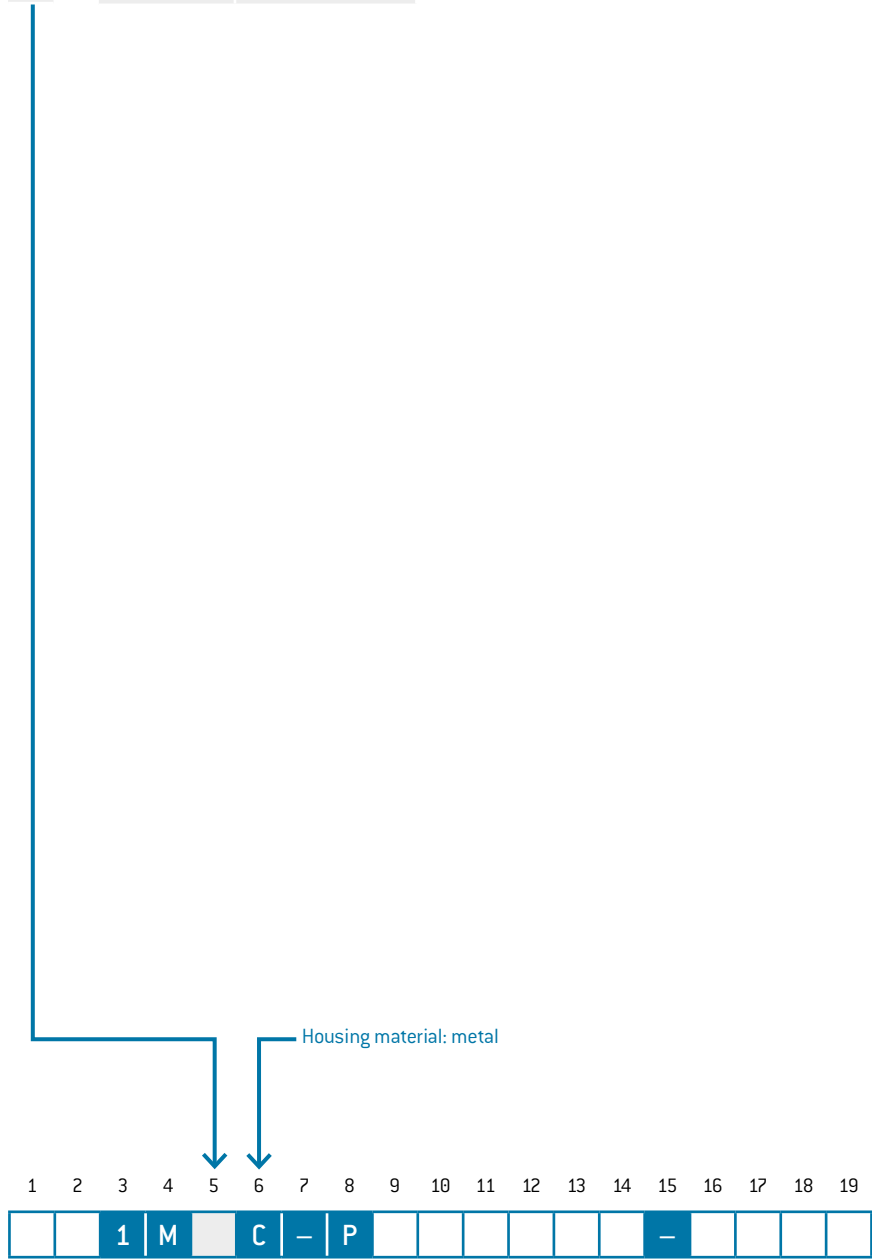
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		1	M		C	-	P							-				

<sup>1</sup> Cable bend reliefs have to be ordered separately (see page 104).

# CODINGS



	Angle	Receptacle front view
0	0°	
A	40°	
C	60°	

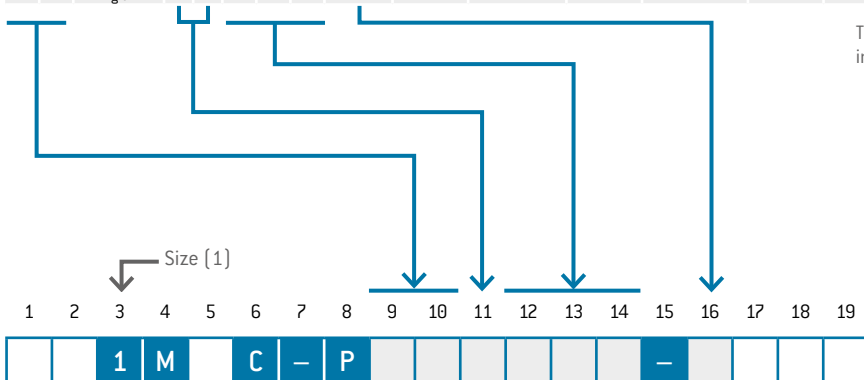


1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
			1	M		C	-	P							-				

# CONTACT INSERTS



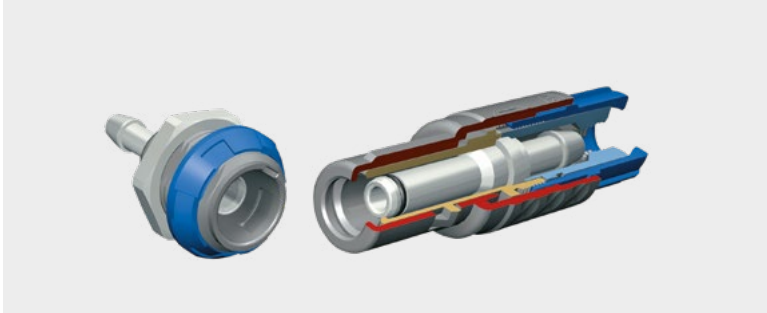
Number of contacts	Contact type		Part number key insert			Contact style <sup>1</sup>	Contact diameter mm	Single contact nominal current <sup>2</sup> A	Nominal current insert A	Clearance and creepage distance contact to contact mm	Test voltage <sup>2</sup> SAE kV DC	Test voltage <sup>6,8</sup> IEC kV RMS	Operating voltage <sup>7,8</sup> IEC V RMS	Termination diameter		Termination cross-section		View on termination area		
	Termination	Socket	Pin	P	N									Ø	mm	AWG	mm <sup>2</sup>	Pin piece	Socket piece	
Ø	2	Solder	L	M	P	N	Ø	1.3	15	15	1	1.6	0.67	38	1.4	18	1			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		P	Ø	Ø		A	12	12	1.3	1.9	0.67	48	1.1	20			0.5
Ø	3 <sup>5</sup>	Solder	L	M	P	N	9	1.3	15	15	0.9	1.6	0.67	37	1.4	18	1			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		P	Ø	9		A	12	12	1.2	1.9	0.67	48	1.1	20			0.5
Ø	4	Solder	L	M	J	H	Ø	0.9	10	10	0.9	1.6	0.67	37	1.1	20	0.5			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		J	G	Ø		A	7.5	7.5	1.2	1.9	0.67	48	0.85	22			0.38
		Crimp <sup>3</sup>	N	P	J	H	Ø			10	10	0.9	1.6	0.67	37	–	20–24			0.5–0.25
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		J	G	Ø		A	7.5	7.5	1.2	1.9	0.67	48	–	22–26			0.38–0.15
Ø	5	Solder	L	M	J	H	Ø	0.9	10	7.5	0.5	1.35	0.67	25	1.1	20	0.5			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		J	G	Ø		A	7.5	5.6	0.8	1.6	0.67	35	0.85	22			0.38
		Crimp <sup>3</sup>	N	P	J	H	Ø			10	7.5	0.5	1.35	0.67	25	–	20–24			0.5–0.25
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		J	G	Ø		A	7.5	5.6	0.8	1.6	0.67	35	–	22–26			0.38–0.15
Ø	6	Solder	L	M	F	G	Ø	0.7	7.5	5.6	0.65	1.35	0.67	33	0.85	22	0.38			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		F	D	Ø		A	6	4.5	0.85	1.6	0.67	36	0.65	26			0.15
		Crimp <sup>3</sup>	N	P	F	G	Ø			7.5	5.6	0.65	1.35	0.67	33	–	22–26			0.38–0.15
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		F	Ø	Ø		A	6	4.5	0.85	1.6	0.67	36	–	–			–
Ø	7	Solder	L	M	F	G	Ø	0.7	7.5	4.9	0.65	1.35	0.67	33	0.85	22	0.38			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		F	D	Ø		A	6	3.9	0.85	1.6	0.67	36	0.65	26			0.15
		Crimp <sup>3</sup>	N	P	F	G	Ø			7.5	4.9	0.65	1.35	0.67	33	–	22–26			0.38–0.15
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		F	Ø	Ø		A	6	3.9	0.85	1.6	0.67	36	–	–			–
Ø	8	Solder	L	M	F	G	Ø	0.7	7.5	4.9	0.4	1.2	0.67	10	0.85	22	0.38			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		F	D	Ø		A	6	3.9	0.6	1.6	0.67	32	0.65	26			0.15
		Crimp <sup>3</sup>	N	P	F	G	Ø			7.5	4.9	0.4	1.2	0.67	10	–	22–26			0.38–0.15
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		F	Ø	Ø		A	6	3.9	0.6	1.6	0.67	32	–	–			–
Ø	9	Solder	L	M	C	D	Ø	0.5	6	3.9	0.45	1.2	0.67	16	0.65	26	0.15			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		C	C	Ø		A	4	2.6	0.65		1.35	33	0.45	28			0.08
1	Ø	Solder	L	M	C	D	Ø	0.5	6	3.3	0.3	0.75	0.67	7.5	0.65	26	0.15			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		C	C	Ø		A	4	2.2	0.5		1.35	25	0.5	–			–
1	2 <sup>5</sup>	Solder	L	M	C	D	9	0.5	6	3.3	0.4	1.2	0.67	10	0.65	26	0.15			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		C	Ø	9		A	4	2.2			0.5	1.35	25	0.5			–
1	4	Solder	L	M	C	D	Ø	0.5	6	3	0.3	0.75	0.67	7.5	0.65	26	0.15			
		Print straight <sup>4</sup> Angled <sup>4</sup>	Q		C	C	Ø		A	4	2	0.5		1.2	25	0.45	28			0.08



