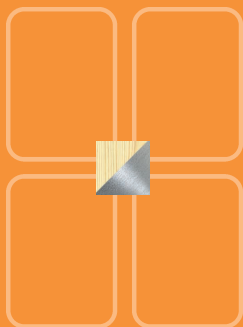




# Installer and User Manual

WINDOWS AND EXTERNAL DOORS  
IN TIMBER/ALUMINIUM



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# THE SAFE *choice*

Congratulations on choosing windows and external doors from a member of VinduesIndustrien, the Association of Danish Window Manufacturers.

Buying these units from one of our members ensures that your windows and external doors have been manufactured under quality control. However, to ensure satisfactory performance in the short and long term it is important that the units are installed and maintained in accordance with the instructions.

### **Correct installation and maintenance is important**

Follow the instructions in this leaflet. If you are not sure how to install the units,

please contact the window manufacturer who will provide the necessary instructions.

Otherwise, incorrect installation may cause the units to malfunction. This type of problem is not covered by the window and door warranty. Following this manual and having the units installed by experienced window and external door installers is the best safeguard and also ensures the performance of the units.

With regular maintenance and correct treatment in accordance with this manual your new quality products will continue to provide pleasure for years to come.



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## VINDUESINDUSTRIEN

Founded in 1977, VinduesIndustrien is an industry association comprising some 70 Danish manufacturers of windows and external doors.

The general purpose of VinduesIndustrien is to look after the common interests of the industry. In this context, safeguarding consumers when they buy windows and external doors takes high priority.

Another important task for VinduesIndustrien is to draw up and maintain the Technical

Requirements which form the basis for the quality control conducted by DVC/Dansk Vindues Certificering, the Danish window certification body.

The Technical Requirements provide the optimum basis for the manufacture of windows and external doors. This applies in particular to their function and life with ever increasing attention to energy and environmental aspects. For more information, please go to

[www.vinduesindustrien.dk](http://www.vinduesindustrien.dk)

## DELIVERY

### *and storage*

During unloading and subsequent handling of the units you must employ lifting gear and methods which do not cause damage to the units.

The buyer must check incoming goods on arrival to ensure that the delivery meets the contract and that there are no obvious defects or damage to the units (e.g. caused in transport). If there are grounds for complaints or queries, the supplier must be notified without delay.

Labels and cork pads on glazing units must be removed no later than two weeks after receipt of the goods.

All corner protectors, protective foil or other protective packaging must remain in place and only be removed when the units are fitted. If stored outdoors, the units must be placed on bearers or pallets to provide sufficient clearance from the ground. The units must be securely covered to protect

them from precipitation and dirt.

At the same time, proper ventilation around the units

must be ensured to limit the risk of condensation under the cover. Separate glazing units should be stored under a roof.

## INSTALLATION

### *fixing and sealing*

#### General

Correct installation is crucial for the functioning and life of the units. Therefore, the work should be performed by workmen skilled in the installation of windows and external doors.

The following instructions cover some of the main aspects of the installation work but not all the details which may play a role in the installation.

Normally, windows and doors are supplied with the glazing units fitted but in the case of fixed lights, glazing units are often fitted after the frames have been installed. Such glazing units must be fitted in accordance with the fitting instructions provided by Glasindustrien (the Danish Glass and Glazing Industry Federation) or as directed by the window supplier. It will facilitate the installation of most types of unit to remove the casement or door leaf before the first stage of the installation of the frame.

#### Installation

The frame is normally positioned in the wall hole with a uniform gap around jamb and head while taking account of the level of the frame sill in relation to the wall sill/floor level.

The gap between the frame and the surrounding brickwork/wall structure should normally be around 12 mm.

At the hinge side, the frame must be level and plumb (wide and narrow side). The frame must be adjusted and fixed to allow the correct fit and prescribed clearance all the way round between frame and casement.

#### Fixing

Windows and external doors must always be fixed to the surrounding brickwork or building structure by means of mechanical fasteners such as frame screws/dowels or brackets.

