SKAALA®

SKAALA WINDOWS AND DOORS, OWNER'S MANUAL

SKAALA WINDOWS AND DOORS, OWNER'S MANUAL

MANUAL,
INSTALLATION, CARE,
MAINTENANCE AND WARRANTIES

KEEP FOR FUTURE USE!

DEAR CUSTOMER

Congratulations on a good Finnish choice – Skaala's products are designed for Northern conditions. Our products are custom-made in our factories in Finland respecting environment and using materials and methods that ensure comfort of living with fresh indoor air in your home.

In this Skaala manual you will find the most important instructions for installing, using, and maintaining your Skaala products. It is recommended that you read the instructions carefully and maintain the condition of Skaala products in accordance with our instructions and advice. This way, the use of Skaala products is as easy as possible for you and ensures their long-lasting durability.

For us, the most important thing is a satisfied customer. If you have any questions or feedback about the use or quality of the product, please contact us. You can find all contact information on our website skaala.com.

Thank you for choosing a Finnish Skaala product!

Skaala IFN Oy

Product liabilities – warnings

- Check delivery when it arrives.
- Store and protect the uninstalled products according to the instructions. Save the equipment box that may have arrived in delivery. It contains small parts that disappear easily under construction conditions.
- Follow local instructions for installation and install only products without any errors.
- Do not remove stickers on the frame or sash surface of the product that identify the product or indicate its specific characteristics (ID-sticker, fire window, emergency escape, etc.).
- Use the products according to the instructions. Skaala guarantee does not cover damage caused by improper handling of the products.
- Clean and maintain products regularly to ensure their long-lasting serviceability and durability. Disregarding maintenance can lead to exclusion from warranty.

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1. RECEIVING, STORING, AND INSTALLING SKAALA PRODUCTS

1.1. Receiving delivery

Please inspect the condition of the package immediately together with the driver:

- Package and cover. If the plastic cover is damaged, please check the condition of the products.
- Complete delivery. Please make sure that the delivered goods correspond to the order confirmation and that all items mentioned in the covering letter are included.
- Equipment box. An equipment box containing small parts should be saved for later use.

! Any comments about the delivery must be send to the seller in writing within a reasonable time (7 days).

In case there are signs of transportation damage, describe the damage clearly in the bill of lading. In case the transportation damage is hidden (kind of damage which does not show on the outside of the package), you must report this in written to the transportation company within 7 days of receiving the product. Please note! The transport company and Skaala are not responsible for any transportation damages which have not been mentioned in the delivery note.

In case the product is defected due to the manufacturer, the manufacturer will repair the defect or deliver a new product or a new part to replace the broken one. The buyer is not allowed to repair any defects themselves on behalf of the manufacturer without first agreeing it with the manufacturer in written. (Please see Terms and conditions of the contract and warranty).

! Do not install defected products! However, if you install a defected product, Skaala is not obligated to reimburse the costs of the installation.

1.1.1 Protecting the products with tape:

If it is necessary to protect the products with a tape during the construction period, you must make sure that the tape you use is suitable for this purpose. Different plasticizers are used to improve the adherence of the tape and in some tapes this agent may be too strong for painted surfaces. This may cause tape or glue to remain on the base, changes in colour and shine on the paint surface, or paint to detach from its base when the tape is removed.

According to our tests the following tapes are best suited for painted surfaces:

1. Deltec Masking Tape EXTREME (orange)
2. Deltec Masking Tape GOLD (yellow)
3. Deltec Masking Tape PURPLE (purple)
4. PROF Masking Tape (blue)
5. Stokvis Tapes vapour barrier tape PS1433 (green transparent)
6. Stokvis Tapes silk paper tape (light orange)
7. Stokvis Tapes UV-durable Masking tape (blue)
8. Tesa 4334 Precision Masking Tape Masking Tape (yellow)
9. Tesa 4668 Transparent PE-Reparing Tape (transparent)
10. Tesa Precision Indoor 26270-00001 (yellow). Only for indoor use.
11. Tesa Precision Outdoor 56250-00002 (light blue)
12. Würth silk paper tape (light orange). Only available at Würth stores.

Acquire further information about tapes from your local hardware store. Note the colour of the tape.

! All kinds of tape must be removed as soon as possible, at the latest one day later. We also recommend that you tape the door or window frames, thus making it easier to repair any potential damages. Skaala is not responsible for damages caused by disregarding these instructions. If damage arises, we recommend that you contact the supplier of the tape.

1.2. Storing products

When delivered, the products are protected with plastic for short-term storage (2-3 weeks).

The doors and windows must be stored in dry and well-ventilated facilities, protected from soiling and mechanical damage. Installation lists should be stored indoors. The products should not be stored outdoors.

In case it is unavoidable to temporarily store the products outdoors, their plastic covering must not be broken. The products must also be covered carefully with a tarpaulin. Rainwater pouring down the tarpaulin must not connect with the products.

If the floor or the storage room is humid or the products are stored on the ground, the packages must be lifted onto supports out of range of humidity (min. height of pallet approx. 20 cm). Once the plastic covering is removed, any loose parts, such as lever handles, should be collected and preserved.

Humidity occurring in particularly during the construction of stone houses must be removed from the surface of the products.

Windows and doors must be installed as late as possible. This avoids risks for damage during construction to products (e.g. moisture damage, dents, scratches, glass damage caused by cement solutions or metal and welding sparks).

It is prohibited to store products in direct sunlight. The products are well designed to isolate heat and permeate light, which is why the light on the packaging begins to accumulate inside the packaging, heating the packaging. The temperature of the package may rise to a level that damages the product. If protective plastic (which further increases the temperature on the packaging) is ordered for the products, the products must always be stored indoors, protected from the sun.

Fire-resistant windows or glazed fire-resistant doors can basically be stored following the instructions for ordinary windows above. In addition, you must also consider the following: the temperature must not rise to more than +50 °C, nor must the inner window sash suffer prolonged exposure to UV radiation (sunlight). UV radiation must not be applied to the internal glass of the product during storage, nor after installation, for example through windows on the opposite wall. The product has UV protection against radiation from outside.

Skaala´s warranty does not cover damage caused by storage or storage that is not in breach of Skaala's instructions.

2. INSTALLING PRODUCTS

For the operation of the products, it is most important that the installation is carried out carefully and according to instructions. We recommend having a specialized installation team installing your doors and windows.

About installation materials and installation method, primarily follow the local regulations and standards.

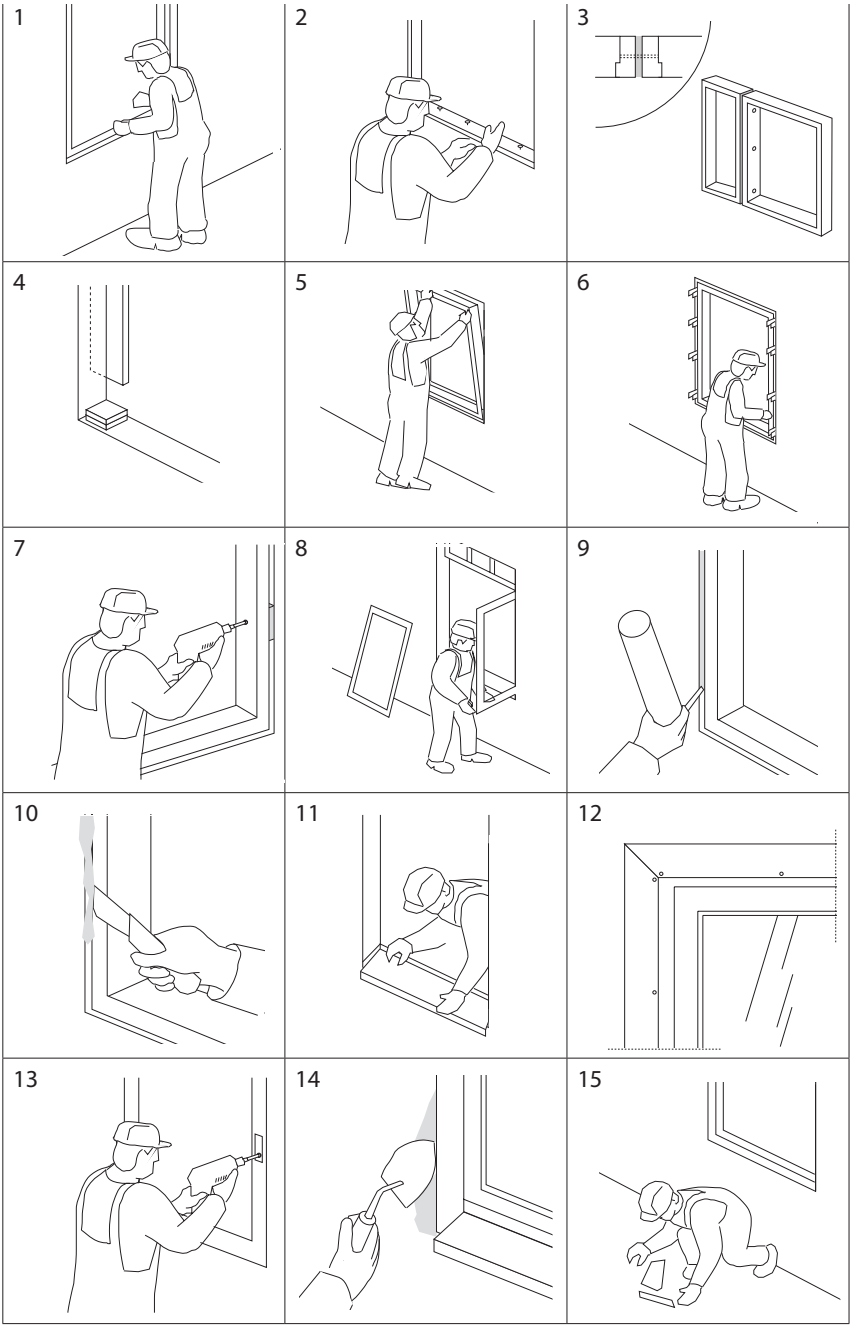
The warranty does not cover damage caused by incorrect installation.

The defect product must not be installed without the manufacturer's permission. Any customer feedback must be made and described before installation. Any transport damage must already be described the delivery note.



The product must never be used as a load-bearing structure.

Remember occupational safety.



Installing window

2.1 Installation notifications:

- The construction time humidity must be ventilated before installing windows and doors. We recommend installing Skaala-products only when humidity conditions have stabilised below 60%.
- After installation, ensure adequate ventilation, temperature, and humidity removal. It is not recommended to ventilate through windows during construction. Condensation or freezing in the window structures may cause serious damage to the product.
- Also note the instructions on moisture during construction in the warranty conditions.
- The use of windows as a route for persons or materials during construction is not recommended
- Windows and doors must not be used as a load-bearing structure or as part of it
- Windows and doors must always be fastened with screws, such as Jamo installation screws (Würth). Windows and doors must never be installed with Urethane foam alone.
- Do not tighten the installation screws too much. A screw tightened too tightly can open the corner of the frame and break its fastening. In addition, sealing materials in fixed windows may open and cause air leakage.
- Frames must be directly straight and in a cross-section after installation.
- Please note that the wall structures may not be exactly straight. Do not install windows or doors according to the surfaces of the building wall. Always use a leveller. This is especially important when installing doors.
- To prevent damage to the structures surrounding the products, it is important that the exterior listings and water sills are installed immediately after the products have been installed
- The fire-resistant windows have gel filled glass, which may cause changes in tone. For this reason, all possible stickers and protective plastics must be removed from the fire protection window as soon as possible after installation
- **Always follow the product-specific installation instructions.**

2.2 Installing windows

! Regarding installation materials and procedures, we recommend that local standards and instructions be followed as a matter of priority. When installing windows in Finland, you must follow the RT-instructions (RT 41-10947 wood and wood aluminium windows and their installation in Finnish in www.rakennustieto.fi).

