

Description



Pizzato Elettrica is revolutionising the concept of safety handles, with the launch of the **P-KUBE Krome** series to the market.

This product series combines the characteristics of a robust handle for safety enclosures, with an ergonomic, rounded grip and customisable functions for the customer, with various illuminated signalling options, to reflect the state of the guard, or other operating conditions the manufacturer wishes to indicate. The new handles also allow integration of a control device (e.g. a button), directly in the grip.

The P-KUBE Krome safety handles are a built-in and innovative solution for machine manufacturers who, with a single product and wiring harness, can optimise the cost of components, by eliminating peripheral control boxes and illuminated signalling columns, and implementing aesthetically pleasing and exclusive guards – without compromising on the quality and reliability offered by Pizzato products.

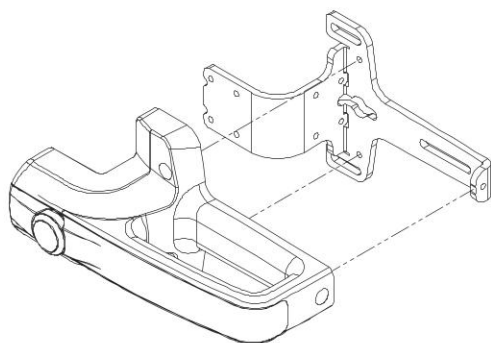
Integrated control device

In the grip of the P-KUBE Krome handle, a spring-return button with 1NO contact can be integrated. This can be illuminated with a LED, and thus allows interaction with the machinery; for example to request guard opening, or transmit a reset command. The button is available in white, red, green, yellow, blue, and black.



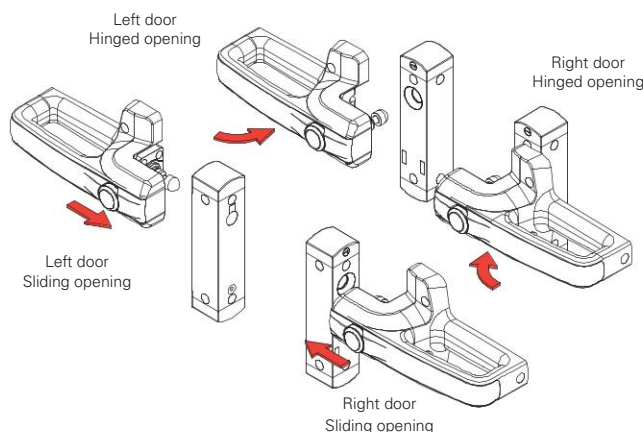
Robustness

The internal fixing plate is made of painted steel, and 5 mm thick, to ensure locking system robustness, and increased service life.



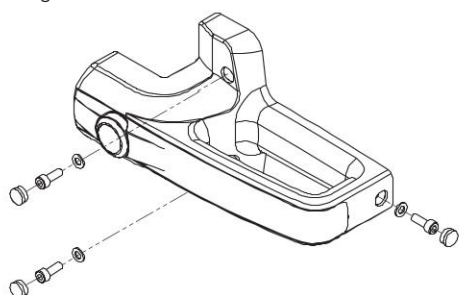
Adaptability and flexibility

The same handle can be used on both hinged and sliding doors, with opening both on the right and on the left, simply by fixing the actuator on different levels.



Protection against tampering

The P-KUBE Krome handle is supplied complete with snap-on protection caps to be applied to the holes of the fixing screws, so as to prevent access: therefore, standard screws can be used instead of tamper-proof screws, ensuring safety against deliberate tampering on the device. The caps also prevent the accumulation of soiling and facilitate the cleaning of the handle.



Chrome-plated or illuminated grip

The grip is available with front strip in two finishes: satin chrome, and illuminated white. In the second version, the grip can be illuminated using RGB LED technology.

The modern, ergonomic design, combined with fully concealed fixing screws and wiring, allows implementation of machines and guards with particularly pleasing aesthetics.



Available versions

Thanks to the wide range of configurations available, the P-KUBE Krome safety handle can be ordered in the version that best suits the user's needs. Customization options apply to the grip, which can be supplied with or without a control device, or with or without RGB LED lighting. This feature allows you to find the most suitable product for a specific application or to diversify the handles that are installed on the same system, depending on the needs of machine designers and installers.



- Without control device
- Satin chrome grip non-illuminated



- Without control device
- White grip, can be illuminated with RGB LEDs



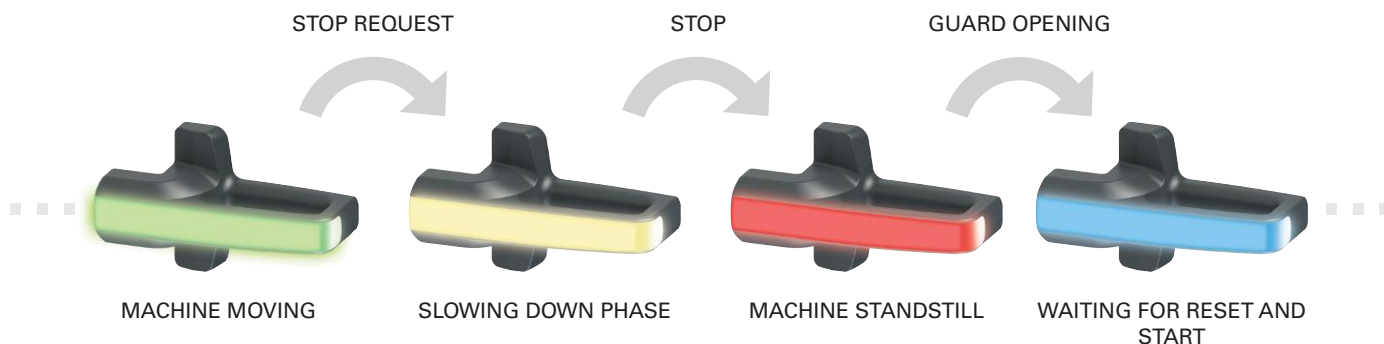
- With control device, can be illuminated
- Satin chrome grip non-illuminated



- With control device, can be illuminated
- White grip, can be illuminated with RGB LEDs

Customisable multicoloured illumination

The P-KUBE Krome handle, with illuminated grip, allows the machine manufacturer to locally signal the state of the guard by using various colours, and fully customisable sequences. Thanks to RGB LED technology, the handle illumination is visible from a large distance; even in brightly-lit environments. The device illuminates in colours: green, yellow, red, blue, white, purple, light blue.



