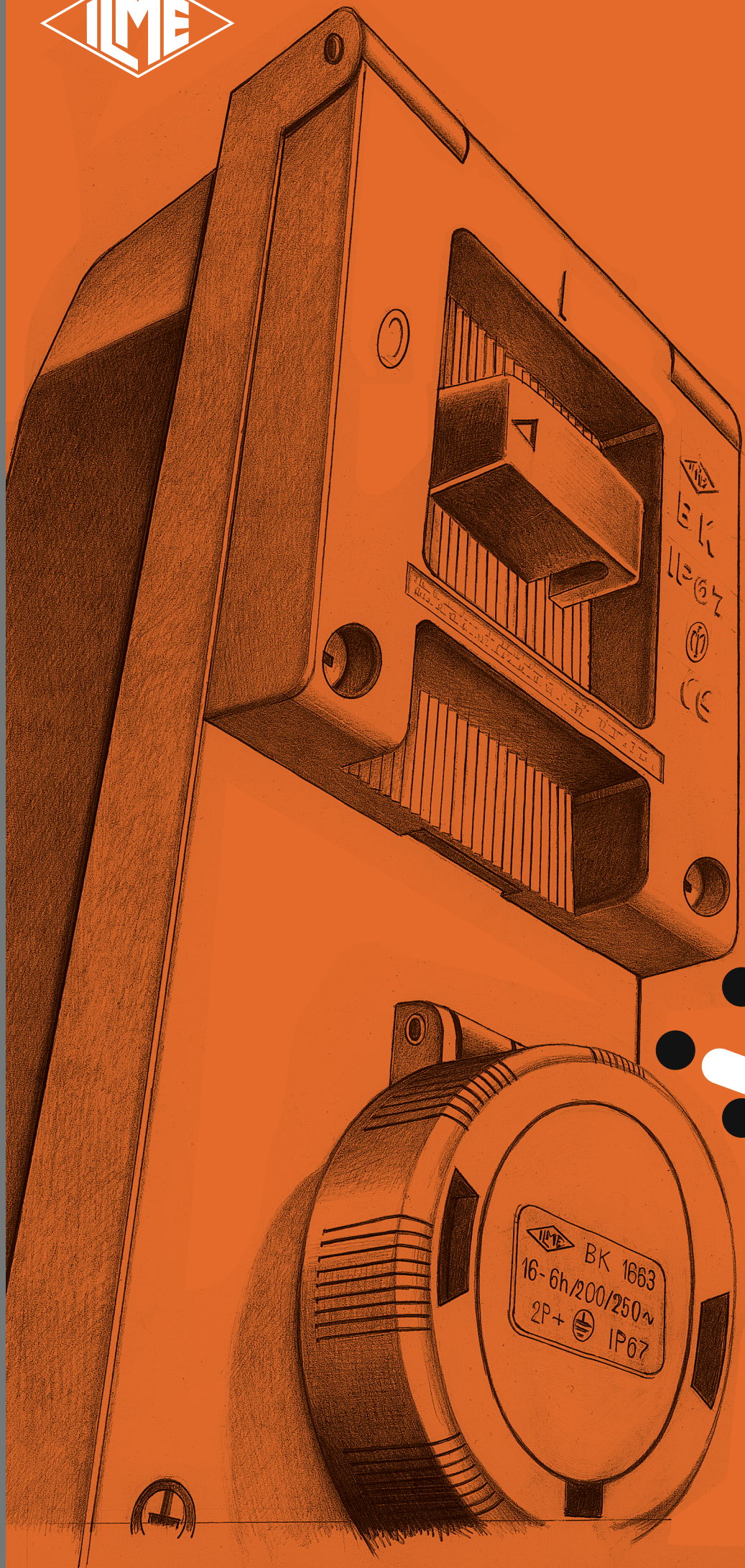


# Interlocked socket-outlets for industrial use BK





## The Company and the Product

**INDUSTRIA LOMBARDA MATERIALE ELETTRICO SpA** has been operating in **Milan since 1938**, in particular in the electrotechnical sector for the manufacturing of equipment for industrial installations.

ILME reflects the traditional **entrepreneurial spirit of Lombardy**, and has enjoyed continuous expansion for over half a century.

The company has carved an important role for itself in the main world markets, also operating directly in the countries that have assumed world leadership in the field of automation, including Germany and Japan.

In the **electrical connection** sector with applications in industrial automation, characterised by top performance and utmost **reliability** needs, ILME is today the acknowledged partner of many leading companies worldwide.

The company's fundamental values are:

**product innovation**, original solutions, excellent **price-quality ratio**, a customer-oriented sense of **service**, ethical behaviour and an environmentally-friendly approach.



To promote the continuing improvement of its **qualitative results**, ILME has always encouraged its collaborators to work with utmost **responsibility and participation**.

The company focuses on a series of benefits to the user, including research into the most suitable materials, high quality and safe cabling, a rapid turnaround and readily available services.

## CE marking

As from 1 January 1997, in order to launch electrical products on the European market the manufacturer must ensure these bear the relevant CE marking, in line with the Low Voltage Directive 73/23/EEC \* (implemented in Italy as law 18-10-1977 no. 791) and its modification 93/68/EEC \* (implemented in Italy as L. D. 25-11-1996 no. 626/96, published in the supplement to the Gazzetta Ufficiale of 14-12-1996).

Said marking must be placed on the product - or, if this is not possible, on the packaging, the instructions for use or the warranty certificate - and acts as a declaration by the manufacturer that the product complies with all relevant EU directives.

### ILME products bear the CE marking on the product or packaging.

Almost all ILME products fall under the Low Voltage Directive.

All SELV socket-outlets with safety transformer, which are fitted with a magnetic transformer, also fall within the field of application of the electromagnetic compatibility directive 89/336/EEC (implemented in Italy as D.L. 4-12-1992 no. 476 amended by the above mentioned directive 93/68/EEC), which they conform to, without the need of testing. A declaration of compliance is required before applying the CE marking.

This document, to which the market is not directly entitled, must be made available to the control authorities (in Italy the Ministry for Industry, Commerce and Handicraft) at all times.

In it, the manufacturer declares the technical safety standard(s) followed to manufacture the product.

These standards must be, in decreasing order of preference:

- a European standard (EN prefix)
- a European harmonisation document (HD prefix)
- an international IEC standard
- a national standard
- in the absence of reference standards, the manufacturer's internal specifications, guaranteeing compliance with the directive's basic safety requirements.

Compliance with harmonised technical standards (i.e. ratified by the CENELEC) constitutes presumed conformity to the directive's basic safety requirements.

The CE marking of ILME products results from said products' declaration of conformity to harmonised standards or international IEC standards.

Through the CE marking, ILME declares full compliance, not merely with the directive's basic safety requirements, but also with those international or national EU standards on which voluntary safety certification markings are based (e.g. IMQ and VDE).

In this way, ILME intends to award the CE marking the value of self-certification in terms of safety, given the loss in legal value of voluntary certifications issued by third parties, ratified by directive 93/68/EEC \*.

Notwithstanding the above, practically all ILME products still bear voluntary conformity markings and are in accordance with the RoHS European Directive.

### \* Note:

new legal reference for the Low Voltage Directive is 2006/95/EC which is the consolidated edition of Directive 73/23/EEC + Directive 93/68/EEC.

## Certifications

Almost all the articles illustrated in this catalogue are certified by the Italian Quality Mark Institute as indicated by the IMQ mark (see the mark reported on the side of each article).

The information contained in this catalogue is not binding and may be changed without prior notice.

## BK enclosures and sockets for distribution boards

The BK series modular system allows the construction of distribution boards with IP66/IP67 degree of protection, particularly suitable for use under severe conditions.

Its unique construction features make the BK system suitable for applications including:

- industry
- service sector (stores, trade fairs etc.)
- agriculture and animal farming
- residential and similar installations (e.g.: common areas of condominiums, basements and garages, community buildings, kitchens, etc.).

The modular structure is common to all components (114x228 mm), which can be inserted in the appropriate single or triple boxes.

An advantage of the BK system is the possibility, initially, of installing the boxes only, to be activated at a later time with a wide range of equipment, covers and miscellaneous accessories.

The following types are available:

- BE and BK types equipped with interlocked industrial sockets, without and with fuse carriers, respectively;
- BT types equipped with very low tension socket and SELV safety transformer;
- BP and BPR types, equipped with 63A simple industrial socket outlets, without and with module holder and access port, respectively.
- BC...Q and BC...RQ types (with module holder and access port) enabled for simple industrial sockets (Pluso series, 16A and 32A PEW...PQF/PQ types).
- BC...R types equipped with module holder and access port.
- BC...P types cover caps for unused module holders.

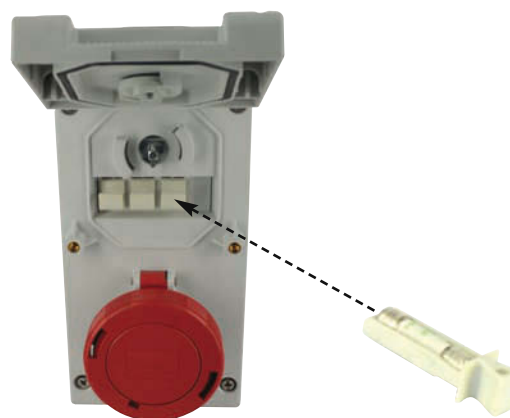



A new combined switch and fuse carrier has been recently introduced in BK sockets for easy, quick and safe fuse cartridge insertion and removal.

