

INDUSTRIAL PLUGS & SOCKETS

reliable, durable & safe



INTRODUCTION

- IP&S are used for connection of equipment in all kind of applications where it needs to be possible to connect and disconnect
- IP&S are electrical components that comply with international standards IEC 60309-1 and IEC 60309-2.
- Plugs and sockets are color coded according to volts *
- These products have been manufactured for over 60 years

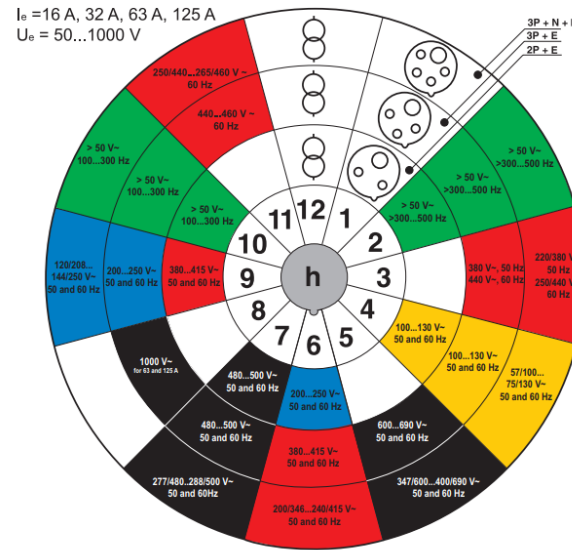
Voltage	Frequency	Color code
20 – 25 V	50 – 60 Hz	violet
40 – 50 V	50 – 60 Hz	white
100 – 130 V	50 – 60 Hz	yellow
200 – 250 V	50 – 60 Hz	blue
380 – 480 V	50 – 60 Hz	red
500 – 1000 V	50 – 60 Hz	black
20 – 500 V	60 – 500 Hz	green
All	All	gray



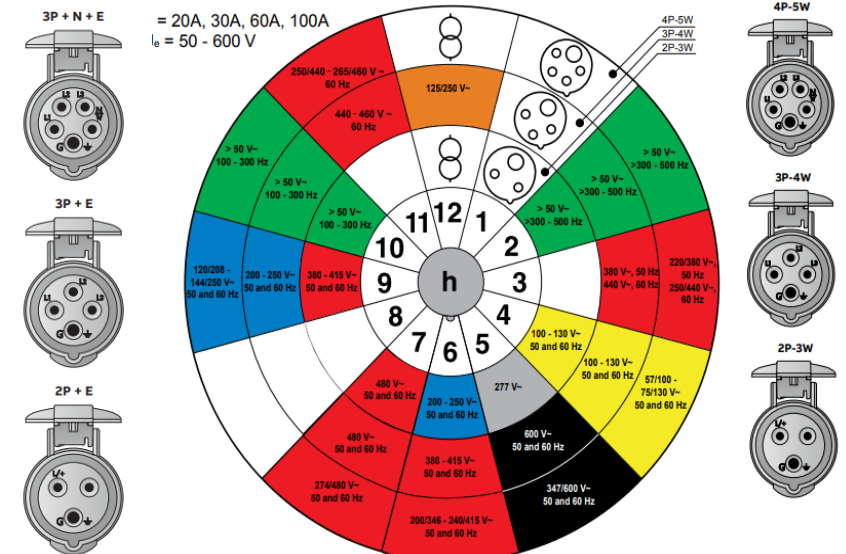
* Yellow (110 volts), blue (230 volts) and red (400 volts) are the most used.

IEC 60309-1 & IEC 60309-2 „Clock“

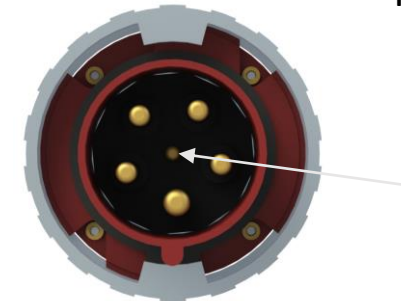
- The voltage is related to location of the female ground sleeve and the number of conductors
- 3, 4 and 5 wire conductors
- Male and female interfaces are standardized and interchangeable with IEC 60309-2 devices
- Size related to amperage – devices with the same amperage are the same size