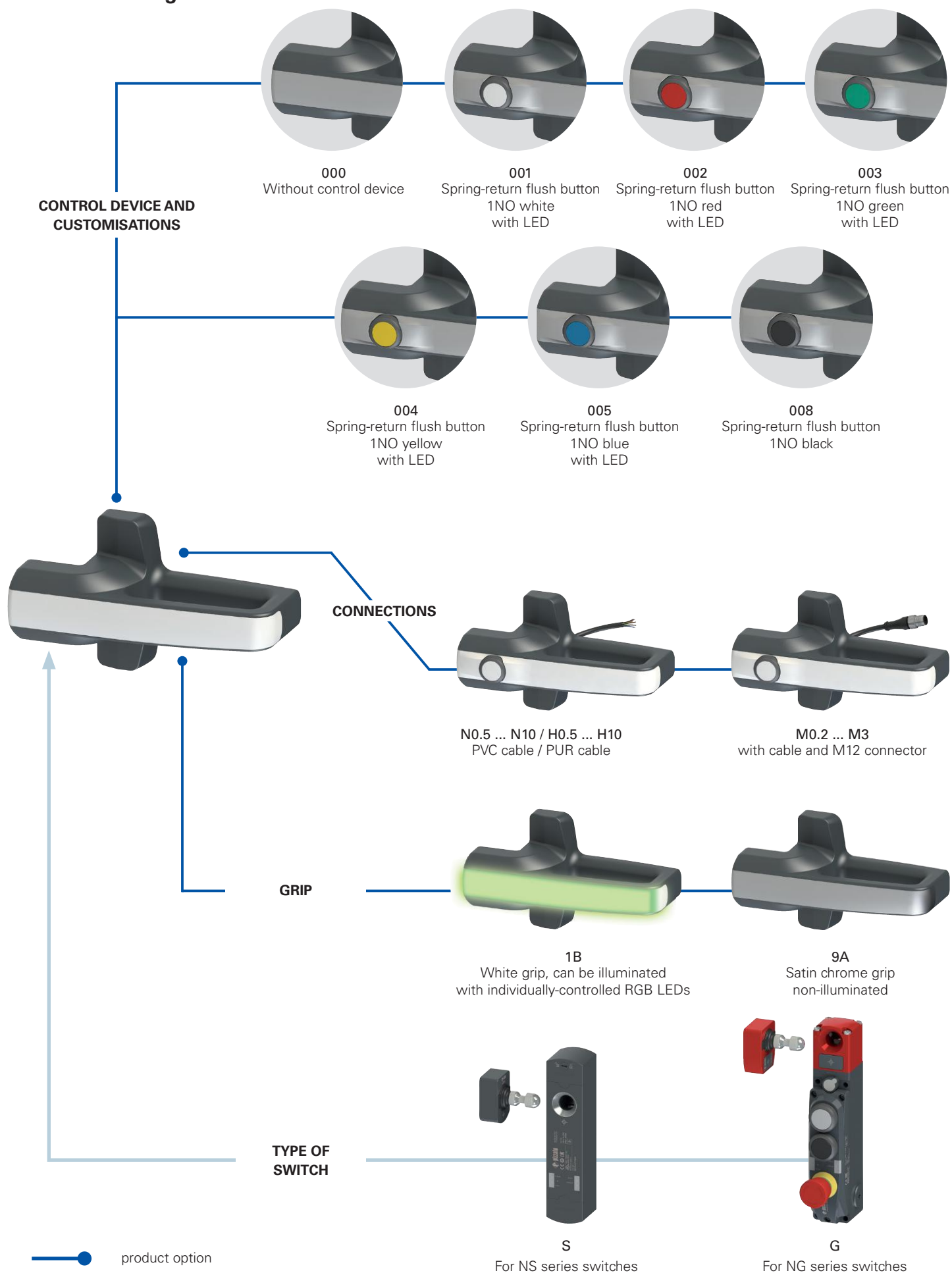
Connections

The electrical connections are made through a cable that comes out at the back of the device and can therefore be easily housed inside the frame of the guard, so as to make it completely invisible. This feature has a double advantage: contributing to the aesthetics of the machine and ensuring that the cable is protected from damage and tampering.

The P-KUBE Krome handle is available with PVC cable connections or with cable and integrated M12 connector.



Selection diagram



Code structure

Attention! The feasibility of a code number does not mean the effective availability of a product. Please contact our sales office.

article options
AN S1B000A-PN3-X

Device type

S For NS series switches

G For NG series switches

Note: the switches and their actuators must be purchased separately.

Grip

1B White grip, can be illuminated with multicolor RGB LEDs supply voltage 24 Vdc

9A Satin chrome grip non-illuminated

Control device and customisations

000	Without control device
001	Spring-return flush button 1NO white with LED
002	Spring-return flush button 1NO red with LED
003	Spring-return flush button 1NO green with LED
004	Spring-return flush button 1NO yellow with LED
005	Spring-return flush button 1NO blue with LED
008	Spring-return flush button 1NO black

1NC, 1NO+1NC, 2NC or 2NO contacts available on request.

