## Key features

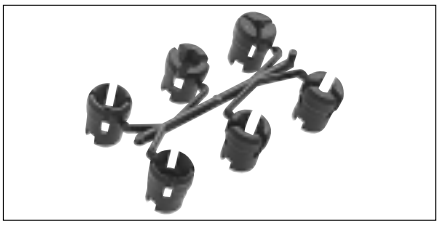
- Sealed IP 68 (mated connectors)
- Mechanically keyed : ensures correct polarization and alignment.
- Contact arrangements : from 2 to 10 contacts.
- Wire gauge range from 28 AWG to 14 AWG.
- High contact density in a small space.
- Contact termination in either crimp, solder or PCB contacts.

## User advantages

### Temporary immersion IP 68

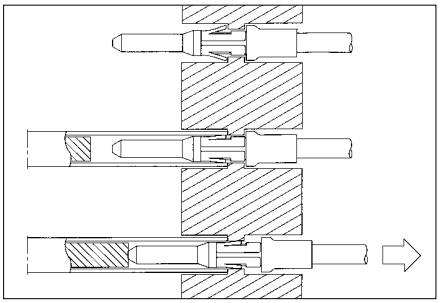
### 6-collet cluster

Allows a wide range of cable diameter applications for a single connector. Reduces inventory variations.



### Removable contacts

Crimp versions allow easier wiring and maintenance.



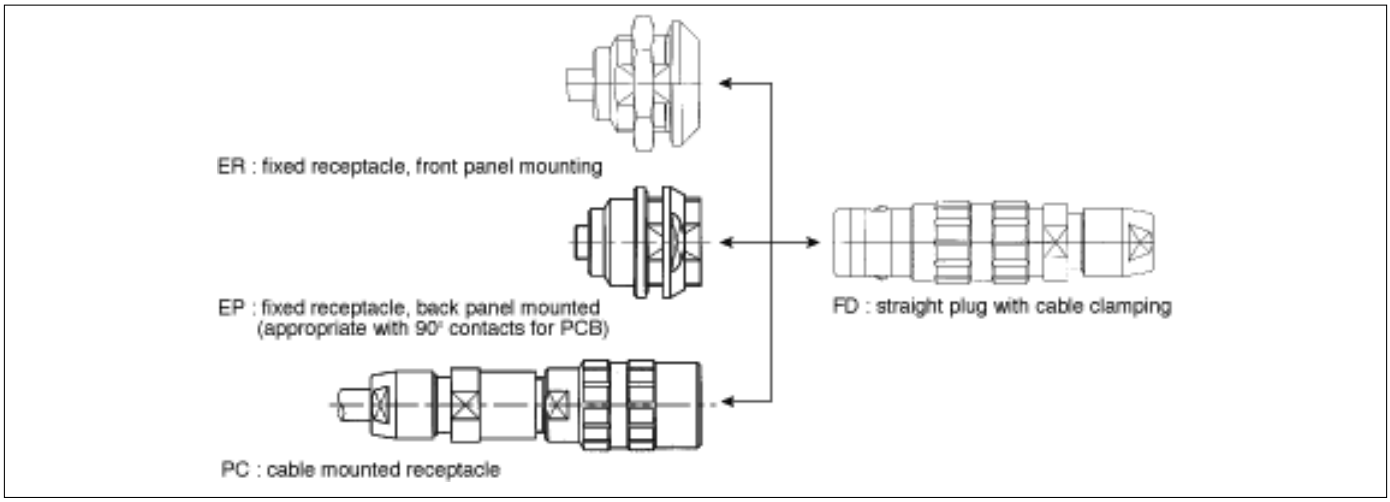
## Part number system

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic series | | **JKX** | **FD** | **1** | **G** | **05** | **M** | **C** | **S** | **D** | **S** | **M** |
| Shell configuration | **FD - ER - EP - PC** | | | | | | | | | | | |
| Size | **0 - 1** | | | | | | | | | | | |
| Keying | **G** | | | | | | | | | | | |
| Contact layouts | **02 ---------- 10** (see page 33) | | | | | | | | | | | |
| Contact type | **M** : pin **F** : socket (in relation with keying) | | | | | | | | | | | |
| Contact termination | **C** : crimp ; **S** : solder ; **P*** : straight PCB tails ; **Q*** : 90° PCB tails ; **W** : 0.7 mm clipped solder | | | | | | | | | | | |
| Material & surface plating | **S** : Outer shell in brass alloy with glossy chrome over nickel<br>**N** : Outer shell in brass alloy with black plating (consult us)<br>**D** : Obligatory suffix<br>**S** : Insulator in PPS<br>**P** : Insulator in Peek (for Ø 0.5 mm contacts only)<br>Obligatory suffix for layouts including contacts of Ø 0.5 mm | | | | | | | | | | | |
| Options | **M** : Connector with backnut for protective boot (protective boot to order separately page 34)<br>**G** : Connector adapted to accomodate larger cables (Ø 4.5 to 6 in size 0 and Ø 6 to 8 in size 1)<br>**R** : Red dot (possible for FD, PC, ER only) | | | | | | | | | | | |

