




# LOCK-INSTALLATION MANUAL

Version 2.0    Edition 2022



This manual contains all the necessary information on how to install MEMO Lock.

Should anything be unclear, please do not hesitate to contact MEMO:

 +356 21 492 262

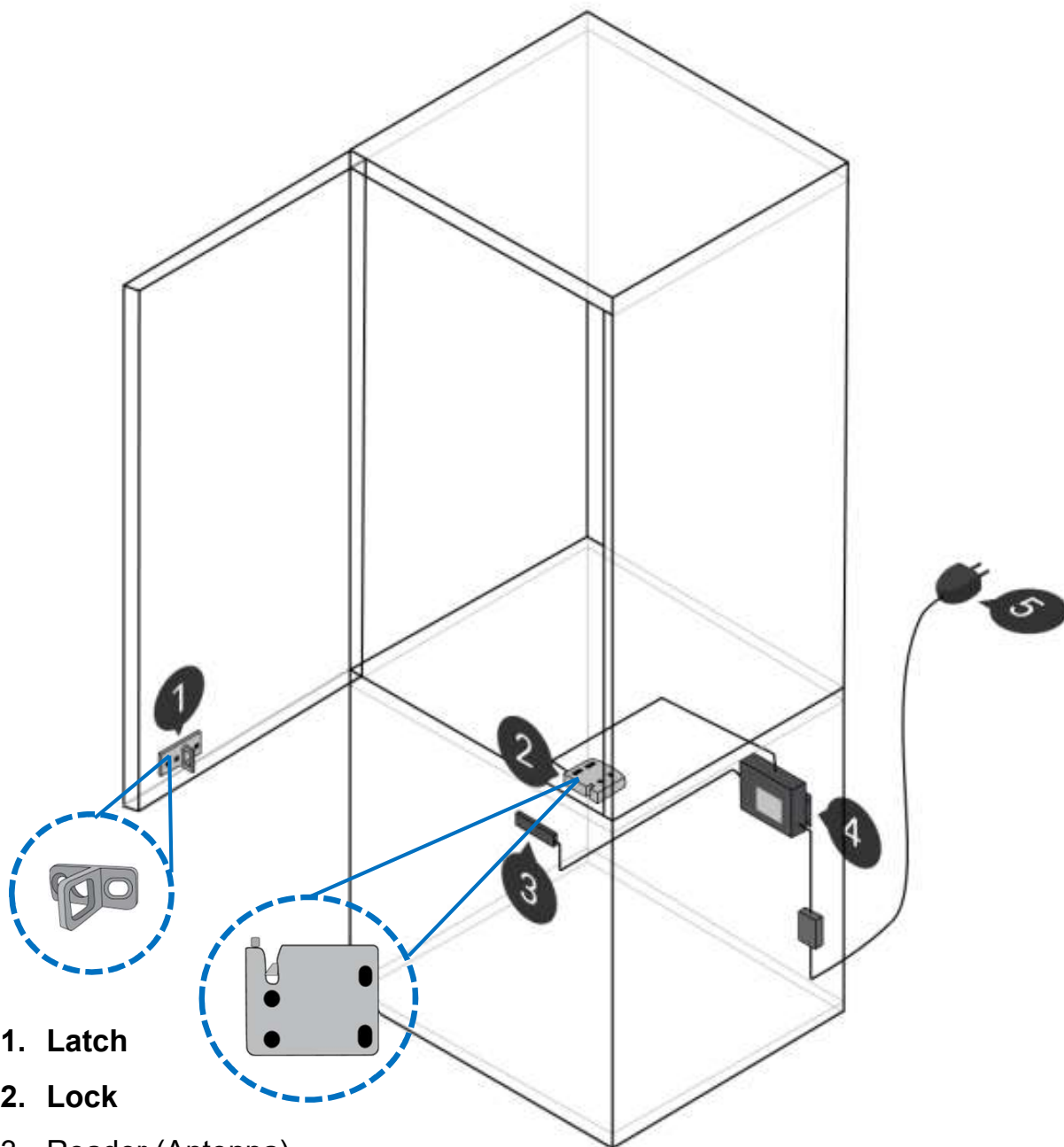
 [support@memo.co.at](mailto:support@memo.co.at)

**DIAMOND[E]MOTION**

Patent protected Show Case Security System

## MEMO – LOCK MMV-0002 INSTALLATION GUIDELINE

This handbook is specifically showing the installation of MEMO's *Lock type MMV1-0002-12HS*. This document is applicable for all other lock types in general, especially for the precautions, adjustments, and emergency opening.



1. Latch
2. Lock
3. Reader (Antenna)
4. DIAMOND[E]MOTION Controller
5. Power Supply

# PLAN LOCK INSTALLATION

## 1. CONSIDER LOCK INSTALLATION

Consider best reader position regarding

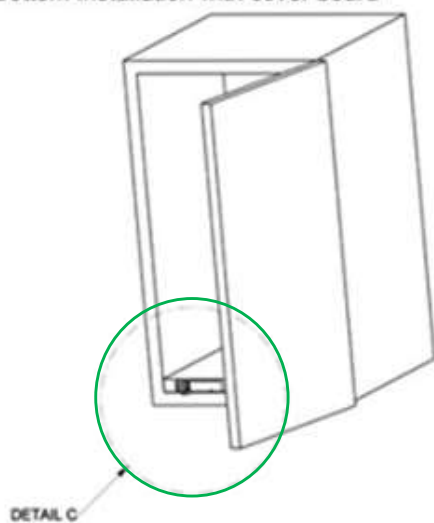
- Best Locking Position
- Best PLAN B Opening
- Best Manipulation Security
- Best Locking Force
- Best Adjustment in all 3 Dimensions
- Best Cable Fixation

### Best Locking Position - Bottom

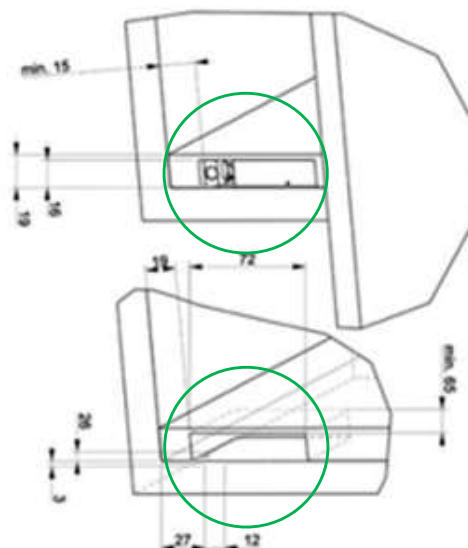
Consider that position of Lock in a show case shall be close to the door handle. On higher show cases, this will be at the bottom panel. When Latch-adjustment is done correctly at final installation, the settling door will still guide the latch into the lock.

**Considering the best position for the lock is essential for long maintenance intervals!**

Bottom Installation with cover board



DETAIL C ZOOM  
BOTTOM PANEL  
LOCK UNDER THE COVER BOARD



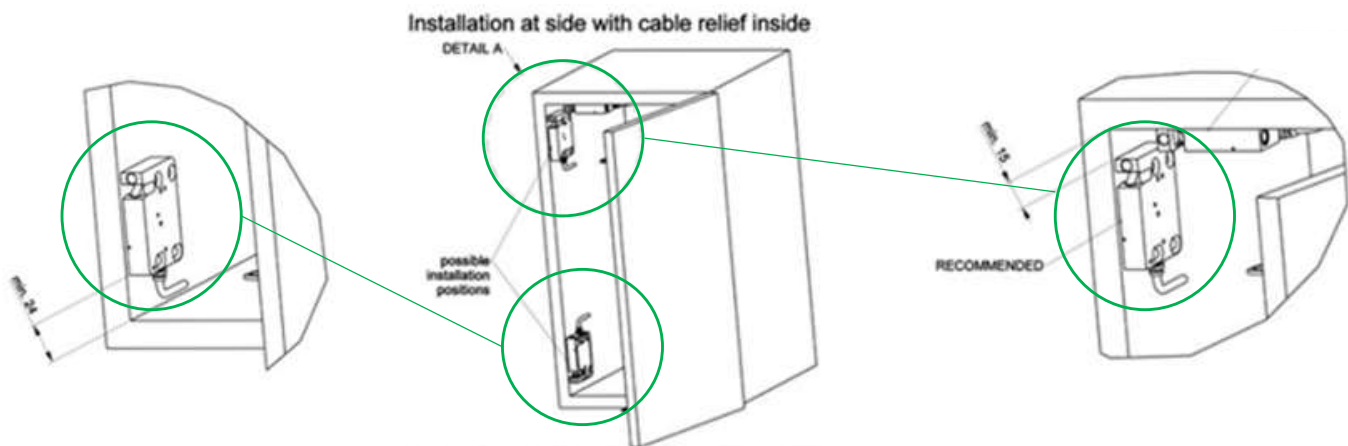
DETAIL C ZOOM  
BOTTOM PANEL  
SPACE FOR LOCK UNDER THE COVER BOARD

## PLAN LOCK INSTALLATION

### Best Locking Position - Side

Consider the vertical lock position is also a suitable option that works well with settling doors

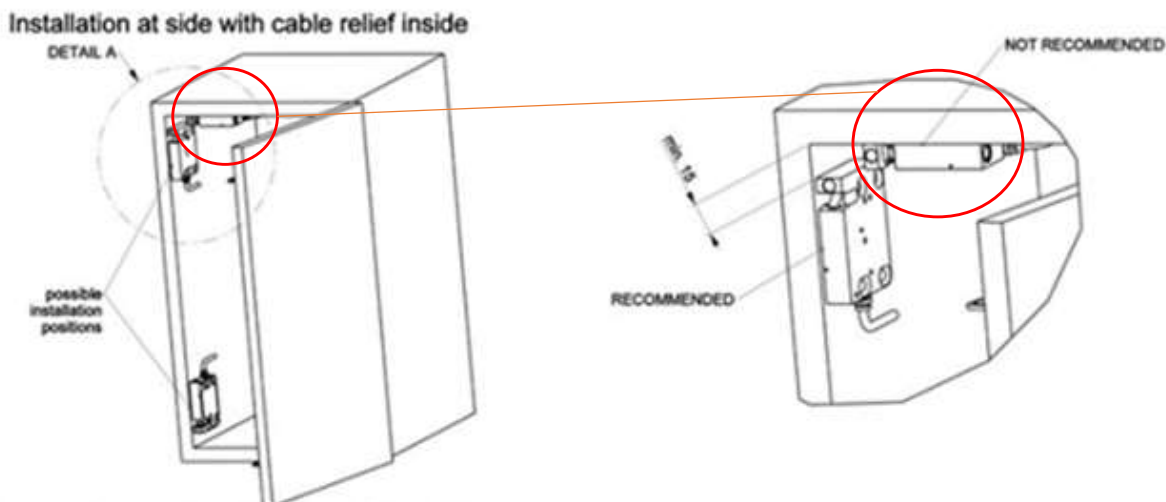
**Settling down doors will rest with the latch in the lock mouth, pushing the door inwards will still lock the door properly.**



### Worse Locking Position - Top

Consider the horizontal lock position dangerous because settling down doors will cause the latch to go lower and lower and may go out of the tolerated range.