1. Insert stabile installation wedges under the windowsill and ensure that the sill is level by using a builder's level. Enough insulating material must be used around the installation wedges. When installing large windows (more than 1.5 m^2) you must make sure that the installation wedges remain under the windowsill.
2. First attach the side jambs with fastening screws, check the cross measure of the

window construction and that the jambs are straight. To ensure the functionality of the product, the cross-measure must not deviate by more than 1–3 mm.
3. Lift the outer sash in place and fasten the hinge pins.
4. Check the mobility of the outer sashes and the frame turning allowance. If needed adjust the hinges by turning them.
5. Put the inner sash in place and fasten the hinge pins.
6. Make sure that the turning allowance is even all round and that the corner joints are fastened. If necessary, adjust the hinges by turning them.
7. If necessary, fasten the rest of the frame screws and check the cross measure of the frame. Do not fasten the screws too tightly. If the screws are too tight the corner joints of the frame might break. Cover the installation holes with screw covers. Please note! Screw covers are not included in the standard delivery.
8. Insulate the sides of the window with either mineral wool or joint insulation. Please note that joint insulation material swells to 2–3 times its size.
9. Measure the damp-proof course (DPC), cut it to the right size and fasten it. If needed, add insulation before attaching the DPC. Please note that the front edge of the DPC must protrude at least 30 mm from the wall construction to prevent water from running down the wall.
10. Seal the gap between the DPC and the wall with elastic substance. Ensure that the inclination of the DPC is at least 1:3, rather 1:2 or steeper.
11. Measure the covering strips, saw them to the right size and fasten them. If needed, add insulation before fastening the covering strips.
12. Check the operation of the hinges and that there is no dust or other abrasive impurities in the hinges. Oil hinges before using and in the future at least once a year.
13. After installation, make sure that the moisture during construction does not condense on the inside of the product by ensuring adequate ventilation.
14. Regularly check that the hinge pins remain on the bottom. Tap them deeper into their space if necessary.

! You can free the opening device during installation by screwing two screws from the holder in upper sash.

2.3 Installing fire-resistant windows

When installing fire-resistant windows you must also consider the following:

Installing openable fire-resistant windows

Openable fire-resistant windows can be installed in a wall made of concrete, brick, or other stone materials with a density more than 650 kg/m3 and a thickness more than 150 mm. The gap between the frame and the installation opening shall not exceed

20 mm. The frame is attached to the surrounding structure with a steel frame screw Jamo 6x90 mm or alternatively with Adjufix fasteners. The vertical parts shall be fastened with at least four screws, the distance between the outer screws shall not exceed 145 mm from the edges. Gaps between frame and the surrounding structure are sealed with class A1 stone wool or Polyurethane Seal Fire W350. The depth of the isolated part of the frame shall be at least 118 mm.

Installing fixed fire-resistant windows

Openable fire-resistant windows can be installed in a wall made of concrete, brick, or other stone materials with a density more than 550 kg/m3 and a thickness more than 150 mm. The gap between the frame and the installation opening shall not exceed 15 m. The frame of the fire protection window is attached to the wall structure with a frame screw of at least 6x90 mm steel (number and position in Finland according to RT 41-10095). Alternatively, Adjufix fastening screws can be used. The distance of the outer screws from the edge of the frame shall not exceed 200 mm. Gaps between frame and the surrounding structure are sealed with Paroc FPS 17 Class A1 rock wool and the gap is covered with a wooden list.

! Carefully follow the separate installation instruction that is delivered with the fire-resistant windows!

! Fire-resistant windows must not be exposed to UV-light from the inside. Combustible material, such as curtains or blinds, must not be attached to the window.

2.4 Installing exterior and balcony doors

1. Ensure that the base of the threshold is level and sealable.
2. Insert the frame in place, wedge with double wedges (to prevent warping).
3. Check that the frame is level by using a leveller and taking the cross-measure.
4. Attach the frame on the hinge side by using the screws designed for this purpose.
5. Hang the door leaf on its hinges and make final adjustments to the frame so that the frame and the door leaf are level at every point.
6. Make sure that the turning allowance is even all round and that the corner joints of the frame are fastened. If necessary, adjust the hinges.
7. Ensure that the door opens and closes easily.
8. Attach the other sides of the frame. It is recommended to cover the attaching holes with screw covers (not included in the standard delivery).
9. Insulate the gap between the frame and the wall with insulation wool or urethane foam. Take care that the frame does not bulge due to excessive insulation.

10. Measure the covering strips, saw them to the right size and fasten them. If needed, add insulation before fastening the covering strips.
    Please note! To ensure that the door does not get worse for wear prematurely, it should be fastened well, and its cross-measure should be precise. This is even more important regarding double doors and doors with one operating sidelight since any potential deviation in the measure doubles where the door elements meet. The door may be adjusted by +4 mm vertically and +3 mm horizontally.
11. The door fittings should be attached during installation. The product warranty does not apply to any damage caused by leaving the fittings unattached (e.g. humidity-induced damage).
12. Check the operation of the hinges and that there is no dust or other abrasive impurities in the hinges. Oil hinges before using and in the future at least once a year.
13. We recommend oiling the veneered doors immediately after installation.

! Exterior and balcony doors (especially double doors, full glazed doors, soundproof, and fire-resistant doors) are so heavy that the frames may be bended by the weight of the door leaf. When installing a heavy door, follow these additional steps:

- Hinges have two cone screws and two wood screws. After installation, the upper wooden screws are changed to either a 6x100 or 6x120 mm wood screw to secure the frame directly through the hinge to the frame of the building. In the case of stone or concrete walls, the corresponding concrete screws (screw anchor) are used. This method ensures that the door leaf does not bend down.
- Doors with four hinges the screw is installed to both upper hinges and on three hinge doors only on the upper hinge.
- If a fixed sidelight is installed right next to the door on the hinge side, it must be ensured that the installation screw is not too long and doesn't go through the frame structure of the fixed element. Too long screw is likely to meet the edge of the fixed glass element and break the glass.

! Removing the wind brake during installation: The wind brake can be removed from the upper frame of the window by plucking the wind brake from its frame end.

2.4.1 Installing aluminium cladded IOA2+1 balcony door

If necessary,
- disassemble the door restrictor from the upper frame.
- the door leaf can be lifted off the frame.

! Do not lift the door leaf from the outside with suction cups, the outer sash may loosen.

1. Place support pieces / shims on the lower auxiliary frame or use sufficiently strong screws or bolts, for example, instead of support pieces. Enough support screws are 6 (two rows of 3 in a row), or 3 for support pieces. Position the screws or pieces so that they are as close as possible to both side frames of the product and one in the middle.
2. Lift the frame into place in the doorway. Adjufix frame sleeve is pre-assembled as standard. Sleeve screw is not included. Fix the frame with the frame sleeve and screw. Start with the upper and lower sleeves. Check with a spirit level that the frame is in balance and does not tilt in or out. Check diagonal dimensions in frame with cross measurement. Insert the remaining sleeves and screws.
3. To avoid hanging, an anchor screw should be attached through the top hinge. Anchor screw (in the delivery) can be used in concrete with a plastic plug or in wood without a plastic plug. For wood a 4 mm hole has been pre-drilled through the frame behind the hinge. If the plastic plug is to be used, the hole must be drilled up to 8 mm. For sheet metal, a special screw must be used. The screw does not need to have a block between the frame and the wall. Mounting plate in the wall must be sufficiently dimensioned to provide good support for the frame screw.
4. Check the diagonal dimensions and make sure that the jamb parts do not bend or twist, which can happen with the double frame screws. To avoid hanging over time, wedges/ shims should be placed between the jamb and the wall at the top of the hatch jamb side and at the bottom of the hinge jamb side. Make sure that the wedge/ shims do not impede the application of the soft joint inside the sealing space. Sealing is otherwise the same as for windows.
5. Lift the door leaf into place in the frame's hinges, attach the brake and check function. Adjust if necessary. If there is no space to lift the door leaf into place due to a canopy, the hinges must be removed from the door leaf and then screwed back on when the hinges have been placed on the frame. Seal the space between the frame and the doorway with polyurethane foam or rock wool. Fit the cover plugs.
6. The water damper is attached to the front surface of the sill aluminium profile - in the groove - with pop rivets 3.2x20 or drill screws. Screw spacing is CC 200mm.

2.5 Installing fireproof and soundproof doors

! Separate installation instructions are always provided with the classified door, and they must be strictly followed!

A type-approval marking indicating the classification of the door is attached to fire- and soundproof doors. If the door deviates from the type-approval l, it has a construction plate attached and must be approved by the local building control authority prior to the order.

A fire- and sound-proof door can be installed into a concrete, brick, or other stone wall. The wall density must be at least 550 kg/m3. The door can also be installed in the opening of a lightweight, wooden, or metal-framed wall. The wall thickness should be at least 150 mm.

Principle of installation of classified doors

1. The frame is lifted into the mounting opening and is installed with temporary support wedges so that the lower end of the frame reaches the level of the finished floor surface.
2. The lower end of the hinge side of the frame is fastened motionlessly by means of screws and permanent support pieces or double weales.
3. The top end of the hinge side shall then be fixed accordingly. Check the vertical flow of the hinge side. The lock side is fixed accordingly, and the threshold is installed. The joints between the lateral frames and the upper part of the frame and the threshold are wedged with double wedges placed in the upper and lower corners. Check the cross-measure. The door leaf is raised to its hinges. Check that the frame is vertical flow and that the spacing in all directions comply with the door plate.
4. Install the necessary patches and seals. Installation gaps are covered with lists, the holes in the frame screws are covered with plastic plugs, the locks etc. are installed.

Compilation of frame

EI15_25DB and EI15_30DB doors: When the frame is supplied as parts, the top of the frame is connected to the side frames with 60 mm nails, screws, or hooks, 2pcs per joint.

EI30_35DB doors: When the frame supplied as parts, the top of the frame us connected to the side frames with 4x70x/48 screws 2pcs/joint and the threshold is connected to the side frames 4x70x/48 with the screws 3pcs/joint.

Attaching frame to the wall

The installation gap between the frame and the door installation opening shall not exceed 15 mm on the sides and 15 mm at the top. The frame is fastened, for example, with adjusting frame screws or wood screws (e.g. O = 7.5 mm, L = 140/85mm). The frames have 8 mounting holes as a default.

The suitability of the brackets for different wall materials shall be ensured by the manufacturer of the bracket, the mounting length to the wall shall not be less than 40 mm. The top vertical frame, which is more than 12 M wide, is attached from the centre of the frame. Wood support wedges or double wedges shall be used with the fasteners as shown in the picure. The wedges must also be placed in each corner to prevent the frame from twisting.

Patching frame to fireproof

The gap between the frame and the wall of fire-classified doors and the base of the threshold mounted on the supports shall be patched with non-combustion stone wool (A1tai A2-s1, d0) or fire urethane Profipur Fire or Soudal Seafoam FR polyurethane foam. The gap can be covered on both sides with a pine list of at least 12 mm x 42 mm.

Sealing frame to sound isolation

In addition to patching, the gap between the frame and the wall of sound-proof doors and threshold shall be sealed with i.e. Profiseal Acryl or Soudal Acryrub LE mass. Even a small opening in the seam mass causes sound leakage.

