

USE AND MAINTENANCE INSTRUCTION FOR WINDOWS



CONTENT

1.	Maintenance and cleaning - aluminium parts of ALUPROF S.A system	2
	Storage	2
	Transportation	2
	Surface of aluminium profiles	3
2.	Incorrect use of windows and doors	8
3.	Correct use of windows	10
4.	Correct use of doors	14
5.	Maintenance and cleaning of hardware and fittings	17
a)	HS lifting sliding window hardware	17
b)	Diamond - ROMB hardware	18
c)	ROTO ALU 540	19
	Lubrication and technical inspection	19
d)	ROTO PATIO S	20
	Maintenance	20
	Inspection	22
	Cleaning	23
	Protection against corrosion	24
	Protection against dirt	25
	Protection against (permanently) humid air in the premises	26
e)	SOBINCO CHRONO	27

1. MAINTENANCE AND CLEANING - ALUMINIUM PARTS OF ALUPROF S.A. SYSTEM

Varnished and anodised sections and products made of those sections can be used in normal weather conditions (without aggressive fluids, gases, dust). When painted and anodised structures are installed near the coast (less than 10 km) in rural areas, in an environment exposed to the impact of industrial emissions or in an environment exposed to chemical agents or moisture (swimming pools, laboratories, etc.), special rules apply for varnish coating or the thickness of anodised coating.

STORAGE



Profiles must be stored in a dry and clean place, free from chemically active vapours or gases.

TRANSPORTATION



Profiles should be transported in covered, dry and clean means of transportation, featuring pneumatic suspension. For the duration of transport profiles should be protected against damage and harmful weather conditions.

SURFACE OF ALUMINUM PROFILES



(organic solvents, concentrated alcohol, acids, alkali and petroleum derived compounds)



(sharp tools and abrasive materials)

Powder and oxide coatings are not resistant to mechanical damage caused by sharp tools and abrasive materials.

Powder and oxide coatings are sensitive to, among other things, organic solvents, concentrated alcohol, acids, alkali and petroleum derived compounds. Therefore, coatings must always be protected against contact with the above mentioned agents.



In particular, they must be protected against contact with lime, cement and other alkaline building materials.

Weld sealants and other materials, such as glazing sealants and putty, lubricants and coolants used for cutting and drilling, adhesives, mortar for welded joints, putty, adhesive tapes, etc. coming into contact with coated surfaces, must be pH - inert and must not contain substances harmful to the applied paint or oxide layer. The impact of the sun rays intensifies aggressive effect of chemicals. Therefore the above-mentioned materials must be tested for their usefulness of the coating, prior to application.



If protective foil on profiles, used for transportation, is left on the surface of powder coating, particularly when exposed to sun rays and high temperature, it may result in chemical reactions leading to the fusion of the foil and the powder coating. In consequence the foil cannot be removed without damage to the powder coating. Films should be removed immediately after receipt of the material.

If protective foil on profiles, used for transportation, is left on the surface of powder coating, particularly when exposed to sun rays and high temperature, it may result in chemical reactions leading to the fusion of the foil and the powder coating. Films should be removed immediately after completion of assembly.



Apart from exposure to weather conditions (sun rays, frost, atmospheric precipitation) aluminium profiles in the external walls are exposed to aggressive ingredients of the air, hence contamination deposits on their surface. For this reason construction elements must be cleaned on regular basis, and the frequency of cleaning depends on the location of the structure. Cleaning frequency depends on various factors:

- geographical location of the building,
- environment (surroundings) in which the building is located, such as marine, industrial, acid/alkaline environment and the like.
- degree of atmosphere pollution,
- wind zone,
- degree of shielding of the building by neighbouring buildings,
- portability of particles (especially sand) causing erosion of the coating,
- any change to the environmental conditions of the building during its life change, such as from rural to industrial environment.



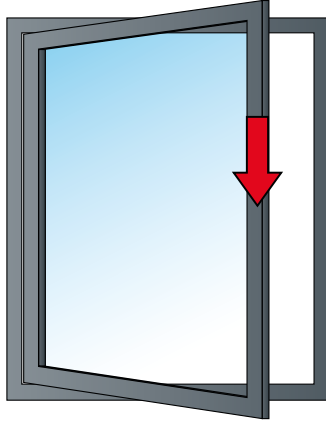
Cleaning may often cause damage of coatings and therefore the following rules must be observed:

1. Cleaning should be carried out at least twice each year. Each performed cleaning must be recorded in a protocol.
2. The recommended method for cleaning painted surfaces is regular cleaning with mild detergent solution (e.g. 5% solution of dishwashing liquid) in warm water. All surfaces should be cleaned with a soft sponge or cloth. Brushes harder than those of natural hairs must never be used (for convenience washing of windows may be carried out at the same time). After cleaning the surface should be thoroughly rinsed with clean water.
3. Anodised surfaces may be polished, after cleaning and rinsing, with a dry, soft cloth to restore the gloss, and in the case of intensive local contamination, polished slightly with abrasive polishing paste and secured with a fine layer of special preservative agent which must not contain: wax, petrolatum, lanolin or similar substances.
4. Should the atmospheric pollution cause stains that are difficult to be removed, extraction naphtha is recommended for removing stains from varnished surfaces. In this case never use abrasive materials (sandpaper, polishing pastes) or solvents containing ketones, esters or alcohols.
5. Best for cleaning is clean water. Cleaning can be more effective when using a non-scratchy decorative to wipe the surface.
6. For cleaning the surface temperature coatings must not exceed 25oC.
7. The temperature of water used for cleaning must not exceed 25oC. Never clean the coating with a jet of steam.
8. Before cleaning the surface, the effect of agents used for that purpose must be tested. The test should be performed on invisible surfaces. In case of adverse effects the tested agent should not be used.

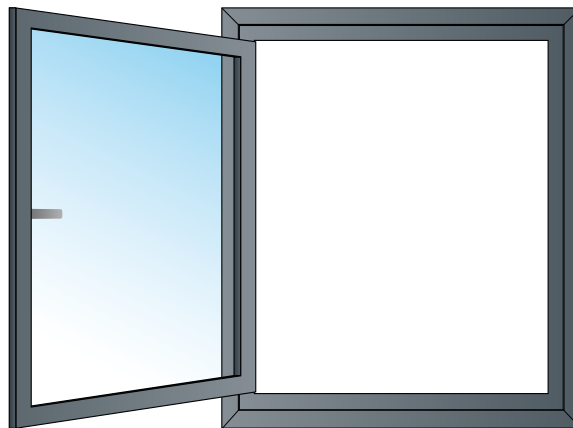
9. Never use cleaning agents with pH below 5 or above 8.
10. Do not use highly acidic or highly alkaline cleaning agents (including those containing detergents), as well as surfactants that may react with aluminium
11. Do not use abrasive cleaners or clean the surface by friction. Use soft cotton for industrial cleaning is allowed. When wiping, do not press the fabric against the cleaned surface with excessive force.
12. Do not use organic solvents containing esters, ketones, alcohols, aromatics, glycol esters, chlorinated hydrocarbons, etc.
13. Do not use detergents of unknown origin.
14. Do not use salt and chemical de-icing agents in vicinity of the profiles.
15. The maximum exposure time of the cleaning agent must not exceed one hour. If necessary the cleaning process can be repeated after 24 hours.
16. After each cleaning, the surface must be immediately rinsed with clean, cold water.
17. Periodical cleaning prevents intense contamination, very difficult to be removed. Regular weekly cleaning is recommended for external applications where decorative appearance and protective function are particularly important, e.g. portals, front store entrances, etc. In this case it is possible to use to clean water and chamois leather (suede) then wipe the profiles from top to bottom with a soft dry cloth.
18. Window frames, sills and facades must be cleaned regularly. The frequency depends on how aggressive the environment is as well as on the construction of the facade.
19. Seals made of EPDM will not require any special maintenance.