Rest of the world

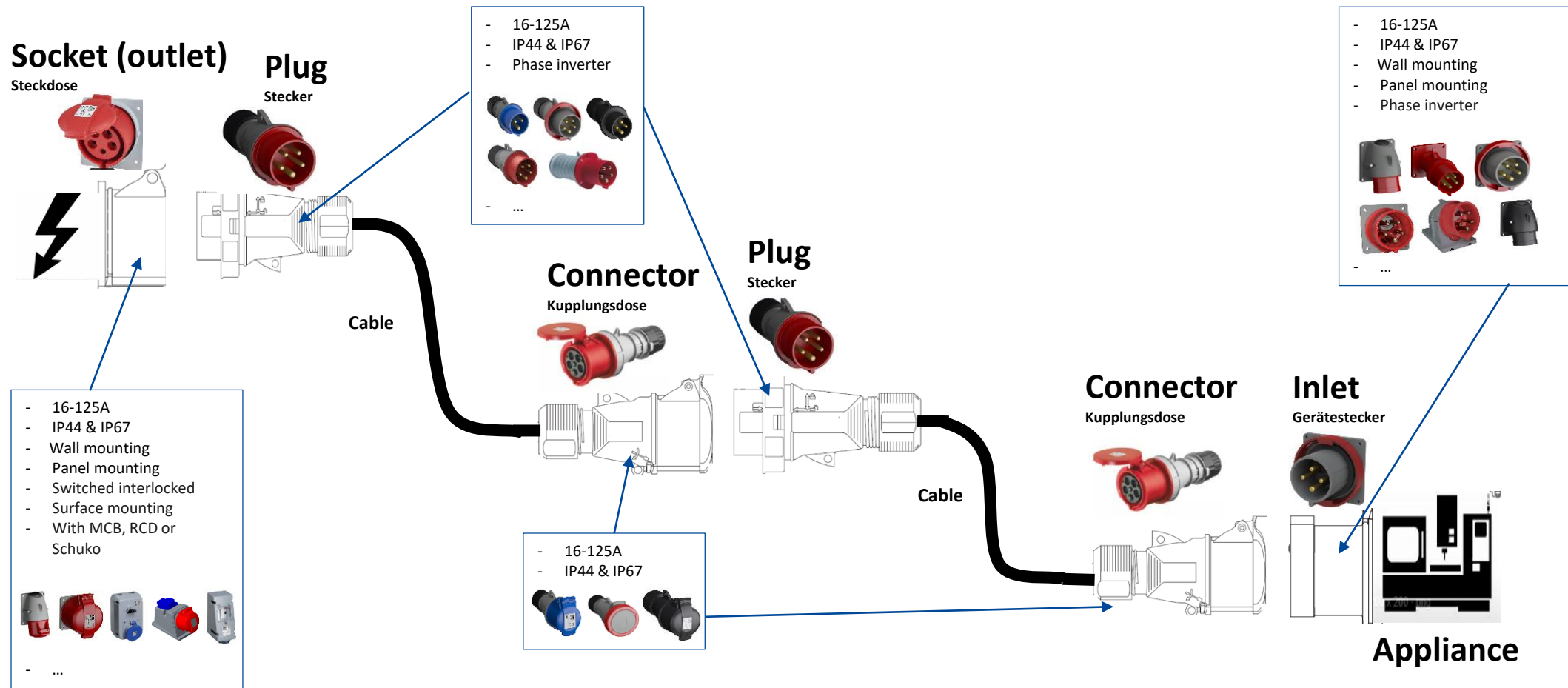


North America (UL/CSA)



Pilot contact
only for 63A and 125A
(last mate first break)

WHAT WE ARE OFFERING...