Other control devices on request, see page 185.

Metal fixing plate

... painted steel (standard)

X stainless steel (only for AN S.....)

Cable type and connection

M0.2 PVC cable, IEC 60332-1-2 oil resistant, length 0.15 m and M12 connector (standard)

M0.5 PVC cable, IEC 60332-1-2 oil resistant, length 0.5 m and M12 connector

...

M3 PVC cable, IEC 60332-1-2 oil resistant, length 3 m and M12 connector

N0.5 PVC cable, IEC 60332-1-2 oil resistant, length 0.5 m

...

N3 PVC cable, IEC 60332-1-2 oil resistant, length 3 m (standard)

...

N10 PVC cable, IEC 60332-1-2 oil resistant, length 10 m

H0.5 PUR cable, halogen free, length 0.5 m

...

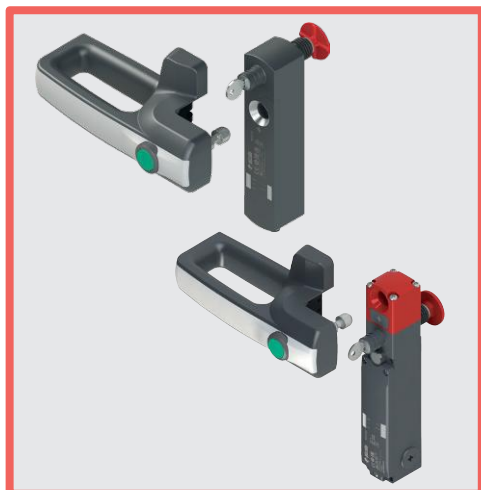
H3 PUR cable, halogen free, length 3 m (standard)

...

H10 PUR cable, halogen free, length 10 m

Output direction, connections

P rear output



Main features

- Modern and ergonomic design
- Versions with integrated RGB LEDs, for local signalling of guard state
- Customisable multicoloured illumination
- Illuminated control button integrated into grip
- Grip with different finishes
- Compatible with NG and NS series safety locking switches with RFID technology

Quality marks:



UL approval: E131787
EAC approval: RU Д-IT.PA07.B.37848/24

Features approved by UL

Environmental ratings:
Type 4X, 12, 13 (models without control component).
Type 1 (models with control component).

Electrical ratings:
Main rating (LED supply): 24 Vdc Class 2, 75 mA.
Secondary ratings (Contacts ratings control component):
Silver contacts: 24 Vac Class 2, 1 A, Pilot Duty
24 Vdc Class 2, 0.27 A, Pilot Duty
Golden contacts: 24 Vdc Class 2, 100 mA

The models provided with M12 connector may be provided with the mating-connectors-part (with cord attached).

Technical data

Materials

Internal fixing plate in steel, oven-cured powder-coated.
Glass fibre reinforced technopolymer grip, self-extinguishing and shock-proof.

Electrical cables

Integrated mobile installation cable 8 x 0.25 mm² or 5 x 0.25 mm².
Versions with 3 m integrated cable, other lengths 0.5 to 10 m on request.
Versions with 0.15 m cable length and M12 connector, other lengths 0.15 ... 3 m available on request.

General data

Protection degree	
Versions with control device:	IP65 acc. to EN 60529
Versions without control device:	IP67 acc. to EN 60529 IP69K acc. to ISO 20653
Ambient temperature:	-20°C ... +50°C
Storage temperature:	-40°C ... +75°C
Mission time:	20 years

Power supply electrical data

Rated operating voltage U_e :	24 Vdc $\pm$ 15%
Operating current at U_e voltage:	75 mA max
External protection fuse:	1 A type Gg or equivalent device

Electrical data of RGB LED control inputs

Rated operating voltage U_{e1} :	24 Vdc
Operating current at U_{e1} voltage:	5 mA
RGB LED life:	min. 100,000 hours at rated voltage and +25 °C ambient temperature

Technical data, spring return button

Mechanical endurance:	1 million operating cycles
Actuating force:	4 N min, 100 N max
Material of the contacts:	silver contacts
Contact type:	Self-cleaning contacts with double interruption
Thermal current I_{th2} :	1 A
Rated insulation voltage U_{i2} :	32 Vac/dc
Rated impulse withstand voltage U_{imp2} :	1.5 kV
LED supply voltage:	24 Vdc $\pm$ 15%
Single LED supply current:	10 mA
Utilization category of the contact block:	DC13; U_{e2} =24 Vdc, I_{e2} =0.55 A

In compliance with standards:

For articles with integrated electrical parts:
IEC 60947-5-1, EN 60947-5-1, IEC 60947-1, EN 60947-1, IEC 60529, EN 60529,
EN IEC 63000, UL 508, CSA C22.2 No. 14.

Compliance with the requirements of:

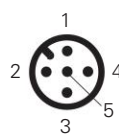
For articles with integrated electrical parts:
Low Voltage Directive 2014/35/EU,
EMC Directive 2014/30/EU.
RoHS Directive 2011/65/EU.