2. INCORRECT USE OF WINDOWS AND DOORS

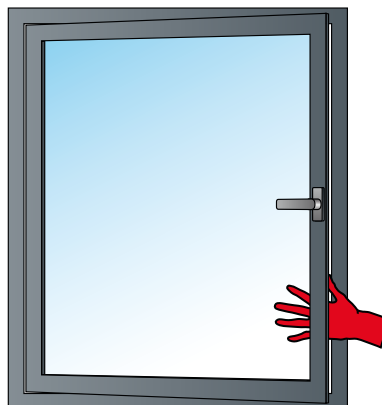
- a) the window sash must not be exposed to any other load



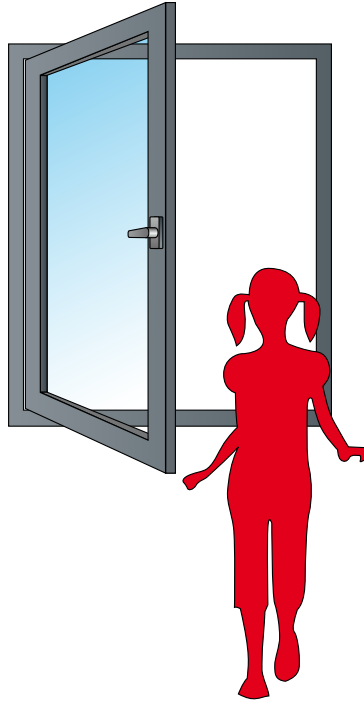
- b) never push the window sash against the reveal



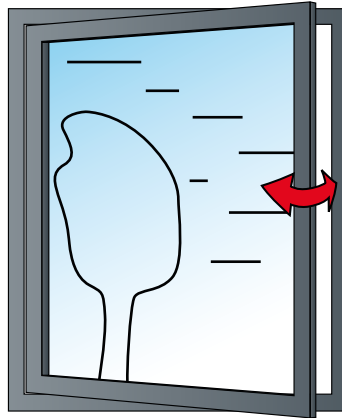
- c) snapping window sash may lead to injury. When closing the window never keep your hand between the window sash and the frame



- d) if the window can be accessed by children or people with mental disorders, install lockable latch or gape limit lock