CATEGORIES



Easy&Safe



Tough&Safe



Critical&Safe



Modular Combi



High Current 200-400A



Black for entertainment



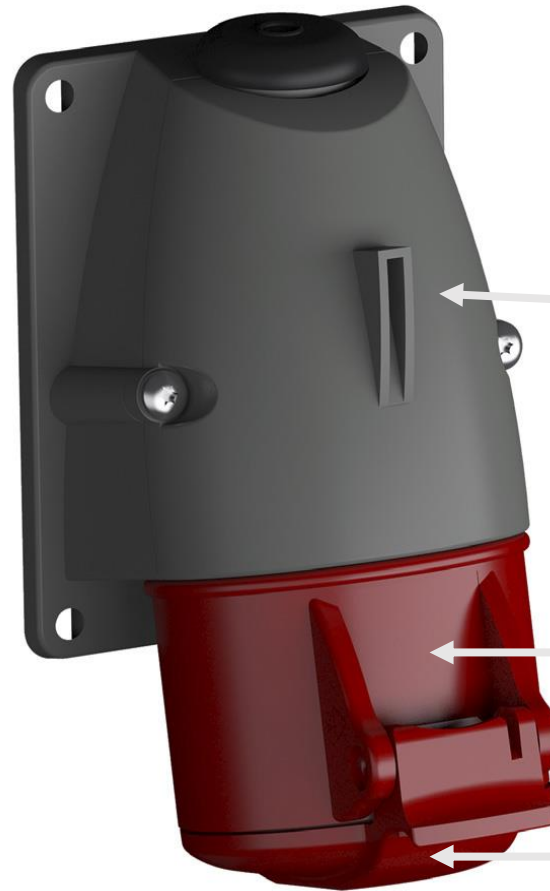
Extra Low Voltage 24V or 50 V



Adaptors, phase sequence products,
schuko socket outlets, parts,....

EASY & SAFE

- Robust & modern design
- Complete range of IP67 and IP44
- Plugs, connectors, socket outlets and inlets
- Self cleaning contacts
- Reliable, safe and easy to work with
- Water and dust protection of contacts prolong plug and socket lifetime
- Minimizes the risk of accidents, injuries and damage of the connected equipment



Durable equipment prevents time and cost lost due to maintenance.

Reliable contacts prevent stops and power breaks, which leads to increased productivity.

Safe connections prevent accidents.

TOUGH & SAFE

- For environments that have high demands of functionality and safety
- Robust housing that made of PBT plastic
- IP67 Watertight (16-125A) or IP44 Splash proof (63A)
- 16-125 A, 50-690 VAC
- IEC 60309-1, -2
- All external screws are made of stainless steel



**TOUGH
& SAFE**

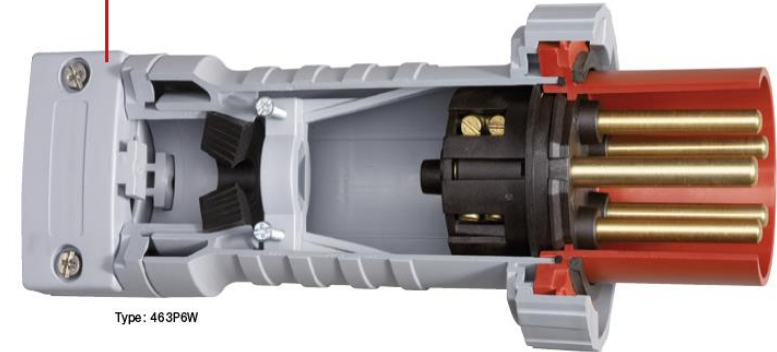
Clear marking, at the front and the rear of the terminals
Ground \perp
Neutral N
Phase L1, L2, L3

External screws made of stainless steel

Robust plastic housing that withstands most chemicals found in industrial environments