Selection table for handles

		With satin chrome grip, for NS series switches	With satin chrome grip, for NG series switches		
Connection cable not necessary					
	Without control device	AN S9A000A	AN G9A000A		
		With satin chrome grip, for NS series switches	With satin chrome grip, for NG series switches	With illuminated grip (white), for NS series switches	With illuminated grip (white), for NG series switches
With 3 m long PVC cable					
	Without control device	/	/	AN S1B000A-PN3	AN G1B000A-PN3
	With spring-return button, 1NO, white, illuminated	AN S9A001A-PN3	AN G9A001A-PN3	AN S1B001A-PN3	AN G1B001A-PN3
	With spring-return button, 1NO, red, illuminated	AN S9A002A-PN3	AN G9A002A-PN3	AN S1B002A-PN3	AN G1B002A-PN3
	With spring-return button, 1NO, green, illuminated	AN S9A003A-PN3	AN G9A003A-PN3	AN S1B003A-PN3	AN G1B003A-PN3
	With spring-return button, 1NO, yellow, illuminated	AN S9A004A-PN3	AN G9A004A-PN3	AN S1B004A-PN3	AN G1B004A-PN3
	With spring-return button, 1NO, blue, illuminated	AN S9A005A-PN3	AN G9A005A-PN3	AN S1B005A-PN3	AN G1B005A-PN3
	With spring-return button, 1NO, black, non-illuminated	AN S9A008A-PN3	AN G9A008A-PN3	AN S1B008A-PN3	AN G1B008A-PN3
		With satin chrome grip, for NS series switches	With satin chrome grip, for NG series switches	With illuminated grip (white), for NS series switches	With illuminated grip (white), for NG series switches
With 0.15 m long PVC cable and M12 connector					
	Without control device	/	/	AN S1B000A-PM0.2	AN G1B000A-PM0.2
	With spring-return button, 1NO, white, illuminated	AN S9A001A-PM0.2	AN G9A001A-PM0.2	AN S1B001A-PM0.2	AN G1B001A-PM0.2
	With spring-return button, 1NO, red, illuminated	AN S9A002A-PM0.2	AN G9A002A-PM0.2	AN S1B002A-PM0.2	AN G1B002A-PM0.2
	With spring-return button, 1NO, green, illuminated	AN S9A003A-PM0.2	AN G9A003A-PM0.2	AN S1B003A-PM0.2	AN G1B003A-PM0.2
	With spring-return button, 1NO, yellow, illuminated	AN S9A004A-PM0.2	AN G9A004A-PM0.2	AN S1B004A-PM0.2	AN G1B004A-PM0.2
	With spring-return button, 1NO, blue, illuminated	AN S9A005A-PM0.2	AN G9A005A-PM0.2	AN S1B005A-PM0.2	AN G1B005A-PM0.2
	With spring-return button, 1NO, black, non-illuminated	AN S9A008A-PM0.2	AN G9A008A-PM0.2	AN S1B008A-PM0.2	AN G1B008A-PM0.2

Note: To order a product with PUR cable, replace the letter N or M with the letter H in the order codes shown above.

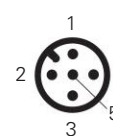
Electrical connections



1
2 4
3 5

Versions with button
articles AN •9A••••

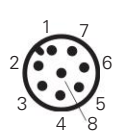
Pin	Cable colour	Connection
1	brown	Supply to white button LED +24 Vdc
2	white	Supply to white button LED 0 V
3	blue	Disconnected
4	black	Button NO contact
5	grey	Button NO contact



1
2 4
3 5

Versions with illuminated grip
articles AN •1B000•

Pin	Cable colour	Connection
1	brown	Supply input +24 Vdc
2	white	Supply input 0 Vdc
3	blue	Control input blue (B) +24 Vdc
4	black	Control input red (R) +24 Vdc
5	grey	Control input green (G) +24 Vdc



1 7
2 6
3 5
4 8

Versions with button and illuminated grip
articles AN •1B••••

Pin	Cable colour	Connection
1	white	Supply input 0 Vdc
2	brown	Supply input +24 Vdc
3	green	Control input green (G) +24 Vdc
4	yellow	LED power supply for button lighting +24 Vdc
5	grey	Button NO contact
6	pink	Button NO contact
7	blue	Control input blue (B) +24 Vdc
8	red	Control input red (R) +24 Vdc

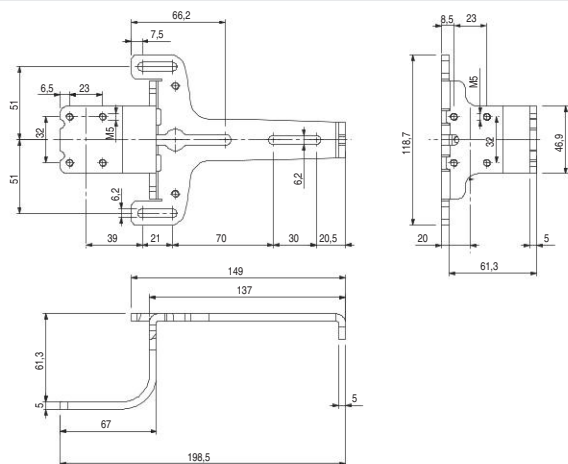
LED grip lighting combinations

R	G	B	Colour	R	G	B	Colour
0	0	0		1	1	0	
1	0	0		1	0	1	
0	1	0		0	1	1	
0	0	1		1	1	1	

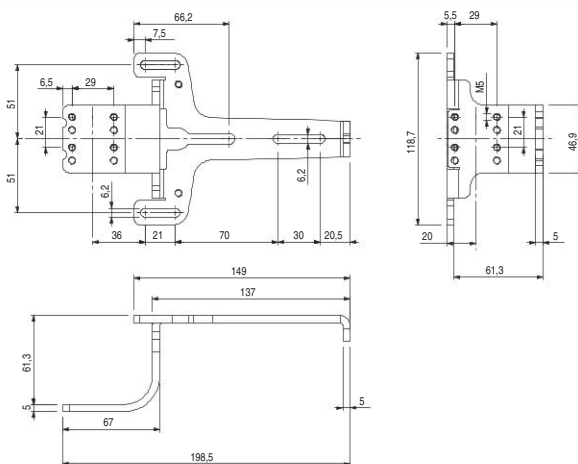
0 = colour control input off, 1 = colour control input on.

