



**Circular Connectors**

**In Stock Versions  
Signal and Universal**

**CONINVERS**  
A Company of the Phoenix Contact Group



# Coninvers – Connectors for Industrial Automation

Coninvers is an autonomous company and is the specialist for circular connectors within the Phoenix Contact Group. We develop, design and manufacture our products on the site of the company headquarters in Herrenberg, south of Stuttgart. Distribution is carried out worldwide through our own sales partners and through Phoenix Contact sales companies. In the USA, we are represented by our own subsidiary – RDE Connectors & Cables, Florida.



Coninvers headquarters in Herrenberg

The high quality of our products and services is the basis for our successful business operations. Coninvers management tasks have been documented in accordance with DIN EN ISO 9001:2000 since 1995.



## Connectors with a system

The advantage of our signal connector system is its modular design. It allows us to offer our customers a wide range of model variants and combinations, and to deliver these within three working days.



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# Coninvers – The Complete Range at a Glance



## In Stock Versions Circular Connectors Signal and Universal

Available in:  
German  
English  
French  
Italian



## In Stock Versions Circular Connectors Drive Applications

Available in:  
German  
English  
French  
Italian



## Competence Center Industrial Cabling

Available in:  
German



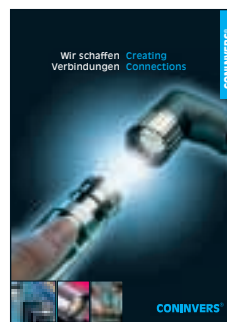
## Quick Selection Guide Signal Connectors Product Overview

Available in:  
German  
English



## Complete Catalog Signal Connectors Sensor/Actuator Connectors

Available in:  
German  
English



## Coninvers Company Brochure

Available in:  
German  
English



## Coninvers catalogs on one CD-ROM

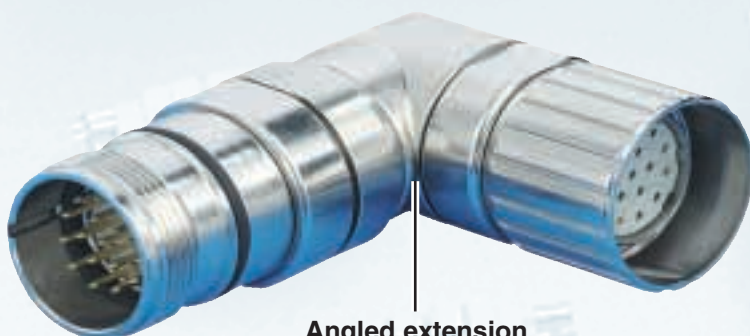
## Coninvers Circular Connectors

The Coninvers connectors in the M23 series are modular in design. This, combined with a wide range of pin assignments and the alternative use of female and male contacts in crimp, solder and sometimes screw versions, explains the enormous product spectrum. When you put this in the context of the wide range of available device flanges and wall bushings, the Coninvers signal connector family can be seen as the largest of its kind in the industry.

The cross sections of the litz wires in connecting cables are in the range 0.08 to 2.5 mm<sup>2</sup>. This also applies to plastic-molded connectors in straight and angled versions.



Signal connector with bayonet locking





### M16 plastic-molded receptacles with solder connection

M16 circular connectors permit a high density of positions in a small amount of space. The preassembled and molded connecting cables are available with 8, 10, 12 and 14 to 19 positions, e.g. as a central connector connection for distributor systems.

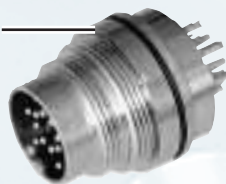
M16 connectors are molded with proven, rugged PUR housing material and fulfill the requirements of IP67 protection.

Coninvers offers suitable receptacles in male versions for front or rear screw mounting with a solder connection.



Plastic-molded signal connectors

### M16 receptacles with up to 19 positions



Plastic-molded M16 connectors with up to 19 positions



### New power connectors ConPower P30 / P70

The ConPower power connector family comprises two performance classes: P30 up to 30 A with M23 screw locking and P70 up to 70 A with M40 screw locking. The clamping range for shielded cables includes diameters from 7.5 mm to 25 mm.

Male and female contacts cover crimp ranges from 0.08 mm<sup>2</sup> to 16 mm<sup>2</sup>.

Extremely simple and time-saving handling during assembly makes the angled panel mounting connectors (equipment flanges) particularly attractive. The male contacts can be clipped into the insulating body from the side, for example, the housing is made up of two parts, and the cable exit direction can be adjusted infinitely in a range of 310 degrees.

A robust, metal rotating mechanism ensures a high degree of operational safety and reliable EMC protection over a wide temperature range, even in the case of frequent adjustments.



M23 power connectors  
Connection cross section up to 4 mm<sup>2</sup>



M40 power connectors  
Connection cross section up to 16 mm<sup>2</sup>



# Coninvers – Circular Connectors

## Signal and Universal

The Coninvers circular connector range has an M23 locking thread which has been developed for industrial applications. Coninvers also offers a variant with a bayonet quick locking system.

The M23/bayonet signal circular connectors in the RC/UC/TU series are available with crimp, screw and solder connection systems, as well as for PCB mounting. Signal connectors in the UC series, also with M23 locking, feature an extended cable entry range and universal EMC shielding.

Signal connectors in the TU series are based on UC connectors but feature a bayonet quick locking system.

The individual connector is put together from a defined number of articles for the three components:

- Housing, consisting of an M23 knurled cap or bayonet, an inside sleeve, a hinged insulation sleeve and an adapter cap.
- Cable gland, including the seal, the strain relief and the optional shielded connection.
- Contact insert, comprising the contact carrier and the contacts.

Circular connectors are supplied as individual components.

### Signal circular connectors



The signal circular connectors in the RC series are available as 6 to 19-position versions in crimp, screw and solder connection types, as well as for PCB connection (dip solder).

Unshielded connectors fulfill the requirements of IP65/ IP68 protection, depending on the cable gland used. The components for the connection of shielded conductors offer IP67 protection as a result of the special cable gland.

The product chart on page 10 shows how the required connector is put together and how the individual components are combined.

Circular connectors are supplied as individual components (from stock).

### Signal circular connectors with universal shielding



Like the RC series, the signal circular connectors in the UC series are completely modular in design. This means that a wide variety of connectors can be created from a small number of different components.

Both series contain M23 connectors with similar technical specifications. The UC series uses the same insulating bodies in all pin assignment variants. The difference is that the UC series is larger than the RC series, i.e. it offers more cabling space and can accommodate larger cable diameters.

Unlike the RC series, the shielding function and the cable clamping are universal. It is not necessary to adapt the shielding elements to the cables used. This facilitates handling in the field.





**Signal circular connectors  
with bayonet quick locking**

**Accessories,  
tools**



Typical applications, such as handheld operator panels, require that connections can be released and locked quickly. The connectors in the TU series feature bayonet locking and offer the user this option.

The tactile “click” indicates to the user that the bayonet connector is locked and the connection is safely established.

TU signal connectors also guarantee IP67 protection in the locked state.

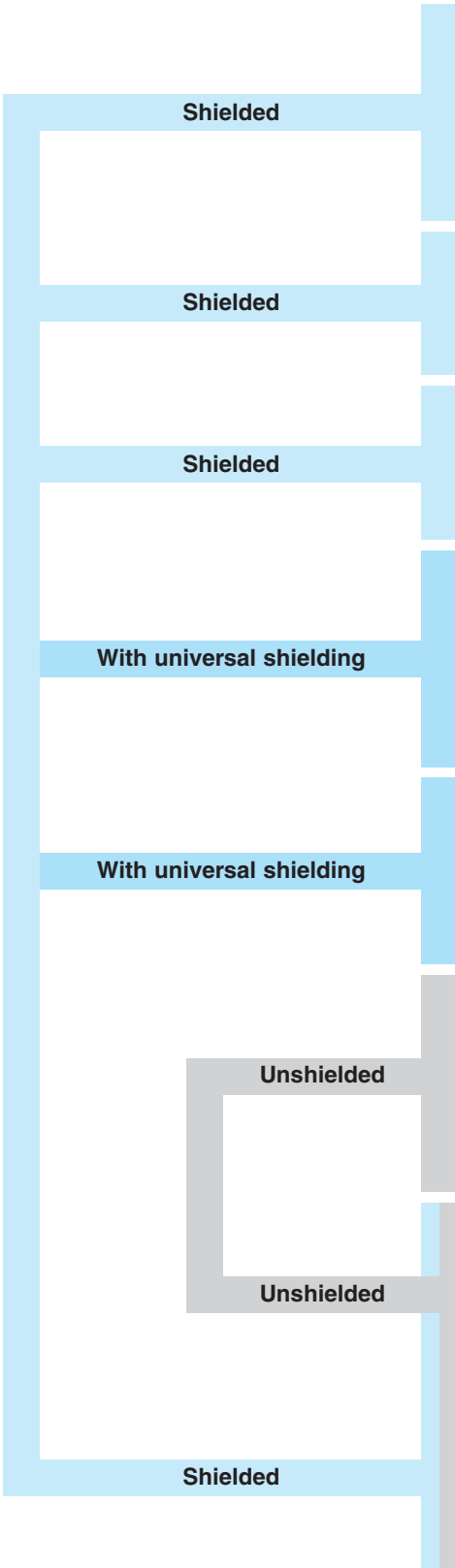
The necessary tools (crimping and assembly tools) are available for processing circular connectors, and accessories, such as cover caps, are available for special applications.

# M23 • RC Series / UC Series Signal Circular Connectors Product Selection

## Combinations

The product chart show the possible combinations of sleeve housing and connecting housing or panel mounting base.

The chart differentiates between shielded and unshielded connectors.



## Selection of connectors

The modular system allows the individual connector to be selected from a defined number of articles. To specify a connector for the device and mounting side, the

housing is supplemented by the corresponding cable gland and contact insert, including the contacts.

## Housing

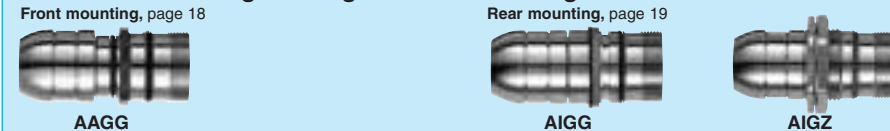
### Shielded sleeve housings, page 14



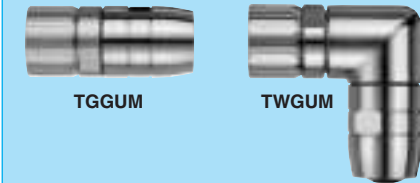
### Shielded connecting housings, page 14



### Shielded connecting housings for wall mounting



### Sleeve housings with universal shielding, page 16



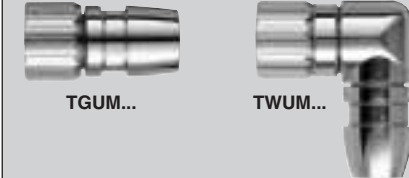
### Connecting housings with universal shielding, page 17



### Connecting housings for wall mounting with universal shielding, page 17



### Unshielded sleeve housings, page 15



### Unshielded connecting housings, page 15

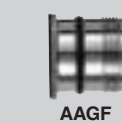


## Panel mounting bases

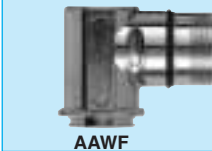
Shielded front mounting, page 18



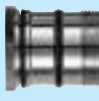
Unshielded front mounting, page 18



Shielded rear mounting, page 19



Housing type AAWF cannot be combined with dip solder contacts or 19-pos. crimp.





The product chart provides an overview of the available components.

Cable glands

Shielded cable glands, pages 20, 21



KK...SA...



KUS..., KUD...



The connectors are fitted with a universal shield connection for cable diameters up to 14.5 mm. Shielded cable glands with a cable clamp type cage and shielded sleeve are not required.

Unshielded cable glands, page 21

With Pg and metric connecting threads



KVS...

KVZ...

KVD...

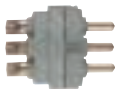


Cable glands are not required for panel mounting bases.

Contact insert including contacts

Solder contact inserts, page 34

6 to 19-position



LSR...



LBL...

Crimp contact inserts, pages 35-37

6 to 19-position



C..S...



C..B...

Screw contact inserts, page 35

6, 7 and 9-position



SSR...



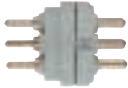
SBL...



For reasons of safety, only female contacts may be used in the live part of the connector.

Direct PCB connection, page 38

With 6 to 17-position dip solder contacts



ES...



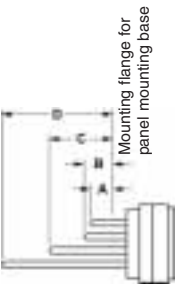
EB...

Type/housing design	Free solder pin length			
	A [mm]	B [mm]	C [mm]	D [mm]
AAGF, AAGR	3.5	4.5	10.0	17.5
AILG	3.5	4.5	10.0	17.5
AILB	3.5	4.5	10.0	17.5
AISZ	–	–	3.5	11.0
AISG	–	–	3.5	11.0

Further contact inserts/dip solder contacts available on request.



For reasons of safety, only female contacts may be used in the live part of the connector.



# M23 • RC Series / UC Series

## Technical Data

### Mechanical data:

Housing material:	Machined component: copper-zinc alloy (CuZn), die-cast part: zinc (GD-Zn); types TGGK/KGGK: plastic part: thermoplastic polymers (PET), polycarbonate (PC)/UL 94 V0, largely halogen-free, die-cast part: zinc (GD-Zn), union nut: CuZn
Housing surface:	Nickel-plated (standard), black, chrome on request, plastic sheath; types TGGK/KGGK: die-cast part: passivated (Cr), union nut: nickel-plated (Ni)
Insulating body:	Thermoplastic polyester (PBT), polyamide (PA 66), polycarbonate (PC); storage at 15-35 °C, 40-70 % rel. humidity
Inflammability:	UL 94 V0
Contact material:	Copper-zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold layer (Au) and passivated
Contact connection type:	Solder cup, crimp and screw versions, dip solder pin
Gasket and O-ring:	Fluorine rubber (FPM); types TGGK/KGGK: perbunane (NBR) gasket
Flat gasket:	Perbunane (NBR with fabric insert) fluorine rubber (FPM)
Temperature range:	-40°C/+125°C (long-term temperature)
Conductor entry:	EMC design for external cable diameters 2 - 10.5 mm, without EMC protection for cable diameters 4 - 14 mm EMC design with extended cable entry range (UC series) for external cable diameters 2 - 14.5 mm
Locking method:	M23 screw locking
Mechanical insertion/ withdrawal cycles:	Standard: 50, more on request
Degree of protection:	EMC version: IP67 in the locked state; without EMC protection: IP65 - IP68 (depending on the cable gland)
Certification:	UL-recognized File No 153698 (M) Underwriters Laboratories Inc.® (not for types TGGK/KGGK or the UC series)



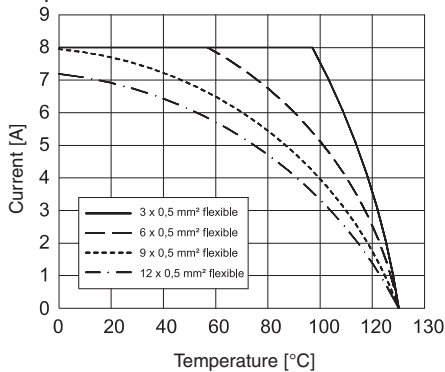
### Electrical data:

Number of positions	6, 7	9(8+1)	9(6+3)	12	16	17	19(16+3)
Contacts	6, 7	8 + 1	6 + 3	11, 12	15, 16	16, 17	16 + 3
Contact Ø	[mm] 2	1 2	1 2	1	1	1	1 1,5
Conductor Solder connection contacts x [mm <sup>2</sup> ]	6 (7) x 2.5	8 x 1.0 + 1 x 2.5	6 x 1.0 + 3 x 2.5	12 x 2.5	16 x 1.0	17 x 1.0	16 x 1.0 + 3 x 1.0
Cross section Crimp connection contacts x [mm <sup>2</sup> ]	6 (7) x 2.5	8 x 0.56 + 1 x 2.5		12 x 0.56	16 x 0.56	17 x 0.56	16 x 1.0 + 3 x 1.5
Nominal/rated current	[A] 20	8 20	8 20	8	8	8	8 10
Nominal/rated voltage	[V] 300	300	150	150	150	150	150
Test voltage	[kV AC] 2.5	2.5	1.5	1.5	1.5	1.5	1.5
Surge voltage category <sup>1)</sup>	II	II	II	II	II	II	II
Insulation resistance	[Ω] ≥10 <sup>16</sup>	≥10 <sup>16</sup>	≥10 <sup>12</sup>	≥10 <sup>12</sup>	≥10 <sup>12</sup>	≥10 <sup>12</sup>	≥10 <sup>12</sup>
Contact resistance	[mΩ] ≤3	≤3	≤3	≤3	≤3	≤3	≤3
Contamination class in acc. with IEC 664-1	2 (3')	2 (3')	2 (3')	2 (3')	2 (3')	2 (3')	2 (3')

<sup>1)</sup> Reference: DIN EN 61984:2001 (see also appendix of technical terms, page 43).