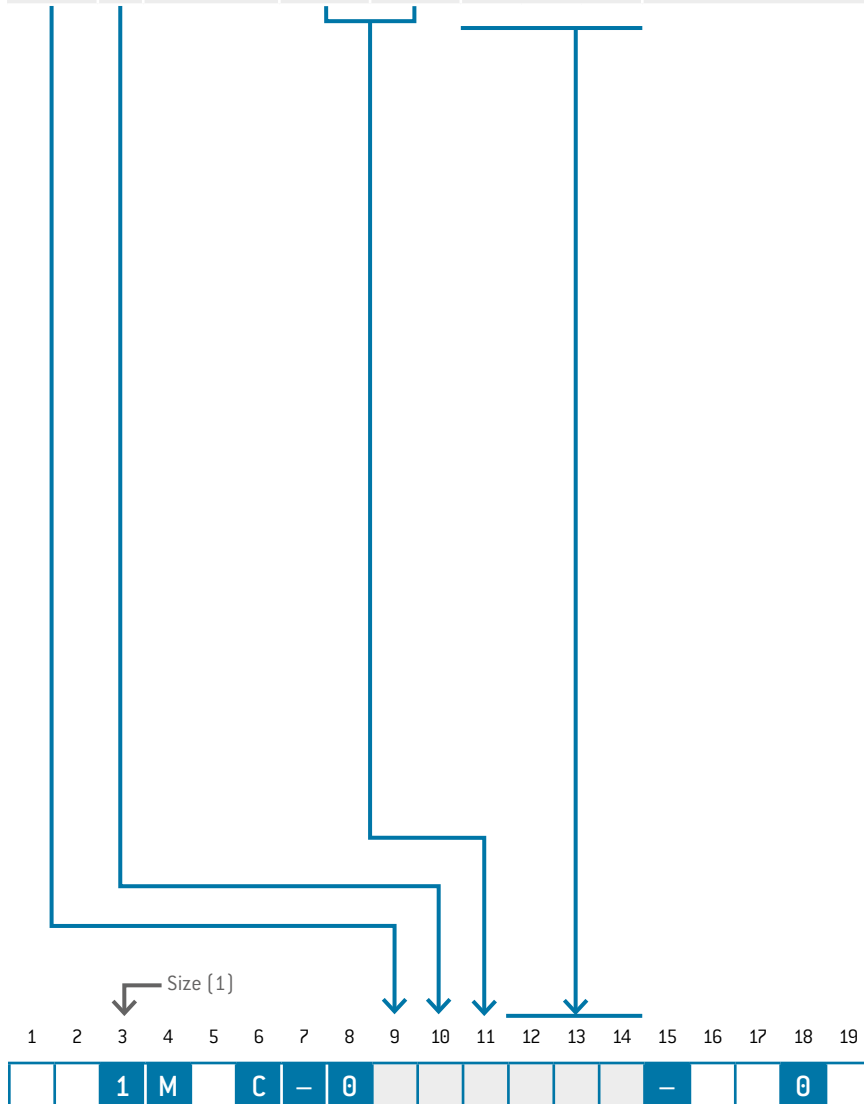
The socket is installed in the [in-line] receptacle; the pin is installed in the plug. **Reversed gender variants on request.**

<sup>1</sup> Derating factor, see page 122  
<sup>2</sup> SAE AS 13441:2004 method 3001.1  
<sup>3</sup> Tools for crimping and adjustment dimensions for crimping tool, see page 108  
<sup>4</sup> PCB layouts (see page 41); print termination only available for receptacle styles 5 and 8  
<sup>5</sup> Not compatible to competition  
<sup>6</sup> IEC 60664-1:2007 (VDE 0110-1:2008-01): Overvoltage category III  
<sup>7</sup> IEC 60664-1:2007 (VDE 0110-1:2008-01): Pollution degree 2  
<sup>8</sup> Surge voltage

# MEDIA FEED THROUGH



Media feed through	Feed through		Contact type		Part number key insert			Contact inner diameter	Working pressure max.	Termination diameter	Tube diameter max.
			Socket	Pin				mm	bar	mm	mm
F	1	Not shut off	B	S	1	1	0	2.5	2	4	6
	A	Shut off	B	S	On request <sup>1</sup>			1.9	2	4	6



<sup>1</sup> Not compatible to competition

# PCB LAYOUTS

For PCB contacts (Size 1)



	Straight	90° right-angled		Straight	90° right-angled
	Contact borehole: $\varnothing 0.8$ mm	Contact borehole: $\varnothing 0.9$ mm		Contact borehole: $\varnothing 0.6$ mm	Contact borehole: $\varnothing 0.7$ mm
2 contacts			8 contacts		
3 contacts	Contact borehole: $\varnothing 0.8$ mm 	Contact borehole: $\varnothing 0.9$ mm 	9 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
4 contacts	Contact borehole: $\varnothing 0.8$ mm 	Contact borehole: $\varnothing 0.7$ mm 	10 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
5 contacts	Contact borehole: $\varnothing 0.8$ mm 	Contact borehole: $\varnothing 0.7$ mm 	12 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
6 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 	14 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 
7 contacts	Contact borehole: $\varnothing 0.6$ mm 	Contact borehole: $\varnothing 0.7$ mm 			

All specifications are only valid for socket inserts, pin inserts on request. Further PCB layouts upon request

# RIGHT-ANGLED PCB CONTACTS IN THE RECEPTACLE



A

## RIGHT-ANGLED PCB CONTACT

For style G5, GK



### Technical Data

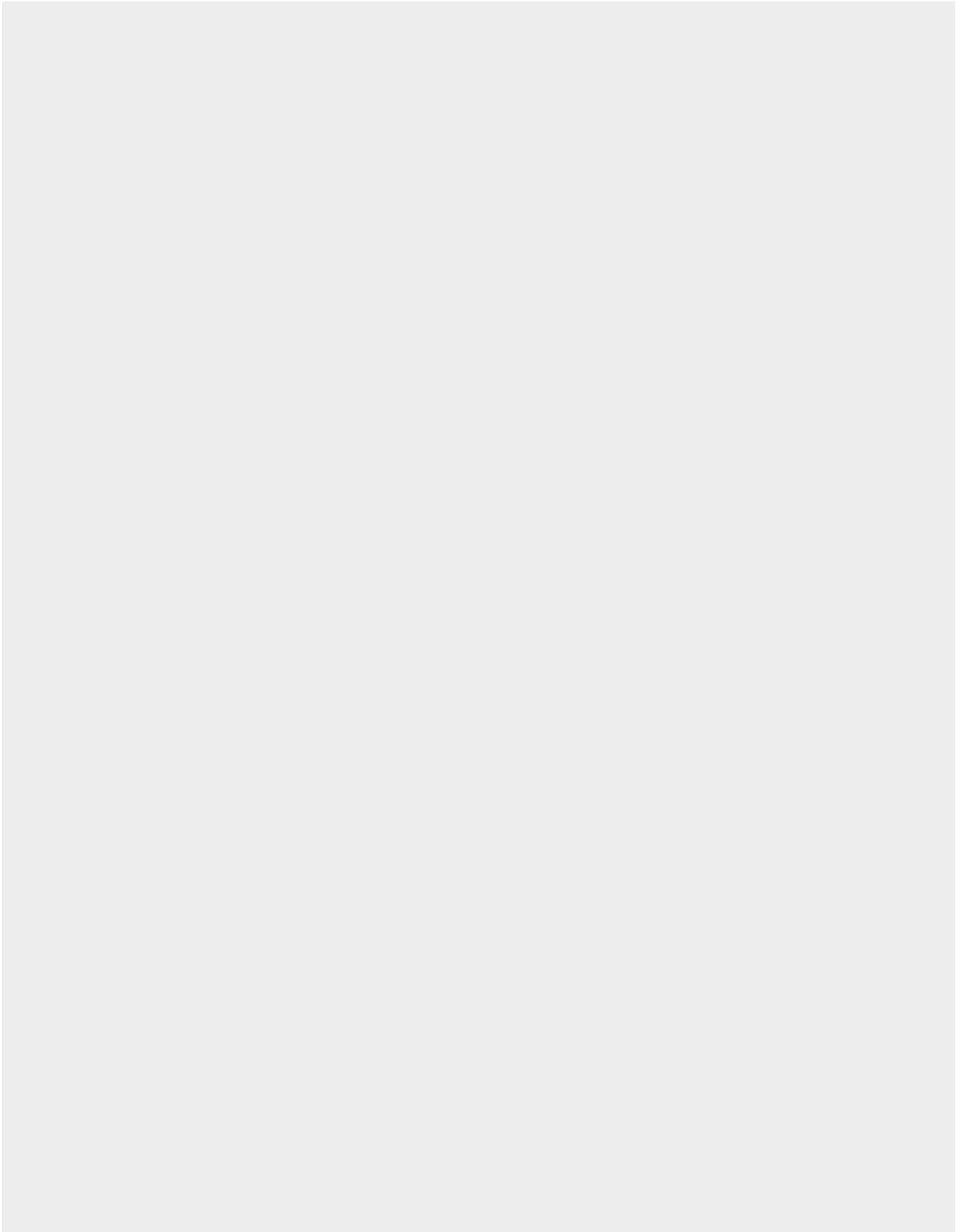
- PCB layouts, see page [97](#)

Contact diameter	Termination diameter
mm	mm
0.5	0.5
0.7	0.6
0.9	0.6
1.3	0.8

Size [1]