Dimensional drawings

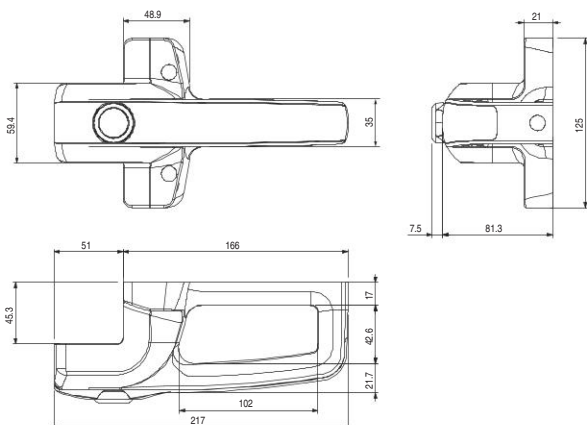
Internal fixing plate (articles AN S•••••)



Internal fixing plate (articles AN G•••••)

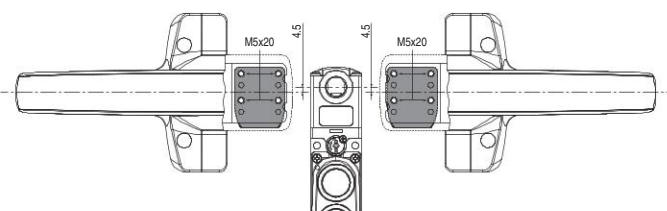


Grip

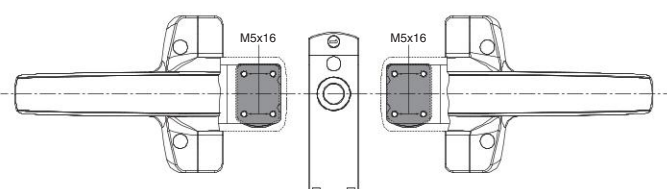


Switch-actuator alignment

Articles AN G•••••



Articles AN S•••••



All values in the drawings are in mm

Accessories See page 357

→ The 2D and 3D files are available at www.pizzato.com

Notes

[illegible]This image shows a full page of blank graph paper. The grid consists of small, equal-sized squares formed by thin black lines. There are no margins, text, or other markings on the page.

LK S lock-out device for NS series switches

Description



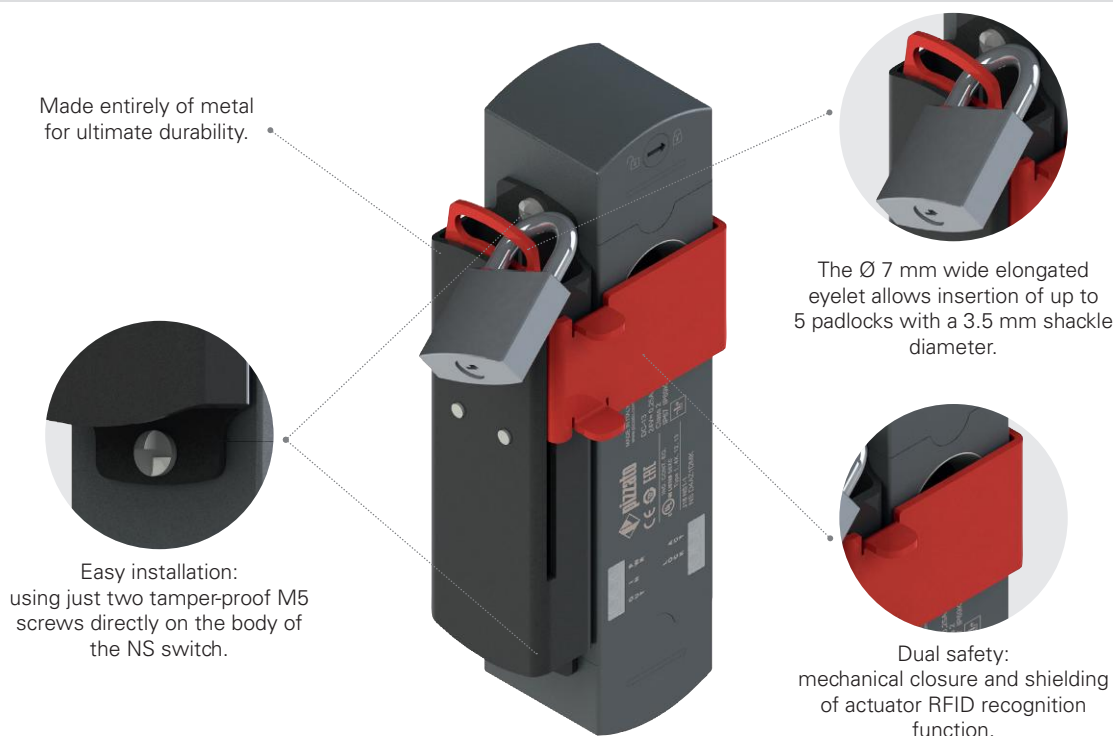
Article	Description
LK S1D001	Lock-out device for NS series switches, mounting on the right side of the switch
LK S1S001	Lock-out device for NS series switches, mounting on the left side of the switch

The range of P-KUBE Krome safety handles is completed by the lock-out device for NS series switches with solenoid and RFID technology. The device has a full metal design and is attached laterally to the holes on the NS device, without any auxiliary fixing plate or support.

The front slider, in addition to mechanically closing the actuator entry hole, also functions as a shield for the RFID receiver antenna on the NS switch; thus ensuring an additional level of protection against accidental closure of the guard and untimely machine restart. This is particularly effective, for example, for machines with an installed actuator with low coding level, making any attempt to bypass the switch impossible.

