

## K SERIES(Outdoor, Keyed)

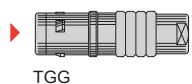
K series connectors have been specifically designed for outdoor applications.

They include an inner sleeve and two seals to prevent penetration of solids or liquids into the housing formed by the plug, free socket, fixed socket. All models of this series are watertight when mated to give a protection index of IP68 (in mated condition) when correctly assembled to an appropriate cable (IP66 otherwise).



### Metal housing models (page 25)

Straight plugs

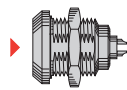


TGG

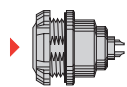


TGG

Fixed sockets

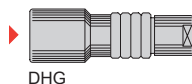


ZGG

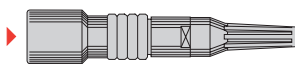


ZEG

Free sockets



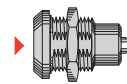
DHG



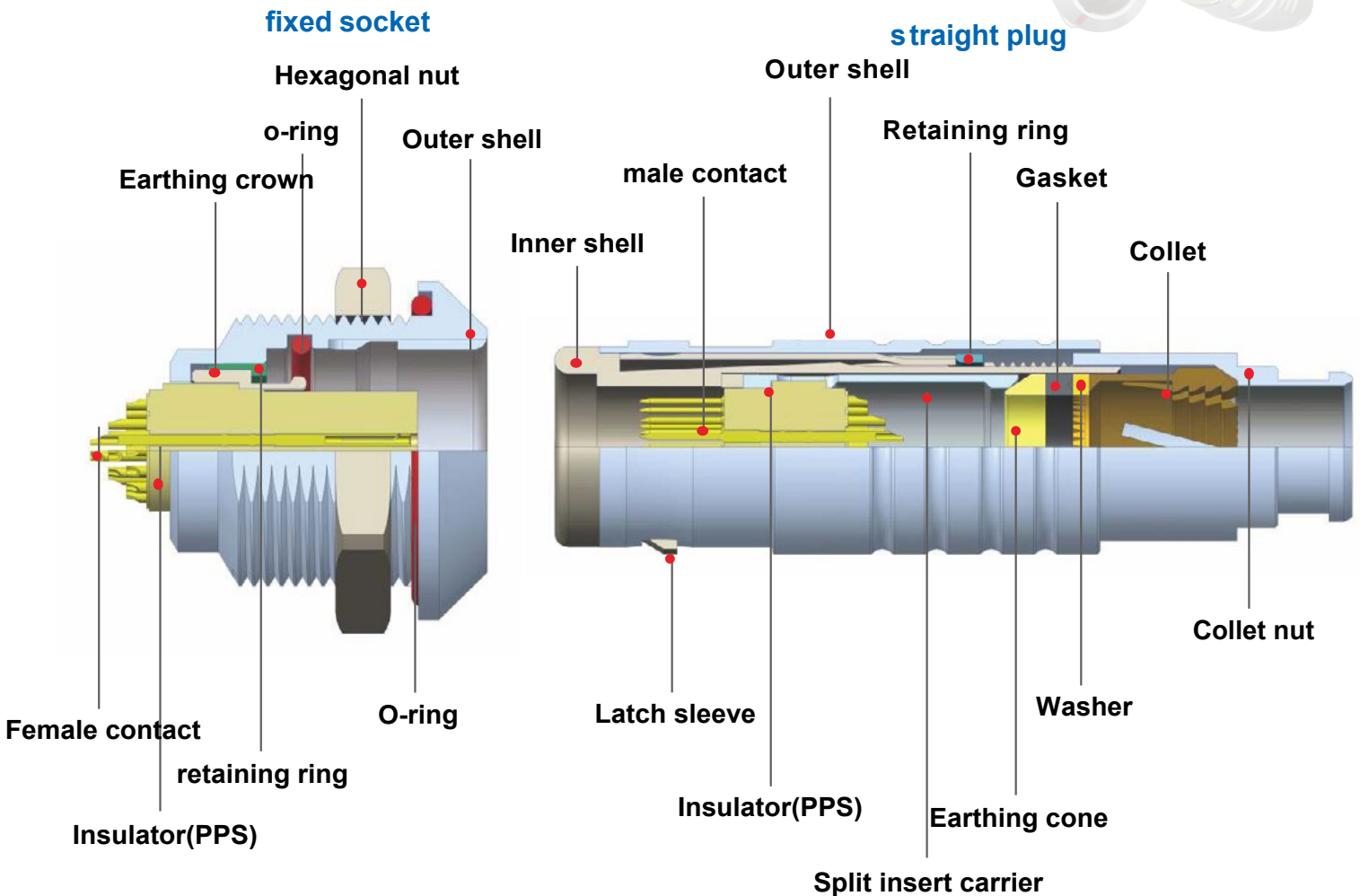
DHG

### Watertight or vacuumtight models (page 26)

Fixed sockets



MGG



**K series connectors have the same insulators as the B series and have the following main features:**

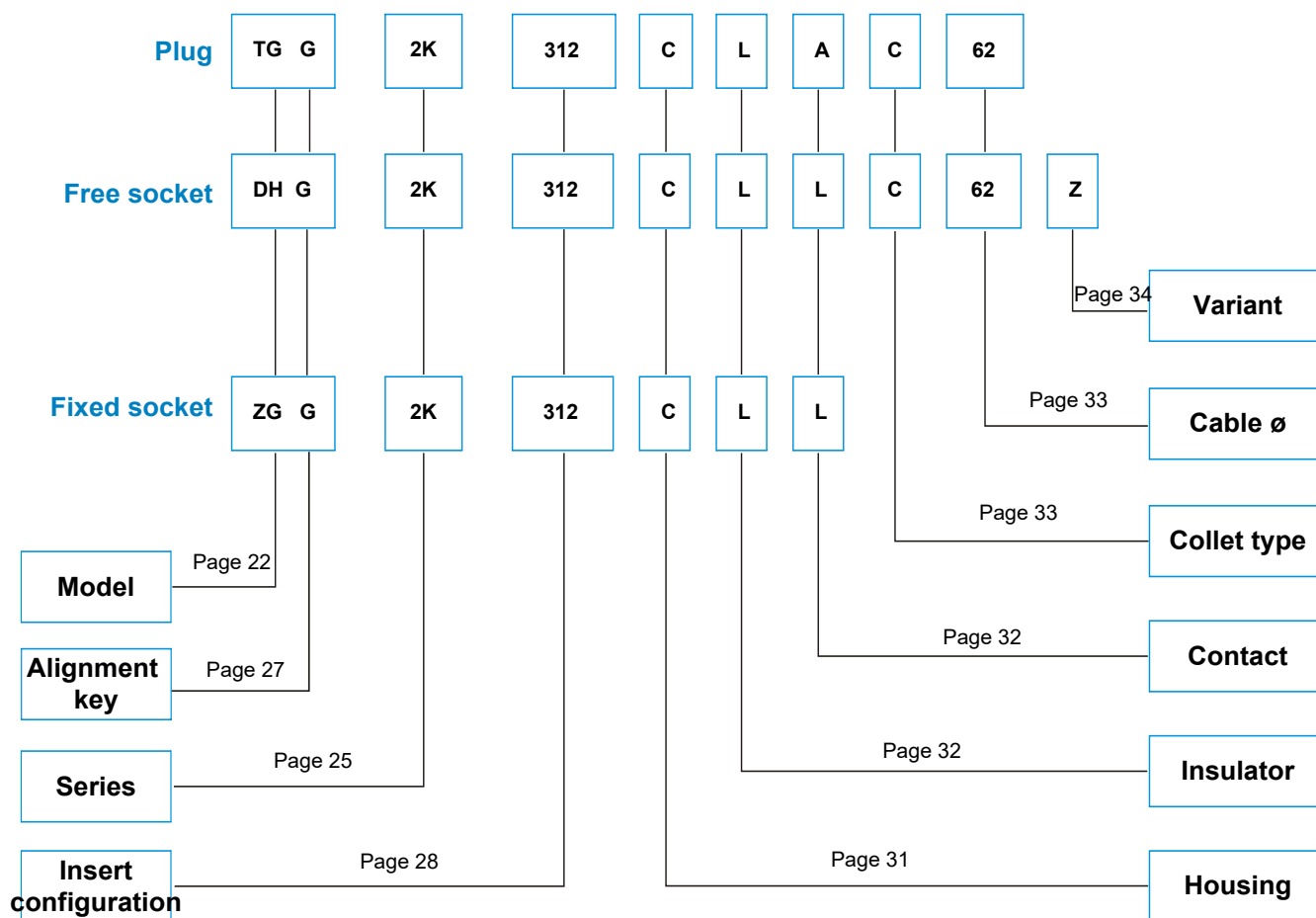
- security of the Push-Pull self-latching system
- rugged housing for extreme working conditions.
- multipole types 2 to 26 contacts
- solder, crimp or print contacts (straight or elbow)
- watertight connection (IP 68/IP 66)
- high packing density for space savings
- multiple key options to avoid cross mating of similar connectors
- keying system («G» key standard) for connector alignment
- 360° screening for full EMC shielding.

