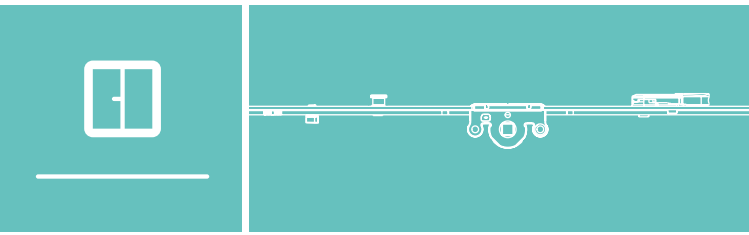
TECHNOLOGY IN MOTION

MACO MULTI

TURN-ONLY AND TURN&TILT HARDWARE



Operating and maintenance instructions for Turn, Turn-Tilt and Tilt-Turn windows

END USERS

Contents

WARNING!

These operating and maintenance instructions are intended for the user (end user) and must be kept for future reference.
For safety reasons, all users must be informed of their content.
If it is not certain that the information is available to all users, then a sticker must be attached to the window or a tag must be attached to the handle!
This sticker/tag can be requested from the manufacturer of your window.

This guide is also available at www.maco.eu for download, order number 757071EN.

Stipulated application and misuse

Intended use
For vertically installed windows and casement doors in building construction, window or casement door sashes with MACO turn-only or turn&tilt hardware are brought inward into a turning position or brought inward into a tilted position limited by the scissor stay design using a window handle.
When closing a sash and when locking the hardware in place, the resistance of the seal must be overcome as a rule.

 **WARNING!**

Risk of injury and property damage by improper opening and closing of sashes!
Improper opening and closing of the sashes can cause serious injury and considerable property damage! For this reason:
- It is important to make sure that the sash is guided over the entire range of motion with the handle, controlled at very low speed, and contacts to the frame without any resistance, to the absolute closing position!
- Ensure that the sash never slams in an uncontrolled manner or is allowed to swing open (wind or draught)!
- Ensure that when closing the sash does not hit the frame or another sash (3-sashed window)!

Any use beyond the range of stipulated application or other use or processing of the products is considered misuse and can lead to dangerous situations!

 **WARNING!**

DANGER DUE TO MISUSE!
Misuse of windows and casement doors can lead to dangerous situations. In particular, the following applications shall be avoided (see also safety instructions):
- Deliberate or uncontrolled slamming or pushing of windows and casement doors against the window reveal. This can cause the hardware, frame materials or other components of windows or casement doors to be damaged or destroyed.
- Introduction of obstacles into the opening vicinity between the frame and the window or casement door sash!
- Intentional or negligent application of additional loads acting on windows and casement door sashes.
- Closing of windows and casement doors with excessive force. The sash must always enter freely into the frame without effort.

› Painting and varnishing of hardware components in the course of maintenance work, especially for wooden windows. For such work, the affected hardware must be covered, taped or removed.

 **CAUTION!**

In the event of visible damage or improper function, the window or balcony door sash may no longer be operated and must be repaired by a certified specialist!

 **IMPORTANT!**

Claims of any kind arising from damage caused from improper use or misuse are excluded from the warranty!

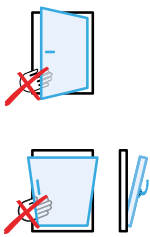
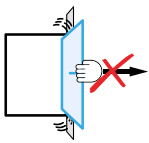
Note relating to restriction of use:
Opened window sashes and casement doors as well as windows and casement door sashes in ventilation position (e.g. tilted position) serve in a shielding capacity only. They do not meet the requirements of:

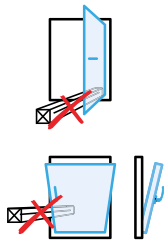
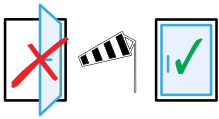
› joint tightness
› sound insulation
› burglar-inhibiting
› watertightness
› thermal insulation

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

Safety and warning information

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

Symbol	Meaning
	**Risk of injury due to catching body parts in the opening between the sash and frame** ➜ Never reach into the gap between sash and frame when closing windows and casement doors, and always proceed with caution. ➜ Keep children and people who cannot appreciate the risks involved away from danger.
	**Risk of injury due to falling through opened windows and casement doors** ➜ Always proceed with caution when near open windows and casement doors. ➜ Keep children and people who cannot appreciate the risks involved away from danger.
	**Risk of injury and property damage from pressing the sash against the opening edge (reveal)** ➜ Refrain from pressing the sash against the opening edge (reveal).

