

Amphenol SOCAPEX

PowerSafe

Derived from MIL-DTL-38999 Series III &
VG96944 Qualified



www.amphenol-socapex.com

OUR COMPANY



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 serve customers in over 100 countries around the world.
- Amphenol Socapex is part of the leading supplier of interconnect systems **Amphenol**.



1400+
employees



142 M€
Net Sales 2023
70% Export - 30% France



Thyez, **France**
Pune, **India**



Our expertise has no boundaries

Integrated Production in France & India

- 24 000 m² manufacturing capacity on 2 sites
- Design and manufacturing centers in France and India
- State-of-the-art manufacturing technology

Our markets



Defense



**Commercial
Aerospace**



Space



Industry



TECHNOLOGIES & INNOVATION

Engineering Laboratory



Product testing and qualification expertise in many fields:
 - Environmental, mechanical, electrical, chemical, climatic 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

Materials Expertise



Focus on materials expertise and manufacturing techniques to produce faster, smaller and stronger products
 - Advanced technology research and development: polymers, metals, platings, resins ...
 - Cutting edge characterizations of interconnects: Radio Frequency, partial discharges ...
 - 3D CAD mechanical software, simulation & analysis

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.

Automation & Tooling : Tools for our different activities : molding, machining, assembly

Molding : Solid expertise in thermoplastic elastomer and thermoset molding

Machining : Manufacturing of cylindrical shells and rectangular shells

Screw Machining : Manufacturing of electrical contacts

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

Assembly : Connector and harness assembly (electrical & optical)

Our certifications

Product certifications : MIL-DTL38999, EN3645, EN3155, VG (VG95328, VG95319, VG96944, VG95218, VG96949)



Certified Management System



Certified Management System



Certified Management System



Certified Management System

Our memberships

Member of CMG (Connecting Manufacturing Group) Consortium



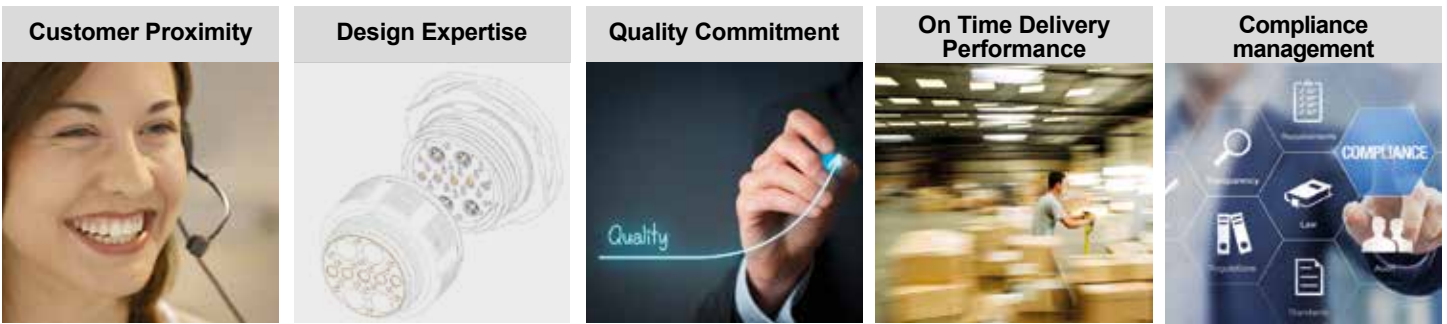
CONVENTION ENTREPRISES

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



Buy our solutions

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

- Field Sales Team :**
 - 10 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 Advisement & Multilingual Customer Service :**
 - 20 people



Worldwide Distribution Network :

Our range of circular connectors, contacts, fiber optic connectors, PCB connectors and accessories are available thru our extensive distribution network.

It includes qualified distributors (QPL approved) for assembling MIL-DTL-38999 & derivatives and PT/451 (VG95328) connectors.

[Check our product inventory](#)



[Product Selectors & 3D Files](#)



NEW



OUR HISTORY

1947



- Socapex creation in Suresnes, France
- 1st radio connector

1956-57



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

Early 1960's



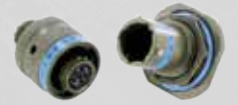
- 1st board level connectors: HE8
- 1st "licence Bendix" manufactured connectors
- SL Series

1973



- New factory in Thyez (74) France with 250 people, 13 000m²

1975



- Production of 38999 connectors

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



- New factory in Pune, India

2010's



- LuxBeam™ and HDAS launch

2014-2017



- New workshops :
- Cable Assembly & Contact Manufacturing workshop

2019



- Increased manufacturing capacity with 2nd building in Pune, India

2022



- Harness in the box solution launch

Today & tomorrow



- New technologies :
- Investment in automation & technical expertise



- Amphenol SOCAPEX joins the "Convention des Entreprises pour le Climat".
- Our goal: to accelerate our transition to a more sustainable operation.

POWERSAFE / VG96944 - GENERAL CHARACTERISTICS

Power connector qualified VG96944 and designed for user safety

Description

PowerSafe connectors are derived from MIL-DTL-38999 Series III connectors and dedicated to high power supply in harsh environments. These connectors provide the user with, the highest user safety, shielding effectiveness & environmental performances. PowerSafe connectors follow the European standard for power equipment DIN EN 61984 (former VDE 0627).



Markets

- C5ISR - Battlefield Communication
- Ground Vehicles
- Military Avionics
- Missile Avionics
- Navy
- Harsh Industrial Environment



Applications

- Power connectors deployed on the field (drums)
- Electrical power generator



C5ISR



Military
Aerospace



Ground
Vehicle



Navy



Industrial

POWERSAFE / VG96944 - GENERAL CHARACTERISTICS

Power connector qualified VG96944 and designed for user safety

Main features

TWO INSERTS TYPES WITH DIFFERENT CHARACTERISTICS

- “E” inserts – up to 200°C & CTI (Comperative Tracking Index) <100

Available in Amphenol Proprietary designations only

- “V” inserts – VG96944 compliant – up to 150°C & CTI between 175 & 400 (Material Group IIIa)

Available in VG designations & Amphenol Proprietary ones

FIRST MATE/LAST BREAK: one earth contact directly linked to the shell, stays in place even in case of overheats.

LAST MATE/FIRST BREAK: one pilot contact with a breaking capacity (brings the information to a relay to turn on/off the power).

These features protects the user even if the connectors are mated or unmated. Amphenol recommends to connect / disconnect connector when unloaded.

IP28 WHEN UNMATED, IP68 WHEN MATED

HIGH ROBUSTNESS AND EXCELLENT ENVIRONMENTAL PERFORMANCES.

SEVERAL MATERIALS & PLATING

- Aluminum (Olive drab Cadmium, Nickel, Black Zinc Nickel, Tin Zinc platings)
- Marine Bronze
- Stainless steel (Passivated, Nickel plated upon request)

EMI/RFI PROTECTION : Shell to shell bottoming and grounding fingers on the plug shell

ACCESSORIES:

- Caps: compatible with MIL-DTL-38999 Series III caps.
- Backshells: compatible with AS85049 backshells for MIL-DTL-38999 Series III connectors, VG95319-1011G, as well as TV35 & TVNSA backshells.

Same panel drilling as standard MIL-DTL-38999 Series III connectors.

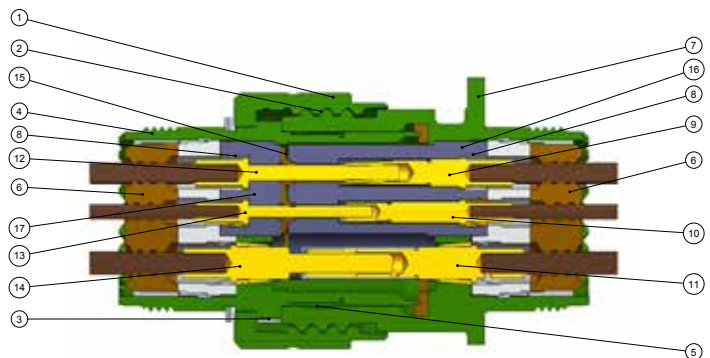
Added benefits

- PowerSafe is compliant with **IP2X Electrical Safety standard**, which guarantees touch-proof protection of live parts.
- Qualified according the most stringent standard **VG96944** (applicable to Aluminum with Olive Drab Cadmium or Tin Zinc finish and Marine Bronze versions only).
- Safety use design following **DIN EN-61984 (former VDE 0627)**.