Internal and external cable clamp

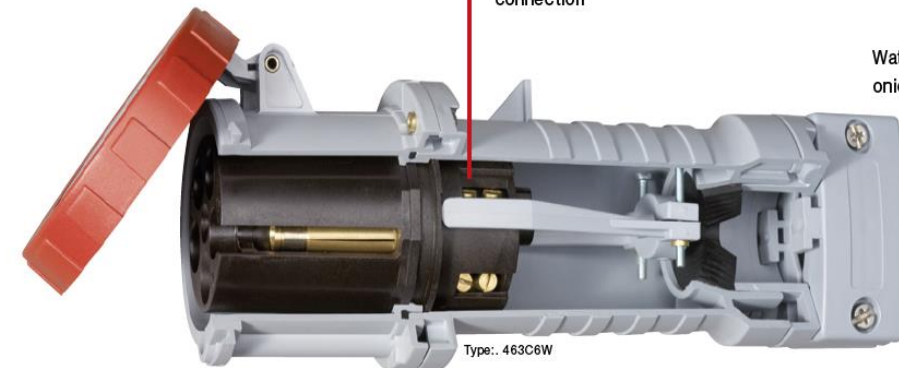
Clean brass pins



Rear terminals, raised lettering, identification contacts

Two screws at each terminal to assure safe and reliable cable connection

Watertight chloroprene onion skin grommet

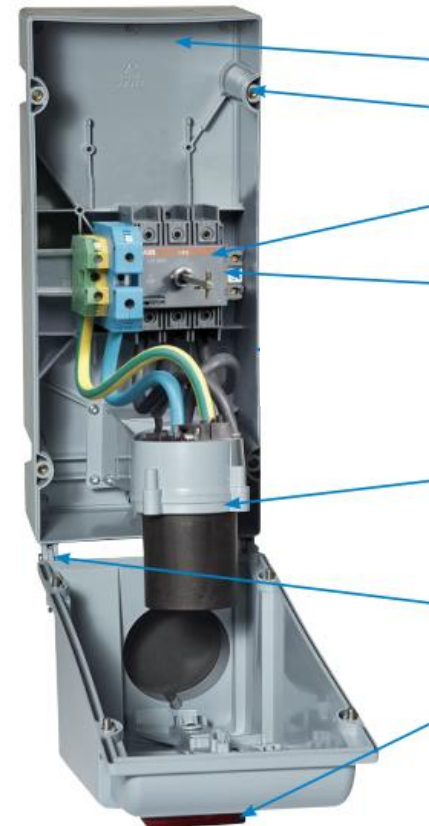


CRITICAL & SAFE

- For applications with frequent connection /disconnection
- The housing is made of PBT or aluminum
- IP67 Watertight or IP44 Splash-proof
- 16 - 125A, 50-690 VAC
- IEC 60309-1, -2, -4
- All external screws are made of stainless steel



