



MEETING CZEPI

# Industrial plugs and sockets

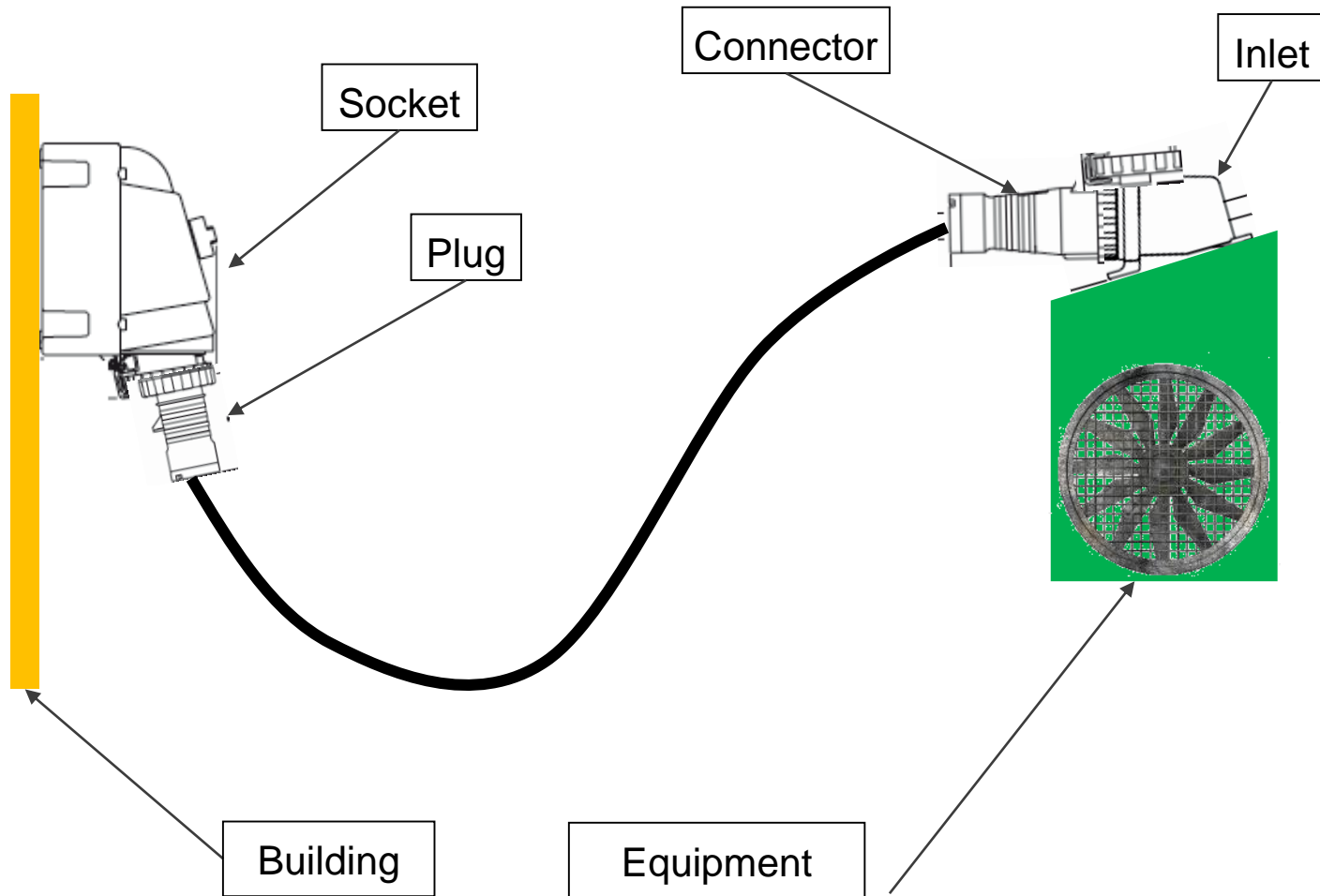
Fulfilling your needs & Safe

Pavel Mony, product management

# Plug and socket – What's on the cable



# Connecting building and equipment



# IEC 60309-1 & 60309-2

## The global standard for plugs and sockets

Male and female interface is standardized

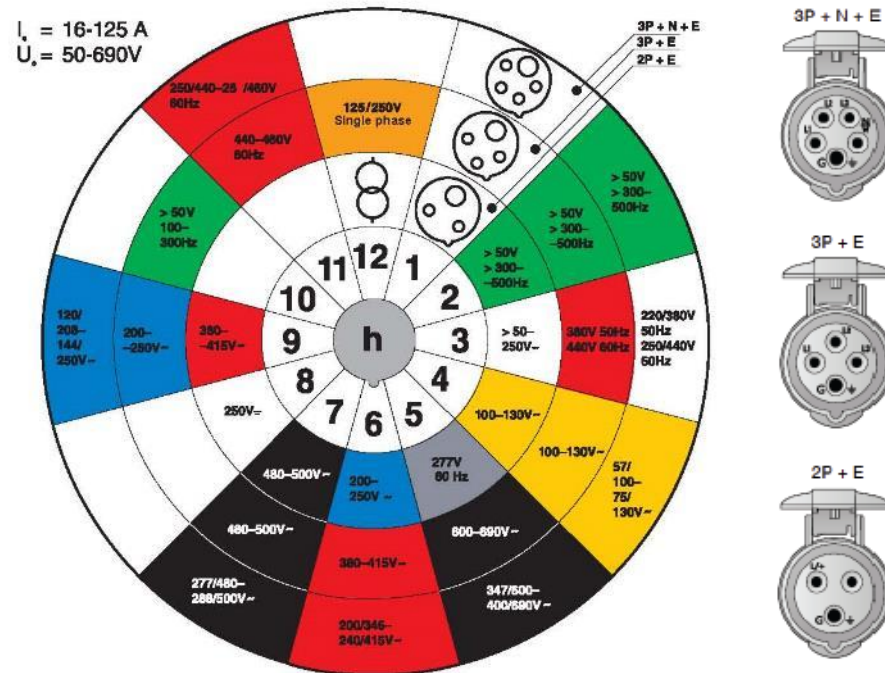
- Interchangeability with IEC 60309-2 devices

Size related to amperage – devices with the same amperage are the same size

- 4 sizes in amperage
  - Series I: 16Amp, 32Amp, 63Amp, 125Amp (International)
  - (Series II: 20Amp, 30Amp, 60Amp, 100Amp (North American))



# IEC 60309 – The clock



- The voltage is related to location of the female ground sleeve relative to the housing keyway and the number of conductors
- For quick identification voltage ratings are color coded
- 3, 4 and 5 wire conductors

# Product positioning

## Permanent installation for temporary power

IPS devices are by default used for temporary connection

But when installing ABB IPS the installation is meant to be permanent

Due to rugged and innovative design ABB IPS stands for:

- Quality
- Reliability
- Safety



# Four main ranges

**Easy & Safe** - High quality standard plugs and sockets



**Tough & Safe** – IP&S for heavy duty in harsh applications



**Critical & Safe** – Wide range of protected sockets



**Modular combi** – Combination units, standard or customized



# New generation of Easy & Safe



Easy & Safe is a high quality standard range,  
Competitive on customer value against highrunners of mid to high end  
manufacturers.