Concept

- ① Coupling nut
- ② Quick coupling thread
- ③ Anti-decoupling device
- ④ Plug shell
- ⑤ Grounding spring
- 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

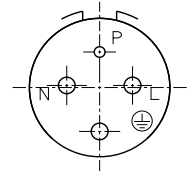
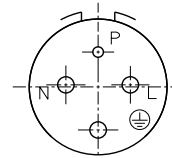
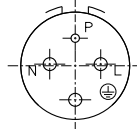
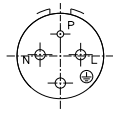


POWERSAFE / VG96944 - LAYOUTS & ELECTRICAL CHARACTERISTICS

Amphenol **PowerSafe** range offers 6 contact arrangements to fit all your power needs, with single-phase & three-phase layouts, and a choice of 2 insert materials for each layout depending on the need :

- **V** inserts : developed according to VG96944 standard with a material less impacted by the disconnection under load. Able to withstand a maximum temperature of 150°C & have a CTI between 175 & 400 (Material Group IIIa)
- **E** inserts : using the same material than our 38999 series connectors and able to withstand a temperature up to 200°C

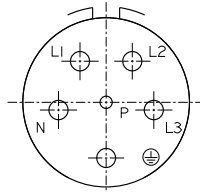
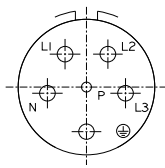
Single-Phase Layouts



| V insert | 13-V4 | 15-V4 | 21-V4 | 23-V4 |
|-------------------------|-----------|-----------|-----------|-----------|
| E insert | 13-E4 | 15-E4 | 21-E4 | 23-E4 |
| Pilot contact (P) | 1 Size 20 | 1 Size 16 | 1 Size 16 | 1 Size 16 |
| Phase & neutral (N & L) | 2 Size 16 | 2 Size 12 | 2 Size 6 | 2 Size 4 |
| Protective contact (PE) | 1 Size 16 | 1 Size 12 | 1 Size 6 | 1 Size 4 |

| Contact Arrangements | Pilot contact - P | | Phase, Neutral and Protective contact - N, L & PE | | 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 |
| 15-V4 / 15-E4 | 0,5 A | 60 V | 25 A | 250 V | 1500 V |
| 21-V4 / 21-E4 | 0,5 A | 60 V | 63 A | 500 V | 2500 V |
| 23-V4 / 23-E4 | 0,5 A | 60 V | 100 A | 500 V | 2500 V |

Three-Phase Layouts



| V insert | 17-V6 | 25-V6 |
|--------------------|-----------|-----------|
| E insert | 17-E6 | 25-E6 |
| Pilot contact | 1 Size 16 | 1 Size 16 |
| Phase & neutral | 4 Size 12 | 4 Size 6 |
| Protective contact | 1 Size 12 | 1 Size 6 |

| Contact Arrangements | Pilot contact - P | | Phase, Neutral and Protective contact - N, L1, L2, L3 & PE | | Test voltage AC * |
|----------------------|-------------------|----------------------------|--|----------------------------|-------------------|
| | Contact rating | Operating Voltage AC or DC | Contact rating | Operating Voltage AC or DC | |
| 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 | 250 V | 1500 V |

*Note : Test voltage in mated condition for Phase, Protective and Neutral pin & socket contacts, and Pilot pin contacts. Test voltage in unmated condition for Pilot socket contact only

POWERSAFE / VG96944 - CHARACTERISTICS

Environmental characteristics

| | Connectors with Proprietary inserts E | Connectors with VG96944 compliant inserts V |
|----------------------------|--|---|
| Temperature | -65 to +175°C (Olive drab cadmium, Black zinc nickel plating) -65 to + 200°C (Nickel plating, Marine Bronze, Stainless steel) | -65 to +150°C (all materials and platings) |
| Salt spray exposure | 48h for Nickel plated Aluminum 500h for Olive drab cadmium, Black zinc nickel, Marine Bronze and Stainless steel | Test level 2 : 5% NaCl. 2h salt spray exposure and 22h storage in humid air repeated during 5 cycles |
| Sealing | IP28: - Finger test for socket contacts and socket inserts - Pressure water tight (48h, under 2m water) | IP28: - Finger test for socket contacts and socket inserts - Pressure water tight (48h, under 2m water) |

Mechanical characteristics

| | Connectors with Proprietary inserts E | Connectors with VG96944 compliant inserts V |
|--|--|--|
| Durability | 500 mating cycles | 500 mating cycles |
| Shocks | - | Half-sine, 500 m/s ² , 11 ms |
| Sine vibrations | 60g from -55 +175°C (Olive drab cadmium) / + 200°C (Nickel) | - |
| Random vibrations | Per EIA-364-28 | Per VG95319-2 (Spectrum 5 Hz to 500 Hz) |
| Insert material | Thermoplastic insert Silicone rubber grommet and interfacial seal | Thermoplastic insert Silicone rubber grommet and interfacial seal |
| Insulator material Comparative Tracking Index | <100V | <400V |
| Contacts | Crimp, removable contacts Gold plating for pilot contact and silver plating for protective, phase and neutral contacts | Crimp, removable contacts Gold plating for pilot contact and silver plating for protective, phase and neutral contacts |
| Protective contact Resistance | ≤100 mΩ | ≤100 mΩ |

Contact retention force

| Contact Size | 20 | 16 | 12 | 6 | 4 |
|-------------------------|----|-----|-----|-----|-----|
| Maximum load (N) | 67 | 111 | 111 | 111 | 150 |

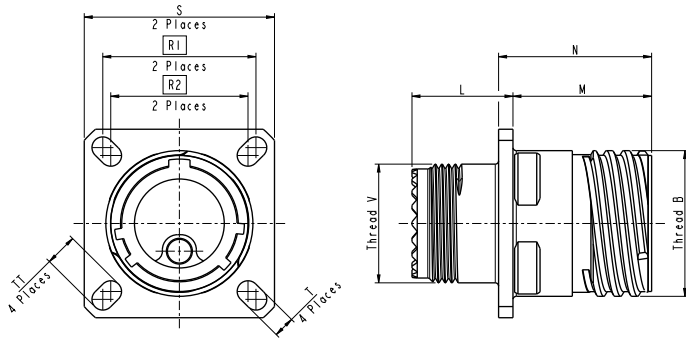
POWERSAFE / VG96944 - OVERALL DIMENSIONS - RECEPTACLES

Square flange receptacle



See part how to order page 22

| AMPHENOL | VG |
|-------------|----------------|
| TVP00RW*** | VG96944-04A**A |
| TVP00ZN*** | |
| TVP00TZ*** | VG96944-04A**J |
| TVPS00RF*** | |
| TVPS00RB*** | VG96944-04A**B |
| TVPS00RK*** | |



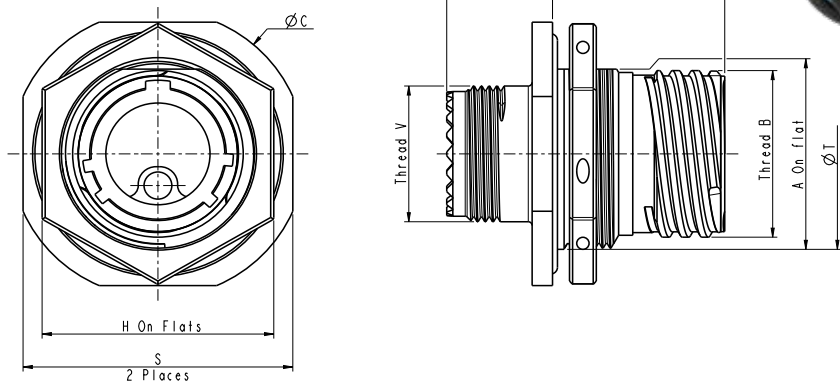
| Shell size | B thread Class 2A (inches) | L Max (mm) | M Max (mm) | N +0.13 0 (mm) | R1 (mm) | R2 (mm) | S ±0.3 (mm) | T ±0.2 (mm) | TT ±0.2 (mm) | V thread (metric) |
|------------|----------------------------|------------|------------|----------------|---------|---------|-------------|-------------|--------------|-------------------|
| 13 | .875 | 15.5 | 20.9 | 22.99 | 23.01 | 20.62 | 28.6 | 3.25 | 4.93 | M18x1-6g |
| 15 | 1.0000 | 15.5 | 23.3 | 25.49 | 24.61 | 23.01 | 31.0 | 3.25 | 4.39 | M22x1-6g |
| 17 | 1.1875 | 15.6 | 23.4 | 25.49 | 26.97 | 24.61 | 33.3 | 3.25 | 4.93 | M25x1-6g |
| 21 | 1.3750 | 17.5 | 24.6 | 27.49 | 31.75 | 29.36 | 39.7 | 3.25 | 4.93 | M31x1-6g |
| 23 | 1.5000 | 20.7 | 24.6 | 27.49 | 34.93 | 31.75 | 42.9 | 3.91 | 4.93 | M34x1-6g |
| 25 | 1.625 | 20.7 | 24.6 | 27.49 | 38.10 | 34.93 | 46.0 | 3.91 | 6.15 | M37x1-6g |

