

DOOR ACCESS SYSTEM

PRODUCT CATALOG

Company Overview

Smart Mobile & Field Solutions

Makersan has a long tradition of providing state of the art, reliable solutions for developing and managing mechanic and electronic innovative products through trusted customer relationship in the areas of developing, designing and manufacturing reliable advanced operation controllers and sensors for commercial, construction, marine and agricultural equipment applications.

Our renowned legacy in the automotive industry, makes us your excellent partner in the endeavor to stay ahead of the quality & cost competition on the field of sensing, controlling and actuating applications within the scope of quality certified by TS 16949, ISO 14001, ISO 9001 and OHSAS 18001.



Application Markets



AUTOMOTIVE



AGRICULTURAL AND FORESTRY MACHINERY



CONSTRUCTION MACHINERY



BUSES



TRUCK



MOTORCYCLES & ATV



MATERIAL HANDLING



TRANSPORT TECHNOLOGY



MARINE



DEVICES



MACHINERY APPLICATIONS



INDUSTRIAL AUTOMATION

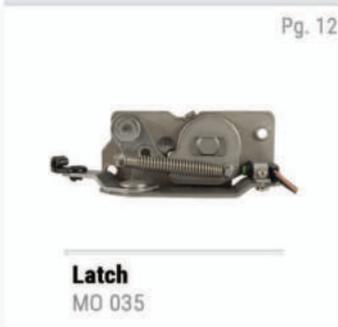
Main Customers



Mercedes-Benz



Latches



Luggage Handles

 <p>Pg. 25</p> <p>Luggage Handle MO 021</p>	 <p>Pg. 26</p> <p>Luggage Handle MO 023</p>	 <p>Pg. 27</p> <p>Luggage Handle MO 025</p>	 <p>Pg. 28</p> <p>Luggage Handle MO 022</p>
 <p>Pg. 29</p> <p>Luggage Handle MO 024</p>	 <p>Pg. 30-31</p> <p>Luggage Handle MO 032</p>	 <p>Pg. 32-33</p> <p>Luggage Handle MO 032-M</p>	 <p>Pg. 34</p> <p>Luggage Handle MO 027</p>
 <p>Pg. 35</p> <p>Luggage Handle MO 052</p>	 <p>Pg. 36</p> <p>Cover Lock MO 036</p>	 <p>Pg. 37</p> <p>Exit Door Handle MO 038</p>	

Door Handles

 <p>Pg. 38</p> <p>Door Handle MO 033</p>	 <p>Pg. 39</p> <p>Door Handle MO 047</p>	 <p>Pg. 40</p> <p>Door Handle MO 026</p>	 <p>Pg. 41</p> <p>Door Handle MO 028</p>
 <p>Pg. 42</p> <p>Door Handle MO 026-01</p>	 <p>Pg. 43</p> <p>Door Inner Handle MO 037</p>	 <p>Pg. 44</p> <p>Locking Pin MO 057</p>	

Door Handles

Pg. 45



Door Handle
MO 080

Pg. 46



Door Lock
MO 080-02

Pg. 47



Door Lock
MO 080-03

Remote Keyless Entry

Pg. 48



DC Motor Actuator
MO 055

Pg. 49



Pneumatic Actuator
MO 100

Pg. 50



Remote Keyless Entry
MO 651 H3X

Pg. 51



Remote Keyless Entry
MO 651 H4X

Pg. 52



Remote Keyless Entry
MO 651 H5X

Keypads & Buttons

Pg. 53



Keypad
MO 405 H1X

Pg. 54



Keypad
MO 405 H2X

Pg. 55



Keypad
MO 405 H3X

Pg. 56



Keypad
MO 405 H4X

Pg. 57



CAN Joystick Keypad
MO 406

Pg. 58



CAN Joystick Keypad
MO 407

Pg. 59



Touch Button
MO 400

Electrical & Pneumatic Systems

Remote Keyless Entry with CAN Bus



Pneumatic Luggage Handles



Electrical Door Handles



Latches With Switch



Pneumatic & Electrical Actuators



Button and Keypads



Full Electrical Systems

Remote Keyless Entry with CAN Bus



Electrical Luggage Handles



Electrical Door Handles



Latches With Switch



Electrical Actuator



Button and Keypads



One Key Solution

Key



Luggage Handles



Door Handles



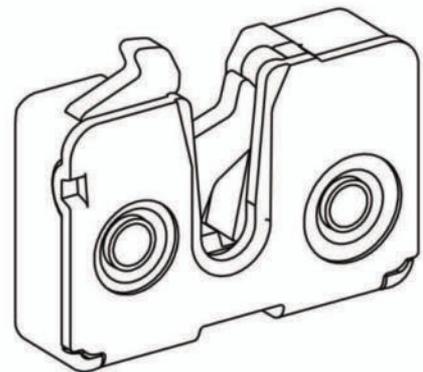
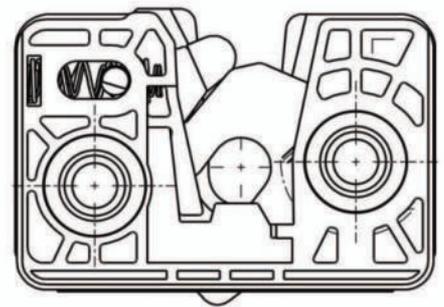
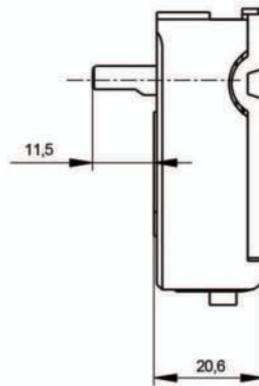
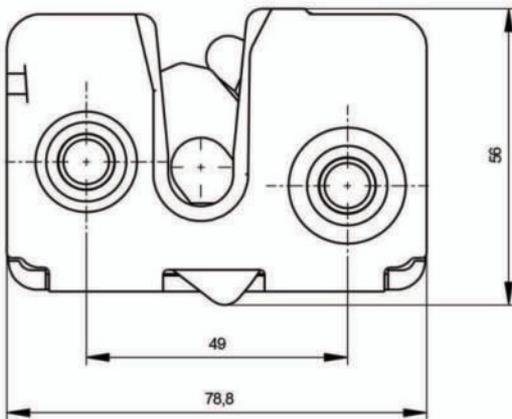
Others



LATCH MO 020

Technical Data

Application	Door latch
Option	MO 020 _L and R (Left and Right)
Safety	Double lock for safety
Design	Strong and Robust design
Springs	Stainless steel springs
Corrosion resistance	Zinc_Nickel plated 504 hours salt mist approved
Weight	0,225 Kg.



MO 020 - X

Side
L- Left
R- Right

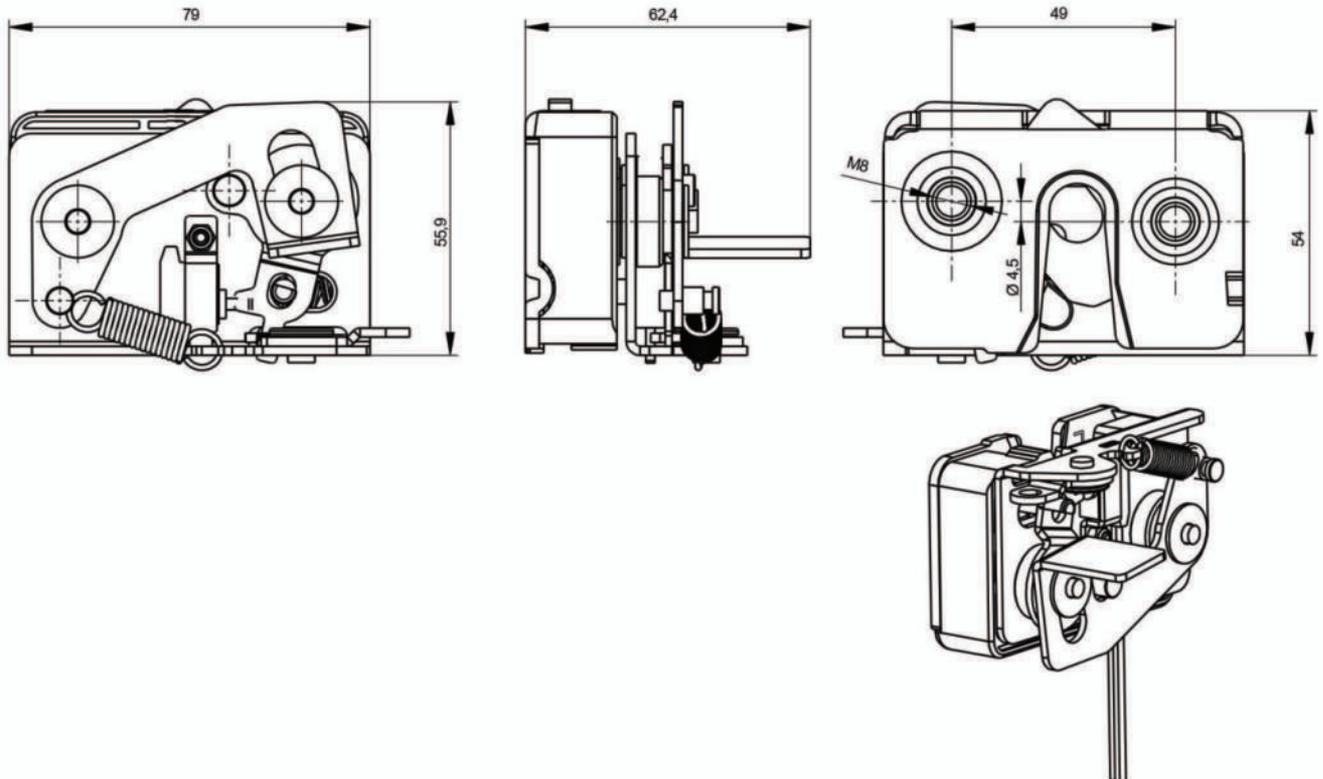
Drawing is left. Right is symmetrical.

Example: MO 020-L is left side latche.

LATCH MO 020A

Technical Data

Application	Door latch
Design	Strong and Robust design
Springs	Stainless steel springs
Corrosion resistance	Zinc_Nickel plated 504 hours salt mist approved
Weight	0,4 Kg.

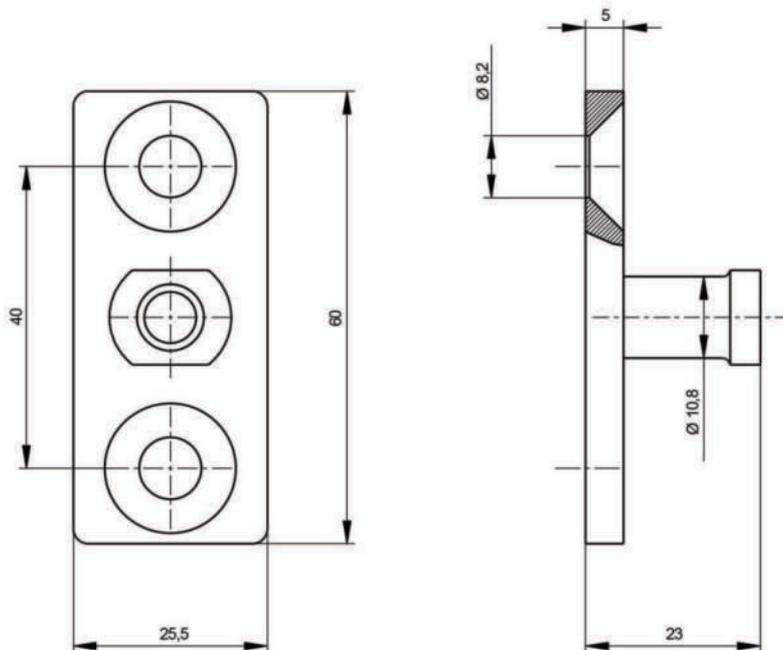


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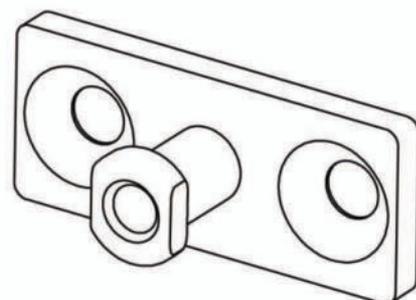
STRIKER MO 020-02

Technical Data

Application	Striker Pin
Use with	Applicable Left and Right
Desing	For MO 020 lock
Corrosion resistance	Strong and Robust design
Weight	Zinc_Nickel plated 504 hours salt mist approved 0,070 kg.



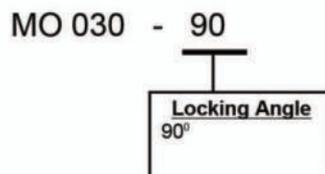
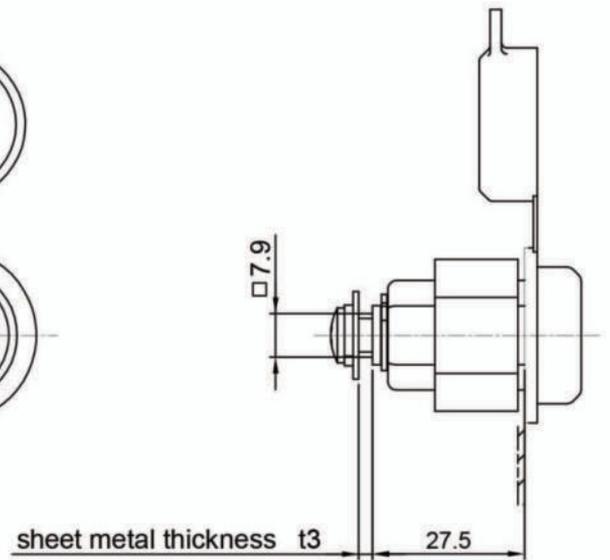
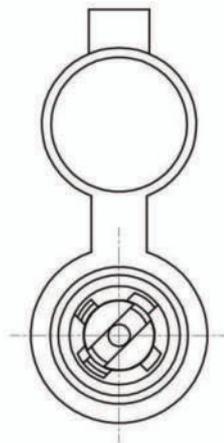
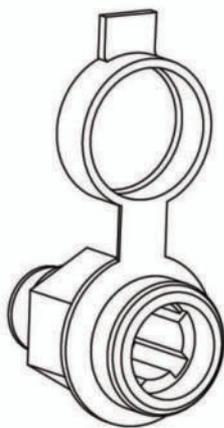
Assembly shall be done with DIN 7991 10.9 bolt.



CYLINDER LOCKS MO 030

Technical Data

Application	Cylinder Lock
Housing material	Die cast Zamak
Coating	Chrome plated
Lock angle	90° locking angle
Sealing	EPDM sealing
Barrel & Key	Suitable with MO 043 & MO 044
Nut	Aluminium anodized
Weight	0,060 Kg.

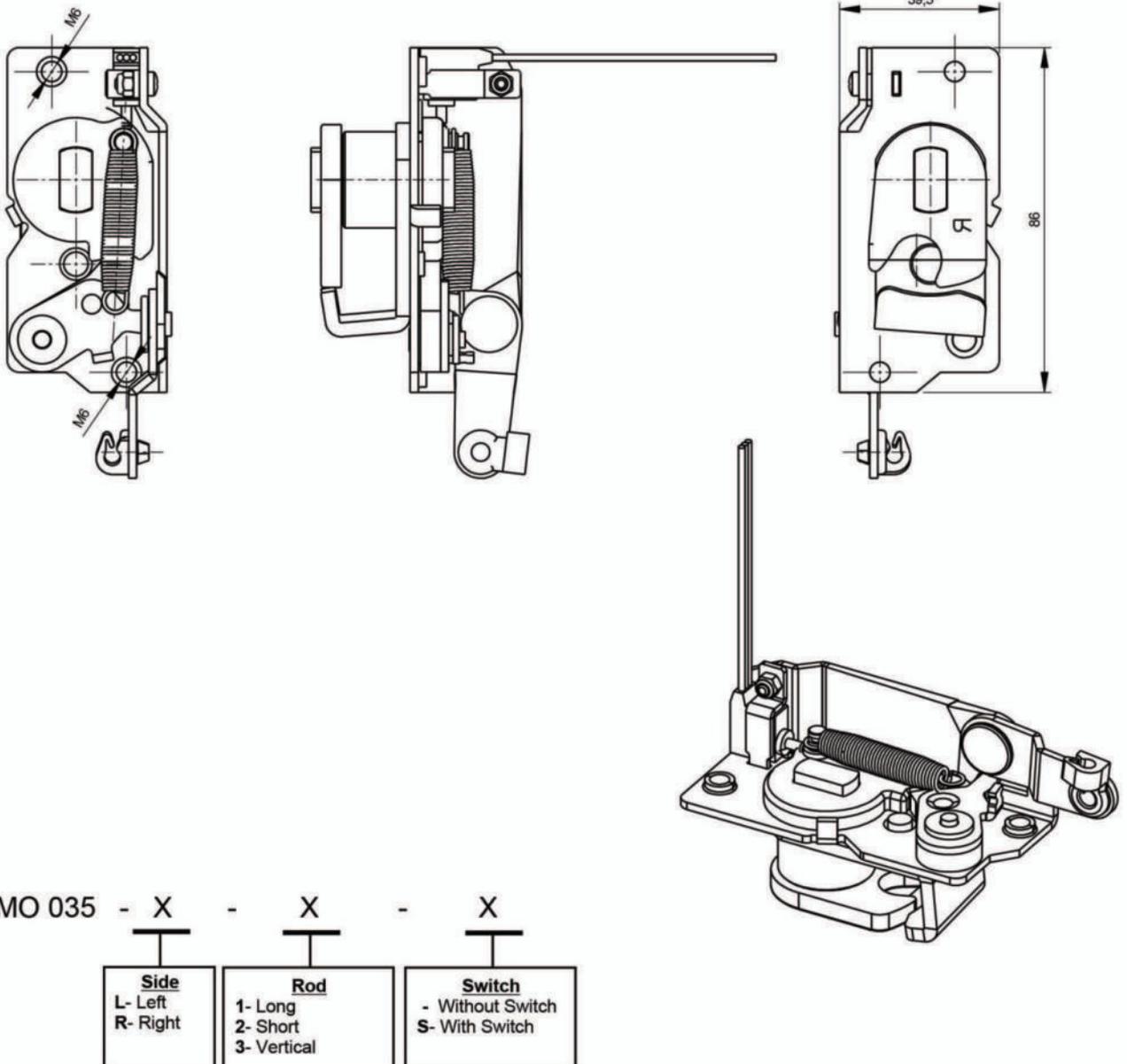


Note : Without cylinder and key.

LATCH MO 035

Technical Data

Switch	Lock with micro switch
Application	Luggage flap latch for coaches
Option	MO 035-S_L and R (Left and Right)
Safety	Double lock for safety
Design	Strong and Robust design.
Springs	Stainless steel springs
Corrosion resistance	Zinc_Nickel plated 504 hours salt mist approved
Weight	0,310 Kg.
Bushing	Cold drawing precise tube.
Rotor & Catch	Fine Blanking.
Spring	Minimum 100.000 cycle approved.
Switch IP	IP 67



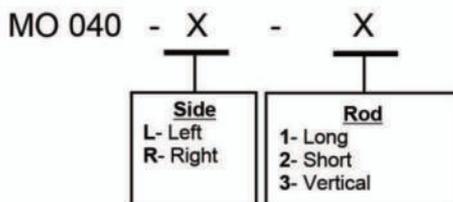
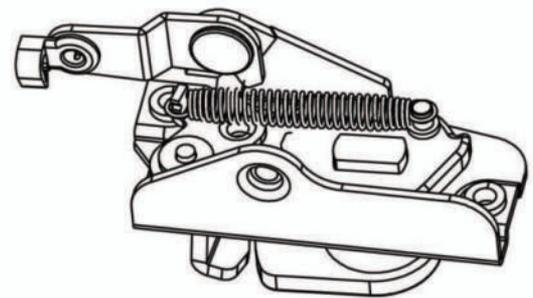
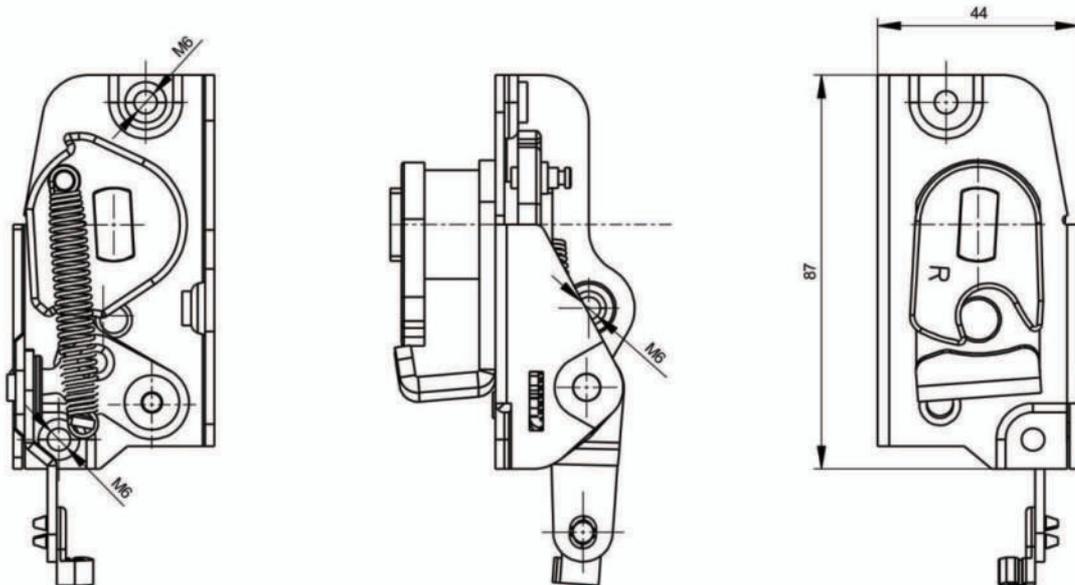
Drawing is MO035-L-1-S. Right is symmetrical.

Example: MO 035-L-1-S is left side, with long rod and with switch.