Including IP67 and Screwless terminals (Quick & Safe)





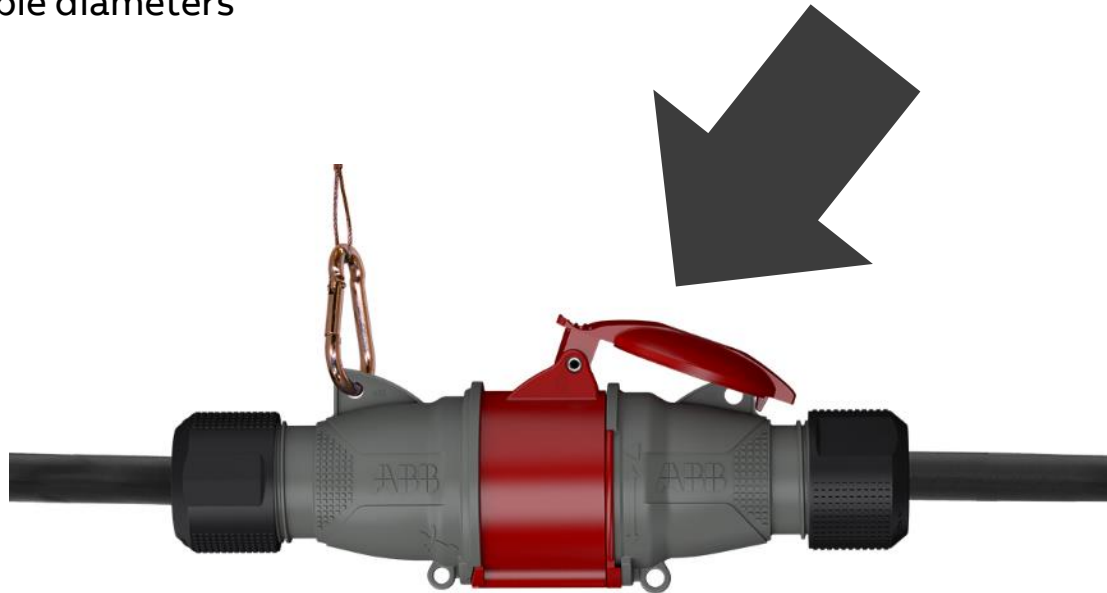
# New IP44 16-32A plugs and connector



Improvement on proven design

Re-using the IP67 cable gland

- Increases strain relief and sealing performance
- Works with a bigger span of cable diameters





# Watertight Easy & Safe - Protecting your contacts

The core of our IP&S are the precision pin and sleeves

- Water and dirt will overtime degenerate the contact performance
- Protect the contacts to avoid overheating and burning, increase reliability and prolong lifetime
- Minimizes the risk of accidents, injuries and damage of the connected equipment



# Fast & Safe - Like Easy & Safe but faster

- Complete range of 16-32A IP&S with screwless spring type terminals
- Screwless terminals saves up to 60% of installation time

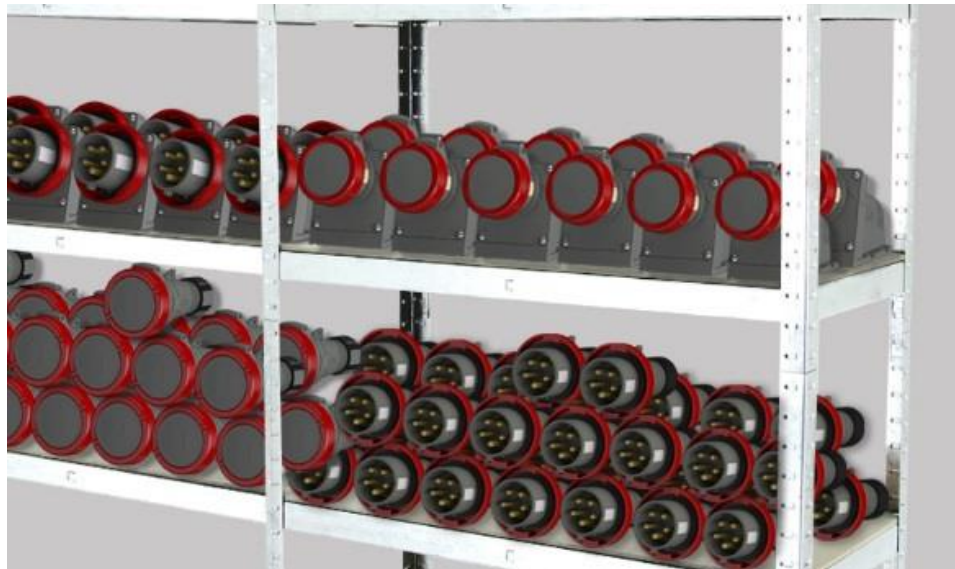


# A complete high-runner offering for the shelves

Complete range for distributor/wholesalers

Attractive highrunners can be used as door openers for other IP&S and/or ABB EP products

Wide range, high availability and local presence with LSU means maximum service and simplicity for customer



# Connect in style



With the new generation we can offer a complete product pallet to OEMs.

