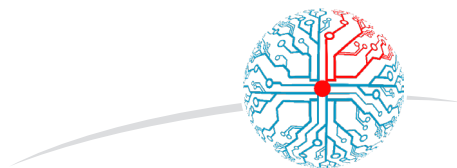




# M-DOOR RANGE



CONTROL, SIGNALLING AND PLUG-IN



## MAFELEC **BY YOUR SIDE**

Since 1947, **MAFELEC** offers solutions for controls and signalling adapted to the most extreme environments.

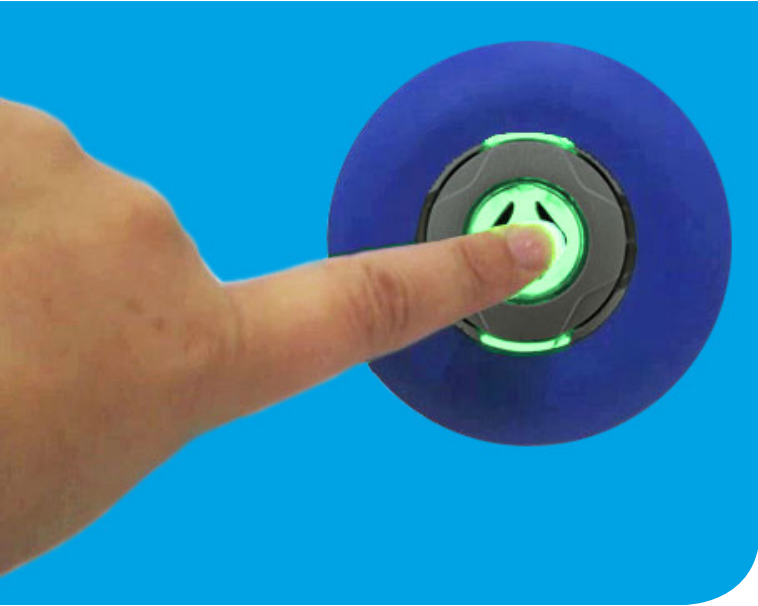
User / Machine interface solutions are designed and produced in close cooperation with the engineering departments of our customers and integrate a great number of technological parameters within specific industry standards.

***The M-DOOR range includes  
Adaptable, Ergonomic, Aesthetic, Robust products***



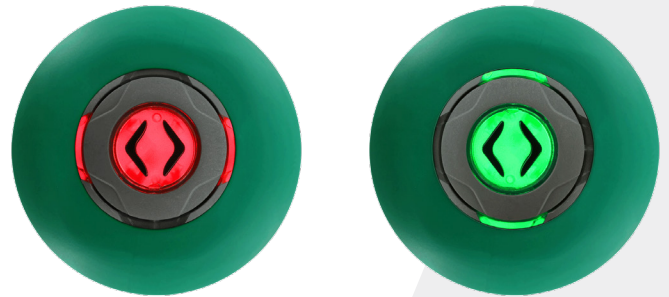
# New

***You're . . .  
living in a modern world***



## Some solutions of the M-DOOR range

- TSI PRM 2015 - EN14752 : 2015
- Dynamic, aesthetic
- Raised actuator
- Intuitive color blind detectable
- Easy visibility with sun
- Graffiti cleaner and climatic resistant



M-Door VG

***We're . . .  
giving you a wide range of possibilities***

## Luminous push button without drilling of glass

- Single or Double versions
- Extra flat
- Double version: auto adaptation at the panel thickness (Patent)
- Outside button wireless,
- Energy coupled with inside button
- Automatic synchronisation between inside and outside buttons



M-Door GM



# PICTOGRAMS

## Some examples from our product range



Metal flush actuator with raised symbol



Metal flush actuator for flush symbol with lit hole



Metal raised actuator for flush symbol with lit hole



Metal raised actuator with raised symbol



Metal raised actuator with raised symbol and lit hole



Plastic flush symbol



Plastic raised symbol



Plastic braille symbol

Actuator diameter: 40 mm  
Raised actuator: 3 mm high  
Raised symbol: 1 mm high

## Plastic actuators (raised or flush versions)



## Metal actuators with or without LED insert in the center raised or flush version



## Indicator with or without text or symbols





## HMI . . . the heart of our activities

### Front Bezel

- Round, triangular, square shape
- Plastic or metal
- Customized solutions: finish, braille or raised text