LATCH MO 040

Technical Data

Application	Luggage flap latch for coaches
Option	MO 040 _L and R (Left and Right)
Safety	Double lock for safety
Design	Strong and Robust design.
Spring	Stainless steel spring
Weight	0,325 Kg.
Bushing	Cold drawing precise tube.
Rotor & Catch	Fine Blanking.
Corrosion resistance	Zinc_Nickel plated 504 hours salt mist approved
Spring	Minimum 100.000 cycle approved.



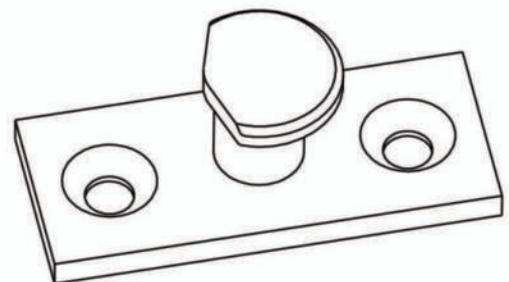
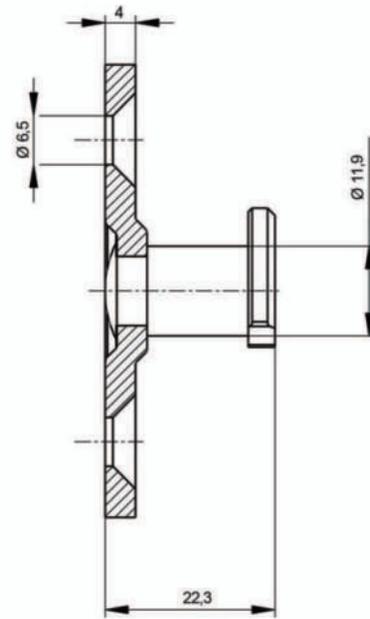
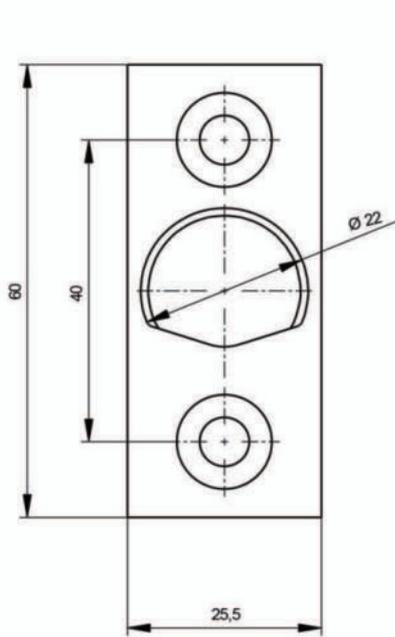
Drawing is MO040-R-1. Left is symmetrical.

Example: MO 040-L-1 is left side, with long rod.

STRIKER MO 040-02

Technical Data

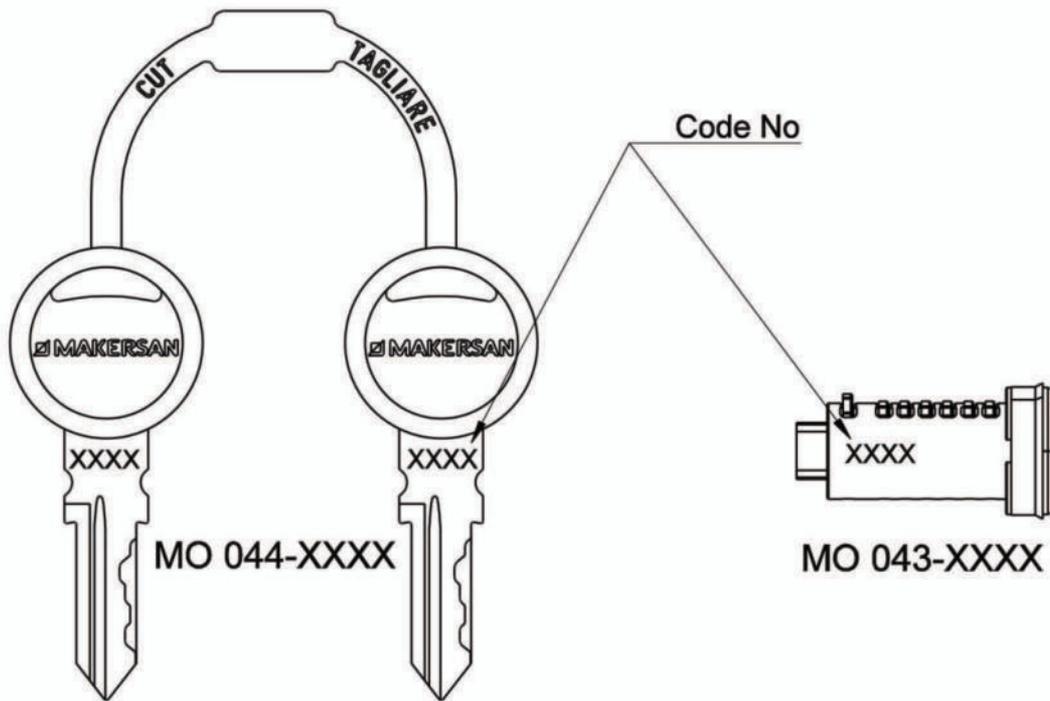
Application	Striker Pin
Use with	Applicable Left and Right
Desing	For MO 040 lock
Corrosion resistance	Strong and Robust design Zinc_Nickel plated 504 hours salt mist approved 0,070 kg.



LOCKING CYLINDER MO 043 - MO 044

Technical Data

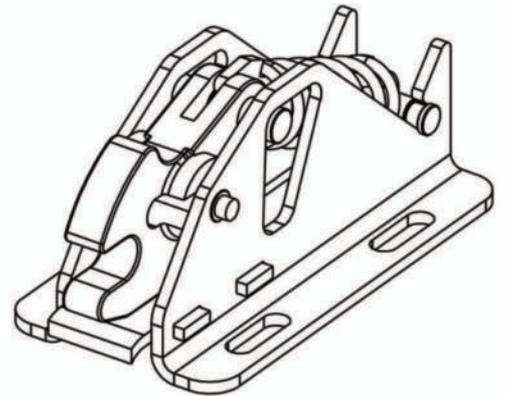
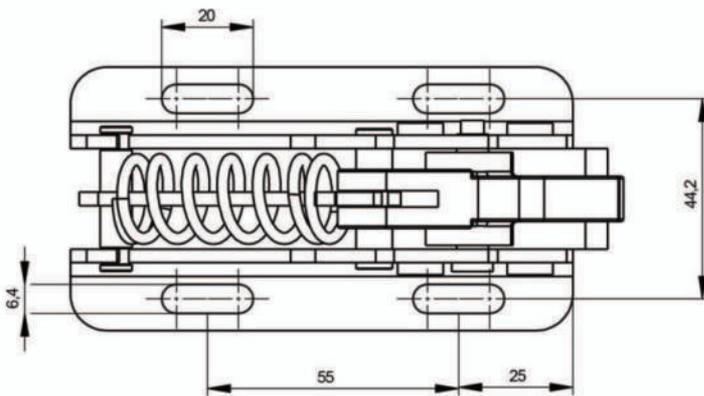
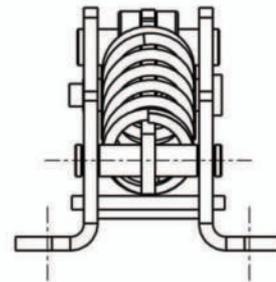
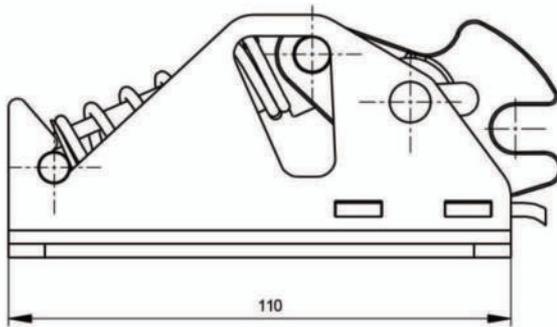
Application	Barrel and Key for Handles and locks.
Code treacability	Written codes both on barrel and key
Codes	Random or specific key codes are available
Blades	6 + 1 blade
Sealing	EPDM sealing.
Suitable to	MO 030 / MO 021 / MO 023 / MO 022 / MO 024 MO 032 / MO 032 M / MO 026 / MO 026-1 / MO 036 MO 033 / MO 047 One key solution possible for the all above products.



LATCH MO 240

Technical Data

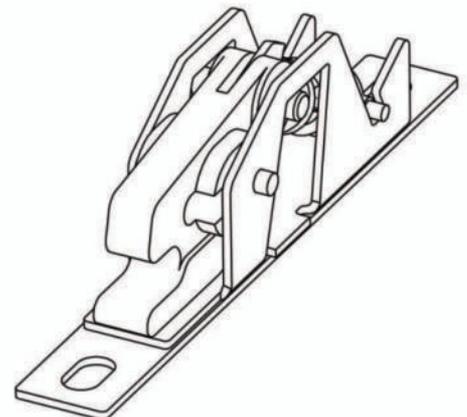
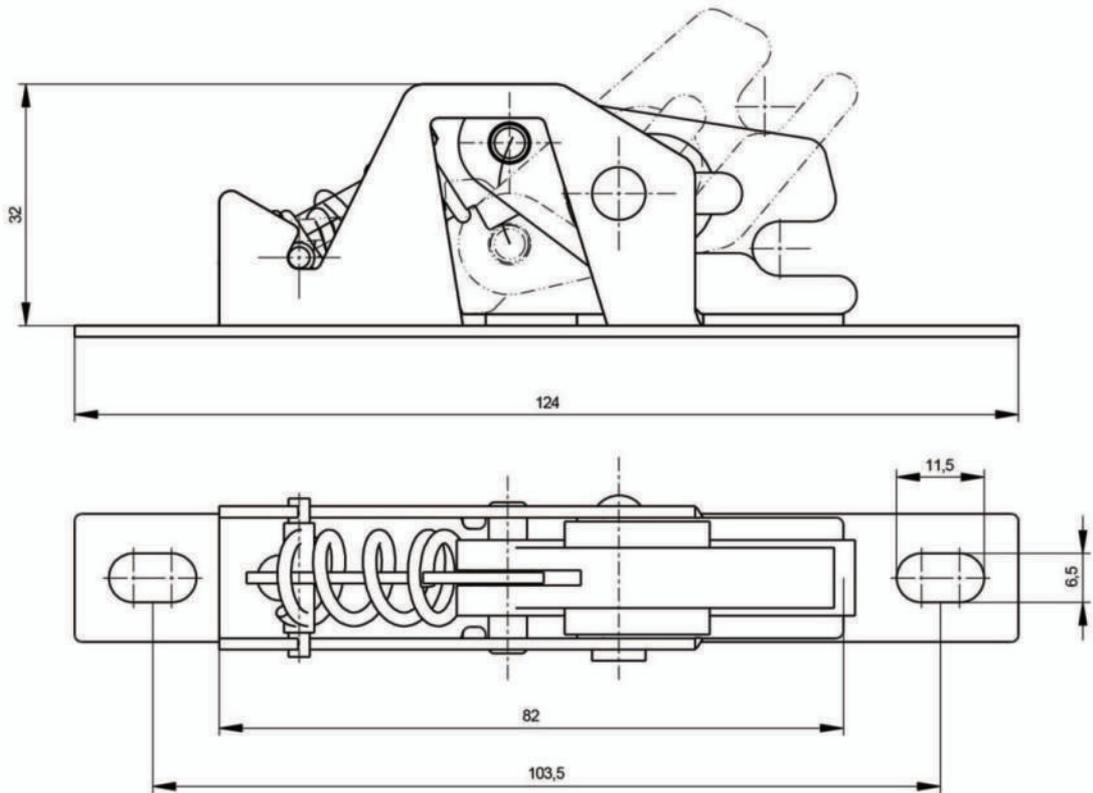
Application	Spring Bolt Lock
Corrosion resistance	Delta protekt 2 x KL100 plated 504 hours salt mist approved
Desing	Strong and Robust design
Force	205 N opening force
Hook material	PA % 30 GF
Weight	0,350 Kg.



LATCH MO 241

Technical Data

Application	Spring Bolt Lock
Corrosion resistance	Zinc_Nickel plated 504 hours salt mist approved
Force	80 N opening force
Design	Strong and Robust design.
Hook material	PA % 30 GF
Weight	0,095 Kg.

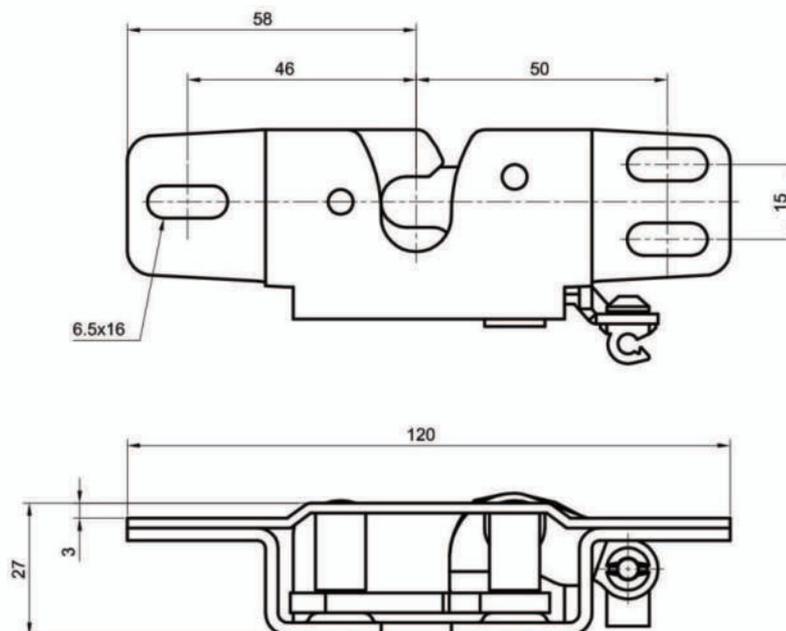


Note : Opening Force 8 Kg.

LATCH MO 250 Right

Technical Data

Application	Luggage flap latch for coaches
Safety	Double lock for safety
Design	Strong and Robust design. Left and Right option
Springs	Stainless steel springs
Corrosion resistance	Zinc_Nickel plated 504 hours salt mist approved
Weight	0,220 Kg.



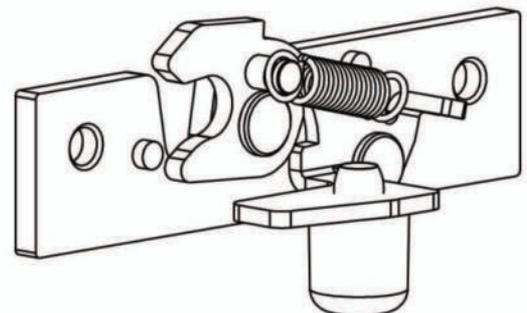
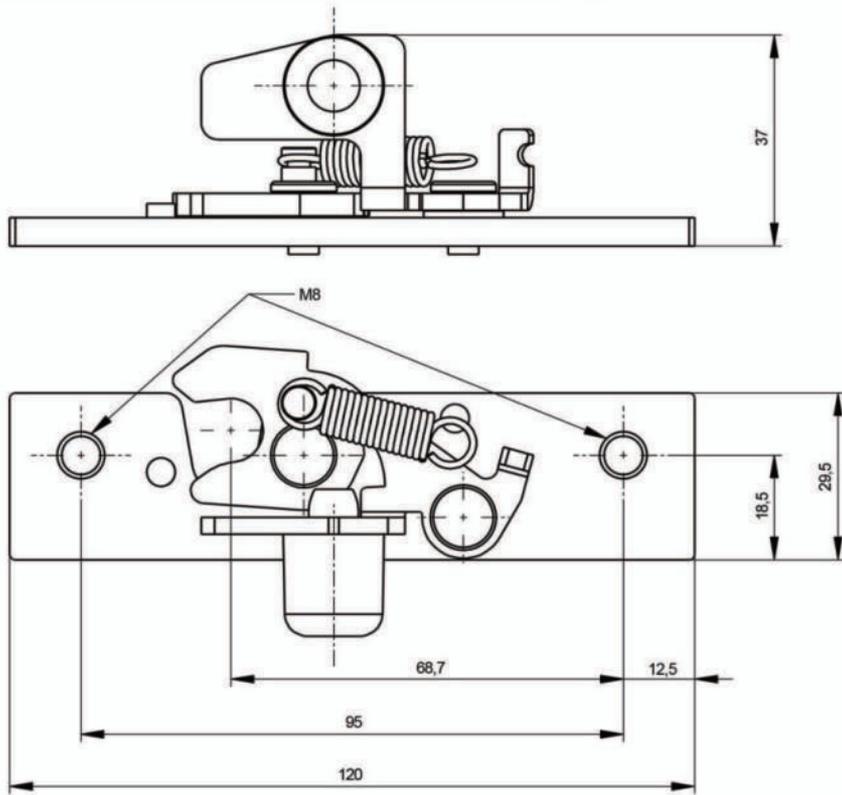
Drawing is Left (MO 251)
Right is symetrical (MO 250)

DOOR LOCKS MO 260

Technical Data

Application
Design
Spring
Coating Options

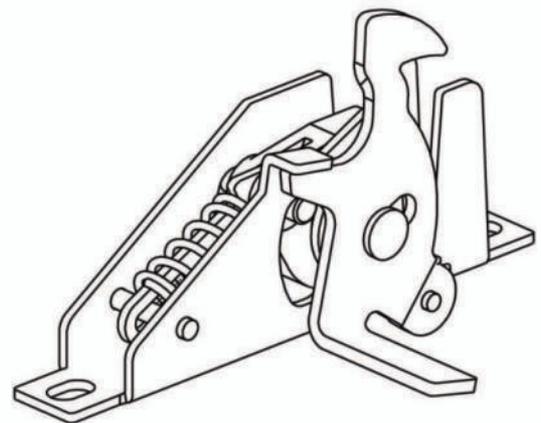
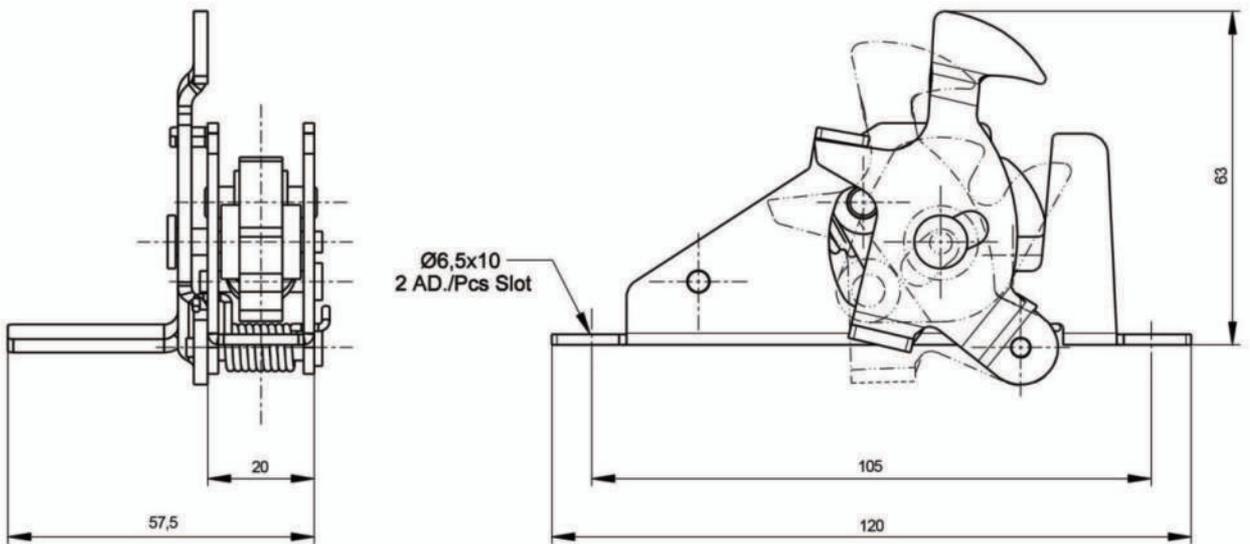
Door locks
Strong and Robust design.
Stainless steel spring
Delta protekt 2 x KL100 plated 504 hours salt



LATCH MO 275

Technical Data

Application	Spring Bolt Lock
Corrosion resistance	Zinc_Nickel plated 504 hours salt mist approved
Force	135 N opening force
Safety	With safety hook
Design	Strong and Robust design.
Hook material	PA % 30 GF
Weight	0,175 Kg.

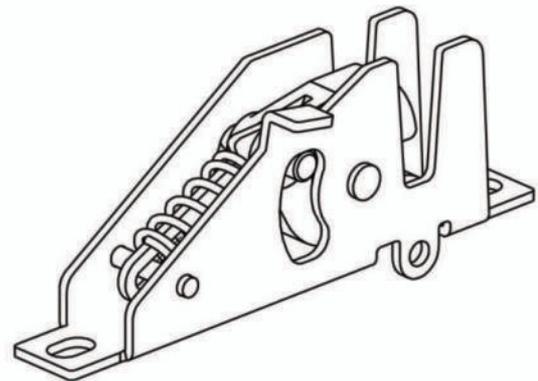
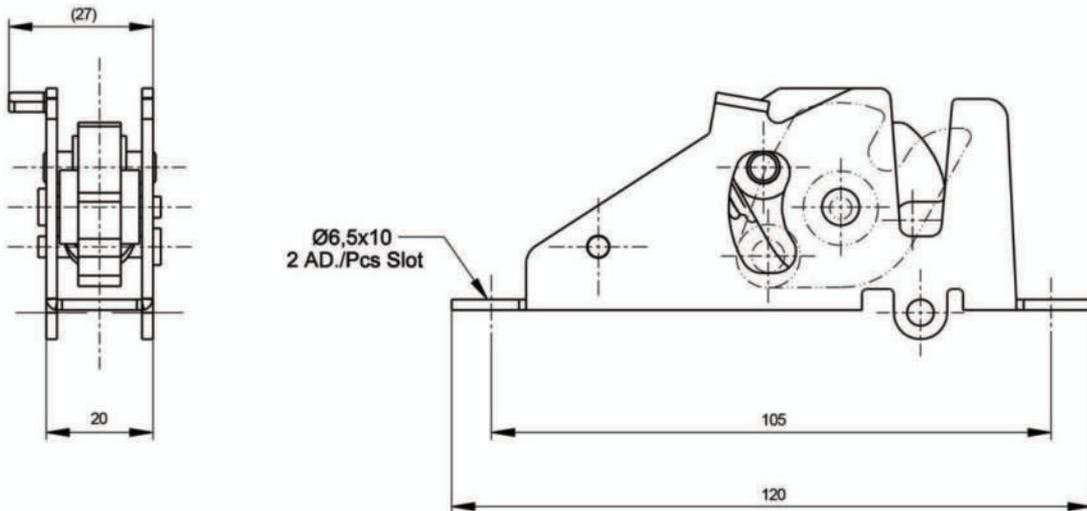


Part No	Part Name	Wire Dia.	Opening Force
MO 275	Latch with Safety Hook	Ø1,6	13,5 kg

LATCH MO 276

Technical Data

Application	Spring Bolt Lock
Corrosion resistance	Zinc_Nickel plated 504 hours salt mist approved
Force	135 N opening force
Design	Strong and Robust design.
Hook material	PA % 30 GF
Weight	0,130 Kg.