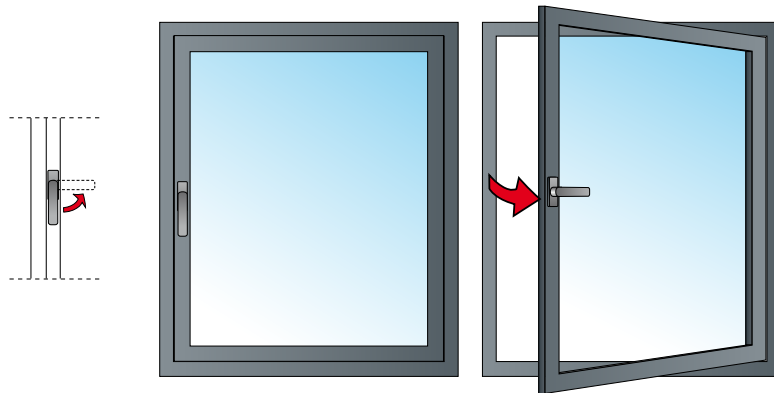


- e) never leave the window open during heavy winds

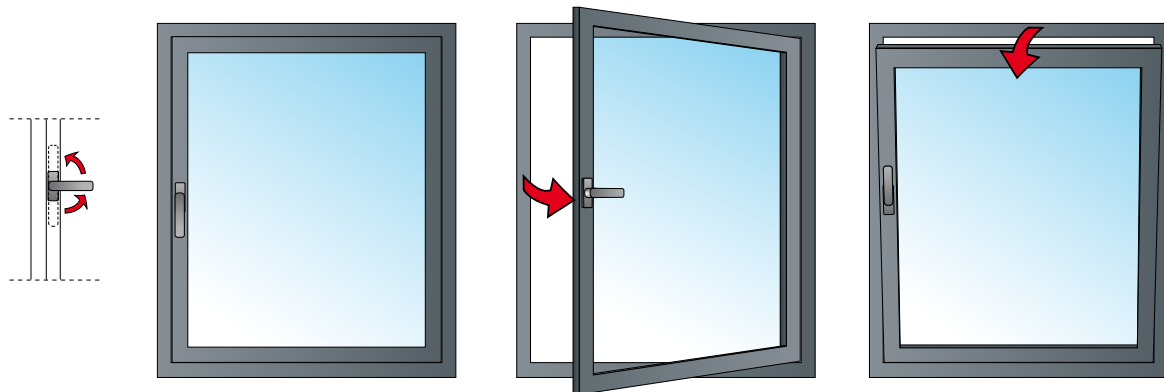


3. CORRECT USE OF WINDOWS

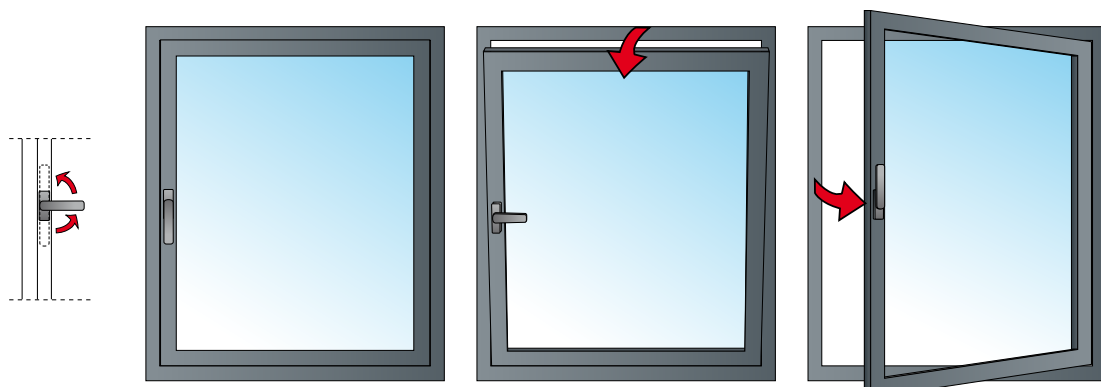
a) side-hung casement



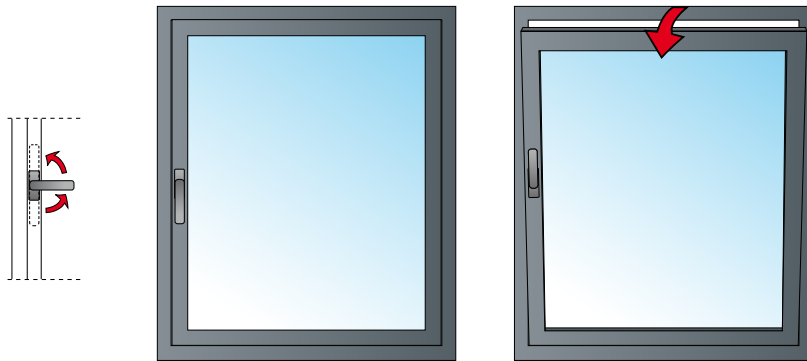
b) side-hung, bottom-hung casement



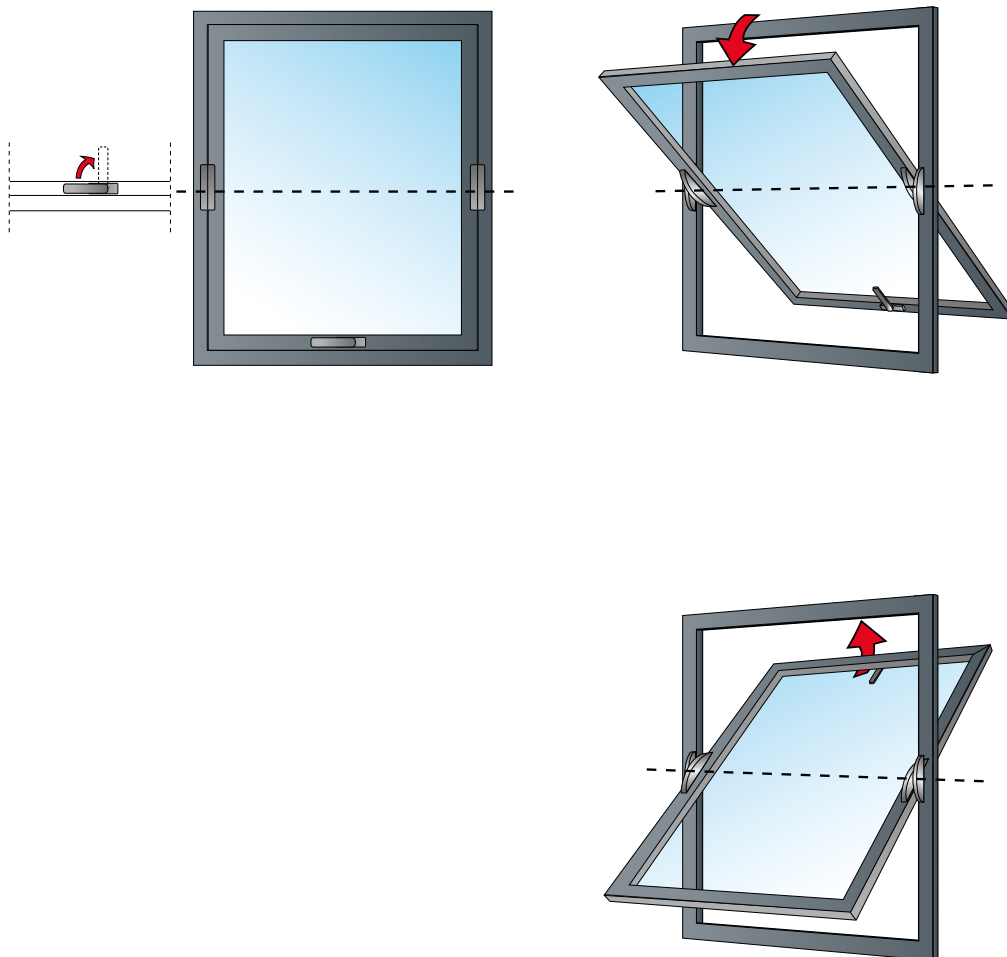
c) tilt and turn casement



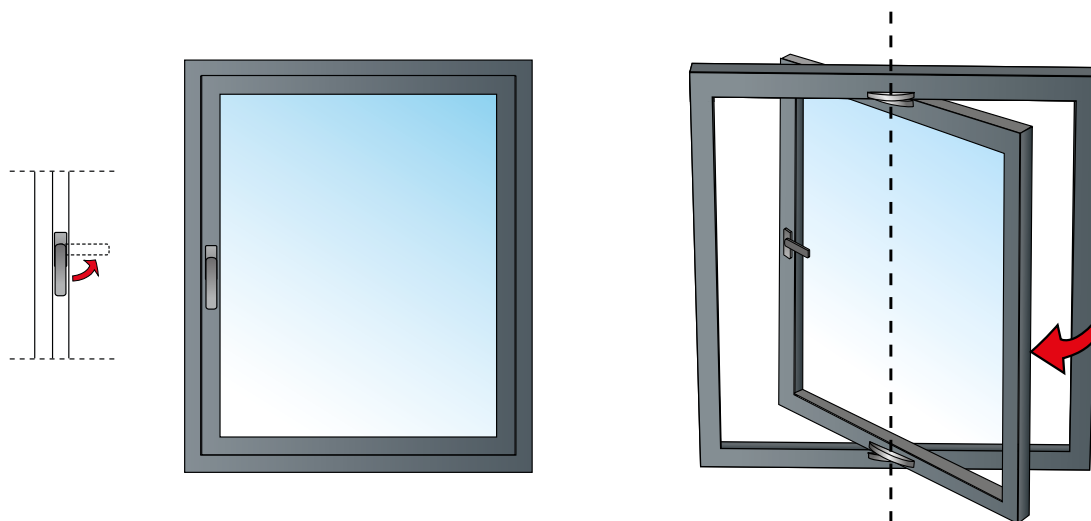
d) bottom hung casement, latch on window sash



