

# Amphenol SOCAPEX



## Powersafe

Qualified VG96944

Derived from MIL-DTL-38999 Series III/EN3645



# ABOUT AMPHENOL SOCAPEX



## Proven excellence in interconnect solutions

Since **1947**, Amphenol Socapex has prescribed, designed and manufactured reliable and innovative interconnection solutions for **harsh environments**, specializing in standard and customized electrical and fiber optic connectors, contacts, accessories and cabling solutions. Located in the **Mont Blanc** region of France and Pune in India, Amphenol Socapex has a presence in over 100 countries around the world. Amphenol Socapex is part of the international **Amphenol Corporation**.



**1000+** employees



Net Sales 2019: **86,6 M€**  
69% Export - 31% France



Two facilities :  
**Thyez** (France), **Pune** (India)

OUR HISTORY

### 1947



- Socapex creation in Suresnes, France
- 1<sup>st</sup> radio connector

### 1956-57



- Manufacturing unit in Cluses (74), France
- Thomson-CSF becomes primary shareholder

### Early 1960's



- 1st board level connectors: HE8
- 1st "licence Bendix" manufactured connectors
- SL Series launch

### 1973



- New factory 13 000 m<sup>2</sup> in Thyez (74) France with 250 people

### 1975



- Production of 38999 connectors

### 2014-2017



Quadrax Contacts



Cable Assembly

- New Cable Assembly workshop
- New Contact Manufacturing workshop

### Today and tomorrow | New technologies



Miniaturization  
High-speed signals  
Rugged Ethernet  
Fiber optics  
Power  
ROHS solutions  
Advanced Materials (composite)  
Power  
Miniaturization  
ROHS solutions  
Fiber optics  
Rugged Ethernet  
Power  
ROHS solutions

# INTERNATIONAL EXPERTISE



## Our expertise has no boundaries

### Integrated Production in France & India

- **24 000 m<sup>2</sup>** manufacturing capacity on 2 sites
- Design centers in **France** and **India**
- State-of-the-art manufacturing technology



## Our markets



### Military

Communication Systems - Radios - C4ISR /  
Ground vehicles - Vetronics / Marine / Missiles



### Aviation

Commercial & military / Avionics /  
Engines / Landing gear / Actuators

1986

**Amphenol**  
Socapex

- Amphenol becomes primary shareholder

1995-96



- Expanded Beam connector CTOS launch
- Headquarters transferred to Thyez

2004



- RJ Field launch, "Award Electronica"

2005



- Opening of manufacturing site in Pune, India

2010's



- LuxBeam™ and HDAS launch

## Today and tomorrow | Sustainable development



Respect for nature and the environment  
Optimization of natural resources  
Recycling  
Waste Management  
Goodwill  
Optimization of natural resources  
Respect for nature and the environment  
Recycling  
Waste Management  
Goodwill

# PRODUCING FASTER, SMALLER, STRONGER CONNECTORS...



## Technologies & innovation

### Technological Center



**Engineering Laboratory for product testing and qualification, product expertise and metrology**

- Mechanical and electrical skills
- RF and fiber optics expertise

### High-Speed Expertise



**Strong expertise in high-speed signals**

- 3D EM simulation software & EM models
- Time Domain and frequency domain (VNA 20GHz, TDR and eye diagram)

### Materials Expertise



**Focus on materials expertise and manufacturing techniques to produce faster, smaller and stronger products**

- 3D CAD mechanical software, simulation & analysis
- Disruptive metal alloys, additive manufacturing

### Eco-responsibility



**Sustainable environment approach, with pro-active management of regulations (REACH / RoHS / Conflict minerals...)**

- New materials development, plating, and suitable processes
- Recycling and rational resources consumption

## Our workshops

Our workshops located in France & India provide consistent quality adapted to your volume requirements.

**Tooling** : Tools for our different activities : molding, machining, assembly

**Molding** : Solid expertise in thermoplastic elastomer and thermoset molding

**Machining** : Manufacturing of cylindrical shells from 10 to 90 mm in diameter and rectangular shells

**Screw Machining** : Cylindrical production parts up to 10 mm in diameter

**Plating** : Plating with cadmium, nickel, electroless nickel, silver, black zinc nickel, gold

**Assembly** : Connector and harness assembly (electrical & optical)

## Our certifications

Certified Management System    Certified Management System    Certified Management System    Certified Management System

Product certifications : MIL-DTL38999, EN3645, EN3155, VG

## Our memberships

Member of CMG (Connecting Manufacturing Group) Consortium

# DELIVERING GREAT CUSTOMER EXPERIENCE



► We have a strong reputation for helping customers solve their toughest challenges. This approach of serving your needs is ingrained in our company – from our sales team to our product development engineers.





## A partner you can trust

| Customer Proximity | Design Expertise | Quality Commitment | On Time Delivery Performance | Compliance manager |
|--------------------|------------------|--------------------|------------------------------|--------------------|
|                    |                  |                    |                              |                    |

## Buy our solutions

You can access our solutions through our global network of sales offices or through our distributors.

