

User manual



Futura+ & Futura+i

Idealcombi is delighted that you have chosen our windows and external doors which we hope you will enjoy for many years to come.

Idealcombi A/S is one of the largest and most well-consolidated window manufacturers in Denmark. When purchasing windows and doors from Idealcombi, you are a guaranteed beautiful and durable products requiring only a minimum of maintenance.

Idealcombi also enjoys a reputation for using the best raw materials available. With one of Denmark's largest window production facilities under one roof in northwestern Jutland, we combine high standards of craftsmanship with state-of-the-art production technology.

Windows and doors from Idealcombi are your guarantee of high-quality products. Idealcombi is a member of the Association of Danish Windows Manufacturers, and all our products and elements conform to the Danish Window Verification standard (DVV).

Our production is based on good craftsmanship and state-of-the-art technology. The result is quality products which, with normal maintenance, will last for many years.



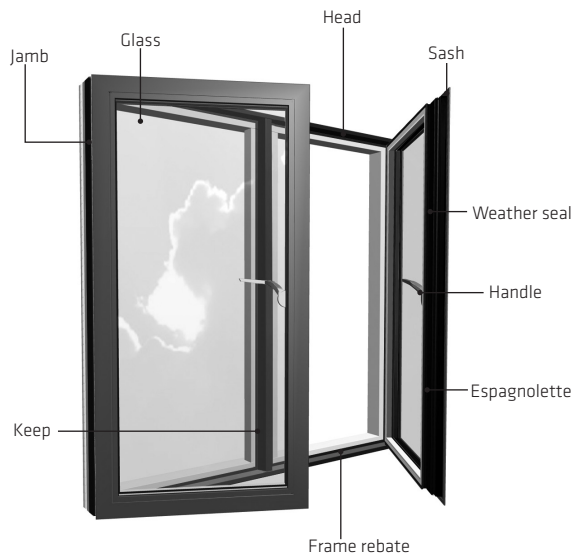
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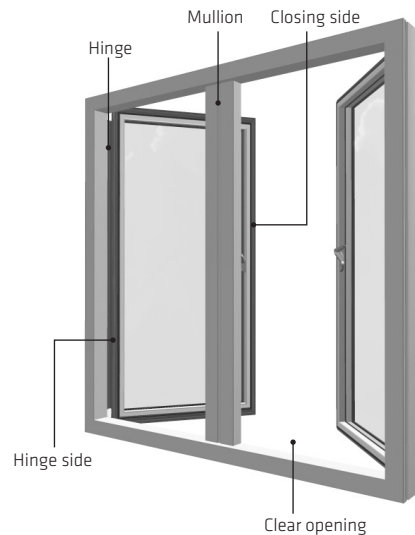
Window Construction

To make it easier to understand the technical terms used in this Installation and user manual, the terms are shown on the two general drawings below.

External view



Internal view



Danish Window Manufacturers and DVV



The Association of Danish Window Manufacturers

Idealcombi A/S is a member of the Association of Danish Window Manufacturers.

Founded in 1977, the Association of Danish Window Manufacturers is the trade organisation of approx. 65 Danish manufacturers of windows and external doors.

The association's general purpose is to safeguard the interests of the window and door manufacturing business, but it also gives high priority to consumer safety in connection with window and external door purchases.

Another essential function of the Association of Danish Window Manufacturers is the technical regulations which form the basis for quality control procedures carried out in pursuance of the Danish Window Certification body, DVC.

The technical regulations ensure the best possible conditions for the manufacture of windows and external doors, both in terms of function, life span and focus on energy and the environmental issues.

For further information, please visit the Association of Danish Window Manufacturers website at: www.vinduesindustrien.dk



Danish Window Verification

All Idealcombi A/S' products are DVV-labelled.

All the Association of Danish Window Manufacturers members are affiliated with Danish Window Verification (DVV). This means

that consumers are guaranteed windows or doors that have been quality inspected.

DVV is a fully independent certification body which is affiliated with the Danish Technological Institute. DVV affiliated manufacturers are subject to systematic control of their products and quality management systems twice a year.

Under the DVV programme, the manufacturers are subject to special requirements for quality assurance and management, product design, material quality and workmanship.

The Association of Danish Window Manufacturers' members include manufacturers of windows and exterior doors of wood, wood/aluminium, plastic and aluminium. Consumers can rely on all the Association of Danish Window Manufacturers' member products being DVV-labelled.

For more information about DVV and the requirements made for DVV-labelled products, please visit the DVV website: www.dvv.dk

The warranty conditions shall come into effect upon placing of an order. These conditions shall be valid from 1 June 2002.

Disposal

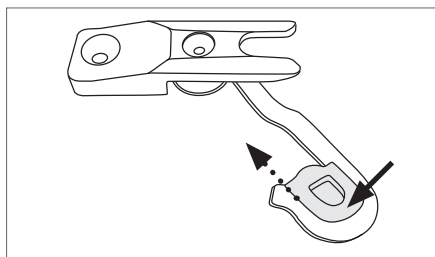
Elements from Idealcombi has a long life-span, but when it is time for disposal the majority of the product can be recycled. We recommend all elements are sent to a recycling centre and split into their basic elements, for best possible recycling.

Handle Function *(outward opening)*

The handle on all Futura+ windows and doors has three positions used to control the opening/closing function as well as the TurnPlus ventilation feature.

Red plastic restrictor

In order to protect the ventilation function during the building period, the Turn Plus Ventilation stay is equipped with a red plastic restrictor which will prevent incorrect operation of the element during the building period. Remove the red plastic restrictor before using the window the first time.



Instruction label

All windows and doors are furnished with instruction labels explaining the use of the different handle positions. The instruction label can be safely removed when it is no longer required or relevant.

Opening/closing

In handle position 1, the window/door is closed when the sash is pulled into the frame.

Turning the handle 90° to the first 'click' in handle position 2 will permit the sash to be opened.

On windows or terrace doors with a handle-operated brake, the brake can be activated by turning the handle back to handle position 1 while the sash is open.

Close the window/door again by pulling the sash into the frame with the handle in posi-

tion 2 and then turning the handle back to position 1.

TurnPlus Ventilation

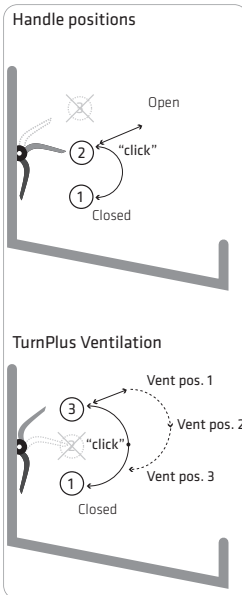
The built-in TurnPlus Ventilation has three ventilation positions. In order to use the ventilation features, turn the handle from handle position 1 while the sash is closed, past the first 'click' in handle position 2 and further to handle position 3.

When the sash is now pushed outwards, the fitting will engage with the ventilation stay, and the frame will be fixed in ventilation position 1 with a gap of approx. 1-2 cm. With the window in ventilation position 1, the sash can be opened to ventilation position 2 by turning the handle to position 2, thereby creating a slightly larger ventilation gap of approx. 2-4 cm. From ventilation position 2, return the handle to position 1 in order to achieve ventilation position 3, which provides the largest ventilation gap of approx. 4-5 cm.

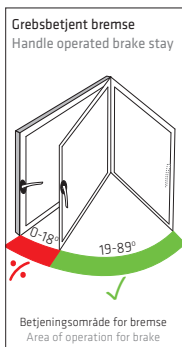
Close the window/door again by returning the handle to position 3, pulling the sash fully into the frame and returning the handle to position 1.

Close the window/door again by returning the handle to position 3, pulling the sash fully into the frame and returning the handle to position 1.

Video: tiny.cc/TurnPlus



Handle Function *(inward opening)*



Turn/Tilt

The turn function is activated by turning the handle 90° to a horizontal position, then open the sash inwards.

Turn/tilt can be delivered with a handle operated brake to keep the sash in any position in the turn function.

The brake is activated by turning handle downwards.

The tilt function is activated by turning the handle 180° to vertical position, tilt the sash inward to provide an opening of approximately 20 mm, depending on the size of the sash.

The unit can be supplied with a locking cylinder. If unlocked both turn and tilt functions are available.

Tilt/Turn

The tilt function is activated by turning the handle 90° to a horizontal position, tilt the sash inward to provide an opening of approximately 20 mm, depending on the size of the sash.

Turn function (side hung) is activated by turning the handle 180° to a vertical position, then open the sash inward.

Tilt/turn can not be supplied with handle operated brake.

For tilt/turn a locking cylinder can be supplied if the turn function must be secured - even though the cylinder is unlocked, it still

has to be activated with a key/button in order to switch from tilt to turn function.