Listing the frame

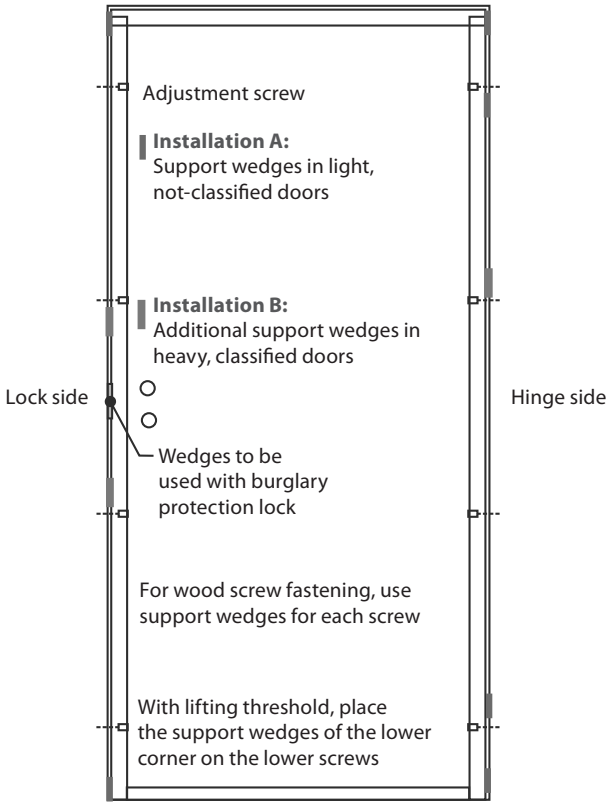
The gap between frame and the wall is usually covered on both sides with wooden lists.

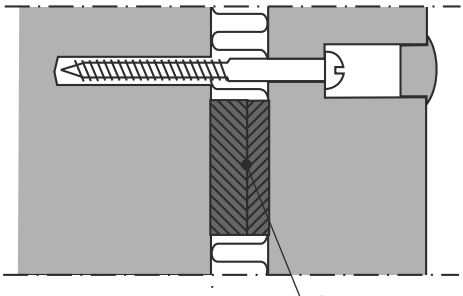
Check below for the door model and its recommended installation method:

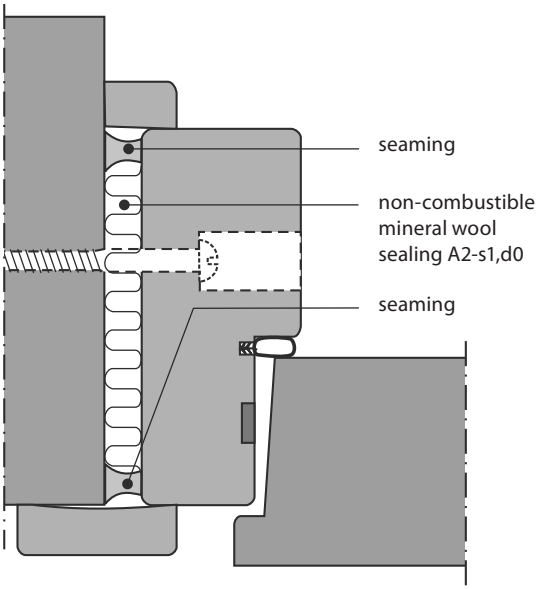
! Separate installation instructions are always provided with the classified door, and they must be strictly followed!

Installing fire- or soundproof doors

Ovityyppi Door type	Nimitys Product name	Paloluokka Fire class	Rw	Ääniluokka Sound class	Asennustapa Installation
SK-430	Sisäovi / Apartment door	-	-	-	A
SK-431	Julkisen tilan sisäovi / Apartment door	-	-	-	
SK-432	Julkisen tilan sisäovi lasiaukolla / Apartment door with glass aperture	-	-	-	
SKCF-414	EI15 paloluokiteltu lasiaukollinen ovi / Fire proof Interior door	EI15	-	-	
SKCFS-410	EI15/25dB palo- ja ääniluokiteltu ovi /Fire and sound proof interior door	EI15	32 db	25 dB	
SKCFS-411	EI15/30dB palo- ja ääniluokiteltu Fire and sound proof interior door	EI15	37 db	30 dB	
SKCFS-440	Kerrostaso-ovi / Apartment door EI15/30dB (Rw37)	EI15	37 db	30 dB	
SKCS-401	dB25 ääniluokiteltu sisäovi / sound proof interior door (Rw 32dB)	-	32 db	25 dB	
SKCS-402	dB30 ääniluokiteltu sisäovi / sound proof interior door (Rw 37dB)	-	37 db	30 dB	
SK-450	Lasipieli / Sidelight	-	-	-	
SK-451	Sähköpieli / Electric side panel	-	-	-	
SK-452	Yläikkuna / Transom window	-	-	-	
SKCF-416	EI30 paloluokiteltu lasiaukollinen ovi / Fire proof Interior door	EI30	-	-	B
SKCFS-413	EI30/35dB palo- ja ääniluokiteltu / Fire and sound proof interior door	EI30	42 db	35 dB	
SKCFS-442	Kerrostaso-ovi / Apartment doo EI30/35dB (Rw 42)	EI30	42 db	35 dB	
SKCS-404	dB35 ääniluokiteltu sisäovi / sound proof interior door (Rw 42dB)	-	42 db	35 dB	




Place support wedges
with every screw


seaming
non-combustible
mineral wool
sealing A2-s1,d0
seaming

2.6 Installing sliding doors

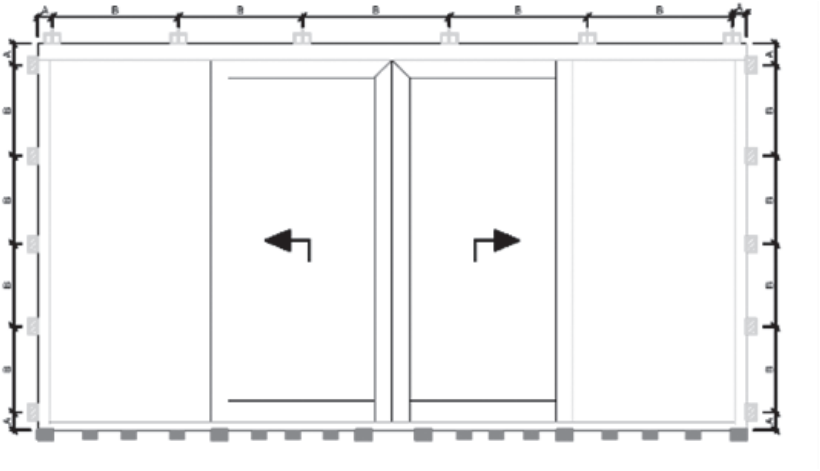
Before starting the installation inspect the mounting opening and frame attachment points.

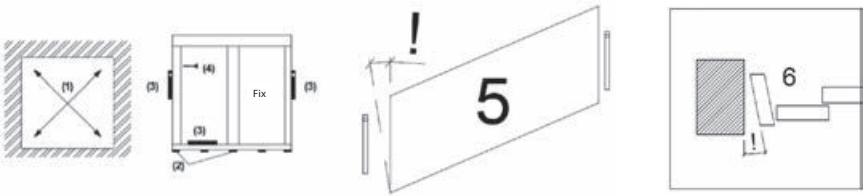
It is essential that the installation opening in the wall is in cross dimension, that the bottom edge of the opening is sturdy and straight and can withstand the weight of the entire product. The product surrounding structures cannot lay weight to the product. Be especially careful with the upper frame. The upper side of the installation opening must be sufficiently load-bearing to prevent the weight of the building from laying weight on the frame. The installation gap at the top is 15 mm, in log houses even more (check from the log house supplier). The vertical sides of the installation opening must be sturdy for installation and have an installation gap of 15 mm. To lower the threshold height, frames can be lowered below the floor surface.

We recommend installing the sliding door as a complete product (without removing the sliding door leaf) and using the necessary lifting equipment. If necessary, it is possible to remove the sliding door leaf as follows: Remove the plastic part at the top of the door leaf and push the top-rail out of the frame and frame gap. Remove the rail (the door leaf now folds from the top). Remove the door leaf by folding it inside from the top and lifting it up from the bottom. To replace the door leaf, first put the bottom end on the rail and repeat the instructions in reverse order.

1. Check the cross dimension (1) of the installation opening and the horizontal alignment (2) at the bottom using a leveller. If necessary, place a moisture barrier on the concrete and use installation wedges.
2. When the bottom is straight, the sliding door is lifted into place. Place the frame according to the structural plans (depth). Check that the lower frame is placed horizontal, and it is straight.
3. The threshold and side frames (3) must be straight after installation.
4. Drill installation holes (4) to the vertical frames (distances according to the local instructions i.e. RT-cards in Finland). Make sure that the screws attach to the wall structure sturdy. Start attaching the vertical frame on the sliding (opening) part in both lateral and depth directions. Use installation wedges to prevent frame from twisting.
5. Then attach the second frame and check the horizontal and vertical parts. Attaching must always be carried out so that the frames do not twist (6) and the frame corner connections do not open. Ensure also that the threshold and side frames are installed exactly correct (5). Check the cross measure.
6. (If you removed the door leaf, install it as described earlier.)
7. Seal the frame and installing gap according to local instructions.
8. Finalize the installation with cover lists and water sills.

Installing sliding door



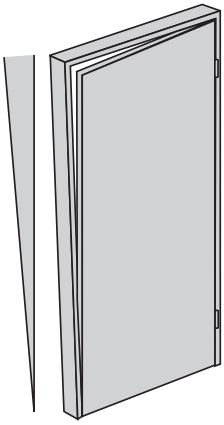


! Make sure that the threshold does not bend when stepping on it. Also ensure that the product works properly. If any malfunctions occur, do not use the product, and contact the person who installed it.

2.7 Possible errors in the installation of windows and doors

- If an error is detected, stop using the product to avoid further damage.
- Always also repair the possible damage to the paintwork.
- Re-adjust the opening parts after repair.
- Oil and tighten the hinges after repair.
- Installation errors caused by a third party and the resulting damage to products, buildings and persons are not covered by the Skaala warranty. Directly contact the person who performed the installation.

CAUSE: The vertical frames of the product are not vertically aligned

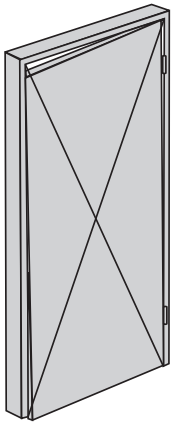


Vertical parallelism

Disadvantage:
- Product does not close
- Gaps remain on the lock side. Lock is tight to open
- Seals do not work
- The hinges break
- Surface treatment is damaged

Fixing:
- Dismantling and re-installing the non-vertical side vertically
- Installation gap to be opened from at least 2 sides before the procedure

CAUSE: Cross measure does not match, or wedging is incomplete



Cross-measure or insufficient support

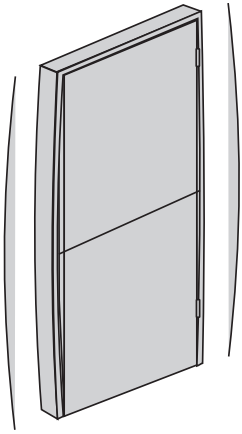
Disadvantage:
- The opening parts of the product hang and close poorly.
- Errors occur in the surface treatment of the product
- Lock do not reach to the counterpart
- Seals do not work
- The hinges break
- Surface treatment is damaged

Fixing:
- Dismantling installation from three sides and re-wedging
- Increase wedging
- Check the cross dimension before fastening

CAUSE: Frames are bottled or are on an hourglass shape

Disadvantage:
- The lock does not work
- The product does not open and close properly
- In encountered products, a gap remains in the middle
- The hinges break
- Surface treatment is damaged

Fixing:
- Uninstall from at least two sides
- Re-wedge
- Check the width of the nominal opening before fastening

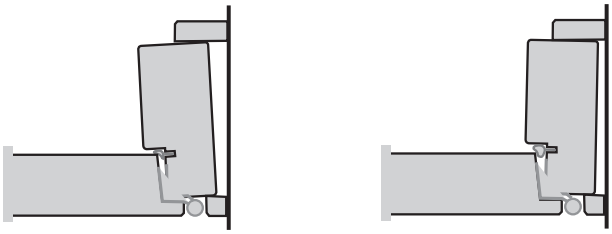


Rebate opening

CAUSE: Frame is not at an angle of 90 degrees to the opening part

Disadvantage:
- Poor access to the opening section. The opening section does not fit to close
- Defects in surface treatment
- Seal not working
- Gaps between the opening part and the frame
- Gaps between encountering parts
- The hinges break
- Surface treatment is damaged