### Characteristics

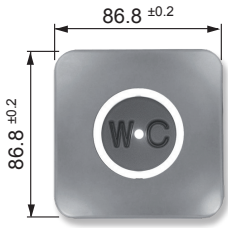
Characteristics *	Buttons Single & Double sided	Indicators Single & Double sided	Buzzer	Socket
Anti-vandal design	✓	✓	✓	
Modularity for button & front ring	✓	✓	✓	
Operating temperature: - 40°C / +70°C (depending on the cable)	✓	✓	✓	✓
Protection: IP65/67 - IK07	✓	✓	✓	✓
Customisation: Mafelec know-how expertise	✓	✓	✓	✓
Inscription in Braille possible on metal version	✓	✓	✓	
Actuator area: Ø 40mm	✓	✓		
Backlit (low consumption-LED)	✓	✓	✓	✓
Fire / Smoke: NFF 16 101 / 102, EN 45545	✓	✓	✓	✓
Conception : EN 14752, TSI PRM 2015 & RVAR (● for Buzzer : IP20 version only)	✓	✓	✓●	
Cable: EN 50306-4 depending on kind of cable	✓	✓	✓	
Reinforced EMC : EN 50155	✓	✓	✓	✓
High service life	✓	✓	✓	✓
Tactile effect	✓			
Mounting from front side or from rear side	✓	✓	✓	✓
Pole mount for Slim version with adapter	✓			
Choice of pictograms	✓	✓		
High luminosity: 8 LED (on request)	✓	✓		

\* Depending on the version

# STANDARD QUALIFICATION (button only)

Tests	Standards	Description
Functional	EN 14752 EN 50155 NF F 31-054	F < 15N Ø 40 mm Un +25% -30%
Insulation resistance	EN 50155	500VDC / 60s R > 100MW
Dielectric strength	EN 50155	Un = 72V : Ui = 1500VAC / 60s Supply between earth & all the pins
Electrical fast transient / burst immunity	EN 50155 CEI / EN 61000-4-4	Level 3 : 2kV, 5kHz
Electrostatic discharge immunity	EN 50155 EN 50121-3-2 CEI / EN 61000-4-2	Discharge to contact = 6kV, 2Hz, 5s Discharge in the air = 8kV, 2Hz, 5s
Surge immunity	EN 50155 EN 50121-3-2 CEI / EN 61000-4-5	1.8kV, Tr/TH = 1.2 / 50 µs
Susceptibility to the radioelectric disturbances	EN 50155 EN 50121-3-2 CEI / EN 61000-4-6	3Vrms, AM @ 1kHz 80% from 150 kHz to 80MHz
Susceptibility to the radioelectric interferences	EN 50155 EN 50121-3-2 CEI / EN 61000-4-3	20V/m, AM @ 1kHz 80% from 80 kHz to 1GHz
Mechanical impact (hammer test)	CEI / EN 62262 CEI / EN 60068-2-75	IK07 (IK06 for raised metal version)
Durability	CEI / EN 60947-5-4	Durability under nominal supply voltage 5 pushing points > 3M
Extreme cold	EN 50155 CEI / EN 60068-2-1	16h at -40°C
Dry Heat	EN 50155 CEI / EN 60068-2-2	16h at +85°C (double sided = at +70°C)
Cyclic damp heat	EN 50155 CEI / EN 60068-2-30	48h = 2 cycles (+55°C/90%) / (+25°C/95%)
Cold/Heat-Cyclic damp heat-Durability Cumulative tests	CEI / EN 60068-2-14 CEI / EN 60068-2-30 CEI / EN 60947-5-4	-40°C - 10h / +85°C - 10h / 10 cycles +55°C - 90% - 9h / +25°C - 95% - 9h / 6 cycles > 3 operations cycles at room temperature
Salt mist	EN 50155 CEI / EN 60068-2-11	ST4 : 96h / +35°C / 5%NaCl
Random vibrations (Railway standard)	EN 50155 CEI / EN 61373	Category 1, class B 5h per axis, 3 axis 7.90m/s <sup>2</sup> on each axe
Shocks (Classic and Railway standard)	EN 50155 CEI / EN 61373 CEI / EN 60068-2-27	Category 1, class B 3 shocks per sense and per axis 50m/s <sup>2</sup> , 30ms for each pulse Semi half sine pulses
Protection	EN 50155 CEI / EN 60529	Actuator : IP65 / IP67 Wall for single sided : IP65/IP67 (front) and IP65 (back) Glass for double sided : IP65
Fire / Smoke	EN 45545	