When the slider is lifted, a Ø 7 mm wide elongated eyelet emerges on the top of the device, allowing insertion of up to 5 padlocks.

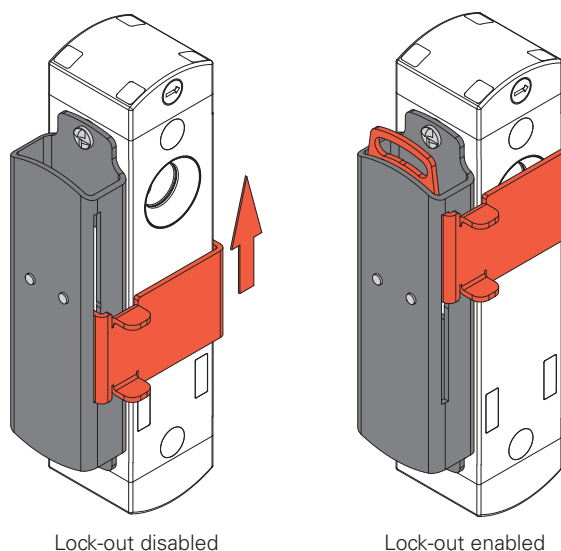
General data



Error-proof operation

To prevent unintentional guard closure, simply move the red door upwards so that the actuator entry hole is fully covered, and the pin cannot be inserted.

Before entering the danger zone, each operator must insert his or her own personal padlock in the lock-out slot. This means that the lock-out device can be unlocked only once all padlocks have been removed; i.e., once all operators have exited the danger zone.



Lock-out disabled

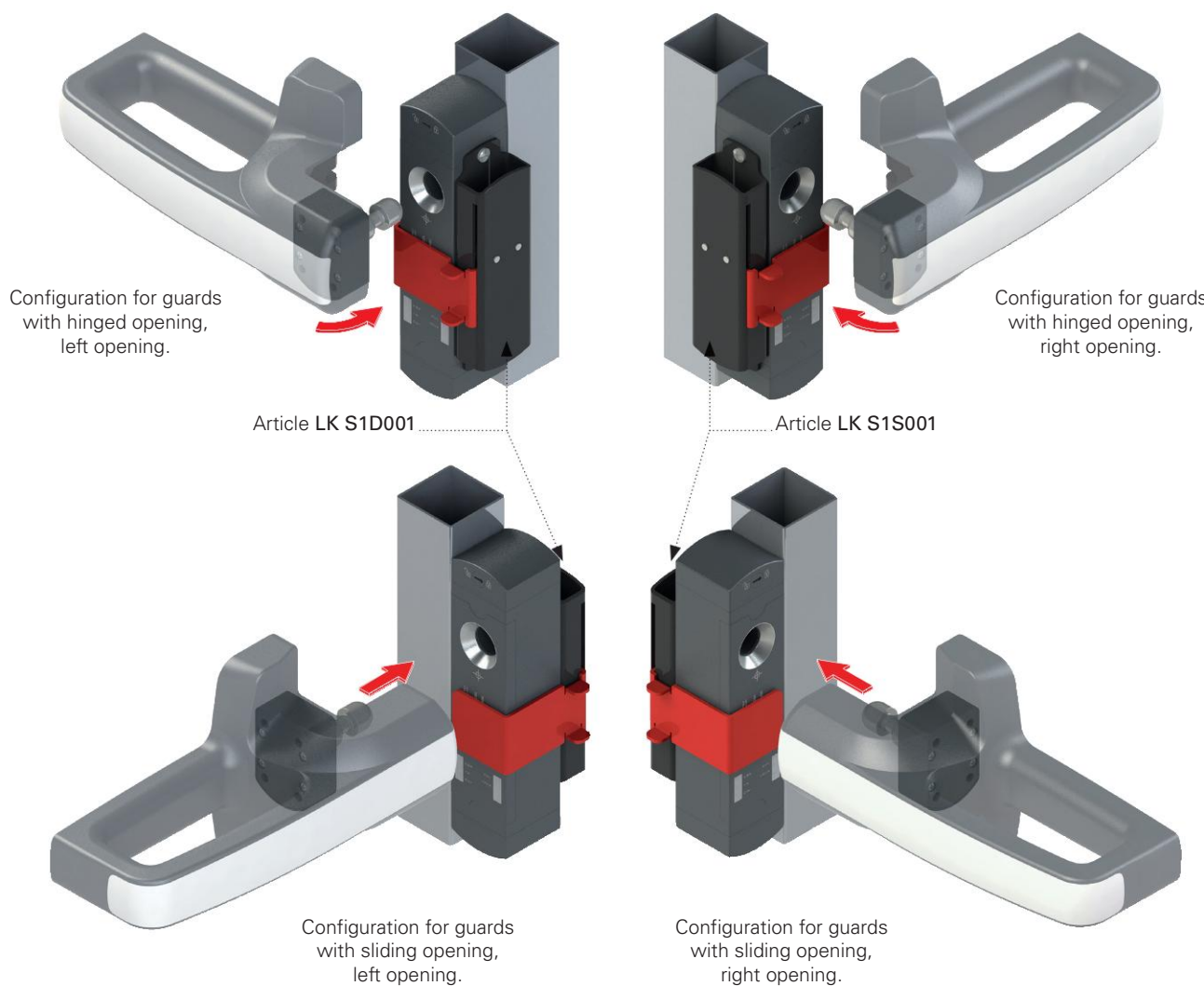
Lock-out enabled

Maximum adaptability and compatibility

The precise engineering of the LK S lock out device has enabled implementation of a highly versatile product, able to easily adapt to all potential configurations of guards on which an NS series switch is used.