**Settling down doors will cause the latch going deeper and may go out of the tolerated adjustment range!**



# PLAN LOCK INSTALLATION

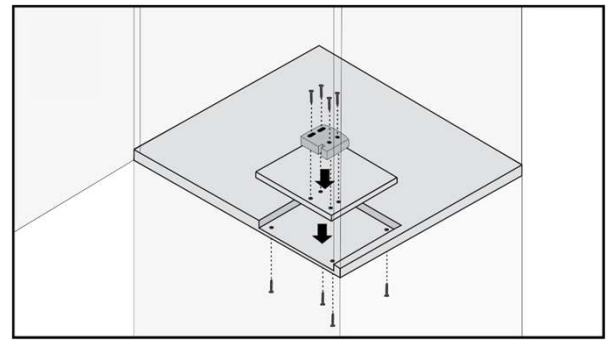
## Best PLAN B Opening

In order to still be able to open the door in case of lock malfunction, a documented way must be planned. Test proper function of your individual Plan-B on a mock-up before production starts.

**Plan B opening must be easy for maintenance technician with their tool set but difficult and time consuming for criminals!**

### Plan B Opening – Option 1

Mount the lock on a small Sub-Board as shown in the picture and fix this board with screws from underneath where accessible under any circumstance. If there is a lock malfunction, remove the screws and pull the door open with lock body and sub board



**Consider available cable length to pull the board out wide enough.**

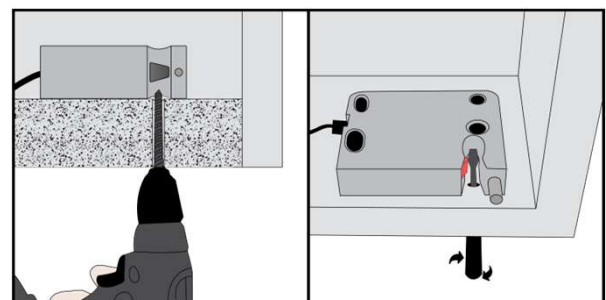
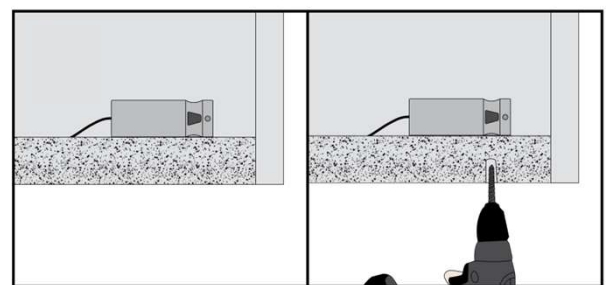
### Plan B Opening – Option 2

Another way to open the door in the event of a malfunction is to drill a hole through the base plate and push lock pin inwards through the hole.

At manufacturing of show case, the perfect position for that purpose shall be marked from underneath, for example with a short blind hole.

In case of lock malfunction, the hole can be drilled completely. Insert a screwdriver and push it through the hole. A rotating move can push the bolt back and latch can be open.

**Do NOT drill through the panel completely, otherwise the lock can be manipulated easily!**



## PLAN LOCK INSTALLATION

### Best Manipulation Security

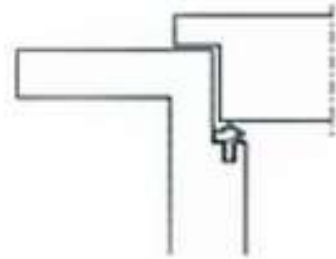
Keep in mind that tricky criminals might search for ways to manipulate the door to gain access, they might manufacture special tools or use brutal force. Even when your customer does not specify any security measures, we recommend to plan your products as safe as possible.

**Consider all dimensions of screws, hinges, frames, glasses and panels to be strong enough for your customers specification – a chain is only as strong as its weakest part**

### Never without DOOR RABBET

Never build doors and drawers with MEMO locks without designing a door rabbet.

**Simple door designs make it easy for criminals to enter with tools and manipulate any lock mechanism.**

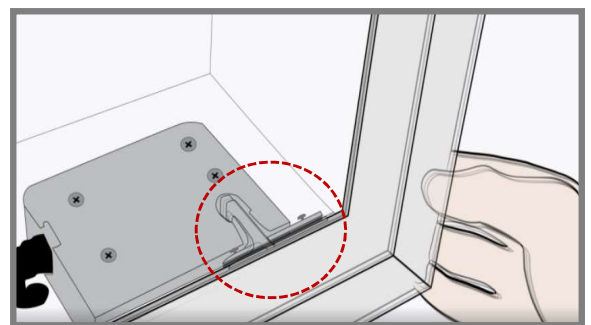


### Best Locking Force

MEMO Locks offer the highest possible locking force to secure luxury merchandise goods best possible.

Designing show cases for such luxury products involves the responsibility to secure them against several kind of criminal attacks.

MEMO strongly recommends to build a mock-up from each show case with identical material and dimensions to test the resistance against criminal break in attempts.



**Always use the maximum number and best suitable dimension of screws to achieve the strongest possible design.**

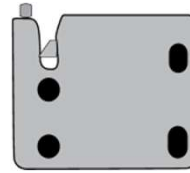
## PLAN LOCK INSTALLATION

### Best Adjustment in all 3 Dimensions

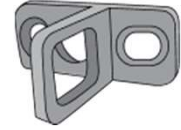
In case your hinges do not allow adjustment, the MMV-0002 lock family offers distance shims of 1mm for the lock and the latch.

Together with the wide adjustment range of the lock itself the installation tolerance of a wooden furniture is compensated with the widest range of the industry.

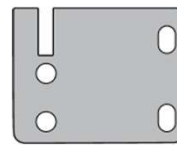
**Correct adjustment of latch position in relation to the lock body is crucial for long and trouble-free operation!**



Lock



Latch  
(bracket)



Shim for lock

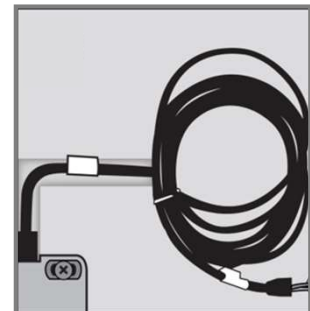


Shim for Latch

### Best Cable Fixation

Consider cable path and fixation of lock cables inside the show cases carefully.

**Loose cables might be damaged by drawer rails, storage goods, etc.!**



# LOCK INSTALLATION

## 2. LOCK INSTALLATION

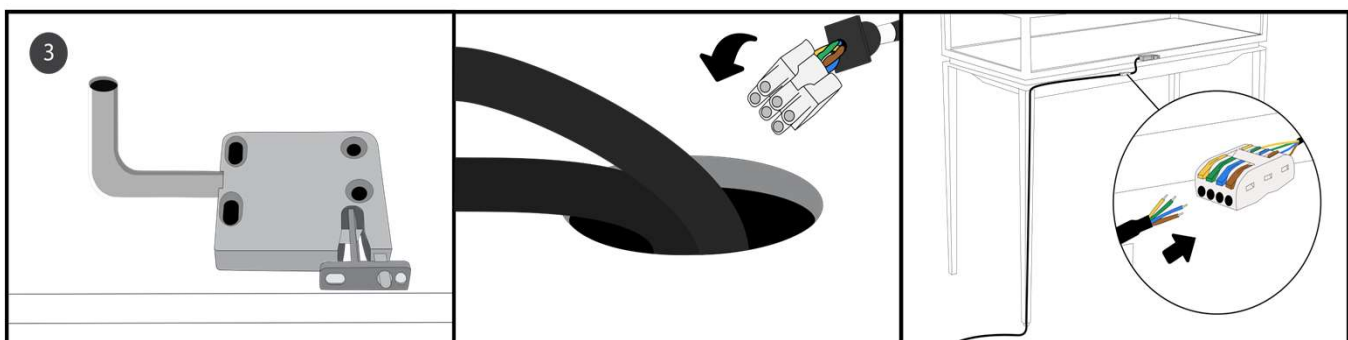
Perform the following simple steps:

- Feed Cable to Controller
- Mark Cable with Show Case Information
- Fix Lock temporarily
- Fix and secure cables
- Fix Latch temporarily
- Test Lock Opening
- Door Alignment
- Lock Alignment
- Adjust Lock Body to Front
- Adjust Latch to Centre Position
- Final Lock Body Fixation

## 3. Feed Cable to Controller

Feed cable into the show case from the lock position to the controller position going through all drill holes, placing in prepared milling groves or cable channels. Fix cable in place to avoid loose parts inside.