### **K Series Connectors Technical Characteristics:**

- Endurance: > 5000 cycles
- Humidity: up to 95% at 60° C
- Temperature range: - 45° C, + 125° C
- Resistance to vibrations: 10-2000 Hz, 15g
- Shock resistance: 100 g, 6 ms
- Salt spray corrosion test: > 48h
- Protection index (mated): IP 68/IP 66



## K Series Part Numbering System :



### part number example

#### straight plug with cable collet:

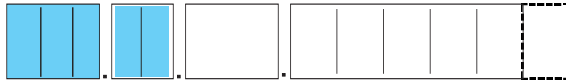
**TGG.2K.312.CLAC62** = straight plug with key (G) and cable collet, 2K series, multipole type with 12 contacts, outer shell in chrome-plated brass, PPS insulator, male solder contacts, C type collet for 6.2 mm diameter cable.

#### Free socket:

**DHG.2K.312.CLLC62Z** = free socket with key (G) and cable collet, 2K series, multipole type with 12 contacts, outer shell in chrome-plated brass, PPS insulator, female solder contacts, C type collet for 6.2 mm diameter cable and nut for fitting a bend relief.

#### fixed socket:

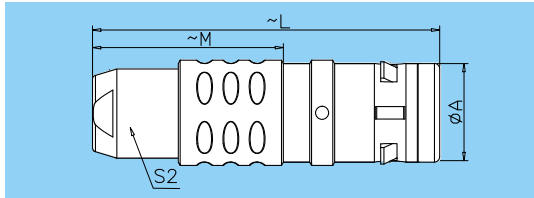
**ZGG.2K.312.CLL** = fixed socket, nut fixing, with key (G), 2K series, multipole type with 12 contacts, outer shell in chrome-plated brass, PPS insulator, female solder contacts.



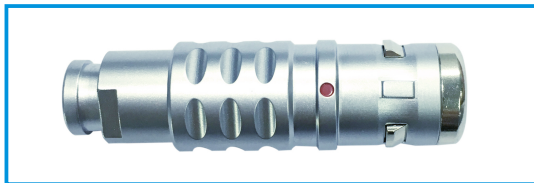
## Metal Housing Models



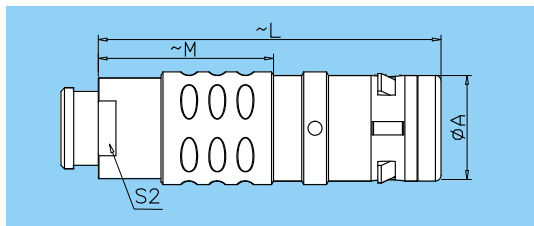
### TGG Straight plug, key (G) or keys (A to F, L and R), cable collet



Reference		Dimensions (mm)			
Series	Model	A	L	M	S1
0K	TGG	11	34	23	8
1K	TGG	13	42	28	9
2K	TGG	16	52	36	12