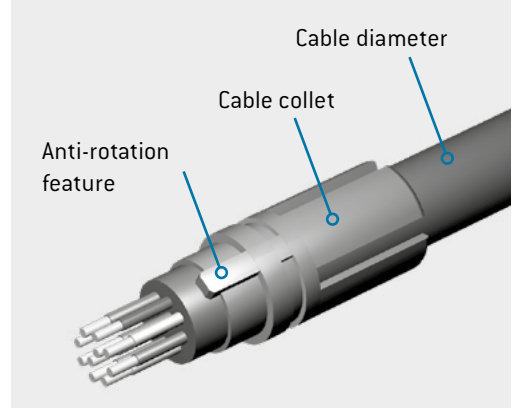
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19
		1	M		C	-	P							-		0		

# FOR YOUR NOTES



# CABLE COLLET SYSTEM

For plugs and in-line receptacles



Cable diameter mm	Material	Part number
> 2.7 – 3.9	PSU	KM1.020.121.934.007
> 4.0 – 5.2		KM1.020.122.934.007
> 5.3 – 6.5		KM1.020.123.934.007
> 2.7 – 3.9	PEI	KM1.020.121.933.008
> 4.0 – 5.2		KM1.020.122.933.008
> 5.3 – 6.5		KM1.020.123.933.008

**APPLICATION:** for all plugs and in-line receptacles

**USE:** cable collet for strain relief

3	9
5	2
6	5
3	9
5	2
6	5

Size (1)

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



# COLOR CODINGS



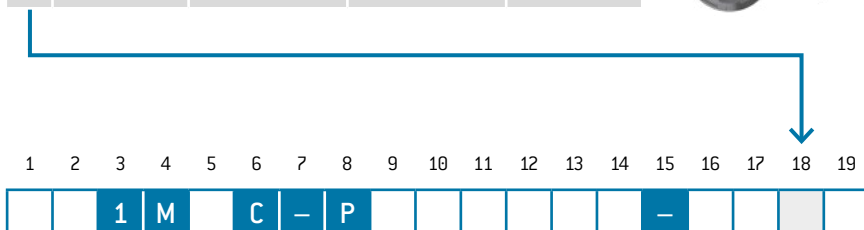
Color coding of the front nut only for receptacles G5 and GK  
 Color coding of the back nut only for straight plug S1 and in-line receptacle K5

The color coding here is based on the cable bend relief in combination with back nut made of brass.

Code C (brass chromate) always for straight plug S2 and receptacles G1 and GA



	Color	Similar RAL systems		Material
		Design	Classic	
2	Red	030 40 40	3002	Plastic (PSU)
3	White	000 90 00	9003	
4	Yellow	095 90 59	1016	
5	Green	170 60 50	6032	
6	Blue	250 40 40	5019	
7	Gray	000 55 00	7045	
8	Black	000 25 00	9004	Plastic (PSU/PEI)
C	Chrome matt	–	–	Brass

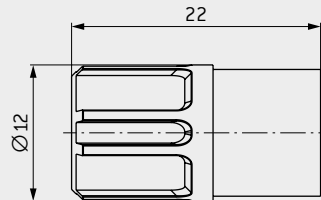


# DEFINITION OF THE BACK NUTS

Applicable to all straight plugs as well as in-line receptacles

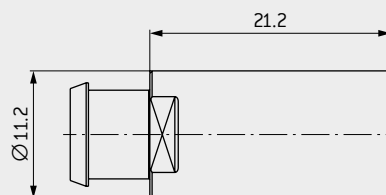


## STANDARD BACK NUT



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.111.934.002	PSU	Red	030 40 40	3002
KM1.020.111.934.003		White	000 90 00	9003
KM1.020.111.934.004		Yellow	095 90 59	1016
KM1.020.111.934.005		Green	170 60 50	6032
KM1.020.111.934.006		Blue	250 40 40	5019
KM1.020.111.934.007		Gray	000 55 00	7045
KM1.020.111.933.008	PEI	Black	000 25 00	9004
KM1.020.111.315.000	Brass	Chrome matt	–	–

## STANDARD BACK NUT FOR CABLE BEND RELIEF<sup>1</sup>



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.113.934.007	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.020.113.933.008	PEI	Black	000 25 00	9004
KM1.020.113.315.000	Brass	Chrome matt	–	–

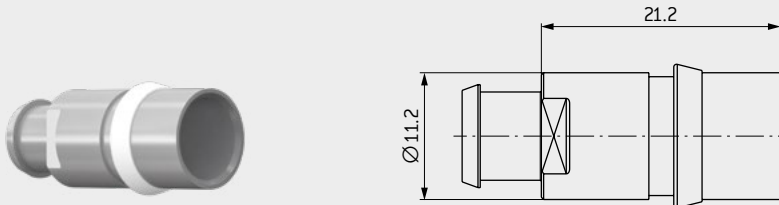
<sup>1</sup> Silicone cable bend reliefs have to be ordered separately [see page 104]. <sup>2</sup> Additional colors on request

# DEFINITION OF THE BACK NUTS

Applicable to all straight plugs as well as in-line receptacles

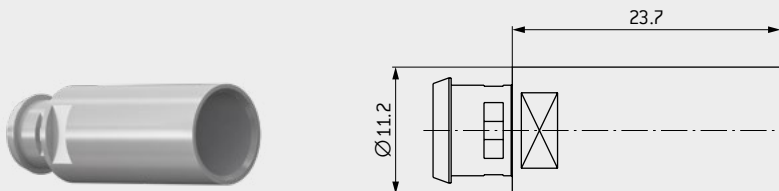


## STANDARD BACK NUT FOR CABLE BEND RELIEF FOR PLUG IP64<sup>1</sup>



Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.026.113.934.107	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.026.113.933.108	PEI	Black	000 25 00	9004
KM1.026.113.315.000	Brass	Chrome matt	–	–

## STANDARD BACK NUT FOR OVERMOLDING ON REQUEST

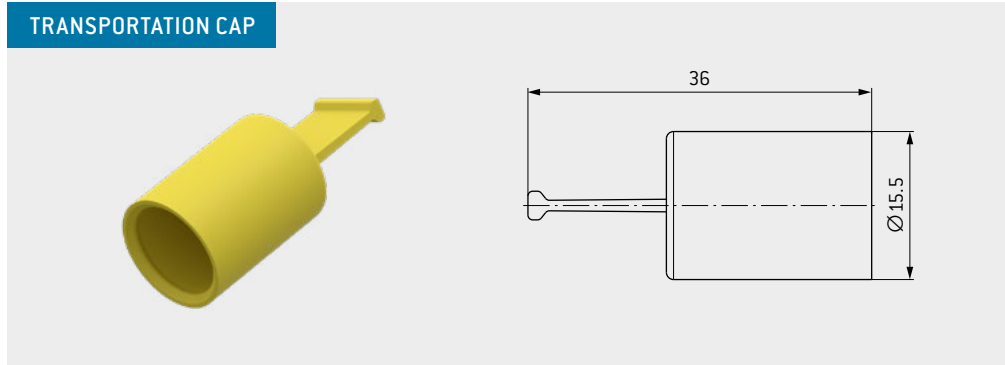


Part number	Material	Color	Similar RAL systems	
			Design	Classic
KM1.020.114.934.007	PSU <sup>2</sup>	Gray	000 55 00	7045
KM1.020.114.934.008		Black	000 25 00	9004
KM1.020.114.933.008	PEI	Black	000 25 00	9004

<sup>1</sup> Silicone cable bend reliefs have to be ordered separately [see page 104]. <sup>2</sup> Additional colors on request

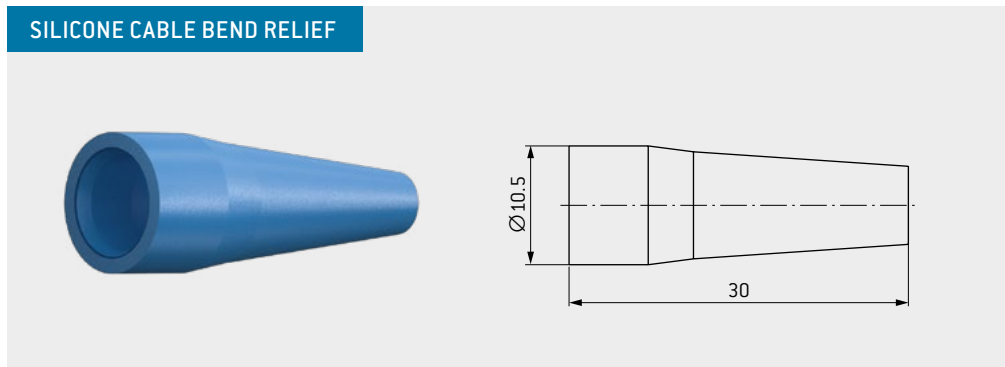
# TRANSPORTATION CAP

Applicable to all straight plugs



Part number	Material	Color	Similar RAL systems	
			Design	Classic
922.000.002.000.075	TPE	Yellow	095 90 59	1016

# SILICONE CABLE BEND RELIEF



### TEMPERATURE RANGE

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

Part number	Cable jacket (Ø outside)		Color code	Color	RAL-Nr. <sup>1</sup> (similar) Classic
	min.	max.			
701.023.____.965.025	2.5	3	202	Red	3020
701.023.____.965.030	3	3.5	203	White	9010
701.023.____.965.035	3.5	4	204	Yellow	1016
701.023.____.965.040	4	5	205	Green	6032
701.023.____.965.050	5	6	206	Blue	5002
701.023.____.965.060	6	6.5	207	Gray	7005
			208	Black	9005

The silicone cable bend reliefs must always be ordered separately.