***** For receptacles with female contacts only.

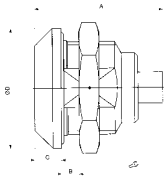
# Shell type

## • Available JKX shells




## • Dimensions

**ER :** Fixed receptacle, front panel mounting

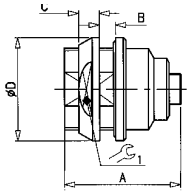


| Size | A | B | C | Ø D |
|---|---|---|---|---|
| **0** | 19.5 | 4.5 | 4 | 18 |
| **1** | 24.5 | 8.5 | 4.5 | 20 |

**FD :** Straight plug with cable clamping

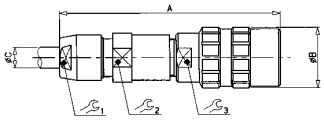
| Size | A | Ø B | Ø M |
|---|---|---|---|
| **0** | 47 | 12 | 1.5 to 4.5 |
| **1** | 57 | 15 | 2 to 6 |

**EP :** Fixed receptacle, back panel mounting




| Size | A | B | C | Ø D |
|---|---|---|---|---|
| **0** | 19.5 | 4.5 | 3.2 | 18 |
| **1** | 24.5 | 6 | 4 | 20 |

**PC :** Cable mounted receptacle




| Size | A | Ø B | Ø C |
|---|---|---|---|
| **0** | – | – | – |
| **1** | 60 | 16 | 2 to 6 |

## • Option G : to accomodate bigger cables

| Size | A | Ø B | Ø M |
|---|---|---|---|
| **0** | 51 | 12 | 4.6 to 6 |
| **1** | 60 | 15 | 6 to 8 |

## Keying

G keying is available in standard version (0° keying angle, plugs with pin contacts, receptacles with female contacts) for the 4 shell types. Reverse gender available in all layouts.

| Shell size | Key | ER | EP | PC | FD |
|---|---|---|---|---|---|
| **0** | G | ● | ● | – | ● |
| **1** | G | ● | ● | ● | ● |

● Concerning the availability of other alternatives, please consult our commercial office.

## Contacts

### • Multi contacts inserts

| Shell size | Male insulator viewed from wiring side | Contact layout | Available Contact types | | | | Ø Contact | AWG | | Max. current rating (A) | Testing voltage (Vrms) | Working voltage (Vdc / Vrms) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | S solder | C crimp | P* straight PCB tails | Q* 90° PCB tails | | Solder wire Max. | Crimp wire Max. | | | |
| 0 |  | **02** | S | C | P | Q | 0.9 | 24 | 20 | 10 | 1400 | 660/460 |
| |  | **03** | S | C | P | Q | 0.9 | 24 | 20 | 8 | 1300 | 600/420 |
| |  | **04** | S | C | P | Q | 0.7 | 26 | 22 | 7 | 1400 | 660/460 |
| |  | **05** | S | C | P | Q | 0.7 | 26 | 22 | 6.5 | 800 | 400/260 |
| |  | **06** | S | | P | | 0.5 | 28 | - | 2.5 | 680 | 320/220 |
| |  | **07** | S | | P | | 0.5 | 28 | - | 2.5 | 680 | 320/220 |
| 1 |  | **02** | S | C | P | | 1.3 | 20 | 18 | 15 | 1600 | 760/530 |
| |  | **03** | S | C | P | Q | 1.3 | 20 | 18 | 12 | 1300 | 600/420 |
| |  | **04** | S | C | P | Q | 0.9 | 24 | 20 | 10 | 1900 | 900/630 |
| |  | **05** | S | C | P | Q | 0.9 | 24 | 20 | 9 | 1400 | 660/460 |
| |  | **06** | S | C | P | Q | 0.7 | 26 | 22 | 7 | 1400 | 660/460 |
| |  | **07** | S | C | P | Q | 0.7 | 26 | 22 | 7 | 1400 | 660/460 |
| |  | **08** | S | C | P | Q | 0.7 | 26 | 22 | 5 | 1200 | 600/420 |
| |  | **10** | S | | P | | 0.5 | 28 | - | 2.5 | 600 | 300/200 |