Fixing to the inner skin of brick built buildings before erecting the outer leaf

requires the use of special fixing brackets capable of transferring all future vertical and horizontal forces. Alternatively, the units must be permanently fixed to the brick face (outer leaf) in accordance with the instructions below.

When using expanding foam to fill the gap between the external face of the frame and the surrounding brickwork or building structure, you must apply the same mechanical fixing method as described below.

If the frame is secured by fasteners (frame screws and dowels or brackets) at each individual fixing point in the opening, the unit will not need permanent blocks.



ill. 1

Fasteners such as frame screws and dowels are normally located in the frame rebate, cf. ill. 2.



ill. 2

Other fasteners require the use of firm, permanent blocks of a material which remains stable under moisture, such as marine plywood or a synthetic material, possibly with the addition of a damp proof course.

Permanent blocking must not be used at the head of wide units, e.g. lift-and-slide doors, where there is a risk of exposure to load from the structure above.

In general, the distance between fixing points must not exceed 90 cm, cf. ill. 1.

### Special instructions - windows

If units are less than 120 cm wide, no fixing at head and sill is required. Permanent blocks must be inserted under the extremes of sills at both ends; units with mullions also require permanent blocks under the sills below the mullions, cf. ill. 3. The blocking material must meet the requirements stated for permanent blocks/damp proof courses.



ill. 4



ill. 3

### Special instructions - doors

At the hinge side, the upper and lower fastener are located close to the respective hinges.

Permanent blocks must be inserted under the extremes of sills at both ends; wide doors must be permanently blocked below the centre of the sill, cf. ill. 4. Double leaf doors with or without a centre post must be permanently blocked under the post/where the leaves abut. The blocking material must meet the requirements stated for permanent blocks/damp proof courses.

The frame must be permanently blocked behind the strike plate at the closing side, cf. ill. 4. This block serves primarily to make the door intrusion resistant.

### Application of sealant

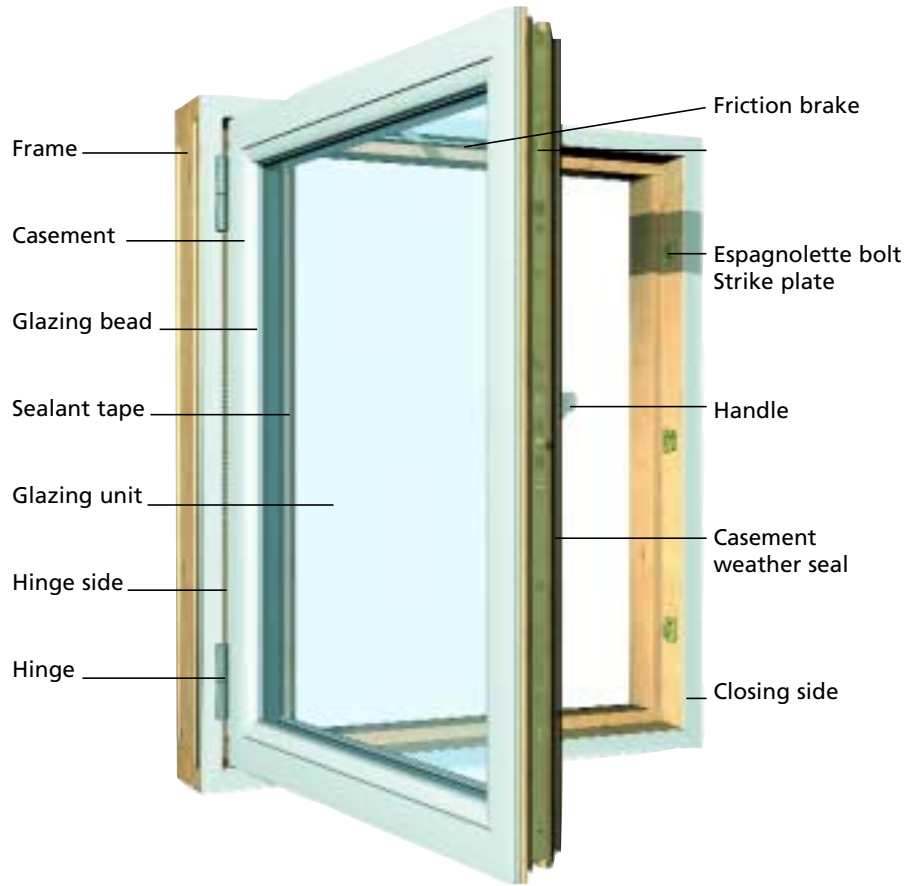
The application of sealant (caulking) should follow the guidelines for the project in hand or the guidelines drawn up by Fugebranchens Samarbejds- og Oplysningsråd/FSO, the cooperation and information council of the Danish sealant application and manufacturing industry. [www.fugebranchen.dk](http://www.fugebranchen.dk)