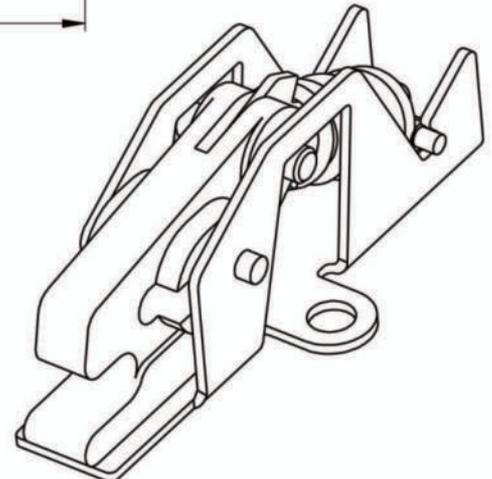
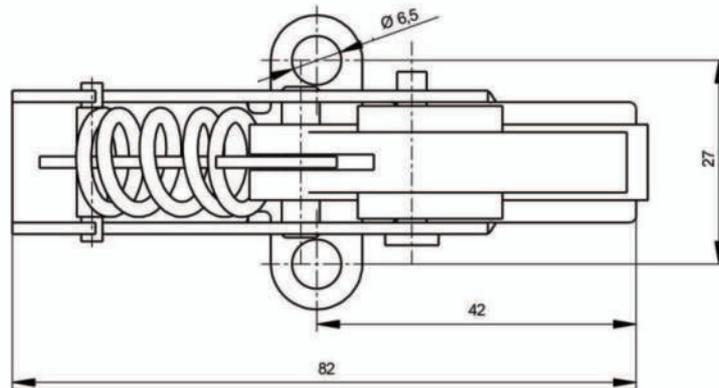
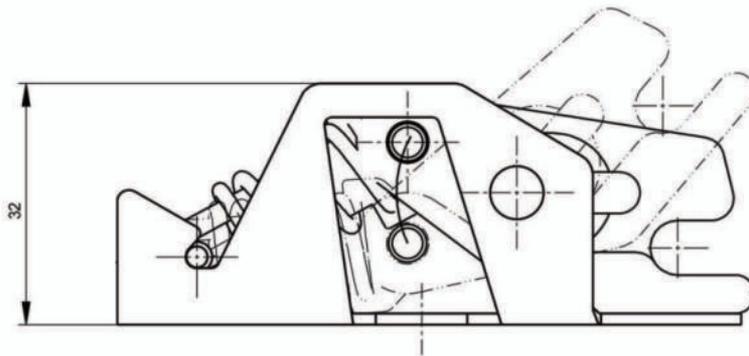


Part No	Part Name	Wire Dia.	Opening Force
MO 276	Latch Assy.	Ø1,6	13,5 kg

LATCH MO 277

Technical Data

Application	Spring Bolt Lock
Corrosion resistance	Zinc_Nickel plated 504 hours salt mist approved
Force	80 N opening force
Design	Strong and Robust design.
Hook material	PA % 30 GF
Weight	0,070 Kg.

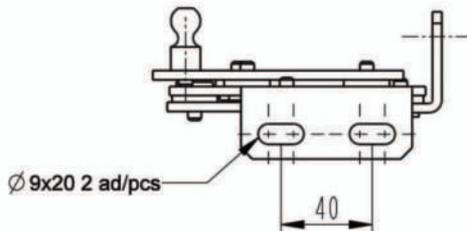
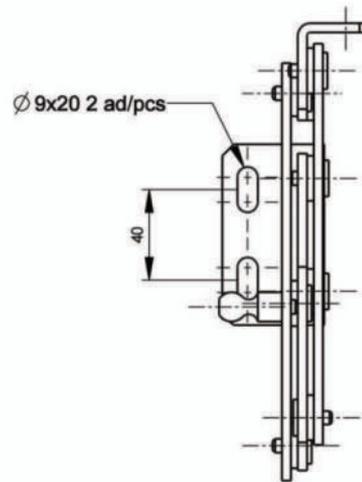
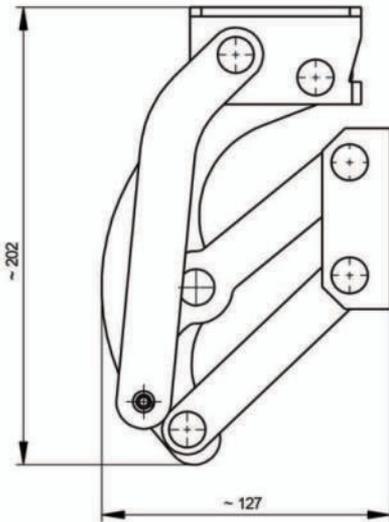


Note : Opening Force 8 Kg.

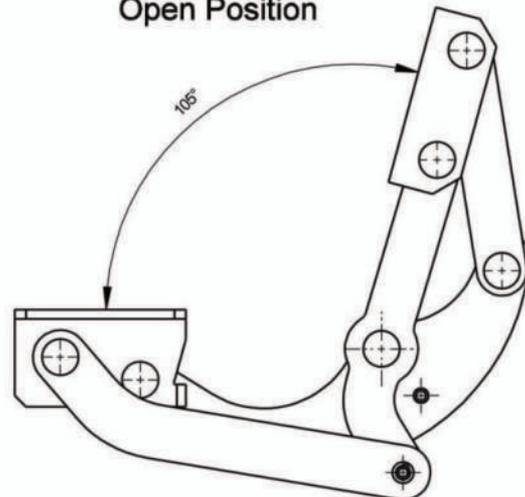
HINGE MO 072

Technical Data

Application	Side luggage flaps hinge
Design	Strong and Robust design.
Corrosion resistance	Yellow Cr+3 coating 240 hours salt mist approved Delta protekt 2 x KL100 plated 504 hours salt mist approved
Rivets	Stainless Steel
Stopping Point	Integrated design
Opening Movement	Special Curve
Gas Spring	First little down and front movement, after upside movement
Option	Integrated connection spherical rivet
Weight	Left and Right Option 0,900 Kg.



Open Position



Drawing is right. Left is symmetrical.

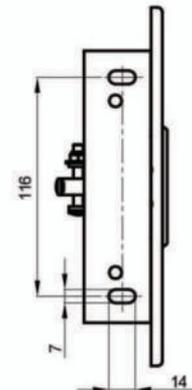
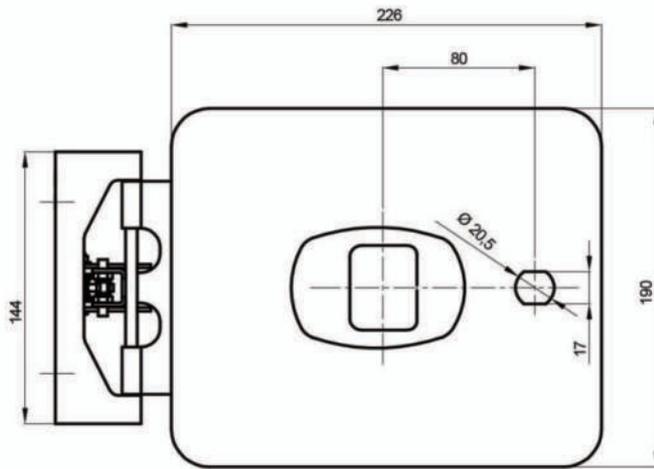
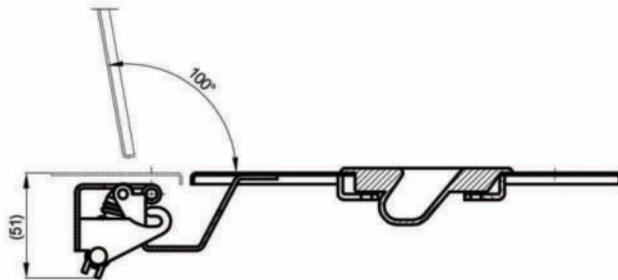
MO 072 - X

Side
L- Left
R- Right

FUEL COVER MO 074

Technical Data

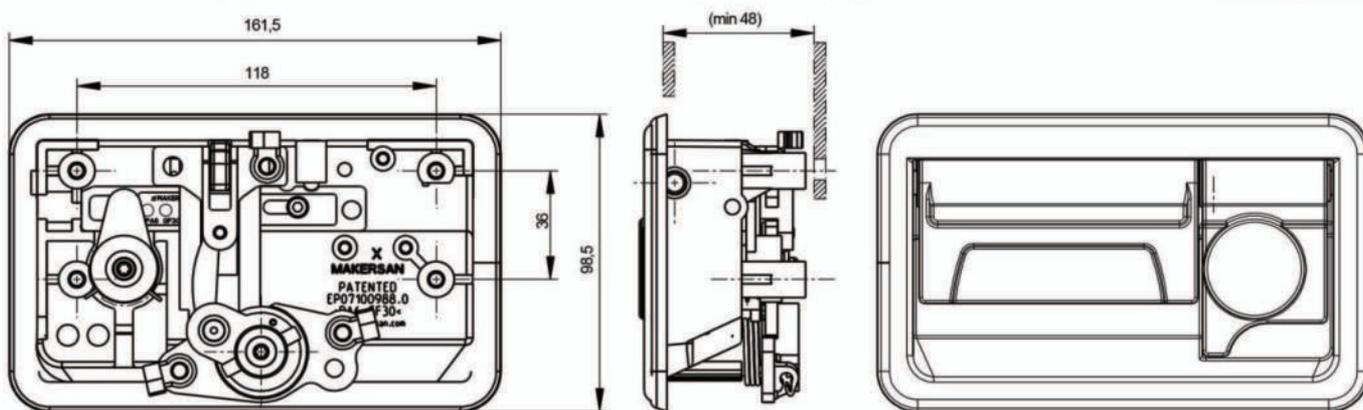
Application	Fuel tank cover hinge
Design	Strong and Robust design.
Material	Stainless Steel
Stopping Point	Integrated design
Opening Movement	Safe and strong hinge.
Lock option	Suitable with MO 030
Handle	Integrated Black polyamid 30 % GF reinforced.
Weight	L=402 mm1,400 Kg L=226 mm1,000 Kg
Barrel and Key Springs	Suitable with MO 043 & MO 044 Stainless Steel



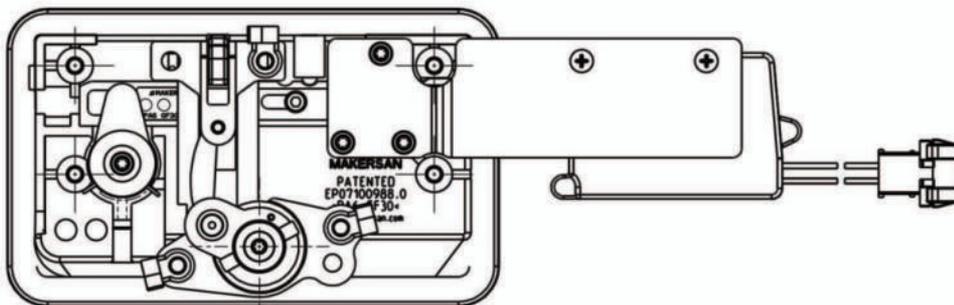
LUGGAGE COMP. LOCK MO 021

Technical Data

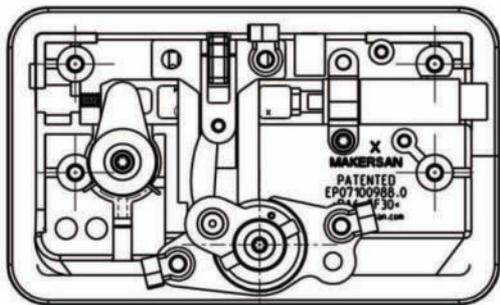
Application	Suitable for Coach luggage flaps
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Springs	Stainless steel
Barrel & Key	Suitable with MO 043 & MO 044
Key Actuation	Manuel, electrical 12 V or 24 V, pneumatic .
Sleeping Cabin appl.	Suitable with MO 052 for sleeping cabin. Can be open inside, even locked from outside.



Manuel



Electrical



Pneumatic

MO 021 - XXX

Key Actuation	
-	Manuel Operation
E12	- 12 V Electrical Actuator
E24	- 24 V Electrical Actuator
P	- Pneumatic Actuator

Note : Without cylinder and key.

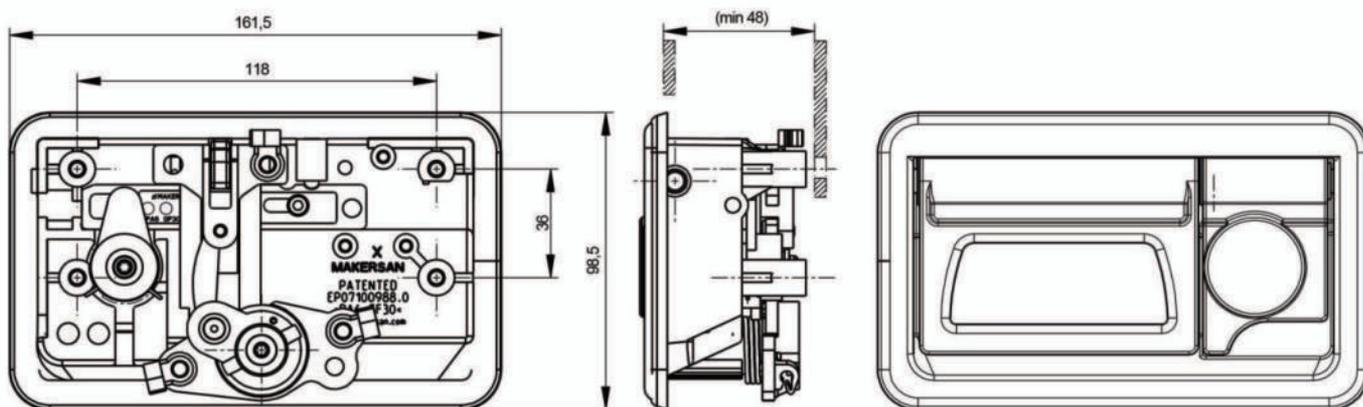
Drawing is MO021.

Example: MO 021-E12 is MO021 with 12 V electrical actuator.

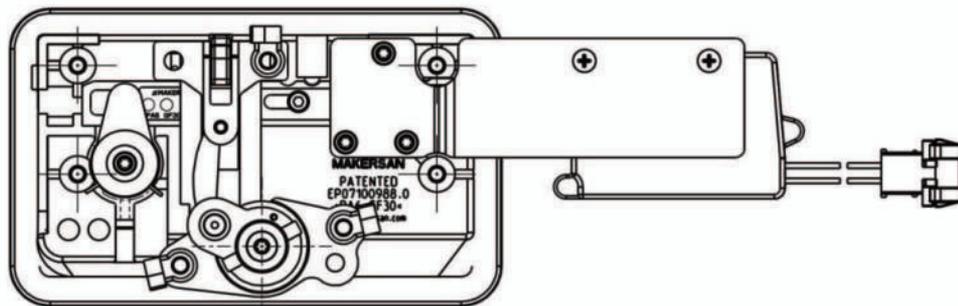
LUGGAGE COMP. LOCK MO 023

Technical Data

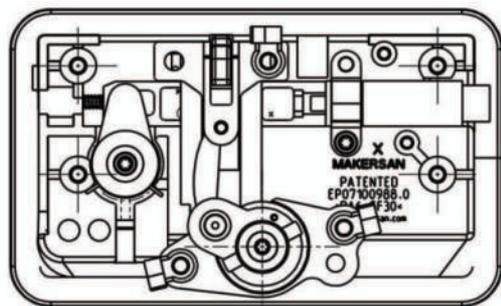
Application	Suitable for Coach luggage flaps
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Springs	Stainless steel
Barrel & Key	Suitable with MO 043 & MO 044
Key Actuation	Manuel, electrical 12 V or 24 V, pneumatic .
Sleeping Cabin appl.	Suitable with MO 052 for sleeping cabin. Can be open inside, even locked from outside.



Manuel



Electrical



Pneumatic

MO 023 - XXX

Key Actuation	
-	Manuel Operation
E12	- 12 V Electrical Actuator
E24	- 24 V Electrical Actuator
P	- Pneumatic Actuator

Note : Without cylinder and key.

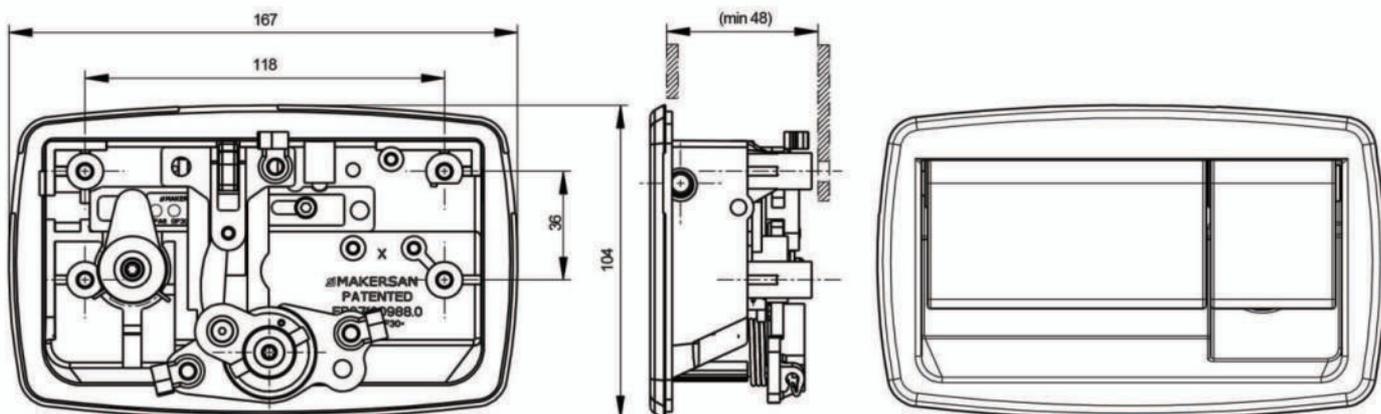
Drawing is MO023.

Example: MO 023-E12 is MO023 with 12 V electrical actuator.

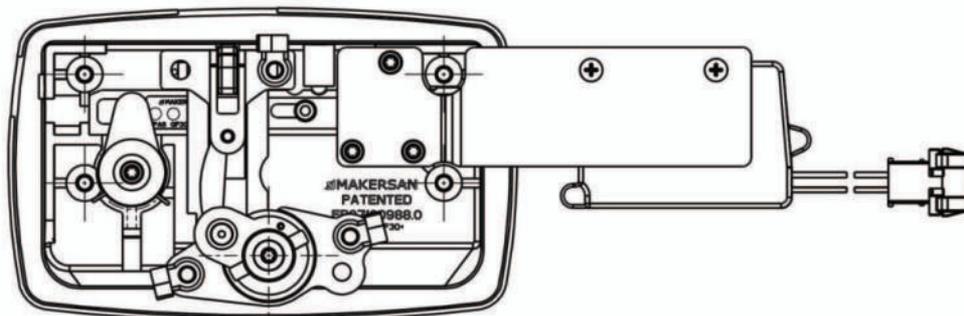
LUGGAGE COMP. LOCK MO 025

Technical Data

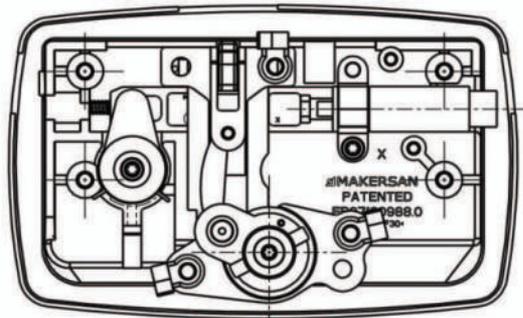
Application	Suitable for Coach luggage flaps
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Springs	Stainless steel
Barrel & Key	Suitable with MO 043 & MO 044
Key Actuation	Manuel, electrical 12 V or 24 V, pneumatic .
Sleeping Cabin appl.	Suitable with MO 052 for sleeping cabin. Can be open inside, even locked from outside.



Manuel



Electrical



Pneumatic

MO 025 - XXX

Key Actuation	
-	Manuel Operation
E12	12 V Electrical Actuator
E24	24 V Electrical Actuator
P	Pneumatic Actuator

Note : Without cylinder and key.

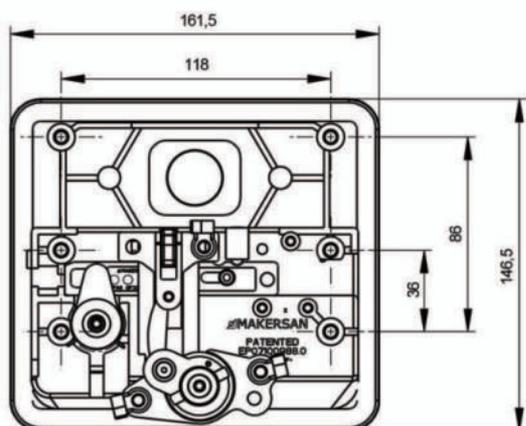
Drawing is MO025.