Fixing:
- Uninstalling at least from invalid pages
- Wedge check
- Check the positioning of the frame at a straight angle against the plate, or glass surface



Frame not square and at angle of 90 degrees

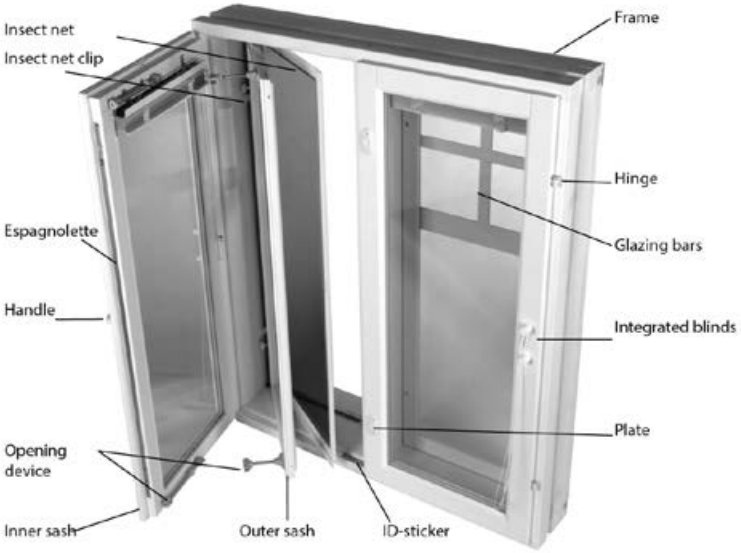
3. USING SKAALA PRODUCTS AND THEIR ACCESSORIES

ⓘ Ordering spare parts and equipment to Skaala products can be done from our web shop: skaala.com

3.1 Using inwards opening windows

EN

Clean and maintain products regularly to ensure their long-lasting serviceability and durability. Disregarding maintenance can lead to exclusion from warranty.



Parts and accessories of a window

3.1.1 Opening and closing

The windows are opened by releasing the window locks one at a time and then pulling the sash inwards without pending the sash. When closing the window, please make sure that all window locks are shut. Careless use of the locks may cause, for example, warping of the setting, damage to the hem, abrasions on the paint surfaces and moisture entering the structures.

! Side-hung window sashes more than 150 cm in width must be handled with extra cautious and the sashes must be supported from below when opened. Please note! Windows with separate window locks (and no lever handle) are not meant for the purpose of ventilation.

3.1.2 Ventilation

For ventilation, the window is equipped with a ventilation fitting, with allows opening the window with only a one handle. Usually the inner and outer sashes must be connected when having a fixed handle, an opening device or an espagnolette. When ventilating, the sash is opened until the opening device holds the sash in ventilating position. To close the window, close sashes and lock the window with the handle.

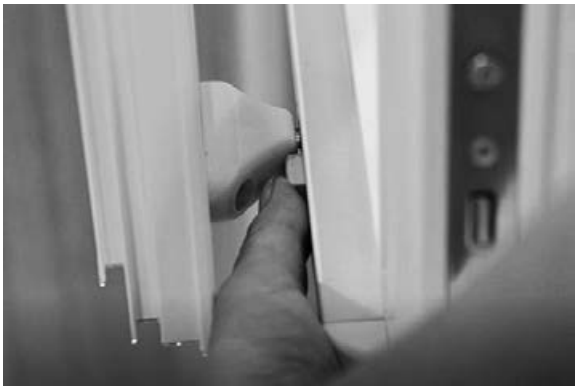
Ventilation window opening device, Autolock

There is an Autolock device as an opening restrictor and wind brake in inward opening window. The opening restrictor connects the sashes together and allows the window to be easily used with a single handle in side hung and small bottom hung windows.

The restrictor is child proof, but also prevents the ventilation window from moving freely as the draft and the wind load changes. Due to child safety issues the ventilation window is pre-set at the factory to open maximally 100 mm. Always keep your children's safety in mind when adjusting the restrictor!

Regular cleaning is sufficient to maintenance for the opening device to ensure its functionality and prevent damages. Autolock is made of anaesthetic aluminium, steel, and plastic. It is cleaned with a damp cloth and a mild detergent. The use of lubricant is not recommended.

Locking of the Autolock device may be released, e.g. by opening the sash and pressing the release button at the same time. The setting automatically locks back together by placing the ball head back on the locking sled.



Releasing Autolock

! The safety devices of the bottom hung window must always be kept attached and properly connected. If they are not properly attached or are inadequately adjusted, the sash may collapse uncontrollably and cause injury when opened.

3.1.3 Insect screen

Removing the insect screen: open the window and unlock Autolock device. Press the plastic clips keeping the insect screen in place to the sides, so that the sash moves inwards. Remove the sash and lock the Autolock. Installation is done in reverse order.

The insect screens and bars are made from weather-resistant material. We strongly recommended that you remove the insect screen from the window during winter to avoid any damages caused by birds or frozen water. The insect screens should be washed lightly before putting them in winter storage.

Please note that the Skaala warranty does not include indirect damages or external third-party damages (caused by water/ice, birds etc.).



Uninstalling insect screen

The insect screen is usually ordered when ordering a window, but you can order an insect screen from Skaala's web shop. For ordering, you need information from the product ID-label attached to the wooden part of the window to ensure that the size of the frame and the aluminium tone are correct for your window.

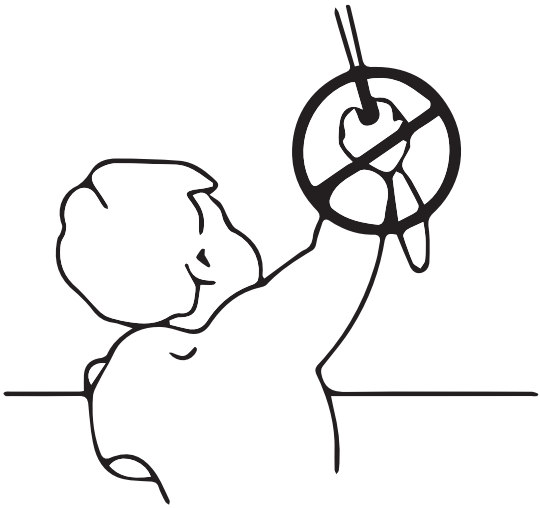
3.1.4 Venetian blinds

There are two different models of blinds: installed either between sashes or on inner surface.

The blinds that are installed between sashes are either traditional or integrated blinds. The blinds are opened and closed either by rotating the adjusting rod (traditional) or the control knob (integrated). The blind is lifted with a lifting roller and locked at the desired height around the cord holder. The blind is lowered by releasing the lifting wire.

Surface installed blinds are used in fixed windows and balcony doors. The blinds are opened and closed by rotating the adjusting rod. Care should be taken in extreme positions, as over-slicing may break the adjustment mechanism. The blind is lifted and lowered from the cord next to the adjusting rod. Lift the blind up by pulling the cord. The blind locks to the desired height when the cord is released. To lower the blind, pull the cord to the side until the cord is released and descend it to the desired height.

The blinds installed between the sashes do not require any special attention or maintenance. It is sufficient to vacuum them or wipe them with a damp cloth without detergent yearly. The turning mechanism of non-integrated blinds needs to be greased with 100% silicone every two years.



WARNING!

- Small children can be strangled by loops in pull cords, chains, tapes, and inner cords that operate the product. To avoid strangulation and entanglement, keep cords out of the reach of young children. Cords may become wrapped around a child's neck. Move beds, cots, and furniture away from window covering cords. Do not tie cords together. Make sure cords do not twist and create a loop.

For safety reasons, Skaala's windows are equipped with a special cord holder to get hanging cords out of the reach of children. Always wrap the cords around the string clip as shown in the pictures below.

3.1.5 Fresh air vents

The fresh air vents must not be blocked since they ensure that the ventilation in the building works. It is recommended that you clean the filters in the fresh air vents at least twice a year.



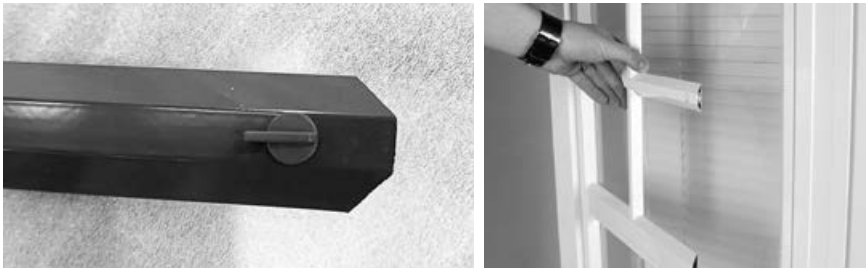
fresh air vent

The vent and the filter unit are removed by unfastening the screws from the frame. Inside the filter cover there is a cellular plastic filter, which can be cleaned with a mild soap. Vacuum the air duct of the sound absorber, taking care not to damage the surface coating of the soundproof material. Install the parts back in place.

ⓘ Check from your order confirmation the fresh air vent that is used in your window and see further maintenance instructions from the manufacturer's web page (i.e. www.biobe.fi).

3.1.6 Clip-on glazing bars

Removing clip-on glazing bars e.g. during wash. Use a screwdriver of an appropriate size. When opening the clip-on glazing bars, turn the screw 180 degrees counter clockwise, when fastening 180 degrees clockwise.



Releasing clip-on glazing bars

3.2 Using outward opening windows

Allswing system, 180 degrees:

Closed – handle turned right horizontally

Ventilating – turn the handle directly upwards, push the sash outwards from the handle until the child safety control clicks. If you want to open the window even more, release the child safety device by pressing the black button (in the right-hand side of the sash) and open the window further.

Sidehung:

Closed – handle turned directly downwards.

Ventilating - turn the handle horizontally and push the sash outwards from the handle.



Outward opening window

3.3 Using exterior doors

The selected lock type affects using of the door. Skaala exterior doors come standard with an Abloy LC 102 lock case and adjustable counter iron. (If you have another locking option on your door, please see manufacturer's instructions.)

The Abloy LC102 has two operating functions: lock mode and daytime mode, which are set from the option button on the chest plate of the lock frame. The lock is in lock mode with the option button is in the top position and in daytime mode with the option button is in the lower position. In lock mode, the lock is opened from the outside with a key and the lock locks when the door closes. In daytime mode, the lock opens from the



door button. Use the daytime function only when you are in an apartment and want to walk through the door without a key.

Opening the door with a key from the outside
- Turn the key clockwise until the key stops
- Turn the key back to the starting position
- Remove the key from the lock
- Open the door by the handle, the lock locks when the door closes
- Do not forget the key to the lock

Opening the door from the knob inside
- Turn the knob 90° clockwise until the knob stops
- Open the door by the handle
- the knob automatically returns to the horizontal position and the lock locks after the door closes

3.3.1 Using a balcony door

An aluminium cladded balcony door has an espagnolette, an opening device in the handle and a handle both sides and a knob inside as a standard. Locking mechanisms and lock cases vary depending on the balcony door and selected accessories.

- Abloy LC102 lock frame and exterior door handle; use as exterior doors

- Espagnolette and handles; To open the balcony door, turn the handle horizontally. When closing the door, the handle must be horizontal to prevent damage to the frame structure. When locking the door, turn the handle downwards and lock the door from the knob inside. If the door has a key cylinder, the door can also be opened and locked from the outside.

Doors with espagnolettes are equipped with a handle operating opening device.