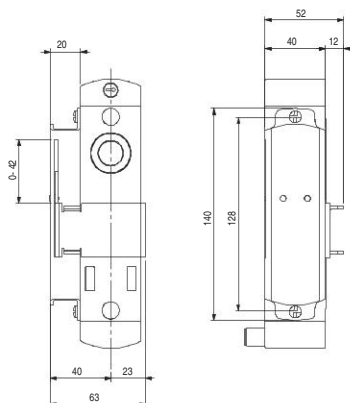
The unique shape of the slider that seals the actuator hole allows the LK S lock out device to be used on both hinged and sliding guards, on both left and right.

The lock-out and interlock switch are designed and manufactured for ideal compatibility with the new P-KUBE Krome handles by Pizzato Elettrica; allowing implementation of robust and functional protection systems, with an innovative aesthetic impact.

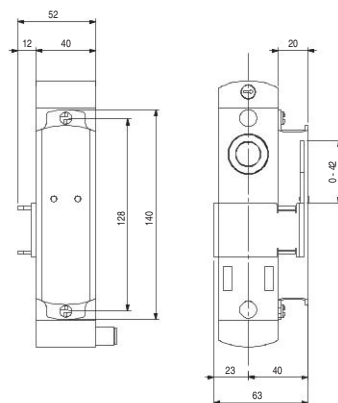


Dimensional drawings

Article LK S1S001



Article LK S1D001



All values in the drawings are in mm

Accessories See page 357

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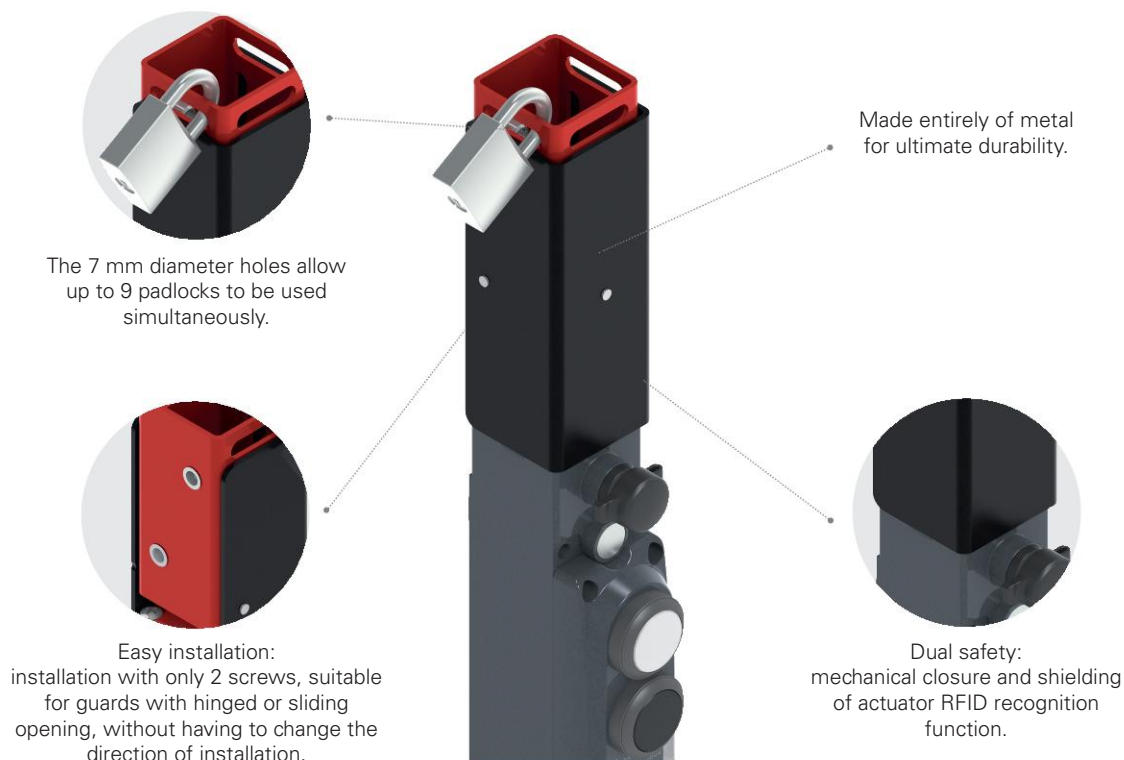
AP G1Z-000Z lock-out device for NG series switches**Description**

Article	Description
AP G1Z-000Z	Lock-out device for NG series switches

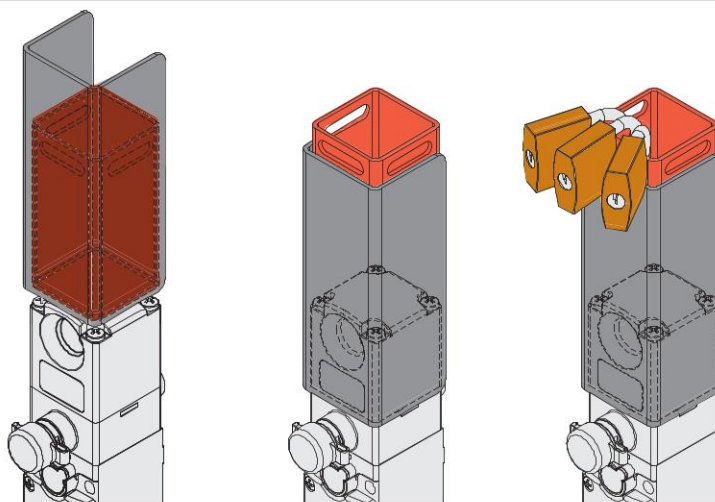
Lock-out device made entirely of metal to be installed with NG series switches with solenoid and RFID technology, compatible with the P KUBE 2 and P KUBE Krome series safety handles.