Example: MO 025-E12 is MO025 with 12 V electrical actuator.

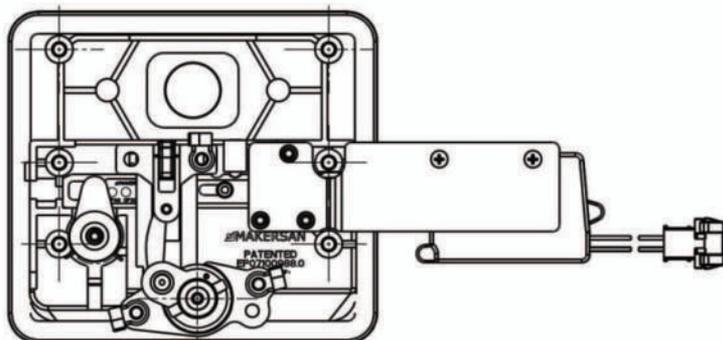
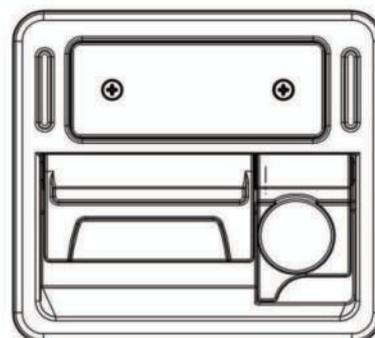
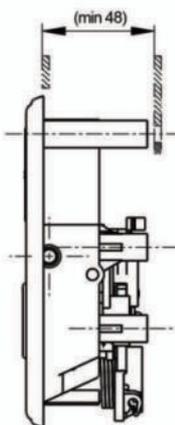
LUGGAGE COMP. LOCK MO 022

Technical Data

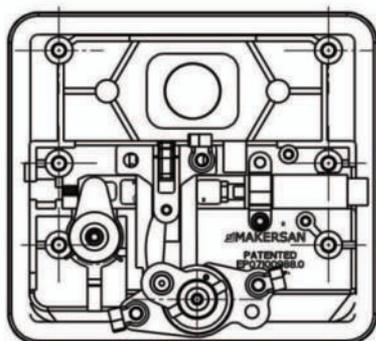
Application	Suitable for Coach luggage flaps
Side marker	Integrated 4 led side marker.
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Springs	Stainless steel
Barrel & Key	Suitable with MO 043 & MO 044
Key Actuation	Manuel, electrical 12 V or 24 V, pneumatic .
Sleeping Cabin appl.	Suitable with MO 052 for sleeping cabin. Can be open inside, even locked from outside.



Manuel



Electrical



Pneumatic

MO 022 - XXX

Key Actuation	
-	Manuel Operation
E12	- 12 V Electrical Actuator
E24	- 24 V Electrical Actuator
P	- Pneumatic Actuator

Note : Without cylinder and key.

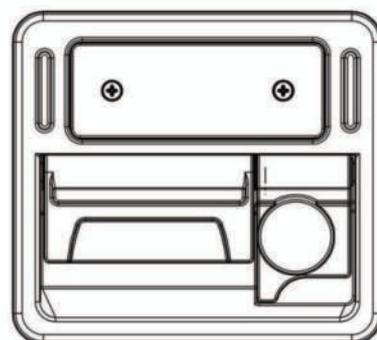
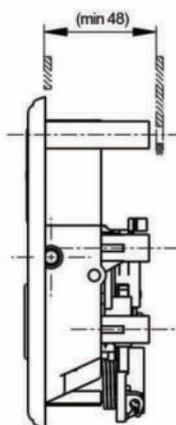
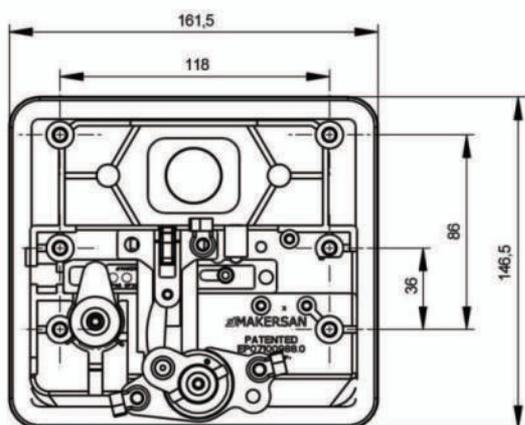
Drawing is MO022.

Example: MO 022-E12 is MO022 with 12 V electrical actuator.

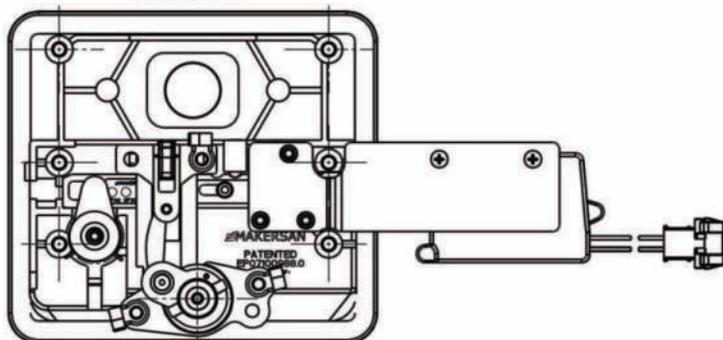
LUGGAGE COMP. LOCK MO 024

Technical Data

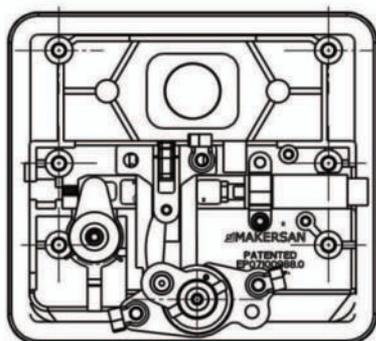
Application	Suitable for Coach luggage flaps
Side marker	Integrated 4 led side marker.
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Springs	Stainless steel
Barrel & Key	Suitable with MO 043 & MO 044
Key Actuation	Manuel, electrical 12 V or 24 V, pneumatic .
Sleeping Cabin appl.	Suitable with MO 052 for sleeping cabin. Can be open inside, even locked from outside.



Manuel



Electrical



Pneumatic

MO 024 - XXX

Key Actuation
- Manuel Operation
E12 - 12 V Electrical Actuator
E24 - 24 V Electrical Actuator
P - Pneumatic Actuator

Note : Without cylinder and key.

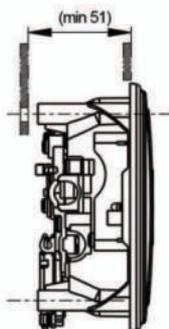
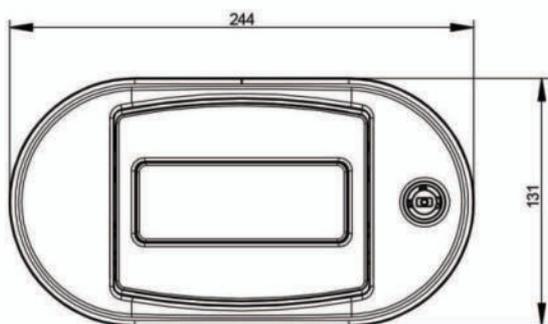
Drawing is MO024.

Example: MO 024-E12 is MO024 with 12 V electrical actuator.

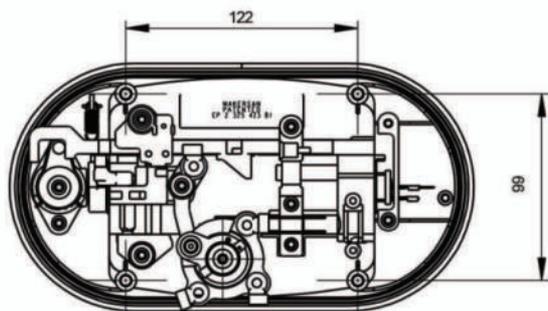
LUGGAGE COMP. LOCK MO 032X

Technical Data

Shape	Oval shape
Operation	No_load operation in closed position.
Side marker	Integrated 4 led side marker.
Application	Suitable for Coach luggage flaps
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Springs	Stainless steel
Barrel & Key	Suitable with MO 043 & MO 044
Key Actuation	Manuel, electrical 12 V or 24 V, pneumatic .
Sleeping Cabin	Can be open inside, even locked from outside.

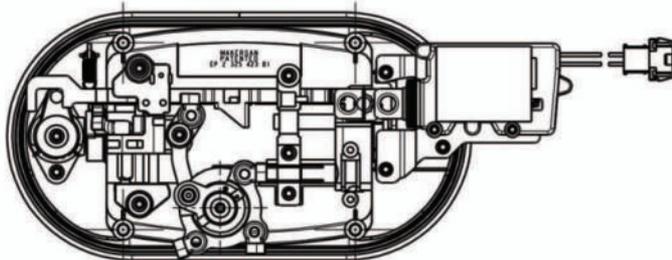


Without Sidemarker



Manuel

With Sidemarker

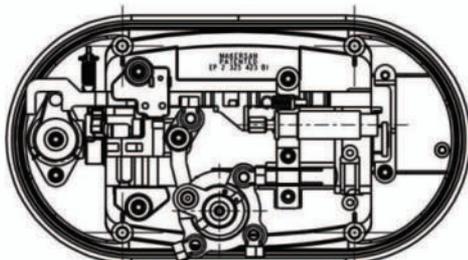


Electrical

MO 032X - XXX

Side Marker
B - Without Sidemarker
R - With Sidemarker

Key Actuation
- Manuel Operation
E12 - 12 V Electrical Actuator
E24 - 24 V Electrical Actuator
P - Pneumatic Actuator



Pneumatic

Note : Without cylinder and key.

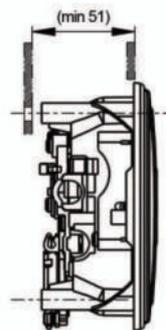
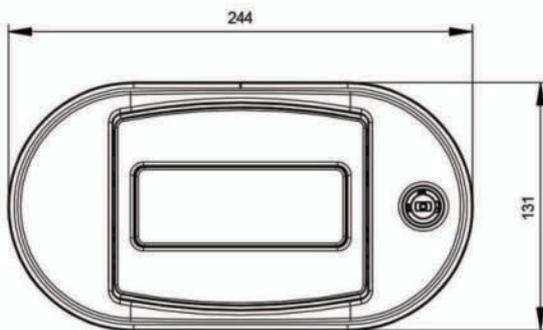
Example: MO 032R-E12- is MO032 with Reflection with 12 V electrical actuator.

LUGGAGE COMP. LOCK AUTOMATIC MO 032X - A



Technical Data

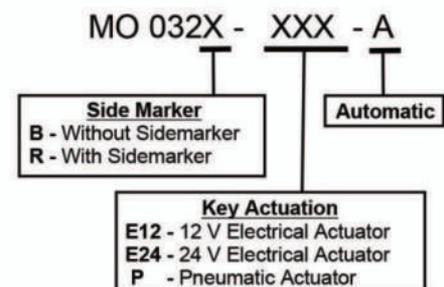
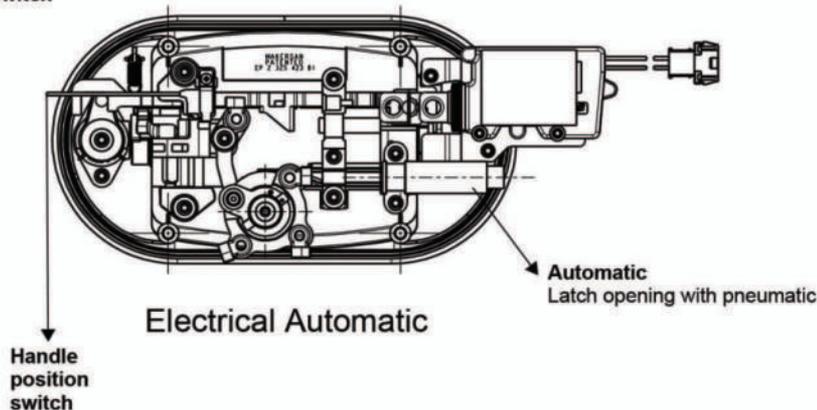
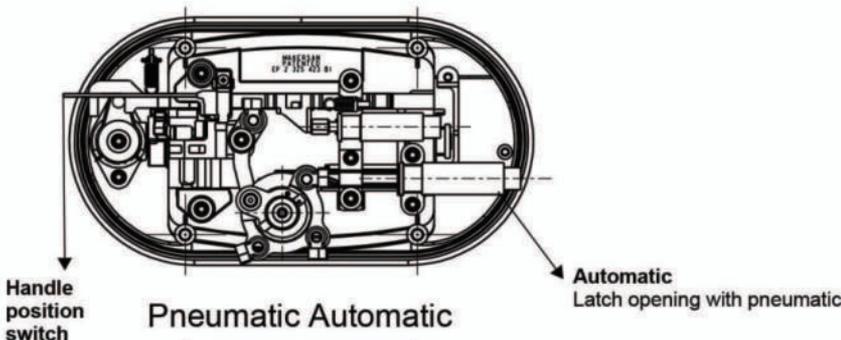
Shape	Oval shape
Operation	No_load operation in closed position.
Side marker	Integrated 4 led side marker.
Application	Suitable for Coach luggage flaps
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Springs	Stainless steel
Barrel & Key	Suitable with MO 043 & MO 044
Key Actuation	Electrical 12 V or 24 V, pneumatic .
Sleeping Cabin	Can be open inside, even locked from outside.
Latch Actuation	Automatic latch opening with pneumatic



Without Sidemarker



With Sidemarker



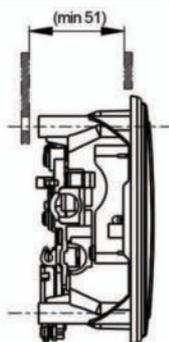
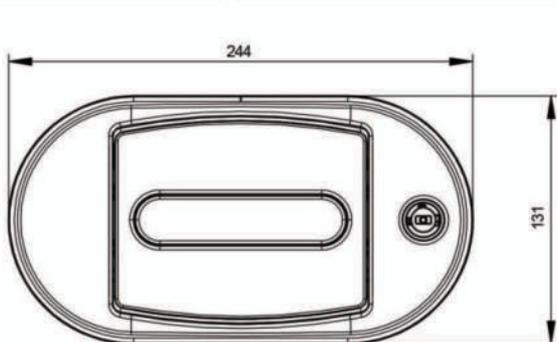
Note : Without cylinder and key.

Example: MO 032R-E12-A is Automatic MO032 with Reflection with 12 V electrical actuator.

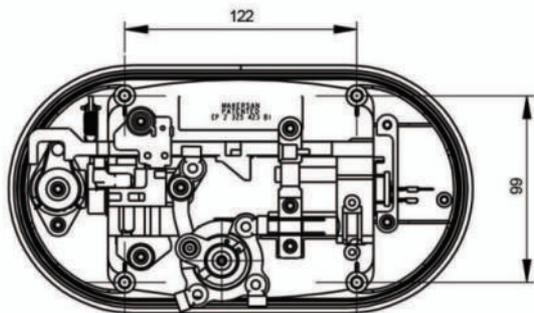
LUGGAGE COMP. LOCK MO 032X M Type

Technical Data

Shape	Oval shape
Operation	No_load operation in closed position.
Side marker	Integrated led side marker.
Application	Suitable for Coach luggage flaps
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Springs	Stainless steel
Barrel & Key	Suitable with MO 043 & MO 044
Key Actuation	Manuel, electrical 12 V or 24 V, pneumatic .
Sleeping Cabin	Can be open inside, even locked from outside.

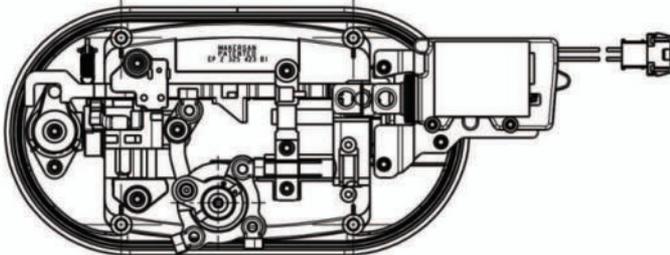


Without Sidemarker

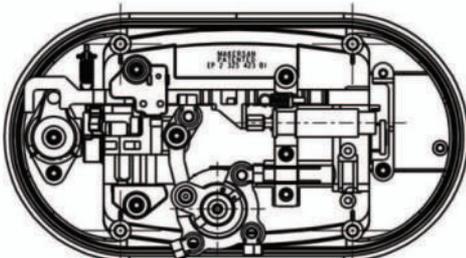


Manuel

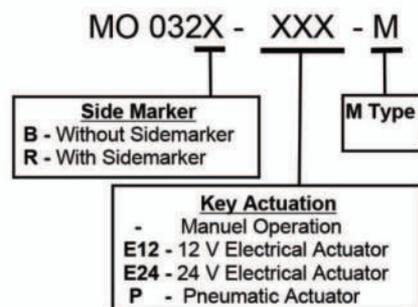
With Sidemarker



Electrical



Pneumatic



Note : Without cylinder and key.

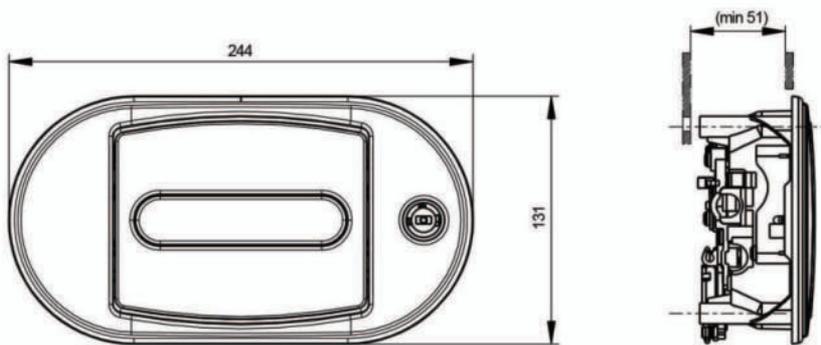
Example: MO 032R-E12-M is M type MO032 with Reflection with 12 V electrical actuator.

LUGGAGE COMP. LOCK AUTOMATIC MO 032X - A M Type



Technical Data

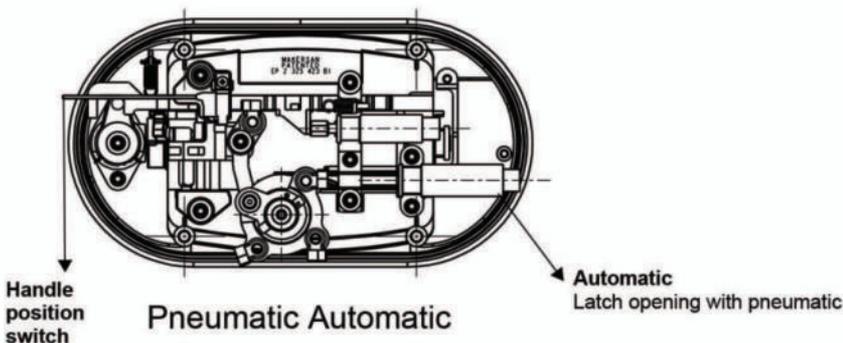
Shape	Oval shape
Operation	No_load operation in closed position.
Side marker	Integrated led side marker.
Application	Suitable for Coach luggage flaps
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Springs	Stainless steel
Barrel & Key	Suitable with MO 043 & MO 044
Key Actuation	Manuel, electrical 12 V or 24 V, pneumatic .
Sleeping Cabin	Can be open inside, even locked from outside.
Latch Actuation	Automatic latch opening with pneumatic.



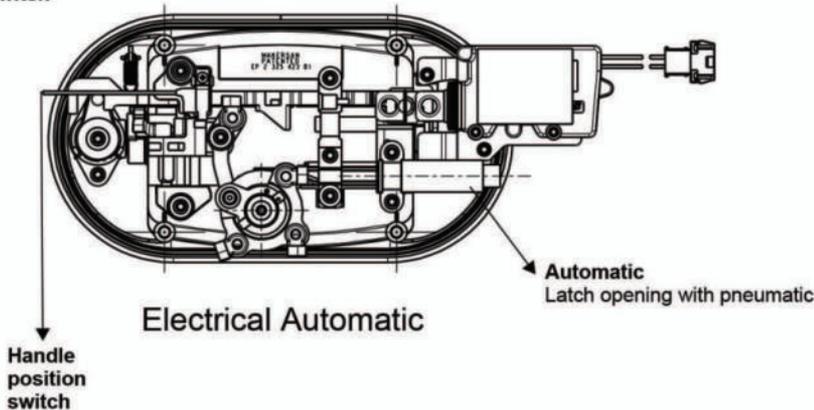
Without Sidemarker



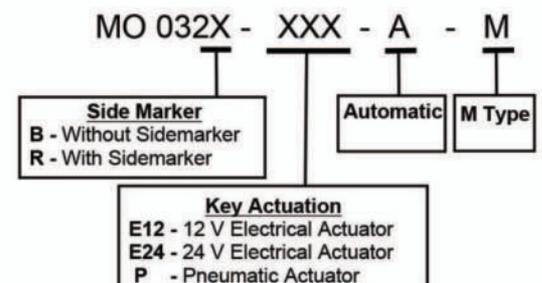
With Sidemarker



Pneumatic Automatic



Electrical Automatic



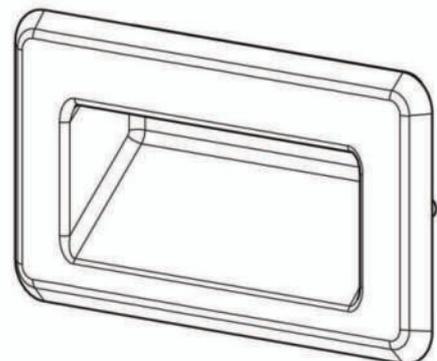
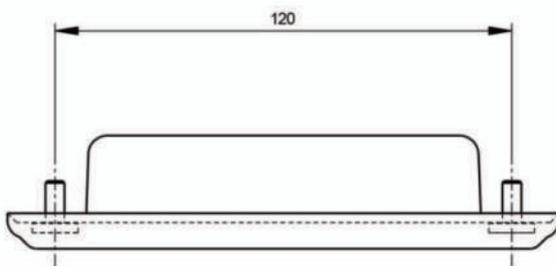
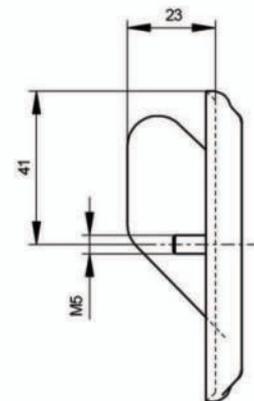
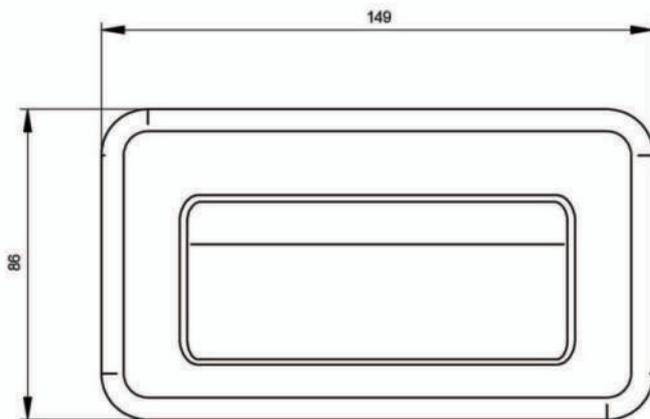
Note : Without cylinder and key.