**CRITICAL
& SAFE**



Space for wiring and easy access for cables
Brass threaded inserts

Mechanically interlocked to prevent making and breaking under load

Fused, Switched or breakered disconnection available

Pre-wired IEC receptacle accepts all manufacturer's IEC 60 309-2 plugs

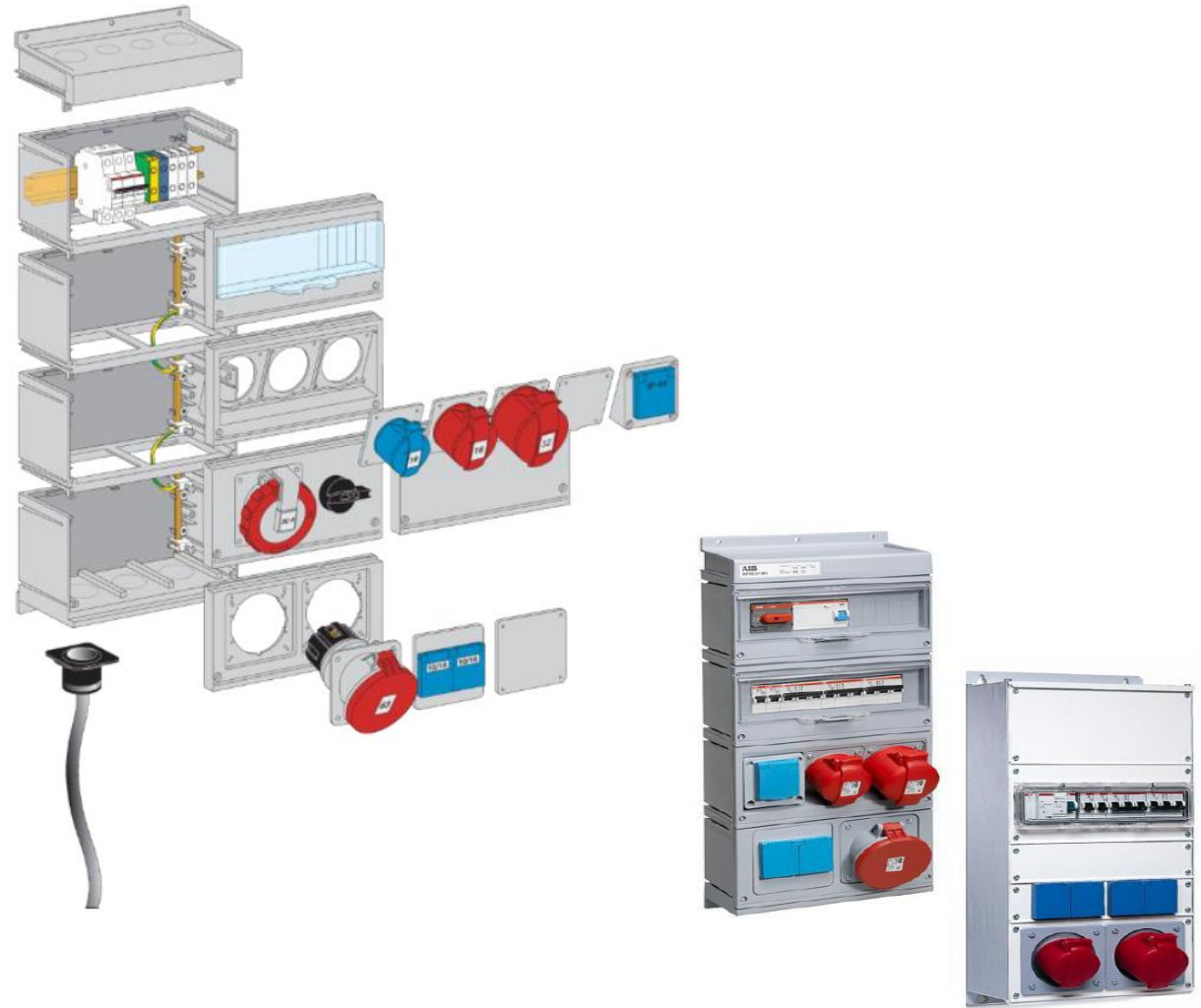
Robust hinge mechanism pivots >120° for easy access during installation and maintenance

Padlockable handle

Clear terminal marking, inside and outside the box Ground, Neutral N Phase L1, L2, L3

MODULAR COMBI

- In plastic or metal
- Standard and customized products
- Easy to prepare for future expansion
- One feeding cable
- IP67 Watertight or IP44 Splashproof
- Consist of various types of socket outlets, MCBs / RCDs, meters,... according to customer order
- Various combinations, modular



HIGH CURRENT

200 – 400 A

- Connectors for challenging applications.
- 200 - 400 A
- 4- and 5-poles
- robust housing, compact design
- Suitable for high humidity applications (IP67)
- special features on request: vibration resistant screws, seawater resistant housing, harnessed connectors
- Full functionality in ambient temperatures from -40°C to +100°C (reduces fire risk)
- Finger touch protection in order to safeguard the user against electrical shocks

C-Line - 200 A / 250 A



B-Line - 250 A / 400 A



Connector units 200 A ... 400 A



- CUMI (connector unit with mechanical interlock)
- CUBC (connector unit with block contactor)
- CUCB (connector unit with circuit breaker)

BLACK FOR ENTERTAINMENT

- IP44 (splash-proof) protection degree
- Range from 16 A to 32 A
- Black colour of plugs, connectors, inlets and socket outlets
- The housing is made of standard PA plastic material
- Meets the highest requirements for safety, quality, reliability and functionality
- Designed especially for entertainment applications where they blend into their dark surroundings
- Pin and sleeve configuration is according to IEC standard
- Perfect for indoor and outdoor use



EXTRA LOW VOLTAGE

- Rated voltage 24 V and 50 V
- 16 and 32 A
- IP67 Watertight or IP44 Splashproof
- Plastic housing (PA)

Using extra low voltage is a way how to protect from electrical shock.

Extra low voltage is used where the risk is high: swimming pools, wandering-lead hand lamps, and other portable appliances for outdoor use, etc.

The plugs and sockets are intended for an operating voltage not exceeding 50 V.

Products follows standards IEC 60 309-1 and IEC 60 309-2.





SPECIAL & SOC

Adaptors, Phase sequence products, Schuko socket outlets...