### Field Sales Team :

-  12 in France
-  15 in Europe
-  100+ in North America and rest of the world.
-  5 Business Development Managers supporting local sales force Europe, North America and the rest of the world

-  **Technical Support & Multilingual Customer Service :**  
15 people

### Worldwide Distribution Network :

Including qualified distributors (QPL approved) for assembling : MIL-DTL-38999, PT/451/VG95328 & Fiber Optics connectors



# POWERSAFE

**PowerSafe** MIL-DTL-38999 Series III was developed to transfer high power (500V voltage) in harsh environment, with a full safety for the user.

## Main Features

- **Qualified VG96944**
- Focus both on **USER SAFETY** and on the **MIL-DTL-38999 Series III performances**
- **First mate/last break:** One protective contact linked to the shell
- **Last mate/first break:** One pilot contact with breaking capacity. It allows the current flow in the phase and neutral contacts through a relay
- **IP28 :**
  - finger test for socket contacts and socket inserts
  - pressure water tight (48h, under 2m water)

**USER  
SAFETY**



## Added Benefits

- In accordance with the new standard for power equipment
- Homogeneity with standard MIL-DTL-38999 III connectors when power is needed on the equipment (same panel drilling)
- Qualified according the most stringent standard VG96944
- Safety use design following DIN EN-61984 (VDE 0627)

## Markets & Applications

### Markets

- **Defense:** C4ISR/Battlefield/Ground Vehicles/Missile
- **Avionics**
- **Harsh industrial markets**

### Applications

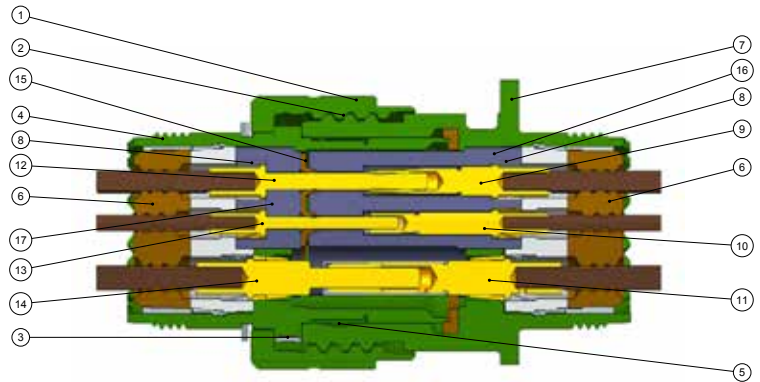
- I/O Power for boxes
- Power connectors spread on the field (drums)
- Electrical power generator



# POWERSAFE - MECHANICAL CHARACTERISTICS

- ① Coupling nut
- ② Quick coupling thread
- ③ Anti-decoupling device
- ④ Plug shell
- ⑤ Spring fingers (EMI)
- ⑥ Grommet
- ⑦ Receptacle shell
- ⑧ Contact retention clips
- ⑨ Phase and neutral socket contact

- ⑩ Pilot socket contact
- ⑪ Protective socket contact
- ⑫ Phase and neutral pin contact
- ⑬ Pilot pin contact
- ⑭ Protective pin contact
- ⑮ Interfacial seal
- ⑯ Socket insert
- ⑰ Pin insert



|   | MIL-DTL-38999 series III  | VG96944   |
|---|---|---|
| <b>Durability</b>                                   | 500 cycles  | 500 cycles  |
| <b>Shell Size</b>                                   | 13/17/25 (3 arrangements)   | 13/17/25 (3 arrangements)   |
| <b>Shock</b>  | -   | Half-sine, 500 m/s <sup>2</sup> , 11 ms   |
| <b>Sine vibrations</b>                              | 60g from -55 +175°C (ODC) + 200°C (nickel)  | -   |
| <b>Random vibrations per EIA364.28 vs VG95319-2</b> | -   | Spectrum 5 Hz to 500 Hz   |
| <b>Shell and Backshell plating</b>                  | Olive Drab Cadmium, Black Zinc Nickel, Electroless nickel, Bronze, Inox   | Olive Drab Cadmium  |
| <b>Insert material</b>                              | Thermoplastic insert<br>Silicone rubber grommet and interfacial seal  | Thermoplastic insert with Comparative Tracking Index < 400 V<br>Silicone rubber grommet and interfacial seal              |
| <b>Contacts</b>                                     | Crimp, removable contacts<br>Gold plating for pilot contact and silver plating for protective, phase and neutral contacts | Crimp, removable contacts<br>Gold plating for pilot contact and silver plating for protective, phase and neutral contacts |
| <b>Protective contact resistance</b>                | ≤100 mΩ   | ≤100 mΩ   |