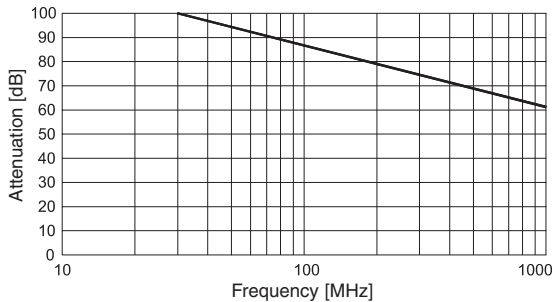
### Derating curve

12-position cable and sleeve connectors



### Shield attenuation curve for RC series

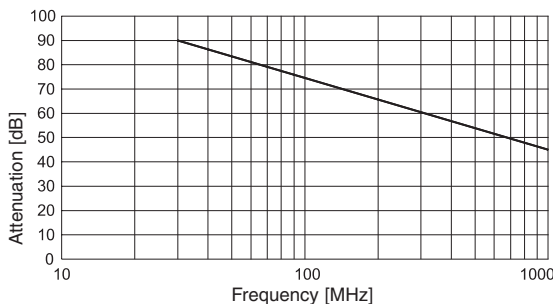
Based on DIN 47250-6/01.83



### Shield attenuation curve for UC series

(universal shielding)

Based on DIN 47250-6/01.83





# M23 • RC Series / UC Series

## Pin Assignments and Coding

Other coding versions can be configured manually or mechanically on request.

	Contact chamber numbering (view of plug-in side)			
	Clockwise	Counter-clockwise	Counter-clockwise	Clockwise
Number of positions	Male	Female	Male	Female
6-position				
Solder / crimp / screw Pages 34 - 39				
7-position				
Solder / crimp / screw Pages 34 - 39				
9-position (6+3)				
Solder Pages 34, 38				
9-position (8+1)				
Solder / crimp / screw Pages 34 - 39				
12-position				
Solder / crimp Pages 34 - 39				
16-position				
Solder Pages 34, 38				
16-position				
Crimp Pages 35 - 37				
17-position				
Solder Pages 34, 38				
17-position				
Crimp Pages 35 - 37				
19-position (16+3)				
Solder / crimp Pages 34 - 37				
	Male, clockwise (standard)	Female, counter-clockwise (standard)	Male, counter-clockwise (opposite direction)	Female, clockwise (opposite direction)

Direction of contact chamber numbering (view of plug-in side)

# M23 • RC Series

## Shielded Connecting and Sleeve Housings



Sleeve connectors for connecting housings and panel mounting bases  
**TGGMK, TGGM, TGGK, TWGM**

Cable connecting receptacles for free connections  
**KGGMK, KGGM, KGGK**

Description
<b>Sleeve housing,</b> straight, shielded, <b>with plastic sheath</b> for additional shock protection
<b>Sleeve housing,</b> straight, shielded, <b>metal</b>
<b>Sleeve housing,</b> straight, shielded, <b>plastic cap</b>
<b>Sleeve housing,</b> angled, shielded, <b>metal</b>
<b>Connecting housing,</b> straight, shielded, <b>with plastic sheath</b> for additional shock protection
<b>Connecting housing</b> straight, shielded, <b>metal</b>
<b>Connecting housing,</b> straight, shielded, <b>plastic cover</b>

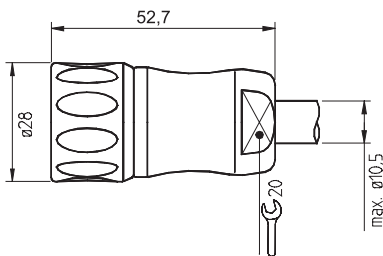
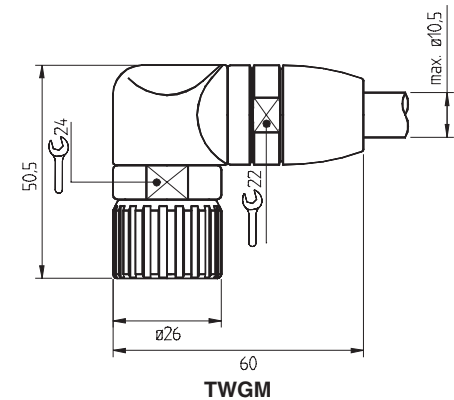
Type/housing design	Order No.	Pcs./ Pkt.
TGGMK	RC-0000000K0FZ	10
TGGM	RC-000000080FZ	10
TGGK	NC-0000000KSFZ	10
TWGM	RC-0000000T0FZ	10

Type/housing design	Order No.	Pcs./ Pkt.
KGGMK	RC-0000000M0FZ	10
KGGM	RC-000000090FZ	10
KGGK	NC-0000000MSFZ	10

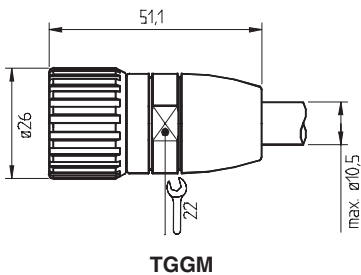
### Type description

	T	G	U	M	11
<b>Type</b>					
T	Sleeve connector				
K	Cable connecting receptacle				
<b>Form</b>					
G	Straight				
W	Angled				
<b>EMC protection</b>					
G	Shielded				
U	Unshielded				
<b>Housing material</b>					
M	Metal				
MK	With plastic sheath				
K	Plastic cap				
<b>Connecting thread</b>					
09	Pg 9				
11	Pg 11				
13	Pg 13.5				
M16	M16x1.5				
M20	M20x1.5				

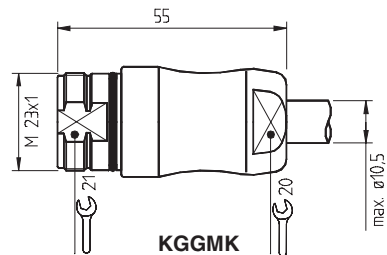
Unlike plugs, connectors must not be plugged in or unplugged under load, in order to avoid damage caused by contact erosion. For corresponding cable glands, see pages 20-21. For contact inserts, see pages 34-39.



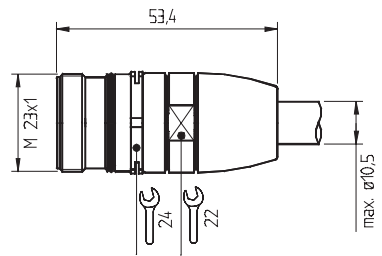
TGGMK, TGGK



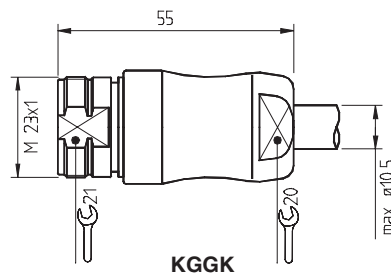
TGGM



KGGMK



KGGM



KGGK



# M23 • RC Series

## Unshielded Connecting Housings and Sleeve Housings for Pg and Metric Cable Glands



Sleeve connectors for unshielded connecting housings and panel mounting bases

**TGUM..., TWUM...**




Cable connecting receptacles for unshielded free connections

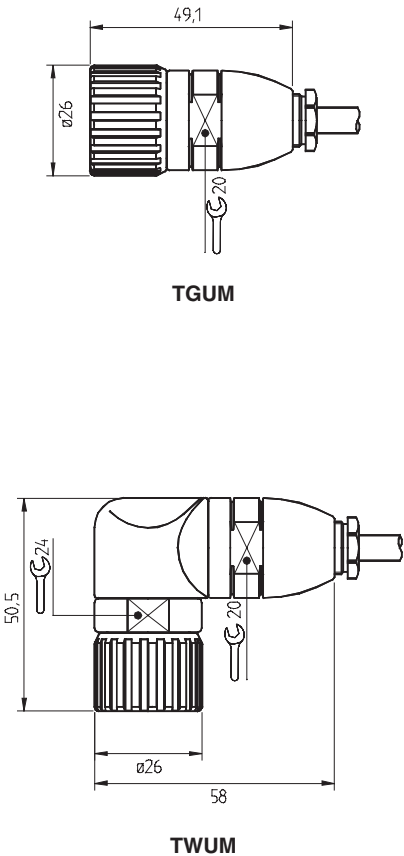
**KGUM...**

Description	Cable entry
Sleeve housings, straight, unshielded, metal, Pg/metric connecting thread (without cable gland)	Pg 9
	Pg 11
	Pg 13.5
	M16x1.5
	M20x1.5
Sleeve housings angled, can be coded 4 x 90°, unshielded, metal, Pg/metric connecting thread (without cable gland)	Pg 9
	Pg 11
	Pg 13.5
	M16x1.5
	M20x1.5
Coupling housings, straight, unshielded, metal, Pg/metric connecting thread (without cable gland)	Pg 9
	Pg 11
	Pg 13.5
	M16x1.5
	M20x1.5

Type/housing design	Order No.	Pcs./ Pkt.
TGUM 09	RC-00000001100	10
	RC-00000001200	
	RC-00000001300	
	RM-00000001100	
	RM-00000001300	
TWUM 09	RC-0000000Z100	10
	RC-0000000Z200	
	RC-0000000Z300	
	RM-0000000Z100	
	RM-0000000Z300	

Type/housing design	Order No.	Pcs./ Pkt.
KGUM 09	RC-00000007100	10
	RC-00000007200	
	RC-00000007300	
	RM-00000007100	
	RM-00000007300	

 Unlike plugs, connectors must not be plugged in or unplugged under load, in order to avoid damage caused by contact erosion. For corresponding cable glands, see pages 20-21. For contact inserts, see pages 34-39.



# M23 • UC Series

## Sleeve Housings with Universal Shielding, Cable Entry up to Ø 14.5 mm

Like the RC series, the RC series is completely modular in design. This means that a wide variety of connectors can be created from a small number of different components. Both series contain M23 connectors with similar technical specifications.

The UC series uses the same insulating bodies in all pin assignment variants. The UC series, however, is larger than the RC series, i.e. it offers more cabling space and can accommodate larger cable diameters. Unlike the RC series, the shielding function and cable clamping are universal. It is not necessary to adapt the shielding elements to the cables used. This facilitates handling in the field.

Sleeve and connecting housings with an additional thread can be equipped with a second cable strain relief (double bracket) for exceptional loads.

For contact inserts and pin assignments, see M23 • RC series.  
Connectors in the UC series are fitted with a universal shield connection. Shielded cable glands with a cable clamp type cage and shielded sleeve are not required.



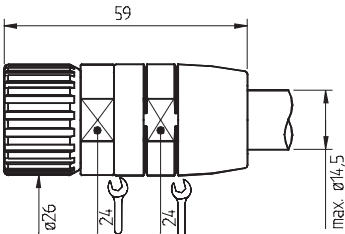
Sleeve connectors for connecting housings and panel mounting bases  
**TGGUM, TWGUM**

Description	Cable entry
<b>Sleeve housings, straight</b> , with universal shielding, metal for external cable diameters from 2 mm to 14.5 mm	
with thread for additional strain relief	Pg 13.5
with thread for additional strain relief	Pg 16
<b>Sleeve housings, angled</b> , with universal shielding, metal for external cable diameters from 2 mm to 14.5 mm	
with thread for additional strain relief	Pg 13.5
with thread for additional strain relief	Pg 16

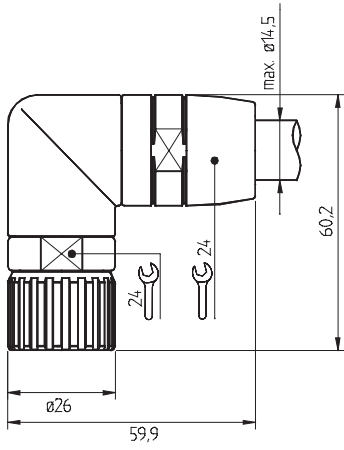
Type/housing design	Order No.	Pcs./ Pkt.
<b>TGGUM</b>	UC-000000080DU	10
<b>TGGUM 13,5</b>	UC-0000000R3DU	10
<b>TGGUM 16</b>	UC-0000000RNDU	10
<b>TWGUM</b>	UC-0000000T0DU	10
<b>TWGUM 13,5</b>	UC-0000000N3DU	10
<b>TWGUM 16</b>	UC-0000000NNDU	10



Unlike plugs, connectors must not be plugged in or unplugged under load, in order to avoid damage caused by contact erosion.

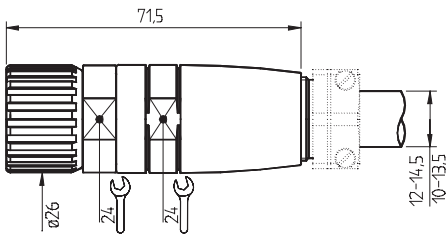


TGGUM

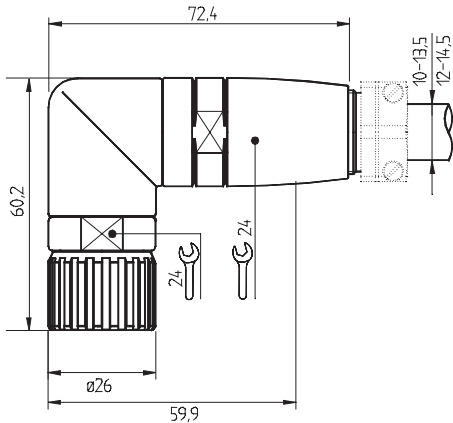


TWGUM

Type description					
	T	G	GU	M	13,5
Type					
T	Sleeve connector				
K	Cable connecting receptacle				
Form					
G	Straight				
W	Angled				
EMC protection					
GU	With universal shielding				
Housing material					
M	Metal				
Connecting thread					
13,5	Pg 13.5				
16	Pg 16				



TGGUM 13,5, TGGUM 16



TWGUM 13,5, TWGUM 16

Please order additional strain relief (double bracket) and single gaskets separately, see page 40.



# M23 • UC Series

## Connecting Housings with Universal Shielding, Cable Entry up to Ø 14.5 mm

For contact inserts and pin assignments, see M23 • RC series.  
 Connectors in the UC series are fitted with a universal shield connection. Shielded cable glands with a cable clamp type cage and shielded sleeve are not required.



Cable connecting receptacles for shielded free connections  
**KGGUM**

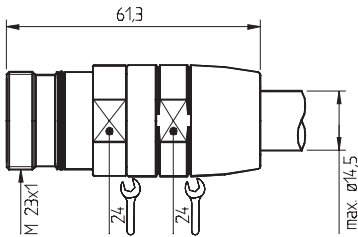
Cable connecting receptacles for rear mounting  
**KGGUZ**

Description	Cable entry
<b>Connecting housings,</b> straight, with universal shielding, <b>metal</b> for external cable diameters from 2 mm to 14.5 mm	
	with thread for additional strain relief Pg 13.5
	with thread for additional strain relief Pg 16
<b>Connecting housings,</b> internal, straight, with universal shielding, with <b>central</b> fixing nut for external cable diameters from 2 mm to 14.5 mm	
	with thread for additional strain relief Pg 13.5
	with thread for additional strain relief Pg 16

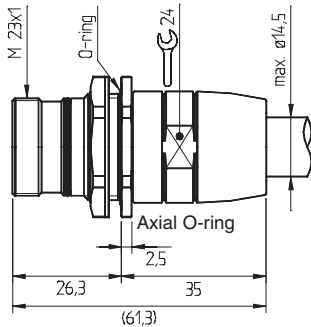
Type/housing design	Order No.	Pcs./ Pkt.
<b>KGGUM</b>	<b>UC-000000090DU</b>	10
<b>KGGUM 13,5</b>	<b>UC-0000000F3DU</b>	10
<b>KGGUM 16</b>	<b>UC-0000000FNDU</b>	10

Type/housing design	Order No.	Pcs./ Pkt.
<b>KGGUZ</b>	<b>UC-0000000Q0DU</b>	10
<b>KGGUZ 13,5</b>	<b>UC-0000000Q3DU</b>	10
<b>KGGUZ 16</b>	<b>UC-0000000QNDU</b>	10

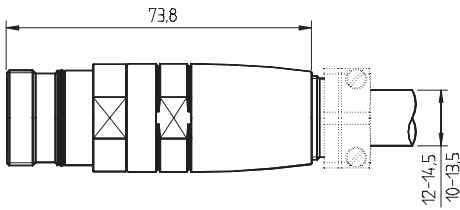
Unlike plugs, connectors must not be plugged in or unplugged under load, in order to avoid damage caused by contact erosion.



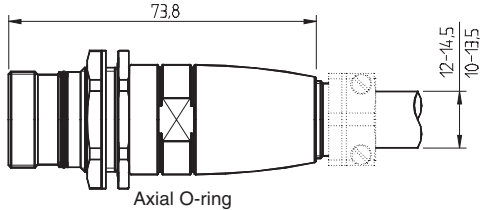
**KGGUM**



**KGGUZ**



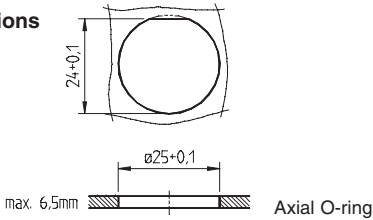
**KGGUM 13,5, KGGUM 16**



**KGGUZ 13,5, KGGUZ 16**

Type description	K	G	GU	Z	13,5
<b>Type</b>					
<b>K</b> Cable connecting receptacle					
<b>Form</b>					
<b>G</b> Straight					
<b>EMC protection</b>					
<b>GU</b> With universal shielding					
<b>Housing material, connection</b>					
<b>M</b> Metal					
<b>Z</b> Central fixing nut					
<b>Connecting thread</b>					
<b>13,5</b> Pg 13.5					
<b>16</b> Pg 16					

Installation dimensions  
**KGGUZ (all types)**



Please order additional strain relief (double bracket) and single gaskets separately, see page 40.

## M23 • RC Series

### Panel Mounting Bases

#### Front Mounting



In the case of front mounting, the panel mounting base is fitted to the device from outside using screws, nuts or threads. The contact insert then establishes the connection to the device by either solder or crimp connections at the device end.