EXAMPLE OF APPLICATIONS



Data centers



Construction sites



Industrial applications



Office containers



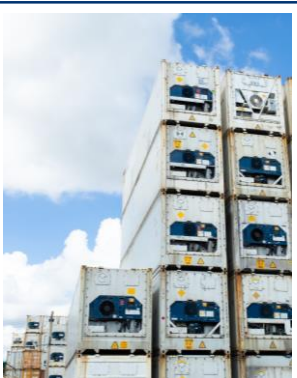
Tunnel construction



Generators



Gensets



Reefer containers



Harbours



Sawmills



Food & Beverage



Infrastructure



Concerts



Machines

EXPLANATION OF TYPE CODE (NA not included)

Explanation of type code

Example: 416P6W

Number of poles

2P+E
3P+E
3P+N+E

2
3
4

Ampere

16 A
32 A
63 A
125 A

16
32
63
125

Type

Plugs
Connectors
Surface socket-outlets
Surface socket-outlets for looping
Switched interlocked socket-outlets, horizontal
vertical of metal with MCB with RCD
Socket outlets with MCB with RCBD
Socket outlets for panel mounting, minimized flange, straight
unified flange, straight
minimized flange, angled
unified flange, angled
Surface inlets
Inlets for panel mounting, minimized flange, straight
unified flange, straight
unified flange, angled
Three way adaptors
Bodanslutning
Phase sequence testers
Phase sequence changers

P*
C**
RS
RL
MHS
MVS
MM
MPM
MPR
RPM
RPR
R
RU
RAM
RAU
BS
B
BU
BAU
T
A
FP
FV

blank
W
WH

Degree of protection
IP44, splashproof
IP67, watertight
IP67, watertight, Heavy Duty

Other types

CUHV Surface inlets, watertight
CUED Socket outlets 16 and 32 A for wall socket, splashproof
CIHV Surface inlets, watertight
CIE Inlets, with flange (FL13) on top
CPEF Plugs with built-in sequence changer
CLF Plugblocker
CUIT Socket outlets for extra low voltage, flush mounting, straight
CUIST Socket outlets for extra low voltage, flush mounting, angled
CUGT Socket outlets for extra low voltage, surface mounting
CIGT Inlets for extra low voltage, surface mounting
CST Connectors for extra low voltage
CPT Plugs for extra low voltage
BPC Building site
UJ Schuko-outlets, metal
UJP Schuko-outlets, plastic
GP Cover
CUE 416-6+ Socket outlets 4-pole, 16 A, 6h with
R/UJP Schuko 16 A

Position of the earthing sleeve acc. to IEC 60309-2 (clock)

1	All operating voltages and/or currents are not stated below
2	
3	3-phase only for cooling containers (standardized by ISO)
4	
5	
6	Most common voltages in Western Europe
7	
8	
9	For example in Norway
10	
11	Mainly for marine installations
12	Supply from isolating transformer

Standard voltages

Color codes acc. to IEC60309-1, -2

Position of the earthing sleeve acc. to IEC 60309-2 (clock)

* P: Plugs Tough&Safe / EP: Plugs Easy&Safe ** C: Connectors Tough&Safe / EC: Connectors Easy&Safe

EXPLANATION OF TYPE CODE UL/CSA

ABB 4 20 P 7 W
1 2 3 4 5

Catalog number guide			
1	Number of wires	3	2 Poles, 3 Wire
		4	3 Poles, 4 Wire
		5	4 Poles, 5 Wire
2	Ampere rating	20	20A
		30	30A
		60	60A
		100	100A
3	Type	P	Plugs
		C	Connectors
		Rx	Receptacles
		Bx	Inlets
Mechanical interlocked receptacles		MI	Switched
		MF	Fused
		MB	Breakered
4	Position of earthing sleeve	According to IEC 60 309-2 clock ¹	
5	Degree of protection	W	IP67 and IP69K2
5	Degree of protection	WN	IP67 and IP69K NSF (Food and beverage)
		SP	IP44 Splashproof
		E	IP67 Watertight

¹ See clock on next page.

Note: 5 Degree of protection WN IP67 and IP69K NSF (Food and beverage)
SP IP44 Splashproof
E IP67 Watertight

QUESTIONS?

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