Symbol	Meaning
	**Risk of injury resulting from obstacles in the gap between the sash and frame** ➜ Refrain from placing obstacles in the gap between the sash and frame.
	**Risk of injury and property damage due to additional loads on the sash** ➜ Avoid additional loading of the sash.
	**Risk of injury due to wind action** ➜ Avoid the action of wind on the open sash ➜ 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.

NOTE!

A fixed opening position for window and casement door sashes can only be achieved by means of additional hardware!

Special accessories are available to inhibit windows from slamming in the tilted position, whether due to their position or due to wind or draughts. You need to order these parts specially when required.

CAUTION!

In the event of visible damage or improper function, the window or balcony door sash may no longer be operated and must be repaired by a certified specialist!

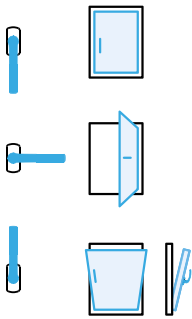
WARNING!

The sash fall protection SAFETY PIN is only designed for a one-time protective use!
After using this protective device, all components of the Safety Pin must be replaced! Further use is not permitted!

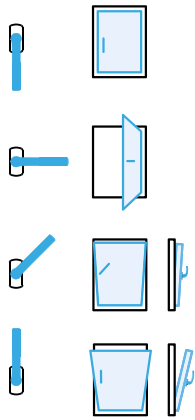
Operating instructions

Illustrative symbols
The following icons indicate the different possible handle positions and the resulting sash positions of the window and balcony door sashes (proper function).

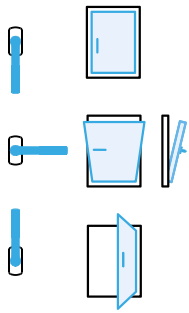
Turn&tilt hardware

Lever / sash position	Meaning
	Closed position of the sash (if the room is unattended or no ventilation is desired)
	Rotational position of the sash (for short-term ventilation and rapid ventilation of the room or cleaning the outside windows)
	Tilted position of the sash (for continuous ventilation of the room)

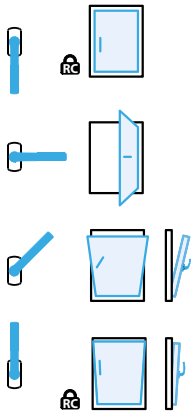
Turn&tilt hardware with night-vent

Lever / sash position	Meaning
	Closed position of the sash (if the room is unattended or no ventilation is desired)
	Rotational position of the sash (for short-term ventilation and rapid ventilation of the room or cleaning the outside windows)
	Opening to a gap or night-vent position of the sash (for longer airing at low outdoor temperatures)
	Tilted position of the sash (for continuous ventilation of the room)

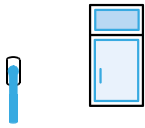
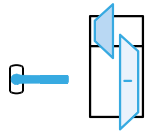
Tilt-first hardware

Lever / sash position	Meaning
	Closed position of the sash (if the room is unattended or no ventilation is desired)
	Tilted position of the sash (for continuous ventilation of the room)
	Rotational position of the sash (for short-term ventilation and rapid ventilation of the room or cleaning the outside windows)

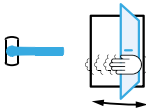
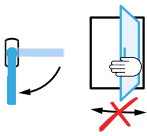
MULTI SECUAIR - Secured ventilation

Lever / sash position	Meaning
	Locked position of the sash (if the room is unattended or no ventilation is desired)
	Turning position of the sash (for short-term or shock ventilation of the room or for cleaning the outer panes)
	Tilt position of the sash (for continuous ventilation of the room)
	Secured ventilation position (for reduced, safe continuous ventilation during absence)

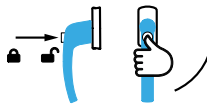
MULTI SKY - hardware for skylight

Lever / sash position	Meaning
	Locked position of both sashes (if the room is unattended or no ventilation is desired)
	Turning position of the central and the skylight sash (for short-term or shock ventilation of the room)
	Tilt position of the skylight sash (for continuous ventilation of the room)

comfort adjuster (locked sash in turning position)

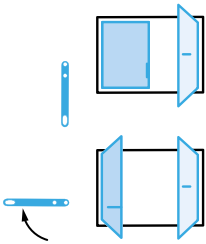
Lever / sash position	Meaning
	Closed or locked turning position
 	Turning positons of the sash

Window handles with locking button or key locking

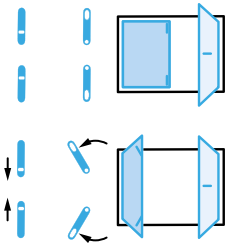
	Press and hold the locking button to actuate the handle
	Unlock the key to actuate the handle.