Tilt/Turn

If the espagnolette is misoperated, turn the handle into horizontal position and push the sash into the frame, then turn the handle up into vertical position. Close the window by turning the handle down into locked position. The espagnolette is now back in default position.

Video to reset:

tiny.cc/error-reset

In general

If turn function is used for ventilation the sash must be secured to prevent the window from being caught by a through draught.

When switching between the two functions the sash must be pushed back into position in the frame before operating the handle.

Operation sticker

All windows and doors are equipped with a sticker showing the functions of the different handle positions. The sticker can be removed when it is no longer needed or relevant.

Top Guided



Top guided window

The window's top guided fitting is mounted on the upper edges of the sash/frame, and when the window is opened, the bottom section of the sash moves outwards, while the top section of the sash simultaneously moves slightly downwards.

On windows wider than 1200 mm, the sash is held inside the frame by a back edge retainer bracket (fig. 1), placed on the sash at the middle of the upper edge.

The window is operated with a handle placed at the centre of the sash rebate. The handle activates the roller espagnolette which engages with the keep on the bottom frame when the sash is closed. The rollers may be adjusted as required (fig. 2) throughout the window's service life to provide the right closing pressure.

When the handle is turned to the vertical position, the bottom section of the sash may be pushed outwards, while the top section will simultaneously slide downwards. This makes for a very good and efficient ventilation position which is fixed by the friction in the fitting. However, in case of strong winds or draughts, you cannot rely on the friction to keep the sash in the infinitely adjustable ventilation position.

The friction may be adjusted by tightening or loosening the friction screw on the slide rail (fig. 3) on the side frame – to ensure easy operation and proper function, always make sure that the friction is adjusted evenly on both sides.

If the handle is turned further than the vertical position, the roller will engage with the special ventilation stay (fig. 4), thereby fixing the sash in ventilation position with a narrow gap at the bottom.

Function video: tiny.cc/TopGuided

Be aware, the friction on the hinges may not hold the window open in strong winds.



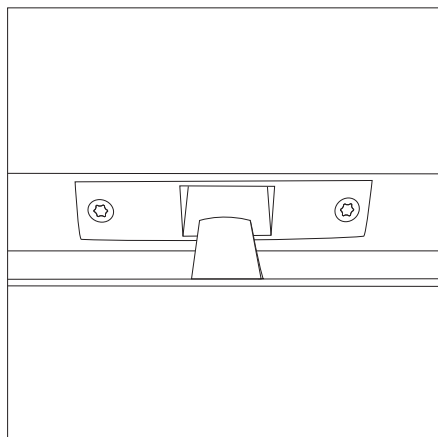


Fig. 1 Back edge retainer bracket

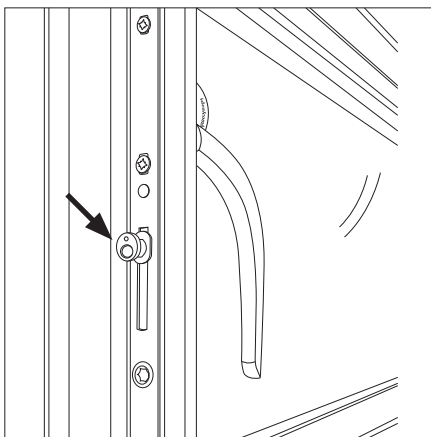


Fig. 2 Adjustment of the roller

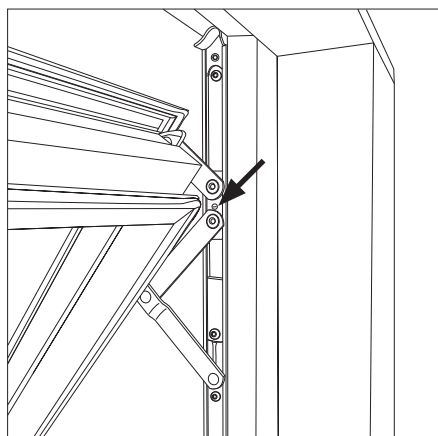


Fig. 3 Adjustment of the friction

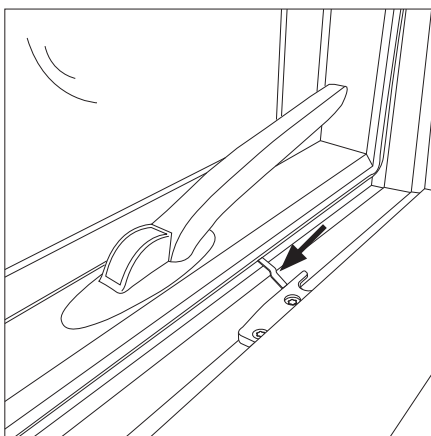


Fig. 4 Ventilation position
See page 6

Video - Friction adjustment:
tiny.cc/FrictionBrake

Top Swing Reversible



Top swing reversible window

With a reversible hinge, the window sash may be pushed out and reversed entirely outside the frame. The hinge is always placed at the centre, and as a result, the sash can be reversed within the outer dimensions of the frame, and the outside of the glass may then be cleaned from the inside.

The window is operated with a handle placed at the centre of the sash rebate. The handle activates the roller espagnolette which engages with the keep on the frame when the sash is closed. The rollers may be adjusted as required (fig. 1) throughout the window's service life to provide the right closing pressure.

The reversible hinge has an integrated safety catch which blocks the sash when it has been opened approx. 10 cm (fig. 2). It is also possible to use this position for ventilation by tilting the small white restrictor forward to fix the window in this position. To open the window further, first release the safety catch. Tilting the small white restrictor for-

ward to the ventilation position will not prevent closing of the window.

When the sash has been reversed a full 180° outside the house facade, the safety catch will engage again. This ensures that the window is fixed during cleaning.

If the handle is turned further than the vertical position, the espagnolette will engage with the special ventilation stay (fig. 3), thereby fixing the sash in a ventilation position with a narrow gap at the bottom.

Function video: tiny.cc/reversible

Be aware, the friction on the hinges may not hold the window open in strong winds..



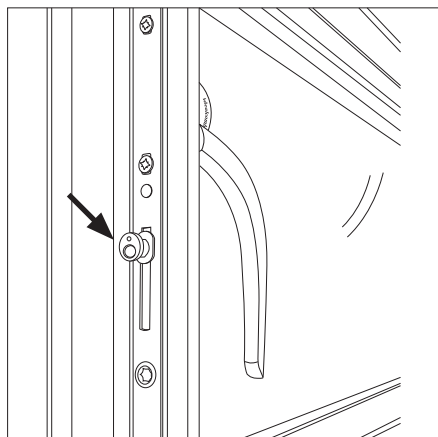


Fig. 1 Adjustment of mushroom bolt

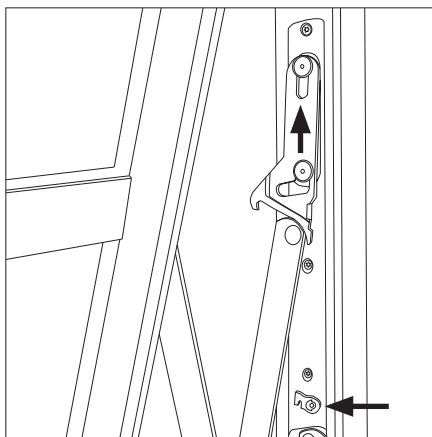


Fig. 2 Safety catch

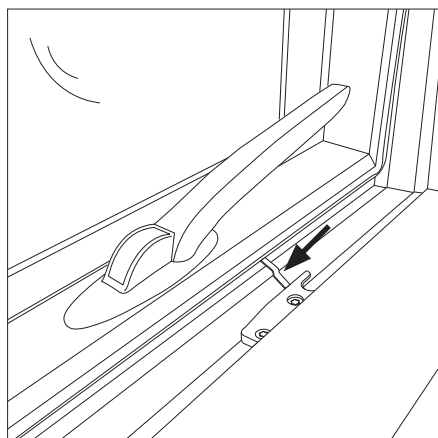


Fig. 3 Ventilation position

See page 6

Side Hung



Side hung window

The fittings on side hung windows are placed in the top and bottom corners. The door sash rests on a dowel pin in the bottom corner, where the position of the sash can be vertically adjusted on the sash section of the fitting (fig. 1). The sash is guided by a pin in the top corner, where the sash position may be horizontally adjusted on the frame section of the fitting (fig. 2).

On windows taller than 1200 mm, the sash is held inside the frame by a back edge retainer bracket (fig. 3), placed on the sash at the middle of the hinge side.

On windows taller than 1000 mm, the sash is held up by a sash support (fig. 4) in the closed position. The sash support can be vertically adjusted during daily use to prevent the sash from sagging.

