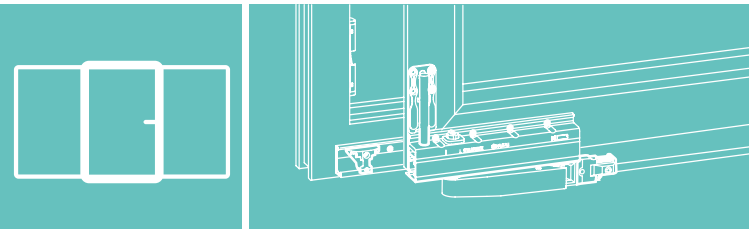




TECHNOLOGY IN MOTION

MACO RAIL-SYSTEMS

SLIDING HARDWARE



Operating and maintenance instructions
for slide & tilt standard, self-engaging,
positive control and PAS
END USERS



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These operating and maintenance instructions are intended for end users and must be retained. All users must be informed about the content for security reasons. Keep this manual for future reference!

This manual is also available for download at www.maco.eu - Order number 757803.



Explanations to this manual

 **DANGER**

DANGER indicates a hazardous situation which, if not avoided, will result in **death or fatal injury**.

 **WARNING**

WARNING indicates a hazardous situation which, if not avoided, could result in **death or serious injury**.

 **CAUTION**

CAUTION indicates a hazardous situation, if not avoided, could result in **minor or moderate injury**.

NOTICE

NOTICE is used to address practices **not** related to **personal injury**.

Proper use

- › For vertically installed windows or casement doors with sliding hardware in building construction, these are lifted and shifted horizontally by operating a window handle. In the case of special designs, the sashes can also be pushed together in to a bundle when slid.
- › When closing and locking the window, the window must lock in place and the window weatherseal should not permit the window to remain unlocked and out of place.

Functionality when in open or ventilation positions

Opened window sashes, casement doors as well as windows and casement door sashes in ventilation position (e.g. tilted position) serve in a shielding capacity only. They do not meet the requirements of:


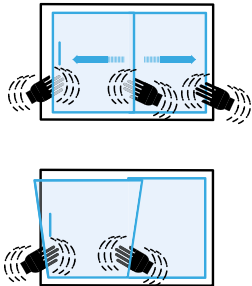
- › joint tightness
- › sound insulation
- › burglar-inhibiting
- › watertightness
- › thermal insulation

NOTICE

The properties listed only apply for window sashes and casement doors with sliding hardware when locked.

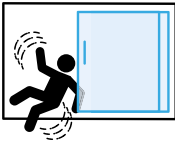
Safety and warning informations

The following symbols illustrate the risks presented by windows and casement doors:

 DANGER	
	Crush hazard <ul style="list-style-type: none">• Moving parts can crush and cut body parts.• Keep body parts clear of moving parts.• Keep children and people who cannot appreciate the risks involved, away from danger zones.



DANGER

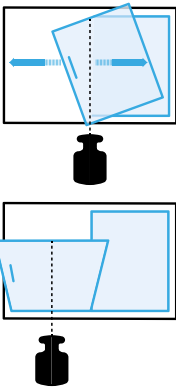


Fall hazard

- Death or serious injury will result from falling through opened windows and casement doors.
- Do not lean forward or lean out when near open windows and casement doors.
- Keep children and people who cannot appreciate the risks involved away from open windows and casement doors.



DANGER

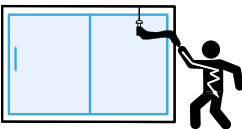


Additional loads on sash

- Destroyed hardware, frame materials or other components of windows and casement windows cause sash to pop out of its guide.
- Severe injuries or death are caused by a sash falling out.
- Do not subject the sash to additional loads.



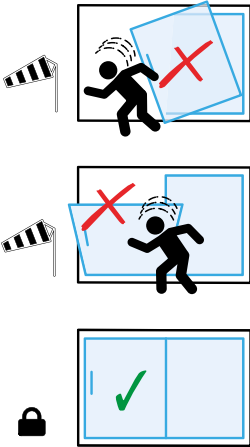
DANGER



Electrical hazard

- Severe injuries or death are caused by electricity.
- Keep away!
- Authorized personnel only.

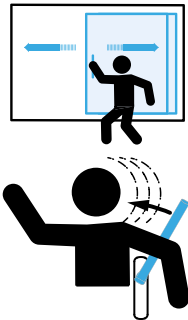
WARNING



Wind hazard

- Severe injuries or death are caused by windswept windows and casement doors.
- Avoid opening the window when winds and storms are forecast.
- Close and lock the window or balcony door sash in the event of wind and drafts.
- Lock all sashes closed when winds and storms are forecast.