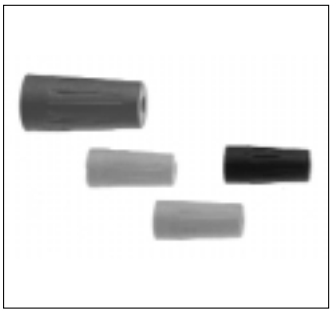
Inserts with fixed contacts (non removable contacts)

***** For receptacles with female contacts only

# Options

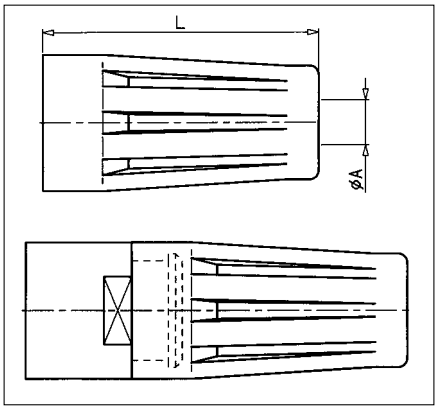
## • Protective boot

Protective boot can accept multiple cable diameters



| Part number | Shell size | Shell size Option G | Dimensions | | | |
|---|---|---|---|---|---|---|
| | | | Ø A | L | Ø Câble | |
| | | | | | min | Max. |
| JBX 0 MP* | 0 | - | 2.2 | 20 | 1.5 | 5.5 |
| JBX 1 MP* | 1 | 0 | 2.6 | 25 | 2 | 7.5 |
| JBX 2 MP* | - | 1 | 4 | 30 | 3.5 | 9.7 |

*** Color code**



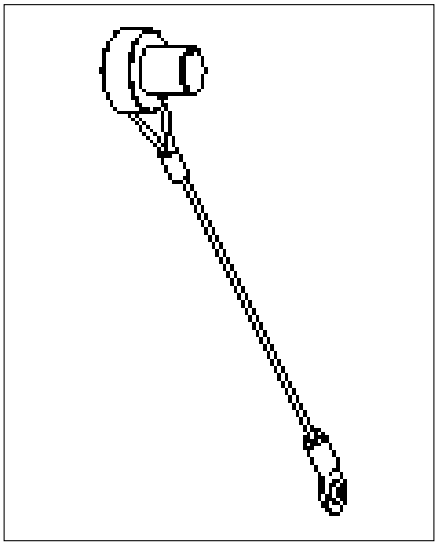

| Color code | Colors |
|---|---|
| A | blue |
| B | white |
| G | grey |
| J | yellow |
| M | brown |
| N | black |
| R | red |
| V | green |
| O | orange |

**Material :**
ELASTOLLAN (PUR)

**Working temperature :**
- 40°C ; + 80°C
- 40°F ; + 176°F

With each JKX connector, one protective boot can accept diverse cable diameters thus the end-user can manage various cable diameters without bothering with multiple part numbers.

## • **Caps :** an efficient protection until 2 bars



| Part number | Ø |
|---|---|
| JKX BR0 | 15 |
| JKX BR1 | 17 |

# Technical characteristics

## • Material and treatment

| Component | Material | Standard | | Surface treatment (µm) | | |
|---|---|---|---|---|---|---|
| | | ISO | ASTM | Cr | Ni | Au |
| Outer shell and collet nut | Brass | CuZn40Pb3 | C38500/C360 | 0.1 - 0.6 | 5 - 8 | - |
| Latching sleeve & metal collet | Brass | CuZn40Pb3 | C38500/C360 | - | 5 - 8 | - |
| Shielding ring | Brass | CuZn40Pb3 | C38500/C360 | - | 3 - 7 | - |
| Nut | Brass | CuZn40Pb3 | C38500/C360 | | 5 - 8 | - |
| Tapered washer and half bushes | Brass | CuZn40Pb3 | C38500/C360 | - | 5 - 8 | - |
| Socket contact (1) | Copper-nickel | CuNi1Pb1P | CDA C 19150 | - | 3 - 5 | 0.5 |
| Pin contact (1) | Brass | CuZn35Pb2 | C35300/C360 | - | 3 - 5 | 0.5 |
| Clip | Beryllium copper | CuBe1,9 | C17200/C360 | - | - | - |

(1) Gold thickness as per MIL-G-45204C type 1, class 00.