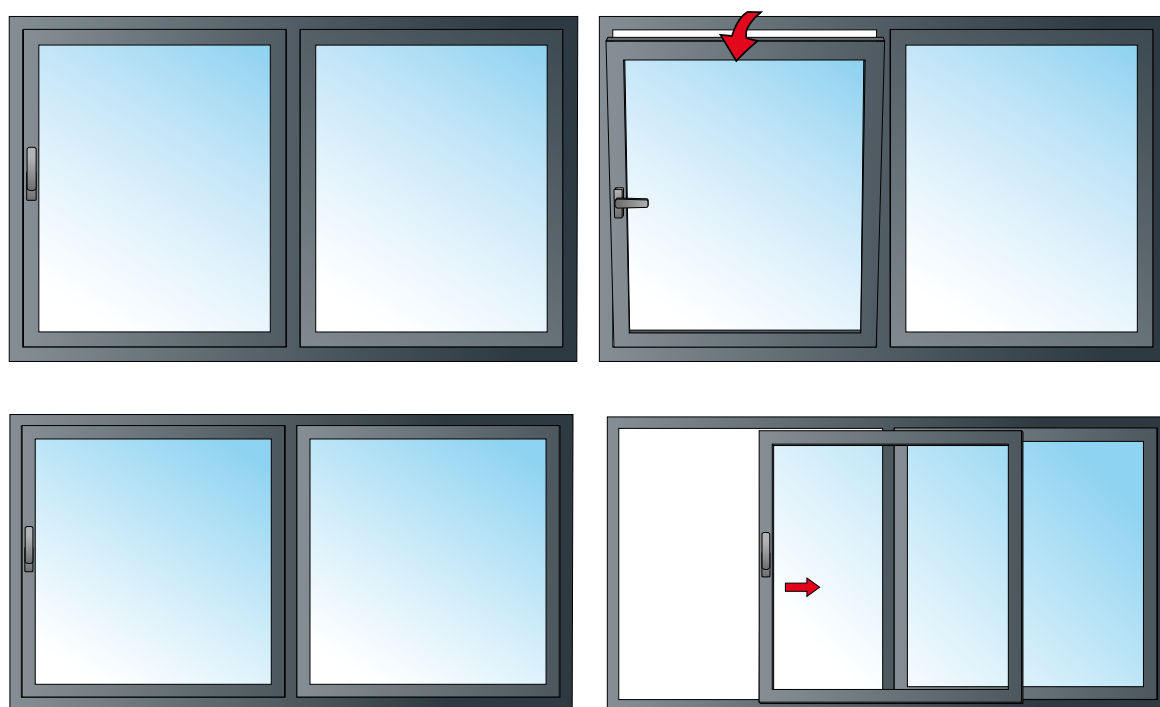
e) horizontal axis pivot casement



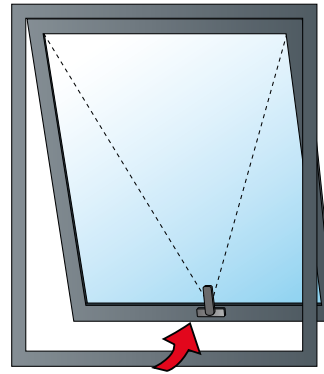
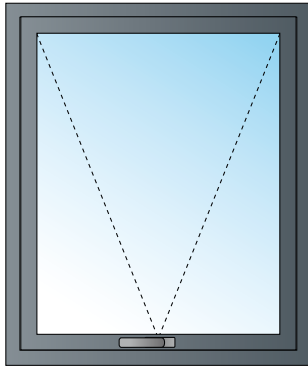
f) vertical axis pivot casement