**Loose cables might get damaged by moving rails, doors, stored material, etc. therefor it must be fixed properly!**



To run a cable through a narrow hole, like in a table leg, choose the Lock type **-12HSSCC**.

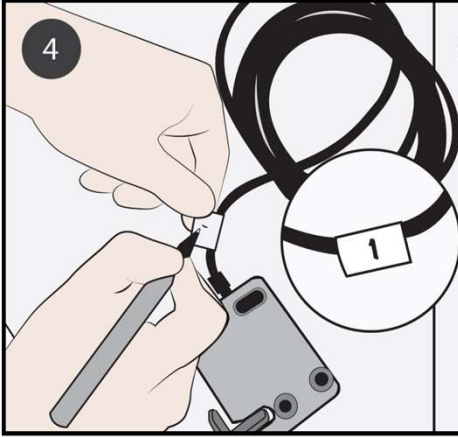
Plan and prepare channels and through holes for cables & connectors from the lock to the controller.

Drill holes must be big enough to fit required number of cables and connectors.



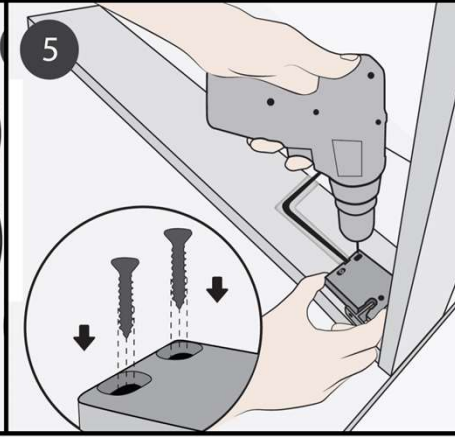
## LOCK INSTALLATION

**4. Mark cable with door & show case on both ends.**



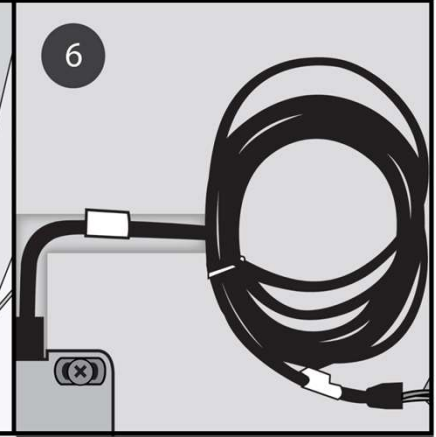
Marking cables saves a lot of time at installation and at maintenance.

**5. Fix lock at long hole only. 6. Fix and secure cable.**



Choose middle position for best possible adjustment range.

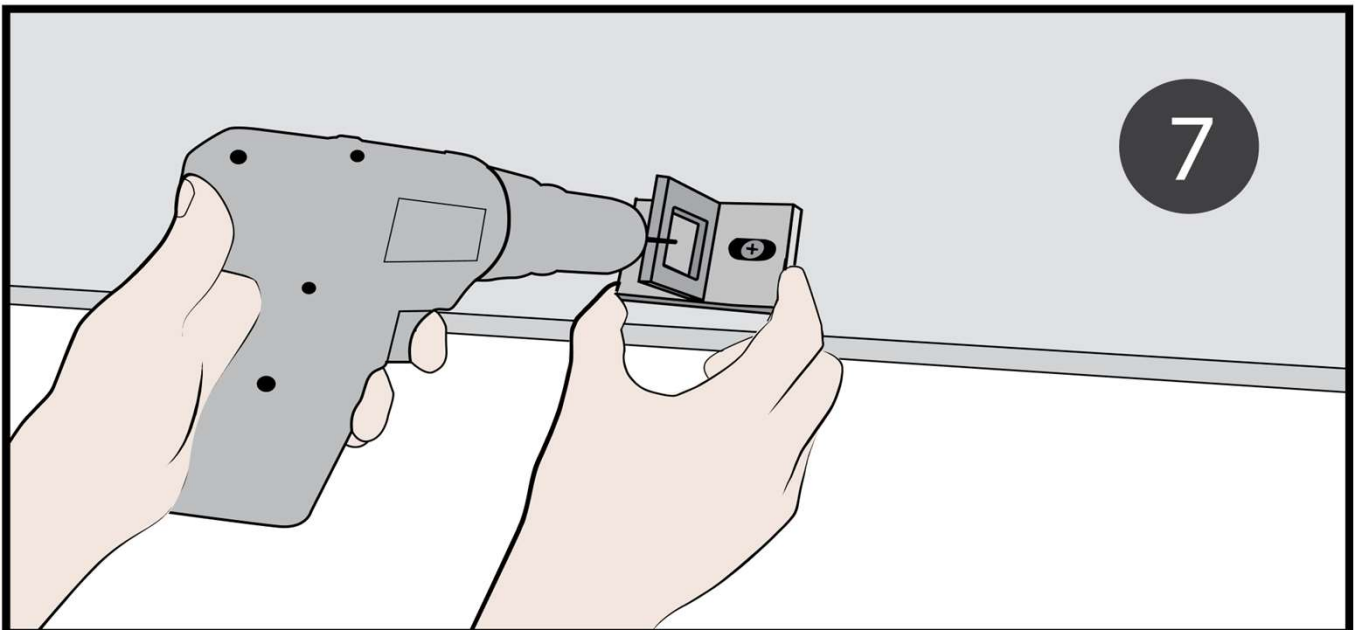
Fix lock body with sunk head screw type and adequate torque.



Place cable in the prepared channels and through holes.

Fix cable properly so that no loops and loose ends can be damaged while in operation.

**7. Fix Latch at Long hole only**

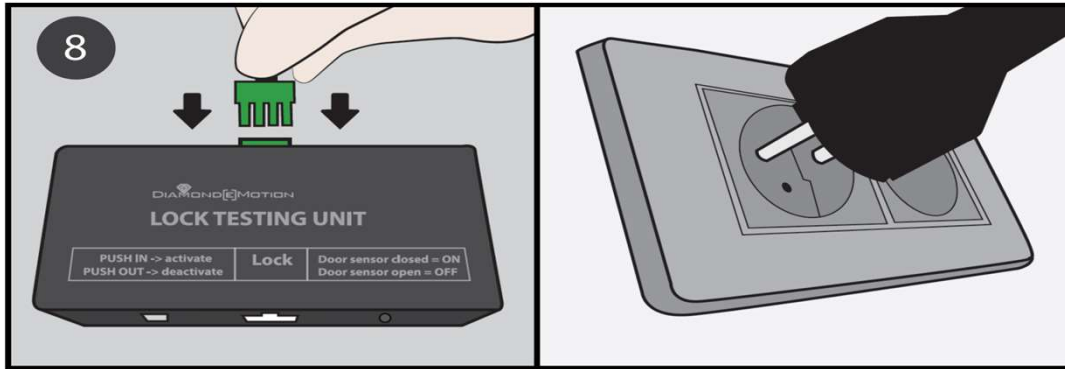


Choose middle position for best possible adjustment range.

**DON'T CLOSE DOOR WITHOUT BEING SURE THE LOCK OPENS PROPERLY - TEST LOCK OPERATION FIRST!**

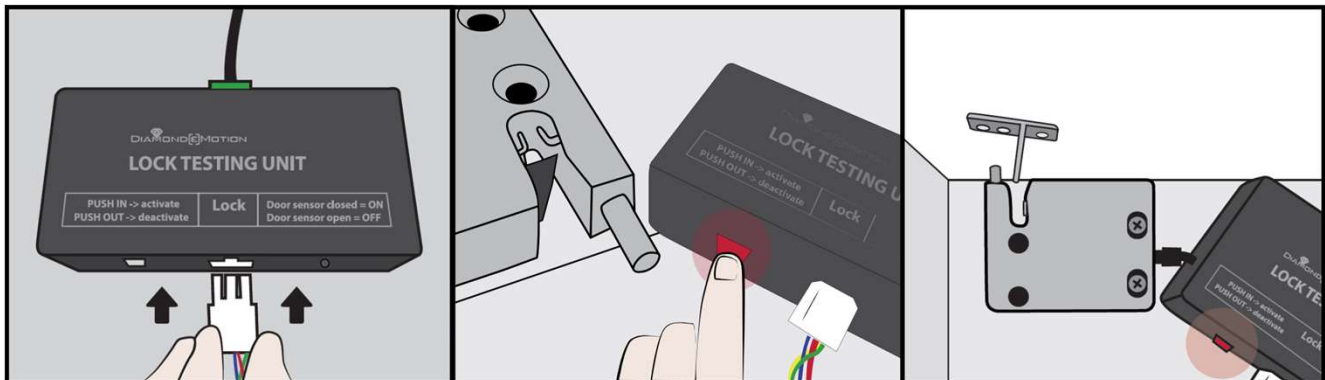
# LOCK INSTALLATION

## 8. Test LOCK OPENING with Lock Test Unite (LTU)



**a.** Connect LTU – (LOCK TEST UNIT) with Power Supply.

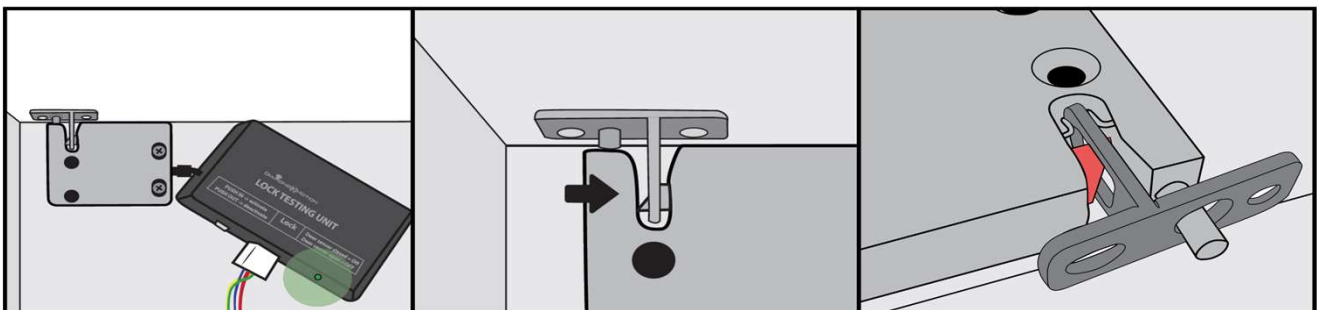
**b.** Connect Power cord to power outlet.