Panel mounting bases for front mounting

#### AAGF, AAGR, AALZ, AAWF



Cable connecting receptacles for front mounting

#### AAGG

Description	Wall thickness [mm]	Type/housing design	Order No.	Pcs./ Pkt.	Type/housing design	Order No.	Pcs./ Pkt.
<b>Panel mounting base,</b> external, straight, <b>flat gasket</b> (self-adhesive), 4-hole mounting, for connecting unshielded cable connectors	from 1	<b>AAGF</b>	<b>RC-00000002200</b>	10			
<b>Panel mounting base,</b> external, straight, <b>radial O-ring</b> , 4-hole mounting, with reinforced mounting flange, for shielded applications	from 3	<b>AAGR</b>	<b>RC-0000000WQ00</b>	10			
<b>Panel mounting base,</b> external, straight, <b>central fixing nut</b> , for shielded applications	1-4.5	<b>AALZ</b>	<b>RC-00000006100</b>	10			
<b>Panel mounting base,</b> external, angled, <b>flat gasket</b> , 4-hole mounting, for feeding a shielded cable into a wall	from 1	<b>AAWF</b>	<b>RC-0000000A000</b>	10			
<b>Panel mounting base,</b> external, straight, <b>shielded</b> , 4-hole mounting and O-ring, for wall bushing for a shielded cable	3-7				<b>AAGG</b>	<b>RC-0000000B2FZ</b>	10

For shielded cable glands, see page 20-21

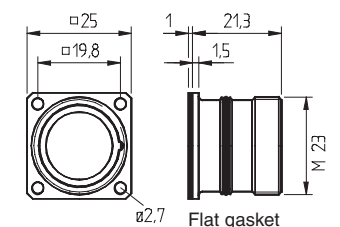
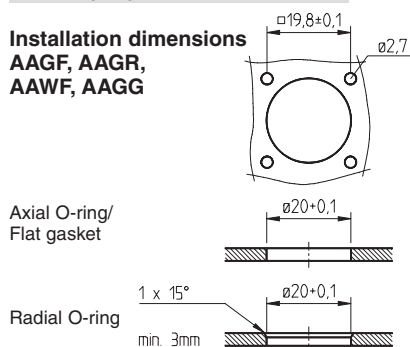
**Housing type AAWF cannot be combined with dip solder contacts or 19-pos. crimp.**

#### Type description

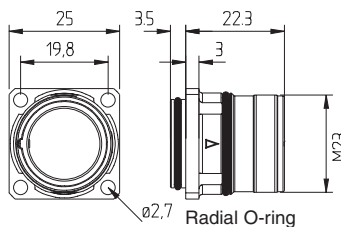
Type description				
Type	A	A	G	F
A Panel mounting base				
Installation method				
A Front mounting				
I Rear mounting				
Form				
G Straight				
L Light version				
S Heavy version				
W Angled				
Connection				
F Flat gasket				
R Radial gasket (O-ring)				
Z Central fixing nut				
G Threaded flange				
B Drilling flange				

#### Installation dimensions

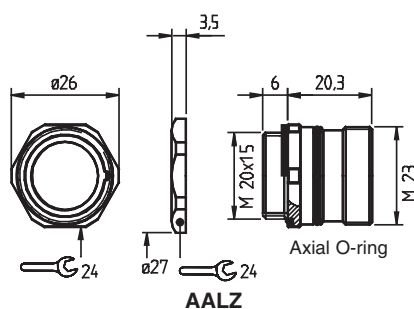
##### AAGF, AAGR, AAWF, AAGG



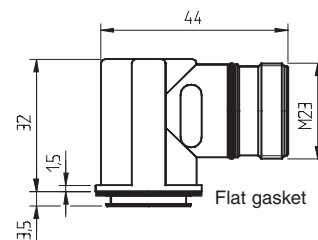
**AAGF**



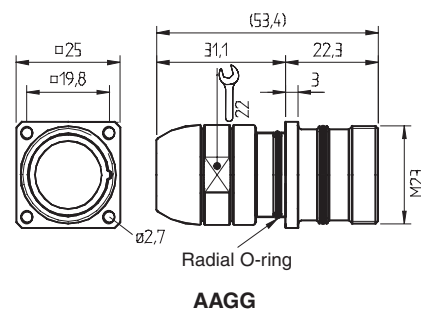
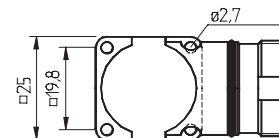
**AAGR**



**AALZ**



**AAWF**



**AAGG**

## M23 • RC Series Panel Mounting Bases Rear Mounting



Panel mounting bases for rear mounting are designed for the efficient installation of preassembled printed circuit boards, for example. These bases are fed through the mounting panel from the inside and screwed tight from the outside.



Panel mounting bases for rear mounting  
**AIL..., AIS...**



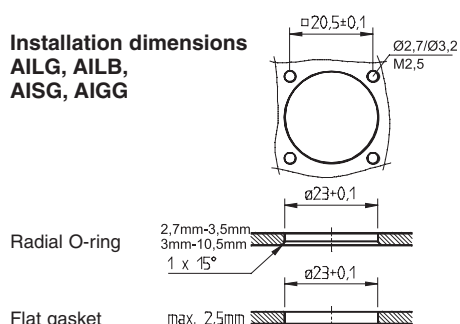
Cable connecting receptacles for rear mounting  
**AIGG, AIGZ**

Description	Wall thickness [mm]	Type/housing design	Order No.	Pcs./ Pkt.	Type/housing design	Order No.	Pcs./ Pkt.
<b>Panel mounting base,</b> internal, low design, threaded flange radial O-ring, <b>4-hole thread mounting (M2.5)</b>	2.7-3.5	<b>AILG</b>	<b>RC-00000004200</b>	10			
<b>Panel mounting base,</b> internal, low design, drilling flange radial O-ring, <b>4-hole mounting (Ø 2.7)</b>	2.7-3.5	<b>AILB</b>	<b>RC-00000005200</b>	10			
<b>Panel mounting base,</b> internal, high design, threaded flange, with 3 mm flange, radial O-ring, <b>4-hole thread mounting (M3)</b>	3-10.5	<b>AISG</b>	<b>RC-0000000E000</b>	10			
<b>Panel mounting base,</b> internal, high design, <b>central fixing nut,</b> axial O-ring	up to 6.5	<b>AISZ</b>	<b>RC-0000000H000</b>	10			
<b>Connecting housing,</b> internal, <b>shielded</b> , 4-hole thread mounting (M2.5), flat gasket, for wall bushing for a shielded cable	up to 2.5				<b>AIGG</b>	<b>RC-0000000C0FZ</b>	10
<b>Connecting housing,</b> internal, <b>shielded</b> , central fixing nut, axial O-ring, for wall bushing for a shielded cable	up to 6.5				<b>AIGZ</b>	<b>RC-0000000Q0FZ</b>	10

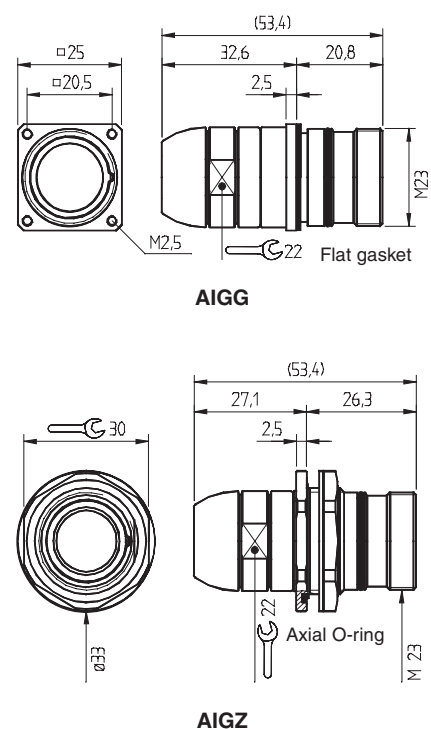
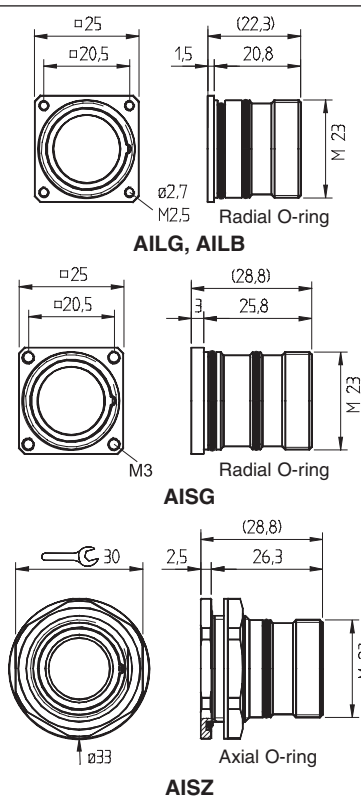
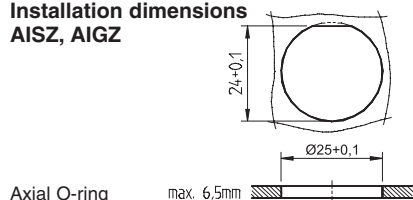
For shielded cable glands,  
see pages 20-21

Unlike plugs, connectors must not be plugged in or unplugged under load, in order to avoid damage caused by contact erosion.

### Installation dimensions AILG, AILB, AISG, AIGG



### Installation dimensions AISZ, AIGZ





## M23 • RC Series Cable Glands Shielded to IP67

The cables are fed through the connecting and sleeve housings to some extent using cable glands. These differ according to the application (shielded or unshielded).

In the case of shielded connectors, cable clamp type cages and shielded adapters are required. They can be used to configure a multitude of plug connection combinations for different cable types with cable diameters from 3.5 mm to 10.5 mm.

The shield adapter used depends on the diameter of the core bundle under braided screen **d** and is pushed immediately under the braided screen when the connector is assembled. The shield adapter serves as a connection element between the cable shield and the connector housing (inner sleeve and adapter cover).

The cable clamp type cage with the gasket guarantees sealing to IP67 protection and assumes the cable strain relief function. The specific type for each cable depends on external cable diameter **D**.

We recommend that you try out borderline types for transition points between two cable gland sizes.

### Ordering example

#### Shielded cable screw connection:

A 6-core, shielded cable is to be adapted with sleeve housing TGGM (see page 14).

- External cable diameter  $D = 6.0$  mm.
- Diameter of core bundle  $d = 4.7$  mm.

The appropriate cable gland can be found in the category  $D = 5.5$  mm to  $6.5$  mm and in line  $d \approx 4.9$  mm, i.e. KK60SA49.

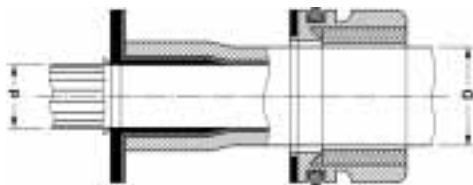


Diagram of conductor bundle diameter **d** and external cable diameter **[D]**



Cable clamp type cage with shield adapter

**KK40SA.., KK100SA..**

Description	Conductor bundle diameter d [mm]	Type	Order No.	Pcs./ Pkt.
Cable clamp type cage and shield adapter				
External cable diameter	≈ 2.5	KK40SA25	RC-Z2425	10
D = 3.5 mm – 4.5 mm	≈ 3.2	KK40SA32	RC-Z2426	
Cable clamp type cage and shield adapter				
External cable diameter	≈ 2.5	KK50SA25	RC-Z2225	10
D = 4.5 mm – 5.5 mm	≈ 3.2	KK50SA32	RC-Z2427	
	≈ 3.6	KK50SA36	RC-Z2428	
	≈ 3.8	KK50SA38	RC-Z2429	
	≈ 4.1	KK50SA41	RC-Z2430	
	≈ 4.3	KK50SA43	RC-Z2431	
	≈ 4.6	KK50SA46	RC-Z2432	
Cable clamp type cage and shield adapter				
External cable diameter	≈ 3.2	KK60SA32	RC-Z2433	10
D = 5.5 mm – 6.5 mm	≈ 3.6	KK60SA36	RC-Z2434	
	≈ 3.8	KK60SA38	RC-Z2435	
	≈ 4.1	KK60SA41	RC-Z2222	
	≈ 4.3	KK60SA43	RC-Z2436	
	≈ 4.6	KK60SA46	RC-Z2437	
	≈ 4.9	KK60SA49	RC-Z2438	
	≈ 5.2	KK60SA52	RC-Z2439	
	≈ 5.5	KK60SA55	RC-Z2440	
	≈ 5.8	KK60SA58	RC-Z2441	
Cable clamp type cage and shield adapter				
External cable diameter	≈ 3.6	KK70SA36	RC-Z2442	10
D = 6.5 mm – 7.5 mm	≈ 3.8	KK70SA38	RC-Z2443	
	≈ 4.1	KK70SA41	RC-Z2227	
	≈ 4.3	KK70SA43	RC-Z2403	
	≈ 4.6	KK70SA46	RC-Z2228	
	≈ 4.9	KK70SA49	RC-Z2395	
	≈ 5.2	KK70SA52	RC-Z2392	
	≈ 5.5	KK70SA55	RC-Z2444	
	≈ 5.8	KK70SA58	RC-Z2445	
	≈ 6.2	KK70SA62	RC-Z2396	
	≈ 6.6	KK70SA66	RC-Z2446	
Cable clamp type cage and shield adapter				
External cable diameter	≈ 3.8	KK85SA38	RC-Z2447	10
D = 7.5 mm – 9.5 mm	≈ 4.1	KK85SA41	RC-Z2448	
	≈ 4.3	KK85SA43	RC-Z2449	
	≈ 4.6	KK85SA46	RC-Z2229	
	≈ 4.9	KK85SA49	RC-Z2391	
	≈ 5.2	KK85SA52	RC-Z2398	
	≈ 5.5	KK85SA55	RC-Z2450	
	≈ 5.8	KK85SA58	RC-Z2451	
	≈ 6.2	KK85SA62	RC-Z2221	
	≈ 6.6	KK85SA66	RC-Z2393	
	≈ 7.0	KK85SA70	RC-Z2394	
	≈ 7.4	KK85SA74	RC-Z2401	
	≈ 7.7	KK85SA77	RC-Z2402	
Cable clamp type cage and shield adapter				
External cable diameter	≈ 5.8	KK100SA58	RC-Z2404	10
D = 9.5 mm – 10.5 mm	≈ 6.2	KK100SA62	RC-Z2452	
	≈ 6.6	KK100SA66	RC-Z2453	
	≈ 7.0	KK100SA70	RC-Z2454	
	≈ 7.4	KK100SA74	RC-Z2455	
	≈ 7.7	KK100SA77	RC-Z2399	

### Type description

Type	KK	85	SA	52
KK Cable clamp type cage, shield adapter				
<b>External cable Ø D [mm]</b>				
40	3.5 - 4.5			
50	4.5 - 5.5			
60	5.5 - 6.5			
70	6.5 - 7.5			
85	7.5 - 9.5			
100	9.5 - 10.5			
<b>Protection</b>				
SA Shield adapter				
<b>Conductor bundle Ø d [mm]</b>				
25	$\approx 2.5$			
32	$\approx 3.2$			
36	$\approx 3.6$			
38	$\approx 3.8$			
41	$\approx 4.1$			
43	$\approx 4.3$			
46	$\approx 4.6$			
49	$\approx 4.9$			
52	$\approx 5.2$			
55	$\approx 5.5$			
58	$\approx 5.8$			
62	$\approx 6.2$			
66	$\approx 6.6$			
70	$\approx 7.0$			
74	$\approx 7.4$			
77	$\approx 7.7$			

# M23 • RC Series

## Cable Glands

### Shielded / Unshielded

Universal cable glands KUS... (shielded) and KUD... (unshielded) are available as alternatives to the shielded cable glands to IP67 for applications with less stringent requirements regarding shield attenuation. Irrespective of the diameter of the cable or braided core screen, shielded and unshielded cables with an external diameter from 2 to 10.5 mm can be assembled for universal use with only one cable gland. This facilitates warehousing.

Type description

	KU	S	2-10,5
Type			
KU	Cable clamp type cage, universal		
Version			
S	Shielding function		
D	Cable feed-through (without shield connection)		
Cable diameter D [mm]			
2-10,5	2-10.5 mm		

Various cable glands can be supplied with Pg and metric threads for unshielded connectors. These are screwed into the adapter cover from the outside. Suitable variants are available for external cable diameters from 3 mm to 14 mm.

### Ordering example

#### Unshielded cable gland:

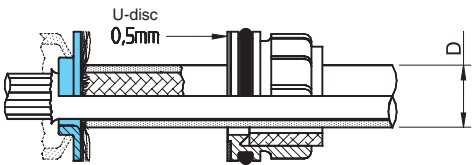
A 9-core, unshielded cable is to be adapted with coupling housing KGUM09 (see page 15).

– External cable diameter D = 8 mm.

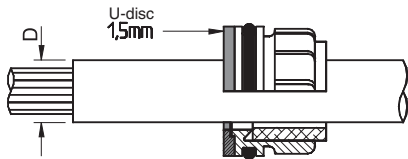
If a Pg cable gland in acc. with DIN 46 320 is to be selected, type KVS 09 corresponding to PG 9 for external cable diameters from 6 mm to 10 mm optimally fulfills the requirements.