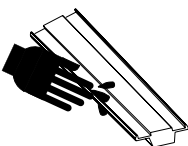
WARNING



Risk of injury due to backward snap handle with sash above 440.92 lb

- Severe injuries or death caused due to backward snap handle.
- Do not release the handle while the sash is in motion.
- Do not release the handle till the sash is safely locked.

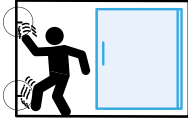
WARNING



Cut/ sever hazard

- Be alert!
- Guide track has sharp edges.
- Be aware of sharp edges when touching the guide tracks.

WARNING



Outstanding parts on the frame

- Outstanding parts mounted on the frame.
- Parts can cause severe injuries.
- Be aware of the protruding parts when passaging.

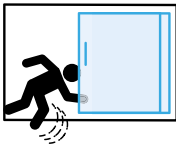
CAUTION



Sash not open

- Be alert!
- Passage only with fully open sash.

CAUTION

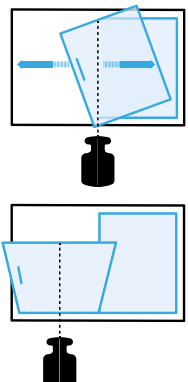


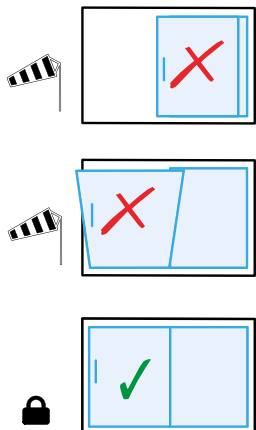
Trip hazard

- Be alert!
- Watch your step!

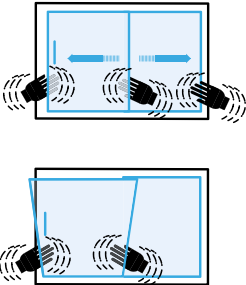
Misuse

The following illustrations show various misuse operations that must be prevented!

NOTICE	
	<p>Additional loads on the slide & tilt element</p> <ul style="list-style-type: none"> The hardware, frame materials or other components of the slide & tilt element are destroyed. If excessive loads are to be expected on the slide & tilt element in special circumstances suitable measures must be adopted to prevent this.

NOTICE	
	<p>Wind Hazard</p> <ul style="list-style-type: none"> The hardware, frame materials or other components of the slide & tilt element are destroyed. Never swing the sash open during winds and drafts. Always close and lock the door when wind or drafts come up. Prevent wind from affecting the open slide & tilt element. If high winds or storms are coming, close and lock all doors.

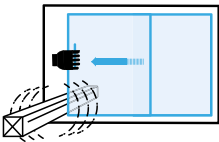
NOTICE



Uncontrolled opening and closing of the sash

- The hardware, frame materials or other components of the slide & tilt element are destroyed.
- Never slash the sash in an uncontrolled manner.
- Ensure when closing the sash, the sash does not hit the frame or another sash.
- The sash is to be guided through its entire range of motion to the fully closed position by hand and brought very slowly and without resistance of the frame.

NOTICE



Objects in opening range

- Objects stuck between the sash and the frame cause damage to the frame, the hardware and the sash.
- Never put any obstacles between sash and frame.


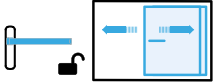

In the event of obvious or visible damage or improper function, the window or casement door must no longer be operated and must be repaired right away by a certified specialist before any further use! Claims of any kind arising from damage caused from use that does not correspond to the intended purpose or misuse are excluded.

If in doubt, please ask your window supplier.



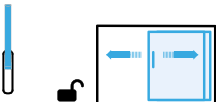

Operating informations

The following symbols indicate the different possible lever positions and the resulting sash positions of the windows and casement doors.

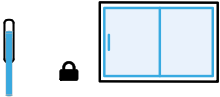

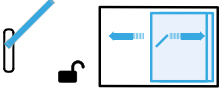

S&T-S & PAS

Lever / sash position	Meaning
	Sash closed position
	Sash slide opening position
	Sash tilt opening position

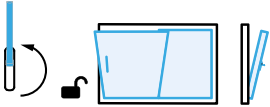
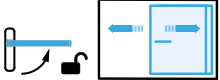

S&T-SE

Lever / sash position	Meaning
	Sash closed position
	Sash tilt opening position
	Sash slide opening position
	

S&T-Z

Lever / sash position	Meaning
	Sash closed position
	Sash tilt opening position
	Sash slide opening position
	

S&T-upgrade

Lever / sash position	Meaning
	Sash tilt opening position
	Sash slide opening position
	Sash closed position



Cleaning informations

Regular cleaning is a prerequisite for preserving the service life and functionality of the window. When cleaning the glass surfaces and the other surfaces, also check the hardware components for contamination and, if necessary clean with a damp cloth and a pH-neutral cleaning agent. Only close the window or casement door once the cleaned parts are dry.