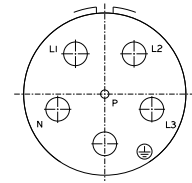
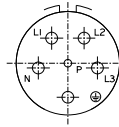
**Contact retention force:**

|                         |    |     |     |     |
|-------------------------|----|-----|-----|-----|
| <b>Contact Size</b>     | 20 | 16  | 12  | 6   |
| <b>Maximum load (N)</b> | 67 | 111 | 111 | 111 |

## Environmental Characteristics

|                            | MIL-DTL-38999 series III   | VG96944  |
|----------------------------|--|--|
| <b>Temperature</b>         | -65 +175°C (ODC, BZN platings)<br>-65 + 200°C (Nickel plating, bronze, stainless steel)                        | -65 +150°C (ODC plating)   |
| <b>Salt spray exposure</b> | 48h for Nickel<br>500h for Olive Drab Cadmium, Black Zinc Nickel, Bronze and stainless steel                   | Test level 2 : 5% NaCl, 2h salt fog exposure, 22h storage in humid air, 5 cycles                               |
| <b>Sealing</b>             | IP28 :<br>- finger test for socket contacts and socket inserts<br>- pressure water tight (48h, under 2m water) | IP28 :<br>- finger test for socket contacts and socket inserts<br>- pressure water tight (48h, under 2m water) |

## Insert Arrangements



| VG designation     | 13-V4     | 17-V6     | 25-V6     |
|--------------------|-----------|-----------|-----------|
| TV designation     | 13-E4     | 17-E6     | 25-E6     |
| Pilot contact      | 1 Size 20 | 1 Size 16 | 1 Size 16 |
| Phase & neutral    | 2 Size 16 | 4 Size 12 | 4 Size 6  |
| Protective contact | 1 Size 16 | 1 Size 12 | 1 Size 6  |

Other platforms in development. Please consult us.

## Electrical Characteristics

| Arrangements  | Pilot contact  |                            | Phase, neutral and protective contact |                            | Test voltage AC |
|---------------|----------------|----------------------------|---------------------------------------|----------------------------|-----------------|
|               | Contact rating | Operating Voltage AC or DC | Contact rating                        | Operating Voltage AC or DC |                 |
| 13-V4 / 13-E4 | 0,5 A          | 60 V                       | 16 A                                  | 250 V                      | 1500 V          |
| 17-V6 / 17-E6 | 0,5 A          | 60 V                       | 25 A                                  | 500 V                      | 2500 V          |
| 25-V6 / 25-E6 | 0,5 A          | 60 V                       | 63 A                                  | 500 V                      | 2500 V          |

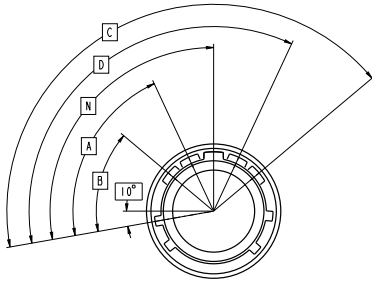
Note : test voltage in mated condition, unmated condition for pilot socket contact only

## Polarization

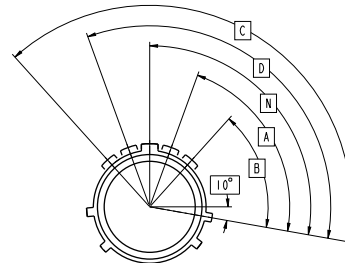
To avoid cross-plugging problems in applications requiring the use of more than one PowerSafe connector of the same size, alternate key-rotations are available as indicated in the chart aside. As shown in the accompanying diagram, the major key rotates clockwise from the secondary ones.

In the reference system, the polarization is shown by the letters N, A, B, C, D.

| Shell size | Position of the major keyway |    |    |     |     |
|------------|------------------------------|----|----|-----|-----|
|            | Polarizations                |    |    |     |     |
|            | N                            | A  | B  | C   | D   |
| 13         | 100                          | 80 | 68 | 132 | 120 |
| 17         | 100                          | 82 | 70 | 130 | 118 |
| 25         | 100                          | 85 | 74 | 126 | 115 |