① Open the cover




② Insert the fuse cartridges






**SOCKET-OUTLETS 16A**  
interlocked switched  
page 6



**SOCKET-OUTLETS 32A**  
interlocked switched  
page 6



**SOCKET-OUTLETS 16A**  
interlocked switched socket-outlets and fuse carrier  
page 7



**SOCKET-OUTLETS 32A**  
interlocked switched socket-outlets and fuse carrier  
page 7




**COVER**  
with 63A socket-outlet  
page 8



**COVER**  
with 63A socket-outlet and room for modular control equipment  
page 8



**SOCKET-OUTLETS WITH SAFETY TRANSFORMER**  
for class III portable lighting apparatus  
page 9



**COVERS**  
with built-in 16A and 32A socket-outlets  
page 10




**COVERS**  
with room for modular control equipment  
page 10




**SOCKET-OUTLETS 16A**  
IP67 degrees of protection  
page 11




**SOCKET-OUTLETS 32A**  
IP67 degrees of protection  
page 11




**SINGLE BOX**  
page 12



**TRIPLE BOX**  
page 12



- Cover for boxes  
- joint cover plate  
page 13




- Cover for triple box  
- cover for modular control equipment  
page 13



- Mounting plate  
- Climbing irons for wall-mounting  
- DIN-rail EN 60715  
- cover with panel  
- closing plates  
page 14



- Safety padlock with key  
- Safety padlock for controls  
page 15



- Cable gland  
- Sealing plugs including gasket  
- Reduction nipples including gasket  
page 16 - 17



## Degree of protection

The class of protection should be chosen according to installation standard CEI 64-8 (that implements harmonized documents CENELEC HD 384 and IEC 60364), whose section 7 refers to specific types of installations, such as: construction and demolition sites, structures designed for agricultural or livestock breeding activities, restricted conductor areas, caravans and caravan sites, environments with higher fire hazards, public performance and entertainment areas, pools and fountains, and marinas and harbour areas. BK enclosures for boards are made with a IP66/IP67 degree of protection. No further verification is needed if you install enclosures with an IP66/IP67 or higher class of protection and use covers with related gaskets, along with cable glands and pipe glands with an IP66/IP67 or higher class of protection. All equipment must be installed following state-of-the-art procedures and in compliance with the manufacturer's assembly instructions. If components with varying degrees of protections are installed, the degree of protection of the resulting distribution board corresponds to that of the unit with the lowest class of protection.

This has been assessed and applies:

- To socket-outlets when a plug with equivalent class is inserted or the cover is closed
- To enclosures, when all covers are closed

## ILME accessories for the BK systems

ILME offers the following range of socket-outlets for enclosures:

- Simple socket-outlets without interlock for industrial use in standard version with **IP67 degree of protection** ( **PEW** types)
- Interlocked socket-outlets for industrial use in standard version with **IP67 degree of protection**:
  - With switch (**BE** types)
  - With switch-disconnector (**BK** types)
  - With safety transformer SELV (**BT** types)

Socket-outlets with IP67 class of protection have a bayonet fastening cover, traditionally defined as "water-tight", and must be used with with IP67 plugs (with locking ring and gasket) to guarantee a high protection of the connected equipment (IP 67). All enclosures, plugs and socket-outlets cover the installation requirements specified in standard CEI 64-8 (series Cenelec HD 384, IEC 60364).

## Protection against indirect contacts complete insulation <sup>1)</sup>

Article 7.4 of standard EN 60439-1 (class. 17-13/1) defines the protection measures against electric shocks that have to be incorporated in the boards. Protection against indirect contacts can be guaranteed only by completely insulating the installation (Art.7.4.3.2.2), which implies complying with the following:

- a) Units should be completely enclosed in insulated material. Enclosures should be marked with the symbol, which must always be visible from the outside.
- b) Enclosures must be made in insulating material suitable to withstand the mechanical, electric and thermal stresses to which they may be exposed during ordinary or extraordinary operating conditions and must be age-proof and flame resistant.
- c) Enclosures should have no conducting parts to prevent fault voltages from being transmitted outside the unit.
- d) The enclosure must have a degree of protection equivalent to at least IP3XD.
- e) Exposed conductive parts inside the unit should not be connected to the protective earth conductor. These parts must always be connected to a protection system that implies the use of a protective conductor. This also applies to built-in units, even if they have a connection terminal for the protective earth circuit.
- f) Doors and covers that can be opened without the use of wrenches or other tools must be protected by a barrier in insulating material in order to prevent accidental contact with accessible live parts and with units that are accessible only after the covers have been removed. This barrier must be removable with the use of specific tools only.

The metallic screws used for the assembly of socket-outlets and covers on enclosures for BK distribution boards are not connected to the inside of the board. If the wall mounting is carried out using suitable external metallic clamps (optional) or by internally installing the blanking plugs supplied, BK enclosures complying with the above prescriptions enable to configure systems that guarantee a full protection against indirect contacts.

<sup>1)</sup> According to sub-clause 413.2.1.1 of standard IEC 60364-4-41, it is equal to that of equipment of class II, see standard IEC 60536.

## Application of the Italian "draft" standard CEI 23-51

The maximum power that can be dissipated  $P_{inv}$  has been tested for each box in the most severe operating conditions using the method described in the Italian draft standard CEI 23-49. Results are shown in **Table 1**.

### Maximum power that can be dissipated in box $P_{inv}$ (CEI 23-49)

Table 1

Item	Description	Number of modules	$P_{inv}^{1)}$ (W) wall-mounting	$P_{inv}^{1)}$ (W) flush-mounting
BC 1123 CS <sup>2)</sup>	Single box	4.5 units	10	13
BC 4034 T3	Triple box	16 units	18	26

<sup>1)</sup> Determined for each size of enclosure under the most severe load condition provided for in the standard

<sup>2)</sup> This standard does not apply to single boxes with industrial socket-outlets that have been tested only according to EN 60309-1 and -2. Data referred to single boxes apply only to installations with BR modules.

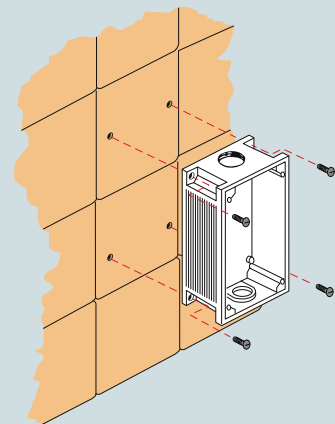


Figure 1 - Example of external mounting using the slots on the box.

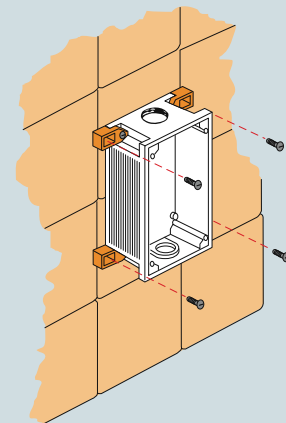
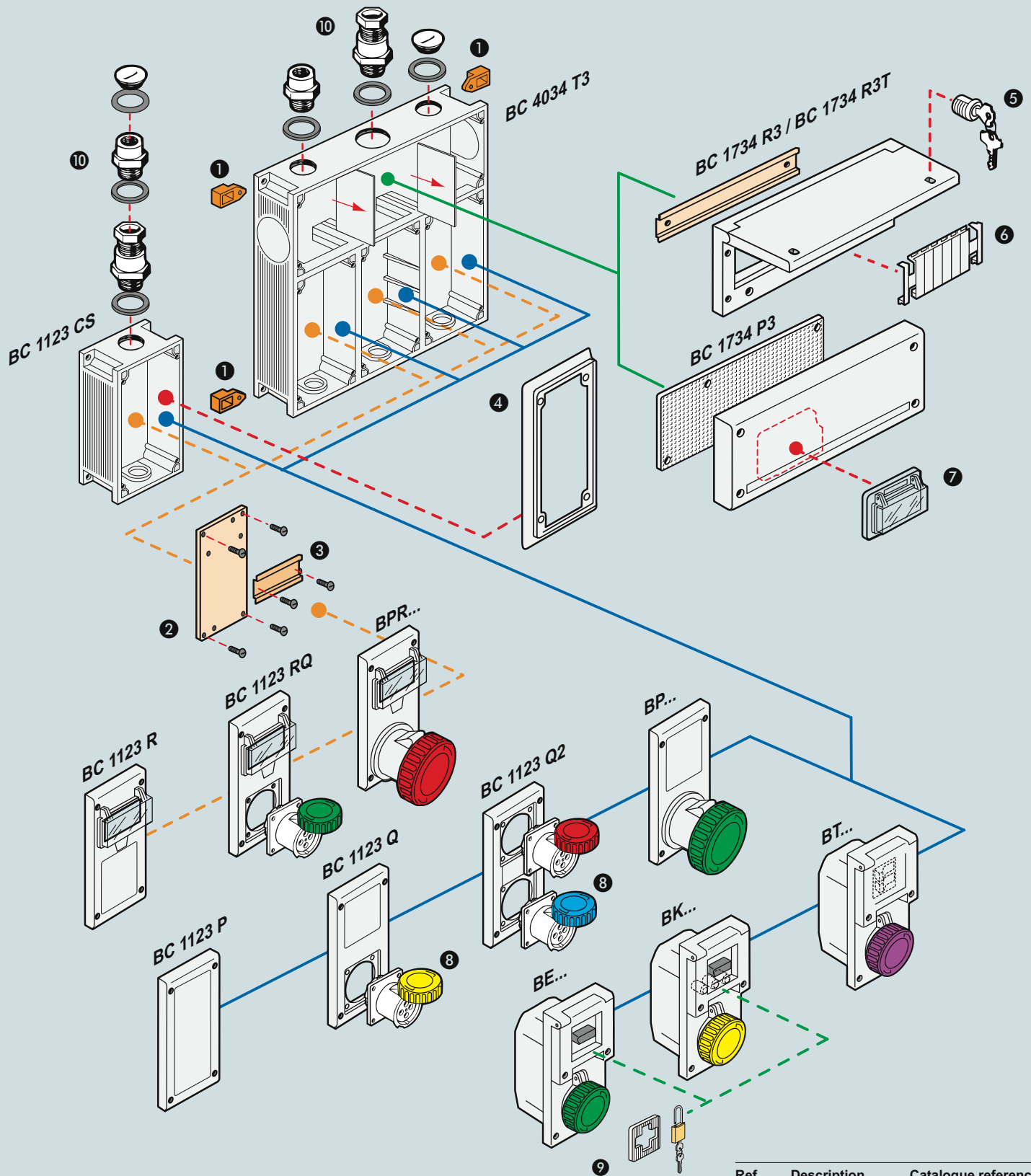


Figure 2 - Example of external mounting using the slots on the box. The brackets (optional), suitable to be mounted vertically and horizontally (recommended for triple boxes) simplify wall anchoring.