When caulking, care must be taken not to compress the material so hard that it causes distortion of the frame section. If using expanding foam to fill the gap between

frame and wall structure, the frame must be stiffened until the foam has expanded fully or the frame sections kept straight in some other way. Externally, there must always be a protective finishing coat in the form of a mastic sealant, tape or a similarly effective measure.

When applying external sealant/caulking below the sill, particular care should be taken not to cause partial or complete blockage of drainage holes or grooves in the underside of the rebate.

**PERFORMANCE**  
*and operation*



**TOP HUNG**  
*casement*

Various types of hinges are used for top hung casements, all of them providing a fixed pivoting point near the casement head. Opening the window projects the lower part of the casement outwards, while the casement head basically stays in position apart from pivoting round the hinge. The casement is usually operated via a handle located in the middle of the bottom rail. The casement can be retained in a ventilation position giving a 1-2 cm gap at the



bottom. The window may have a casement stay to hold the casement in position when opened to a wider angle.

As a design, the top hung casement has to a considerable extent been replaced by the top guided casement, cf. below.

**TOP GUIDED**  
*casement*



This type of casement features top guided hinges in the upper frame and casement jambs; opening the window projects the lower part of the casement outwards and pulls the casement head down a little in the process.

The casement is operated by a handle located in the middle of the bottom rail.

When opened, the casement can be retained in a ventilation position giving a 1-2 cm gap at the bottom.

When opened to a wider angle, the casement is controlled by friction brakes in the hinges. The amount of friction can be easily adjusted, but you must ensure that the amount of friction applied is the same at both sides of the casement. Please note that the friction brake will not retain the casement in position under higher wind loads.

## TOP SWING

### *casement*

Top swing hinges allow the casement to be opened out and reversed completely outside the frame. This allows the external face of the glazing unit to be cleaned from the inside of the room.

The casement is operated by a handle located in the middle of the bottom rail; the casement can be retained in a ventilation position with a 1-2 cm gap.

Top reversible hinges often feature a child-proof mechanism to prevent the casement being opened more



than about 10 cm. Fully reversed, the casement will be retained in the cleaning position.

The casement can be opened to a random angle. However, please note that the casement will then not be retained in position if exposed to higher wind loads or other forces.

## SIDE HUNG

### *casement*



The type of hinge may vary but ordinary side hung casements function the same way.

Older (mullion/transom) window designs normally use (short) casement fasteners with a longer sturdier type of fastener for 90° opening angles.

More recent designs are operated by means of a single handle at the closing side of the casement; while in the open position the casement may be guided by a friction brake. Please note that the friction brake will not retain the casement in position under higher wind loads.

## TILT/TURN

### *casement*

A tilt/turn casement is an inward opening window which, as the name implies, will turn perpendicularly on hinges in the casement jamb and tilt horizontally from hinges in the bottom rail/sill. The side hung function is primarily used in connection with cleaning of the external face of the glazing unit, while

the bottom rail pivoting function is used to provide ventilation.