The window is operated with handle placed at the centre of the jamb. The handle activates the roller espagnolette which engages with the keep on the side frame when the sash is closed. The rollers may be adjusted as required throughout the window's service life to provide the right closing pressure (fig. 5).

Furthermore, the sash may be opened to

any random angle up to 90° and fixed by the friction brake placed on the upper edge of the sash. However, in case of strong winds or draughts, you cannot rely on the friction to keep the sash in the infinitely adjustable ventilation position. The brake friction can be adjusted by tightening or loosening the friction screw on the brake (fig. 6).

Side hung windows are available with a handle-operated brake. The brake makes it possible to stop the sash in any random ventilation position. To stop the sash in the ventilation position, turn the handle to the closed position while the window is open. However, in case of strong winds or draughts, you cannot rely on the brake to keep the sash in the ventilation position.

Function video: tiny.cc/HandleBrake

If the handle is turned further than the horizontal position, the espagnolette will engage with the special ventilation catch (fig. 7), thereby fixing the window in a ventilation position with a narrow gap at the side.

Funktionsvideo: tiny.cc/SideHung

Be aware, the friction on the hinges may not hold the window open in strong winds.



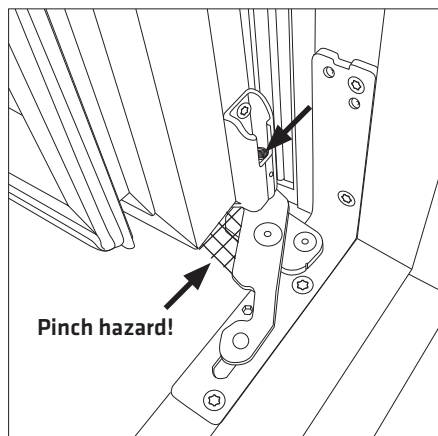


Fig. 1 Height adjustment of the sash

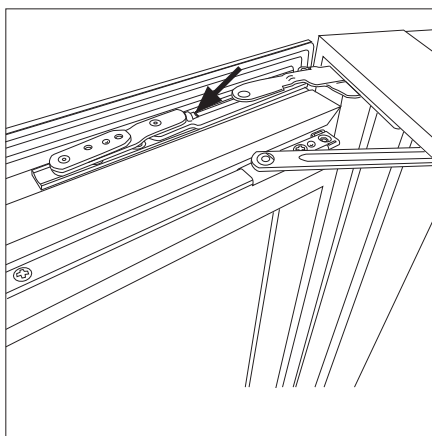


Fig. 2 Horizontal adjustment of the sash

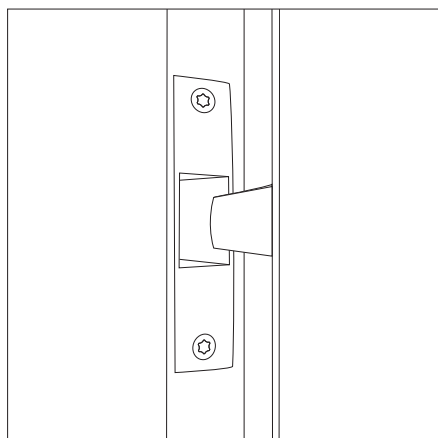


Fig. 3 Back edge retainer bracket

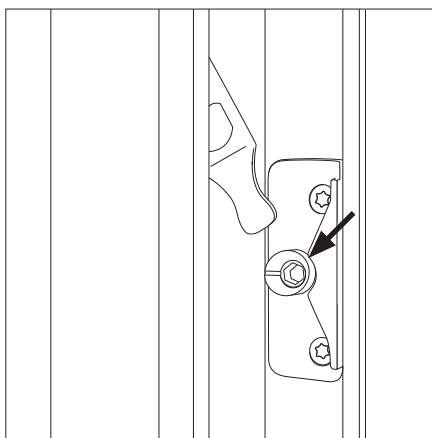


Fig. 4 Adjustment of sash support

Side Hung

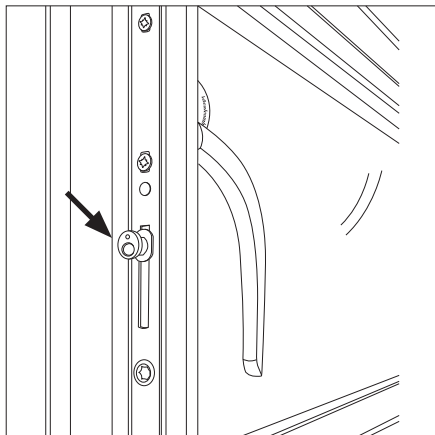


Fig. 5 Adjustment of mushroom bolt

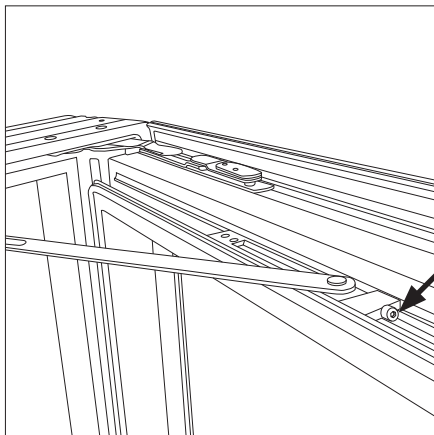


Fig. 6 Adjustment of handle brake

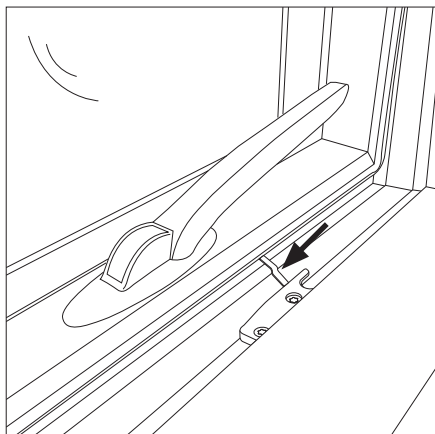


Fig. 7 Ventilation position

See page 6

Video:

Sash removal: tiny.cc/RemoveSash

Sash install: tiny.cc/FitSash

Side Guided



Side guided window

The window's side guided fittings are placed at the top and bottom of the window sash/frame. When the window is opened, the closing side of the sash moves outwards, while the hinge side of the sash simultaneously moves towards the closing side.

On windows taller than 1200 mm, the sash is held inside the frame by a back edge retainer bracket (fig. 1), placed on the sash at the middle of the hinge side.

On windows taller than 1000 mm, the sash is held up by a sash support in the closed position. The height of the sash support can be adjusted during daily use to prevent the sash from sagging (fig. 2).

The window is operated with a handle placed at the centre of the jamb. The handle activates the roller espagnolette which engages with the keep on the side frame when the sash is closed. The rollers may be adjusted as required throughout the window's service life to provide the right closing pressure (fig. 3).

When the handle is turned to the horizontal position, the window can be pushed open, and the back edge of the sash will simultaneously slide towards the closing side. This

makes for a very good and efficient ventilation position which is fixed by the friction in the fitting. However, in case of strong winds or draughts, you cannot rely on the friction to keep the sash in the infinitely adjustable ventilation position. The friction may be adjusted by tightening or loosening the friction screws on the slide rail on the frame top and bottom – to ensure proper operation and function, always remember to adjust the friction evenly (fig. 4).

The hinge allows the sash to be opened to approx. 60 to 85° producing a gap of 10 to 20 cm at the back edge of the sash. By reaching through this gap it is possible to clean the outside face of the glass (fig. 5).

If the handle is turned further than the horizontal position, the espagnolette will engage with the special ventilation stay (fig. 6), thereby fixing the window in a ventilation position with a narrow gap at the side.

Function video: tiny.cc/SideGuided

Be aware, the friction on the hinges may not hold the window open in strong winds.