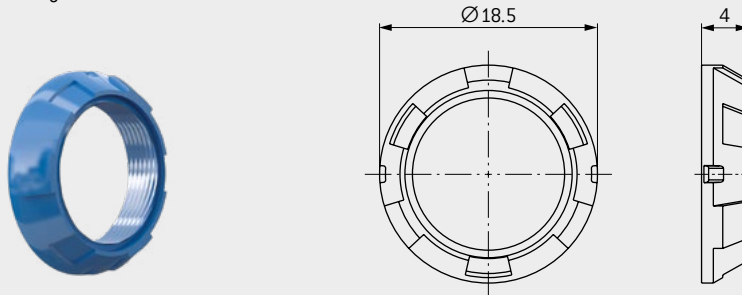
<sup>1</sup> Because of differing basic materials, the colors may differ slightly from RAL numbers.

# NUTS



## FRONT NUT

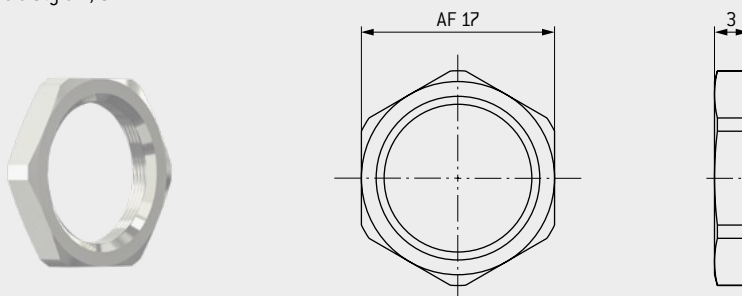
For receptacle style 5



Part number	Material	Color	Similar RAL system Design
KM1.311.002.934.002	PSU	Red	030 40 40
KM1.311.002.934.003		White	000 90 00
KM1.311.002.934.004		Yellow	095 90 59
KM1.311.002.934.005		Green	170 60 50
KM1.311.002.934.006		Blue	250 40 40
KM1.311.002.934.007		Gray	000 55 00
KM1.311.002.933.008	PEI	Black	000 25 00
KM1.311.003.315.000	Brass	Cr matt	

## HEX NUT

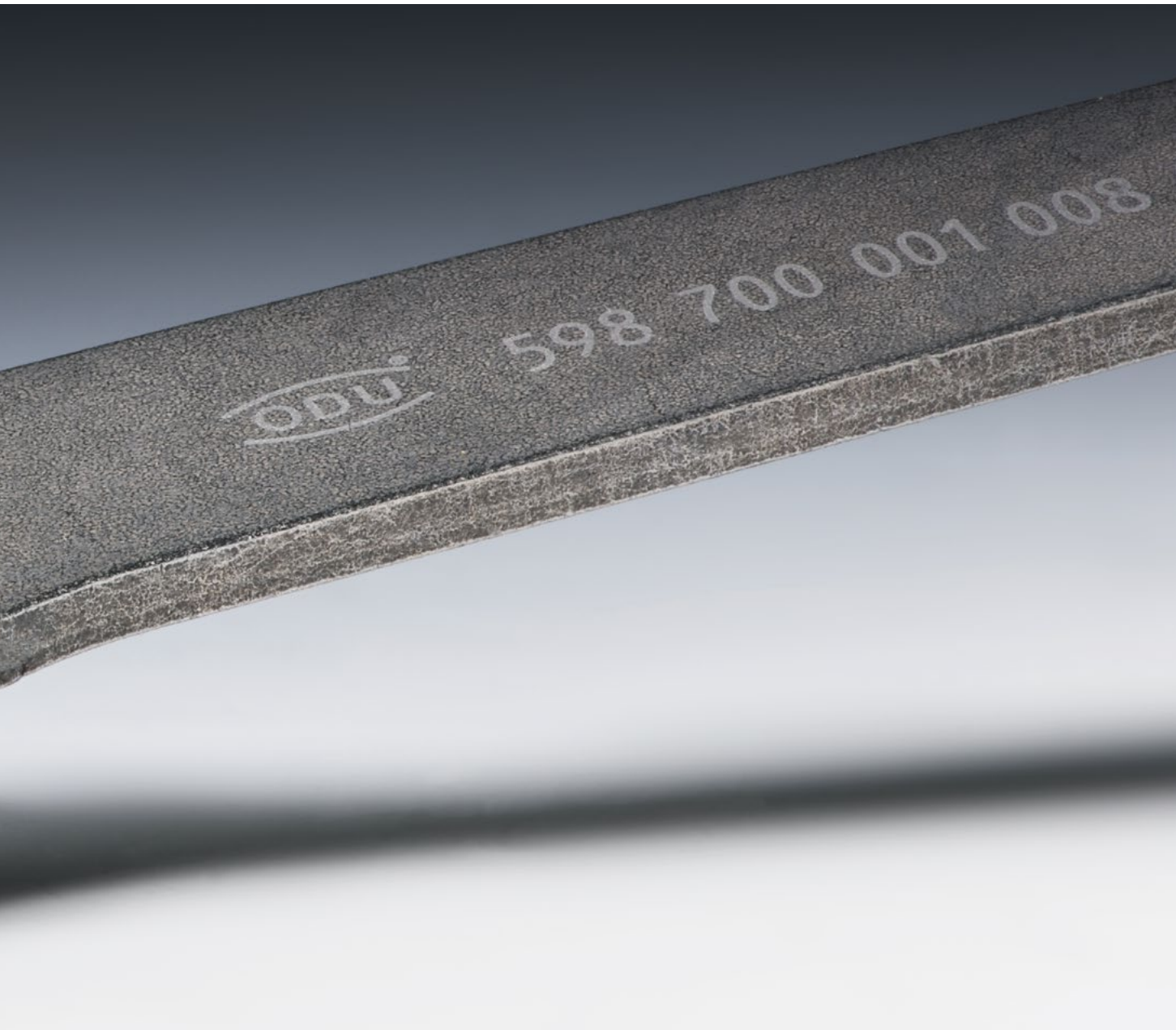
For receptacle style 1, 5 and A



Part number	Material
021.310.115.304.000	Nickel-plated brass



ODU MEDI-SNAP®



## TOOLS

The following pages contain tools and wrenches to ensure that your ODU connectors function flawlessly.

# 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	
1	6 to 8	0.7	24 – 26	0.25 – 0.15	0.67	080.000.051.109.000	9	3	087.7CC.070.001.000
			22 – 26	0.38 – 0.15	0.67	080.000.051.109.000	9	3	087.7CC.070.001.000
	4 to 5	0.9	22 – 26	0.38 – 0.15	0.67	080.000.051.109.000	8	2	087.7CC.090.001.000
			20 – 24	0.50 – 0.25	0.67	080.000.051.109.000	8	2	087.7CC.090.001.000



# CRIMPING TOOLS / ASSEMBLY TOOLS



**PART NUMBER CRIMPING TOOL**  
080.000.037.000.000

Part number positioner,  
see table

## PROCESSING TOOL FOR CRIMP CONTACTS

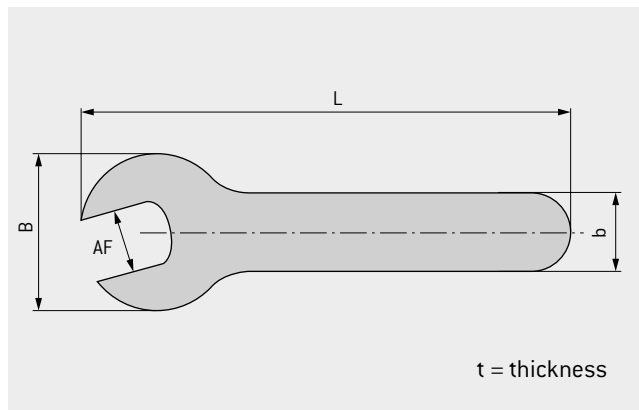
Mil approved, single position

Size	Number of contacts	Contact diameter mm	Termination cross-section		Positioner		Selector setting		Removal tool
			AWG	mm <sup>2</sup>	Pin	Socket	Pin	Socket	
1	6 to 8	0.7	22 – 26	0.38 – 0.15	081.KM1.001.948.037	081.KM1.001.948.037	4	4	087.7CC.070.001.000
		0.7	24 – 26	0.25 – 0.15	081.KM1.001.948.037	081.KM1.001.948.037	4	4	087.7CC.070.001.000
	4 to 5	0.9	20 – 24	0.50 – 0.25	081.704.001.849.037	081.KM1.001.949.037	7/6/5 <sup>1</sup>	7/6/5 <sup>1</sup>	087.7CC.090.001.000
		0.9	22 – 26	0.38 – 0.15	081.704.001.849.037	081.KM1.001.949.037	4	4	087.7CC.090.001.000

<sup>1</sup> For AWG 20 position 7/for AWG 22 position 6/for AWG 24 position 5

# SPANNER WRENCH SIZE 1

Part number	Dimensions in mm				
	AF	t	B	L	b
598.700.001.008.000	17	3	35.5	145	15



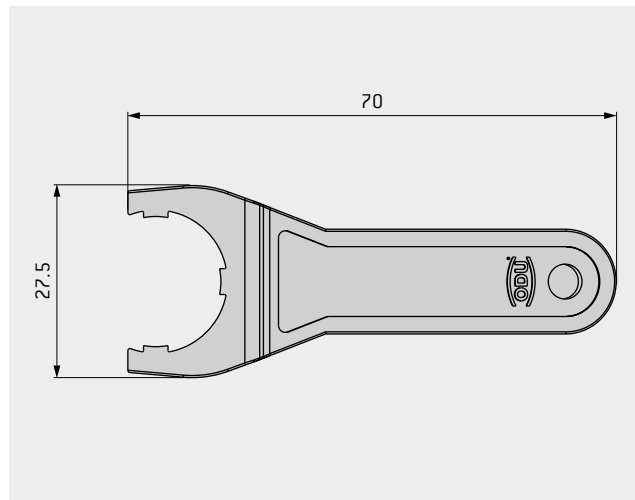
Tightening torque of the hex nut receptacle (styles 1/4/5/6/A): 1 Nm