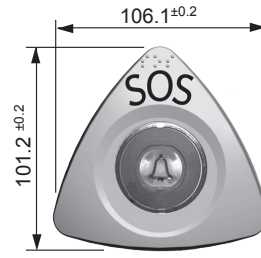
# Front mounting



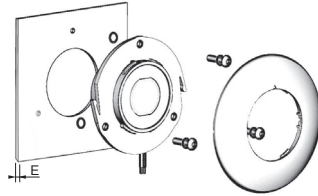
Square shape



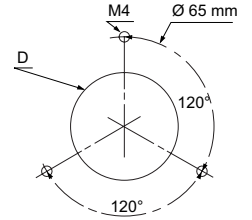
Round shape



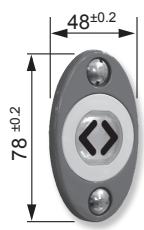
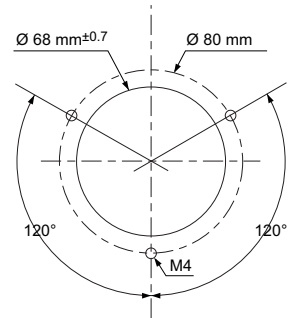
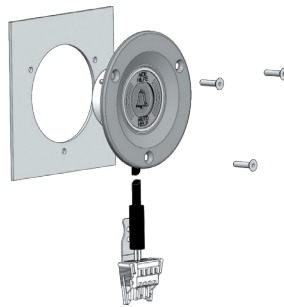
Triangular shape



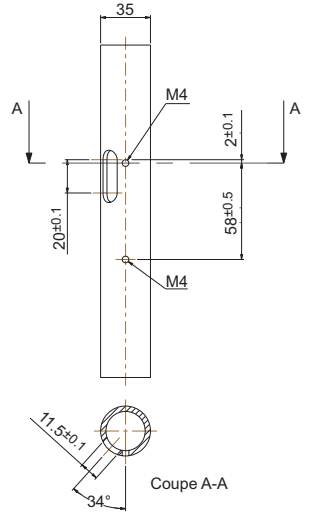
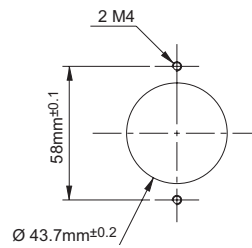
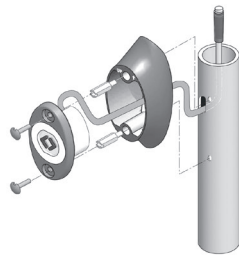
E < 3mm, D =  $\varnothing 43.7\text{mm} \pm 0.3$   
E ≥ 3mm, D =  $\varnothing 44.7\text{mm} \pm 0.3$



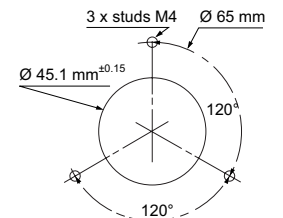
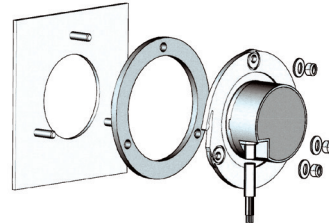
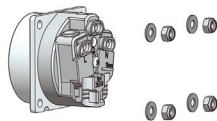
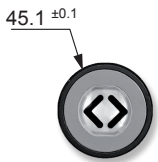
Special shape



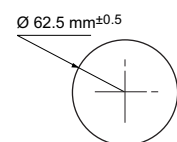
«Slim» shape



# Rear mounting



# Double side mounting





[www.mafelec.com](http://www.mafelec.com)

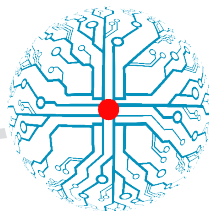
## EXPERT IN GLOBAL SOLUTIONS



### MAFELEC

Creating control and signalling solutions for harsh environment

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