An aluminium cladded balcony doorknob and espagnolette, handle in locked position

- The opening device works when the door handle is turned
- Open the door to the desired ventilation position by turning the handle horizontally
- Turn the handle into the locked position (down) so that the door locks and does not move even under the influence of high winds
- if the handle is in the open position (horizontally), the door moves freely

! Always make sure that the handle is clearly in either the up or bottom position. Do not move the door when the handle is in the ventilation position (horizontal). Improper use may prematurely reduce the frictional force of the keeping device.

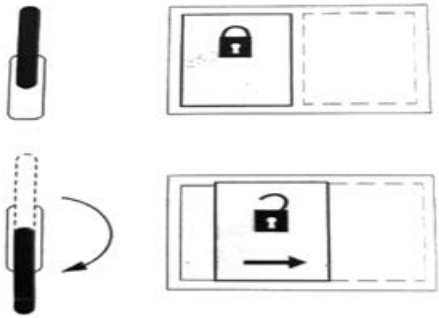
Maintenance of the opening device: If necessary, wipe it with a damp cloth. Lubricate the sliding part with a few drops of oil at least once a year.

! Read more about general maintenance instructions for Skaala products

ⓘ Spare parts and accessories for Skaala products can be ordered easily from Skaala's web shop: skaala.com

3.4 Using sliding door (HEBE)

The sliding door is opened with the handle



The handle of the sliding door

- The handle upwards - the sliding door is closed.
- The handle downwards - sliding door is open.
- Unlock or close with the wrench or key.

! To open the door leaf evenly, slide only when the handle is in the open (downwards) position. The sliding door must always be stopped before turning the handle to the closed position. Turning from speed damages seals.

The product is made safe and user-friendly. Please ensure that everyone using the door receives appropriate guidance. Careless use can lead to hazards, such as compressions between the sliding door and frame. For safety reasons, the sliding door must always be locked in place, even if it is open (handle upwards) so that it does not move by itself.

3.5 Problems and solutions

There are air bubbles or scratches in the window glass

Traces which have arisen during the manufacturing process of the float glass may occur. The float glass used in windows is not required to be optically flawless; small traces or "bubbles" are approved in the quality specification of the window glass.

There are instructions for checking deviations in the glass e.g. on the Skaala Quality 5.3

There are traces of glue or other stains (that are hard to remove) on the window glass

The labels used during the manufacturing process might have left traces of glue on the glass. It is difficult to remove these traces with ordinary detergents. You should remove most of the traces carefully with a glass scraper. Use xylene to remove the rest. You can buy xylene at hardware stores etc. Wiping with a cloth dampened with xylene also removes most stains without damaging the glass. Avoid wiping painted wood and aluminium surfaces with xylene. Levelling compounds/concrete which has stained the glass during construction work should be removed immediately. When cleaning the glass, always use plenty of water, a mild alkaline detergent or dissolve the stains with xylene. Do not scrape or rub or try to remove the stains dry.

Using mechanical cleaning equipment (e.g. glass scraper/razor blade) should only be used in extreme cases and with extreme caution. The warranty does not cover traces or damage to the surface of the glass caused by using mechanical cleaning equipment.

! Using mechanical cleaning equipment (e.g. glass scraper/razor blade) should only be used in extreme cases and with extreme caution. The warranty does not cover traces or damage to the surface of the glass caused by using mechanical cleaning equipment.

The windows make snapping or cracking noises

When temperatures vary, the external aluminium parts and the joining materials of the windows warm unequally. Snaps and light cracking noises are due to the different thermal expansion qualities of the different materials. This phenomenon mainly occurs in spring when temperatures vary greatly at different times of the day. Thermal expansion does not damage the window constructions. The construction design of Skaala products takes the thermal expansion of different materials into account and thus the materials can "move around" freely.

Condensation on the window (moisture on the inner surface of the outer sash)

The condensation is most likely caused by the fact that the warm air in the room is allowed to flow into the interspace and/or that the interspace is not ventilated properly. Follow these instructions.

- Make sure that all locks in the inner and outer sashes are closed.
- Check that the ventilation in the house is sufficient (underpressurized). Do not touch the exhaust air vents once you have checked the ventilation as this will change the planned balance in the ventilation (under pressure). You can easily check the planned balance with a simple test: Open the ventilation window sash (approx. 2–3 cm) and hold the flame of a lighter up to the inside of the open ventilation window. If the

flame bends outward, the room is over pressurized and warm, moist inside air flows e.g. through the gaps of the fittings or the Venetian blinds into the interspace. In this case, the ventilation should be reset.

- Check the insulation and seals of the inner sashes. You can check that the insulation is working properly with a paper test: Place a few centimetres wide strip of paper between the insulation and shut the window. By drawing the paper from the closed sash you can check that the insulation is sufficient. You should be able to remove the paper, but still feel the resistance of the insulation. Adjust the sash if needed.
- Check the insulation and the ventilation holes in the seals of the outer sashes. Make sure that air is allowed to circulate in the interspace.
- Make sure that the water holes in the aluminium profile in the windowsill are not blocked.

Condensation on the window (moisture on the inner surface of the window)

The condensation is most likely caused by the fact that the humidity in the room is high and that the glass surface is not ventilated properly. Follow these instructions.

- Make sure that the room is ventilated sufficiently.
- If there is a fresh air vent in the room/ window, check that it is open.
- A suitable relative indoor humidity is 35–55%..
- Make sure that the indoor temperature is normal (20–22 °C).
- Make sure that the curtains, plants, and other objects are not preventing the ventilation by the window.

Under certain circumstances, moisture is always concentrated to the (in particularly lower) edges of a fixed window. This is due to the thermal bridges formed from the spacer bars of the insulation glass, which cools down the edge areas of the glass considerably. This phenomenon also occurs when the thermal insulation of the glass itself is high. In winter when outside temperatures are very low, this condensation can freeze along the edges of the glass.

In particularly in stone houses, indoor humidity is higher than usual during the first few heating seasons due to the moisture issuing from the constructions. Whenever there is condensation on a fixed window, it is most important to make sure of the conditions mentioned above, i.e. ventilation, sufficiently low indoor humidity, and the ventilation of the inner window surface.

Condensation on the window (moisture on the outer surface of the window)

At certain times of year, when the humidity is high, there may also be condensation on the exterior of the outmost glass of the windows. The condensation is caused either by the low temperature inside the building or by the efficient thermal insulation of the

window. The heat radiating from inside is insufficient and fails to keep the glass dry. Condensation is formed on the on the exterior of the outer glass when the indoor temperature (and condensation point) outside rises more rapidly than the temperature of the exterior of the outer glass.

Condensation on the exterior of the outer glass usually forms during the night and before dawn, mostly in spring and autumn. The phenomenon is also known to occur during particularly cold spells in winter. In temperatures below zero, the humidity on the exterior surface freezes.

The condensation will disappear either when the air gets warmer (the heat dries the external surface of the glass) or colder (the condensation point becomes lower than the surface temperature of the glass, and thus the humidity evaporates). Condensation does not damage the window. Temporary condensation on the exterior surface is a quality of the thermally well-insulated window.

Condensation on the window (moisture in the interspace of insulation glass elements)

Should humidity concentrate in the interspace of insulation glass elements, the insulation of the insulation glass element is faulty. If this occurs during the 10-year insulation warranty period, we will deliver a new glass element.

There are insects or dust in the window's interspace

The basis for the functionality of double sash windows is that the interspace between the inner and the outer sash is ventilated. This is arranged for by ensuring that the seals have ventilation gaps which allow the air to circulate. There are also water holes in the aluminium profile in the windowsill. The holes have two functions: They regulate and lead away the rainwater falling on the profile and enable the ventilation of the interspace. The size of the water holes is measured exactly to make sure that the water is removed.

! If the water holes or the ventilation gaps are blocked, this might damage the product or the structures surrounding it.

The amount of potential dust and insects in the interspace depends on the location of the residence and the cardinal direction. In certain conditions fine snow might enter the interspace. This does not mean the product is faulty but is due to an interaction between its qualities and the environment.

! Insects cannot get inside the house when windows are shut properly.

The fittings are coming loose (applies to both windows and doors)

Fittings to come loose is a normal consequence of usage. However, you can prevent this by using e.g. screw couplings available at hardware stores and car supply shops.

The door will not open properly

See “Adjusting the door leaf” (page 176).

The balcony door will not open properly

Check that you are using it correctly, i.e. the lever handle must be completely open (90 degrees). See “Using the balcony doors” (page 159).

The door will not lock

Make sure that the latch enters the counterpart in the right place and angle. If it does not, check the door adjustments. If the latch enters the counterpart, please contact the nearest lock store.

4. MAINTENANCE OF SKAALA PRODUCTS

Your Skaala products require a minimal amount of care to give you trouble-free operation and remain in optimum condition for many years to come.

! Do not remove stickers from the sash or frame of the product that identify the product or indicate its specific characteristics (fire window, emergency escape road, etc.).

ⓘ Spare parts and accessories for Skaala products can be ordered easily from Skaala's online store: skaala.com

4.1 Annual inspection

! We recommend checking the condition of windows and doors at least once a year to ensure undisturbed operation. In particular, the maintenance interval for dark/specially toned products may be shorter than that of light toned products. The Skaala Warranty is only valid if the product is installed and maintained in accordance with Skaala's instructions.

Check annually the following and correct any deficiencies you may have identified without delay.

- condition of the paint of windows and doors
- fastening and operation of handles and locks
- cleanliness and condition of seals
- closing of windows and doors
- the cleanliness of the lower parts of the window frames and that the drainage and ventilation holes in the bottom frame in the windows are open
- fixing of the water dampers and openness of the drain holes in lower sash
- functionality of accessories

4.2 Maintenance of Skaala products

The Skaala products have been designed to be low maintenance. The climate and regional as well as structural elements affect the need for maintenance of the doors and windows.

The need for maintenance is affected by:

- precipitation
- the height and shape of the house as well as the eave length and inclination
- cardinal directions
- location by the sea/a lake, wind conditions

- the ventilation in the house
- the humidity of the structures
- means of installation and the condition and functionality of the surrounding wall
- the colour of the surfaces.

The recommendations for service intervals in this manual are guidelines. The actual need for maintenance becomes evident by checking the condition of the doors and windows often enough, at least once a year. The service interval for products in dark or special colours may be shorter than for those in standard white.

To ensure uninterrupted functionality you should check and if necessary, perform maintenance on the seals and fittings of the products annually. Painted surfaces and seals should be washed when washing the windows at least once a year. If a seal comes undone or is damaged, it should be replaced by a corresponding seal. When washing the windows the fittings (hinges and locks) should be oiled. Any broken parts should be replaced by new ones. Broken glass must likewise be replaced. We recommend that you contact a business within the trade to have the glass replaced.

The doors must also be washed regularly (at least twice a year), to prevent fungi from growing on the surface.

Painted surfaces are washed by wiping them with a damp cloth. You should add alkaline detergent, e.g. washing liquid, to the water. Avoid using strong solutions or superfluous detergent, since they may damage the painted surfaces. When using anti-fungus washing liquids, please check with the manufacturer of the liquid whether the surface needs to be repainted after use. Certain anti-fungus liquids might remove the fungicide agent.

The surface treatment on the exterior of timber and panel constructions should be inspected annually. If there are any dents or cracks, these should be mended immediately

ⓘ Order spare parts and other equipment from Skaala web shop: skaala.com

4.2.1 Washing windows

Wash your windows with lukewarm water with either normal window cleaner or mild dishwashing detergent. After washing, rinse the glass with clean water and dry with a drying spatula or a chamois cloth. Tighter stains and splashes are carefully removed with suitable equipment.