Jam nut receptacle



See part how to order page 22

| AMPHENOL | VG |
|-----------|----------------|
| TV07RW** | VG96944-04B**A |
| TV07ZN** | |
| TV07TZ** | VG96944-04B**J |
| TVS07RF** | |
| TVS07RB** | VG96944-04B**B |
| TVS07RK** | |



| Shell size | B thread Class 2A (inches) | A +0.1 -0.15 (mm) | C Max (mm) | K Max (mm) | P Max (mm) | H Hex 0 -0.1 (mm) | S +/-0.4 (mm) | T (mm) | V thread (metric) | Hex nut max torque (N.m) |
|------------|----------------------------|-------------------|------------|------------|------------|-------------------|---------------|---------------|-------------------|--------------------------|
| 13 | .875 | 23.82 | 38.4 | 22.5 | 13.7 | 30 | 34.9 | 25.20 - 25.50 | M18x1-6g | 20 |
| 15 | 1.0000 | 26.97 | 41.6 | 25.0 | 14.1 | 34 | 38.1 | 28.30 - 28.60 | M22x1-6g | |
| 17 | 1.1875 | 30.15 | 44.8 | 25.0 | 14.1 | 36 | 41.3 | 31.80 - 31.95 | M25x1-6g | 30 |
| 21 | 1.3750 | 36.50 | 25.7 | 27.0 | 18.5 | 46 | 49.2 | 37.97 - 37.80 | M31x1-6g | |
| 23 | 1.5000 | 39.67 | 55.9 | 27.0 | 18.5 | 46 | 52.4 | 41.00 - 41.30 | M34x1-6g | |
| 25 | 1.625 | 42.85 | 59.0 | 27.0 | 18.5 | 50 | 55.6 | 44.20 - 44.5 | M37x1-6g | 40 |

All dimensions are given for information only and are in mm, except as otherwise specified | *in mm: 1mm=0.03937 inch

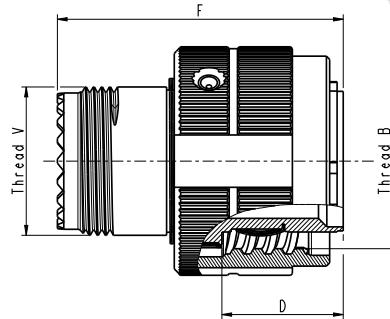
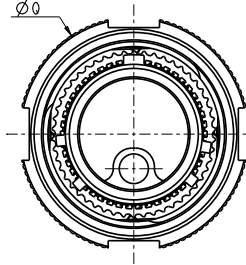
POWERSAFE / VG96944 - OVERALL DIMENSIONS - PLUG

Straight plug



See part how to order page 22

| AMPHENOL | MILITARY |
|-----------|----------------|
| TV06RW** | VG96944-04C**A |
| TV06ZN** | |
| TV06TZ** | VG96944-04C**J |
| TVS06RF** | |
| TVS06RB** | VG96944-04C**B |
| TVS06RK** | |



Conforms to CECC 75.201.002 (coupling nut for arctic gloves)

| Shell size | B thread Class 2B (inches) | Q Max (mm) | F Max (mm) | D (mm) | V thread (metric) |
|------------|----------------------------|------------|------------|--------|-------------------|
| 13 | .875 | 29.4 | 35.5 | 15.01 | M18x1-6g |
| 15 | 1.0000 | 32.5 | 38.0 | 17.51 | M22x1-6g |
| 17 | 1.1875 | 35.7 | 38.0 | 17.51 | M25x1-6g |
| 21 | 1.3750 | 38.5 | 44.4 | 19.51 | M31x1-6g |
| 23 | 1.5000 | 44.9 | 46.0 | 19.51 | M34x1-6g |
| 25 | 1.625 | 48.0 | 46.0 | 19.51 | M37x1-6g |

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POWERSAFE / VG96944 - JAM NUT REDUCED FLANGE RECEPTACLE

Reduced flange receptacle are derived from 38999 series III Jam nut receptacles and dedicated for applications where size & weight are criticals, offering un smaller footprint and higher contact density

Main features

- For Jam nut receptacle (TV07/TVS07).
- Higher density on panel: **41% average footprint surface reduction.**
- Lighter: **20% average lighter than standard 38999**
- Mates with standard PowerSafe plug and caps.
- Matches the PowerSafe performances.
- Improved design of the o'ring groove allowing the o'ring to stay in place.



MATED PAIR

RECEPTACLE FRONT FACE

Standard
TV*07***

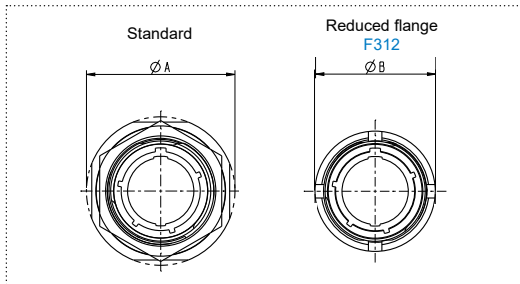


Jam nut
Reduced flange
TV*07***F312



Footprint savings

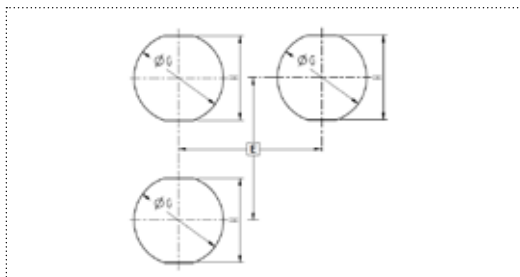
Average 41% footprint reduction:



| Size | Standard PowerSafe ØA _{MAX} (mm) | PowerSafe Reduced flange (F312) ØB _{MAX} (mm) | Ø Reduction |
|------|--|--|-------------|
| 13 | 38.4 | 28.1 | 46% |
| 15 | 41.6 | 32.1 | 40% |
| 17 | 44.8 | 36.1 | 35% |
| 21 | 52.7 | 41.1 | 39% |
| 23 | 55.9 | 44.1 | 38% |
| 25 | 59 | 48.1 | 34% |

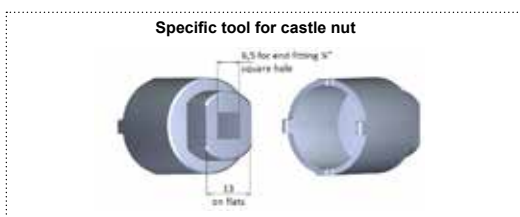
All others dimensions remains the same in standard or reduced flange (lengths, threads, etc.). See page 10 for all other Jam nut receptacle dimensions

Panel hole dimensions



| Size | E recommended | ØG +0.1 0 | H +0.1 0 |
|------|------------------|-----------------|----------------|
| 13 | 31.4 | 23 | 22.3 |
| 15 | 34.5 | 27 | 25.5 |
| 17 | 37.7 | 31 | 30.3 |
| 21 | 43.7 | 36 | 35.1 |
| 23 | 46.9 | 39 | 38.3 |
| 25 | 51.0 | 43 | 41.5 |

Tooling



| Size | Tool reference |
|------|----------------|
| 13 | 809683 |
| 15 | 809684 |
| 17 | 809685 |
| 21 | 809687 |
| 23 | 809688 |
| 25 | 809689 |