g) tilting sliding sash

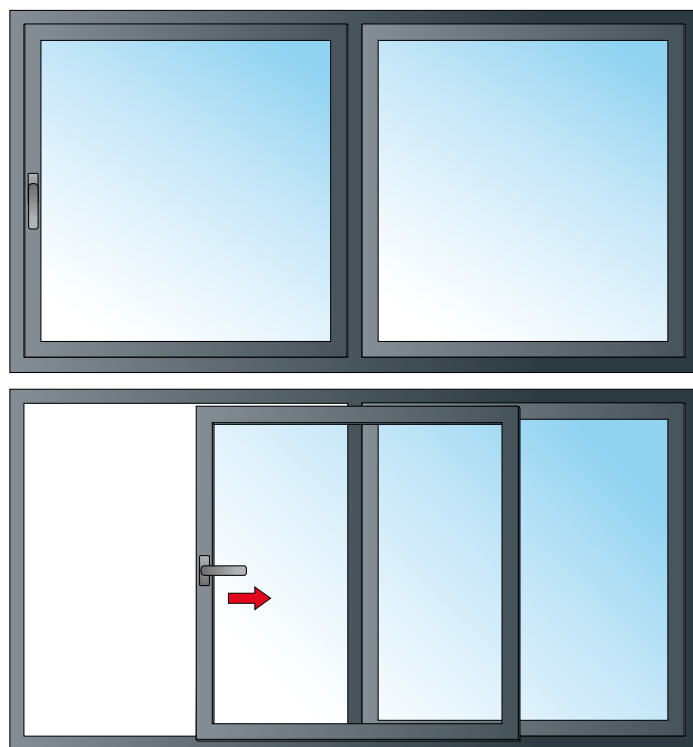


h) top-hung casement

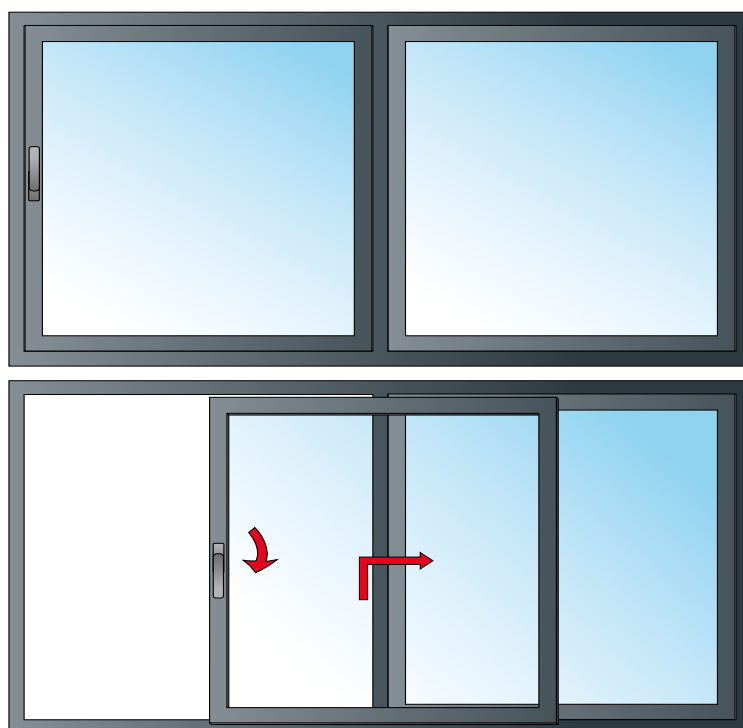


4. CORRECT USE OF DOORS

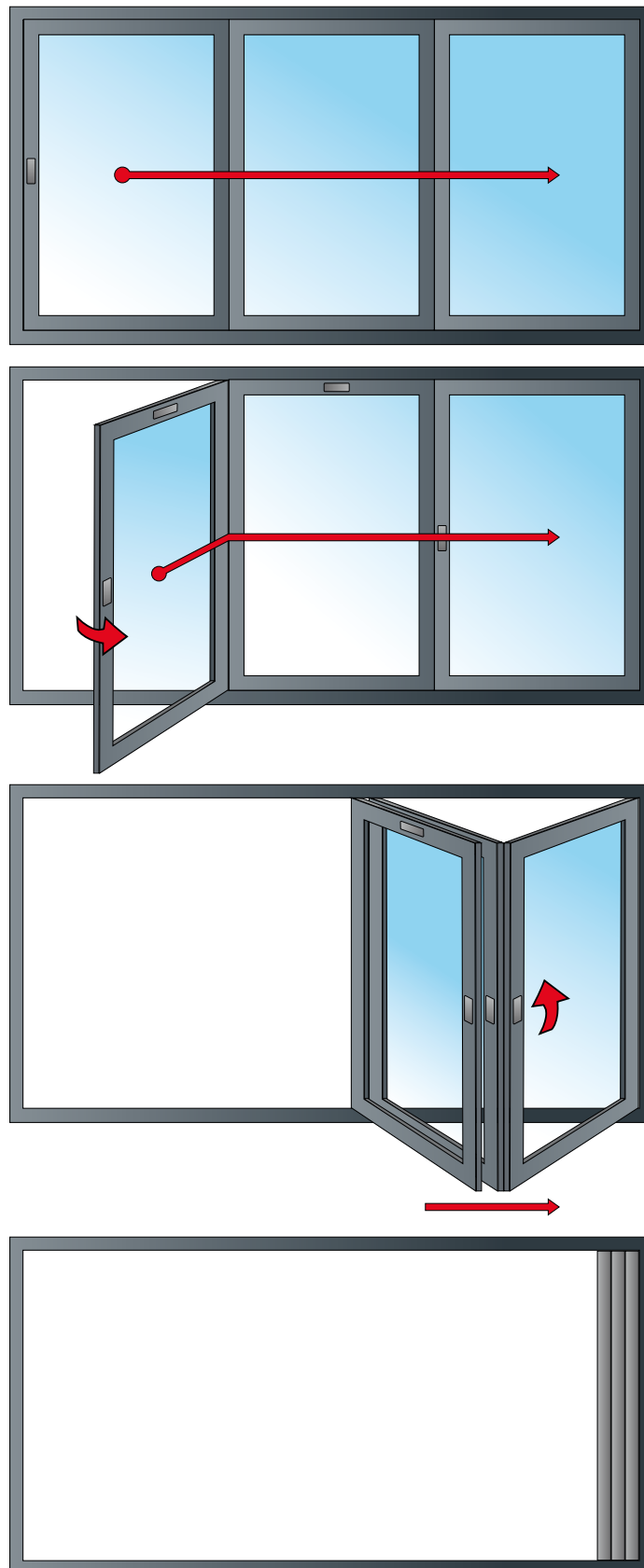
a) sliding door



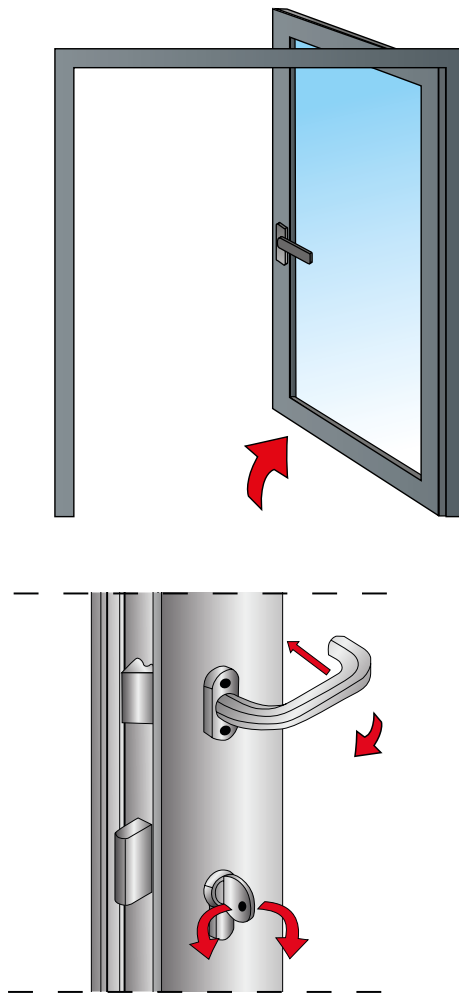
b) lifting and sliding door



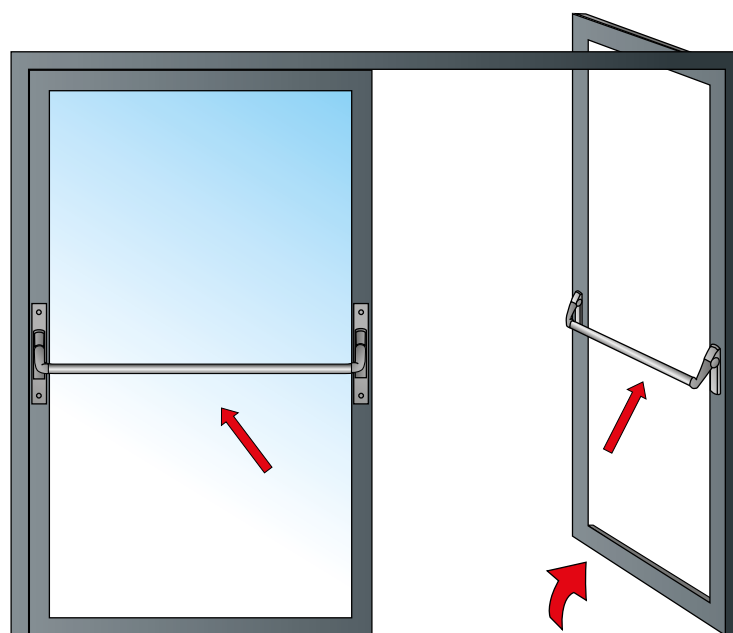
c) accordion door



d) single leaf door



e) escape door



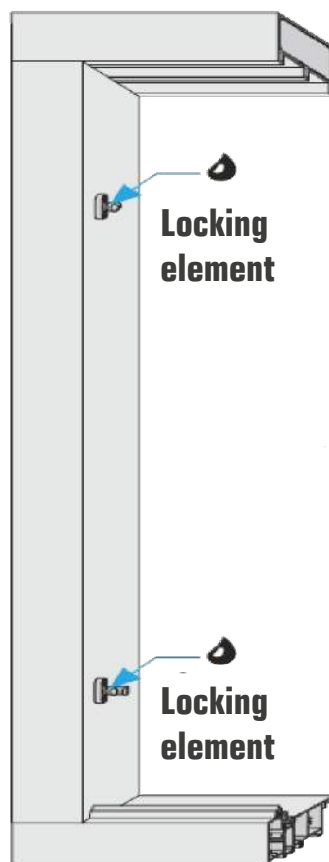
5. MAINTENANCE AND CLEANING OF HARDWARE

Maintenance recommendations for windows will vary depending on the function and manufacturer. Detailed instructions are set forth below.

