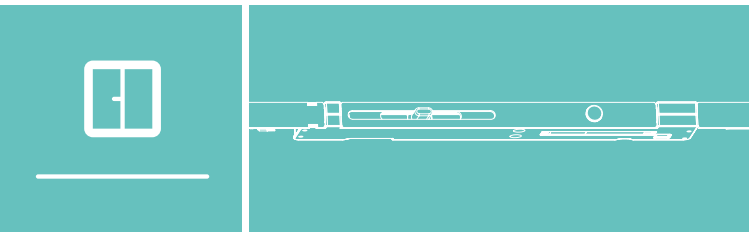
TECHNOLOGY IN MOTION

MACO MULTI

TURN-ONLY AND
TURN&TILT HARDWARE



Operating and service manual
for E-Hardware
END USER

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WARNING! **These operating and maintenance instructions are intended for end users and must be retained. All users must be informed of the content for safety reasons.**
If information is not provided to all users, a window sticker must be clearly attached to the window! These stickers can be requested from the manufacturer of your windows.

In addition to this manual, the operating and maintenance manual for end users for tilt&turn windows, Order Number 757071EN, and the maintenance and adjustment manual, Order Number 757070EN, must definitely be taken into account!

This manual is also available for download at www.maco.eu - Order Number 757859.

Intended use and misuse

Intended use:
In the case of vertically installed windows with MACO E-Hardware in high buildings, window sashes are tilted inwards to a restricted position using a switch or button which operates the scissor stay. However, the window sash can also be tilted or turned inwards manually by pressing a window handle.
When closing and locking a window sash, it is usually necessary to overcome the counterforce of a gasket.

WARNING! **Risk of injury and property damage due to improper opening and closing of sashes!**
Improper opening and closing of the sashes can lead to serious bodily injury and significant property damage!
Therefore:

- It is important to make sure that the sash is guided by hand over the entire range of motion, at very low speed, and contacts to the frame without any resistance to the absolute closing position!
- Make sure that the sash never hits or swings in an uncontrolled way (e.g. with wind)!
- Make sure that the sash is not obstructed in its opening movements and can be moved freely.

Any use or operation that goes beyond or deviates from the intended use shall be deemed to be misuse. This can cause injuries to people or damage to other goods!

WARNING! **DANGER WHEN MISUSED!**

Misuse of windows can lead to dangerous situations, such as injury to people and damage to other goods. In particular, the following uses must especially be refrained from (see also safety instructions):

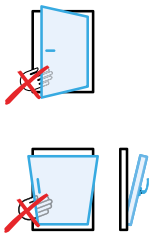
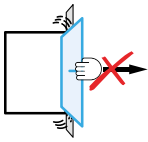
- The deliberate or uncontrolled slamming or pressing of the sash against the reveal. As a result, the fittings, frame materials or other parts of the windows can be damaged or destroyed.
- Putting obstacles in the opening area between the frame and window sash!
- The intentional or negligent application of extra loads acting on the window sash.
- Closing the window sashes with high force. The sash must always flow freely into the frame without any effort.

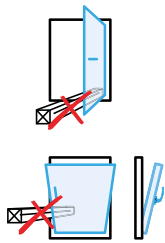
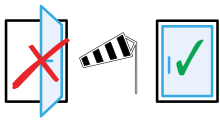
ATTENTION! **When any normally obvious or visible damage or malfunction is noticed, the window must no longer be operated and must be serviced immediately by a specialist company before any further use!**

IMPORTANT! **Claims of any kind due to damage caused by improper use or misuse are excluded!**

Safety and warning notes

Safety-related information
The following symbols illustrate the existing dangers on windows:

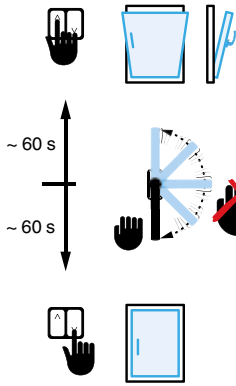
Symbol	Meaning
	**Risk of injury by jamming body parts in the opening edge between the sash and the frame** ➜ When closing windows, never grip between the sash and the frame, and always be careful. ➜ Children and people who cannot estimate the danger must be kept away from the danger point.
	**Risk of injury from falling from open windows** ➜ When close to open windows, be careful and do not lean out. ➜ Children and people who cannot estimate the danger must be kept away from the danger point.
	**Risk of injury and damage by pressing the sash against the opening edge (wall-reveal) must be avoided** ➜ Pressing the sash against the opening edge (wall-reveal) must be avoided.

