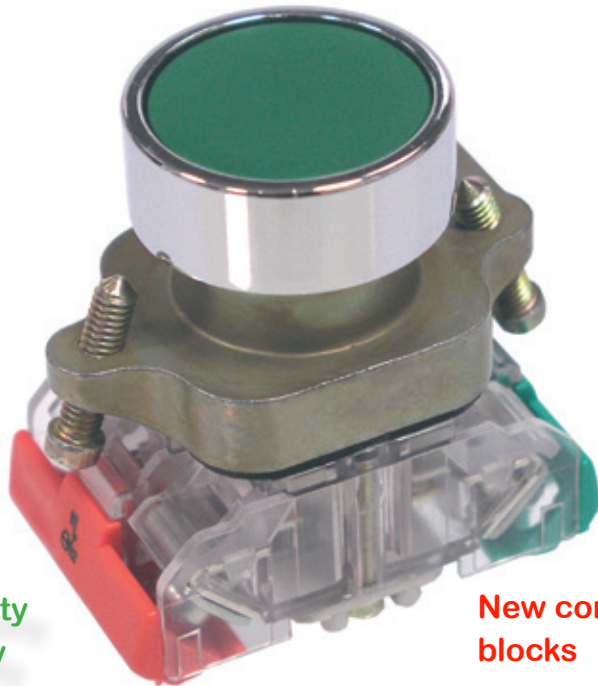
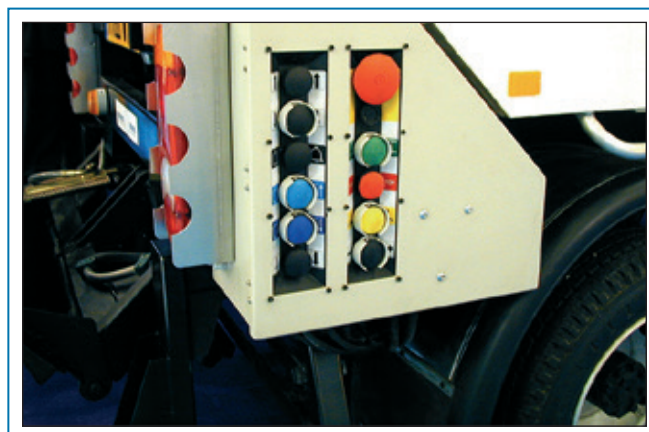
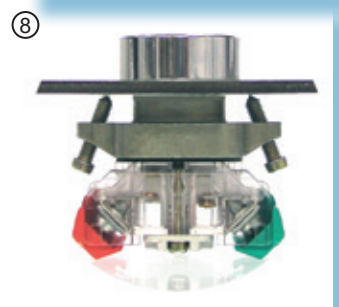
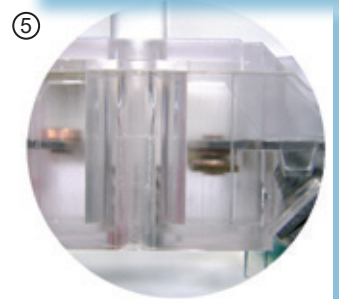
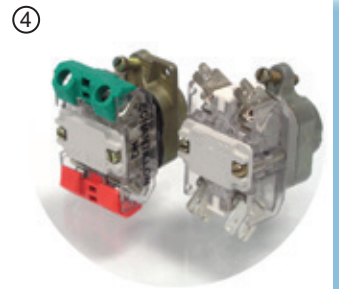


Pushbuttons



Adaptability
Modularity
Safety
Reliability

New contact
blocks



The range of possibilities :

- ① **Button heads adapted to your ergonomics**
 - Illuminated or not
 - Flush or projecting bezels for Ø22 or Ø30 mm cutouts.
 - Round or square.
 - Metal or plastic.
 - Black or chrome-plated (contact us for other colours, finishes, materials).
 - Flush projecting, capped, mushroom buttons.
 - Wide selection of standard colours (contact us for other colours).
- ② **Efficient lighting**
(in all ambient lighting conditions)
 - BA9S lamps with sockets or heads with integrated SMD LEDs.
 - Power supply may be direct or via a transformer.
- ③ **An evolutive making principle**
 - Re-legendable heads.
 - Cover, silk-screened filter or lamp can be replaced from the front, without removing the button.
- ④ **Choice of connections**
 - Screws and brackets or washers, IP2 projection.
 - Single or double tabs for 6,35 mm lugs.
 - Straight, 90°, 45°.
 - (Contact us for other connection types)
- ⑤ **Flexibility and accuracy in the contact solutions**
 - Self cleaning, reinforced contacts.
 - Choice of the contact material depending on the utilisation: low current, harsh atmosphere ...
 - Possibility of modifying the contact sequence using different contact thickness: standard, half-thickness, thick.
 - Addition of a specific module (early breaking, tactile sensation)
- ⑥ **An ultra-modular electric stack**
 - From 1 to 2 lateral contact per tier.
 - 1NO, 1NC, 1NC1NO, 2NC, 2NO.
 - Contact identification per standards, colour code (Green for NO, red for NC).
 - From 1 to 4 tiers (or more, contact us).
 - Variable activation force.
- ⑦ **"A la carte" sealing**
 - Several associations of washers are possible depending on level of water-tightness desired : IP40 to IP67.
 - Cap on pushbutton, bezel gasket, metal washer (also provides protection for thin or fragile supports).
 - Accessory for protecting the electrical stack.
 - Tropicalisation.
- ⑧ **Rugged mode of attachment**
 - Moulded metal body, attachment by punch screws, guaranteeing excellent resistance to shock and vibration.
 - Tapping for earthing