Receptacle - Front face shown

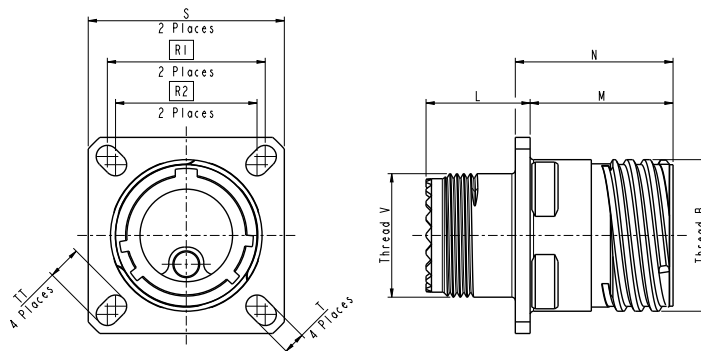


Plug - Front face shown

## Overall Dimensions

### Square flange receptacle

- VG96944-04A
- TVP00RW
- TVP00ZN
- TVPS00RF
- TVPS00RB
- TVPS00RK

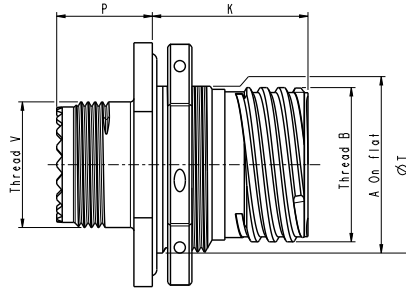
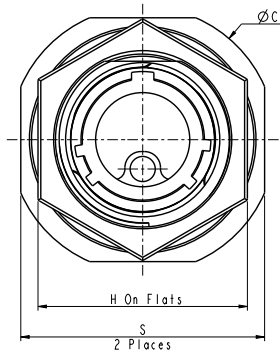


| Shell size | B thread Class 2A .1P- .3L-TS (inches) | L Max (mm) | M Max (mm) | N +0.13 0 (mm) | R1 (mm) | R2 (mm) | S ±0.3 (mm) | T ±0.2 (mm) | TT ±0.2 (mm) | V thread (metric) |
|------------|--|------------|------------|----------------|---------|---------|-------------|-------------|--------------|-------------------|
| 13         | .875                                   | 15.5       | 20.9       | 22.99          | 23.01   | 20.62   | 28.6        | 3.25        | 4.93         | M18x1-6g          |
| 17         | 1.1875                                 | 15.6       | 23.4       | 25.49          | 26.97   | 24.61   | 33.3        | 3.25        | 4.93         | M25x1-6g          |
| 25         | 1.625                                  | 20.7       | 24.6       | 27.49          | 38.10   | 34.93   | 46.0        | 3.91        | 6.15         | M37x1-6g          |



### Jam nut receptacle

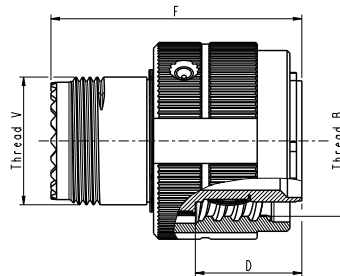
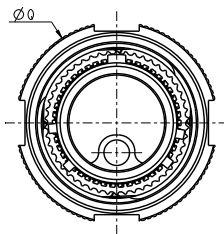
VG96944-04B  
TV07RW  
TV07ZN  
TVS07RF  
TVS07RB  
TVS07RK



| Shell size | B thread<br>Class 2A<br>.1P-.3L-TS<br>(inches) | A<br>+0.1<br>-0.15<br>(mm) | C<br>Max<br>(mm) | K<br>Max<br>(mm) | P<br>Max<br>(mm) | H Hex<br>0<br>-0.1<br>(mm) | S<br>+/-0.4<br>(mm) | T<br>(mm)   | V thread<br>(metric) | Hex nut<br>max torque<br>(N.m) |
|------------|--|----------------------------|------------------|------------------|------------------|----------------------------|---------------------|-------------|----------------------|--------------------------------|
| 13         | .875   | 23.82                      | 38.4             | 22.5             | 13.7             | 30                         | 34.9                | 25.2 - 25.5 | M18x1-6g             | 6.8                            |
| 17         | 1.1875   | 30.15                      | 44.8             | 25.0             | 14.1             | 36                         | 41.3                | 31.8-31.95  | M25x1-6g             | 9.6                            |
| 25         | 1.625  | 42.85                      | 59.0             | 27.0             | 18.5             | 50                         | 55.6                | 44.2 - 44.5 | M37x1-6g             | 14.7                           |

### Straight plug

VG96944-04C  
TV06RW  
TV06ZN  
TVS06RF  
TVS06RB  
TVS06RK

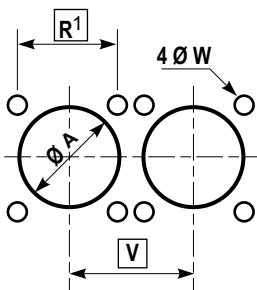


| Shell size | B thread<br>Class 2B<br>.1P-.3L-TS<br>(inches) | Q<br>Max<br>(mm) | F<br>Max<br>(mm) | D<br>(mm) | V thread<br>(metric) |
|------------|--|------------------|------------------|-----------|----------------------|
| 13         | .875   | 29.4             | 35.5             | 15.01     | M18x1-6g             |
| 17         | 1.1875   | 35.7             | 38.0             | 17.51     | M25x1-6g             |
| 25         | 1.625  | 48.0             | 46.0             | 19.51     | M37x1-6g             |

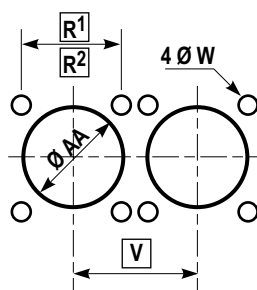
\* Conforms to CECC 75.201.002 (coupling nut for arctic gloves)