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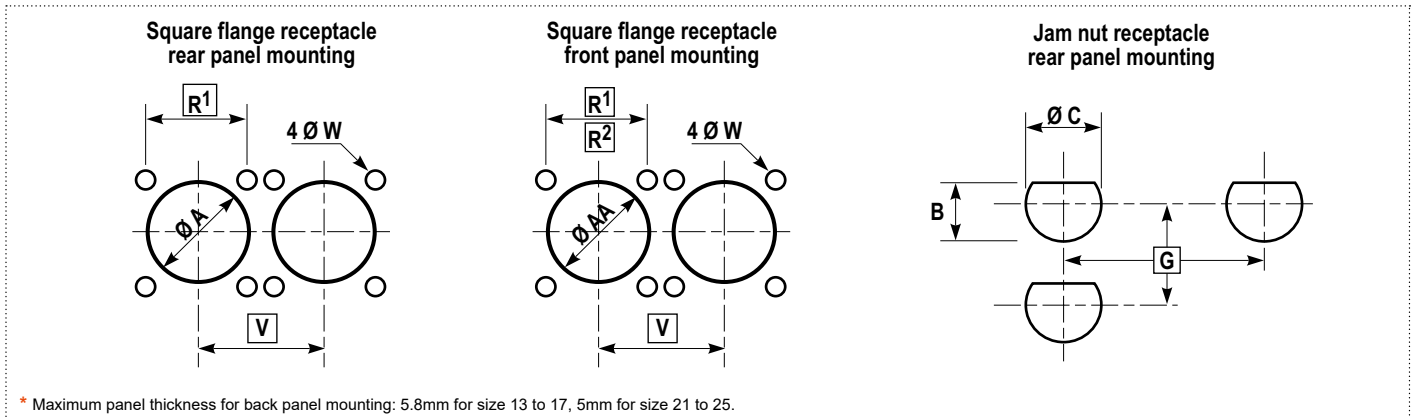
POWERSAFE / VG96944 - KEYWAY & PANEL HOLE DIMENSIONS

Keyway polarization

A plug with a given rotation letter will mate with a receptacle with the same rotation letter. The angles for a given connector are the same whether it contains pins or sockets. Minor keys stay fixed, master key rotates. Keyway identification letter is (Blank) for Normal, A, B, C or D.

| Size | Position of the major key | | | | | RECEPTACLE (front face shown) | PLUG (front face shown) |
|------|---------------------------|----|----|-----|-----|----------------------------------|----------------------------|
| | NORMAL BLANK | A | B | C | D | | |
| 13 | 100 | 80 | 68 | 132 | 120 | | |
| 15 | 100 | 79 | 66 | 134 | 121 | | |
| 17 | 100 | 82 | 70 | 130 | 118 | | |
| 21 | 100 | 82 | 70 | 130 | 118 | | |
| 23 | 100 | 85 | 74 | 126 | 115 | | |
| 25 | 100 | 85 | 74 | 126 | 115 | | |

Panel hole dimensions



| Shell size | R ¹ (mm) | R ² (mm) | V Mini (mm) | ØA Min (mm) | ØAA Min (mm) | ØW ±0.13 (mm) | G Mini (mm) | ØC +0.25 0 (mm) | B 0 -0.25 (mm) |
|------------|------------------------|------------------------|-------------------|-------------------|--------------------|---------------------|-------------------|--------------------------|-------------------------|
| 13 | 23.01 | 20.62 | 30.20 | 23.42 | 19.05 | 3.25 | 36.00 | 25.65 | 24.26 |
| 15 | 24.61 | 23.01 | 33.30 | 26.59 | 23.01 | 3.25 | 39.60 | 28.83 | 27.56 |
| 17 | 26.97 | 24.61 | 36.50 | 30.96 | 25.81 | 3.25 | 43.30 | 32.01 | 30.73 |
| 21 | 31.75 | 29.36 | 42.50 | 36.12 | 32.16 | 3.25 | 50.60 | 38.35 | 37.08 |
| 23 | 34.93 | 31.75 | 45.70 | 39.29 | 34.93 | 3.81 | 54.20 | 41.53 | 40.26 |
| 25 | 38.10 | 34.93 | 48.80 | 42.47 | 37.69 | 3.81 | 59.70 | 44.70 | 43.43 |

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Due to technical modifications, all information provided is subject to change without prior notice
Designed by Amphenol Socapex

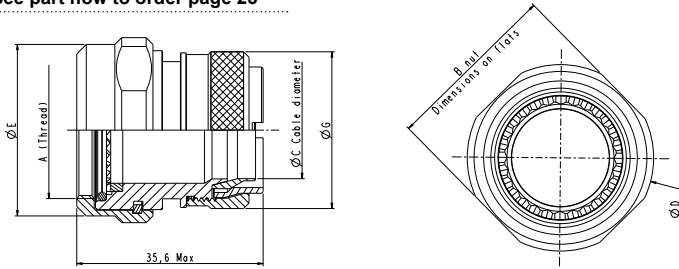
POWERSAFE / VG96944 - BACKSHELLS

TV NSA Backshells

These backshells ensure the shielding by clamping the braid with a screwing system. The free inner ring avoids twisting of the braid during screwing (double conus style).



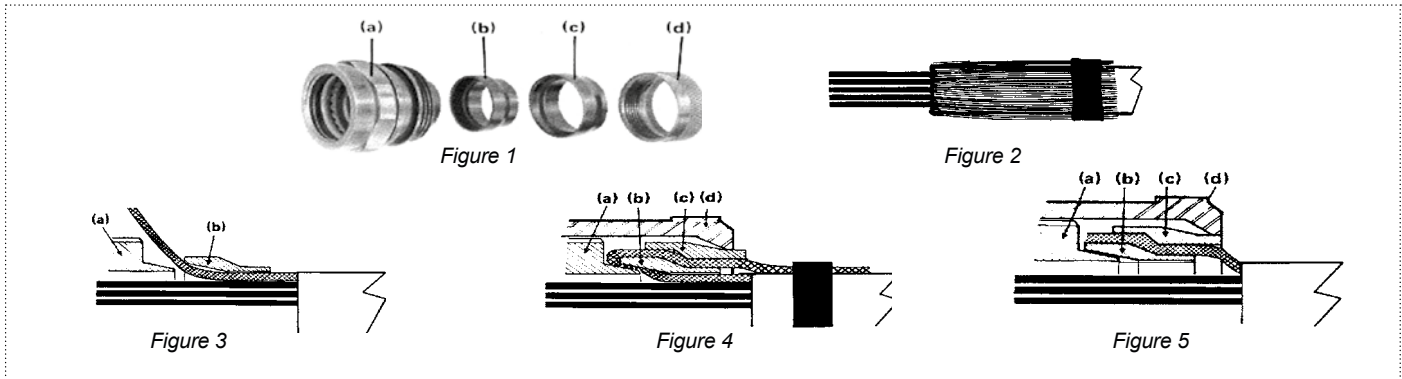
See part how to order page 23



| Shell size | A Thread Metric | B max | Ø C max | Ø D max | Ø E max | Ø G max |
|------------|-----------------|-------|---------|---------|---------|---------|
| 13 | M18 x 1.0-6H | 26 | 12.7 | 28.1 | 21.2 | 22.6 |
| 15 | M22 x 1.0-6H | 29 | 14.8 | 31.1 | 25.1 | 25.8 |
| 17 | M25 x 1.0-6H | 32 | 17.9 | 34.1 | 28.1 | 29.0 |
| 21 | M31 x 1.0-6H | 39 | 23.1 | 41.1 | 34.1 | 35.2 |
| 23 | M34 x 1.0-6H | 42 | 26.2 | 44.1 | 36.9 | 38.4 |
| 25 | M37 x 1.0-6H | 45 | 28.8 | 49.1 | 39.9 | 41.5 |

Use Straight Shrink Boots 202K121-12 (size 13), 202K132-12 (size 15 and 17), 202K153-12 (size 21, 23 and 25) and S1255 Adhesive

TV NSA Installation instructions



1. Prepare the cable for termination process and slide the items onto the cable in the order shown on figure 1.

2. Screw the backshell at the rear of the connector. The best performance in time of the system « connector + rear accessory » consists in applying the torque value to screw then unscrew, to apply the torque value & screw a second time, then to unscrew and finally screw the torque value a third time.