Symbol	Meaning
	**Risk of injury and property damage by putting obstacles in the opening gap between the sash and the frame** ➜ Avoid putting obstacles in the opening gap between the sash and the frame.
	**Risk of injury and property damage due to overloading of sashes** ➜ Prevent additional loads on the sash.
	**Risk of injury due to wind conditions** ➜ Prevent wind from affecting open sashes. ➜ Always close and lock the window immediately when windy or drafty. ➜ If high winds or storms are coming, close and lock all sashes.

Operating instructions – electrical operation

Illustrating symbols
The following symbols show the various possible button operations and the associated sash positions of the windows (proper use).
Electrical operation is carried out using a rocker button. A short press on the button upwards leads to the tilting of the window sash.
A short press on the button downwards leads to the closing and locking of the window sash.
Another command in the same direction does not cause any change.
A command in the opposite direction causes a reversal of the direction of movement.
After reaching the end position (tilted position, locked position), the E-Hardware always goes into the neutral position, so that manual actuation is possible.

ATTENTION! The window handle moves independently during electric-style operation. This handle movement must not be hindered!
Damage to the E-Hardware may result.

Button / Sash position	Meaning
	Tilt position of the sash (for permanent ventilation of the room)
	Do not impede grip movement during electrical operation!
	Locking position of the sash (when the room is unattended, or no air exchange is desired)

For how to proceed after a power outage during operation, see the description „Approach in the event of a malfunction.“

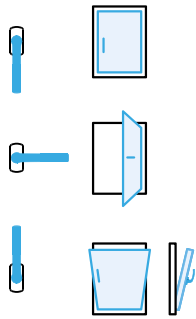
Operating instructions – manual operation

Illustrating symbols
The following symbols show the various possible handle positions and the resulting sash positions of the windows (proper use).

Manual operation is no different from that of a traditional tilt&turn window.

Manual operation is possible at any time, **except when the sash is being moved electrically.** This is recognisable by the moving window handle.

ATTENTION! The window handle moves independently during electric-style operation. This handle movement must not be hindered!
Damage to the E-Hardware may result.

Handle / Sash position	Meaning
	Locking position of the sash (when the room is unattended, or no air exchange is desired)
	Turn position of the sash (for quick ventilation or intense ventilation of the room or to clean the outer panes)
	Tilt position of the sash (for permanent ventilation of the room)

Approach in the event of a malfunction

Due to a power failure, the E-Hardware can stop and remain in any position. This is evident from the stationary sash and stopped handle movement. When the power returns, the stopped position is crucial to what happens next:

- Before reaching the tilt position, the movement is cancelled, the E-Hardware drives into the locking position and finally into the neutral position
- After reaching the tilt position, the movement continues and the E-Hardware drives into the locking position and finally into the neutral position
- Before reaching the locking position, the movement is continued, the E-Hardware drives into the locking position and finally into the neutral position
- After reaching the locking position, the movement is continued and the E-Hardware drives into the neutral position

This ensures that after a power failure, the window is always closed and locked after the power has returned.

IMPORTANT! If the handle (the lock for the hardware) is in the turn position (horizontal handle position) during a power failure, no electrical actuation is possible, as manual actuation is expected in the turn position. In this case, the handle must be placed in the tilt or locking (vertical) position. Thereafter, electrical operation is possible again.

After a power failure, the E-Hardware references itself anew. This means that it scans both end-points from the stop position and then drives into the neutral position.

In case of an overload during a movement (wind load or resistance in the direction of movement by squeezing, pressure, etc.) the E-Hardware stops the movement and returns to the original end position, and finally drives to the neutral position.

Usage and cleaning instructions

General usage advice:
Open windows always represent a danger to the health of people and to the damage of other things!

WARNING! Risk of injury when closing windows! If when the windows is being closed, the hand or other body parts come between the sash and the frame, there is a risk of crushing and thus the risk of injury!
Therefore:

› When closing windows, never grip between the sash and the frame and always be careful.

› Children and people who cannot estimate the danger must be kept away from the danger point.

› Always close and lock the window sash immediately when windy or drafty.
Otherwise, the wind or air suction might cause the window to swing uncontrollably or crash.
If the sash is not closed and locked, damage to the window itself and to other objects, as well as injury to people may occur.

INFORMATION! The amount of play or loss of stroke is reduced thanks to the linking of the central locking system (hardware in the window sash). It may however happen, that the handle in its final position after operation is not exactly perpendicular.
This is not a technical defect or reason for reclamation but is due to the tolerances in the hardware composition!