Type description

	KV	D	11
Type			
KV	Cable gland, unshielded		
Unshielded version			
S	Standard (IP65)		
Z	Double bracket strain relief (IP65)		
D	Increased sealing (IP68)		
Cable entry			
09	Pg 9		
11	Pg 11		
13	Pg 13.5		
M16	M16x1.5		
M20	M20x1.5		



Universal cable clamp type cage **with shielding function**, D = external cable diameter



Universal cable clamp type cage, cable feed-through **without shielding function**, D = external cable diameter



Universal cable clamp type cage with/without shielding function  
**KUS..., KUD...**

Description	Cable Ø D [mm]	Type	Order No.	Pcs./ Pkt.
<b>Universal cable clamp type cage with shielding function</b> Cable clamp type cage, shield disc and universal gasket	2 – 10.5	KUS 2-10,5	RC-Z2462	10
<b>Universal cable clamp type cage, cable feed-through without shielding function</b> Cable clamp type cage and universal gasket	2 – 10.5	KUD 2-10,5	RC-Z2463	10

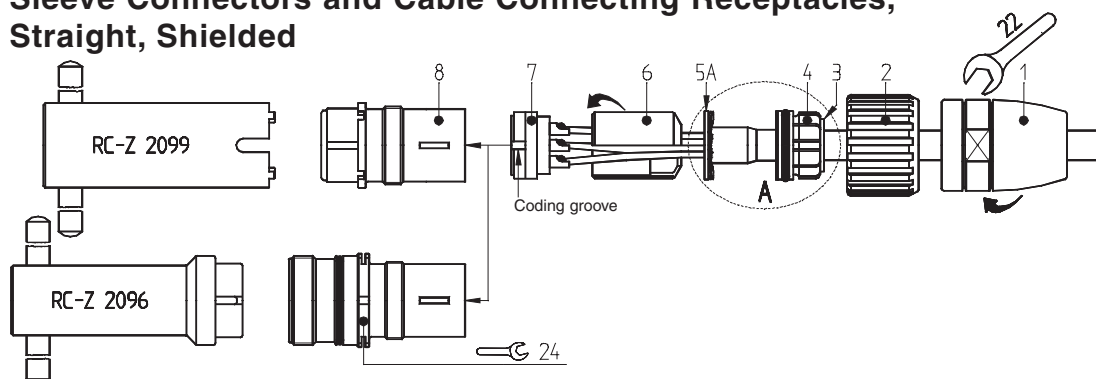


Cable glands with Pg/metric threads  
**KVS..., KVZ..., KVD...**

The cable entry of the connecting and sleeve housings must correspond to the cable glands.

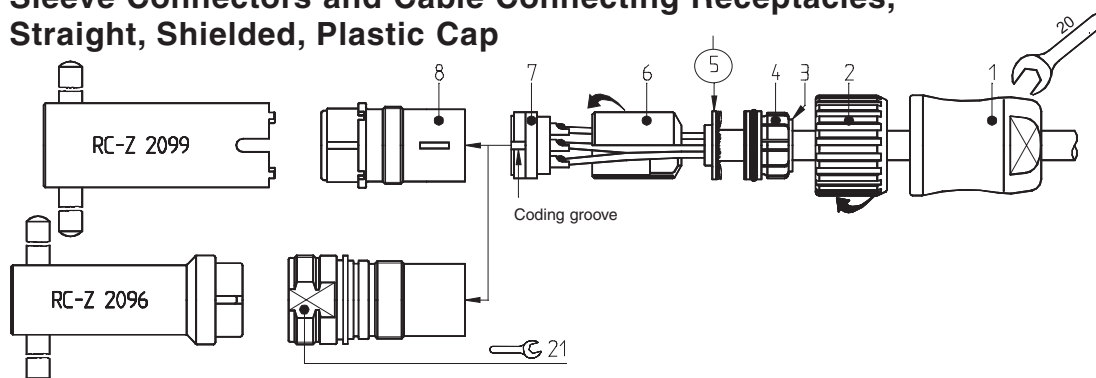
Description	Conductor entry	Cable Ø D [mm]	Type	Order No.	Pcs./ Pkt.
<b>Cable gland for unshielded applications</b> in acc. with DIN 46 320, IP65	Pg 9 Pg 11 Pg 13.5	6 – 10 8 – 12 10 – 14	KVS 09 KVS 11 KVS 13	RC-Z2091 RC-Z2092 RC-Z2093	10
	M16x1.5 M20x1.5	3 – 10 4 – 14	KVS M16 KVS M20	RC-Z2406 RC-Z2409	
<b>Cable gland with double bracket cable strain relief, for unshielded applications, IP65</b>	Pg 9 Pg 11 Pg 13.5	6 – 10 8 – 12 10 – 14	KVZ 09 KVZ 11 KVZ 13	RC-Z2051 RC-Z2052 RC-Z2053	10
	M16x1.5 M20x1.5	3 – 10 4 – 14	KVZ M16 KVZ M20	RC-Z2407 RC-Z2410	
<b>IP68 cable gland for unshielded applications</b> with PVC gasket sleeve	Pg 9 Pg 11 Pg 13.5	6.5 – 9 7 – 10.5 9 – 13	KVD 09 KVD 11 KVD 13	RC-Z2191 RC-Z2196 RC-Z2202	10
	M16x1.5 M20x1.5	6.5 – 9 9 – 13	KVD M16 KVD M20	RC-Z2414 RC-Z2417	

## Sleeve Connectors and Cable Connecting Receptacles, Straight, Shielded



- Push the adapter (1), the union nut (2) and the sealing element (4) with the gasket (3) onto the cable.
- Strip the external sheath by 23 mm.
- **Detail A:** Push back the braided screen such that it stands out at 90°. With a rotating motion, push the shielded sleeve (5A) over the foil or cotton braiding and under the braided screen. Cut the braided screen flush with the external diameter of the shielded sleeve (5A).
- Trim the foil, wadding and inner insulation.
- Strip the litz wires by 3.5 mm, twist (and tin plate).
- Solder, crimp or screw the litz wires to the contacts.
- Insert the spacer sleeve (6).
- Guide the insert (7) and spacer sleeve (6) into the insert sleeve (8), taking care that the desired **coding groove** of the insert (7) is introduced **into the coding bar**.
- Press in the cable with the shield and sealing unit.
- Screw the adapter (1) **as tight as possible**.

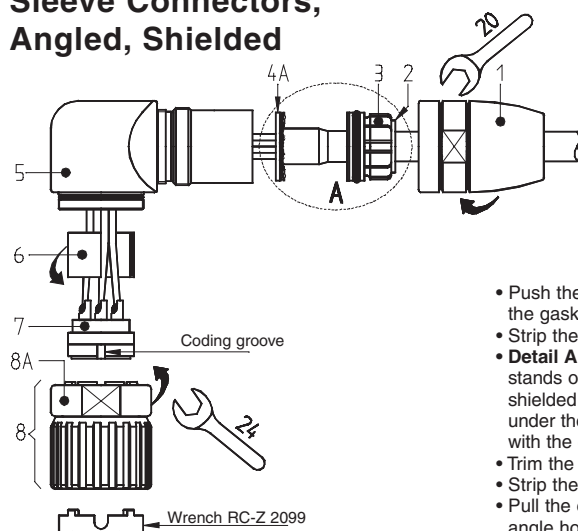
## Sleeve Connectors and Cable Connecting Receptacles, Straight, Shielded, Plastic Cap



- Push the adapter (1), the union nut (2) and the sealing element (4) with the gasket (3) onto the cable.
- Strip the external sheath by 23 mm.
- Push back the braided screen such that it stands out at 90° and cut it flush with the outer diameter of the shield disc (5).
- Trim the foil, wadding and inner insulation.
- Strip the litz wires by 3.5 mm, twist (and tin plate).
- Solder, crimp or screw the litz wires to the contacts.
- Insert the spacer sleeve (6).
- Guide the insert (7) and spacer sleeve (6) into the insert sleeve (8), taking care that the desired **coding groove** of the insert (7) is introduced **into the coding bar**.
- Press in the cable with the shield and sealing unit.
- Screw the adapter (1) **as tight as possible**.

**Attention:** The required torque must not increase by more than 10 Nm during this process, as this can effect the free movement of the union nut.

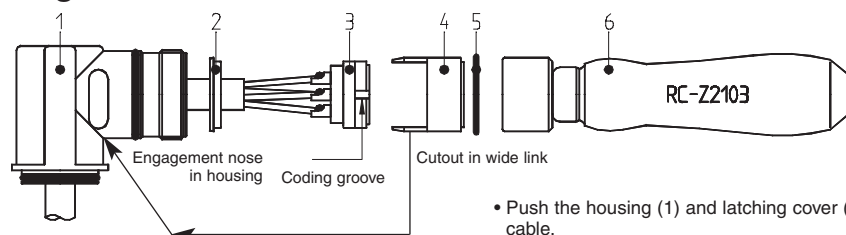
## Sleeve Connectors, Angled, Shielded



- Push the adapter (1) and the sealing element (3) with the gasket (2) onto the cable.
- Strip the external sheath by 70 mm.
- **Detail A:** Push back the braided screen such that it stands out at 90°. With a rotating motion, push the shielded sleeve (4A) over the foil or cotton braiding but under the braided screen. Cut the braided screen flush with the external diameter of the shielded sleeve (4A).
- Trim the foil, wadding and inner insulation.
- Strip the litz wires by 3.5 mm, twist (and tin plate).
- Pull the cable unit as far as possible through the angle housing (5).
- Solder, crimp or screw the litz wires to the contacts.
- Insert the spacer sleeve (6).
- Guide the insert (7) and spacer sleeve (6) into the unit (8), taking care that the desired **coding groove** of the insert (7) is introduced **into the coding bar**.
- Insert the entire unit into the angle housing (Attention: eight coding options) and secure with nut (8A) (medium-force fit).
- Press in the cable with the shield and sealing unit.
- Screw the adapter (1) **as tight as possible**.



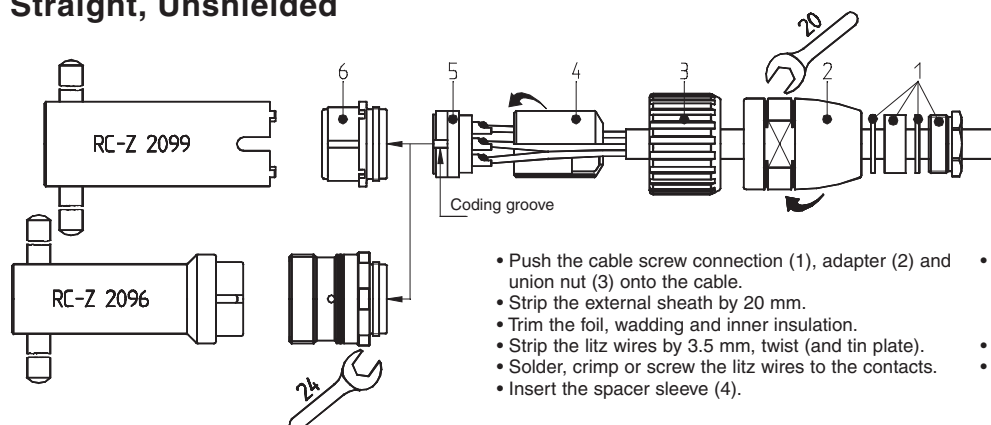
## Panel Mounting Base (Receptacle), Angled



- Push the housing (1) and latching cover (2) onto the cable.
- Strip the external sheath by 30 mm.
- Trim the foil, wadding and inner insulation.
- Strip the litz wires by 3.5 mm, twist (and tin plate).
- Solder, crimp or screw the litz wires to the contacts.
- Push the latching sleeve (4) into the insert (3), taking care that the desired coding groove of the insert (3) is introduced into the coding bar of the latching sleeve (4).
- Press on the latching cover (2).

- Insert the entire latching sleeve (2+4) with the engagement nose into the appropriate guide groove of the housing and press in place using the insertion tool (6) (Incorrect insertion impossible due to different dimensions).
  - Press in the gasket (5) using the insertion tool (6).
- Disassembly instructions:**
- Remove the gasket (plug-in side) using a screwdriver.
  - Also use the screwdriver to lever the engagement nose (soldering side) out by 1 mm and push out the latching sleeve.

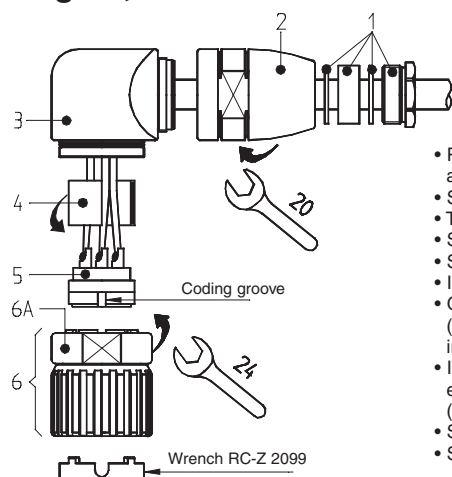
## Sleeve Connectors and Cable Connecting Receptacles, Straight, Unshielded



- Push the cable screw connection (1), adapter (2) and union nut (3) onto the cable.
- Strip the external sheath by 20 mm.
- Trim the foil, wadding and inner insulation.
- Strip the litz wires by 3.5 mm, twist (and tin plate).
- Solder, crimp or screw the litz wires to the contacts.
- Insert the spacer sleeve (4).

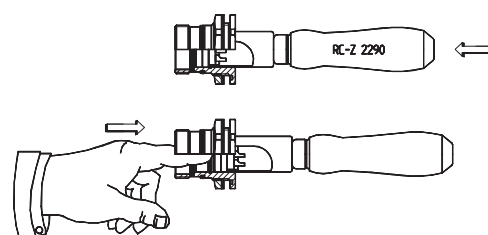
- Guide the insert (5) and spacer sleeve (4) into the insert ring (6), taking care that the desired **coding groove** of the insert (7) is introduced **into the coding bar**.
- Screw the adapter (2) **as tight as possible**.
- Screw the cable gland (1) **as tight as possible**.

## Sleeve Connectors, Angled, Unshielded

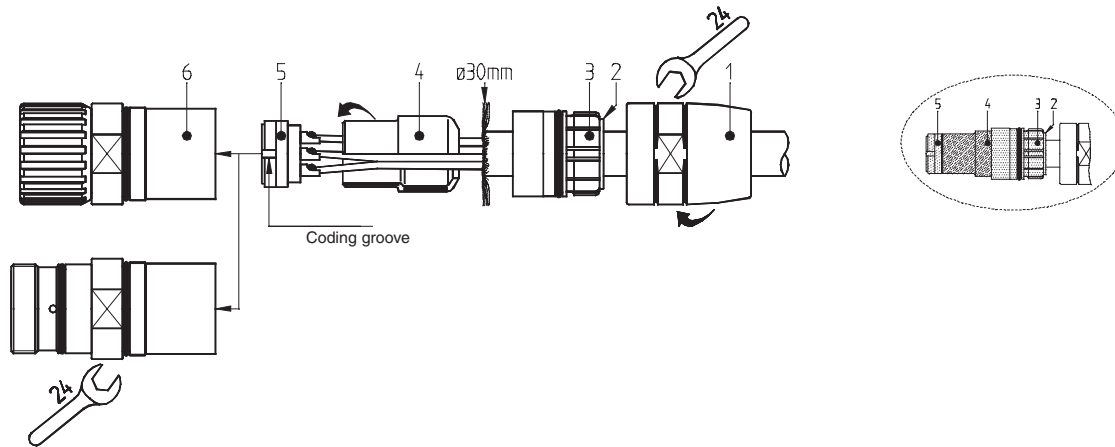


- Push the cable screw connection (1), adapter (2) and angle housing (3) onto the cable.
- Strip the external sheath by 30 mm.
- Trim the foil, wadding and inner insulation.
- Strip the litz wires by 3.5 mm, twist (and tin plate).
- Solder, crimp or screw the litz wires to the contacts.
- Insert the spacer sleeve (4).
- Guide the insert (5) and spacer sleeve (4) into the unit (6), taking care that the desired **coding groove** of the insert (5) is introduced **into the coding bar**.
- Insert the entire unit into the angle housing (Attention: eight coding options) and secure with nut (6A) (medium-force fit).
- Screw the adapter (2) as tight as possible.
- Screw the cable gland (1) **as tight as possible**.

## Panel Mounting Base (Receptacle), Removing the Plastic Latching Ring




## Sleeve Connectors and Cable Connecting Receptacles, Straight

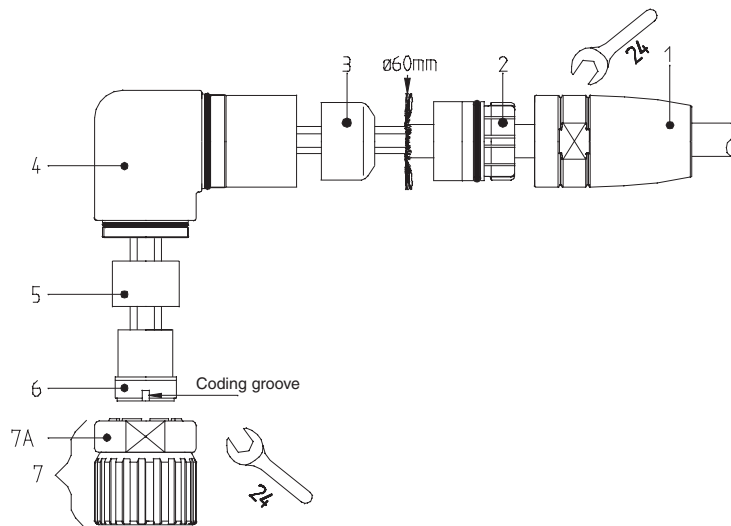


- Push the adapter (1) and the sealing element (3) with the gasket (2) onto the cable.
- Strip the external sheath by 30 mm.
- Push back the braided screen so it stands out at 90° and cut to length.
- Trim the foil, wadding and inner insulation.
- Strip the litz wires by 3.5 mm, twist (and tin plate).
- Solder, crimp or screw the litz wires to the contacts.
- Insert the spacer sleeve (4).
- Guide the insert (5), the spacer sleeve (4) and the sealing element (3) with the gasket (2) into the insert ring (6), taking care that the desired **coding groove** of the insert (5) is introduced **into the coding bar** of the spacer sleeve (6).
- Screw the adapter (1) **as tight as possible**.

