

OPTIMA Series

INDUSTRIAL PLUGS AND SOCKETS



VERSIONS

	Plugs
	Connectors
	Appliance inlets
	Flush mounting socket outlets
	Surface mounting socket outlets

REFERENCE STANDARDS

EN 60309-1
Plugs, socket-outlets and couplers for industrial purposes.
Part 1: general requirements.

EN 60309-2
Plugs, socket-outlets and couplers for industrial purposes.
Part 2: dimensional interchangeability requirements for pin and contact-tube accessories.

QUALITY MARKS



TECHNICAL CHARACTERISTICS

Rated current:	16A-32A-63A-125A
Rated voltage:	100÷690V~
Frequency:	d.c - 50÷500Hz
Insulating voltage:	500/690V~
Protection degree:	IP44/IP54 - IP66/IP67/IP69
Operating ambient temperature according to the reference standard:	-25°C +40°C
Max operating ambient temperature:	60°C
Glow Wire test:	650°C/850°C
Material:	Engineering plastic
IK degree at 20°C:	IK08
Cable inlets:	Cable gland
Halogen free:	Yes
Terminals:	Screw (16A-32A-63A-125A) Insulation perforating (16A) Spring (32A mobile) Spring (16A-32A flush/surface mounting) Mantle (63A-125A)
Safe-in device:	16A
Snap-on device:	16A-32A
Nickel-plated pins:	16A-32A-63A-125A

NICKEL-PLATED PINS



Nickel-plated brass pins to guarantee long-lasting efficiency of the electrical contact.

BEHAVIOUR WITH CHEMICAL AND ATMOSPHERIC AGENTS

Saline solution	Acids		Bases		Solvents				Mineral oil	UV rays
	Concentrated	Diluted	Concentrated	Diluted	Hexane	Benzol	Acetone	Alcohol		
Resistant	Limited Resistance	Resistant	Resistant	Resistant	Not Resistant	Not Resistant	Not Resistant	Limited Resistance	Limited Resistance	Limited Resistance

WIRING AND INSTALLATION

Wiring capacity of the terminals (mm²)

Rated voltage	Rated current (A)	Plugs, connectors and appliance inlets		Socket outlets	
		Min	Max	Min	Max
Over 50V	16A	1	2,5	1,5	4
	32A	2,5	6	2,5	10
	63A	6	16	6	25
	125A	16	50	25	70

Max. cable size accepted by the cable clamp:

Rated current (A)	Outside Ø mm	
	Min	Max
16A	8	15
32A	11,5	21
63A	17	31
125A	26	48

APPLICATION EXAMPLES





On the 16A and 32A "Snap-on" device with stainless steel spring to guarantee frequent opening/closing (possibility to inspect the terminals).



External cable stay with tulip clamping having IP66/IP67/IP69 cable gland functions (the device is used on both IP44/IP54 and IP66/IP67/IP69 products).



16A plugs and connectors with insulation perforating terminals which allow wiring without stripping the conductor.



Insulation piercing terminal made in highly elastic phosphor bronze.



Internal profile of the handle which avoids the accidental opening of the contact.



Socket/plug module with screw terminals (16A - 32A - 63A - 125A).

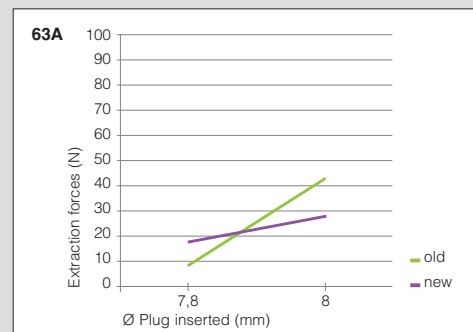


32A plugs and connectors with screwless spring terminal. Requires cable stripping, but not the tightening of the screws.

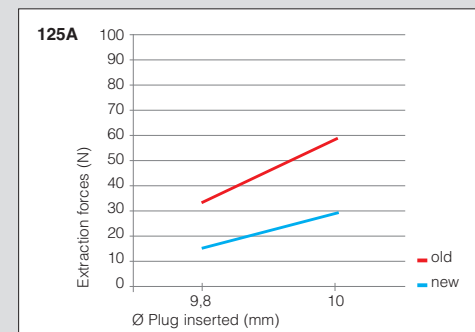


16-32A plugs, flush mounting sockets and surface mounting sockets with spring terminals.

■ EXTRACTION FORCES



The reduction in plug-socket insertion and extraction forces was obtained thanks to the study of a new compression spring of the socket contact. As illustrated in this graph, the reduction in the force was an average of 30% compared to the previous versions, in any event guaranteeing low contact resistance.