Ref.	Description	Catalogue reference
1	BC SFT	Page 14
2	BC 1123 PF	Page 14
3	BC GD8	Page 14
4	BC 1123 ME	Page 13
5	BC CHT	Page 15
6	BC FR 62	Page 14
7	BC 45 ST	Page 14
8	PEW .. PQF/PQ	Page 11
9	BC BLC	Page 15
10	Fittings	Pages 16+17



Table of the characteristics of covers and modular equipment

Types of covers and modules		BC 1123 P	BC 1734 P3	BC 1734 R3/R3T	BC 1123 Q	BC 1123 Q2	BC 1123 R	BC 1123 RQ	BP...	BPR...	BE...	BK...	BT...
Description													
Simple cover		X	X										
Cover with panel				X									
Cover for simple straight flush-mounting socket-outlets					X	X		X					
Cover with simple straight socket-outlets									X	X			
Cover with compartment for modular units							X	X		X			
Interlocked socket-outlets										X			
Interlocked socket-outlets with fuse carrier												X	
Socket-outlets with safety transformer													X
For boxes	Single	X			X	X	X	X	X	X	X	X	X
	Triple	X	X	X	X	X	X	X	X	X	X	X	X
Rated current	16A				X <sup>1)</sup>	X <sup>1)</sup>		X <sup>1)</sup>			X	X	X <sup>2)</sup>
	32A				X <sup>1)</sup>	X <sup>1)</sup>		X <sup>1)</sup>			X	X	X
	63A								X	X			
In this catalogue on page		13	13	13	10	10	10	10	8	8	6	7	9

<sup>1)</sup> Using simple flush-mounting PQ and PQF socket-outlets (16A and 32A)

<sup>2)</sup> Limited to 6A by the transformer power (144VA)

## Selecting socket-outlets

Socket-outlets should be selecting taking into account the following parameters:

- Rated current of the device to supply with the plug and socket-outlet coupling
- Rated supply voltage and type of distribution (single or three-phase, with or without neutral) to determine the number of poles and hour position.  
The 1 hour position is available for all 50V voltages and voltage ranges > and for frequencies and frequency ranges not covered by standards.
- Site of installation for the determination of the degree of protection (in some areas installation standards require an extra-low safety voltage).

BK systems have an IP67 degree of protection. Socket-outlets with IP66/IP67 or higher class of protection have a bayonet fastening cover, traditionally defined as "water tight", and must be used with IP67 plugs (with locking nut and gasket). All equipment must be installed following state-of-the-art procedures and in compliance with the manufacturer's assembly instructions. If components with varying degrees of protections are installed, the degree of protection of the resulting distribution board corresponds to that of the unit with the lowest degrees of protection.

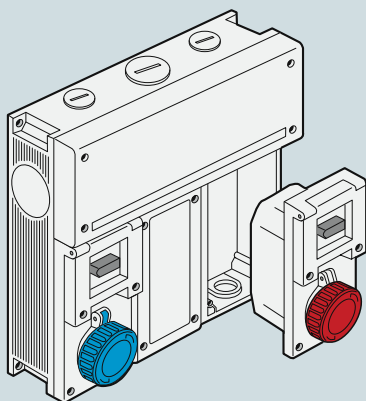
This has been assessed and applies:

- To socket-outlets when a plug with equivalent class is inserted or the cover is closed
- To enclosures, when all covers are closed

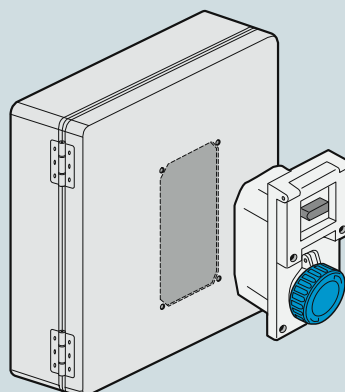
## Type of installation

BK systems can be installed in four different types of configurations, as illustrated below:

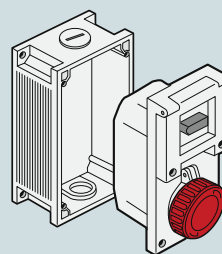
- In triple boxes (Figure 1)
- On equipment or pre-assembled enclosures (Figure 2)
- In boxes for wall-mounting (Figure 3)
- In boxes for flush-mounting (Figure 4)



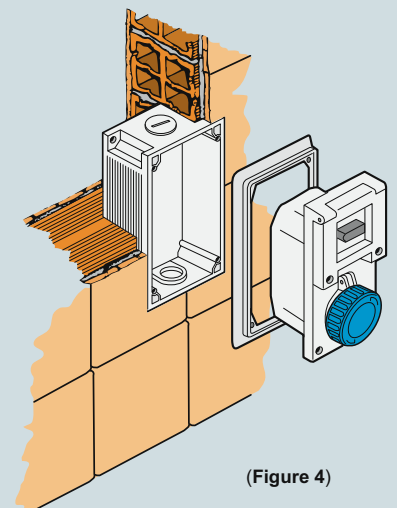
(Figure 1)



(Figure 2)



(Figure 3)



(Figure 4)

- Compliant with EN 60309 -1, -2 and -4
- Carrying structure in self-extinguishing, glass fibre reinforced polyester, UL approved, RAL 7035 grey
- Stainless steel retained fixing screws
- Socket-outlet module in insulating self-extinguishing thermoplastic material, UL approved
- Stainless steel pin and spring hinged cover, with bayonet insert, colour coded according to operating voltage
- Factory installed internal wiring
- "Zeta" series switch-disconnector with 32A rating, compliant with standard EN 60947-3, AC-22A
- Mechanical interlock that prevents:
  - The switch from being turned on without the plug inserted,
  - the plug from being removed while the switch is turned on,
  - the switch from being turned on when the panel is open
- The socket outlets mounted on the boxes guarantee the compliance with IP66/IP67 degrees of protection requirements (EN 60529)

## 16A interlocked switched socket-outlets



## 32A interlocked switched socket-outlets

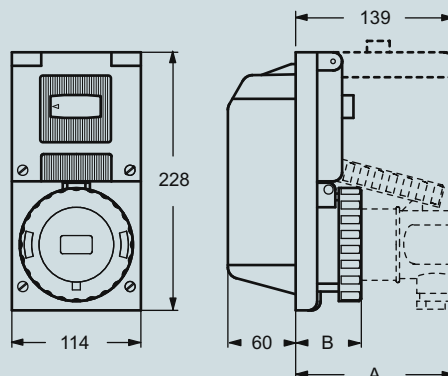


Poles	Frequency Hz	Voltage V	Earthing contact position h	Part No.	Colour	Part No.	Colour
2P+⊕	50 and 60	100 + 130	4	BE 1643	Yellow	BE 3243	Yellow
	50 and 60	200 + 250	6	BE 1663	Blue	BE 3263	Blue
	50 and 60	380 + 415	9	BE 1693	Red	BE 3293	Red
	50 and 60	480 + 500	7	BE 1673	Black	BE 3273	Black
	50 and 60	ins. transformer	12	BE 16123	A.V.	BE 32123	A.V.
	> 300 + 500	> 50	2	BE 1623	(*)	BE 3223	(*)
	c.c.	> 50 + 250	3	BE 1633	A.V.		
	⚡	⚡	1	BE 1613	A.V.	BE 3213	A.V.
3P+⊕	50 and 60	100 + 130	4	BE 1644	Yellow	BE 3244	Yellow
	50 and 60	200 + 250	9	BE 1694	Blue	BE 3294	Blue
	50 and 60	380 + 415	6	BE 1664	Red	BE 3264	Red
	60	440 + 460	11	BE 16114	Black	BE 32114	Black
	50 and 60	480 + 500	7	BE 1674	Black	BE 3274	Black
	50	380	3	BE 1634	Red	BE 3234	Red
	60	440	3	BE 1634	Red	BE 3234	Red
	100 + 300	> 50	10	BE 16104	(*)	BE 32104	(*)
	> 300 + 500	> 50	2	BE 1624	(*)	BE 3224	(*)
	⚡	⚡	1	BE 1614	A.V.	BE 3214	A.V.
	3P+N+⊕	50 and 60	57/100 + 75/130	4	BE 1645	Yellow	BE 3245
50 and 60		120/208 + 144/250	9	BE 1695	Blue	BE 3295	Blue
50 and 60		200/346 + 240/415	6	BE 1665	Red	BE 3265	Red
50 and 60		277/480 + 288/500	7	BE 1675	Black	BE 3275	Black
60		250/440 + 265/460	11	BE 16115	Black	BE 32115	Black
50		220/380	3	BE 1635	Red	BE 3235	Red
60		250/440	3	BE 1635	Red	BE 3235	Red
> 300 + 500		> 50	2	BE 1625	(*)	BE 3225	(*)
⚡		⚡	1	BE 1615	A.V.	BE 3215	A.V.

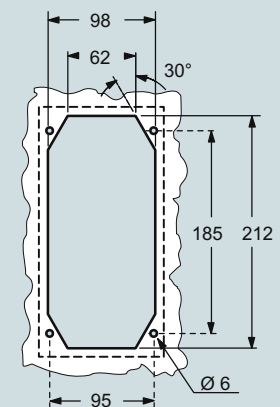
### Legend

- Ⓢ = With Italian Quality Mark
- ⚡ = All rated operating voltages and/or frequencies not covered by other configurations
- A.V. = Colour coded according to voltage
- (\*) = Green may be used together with the colour of the operating range for frequencies above 60 Hz and up to a maximum of 500 Hz.

### Dimensions in mm



### Panel cut-out in mm, for panel-mounting



BE	A	B	
16A	2P + ⊕	105	50
	3P + ⊕	105	50
	3P + N + ⊕	110	50
32A	2P + ⊕	140	58
	3P + ⊕	140	58
	3P + N + ⊕	140	58

Dimensions indicated are not binding and may be changed without prior notice.