To maintain the surface quality of the hardware components for the intended use in the long-term and to avoid deterioration, the following points must be observed:

Protection against corrosion:

- › Ventilate the hardware and the rebate areas so that they are not exposed to direct moisture or condensation (important during the building stage).
- › Clean the hardware components with a moist cloth only, avoid permanent wetness!

Protection against soiling:

- › The hardware should generally be kept free of deposits (e.g. salt in coastal areas) and soiling. Immediately remove soiling during the building stage caused by plaster, mortar or similar with water.
- › Protect hardware and striker plates from contamination (dust, dirt, paint, etc.).

Protection against corrosive, acidiferous cleaning agents:

- › Clean the hardware with a soft, lint-free cloth and a mild, pH-neutral cleaning agent in diluted form only. Never use aggressive, acidic or solvent-based or abrasive cleaners (scouring pads, steel wool, etc.). This can result in damage to the hardware!
- › If hardware is damaged in this manner, it may impair the function and/or impair the safety-relevant characteristics, and as a consequence, this can result in personal injury and damage of other items.



Maintenance instructions

Your windows or casement doors are equipped with high quality and durable MACO hardware. The following maintenance instructions and prescribed intervals must be observed and followed in order to ensure that they remain functional and safe for years to come.

NOTICE

In addition to regular cleaning, window and casement door hardware requires regular inspection and maintenance to ensure usability and safety. We therefore recommend an appropriate maintenance contract with the manufacturer of your windows and casement doors.

Inspections	End Users	Certified specialist
Check for free motion of the slide & tilt / parallel-stop unit and the smooth running and position of the handle in the closed position (precise vertical position upwards) and, if necessary, arrange for a certified specialist to readjust the slide & tilt / parallel-stop unit.	✓	✓
Check all hardware components and striker plates for obvious damage or wear (abrasion) and, if necessary, arrange for replacement by a certified specialist.	✓	✓
Check all moving hardware components and striker plates for proper function and lubricate / oil them.	✓	✓
Check fixing screws and tighten or replace as necessary.	✗	✓
Setting of the gasket compression on the gear side, for standard and hook drive gears.	✗	✓
Checking the gasket compression for the locking cams or i.S. cams and readjusting as necessary.	✗	✓