## M23 • UC Series With Universal Shielding Assembly Instructions

 For assembly tools, see page 41

### Sleeve Connectors, Angled



- Push the adapter (1) and sealing element (2) onto the cable.
- Strip the external sheath by 80 mm.
- Trim the foil, wadding and inner insulation.
- Push back the braided screen so it stands out at 90° and cut to length.
- Strip the litz wires by 6 mm.
- Crimp the litz wires to the contacts.
- Push the cable unit through the angle housing (4).
- Insert the spacer sleeve (3) into the angle housing (4).
- Push the sealing element (2) over the spacer sleeve (3) thus clamping the braided screen between sealing element and spacer sleeve.
- Push crimped contacts into the insert (6).
- Insert the spacer sleeve (5).
- Guide the insert (6) and spacer sleeve (5) into the unit (7), taking care that the desired **coding groove** of the insert (6) is introduced **into the coding bar**.
- Insert the entire unit into the angle housing. (Attention: eight coding options) and secure with nut (7A) (medium-force fit).
- Screw the adapter (1) **as tight as possible**.



# Bayonet • TU Series Signal Circular Connectors Product Selection

## Combinations

The product chart show the possible combinations of sleeve housing and connecting housing or panel mounting base.

The sleeve connectors and cable connecting receptacles are fitted with a universal shield connection for cable diameters up to 14.5 mm.

With universal shielding

With universal shielding

Shielded

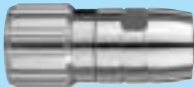
## Selection of connectors

The modular system allows the individual connector to be selected from a defined number of articles. To specify a connector for the device and mounting side, the

housing is supplemented by the corresponding contact insert, including contacts.

## Housing

Sleeve housings with universal shielding, page 30



BTGGUM



BTWGUM

Connecting housings with universal shielding, page 30



BKGGUM

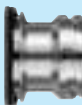
## Panel mounting bases

Front mounting, page 31

Rear mounting, page 31



BAAGA





BAIGF



BAIGR

The product chart provides an overview of the available components.

 The connectors are fitted with a universal shield connection for cable diameters up to 14.5 mm. Shielded cable glands with a cable clamp type cage and shielded sleeve are not required.

 The connectors are fitted with a universal shield connection for cable diameters up to 14.5 mm. Shielded cable glands with a cable clamp type cage and shielded sleeve are not required.

Contact inserts

Contact inserts

Contact inserts

Contact inserts

Contact insert including contacts

Solder contact inserts, page 34  
6 to 19-position




Crimp contact inserts, pages 35-37  
6 to 19-position



Screw contact inserts, page 35  
6, 7 and 9-position



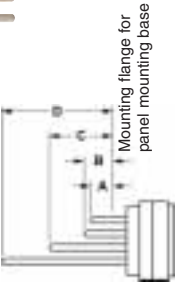
 For reasons of safety, only female contacts may be used in the live part of the connector.


Direct PCB connection, page 38  
With 6 to 17-position dip solder contacts



Type/housing design	Free solder pin length			
	A [mm]	B [mm]	C [mm]	D [mm]
BAAGA	—	3.5	9.0	16.5
BAIGF	2.5	3.5	9.0	16.5
BAIGR	2.5	3.5	9.0	16.5

Further contact inserts/dip solder contacts available on request.



 For reasons of safety, only female contacts may be used in the live part of the connector.

Bayonet • TU Series

Technical Data

Mechanical data:

Housing material:	Machined component: copper-zinc alloy (CuZn), die-cast part: zinc (GD-Zn)
Housing surface:	Nickel-plated (standard)
Insulating body:	Thermoplastic polyester (PBT), polyamide (PA 66); storage at 15-35 °C, 40-70 % rel. humidity
Inflammability:	UL 94 V0
Contact material:	Copper-zinc alloy (CuZn)
Contact surface:	Nickel-plated (Ni) with gold layer (Au) and passivated
Contact connection type:	Solder cup, crimp and screw versions, dip solder pin
Gasket and O-ring:	Fluorine rubber (FPM)
Flat gasket:	Perbunane (NBR with fabric insert) fluorine rubber (FPM)
Temperature range:	-40°C/+125°C (long-term temperature)
Conductor entry:	EMC design, for cable diameters 2 - 14.5 mm
Locking method:	Bayonet locking, bayonet ring Ø 29.3 mm
Mechanical insertion/withdrawal cycles:	Standard: 50, more on request
Degree of protection:	EMC version: IP67 in the locked state

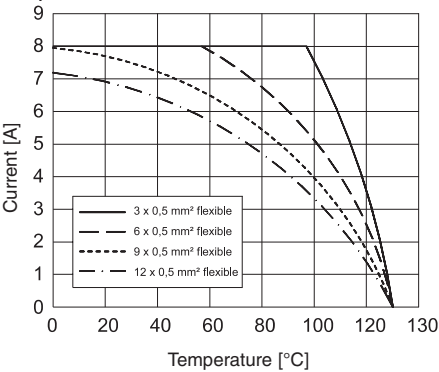
Electrical data:

Number of positions		6, 7	9(8+1)	9(6+3)	12	16	17	19(16+3)
Contacts		6, 7	8 + 1	6 + 3	11, 12	15, 16	16, 17	16 + 3
Contact Ø	[mm]	2	1 2	1 2	1	1	1	1 1.5
Conductor	Solder connection contacts x [mm²]	6 (7) x 2.5	8x1.0+1x2.5	6x1.0+3x2.5	12 x 2.5	16 x 1.0	17 x 1.0	16x1.0+3x1.0
cross section	Crimp connection contacts x [mm²]	6 (7) x 2.5	8x0.56+1x2.5		12 x 0.56	16 x 0.56	17 x 0.56	16x1.0+3x1.5
Nominal/rated current	[A]	20	8 20	8 20	8	8	8	8 10
Nominal/rated voltage	[V]	300	300	150	150	150	150	150
Test voltage	[kV AC]	2.5	2.5	1.5	1.5	1.5	1.5	1.5
Surge voltage category <sup>1)</sup>		II	II	II	II	II	II	II
Insulation resistance	[Ω]	≥10 <sup>16</sup>	≥10 <sup>16</sup>	≥10 <sup>12</sup>	≥10 <sup>12</sup>	≥10 <sup>12</sup>	≥10 <sup>12</sup>	≥10 <sup>12</sup>
Contact resistance	[mΩ]	≤3	≤3	≤3	≤3	≤3	≤3	≤3
Contamination class in acc. with IEC 664-1		2 (3')	2 (3')	2 (3')	2 (3')	2 (3')	2 (3')	2 (3')

<sup>1)</sup> Reference: DIN EN 61984:2001 (see also appendix of technical terms, page 43).

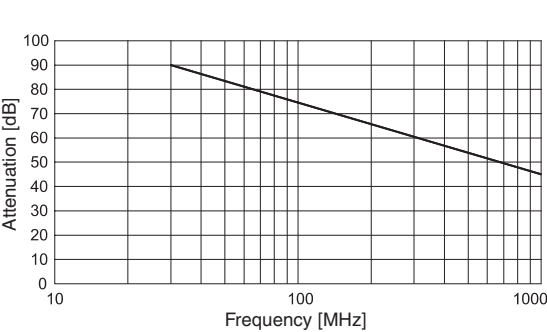
Derating curve

12-position cable and sleeve connectors




Shield attenuation curve


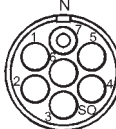


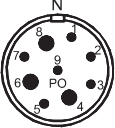

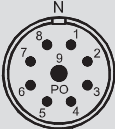

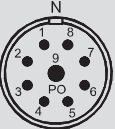
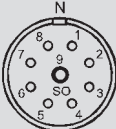
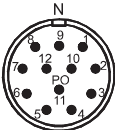

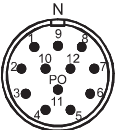
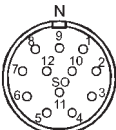
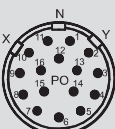

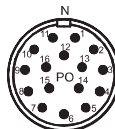

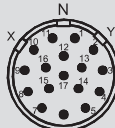

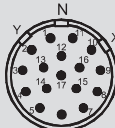
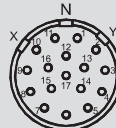
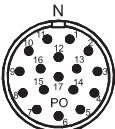

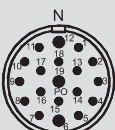


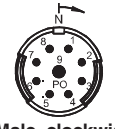
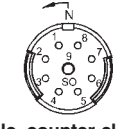
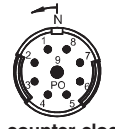
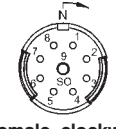
Based on DIN 47250-6/01.83





# Bayonet • TU Series Pin Assignments and Coding

 Other coding versions can be configured manually or mechanically on request.

	Contact chamber numbering (view of plug-in side)			
	Clockwise	Counter-clockwise	Counter-clockwise	Clockwise
Number of positions	Male	Female	Male	Female
<b>6-position</b> Solder / crimp / screw Pages 34 - 39				
<b>7-position</b> Solder / crimp / screw Pages 34 - 39				
<b>9-position (6+3)</b> Solder Pages 34, 38				
<b>9-position (8+1)</b> Solder / crimp / screw Pages 34 - 39				
<b>12-position</b> Solder / crimp Pages 34 - 39				
<b>16-position</b> Solder Pages 34, 38				
<b>16-position</b> Crimp Pages 35 - 37				
<b>17-position</b> Solder Pages 34, 38				
<b>17-position</b> Crimp Pages 35 - 37				
<b>19-position (16+3)</b> Solder / crimp Pages 34 -37				
 Direction of contact chamber numbering (view of plug-in side)	 Male, clockwise (standard)	 Female, counter-clockwise (standard)	 Male, counter-clockwise (opposite direction)	 Female, clockwise (opposite direction)

# Bayonet • TU Series Connecting/Sleeve Housings, Universal Shielding



Sleeve connectors for connecting housings and panel mounting bases  
**BTGGUM, BTWGUM**



Cable connecting receptacles for shielded free connections  
**BKGGUM**

Description
<b>Sleeve housing, straight,</b> with universal shielding, metal for external cable diameters from 2 mm to 14.5 mm
<b>Bayonet sleeve housing, angled,</b> with universal shielding, metal for external cable diameters from 2 mm to 14.5 mm
<b>Bayonet connecting housing, straight,</b> with universal shielding, metal for external cable diameters from 2 mm to 14.5 mm


Type/housing design	Order No.	Pcs./ Pkt.
BTGGUM	TU-00000008UDU	10
BTWGUM	TU-0000000TUDU	10

Type/housing design	Order No.	Pcs./ Pkt.
BKGGUM	TU-00000009UDU	10

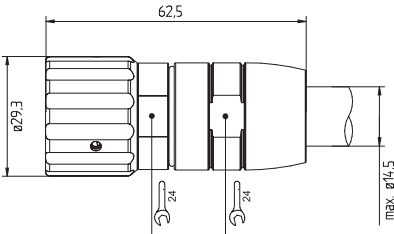
Signal connectors in the TU series feature a bayonet locking system which is easy to use but robust at the same time.

Like the signal connectors with M23 screw locking, the TU series is completely modular in design and uses the same insulating bodies/contacts.

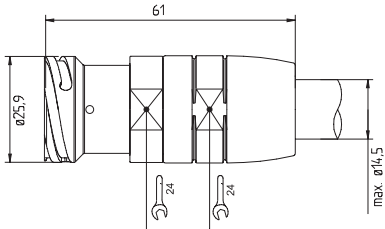
The TU series is based on UC connectors, i.e. it also offers more cabling space and can accommodate larger cable diameters. The shielding function and the cable clamping are universal. It is not necessary to adapt the shielding elements to the cables used.


**Unlike plugs, connectors must not be plugged in or unplugged under load, in order to avoid damage caused by contact erosion.**

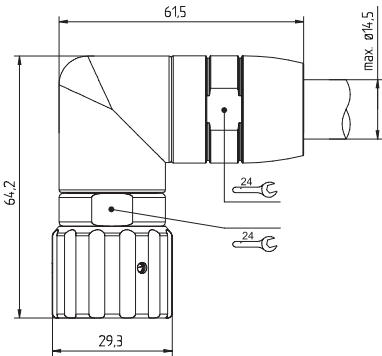
For corresponding contact inserts, see pages 34-39



**BTGGUM**



**BKGGUM**



**BTWGUM**

## Type description

Type	BT	G	GU	M
BT Bayonet sleeve connector				
BK Bayonet cable conn. receptacle				
Form				
G Straight				
W Angled				
EMC protection				
GU With universal shielding				
Housing material				
M Metal				

Bayonet • TU Series  
Panel Mounting Bases  
Front/Rear Mounting

In the case of front mounting, the panel mounting base is fitted to the device from outside using screws or nuts. The contact insert then establishes the connection to the device by either solder or crimp connections at the device end.

Panel mounting bases for rear mounting are fed through the mounting panel from the inside and screwed tight from the outside.



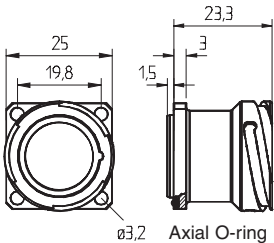
Panel mounting bases  
for front mounting  
**BAAGA**



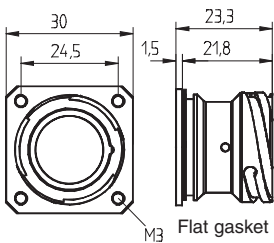
Panel mounting bases  
for rear mounting  
**BAIGF, BAIGR**

Description	Wall thickness [mm]	Type/housing design	Order No.	Pcs./ Pkt.	Type/housing design	Order No.	Pcs./ Pkt.
Panel mounting base, external, straight, <b>axial O-ring</b> 4-hole mounting (Ø 3.2 mm), for connecting shielded connectors	from 1.5	BAAGA	TU-0000000WB00	10			
Panel mounting base, internal, straight, <b>flat gasket</b> , 4-hole thread mounting (M3), for connecting shielded connectors	max. 2.5				BAIGF	TU-00000004100	10
Panel mounting base, internal, straight, <b>radial O-ring</b> , 4-hole mounting (Ø 3.2 mm), for connecting shielded connectors	2.7 – 3.5				BAIGR	TU-00000005300	10

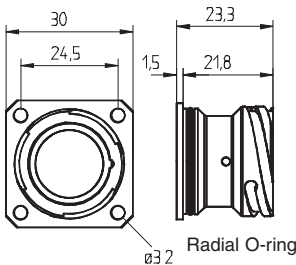
Unlike plugs, connectors must not be plugged in or unplugged under load, in order to avoid damage caused by contact erosion.  
For corresponding contact inserts, see pages 34-39



**BAAGA**



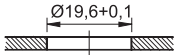
**BAIGF**



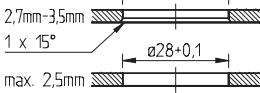
**BAIGR**

Type description	BA	I	G	F
Type	BA			
Bayonet panel mounting base				
Installation method				
A Front mounting				
I Rear mounting				
Form				
G Straight				
Connection				
F Flat gasket				
R Radial seal (O-ring)				
A Axial seal (O-ring)				

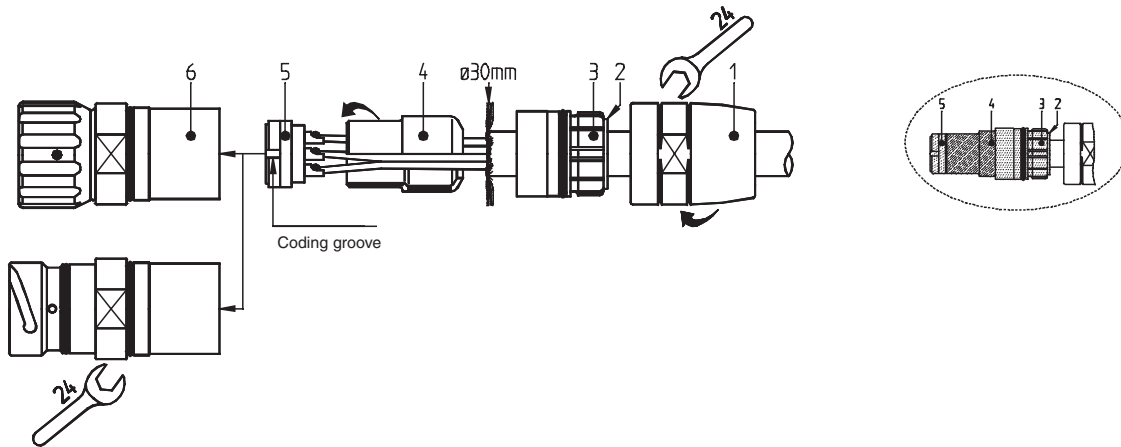
Installation dimensions 4 x Ø3.2/M3 / □19.8±0,1  
**BAAGA**  
Axial O-ring



Installation dimensions 4 x Ø3.2/M3 / □24.5±0,1  
**BAIGF, BAIGR**  
Radial O-ring  
Flat gasket




## Sleeve Connectors and Cable Connecting Receptacles, Straight



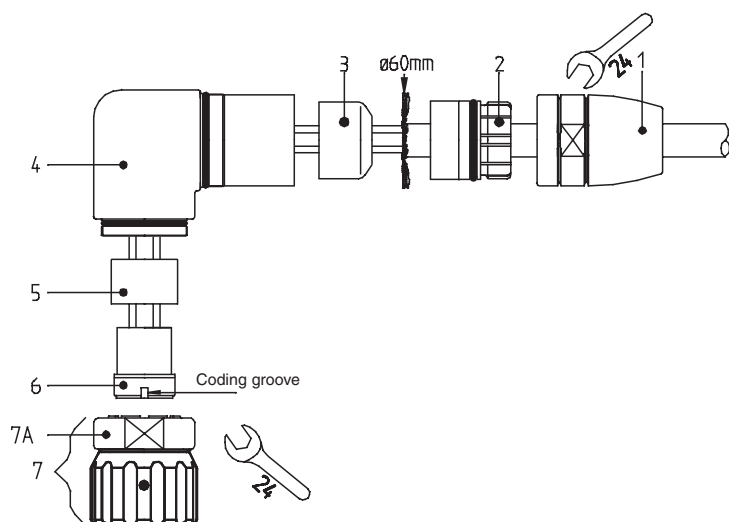
- Push the adapter (1) and the sealing element (3) with the gasket (2) onto the cable.
- Strip the external sheath by 30 mm.
- Push back the braided screen so it stands out at 90° and cut to length.
- Trim the foil, wadding and inner insulation.
- Strip the litz wires by 3.5 mm, twist (and tin plate).
- Solder, crimp or screw the litz wires to the contacts.
- Insert the spacer sleeve (4).
- Guide the insert (5), the spacer sleeve (4) and the sealing element (3) with the gasket (2) into the insert ring (6), taking care that the desired **coding groove** of the insert (5) is introduced **into the coding bar** of the spacer sleeve (6).
- Screw the adapter (1) **as tight as possible**.