Side Guided

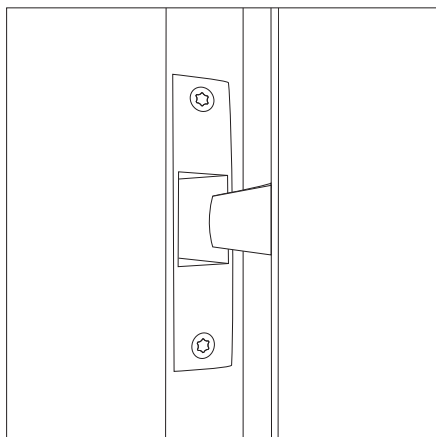


Fig. 1 Back edge retainer bracket

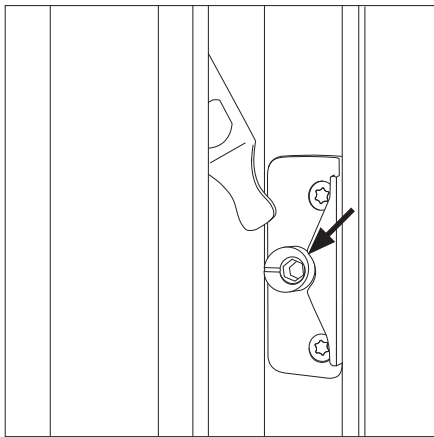


Fig. 4 Adjustment of sash support

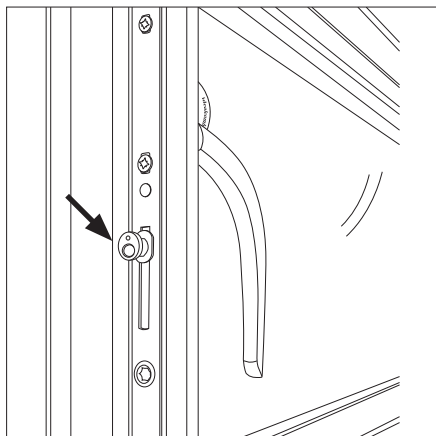


Fig. 3 Adjustment of mushroom bolt

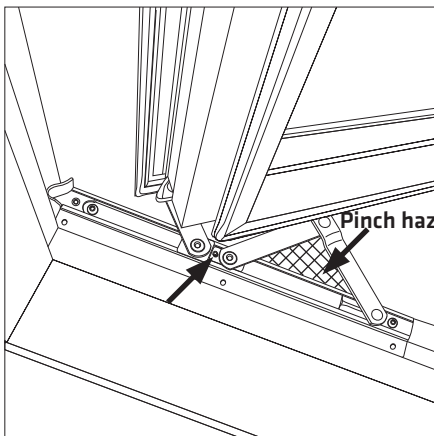


Fig. 4 Adjustment of friction brake

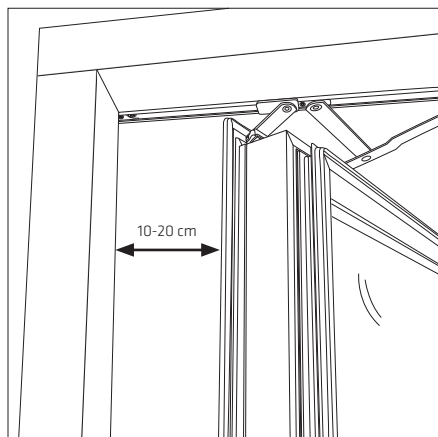


Fig. 5 *Cleaning gap*

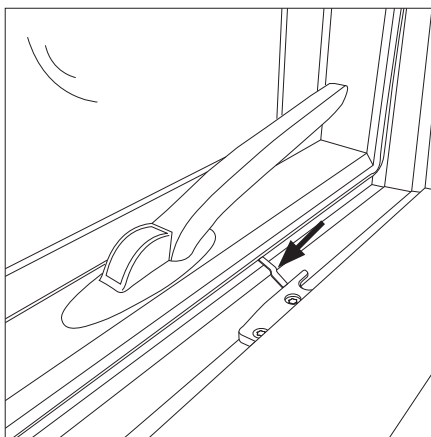


Fig. 6 *Ventilation position*
See page 6

Turn-Tilt & Tilt-Turn Window and Terrace Door



Turn-Tilt & Tilt-Turn window

The turn-tilt and tilt-turn window is an inward opening window with both a side and bottom hinge. The tilt function is used for daily ventilation, while the turn function is primarily used when cleaning the outside of the window pane.

For operation of the window see page 7.

The sash rests on a pin at the bottom of the hinged side, allowing vertical (fig 1.) and horizontal (fig. 2) adjustment of the sash on the sash post of the hinge. The sash is guided by scissor ironmongery at the frame head, allowing horizontal adjustment of the sash position on the sash section of the hinge (fig. 3).

The window may have closing points all around the unit, depending on the size, but is still operated by a single handle mounted in the jamb. The handle points down in the closed position. This activates the roller espagnolettes, which engage with the receivers on the frame. The rollers may be adjusted as required throughout the window's service life to provide the right closing pressure (fig. 4).

When closed, the sash is held in position by a sash guide. The sash guide can be adjusted

occasionally for additional handle side support (fig. 5).

Function video: tiny.cc/TiltTurn

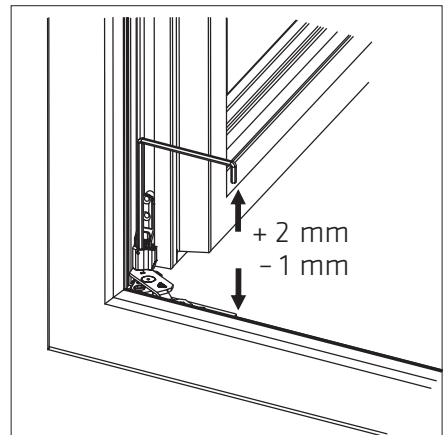


Fig. 1 Height adjustment of sash

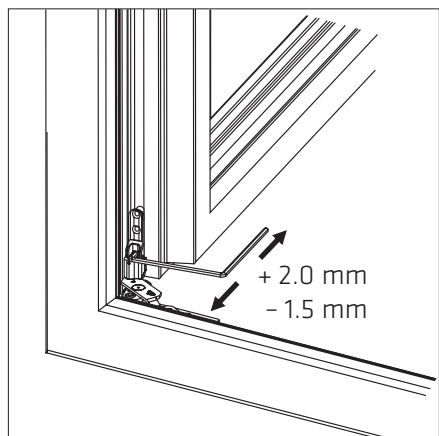


Fig. 2 Lateral adjustment of the sash, bottom

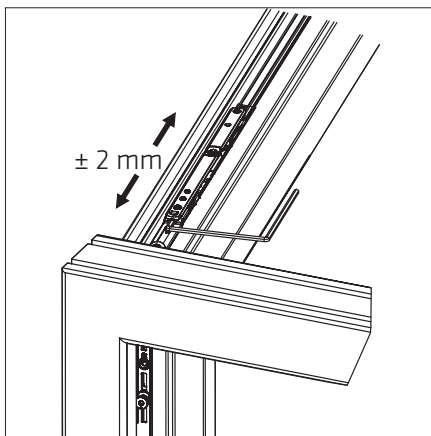


Fig. 3 Lateral adjustment of the sash, head

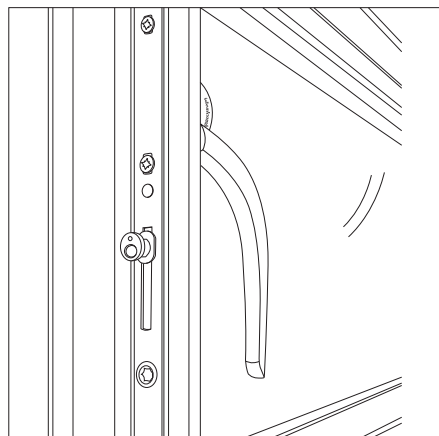


Fig. 4 Adjustment of mushroom bolt

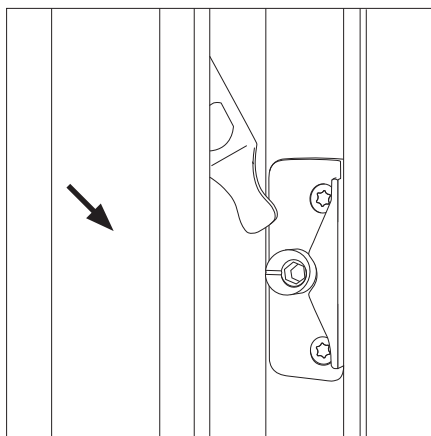


Fig. 5 Adjustment of sash support



Please note that mushroom bolts on the sash can scratch the bottom of the frame when installing/removing the sash.

Video:

Sash removal: tiny.cc/ttRemoveSash

Sash install: tiny.cc/ttFitSash

Terrace Door



Be aware, the friction on the hinges may not hold the window open in strong winds.

Terrace door

The terrace door fittings are placed in the top and bottom corners. The door sash rests on a dowel pin in the bottom corner, where the position of the sash can be vertically adjusted on the sash section of the fitting (fig. 1). The door sash is guided by a dowel in the top corner, where the position of the sash can be horizontally adjusted on the frame section of the fitting (fig. 2).

At the middle of the side frame, the door sash is held inside the frame by a back edge retainer bracket. The back edge retainer bracket is placed on the door sash, at the middle of the hinge side (fig. 3). In the closed position, the sash is held up by a sash support. The height of the sash support can be adjusted during daily use to prevent the sash from sagging (fig. 4).