### Panel drilling for receptacles

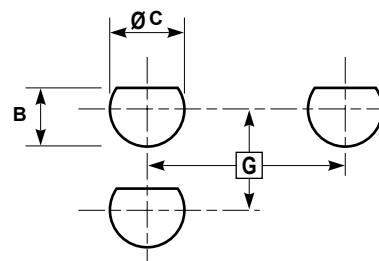
Square flange receptacle rear panel mounting



Square flange receptacle front panel mounting



Jam nut receptacle rear panel mounting



| Shell size | R <sup>1</sup><br>(mm) | R <sup>2</sup><br>(mm) | V<br>Mini<br>(mm) | ØA<br>Min<br>(mm) | ØAA<br>Min<br>(mm) | ØW<br>±0.13<br>(mm) | G<br>Mini<br>(mm) | ØC<br>+0.25<br>0<br>(mm) | B<br>0<br>-0.25<br>(mm) |
|------------|------------------------|------------------------|-------------------|-------------------|--------------------|---------------------|-------------------|--------------------------|-------------------------|
| 13         | 23.01                  | 20.62                  | 30.20             | 23.42             | 19.05              | 3.25                | 36.00             | 25.65                    | 24.26                   |
| 17         | 26.97                  | 24.61                  | 36.50             | 30.96             | 25.81              | 3.25                | 43.30             | 32.01                    | 30.73                   |
| 25         | 38.10                  | 34.93                  | 48.80             | 42.47             | 37.69              | 3.81                | 59.70             | 44.70                    | 43.43                   |

# PROTECTIVE CAPS

## Description

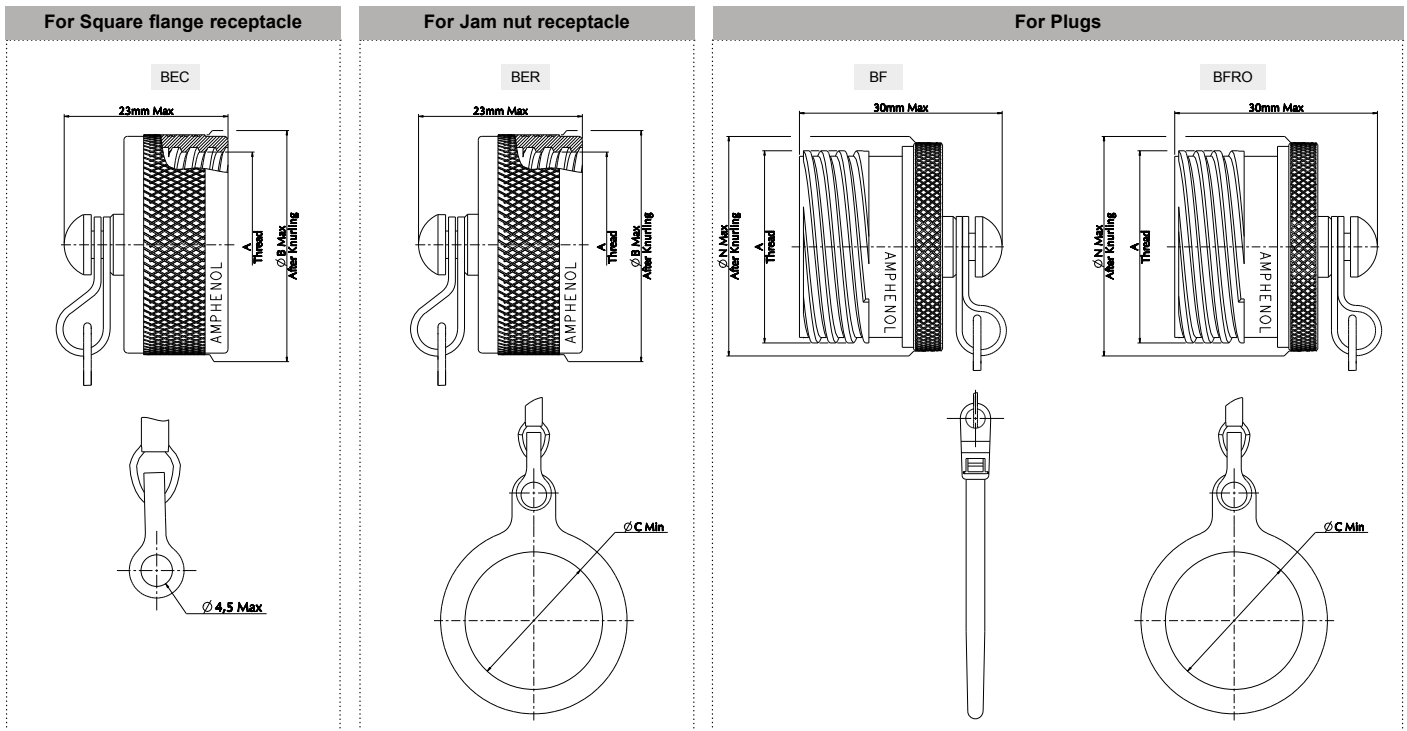
The largest range of protective caps with IP68 protection level.

