

# **Description**

In response to market demands, Amphenol Socapex launched Black Zinc Nickel Plating, a viable, cost-effective alternative to heavy metal Cadmium. Black Zinc Nickel plating is non-reflective, RoHS compliant and remains functional up to 500 hours salt spray exposure depending on the series. Black Zinc Nickel will be soon widely used as the new standard in all commercial and military applications.









## **Main Features:**

## for MIL-DTL-38999 Series III and RJ Field TV

- Environmental: cadmium free, RoHS compliant
- Shell-to-Shell Continuity: less than <2.5mΩ initially (for MIL-DTL-38999 Series III)
- Salt Spray 500hrs endurance: with shell-to-shell continuity (for MIL-DTL-38999 Series III)
- Mechanical 500 mating cycles
- Temperature Range: -65° to +175°C in accordance with Mil-DTL-38999
- **Compatibility:** the mix of Black Zinc Nickel connectors with connectors with other plating is let entirely in the engineering designer's hand since in the best position to know the environment during the life of the equipment.

## **Markets**









# **Product Range With Black Zinc Nickel Plating**

# MIL-DTL-38999 Series I, II, III



 Battlefield communication EMI protection with grounding



### **Main Features:**

- Bayonet coupling
- · Non scoop proof light weight, space saving
- 5 coding possibilitiesEMI protection with grounding fingers on the plugs is an option



JT

## **Applications:**

- Military avionic applications
- Applications require very low profile

## TV

## **Main Features:**

fingers on the plugs

- device
- 9 shell sizes
- More than 80 contact arrangements
- · Scoop proof
- 6 coding possibilities
- · EMI protection with grounding fingers on the plugs



# **Applications:**

- Thread coupling with anti-decoupling Military and aeronautic applications
  - Advanced industrial applications







## 38999 Derived Products

### **RNJ**

### Main features:

- · Rack and panel connectors
- Derived from LJT / HE308 / MIL-DTL-38999 series I
- Realignment capability



## **Applications:**

- Commercial aircraft
- Military applications & aeronautic



## **RNJ Low Profile**

### **Main Features:**

- · Rack and panel connectors
- Derived from RNJ with same realignment capability
- Reduced distance between the panels

## **Applications:**

- · Military avionic packaging
- Ground/marine/defense applications
- Advanced industrial applications



# **PowerSafe**

### **Main Features:**

- · Transmit to design high-power with voltages over 500V
- Focus on user safty
- · One earth contact linked to the
- One pilot contact to be use as a relay of power break before

### disconnection

# **Applications:**

- I/O power for boxes
- Power connectors spreads on field
- Electric power generator





### **SC39**

# **Main Features:**

#### **Snatch release connectors** Derived from TV / MIL- DTL-

- 38999 III
- Quick mating/unmating
- No coupling nut Lanyard versions



# **Applications:**

- · Emergency disconnect
- Communications systems
- Ground vehicles
- Helmets Missiles





Amphenol Socapex launched a range of products «48 or 96 hours Salt spray»

# **BLACK ZINC NICKEL**

## PT 451 - MIL-DTL-26482 Series I





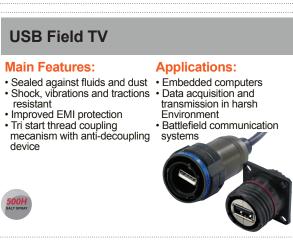
# Rugged Ethernet and USB Connector

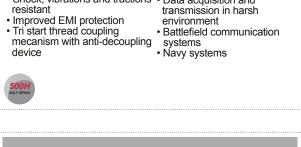




**RJ Field TV** 







**Include Protective Caps and Backshells** 

to meet the market needs: no significant cost increase versus olive drab cadmium.

# **BLACK ZINC NICKEL**

# Why Black Zinc Nickel?

The EU directive on the Restriction of the use of curtains Hazardous Substances (RoHS) in Electrical and Electronic Equipment restricts six substance including Cadmium. Cadmium plating has been the standard in all military applications due to its performances in highly demanding environments.

Today, more and more customers require RoHS compliancy, Amphenol Socapex aims to be able to provide the best offers to its customers. So after years of research and investment in a viable alternative, Black Zinc Nickel plating, RoHS compliant, is now available to fill the customer requirements.

# Performance Comparison: For MIL-DTL-38999 Series III

Requirement	Cadmium (Cd)	Black Zinc Nickel (ZnNi)	Zinc Cobalt (ZnCo)	Electroless Nickel (Ni)
Temperature	-65° / +175°	-65° / +175°C	-65° / +175°C	-65° / +200°C
Salt Spray	500H SALT SPRAY	500H SALT SPRAY	SALT SPRAY	SALT SPRAY
Conductivity	<2.5mV	<2.5mV	<2.5mV	<1.0mV
Durability	500 cycles	500 cycles	500 cycles	500 cycles
RoHS	-	ROHS	RoHS	RoHS
MIL-DTL-38999	W	Z	-	F
QPL	QPL	QPL	-	QPL
Compatibility	ZnNi, ZnCo	Cd, ZnCo, Ni	ZnNi, Cd	ZnNi

## **Benefits**

Beyond being RoHS compliant, Black Zinc Nickel Plating provides many advantages.

- Black Zinc Nickel plating resists to corrosion: this black finish is approved for 500 hours salt spray exposure, way better than Zinc Cobalt et Electroless Nickel platings.
- The Plating is rated from -65°C to +175°C meeting the MIL-DTL- 38999 requirement, when Black Zinc Nickel is long-term exposed to temperatures of 175°C this plated remains unaffected.
- A cost-effective solution: Black Zinc Nickel plating has the same Thickness as Cadmium meaning that it maintains the mechanical integrity of the plated connector and does not require new drawings, tooling or gauges.
- Black Zinc Nickel plated can be compatible with others Cadmium Connectors, let in the designer's hand.

Amphenol Socapex is able to offer other ROHS plating such as Zinc Cobalt, Electroless Nickel, Durmalon for most of its product range.