**c.** Connect Lock with LTU.

**d.** Push button to open Lock.  
Lock bolt moves inwards.

**e.** Pull door open and then push LTU button to prepare lock for re-locking – the bolt will return in locking position.



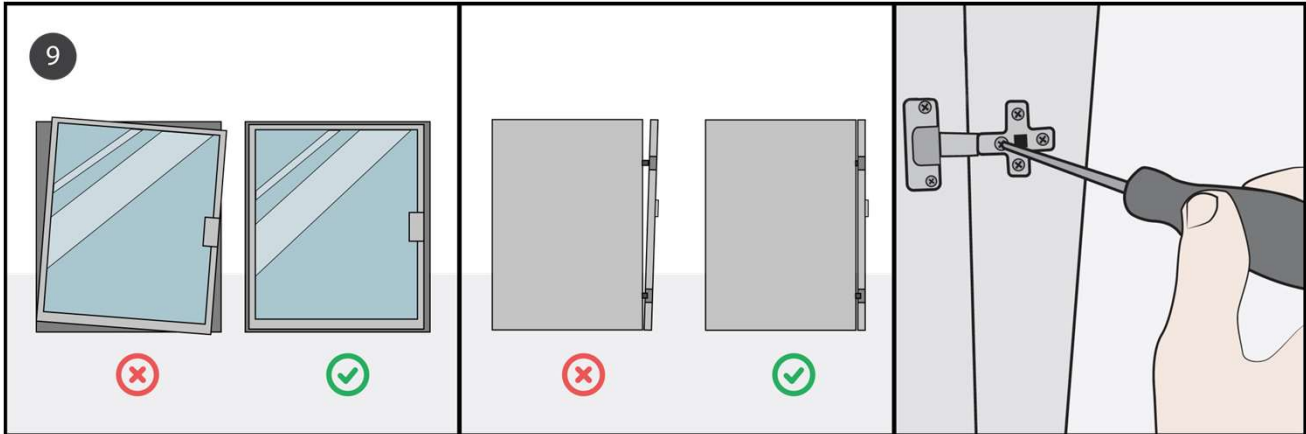
**f.** Repeat opening procedure and watch LED: Door open: LED=ON, Door closed: LED=OFF.

**g.** Mounting position must precisely enable lock bolt to slide into through the latch.

**h.** check if the bolt goes smooth and clean through the latch! When the alignment is not correct – the lock tries 3 x to lock, then it stops – so listen to the sound when closing!

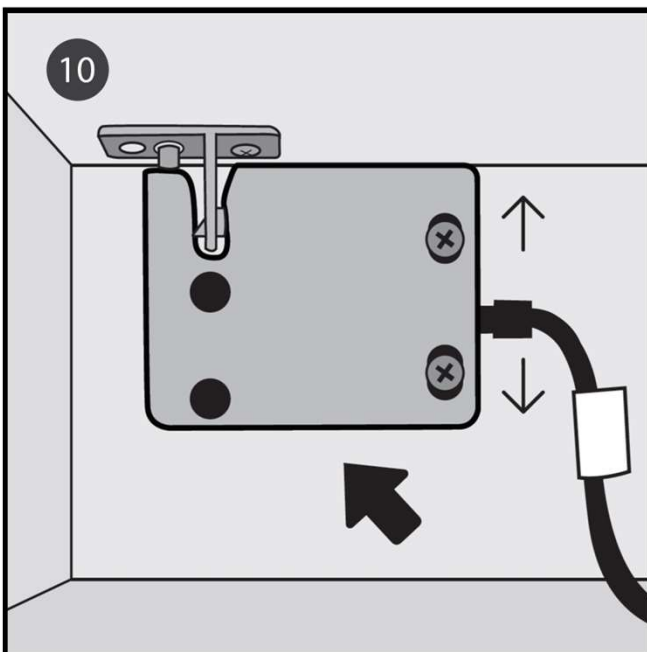
## LOCK INSTALLATION

### 9. Make sure that the door is adjusted and aligned with the front correctly



The door alignment in the cabinet must be adjusted before the lock can be installed in the final good position.

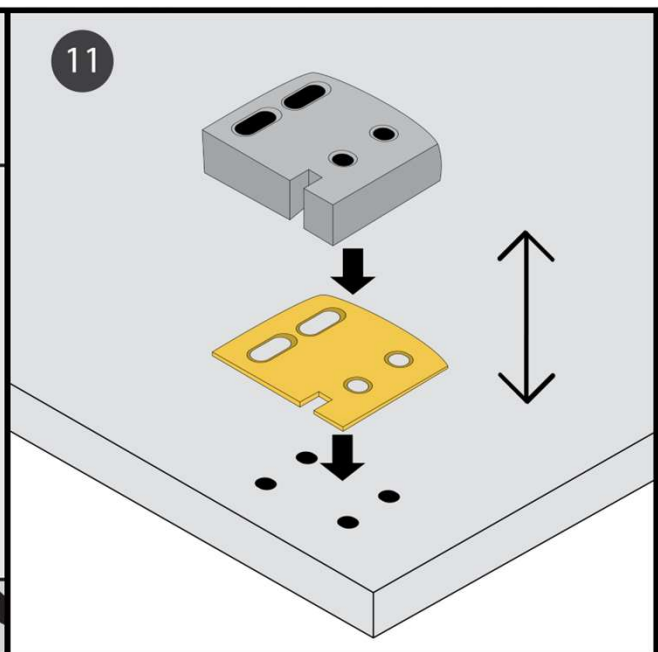
### 10. Align lock to the front



Then bring the lock in a suitable distance to the front line.

**Adjust Lock Body for 2mm / 0,1 inch  
FREE PLAY in locked position.**

### 11. Align lock in height

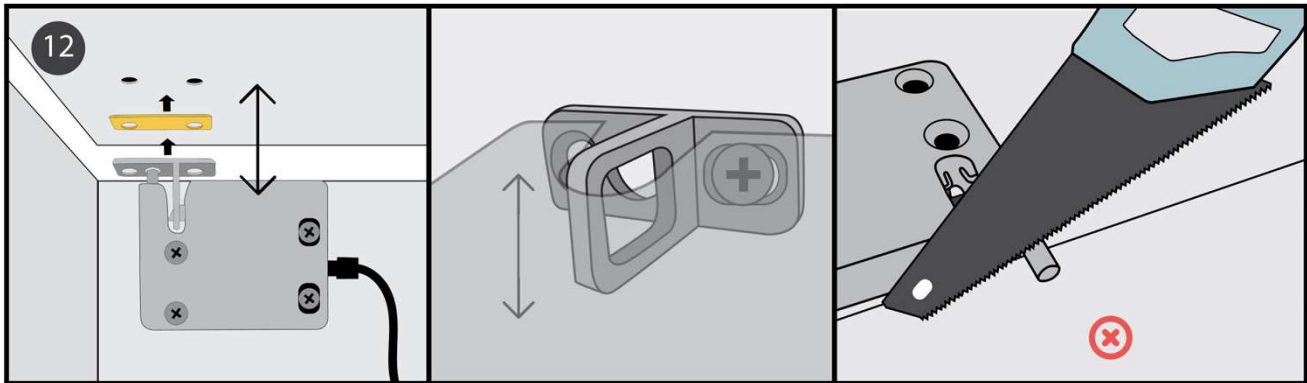


To match the given door/latch position it might be necessary to bring the lock higher up.

**MEMO supplies 1mm shims that can  
be stacked to adjust height position.**

# LOCK INSTALLATION

## 12. Adjust distance to front



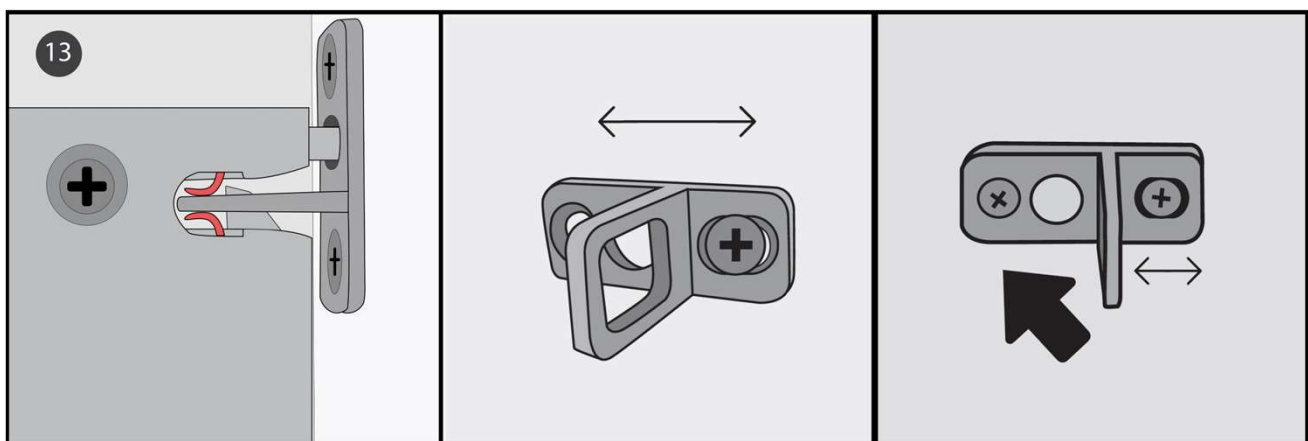
To match the given door/latch position for flush front line it might be necessary to adjust distance of door and lock. 1mm shims underneath the latch can be stacked to adjust.