- Compliant with EN 60309 -1, -2 and -4
- Carrying structure in self-extinguishing, glass fibre reinforced polyester, UL approved, RAL 7035 grey
- Stainless steel retained fixing screws
- Inserts in insulating self-extinguishing thermoplastic material, UL approved
- Cover with bayonet insert, colour coded according to operating voltage
- Factory installed internal wiring
- "Zeta" series switch with 32A rating
- Fuse carriers for cylindrical cartridges 10 x 38 (fuses not included)
- Mechanical interlock that prevents:
  - access to fuses when the switch is closed
  - the switch from being turned on without the plug inserted,
  - the plug from being removed while the switch is turned on,
  - the switch from being turned on when the panel is open
- The socket outlets mounted on the boxes guarantee the compliance with IP66/IP67 degrees of protection requirements (EN 60529)

## 16A interlocked switched socket-outlets and fuse carrier



## 32A interlocked switched socket-outlets and fuse carrier

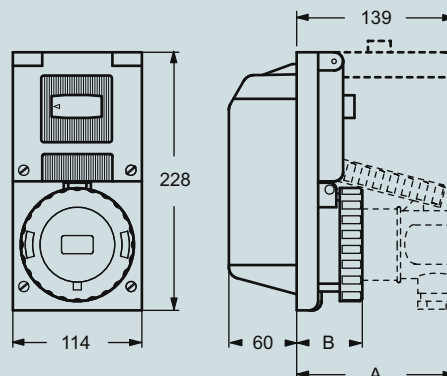


Poles	Frequency Hz	Voltage V	Earthing contact position h	Part No.	Colour	Part No.	Colour	
2P+⊕	50 and 60	100 + 130	4	BK 1643	Yellow	BK 3243	Yellow	
	50 and 60	200 + 250	6	BK 1663	Blue	BK 3263	Blue	
	50 and 60	380 + 415	9	BK 1693	Red	BK 3293	Red	
	50 and 60	480 + 500	7	BK 1673	Black	BK 3273	Black	
	50 and 60	ins. transformer	12	BK 16123	A.V.	BK 32123	A.V.	
	> 300 + 500	> 50	2	BK 1623	(*)	BK 3223	(*)	
	c.c.	> 50 + 250	3					
	⚡	⚡	1	BK 1613	A.V.	BK 3213	A.V.	
	3P+⊕	50 and 60	100 + 130	4	BK 1644	Yellow	BK 3244	Yellow
		50 and 60	200 + 250	9	BK 1694	Blue	BK 3294	Blue
50 and 60		380 + 415	6	BK 1664	Red	BK 3264	Red	
60		440 + 460	11	BK 16114	Black	BK 32114	Black	
50 and 60		480 + 500	7	BK 1674	Red	BK 3274	Red	
50		380	3	BK 1634	Red	BK 3234	Red	
60		440	3	BK 1634	Red	BK 3234	Red	
100 + 300		> 50	10	BK 16104	(*)	BK 32104	(*)	
> 300 + 500		> 50	2	BK 1624	(*)	BK 3224	(*)	
⚡		⚡	1	BK 1614	A.V.	BK 3214	A.V.	
3P+N+⊕		50 and 60	57/100 + 75/130	4	BK 1645	Yellow	BK 3245	Yellow
		50 and 60	120/208 + 144/250	9	BK 1695	Blue	BK 3295	Blue
		50 and 60	200/346 + 240/415	6	BK 1665	Red	BK 3265	Red
	50 and 60	277/480 + 288/500	7	BK 1675	Black	BK 3275	Black	
	60	250/440 + 265/460	11	BK 16115	Red	BK 32115	Red	
	50	220/380	3	BK 1635	Red	BK 3235	Red	
	60	250/440	3	BK 1635	Red	BK 3235	Red	
	> 300 + 500	> 50	2	BK 1625	(*)	BK 3225	(*)	
	⚡	⚡	1	BK 1615	A.V.	BK 3215	A.V.	

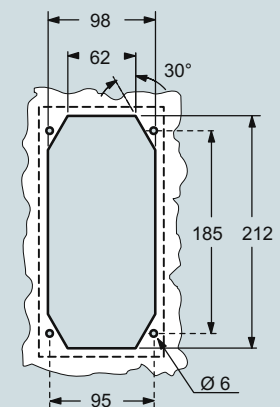
### Legend

- ⊕ = With Italian Quality Mark
- ⚡ = All rated operating voltages and/or frequencies not covered by other configurations
- A.V. = Colour coded according to voltage
- (\*) = Green may be used together with the colour of the operating range for frequencies above 60 Hz and up to a maximum of 500 Hz.

### Dimensions in mm



### Panel cut-out in mm, for panel-mounting



BK	A	B	
16A	2P + ⊕	105	50
	3P+⊕	105	50
	3P + N + ⊕	110	50
32A	2P + ⊕	140	58
	3P+⊕	140	58
	3P + N + ⊕	140	58

Dimensions indicated are not binding and may be changed without prior notice.

- Compliant with EN 60309 -1 and -2
- Carrying structure in self-extinguishing, glass fibre reinforced polyester, UL approved, RAL 7035 grey
- Stainless steel retained fixing screws
- Inserts in insulating self-extinguishing thermoplastic material, UL approved
- Cover with bayonet insert, colour coded according to operating voltage
- Socket-outlet with nickel-plated contacts and pilot contact
- With transparent cover (BPR socket-outlets) in self-extinguishing polycarbonate for the assembly of a maximum of 4/5 modular units, including closing plate, sized DIN-rail EN 60715 and fixing screws, to be placed on mounting plate BC 1123 PF
- The covers with the socket outlets mounted on the boxes guarantee the compliance with IP66/IP67 degrees of protection requirements (EN 60529)

### Cover with 63A socket-outlet



### Cover with 63A socket-outlet and room for modular control equipment

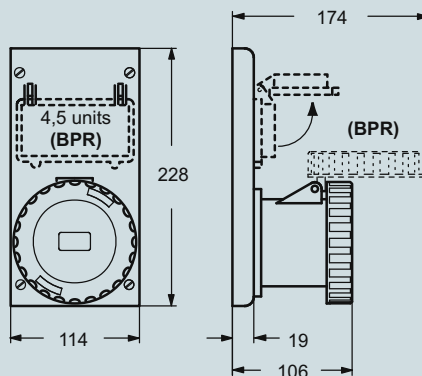


Poles	Frequency Hz	Voltage V	Earthing contact position h	Part No.	Colour	Part No.	Colour
2P+⊕	50 and 60	100 ÷ 130	4	BP 6343		BPR 6343	
	50 and 60	200 ÷ 250	6	BP 6363		BPR 6363	
	50 and 60	380 ÷ 415	9	BP 6393		BPR 6393	
	50 and 60	480 ÷ 500	7	BP 6373		BPR 6373	
	50 and 60	ins. transformer	12	BP 63123		BPR 63123	
	c.c.	> 50 ÷ 250	3	BP 6333		BPR 6333	
	c.c.	> 250	8	BP 6383		BPR 6383	
	⚡	⚡	1	BP 6313		BPR 6313	
3P+⊕	50 and 60	100 ÷ 130	4	BP 6344		BPR 6344	
	50 and 60	200 ÷ 250	9	BP 6394		BPR 6394	
	50 and 60	380 ÷ 415	6	BP 6364		BPR 6364	
	60	440 ÷ 460	11	BP 63114		BPR 63114	
	50 and 60	480 ÷ 500	7	BP 6374		BPR 6374	
	50 and 60	600 ÷ 690	5	BP 6354		BPR 6354	
	⚡	⚡	1	BP 6314		BPR 6314	
	3P+N+⊕	50 and 60	57/100 ÷ 75/130	4	BP 6345		BPR 6345
50 and 60		120/208 ÷ 144/250	9	BP 6395		BPR 6395	
50 and 60		200/346 ÷ 240/415	6	BP 6365		BPR 6365	
50 and 60		277/480 ÷ 288/500	7	BP 6375		BPR 6375	
50 and 60		347/600 ÷ 400/690	5	BP 6355		BPR 6355	
60		250/440 ÷ 265/460	11	BP 63115		BPR 63115	
⚡		⚡	1	BP 6315		BPR 6315	

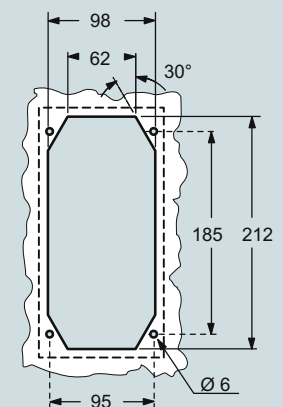
### Legend

- Ⓜ = With Italian Quality Mark
- ⚡ = All rated operating voltages and/or frequencies not covered by other configurations
- A.V. = Colour coded according to voltage

Dimensions in mm



Panel cut-out in mm, for panel-mounting



Dimensions indicated are not binding and may be changed without prior notice.



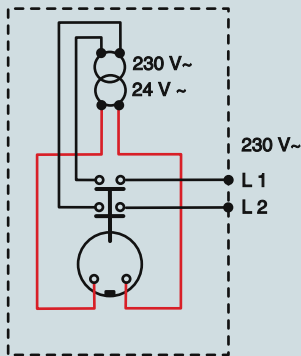
- Compliant with EN 60309 -1 and -2, and CEI EN 61558-2-9
- Carrying structure in self-extinguishing, glass fibre reinforced polyester, UL approved, RAL 7035 grey
- Stainless steel retained fixing screws
- Socket-outlet module in insulating self-extinguishing thermoplastic material, UL approved
- Stainless steel pin and spring hinged cover, with bayonet insert, colour coded according to operating voltage
- Factory installed internal wiring
- safety transformer compliant with standard EN 61558-2-9, 144VA, continuous duty, activated by inserting the plug
- The socket outlets mounted on the boxes guarantee the compliance with IP66/IP67 degrees of protection requirements (EN 60529)

### Socket-outlets with safety transformer for class III portable lighting apparatus

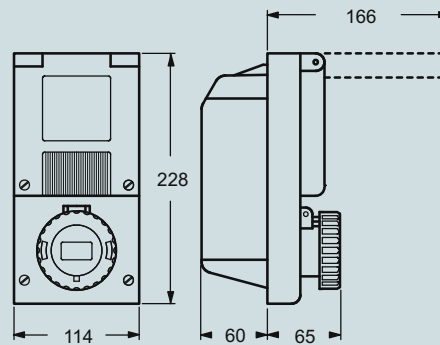


Poles	Frequency Hz	Voltage V	Part No.
2P	50 and 60	230/24	<b>BT 16220</b>

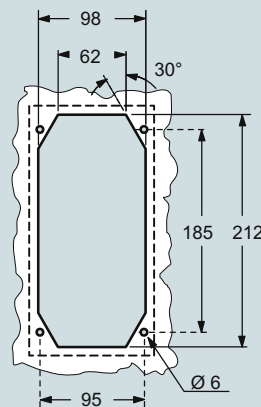
#### Wiring diagram



#### Dimensions in mm



#### Panel cut-out in mm, for panel-mounting



Dimensions indicated are not binding and may be changed without prior notice.