Through bundling with other ABB products we can help customers to reduce supplier base

IP&S are on the outside of the equipment

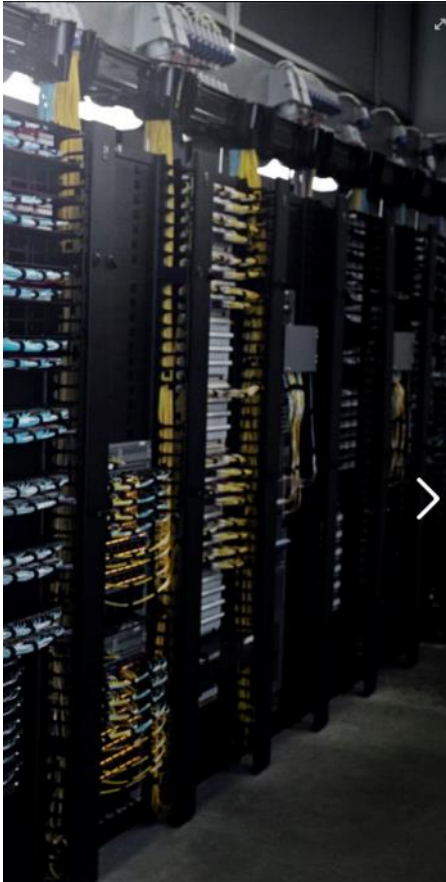
- Contributes to the visual design
- The ABB logo is a quality mark

Equipment can be machines, gensets, extension cords, distribution units etc.