Adjust the latch position on the door by using the long hole range.

Sensor pin must touch the door frame flush – do not drill into the door in the area of the sensor Pin!

Door sensor pin may not be modified under any circumstance!

## 13. Adjust Latch to central position

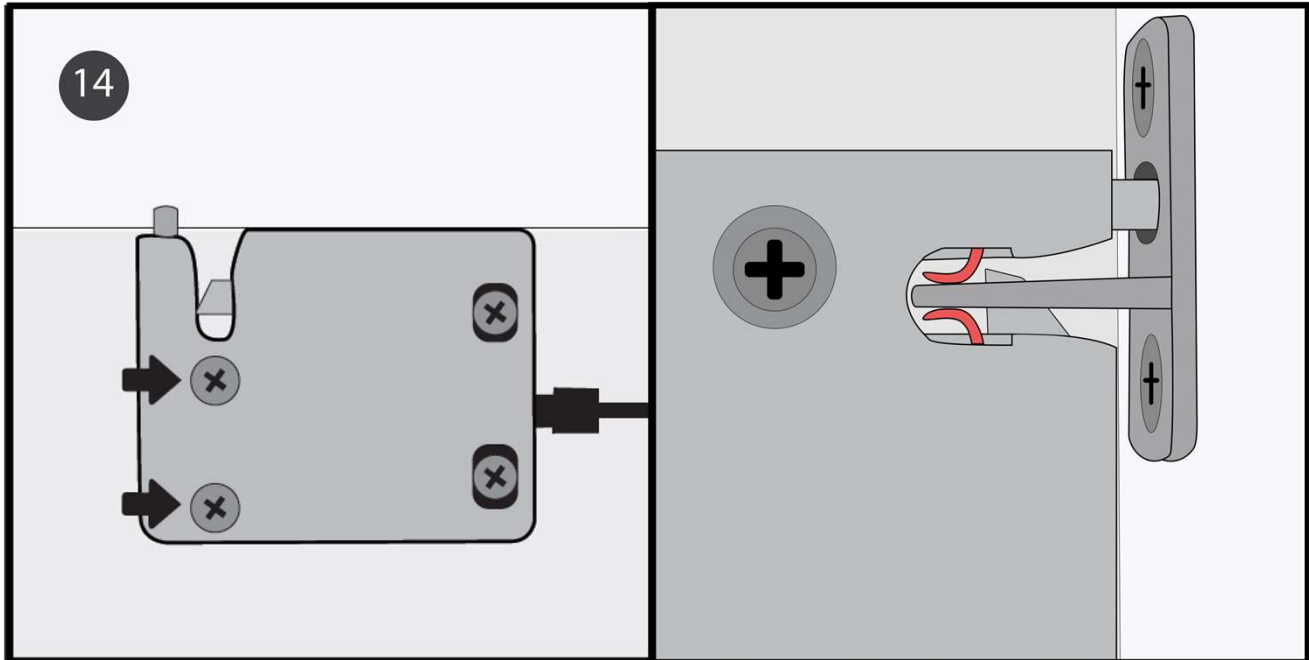


After you have aligned the position of Lock and Latch, it should look like this.

Screw the Latch with a second screw.

## LOCK INSTALLATION

### 14. FINAL Lock Body Fixation



When the door is perfectly adjusted and aligned, the lock can be fixed in its final position. Tighten ALL FOUR screws.

This HOLDING SPRING holds the door via latch in closed position when it is released. **Take care that there is no tension to open on the door under any circumstance! Do not remove the holding spring!**

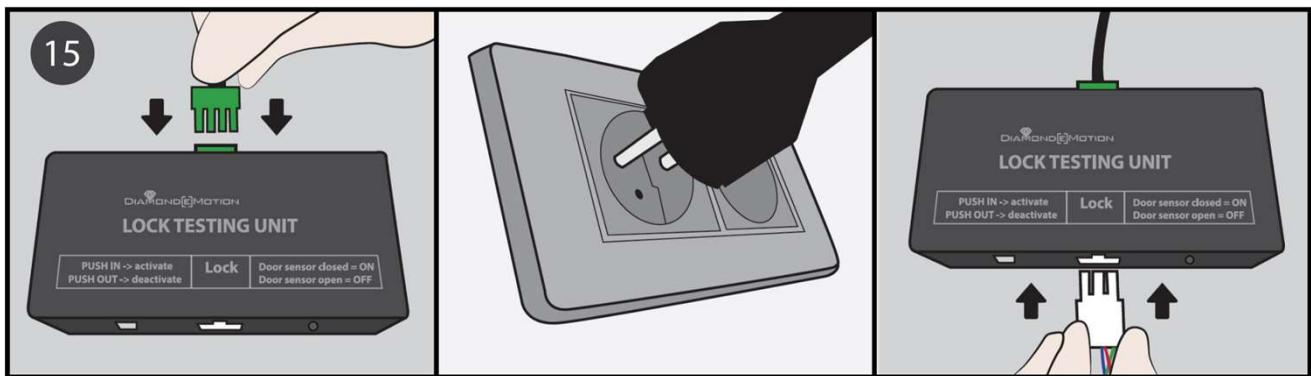
## TEST the INSTALLATION

### 3. TEST the INSTALLATION

Perform the following simple steps:

- Test Lock Opening
- Check Door Adjustment
- Check Lock for Free-Play
- Prepare lock for Electric Opening
- Check Latch Position
- Adjust Free Play
- Sensor Pin

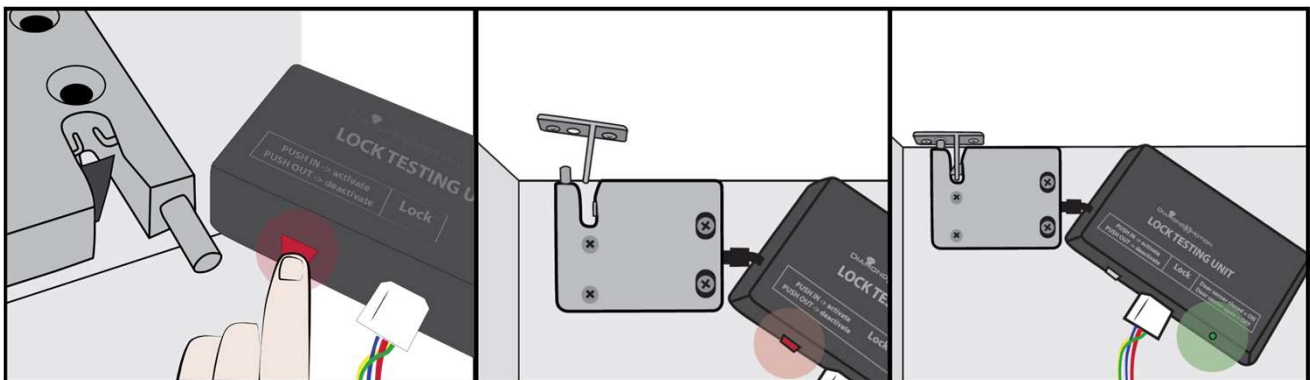
### 15. Repeat Lock Test with (LTU)



**a.** Connect LTU – lock test unit with power supply.

**b.** Connect Power Supply to power.

**c.** Connect Lock with LTU.



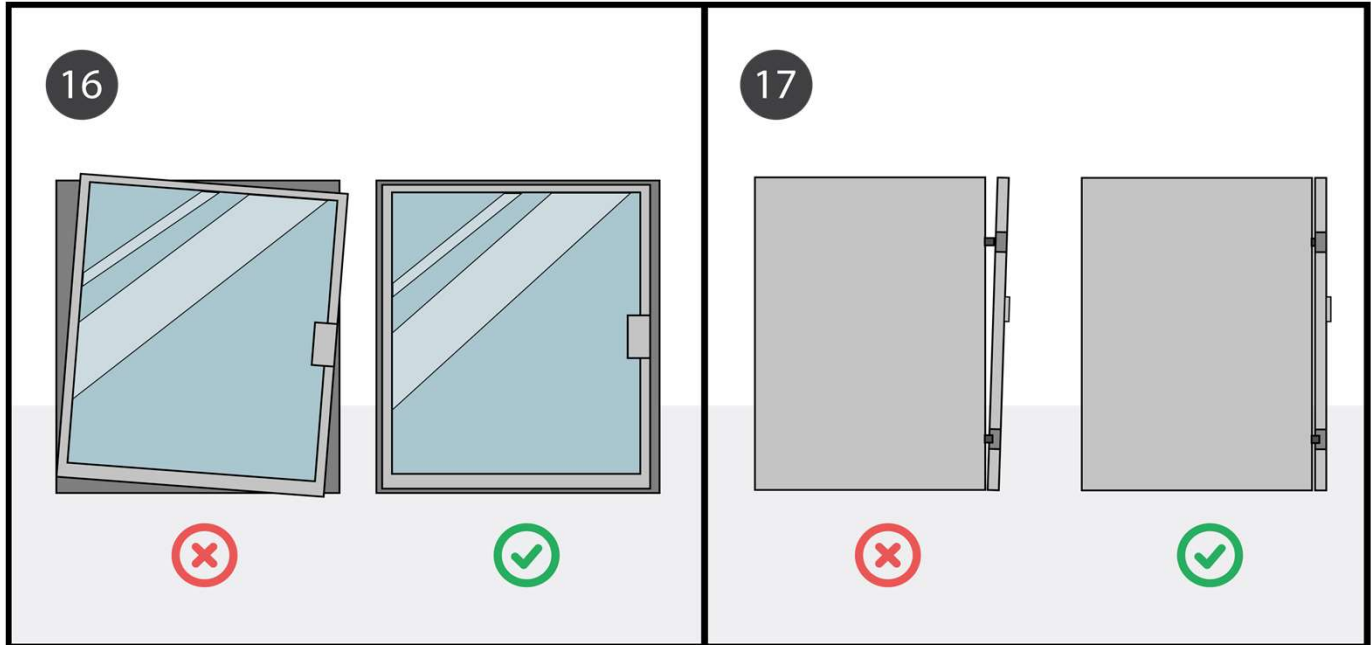
**d.** Push button to open Lock

**e.** Open door

**f.** Visually check OPENING function

## TEST the INSTALLATION

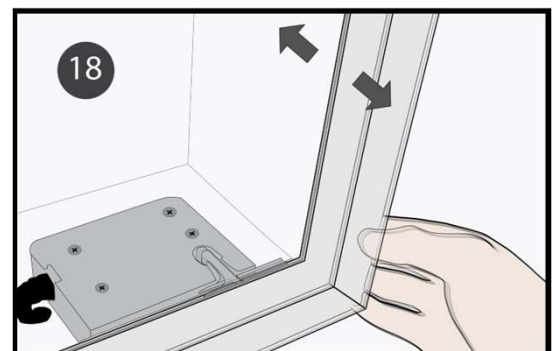
### 16/17. Check if the doors are still adjusted correctly