# BK distribution system



- Compliant with CEI 23-48 (IEC 60670) and with draft standard CEI 23-49
- Covers in self-extinguishing glass fibre reinforced polyester, UL approved, RAL 7035 grey
- Threaded seats for assembly of PQF and PQ socket-outlets
- Stainless steel retained fixing screws
- Oil resistant and anti-aging soft rubber gaskets
- Transparent hinged cover in self-extinguishing polycarbonate, with gasket, sized DIN-rail EN 60715, fixing screws and closing plates
- The covers mounted on the boxes guarantee the compliance with IP66/IP67 degrees of protection requirements (EN 60529)
- With Italian Quality Mark (CEI 23-48)

## Covers with built-in 16A and 32A socket-outlets

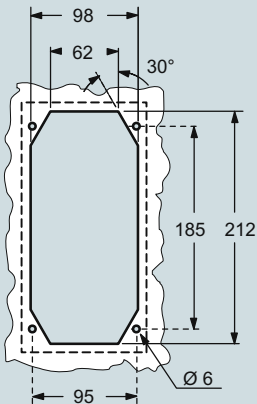


## Covers with room for modular control equipment



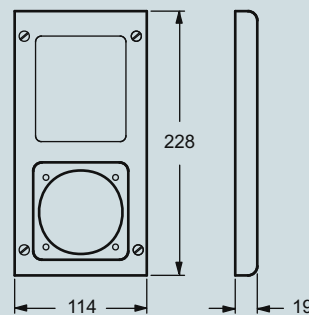
Description	Part No.	Part No.
<b>Cover for one socket-outlet</b> for PQF and PQ straight flush-mounting socket-outlets (see following page)	<b>BC 1123 Q</b>	
<b>Cover for two socket-outlets</b> for PQF and PQ straight flush-mounting socket-outlets (see following page)	<b>BC 1123 Q''</b>	
<b>Cover with compartment and panel</b> for modular units (max. 4-5 units)		<b>BC 1123 R</b>
<b>Cover for one socket-outlet + compartment and panel</b> for modular units (max. 4-5 units) Uses PQF and PQ straight flush-mounting socket-outlets (see following page)		<b>BC 1123 RQ</b>

Panel cut-out in mm, for panel-mounting

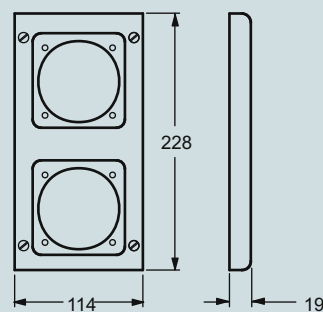


Dimensions in mm

### BC 1123 Q

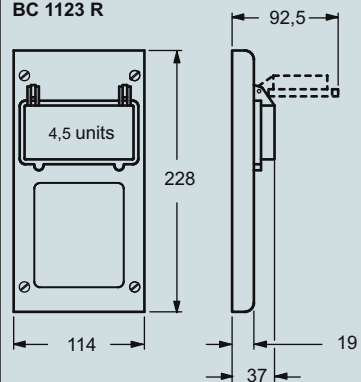


### BC 1123 Q2

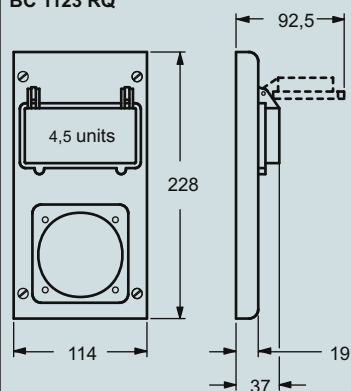


Dimensions in mm

### BC 1123 R



### BC 1123 RQ



Notes:  
articles BC 1123 R and BC 1123 RQ include the BC 1123 PF assembly plate

Dimensions indicated are not binding and may be changed without prior notice.

# PQF - PQ straight flush-mounting socket-outlets



- Compliant with EN 60309 -1, -2 and -4
- Enclosure, insert and cover in insulating thermoplastic self-extinguishing material
- RAL 7035 grey enclosure, cover colour coded according to operating voltage
- Cover with locking ring and gasket
- Flange with anti-aging gasket
- Terminals with retained screws
- ® With Italian Quality Mark

## 16A IP67 degrees of protection

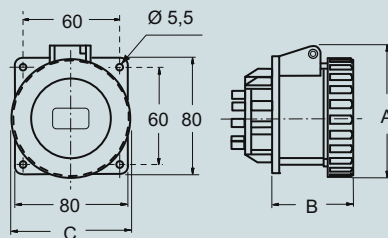


## 32A IP67 degrees of protection



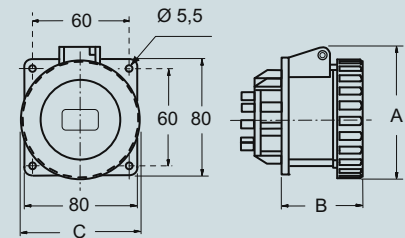
Description	Part No.	Part No.
<b>100 - 130V ~ - 50 and 60 Hz - Yellow</b> 16A - 2P+® - 4h - Panel cut-out 60 x 60 mm 16A - 3P+® - 4h - Panel cut-out 60 x 60 mm 16A - 3P+N+® - 4h - Panel cut-out 60 x 60 mm <b>200 - 250V ~ - 50 and 60 Hz - Blue</b> 16A - 2P+® - 6h - Panel cut-out 60 x 60 mm 16A - 3P+® - 9h - Panel cut-out 60 x 60 mm 16A - 3P+N+® - 9h - Panel cut-out 60 x 60 mm <b>380 - 415V ~ - 50 and 60 Hz - Red</b> 16A - 2P+® - 9h - Panel cut-out 60 x 60 mm 16A - 3P+® - 6h - Panel cut-out 60 x 60 mm 16A - 3P+N+® - 6h - Panel cut-out 60 x 60 mm <b>480 - 500V ~ - 50 and 60 Hz - Black</b> 16A - 3P+® - 7h - Panel cut-out 60 x 60 mm 16A - 3P+N+® - 4h - Panel cut-out 60 x 60 mm	<b>PEW 1643 PQF ®</b> <b>PEW 1644 PQF ®</b> <b>PEW 1645 PQ ®</b>  <b>PEW 1663 PQF ®</b> <b>PEW 1694 PQF ®</b> <b>PEW 1695 PQ ®</b>  <b>PEW 1693 PQF ®</b> <b>PEW 1664 PQF ®</b> <b>PEW 1665 PQ ®</b>  <b>PEW 1674 PQF ®</b> <b>PEW 1675 PQ ®</b>	
<b>100 - 130V ~ - 50 and 60 Hz - Yellow</b> 32A - 2P+® - 4h - Panel cut-out 60 x 60 mm 32A - 3P+® - 4h - Panel cut-out 60 x 60 mm 32A - 3P+N+® - 4h - Panel cut-out 60 x 60 mm <b>200 - 250V ~ - 50 and 60 Hz - Blue</b> 32A - 2P+® - 6h - Panel cut-out 60 x 60 mm 32A - 3P+® - 9h - Panel cut-out 60 x 60 mm 32A - 3P+N+® - 9h - Panel cut-out 60 x 60 mm <b>380 - 415V ~ - 50 and 60 Hz - Red</b> 32A - 2P+® - 9h - Panel cut-out 60 x 60 mm 32A - 3P+® - 6h - Panel cut-out 60 x 60 mm 32A - 3P+N+® - 6h - Panel cut-out 60 x 60 mm <b>480 - 500V ~ - 50 and 60 Hz - Black</b> 32A - 3P+® - 7h - Panel cut-out 60 x 60 mm 32A - 3P+N+® - 4h - Panel cut-out 60 x 60 mm		<b>PEW 3243 PQ ®</b> <b>PEW 3244 PQ ®</b> <b>PEW 3245 PQ ®</b>  <b>PEW 3263 PQ ®</b> <b>PEW 3294 PQ ®</b> <b>PEW 3295 PQ ®</b>  <b>PEW 3293 PQ ®</b> <b>PEW 3264 PQ ®</b> <b>PEW 3265 PQ ®</b>  <b>PEW 3274 PQ ®</b> <b>PEW 3275 PQ ®</b>

Dimensions in mm



tipi		A	B	C
PQF 16A	2P+®	82	52	70
	3P+®	86	52	78
PQ 16A	3P+N+®	93	52	86

Dimensions in mm



tipi		A	B	C
PQ 32A	2P+®	98	62	92
	3P+®	98	62	92
	3P+N+®	105	62	100

Dimensions indicated are not binding and may be changed without prior notice.



# BK distribution system



- Compliant with international standard IEC 60670 (Italian standard CEI 23-48) and Italian draft standard CEI 23-49
- Boxes in self-extinguishing, glass fibre reinforced polyester, UL approved, RAL 7035 grey
- Boxes can be wall- or flush-mounted
- Sides have threaded entry/exit holes
- Threaded seats in brass for assembly of covers and socket-outlets
- Boxes are supplied with closing plugs, cable glands, reduction nipples, gaskets and small parts
- IP66/IP67 class of protection (EN 60529)
- ® With Italian Quality Mark (CEI 23-48)

## Single box



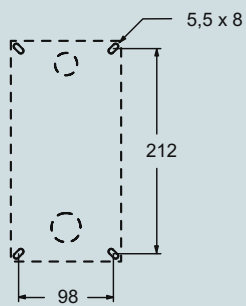
## Triple box



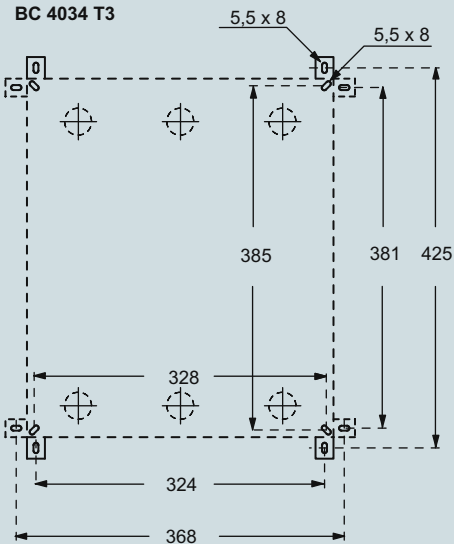
Description	Part No.	Part No.
<b>Single box</b> equipped with: - ARD 21 and ARD 29 plugs - Pg 21 and Pg 29 cable glands	<b>BC 1123 CS</b> ®	
<b>Single box</b> equipped with: - ARD 29 and ARD 36 plugs - Pg 29 and Pg 36 cable glands - Insulating separators - Climbing irons for external box mounting		<b>BC 4034 T3</b> ®

Panel cut-out in mm

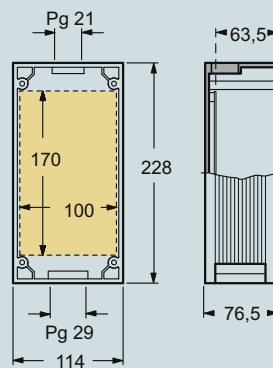
### BC 1123 CS



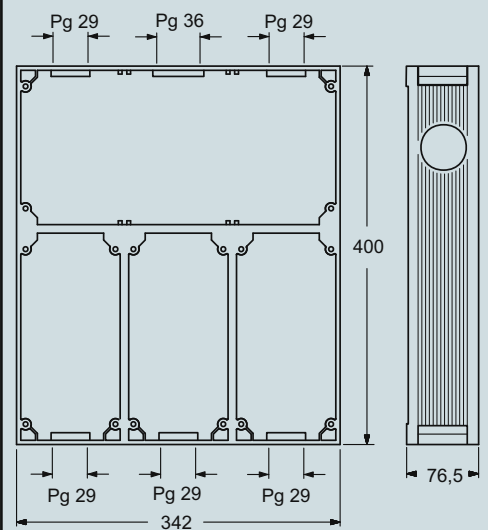
### BC 4034 T3



Dimensions in mm



Dimensions in mm



Dimensions indicated are not binding and may be changed without prior notice.