Example: MO 032R-E12-A-M is Automatic M type MO032 with Reflection with 12 V electrical actuator.

HANDLE MO 027

Technical Data

Application	Recessed grip Suitable for Coach luggage flaps
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Connection	Two insert bolt
Corrosion resistance	504 hours salt mist resistant.
Weight	0,085 Kg.

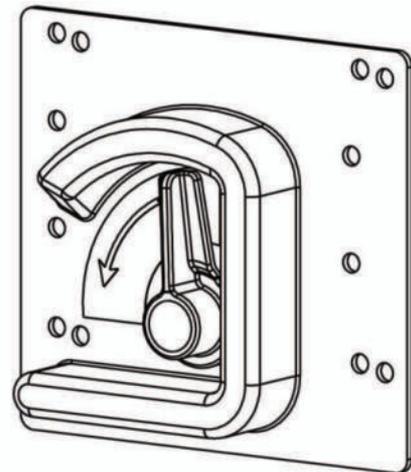
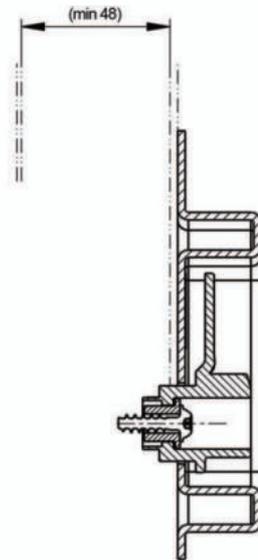
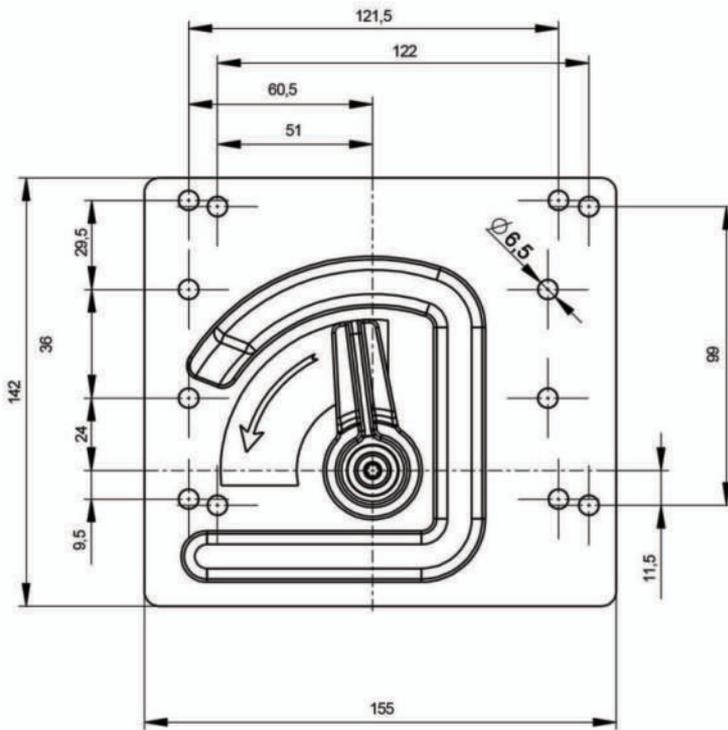


INSIDE OPENING FOR LUGGAGE COMP. LOCK MO 052



Technical Data

Application	Inside opening luggage flaps
Housing material	Black polyamid 30 % GF reinforced.
UV	UV stabilized
Weight	0,130 Kg.
Corrosion resistance	504 hours salt mist resistant.
Sleeping Cabin appl.	Suitable with MO 021, MO 022, MO 023, MO 024, MO 032



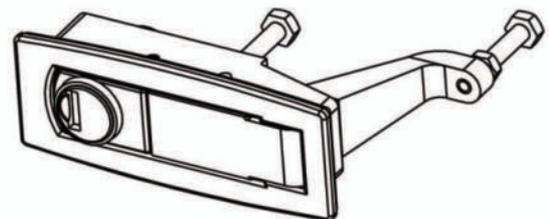
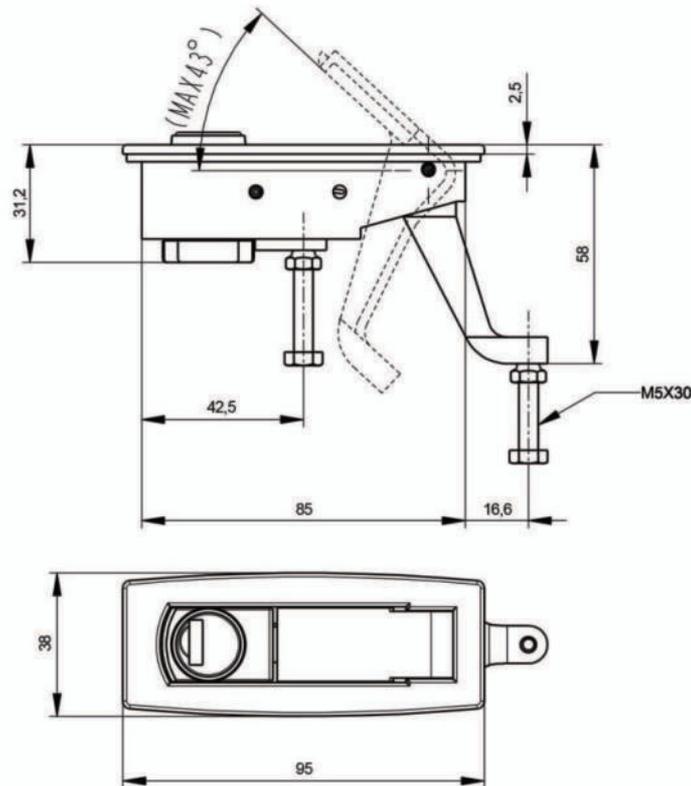
Note : To be ordered separately with MO021, MO022, MO023, MO024 and MO032

ENGINE COVER LOCKS MO 036



Technical Data

Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Corrosion resistance	504 hours salt mist resistant
Barrel & Key	Suitable with MO 043 & MO 044
Weight	0,075 Kg.

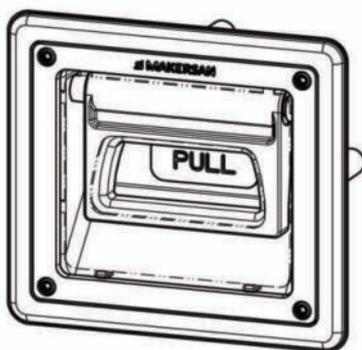
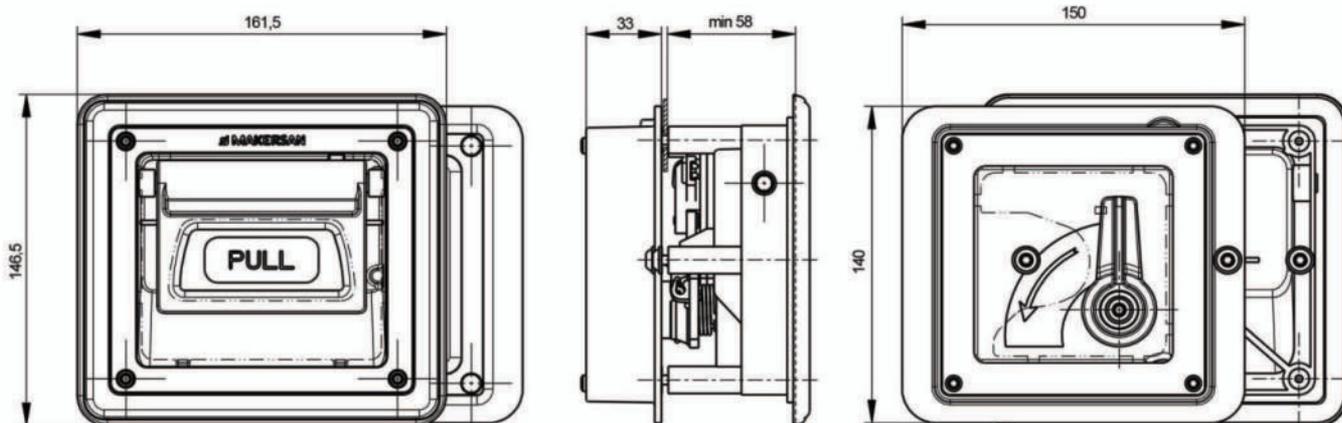


Note : Barrel is included, key MO 044 must be ordered separately

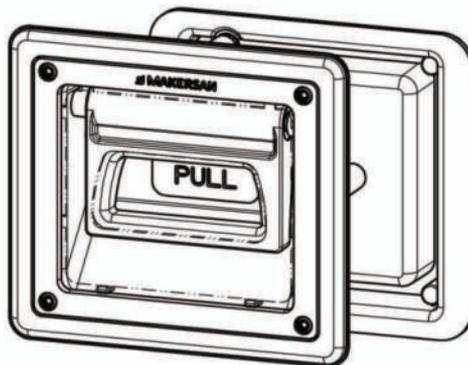
EXIT DOOR HANDLE MO 038

Technical Data

Application	Exit doors
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Springs	Stainless steel



MO 038 - 01
Outside Exit
Door Handle



MO 038
Two Sided Exit
Door Handle

MO 038 - XX

Side Options
- Two Sided Exit Door Handle
01 - Outside Exit Door Handle

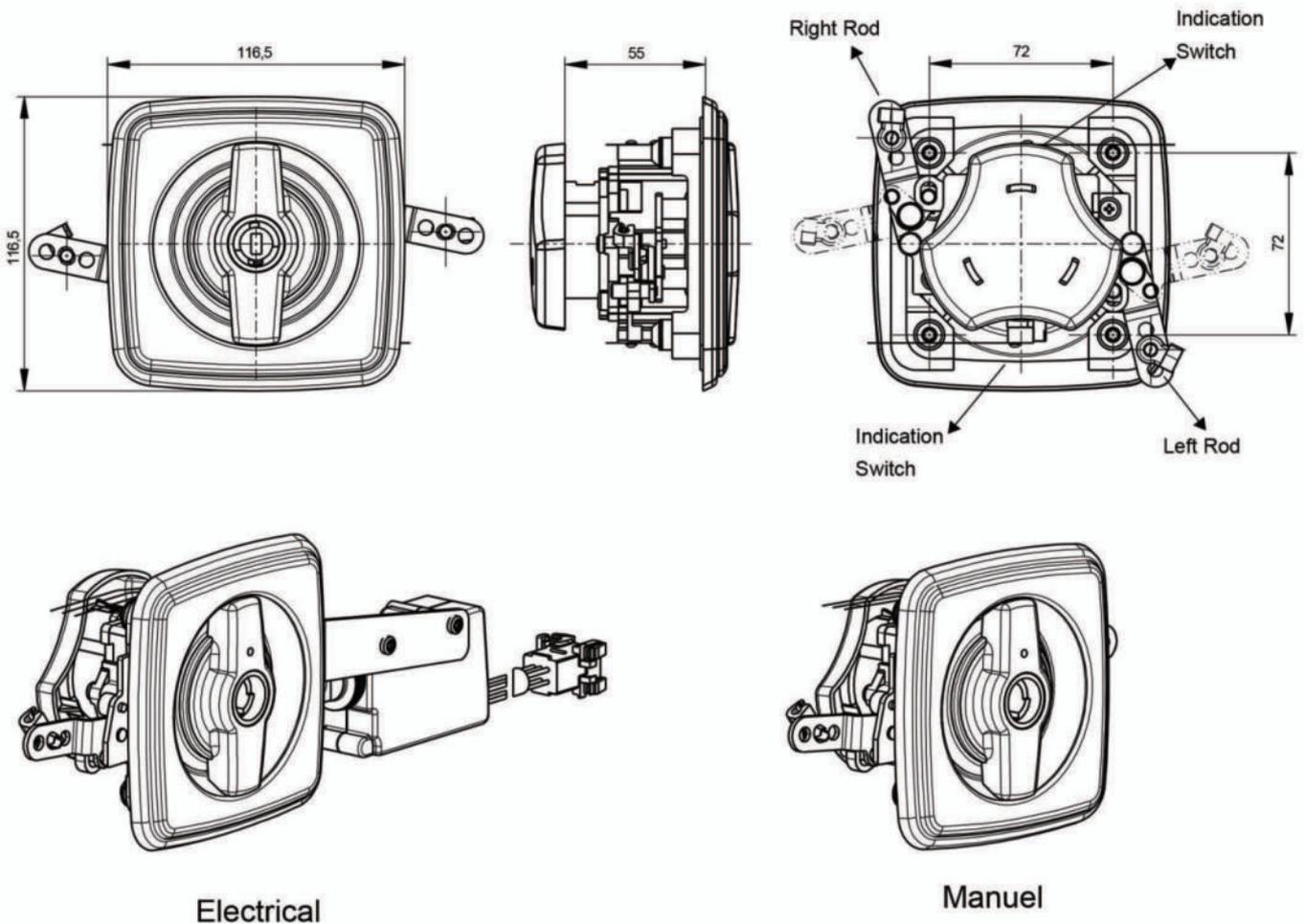
Example: MO 038-01 is only outside exit door handle.

OUTWARD SWINGING DOOR LOCKS MO 033



Technical Data

Application	Suitable for Coach passenger doors
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Weight	0,395 Kg.
Option	Indication microswitch option is available.



MO 033 - X - X - EXX - X

Rod Type L- Left R- Right D- Double	Indication Switch 0 - Without 1 - With one switch 2 - With two switches	Actuation - Manuel E12 - 12 V Electrical Actuator E24 - 24 V Electrical Actuator	Rotation from Inside 0- Block 1- Free
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Note : Without cylinder and key.

Drawing is MO033-D-2.

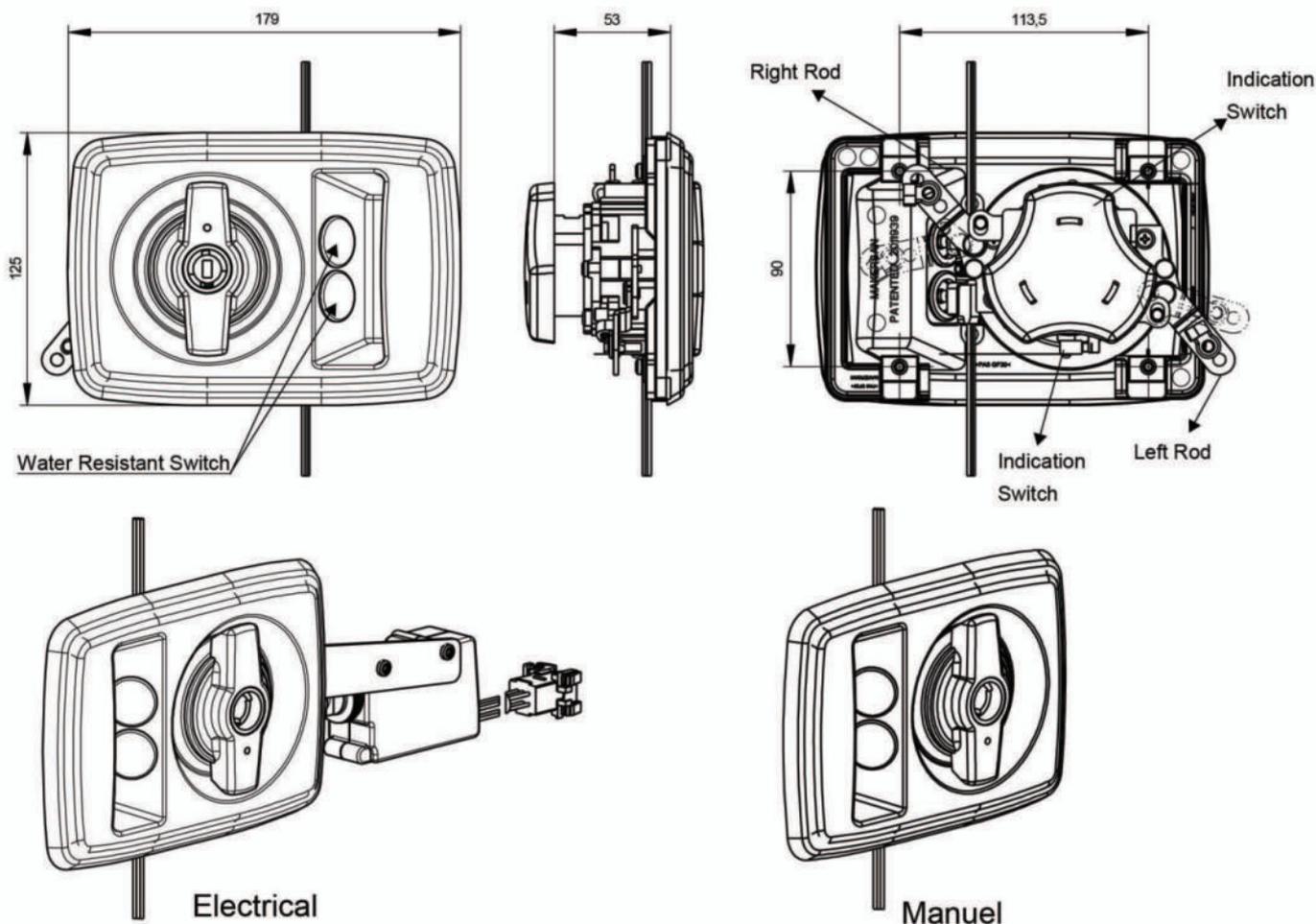
Example: MO 033-L-1-E12 is Left rod type, with 1 indication switch, 12 V actuator and block rotation from inside.

OUTWARD SWINGING DOOR LOCKS MO 047



Technical Data

Application	Suitable for Coach passenger doors
Housing material	Black polyamid 30 % GF reinforced
Sealing	EPDM rubber seal
UV	UV stabilized
Design	Patented mechanism.
Corrosion resistance	504 hours salt mist resistant.
Weight	0,430 Kg.
Option	Indication microswitch option is available. Single or double outside push switch option is available.



MO 047	-	X	-	X	-	X	-	EXX	-	X
Rod Type	Indication Switch	Outside Water Res. Switch	Actuation	Rotation from Inside						
L- Left R- Right D- Double	0- Without 1 - With one switch 2 - With two switches	0 - Without 1 - With one switch 2 - With two switches	E12 - 12 V Electrical Actuator E24 - 24 V Electrical Actuator	- Block 1- Free						

Note : Without cylinder and key.

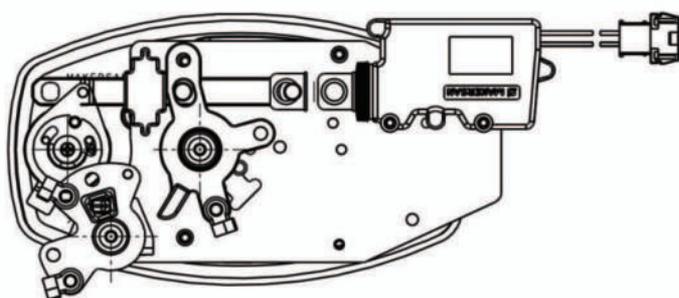
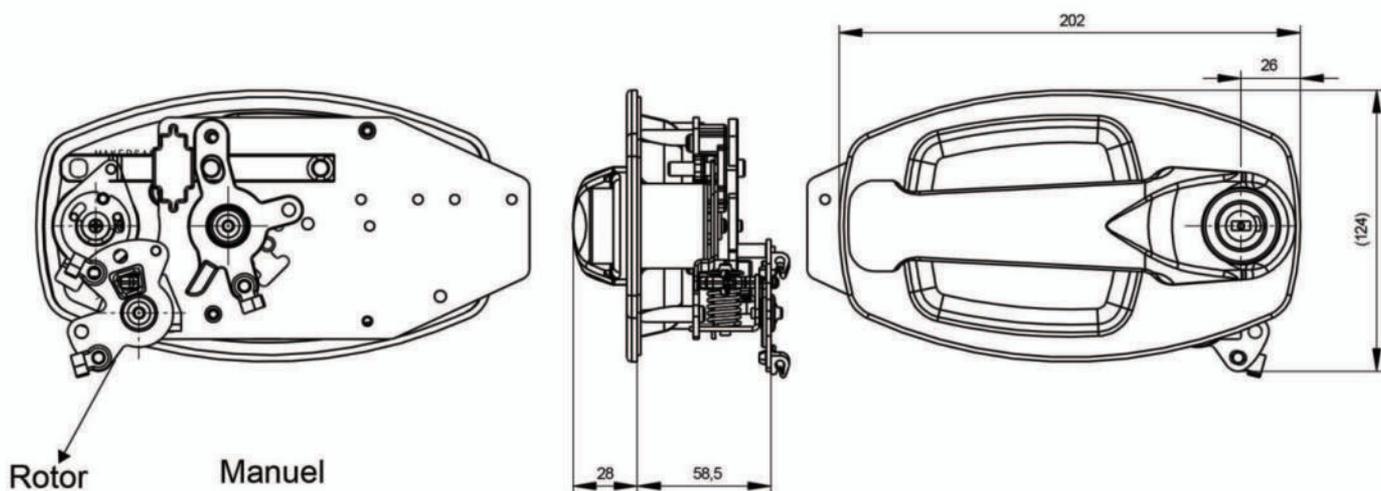
Drawing is MO047-D-2-2.