3. Fold back the braid on the outer jacket and fix it (figure 2)

4. Install the braid as shown on figures 3 and 4: Release the braid and cover the backshell (a) and the connector's shell. Slide the first ring (b) over the braid. Fold back the braid on the ring (b) and slide the second ring (c) over the braid and the first ring (b). Screw the last ring (d) at the rear of the backshell. If necessary, fix the extra braid on the outer jacket of the cable. If this installation (double folding of the braid) is not possible, refer to figure 5: Slide the first ring (b). Release the braid and cover the backshell (a) and the connector's shell. Cut the braid as shown. Slide the second ring (c) over the braid and the first ring (b). Screw the last ring at the rear of the backshell.

5. Then, Install the heat-shrink moulded piece.



VG95319 Backshells

These backshells are suitable for PowerSafe connectors and ensure the shielding by clamping the braid with a screwing system (single conus style).

| Shell size | Backshell VG Standard | 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 |
| 15 | VG95319-1011G004A | VG95343T06B003A | | | | | | |
| 17 | VG95319-1011G005A | VG95343T06B004A | | | | | | |
| 21 | VG95319-1011G008A | VG95343T06B004A | 895700 | | | | | |
| 23 | VG95319-1011G009A | VG95343T06B005A | | | | | | |
| 25 | VG95319-1011G010A | VG95343T06C010A | | | | | | |

Use Straight Shrink Boots 202K121-12 (size 13), 202K132-12 (size 15 and 17), 202K153-12 (size 21, 23 and 25) and S1255 Adhesive

All dimensions are given for information only and are in mm, except as otherwise specified | *in mm: 1mm=0.03937 inch

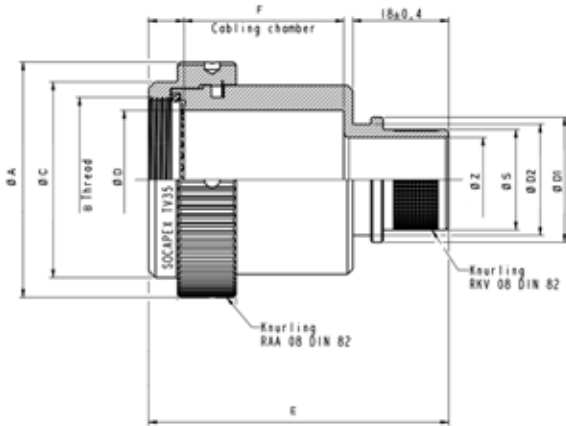
POWERSAFE / VG96944 - BACKSHELLS



TV35 Backshells

TV35 and TVB35 band backshells provide a full 360° shield termination with a quick, easy and cost effective cabling process. They are available with different cabling chamber lengths and exit diameters. The use of replaceable bands facilitates future maintenance or reparability. Sealing is ensured by straight or right angled heat shrink moulded piece at the rear of backshell.

See part how to order page 23



| Shell size | B Thread Metric | Ø A max | Ø C | Ø D |
|------------|-----------------|---------|-------|-------|
| 13 | M18 x 1.0-6H | 31.80 | 25.00 | 13.80 |
| 15 | M22 x 1.0-6H | 35.00 | 28.00 | 16.30 |
| 17 | M25 x 1.0-6H | 38.10 | 30.80 | 20.10 |
| 21 | M31 x 1.0-6H | 44.30 | 36.90 | 26.00 |
| 23 | M34 x 1.0-6H | 47.20 | 39.80 | 29.28 |
| 25 | M37 x 1.0-6H | 50.00 | 43.00 | 32.45 |

| Shell size | E max mm | Cabling chamber length F ^{+/-0.1} mm | Z rear side diameter coding | | | | | | | | | |
|------------|----------|---|-----------------------------|-------|---------|-------|-------|-------|-------|-------|-------|-------|
| | | | 08 | 10 | 12 | 14 | 16 | 20 | 24 | 28 | 32 | 36 |
| 13 | 36 | 10 | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | | |
| | 46 | 20 | | | ■ | ■ | ■ | ■ | | | | |
| | 56 | 30 | | | ■ | ■ | ■ | ■ | | | | |
| 15 | 36 | 10 | | ■ | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 46 | 20 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 56 | 30 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| 17 | 36 | 10 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 46 | 20 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| | 51 | 25 | | | ■ | ■ | ■ | ■ | ■ | ■ | | |
| 21 | 56 | 30 | | | | | ■ | ■ | ■ | ■ | | |
| | 36 | 10 | | | | | ■ | ■ | ■ | ■ | | |
| | 46 | 20 | | | | ■ | ■ | ■ | ■ | ■ | | |
| 23 | 56 | 30 | | | | | | ■ | ■ | ■ | | |
| | 36 | 10 | | | | | | ■ | ■ | ■ | ■ | |
| | 46 | 20 | | | | | | ■ | ■ | ■ | ■ | |
| 25 | 56 | 30 | | | | | | | ■ | ■ | ■ | ■ |
| | 36 | 10 | | | | | | | ■ | ■ | ■ | ■ |
| | 46 | 20 | | | | | | | ■ | ■ | ■ | ■ |
| Z Coding | | | 08 | 10 | 12 | 14 | 16 | 20 | 24 | 28 | 32 | 36 |
| ØZ | | | 6.30 | 7.90 | 9.40 | 11 | 12.60 | 15.80 | 19 | 22.10 | 25.30 | 28.80 |
| ØS MIN | | | 9.40 | 11.10 | 14.10 | 14.10 | 15.70 | 18.90 | 22 | 25.20 | 28.40 | 31.50 |
| ØS MAX | | | 9.50 | 11.2 | 14.30 0 | 14.30 | 15.90 | 19.10 | 22.20 | 25.40 | 28.60 | 31.80 |
| ØD1 ±0,1 | | | 14.00 | 17.10 | 17.10 | 18.70 | 20.30 | 23.50 | 26.70 | 29.80 | 33 | 36.20 |
| ØD2 ±0,1 | | | 11.40 | 14.50 | 14.50 | 16.10 | 17.70 | 20.90 | 23.10 | 26.20 | 29.40 | 32.60 |

Use Straight Shrink Boots 202K121-12 (size 13), 202K132-12 (size 15 and 17), 202K153-12 (size 21, 23 and 25) and S1255 Adhesive.

All dimensions are given for information only and are in mm, except as otherwise specified | *in mm: 1mm=0.03937 inch