- Compliant with international standard IEC 60670 (Italian standard CEI 23-48) and Italian draft standard CEI 23-49
- Covers in self-extinguishing, glass fibre reinforced polyester, UL approved, RAL 7035 grey
- Stainless steel retained fixing screws
- External metallic parts (pins, springs, etc.) in stainless steel
- Oil resistant and anti-aging soft rubber gaskets
- The covers mounted on the boxes guarantee the compliance with IP66/IP67 degrees of protection requirements (EN 60529)
- ® With Italian Quality Mark (CEI 23-48)

## Cover for single and triple boxes joint cover plate



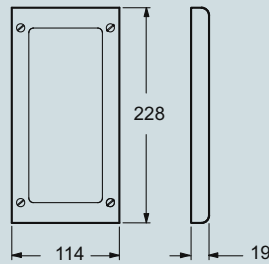
## Cover for triple box and cover for modular control equipment



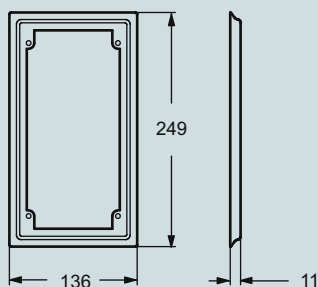
Description	Part No.	Part No.
<b>Smooth cover</b> for closing unused spaces or as support for accessories outside the box	<b>BC 1123 P</b> ®	
<b>Joint cover plate</b> for wall flush-mounting of single modules on non uniform walls or tiled surfaces	<b>BC 1123 ME</b>	
<b>Smooth cover</b> Closes the top of the triple box Supplied with alveolated bottom		<b>BC 1734 P3</b> ®
<b>Cover with tilting panel</b> <b>Cover with clear tilting panel</b> for the assembly of modular panel units (16) Supplied with 35 mm DIN-rail EN 60715, with closing plates for unused spaces		<b>BC 1734 R3</b> ® <b>BC 1734 R3T</b> ®

Dimensions in mm

### BC 1123 P

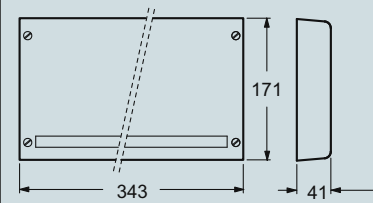


### BC 1123 ME

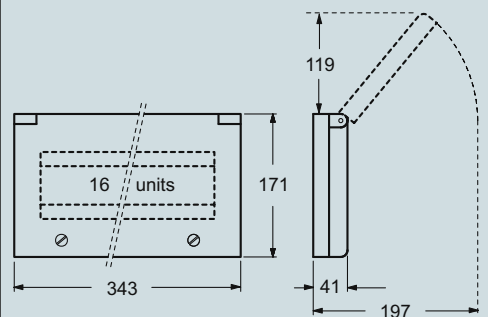


Dimensions in mm

### BC 1734 P3



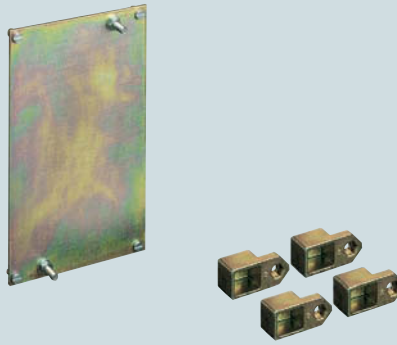
### BC 1734 R3 and BC 1734 R3T



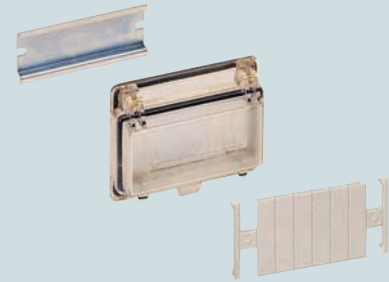
Dimensions indicated are not binding and may be changed without prior notice.

- Assembly plate in zinc-plated steel with earth connections, threaded inserts and fixing screws on the bottom of the boxes
- Metal alloy brackets with screws for mounting on boxes
- Cover in self-extinguishing polycarbonate with transparent inspection panel and gasket
- Closing plates including half modules (6  $\frac{1}{4}$  + 2  $\frac{1}{4}$  of module)
- DIN-rail EN 60715, in zinc-plated steel, sized, with fixing screws

## Mounting plate Climbing irons for wall-mounting



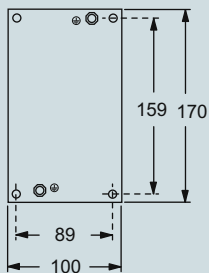
## DIN-rail EN 60715 cover with panel closing plates



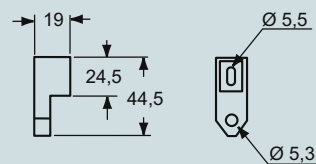
Description	Part No.	Part No.
<b>Mounting plate</b> for single or triple boxes	<b>BC 1123 PF</b>	
<b>Climbing irons</b> for external wall mounting for single and triple boxes	<b>BC SFT</b>	
<b>DIN-rail EN 60715</b> For BC 1123 PF assembly plates		<b>BC GD8</b>
<b>Cover with panel</b> for modular units (max. 4-5 units)		<b>BC 45 ST</b>
<b>Closing plates</b> for unused modular openings		<b>BC FR 62</b>

Dimensions in mm

### BC 1123 PF

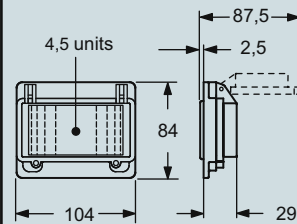


### BC SFT

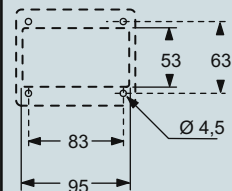


Dimensions in mm

### BC 45 ST



Panel cut-out in mm, for panel-mounting



Dimensions indicated are not binding and may be changed without prior notice.



- BC CHT
  - Safety padlock that prevents access to the door closing screws
  - Supplied with two sets of keys
- BC BLC
  - Kit comprising insert and padlock that enables to lock controls in open or closed position
  - Supplied with two sets of keys

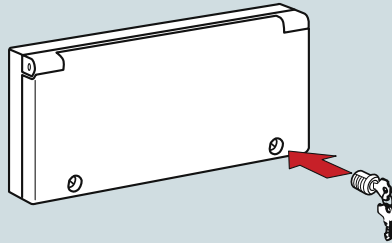
### Safety padlock with key Safety padlock for controls



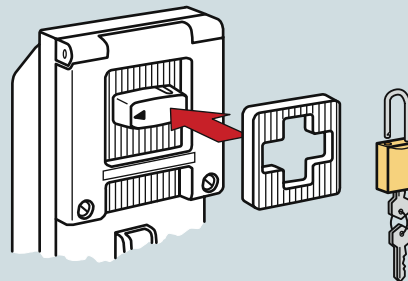
Description	Part No.
<b>Safety padlock</b> for the door of BC 1734 R3 covers	<b>BC CHT</b>
<b>Safety device</b> For BE, BK and BA socket-outlets and BI switches	<b>BC BLC</b>

Dimensions in mm

#### BC CHT



#### BC BLC



Dimensions indicated are not binding and may be changed without prior notice.

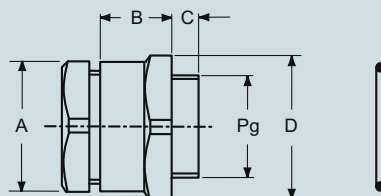
- In insulating thermoplastic material, grey RAL 7035
- Anti-aging rubber gasket

Cable gland



Description	Part No.
<b>Cable glands</b> - Threading Pg 11 - Rubber hole Ø 7.5-10-12.5 mm - Threading Pg 13.5 - Rubber hole Ø 7.5-10-12.5 mm - Threading Pg 16 - Rubber hole Ø 7.5-10-12.5-15 mm - Threading Pg 21 - Rubber hole Ø 10-13-16-19 mm - Threading Pg 29 - Rubber hole Ø 18-21-24-27 mm - Threading Pg 36 - Rubber hole Ø 24-27-30-33 mm - Threading Pg 42 - Rubber hole Ø 30-33-36-39 mm - Threading Pg 48 - Rubber hole Ø 36-39-42-45 mm	<b>ARC 11</b> <b>ARC 13.5</b> <b>AFT 16</b> <b>AFT 21</b> <b>AFT 29</b> <b>AFT 36</b> <b>ARC 42</b> <b>ARP 48</b>

Dimensions in mm



Part No.	A	B	C	D	Pg
ARP 11	19	20	9	24	11
ARP 13.5	22	19.5	9	26	13.5
AFP 16	24	21	10	29	16
AFP 21	30	26	10	39	21
AFP 29	41	29.5	10	50	29
AFP 36	50	33.5	10	58	36
ARP 42	54	28	12,5	60	42
ARP 48	64	41.5	13.5	77	48

Dimensions indicated are not binding and may be changed without prior notice.