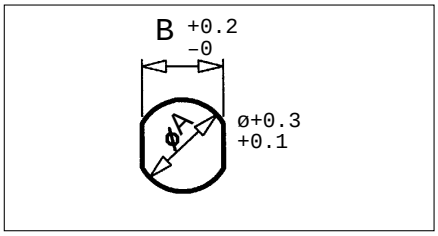
| Component | Material | Color | Temperature withstanding | |
|---|---|---|---|---|
| Insert | PPS + 40%GF<br>or PEEK + 15%GF | black<br>brown | - 65°C + 200°C<br>- 50°C + 250°C | - 85°F + 392°F<br>- 58°F + 482°F |
| Plastic collet | PA 6/6 + MoS2 | black | - 55°C + 125°C | - 67°F + 257°F |
| Cable seal | Silicon rubber | red | - 50°C + 250°C | - 58°F + 482°F |

## • Mechanical and climatics

| Characteristics | Values | Standard | Method |
|---|---|---|---|
| Endurance | > 1000 cycles (except for 0.7 mm crimp contacts for which endurance is limited to 500 cycles) | MIL-STD 1344A | 2016.1 |
| Shock | 50 g, duration 6 ms ; contact Ø 0.7 mm and 0.9 mm<br>100 g, duration 6 ms ; contact Ø 1.3 mm - 1.6 mm and 2 mm | MIL-STD 1344A | 2004.1 |
| Vibrations | 10 to 2000 Hz $\gamma$ = 15 g, contact Ø 0.7 mm and 0.9 mm<br>$\gamma$ = 20 g, contact Ø 1.3 mm - 1.6 mm and 2 mm | MIL-STD 1344A | 2005.1 |
| Protection index | IP 68 (watertight - 48 hours under 1 m of water) | CEI 529 | |
| Operating temperature | with plastic collets } - 55°C + 125°C / - 67°F + 257°F | - | - |
| | with optional metal collets } - 55°C + 200°C / - 67°F + 392°F | - | - |

# Wiring and assembly instructions

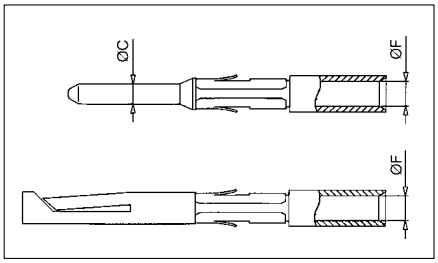
## • Panel cutout




| Size | 0 | 1 |
|---|---|---|
| Ø A | 14.1 | 16.1 |
| B | 12.6 | 14.6 |

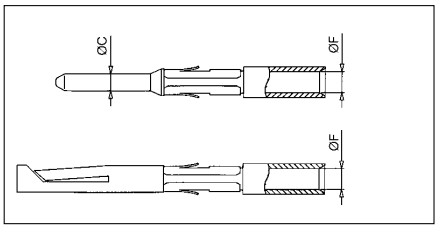
## • Removable contacts

### Crimp contacts




| Contact | | Usable cables | | | Max. current rating (A) | Contact resistance (mΩ) | Endurance (number of cycles) |
|---|---|---|---|---|---|---|---|
| Ø C | Ø F | Core section (mm²) min | Core section (mm²) Max. | AWG | | | |
| 0.7 | 0.85 | 0.129 | 0.326 | 22 - 24 - 26 | 7 | 5 | 500 Max. |
| 0.9 | 1.1 | 0.205 | 0.518 | 20 - 22 - 24 | 10 | 3.5 | > 1000 |
| 1.3 | 1.4 | 0.326 | 0.823 | 18 - 20 - 22 | 15 | 3 | > 1000 |

### Solder contacts

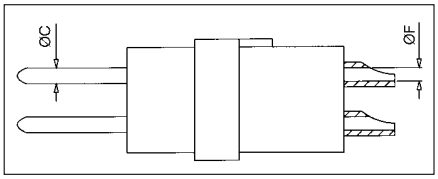



| Contact | | Usable cables | | | Max. current rating (A) | Contact resistance (mΩ) | Endurance (number of cycles) |
|---|---|---|---|---|---|---|---|
| Ø C | Ø F | Core section (mm²) min | Core section (mm²) Max. | AWG | | | |
| 0.7 | 1.0 | - | 0.3 | 22 | 7 | 5 | 500 Max. |
| 0.9 | 0.8 | - | 0.21 | 24 | 10 | 3.5 | > 1000 |
| 1.3 | 1.1 | - | 0.60 | 20 | 15 | 3 | > 1000 |

The conductor bucket on the solder contacts is designed with an angle to form a cup into which the solder can flow easily.