The door is operated with a handle placed on the shutting side of the sash. The handle activates the roller espagnolettes which engage with at least three closing keeps on the side frame when the sash is closed. The rollers may be adjusted as required throughout the door's service life to provide the right closing pressure (fig. 5).

Furthermore, the door may be opened to any angle and fixed by the handle-operated brake placed on the upper edge of the sash.

To stop the door in the ventilation position, turn the handle to closing position while the door is open. However, in case of strong winds or draughts, you cannot rely on the friction to hold the door in the infinitely adjustable ventilation position.

Function video: tiny.cc/HandleBrake

If the handle is turned further than the horizontal position, the espagnolette will engage the ventilation position (fig. 6), thereby stopping the door in a ventilation position with a narrow gap.

Double terrace doors

Double terrace doors have a single handle on the primary door leaf. The secondary leaf is operated by the concealed handle on the floating mullion. (fig. 7).

Furthermore, the door may be opened to any random angle up to 90° and stopped by the friction brake placed on the upper edge of the sash. However, in case of strong winds or draughts, you cannot rely on the friction brake to keep the door in the infinitely adjustable ventilation position. The brake friction can be adjusted by tightening or loosening the friction screw on the brake (fig. 8).

Function video: tiny.cc/fDoubleDoor

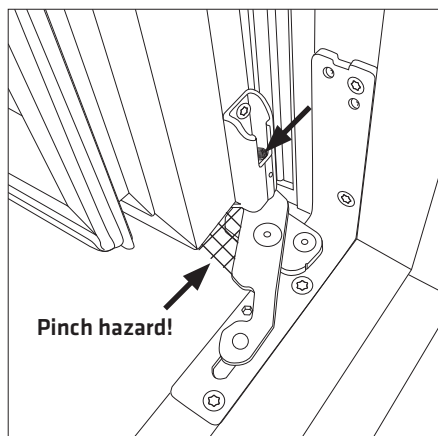


Fig. 1 Height adjustment of sash

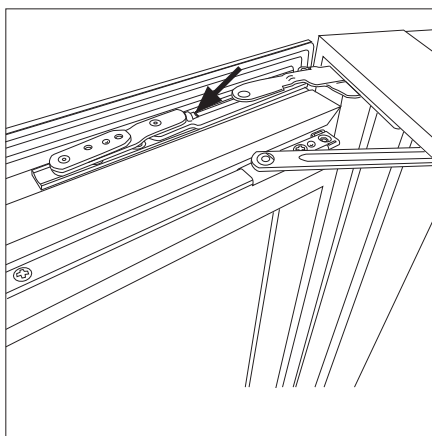


Fig. 2 Lateral adjustment of the sash, head

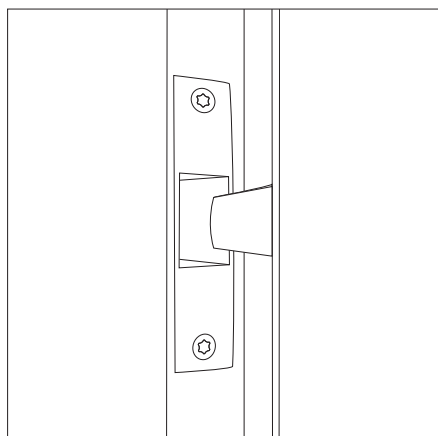


Fig. 3 Back edge retainer bracket

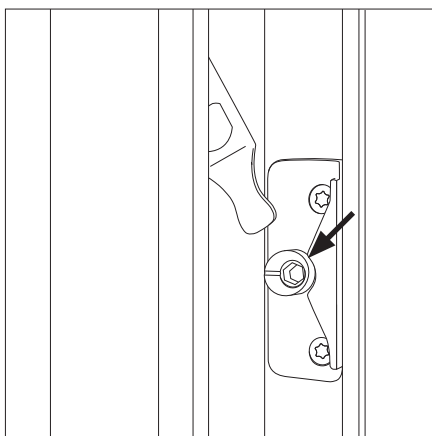


Fig. 4 Adjustment of sash support

Terrace Door

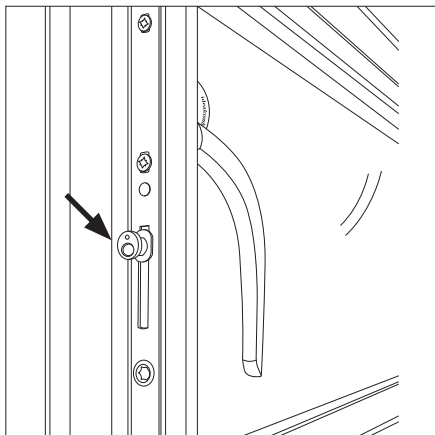


Fig. 5 Adjustment of mushroom bolt

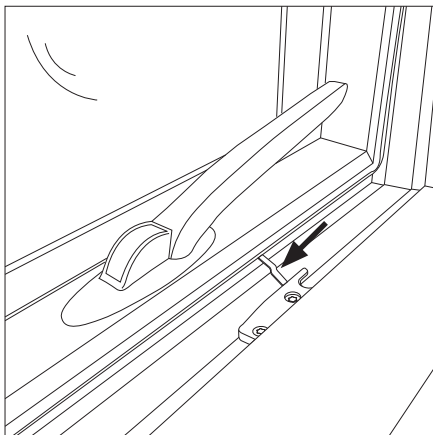


Fig. 6 Ventilation position
See page 6

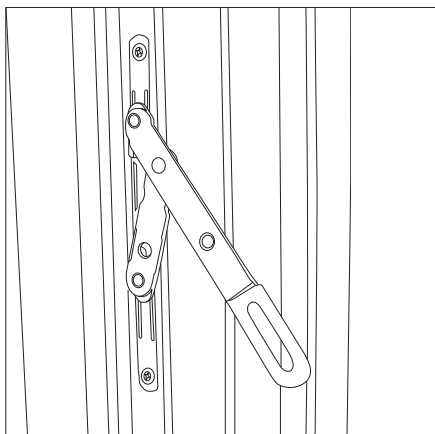


Fig. 7 Concealed handle

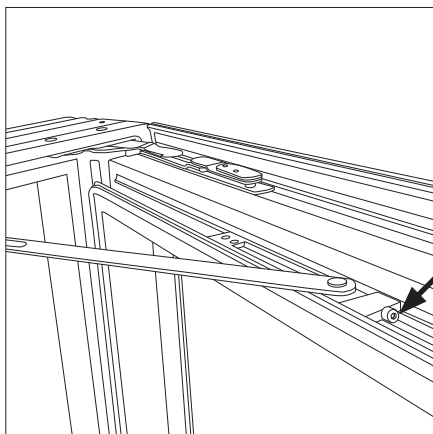


Fig. 8 Adjustment of brake friction

Video:

Sash removal: tiny.cc/RemoveSash

Sash install: tiny.cc/FitSash

Sliding Door



Sliding door

The sliding door consists of a fixed leaf and a 'sliding' sash.

When the two door handles are turned to the horizontal position, the sash is released from the frame and can now be pushed out about 12 cm from the facade, allowing it to slide past the fixed leaf.

The 'sliding' sash always runs on the outside.

The sash position may be adjusted in any direction (**see the instructions on the following pages**)

Function video: tiny.cc/fSlidingDoor



Double sliding door

The double sliding door consists of two sliding sashes which in the closed position are flush with the fixed side leaves.

Both sashes are pushed out approx. 12 cm from the facade, allowing them to slide past the fixed leaves on both sides.

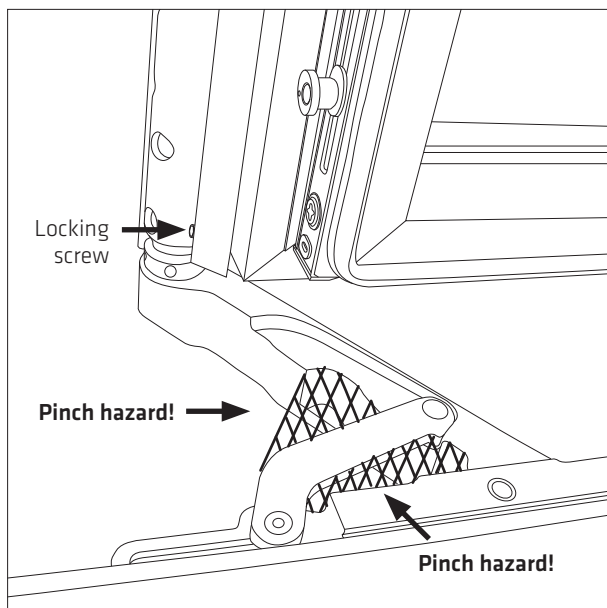
The first 'sliding' sash has two handles and a multi-locking hook bolt mechanism with at least three closing points on either side.