- In insulating thermoplastic material, grey RAL 7035
- Anti-aging rubber gasket

Sealing plugs including gasket

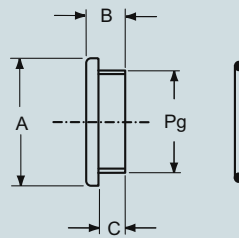


Reduction nipples including gasket



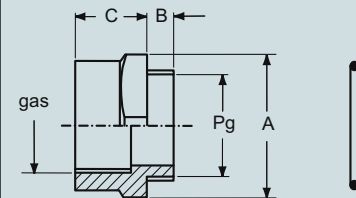
Description	Part No.	Part No.
<b>Sealing plugs</b> - For holes Pg 11 - For holes Pg 13.5 - For holes Pg 16 - For holes Pg 21 - For holes Pg 29 - For holes Pg 36 - For holes Pg 42 - For holes Pg 48	<b>ARD 11</b> <b>ARD 13.5</b> <b>ARD 16</b> <b>ARD 21</b> <b>ARD 29</b> <b>ARD 36</b> <b>ARD 42</b> <b>ARD 48</b>	
<b>Reduction nipples Pg - gas</b> - Threading Pg 21 - Ø 3/4" gas pipes - Threading Pg 29 - Ø 1" gas pipes - Threading Pg 36 - Ø 1 1/2" gas pipes		<b>ARE 2134</b> <b>ARE 291</b> <b>ARE 3612</b>
<b>Reduction nipples Pg - MB</b> - Threading Pg 21 - Ø M25 pipes - Threading Pg 29 - Ø M32 pipes - Threading Pg 36 - Ø M40 pipes		<b>ARE 2125</b> <b>ARE 2932</b> <b>ARE 3640</b>

Dimensions in mm

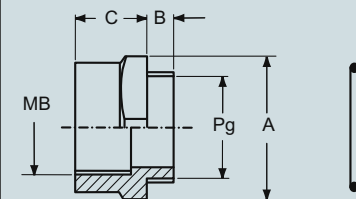


Part No.	A	B	C	Pg
ARD 11	22	7.5	6	11
ARD 13.5	24	7.5	6	13.5
ARD 16	26	7.5	6	16
ARD 21	35	10	8	21
ARD 29	44	10	8	29
ARD 36	54	12	10	36
ARD 42	64	14	12	42
ARD 48	70	14	12	48

Dimensions in mm



Part No.	A	B	C	Pg	Gas
ARE 2134	36	11	24	21	3/4"
ARE 291	46	12	28	29	1"
ARE 3612	60	12	32	36	1" 1/2



Part No.	A	B	C	Pg	MB
ARE 2125	36	11	24	21	M25
ARE 2932	46	12	28	29	M32
ARE 3640	60	12	32	36	M40

Dimensions indicated are not binding and may be changed without prior notice.



**EN 60309-1 and EN 60309-2 standards**

In 1990, **CENELEC** (European Electrotechnical Standards Committee) introduced the provisions of the international publications IEC 60309-1 and IEC 60309-2 into the two corresponding European standards EN 60309-1 and EN 60309-2 (classification CEI 23-12/1 and 23-12/2). **IEC** (*International Electrotechnical Commission*), the worldwide organisation for electrotechnical standardisation had adopted these publications basing them almost entirely on the EEC 17 Publication of 1958, now withdrawn, issued by the now dissolved organisation **CEEel**. This is why still today this system of industrial sockets and plugs is traditionally called by many "EEC". The European standards EN 60309-1 and -2 were then compulsorily adopted as national standards by all the CENELEC member states (which as from 1 May 2004, with the expansion of the EU, include Austria, Belgium, Cyprus, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Iceland, Italy, Latvia, Lithuania, Luxembourg, Malta, Norway, Holland, Poland, Portugal, United Kingdom, Czech Republic, Slovakia, Slovenia, Spain, Sweden, Switzerland and Hungary). All conflicting national standards have at the same time been abolished.

Today, therefore, the manufacture of plugs and socket-outlets for industrial use has been harmonised throughout Europe. Before its termination, CEEel's members also included Bulgaria, Israel, former Yugoslavia (today Bosnia, Croatia, Macedonia, Serbia with Montenegro, Slovenia) and the former Soviet Union (today the Russian Federation).

In virtue of the correspondence with the IEC publications, this industrial plugs and socket-outlets system is widely known and appreciated in leading non-European countries such as Argentina, Australia, Brazil, Canada, China, Korea, Egypt, Japan, India, South Africa, Turkey and the USA. In Italy the above harmonisation is regulated by standards EN 60309-1 and EN 60309-2. In 1999 the fourth editions of the IEC publications were adopted as EN by the CENELEC and published in Italy in 2000.

The technical notes below and the products illustrated in the present booklet refer to series 1 versions, used in Europe on the basis of said European Standards and in countries of European technical-cultural origin (e.g.: most of Latin America, Australia, South Africa). A series 2 also exists, which differs for its rated current, voltage and frequency values and for its polarity and pole marking, adapting to North American installation standards and those of countries that have adopted this system (e.g. Mexico, Japan).

**The Provisions of the Standards**

Each model of plug and socket is unique and has a specific use. Each model has safety devices that make it impossible to insert a plug into a socket made for a different capacity, voltage, frequency and number of poles.

In the "low voltage" versions, the safety system is based on two references:

- a guiding groove on the socket that corresponds to a nib on the plug;
- an earthing contact of increased capacity with respect to the other contacts, and located in different hour positions according to the voltages used.

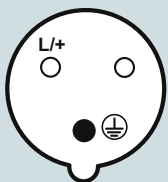
The 63A and 125A plugs have a pilot contact for operating an electric interlock.

**Hour Position (h)**

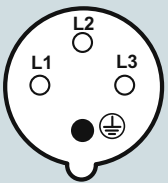
This position is determined by looking at the front of the socket and placing the major guiding groove at the 6 o'clock position and noting the hour position of the earthing contact.

Following are examples of three different polarities with the earth contact at the 6 o'clock position.

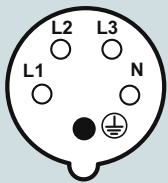
Socket - front view



major key



major key



major key

**Low voltage over 50V up to 690V**

	Number of poles	frequency	rated operating voltage	hour position (h) earthing contact (*)		colour
		Hz	V	16A and 32A	63A and 125A	
<b>2P+</b>		50 and 60	100 - 130	4	4	yellow
		50 and 60	200 - 250	6	6	blue
		50 and 60	380 - 415	9	9	red
		50 and 60	480 - 500	7	7	black
		50 and 60	supply from isol. transf.	12	12	(**)
		100 ÷ 300	> 50	-	-	(***)
		> 300 ÷ 500	> 50	2	-	(***)
		direct current	> 50 - 250	3	3	(**)
		direct current	> 250	8	8	(**)
<b>3P+</b>		50 and 60	100 - 130	4	4	yellow
		50 and 60	200 - 250	9	9	blue
		50 and 60	380 - 415	6	6	red
		60	440 - 460 ☆	11	11	red
		50 and 60	480 - 500	7	7	black
		50 and 60	600 - 690	5	5	black
		50 60	380 440 †	3	-	red
		100 ÷ 300	> 50	10	-	(***)
		> 300 ÷ 500	> 50	2	-	(***)
<b>3P+N</b>		50 and 60	57/100 - 75/130	4	4	yellow
		50 and 60	120/208 - 144/250	9	9	blue
		50 and 60	200/346 - 240/415	6	6	red
		50 and 60	277/480 - 288/500	7	7	black
		50 and 60	347/600 - 400/690	5	5	black
		60	250/440 - 265/460 ☆	11	11	red
		50 60	220/380 250/440 †	3	-	red
		100 ÷ 300	> 50	-	-	(***)
		> 300 ÷ 500	> 50	2	-	(***)
<b>all types</b>		all rated operating voltages and/or frequencies not covered by other configurations		1	1	(**)

☆ Mainly for marine installations

† Only for refrigerated containers (standardised by ISO)

(\*) The positions indicated with dashes "-" are not standardised

(\*\*) Colour according to voltage

(\*\*\*) If necessary, green may be used together with the colour of the operating voltage for frequencies of over 60 Hz up to 500 Hz inclusive

**Normal service conditions for electrical equipment**

The standard EN 60439-1 applies to *low-voltage switchgear and controlgear assemblies*, commonly known as low-voltage boards, with rated voltage not exceeding 1000V (with frequency not exceeding 1 kHz, although boards for greater frequencies are allowed under further specific prescriptions) or 1500V in d.c. This standard defines the equipment (boards) for indoor and outdoor use in accordance with the installation conditions. The normal service conditions are in fact defined for indoor and outdoor use. These normal conditions are also used as reference in standard EN 60664-1 (basic safety publication) for the coordination of insulation. This coordination consists of the definition of the rated insulation values of electrical equipment and the corresponding components relating to:

- dielectric characteristics of the insulating materials used
- degree of pollution in the environment where they are to be used
- overvoltage category of the point at which they are connected to the network (distance from the generating centres).

**1. Ambient air temperature**

In normal indoor service conditions the temperature should not be lower than -5 °C or greater than +40 °C and the average value over 24 h should not exceed +35 °C. For outdoor installations the minimum value is -25 °C in mild climates and -50 °C in arctic climates (with the possibility of an agreement between manufacturer and user in the latter case).

**2. Altitude**

The altitude of the installation site should not exceed 2000 m. For equipment to be used at higher altitudes it is necessary to consider the reduction of dielectric rigidity and the cooling effect of the air. For installations in different conditions refer to the manufacturer.

**3. Atmospheric conditions:**

**humidity and pollution**

The relative humidity of the air should not exceed 50% at a maximum temperature of 40 °C. Higher relative humidity values are allowed at lower temperatures, for example: 90% at +20 °C. For outdoor installations the relative humidity may reach 100% at a maximum temperature of +25 °C.

**Degrees of pollution**

The pollution degrees define the environmental conditions. To go in more detail, standard IEC 60664-1 clarifies that pollution is defined as any contribution of foreign matter, whether a solid, liquid or gaseous (ionised gas), that may negatively affect the dielectric strength of the surface resistivity of the insulating material. Four degrees of pollution are defined and are described by conventional numbers based on the quantity of polluting agent or on the frequency with which the phenomenon occurs that reduces the dielectric strength and/or the surface resistivity.

**pollution degree 1:** no pollution or only dry non-conductive pollution. The pollution has no influence.

**pollution degree 2:** only non-conductive pollution except that occasionally a temporary conductivity caused by condensation is to be expected.

**pollution degree 3:** conductive pollution occurs or dry non conductive pollution occurs which becomes conductive due to condensation which is to be expected <sup>13)</sup>.

The **pollution degree 3** refers to an industrial or similar environment.

The **pollution degree 2** refers to a household or similar environment.

The third edition and the forthcoming fourth edition of EN 60309-1 standard (IEC 60309-1) specifies that the normal use environment for the industrial plugs and socket-outlets complying with this standard has a pollution degree 3 according to standard IEC 60664-1.

<sup>13)</sup> Pollution degree 4 was eliminated in the new standard edition as clearly illogical: conditions of persistent conductivity caused for example by conductive dust, rain or snow are definitely to be avoided throughout the project, and no isolating distance is capable of withstanding them.

<sup>14)</sup> The **IP66/IP67** degree of protection will officially be introduced in the next amendment 1 of the standards EN 60309-1 and EN 60309-2 (and of the relating IEC standards). It is already accounted for in the IP degree of protection standard EN 60529 as a "versatile" form of protection, covering the fact that the temporary immersion resistance test (protection IPX7) does not automatically comply with the two lower degrees of protection IPX6 and IPX5, tested with the respective jet tests. If the end user requires the equipment to resist both against temporary immersions and pressurized water jets, declaredly IP66/IP67 devices with double marking must be selected.