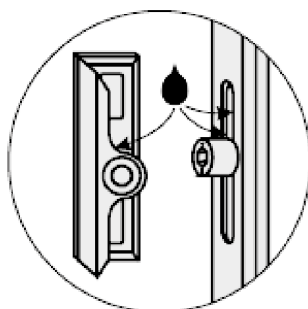
a) HS lifting sliding window hardware

For sustainable operation of this hardware the following maintenance must be performed at least once every year:

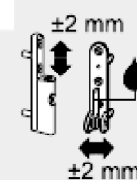
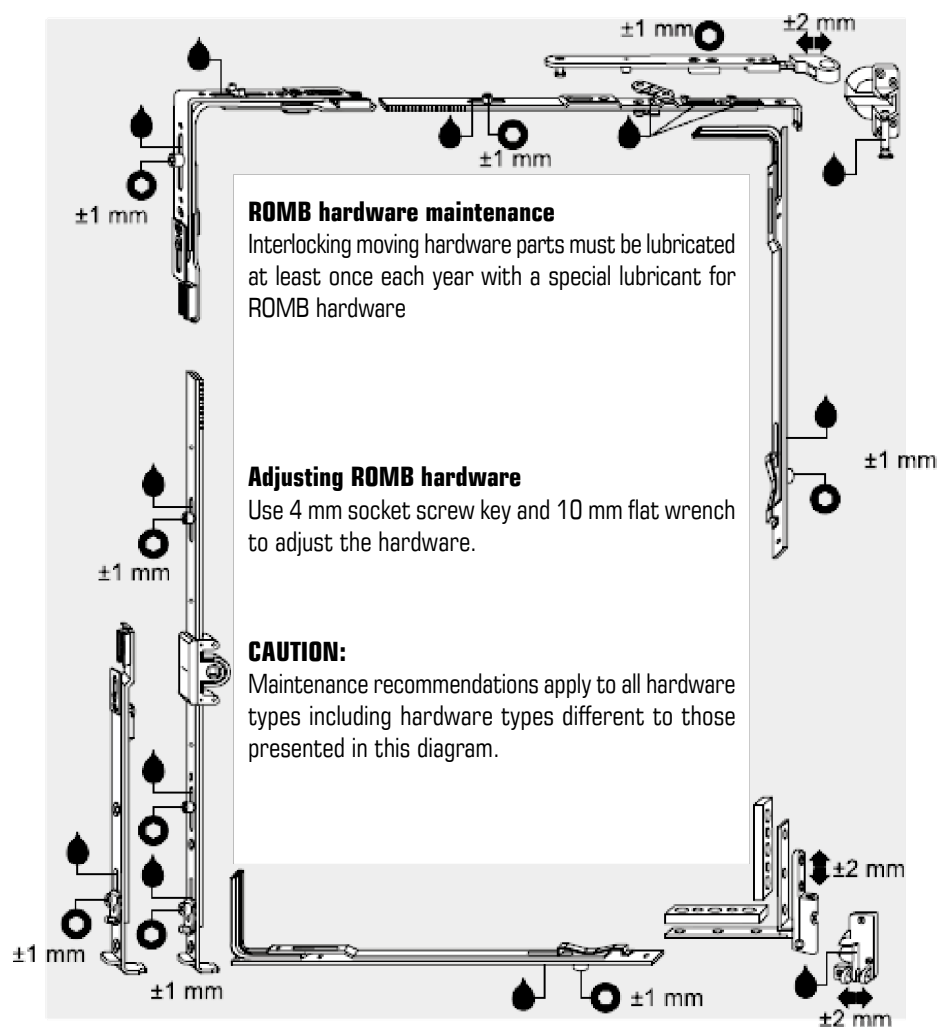
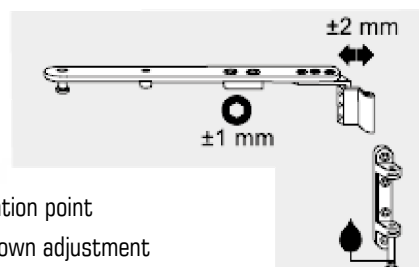
1. Lubrication or oiling of all moving parts and locking elements (see figure below).
2. The lubricant or oil must not contain acids and resins.
3. For cleaning window elements use only diluted gentle and pH-neutral cleaning agents. Never use abrasive cleaners and scrubs containing acidic. Their effect may damage the protective layer of part of the hardware.
4. Use of protective agents is recommended in order to prevent changes in the hardware coating. After cleaning hardware surface it is recommended to pre serve it with silicone free inert oils such as sewing machines oil.