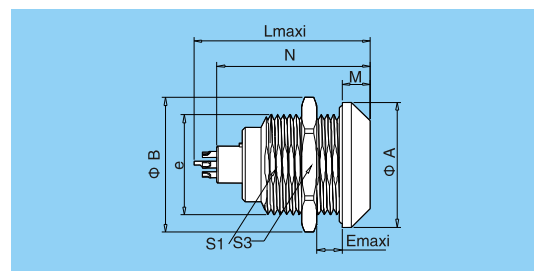
### TGG Straight plug, key (G) or keys (A to F, L and R), cable collet and nut for fitting a bend relief



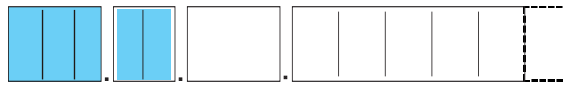
Reference		Dimensions (mm)			
Series	Model	A	L	M	S2
0K	TGG	11	34	23	7
1K	TGG	13	42	28	9
2K	TGG	16	52	36	12



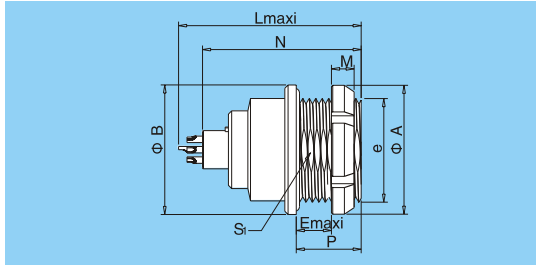
### ZGG Fixed socket, nut fixing, key (G) or keys (A to F, L and R)



Reference		Dimensions (mm)								
Series	Model	A	B	e	E	L	M	N1)	S1	S3
0K	ZGG	18	19.2	M14x1.0	6	21.7	4.0	20.1	12.5	17
1K	ZGG	20	21.5	M16x1.0	9	27.0	4.5	25.1	14.5	19
2K	ZGG	25	27.0	M20x1.0	9	30.7	5.0	28.6	18.5	24



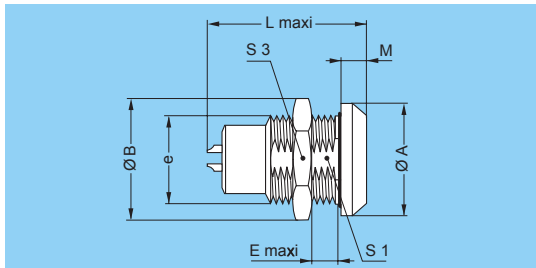
**ZEG** Fixed socket, nut fixing, key (G) or keys (A to F, L and R) (back panel mounting)



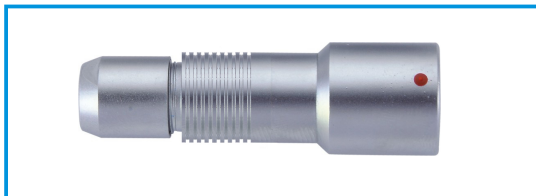
Reference		Dimensions (mm)								
Series	Model	A	B	e	E	L	M	N1)	P	S1
0K	ZEG	18	18	M14x1.0	3.4	21.7	3.5	20.1	7	12.5
1K	ZEG	20	20	M16x1.0	6.2	27.0	3.5	25.1	10	14.5
2K	ZEG	25	25	M20x1.0	5.0	30.7	3.5	28.6	10	18.5



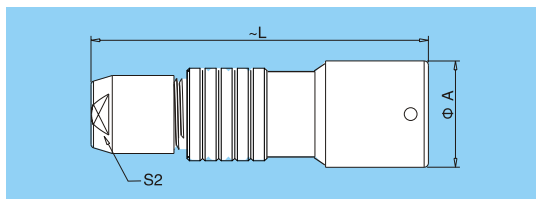
**MGG** Fixed socket, nut fixing, key (G) or keys (A to F and L), watertight or vacuumtight