**IP degree of protection and the EN 60529 standard**

The minimum IP degree of protection is regulated by the CEI 64-8 installation standards (inclusion of the harmonisation documents of the CENELEC HD384 series and the IEC 60364 publication) which, in part 7, cover a number of special environments: construction and demolition sites, structures designed for agricultural or livestock breeding use, restricted conductor areas, caravans and caravan sites, environments with a greater risk in case of fire, public performance and entertainment areas, pools and, in the future, fountains and marinas and harbour areas. The standard is applicable to enclosures for electric materials with a rated power no greater than 72.5 kW. All the equipment must be installed according to the rules and must comply with any manufacturer's assembly instructions. When components of different degrees of protection are assembled, the resulting board or distribution system will assume the lowest degree of protection of the mounted components.

This has been assessed and applies:

- socket-outlets, when a plug of the same degree of protection is inserted or when the cover is closed (with counternuts tightened for IP67).
- plugs (with counternuts tightened for IP67).
- for cases, when all the covers are adequately closed.

The range of ILME products presented in this catalogue offers the following range of protection:

**IP44:** protection against the *penetration of solid foreign objects* with a diameter equal to or greater than 1 mm for protection against the intrusion of dangerous parts with an access calibre of Ø 1 mm (1<sup>st</sup> digit), and protected against the *dangerous effects of water spray* from all directions (2<sup>nd</sup> digit).

**IP55:** Protection against the *penetration of harmful quantities of powder* and against *access to dangerous parts* with an access calibre of Ø 1 mm (1<sup>st</sup> digit) and protected against the *dangerous effects of water jets* with a nozzle from all directions (2<sup>nd</sup> digit).

**IP66:** total protection against *dust* and access to *dangerous parts* with an accessibility calibre of Ø 1 mm (1<sup>st</sup> digit), and protected against *powerful water jets* such as sea waves (2<sup>nd</sup> digit).

**IP67:** Total protection against *powder* and against *access to dangerous parts* with an access calibre of Ø 1 mm (1<sup>st</sup> digit) and protected against the *effects of temporary immersion* (30') in water at a maximum depth of 1 meter (2<sup>nd</sup> digit).

The socket-outlets with IP55 degree of protection and those with double degree of protection IP66/IP67 <sup>14)</sup> have a bayonet jointed lid, traditionally defined as "water-tight" and require plugs with IP67 degree of protection (with counternut and gasket) to preserve the degree of protection marked on the apparatus.

**1<sup>st</sup> characteristic numeral**

Personal protection against contact with hazardous parts

IP	External solid foreign bodies	Protection
0		none
1		against solid foreign objects with Ø greater or equal to 50 mm (e.g. hand)
2		against solid foreign objects with Ø greater or equal to 12 mm (e.g. finger)
3		against solid foreign objects with Ø greater or equal to 2.5 mm (e.g. tools and wires)
4		against solid foreign objects with Ø greater or equal to 1 mm (e.g. wires)
5		dust-protected
6		dust-tight

**2<sup>nd</sup> characteristic numeral**

Protection of materials against harmful penetration of water

IP	Tests	Protection
0		none
1		against vertical drops of water
2		against drops of water at an angle of 15°
3		against drops of water at an angle of 60°
4		against water sprayed from all directions
5		against jets of water from all directions
6		against powerful jets of water (such as sea waves)
7		against the effect of temporary immersion in water at a depth of 1 metre
8		against the effects of continuous immersion in water

**Resistance to chemical agents**

The information given below is valid for conditions of application at environmental temperatures no greater than 40 °C. The data provided in the table should be considered merely as a guide because the resistance of technopolymers that come upon contact with chemical agents depends upon the concentration of the agent, the temperature at the time of contact, the mechanical stress involved and the duration of the contact. If the accessories and equipments are to be used in the presence of acids, bases, solvents or high concentration oils, contact our Technical Service. Department

**Table of reactions to chemical agents**

chemical agents	H <sub>2</sub> O (t fino a 23 °C)	Soluzione salina acquosa	Acidi		Basi		Solventi			Alcool etilico (etanolo)	Oli			Grassi		Soluzione organica animale	Carburanti	
			concentrati	diluiti 15% max	concentrate	diluite 15% max	idrocarburi alifatici (esano)	idrocarburi aromatici (benzene)	idrocarburi clorurati e acetone (chetoni)		siliconico	minerale	vegetale	animale	sintetico		super senza piombo	gasolio
<b>BK board components</b>	●	●	○	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●
items of the <b>BK</b> series , except <sup>1)</sup>	●	●	○	●	●	●	●	●	●	○	●	●	●	●	●	●	●	●

<sup>1)</sup> BP, BPR, Q, Q2 and RQ type modules (see reactions of the Pluso socket-outlets); BC 1734 R3T (see reactions of FM series).

**Legend**

- = resistant
- = limited resistance
- X = not resistant

**Corrosion and resistance to rust**

The new edition of standard EN 60309-1 recommends for corrosion and resistance to rust the use of IP67 plugs and socket-outlets wherever corrosion could create problems on electrical parts and advises the manufacturer to consider the product specifically in terms of resistance to corrosion under specific operating conditions.

To this end, socket-outlets and plugs with nickel-plated contacts are available upon request for applications in permanently dusty environments (e.g. cement and tile factories) or in environments with animal organic liquids (e.g. farms, agricultural and food processing industries). **These socket-outlets and plugs and sockets have a greater resistance to corrosion** and greater sliding capacity, allowing the plug to be removed from the socket even under difficult conditions.

**Contact our sales offices for availability and price quotes.**



Part No.	page	Part No.	page	Part No.	page
AFP 16	16	BE 3214	6	BK 3295	7
AFP 21	16	BE 3215	6	BP 63114	8
AFP 29	16	BE 3223	6	BP 63115	8
AFP 36	16	BE 3224	6	BP 63123	8
ARD 11	17	BE 3225	6	BP 6313	8
ARD 13.5	17	BE 3234	6	BP 6314	8
ARD 16	17	BE 3234	6	BP 6315	8
ARD 21	17	BE 3235	6	BP 6333	8
ARD 29	17	BE 3235	6	BP 6343	8
ARD 36	17	BE 3243	6	BP 6344	8
ARD 42	17	BE 3244	6	BP 6345	8
ARD 48	17	BE 3245	6	BP 6354	8
ARE 2125	17	BE 3263	6	BP 6355	8
ARE 2134	17	BE 3264	6	BP 6363	8
ARE 291	17	BE 3265	6	BP 6364	8
ARE 2932	17	BE 3273	6	BP 6365	8
ARE 3612	17	BE 3274	6	BP 6373	8
ARE 3640	17	BE 3275	6	BP 6374	8
ARP 11	16	BE 3293	6	BP 6375	8
ARP 13.5	16	BE 3294	6	BP 6383	8
ARP 42	16	BE 3295	6	BP 6393	8
ARP 48	16	BK 16104	7	BP 6394	8
BC 1123 CS	12	BK 16114	7	BP 6395	8
BC 1123 ME	13	BK 16115	7	BPR 63114	8
BC 1123 P	13	BK 16123	7	BPR 63115	8
BC 1123 PF	14	BK 1613	7	BPR 63123	8
BC 1123 Q	10	BK 1614	7	BPR 6313	8
BC 1123 Q2	10	BK 1615	7	BPR 6314	8
BC 1123 R	10	BK 1623	7	BPR 6315	8
BC 1123 RQ	10	BK 1624	7	BPR 6333	8
BC 1734 P3	13	BK 1625	7	BPR 6343	8
BC 1734 R3	13	BK 1634	7	BPR 6344	8
BC 1734 R3T	13	BK 1634	7	BPR 6345	8
BC 4034 T3	12	BK 1635	7	BPR 6354	8
BC 45 ST	14	BK 1635	7	BPR 6355	8
BC BLC	15	BK 1643	7	BPR 6363	8
BC CHT	15	BK 1644	7	BPR 6364	8
BC FR 62	14	BK 1645	7	BPR 6365	8
BC GD8	14	BK 1663	7	BPR 6373	8
BC SFT	14	BK 1664	7	BPR 6374	8
BE 16104	6	BK 1665	7	BPR 6375	8
BE 16114	6	BK 1673	7	BPR 6383	8
BE 16115	6	BK 1674	7	BPR 6393	8
BE 16123	6	BK 1675	7	BPR 6394	8
BE 1613	6	BK 1693	7	BPR 6395	8
BE 1614	6	BK 1694	7	BT 16220	9
BE 1615	6	BK 1695	7	PEW 1643	11
BE 1623	6	BK 32104	7	PEW 1644	11
BE 1624	6	BK 32114	7	PEW 1645 PQ	11
BE 1625	6	BK 32115	7	PEW 1663	11
BE 1633	6	BK 32123	7	PEW 1664 PQF	11
BE 1634	6	BK 3213	7	PEW 1665 PQ	11
BE 1634	6	BK 3214	7	PEW 1674 PQF	11
BE 1635	6	BK 3215	7	PEW 1675 PQ	11
BE 1635	6	BK 3223	7	PEW 1693 PQF	11
BE 1643	6	BK 3224	7	PEW 1694 PQF	11
BE 1644	6	BK 3225	7	PEW 1695 PQ	11
BE 1645	6	BK 3234	7	PEW 3243 PQ	11
BE 1663	6	BK 3234	7	PEW 3244 PQ	11
BE 1664	6	BK 3235	7	PEW 3245 PQ	11
BE 1665	6	BK 3235	7	PEW 3263 PQ	11
BE 1673	6	BK 3243	7	PEW 3264 PQ	11
BE 1674	6	BK 3244	7	PEW 3265 PQ	11
BE 1675	6	BK 3245	7	PEW 3274 PQ	11
BE 1693	6	BK 3263	7	PEW 3275 PQ	11
BE 1694	6	BK 3264	7	PEW 3293 PQ	11
BE 1695	6	BK 3265	7	PEW 3294 PQ	11
BE 32104	6	BK 3273	7	PEW 3295 PQ	11
BE 32114	6	BK 3274	7		
BE 32115	6	BK 3275	7		
BE 32123	6	BK 3293	7		
BE 3213	6	BK 3294	7		





# Interlocked switched socket-outlets

SQV IP44 and IP55  
series for box  
mounting



Cost - effective

TM series IP66/IP67



Best quality-price  
balance

the standard

PK/KI series  
IP44 and IP55



BK series IP66/IP67