# SPANNER WRENCH SIZE 2



PART NUMBER KM2.098.002.923.008

For slotted mounting nuts receptacle styles 1, 4, 5



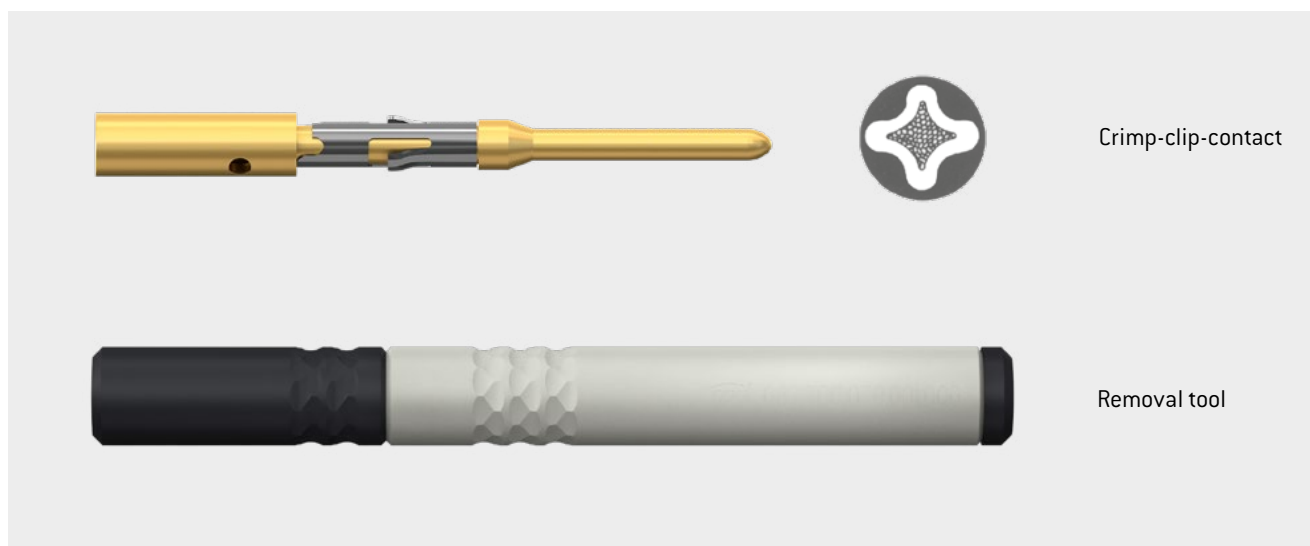
Tightening torque of the hex nut receptacle (styles 1/4/5): 1 Nm

# BOX SPANNER FOR RECEPTACLE FRONT NUTS

Part number	Size	Material front nut
KM1.098.001.923.008	1	Plastic
KM1.098.002.902.000	1	Metal
KM2.098.001.923.008	2	Plastic



# REMOVAL TOOLS FOR CRIMP-CLIP-CONTACTS



Crimp-clip-contact

Removal tool

Part number	Contact Ø mm
087.7CC.070.001.000	0.7
087.7CC.090.001.000	0.9

## NOTE ON ADHESIVE

Recommended adhesive for the back nut  
Scotch-Weld™, DP 190 (Gray)

**ODU PART NUMBER: 890.204.000.030.025**

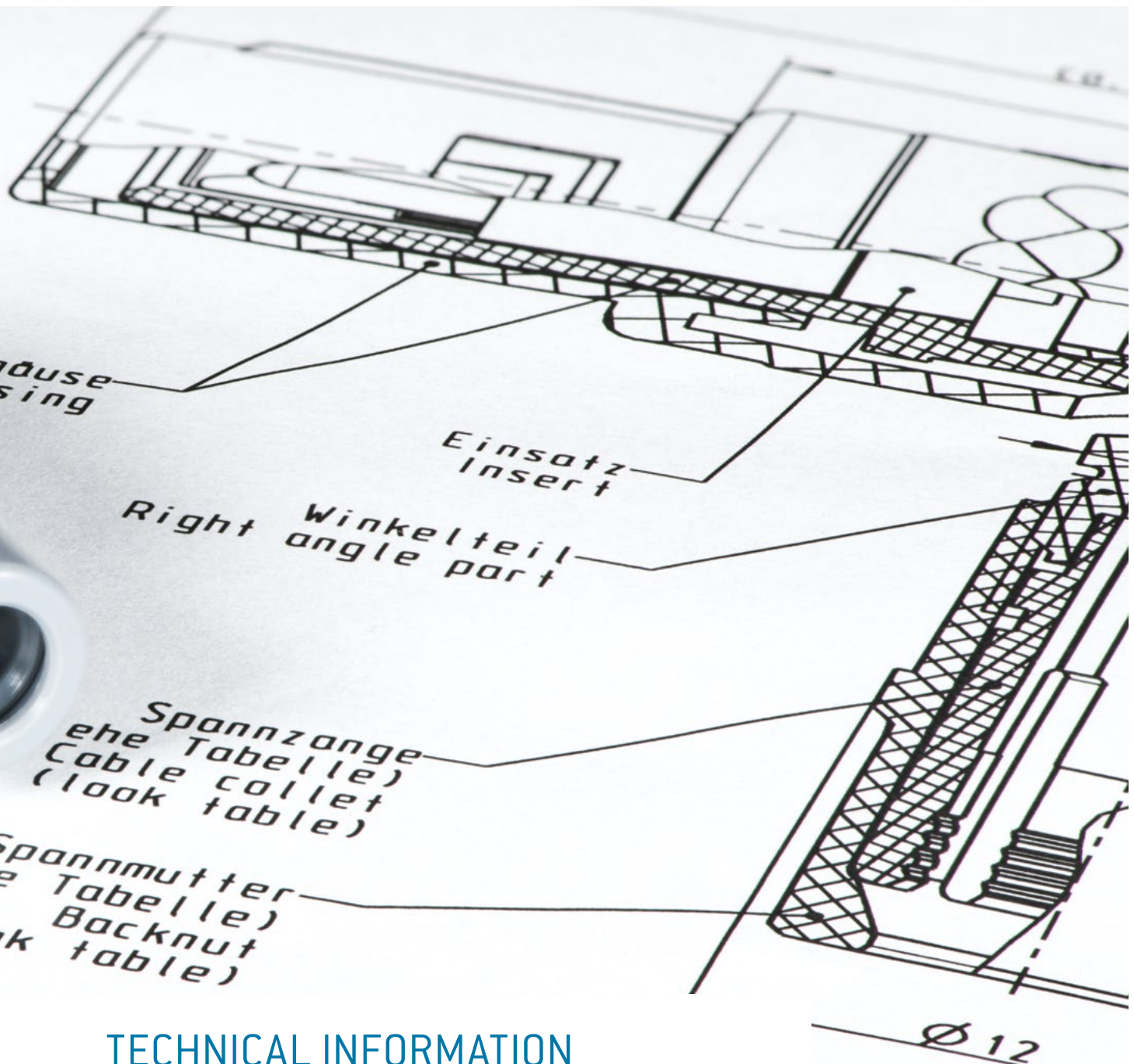
Recommended cleaning agent: Isopropyl alcohol

Caution! Cracks may later appear with the use of unauthorized adhesives and cleaning agents.

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



ODU MEDI-SNAP®



## TECHNICAL INFORMATION

ODU connectors ensure perfect and reliable transmission of power, signal, data and other media in a wide variety of applications.

Further information can be found on the following pages.

# 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	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	Protection against vertically falling waterdrops
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)	Protection against waterdrops falling at an angle (any angle up to 15° of the vertical)
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	Protection against spray water (any angle up to 60° of the vertical)
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	Protection against splashing water from any direction
5	Dustproof		Protection against contact with a wire / Protection against uncontrolled ingress of dust	5	Protection against water jet	Protection against water jet from any direction
6	Dustproof		Protection against contact with a wire / Complete protection against ingress of dust	6	Protection against powerful water jet	Protection against powerful water jet from all directions
				7	Protection against the effects of temporary immersion in water	Protection against ingress of water negatively impacting the proper function by temporary submersion into water
				8	Protection against the effects of continuous immersion in water	Protection against ingress of quantities of water negatively impacting the proper function by continuous submersion into water
				9	Protection against high pressure water jet featuring high temperatures	Protection against water from all directions characterized by high pressure and high temperatures



# EXPLANATIONS AND DETAILS OF SAFETY REQUIREMENTS, INSPECTIONS, AND VOLTAGE DATA

## GENERAL

All the technical information listed in this catalog and the data sheets has been determined by drawing on various standards. Unless otherwise stated, standard IEC 61984:2008 (VDE 0627:2009-11) "Connectors – Safety requirements and tests" has been used to dimension and determine the values provided.

This international standard applies to connectors (with rated voltages of 50 V to 1,000 V alternating and direct, and rated currents of up to 125 A per contact) which either have no type specification or which have a type specification whose safety requirements refer to this standard. The standard can be used as a guide for connectors with rated voltages up to 50 V. In cases such as this, IEC 60664-1:2007 must be consulted when dimensioning the clearance and creepage distances. This standard can also serve as a guide for connectors with rated currents higher than 125 A per pole.

All the connectors shown here are connectors without breaking capacity (COC) according to IEC 61984:2008 (VDE 0627:2009-11).

All of the voltage data listed in this catalog applies when ODU MEDI-SNAP® connectors and inserts are being used properly. Customer-specific attachments, which could reduce the clearance and creepage distances, have not been taken into account here.

The clearance and creepage distances are determined on the bases specified in IEC 60664-1:2007 (VDE 0110-1:2008-01).

The most important influence variables and the electrical parameters harmonized with these will be explained in more detail in the following. We would be happy to assist you with any further questions. The texts and tables given here are excerpts from the indicated standards. As a rule, product committees lay down application-specific safety requirements for various fields of use; these requirements also regulate the insulation coordination and inspection of connectors.