POWERSAFE / VG96944 - PROTECTIVE CAPS

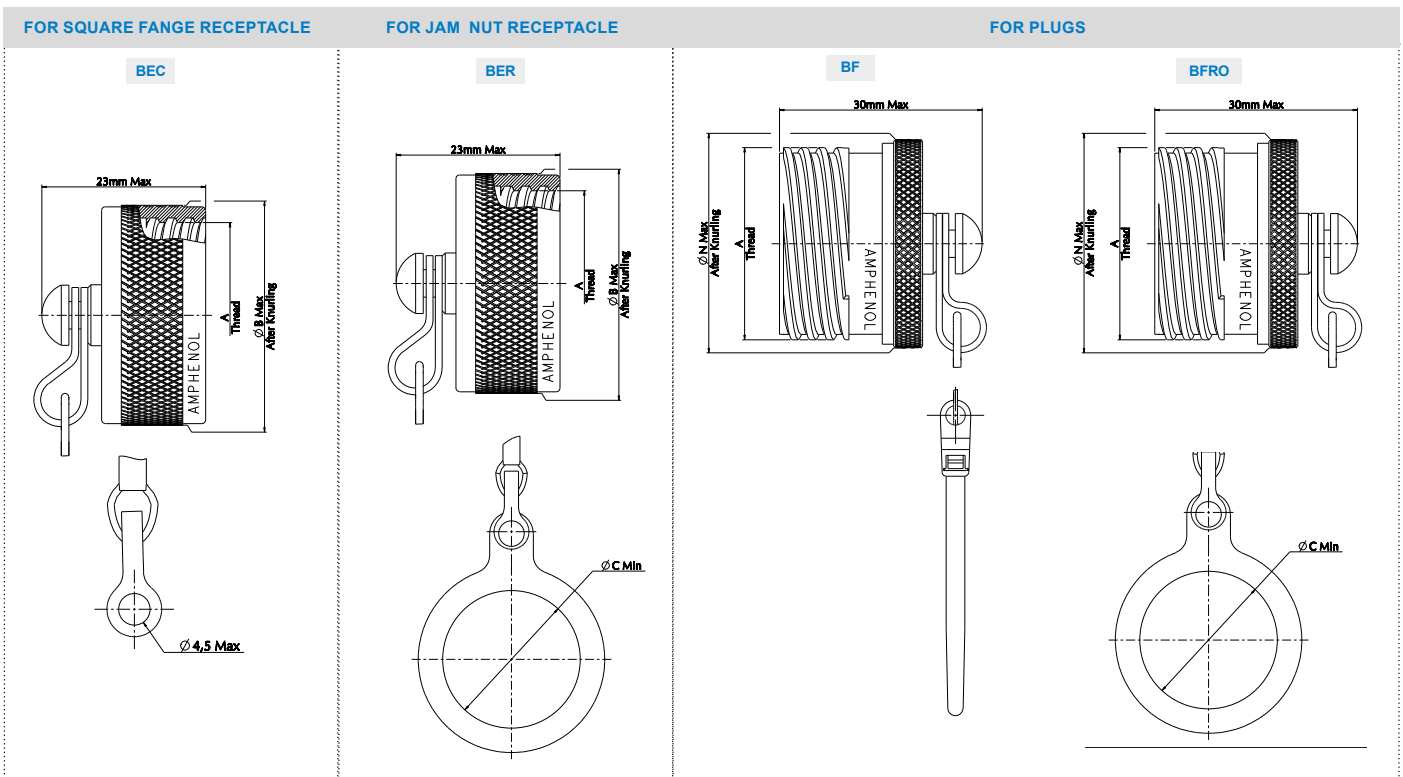
Main features

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



Overall dimensions

See part how to order page 24



| Shell size | A thread .1P-.3L-TS Class 2A (External) Class 2B (Internal) (inches) | ØB Max (After Knurling) | ØC Min | ØN Max |
|------------|--|----------------------------|--------|--------|
| 13 | .875 | 25.75 | 25.15 | 24.30 |
| 15 | 1.0000 | 28.90 | 29.92 | 27.40 |
| 17 | 1.1875 | 33.80 | 32.00 | 30.60 |
| 21 | 1.3750 | 38.60 | 38.25 | 36.40 |
| 23 | 1.5000 | 41.70 | 42.62 | 39.70 |
| 25 | 1.625 | 44.90 | 44.45 | 42.80 |

Nylon cord, Chain and Stainless Steel Rope length

| Cap type | Attachement length |
|------------------------|--------------------|
| BEC/BER for receptacle | 127 (+13 / -7) |
| BF/BFRO for plug | 160±5 |

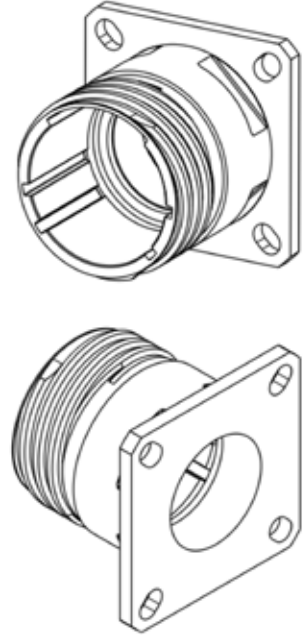
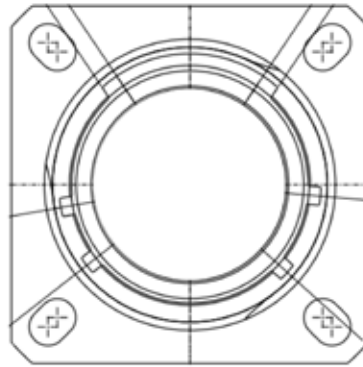
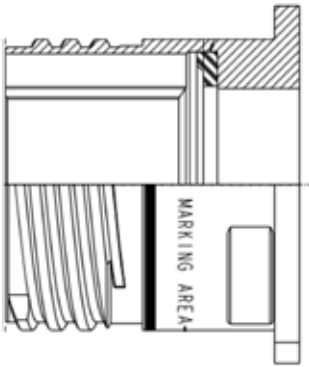
All dimensions are given for information only and are in mm, except as otherwise specified | *in mm: 1mm=0.03937 inch

POWERSAFE / VG96944 - DUMMY RECEPTACLES

- Dedicated to **PowerSafe**
- Universal coding : Compatible with all Keyway polarizations
- Can be used as a backshell tightening tool
- Same dimensions and Panel holes than a standard Square Flange Receptacle (see page 10).



See part how to order page 24



All dimensions are given for information only and are in mm, except as otherwise specified | *in mm: 1mm=0.03937 inch

Due to technical modifications, all information provided is subject to change without prior notice
Designed by Amphenol Socapex

Amphenol SOCAPEX

POWERSAFE / VG96944 - CONTACTS & TOOLING

| | Contact type | Size | Contacts | | AWG | Section mm ² | dia over insulator | | Crimping tools | | | Insertion tools | | | Removal tools | | |
|----------------|---------------|------|-------------------------|--------|----------------|-------------------------|--------------------|------|--------------------------------|--------------------------------|-------------------|-------------------------------|---------------|-------------|-------------------------------|---------------|-------------|
| | | | Proprietary Part Number | | | | Min | Max | Tools | Positioner | Selector position | Plastic (Color) | Metallic | | Plastic (Color) | Metallic | |
| | | | Pin | Socket | | | | | | | | | Straight type | Angle type | | Straight type | Angle type |
| 13-V4 13-E4 | Pilot | 20 | 600665 | 600892 | 20 22 24 | 0,61 0,38 0,24 | 1,02 | 2,11 | | | 3 2 1 | M81969/14-10 (red / orange) | 809817 | M81969/8-05 | M81969/14-10 (red / orange) | 809847 | M81969/8-06 |
| | Phase Neutral | 16 | 600666 | 600676 | 14 16 18 | 1,94 1,23 0,96 | 1,65 | 2,77 | M22520/1-01 | M22520/1-04 | 6 6 5 | M81969/14-03 (blue / white) | 809816 | M81969/8-07 | M81969/14-03 (blue / white) | 809846 | M81969/8-08 |
| | Protective | | 600667 | 600677 | 20 | 0,61 | | | | | 4 | / | / | / | / | / | / |
| 15-V4 15-E4 | Pilot | 16 | 600660 | 600894 | 16 18 20 | 1,23 0,96 0,61 | 1,65 | 2,77 | | | 6 5 4 | M81969/14-03 (blue / white) | 809816 | M81969/8-07 | M81969/14-03 (blue / white) | 809846 | M81969/8-08 |
| | Phase Neutral | 12 | 600661 | 600671 | 12 14 | 2,98 1,94 | 2,46 | 3,61 | M22520/1-01 | M22520/1-04 | 8 7 | M81969/14-04 (yellow / white) | / | M81969/8-09 | M81969/14-04 (yellow / white) | / | M81969/8-10 |
| | Protective | | 600662 | 600672 | | | | | | | 7 | / | / | / | / | / | / |
| 17-V6 17-E6 | Pilot | 16 | 600660 | 600894 | 16 18 20 | 1,23 0,96 0,61 | 1,65 | 2,77 | | | 6 5 4 | M81969/14-03 (blue / white) | 809816 | M81969/8-07 | M81969/14-03 (blue / white) | 809846 | M81969/8-08 |
| | Phase Neutral | 12 | 600661 | 600671 | 12 14 | 2,98 1,94 | 2,46 | 3,61 | M22520/1-01 | M22520/1-04 | 8 7 | M81969/14-04 (yellow / white) | / | M81969/8-09 | M81969/14-04 (yellow / white) | / | M81969/8-10 |
| | Protective | | 600662 | 600672 | | | | | | | 7 | / | / | / | / | / | / |
| 21-V4 21-E4 | Pilot | 16 | 600660 | 600894 | 16 18 20 | 1,23 0,96 0,61 | 1,65 | 2,77 | M22520/1-01 | M22520/1-04 | 6 5 4 | M81969/14-03 (blue / white) | / | / | M81969/14-03 (blue / white) | / | / |
| | Phase Neutral | 6 | 600663 | 600673 | 6 | 13,61 | 7,3 | 8,1 | 809947 + 809908 (hex crimp) or | | / | / | / | / | / | / | 809696 |
| | Protective | | 600664 | 600674 | | | | | M22520/23-01 + M22520/23-03 | 809697 (pin) + 809690 (socket) | / | / | / | / | / | / | / |
| 23-V4 23-E4 | Pilot | 16 | 600660 | 600894 | 16 18 20 | 1,23 0,96 0,61 | 1,65 | 2,77 | M22520/1-01 | M22520/1-04 | 6 5 4 | M81969/14-03 (blue / white) | / | / | M81969/14-03 (blue / white) | / | / |
| | Phase Neutral | 4 | 612514 | 612516 | 4 | 21,2 | | | M22520/23-01 | M22520/23-04 | / | / | / | / | / | 809943 | / |
| | Protective | | 612513 | 612515 | | | | | | | / | / | / | / | / | / | / |
| 25-V6 25-E6 | Pilot | 16 | 600660 | 600894 | 16 18 20 | 1,23 0,96 0,61 | 1,65 | 2,77 | M22520/1-01 | M22520/1-04 | 6 5 4 | M81969/14-03 (blue / white) | / | / | M81969/14-03 (blue / white) | / | / |
| | Phase Neutral | 6 | 600663 | 600673 | 6 | 13,61 | 7,3 | 8,1 | 809947 + 809908 (hex crimp) or | | / | / | / | / | / | / | 809696 |
| | Protective | | 600664 | 600674 | | | | | M22520/23-01 + M22520/23-03 | 809697 (pin) + 809690 (socket) | / | / | / | / | / | / | / |