Instructions for using French window sashes (2-sashed windows)
Locking and unlocking is done using one or two levers or sliders on the side of the second opening sash. The first sash must be unlocked and opened first using the window handle in order to reach the lever(s) or slider(s).

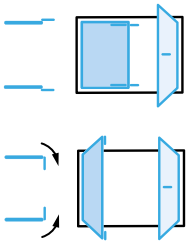
Faceplate drive gear

Lever / sash position	Meaning
	Locked position of the sash
	Turning position of the sash

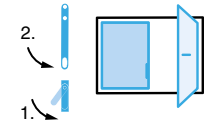
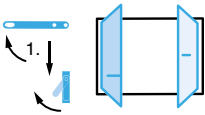
Edge bolt

Lever / sash position	Meaning
	Locked position of the sash
	Turning position of the sash

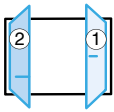
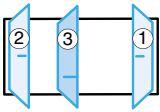
Faceplate lock

Lever / sash position	Meaning
	Locked position of the sash
	Turning position of the sash

MULTI Zero 2-sash

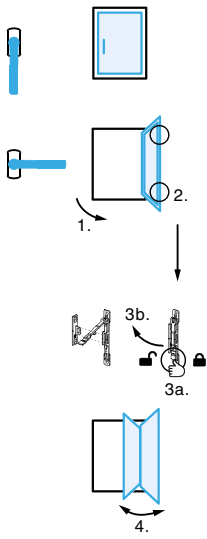
Lever / sash position	Meaning
	Closing position of the sash First, pull and hold the mishandling device towards the sash. Then swing in the lever.
	Turning position of the sash Swing out the lever. The lifting mishandling device is swung out independently.

Notes concerning the opening sequence

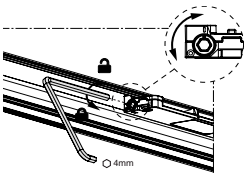
	2-sashed windows
	3-sashed windows

The central sash is always the last sash to be opened!

Notes on the operation of coupled sashes
Aluminium coupled sashes are additional window sashes which are fixed on the outside of the main sash. For cleaning, these two connected sashes can be folded apart.

Handle / Sash position	Operation
	Sash in the closed position
	Sash in the turned position
	Releasing the coupled sash
	Sash in the cleaning position

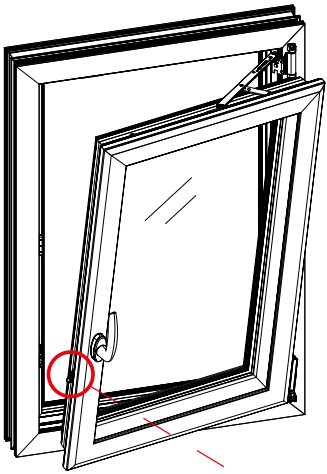
Note on operation of the concealed window rebate valve
Concealed window rebate valves are used for minimum ventilation independent of user action (damp and mould protection).
If required, they can be manually locked and unlocked.

Locking setting	Value
	I = Concealed window rebate valve is unlocked, air inlet is open
	O = Concealed window rebate valve is locked, air inlet is closed

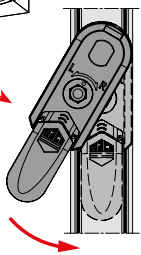
Use and cleaning information

A faulty position occurs when the sash allows a rotating AND tilting motion at the same time (see picture)!

Faulty position:



Note on rectifying faulty positions:



Sash lifter

Should mishandling occur despite the device being installed:

1. Press sash lifter close to the handle in the middle and hold (red arrow - vertical position).
2. Press the sash into the frame on the hinge side, then shift the handle into the tilted position.
3. Now press the sash fully into the frame and turn the handle to the closed position.

General use information:

Open windows and casement doors always represent a danger zone!

WARNING!

Risk of injury when closing windows and casement doors! Risk of crushing in the event of reaching in between sash and frame when closing the window or casement door!