In such cases, the "product standards" which apply to your applications take precedence and must be observed instead of the "basic safety standards" stated here. However, since this catalog and the technical data sheets cannot take all product standards into consideration, we have restricted ourselves to the following standard in terms of voltage data:

## IEC 60664-1:2007 (VDE 0110-1:2008-01) "INSULATION COORDINATION FOR EQUIPMENT WITHIN LOW-VOLTAGE SYSTEMS"

This is what is known as a **basic safety standard**, which regulates the minimum requirements for dimensioning clearance and creepage distances, as well as their inspection. The standard applies to equipment used up to an altitude of 2,000 m above sea level and with a rated alternating voltage of up to 1,000 V and a nominal frequency of up to 30 kHz or a rated direct voltage of up to 1,500 V. The correction factors stated in the standard must be taken into account for applications at altitudes over 2,000 m above sea level.

The standard applies in those cases where corresponding product standards do not define any values for clearance and creepage distances, nor lay down any requirements for solid insulation, or where no product standards are even available.

The following general specifications have been defined for dimensioning:

- **Isolation** between electrical circuits (functional insulation between the contacts) or between an electrical circuit and local ground (contact with grounded connector components) has been dimensioned as **basic insulation**. If "**double insulation**" or "**reinforced insulation**" is required in your application, the voltage data provided will no longer apply; insulating clearances will need to be extended. The standard describes the procedure to follow in this case.
- Condition A is always used for the inhomogeneous field when dimensioning the clearance distances used.
- The inspections prescribed for solid insulation and for clearance distances (if necessary) are conducted as alternating voltage inspections according to Table F.5.
- The clearance and creepage distances are determined on the bases specified in this standard.

## OPERATING VOLTAGE / RATED VOLTAGE / NOMINAL VOLTAGE

The **max. operating voltage** (= rated voltage) is the value of a voltage that is specified by the manufacturer for a component, device, or item of equipment according to various applicable standards, and to which the operating and performance features relate. Some standards use the term "rated voltage" or "working voltage" instead of "operating voltage".



# EXPLANATIONS AND DETAILS OF SAFETY REQUIREMENTS, INSPECTIONS, AND VOLTAGE DATA



In these explanations, the term “nominal voltage” is used for the value of the issued voltage indicated by the power supply company (PSC) or by the manufacturer of the voltage source for classification of the overvoltage category.

Equipment may have more than one value or one range for rated voltage (see Table F.4 in IEC 60664-1:2007 (VDE 0110-1:2008-01)).

## RATED SURGE VOLTAGE

Value of an impulse withstand voltage that is indicated by the manufacturer for equipment or a part thereof, and which indicates the defined endurance of its insulation against transient (brief, duration of a few milliseconds) overvoltages. The impulse withstand voltage is the highest value of the surge voltage of a defined form and polarity which will not result in the dielectric breakdown of the insulation under defined conditions.

Depending upon the indicated pollution degree, the rated surge voltage depends upon the clearance distance between the individual contacts or contacts to the housing (see Table F.2 in IEC 60664-1:2007 (VDE 0110-1:2008-01)). You can determine the corresponding rated surge voltages for our connectors in this way if you need to take account of loads with transient overvoltages in your application.

According to this standard, the minimum clearance distances for equipment not connected directly to the low voltage mains should be measured according to the possible continuous voltages, the temporary overvoltages, or periodic peak voltages (see Table F.7 in IEC 60664-1:2007 (VDE 0110-1:2008-01)).

If a “periodic peak voltage” is present for a long time over the service life (more than approximately 60 minutes), this is not an overvoltage as regards insulation dimensioning under the terms of the standard, but must be considered a continuous voltage instead. In such cases, the “periodic peak voltage” must be used as the operating voltage.

## POLLUTION DEGREE

Potentially occurring pollution combined with moisture can influence the insulation capacity on the surface of the connector.

In order to define various rating parameters, a pollution degree must be selected for the equipment according to the criteria listed below.

In the case of a connector with a degree of protection of minimum IP54 IEC 60529:2013 (VDE 0470-1:2014-09), the insulating parts may be measured enclosed according to the standard for a low pollution degree. This also applies for mated connectors for which enclosure is ensured by the connector housing and which are only disconnected for inspection and maintenance purposes.

### Pollution degree 1

No or only dry, non-conductive pollution is present. The pollution has no influence. For example, computer systems and measuring instruments in clean, dry, or air-conditioned rooms.

### Pollution degree 2

(= standard, if no specific pollution degree is indicated)

Only non-conductive pollution is present. However, temporary conductivity due to condensation must be anticipated. For example, devices in laboratories, residential, sales, and other business areas.

### Pollution degree 3

Conductive pollution is present or dry, non-conductive pollution that will become conductive because condensation is expected. For example, devices in industrial, commercial, and agricultural operations, unheated storage areas, and workshops.

### Pollution degree 4

Permanent conductivity is present, caused by conductive dust, rain, or moisture. For example, devices in the open air or outdoor facilities and construction machinery. Operating voltage (VDE: rated voltage): Value of a voltage that is specified by the manufacturer for a component, device, or item of equipment and relates to the operating and performance features.

Depending upon the indicated pollution degree, the rated voltage is dependent upon the insulating material group of the connector and the respective creepage distances between the individual contacts.





# EXPLANATIONS AND DETAILS OF SAFETY REQUIREMENTS, INSPECTIONS, AND VOLTAGE DATA

## CLEARANCE DISTANCE

The shortest distance in the air between two conductive parts.

## CREEPAGE DISTANCE

The shortest distance between two conductive parts over the surface of an insulation material. The creepage distance is influenced by the pollution degree applied.

## TEST VOLTAGES

The dielectric withstanding voltage of the connector is confirmed according to the standard corresponding to the indicated rated surge voltage by applying the test voltage according to Table F.5 over a defined time range.

IEC 60664-1:2007 (VDE 0110-1:2008-01): Table F.5 – test voltages for testing clearance distances at different altitudes (the voltage levels are valid only to verify the clearance distances)

Rated surge voltage ū kV	Test surge voltage at sea level ū kV	Test surge voltage at 200 m elevation ū kV	Test surge voltage at 500 m elevation ū kV
0.33	0.357	0.355	0.350
0.5	0.541	0.537	0.531
0.8	0.934	0.920	0.899
1.5	1.751	1.725	1.685
2.5	2.920	2.874	2.808
4	4.923	4.874	4.675
6	7.385	7.236	7.013
8	9.847	9.648	9.350
12	14.770	14.471	14.025

## OPERATING VOLTAGE (RATED VOLTAGE)

All shown connectors with the exemption of Special Contact Inserts are rated to safety extra low voltage (SELV) less than 50 V AC / 75 V DC, according to IEC 61140:2016 (VDE 0140-1:2016), Protection against electric shock – Common aspects for installation and equipment. In case that other standards rule a specific use of the connector, the application specific safety criteria

shall be considered first. In this context, lower voltage ratings may be valid. If a higher operating voltage is needed, please refer to chapter VOLTAGE DATA ACCORDING TO “MIL”, page 118. All shown connectors are connectors without breaking capacity (COC) according to IEC 61984:2008 (VDE 0627:2009).

## VOLTAGE DATA ACCORDING TO “IEC”

### OPERATING VOLTAGE (RATED VOLTAGE)

The values stated in the catalog for rated voltage have been determined according to IEC 60664-1:2007 (VDE 0110-1:2008-01). The values in the table are achieved under these framework conditions:

- Pollution degree 2
- PEEK insulator material (insulating material group III)
- Basic insulation

If your application requires double or reinforced insulation, the rated voltages will be lower. **Applicable product standards and basic safety standards must be observed.**

According to DIN VDE 0100-410:2018-10, two independent protective measures must be combined to create appropriate safety precautions against electric shock: one basic protective measure and one fault protective measure.

For applications which do not run with a safety extra-low voltage (SELV), i.e., for voltages > 50 V AC and > 120 V DC, another protective measure is required according to IEC 60364-4-41:2005 + A1:2017 (DIN VDE 0100-410:2018-10). The standard describes in more detail which protective measures are suitable and permitted.

# VOLTAGE DATA ACCORDING TO “MIL”



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 364-20F:2019. 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  $\times 0.75 \times 0.33$

## CAUTION:

**For operating voltages above 50 V AC / 120 V DC (SELV), life is in danger!**

Subsequently explained procedure according SAE AS 13441:2004 method 3001.1 does not consider protection against electric shock. Suitable precautions (protective measures) such as touch protection, protective insulation, protective separation, protective earth conductor etc. must be taken.

In the case that other standards rule a specific use of the connector, the application specific safety criteria shall be considered first. This must be evaluated in the frame of equipment engineering.

For any advise on how to choose the proper connector please consult us and indicate the safety standard which your product has to meet.

---

Test voltage: Dielectric withstanding voltage  $\times 0.75$

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

---

# HOUSING MATERIALS / SURFACES



Component	Material designation	Surface
Housing	PSU <sup>1</sup> / PEI <sup>1</sup> / Brass	Chrome (metal version)
Back nut Cable collet Front nut Mounting nut	PSU <sup>1</sup> / PEI <sup>1</sup>	
Insulator	PEEK / PBT	
Hex nut	Brass	Ni
Contacts	Brass	Au

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

	Norm	Unit	PSU	PEI	PEEK	PBT
Flammability rating	UL 94		V-0 / 4.5	V-0 / 0.41	V-0 / 1.5	V-0 / 1.5
Operation temperature		C	-50 to +170°	-50 to +170°	-50 to +250°	-50 to +180°
Dielectric strength	IEC 60243-1:2013 (VDE 0303-21:2014-01)	kV/mm	17	27/1.6 (in oil)	19	27
Comparative figure of the creep resistance CTI	IEC 60112: 2009 (VDE 0303-11:2010-05)		150	150	175	600
Water absorption	ASTM D 570:1998 / ISO 62:2008-02	%	0.3	0.25	0.1	0.3
Sterilization (autoclaving)	DIN EN 13060:2019-02	Quantity	~ 20	> 200	> 200	
Insulation resistance	IEC 60512-3-1:2002 (DIN EN 60512-3- 1:2003-01)	Ω			> 1 × 10 <sup>12</sup> Ω	> 1 × 10 <sup>12</sup> Ω

All values in the new condition

## NOTE ON ADHESIVE

Recommended adhesive for the back nut  
Scotch-Weld™, DP 190 (Gray)

**ODU PART NUMBER: 890.204.000.030.025**

Recommended cleaning agent: Isopropyl alcohol

Caution! Cracks may later appear with the use of  
unauthorized adhesives and cleaning agents.