Example: MO 047-L-1-1-E12 is Left rod type, with 1 indication switch, with 1 water resistance switch, 12 V actuator and block rotation from inside.

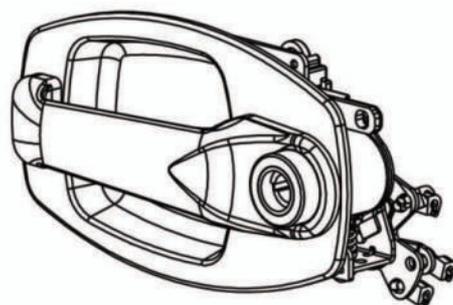
DOOR HANDLE MO 028

Technical Data

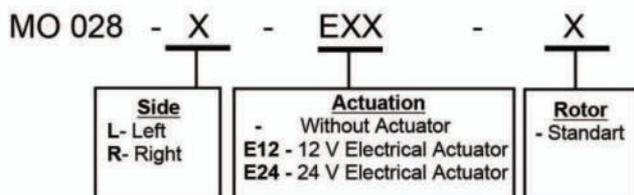
Application	Door Handle
Working principle	Push button system.
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Corrosion resistance	504 hours salt mist resistant.
Barrel & Key	Suitable with MO 043 & MO 044
Weight	0,690 Kg.



Electrical



MO028-L



Note : Without cylinder and key.

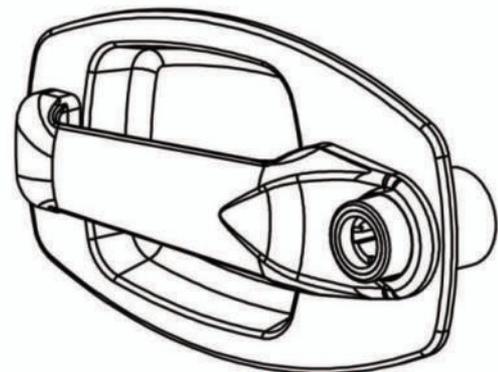
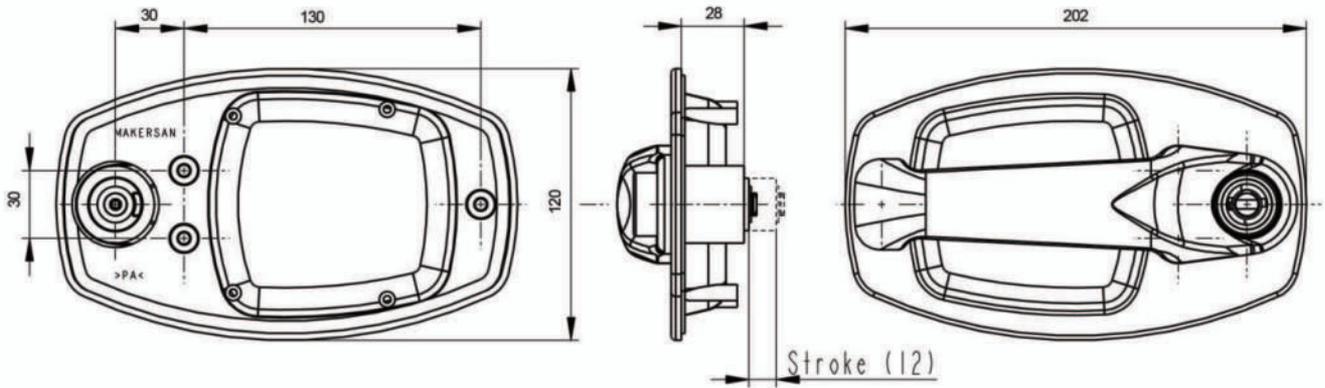
Drawing is MO028-L.

Example: MO 028-L-E12 is MO028 left side, with 12 V electrical actuator and standart rotor.

DOOR HANDLE MO 026

Technical Data

Application	Door Handle
working principle	Push button system.
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Corrosion resistance	504 hours salt mist resistant.
Barrel & Key	Suitable with MO 043 & MO 044
Weight	0,210 Kg.

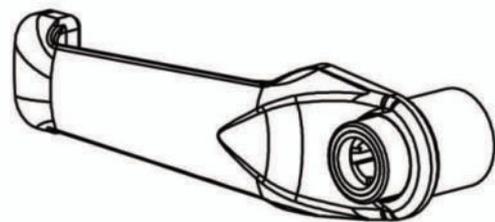
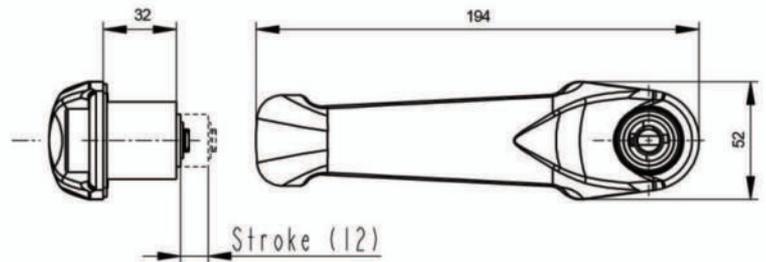
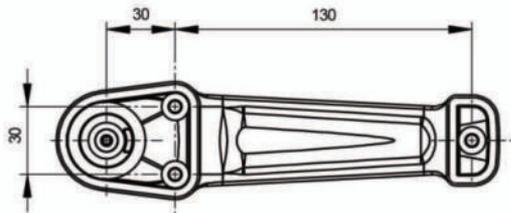


Note : Without cylinder and key.

DOOR HANDLE MO 026-01

Technical Data

Application	Door Handle
Working principle	Push button system.
Housing material	Black polyamid 30 % GF reinforced.
Sealing	EPDM rubber seal
UV	UV stabilized
Corrosion resistance	504 hours salt mist resistant.
Barrel & Key	Suitable with MO 043 & MO 044
Weight	0,110 Kg.

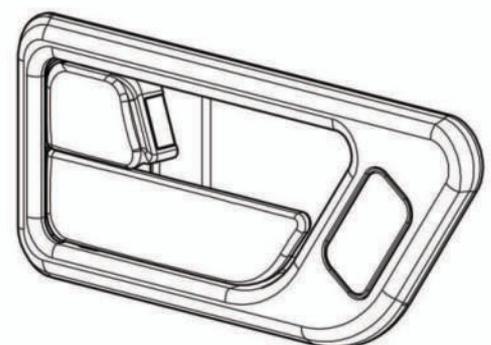
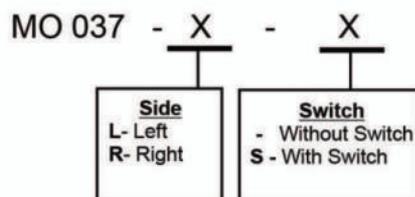
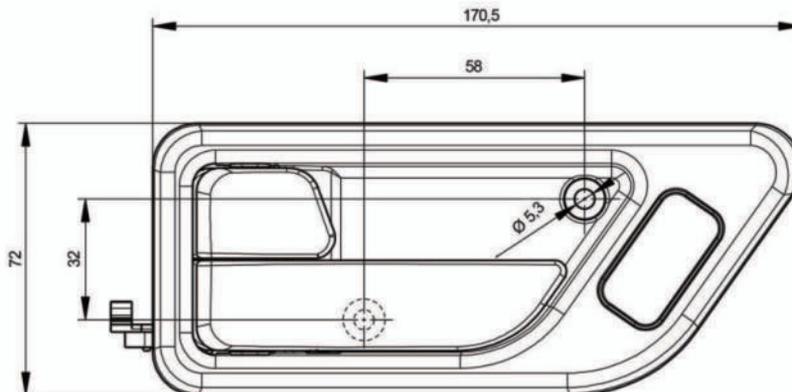


Note : Without cylinder and key.

DOOR INSIDE OPENING HANDLE MO 037

Technical Data

Application	Door inside opening.
Housing material	Black polyamid 30 % GF reinforced.
UV	UV stabilized
Corrosion resistance	504 hours salt mist resistant.
Door application	Suitable with MO 028
Options	Left and right with and without switch

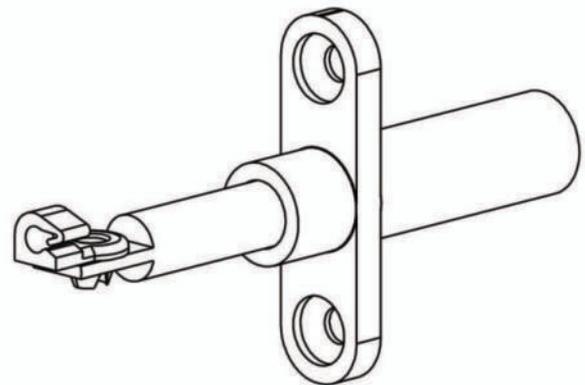
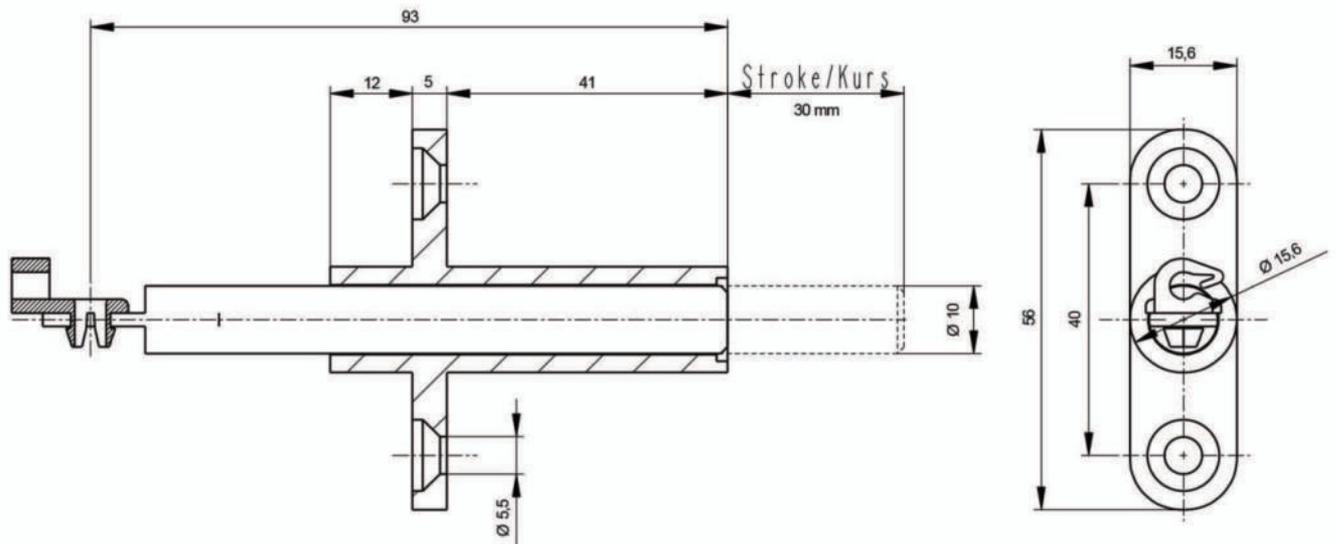


Drawing is MO037-L.

LOCKING PIN MO 057

Technical Data

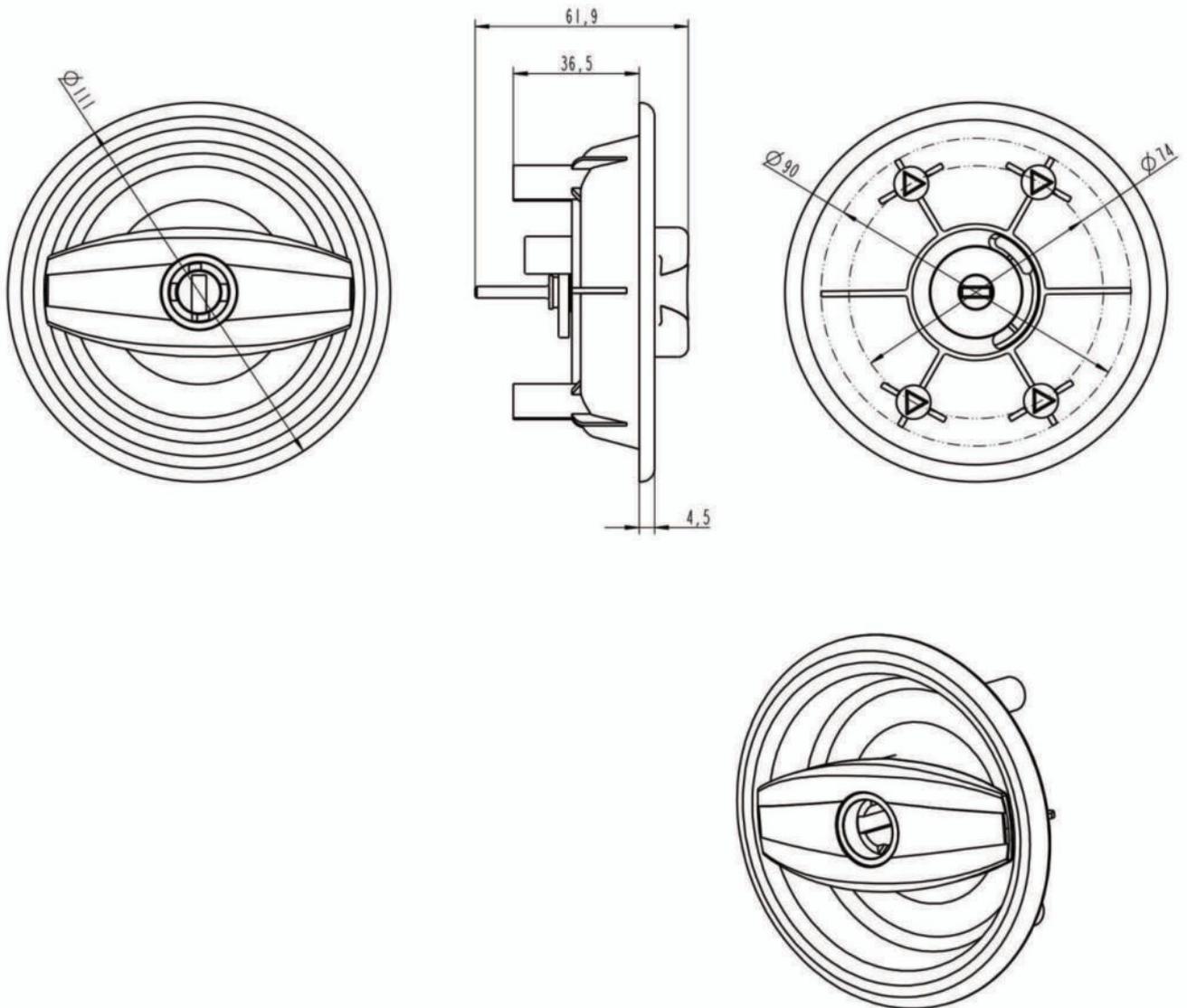
Application	Passenger door bolt lock.
Pin Material	Metal
Paint	KTL black
Housing Material	Black polyamid 30 % GF reinforced.
Protection	504 hours salt mist resistant.
Weight	0,065 Kg.



PARTITION DOOR HANDLE MO 080

Technical Data

Application	Suitable for door and compartment application
Housing material	Black polyamid
Sealing	EPDM seal
UV	UV stabilized
Design	Patented mechanism.
Springs	Stainless steel
Barrel & Key	Suitable with MO 043 & MO 044
Weight	0,120 Kg.
Compatible Locks	MO 080-01, MO 080-02

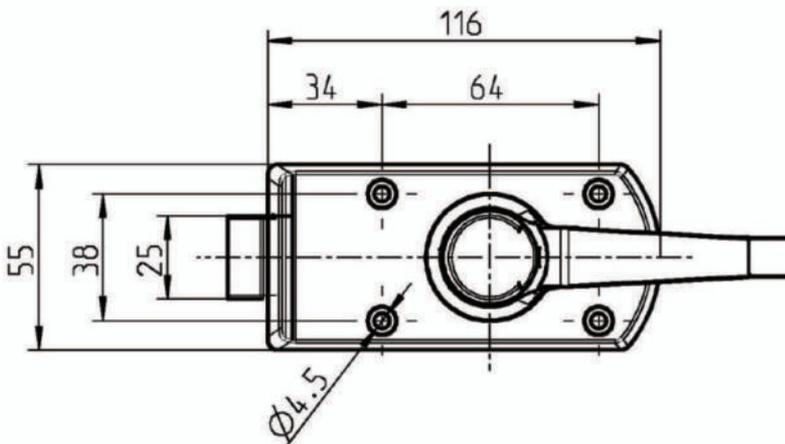
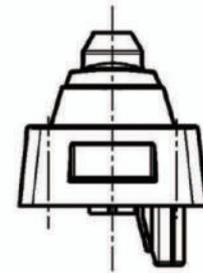
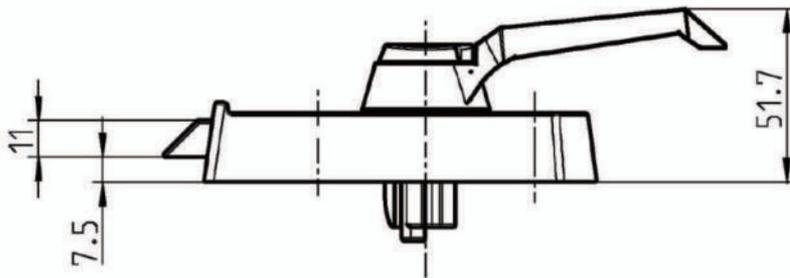


Note : Without cylinder and key.

PARTITION DOOR LOCK MO 080-02

Technical Data

Application	Suitable for door and compartment application
Housing material	Black polyamid
Sealing	EPDM seal
UV	UV stabilized
Design	Patented mechanism.
Springs	Stainless steel
Weight	0,102 Kg.
Compatible Handle	MO 080
Option	Indication micro switch option is available

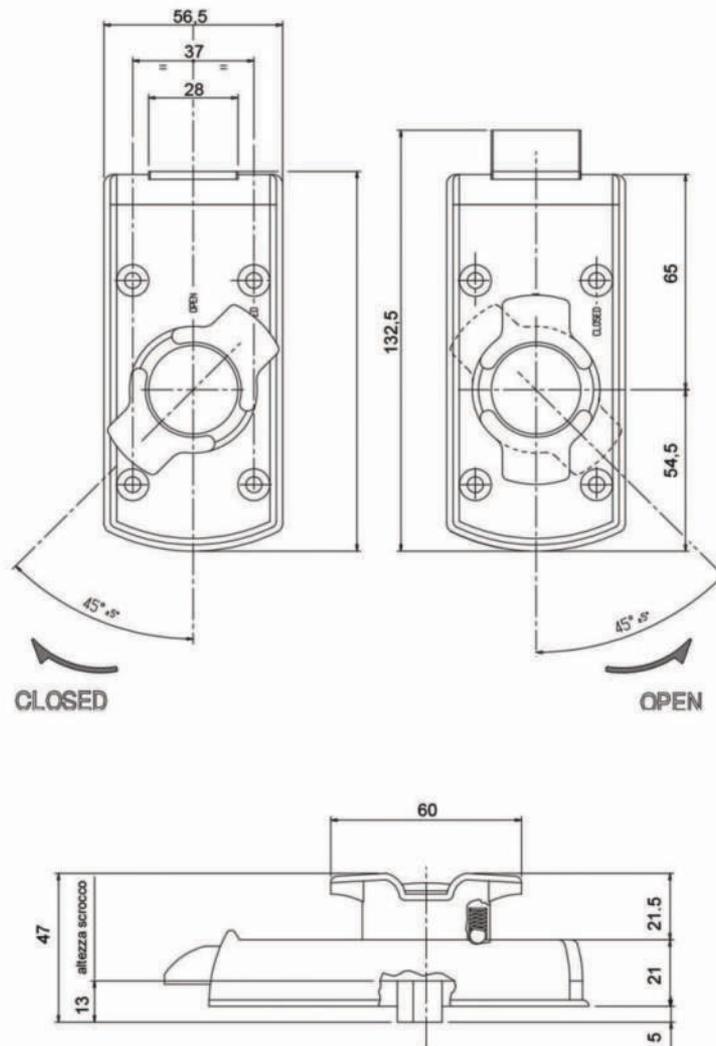


PARTITION DOOR LOCK MO 080-03



Technical Data

Application	Suitable for door and compartment application
Housing material	Black polyamid
Sealing	EPDM seal
UV	UV stabilized
Design	Patented mechanism.
Springs	Stainless steel
Weight	0,102 Kg.
Compatible Handle	MO 080
Option	Indication micro switch option is available



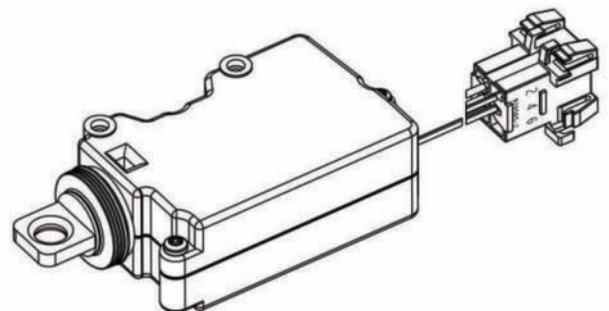
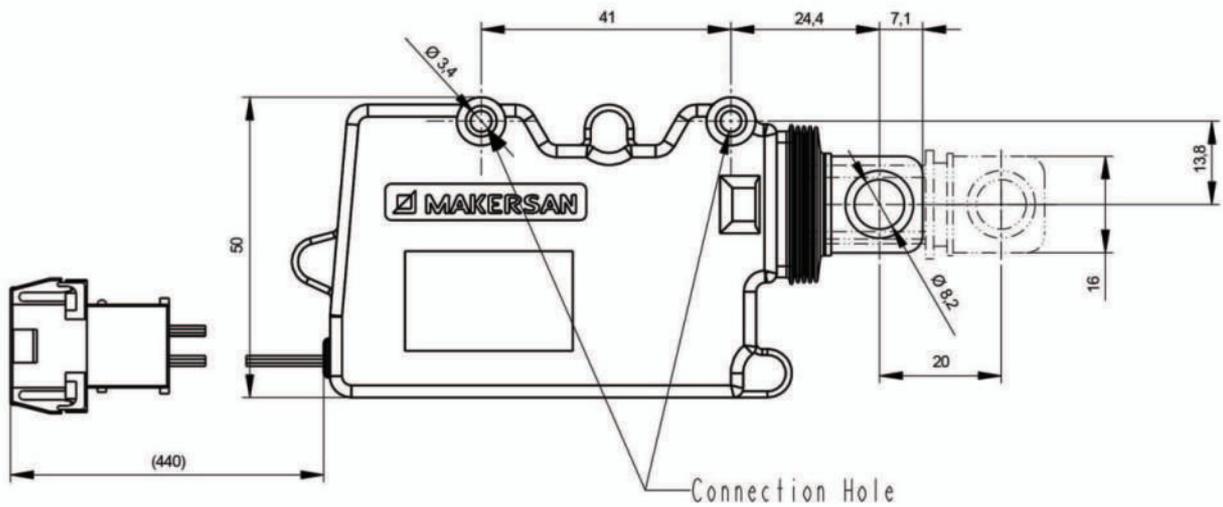
ACTUATOR MO 055



Technical Data

Rated Voltage	12V or 24V
Operating Temp.	-30°C ... +80°C
Actuating Force	≥ 25N
Weight	0.15 kg
Economic Life Time	50000 Cycles
Connector *	Without connector AMP 928161-2 connector
Protective Rating	IP54 Actuator housing
Housing Material	% 30 GF reinforced polyamide plastic case
Application	Suitable for door latches, trunk lids, and lift gates
Design	Durable construction for long service life
Linear Motion	20mm stroke
Components	Highest quality DC motor and micro switches

* Different types and values can be produced on request.