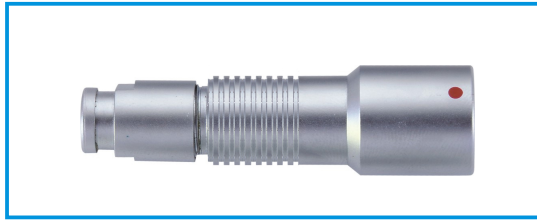
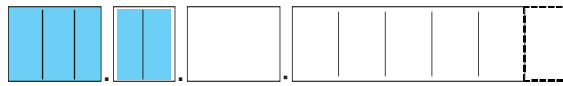
Reference		Dimensions (mm)							
Series	Model	A	B	e	E	L	M	S1	S3
0K	MGG	18	19.2	M14x1.0	5.5	21.7	4.0	12.5	17
1K	MGG	20	21.5	M16x1.0	9	30.0	4.5	14.5	19
2K	MGG	25	27.0	M20x1.0	13.0	33.7	5.0	18.5	24



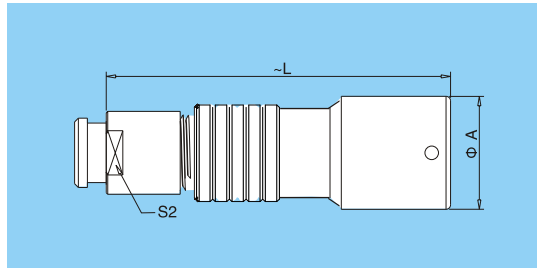
**DHG** Free socket, key (G) or keys (A to F, L and R), cable collet



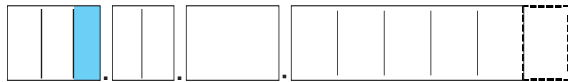
Reference		Dimensions (mm)		
Series	Model	A	L	S2
0K	DHG	13	34.0	8
1K	DHG	15	42.0	9
2K	DHG	19	52.0	12



**DHG Free socket, key (G) or keys (A to F, L and R), cable collet and nut for fitting a bend relief**



Reference		Dimensions (mm)		
Series	Model	A	L	S2
0K	DHG	13	34	7
1K	DHG	15	45	9
2K	DHG	19	54	12



## Alignment Key (K series)

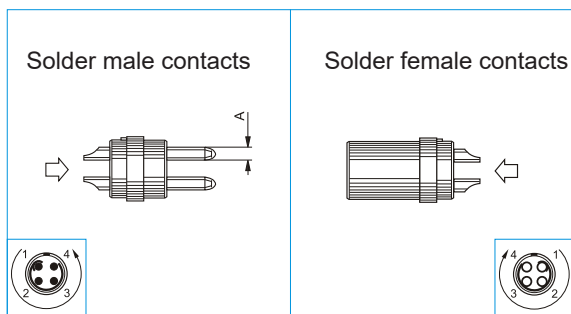
### Alignment Key and Polarized Keying System:

K series connector model part numbers are composed of three letters. The LAST LETTER indicates the key position and the contact type (male or female).

Front view of a socket	Ref.	Nb of keys	Angles	Series						Contact type	
				0K	1K	2K	3K	4K	5K	Plug	Socket
	G	1		0°	0°	0°	0°	0°	0°	male	female
	A	2	α	30°	30°	30°	30°	30°	30°	male	female
	B	2		45°	45°	45°	45°	45°	45°	male	female
	C	2		60°	60°	60°	60°	60°	60°	male	female
	D	2	γ	95°	95°	95°	95°	95°	95°	male	female
	E	2	β	120°	120°	120°	120°	120°	120°	male	female
	F	2		145°	145°	145°	145°	145°	145°	male	female
	L	2	γ	75°	75°	75°	75°	75°	75°	female	male

Front view of a socket	Ref.	Nb of keys	Angles	Series						Contact type	
				0K	1K	2K	3K	4K	5K	Plug	Socket
	R	5	α	-	-	-	95°	-	-	male	female
			β	-	-	-	115°	-	-		
			γ	-	-	-	35°	-	-		
			δ	-	-	-	25°	-	-		