<sup>1</sup> Corresponding to the version, either the material PSU or PEI is used for all plastic component parts (except insulator) of a complete plug, in-line receptacle or receptacle.

# TERMINATION TECHNOLOGIES



In general, insulators with socket contacts are installed in the live part (to provide protection from accidental touch). The means of mounting the contacts in the insulator is important on account of the termination technologies. Termination technologies for ODU MEDI-SNAP® connectors include: soldering, crimping and PCB.

## SOLDER TERMINATION



## CRIMP-CLIP-CONTACT FOR PEEK INSULATOR



## PRINT TERMINATION



## TERMINATION TECHNOLOGIES FOR TURNED CONTACTS

### Solder termination

The contacts are mounted in the insulator before the single connectors are assembled. An insulator with pre-installed contacts is referred to as a contact insert.

### Crimp termination

Here, the individual contact is connected to the individual wires via deformation in the termination area. Then the contacts are individually installed in the insulator. Accordingly, insulators and individual contacts – and not complete contact inserts – are supplied for the crimp termination. The contact processing for the production of connecting cables via crimping creates a secure, durable and corrosion-free contact. Cold compaction (crimping) compresses the conductor and contact material to the press points so as to form a gas-tight connection with tensile strength to fit the conductor material. 8-point deformation is generally used for turned crimp contacts.

### PCB termination

This is only used in the receptacle if the receptacle is to be mounted directly on a printed circuit board (PCB). Further information is available upon request.

# 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)	0.1019	2.590	5.26	46.77	3.45
10 (37/26)	0.1150	2.921	4.74	42.10	4.13
12 (1)	0.0808	2.050	3.31	29.41	5.45
12 (19/25)	0.0930	2.362	3.08	27.36	6.14
12 (37/28)	0.0910	2.311	2.97	26.45	6.36
14 (1)	0.0641	1.630	2.08	18.51	8.79
14 (19/27)	0.0730	1.854	1.94	17.23	9.94
14 (37/30)	0.0735	1.867	2.08	18.870	10.50
16 (1)	0.0508	1.290	1.31	11.625	13.94
16 (19/29)	0.0590	1.499	1.23	10.928	15.70
18 (1)	0.0403	1.020	0.823	7.316	22.18
18 (19/30)	0.0052	1.321	0.963	8.564	20.40
20 (1)	0.0320	0.813	0.519	4.613	35.10
20 (7/28)	0.0390	0.991	0.563	5.003	34.10
20 (19/32)	0.0420	1.067	0.616	5.473	32.00
22 (1)	0.0253	0.643	0.324	2.883	57.70
22 (7/30)	0.0288	0.732	0.324	2.965	54.80
22 (19/34)	0.0330	0.838	0.382	3.395	51.80
24 (1)	0.0201	0.511	0.205	1.820	91.20
24 (7/32)	0.0250	0.635	0.227	2.016	86.00
24 (19/36)	0.0270	0.686	0.241	2.145	83.30
26 (1)	0.0159	0.404	0.128	1.139	147.00
26 (7/34)	0.0200	0.508	0.141	1.251	140.00
26 (19/38)	0.0220	0.559	0.154	1.370	131.00
28 (1)	0.0126	0.320	0.0804	0.715	231.00
28 (7/36)	0.0160	0.406	0.0889	0.790	224.00
28 (19/40)	0.0170	0.432	0.0925	0.823	207.00
30 (1)	0.0100	0.254	0.0507	0.450	374.00
30 (7/38)	0.0130	0.330	0.0568	0.505	354.00
30 (19/42)	0.0123	0.312	0.0720	0.622	310.00
32 (1)	0.0080	0.203	0.0324	0.288	561.00
32 (7/40)	0.0110	0.279	0.0341	0.303	597.10
32 (19/44)	0.0100	0.254	0.0440	0.356	492.00
34 (1)	0.0063	0.160	0.0201	0.179	951.00
34 (7/42)	0.0070	0.180	0.0222	0.197	1,491.00
36 (1)	0.0050	0.127	0.0127	0.1126	1,519.00
36 (7/44)	0.0060	0.150	0.0142	0.1263	1,322.00

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.

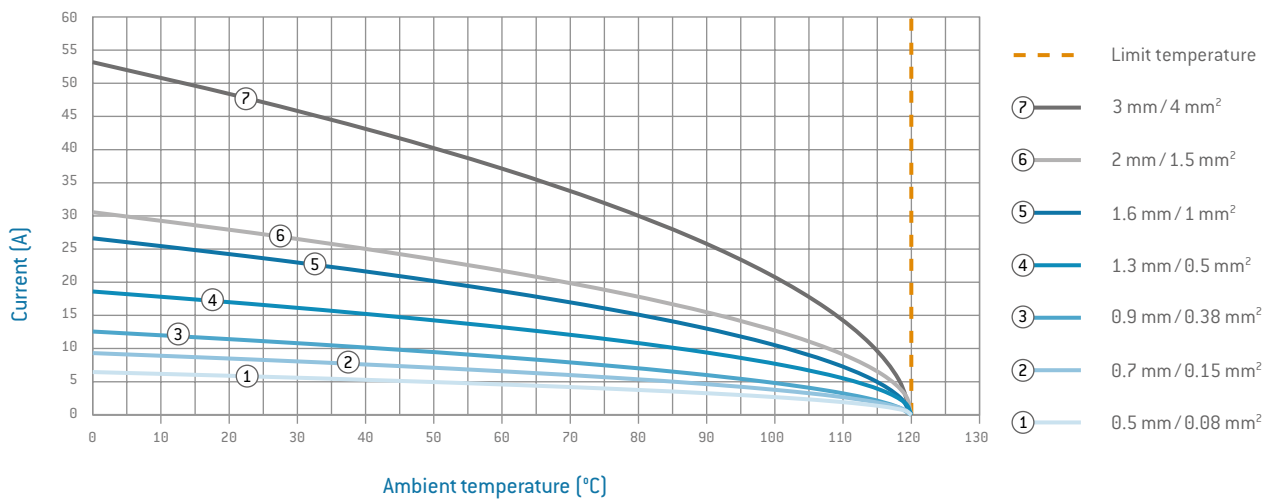
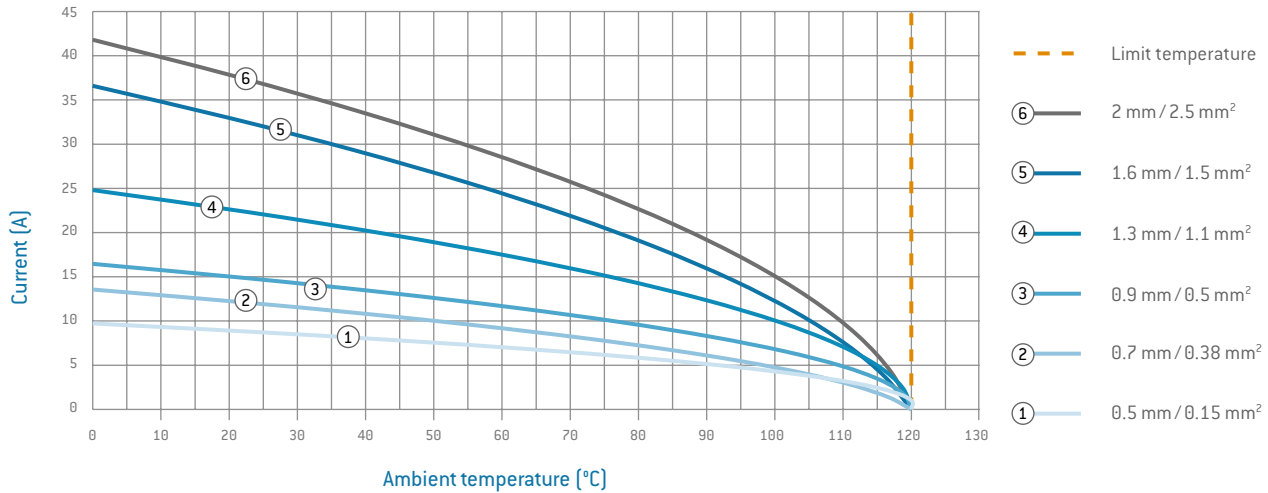
Accordingly, strands with the same AWG number but different numbers of wires differ in cross-section. For instance, an AWG 20 strand of 7 AWG 28 wires has a cross-section of 0.563 mm<sup>2</sup>, while an AWG 20 strand of 19 AWG 32 wires has a cross-section of 0.616 mm<sup>2</sup>.

Source: ASTM

# CURRENT LOAD OF TURNED CONTACTS



Nominal single contact current load for pin / slotted socket (nominal diameter 0.5 mm – 2 mm)



## UPPER LIMIT TEMPERATURE OF STANDARD CONTACTS: +120 °C

The wire cross-section shown in the legend was connected as test cable. In the case of multi-position connectors and cables, the heating is greater than it is with individual contacts. For that reason, it is calculated with a reduction factor.

For connectors, the reduction factors for multi-core cables pursuant to VDE 0298-4:2013 are applied. The reduction factor is factored in at 5 live wires and up.

## DERATING CURVE

The corrected current-carrying capacity curve, derived from the base curve determined (0.8 x measured current). It factors in manufacturing tolerances as well as uncertainties in temperature measurement and measurement arrangement, see derating measurement method.