The second 'sliding' sash is opened in the same manner.

The door is supplied as three separate elements with two fixed side leaves.

Function video: tiny.cc/fDoubleSlide

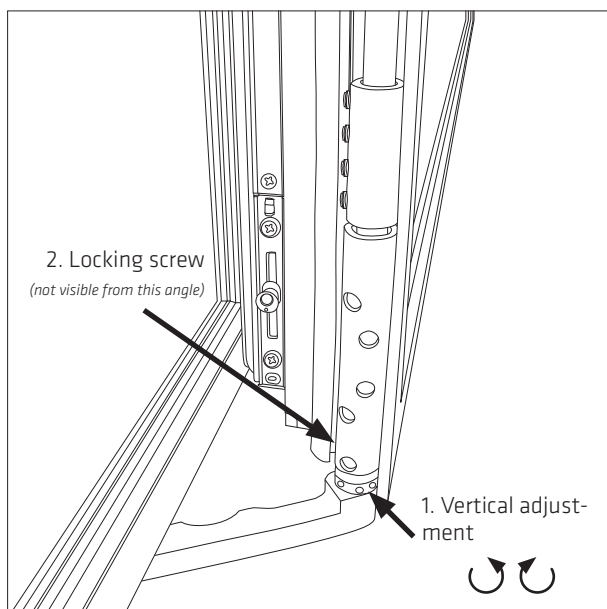
Sliding Door



The sliding sash can be vertically adjusted. Slide the door out and loosen the locking screws on the bottom fittings.

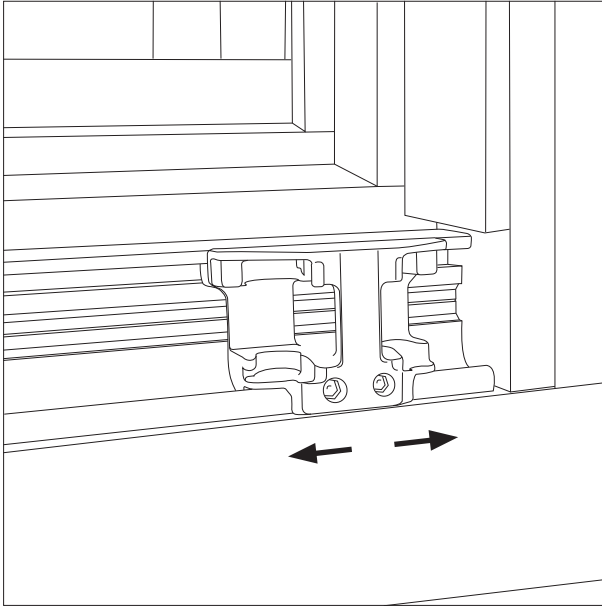
Adjustment video:

tiny.cc/fSlideHeight



Using a round $\varnothing 4$ mm pin (possibly a drill bit), the innermost bushing in the bottom fitting may be turned to raise or lower the sash. It may be necessary to relieve the fitting of its weight during the adjustment procedure. After adjusting, retighten the bottom fitting's locking screws.

Sliding door



The bottom rail has two end stops to ensure that the sliding sash does not slide too far forward or backwards. The end stop on the locking side may be moved forwards or backwards to adjust the door position and ensure that the door is exactly in the middle.

Video - Sash removal:

tiny.cc/fsSashRemoval

Sliding Door With Low Threshold



Sliding door with low threshold

The sliding door consists of a fixed leaf and a 'sliding' sash.

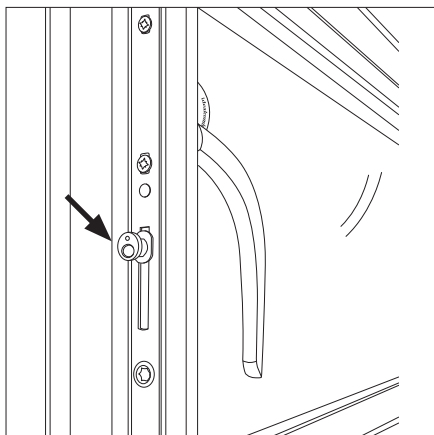
The 'sliding' sash always runs on the outside.

Prior to opening the sliding door, loosen the safety handle on the mullion by turning it left to horizontal position.

The sliding door is operated with one handle placed at the centre of the jamb.

When the door handle is turned to the horizontal position, the sash is released from the frame and moves about 6 mm from the facade, allowing it to slide past the fixed light.

When the sliding door is closed and the handle on the sash is turned downward in vertical position, the sash is pulled toward the frame and the espagnolette will engage with the keeps on the frame.



The espagnolettes can be adjusted to ensure the right closing pressure at any time.

Push the safety handle toward the mullion and turn it right. The sliding frame is then pulled toward the mullion.

The top rail has an end stop to ensure that the sliding sash does not slide too far to the side.

The jamb has a stop to ensure that the sliding sash does not slide into the keeps when closing the door.

Shutter Element



Shutter element

The external louvre panel is fixed and the internal hatch can be side hung or bottom hung to open inward.

Right behind the louvre panel, a fly mesh is fitted to prevent insects from entering through the shutter element.

The internal hatch is supplied with an espagnolette operated by a single handle on the closing side of the hatch. The espag has adjustable mushroom bolts that lock into the keeps.



The mushroom bolts can be adjusted to ensure correct pressure on the weather seals on the closing side of the hatch.

brake, from approx. 150 mm open to 90° open. To engage the ventilation position, turn the handle to the locked position while the door is open.

For bottom hung hatches, the hatch is guided by the friction in the bottom hung hinges. The friction can be adjusted by tightening or loosening the friction screw on the hinges - it is important to have the same level of friction on both sides to ensure proper function.



Never attempt to close a window/door while the handle operated brake is activated.



For side hung hatches it is possible to lock the door in any open position, by engaging the handle operated

Accessories - Outward Opening



Handle



Keep

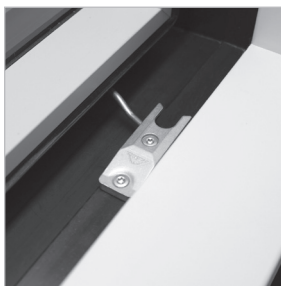


Mushroom bolt

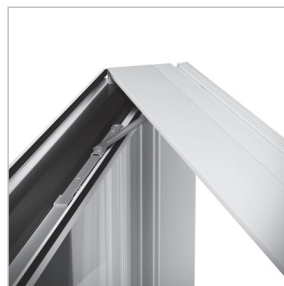


Handle with locking cylinder

Video: tiny.cc/fcyl



Ventilation position



Friction brake



Motor opener



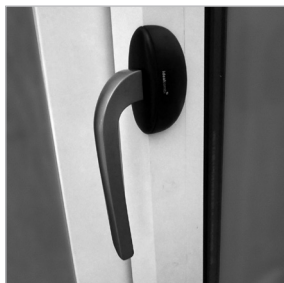
Opening restrictor

Video: tiny.cc/fRestrictor

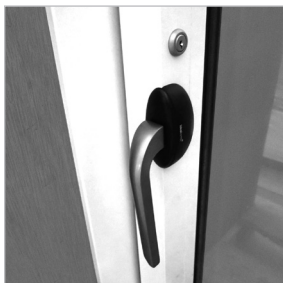


Trickle vent

Accessories - Inward Opening



Tilt-turn handle



Tilt-turn handle with
locking cylinder

Video: tiny.cc/ficyl



Trickle vent



Mushroom bolt



Motor opener



Keep

Maintenance, Cleaning and Lubrication

Maintenance, general

Futura windows and doors from Idealcombi require a minimum of maintenance. Under normal conditions maintenance is limited to regular cleaning of exterior surfaces with lukewarm water and a neutral cleaning fluid to remove dirt from the surface. Apart from this, moveable ironmongery parts must be lubricated as required and at least once a year. Keeping hinge sliders, guides, weatherstrips, etc. free from dust and dirt will ensure smooth operation in years to come.



Cleaning, general

The outer aluminium sash and frame surfaces are affected by the surrounding environment such as city and industrial areas with high traffic intensity and air pollution and coastal areas with salty air which soil and affect the surface more than clean country air.

Cleaning should be done on a regular basis and at least twice a year, maybe in connection with window cleaning. Wash sash and frame surfaces in lukewarm water with a neutral cleaning fluid such as car shampoo and wipe surfaces and edges with a cloth.



Lubrication, general

It is important to lubricate and maintain all types of ironmongery to ensure easy and smooth operation and function of our windows and doors and to uphold the warranty on the elements.

Lubrication and maintenance frequency depend on the use and the effect weather conditions, pollution, etc. have on the ironmongery.