The window glass remains clear and scratch-free when you use mild detergents for washing. Avoid heavy water use and dry corners with special care.
- If the window glasses contain stains that do not leave with normal detergents, it is

advisable to remove them gently with a glass scraper.
- To remove glue, paint or similar dirt stuck to the surface of the window glass, it is advisable to use xylene, which can be obtained, for example, from hardware stores. Another, slightly more potent cleaning agent is acetone (e.g. nail polish remover) that removes paint more efficiently.
- Do not wash the painted surfaces of the wooden and aluminium parts of windows with xylene or acetone. Also be careful not to spill these substances onto paint surfaces when cleaning the window glass.
- After using the above solvents, the window must be washed again with mild detergent and water.
- The levelling material attached to the surface of the window glass during the construction phase must be cleaned without delay. Cleaning should always be carried out with plenty of water and mild alkaline detergent solution or xylene soaking.
- When cleaning the window, check that the drain holes in lower sash storm list are open. Clean away any dirt.

Cleaning Skaala FrostFree windows

All the glass surfaces of the Skaala FrostFree windows are cleaned like any other glass surface, by using plenty of water and ordinary neutral (or mildly alkaline) detergents or other commercial window washing agents.

In case the windows do not become clean after a normal cleaning, oils or potential organic stains can be removed with acetone or xylene. After using these solvents the glass must be cleaned with water once more.

Observe when cleaning and maintaining glass with special coating

The following applies to self-cleaning Activ glass, K glass (selective) and FrostFree glass.
- Avoid using abrasive cleaning equipment (such as scrapers and steel wool). Mechanical abrasion of glass can cause irreparable damage to the surface. The warranty does not include traces or damages caused by such implements or methods.
- Mechanical abrasion may remove the coating in places
- Avoid all contact between the glass and metal implements
- Avoid the use of all chemicals that might damage the coating permanently
- The use of strong acidic or alkaline substances is forbidden
- Do not clean the windows while they are exposed to direct solar radiation

Consider with the maintenance of the fire protection window
- If the fire seals around the sash or the insulation glass itself is damaged, they must be replaced by similar products. In such a case, contact the manufacturer.
- Do not remove gaskets when washing or repainting windows. The seal in the fire

protection window is a fire seal that swells and prevents the spread of fire in the event of a fire.
- Do not remove the pins on the hinges when washing the window
- When opening a large fire window (more than 1 m^2) during washing, it is essential to support the sash from below. With a fire window, the need for support is important already in a smaller size than a regular window, as the glasses on the fire windows are significantly heavier than normal glass.
- After washing and maintenance, make sure that you close all the window locks in the window.

When washing windows, please note:
- Check annually the seals and silicone seams in the product. Damaged seals should be replaced to maintain the energy efficiency of the product. Silicone seams shall be renewed if necessary to maintain waterproofing.
- Oil the fittings of the windows (hinges and locks) when washing them and at least once a year or if there is a malfunction (staleness, sounds, etc.). It is recommended to oil the fittings of the new product within the first six months.
- If necessary, adjust the sashes if they are, for example, pressed down and seem to be hanging. The fault can be in the hinges, and they can be easily adjusted with the help of a self-screwing pin hinge.
- When using mould wash solutions, check with the detergent supplier to see if the painted surface needs re-painting. Certain mould detergents may remove mould protectors from the paint.
- The aluminium cladding of the windows is maintenance-free. However, regular, and adequate washing is necessary at least once a year. Also clean the drain holes on the bottom sash at least once a year.
- The glass surface is resistant to stronger chemicals than wood, but a strongly alkaline solution can also corrode the glass. Concrete or concrete dust together with water can create traces on the surface of the glass.

! A window over 150 cm wide must be supported when opening.

4.2.2 Painted surfaces

The most common cause of damage to timber is humidity. It is important that the timber is allowed to dry before repairing damages or repainting. When painting the humidity of the timber must exceed 20%. While painting and letting the paint dry the temperature of the air, the surface and the paint must be above +5 °C and the relative humidity below 80 %.

! If the surface treatment of the product is only a wood protector with biocidal properties, the chart below applies. You can find the surface treatment type in the order confirmation or in ID-sticker by reading the QR-code using the Upcode application and selecting the product information. The indication SK means that the substance in question has been used.

FACT SHEET for TEKNOL AQUA 1410-01
treated items

This item has been treated with wood preservative: ***(Regulated by the Biocides Regulation 528/2012, PT8)***	**TEKNOL AQUA 1410-01**
a) Items treated with TEKNOL AQUA 1410-01 contain:	Biocides approved for product type 8
b) Items treated with TEKNOL AQUA 1410-01 are protected against:	Wood destroying or discolouring fungi
c) Items treated with TEKNOL AQUA 1410-01 contain the following biocides:	Propiconazole, IPBC
d) Items treated with TEKNOL AQUA 1410-01 contain the following nanomaterials:	-
The wood preservative TEKNOL AQUA 1410-01 is produced by:	Teknos A/S Industrivej 19 DK-6580 Vamdrup Tel.: +45 76 93 94 00

e) Special precautions for items treated with TEKNOL AQUA 1410-01:

The surface of the wood must be coated with e.g. varnish or paint. Coating of the surface must be carried out at regular intervals.

Surface treatment

Maintaining painted surfaces:

- Remove all loose/peeling paint mechanically; all other surfaces should be clean of dirt and dust. Hardened dirt can be removed by polishing with abrasive paper.
- Remove any potentially porous wood e.g. by polishing.
- Any potentially fungi infested parts should be washed with anti-fungus detergent, carefully rinsed with water, and allowed to dry.
- Bare wooden surfaces should be treated with a transparent timber preservation agent.
- Cover any potential cracks with putty (1 or 2 component putty).
- Paint the surfaces requiring paint in the colour you like. The exterior surfaces should be painted with elastic acrylic paint suited for outdoor use. The standard colour white is NCS-S 0502 Y and the glazing varnish 20.

In case there are only fine hair cracks in the painted surface, a light polish (removing the glazing) and a surface paint with a suitable indoor/outdoor paint is sufficient repair.

Maintenance of a glazed (pine) surface:

- Remove all peeling glazing mechanically; all other surfaces should be clean of dirt and dust. Hardened dirt can be removed by polishing with abrasive paper.
- Remove any potentially porous wood e.g. by polishing.
- Any potentially fungi infested parts should be washed with anti-fungus detergent, carefully rinsed with water, and allowed to dry.
- Cover any potential cracks in the surface treatment paint with the best suited wood putty possible. Please note! When using putty, keep in mind that after applying a coloured glazing treatment to the mended places, the colour might differ slightly from that of the rest of the surface.
- The surface is to be treated with a transparent timber preservation agent of the original glazing colour and allowed to dry for approx. 24 hours.
- After the glazing treatment you can varnish the surfaces with a UV radiation resistant varnish in a colour of your own choice and meant for outdoor use.

Maintenance of veneered doors is performed as follows:

- If needed polish the surface lightly with abrasive paper, grain 180–240.
- Remove the polishing dust carefully.
- Wash the surface with a neutral detergent and allow it to dry for at least 48 hours.
- Oil the door with wood oil suitable for this treatment

Doors with a wood veneered surface are treated with wood oil at the factory. We recommend that you treat the door again as soon as it has been installed. A veneered door usually needs to be oiled regularly at least once a year. In demanding conditions you had better oil the door twice a year.

Ask for more advice from your local hardware store.

Aluminium surface

Exterior surfaces of aluminium are maintenance free. However, it is necessary to wash them regularly and thoroughly at least once a year. If necessary, the aluminium parts can be painted with alkyd- or urethane-based paint suited for this purpose. The water draining holes in the lower lathes of the frames must be cleaned at least once a year.

4.2.3 Adjusting window hinges

If the window seals do not seal evenly on each side or the window does not work properly when opened, the window must be adjusted. Before adjusting ensure by cross-measurement that the window frames are installed directly.

Adjust the hinges as follows:



Adjusting window hinges

- Remove the hinge pintles starting from the lowest hinge, open the locks and gently lift the sash out of place. N.B! Be sure to support the framework so it doesn't fall off.
- Rotate the hinges of the frame or sash as needed. The gap between can be between 1 mm and 4 mm.
- Fasten the frame and hinge pintles in reverse order.
- Check the operation of the window.

Adjustment is necessary in the following cases:

- The upper edge of the inner sash is firmly pressed to the top of the frame. Tighten the bottom hinge of the inner framework for two laps and the middle hinge one lap clockwise. Test functioning and repeat if necessary. The adjustment can also be made by turning the top hinge two rounds and the middle one lap counterclockwise (outwards).
- The edge of the inner sash is pressing to the frame. Adjust the inner sash laterally. Turn all hinges of the inner sash 1-2 laps clockwise. Test functioning and repeat if necessary.
- The inner sash is tight at the bottom of the frame, impairing closing. The inner sash should lay on the frame slides at the bottom frame. If necessary, adjust the inner sash laterally by turning the top and bottom hinges of the inner sashes 1 to 2 laps clockwise. Test functioning and repeat if necessary. Alternatively, you can rotate the low-

est and middle hinges for 1-2 laps counterclockwise.

- On the hinge side of the groove, the gap between the frame and the inner sash is bigger than on the opening side. The inner sash should then be adjusted in depth. Turn all the hinges in the frame clockwise for two laps. Test functioning and repeat if necessary. Finally, make sure that all frame hinges are at the same depth.
- The distance between the outer sash is different on the hinge and opening side. Adjust the outer sash in depth. If the bigger space is on the hinge side, turn all the outer sash hinges in the frame 1-2 laps clockwise. If the larger interval is on the opening side, turn counterclockwise. If necessary, repeat the procedure.
- The ventilation window does not close properly (the need for adjustment occurs in connection with the mosquito net and the clip-on bars). If the outer sash is too much out on either the opening or hinge side, adjust the sash in depth. If the tightness is on the opening side, adjust the the switching pin of the opening device shorter: rotate the pin clockwise until the fault is corrected. Do the same in the opposite direction if the gap between the outer sash and the frame profile is too large. If the tightness is on the hinge side and the window does not close properly, rotate all hinges in the outer sash two laps clockwise (closed) to allow the outer sash to come inwards. Test the functionality and repeat if necessary.

4.2.4 Removing the inner and outer sash from frames

! When removing the framework, there should always be at least two persons

Remove all possible goods around the window (furniture, curtains, plants). Open the window as open as possible. Unlock the possible opening device between the sashes, open separate the outer and inner sash. Support the removable sash carefully and tap the hinge pin off, starting from the bottom hinge. Once you have ensured that the weight of the sash is controllable by the assistant, remove the remaining hinge pins from the bottom up. Place the detached sash in a sturdy place and be careful, e.g. regarding wind.

Reattach the sash in reverse order.

4.2.5 Attaching handles

Close the window with unattachable handle. Place the handle spindle in the middle hole so that the handle is pointing downwards. Loosely fasten the upper screw. Turn the handle 45 degrees and fasten the lower screw. Tighten both screws. Check the functionality. Handle screws may require re-tightening after short use or when construction conditions dry.

Attaching the door handle, refer to the manufacturer's instructions.

4.2.6 Replacing seals

Checking the condition of window and door seals regularly, for example, annually when cleaning windows. Avoid installing the seal at a temperature below +5°C. Seals should be replaced if the seal is disconnected, torn or not elastic anymore. The good condition of window and door seals improves living comfort by reducing the feeling of draught in the apartment and preventing moisture and dirty from outdoor.

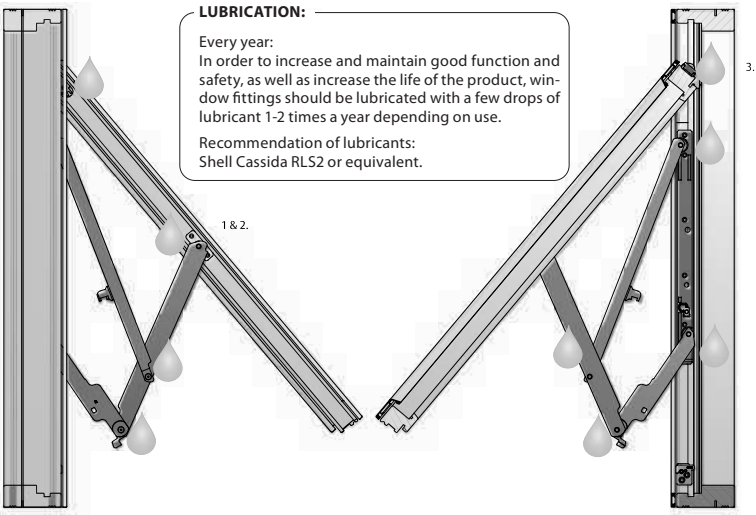
The old seals are carefully pulled out. Groove seals can be removed by pulling the seal out of the groove. Clean the surface for the seal installation well with vacuuming dirt or dust, a damp cloth and old glue, e.g. Acetone. Remove any staples.