CRIMPING TOOLS

MANUAL CRIMPING PLIERS
M22520/1-01



HYDRAULIC PLIERS
809947

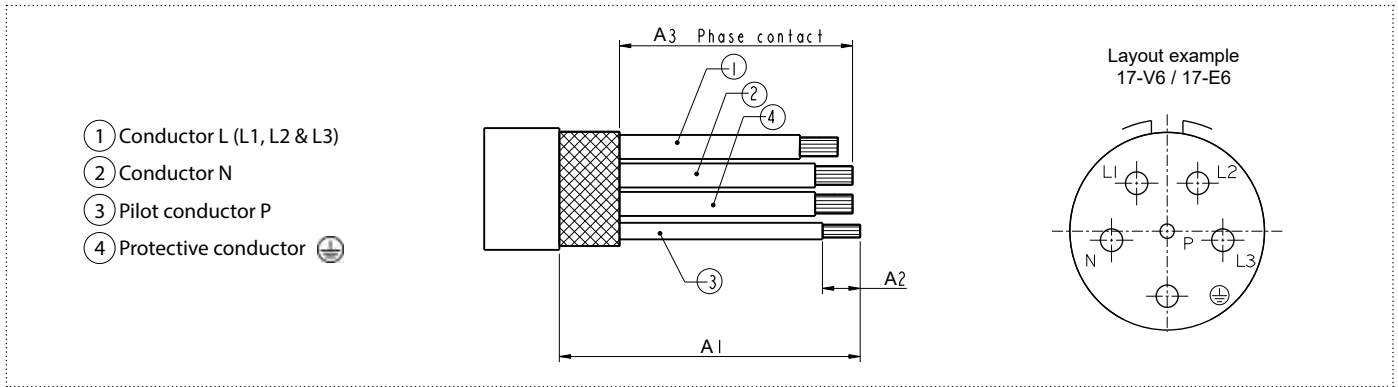


PNEUMATIC PLIERS
M22520/23-01



All dimensions are given for information only and are in mm, except as otherwise specified | *in mm: 1mm=0.03937 inch

POWERSAFE / VG96944 - WIRE STRIP LENGTH



| Size | Contact type | A1 | A2 | A3 (for shielding braid) |
|------|---------------------------------|---------|-----------|-----------------------------|
| 13 | Protective contact | 53 - 63 | 6 - 6.5 | 42 _{MAX} |
| | Phase contacts (N, L1, L2 & L3) | | | |
| | Pilot contact (P) | | | |
| 15 | Protective contact | 53 - 63 | 6 - 6.5 | |
| | Phase contacts (N, L1, L2 & L3) | | | |
| | Pilot contact (P) | | | |
| 17 | Protective contact | 53 - 63 | 6 - 6.5 | |
| | Phase contacts (N, L1, L2 & L3) | | | |
| | Pilot contact (P) | | | |
| 21 | Protective contact | 55 - 65 | 14 - 15.5 | |
| | Phase contacts (N, L1, L2 & L3) | | | |
| | Pilot contact (P) | | | |
| 23 | Protective contact | 55 - 65 | 14 - 15.5 | |
| | Phase contacts (N, L1, L2 & L3) | | | |
| | Pilot contact (P) | | | |
| 25 | Protective contact | 55 - 65 | 14 - 15.5 | |
| | Phase contacts (N, L1, L2 & L3) | | | |
| | Pilot contact (P) | | | |

All dimensions are given for information only and are in mm, except as otherwise specified | *in mm: 1mm=0.03937 inch

POWERSAFE / VG96944 - VG96944 QUALIFIED CABLES

| Size 13 | PN | Raw material |
|-------------------------|-------------------------------------|------------------------------------|
| WIRE AWG16 white | VG95218T020A003 | Tinned copper, jacket PVF modified |
| WIRE AWG14 white | M81044/12-14-9 | Tinned copper, jacket PVDF |
| WIRE AWG14 blue | M81044/12-14-6 | 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 15 | PN | Raw material |
| WIRE AWG16 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 17 | PN | Raw material |
| WIRE AWG16 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 21 | PN | Raw material |
| WIRE AWG16 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 |
| Size 23 | PN | Raw material |
| WIRE AWG16 white | VG95218T020A003 | Tinned copper, jacket PVF modified |
| WIRE AWG4 white | M22759/34 4 | Tinned copper, jacket ETFE |
| WIRE AWG4 blue | M22759/34 4 | Tinned copper, jacket ETFE |
| WIRE AWG4 green yellow | M22759/34 4 | Tinned copper, jacket PVDF |
| Fillers | - | PTFE |
| Braid | TB13-T-200 | Tinned copper |
| Heatshrink | DR25 1-0M (VG95343 Part 5 Type D) | Elastomer |
| Size 25 | PN | Raw material |
| WIRE AWG16 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 |

POWERSAFE / VG96944 - MIL QUALIFIED CABLES

| 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 | Fluroelastomeric or Viton |
| Size 15 | PN | Raw material |
| WIRE AWG16 | 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 | Fluroelastomeric or Viton |
| Size 17 | PN | Raw material |
| WIRE AWG16 | 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 | Fluroelastomeric or Viton |
| Size 21 | PN | Raw material |
| WIRE AWG16 | 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 | Fluroelastomeric or Viton |
| Size 23 | PN | Raw material |
| WIRE AWG16 | M22759/34 16 | Tinned copper, jacket ETFE |
| WIRE AWG4 | M22759/34 4 | Tinned copper, jacket ETFE |
| Fillers | / | PTFE |
| Braid | 4D045591 | Nickel copper |
| Heatshrink | RW200E-1 1/2-0 or HLR33003810 | Fluroelastomeric or Viton |
| Size 25 | PN | Raw material |
| WIRE AWG16 | 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 | Fluroelastomeric or Viton |

Note that High performance Nickel plated or Silver plated wires can also be used for harsh environment applications, to withstand higher temperatures.

POWERSAFE / VG96944 - HOW TO ORDER - PROPRIETARY DESIGNATIONS

| Series | Shell type | Crimp contacts | Class | Contact arrangement | Contact gender | Keying | Deviation |
|--------|------------|----------------|-------|---------------------|----------------|--------|-----------|
| TV | P00 | R | W | 13-E4 | P | | - |

1. Shell type

| Shell type | Temperature | Associated materials and platings for E inserts | Associated materials and platings for V inserts |
|---------------------------------|-------------|---|---|
| 06 Straight plug | +175°C* | W, ZN, ZR, TZ | W, ZN, ZR, TZ, F, K, S, B |
| S06 | +200° C | F, K, S, B | - |
| P00 Square flange receptacle | +175°C* | W, ZN, ZR, TZ | W, ZN, ZR, TZ, F, K, S, B |
| PS00 | +200° C | F, K, S, B | - |
| 07 Jam nut receptacle | +175°C* | W, ZN, ZR, TZ | W, ZN, ZR, TZ, F, K, S, B |
| S07 | +200° C | F, K, S, B | - |

2. Crimp contacts

| | |
|-------|----------------------------------|
| R | For Class W, F, K and B platings |
| Blank | For Class ZN and TZ plating |

3. Class: Material & Finish

| Shell material | Shell finish |
|----------------------|---|
| W | Olive drab cadmium |
| F | Nickel ✓ |
| ZN Aluminum | Black zinc nickel ✓ |
| ZR | Black zinc nickel without Chromium 6+ ✓ |
| TZ | Tin Zinc ✓ |
| B Marine bronze ✓ | - |
| K Stainless steel | Passivated ✓ |
| S | Nickel ✓ |

4. Contact arrangement

| | |
|-------|----------------------|
| 13-E4 | Size 13 – 4 contacts |
| 15-E4 | Size 15 – 4 contacts |
| 17-E6 | Size 17 – 6 contacts |
| 21-E4 | Size 21 - 4 contacts |
| 23-E4 | Size 23 - 4 contacts |
| 25-E6 | Size 25 – 6 contacts |

Please note that standard inserts have a Comparative Tracking Index (CTI) <100V and can withstand a temperature up to 200°C depending on shell material and platings.

| | |
|-------|----------------------|
| 13-V4 | Size 13 – 4 contacts |
| 15-V4 | Size 15 – 4 contacts |
| 17-V6 | Size 17 – 6 contacts |
| 21-V4 | Size 21 - 4 contacts |
| 23-V4 | Size 23 - 4 contacts |
| 25-V6 | Size 25 – 6 contacts |

Please note that VG inserts have a Comparative Tracking Index (CTI) between 175 & 400V (Material Group IIIa) and can withstand a temperature up to 150°C.