The casement is operated by a handle in the casement jamb; when closed, the handle is turned downwards. Depending on the make of handle, one function is achieved by turning the handle to a horizontal position and the other position by turning it (upwards) to a vertical position. By turning the handle to 45° it will often be possible to secure the casement in the bottom pivoting position, giving a 1-2 cm ventilation gap at the casement head. Fully tilted in the bottom pivoting position there will be a gap of approximately 10 cm at the top, although this dimension will vary dependent on the casement height.



## SIDE SWING AND SIDE GUIDED

### *casements*

hinges allow the casement to be opened and swung round approx. 90°, some side guided hinges even to approx. 180°, to allow the external face of the glazing unit to be cleaned from the inside of the room.

The casement is secured with casement stays or operated by means of a handle in the middle of the casement jamb.

Opened to 1-2 cm the casement can be secured in a ventilation position by turning the handle.

At other opening angles the casement can be guided by a friction brake. However, please note that this will not retain the casement in position under higher wind load.





## EXTERNAL *doors*

External doors can open outwards or inwards (inwards generally being the most common).



Normally, an external door will have three fastening points at the handle side where the middle fastening point engages when the handle is operated normally. The lower and upper fastening points are engaged by lifting the handle upwards whereupon the door can be locked.

External doors come in a variety of types and designs, the details of which must be discussed at the time of purchase.

## PATIO *doors*

Patio doors can open outwards or inwards and be designed as glazed doors with the possible addition of panels.

Patio doors usually have three fastening points at the handle side, all of which are engaged by turning the internal handle 90°.

Once opened, the door can be controlled by a friction brake. However, please note



that this brake will not retain the casement in position under higher wind load.

## TILT/TURN *doors*

In principle, the function and operation of a tilt/turn door (patio or balcony door) corresponds to that of a tilt/turn casement (see above).



## LIFT/SLIDE *doors*



A lift-and-slide door set consists of a fixed and a sliding half. Turning the door handle lifts the sliding door leaf up, disengaging it from the frame, and allowing it to slide alongside the fixed section. Once closed, the door is locked by turning the door handle fully back to the vertical locking position.

## TILT/SLIDE *doors*

Overall, this type of door functions like a lift-and-slide door. However, opening the slide/tilt door starts by disengaging the door leaf and tilting it in relation to the frame. Then the lower end of the door leaf is projected outwards, allowing the disengaged leaf to slide alongside the fixed section. Once closed, the door is



handle fully back to the vertical locking position.

## MAINTENANCE:

### *cleaning and lubrication*

#### **General maintenance information**

Windows and external doors of all materials require general maintenance, comprising cleaning and lubrication and a check of weather seals and sealant tape. This maintenance should be carried out in accordance with the following guidelines.

#### **Cleaning**

Depending on the direction they face and their location, external casement and frame surfaces will become dirty. They should therefore be cleaned at suitable intervals, normally in connection with cleaning the glazing units. Use water with a normal cleaning agent added. Finish by wiping surfaces and edges dry.

#### **Lubrication**

Once a year, all moving parts in hinges, handles and locks should be lubricated. It is particularly important that moving parts held together by rivets, e.g. turn hardware, are cleaned and lubricated at least once a year.

Metal-only connections are lubricated with a neutral oil applied using an oil can, syringe or a spray can with a thin tube.

Moving connections consisting of metal and synthetic materials should be lubricated with candle wax or a special lubricant in accordance with the supplier's instructions. Such connections are found in various types of hinge tracks; for them to

function properly it is important that the hinge tracks etc. are also kept clean.

#### **Weather seals and sealant tape**

At the same time as the annual lubrication, weather seals and glazing tape should be checked.

Weather seals should be checked for proper location and fixing and to ensure that the seals are still sealing properly. Most types of elements allow simple removal and refitting of weather seals; this should preferably be carried out in connection with the application of a new coat of surface treatment. Never overpaint weather seals!

Glazing tape should be checked for proper location and compression to ensure their continued weathertightness, also in corner joints.

The compression of the glazing tapes is most easily checked using a thin feeler gauge, which should encounter resistance when inserted between the glass and the glazing tape.