## Bayonet • TU Series With Universal Shielding Assembly Instructions

 For assembly tools, see page 41

### Sleeve Connectors, Angled



- Push the adapter (1) and sealing element (2) onto the cable.
- Strip the external sheath by 80 mm.
- Trim the foil, wadding and inner insulation.
- Push back the braided screen so it stands out at 90° and cut to length.
- Strip the litz wires by 6 mm.
- Solder, crimp or screw the litz wires to the contacts.
- Push the cable unit through the angle housing (4).
- Insert the spacer sleeve (3) into the angle housing (4).
- Push the sealing element (2) over the spacer sleeve (3) thus clamping the braided screen between sealing element and spacer sleeve.
- Push crimped contacts into the insert (6).
- Insert the spacer sleeve (5).
- Guide the insert (6) and spacer sleeve (5) into the unit (7), taking care that the desired **coding groove** of the insert (6) is introduced **into the coding bar**.
- Insert the entire unit into the angle housing. (Attention: eight coding options) and secure with nut (7A) (medium-force fit).
- Screw the adapter (1) **as tight as possible**.

RC / UC / TU Series  
Contact Inserts  
6 to 19-Position

The contact inserts with the contact carriers and the contacts are available for the following connection types:

- Soldering
- Crimping
- Screwing
- Dip soldering for printed circuit boards

In the case of each connection system, contact inserts are available for different

- Pin assignments
- Male and female contacts
- And for the most part, clockwise or counter-clockwise numbering of the contact chamber

Ordering instructions:

The first step is to determine the connection system – soldering, dip soldering, crimping or screwing. The number of positions corresponds to the application and the number of cores. The selection male or female depends on the circuitry. The direction of the numbering depends on individual requirements (see pin assignments, pages 13, 29).

The standard numbering direction is (view of plug-in side):

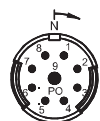
- Male contact carrier, clockwise
- Female contact carrier, counter-clockwise

This ensures that the plug connections match.

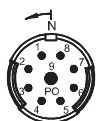
Type description

	L	S	R	12
<b>Connection system</b>				
L	Solder connection			
CR	Crimp connection			
	Rolled crimp contacts			
CD	Crimp connection			
	Turned crimp contacts			
S	Screw connection			
<b>Contact</b>				
S	Male			
B	Female			
<b>Numbering</b>				
R	Clockwise			
L	Counter-clockwise			
<b>No. of positions</b>				
6	6-position			
6K	6-position, lower connection range			
7	7-position			
7K	7-position, lower connection range			
6+3	9-position (6+3)			
8+1	9-position (8+1)			
8+1K	9-position (8+1), lower connection range			
12	12-position			
16	16-position			
17	17-position			
16+3	19-position (16+3)			
16+2+PE	19-position (16+2+PE) with crimp			

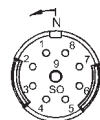
Direction of contact chamber numbering  
(view of plug-in side)



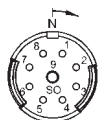
Male, clockwise  
(standard)



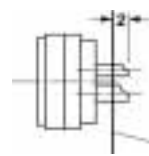
Male, counter-clockwise  
(opposite direction)



Female, counter-clockwise  
(standard)



Female, clockwise  
(opposite direction)



Housing termination



Contact insert and solder contacts  
male/female

L ...

Description	Type	Order no.	Pcs./ Pkt.
<b>Contact insert, 6-position</b> Contacts: 6 x Ø 2.0 mm	LSR 6 LBL 6	RC-06P1N120000 RC-06S1N120000	10
<b>Contact insert, 7-position</b> Contacts: 7 x Ø 2.0 mm	LSR 7 LBL 7	RC-07P1N120000 RC-07S1N120000	10
<b>Contact insert, 9-position (6+3)</b> Contacts: 6 x Ø 1.0 mm, 3 x Ø 2.0 mm	LSR 6+3 LBL 6+3	RC-63P1N120000 RC-63S1N120000	10
<b>Contact insert, 9-position (8+1)</b> Contacts: 8 x Ø 1.0 mm, 1 x Ø 2.0 mm	LSR 8+1 LBL 8+1  LSL 8+1 LBR 8+1	RC-09P1N120000 RC-09S1N120000  RC-09P2N120000 RC-09S2N120000	10
<b>Contact insert, 12-position</b> Contacts: 12 x Ø 1.0 mm	LSR 12 LBL 12 LSL 12 LBR 12	RC-12P1N120000 RC-12S1N120000 RC-12P2N120000 RC-12S2N120000	10
<b>Contact insert, 16-position</b> Contacts: 16 x Ø 1.0 mm	LSR 16 LBL 16	RC-16P1N120000 RC-16S1N120000	10
<b>Contact insert, 17-position</b> Contacts: 17 x Ø 1.0 mm	LSR 17 LBL 17 LSL 17 LBR 17	RC-17P1N120000 RC-17S1N120000 RC-17P2N120000 RC-17S2N120000	10
<b>Contact insert, 19-position (16+3)</b> Contacts: 16 x Ø 1.0 mm, 3 x Ø 1.5 mm	LSR 16+3 LBL 16+3	RC-19P1N120000 RC-19S1N120000	10
<b>Crimping pliers</b> for crimp contacts (see also page 41)		–	

Technical data (see also pages 12, 28)	
<b>Ambient temperature [°C]</b>	-40 to +125
<b>Connection cross section [mm²]</b> For contact Ø 1.0 mm / 1.5 mm For contact Ø 2.0 mm	≤ 1 ≤ 2.5
<b>Materials</b> Contact Contact surface Contact insert	CuZn Ni with gold layer PBT




Contact insert and crimp contacts, turned male/female

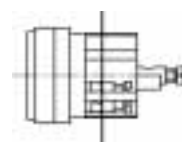
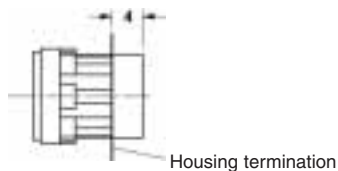
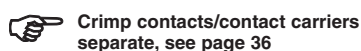
CD ...



Contact insert and screw contacts  
male/female

## Summary

Type	Crimp range (see below *)	Order no.	Pcs./ Pkt.	Type	Crimp range (see below *)	Order no.	Pcs./ Pkt.	Type	Order no.	Pcs./ Pkt.
				CDSR 6	C	RC-06P1N8B0000	10	SSR 6	RC-06P1NS20000	10
				CDBL 6	C	RC-06S1N8B0000		SBL 6	RC-06S1NS20000	
				CDSR 6K	D	RC-06P1N8K0000				
				CDBL 6K	D	RC-06S1N8K0000				
				CDSR 7	C	RC-07P1N8B0000	10	SSR 7	RC-07P1NS20000	10
				CDBL 7	C	RC-07S1N8B0000		SBL 7	RC-07S1NS20000	
				CDSR 7K	D	RC-07P1N8K0000				
				CDBL 7K	D	RC-07S1N8K0000				
				CDSR 8+1	8xB+1xC	RC-09P1N8C0000	10	SSR 8+1	RC-09P1NS20000	10
				CDBL 8+1	8xB+1xC	RC-09S1N8C0000		SBL 8+1	RC-09S1NS20000	
				CDSL 8+1	8xB+1xC	RC-09P2N8C0000				
				CDBR 8+1	8xB+1xC	RC-09S2N8C0000				
				CDSR 8+1K	8xB+1xD	RC-09P1N8L0000				
				CDBL 8+1K	8xB+1xD	RC-09S1N8L0000				
				CDSL 8+1K	8xB+1xD	RC-09P2N8L0000				
				CDBR 8+1K	8xB+1xD	RC-09S2N8L0000				
CRSR 12	A	RC-12P1N8E0000	10	CDSR 12	B	RC-12P1N8D0000	10			
CRBL 12	A	RC-12S1N8E0000		CDBL 12	B	RC-12S1N8D0000				
CRSL 12	A	RC-12P2N8E0000		CDSL 12	B	RC-12P2N8D0000				
CRBR 12	A	RC-12S2N8E0000		CDBR 12	B	RC-12S2N8D0000				
				CDSR 16	B	RC-16P1N8D0000	10			
				CDBL 16	B	RC-16S1N8D0000				
CRSR 17	A	RC-17P1N8E0000	10	CDSR 17	B	RC-17P1N8D0000	10			
CRBL 17	A	RC-17S1N8E0000		CDBL 17	B	RC-17S1N8D0000				
				CDSR 16+2+PE	B	RC-1RP1NRM0000	10			
				CDBL 16+2+PE	B	RC-1RS1NRM0000				
Crimping pliers RC 0,56	RC-Z2130	1		Crimping pliers RC 2,5		RC-Z2378	1		–	
				 CDSR 16+2+PE / CDBL 16+2+PE cannot be combined with housing AAWF						
-40 to +125				-40 to +125				-40 to +125		
* Crimp range A: 0.22 – 0.56				* Crimp range B: 0.14 – 0.56				≤ 0.75		
–				* Crimp range C: 1.5 – 2.5; * Crimp range D: 1.0 – 1.5				≤ 1.5		
CuZn Ni with gold layer PBT				CuZn Ni with gold layer PBT				CuZn Ni with gold layer PBT		



RC / UC / TU Series  
Crimp Contact Carriers and  
Crimp Contacts Separate

The contact carriers and the male and female crimp contacts can also be ordered separately for 6 to 9-position connectors.



Crimp contact carriers separate  
male/female

RC-ICS..., RC-ICB...

Other contact inserts/contacts  
available on request

Type description of contact carriers  
without crimp contacts

	RC-	IC	S	R	6
Contact series	RC				
Contact carrier	IC	Crimp insulating body			
Contact	S	Male			
	B	Female			
Numbering	R	Clockwise			
	L	Counter-clockwise			
No. of positions	6	6-position			
	7	7-position			
	8+1	9-position (8+1)			
	12	12-position			
	16	16-position			
	17	17-position			
	16+2+PE	19-position (16+2+PE)			

Type description of crimp contacts

	RC-	ST	CD-	1/14,8/014-0,56
Contact series	RC			
Contact type	ST	Male		
	SP	Male PE contact		
	BU	Female		
	BP	Female PE contact		
Connection system	CR	Crimp connection		
		Rolled crimp contacts		
	CD	Crimp connection		
		Turned crimp contacts		
Contact diameter/contact length [mm]/ Crimp range [mm²]				

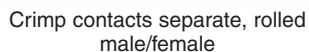
Description	Type	Order No.	Pcs./ Pkt.
6-position crimp contact insert for contacts 6 x Ø 2.0 mm	RC-ICSR 6 RC-ICBL 6	RC-06P1N8A0000 RC-06S1N8A0000	10
7-position crimp contact insert for contacts 7 x Ø 2.0 mm	RC-ICSR 7 RC-ICBL 7	RC-07P1N8A0000 RC-07S1N8A0000	10
9-position (8+1) crimp contact insert for contacts 8 x Ø 1.0 mm / 1 x Ø 2.0 mm	RC-ICSR 8+1 RC-ICSL 8+1	RC-09P1N8A0000 RC-09P2N8A0000	10
	RC-ICBL 8+1 RC-ICBR 8+1	RC-09S1N8A0000 RC-09S2N8A0000	
12-position crimp contact insert for contacts 12 x Ø 1.0 mm	RC-ICSR 12 RC-ICSL 12	RC-12P1N8A0000 RC-12P2N8A0000	10
	RC-ICBL 12 RC-ICBR 12	RC-12S1N8A0000 RC-12S2N8A0000	
16-position crimp contact insert for contacts 16 x Ø 1.0 mm	RC-ICSR 16 RC-ICBL 16	RC-16P1N8A0000 RC-16S1N8A0000	10
17-position crimp contact insert for contacts 17 x Ø 1.0 mm	RC-ICSR 17 RC-ICBL 17	RC-17P1N8A0000 RC-17S1N8A0000	10
19-position (16+2+PE) crimp contact insert for contacts 16 x Ø 1.0 mm / 2 x Ø 1.5 mm / 1 x Ø 1.5 mm	RC-ICSR 16+2+PE  RC-ICBL 16+2+PE	RC-1RP1N8A0000  RC-1RS1N8A0000	10

Crimping pliers for crimp contacts (see also page 41)

Connection cross section for 6 to 17-pos.  
crimp contact insert [mm²]  
for contact Ø 1.0 mm  
for contact Ø 2.0 mm

Connection cross section for 19-pos. (16+2+PE)  
crimp contact insert [mm²]  
for contact Ø 1.0 mm  
for contact Ø 1.5 mm



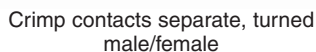


**RC-STCR-..., RC-BUCR-...**

Type	Order No.	Pcs./ Pkt.	Included in contact insert type (page 35)
RC-STCR-1/14,8/0,22-0,56 RC-BUCR-1/14,8/0,22-0,56	RC-22P2000 RC-22S2000	10	CRSR 12/CRSL 12 CRBL 12/CRBR 12
RC-STCR-1/14,8/0,22-0,56 RC-BUCR-1/14,8/0,22-0,56	RC-22P2000 RC-22S2000	10	CRSR 17 CRBL 17
Crimping pliers RC 0,56	RC-Z2130	1	

Crimp range 0.22 – 0.56

—



**RC-S.CD-..., RC-B.CD-...**

Type	Order No.	Pcs./ Pkt.	Included in contact insert type (page 35)
RC-STCD-2/14,8/1,0-1,5 RC-BUCD-2/14,2/1,0-1,5 RC-STCD-2/14,8/1,5-2,5 RC-BUCD-2/14,2/1,5-2,5	RC-5CP2000 RC-5CS2000 RC-5AP2000 RC-5AS2000	10	CDSR 6K CDBL 6K CDSR 6 CDBL 6
RC-STCD-2/14,8/1,0-1,5 RC-BUCD-2/14,2/1,0-1,5 RC-STCD-2/14,8/1,5-2,5 RC-BUCD-2/14,2/1,5-2,5	RC-5CP2000 RC-5CS2000 RC-5AP2000 RC-5AS2000	10	CDSR 7K CDBL 7K CDSR 7 CDBL 7
RC-STCD-1/14,8/0,14-0,56 RC-STCD-2/14,8/1,0-1,5 RC-STCD-2/14,8/1,5-2,5 RC-BUCD-1/14,25/0,14-0,56 RC-BUCD-2/14,2/1,0-1,5 RC-BUCD-2/14,2/1,5-2,5	RC-12P2000 RC-5CP2000 RC-5AP2000 RC-12S2000 RC-5CS2000 RC-5AS2000	10	CDSR 8+1/CDSR 8+1K CDSL 8+1/CDSL 8+1K CDSR 8+1K/CDSL 8+1K CDSR 8+1/CDSL 8+1 CDBL 8+1/CDBL 8+1K CDBR 8+1/CDBR 8+1K CDBL 8+1K/CDBR 8+1K CDBL 8+1/CDBR 8+1
RC-STCD-1/14,8/0,14-0,56 RC-BUCD-1/14,25/0,14-0,56	RC-12P2000 RC-12S2000	10	CDSR 12/CDSL 12 CDBL 12/CDBR 12
RC-STCD-1/14,8/0,14-0,56 RC-BUCD-1/14,25/0,14-0,56	RC-12P2000 RC-12S2000	10	CDSR 16 CDBL 16
RC-STCD-1/14,8/0,14-0,56 RC-BUCD-1/14,25/0,14-0,56	RC-12P2000 RC-12S2000	10	CDSR 17 CDBL 17
RC-STCD-1/24,3/0,25-0,5 RC-STCD-1,5/24,3/0,75-1,0 RC-SPCD-1,5/25,8/0,75-1,0 RC-BUCD-1/16,5/0,25-0,5 RC-BUCD-1,5/16,5/0,75-1,0 RC-BPCD-1,5/16,5/0,75-1,0	RC-6LP2000 RC-6EP2000 RC-6FP2000 RC-6LS2000 RC-6ES2000 RC-6FS2000	10	CDSR 16+2+PE CDSR 16+2+PE CDSR 16+2+PE CDBL 16+2+PE CDBL 16+2+PE CDBL 16+2+PE
Crimping pliers RC 2,5	RC-Z2378	1	

Crimp range 0.14 – 0.56  
Crimp range 1.0 - 1.5; Crimp range 1.5 – 2.5

Crimp range 0.25 – 0.5  
Crimp range 0.75 – 1.0

RC / TU Series  
Contact Inserts with 6 to 17-Position  
Dip Solder Contacts

Contact inserts with dip solder contacts allow efficient mounting on printed circuit boards. This reduces assembly times and wiring mistakes.