MO 055	-	XX	-	X	-	X	-	X
		Motor Type		Micro Switch Type		Connector Type		Force
		12- 12 V 24- 24 V		0 - Without micro switch 1 - With micro switch		0 - Without Connector 1 - AMP 928161-2 connector		- 25 N K- 50 N

* Different types and values can be produced on request.

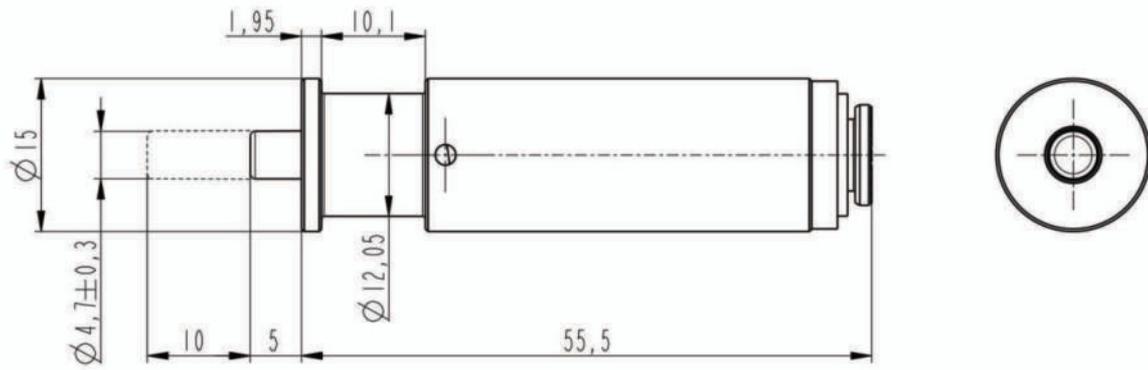
Example: MO 055-24-1-1 is 24 V motor type, with micro switch, AMP 928161-2 connector.

PNEUMATIC ACTUATOR MO 100



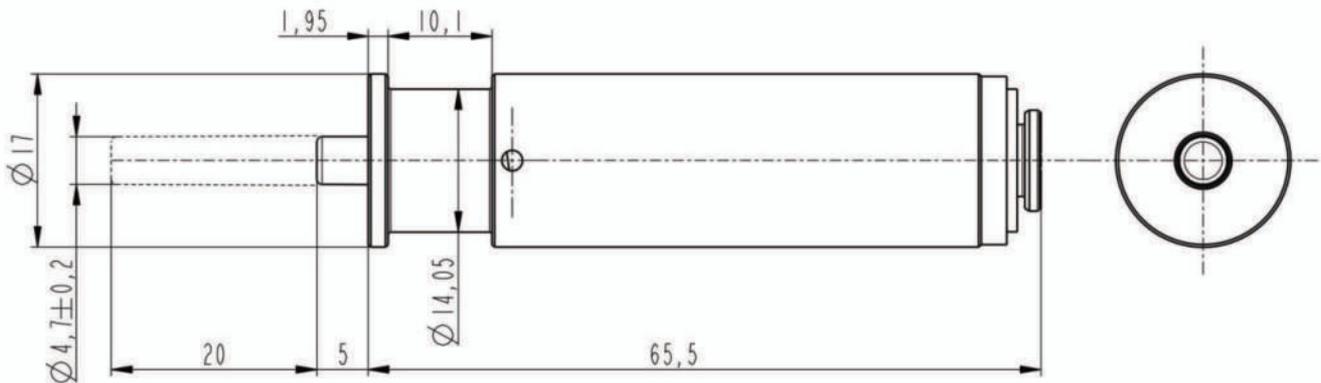
Technical Data

Pipe	Ø6 mm
Piston Dia.	Ø12 / Ø14 mm
Operating Temp.	-30°C ... +80°C
Economic Life Time	60.000 Cycles
Application	Suitable for door latches, trunk lids, and lift gates
Design	Durable construction for long service life
Linear Motion	10 / 20 mm stroke
Function	Single action
Working Pressure	5 - 7,5 Bar



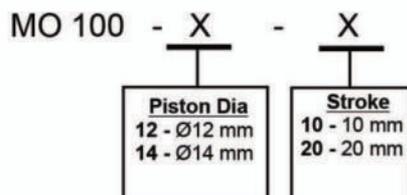
MO 100-12-10

Piston Dia : Ø12 mm
Stroke : 10 mm



MO 100-14-20

Piston Dia : Ø14 mm
Stroke : 20 mm



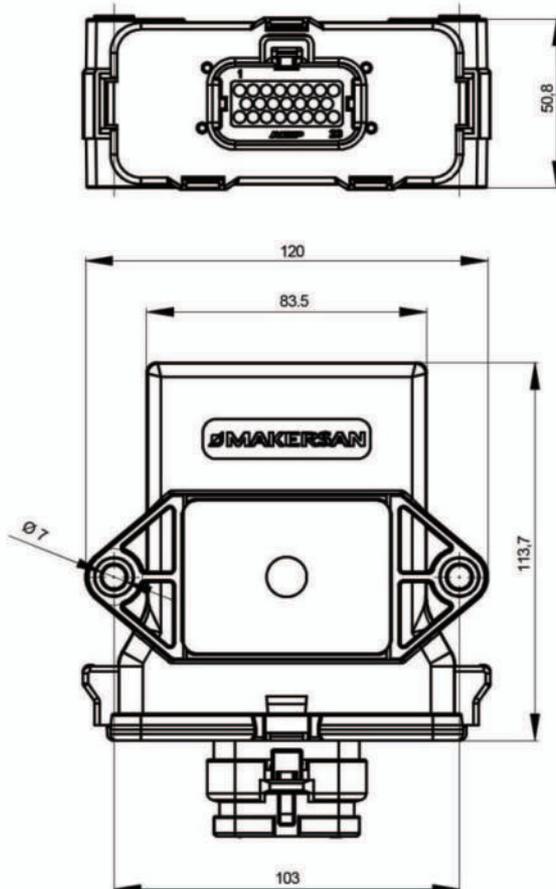
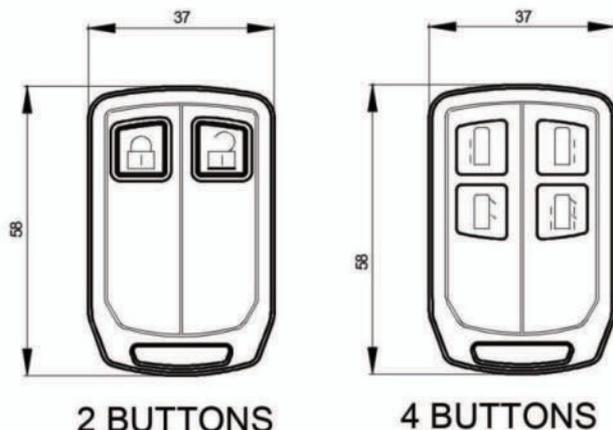
Note : Only two options available. MO 100-12-10 and MO 100-14-20.

REMOTE KEYLESS ENTRY with CAN Bus MO 651 H3X



Technical Data

Features Security	Three zone (with external relays) secure access control Secure code transmission with code rolling technology that eliminates the risk of code grabbing
Communication Frequency	CAN Bus (SAE J1939) 433.92 MHz
Supply Voltage	8(12)-32V
Operating Temp.	Receiver : -40°C ... +80°C Transmitter : -30°C ... +70°C
Electrical Protection	Over-voltage protection
Ingress Protection	IP67 sealed
Housing Material	% 30 GF reinforced polyamid plastic case
Battery	CR 2032 lithium battery
Connector	23 pin Tyco Seal Connector
Application	Suitable for door latches, trunk lids, and lift gates



MO 651 - H3X - S1X

Supply & Output
H30-S10 - Supply 8(12)-32 V Standart *
H31-S10 - Supply 8(12)-32 V Extended **

* 1 zone control & CAN

** 1 zone control + 2 zone control with external relays & CAN

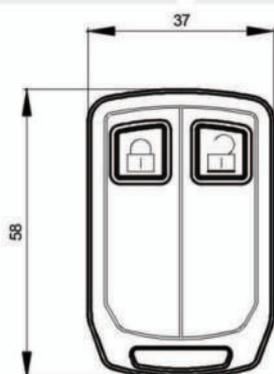
Example: MO 651-H30-S10 is 1 zone control RKE module with SAE J1939 interface .

REMOTE KEYLESS ENTRY with CAN Bus MO 651 H4X

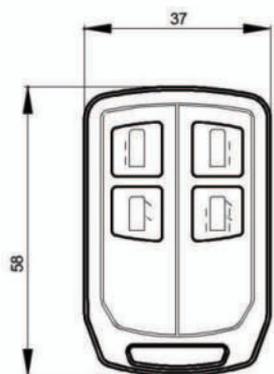
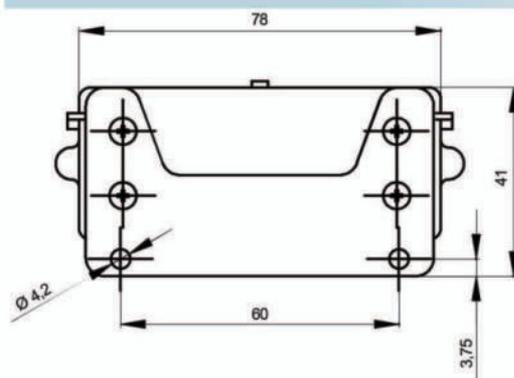
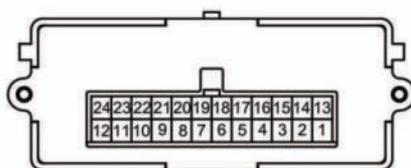


Technical Data

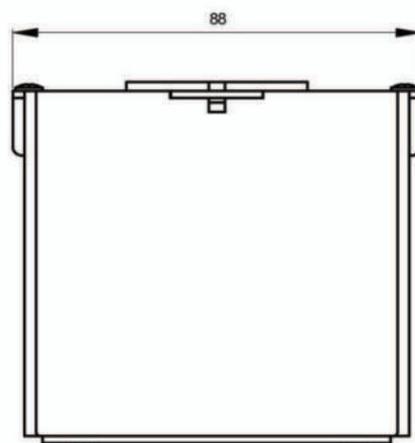
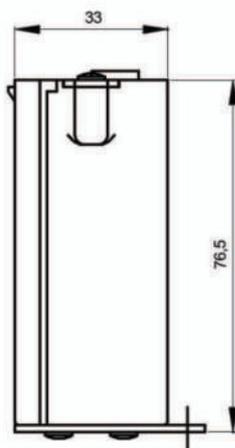
Features Security	Three zone (with external relays) secure access control Secure code transmission with code rolling technology that eliminates the risk of code grabbing
Communication Frequency	CAN Bus (SAE J1939) 433.92 MHz
Supply Voltage	8(12)-32V
Operating Temp.	Receiver : -40°C ... +80°C Transmitter : -30°C ... +70°C
Electrical Protection	Over-voltage protection
Housing Material	% 30 GF reinforced polyamid plastic case
Battery	CR 2032 lithium battery
Connector	24 pin connector
Application	Suitable for door latches, trunk lids, and lift gates



2 BUTTONS



4 BUTTONS



MO 651 - H4X - S1X

Supply & Output
H40-S10 - Supply 8(12)-32 V Standart *
H41-S10 - Supply 8(12)-32 V Extended **

* 1 zone control & CAN

** 1 zone control + 2 zone control with external relays & CAN

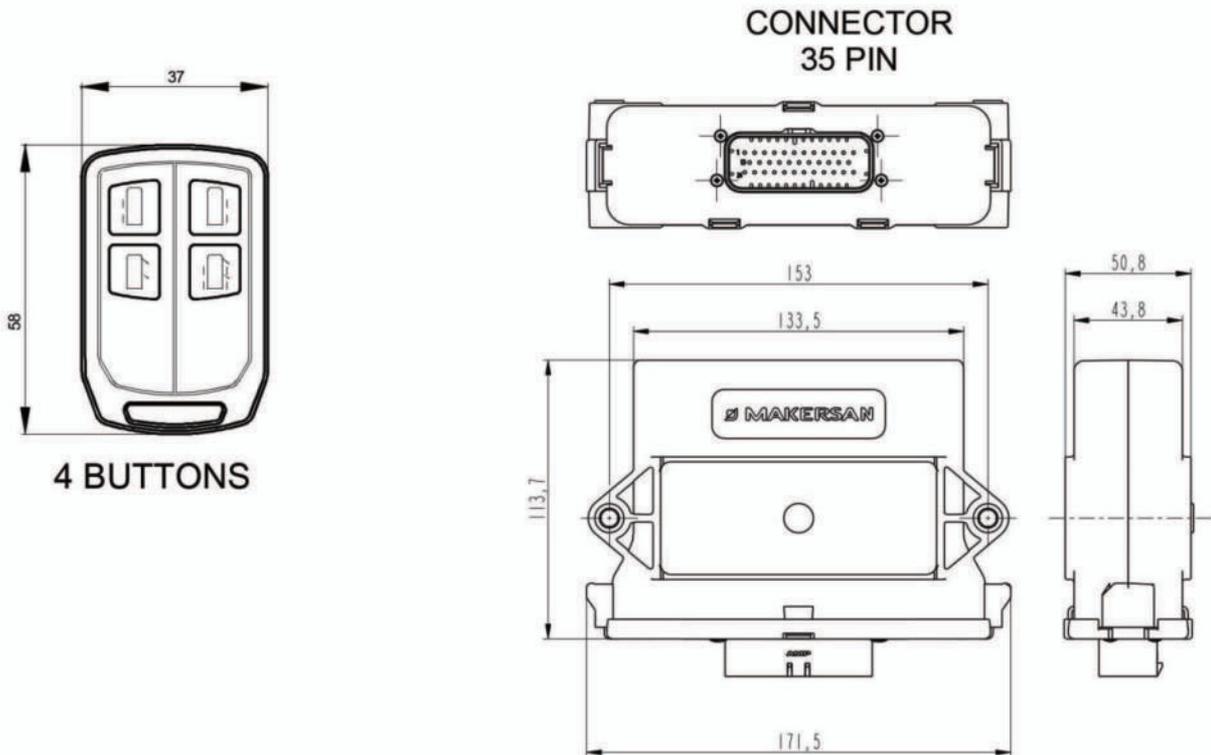
Example: MO 651-H40-S10 is 1 zone control RKE module with SAE J1939 interface .

REMOTE KEYLESS ENTRY with CAN Bus MO 651 H5X



Technical Data

Features Security	Three zone secure access control Secure code transmission with code rolling technology that eliminates the risk of code grabbing
Communication Frequency	CAN Bus (SAE J1939) 433.92 MHz
Rated Voltage	12V or 24V
Operating Temp.	Receiver : -40°C ... +80°C Transmitter : -30°C ... +70°C
Electrical Protection	Over-voltage protection
Ingress Protection	IP67 sealed
Housing Material	% 30 GF reinforced polyamid plastic case
Battery	CR 2032 lithium battery
Connector	35 pin Tyco connector
Application	Suitable for door latches, trunk lids, and lift gates



MO 651 - H5X - S1X

Supply & Output
H50-S10 - Supply 12 V *
H51-S10 - Supply 24 V *

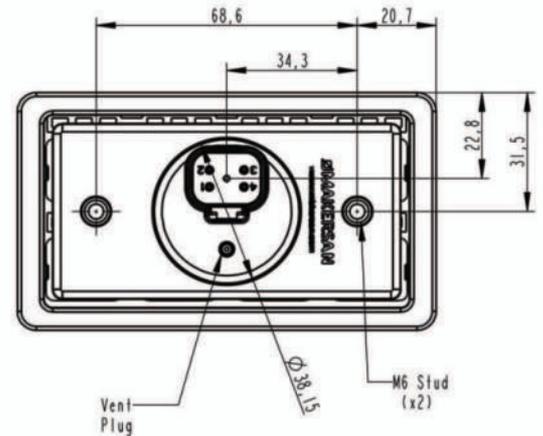
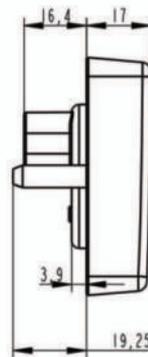
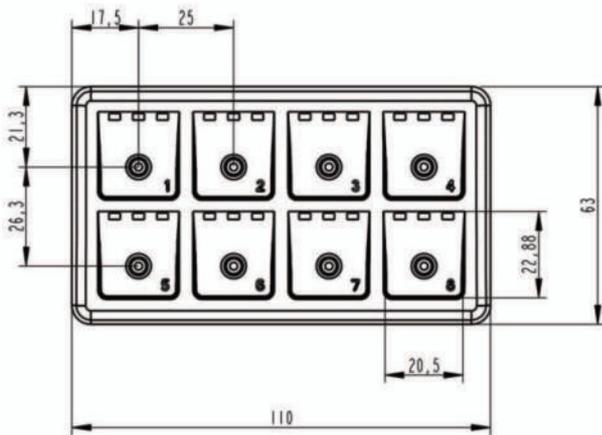
* 3 zone control & CAN

Example: MO 651-H50-S10 is 3 zone control RKE module with 12 V supply voltage and SAE J1939 interface .

KEYPADS MO 405 H1X

Technical Data

Type	2x4 Key Combination
Lifetime	Up to 1 million cycles per key
Operating Temp.	-40C° ... +85C°
Protection	Sealed to IP67
Supply Voltage	8-32V
Supply Current	50 mA at 24V (typical)
Overvoltage Protect.	Up to 36V
Features	SAE J1939, CANopen and Modbus versions Vibration and impact resistant Dimmable LED indicators and legends Up to 3 LED indicators per key Programmable parameters
Options	Custom legends and configurations available Custom keytop legends Indicators colors : Red (default) Custom backlight colors : Blue (default)



MO 405 - H1XS1X - LXXX

Electronic Config
H10.S10- KP2x4 Supply : 8-32V / Output : SAE J1939
H10.S11- KP2x4 Supply : 8-32V / Output : CANopen
H11.S12- KP2x4 Supply : 8-32V / Output : Modbus

* Legend Config

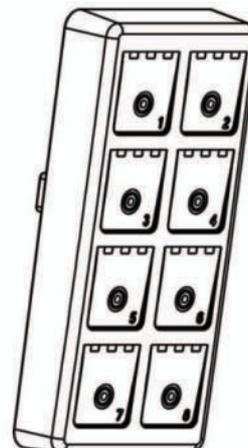
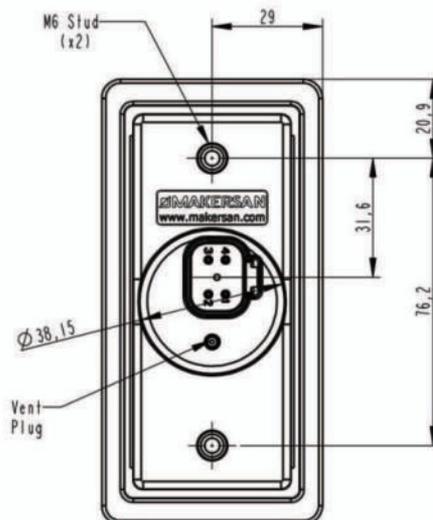
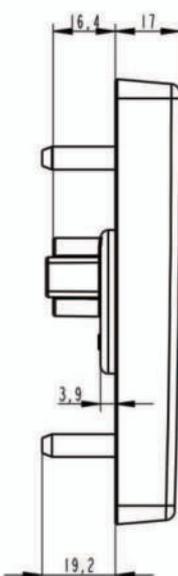
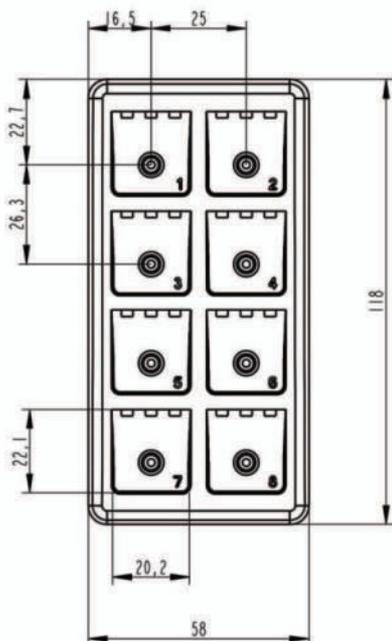
* Legend L001 is standard, other symbols are available upon request with minimum order quantity.