#### **Surface treatment**

Please consult Annex 16 of Vinduesindustrien's Technical Regulations for information about industrial surface treatment of elements which incorporate timber components. Maintenance should always follow the window manufacturer's instructions.

## VENTILATION

### *of the dwelling*

New windows will usually be very airtight and there will therefore be a need for more systematic ventilation of the dwelling than in the case of older, draughty windows.

#### **Regulatory requirements**

Regulatory requirements vary from country to country. The Danish regulatory requirements cited below therefore serve as an illustration only; please consult the relevant authority for information about the regulations which apply in your country.

In order to comply with the requirement of the Danish Building Regulations of 1995 regarding the supply of external air to habitable rooms, such rooms must have, in addition to opening windows, hatches or doors, one or more vents to the external air with a total unrestricted opening of at least 30 cm<sup>2</sup> per 25 m<sup>2</sup> floor area.

Other rooms in the dwelling are not subject to any requirements regarding vents to the external air. In order to comply with the requirement of the Danish Building Regulations Smaller Dwellings BR-S 98 regarding the supply of external air to habitable rooms, the following must be present: An opening window, hatch or external door as well as one or more vents to the external air with a total unrestricted opening of at least 60 cm<sup>2</sup> per 25 m<sup>2</sup> when using natural (background) ventilation and at least 30 cm<sup>2</sup> to the external air per 25 m<sup>2</sup> when using mechanical extraction.

Apart from rooms in the basement, no other rooms in the house are subject to any requirements regarding the installation of vents to the external air.

#### **Vinduesindustrien's evaluation and recommendation**

For several years, it has been customary to incorporate vents to the external air in the head of casements/frames, which has probably been considered to be the easiest solution. Instruction No. 189 from The Danish Building Research Institute contains more detailed instructions regarding the performance, location and design of vents to the external air, cf. illustration 104 from this instruction. This instruction does not point to the usual incorporation into the windows. The tightened requirement of BR-S 98 (a minimum of 60 cm<sup>2</sup> of unrestricted opening per 25 m<sup>2</sup> floor area) means that incorporating the vents in the windows will often be problematic. Mainly for these reasons the Vinduesindustrien recommendation is for vents to the external air, suitably adapted, to be incorporated in the wall structure and not in the window units.

#### **Advice on ventilation**

Instruction No. 76 from The Danish Building Research Institute gives some practical recommendations about ventilation of the dwelling. The instruction (5th edition 1997) has been reproduced on the following page.

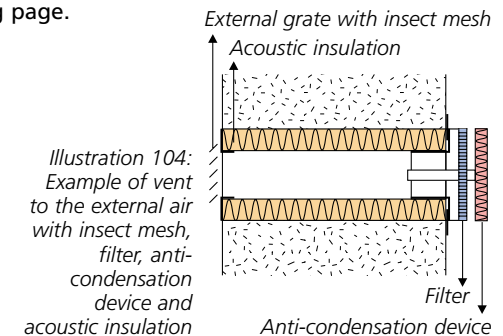


Illustration 104:  
Example of vent to the external air with insect mesh, filter, anti-condensation device and acoustic insulation

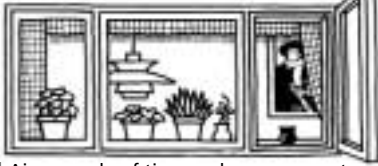


## Avoid damage from damp - open the window!

- The air in a flat can soon become too humid as a consequence of cooking, washing, bathing and watering potted plants. The humid air may cause damage from damp (mould spots) and health hazards (dust mites).
- Many people believe a flat to be self-ventilating but this is rarely the case. The inhabitants must therefore themselves ensure \*sufficient ventilation to remove the moisture generated in the flat.
- Newer buildings usually have mechanical ventilation, extracting air from kitchen and bathrooms through extraction vents in or near the ceiling. These vents must be kept open and clean to operate effectively. Often, there are also vents providing external air in or near windows. These supply the air which is subsequently extracted through kitchen and bathrooms. These vents should be kept permanently open.
- In older buildings with small opening ventilation lights it may be necessary to leave them permanently slightly ajar to provide enough fresh air.
- REMEMBER: VENTILATE SUFFICIENTLY TO AVOID THE WINDOWS STEAMING UP.