## Main features

- Compatible with Plugs, Jam nut and Square receptacles
- IP 68 (permanent sealing)
- Protection again dust, water and moisture
- EMI function
- Nylon cord, stainless steel rope or metallic chain



## Overall dimensions



Lanyard (Attachment) Length

| Cap type               | Metallic chain length | Nylon cord length | Stainless steel rope length |
|------------------------|-----------------------|-------------------|-----------------------------|
| BEC/BER for receptacle |                       | 127 (+13,-7)      |                             |
| BF/BFRO for plug       |                       | 160±5             |                             |

| Shell size | A thread .1P-.3L-TS Class 2A (External) Class 2B (Internal) (inches) | ØB Max (After Knurling) | ØC Min | ØN Max |
|------------|--|-------------------------|--------|--------|
| 13         | .8750  | 25,75                   | 25,15  | 24,30  |
| 17         | 1.1875   | 33,80                   | 32,00  | 30,60  |
| 25         | 1.6250   | 44,90                   | 44,45  | 42,80  |

| Standard Metallic Caps  | B | EC | N | TV | W | 13 |
|---|---|----|---|----|---|----|
| <b>Protection cap type</b><br>EC: For square flange receptacle<br>ER: For jam nut receptacle<br>F: For plug   |   |    |   |    |   |    |
| <b>Wire type</b><br>Blank for metallic chain<br>N: Nylon cord<br>R: Jacketed stainless steel rope<br>RO: Jacketed stainless steel rope with ring (only for plug)  |   |    |   |    |   |    |
| <b>Connector type</b>   |   |    |   |    |   |    |
| <b>Material and finish</b><br>W: Olive drab cadmium plated on aluminium (175°C)<br>ZN: Black zinc nickel plated on aluminium (175°C) ✓<br>F: Electroless nickel plated on aluminium (200°C) ✓<br>B: Marine bronze (200°C) ✓ |   |    |   |    |   |    |
| <b>Corresponding connector shell size</b><br>13/17/25   |   |    |   |    |   |    |

For other platings, please consult us - Example : Olive Drab Cadmium Cap with Nylon Cord for Square Flange receptacle size 17 : BECNTW17

✓ : RoHS compliant

# BACKSHELLS



- Compatible with AS85049 suitable for MIL-DTL-38999 Series III connectors
- For VG96944 versions :

| Shell size | Backshell from AALBGmbh or EMCA | Shrink boot     | Adhesive       | Micro Clamping Band | or | Standard Clamping Band | Tool for Micro Band | Tool for Standard Band |
|------------|---------------------------------|-----------------|----------------|---------------------|----|------------------------|---------------------|------------------------|
| 13         | VG95319-1011G012A               | VG95343T06B001A | VG95343T15A001 | 895693              |    | 072952                 | 809985              | 809952                 |
| 17         | VG95319-1011G005A               |                 |                | 895700              |    |                        |                     |                        |
| 25         | VG95319-1011G010A               | VG95343T06C001A |                |                     |    |                        |                     |                        |

**IMPORTANT :** Use Shrink Boots 202K121-12 (size 13), 202K132-12 (size 17), 202K153-12 (size 25) and Adhesive S1255 for MIL applications

- Other backshells for shielding:

| SHIELDING |  |
|-----------|--|
|           | <p><b>TV-35: BAND BACKSHELL FOR SHIELDING</b></p> <ul style="list-style-type: none"> <li>• Full 360° shield termination</li> <li>• Available with different cabling chambers</li> <li>• Easy maintenance or repairability</li> <li>• Sealing ensured by straight or right angled heat-shrink molded piece</li> <li>• Right angle version: TV SBC</li> </ul>      |
|           | <p><b>TV NSA: HIGH LEVEL OF EMI/RFI PROTECTION</b></p> <ul style="list-style-type: none"> <li>• Electrical continuity between cable and connector by clamping the braid with a screwing system</li> <li>• Free inner ring to avoid twisting of the braid when screwing</li> <li>• Sealing ensured by straight or right angle heat-shrink molded piece</li> </ul> |

## How to Order

### How to order VG 96944 reference

|                             |  |   |       |   |   |   |
|-----------------------------|--|---|-------|---|---|---|
| <b>Series</b>               | VG96944-04   | A | 13-V4 | P | N | A |
| VG96944-04                  |  |   |       |   |   |   |
| <b>Shell type</b>           | A: Square Flange Receptacle<br>B: Jam Nut Receptacle<br>C: Straight plug |   |       |   |   |   |
| <b>Shell size</b>           | 13-V4 / 17-V6 / 25-V6  |   |       |   |   |   |
| <b>Contact type</b>         | P: Pin<br>S: Socket  |   |       |   |   |   |
| <b>Polarization</b>         | N for Neutral, A, B, C, D  |   |       |   |   |   |
| <b>Material and Plating</b> | A: Olive Drab Cadmium on Aluminium                                       |   |       |   |   |   |