### 18. Check Lock Position for free play

The door MAY NEVER be under tension so that door opens by itself in the moment when the lock is releasing – check carefully that the door remains inside when lock is in open position!

**It is important to have min 2mm free play – pull at the door and check carefully that you can move free!**

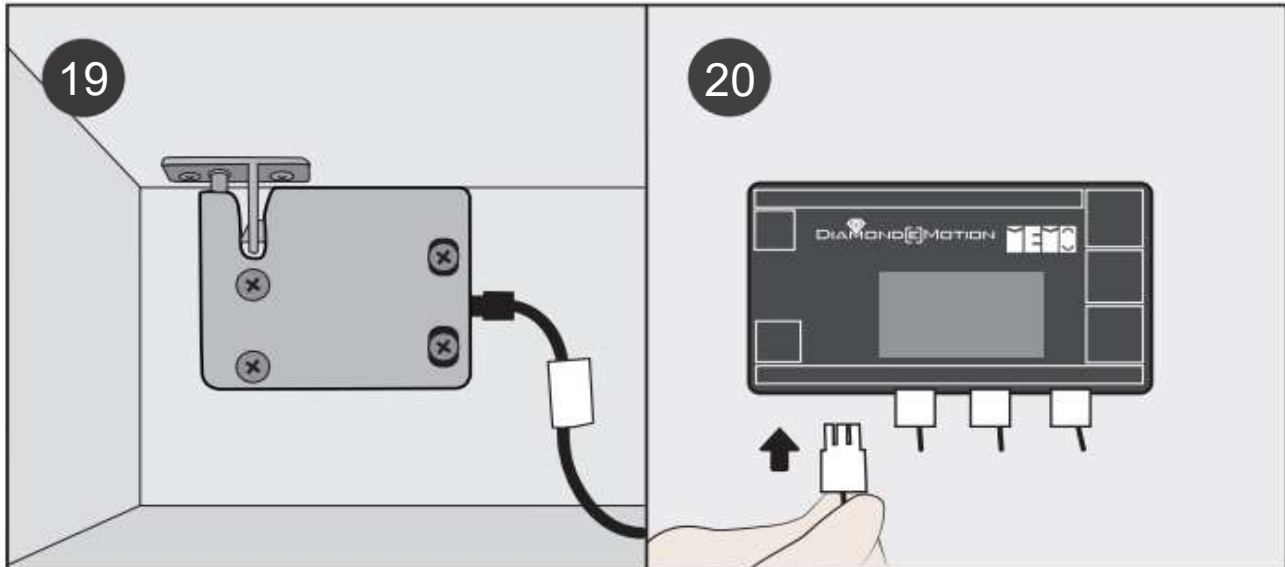




## TEST the INSTALLATION

### 19. Prepare for Electric Opening

### 20. Connect Lock to Controller



Test lock function again with LTU to be sure that opening function is working well, then close the door and test for smooth closing and secure locking.

Select output connector according to the system documentation for proper reader-lock assignment.

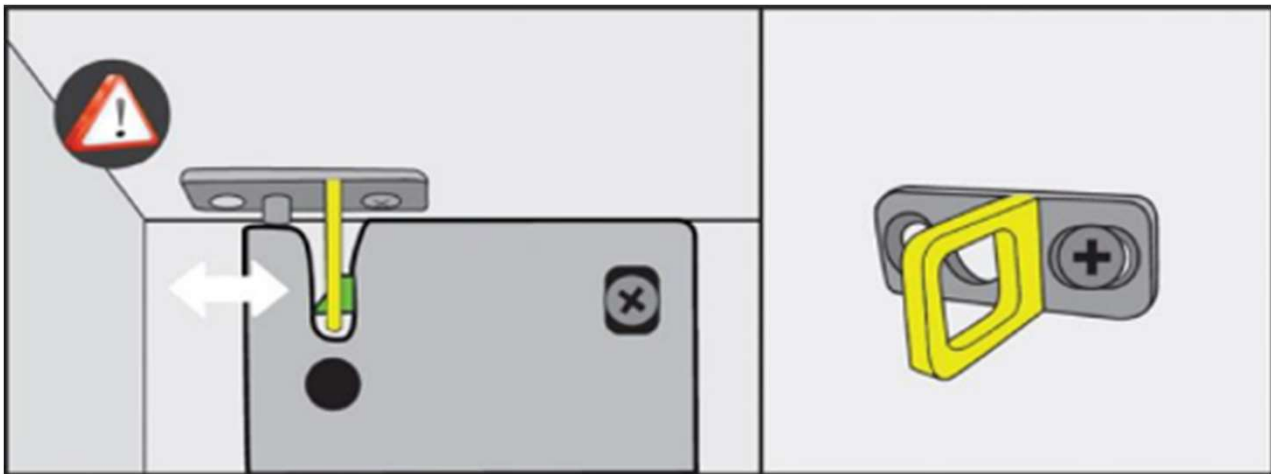


## TEST the INSTALLATION

### 21. Check Latch Position

The LOCK BOLT (green) must move easily and free through the LATCH (yellow) when door/drawer is closed. Adjust door/drawer and latch so that latch enters the lock in a central position.

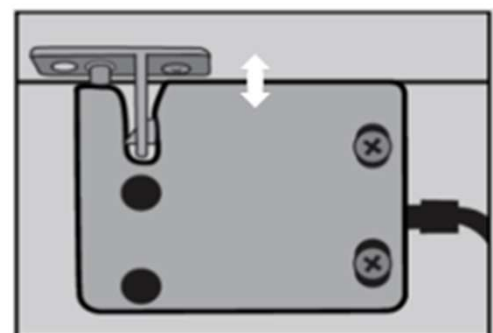
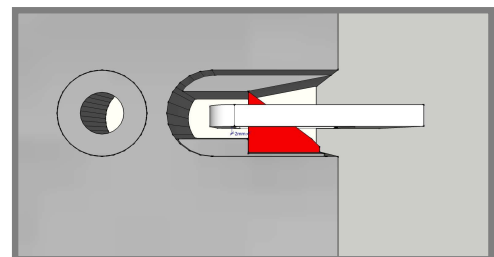
**Tension, Friction and Blocking on the lock bolt, when gliding through the LATCH, (yellow) does NOT ALLOW proper locking. It is the responsibility of CARPENTER and INSTALLER that the lock is mounted according to the manufacturer's specification!**



### 22. Adjust Free Play

Lock the door and then pull and push – it is very important that you have about 2mm 0,1-inch. FREE PLAY!

**External influences may cause changes in a door setup – FREE PLAY ensures proper locking and reduces need for maintenance!**



The “depth” should be adjusted by the long holes of the lock body.

## TEST the INSTALLATION

### 23. The Sensor Pin

The SMART SENSOR is triggered by pushing this Pin inwards when door/drawer closes. The Sensor Pin must touch the door through the hole in the latch.

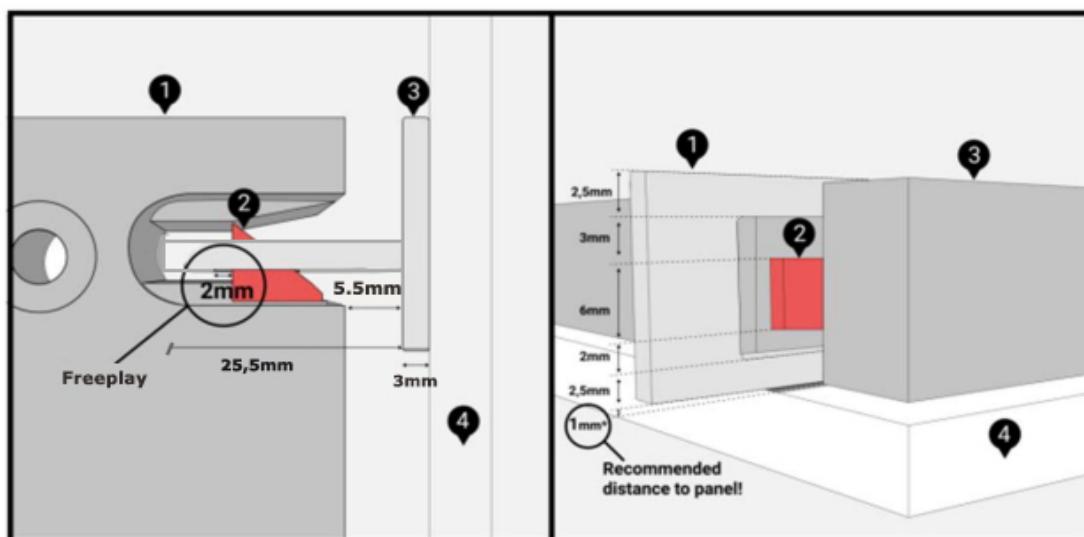
**DO NOT DRILL A HOLE INTO THE DOOR FRAME OR PUT SHIMS WITH HOLES UNDER THE LATCH, THAT WILL CAUSE FALSE ALARM SIGNALS !**



### 23. Adjustment Range

The MMV-0002 lock offers the biggest tolerance against mis-aligned doors in the industry, compared to the size and strength.