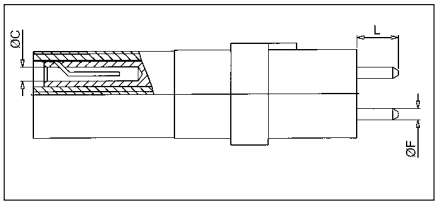
## • Fixed contacts

### Solder contacts




| Contact | | Shell size | Usable cables | | Max. current rating (A) | Contact resistance (mΩ) | Endurance (number of cycles) |
|---|---|---|---|---|---|---|---|
| Ø C | Ø F | | Core section ($mm^2$) Max. | AWG | | | |
| 0.5 | 0.5 | 0 - 1 | 0.096 | 28 | 5 | 10 | > 1000 |
| 0.7 | 0.63 | 0 - 1 | 0.15 | 26 | 7 | 5 | > 1000 |

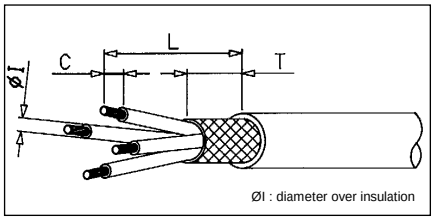
### Contacts for PCB




| Contacts for PCB | Contact length dimensions "L" |
|---|---|
| PCB tail length size 0 | dimension "L" 5.5 mm |
| 0.7 mm female PCB tail length size 0 | dimension "L" 3.5 mm |
| 0.7 mm female PCB tail length size 1 | dimension "L" 4.0 mm |
| 0.9 mm female PCB tail length size 0 | dimension "L" 3.5 mm |
| 0.9 mm female PCB tail length size 1 | dimension "L" 4.0 mm |
| 1.3 mm female PCB tail length size 1 | dimension "L" 4.0 mm, dimension "F" 0.7 mm |

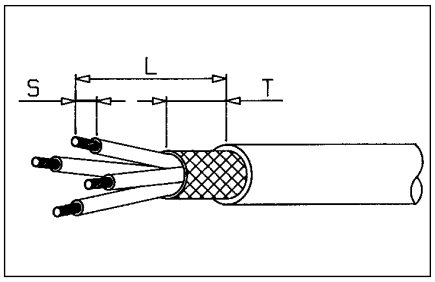
# Wiring and assembly instructions

## • Cable stripping for connectors with crimp contacts



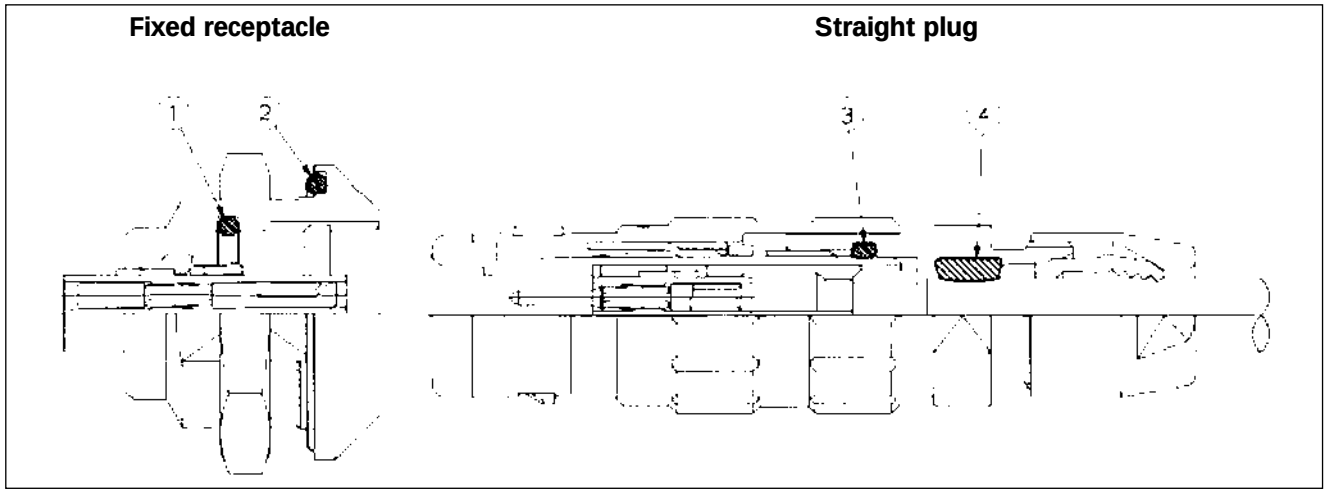

| Shell size | Ø Contacts | Ø I | Stripping for FD / PC | | |
|---|---|---|---|---|---|
| | | | L | C | T |
| 0 | 0.7 | ≤ 1.35 | 15 | 4 | 7 |
| | | > 1.35 | | 5.5 | |
| | 0.9 | ≤ 1.6 | 15 | 4 | 7 |
| | | > 1.6 | | 5.5 | |
| 1 | 0.7 | ≤ 1.35 | 17 | 4 | 8 |
| | | > 1.35 | | 5.5 | |
| | 0.9 | ≤ 1.6 | 17 | 4 | 8 |
| | | > 1.6 | | 5.5 | |
| | 1.3 | ≤ 2.1 | 17 | 4 | 8 |
| | | > 2.1 | | 5.5 | |