# For most industrial applications ...



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... but not only industrial





# Tough & Safe

For heavy duty



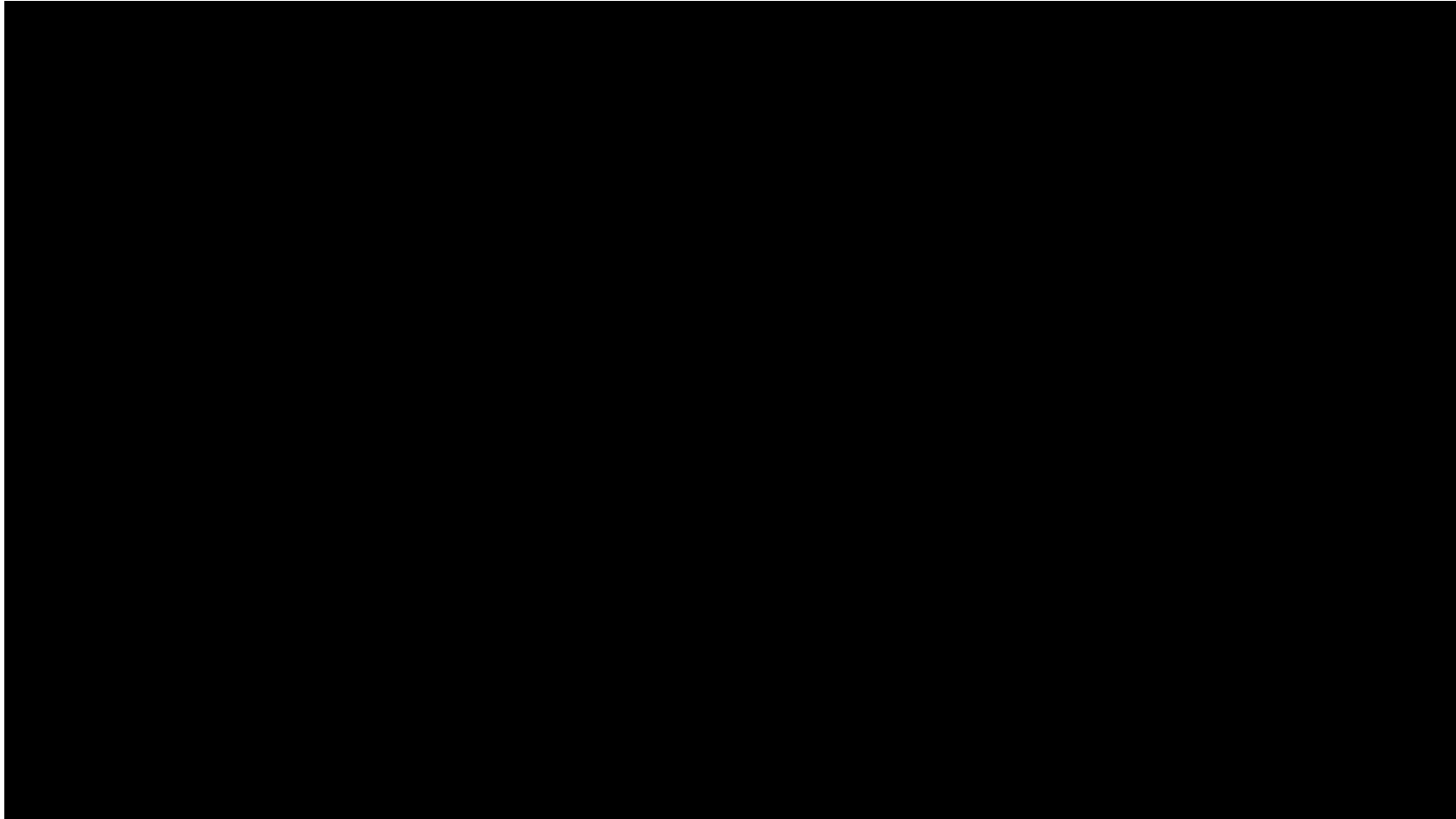
- Plugs, connectors, sockets and inlets
- 16 -125 A
- IP 67 / IP69
- Enclosure in durable, chemical resistant plastics (PBT)
  - Very robust design
  - Special characteristics UV, humidity, flammability



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# Tough & Safe

In the toughest applications



# Tough & Safe

IP69 proves perfect in food & beverage



- Tough & Safe and heavy duty mechanical interlocks has been tested for IP69
- IP69 and the chemical resistance to most cleaning detergents makes the perfect for food and beverage segment

# Critical & Safe

Sockets with protection



- Protected by mechanical interlock
- Protected by mechanical interlock and MCB
- Protected by MCB
- Protected by RCD

**ABB components inside**

# Mechanical interlock



Prevents access to live parts and disconnection under load

1.



2.



4.



3.



# Critical & Safe

Protected sockets – MVS, MP, RP



Switched interlocked sockets  
RCD/MCB protected sockets or combinations

## Features

Vertical socket

IP67 or IP44

16 - 32 A, 50 - 690 VAC

IEC 60 309-2, -4

# Critical & Safe

Compact - MHS



## Features

Horizontally angled socket

IP67 or IP44

16 - 63 A, 50 - 690 VAC

IEC 60 309-2, -4

# Critical & Safe

Heavy Duty – MVS..WH



## Features

Vertical socket

IP67 / IP69

16 - 125 A, 50 - 690 VAC

IEC 60 309-2, -4

All external screws are made of stainless steel

Excellent chemical resistance

Tested for outdoor use (UV)