**Nevertheless, it needs to be installed and adjusted in the best possible central position – that will stretch maintenance intervals and reduce expenses for warranty expenses.**



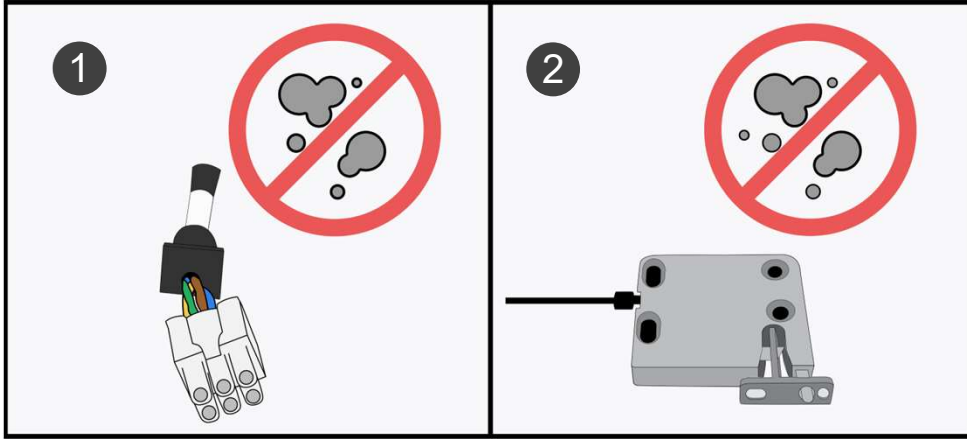
1- Lock  
2- Bolt  
3- Latch  
4- Door

1- Latch  
2- Bolt  
3- Lock  
4- Panel

# PRECAUTION !

To avoid malfunctions, please adhere the following rules:

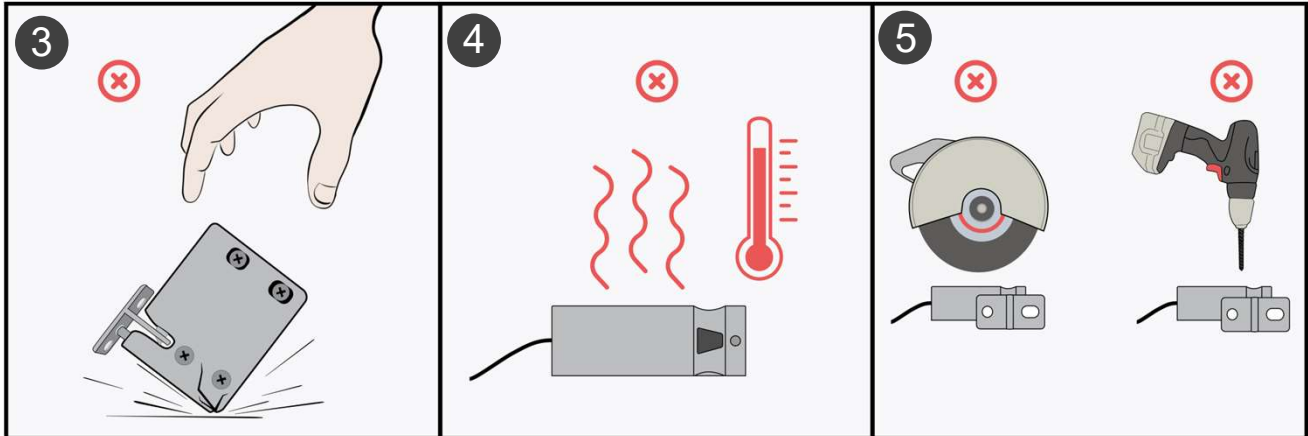
## 1/2. Avoid Dust, dirt, wood & metal chips at lock and connectors



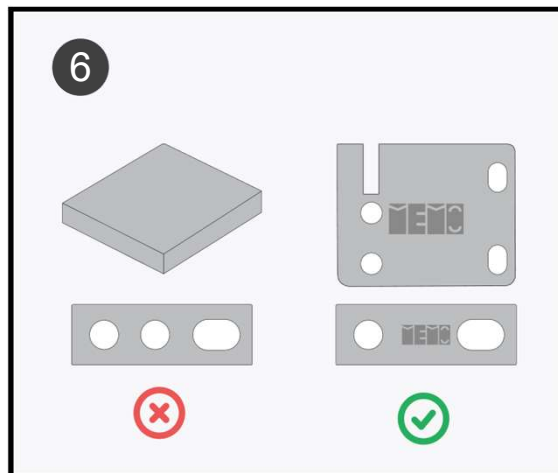
## 3. Avoid shocks

## 4. Avoid overheating

## 5. Do not modify lock & latch

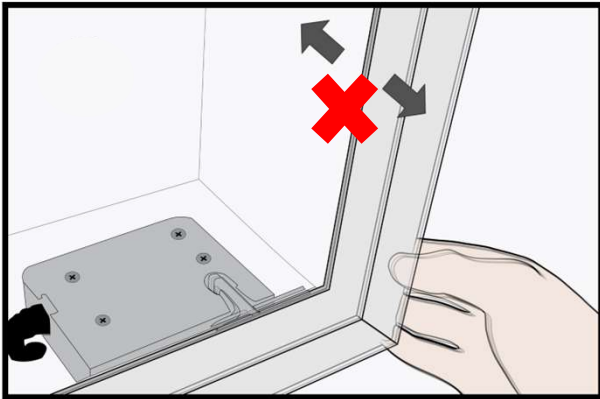


## 6. Use Original Shims

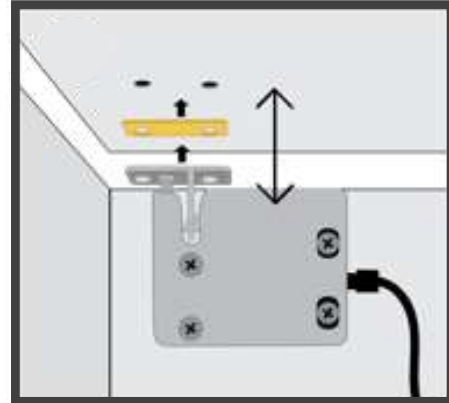


# TEST the INSTALLATION – COMMON ISSUES

## 1. Door with TENSION in closed Position

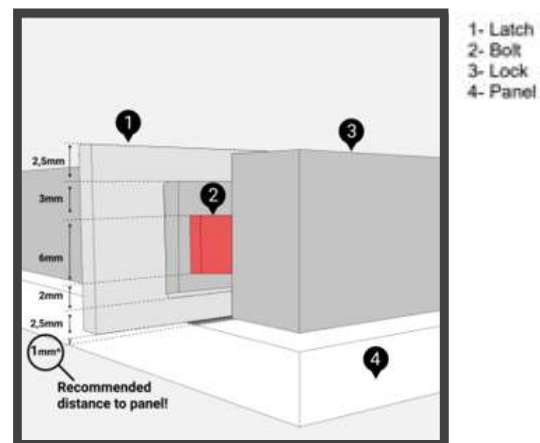
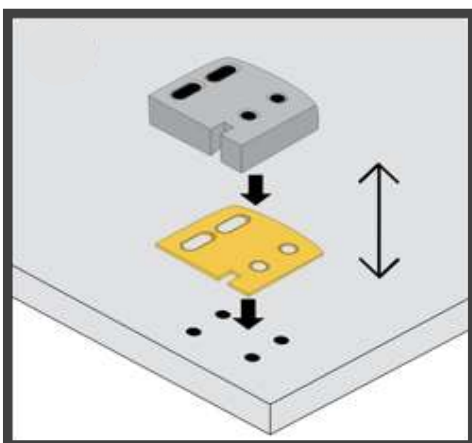


NO free play when pulling at the door



Either you set the lock more to the front or the Latch needs shims underneath to come further inside

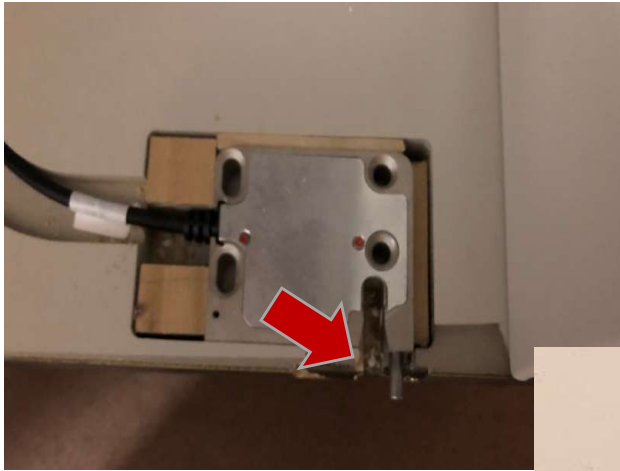
## 2. Door is not locked properly - the lock tries 3 times in a row to close – Lock's body is fixed too LOW or too HIGH in the cabinet and the bolt doesn't catch the LATCH.



Use a number of 1mm shims to bring the lock high enough to be in the correct position to the door latch.