The modular design of MAFELEC's control and signalling components provides for a multitude of combinations and adaptations.

The examples illustrated in this catalogue only represent a fraction of designs produced by our Design Office every day for our customers.

All alternative solutions can be designed from the basic elements, to produce the desired function.



Our equipment complies with the European RoHS directive, restricting the use of certain dangerous substances in electrical equipment.

Compliance with Standards

Certification	IEC NF EN 60947-5-1, IEC NF EN 60077-2
Protective finish	Tropicalisation (operating +40°C with 95% humidity) as per IEC NF EN 60068-2-3
Vibration resistance	IEC and NF EN 61373, IEC and NF EN 60068-2-6
Storage temperature	- 40°C to + 85°C per IEC NF EN 60068-2-1, IEC NF EN 60068-2-2
Operating temperature	- 25°C to + 70°C per IEC NF EN 60068-2-1, IEC NF EN 60068-2-2
Protection against accidental contact with active circuits	IP2x per IEC NF EN 60529 with protector

Fire resistance	EN 45545
Degree of protection	IEC NF EN 60529: IP40 without seal, IP66 with TJ seal and capped head
Mechanical service life in millions of switching operations	Pushbuttons : - Momentary : 1 - Illuminated : 0.3 - Push-Push : 0.3 - Latch mushroom pushbutton : 0.1 - Latch mushroom pushbutton, 1/4 turn : 0.1

Characteristics of the contact elements

Rated thermal current	I _{th} = 20A per IEC NF EN 60947-5-1
Rated insulation voltage	U _i = 630V per IEC NF EN 60947-5-1 and IEC NF EN 60077-2
Rated surge voltage	6 kV per IEC NF EN 60947-5-1 and IEC NF EN 60077-2
Contact operation type	Slow make depending action
Activation force	Pushbuttons: 1NC = 8N, 1NO = 10N, 2NC = 13N, 2NO = 13N
Contact material	Depending on the type of environment: Oxidising atmosphere, corrosive sulfurised type (SO₂, H₂S) eg Places of high diesel and exhaust concentration or certain industries processing waste incinerators.

Any other atmosphere including saline atmospheres.

Atmospheres	Highly sulfurised (SO ₂ , H ₂ S)	Other
Current level*		
≥ 10 mAmps	AgPd	AgNi
1 mAmp < I < 10 mAmps	AgNi + gilding	AgNi + gilding

* For all levels of current < 15mAmps, please contact us to specify the conditions of use (outdoor pollution, signal type, EMC, ...).

Maximum number of contacts	Pushbuttons : - Momentary: 8, - Push-Push: 4, - Push-Pull: 4 - Illuminated: 6
Terminal markings	Per IEC NF EN 60947-5-1
Operating power	AC-12 : 230V/15A & 400V/8A AC-15 : 230/8A & 400V/8A DC-12 : 24V/15A & 110V/8A DC-13 : 24V/4A & 110V/1A
Connection	Screw and bracket : min. 1x 0.22 mm ² , max. 2x2.5 mm ² Single or double tab for 6.35 mm clip. Special connection on request

Electrical characteristics : illuminated pushbuttons

<u>Power supply voltages</u>	With LEDs : 6V to 400V AC/DC depending on the model With lamps : 6V to 400V AC/DC depending on the model
<u>Current consumption</u>	With LEDs : from 10 mA to 22 mA With lamps : depends on the lamps
<u>Operating range</u>	$0.8 U_n < U < 1.1 U_n$

Standard drawing for round head push buttons

<u>Not illuminated momentary round head push button Ø 22mm</u>	YSK2881
<u>Not illuminated momentary round head push button Ø 30mm</u>	YSL2139
<u>Latching or illuminated momentary round head push button Ø 22mm</u>	YSK1759
<u>Latching or illuminated momentary round head push button Ø 30mm</u>	YSL3058