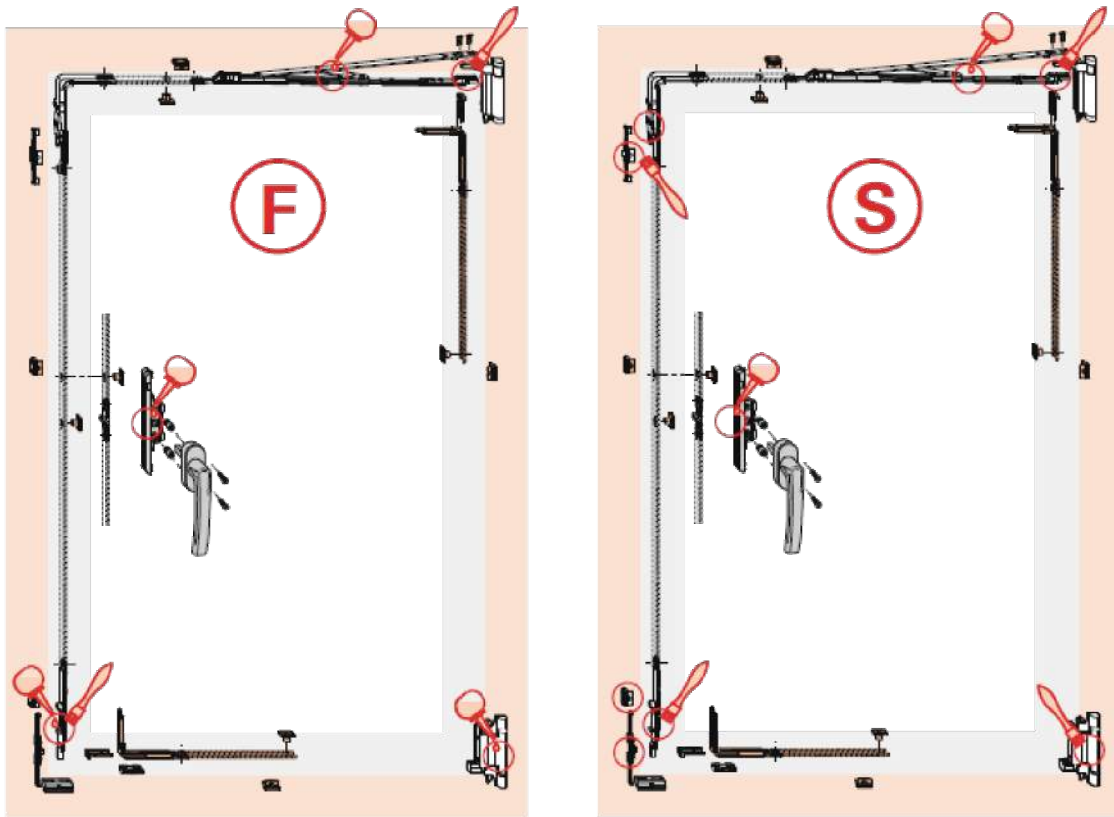
b) Diamond - ROMB hardware



- – lubrication point
- – hold-down adjustment
- ↔ – position adjustment



c) ROTO ALU 540



LUBRICATION AND TECHNICAL INSPECTION

Periodical lubrication and oiling (at least once each year) of all essential for proper functioning elements of **F** hardware on the door leaf and frame will ensure smooth operation of Roto hardware and protect it against premature wear.

The elements of **S** hardware, essential for safety, must be maintained with the utmost care. For this reason the state of wear must be inspected and the elements must be lubricated or oiled! In addition the stability of screw connections must be inspected on regular basis and any loose screws must be immediately tighten or cracked screws replaced.

d) ROTO PATIO S

MAINTENANCE



WARNING!

Improperly conducted maintenance work may lead to injuries!
Improper maintenance may lead to heavy injuries or substantial property damage.

- Ensure adequate free space to conduct installation, prior to commencement of works.
- Maintain order and cleanliness of the installation site.
- Always secure windows and doors for maintenance works to prevent unintentional closing or opening.
- Adjustment of the hardware elements as well as replacement of elements and removal / reinstallation of door leaf must be performed by qualified service personnel.
- Do not remove the door leaf for maintenance.

Perform at least once each year, in case of hotels and schools once each six months:	Qualified service personnel	End users
Tighten screw if necessary.	■	—
Replace damaged screws.	■	—
Replace parts if necessary.	■	—
All moving parts to be lubricated with machine oil or lubricant free of resins and acids, available in specialized retail outlets.	□	□
Steel holders to be lubricated with machine oil or lubricant free of resins and acids, available in specialized retail outlets.	□	□

- To be performed only by qualified service personnel
- To be performed by end users; no installation work can be performed by end users!
- To be performed both by qualified service personnel as well as end users



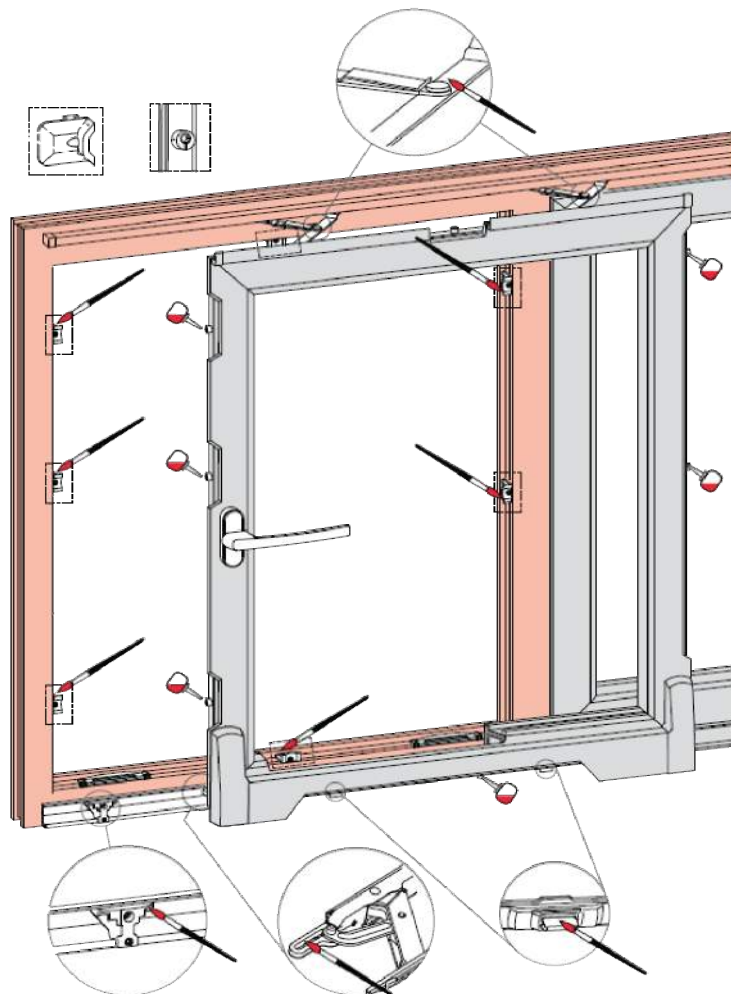
TIP!

While performing maintenance work the following environmental protection guidelines must be observed:

- Clean the lubrication points of excess oil and dispose of it in accordance with environmental regulations.
- Pour the removed excess oil into suitable containers and dispose of it in accordance with environmental guidelines.

The overview of hardware elements below shows possible lubrication points.

The figure below presenting hardware elements may not correspond to the hardware actually installed. Lubrication points will vary depending on the size and type of the window.



INSPECTION

Perform at least once each year, in case of hotels and schools once each six months:	Qualified service personnel	End users
Check the stability of attachments of the hardware elements essential for safety.	□	□
Check the wear of the hardware elements essential for safety.	□	□
Check the operation of all moving elements of the hardware.	□	□
Check the operation of all the locking points.	□	□
Smooth operation of the envelope mechanism enveloping is best checked by moving the window handle.		
– Torque for locking and opening as per DIN 18055: max. 10 Nm.	■	—
– Use torque wrench for checking.	■	—
– Smooth operation of the envelope mechanism can be guaranteed by lubricating, oiling and fine adjustment of hardware.	■	—

- To be performed only by qualified service personnel
- To be performed by end users; no installation work can be performed by end users!
- To be performed both by qualified service personnel as well as end users

CLEANING

	Qualified service personnel	End users
Always prevent the hardware from building materials dust.	□	□
Do not use aggressive abrasive scrubs and cleaning agents with acid content.	□	□
Clean with mild, diluted agents with neutral pH.	□	□
Clean only with a soft cloth.	□	□

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The above recommendations cannot be the grounds for any legally initiated claims and their use must always be referred to each specific situation. The manufacturer of windows and balcony doors must inform investors and users of windows of this maintenance manual. Roto Frank recommends that manufacturers of window frames entrust installation of windows only by qualified and trained technical personnel and provide the instructions for handling and maintenance of hardware along with the ready-to-install windows.