Flammability rating V-0



# Critical & Safe

Metal enclosed - MM



## Features

Vertical socket

IP44

16 - 125 A, 50 - 690 VAC

IEC 60 309-2, -4

Housing made of die casted, powder coated aluminum

# Modular Combi

In plastic or metal, both standard and customized



**Easy to assembly –  
No special tools**

**Standard ABB panel outlets**

**DIN rail 13 modules**

**Easy to prepare for future  
expansion**

**One feeding cable**

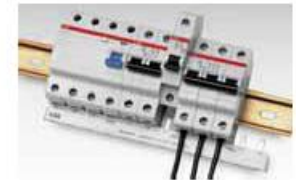
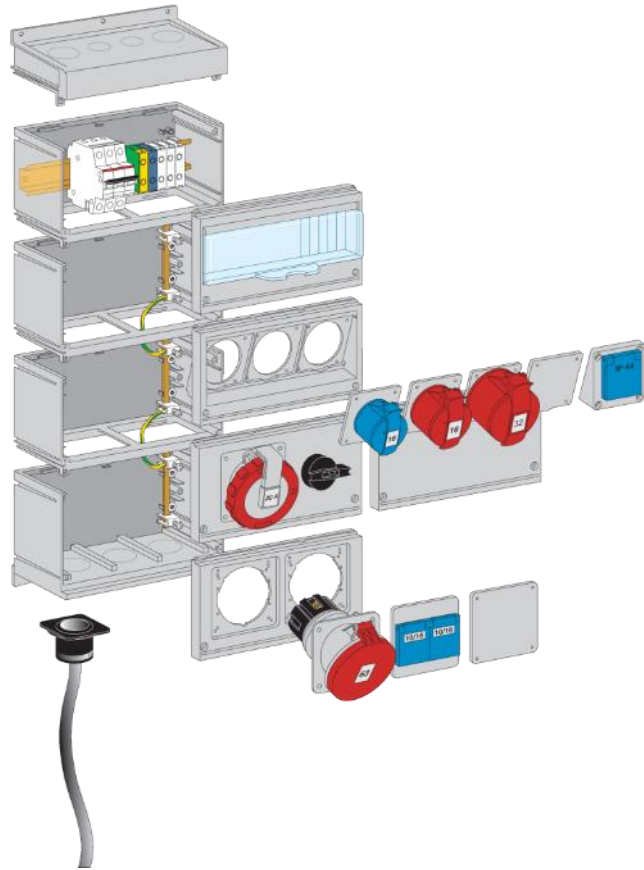
**Designed for looping**