### How to order TV reference

|                             |   |     |    |       |   |   |
|-----------------------------|---|-----|----|-------|---|---|
| <b>Series</b>               | TV  | P00 | RW | 13-E4 | P | - |
| TV                          |   |     |    |       |   |   |
| <b>Shell type</b>           | P00: Square flange receptacle: 175°C (olive drab cadmium, black zinc nickel)<br>PS00: Square flange receptacle: 200°C (nickel, stainless steel, bronze)<br>07: Jam nut receptacle: 175°C (olive drab cadmium, black zinc nickel)<br>S07: Jam nut receptacle: 200°C (nickel, stainless steel, bronze)<br>06: Straight plug: 175°C (olive drab cadmium, black zinc nickel)<br>S06: Straight plug: 200°C (nickel, stainless steel, bronze) |     |    |       |   |   |
| <b>Material and Plating</b> | RW: olive drab cadmium on aluminium<br>ZN: black zinc nickel on aluminium ✓<br>RF: electroless nickel on aluminium ✓<br>RK: passivated stainless steel ✓<br>RB: marine bronze ✓   |     |    |       |   |   |
| <b>Shell size</b>           | 13-E4 / 17-E6 / 25-E6   |     |    |       |   |   |
| <b>Contact type</b>         | P: Pin<br>S: Socket   |     |    |       |   |   |
| <b>Polarization</b>         | Blank for neutral, A, B, C, D   |     |    |       |   |   |

✓: RoHS compliant

# CONTACTS AND TOOLS

| TOOLS FOR VG 96944 / POWERSAFE CONNECTORS |               |      |             |             |                      |                              |                    |                       |                |             |                   |                                   |                                   |               |               |                                |               |             |        |
|---|---------------|------|-------------|-------------|----------------------|------------------------------|--------------------|-----------------------|----------------|-------------|-------------------|-----------------------------------|-----------------------------------|---------------|---------------|--------------------------------|---------------|-------------|--------|
| Arrangement                               | Contact type  | Size | Contacts    |             | Wires                |                              |                    | Wire stripping length | Crimping tools |             |                   | Insertion tools                   |                                   |               | Removal tools |                                |               |             |        |
|   |               |      | Proprietary | Part Number | AWG                  | Section mm <sup>2</sup>      | dia over insulator |                       | Tools          | Positioner  | Selector position | Plastic color                     | Metallic                          |               | Plastic color | Metallic                       |               |             |        |
|   |               |      | Pin         | Socket      |                      |                              | Min                |                       |                |             |                   |                                   | Max                               | Straight type |               | Angle type                     | Straight type | Angle type  |        |
| 13-V4<br>13-E4                            | Pilot         | 20   | 600665      | 600892      | 20<br>22<br>24       | 0,61<br>0,38<br>0,24         | 1,02               | 2,11                  | 6<br>(+0.5)    | M22520/1-01 | M22520/1-04       | 3<br>2<br>1                       | M81969/14-10<br>red / orange      | 809817        | M81969/8-05   | M81969/14-10<br>red / orange   | 809847        | M81969/8-06 |        |
|   | Phase Neutral | 16   | 600666      | 600676      | 14<br>16<br>18<br>20 | 1,94<br>1,23<br>0,96<br>0,61 | 1,65               | 2,77                  |                |             |                   | 6<br>6<br>5<br>4                  | M81969/14-03<br>blue / white      | 809816        | M81969/8-07   | M81969/14-03<br>blue / white   | 809846        | M81969/8-08 |        |
|   | Protective    |      | 600667      | 600677      |                      |                              |                    |                       |                |             |                   |                                   | /                                 |               | /             |                                |               |             |        |
| 17-V6<br>17-E6                            | Pilot         | 16   | 600660      | 600894      | 16<br>18<br>20       | 1,23<br>0,96<br>0,61         | 1,65               | 2,77                  | 6<br>(+0.5)    | M22520/1-01 | M22520/1-04       | 6<br>5<br>4                       | M81969/14-03<br>blue / white      | 809816        | M81969/8-07   | M81969/14-03<br>blue / white   | 809846        | M81969/8-08 |        |
|   | Phase Neutral | 12   | 600661      | 600671      | 12<br>14             | 2,98<br>1,94                 | 2,46               | 3,61                  |                |             |                   | 8<br>7                            | M81969/14-04<br>yellow / white    | 809824        | M81969/8-09   | M81969/14-04<br>yellow / white | 809850        | M81969/8-10 |        |
|   | Protective    |      | 600662      | 600672      |                      |                              |                    |                       |                |             |                   | /                                 |                                   | /             |               |                                |               |             |        |
| 25-V6<br>25-E6                            | Pilot         | 16   | 600660      | 600894      | 16<br>18<br>20       | 1,23<br>0,96<br>0,61         | 1,65               | 2,77                  | 6<br>(+0.5)    | M22520/1-01 | M22520/1-04       | 6<br>5<br>4                       | M81969/14-03<br>blue / white      | /             | /             | M81969/14-03<br>blue / white   | /             | /           |        |
|   | Phase Neutral | 6    | 600663      | 600673      | 6                    | 13,61                        | 7,3                | 8,1                   |                |             |                   | 14<br>(+1.5)                      | 809947 + 809908 (hex crimp)<br>or | /             | /             | /                              | /             | /           | 809696 |
|   | Protective    |      | 600664      | 600674      |                      |                              |                    |                       |                |             |                   | M22520/23-01<br>+<br>M22520/23-03 | 809697 (pin)<br>809690 (socket)   | /             | /             | /                              | /             | /           | /      |