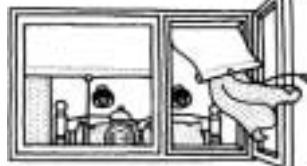
- Even if we must save energy, going overboard could lead to damp air and poor air quality in our rooms which should be avoided. Luckily, heating reasonable amounts of fresh air won't cost a fortune.
- It will cause fewer damp problems if all rooms are heated to about the same temperature.
- Newly built flats may need to dry out. Therefore, care should be taken to ventilate particularly frequently during the first year of living in a new flat.
- Replacing the windows or fitting draught excluders to doors or windows can make a flat so draught-proof that it requires more frequent ventilation than before.
- Where people smoke it's a good idea always to keep vents to the external air open or leave small opening ventilation lights ajar.
- In general, you should contact the caretaker or other relevant person if damp problems arise. Faults are most easily corrected if you intervene straight away.
- REMEMBER: GOOD VENTILATION IS A MUST FOR A GOOD INDOOR CLIMATE.

in habitable rooms



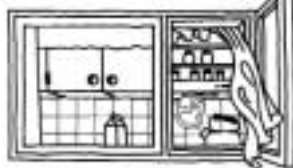
- Air a couple of times a day or use vents to the external air, if available.
- If the windows start to steam up, take care to air more.
- Do not turn off the heating completely in rooms which aren't in use.
- Do not place wardrobes or large items of furniture completely up against an outer wall; the air in the room must be allowed to circulate behind them to prevent the formation of mould spots on the wall.

in bedrooms



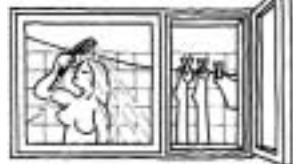
- Air the room and make sure the bedding is aired every morning.
- Turn the mattresses occasionally.
- Don't leave bedrooms completely unheated.
- If the windows steam up, ensure better ventilation to the external air or to the other rooms in the house or flat.

in the kitchen



- Never block or close vents.
- Open up vents fully or turn extractor fan or cooker hood to maximum speed when cooking.
- Putting lids on pans during cooking limits the amount of moisture entering the kitchen.
- Air well during and after cooking.

in bathrooms



- Never block or close vents or extractor fans.
- Avoid in so far as possible to wash and particularly to dry washing in the flat. However, if you can't, then do it in the bathroom and ensure ample ventilation.
- Air well after having a bath or shower.
- Warm and humid air from tumble dryers should be vented direct to the external air.

## WARRANTY

### *and warranty scheme*

#### Warranty

As from 1 April 1997 the following warranty conditions shall apply to all members of VinduesIndustrien (The Association of Danish Window Manufacturers) who are all affiliated to DVC/ Dansk Vindues Certificering, the Danish window certification body. This warranty has been issued by the member of VinduesIndustrien mentioned below - hereafter referred to as the warrantor.

- I. This warranty shall not limit or modify in any respect your rights in contract and/or law against your supplier/contractor or against the warrantor.
- II. If within five years from the date of delivery by the warrantor you report a defect in materials and/or workmanship, the warranty shall give you the rights against the warrantor listed in paragraph 3. The product is labelled with the date of manufacture. You may be required to document the delivery date.
- III. If a justified claim concerning defects in materials and/or workmanship is made within the period mentioned in paragraph 2, the warrantor undertakes to supply a new product free of charge. However, under this warranty the warrantor shall not be liable for the cost of dismantling/removing the old product nor for installing the new product nor for any additional work in relation to replacing the product. If the product is no longer in

production at the time a claim is made, the warrantor shall be entitled to supply a similar product instead. If defects in materials and/or workmanship can be remedied properly by repair/partial replacement, the warrantor may choose this option instead. The repair/partial replacement shall then follow free of charge.