5. Contact gender

| | |
|---|---------------------|
| P | Pin (500 cycles) |
| S | Socket (500 cycles) |

6. Keying

| | | | | |
|-------------------------|---|---|---|---|
| (Blank) (for normal) | A | B | C | D |
|-------------------------|---|---|---|---|

7. Deviation

| Deviation | Description | Shell type compatibility |
|-----------|---|--------------------------|
| F312 | Reduced flange receptacle with a standard nut | 07/S07 |

For other deviations availability, please consult us

POWERSAFE / VG96944 - HOW TO ORDER - VG96944 DESIGNATIONS

| Series | Shell type | Contact arrangement | Contact gender | Keying | Material and platings |
|------------|------------|---------------------|----------------|--------|-----------------------|
| VG96944-04 | A | 13-V4 | P | N | A |

1. Shell type

| | | |
|---|------------|--------------------------|
| A | Receptacle | Square flange receptacle |
| B | | Jam nut receptacle |
| C | | Straight plug |

2. Contact arrangement

| | |
|-------|--|
| 13-V4 | Size 13 – 4 contacts |
| 15-V4 | Size 15 – 4 contacts (qualification to come) |
| 17-V6 | Size 17 – 6 contacts |
| 21-V4 | Size 21 - 4 contacts (qualification to come) |
| 23-V4 | Size 23 - 4 contacts (qualification to come) |
| 25-V6 | Size 25 – 6 contacts |

Please note that VG inserts have a Comparative Tracking Index (CTI) between 175 & 400V (Material Group IIIa) and can withstand a temperature up to 150°C.

3. Contact gender

| | |
|---|---------------------|
| P | Pin (500 cycles) |
| S | Socket (500 cycles) |

4. Keying

| | | | | |
|-------------------|---|---|---|---|
| N (for normal) | A | B | C | D |
|-------------------|---|---|---|---|

5. Material and platings

| Shell material | Shell finish |
|----------------------|---|
| A Aluminum | Olive drab cadmium (13-V4/17-V6/25-V6 only) |
| J | Tin Zinc ✓ (Qualification in progress) |
| B Marine bronze ✓ | - |

✓ : RoHS compliant

POWERSAFE / VG96944 - HOW TO ORDER - TV35 BACKSHELLS



| Series | Backshell style | Backshell size | Cabling chamber length | Rear side diameter | Material and platings | Deviation |
|--------|-----------------|----------------|------------------------|--------------------|-----------------------|-----------|
| TV | 35 | 11 | 10 | 11 | 014 | - |

1. Backshell style

| | |
|-----|--|
| 35 | Aluminum straight band backshell accepting heatshrink moulded piece |
| B35 | Marine bronze straight band backshell accepting heatshrink moulded piece |

2. Backshell size (same as connector size)

| | | | | | |
|----|----|----|----|----|----|
| 13 | 15 | 17 | 21 | 23 | 25 |
|----|----|----|----|----|----|

3. Cabling chamber length

Please refer to Page 15

| |
|----|
| 10 |
|----|

4. Rear side diameter

Please refer to Page 15

| | | | | | | | | | | |
|----|----|----|----|----|----|----|----|----|----|----|
| 06 | 08 | 10 | 12 | 14 | 16 | 20 | 24 | 28 | 32 | 36 |
|----|----|----|----|----|----|----|----|----|----|----|

5. Material and platings

| | Shell material | Shell finish |
|-------|-----------------|---------------------|
| 014 | Aluminum | Olive drab cadmium |
| 023 | | Nickel ✓ |
| 076 | | Tin Zinc ✓ |
| 033K | | Black zinc nickel ✓ |
| Blank | Marine Bronze ✓ | - |

6. Deviation

| | |
|------|--|
| F479 | Mandatory for Tin Zinc plated backshells in addition to TZ |
|------|--|

POWERSAFE / VG96944 - HOW TO ORDER - TV NSA DESIGNATIONS



| Series | Backshell style | Backshell size | Material and platings |
|--------|-----------------|----------------|-----------------------|
| TV | NSA | 13 | 014 |

1. Backshell style

| | |
|-----|--|
| NSA | Screened clamping braid backshell accepting heatshrink moulded piece |
|-----|--|

2. Backshell size (same as connector size)

| | | | | | |
|----|----|----|----|----|----|
| 13 | 15 | 17 | 21 | 23 | 25 |
|----|----|----|----|----|----|

3. Material and platings

| | Shell material | Shell finish |
|------|----------------|---------------------|
| 014 | Aluminum | Olive drab cadmium |
| 023 | | Nickel ✓ |
| 033K | | Black zinc nickel ✓ |

✓: RoHS compliant



POWERSAFE / VG96944 - HOW TO ORDER - PROTECTIVE CAPS

| 1. | 2. | 3. | 4. | 5. | 6. | |
|----------|-----------|-----------|--------|-----------------------|----------|-----------|
| Cap type | Cap style | Wire type | Series | Material and platings | Cap size | Deviation |
| B | EC | N | TV | W | 15 | - |

1. Cap style

| | |
|----|------------------------------|
| EC | For Square flange receptacle |
| ER | For Jam nut receptacle |
| F | For Plug |

2. Wire type

| | |
|----|---|
| - | Metal chain |
| N | Nylon cord |
| R | Jacketed stainless steel rope |
| RO | Jacketed stainless steel rope with washer end (for plugs) |

3. Series

| | |
|----|---------------|
| TV | For PowerSafe |
|----|---------------|

4. Material and platings

| | Shell material | Shell finish |
|----|-----------------|---------------------------------------|
| W | Aluminum | Olive drab cadmium |
| F | | Nickel ✓ |
| ZN | | Black zinc nickel ✓ |
| TZ | | Tin Zinc ✓ * see deviation F479 below |
| B | Marine Bronze ✓ | - |

5. Cap size (same as connector size)

| | | | | | |
|----|----|----|----|----|----|
| 13 | 15 | 17 | 21 | 23 | 25 |
|----|----|----|----|----|----|

6. Deviation

| | |
|------|---|
| F579 | For Reduced flange Jam nut receptacle |
| F479 | Mandatory fo Tin Zinc plated Caps in addition to TZ |

POWERSAFE / VG96944 - HOW TO ORDER - DUMMY RECEPTACLES



| 1. | 2. | 3. | 4. | |
|------------------|-------|--------|-----------------------|------------|
| Dummy receptacle | Style | Series | Material and platings | Shell size |
| SE | 00 | TVE | W | 13 |

1. Style

| | |
|----|---------------|
| 00 | Square flange |
|----|---------------|

2. Series

| | |
|-----|---------------|
| TVE | For PowerSafe |
|-----|---------------|

3. Material and platings

| | Shell material | Shell finish |
|----|-----------------|---------------------|
| W | Aluminum | Olive drab cadmium |
| F | | Nickel ✓ |
| ZN | | Black zinc nickel ✓ |
| TZ | | Tin Zinc ✓ |
| B | Marine bronze ✓ | - |

4. Shell size

| | | | | | |
|----|----|----|----|----|----|
| 13 | 15 | 17 | 21 | 23 | 25 |
|----|----|----|----|----|----|

✓: RoHS compliant



NOTES

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