## • Cable stripping for connectors with solder contacts




| Shell size | Ø Contacts | Stripping for FD / PC | | |
|---|---|---|---|---|
| | | L | S | T |
| 0 | 0.5 | 11 | 2 | 7 |
| | 0.7 | 12 | 3 | 7 |
| | 0.9 | 12 | 3 | 7 |
| 1 | 0.5 | 13 | 2 | 8 |
| | 0.7 | 14 | 3 | 8 |
| | 0.9 | 14 | 3 | 8 |
| | 1.3 | 14 | 3.5 | 8 |

## • Watertightness design (mated connectors)



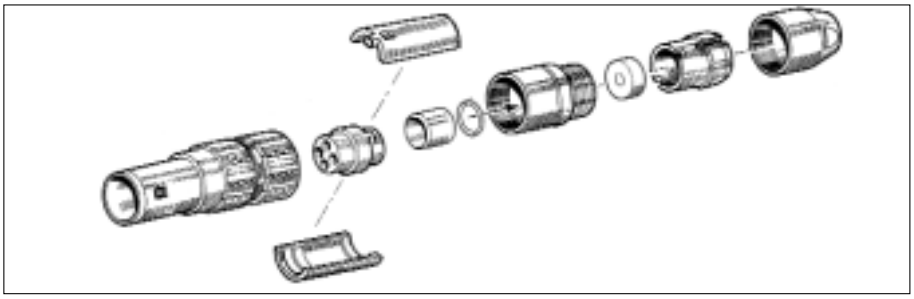

① **:** O'ring for sealing between receptacle and plug shell

② **:** O'ring for sealing between receptacle and panel

③ **:** O'ring for sealing between plug body and backshell

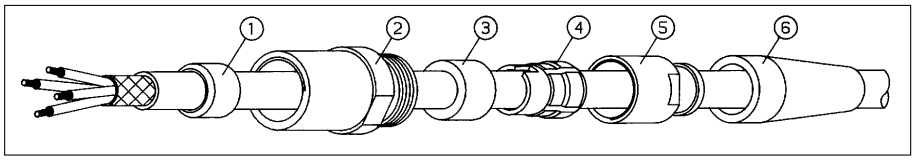
④ **:** seals to accomodate variety of cable diameters

# Wiring and assembly instructions : STRAIGHT PLUG



• **Cable stripping :** see page 37

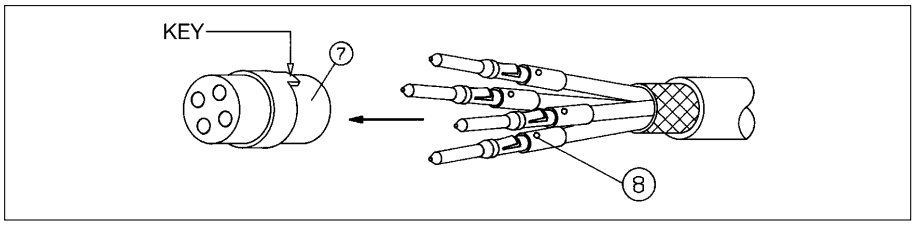
## • Connector preparation




1 - Select the proper collet ④ and the cable seal ③ (see page 39).

2 - Slide protective boot ⑥, the backnut ⑤, the collet ④, the cable seal ③, the outershell ② and the taper seat ① onto the cable. Strip end of cable (see pg. 16)

## • Contacts wiring : crimp contacts




1 - Select the proper crimping tool (see page 48)