For this reason:

› When closing windows and casement doors, never reach between sash and frame, and always proceed with caution.

› Keep children and people who cannot appreciate the risks involved away from danger.
› Close and lock the window or casement door sash in the event of wind and drafts.
Otherwise the window or casement door sash can move in an uncontrolled manner or bang open due to the draught! If the sash is not locked closed, damage to the window or other items may occur and personal injury is also possible.
› Small parts under the opening area of casement doors can lead to damage to the flooring.

WARNING!

Risk of damage due to smaller items in the opening area of casement doors. Due to the opening movements, these parts are trapped between the sash and floor, thereby resulting in damage.

General cleaning information:

Regular cleaning is a prerequisite for ensuring a long service life and functionality of the equipment. When cleaning the glass surfaces, also check the surfaces of the hardware for contamination and, if necessary, clean with a damp, lint-free cleaning cloth and a pH-neutral detergent. The greasing at the lubrication points must then be restored in accordance with pages 22 to 24. Only then may the window or French window be closed again.

› **Cleaning information for glass surfaces:**

Commercially available glass cleaners which are free from ammonium chloride can be used to clean glass surfaces. Detergent solutions, acids or fluoride cleaning agents or abrasives must not

be used. Stubborn dirt such as paint splatter and similar can be removed with ethyl alcohol, cleaning benzine or similar.
Only clean glass surfaces with a soft lint-free cloth. Never use microfibre cloths, cleaning sponges, scouring cloths, steel wool, metal and abrasive items or similar – these will scratch the glass surface.

› **Cleaning information for seals:**

Only use mild cleaning agents to clean the seals. Do not use any dissolving cleaning agents such as acetone, nitro-cellulose thinners, alcohols, acids, alkalis or similar. These dissolve the surface texture of seals. The flexibility of the seal, and thus the service life, can be extended with special cleaning materials for seals (e.g. Vaseline, talc, liquid silicones). These should be applied around once a year. When cleaning the gaskets, repeated and vigorous rubbing must be avoided!

CAUTION!

Microfibre cloths contains substances and fibres that can destroy the surface of the glass and the seals. Microfibre cloths are therefore unsuitable for cleaning windows!

Cleaning information for window frames and sashes:

› **PVC surface:**

In general, PVC surfaces should always be wet-cleaned. Wiping when dry leads to a matt, dull surface due to dust and soiling. Only use soft, lint-free cleaning cloths for cleaning. The products offered as cleaning agents have been specially developed for taking care of PVC surfaces/decorative surfaces and their compatibility has been proven. Cleaning agents containing soap are generally suitable.
Abrasive cleaning agents and cleaning agents containing solvents can scratch or dissolve the surface and therefore must not be used. In the case of heavier soiling, simply give the cleaning agent more time to work. The use of shine sealers can extend the cleaning interval and make cleaning easier. The surface temperature must not exceed 25°C during cleaning. Cleaning agents are available from specialised dealers or the window manufacturer.

› **Timber surface:**

Indoor timber surfaces are best cleaned with a mild cleaning such as diluted washing-up liquid or soap solution. Abrasive and

corrosive cleaning agents and cleaning agents containing solvents destroy the painted surface. Only use soft, lint-free cleaning cloths which do not scratch the painted surface for cleaning.
Window cleaning agents contain small traces of alcohol and ammonia. These agents are well suited for cleaning the glass panes and the timber surfaces. Dry the timber profiles after cleaning with a dry, soft cloth, because alcohol can soften the painted surface if left too long. External surfaces must be cleaned in the same manner as the indoor surfaces. Outside, the surface is more exposed to weathering, such as sunshine, rain, air moisture and temperature. After a long period and depending on the intensity, this can impair the surface, resulting in very small cracks and similar, for example. This slight damage must be repaired immediately (re-painting) to prevent subsequent, more extensive repairs.
Repairs and repainting of window units must only be carried out by certified specialists.

› **Aluminium surface:**

On aluminium surfaces, dirt that is not too stubborn can be removed using a sponge and water with a neutral cleaning agent, e.g. washing-up liquid, added to it. Do not use any acidic and strong alkaline cleaning agents which attack the surface. Never use abrasive cleaning agents or sponge scourers. Solvents (e.g. acetone, benzine, nitro-cellulose thinners) also damage the surface.
Surfaces must not be cleaned in direct sunlight. The surface temperature must not exceed 25°C. Cleaning agents are available from specialised dealers or the window manufacturer.