✗ = only be undertaken by a certified specialist

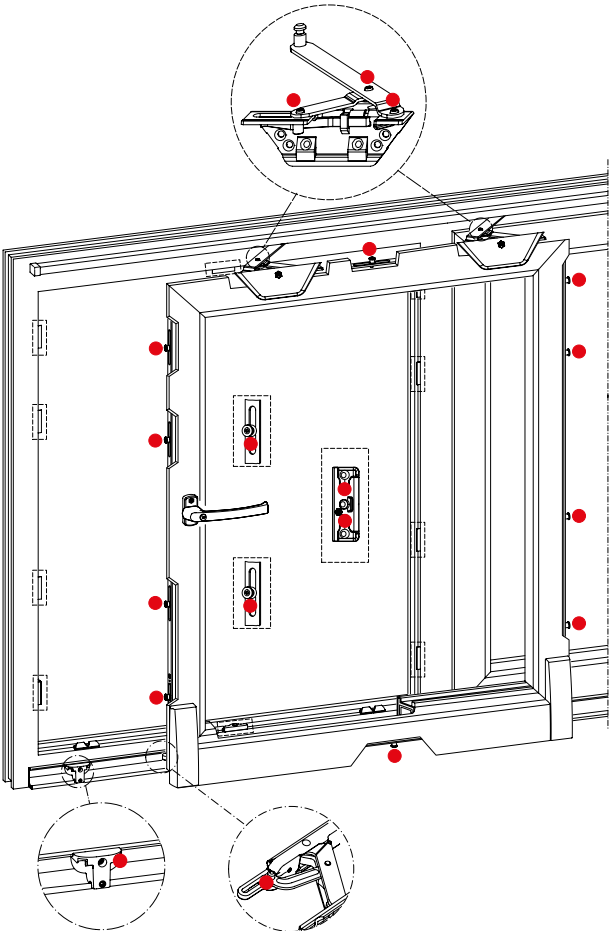
Inspection intervals

Verified initial inspection **6 - 12 months** after installation

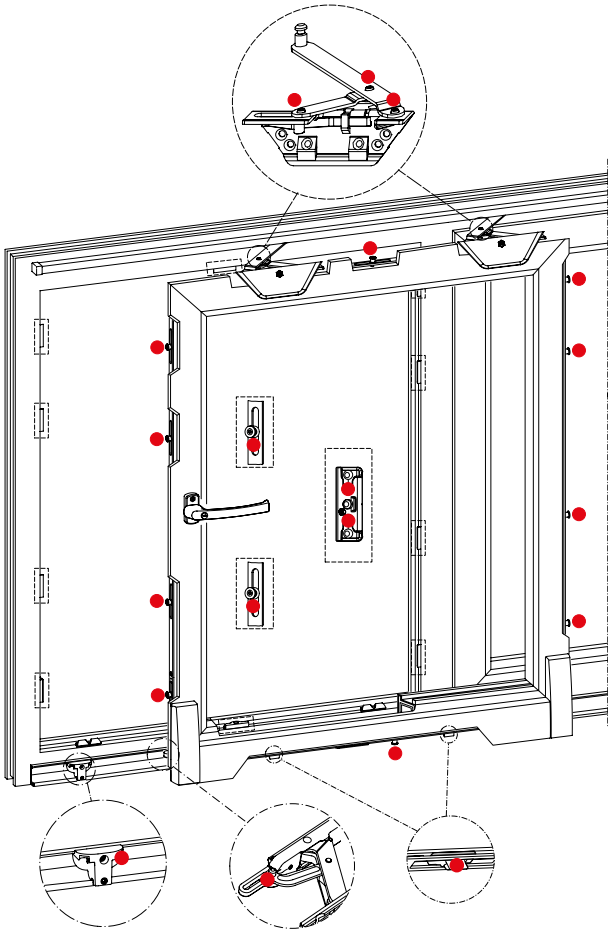
Private user: Inspection every **12 - 18 months**

Commercial use: Inspection every **12 - 18 months** (depending on the intensity of loads)

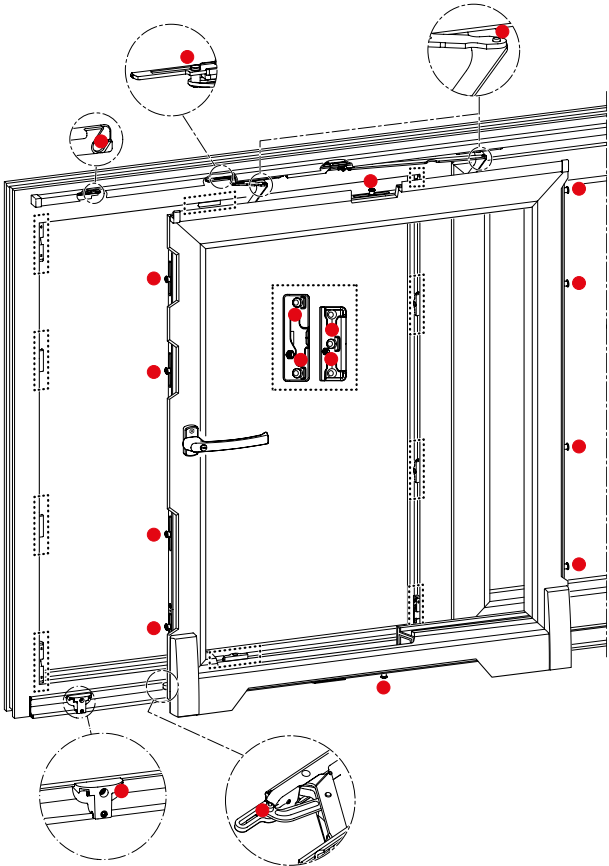
S&T-S hardware lubrication points



S&T-SE hardware lubrication points



PAS hardware lubrication points



- › The images shown are purely symbolic. The location and number of lubrication points (●) depends on the actual size and design of the window/casement door.
- › Lubricate all moving parts and locking points of the tilt & slide and parallel-stop slide hardware.
- › Grease for hardware:
Adhesive lubricant with PTFE in a spray format, e.g. OKS 3751 or equivalent.
- › The hardware must be operated several times after lubrication in order to distribute the lubricant.



Spare parts, customer service

Spare parts or customer services can be acquired from window suppliers or window manufacturers. A list of manufacturers and dealers can be found at www.maco.eu.

Disposal

Disposal of hardware must comply with local regulations or laws.

Applied standards

EN 14351: 2010	Windows and doors - product standard
EN 1191: 2013	Windows and doors - Resistance to repeated opening and closing
EN 13126-8: 2006	Building hardware for windows and doors – Part 8 Requirements and test methods
EN 1670: 2008	Locks and building hardware – corrosion resistance – Requirements and test methods

If you have any ideas or suggestions for improving our instructions, please send them by e-mail to: feedback@maco.eu



Notes

A large rectangular area filled with a fine grid pattern, intended for taking notes.



TECHNOLOGY IN MOTION

MACO near you:

www.maco.eu/contact

Date: 07/2019 - changed: 15.02.2023

Order No. 757803

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