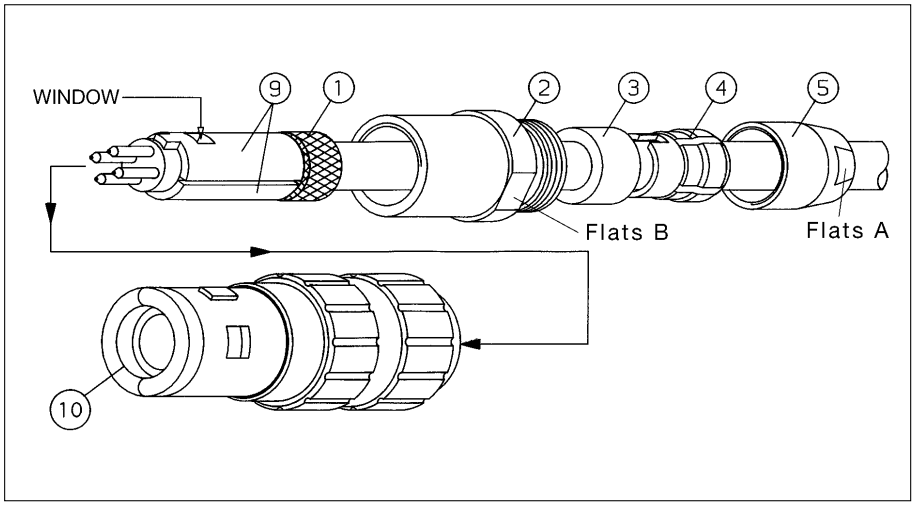
2 - Adjust the crimping tool based on the wire size "AWG". (See wire size and crimp tool settings on the back of this locator.)

3 - Crimp the contacts ④ then insert the contact into the insulator until the clip is fully seated and cannot be removed.

## • Contacts wiring : solder contacts

| Fixed solder contacts 0.5 mm and 0.7 mm | Removable solder contacts from 0.9 mm to 1.3 mm |
|---|---|
| 1 - Insert wire into solder cup and solder | 1 - Insert wire into solder cup and solder<br>2 - Insert the contact into the insulator until the clip is fully seated and cannot be removed. |

## • Connector assembly




1 - In case of shielded cable, comb out the shield and fold back over the tapper seat ①.

2 - Position 2 half bushes ⑨, making sure that the insert key appears through the windows of one bush.

3 - Position the taper seat ① on the half bushes ⑨.

4 - Position all the sub-assembly in connector housing ⑩, making sure to keep the sub-assembly well aligned.

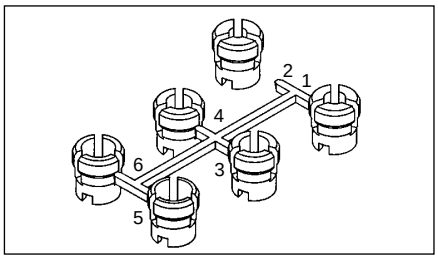
5 - Screw the outershell ② following the torque values on page 39. Install the cable seal ③ and the collet ④ into the outershell ② then screw the backnut ⑤ till bottoming. Use 2 wrenches well positionned on the flats A and B. Place a wrench to grip flats B, use the other wrench to tighten the backnut at the flats A following the torque values on page 39.

6 - Install the protective boot ⑥ if applicable.

# Wiring and assembly instructions

## • Collets selection according to cable diameters

3 or 5 collets per shell size allow a wide range of cable diameters for a single connector. Cable out diameters are for information only, since values will change with each cable construction.

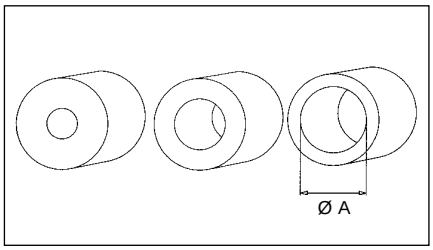



| Collet number | Cable diameter | | | |
|---|---|---|---|---|
| | Shell size 0 | Size 0, option G | Shell size 1 | Size 1, option G |
| **1** | **1.5** - 2.5 | - | **2** - 2.5 | - |
| **2** | 2.6 - 3.5 | - | 2.6 - 3.5 | - |
| **3** | 3.6 - **4.5** | - | 3.6 - 4.5 | **6.1** - 6.7 |
| **4** | - | **4.6** - 5.5 | 4.6 - 5.5 | 6.8 - 7.7 |
| **5** | - | 5.6 - **6** | 5.6 - **6** | 7.8 - **8** |

Collet number 4 in shell size 0 and collet number 6 in shell size 1 are not used.

## • Cable seal selections according to cable size

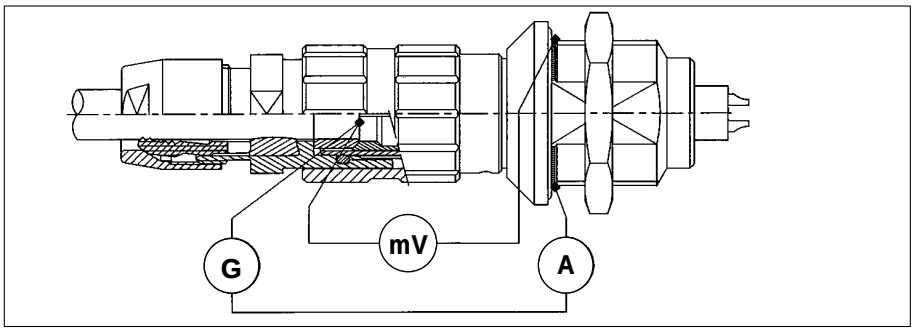
Discreet application based on cable diameter