The materials of the pin and contact tube have different surface hardness so as to eliminate, during insertion and extraction operations, the layer of oxide that forms on the surface, thus improving contact smoothness and resistance while keeping them unchanged over time.



The axial incisions and the new compression spring of the socket contact with elasticity coefficient such as to keep insertion and extraction forces constant.



The nickel-plating of the socket contact combined with the special drawing and polishing process increase smoothness and ensure a higher number of contact points.



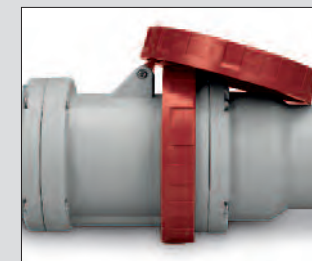
Thanks to their characteristic geometry, the new mantle terminals are suited to all types of conductors and terminals. They increase cable accessibility and contact surface, thus allowing higher tightening torques to benefit contact resistance and seal.



All gaskets are moulded directly on the cover and at the coupling point with the grip. Grip closing is by means of metric screws and metal inserts, making tightening easier and allowing for unlimited inspections and closings.



Contact holder in special technopolymer with fiberglass, featuring high heat resistance. Pilot contacts available as standard equipment on both plugs and sockets.



Entirely made with halogen-free materials, with excellent mechanical resistance to impacts, chemical substances and UV rays.

■ THE "SAFE-IN" SAFETY DEVICE

The **"SAFE-IN"** safety device assembled on the 16A industrial sockets is the most innovative element of the new OPTIMA Series. The **"SAFE-IN"** device works like the protection installed on household sockets, i.e., by means of an appropriate shutter, it closes the input of the socket contact tubes and prevents accidental and voluntary contact of live parts of the socket with slim objects, such as screwdrivers or wires. This protection offers an additional safety guarantee, in addition to that already provided by the spring-loaded cover assembled on the mobile sockets.

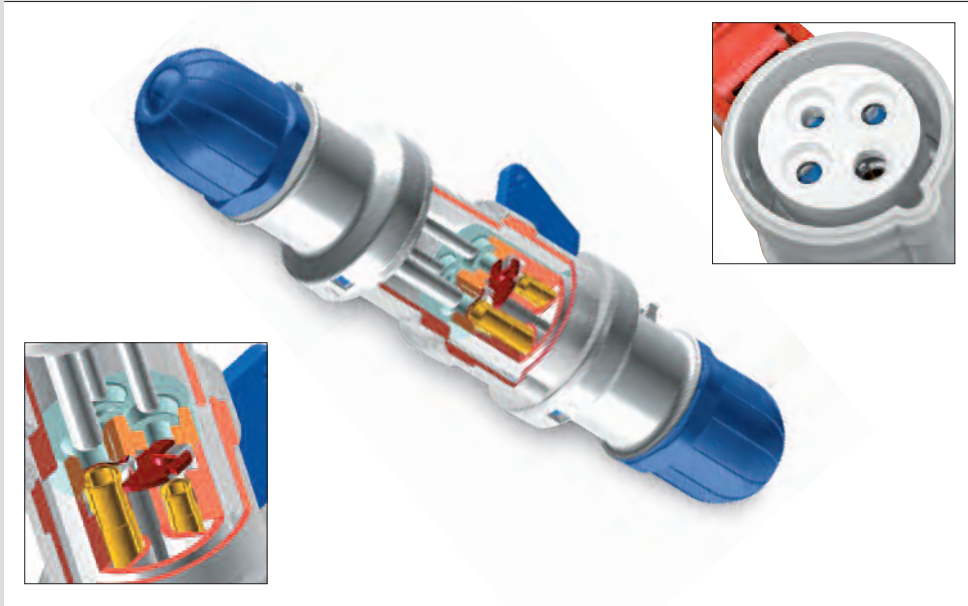
■ SAFETY LEVEL OF THE OPTIMA SERIES SOCKETS

The OPTIMA Series sockets with the "SAFE-IN" safety device guarantee a higher level of safety in comparison with ordinary industrial sockets, especially in environments where there may be children present or people who have not been trained about electrical dangers (public areas, amusement parks, campgrounds, open markets, etc.). Dangerous situations, such as the important examples illustrated in the figure to the side, can be resolved thanks to the new OPTIMA Series sockets equipped with the **"SAFE-IN"** safety device.

■ APPLICATION EXAMPLES



■ POTENTIALLY DANGEROUS SITUATIONS



Connector tube protective shutter for greater safety against direct contacts. (The SAFE-IN safety device).