New seals are installed in the same place of the former ones.

- Outer sash seal in frame upholstery: 5 cm gaps are left in the outer sash seal of the window at both top of the vertical side. The horizontals sides of the sash are completely sealed.
- The inner sash and frame of the window and the doors are sealed throughout. Cut the sealing angles as tightly as possible.

ⓘ You can order window and doors seas from Skaala web shop skaala.com.

4.2.7 Maintaining outward opening window's (HAS)



Maintaining outward opening window's

Every year:

To ensure the functionality and longevity of the product, the hinges should be lubricated 1-2 times a year, depending on the use. We recommend using Shell Cassida RLS2 or similar.

4.2.8 Maintaining doors

Maintenance of door locks and hinges is an effortless operation and should be done once a year.

Check the tightness of the screws on the handle, lock and key cylinder and tighten if necessary. Lubricate locks and key cylinders once a year with lock oil.

Remember that the locks only work when the door is carefully closed.

Check the functioning of the hinges, the need for lubrication and the tightness of the fastening screws. By lubricating, you can prevent the metal dust at the bearing point of the hinges.

4.2.9 Adjusting the door hinges

! Adjust the door immediately if you notice any malfunctions or rubbing it into the frame.

Adjusting the door leaf vertically

- remove the head bolt from one of the hinges (see picture 1)
- turn the hex cap screw inside the hinge (see picture 2) clockwise until the door reaches the desired height (one turn lifts the door by 1,25 mm)
- adjust all the door hinges so that they carry the weight of the door evenly
- finally screw the head bolts of each hinge in place

Tools needed: hex key AV5

Adjusting the door leaf horizontally

First, always ensure that the cross-measure of the door is accurate and that the frame is level. Since the door is in frequent use, the attachment of the frame might change due to movement in the structures or as a cause of wear.

Enlarging the turning allowance between the door and the frame on the hinge side

- loosen the mounting screws of the hinge in the door frame (see picture 3) by a couple of turns
- turn both hinge adjustment screws (see picture 4) clockwise as much as necessary (one turn moves the door leaf approx. 2 mm towards the lock side)
- fasten the mounting screws

Tools needed: hex key AV4 and a suitable screwdriver for the mounting screws



Adjusting door hinges

4.2.10 Removing and attaching the door leaf

! When removing the door leaf, there must always be at least two people.

Make sure the lock is in the day lock position. Remove any door pumps and door brakes from the door leaf. Pull any blinds up and remove the adjusting levers. Open the door leaf at an angle of 90 degrees to the frame. Lift the door leaf directly upwards.

If the space is limited, you can remove the hinges from the door leaf and reattach them when the door leaf is in place. Do the following: Open the door leaf at an angle of 90 degrees to the frame. Support the door leaf from the bottom end against the floor. Make sure the door leaf is under the control of the assistant and remove the screws on the door leaf side of the hinges. Unattach the hinges out of the door leaf.

! The door leaf is heavy. Make sure that the weight of the door leaf is controlled by the assistant before removing the hinges.

! Do not perform the procedure in high winds.

! Make sure the removed door leaf remains upright.

Attach the new door leaf in reverse order. Close the new door leaf slowly, making sure it fits all over the frame.

4.2.11 Maintaining and replacing the window and door espagnolette

Check the operation of the espagnolette at least once a year and lubricate it if necessary. Recommended to use Würth PTFE or HHS2000 spray. Spray oil on the side and moving parts of the espagnolette.

To replace the espagnolette, remove the handle with all the screws. The espagnolette front plate is then removed from all screws and espagnolette is pulled out of its groove. The new one will be installed in reverse order back into the groove. Please note that you will install the handle into the same position as when it was removed.

ⓘ Order original Skaala spare parts from skaala.com.



Maintaining espagnolette

4.2.12 Opening the door leaf of aluminium cladded (IOA 2+1) door

Open the door to about 20 degrees angle to the frames. If the door has a brake, you can leave it in a locked position. Open the four locking levers on the locking side of the door leaf and open the aluminium frame outwards from the lock side.

Close in reverse order and lock all four locking levers.

! Do not perform the procedure when windy.

! The aluminium frame opens up to 40 degrees from the door leaf.

4.2.13 Maintaining door restrictor



Door restrictor

If necessary, wipe the door restrictor with a damp cloth. Lubricate moving parts with a few drops of oil at least once a year.

Recommended oil is, for example, Würth PTFE or HHS2000 spray.

4.2.14 maintaining HEBE sliding door

By maintaining sliding doors regularly, you promote the undisturbed operation of products and extend their service life. Washing and vacuuming rails is sufficient as a basic maintenance. The most important thing is to check that there are no small stones left on the rails, for example, which hinder the unobstructed sliding of the door.

The maintenance instructions for glass surfaces, sashes and frames, seams and silicone seams described earlier apply to the maintenance of the HEBE sliding door.

Not the following regarding hinges: Keep the sliding door hinges clean. Please note that there is no sand on top of the lower sliding rail, etc., which can damage the sliding door rollers. Cleaning the hinges can be done with all-round cleaners and mechanical parts should be lubricated with lock oil, for example. In particular, the mechanical.

5. SKAALA'S GUARANTEE, AGREEMENT TERMS AND THE QUALITY LEVEL

5.1 Guarantee terms

Skaala IFN Oy grants a 2-year product guarantee on manufactured products.

The guarantee covers the construction of windows and doors, materials and accessories stated in the order confirmation. All changes made to the product's design, without written approval from Skaala, are prohibited and cancel the guarantee.

The warranty period begins when the products are delivered to the customer.

If a product is replaced with new parts, the warranty covers the following:
- If the purchase includes only the product, the product will be replaced.
- If the purchase also includes assembly, the product and the assembly work are replaced.

Skaala IFN Oy is not responsible for product defects or possible disturbances that have arisen because of the customer's designs moving.

Guarantee of windows

Skaala IFN Oy grants a 2-year guarantee on the construction of the window. The warranty is valid only if it has been in-stalled and maintained according to the specified instructions and has not been damaged by water or sun.

! In some seasons, when the humidity is high, the windows can also condense on the outside of the outer glass. That fog occurs, i.e. condensation, is due either to low indoor temperature or good thermal insulation of the window. The heat radiation from inside is not enough to keep the window dry. Condensation usually forms on the outer surface of the outer glass during the night and at dawn. The condensation disappears when the air is heated, and it does not damage the window.

The fact that there is occasional condensation on the windows is a normal feature of windows with good thermal insulation

Guarantee of painted exterior and patio doors

Skaala IFN Oy provides a 10-year guarantee that the doors are kept straight and a 2-year guarantee on the doors' construction, provided that the doors have been installed in

accordance with the specified instructions. The door does not bend permanently over 5 mm. The guarantee only applies if the door has been installed and maintained in accordance with the specified instructions and has not been damaged by water or sun.

! This guarantee does not cover black painted doors as the sunlight / heat can cause bends and deformations in the frame.

Guarantee of veneered exterior and patio doors

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On doors manufactured at Skaala, there is a 10-year guarantee that the doors are kept straight and a 2-year guarantee on the doors' construction if they have been installed in accordance with the specified instructions. The door does not bend permanently over 5 mm. The guarantee only applies if the door has been installed and maintained in accordance with the specified instructions and has not been damaged by water or sun. The guarantee does not cover cracks or colour changes in veneered doors that have been exposed to direct sunlight or rain.

Tightness guarantee of insulating glass

For all Skaala products that have insulating glass, a 5-year guarantee is granted on the glass cassette. NOTE! Warranty on insulating glass elements in the event of thermal stress is not valid if they are used with dark blinds.

! For warranty on the insulating glass elements, Suomen Tasolasiyhdistys Ry's warranty conditions for insulating glass elements are applied.

Guarantee of installation

The granted guarantee for window and door installations carried out by Skaala IFN Oy is 2 years from the time the work was carried out, if instructions given by Skaala regarding reception, storage, handling, and maintenance have been followed.

5.2 Terms and conditions

Terms and conditions that Skaala IFN Oy applies:

- General terms and conditions for consumer trade in carpentry products in 2002 and general conditions for installation work related to consumer trade in carpentry products in 2002, which apply to agreements between a trader (seller) and a consumer (buyer) when selling carpentry products. (Only available in Finnish: Rakennuspuusepäntuotteiden kuluttajakaupan yleiset sopimusehdot 2002 and Rakennuspuusepäntuotteiden kuluttajakauppaan liittyvien asennustöiden yleiset sopimusehdot 2002.

! The consumer customer does not have the right to withdraw according to the Finnish Consumer Protection Act 6:14, as the agreement applies to goods that are manufactured or modified according to the consumer's requirements or ready to meet personal needs (KSL 6:16 section 3).

- General terms and conditions for building agreements (YSE 1998), the terms and conditions apply to construction contracts between traders where, in addition to the delivery of products, installation is included (for example housing associations). (Only available in Finnish Rakennusurakan yleiset sopimusehdot (YSE 1998))
- General conditions for delivery and delivery of construction products (RYHT 2000) for trade in building materials and deliveries between traders. (Only available in Finnish Rakennustuotteiden yleiset hankinta- ja toimitusehdot (RYHT 2000).

The customer is obliged to check the accuracy of the order confirmation. Changes to the order confirmation must al-ways be agreed in writing.

In accordance with §10 of the Personal Data Act (523/99), the registration description of Skaala IFN Oy's customer register is available on the skaala.com website.

5.3 Skaala quality requirements

ⓘ The quality requirements for Skaala products and installation are based on the following guidelines and standards (mainly only available in Finnish):

- RT 41-10431 Wooden windows and ventilation hatches, quality requirements (SFS 4433)
- RT 29-10432 Industrial painting of wooden windows and ventilation hatches, quality requirements (SFS 5657), SFS 5795 and RT 41-10434.
- Glazing of wooden windows with a simple glass plate (SFS 4151), Glazing of wood windows with insulation glass SFS 4003 EHD, instructions from the Finnish Level Glass Association and warranty terms for glass elements of the Insulation Glass Association.
- Aluminium structures for wood aluminium windows: General characteristics and requirements.
- General quality requirements for construction work (RYL)
- Federation of the Finnish Woodworking Industries, Window buyer's guide

5.3.1 Inspection and reminders of delivered products

When the products are received at the site, they are visually checked by the buyer. Comments on visually detectable quality faults or transport failures shall be made without delay on the consignment. Window and door delivery is also checked in quantity without unpacking.

Before installing on the construction site, the purchaser still must carry out an appropriate inspection of the products. The defective product should not be installed on the site without Skaala's permission.

Manufacturer (later Skaala) has provided user manual with the product delivery, which the buyer or end user must follow. The warranty is only valid when Skaala's maintenance and operating instructions have been followed.

Skaala is not responsible for any additional damage caused by the error. To ensure the warranty, the buyer must also follow the installation, storage and handling instructions in user manual; Skaala is exempted from warranty liability if the product has been handled, stored or incorrectly installed. In particular, the buyer must note that uninstalled products are stored in a shelter from rain and harmful products and moisture from the ground according to the instructions.

5.3.2 Correction of errors and deficiencies

If the delivery does not match the order in number of pieces or content, the missing pieces will be delivered to the customer as soon as possible.

If there is a manufacturer-related error, Skaala will correct the error or replace the new product or part of the product within a reasonable time.