- IV. This warranty shall not cover defects in the materials and/or workmanship of sealed glazing units. However, in such cases the warranty of the sealed glazing unit manufacturer shall apply; please refer to this.
- V. This warranty does not give you rights over and beyond what is mentioned in paragraph 3.
- VI. If you wish to claim under the warranty for defects in materials and/or workmanship, the claim must be lodged within a reasonable time of detecting the defect or within which the defect should have been noticed. The claim can be lodged with the warrantor or with the contractor/supplier who supplied the product.
- VII. This warranty shall not apply if the claimed defects in materials and/or workmanship are due to incorrect fitting, lack of or inadequate maintenance or incorrect operation. Please refer to the warrantor's fitting, operating and maintenance instructions. For timber windows/doors with a factory

surface treatment please refer in particular to the maintenance instructions and the description "Expected outcome of industrially surface-treated timber elements" (Annex 14 of the VinduesIndustrien Technical Requirements). If, exceptionally, you did not receive maintenance/operating instructions in connection with the delivery, you should request them direct from the warrantor

- VIII. Under this warranty, you cannot claim for defects in materials and/or workmanship caused by circumstances which have arisen after the product was supplied by the warrantor. Defects in materials which may be attributed to, for example, incorrect storage, transport or fitting by a middleman/-contractor cannot be claimed against the warrantor under this warranty.

- IX. This warranty applies exclusively to products which at the time of making a claim under the warranty are physically located in Denmark, but is not valid in Greenland or the Faeroe Islands.

The above warranty, which has been filed with the Danish Competition Authority, was last revised on 1 April 1997

#### Sealed glazing unit warranty

The following contains extracts from the warranty scheme applicable to glazing unit manufacturers who are affiliated to Glasindustrien.

#### The warranty covers the following:

For a period of five years from the time of manufacture stamped on the spacer bar, the glazing unit manufacturer shall warrant that his sealed glazing units supplied for building purposes shall remain free from dust and mist in the sealed cavity.

It is a condition of this warranty that:

- The spacer bar in the glazing unit has been stamped with the Glasindustrien warranty mark and time of manufacture (month and date)
- The glazing unit has been installed in accordance with Glasindustrien's fitting instructions.
- The glazing unit has been properly cleaned and protected during the building work.
- The glazing unit has not been damaged by exposure to external forces, e.g. impact, blow, movement in adjacent constructions and the like.
- Damage has not been caused by frost, thermal forces or chemicals attacking the glass or oxidization caused by incorrect storage.
- The glazing unit has not, after delivery, been exposed to e.g. grinding, sand blasting, corrosive chemicals, painting, sticking on of labels or other surface treatment
- The glazing unit has no stuck-on and/or built-in elements such as leaded windows, alarm systems, Venetian blinds etc. which have caused the glazing unit not to remain free from dust and dirt in the sealed cavity.

- Casement, frame and installation materials have been subjected to the required regular maintenance.

Further information about Glasindustrien's warranty scheme can be found at [www.glasindustrien.dk](http://www.glasindustrien.dk)

## DVC

### *The Danish window certification body*

Each member of VinduesIndustrien is affiliated to the DVC/Dansk Vindues Certificering, the Danish window certification body; this ensures that you deal with somebody who is part of a quality control scheme.

The DVC is a completely independent control body affiliated to the Danish Technological Institute. Being affiliated to the DVC means that, in general, a company's products and quality control will be subjected to systematic biannual inspections.

Under the DVC scheme the manufacturers must comply with requirements regarding e.g.

management and quality control, product construction, the quality of materials and finishing.

VinduesIndustrien members comprise manufacturers of windows and external doors in timber, timber/-aluminium PVCu and aluminium; because of their membership, you can rely on all their products being DVC labelled.

For further information about the DVC and the requirements to which DVC-labelled products are subject, go to

[www.dvc-vinduer.dk](http://www.dvc-vinduer.dk).





[www.vinduesindustrien.dk](http://www.vinduesindustrien.dk)