PROTECTION AGAINST CORROSION

	Qualified service personnel	End users
For windows and balcony doors made of oak wood or other wood types with a high concentration of acid (tannic acid), emission of such substances must be prevented using relevant treatment of wood surface. Hardware must never be in direct contact with unprotected wood surface.	■	—
Always prevent direct contact of windows with vapours (e.g., formic acid or acetic acid, ammonia, amine and ammonia reaction, aldehydes, phenols, tannic acid etc.).	■	—
Also, never use sealing containing acid or acetic substances, or components of the mentioned above, since both direct contact with the seal, as well as the vapours of these substances may cause corrosion of the hardware surface.	■	—

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- To be performed by end users; no installation work can be performed by end users!
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PROTECTION AGAINST DIRT

	Qualified service personnel	End users
Deposits on hardware surface and contamination from building materials (mortar, plaster, cement dust, etc.) to be removed with water before they become concentrated.	□	□
Always prevent the hardware from building materials dust.	□	□
Do not use aggressive abrasive scrubs and cleaning agents with acid content.	□	□
Clean with mild, diluted agents with neutral pH.	□	□
Clean only with a soft cloth.	□	□

- To be performed only by qualified service personnel
- To be performed by end users; no installation work can be performed by end users!
- To be performed both by qualified service personnel as well as end users

PROTECTION AGAINST (PERMANENTLY) HUMID AIR IN THE PREMISES

	Qualified service personnel	End users
Hardware as well as undercuts for hardware installation must be ventilated, especially during the installation so that they are not exposed to direct moisture or condensation.	□	□
<p>In order to ensure that permanent condensation in the space between door leaf and door frame:</p> <ul style="list-style-type: none"> - ventilate intensively several times a day (all the windows to be opened for about 15 minutes). - Secure sufficient exchange of air was also during holidays and days off. <p>Possibly prepare ventilation plan for complex construction projects. Remove moist air outside using condensing dryer.</p>	□	□

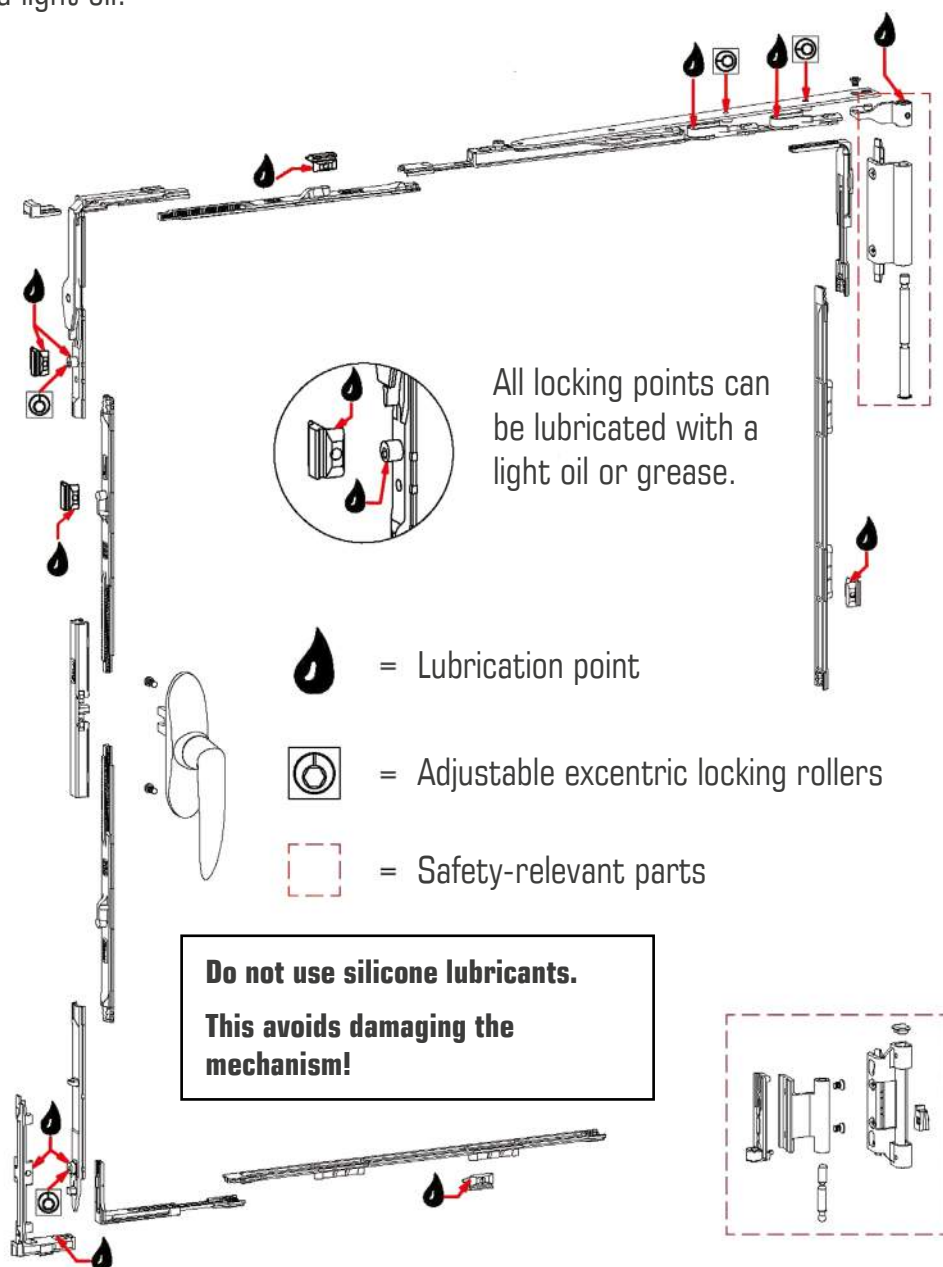
- To be performed only by qualified service personnel
- To be performed by end users; no installation work can be performed by end users!
- To be performed both by qualified service personnel as well as end users

e) sobinco Chrono

CHRONO: MAINTENANCE INSTRUCTION

Lubrication:

- The corner transmission, handle and mishandling device are greased during manufacture and therefore no additional lubrication is necessary.
- The connection rods should not be lubricated in the groove.
- When the windows are frequently used, the hinges should be lubricated every year with a light oil.





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