Ordering instructions:

The first step is to determine the number of positions and the connection type  
– Male or female.

The free solder pin length A, B, C or D is the distance between the mounting ear of the panel mounting base and the end of the dip solder contact. This distance includes the housing wall thickness and the air gap to the printed circuit board.

Type description

E

S

R

6

A

Connection system

E Dip solder

Contact

S Male

B Female

Direction of numbering

R Clockwise

L Counter-clockwise

Number of positions

06 6-position

6+3 9-position (6+3)

8+1 9-position (8+1)

12 12-position

17 17-position

Free solder pin length

A, B, C or D (see table)



Contact insert and dip solder contacts male/female, free solder pin length A

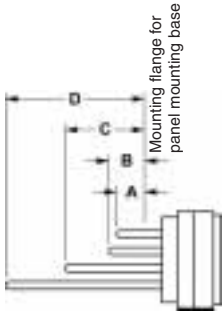
E ... A

Description	Type	Dip solder pin Ø [mm]	Order No.	Pcs./ Pkt.
<b>Dip solder contact insert, 6-position</b> Contacts: 6 x Ø 2.0 mm	ESR 6A EBL 6A	1.5	RC-06P1N220000 RC-06S1N220000	10
<b>Dip solder contact insert, 9-position (6+3)</b> Contacts: 6 x Ø 1.0 mm, 3 x Ø 2.0 mm	ESR 6+3A EBL 6+3A	6 x 0.6 / 3 x 1.5	RC-63P1N220000 RC-63S1N220000	10
<b>Dip solder contact insert, 9-position (8+1)</b> Contacts: 8 x Ø 1.0 mm, 1 x Ø 2.0 mm	ESR 8+1A EBL 8+1A	8 x 0.6 / 1 x 1.5	RC-09P1N220000 RC-09S1N220000	10
<b>Dip solder contact insert, 12-position</b> Contacts: 12 x Ø 1.0 mm	ESR 12A EBL 12A	0.6	RC-12P1N220000 RC-12S1N220000	10
<b>Dip solder contact insert, 17-position</b> Contacts: 17 x Ø 1.0 mm	ESR 17A EBL 17A	0.6	RC-17P1N220000 RC-17S1N220000	10

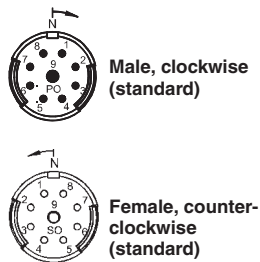
Technical data (see also pages 12, 28)	
Ambient temperature [°C]	-40 to +125
Materials	CuZN Ni with gold layer PBT
Contact	
Contact surface	
Contact insert	

Type/housing design	Free solder pin length			
	A [mm]	B [mm]	C [mm]	D [mm]
M23				
AAGF, AAGR	3.5	4.5	10.0	17.5
AILG	3.5	4.5	10.0	17.5
AILB	3.5	4.5	10.0	17.5
AISZ	–	–	3.5	11.0
AISG	–	–	3.5	11.0

Further contact inserts/ dip solder contacts available on request.

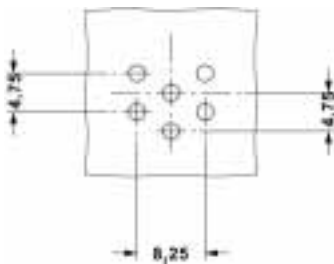


Direction of contact chamber numbering (view of plug-in side)

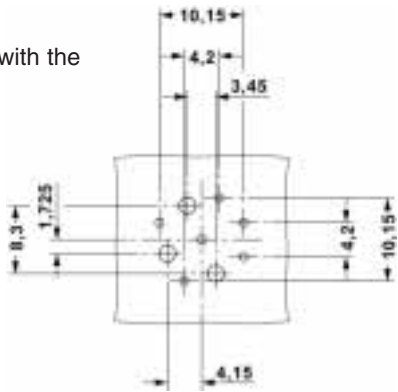


PCB hole patterns

The PCB hole diameter must be adapted in line with the dip solder pin diameter (see above).



6-position



9 (6+3)-position



Contact insert and dip solder contacts  
male/female, free solder pin length B

### E ... B

Type	Dip solder pin Ø [mm]	Order No.	Pcs./ Pkt.
ESR 6B EBL 6B	1.5	RC-06P1N320000 RC-06S1N320000	10
ESR 6+3B EBL 6+3B	6 x 1.0 / 3 x 1.5	RC-63P1N320000 RC-63S1N320000	10
ESR 8+1B EBL 8+1B	8 x 1.0 / 1 x 1.5	RC-09P1N320000 RC-09S1N320000	10
ESR 12B EBL 12B	1.0	RC-12P1N320000 RC-12S1N320000	10
ESR 17B EBL 17B	1.0	RC-17P1N320000 RC-17S1N320000	10

-40 to +125

CuZn  
Ni with gold layer  
PBT



Contact insert and dip solder contacts  
male/female, free solder pin length C

### E ... C

Type	Dip solder pin Ø [mm]	Order No.	Pcs./ Pkt.
ESR 6C EBL 6C	1.5	RC-06P1NA20000 RC-06S1NA20000	10
ESR 6+3C EBL 6+3C	6 x 1.2 / 3 x 1.5	RC-63P1NA20000 RC-63S1NA20000	10
ESR 8+1C EBL 8+1C	8 x 1.2 / 1 x 1.5	RC-09P1NA20000 RC-09S1NA20000	10
ESR 12C EBL 12C	1.2	RC-12P1NA20000 RC-12S1NA20000	10
ESR 17C EBL 17C	1.2	RC-17P1NA20000 RC-17S1NA20000	10

-40 to +125

CuZn  
Ni with gold layer  
PBT



Contact insert and dip solder contacts  
male/female, free solder pin length D

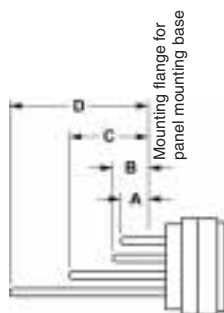
### E ... D

Type	Dip solder pin Ø [mm]	Order No.	Pcs./ Pkt.
ESR 6D EBL 6D	1.5	RC-06P1NC20000 RC-06S1NC20000	10
ESR 6+3D EBL 6+3D	6 x 1.2 / 3 x 1.5	RC-63P1NC20000 RC-63S1NC20000	10
ESR 8+1D EBL 8+1D	8 x 1.2 / 1 x 1.5	RC-09P1NC20000 RC-09S1NC20000	10
ESR 12D EBL 12D	1.2	RC-12P1NC20000 RC-12S1NC20000	10
ESR 17D EBL 17D	1.2	RC-17P1NC20000 RC-17S1NC20000	10

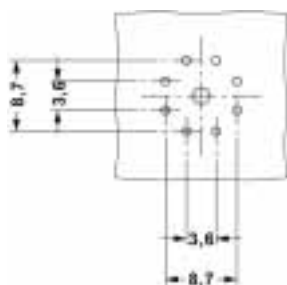
-40 to +125

CuZn  
Ni with gold layer  
PBT

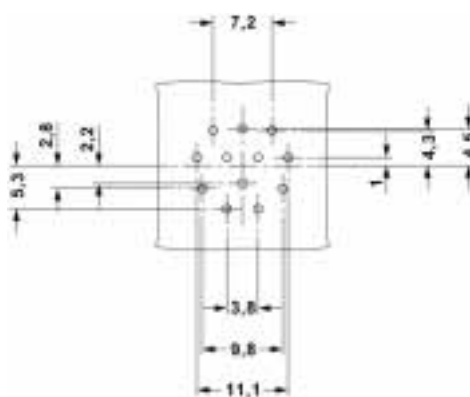
Type/housing design	Free solder pin length			
Bayonet	A [mm]	B [mm]	C [mm]	D [mm]
BAAGA	—	3.5	9.0	16.5
BAIGF	2.5	3.5	9.0	16.5
BAIGR	2.5	3.5	9.0	16.5



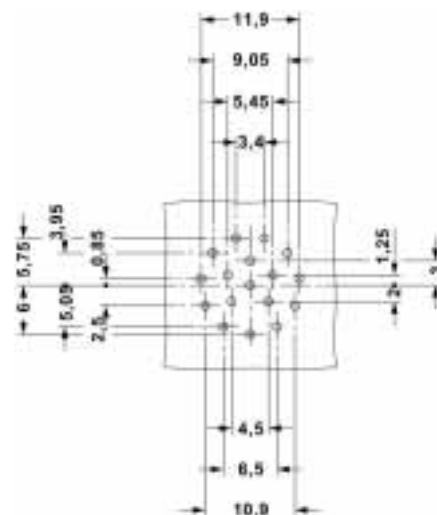
Further contact inserts/  
dip solder contacts available on request.



9 (8+1)-position



12-position



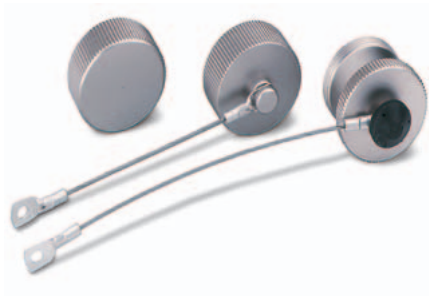
17-position

Signal Connectors  
Tools • Accessories

A range of protective caps is available for signal connectors with M23 screw locking / bayonet locking to protect the contact elements in the case of a separate plug connection.

This prevents the ingress of dust and moisture.

The wire is fixed to the housing panel and prevents the protective cap from being lost.



Metal protective cap



Plastic protective cap

MSK...

Description	Degree of protection in locked state
<b>Metal dust protection cap</b> for M23 cable conn. receptacles and panel mounting conn.	IP 67
<b>Metal dust protection cap</b> for M23 cable conn. receptacles and panel mounting conn., with steel wire	IP67
<b>Metal dust protection cap</b> for M23 sleeve connectors, with steel wire	IP67
<b>Metal dust protection cap</b> for bayonet cable conn. receptacles and panel mounting conn, with steel wire	IP67
<b>Plastic dust protection cap</b> for M23 cable conn. receptacles and panel mounting conn.	IP40
<b>Plastic dust protection cap</b> for M23 sleeve connectors	IP40
<b>Plastic dust protection cap</b> for bayonet cable conn. receptacles and panel mounting conn.	IP40
<b>Plastic dust protection cap</b> for bayonet sleeve connectors	IP40

Type	Order No.	Pcs./ Pkt.
MSK 1	RC-Z2104	10
MSK 2	RC-Z2064	10
MSK 3	RC-Z2062	10
MSK 4	TU-Z2317	10

KSK...

Type	Order No.	Pcs./ Pkt.
KSK 1	RC-Z2059	10
KSK 3	RC-Z2058	10
KSK 4	TU-Z2002	10
KSK 5	TU-Z2003	10

M23 • UC Series  
Cable Gaskets

Single gaskets are also available for the sleeve and connecting housings in the M23 UC series in addition to the universal notched sealing rings which are included in the scope of supply. These can be obtained to suit the given cable diameter.

Sleeve and connecting housings with an additional thread can be equipped with a second cable strain relief for increased loads.



Notched sealing rings,  
single gaskets

PKV...

Description	
<b>Notched sealing ring</b> for cable diameters 6/8/10/12.5/15 mm	
<b>Single gasket</b>	Cable diameter 9 mm 10 mm 12 mm 14 mm 15.5 mm
<b>Double bracket strain relief</b> for additional Pg thread	Cable entry Pg 13.5 Pg 16

Type	Order No.	Pcs./ Pkt.
PKV 6/8/10/12,5/15	UC-Z2351	10
PKV 09 PKV 10 PKV 12 PKV 14 PKV 15,5	UC-Z2343 UC-Z2344 UC-Z2346 UC-Z2348 UC-Z2349	10



Double bracket strain relief for  
sleeve and connecting housings

PZKV DB...

Type	Order No.	Pcs./ Pkt.
PZKV DB 13,5 PZKV DB 16	RC-Z2036 UC-Z2039	10



Signal Connectors  
Tools • Accessories

Crimping pliers RC 0,56 and RC 2,5 are used for rolled or turned crimp contacts.

Crimping tool RC 2,5 with 4-arbor pressing is suitable for crimping turned contacts. It is equipped with a positioner for 12 different contact types and 4 crimp settings.



Crimping tools for rolled/turned contacts

Crimping pliers RC...

Description
<b>Crimping pliers for rolled crimp contacts</b> 0.08 to 0.56 mm²
<b>Crimping pliers</b> with positioner for turned crimp contacts 0.14 to 2.5 mm²
<b>Contact insertion and removal tool</b> for male/female Ø 1 mm 0.14 to 0.56 mm², AWG 26-20
<b>Contact insertion and removal tool</b> for male/female Ø 1.5 mm to 1.0 mm², AWG 17
<b>Contact insertion and removal tool</b> for male/female Ø 2 mm, turned up to 2.5 mm², AWG 13
<b>Contact removal tool</b> for latching rings in panel mounting bases
<b>Contact insertion tool</b> for angled panel mounting bases (AAWF)

Type	Order No.	Pcs./ Pkt.
Crimping pliers RC 0,56	RC-Z2130	1
Crimping pliers RC 2,5	RC-Z2378	1



Contact insertion and removal tool

EW..., RC-EW-CT

Type	Order No.	Pcs./ Pkt.
EWR	RC-Z2097	1
EW PS1	RC-Z2274	1
EW D2	RC-Z2220	1
RC-EW-CT	RC-Z2290	1
RC-EW-W	RC-Z2103	1

Latching ring for panel mounting bases

ERR-K

Description
<b>Replacement latching ring, plastic</b> for panel mounting bases

Type	Order No.	Pcs./ Pkt.
ERR-K	RC-Z2382	10

The pipe spanner is used together with a wrench to screw the internal sleeve to the adapter cap.



Pipe spanner for sleeve and connecting housings

RCS-T / RCS-K

Description
<b>Special pipe spanner</b> for sleeve housings
<b>Special pipe spanner</b> for connecting housings

Type	Order No.	Pcs./ Pkt.
RCS-T	RC-Z2099	1
RCS-K	RC-Z2096	1

Signal Connectors  
Ordering Information

Coninvers circular connectors are supplied as individual components.

Orders are dispatched directly from the warehouse, thus enabling short delivery times.

Flexible combinations of housings, cable glands and contact inserts facilitate warehousing.



Ordering example: 17-position cable connector (sleeve connector and cable connecting receptacle)



Description	Type/housing design	Order No.	Qty.
Sleeve housing, unshielded with Pg 11	TGUM 11	RC-00000001200	1
Solder contact carrier, 17-position, male	LSR 17	RC-17P1N120000	1
Cable gland	KVD 11	RC-Z2196	2
Connecting housing, unshielded with Pg 11	KGUM 11	RC-00000007200	1
Solder contact carrier, 17-position, female	LBL 17	RC-17S1N120000	1

Ordering example: 17-position panel mounting connector (receptacle)



Description	Type/housing design	Order No.	Qty.
Panel mounting base, external, straight	AAGF	RC-00000002200	1
Solder contact carrier, 17-position, female	LBL 17	RC-17S1N120000	1

Ordering example: 9-position (8+1) male crimp contact carrier separate and crimp contacts separate

Description	Type	Order No.	Qty.
9-pos. crimp contact insert, male, clockwise	RC-ICSR 8+1	RC-09P1N8A0000	1
Crimp contacts separate, turned Ø 1.0 Crimp range 0.14-0.56 mm²	RC-STCD-1/14,8/01,4-0,56	RC-12P2000	8
Crimp contacts separate, turned Ø 2.0 Crimp range 1.0-1.5 mm²	RC-STCD-2/14,8/1,0-1,5	RC-5CP2000	1

## Appendix Technical Terms

The explanations of the most important technical terms used in the catalog rely heavily on explanations given in VDE 0627 (DIN EN 61984). Please consult this standard should you require more detailed descriptions than those given here. All explanations refer to connectors.

### Connector

This must be differentiated from the term plug or plug-in socket device. A connector is a component to which electrical conductors (cables) are connected in order to connect these to, or disconnect them from, another component or device. When used in accordance with their designated use, connectors must not be inserted or withdrawn under voltage.

### Insertion/withdrawal cycle

An insertion/withdrawal cycle refers to a connection and disconnection procedure in the isolated, off-load state.

### Upper limit temperature, lower limit temperature (temperature range)

Maximum permitted temperature at which a connector may be operated. It includes the increase in temperature of the contacts caused by electricity and the ambient temperature.

### Nominal voltage

The term nominal voltage is used synonymously with the term rated voltage. Rated voltage is the voltage used for dimensioning connectors. Some operating properties are defined with reference to this.

The equation specified in the data sheet between effective AC voltage value  $U_{\text{rms}}$  (where  $U_{\text{max}} = 1.414 \times U_{\text{rms}}$ ) and the DC voltage refers to the electrical transmission capacity.

### Nominal current

The term nominal current is used synonymously with the term rated current. The rated current is the current which the connector can carry continuously (without interruption) at an ambient temperature of 25°C and which flows through all the connector contacts which are connected to the largest possible conductor. The upper limit temperature is not exceeded.

### Test voltage (see also IEC 664-1)

The term test voltage is used synonymously with the term rated surge voltage. It refers to the defined capability of the insulation to withstand anticipated surge voltages. The impulse withstand voltage is the highest peak value of a surge voltage with a specified characteristic ( $n \times \text{KV}$  (1.2/50  $\mu\text{s}$ )) which does not cause insulation breakdown under defined conditions.