We know from experience that ironmongery used in for instance city and industrial areas, areas with high traffic intensity and coastal areas with salty air should be lubricated and maintained more often than ironmongery in a less harsh environment.



Important

All ironmongery is lubricated at the factory. But we would like to stress that the person/contractor responsible for the installation must ensure that all moveable parts, with the exception of friction parts/hinge sliders, are lubricated with a suitable lubricant before they are delivered to the client

Generally, all moveable parts on hinges and closing/locking ironmongery should be lubricated as required, however, at least once a year.



Specific lubrication instructions

Side hung hinges

Hinges on side hung windows and doors should be lubricated with acid-free oil or grease. All joints must be lubricated during repeated activation so that the lubricant

reaches the movable arms. We recommend lubrication with acid-free grease.

The joints should be lubricated on the outside and in the crack between the arms. Use an easily penetrating acid-free oil followed by a long-lasting acid-free grease in spray form.



Top guided, side swing and top swing reversible

These are all hinge systems, and all joints must be lubricated during repeated activation, so that the lubricant reaches the moveable arms. The joints should be lubricated on the outside and in the crack between the arms. Use an easily penetrating acid-free oil followed by a long lasting acid-free grease in spray form.

Sliding surfaces, hinge sliders and sliding blocks should be maintained in a clean state to facilitate sliding.

The sliding surfaces in the sliding rails are lubricated with Berner-PTFE oil equivalent along the entire length the rails.



Sliding surfaces

All sliding surfaces are made from anodised aluminium and must be cleaned regularly depending on climatic conditions and the degree of air pollution. We recommend that the surface is wiped with a cloth or sponge.

Roller espagnolettes

Roller espagnolettes should be lubricated with acid-free oil or grease in all joints during repeated activation so that the lubricant reaches the moveable arms.



Friction brakes and hand operated brakes

Friction brakes are not normally lubricated, but always make sure the hinge slider is clean.

Lubrication tools

Lubrication is made with an oil can, a syringe or a spray can with a thin pipe. For further advice on lubrication please call Idealcombi's Service Department on 0 1582 860 940.



Inspection of weatherstrips and glazing gaskets

The condition of weatherstrips and glazing gaskets should be inspected concurrently with the annual lubrication.



Weatherstrips

Our weatherstrips are made from EPDM rubbers and several of them in a combination with a solid foot and a soft cellular sealing surface.

The weatherstrips do not require any special maintenance but should be kept clean and free of dirt. This is done by wiping them once a year with a well-wrung cloth and lukewarm water with a neutral cleaning fluid.

Maintenance, Cleaning and Lubrication

We recommend brushing the weatherstrips with a silicone stick to minimize friction during operation.

Also check that the weather strips are positioned and secured correctly and that they have maintained their sealing function.

All weather strips are loosely mounted in a perimeter groove making it easy to remove or replace weatherstrips on most element types if they are damaged and need replacement – or in connection with surface treatment maintenance.



Never paint weatherstrips or brush them with wood preservatives/oils.

Glazing gaskets

Our glazing gaskets are made of EPDM/cellular rubbers and require no special maintenance except for being kept clean and free of dirt as described under weatherstrips.

For further information please call Idealcombi's Technical Department on **01582 860 940**.



Maintenance of powder coated surfaces on aluminium

The outer aluminium covering is as standard chrome free and surface treated with a polyester powder coating.

This treatment offers a very strong and weather-resistant surface requiring only limited maintenance. In practice, this means cleaning it a couple of times a year with a

soft brush or cloth and lukewarm water with a neutral cleaning fluid such as car shampoo.

Minor damage to the surface treatment will not affect the element's durability since a natural oxide film quickly forms on exposed aluminium, preventing corrosion and white rust attacks.

However, for cosmetic reasons it may be desirable to repair such damage and Idealcombi's Technical Department would be happy to provide advice and guidance. Call us on **01582 860 940**.



Maintenance of anodised surface

The outer aluminium covering on our products in timber/aluminium can alternatively be supplied with anodic treatment. Once the aluminium profiles have been chemically prepared and cleaned thoroughly, they undergo an electrolytic process. Direct current is applied to the profiles which become anodised, thus turning the surface metal into oxide. This process continues until the desired film thickness has been achieved.

An anodised surface treatment provides excellent corrosion resistance in most environments while keeping the surface very smooth and dirt repellent. On top of that it has the ability to preserve what we call a "new" appearance.

Anodised aluminium profiles are almost maintenance-free provided that the surface

is cleaned a couple of times a year with a soft brush or cloth and lukewarm water with a neutral cleaning fluid such as car shampoo.



Surface treatment of wood, general

Resin lumps and discolouration from knots

All wood profiles from Idealcombi are quality optimised and finger jointed/ laminated ensuring elimination of at least 95% of all knots, star shakes and other defects. This gives the wood profiles greater stability and significantly reduces problems such as knot discolouration, yellow blotches and resin lumps in the surface treatment.

Please bear in mind that wood is a natural material and as such resin lumps may form underneath the paint and discolouration from the wood treatment may occur – even with the best surface treatment.

Small droplets of resin penetrating the paint can easily be removed with rubbing alcohol.

If small lumps of resin form underneath the paint, leave them for 2-3 years or until the resin has penetrated the surface treatment, then remove them with rubbing alcohol or, in more serious cases, scrape and sandpaper them away before applying new paint.

Yellow discolouration, which can normally be removed with rubbing alcohol, often occurs on light colour finishes.

The above mentioned problems are often more pronounced during hot summers (tropic climates) and may occur rapidly particularly on facades facing south.

For further information please see Danish Window Certification appendix 14, page 28 of the technical regulations which deal with "Expected outcome of industrially surface treated timber elements" - page 35.



Maintenance of surface treatment – Timber



When cleaning the wooden parts with lukewarm water and a neutral cleaning fluid, check for any damage or wear to the surface treatment.

If a degraded surface treatment needs restoration, we recommend the following procedure:

Cleaning

Thorough preparatory work is decisive for the durability and adhesion of the treatment. First, wash thoroughly with water and ammonia or a strong cleaning agent (not dish soap). Scrape off loose paint and remove any resin with rubbing alcohol.

Priming

Exposed wood facing the outside environment must be primed with a clear wood preservative or priming oil. When dry, sand all surfaces and edges lightly with sandpaper and remove the dust with a brush or cloth.

Finish

Finish with two coats of paint of the desired colour. We recommend that you use the same water-dilutable product as the elements were originally treated with. See the nearest dealer above.

Maintenance, Cleaning and Lubrication

Piece of advice

- Always read the instructions on the paint thoroughly before you begin painting.
- All surfaces and rebates must be dry and free of dirt before you begin.
- Weatherstrips and movable parts of hinges and handles should not be painted. Please note that the weatherstrip is mounted loosely in a groove, making it easy to remove before you paint and to remount when the paint is dry.
- DVC's guarantee label must not be painted.
- Use masking tape to facilitate painting along edges.
- Always use a good brush with a proper width.
- Always paint wet in wet to avoid overlaps.
- Always have a cloth and plastic bag at hand. Use the cloth to dry off incorrect strokes and drips from the brush. Use the plastic bag to wrap around your brush if your work is interrupted for a short period of time.
- Remember that hinged sashes must
- not be closed before the paint is completely dry.



We advise you not to use pure plastic paints as the weatherstrips between frame and sash may contain synthetic rubbers, which have a tendency to stick to such surfaces.

Manufacturers associated with DVC use surface treatment on wood elements which, as a minimum, provide the following results (see table).

	Forventet udfald	Funktions-klasse	Kommentarer
Visible surfaces of closed elements	DLGU**	III	Mean value of coating thickness > 60 mm (80 mm)
Visible surfaces of open elements	DG**	III	The surface must be non-absorbent
Non-visible surfaces (against wall)			No requirements

Henvisninger:	Eksempler:
*Function class III	Parts of buildings facing south or west, affected by varying levels of humidity, pollution from traffic or other aggressive impacts. See also supplementary description of outcome.
**Covered, closed and smooth surface (DLGU)	Surfaces, edges and rebates are of a uniform colour and gloss and feel smooth to the touch. Rough spots originating from the base may occur. Pores, holes, cracks and joints are closed, but not necessarily filled out..
*** Covered and smooth surface (DG)	Surfaces, edges and rebates are of a uniform colour and gloss and feel smooth to the touch. Rough spots, open pores, holes, cracks and joints originating from the base may occur.



All surfaces have been treated, but a uniform coating thickness cannot be expected.