Example: MO 405 - H10S10 - L001 Keypad - KP2x4 S:8 - 32V / O: SAE J1939 - L001 Legend

KEYPADS MO 405 H2X

Technical Data

Type	4x2 Key Combination
Lifetime	Up to 1 million cycles per key
Operating Temp.	-40C° ... +85C°
Protection	Sealed to IP67
Supply Voltage	8-32V
Supply Current	50 mA at 24V (typical)
Overvoltage Protect.	Up to 36V
Features	SAE J1939, CANopen and Modbus versions Vibration and impact resistant Dimmable LED indicators and legends Up to 3 LED indicators per key Programmable parameters
Options	Custom legends and configurations available Custom keytop legends Indicators colors : Red (default) Custom backlight colors : Blue (default)



MO 405 - H2XS1X - LXXX

Electronic Config
H20.S10- KP4x2 Supply : 8-32V / Output : SAE J1939
H20.S11- KP4x2 Supply : 8-32V / Output : CANopen
H21.S12- KP4x2 Supply : 8-32V / Output : Modbus

* Legend Config

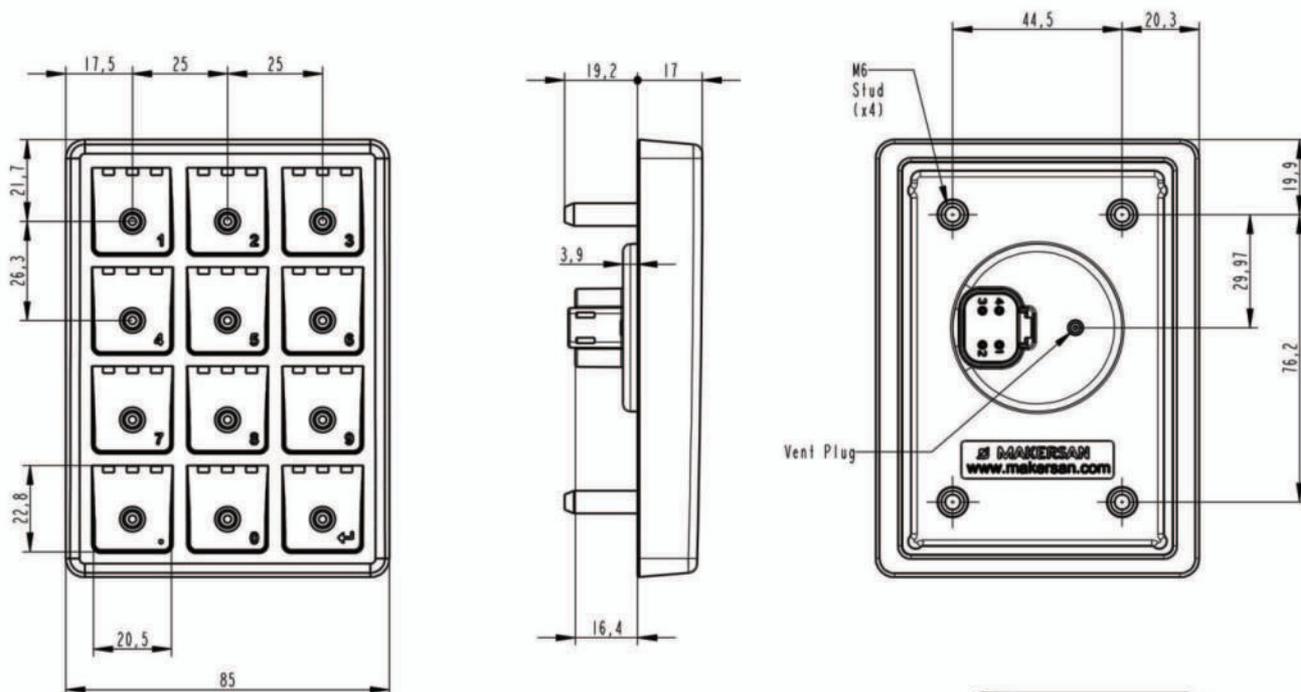
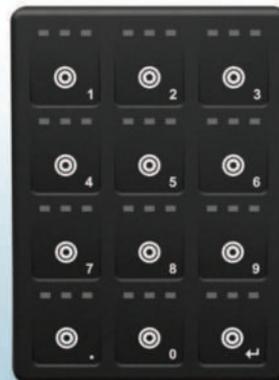
* Legend L001 is standard, other symbols are available upon request with minimum order quantity.

Example: MO 405 - H20S10 - L001 Keypad - KP4x2 S:8 - 32V / O: SAE J1939 - L001 Legend

KEYPADS MO 405 H3X

Technical Data

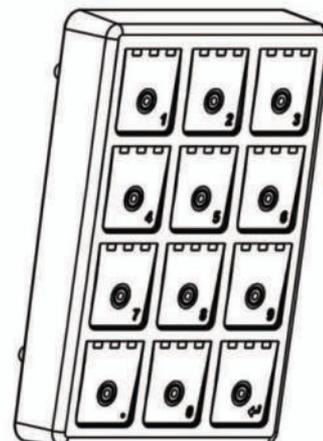
Type	4x3 Key Combination
Lifetime	Up to 1 million cycles per key
Operating Temp.	-40C° ... +85C°
Protection	Sealed to IP67
Supply Voltage	8-32V
Supply Current	70 mA at 24V (typical)
Overvoltage Protect.	Up to 36V
Features	SAE J1939, CANopen and Modbus versions Vibration and impact resistant Dimmable LED indicators and legends Up to 3 LED indicators per key Programmable parameters
Options	Custom legends and configurations available Custom keytop legends Indicators colors : Red (default) Custom backlight colors : Blue (default)



MO 405 - H3XS1X - LXXX

Electronic Config
H30.S10- KP4x3 Supply : 8-32V / Output : SAE J1939
H30.S11- KP4x3 Supply : 8-32V / Output : CANopen
H31.S12- KP4x3 Supply : 8-32V / Output : Modbus

*** Legend Config**



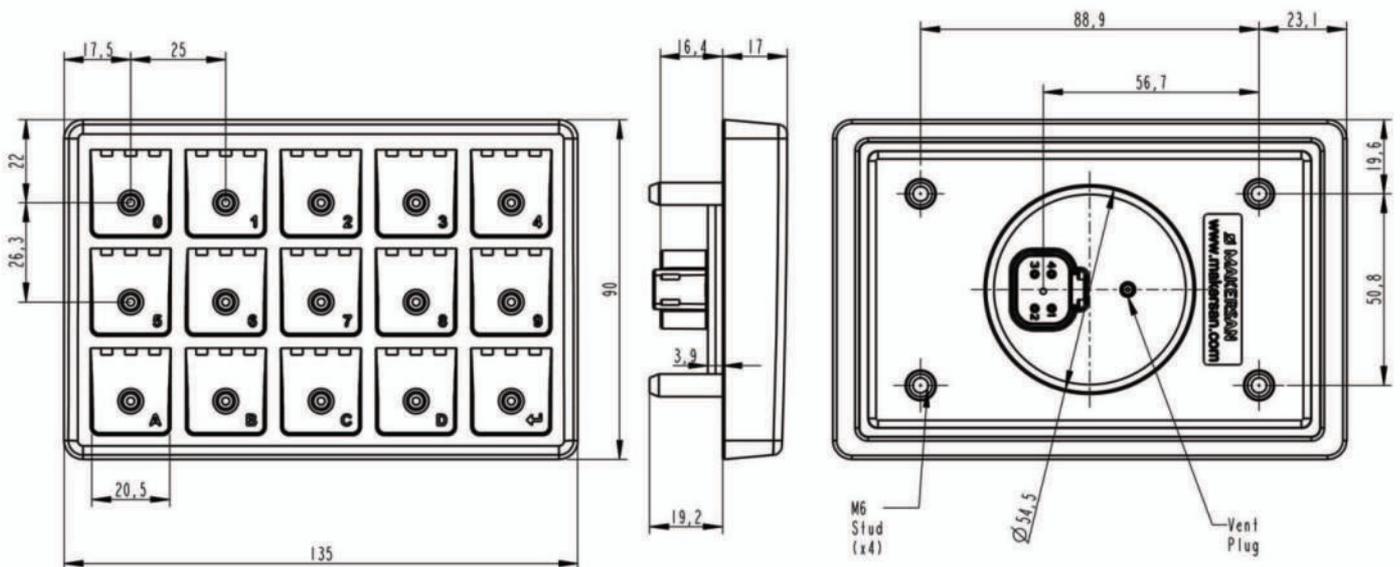
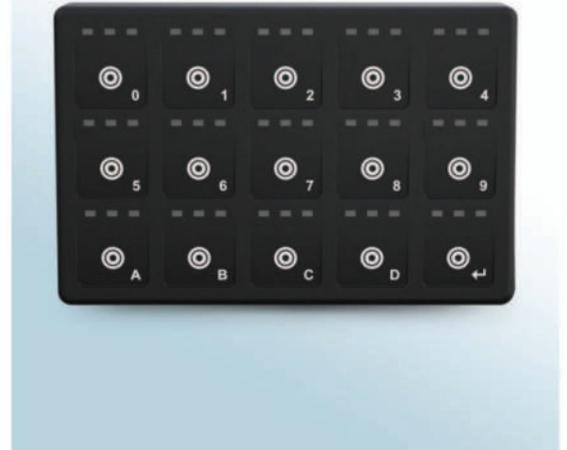
* Legend L001 is standard, other symbols are available upon request with minimum order quantity.

Example: MO 405 - H30S10 - L001 Keypad - KP4x3 S:8 - 32V / O: SAE J1939 - L001 Legend

KEYPADS MO 405 H4X

Technical Data

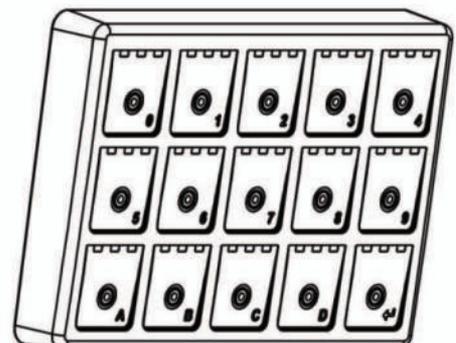
Type	3x5 Key Combination
Lifetime	Up to 1 million cycles per key
Operating Temp.	-40C° ... +85C°
Protection	Sealed to IP67
Supply Voltage	8-32V
Supply Current	80 mA at 24V (typical)
Overvoltage Protect.	Up to 36V
Features	SAE J1939, CANopen and Modbus versions Vibration and impact resistant Dimmable LED indicators and legends Up to 3 LED indicators per key Programmable parameters
Options	Custom legends and configurations available Custom keytop legends Indicators colors : Red (default) Custom backlight colors : Blue (default)



MO 405 - H4XS1X - LXXX

Electronic Config
H40.S10- KP3x5 Supply : 8-32V / Output : SAE J1939
H40.S11- KP3x5 Supply : 8-32V / Output : CANopen
H41.S12- KP3x5 Supply : 8-32V / Output : Modbus

* Legend Config



* Legend L001 is standard, other symbols are available upon request with minimum order quantity.

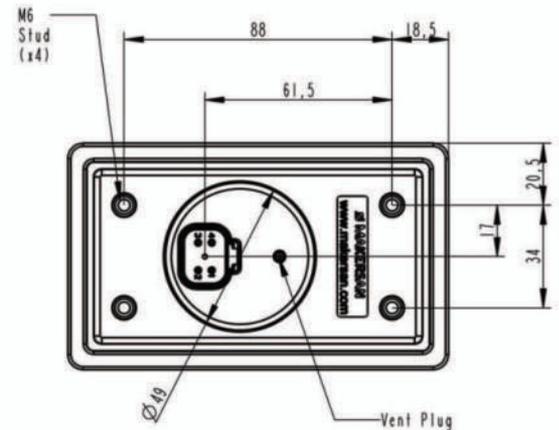
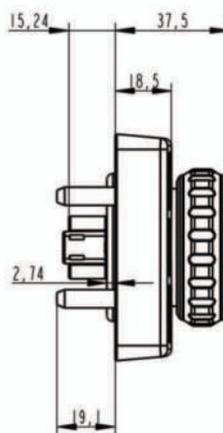
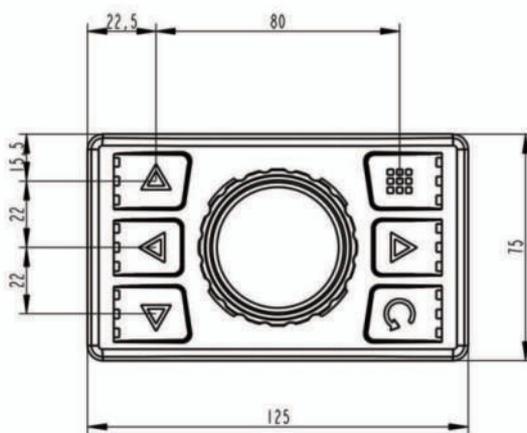
Example: MO 405 - H40S10 - L001 Keypad - KP3x5 S:8 - 32V / O: SAE J1939 - L001 Legend

JOYSTICK KEYPADS MO 406 H1X



Technical Data

Type	Rotary push/pull button knob with 6 quick-pick keys
Lifetime	Up to 1 million cycles per key
Operating Temp.	-40C° ... +85C°
Protection	Sealed to IP67
Supply Voltage	8-32V
Supply Current	80 mA at 24V (typical)
Overvoltage Protect.	Up to 36V
Features	SAE J1939, CANopen and Modbus versions Vibration and impact resistant Dimmable LED indicators and legends Up to 3 LED indicators per key Dimmable multicolor ring and backlight LED Programmable parameters and LED color
Options	Custom legends and configurations available Custom keytop legends Indicators colors : Red (default)



MO 406 - H1XS1X - LXXX

Electronic Config
H10.S10- Supply : 8-32V / Output : SAE J1939
H10.S11- Supply : 8-32V / Output : CANopen
H11.S12- Supply : 8-32V / Output : Modbus

* Legend Config

* Legend L001 is standard, other symbols are available upon request with minimum order quantity.

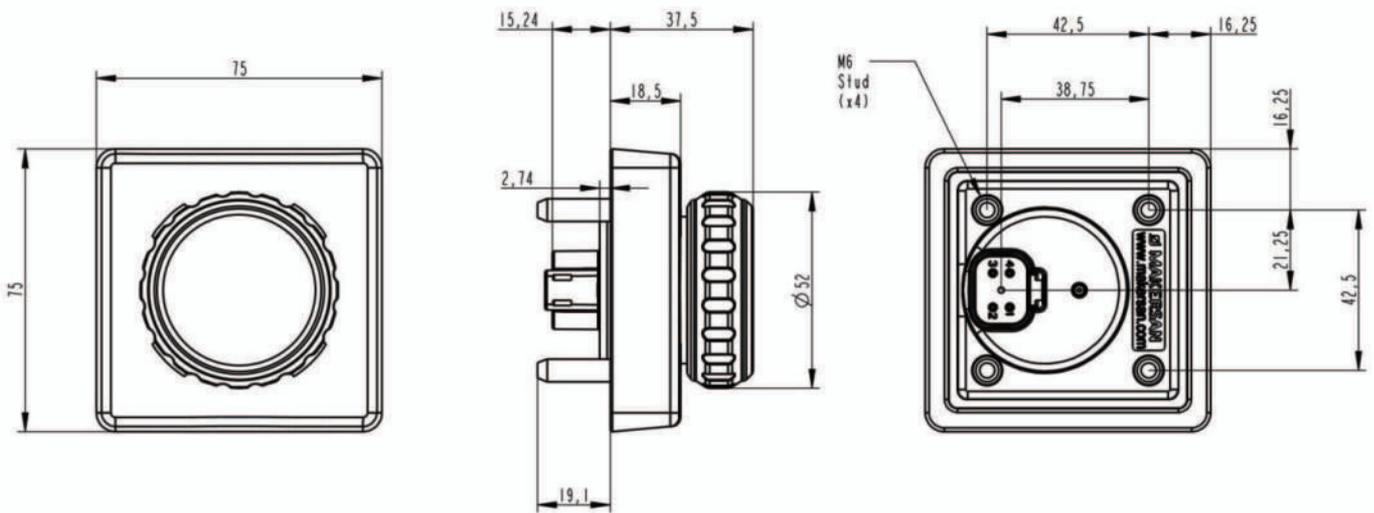
Example: MO 406 - H10S10 - L001 Joystick Keypad - S:8 - 32V / O: SAE J1939 - L001 Legend

JOYSTICK KEYPADS MO 407 H1X



Technical Data

Type	A rotary push/pull button knob
Lifetime	Up to 1 million cycles
Operating Temp.	-40C° ... +85C°
Protection	Sealed to IP67
Supply Voltage	8-32V
Supply Current	50 mA at 24V (typical)
Overvoltage Protect.	Up to 36V
Features	SAE J1939, CANopen and Modbus versions Vibration and impact resistant Dimmable multicolor ring LED Programmable parameters and LED color
Options	Custom configurations available



MO 407 - H1XS1X

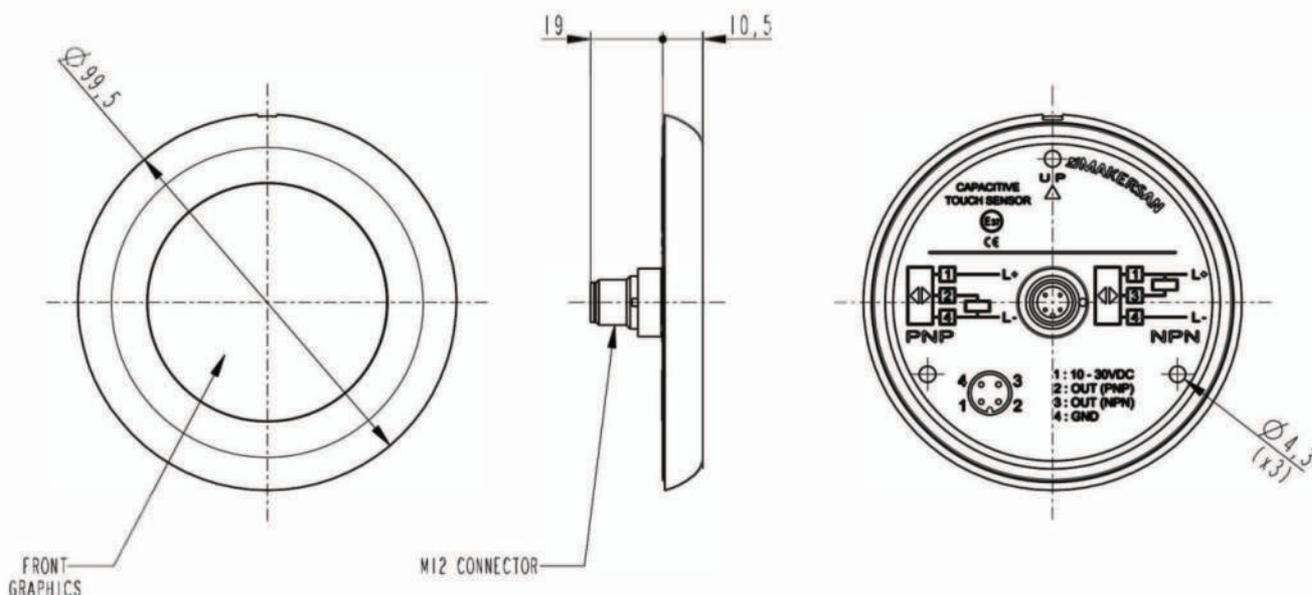
Electronic Config	
H10.S10-	Supply : 8-32V / Output : SAE J1939
H10.S11-	Supply : 8-32V / Output : CANopen
H11.S12-	Supply : 8-32V / Output : Modbus

Example: MO 407 - H10S10 Joystick Keypad - S:8 - 32V / O: SAE J1939

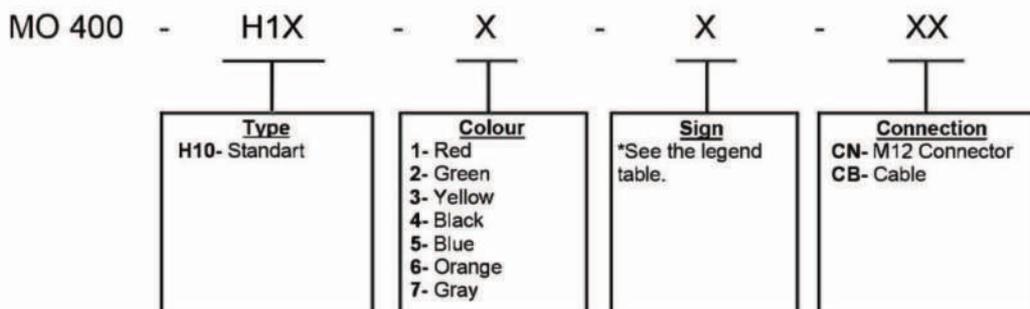
CAPACITIVE TOUCH BUTTON MO 400

Technical Data

Technology	Capacitive Touch Button, Switching through glass
Operation Force	Touch without force
Symbol	Different symbols available
Operating Temp.	-30 °C to +70 °C
Protection	IP67
Electrical Protection	Reverse Voltage, over-voltage, over-current
Life Test	1.000.000 cycle life test at 24V, 23°C %60 humidity
Connector	M12x1 - 4 pin connector
Supply Voltage	12-30V
Output	NPN & PNP , each 1A switch output (NO).



- | | | | | | | |
|-------------------|---------------------|----------------------|---------------------|--------------------|----------------------|--------------------|
| | | | | | | |
| 1-Red
RAL 3001 | 2-Green
RAL 6010 | 3-Yellow
RAL 1023 | 4-Black
RAL 9005 | 5-Blue
RAL 5005 | 6-Orange
RAL 2010 | 7-Gray
RAL 7043 |



Example: MO 400.H10.R.H.CN is standart, red, hand and M12 connector type.

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