### Surge voltage category (see also IEC 664-1)

Classification of electrical device (connector) according to anticipated surge voltage state. There are 4 surge voltage categories. The category class depends on the level of the nominal voltage (operating voltage) and the selected rated surge voltage or the amplitude depending on the given design (1.2/50  $\mu\text{s}$ ).

#### Surge voltage category II:

Connectors for applications in systems or system parts for which lightning protection voltages do not need to be specified.

#### Surge voltage category III

Connectors for applications in systems or system parts for which lightning protection voltages do not need to be specified, but for which special requirements are defined regarding the safety and availability of the connector.

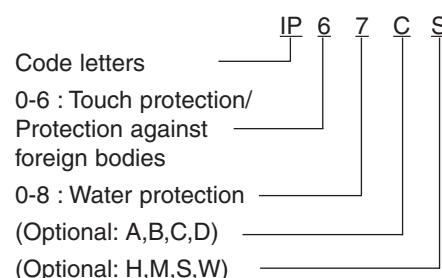
### Contamination class (see also IEC 664-1)

Specification of a numeric value (1 to 4) for a category/class which characterizes the contamination to be anticipated in the immediate vicinity of the connector. Accumulations of solid, liquid or gaseous foreign matter cause a decrease in the breakdown strength or surface resistance of the insulation. The contamination class depends on the rated voltage and the material used. This is used to calculate the minimum values for the air and creepage distances which are incorporated in the dimensioning of the connector.


### Degrees of protection (DIN VDE 0470-1; EN 60529)

The degree of protection of housings is specified according to an "IP" classification. In the case of connectors, this specification is designed to ensure:

- Protection of persons with regard to access to dangerous parts (touch protection).
- Protection of the connector with regard to the ingress of solid foreign bodies (protection against ingress of solid foreign bodies).
- Protection of the connector with regard to damage caused by the ingress of water (protection against water).



Example: IP66/67:  
Touch protection: Protection against touching a wire  
Protection against foreign bodies: Dust-tight  
Water protection: Protection against powerful jetting and temporary immersion in water

 The technical data specified by Coninvers refers exclusively to connectors. All specifications are non-binding product descriptions.

No liability for typing/printing errors. Subject to change without notice.

The general terms of business of Coninvers GmbH apply exclusively.  
Samples for presentation are not tested with reference to the technical properties specified in the catalog.

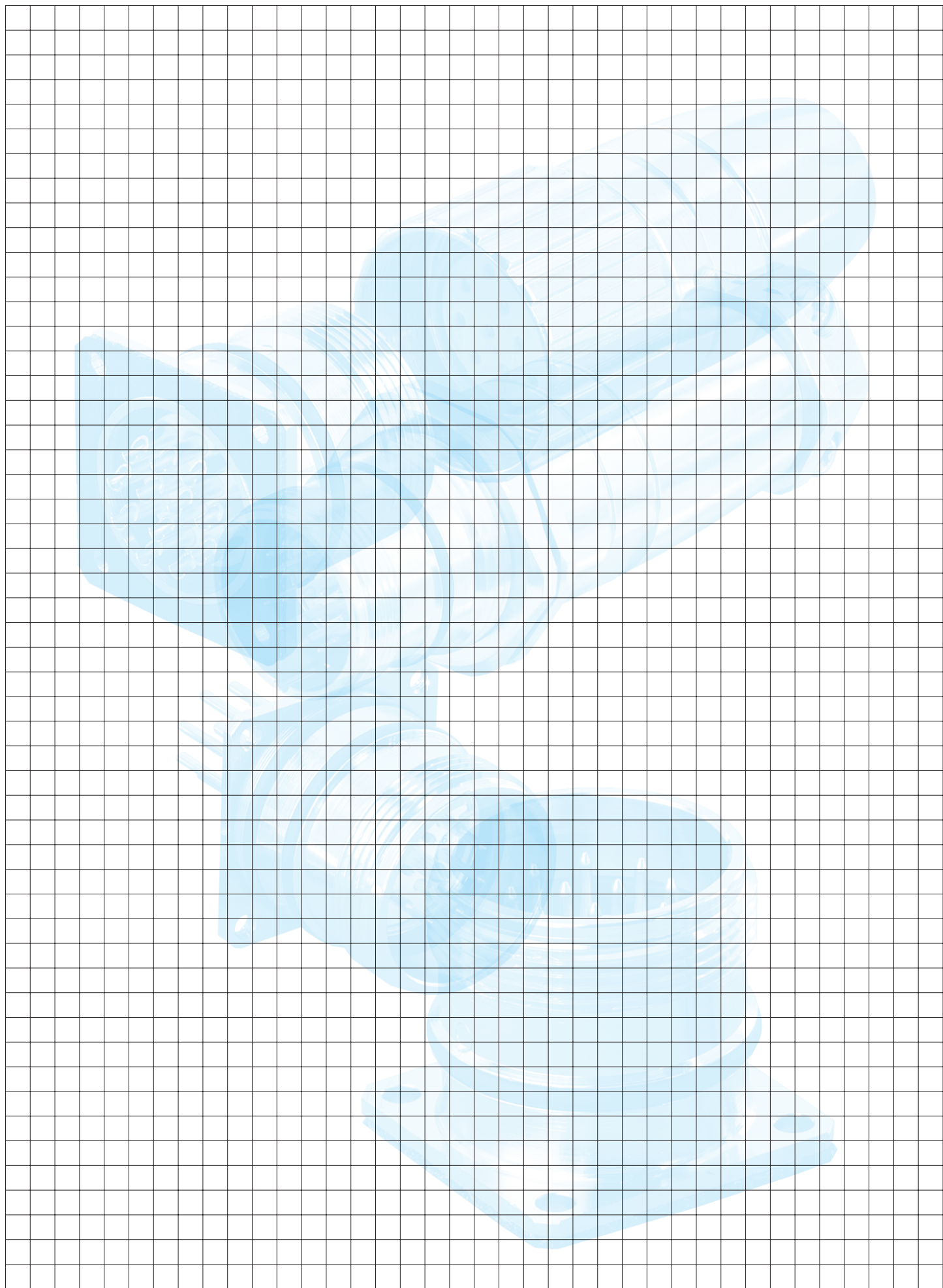
Appendix
Index of order numbers in alphabetical order

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AAGR	RC-0000000WQ00	18	KGGMK	RC-0000000M0FZ	14	LSR 17	RC-17P1N120000	34
AALZ	RC-00000006100	18	KGGUM	UC-0000000090DU	17	LSR 7	RC-07P1N120000	34
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BAIGR	TU-000000005300	31	KK 40SA25	RC-Z2425	20	PKV 15,5	UC-Z2349	40
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BTGGUM	TU-000000008UDU	30	KK 50SA25	RC-Z2225	20	PZKV DB 11	RC-Z2035	40
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EBL 8+1D	RC-09S1NC20000	39	KSK 4	TU-Z2002	40	TGGM	RC-0000000080FZ	14
EBL 12A	RC-12S1N220000	38	KSK 5	TU-Z2003	40	TGGMK	RC-0000000K0FZ	14
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ESR 6C	RC-06P1NA20000	39	KVZ 13	RC-Z2053	21	TWUM 13	RC-0000000Z300	15
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ESR 8+1D	RC-09P1NC20000	39	LBL 6+3	RC-63S1N120000	34			
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ESR 12B	RC-12P1N320000	39	LBL 12	RC-12S1N120000	34			
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ESR 17B	RC-17P1N320000	39	LBL 7	RC-07S1N120000	34			
ESR 17C	RC-17P1NA20000	39	LBR 8+1	RC-09S2N120000	34			
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			LSR 6	RC-06P1N120000	34			
			LSR 6+3	RC-63P1N120000	34			
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RC-0000000Z100	TWUM 09	15	RC-17P1N8A0000	RC-ICSR 17	36	RC-Z2401	KK 85SA74	20			
RC-0000000Z200	TWUM 11	15	RC-17P1N8D0000	CDSR 17	35	RC-Z2402	KK 85SA77	20			
RC-0000000Z300	TWUM 13	15	RC-17P1N8E0000	CRSR 17	35	RC-Z2403	KK 70SA43	20			
RC-06			RC-17P1NA20000	ESR 17C	39	RC-Z2404	KK100SA58	20			
RC-06P1N120000	LSR 6	34	RC-17P1NC20000	ESR 17D	39	RC-Z2406	KVS M16	21			
RC-06P1N220000	ESR 6A	38	RC-17P2N120000	LSL 17	34	RC-Z2407	KVZ M16	21			
RC-06P1N320000	ESR 6B	39	RC-17S1N120000	LBL 17	34	RC-Z2409	KVS M20	21			
RC-06P1N8A0000	RC-ICSR 6	36	RC-17S1N220000	EBL 17A	38	RC-Z2410	KVZ M20	21			
RC-06P1N8B0000	CDSR 6	35	RC-17S1N320000	EBL 17B	39	RC-Z2414	KVD M16	21			
RC-06P1N8K0000	CDSR 6K	35	RC-17S1N8A0000	RC-ICBL 17	36	RC-Z2417	KVD M20	21			
RC-06P1NA20000	ESR 6C	39	RC-17S1N8D0000	CDBL 17	35	RC-Z2425	KK 40SA25	20			
RC-06P1NC20000	ESR 6D	39	RC-17S1N8E0000	CRBL 17	35	RC-Z2426	KK 40SA32	20			
RC-06P1NS20000	SSR 6	35	RC-17S1NA20000	EBL 17C	39	RC-Z2427	KK 50SA32	20			
RC-06S1N120000	LBL 6	34	RC-17S1NC20000	EBL 17D	39	RC-Z2428	KK 50SA36	20			
RC-06S1N220000	EBL 6A	38	RC-17S2N120000	LBR 17	34	RC-Z2429	KK 50SA38	20			
RC-06S1N320000	EBL 6B	39	RC-19			RC-Z2430	KK 50SA41	20			
RC-06S1N8A0000	RC-ICBL 6	36	RC-19P1N120000	LSR 16+3	34	RC-Z2431	KK 50SA43	20			
RC-06S1N8B0000	CDBL 6	35	RC-19S1N120000	LBL 16+3	34	RC-Z2432	KK 50SA46	20			
RC-06S1N8K0000	CDBL 6K	35	RC-1R			RC-Z2433	KK 60SA32	20			
RC-06S1NA20000	EBL 6C	39	RC-1RP1NRA0000	RC-ICSR 16+2+PE	36	RC-Z2434	KK 60SA36	20			
RC-06S1NC20000	EBL 6D	39	RC-1RP1NRM0000	CDSR 16+2+PE	35	RC-Z2435	KK 60SA38	20			
RC-06S1NS20000	SBL 6	35	RC-1RS1NRA0000	RC-ICBL 16+2+PE	36	RC-Z2436	KK 60SA43	20			
RC-07			RC-1RS1NRM0000	CDBL 16+2+PE	35	RC-Z2437	KK 60SA46	20			
RC-07P1N120000	LSR 7	34	RC-2			RC-Z2438	KK 60SA49	20			
RC-07P1N8A0000	RC-ICSR 7	36	RC-22P2000	RC-STCR-1/14,8/0,22-0,56	36	RC-Z2439	KK 60SA52	20			
RC-07P1N8B0000	CDSR 7	35	RC-22P2000	RC-STCR-1/14,8/0,22-0,56	36	RC-Z2440	KK 60SA55	20			
RC-07P1N8K0000	CDSR 7K	35	RC-22S2000	RC-BUCR-1/14,25/0,22-0,56	36	RC-Z2441	KK 60SA58	20			
RC-07P1NS20000	SSR 7	35	RC-22S2000	RC-BUCR-1/14,25/0,22-0,56	36	RC-Z2442	KK 70SA36	20			
RC-07S1N120000	LBL 7	34	RC-5			RC-Z2443	KK 70SA38	20			
RC-07S1N8A0000	RC-ICBL 7	36	RC-5AP2000	RC-STCD-2/14,8/1,5-2,5	36	RC-Z2444	KK 70SA55	20			
RC-07S1N8B0000	CDBL 7	35	RC-5AP2000	RC-STCD-2/14,8/1,5-2,5	36	RC-Z2445	KK 70SA58	20			
RC-07S1N8K0000	CDBL 7K	35	RC-5AS2000	RC-BUCD-2/14,2/1,5-2,5	36	RC-Z2446	KK 70SA66	20			
RC-07S1NS20000	SBL 7	35	RC-5CP2000	RC-STCD-2/14,8/1,0-1,5	37	RC-Z2447	KK 85SA38	20			
RC-09			RC-5CS2000	RC-BUCD-2/14,2/1,0-1,5	37	RC-Z2448	KK 85SA41	20			
RC-09P1N120000	LSR 8+1	34	RC-6			RC-Z2449	KK 85SA43	20			
RC-09P1N220000	ESR 8+1A	38	RC-63P1N120000	LSR 6+3	34	RC-Z2450	KK 85SA55	20			
RC-09P1N320000	ESR 8+1B	39	RC-63P1N220000	ESR 6+3A	38	RC-Z2451	KK 85SA58	20			
RC-09P1N8A0000	RC-ICSR 8+1	36	RC-63P1N320000	ESR 6+3B	39	RC-Z2452	KK100SA62	20			
RC-09P1N8C0000	CDSR 8+1	35	RC-63P1NA20000	ESR 6+3C	39	RC-Z2453	KK100SA66	20			
RC-09P1N8L0000	CDSR 8+1K	35	RC-63P1NC20000	ESR 6+3D	39	RC-Z2454	KK100SA70	20			
RC-09P1NA20000	ESR 8+1C	39	RC-63S1N120000	LBL 6+3	34	RC-Z2455	KK100SA74	20			
RC-09P1NC20000	ESR 8+1D	35	RC-63S1N220000	EBL 6+3A	38	RC-Z2462	KUS 2-10,5	21			
RC-09P1NS20000	SSR 8+1	35	RC-63S1N320000	EBL 6+3B	39	RC-Z2463	KUD 2-10,5	21			
RC-09P2N120000	LSL 8+1	34	RC-63S1NA20000	EBL 6+3C	39	RM-					
RC-09P2N8A0000	RC-ICSL 8+1	36	RC-63S1NC20000	EBL 6+3D	39	RM-00000001100	TGUM M16	15			
RC-09P2N8C0000	CDSL 8+1	35	RC-6P2000			RM-00000001300	TGUM M20	15			
RC-09P2N8L0000	CDSL 8+1K	35	RC-6E2000	RC-STCD-1,5/24,3/0,75-1,0	36	RM-00000007100	KGUM M16	15			
RC-09S1N120000	LBL 8+1	34	RC-6ES2000	RC-BUCD-1,5/16,5/0,75-1,0	36	RM-0000000Z300	KGUM M20	15			
RC-09S1N220000	EBL 8+1A	38	RC-6FP2000	RC-SPCD-1,5/25,8/0,75-1,0	36	RM-0000000Z100	TWUM M16	15			
RC-09S1N320000	EBL 8+1B	39	RC-6FS2000	RC-BPCD-1,5/16,5/0,75-1,0	36	RM-0000000Z300	TWUM M20	15			
RC-09S1N8A0000	RC-ICBL 8+1	36	RC-6LP2000	RC-STCD-1/24,3/0,25-0,5	36	TU-					
RC-09S1N8C0000	CDBL 8+1	35	RC-6LS2000	RC-BUCD-1/16,5/0,25-0,5	36	TU-00000004100	BAIGF	31			
RC-09S1N8L0000	CDBL 8+1K	35	RC-Z			TU-00000005300	BAIGR	31			
RC-09S1NA20000	EBL 8+1C	39	RC-Z2035	PZKV DB 11	40	TU-00000008UDU	BTGGUM	30			
RC-09S1NC20000	EBL 8+1D	39	RC-Z2036	PZKV DB 13,5	40	TU-00000009UDU	BKGGUM	30			
RC-09S1NS20000	SBL 8+1	34	RC-Z2051	KVZ 09	21	TU-0000000F3DU	BTWUM	30			
RC-09S2N120000	LBR 8+1	34	RC-Z2052	KVZ 11	21	TU-0000000G3DU	BAAGA	31			
RC-09S2N8A0000	RC-ICBR 8+1	36	RC-Z2053	KVZ 13	21	TU-0000000Q0DU	KSGU 4	40			
RC-09S2N8C0000	CDBR 8+1	35	RC-Z2058	KSK 3	40	TU-0000000Q3DU	KSGU 5	40			
RC-09S2N8L0000	CDBR 8+1K	35	RC-Z2059	KSK 1	40	TU-0000000R3DU	MSK 4	40			
RC-12			RC-Z2062	MSK 3	40	UC-					
RC-12P1N120000	LSR 12	34	RC-Z2064	MSK 2	40	UC-000000080DU	TGGUM	16			
RC-12P1N220000	ESR 12A	38	RC-Z2091	KVS 09	21	UC-000000090DU	KGGUM	17			
RC-12P1N320000	ESR 12B	39	RC-Z2092	KVS 11	21	UC-0000000F3DU	KGGUM 13,5	17			
RC-12P1N8A0000	RC-ICSR 12	36	RC-Z2093	KVS 13	21	UC-0000000FNDU	KGGUM 16	17			
RC-12P1N8D0000	CDSR 12	35				UC-0000000N3DU	TWUM 13,5	16			
RC-12P1N8E0000	CRSR 12	35				UC-0000000NNDU	TWUM 16	16			
RC-12P1NA20000	ESR 12C	39				UC-0000000Q0DU	KGGU 2	17			
RC-12P1NC20000	ESR 12D	39				UC-0000000Q3DU	KGGU 2 13,5	17			
RC-12P2000	RC-STCD-1/14,8/0,14-0,56	36				UC-0000000QNDU	KGGU 2 16	17			



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