**Available as standard or  
customized**

**Modular concept designed for  
flexibility**

# Modular Combi

Various combinations, really modular



# Modular combi

Connection for efficient production and maintenance



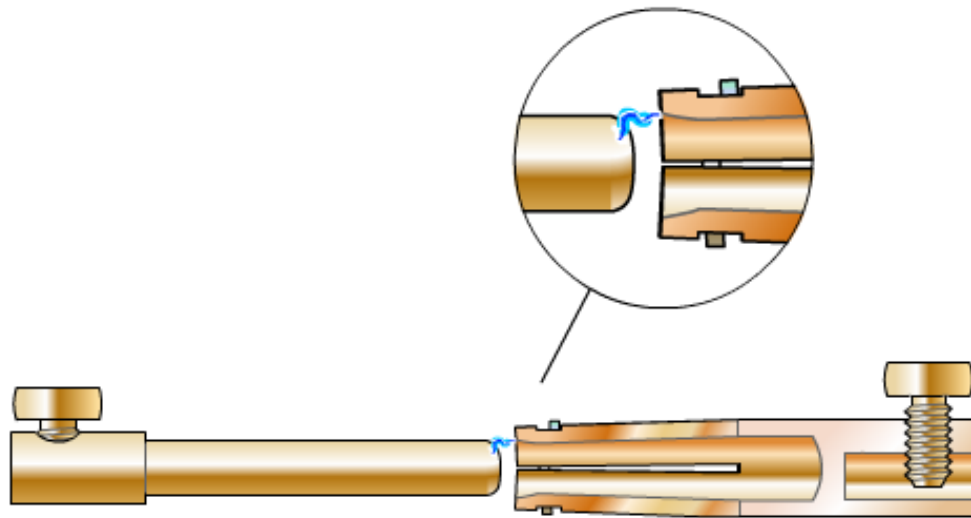
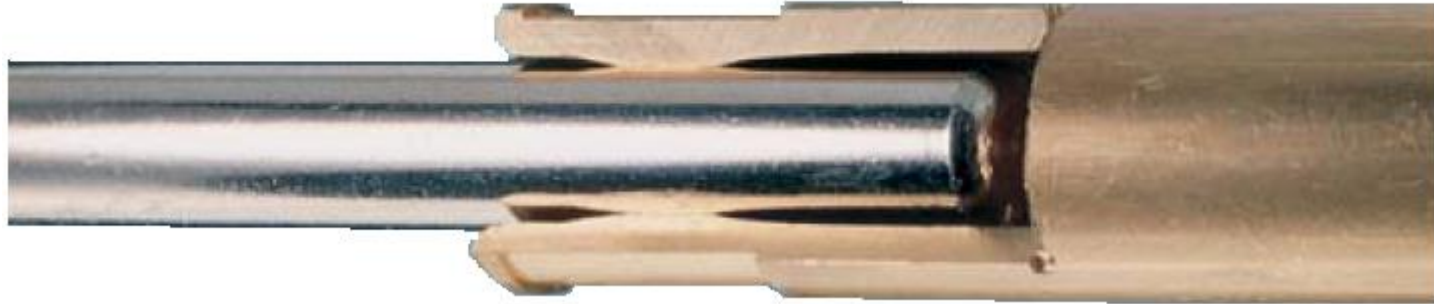
# Type key

## 416EP6W

- **4** : Number of poles (2=2P+E, 3=3P+E, 4=3P+N+E)
- **16** : Amperage (16, 32, 63 or 125A)
- **E** : Range (**E**asy & Safe, **T**ough & Safe) *only used on new products*
- **P** : Product type (eg P=plug, RS= surface mounted socket)
- **6** : Clock position of female ground sleeve
- **W** : Watertight IP67

\*Type key for UL range is different

# Contacts with self-cleaning function



# PBT- Thermoplastic polyester

## Probably the best plastic material used for IP&S

Suitable for outdoor use (UV and humidity) UL F1 rating

Outstanding Temperature Performance

- Successful operation guaranteed between -55°C and 55°C

Flammability rating UL94 V0

Resistant to a wide variety of chemicals typically found in industrial and marine environments including

- aliphatic hydrocarbons
  - e.g. gasoline, oils and greases
- dilute acids and bases
- most detergents
- most aqueous salt solutions

Robust housings, made for tough environments

- Modified for improved resistance to impact



# For more information

Visit: [www.abb.com/industrialplugs](http://www.abb.com/industrialplugs)

**ABB** HOME » OFFERINGS » LOW VOLTAGE PRODUCTS » INDUSTRIAL PLUGS AND SOCKETS GLOBAL SITE

## Industrial plugs and sockets

Reliable, durable and safe. Perfect for your application.

These products are used for connection of equipment in all kind of applications where it needs to be possible to connect and disconnect. ABB industrial plugs and sockets are chosen when safety, reliability and durability is requested.

- Reliable contacts prevent stops and power breaks, which leads to increased productivity.
- Durable equipment prevents time and cost lost due to maintenance.
- Safe connections prevent accidents.

We have divided our range of industrial plugs and sockets into three groups:

- **Easy & Safe** are high quality products for basic applications.
- **Tough & Safe** are products for demanding applications and environments.
- **Critical & Safe** are sockets with additional safety functions.

Reliable, Safe and with a short downtime. ABB Plugs & Sockets

### Highlights

**The complete range catalogue**  
Plugs, socket outlets, connectors

**Modular Combi**  
Design your own solution. Download a template, select industrial sockets,

**New Easy & Safe Industrial plugs and sockets**  
Modern robust design. Reliable, safe

Are you looking for support or purchase information?  
↓ Contact us



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**ABB**