CAUTION!

Abrasive cleaning agents and cleaning agents containing solvents damage the surfaces and must not be used. Only use soft, lint-free cleaning cloths for maintenance. If necessary, test the cleaning agent and cloth in an inconspicuous area (internal rebate area or similar).

Intervals for surface maintenance and cleaning:

The position, weathering and external environmental impacts are key factors when it comes to the frequency of cleaning and maintenance. Therefore, fixed intervals cannot be specified and must be determined on an individual basis. In general, it should be noted that careful maintenance and rapid correction of minor damage can considerably extend the service life.

Maintenance information for hardware components:

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

› **Protection against corrosion:**

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

› **Protection against soiling:**

- › In general, keep the hardware free from deposits (e.g. salt in coastal areas) and contamination. Immediately remove soiling during construction caused by plaster, mortar or similar with water.
- › Protect hardware and striker plates from contamination (dust, dirt, paint, etc.).

 **ATTENTION!**
Removal of lubrication can lead to malfunction!

› **Protection against malfunction:**

- › In order for the fittings to function permanently, they must be properly lubricated again after cleaning.
- › During cleaning, grease used to lubricate the fittings can be wiped off or smudged to such an extent that it becomes ineffective. For this reason, the lubrication applied at the factory must be restored.

 **NOTE!**

Faulty or damaged parts must be immediately put right.

› **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, solvent-based or abrasive cleaners (scouring pads, steel wool, etc.). This may result in damage to the hardware!
- › If hardware is damaged in this manner, it may impair the function and the safety 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.

NOTE!

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

Inspection intervals:

Verifiable initial inspection **6–18 months** after installation, then every **3–5 years** in private use **(every 3 years for coastal areas up to 10 km inland)** and every **6–18 months** in commercial use (depending on stress intensity)	 End user	 Certified specialist
Checking for free motion of the window or casement door sash and the smooth running and position of the handle in the closed position (precise vertical position downwards) and, if necessary, arranging for a certified specialist to perform readjustment work.	✔	✔
The ground clearance of the casement door especially with threshold systems.	✔	✔
Checking all hardware and striker plates for obvious damage or wear (abrasion) and, if necessary, arranging for replacement by a certified specialist.	✔	✔
Checking all movable hardware and strikers for proper function and lubrication.	✔	✔

Inspection intervals:

Verifiable initial inspection **6–18 months** after installation, then every **3–5 years** in private use **(every 3 years for coastal areas up to 10 km inland)** and every **6–18 months** in commercial use (depending on stress intensity)	 End user	 Certified specialist
Check fixing screws and tighten or replace as necessary. The fastening screws of the concealed MULTI POWER hardware must not protrude above the baseplate under any circumstances – this leads to damage of the pivot post or scissor stay hinge!	✘	✔
Check sash lifter and adjust or replace as necessary.	✘	✔
Checking the adjustment and gasket compression (night-vent) scissor stay as well as the pivot post and corner support.	✘	✔
Checking of clamping pressure for the locking cam or i.S. cam and re-adjust as necessary.	✘	✔
Check gaskets for completeness, function (paper test, incense stick test), elasticity and deformations and replace them if necessary.	✘	✔
Check the Safety Pin (sash fall protection) for any or damage.	✘	✔

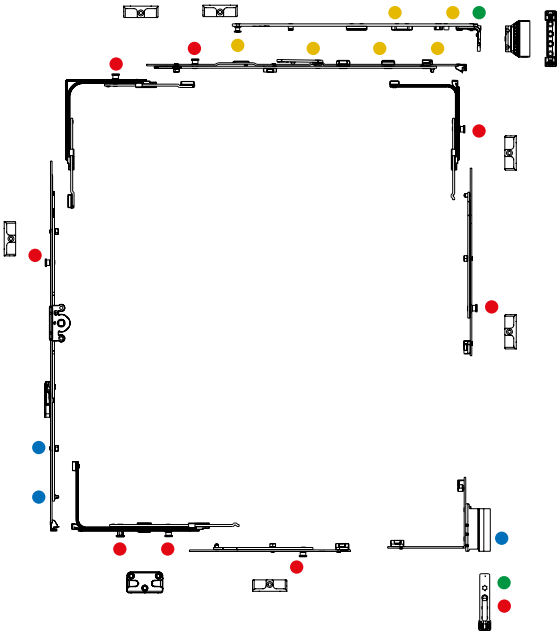
ATTENTION!