Supplementary description of outcome

Wood is a natural material and therefore often very heterogeneous. Variations in structure and gloss, star shakes and other variations are normal such as irregularities around knots where partial peeling, blistering and wrinkling may occur. Discolouration from knots and finger joints may occur, especially on light colour finishes. Knots may be plugged or filled with a suitable filler, but they will always be visible. Other colour variations such as yellow lines/surfaces may occur.

Other irregularities such as lumps of resin may also appear in the surface treatment.

The lumps may be randomly spread out or situated along the wood grains. The resin may also penetrate the coating and form little droplets on the surface. After a while, when the droplets have crystallised on the surface, they can be lightly brushed or scraped off without damaging the surface treatment.

Wood elements with a high content of resin may occur. In such cases, larger quantities of resin may seep through.

Production is carried out industrially providing benefits such as uniform, high quality and treatment of all surfaces.



For facades facing south that are exposed to strong sunlight and sea air or moisture from inside the building maintenance intervals should be adapted to the conditions.

Maintenance, Cleaning and Lubrication

Thermal glazing

Internal condensation of double glazing units

Double glazing units may be subject to interior condensation which is determined by:

- The moisture produced by human activity in the house
- Heating of the room
- Ventilation conditions.

If condensed water from a double glazing unit runs into the sash/frame construction it may lead to the formation of mould fungus or, at worst, decay fungus on the wood. There are a number of things/conditions which may cause condensation in the house.

Notice especially the following:

- That new windows are considerably more airtight than old ones. When new windows have been installed, the house will need more ventilation than before.
- That newly-built houses must be ventilated more often than old ones. It may take more than a year to dry a new house properly. This is also the case when additions have been made or the house has been renovated.
- That an adult person – or a medium sized dog – releases approx. 2 litres of water per day.
- That cooking, bathing, laundering and drying from two adults and two children can easily produce 3-5 litres of water per day.
- The problem with humidity increase when the room temperature is lowered and decrease when the room tem-

perature is raised. Even lowering of the temperature for a short period of time (e.g. at night) can cause the formation of condensed water on the glass.

- That heavy curtains and broad window boards/frames can make the air stagnate at the glass causing cold and moist air to form condensate on the glass.
- That insufficient ventilation causes a bad indoor climate which may lead to coughing, headaches, smarting eyes, rashes and respiratory allergies.
- That a house which has been subject to a high level of humidity for a period of 8 to 14 days should be ventilated thoroughly. This is done by having 2-3 windows open in their ventilation position day and night and, at the same time, raising the temperature 4-5° C above normal for 8 to 10 days. You can also leave your range hood on in the kitchen day and night.
- That on days with calm, sunny weather, the sun will supply more free heat than the heat that disappears during normal ventilation.
- That it is a balancing act to find the perfect equilibrium between saving energy and minimising humidity problems.

Normally there will be no interior condensation of triple glazing units and energy saving units, as this is conditioned by an extremely humid room climate with a relative humidity of 70- 90%. Therefore, please note the above conditions.

External condensation of double glazing units

It is not until in recent years, that we have seen the problem with exterior condensation

Thermal Fracture | Warm edge

(dew) on low-energy units. The problem arises when emissions to the atmosphere causes the temperature on the exterior layer of glass to become lower than the exterior air's dew-point temperature.

This typically occurs in periods when the relative air humidity is near 100%. Exterior condensation of low-energy units typically occurs in the months of autumn and spring, usually at night and in the morning, until the condensation is removed by sun and air. The problem can be especially noticeable during the months of April and September. The problem with exterior condensation is usually the result of energy saving units having a very low U-value.

The primary reason is that the heat transfer from the interior to the exterior side of the glazing unit is so low that the temperature of the exterior surface becomes lower than that of ordinary double glazing units. As standard, Idealcombi A/S uses energy class A glass with low emission coating and a U-value of 1.2. You cannot prevent the physical phenomenon "exterior condensation", but you can make some safety precautions to reduce the extent and inconveniences of it.

Thermal fracture of double glazing units

When constructing windows and mounting the double glazing units in the sash, Idealcombi A/S makes allowance for the glass to "work" as a natural part of temperature fluctuations. If a double glazing unit is exposed to uneven heat exposure it may cause thermal fracture of the glass. Uneven heat exposure can be caused by e.g. deep shad-

ows, adhesion of (especially dark coloured) streamers, posters or signs, painting of the glass or parts of it, or adhesion of plastic foil or sun filters.

It can also be caused by placing heat-reflecting materials close to the glass or if heavy curtains, blinds or large plants obstruct proper, even heating of the glass. Under such conditions, double glazing units may absorb so much solar energy that tensions in the glass can cause a very characteristic fracture.

To avoid thermal fracture under such conditions it is necessary to use pre-stressed glass for the double glazing unit. Defects caused by the above-mentioned conditions are not covered by the warranty of the glass supplier and Idealcombi A/S.

Warm edge

Warm edge is a thermoplastic spacer between the two layers of glass in the low energy glazing unit. The spacer conducts less heat than the traditional spacer in metal, thereby raising the temperature at the edge of the pane, minimising the thermal bridge and reducing the risk of internal condensation forming rim on the rim zone.

During the production process, the warm edge is mounted in the glazing unit before this is sealed off, thereby leaving a possibility of a slight deviation from pane to pane in the attachment place. This deviation does not have any influence on the insulation capabilities of the warm edge.

1. WINDOWS AND DOORS

This warranty is given by Idealcombi A/S. It does not in any way restrict or change any of the rights you may otherwise have vis-à-vis your supplier/contractor or Idealcombi A/S as provided by a contract or general legislation.

If, within a period of 10 (ten) years from Idealcombi's time of delivery, you complain about defects in manufacture or materials, this warranty shall give the rights described in item 3 against Idealcombi A/S. The time of manufacture will appear from the label on the product. If requested, you will be responsible for providing documentation for the time of delivery.

Provided that you make a legitimate complaint about defects in manufacture or materials within the period mentioned under item 2, Idealcombi A/S shall be obliged to repair the defect or, if necessary, supply a new product at its own expense. Idealcombi A/S does not, however, under this warranty cover the costs of removal and installation, just as any subsequent works arising from such replacement of a product are not covered by this warranty. If the product is no longer in production when the complaint is made, Idealcombi A/S shall be entitled to supply another similar product instead. If a defect in manufacture or materials can be properly corrected by repair/partial replacement, Idealcombi A/S may choose this solution instead. In such cases, the repair work/partial replacement will be made at the expense of Idealcombi A/S.

This warranty does not give you any rights other than those described under item 3.

If you wish to complain about defects in manufacture or materials, the complaint must be made within a reasonable period of time after the defect has been or should have been detected. Complaints can be made to Idealcombi A/S or to the contractor/dealer who has supplied the product.

This warranty does not apply in cases where the claimed defects in manufacture or materials are caused by faulty installation, missing or insufficient maintenance or faulty operation. Please see Idealcombi's Installation and user manual in the Idealcombi App or install.idealcombi.com.

As regards the window's wood components, which have received surface treatment at the factory, please take special notice of the Installation and user manual and 'Expected outcome of surface-treated wood components' (Appendix 14 of the technical regulations of the Danish Window Manufacturers Association. The regulations can be ordered from Idealcombi A/S)

It is important that the exterior window surfaces are washed twice a year to maintain the properties of the surface treatment. If you did not receive an Installation and user manual with your consignment, you can order one from Idealcombi A/S.

This warranty does not cover defects which are the result of circumstances other than normal application and use. Idealcombi A/S is not liable under this warranty for defects which are caused by faulty storage, transportation, installation etc. by a dealer/contractor.

This warranty applies solely to products purchased and installed in England, Wales, Scotland, Ireland, Isle of Man, Orkney and Shetland Isles, Channel Isles and Iceland.

2. DOUBLE GLAZING UNITS

For a period of 10 (ten) years from the time of manufacture (as stamped into the unit), Idealcombi A/S warrants that double glazing units mounted in doors/windows remain free of dust and mist inside the units.

The warranty shall apply on the condition that:

- The unit is mounted at the factory or by one of Idealcombi's fitters.
- The time of manufacture (month and year) appears from the unit's spacer bar.
- The unit has been properly cleaned and protected during the construction period.
- The glass has not been damaged on the outside by e.g. bumps, impacts, movements of adjacent constructions and the like.
- There are no defects caused by frost bursts, other thermal impacts or chemical impacts on the glass.
- The unit has not been subject to subsequent treatment upon delivery such as sanding, sandblasting, etching, painting, affixing or other forms of surface treatment.
- Sash and frame have been subject to proper, regular maintenance.

For glazing with "attached" and/or "built-in" accessories, such as lead glazing, alarm systems, blinds etc. there is given no fixed warranties beyond 1 year. Other warranties must be treated individually.

3. ELECTRICAL EQUIPMENT

A one-year warranty is granted for all electrical equipment.



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