Usage restriction note:
Open window sashes as well as sashes in unlocked or ventilation positions (e.g. tilt postion) only achieve a shielding function. They do not meet the requirements of:

› Joint tightness
› Sound insulation
› Burglary prevention
› Water tightness
› Thermal protection

These properties can only be achieved fully with locked window sashes.

General cleaning instructions:
Cleaning and care instructions for window frames, window sashes, glass and gaskets can be found in the operating and maintenance instructions for tilt&turn windows, Order Number 757071EN.

Special cleaning instructions for the E-Hardware are not required. However, care must be taken to ensure that the contacts of the power carrier are always clean and free of deposits and oxidation.

Care notes for E-Hardware:
In order to permanently maintain the surface quality of the hardware for the intended use and to avoid adverse effects, it is important to observe the following points:

› **Protection from corrosion:**
  › Ventilate the hardware and rebate areas so that they are not exposed to direct wetness or condensation formation (important during the construction phase!).
  › Only use damp cleaning on the hardware and avoid permanent wetness!

› **Protection against dirt:**
  › Keep the hardware generally free of deposits (e.g. salt near the coast) and dirt free. During the construction phase, immediately remove dirt from plaster, mortar or similar using water.
  › Protect hardware and closing parts from dirt (dust, dirt, paint, etc.).

ATTENTION! Defective or damaged areas must be repaired and serviced immediately by qualified personnel.

› **Protection against aggressive, acidic detergents:**

- › Clean the hardware only with a soft, lint-free cloth and a mild, ph-neutral detergent in diluted form. Never use aggressive, acid or solvent-containing detergents or scouring agents (scrubbing sponges, steel wool etc.) These can lead to damage of the hardware!
- › Such damaged hardware may cause faulty operation and thus affect the safety-relevant properties. As a result, injuries to humans as well as damage to other goods may occur.

Maintenance Information

Your window is equipped with a high-quality and durable MACO hardware. To ensure that it remains functional and safe for years to come, the following maintenance instructions and mandatory intervals must be adhered to.

INFORMATION! In addition to regular cleaning, the window hardware also requires an expert, systematic inspection and maintenance to ensure usability and safety.
We therefore recommend that you take out an appropriate maintenance contract with the manufacturer of your windows.

Inspection and checking intervals

Verifiable initial and repeat testing **every 12 months.**	End Users	Specialists
Check all E-Hardware and power units for visible damage and correct locking (abrasion) and, if necessary, have them serviced by a specialist.	✔	✔
Check the functionality of and lubricate all movable hardware and closing parts.	✔	✔
Check power units for cleanliness and clean with a cloth and mild cleaning fluid if necessary.	✔	✔
Check the fixing screws and, if necessary, tighten or replace.	✘	✔

DANGER!

✘ = may ONLY be carried out by a specialist company, NEVER by the end user!
Hinging and unhinging the window sash, as well as any adjustment of the hardware must only be carried out by a specialist! Maintenance of safety-relevant parts (pivot posts and scissor stay hinges) may also only be carried out by a specialist!

The hardware of your window must be operated at least once a month in order to prevent so-called „dormant wear and tear."

DANGER!

All electrical work must only be carried out by a trained, certified specialist!
Work on power carrying components is dangerous and can result in death!

Lubrication points

- Grease for hardware:
  Adhesive lubricant with PTFE in a spray, e.g. OKS 3751 or equivalent (Haberkorn Company article no. 79937).
- Amount of grease:
  approx. 3 mm^3 (≈ size of a pinhead)
- After lubrication, the fittings must be operated several times to distribute the lubricant (tilting and locking cycles).
- In addition to this illustration, all lubrication points in the operation and maintenance instructions for tilt&turn hardware, Order Number 757071EN, must be taken into account!

Spare parts, customer service

Spare parts or customer service can be provided by window suppliers or window manufacturers. A list of fabricators and dealers can be found at www.maco.eu.

The disposal of the hardware must be done in accordance with local regulations and laws.

Applied standards

ÖN EN 14351: 2010	Windows and Doors – Product Standard
ÖN EN 1191: 2013	Windows and Doors – permanent function test
ÖN EN 13126-8: 2006	Construction hardware for windows and window doors – Part 8 Requirements and Testing Procedures
ÖN EN 1670: 2008	Locks and construction hardware – Corrosion Resistance – Requirements and Testing Procedures

Applied guidelines

KB.01: 2017	VVF leaflet – Power operated window

Please send suggestions and ideas for improvements on our instructions by email to: feedback@maco.eu.

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www.maco.eu/contact

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