✘ = may ONLY be undertaken by a certified specialist,and NEVER by the end user!

Hinging and unhinging of the window sash or casment door sash as well as all adjustments to the hardware may only be carried out by a certified specialist! The maintenance of safety-related parts (pivot posts and scissor stay hinges) may also only be carried out by certified specialists!

The window handle needs to be operated at least once per month in order to maintain smooth operation of the internal fitting.

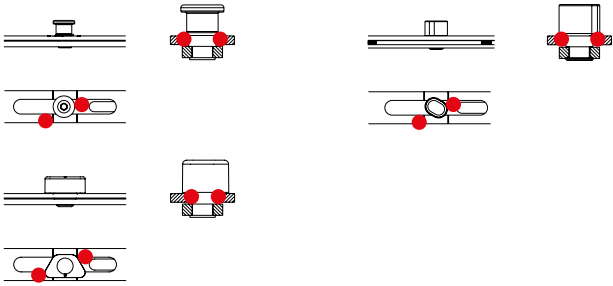
Lubrication points



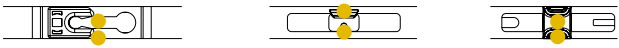
› The image shown is symbolic. The location and number of lubrication points depends on the actual size and design of the window!
› Grease for hardware:
Lubricant with PTFE in spray form, for example, OKS 3751 or equivalent (Haberkorn order no. 79937).
› Lubricant quantity:
approx. 3 mm³ (≈ size of a pinhead)
› The fitting must be operated several times subsequent to lubrication in order to properly distribute the lubricant.

Key to lubrication points

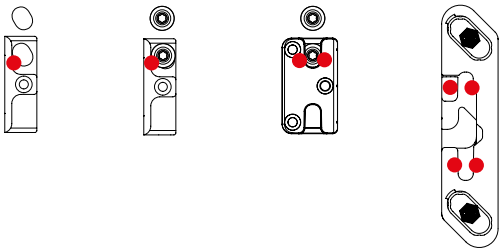
- i.S. cams or locking cams:



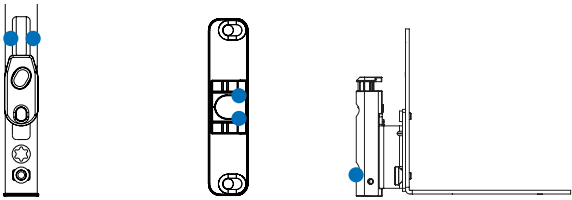
- Anti-slam device for scissor stay or scissor stay restrictor, lateral guide, centre guide:



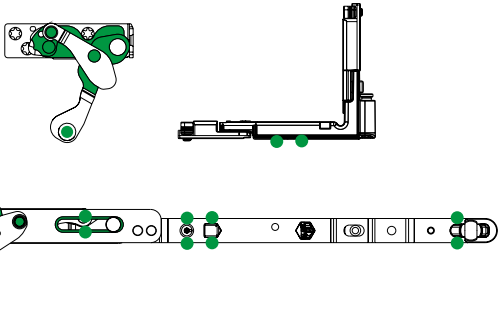
- Striker plates, security striker plates and striker plates for secured ventilation: (optional):



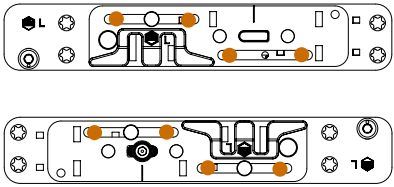
- Tilt lock bolts: (optional)
- Bullet catch:
- Rebated corner support DT160: (optional)



- MULTI POWER:
  (concealed fittings)



- MULTI SKY (skylight):
  Kinematics top and bottom part



Spare parts, customer service and disposal

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.macouk.net.

Disposal
Disposal of hardware must comply with local regulations or laws.

Applied standards

ÖN EN 14351: 2010	Windows and doors - product standard
ÖN EN 1191: 2013	Windows and doors - long term performance
ÖN EN 13126-8: 2006	Building hardware for windows and casement doors - Part 8 Requirements and test methods
ÖN EN 1670: 2008	Locks and building hardware - Corrosion resistance - Requirements and test methods

Please send any ideas or suggestions for improving our instructions by e-mail to: feedback@maco.eu

Notes

Notes

MACO near you:
www.maco.eu/contact

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