# TEST the INSTALLATION – COMMON ISSUES - Examples

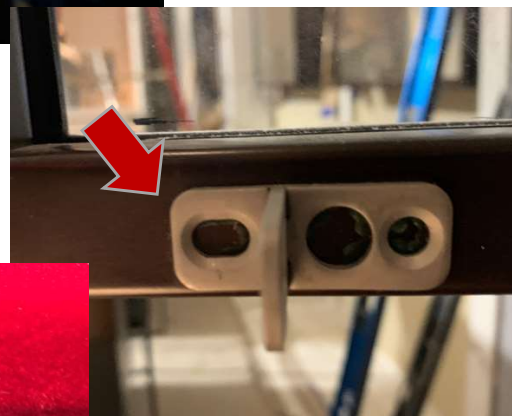
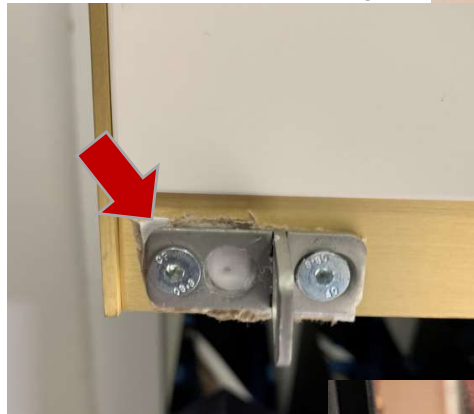
Lock to far inside cabinet .



Distance from latch and door to big .



Non- professional latch fixing.



Latch glued, not screwed.



Latch to far to the right side.



# TEST the INSTALLATION – COMMON ISSUES - Examples

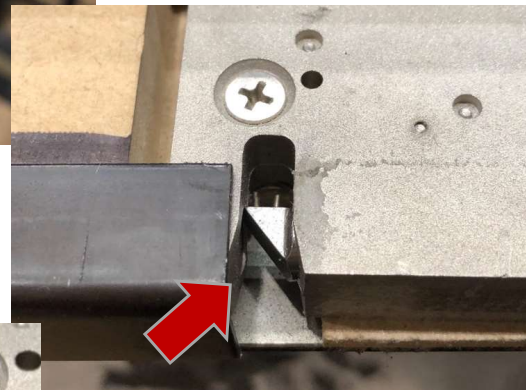
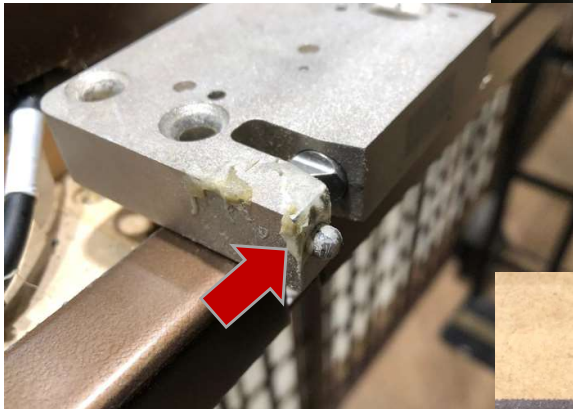
Plastic Lock shims create tension on door.



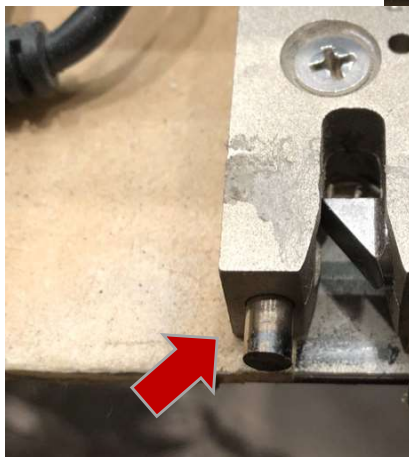
Sensor hole drilled gives constant alarms.



Sensor pin blocked by glue.



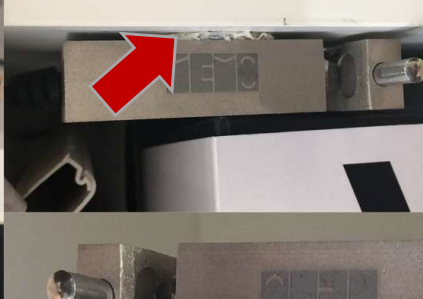
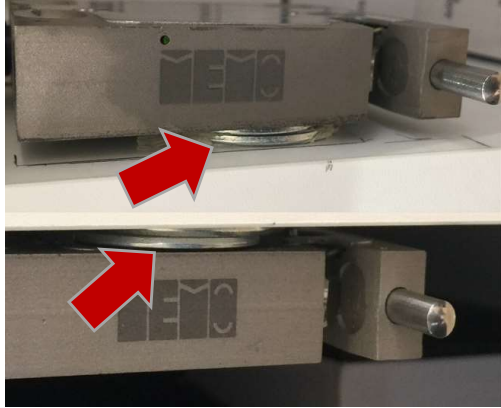
Sensor pin blocked by metal profile.



Sensor pin modified.

# TEST the INSTALLATION – COMMON ISSUES - Examples

Locks fixed with washers and silicone.



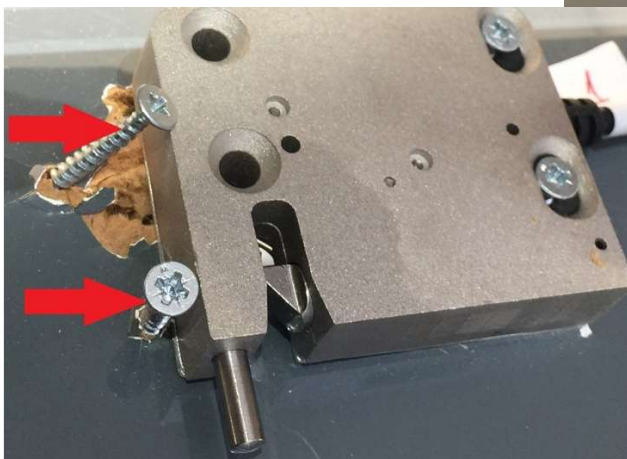
Handmade shims.



Locks fixed with glue.



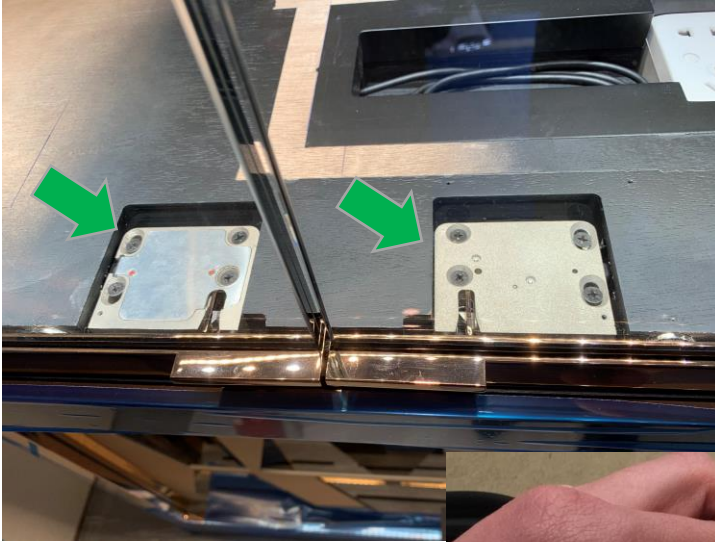
Top mounting give issues when door settle down.



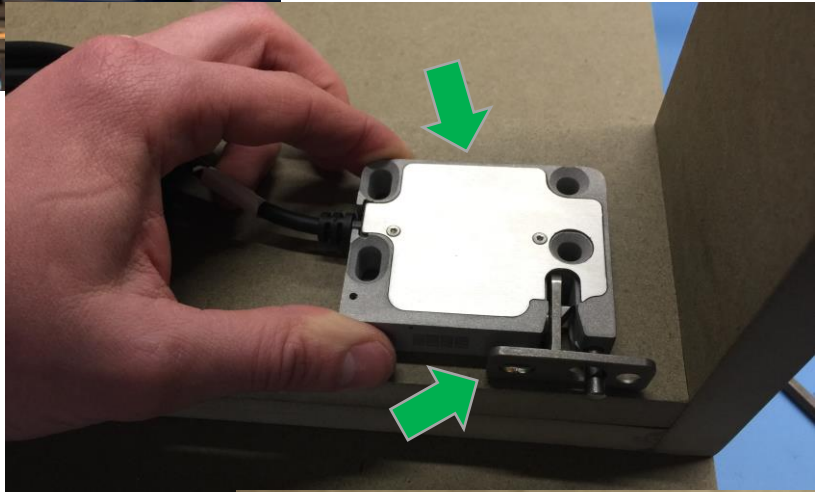
Unstable Lock screws in the wrong position.

# TEST the INSTALLATION – GOOD INSTALLATION - Examples

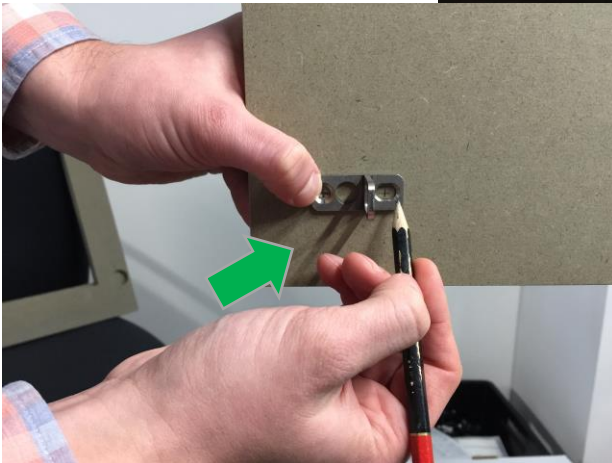
Locks well mounted



Lock and latch Correct Position Installation



Latch Correct Installation





# TEST the INSTALLATION – GOOD INSTALLATION - Examples

Lock nicely covered



Lock well mounted



Lock drawers mounted