Reference	Multipole(contacts)	Φ A (mm)	Contact Type			Solder contact		Rated current (A)
			solder	Print (straight)	Print (elbow)	Test voltage (kV rms) Contact-contact	Test voltage (kV rms) Contact-shell	

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302	2	0.9	●	●	●	1.30	1.05	10.0 <sub>1)</sub>
303	3	0.9	●	●	●	1.20	0.90	8.0 <sub>1)</sub>
304	4	0.7	●	●	●	0.85	0.70	7.0 <sub>1)</sub>
305	5	0.7	●	●	●	1.00	0.70	6.5 <sub>1)</sub>
306	6	0.5	●	●	●	0.85	0.65	2.5
307	7	0.5	●	●	●	0.80	0.70	2.5
309	9	0.5	●	●	○	0.60	0.50	2.0

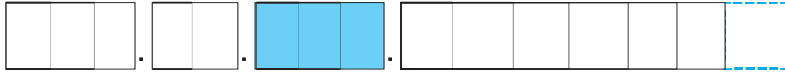
302	2	1.3	●	●	●	1.50	1.35	15.0 <sub>2)</sub>
303	3	1.3	●	●	●	1.30	1.55	12.0
304	4	0.9	●	●	●	1.35	1.45	10.0 <sub>1)</sub>
305	5	0.9	●	●	●	1.25	1.15	9.0 <sub>1)</sub>
306	6	0.7	●	●	●	1.05	1.20	7.0 <sub>1)</sub>
307	7	0.7	●	●	●	0.95	1.05	7.0 <sub>1)</sub>
308	8	0.7	●	●	●	0.95	1.15	5.0
310	10	0.5	●	●	●	0.90	1.50	2.5
314	14	0.5	●	●	●	0.80	1.20	2.0
316	16	0.5	●	●	○	0.80	1.25	1.5

0K

1K

- First choice alternative
- Special order alternative

**Note** : 1) rated current = 6A for socket with elbow (90°) contact for printed circuit.  
 2) rated current = 12A for socket with elbow (90°) contact for printed circuit.  
 3) available only for connectors fitted with male contacts.



Solder male contacts

Solder female contacts

**2K**

- First choice alternative
- special order alternative

Reference	Multipole(contacts)	ΦA (mm)	Contact Type			Solder contact		Rated current (A)
			Solder	Print (straight)	Print (elbow)	Test voltage (kV rms) Contact-contact	Test voltage (kV rms) Contact-shell	
302	2	2.0	●	●	●	2.10	1.75	30.0 <sub>2)</sub>
303	3	1.6	●	●	●	2.40	1.85	17.0 <sub>2)</sub>
304	4	1.3	●	●	●	1.85	1.85	15.0 <sub>2)</sub>
305	5	1.3	●	●	●	1.75	1.60	14.0 <sub>2)</sub>
306	6	1.3	●	●	●	1.35	1.45	12.0
307	7	1.3	●	●	●	1.75	1.60	11.0
308	8	0.9	●	●	●	1.50	1.25	10.0 <sub>1)</sub>
310	10	0.9	●	●	●	1.45	1.30	8.0 <sub>1)</sub>
312	12	0.7	●	●	●	1.25	1.35	7.0 <sub>1)</sub>
314	14	0.7	●	●	●	1.15	1.35	6.5 <sub>1)</sub>
316	16	0.7	●	●	●	0.95	1.25	6.0
318	18	0.7	●	●	●	0.85	1.20	5.5
319	19	0.7	●	●	●	0.95	1.25	5.0
326	26	0.5	●	●	○	0.95	1.30	2.0

**Note** : 1) rated current = 6A for socket with elbow (90°) contact for printed circuit.  
 2) rated current = 12A for socket with elbow (90°) contact for printed circuit.





