

# BLACK ZINC NICKEL

## RoHS compliant plating finish



**NEW**

### 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.

**COST  
EFFECTIVE**



### Main Features:

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

- **Environmental:** cadmium free, RoHS compliant
- **Shell-to-Shell Continuity:** less than  $<2.5\text{m}\Omega$  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:**  $-65^{\circ}$  to  $+175^{\circ}\text{C}$  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



C4ISR



Ground Vehicle



Military Aerospace



Commercial Aerospace

# BLACK ZINC NICKEL

## Product Range With Black Zinc Nickel Plating

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

#### LJT

Derived from  
MIL-DTL-38999  
Series I

##### Main Features :

- Bayonet coupling
- Scoop proof
- 5 coding possibilities
- EMI protection with grounding fingers on the plugs

##### Applications :

- Military avionic applications
- Military vehicle
- Battlefield communication



#### JT

Derived from  
MIL-DTL-38999  
Series II

##### Main Features:

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

##### Applications:

- Military avionic applications
- Applications require very low profile



#### TV

##### Main Features :

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

##### Applications :

- Military and aeronautic applications
- Advanced industrial applications



Include Protective Caps and Backshells  
TV NSA, TV 35, LJT NSA, HE 308-35



## 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



#### 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



#### PowerSafe

##### Main Features:

- Transmit to design high-power with voltages over 500V
- Focus on user safety
- One earth contact linked to the shell
- 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



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

# BLACK ZINC NICKEL

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

MIL-DTL-26482  
Series I

### PT 451

#### Main Features:

- 4 coding possibilities
- Usually sold with backshell
- Bayonet coupling



#### Applications:

- Outdoor Industry Applications
- Oil & Gas
- C4ISR
- Ground vehicles
- Measures/Instrumentation



### Include Protective Caps and Backshells



## Rugged Ethernet and USB Connector

### RJ Field

#### Main Features:

- Robust metallic shells based on MIL-DTL-26482
- Compliant with IEC 60603-7 Variant 11
- Bayonet coupling
- 4 coding possibilities



#### Applications:

- Robotics
- Industrial process control
- CNC machines
- Special Machines
- Data acquisition and transmission in harsh Environment
- Tele-maintenance



### RJ Field TV

#### Main Features:

- Tri start thread mechanism, MIL-DTL-38999 series III type, with anti-decoupling device
- Robust metallic shells
- Improved EMI protection



#### Applications:

- Data acquisition and transmission in harsh environment
- Radars
- Shelters
- Battlefield communication systems
- Navy



### USB Field TV

#### Main Features:

- Sealed against fluids and dust
- Shock, vibrations and tractions resistant
- Improved EMI protection
- Tri start thread coupling mechanism with anti-decoupling device



#### Applications:

- Embedded computers
- Data acquisition and transmission in harsh Environment
- Battlefield communication systems



### USBB Field TV

#### Main Features:

- Sealed against fluids and dust
- Shock, vibrations and tractions resistant
- Improved EMI protection
- Tri start thread coupling mechanism with anti-decoupling device



#### Applications:

- Embedded computers
- Data acquisition and transmission in harsh environment
- Battlefield communication systems
- Navy systems

### 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 certain Hazardous Substances (RoHS) in Electrical and Electronic Equipment restricts six substances 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 compliance, 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				
Conductivity	<2.5mV	<2.5mV	<2.5mV	<1.0mV
Durability	500 cycles	500 cycles	500 cycles	500 cycles
RoHS	-			
MIL-DTL-38999	W	Z	-	F
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.