| Cable gland Ø A | Cable diameter | | | |
|---|---|---|---|---|
| | Shell size 0 | Size 0, option G | Shell size 1 | Size 1, option G |
| **2** | 1.5 - 2.9 | | | |
| **3.5** | 3 - 4.5 | | | |
| **2.5** | | | 2 - 3.4 | - |
| **4** | | 4.6 - 4.9 | 3.5 - 4.9 | - |
| **5.5** | | 5 - 6 | 5 - 6 | 6.1 - 6.4 |
| **7** | | | | 6.5 - 8 |

## • Shielding

Tested according to MIL-STD 1344 A, method 3007




| Shell size | Electrical continuity (mΩ) |
|---|---|
| **0** | 4 |
| **1** | 3 |

## • Coupling torques

| Advised torque* in Nm | | | | |
|---|---|---|---|---|
| Size mm | 0 | 0 (option G) | 1 | 1 (option G) |
| | 1.6 | / | 1.8 | / |
| 1 | 1.5 | 2 | 2 | 2.5 |
| 2 | 0.8 | 0.8 | 1 | 1 |

Torque values are the maximum allowable for each connector size.
Torque values will vary due to the type and size of the cable used

*Apply thread lock to back nut prior to assembly.

## Tool dimensions

| Tools (jaw dimensions) | 14 x 1 | | 16 x 1 | |
|---|---|---|---|---|
| Size | 0 | 0 (option G) | 1 | 1 (option G) |
| | 17 | | 19 | |
| 1 | 8 | 10 | | 13 |
| 2 | 10 | 11 | 12 | 14 |

Tool numbers can be found on page 32

# JBX Series
# sealed version size 2

## Key features

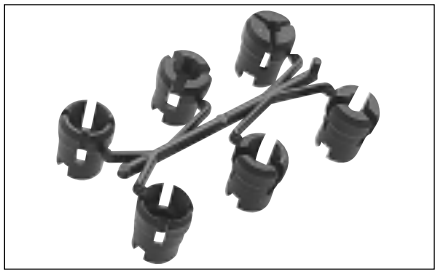
- Sealed IP 67 (mated connectors)(FE, EC, SE, & PC)
- Watertight receptacles IP68 (HC & HH)
- Mechanically keyed : ensure correct polarisation and alignment.
- Contact arrangements : from 2 to 19 contacts.
- Wire gauge range from 26 AWG to 12 AWG.
- High contact density in a small space.
- Contact termination in either crimp, solder or PCB contacts.

## User advantages

### Wet environment IP67

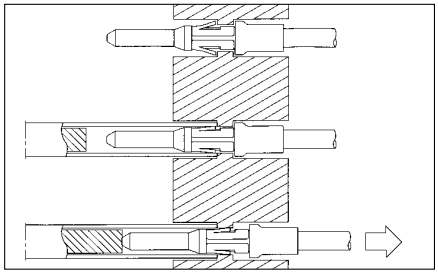
### 6-collet cluster

Allows a wide range of cable diameter applications for a single connector. Reduces inventory variations.



### Removable contacts (EC, FE, SE & PE)

Crimp versions allow easier wiring and maintenance.



## Part number system

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Basic series | | **JBX** | **FE** | **2** | **G** | **12** | **M** | **C** | **S** | **D** | **S** | **R** |
| Shell type | **FE-HH-HC-EC-PE-SE** | | | | | | | | | | | |
| Shell size | **2** | | | | | | | | | | | |
| Keying | **G** | | | | | | | | | | | |
| Contact layouts | **02 ---------- 19** | | | | | | | | | | | |
| Contact type | **M** : pin **F** : socket (in relation with keying) | | | | | | | | | | | |
| Contact termination | **C** : crimp ; **S** : solder ; **P*** : straight PCB tails ; **Q*** : 90° PCB tails | | | | | | | | | | | |
| Material & surface plating | **S** : Outer shell in brass alloy with chrome over nickel<br>**N** : Outer shell in brass alloy with black plating (consult us) | | | | | | | | | | | |
| | **D** : Obligatory suffix | | | | | | | | | | | |
| | **S** : Obligatory suffix | | | | | | | | | | | |
| Option | **R** : FE, PE, HH, & HC N/A for EC & SE | | | | | | | | | | | |

***** For receptacles with female contacts only.