Ref.	Outer shell and collet nut		Latch sleeve + earthing crown		Other metallic components		Note
	Material	Surf. treatment	Material	Surf. treatment	Material	Surf. treatment	
C	Brass	chrome	brass/bronze	nickel	Brass	nickel	
N	Brass	chrome	brass/bronze	nickel	Brass	nickel	
H	Brass	black chrome	brass/bronze	nickel	Brass	nickel	
S	Stainless steel 304	anodized	brass/bronze	-	Brass	nickel	
L	Stainless steel 316L	anodized	Stainless steel 316L	-	Stainless steel 316L	-	
T	Brass	satin nickel	brass/bronze	nickel	Brass	nickel	
G	Brass	brown and black	brass/bronze	nickel	Brass	nickel	
F	Brass	High phosphorus chemical nickel	brass/bronze	nickel	Brass	nickel	
Z	Aluminium alloy	High phosphorus chemical nickel	brass/bronze	nickel	Brass	nickel	
Y	Brass	golden yellow	brass/bronze	nickel	Brass	nickel	

### Note:

#### Brass

Connectors are mostly brass case, which can meet most military or civil application requirements. The white surface of brass shell has nickel-chromium protective layer, which has remarkable effect in resisting industrial waste, salt spray and most corrosives.

In addition, we also have nickel plating, nickel-gold plating, nickel-black chromium plating and other options for application in specific environments of the anti-corrosion coatings.

#### Aluminium alloy

In the aviation, aerospace industry, portable mobile devices and so on. It is suitable for the connector with aluminium alloy shell.

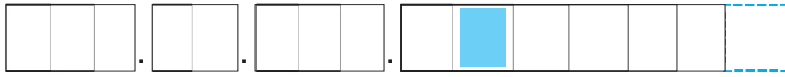
In addition to its high mechanical lightness and excellent corrosion resistance, the surface of aluminium alloys can be protected by anodic plating, with a variety of colors to choose from.

#### Stainless steel

For the use of harsh environment, the surface coating is easy to be damaged. We recommend the use of stainless steel materials. AISI304 stainless steel and AISI316L stainless steel are usually used.

AISI304 stainless steel is recommended for special fields such as nuclear industry. It can resist radiation and nitric acid corrosion.

AISI316L stainless steel is recommended for medical and shipping industries. It has no surface treatment and strong corrosion resistance.



Ref.	Material	Contact type	Note
T	Teflon	Solder or print	
L	PPS	Solder or print	

## >>> Contacts (K series)



### Soldering characteristics

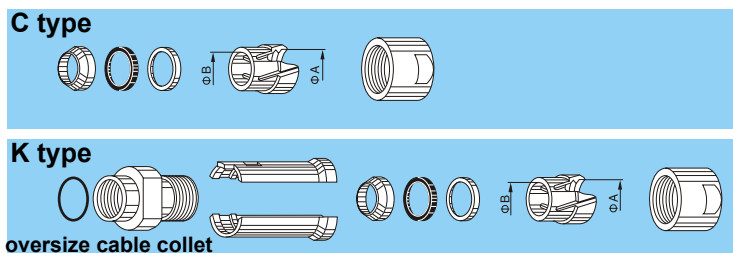
- no need to order specific tools, a simple soldering iron is sufficient
- ideal for very small and fragile conductors
- contacts with solder cups to allow the solder to flow

### Contacts reference for plugs, free or fixed sockets

Contact type	Reference		Contact			Conductor					
	Male	Female	Φ A (mm)	Φ C (mm)	Form per fig.	Solid		Stranded			
						AWG min.	Section max. (mm <sup>2</sup> )	AWG		Section (mm <sup>2</sup> )	
							min.	max.	min.	max.	
<b>Solder</b> 	A	L	0.5	0.40	-	28	0.09	-	30	-	0.05
			0.5	0.45	-	28	0.09	-	28	-	0.09
			0.7	0.60	-	24	0.25	-	26	-	0.14
			0.7	0.80	-	22	0.34	-	22	-	0.34
			0.9	0.80	-	22	0.34	-	22	-	0.34
			1.3	1.00	-	20	0.50	-	20	-	0.50
			1.6	1.40	-	16	1.00	-	18	-	1.00
			2.0	1.80	-	14	1.50	-	16	-	1.50
			3.0	2.70	-	10	4.00	-	12	-	4.00
			4.0	3.70	-	10	6.00	-	10	-	6.00