The buyer cannot correct any detected errors on behalf of Skaala without first agreeing it in writing with Skaala.

The buyer must document the error as soon as possible. The claim is done by filling in the feedback form on www.skaala.com.

5.3.3 Moisture and condensation

Condensation of moisture on the surfaces of the windows may be caused by, for example, relative humidity, temperature, or inadequate ventilation of indoor air and is therefore not an error due to the window.

Skaala is not liable for damage to the products or parts due to moisture during construction (e.g. paint detachment, staggering of adhesive seedlings in wooden parts, opening and staggering of joint corners, oxidation/ rusting in metal parts, and interval problems).

Windows and doors should be installed in time when the conditions inside the building approximately correspond to the final conditions. For example, if the roof, walls, and windows are installed in winter conditions and concrete floors are cast afterwards, the

products may be faced with irreversible moisture stress. Any openings resulting these in frames and sash attachments and glued seals are not product errors.

For more information about window condensation, see “Possible problems and how to solve them”

5.3.4 Assessment of the quality of the surface treatment of the window and door

The criteria for reviewing surface treatment are the appearance of the surface, the uniformity of the surface and the errors. When assessing the surface, the entity and the characteristic of the surface material is considered. With assessment a wear caused by normal use is also considered and is not a quality error.

The surface quality is viewed perpendicularly at a viewing distance of 2 m so that the light is applied to the viewed surface from behind the spectator. A portable light source may be used to view vertical surfaces.

The surface of the windows and doors must be uniform in general. The wood’s causal structure, extension places, machining work, chitins and slight streaks and scratches may be slightly visible. A slight difference in tone and gloss is allowed in painting repairs. The surfaces painted at the factory can be repaired at the site with a brush.

Partially visible surfaces of the window and door may be of a lower quality than visible surfaces of accepted quality. The painting on the end of the sash must be same colour tone with the rest of the window. However, the same requirement is not set for surface flatness.

Small, individual scratches may appear on the glass parts or on the aluminium cladding on the outside. However, scratches must not be harmfully visible at a viewing distance of 2 meters.

5.3.5 Manufacturing accuracy

The products and parts thereof are manufactured and assembled using well-known working methods. All defective joints suitable for the appearance of that class are permitted.

A tolerance of +/- 1 mm is allowed when the sashes is concentrated in the opening.

At the factory, mechanical adjustment is carried out to the travel distance. The actual adjustment of the travel distance must be carried out at the site during installation. The manufacturer is not responsible if the sashes are not adjusted during installation and

this has resulted, for example, in the perversion of the sashes.

It is also advisable to check the adjustments of the sashes regularly during other maintenance and checking procedures.

5.3.6 Quality of frame and sashes

In the white-painted parts of the window and door places of branches tend to tame over time. Slight differences in tone are allowed, but yellowing shall not occur in the visible parts of the inner sash.

The uninserting of resin from wood, especially in warm conditions, cannot be completely prevented, so over time it is natural in wooden frames and sashes.

The buyer should note that due to the large temperature variation and higher surface temperature in the dark/special-toned frames and sashes, the maintenance should be done more frequently than with the basic white.

5.3.7 Functionality of the window, door, and their hinges

Windows and doors have hinges that are undyed or corrosion-protected hinges which must work properly with the product. The size, strength and number of hinges are such that they can withstand the stresses applied to them in normal use.

The sealing of the seams between the frame and the sash of the window shall be such that the passage of indoor air between the sashes does not cause condensation on the glass surfaces between the sashes. As the tightness of the seams gradually increases when going outwards, moisture in the air gap is allowed to ventilate out. If the building also has adequate ventilation and right air flow, there will be no condensation in the glass surfaces between sashes.

In site conditions, the cross-dimension of the frame and the ventilation hatch is defined as the difference between the lengths of their diagonals. The maximum permissible length difference of the cross dimension may be between 1,5 mm and 6,0 mm, depending on the maximum dimension (width or height) of the frame or ventilation hatch. If the cross dimension differs from this, check that the windows are installed and adjusted as described in this manual. The adjacent sashes in the same frame shall be adjusted so that the different at the top does not exceed 2 mm.

The opening of frame corner joints can occur if the frames are screwed too tightly. Instructions for fastening frames have previously been given, according to which the window and door must be installed.

Installation method has a big influence on the functionality of windows and doors. Installation should be carried out by a qualified installer and following the local instructions / as described in this manual.

5.3.8 Glazing

The glass as a material has poor impact resistance and high crack sensitivity. The glass may be damaged for the following reasons:

- Humidity: long-term humidity can cause so called glass mould
- Cement dust: corrosion of surfaces is likely
- Concrete run-off water: corrosion of surfaces is highly likely
- Welding and grinding sparks: damage to surfaces obvious > stick to the surface and rust
- Temperature differences between the middle and edge of the glass increase during a rapid temperature change (e.g. sunrise or shadows): the insulation glass element may be broken due to thermal shock

The quality of the glass is assessed from 2 meters distance perpendicular to the glass in normal daylight so that the sun does not shine directly to the glass and confirm any errors. The different characteristics of the glass affect the appearance and light passing properties of the glass, for this reason only the same type of glass can be compared in parallel. The greenish or greyish shade of the glass is a normal characteristic of the product, its intensity is influenced by the number of glasses and coatings and the structure of the product.

- **Distortion of the image in a glass:** Single uncoated glass must not cause a disturbing distortion of the image when viewed from an angle of 45° and a distance of 4,5 meters. The image reflected in the insulation glass element and tempered glass may vary because the air pressure, temperature and tempering process bend the glasses.

- **Point-like errors:** The glass is divided into the central area and the edge zone which is 10% of the width and height of each page. The rest glass is considered as the central area.

a) Single glass: Point-like errors of not more than 2 mm diameter are permitted. Errors shall not occur closer than 200 mm to each other.

b) Multiple glazing, laminated glass, and insulation glass: The permissible error rate is obtained by multiplying the number of errors in a single glass by the number of layers of glass.

- **Surface defects:** As a surface defect clear or frosted scratches are allowed if they are

difficult to detect.

- **Edge errors:** Edge errors must not cause a glass break (splits).

The brightness/light transmittance of coated glass (e.g. selective glass) is slightly weaker than normal glass. In addition, some reflections may occur in the coated glasses.

Insulation glass elements may display rainbow colours in some lighting conditions as well as at certain viewing angles, which is not a glass error. The same applies to slightly visible patches (so-called "leopard patches"). These optical phenomena are not considered a quality defect.

In glasses that have high temperature isolation features, temporary condensation of the outer surface of the outer glass may occur from time to time. The phenomenon is caused by the low temperature leakage of the window and exceptional weather conditions. This physical phenomenon is not considered a window quality defect.

- **Impurities between glasses:** Glass surfaces must be clean if they are permanently against each other. Individual insignificant particles may appear on surfaces, but not larger patches or dirt stripes or dirt accumulations. Dirt spots are allowed if they are not visible in the assessment at a distance of more than 2 meters and under normal lighting.

Insulation glass elements

The warranty for insulation glass is valid when:
- the attachment of the element is in accordance with the applicable standards
- the element is not subject to exceptional stresses, such as the stresses transferred from the frame of the building
- the frame and seaming of the element are regularly maintained
- Glass surfaces must not be painted or tapes, film, etc are not attached to surfaces.
- any glass shattering (heat shock) caused by dark blinds or blackout curtains used in connection with windows is not covered by the insulation law guarantee.

The warranty for a new element delivered in place of a defective element expires when it had expired with the original element.

5.3.9 Other issues

Penetration of insects and street dust and pollen into the space between the window is to some extent allowed.

Mosquito nets broken by birds, etc. are not covered by the manufacturer's liability.

Dirt that may occur on the surfaces of the glasses can be removed with normal cleaning detergents, more detailed instructions in the window maintenance.

Minor noises due to window structure and thermal expansion are permitted. These noises usually stop when the tension in the structure has levelled off.

The appearance of windows and doors is assessed for simultaneously visible windows and doors. For example, minor variations in colour characteristics of wood are allowed.

5.3.10 Window with heat recovery valve

Window with heat recovery valve allows supply air to flow into an apartment or house equipped with a mechanical exhaust ventilation system.

To operate reliably, the supply air system requires mechanical exhaust ventilation. The tightness of the building's outer sheath also affects how much of the replacement air comes through the valves themselves.

The functioning of the window with heat recovery valve requires the apartment to have negative pressure as follows: The supply air vent opens when the apartment has a negative pressure of at least 4 Pa. Air space ratios are calculated values for valves and can vary as environmental conditions change (air temperature, wind, humidity of the air, tightness of the building's outer layers).

Valve pressure loss: Dirty filters causes pressure loss in the valve. The filter should be replaced at least once a year. If there is a deficient exhaust air system in the apartment, frosting may occur between sashes of the supply air windows, which is not an error due to the windows.

5.3.11 Listings

The wood shall be at least class A4, unless otherwise specified in the documentation. The visible surfaces of the wooden lists are smooth. The thickness of less than 50 mm wide lists is at least 9 mm in dry space and 12 mm in wet space, unless otherwise specified in the documentation. The permissible dimensional deviation of the thickness and width of the planed lists is +/- 0,5 mm. Unless otherwise specified in the documents, the internal lists have the same characteristics as the visible surfaces of the doors or the window sashes.

The inside and outside lists are fastened in such a way that movements caused by changes in humidity and temperature can easily occur. The installation lists should be stored in a dry place so that they do not receive moisture. Outside and in damp spac-

es, the lower ends of the wooden lists are left off the floor or from the water damper at the bottom of the window.

The listing outside the window or door shall be carried out as soon as possible in such a way that it is not possible for rainwater to penetrate the gap or wall structure. In addition, it is ensured that the ventilation gap behind the outer surface also works flawlessly below and above of the openings in the wall.

When finished the listing does not show tears, cracks caused by working, scratches and traces of tools, visible fastening accessories or other breakages that impair the strength and appearance of the listings. The finished surface that remains visible is intact and of uniform quality and appearance. The visible rows of fasteners are visually straight and in regular intervals.

Dampers

Skaala uses a steel damper of a thickness of at least 0,5 mm shall be used for window and door installation (unless otherwise specified in the documentation). To prevent galvanic corrosion, the fasteners are compatible with the damper. Screw fastening is mainly used with intervals about 500 mm. The water damper extends over the wall structure by at least 30 mm and has sufficient slope outwards. In tall buildings and windy places, the seam is sealed with a weatherproof elastic mass.

The dampers must be installed as soon as possible after window installation so that moisture does not flow into the structures and the rainwater is diverted and does not enter the mounting gap/isolations.

5.3.12 Installation

Doors and windows are installed in such a way that the travel distance of the door leaf or sash are in accordance with the standards or document regulations throughout. The number and position of the door and window frame anchorages are in accordance with RT 42-10122 and SFS 5823. The tightness of the frame and wall jointing seam is designed/implemented in such a way that it corresponds to the thickness of the outer wall. The doors and windows will be intact after the installation work has been completed. Visible, pre-treated surfaces do not have stains, cracks or other errors.

A separate written agreement has been made for the installation carried out by Skaala, which defines the contents and responsibilities of the installation.

ⓘ In Finland it is possible for a private customer to receive a tax deduction for the share of installation work. Read more: vero.fi

5.3.13 Maintenance responsibility

After installation, the buyer or the main user is responsible for the care, maintenance, functionality and adjustment of windows and doors. In bigger sites the responsibilities are determined in contract documents and in the annual warranty.

Regular maintenance helps to maintain the functionality and technical characteristics of the window and door for as long as possible.

CE MARKING

Skaala's windows and doors that are subject to the EN14351 -1+A1 product standard are CE marked. The CE marking indicates that the products meet the essential requirements specified in the standard.

ⓘ Performance declarations for CE marked products can be found under the product code on our website www.skaala.com and, for the products you purchase, in your order confirmation.

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