## RATED CURRENT (NOMINAL CURRENT)

The metrologically determined current which is permitted to flow continuously through all contacts at the same time and will increase the contact temperature by 45 Kelvin. The amperage is determined according to the derating measurement method (IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003-01)) and derived from the derating curve.

## DERATING FACTOR

Number of loaded wires	Derating factor
5	0.75
7	0.65
10	0.55
14	0.5
19	0.45
24	0.4

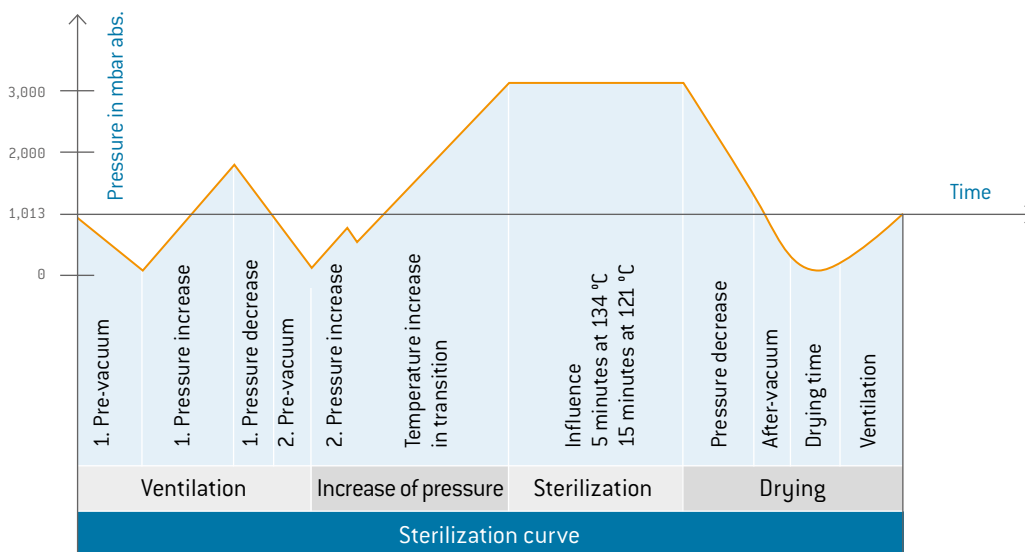
# AUTOCLAVING OF ODU MEDI-SNAP®



The ODU MEDI-SNAP® connectors are also available for the following sterilization processes:  
 Steam sterilization with pre-vacuum or gravitation process. The connectors are tested with autoclave equipment in accordance with DIN EN 13060:2019-02 at 134 °C and 200 cycles (housing elements made of PEI).

**With PSU housing 20 autoclave cycles. With PEI housing 200 autoclave cycles.**  
**For other sterilization processes like Sterrad / ETO and Gamma, please contact the appropriate indoor service.**

## Sterilization curve



# TECHNICAL TERMS



## AMBIENT TEMPERATURE

Temperature of the air or other medium in which a piece of equipment is intended to be used. (IEC 44/709/CDV:2014 (VDE 0113-1:2019-06)).

## AUTOCLAVABILITY

See page [123](#)

## AWG

American Wire Gauge – see page [121](#)

## BASE CURVE

A current-carrying capacity curve metrologically determined according to the method described in IEC 60512-5-2:2002 (DIN EN 60512-3-1:2003-01) depending on the permissible limit temperature of the materials.

## CHEMICAL RESISTANCE

Many secondary processing procedures use adhesives, cleaning agents or other chemicals on our products. Contact with unsuitable chemicals may have an adverse effect on the mechanical and electrical properties of the insulation and housing materials which specified properties may not be able to withstand. Please observe our processing suggestions and technical instructions in this catalog.

## CLEARANCE DISTANCE

The shortest distance in the air between two conductive parts.

## CONNECTORS

Also known as connectors without breaking capacity (COC): (IEC 61984:2008 (VDE 0627:2009-11)). An element which enables electrical conductors to be connected and is intended to create and/or separate connections with a suitable counterpart.

## CONNECTOR WITHOUT BREAKING CAPACITY (COC)

Connector which is not deemed to be engaged or disengaged in normal use when live under load.

## CONTACT RESISTANCE

Total resistance value measured from terminal to terminal. In this case, the resistance is significantly lower than the contact resistance. The specifications are average values.

## CORES

Electrical conductor, solid wire or multi-wire strand, with insulation as well as any conductive layers. Cables or leads may have one or more cores.

## CREEPAGE DISTANCES

The shortest distance between two conductive parts along the surface of a solid insulation material. This factors in all elevations and recesses in the insulator, as long as defined minimum dimensions are on hand.

## CRIMP BARREL

A terminal sleeve which can accommodate one or more conductors and be crimped by a crimping tool.

## CRIMP CONNECTION (CRIMP TERMINATION)

The permanent, non-detachable and solder-free mounting of a contact to a conductor via deforming or shaping under pressure to make a good electrical and mechanical connection. Executed with crimping tool, press or automatic crimping machine (see page [108](#)).

## CRIMPING AREA

The specified area of the crimp barrel in which the crimp termination is executed by means of deforming or shaping the barrel under pressure around the conductor.

## DEGREE OF POLLUTION

The effect of pollution is factored in as degree of pollution when measuring clearance and creepage distances. Four degrees of pollution are defined for the micro-environment: IEC 60664-1:2007 (VDE 0110-1:2008-01).

## DELIVERY FORM

Connectors can be delivered in assembled form or as individual parts.

## DERATING FACTOR

According to VDE 0298-4:2013-06, with connectors and cables over 5 contacts, the heating is greater than it is with individual contacts. For that reason, the aforementioned standard is calculated with a reduction factor.

## DERATING CURVE

See page [122](#)



# TECHNICAL TERMS



## DERATING MEASUREMENT METHOD IEC 60512-5-2:2002 (DIN EN 60512-5-2:2003-01)

Measurement method to determine the current carrying capacity of connectors in consideration of the maximum permissible limit temperature (see page [122](#)).

## 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.

## CODING (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 [37](#), [68](#), [94](#)).

## LOWERMOST LIMIT TEMPERATURE

The lowest permissible temperature at which a connector may be operated. At ODU MEDI-SNAP®, it amounts to  $-50\text{ °C}$ .

## MATERIALS (STANDARD DESIGN)

See page [119](#)

## MATING AND UNMATING 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. The default value for the ODU MEDI-SNAP® push-pull connectors is 2,000 mating cycles, for the break-away plugs it is up to 5,000 mating cycles.

## MAX. CONTINUOUS CURRENT

The metrologically determined amperage at room temperature (approx.  $20\text{ °C}$ ) 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 [122](#)).

## NOMINAL VOLTAGE

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

## OPERATING TEMPERATURE FOR ODU MEDI-SNAP®

Range between the uppermost and lowermost temperature limits.  $-50\text{ °C}$  to  $+120\text{ °C}$  (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 [122](#)

## RATED VOLTAGE

According to IEC 60664-1:2007 (VDE 0110-1:2008-01) 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."

# TECHNICAL TERMS



## 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.

## TERMINATION CROSS-SECTION

The specified cross-sections correspond to a “fine-wire” conductor structure pursuant to IEC 60228:2004 (VDE 0295:2005-09; Class 5) or a “fine-wire” conductor structure (7/19 wire) according to AWG (ASTM B258-14).

## TERMINATION TECHNOLOGIES

Methods for connecting the leads to the electro-mechanical element, such as solder-free connections pursuant to IEC 60352 (DIN EN 60352): crimp, screw connection etc. or soldering connection (see page [120](#)).

## TEST VOLTAGE

The voltage which a conductor can withstand under defined conditions without dielectric breakdown or flashover.

## TIGHTNESS IEC 60529:2013 (VDE 0470-1:2014-09)

See protection types on page [114](#)

## UPPERMOST LIMIT TEMPERATURE

The maximum permissible temperature at which a connector may be operated. It includes contact heating through current-carrying capacity. With ODU MEDI-SNAP® standard TURNTAC® contacts, it amounts to +120 °C. Please consult ODU for high-temperature applications.

## WIRE

Wires (solid conductors) are available with an insulator sleeve and/or electrical shielding. Cables or conductors may be made up of one or more wires.

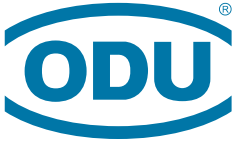


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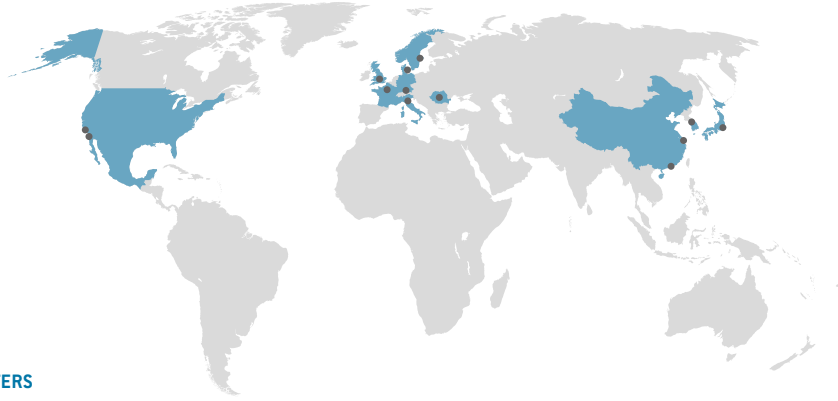
#### GENERAL NOTE

The connectors listed in this catalog are intended for use in high voltage and frequency ranges. Suitable precautionary measures must be taken to ensure that people do not come into contact with live conductors during installation and operation. All entries in this catalog were thoroughly reviewed before printing. ODU reserves the right to make changes based on the current state of knowledge without prior notice without being obliged to provide replacement deliveries or refinements of older designs.

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**Mexico** ODU Mexico Manufacturing S. de R.L. de C.V.

**Romania** ODU Romania Manufacturing SRL

**USA** ODU North American Logistics Inc.



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