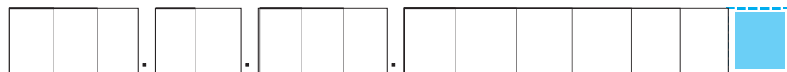


### C and K type collets for K series



Reference		Collet ø		Cable ø	
Type	Code	ΦA	ΦB	max.	min.
0K	C 30	3.1	-	3.0	2.6
	C 40	4.2	4.2	4.0	3.6
	C 45	5.2	5.2	4.5	4.1
	C 50	5.2	5.2	5.0	4.6
1K	C 45	5.2	-	4.5	4.1
	C 50	5.2	-	5.0	4.6
	C 55	6.2	6.2	5.5	5.1
	C 60	6.2	6.2	6.0	5.6
	K 70	7.2	-	7.0	6.6
2K	C 65	7.2	-	6.5	6.1
	C 70	7.2	-	7.0	6.6
	C 85	9.2	8.6	8.5	8.1
	K 11	11.2	10.6	10.5	10.1

## >>> Variant (K series)

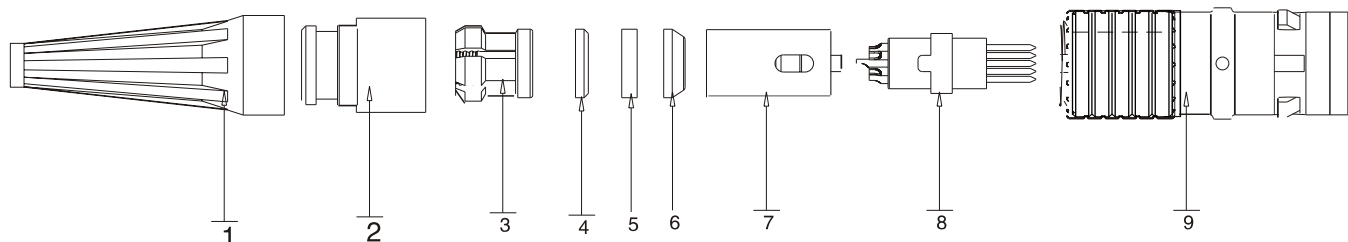


### Bend relief for K series models with collet

Ref.	Collet		Need to be ordered separately (see page)
	Type	Code	
0K	Z	C 10 to 50	GMA.0B....
	Z	C 15 to 65	GMA.1B....
1K	Z	K 70 to 85	GMA.2B....
	Z	C 15 to 85	GMA.2B....
2K	Z	K 90 to 10	GMA.3B....
	Z	C 90 to 10	GMA.3B....

**Note:** all dimensions are in millimetres.

### Plug assembly instructions for K series



1. The cable is sequentially passed through the bend relief ①, the collet nut ②, the cable collet ③, the flexible gasket ④, the earthing cone ⑤, the earthing cone ⑥, and soldered to the corresponding pins of the split insert carriers ⑦ in order.

2. Attach the split insert carriers ⑦ to the insulator with contacts ⑧. Note that the protrusion of the split insert carriers ⑦ corresponds to the notch of the insulator with contacts ⑧, and the earthing cone ⑥ is sequentially replaced, the earthing cone ⑤, the flexible gasket ④, and the cable collet ③. Push it into the proper position and ensure that the complete outer skin of the cable is inserted into the earthing cone ⑥.

3. Install the mounted the insulator with contacts ⑧ into the housing subassy ⑨, noting that the notch in the split insert carriers ⑦ corresponds to the protrusion in the housing subassy ⑨.

4. Screw the collet nut ② onto the housing subassy ⑨.

5. Attach the bend relief ① to the collet nut ②.

## >>> Panel cut-out: (B, K series)

### K Series

series	D1		
	ØA	B	L
0K	14.1	12.6	20.5
1K	16.1	14.6	22.5
2K	20.2	18.6	29.0

#### Cut-out types

Model	Type
ZEG	D1
ZGG	D1
MGG	D1

#### Mounting nut torque

series	Torque (Nm)
0K	5
1K	7
2K	9

1 N = 0.102 kg