## Crimping tools

MANUAL CRIMPING PLIERS  
M22520/1-01



HYDRAULIC PLIERS  
809947



PNEUMATIC PLIERS  
M22520/23-01



## QUALIFIED CABLES FOR VG96944

| Size 13                 | PN                                  | Raw material                       |
|-------------------------|-------------------------------------|------------------------------------|
| WIRE AWG19 white        | VG95218T020A003                     | TINNED copper, jacket PVF modified |
| WIRE AWG14 blue         | M81044/12-14-6                      | TINNED copper, jacket PVDF         |
| WIRE AWG14 white        | M81044/12-14-9                      | TINNED copper, jacket PVDF         |
| WIRE AWG14 green yellow | M81044/12-14-45                     | TINNED copper, jacket PVDF         |
| Fillers                 | /                                   | PTFE                               |
| Braid                   | TB13-T-63                           | TINNED copper                      |
| Heatshrink              | DR25 3/8-0M (VG95343 Part 5 Type D) | ELASTOMER                          |

| Size 17                 | PN                                  | Raw material                       |
|-------------------------|-------------------------------------|------------------------------------|
| WIRE AWG19 white        | VG95218T020A003                     | TINNED copper, jacket PVF modified |
| WIRE AWG12 white        | VG95218T020A017                     | TINNED copper, jacket PVF modified |
| WIRE AWG12 blue         | M81044/12-12-6                      | TINNED copper, jacket PVDF         |
| WIRE AWG12 green yellow | M81044/12-12-45                     | TINNED copper, jacket PVDF         |
| Fillers                 | /                                   | PTFE                               |
| Braid                   | TB13-T-695                          | TINNED copper                      |
| Heatshrink              | DR25 1/2-0M (VG95343 Part 5 Type D) | ELASTOMER                          |

| Size 25                | PN                                | Raw material                       |
|------------------------|-----------------------------------|------------------------------------|
| WIRE AWG19 white       | VG95218T020A003                   | TINNED copper, jacket PVF modified |
| WIRE AWG6 white        | M22759/16 6-9                     | TINNED copper, jacket PVDF         |
| WIRE AWG6 blue         | M22759/16 6-6                     | TINNED copper, jacket PVDF         |
| WIRE AWG6 green yellow | M22759/16 6-4/5                   | TINNED copper, jacket PVDF         |
| Fillers                | /                                 | PTFE                               |
| Braid                  | TB13-T-200                        | TINNED copper                      |
| Heatshrink             | DR25 1-0M (VG95343 Part 5 Type D) | ELASTOMER                          |

## Qualified cables for MIL applications

| Size 13    | PN                          | Raw material               |
|------------|-----------------------------|----------------------------|
| WIRE AWG20 | M22759/34 20                | TINNED copper, jacket ETFE |
| WIRE AWG14 | M22759/34 14                | TINNED copper, jacket ETFE |
| Fillers    | /                           | PTFE                       |
| Braid      | 4D045558                    | Nickel copper              |
| Heatshrink | RW200E-1/2-0 or HLR33001270 | Fluoroelastomeric or Viton |

| Size 17    | PN                          | Raw material               |
|------------|-----------------------------|----------------------------|
| WIRE AWG19 | M22759/34 16                | TINNED copper, jacket ETFE |
| WIRE AWG12 | M22759/34 12                | TINNED copper, jacket ETFE |
| Fillers    | /                           | PTFE                       |
| Braid      | 4D047547                    | Nickel copper              |
| Heatshrink | RW200E-3/4-0 or HLR33001900 | Fluoroelastomeric or Viton |

| Size 13    | PN                            | Raw material               |
|------------|-------------------------------|----------------------------|
| WIRE AWG19 | M22759/34 16                  | TINNED copper, jacket ETFE |
| WIRE AWG6  | M22759/34 6                   | TINNED copper, jacket ETFE |
| Fillers    | /                             | PTFE                       |
| Braid      | 4D045591                      | Nickel copper              |
| Heatshrink | RW200E-1 1/2-0 or HLR33003810 | Fluoroelastomeric or Viton |



# NOTES

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