To prevent unintentional guard closure, simply move the black slider down so that the actuator entry hole is fully covered. When the slider is lowered, a plate with Ø 7 mm holes emerges on the top of the device, allowing insertion of up to 9 padlocks.

The slider also serves as a shield for the RFID receiver antenna on the NG switch.

General data**Error-proof operation**

With a single operation, the lock-out device can close the centring hole in the NG switch as well as shield the RFID recognition system for detecting the actuator. Accidental closing of the guard is thereby prevented by inhibiting both the mechanical locking of the door and the electrical switching of the switch contacts.

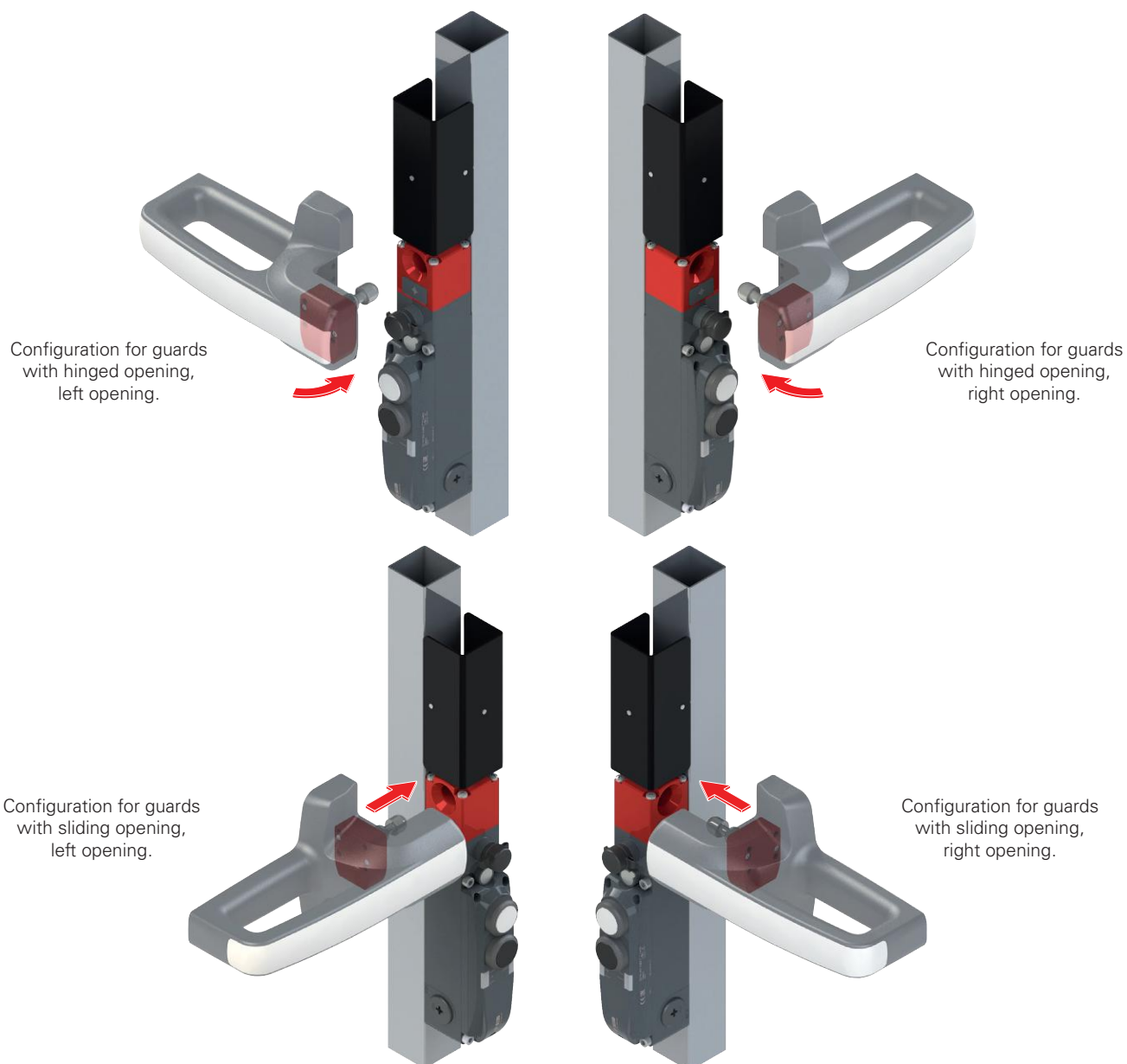


Maximum adaptability and compatibility

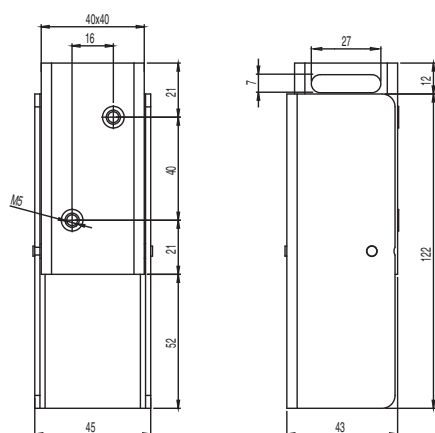
The symmetry of the AP G1Z-000Z lock-out device allows it to be used in all possible configurations of guards on which a switch of the NG series is used, without any type of adaptation and any modification to the mounting position.

The unique shape of the slider that seals the actuator hole allows the AP G1Z-000Z lock out device to be used on both hinged and sliding guards, on both left and right.

The lock-out and interlock switch are designed and manufactured for ideal compatibility with the new P-KUBE Krome handles by Pizzato Elettrica; allowing implementation of robust and functional protection systems, with an innovative aesthetic impact.



Dimensional drawings



All values in the drawings are in mm

Accessories See page 357

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