

Roto E-Tec Control

Wired sensors for security technology and room climate

Concealed contact elements

Installation, maintenance and operation instructions
for timber and PVC profiles



Contact

Roto Frank
Fenster- und Türtechnologie GmbH

Wilhelm-Frank-Platz 1
70771 Leinfelden-Echterdingen
Germany
Phone +49 711 7598 0
Fax +49 711 7598 253
info@roto-frank.com
www.roto-frank.com

	1	General information.....	7
	1.1	Version history.....	7
	1.2	Instructions.....	7
	1.3	Symbols.....	9
	1.4	Pictographs.....	9
	1.5	Abbreviations.....	10
	1.6	Target groups.....	10
	1.7	Target groups' obligation to give instructions.....	11
	1.8	Copyright protection.....	12
	1.9	Limitation of liability.....	12
	1.10	Preserving the surface finish.....	13
	2	Security.....	14
	2.1	Presentation and structure of warning instructions.....	14
	2.2	Security levels of warning instructions.....	14
	2.3	Basic safety information.....	14
	2.3.1	Installation.....	15
	2.3.2	Use.....	15
	2.3.3	Ambient conditions.....	16
	2.3.4	Stipulated use.....	17
	2.3.4.1	Misuse.....	17
	2.4	Operation.....	17
	3	Overview.....	19
	3.1	Systems.....	19
	4	MVS-B.....	20
	4.1	General hardware characteristics.....	20
	4.2	Rebate clearance and tolerance ranges.....	20
	4.3	Processing instructions.....	20
	4.4	Roto NX.....	22
	4.4.1	Positioning.....	22
	4.4.2	Drilling and routing dimensions.....	24
	4.4.3	Installation.....	25

4.5	Roto Patio Alversa.....	27
4.5.1	Positioning.....	27
4.5.2	Drilling and routing dimensions.....	28
4.5.3	Installation.....	30
4.6	Roto Patio Inowa.....	32
4.6.1	Positioning.....	32
4.6.2	Diagram A.....	35
4.6.2.1	Timber and PVC.....	35
4.6.2.2	Aluminium.....	38
4.6.3	Diagram C.....	40
4.6.3.1	Timber and PVC.....	40
4.6.3.2	Aluminium.....	43
4.7	Performance test.....	45
4.8	Connection.....	45
4.9	Technical data VdS – class B.....	46



5	MVS-C.....	48
5.1	General hardware characteristics.....	48
5.2	Rebate clearance and tolerance ranges.....	48
5.3	Processing instructions.....	48
5.4	Roto NX.....	50
5.4.1	Positioning.....	50
5.4.2	Drilling and routing dimensions.....	52
5.4.3	Installation.....	53
5.5	Roto Patio Alversa.....	55
5.5.1	Positioning.....	55
5.5.2	Drilling and routing dimensions.....	56
5.5.3	Installation.....	58
5.6	Performance test.....	59
5.7	Connection.....	60
5.8	Technical data VdS – class C.....	62



6	MTS.....	63
6.1	General hardware characteristics.....	63

6.2	Rebate clearance and tolerance ranges.....	63
6.3	Processing instructions.....	63
6.4	Roto NX.....	65
6.4.1	Positioning.....	65
6.4.2	Drilling and routing dimensions.....	66
6.4.3	Installation.....	67
6.5	Roto Patio Alversa.....	68
6.5.1	Positioning.....	68
6.5.2	Drilling and routing dimensions.....	70
6.5.3	Installation.....	72
6.6	Performance test.....	73
6.7	Connection.....	74
6.8	Technical data.....	74
	7 Operation.....	75
7.1	Handle position.....	75
7.2	Fault assistance.....	75
	8 Maintenance.....	76
	9 Dismantling.....	77
9.1	Contact elements.....	77
	10 Transport.....	78
10.1	Transporting contact elements.....	78
10.2	Transporting elements and hardware.....	78
10.3	Storing the hardware.....	79
10.4	Transport inspection.....	79
	11 Disposal.....	80
11.1	Disposing of packaging.....	80
11.2	Disposing of hardware.....	80
11.3	Electronic waste.....	80

	12	Additional information.....81
	12.1	Declaration of Conformity.....81

1 General information

1.1 Version history

Version	Date	Changes
v0	19.06.2023	Publication

1.2 Instructions

This manual contains important information, instructions, application diagrams (max. sash sizes and weights) and assembly instructions for the installation, maintenance and operation of hardware.

The information and instructions contained in this document refer to products belonging to the Roto hardware system named on the front page.

All steps must be completed in sequence.

The following documents apply in addition to these instructions:

Roto Drive&Control

- Catalogue
 - Drive&Control: CTL_41

Roto NX

- Installation instructions
 - Timber
 - Roto NX | Hinge side T: IMO_456
 - Roto NX | Hinge side Designo (HA 13): IMO_542
 - PVC
 - Roto NX | Hinge side P: IMO_455
 - Roto NX | Hinge side Designo (HA 13): IMO_517
- Catalogue
 - Timber: CTL_104
 - PVC: CTL_105

Roto Patio Alversa

- Installation instructions
 - Timber / PVC: IMO_407
 - Aluminium: IMO_408
- Catalogue
 - Timber / PVC: CTL_93
 - Aluminium: CTL_94

Roto Patio Inowa

- Installation instructions
 - Roto Patio Inowa | 200
 - Timber / PVC: IMO_403
 - Timber-aluminium: IMO_493
 - Aluminium: IMO_282
 - Roto Patio Inowa | 400
 - Timber / PVC: IMO_559
 - Timber-aluminium: IMO_557
 - Aluminium: IMO_558

The following guidelines also apply:

- Guideline TBDK issued by the Gütegemeinschaft Schlösser und Beschläge e. V. quality assurance association (Attachment of supporting fitting components for turn-only and tilt&turn fittings),
- Directive VHBE issued by the Gütegemeinschaft Schlösser und Beschläge e. V. quality assurance association (Hardware for windows and balcony doors – Guidelines / advice for end-users),
- Directive VHBH issued by the Gütegemeinschaft Schlösser und Beschläge e. V. quality assurance association (Hardware for windows and balcony doors – Guidelines / advice on the product and on liability),
- Directive FPKF issued by the Gütegemeinschaft Schlösser und Beschläge e. V. quality assurance association (Restrictor and cleaning stays for Tilt-Only sashes and Tilt-Only fanlights),
- Instructions and information issued by profile manufacturers (e.g. manufacturers of windows and balcony doors),
- The applicable regulations, directives and national laws.

Compliance with the following guidelines is additionally recommended:

- TLE.01 by the VFF (German Window and Facade Association) Correct handling of ready-to-install windows and external doors during transport, storage and installation,
- WP.01 by the VFF (German Window and Facade Association) Maintenance of windows, facades and external doors – Maintenance, care and inspection – Information for sales,
- WP.02 by the VFF (German Window and Facade Association) Maintenance of windows, facades and external doors – Maintenance, care and inspection – Measures and documents,
- WP.03 by the VFF (German Window and Facade Association) Maintenance of windows, facades and external doors – Maintenance, care and inspection – Maintenance agreement.

Storing the instructions

These instructions are an important part of the product. The instructions must be stored so that they are always to hand.

Explanation of the markings

The manual uses the following markings for emphasis (e.g. in figures or instructions):

Marking	Meaning
	Sash
	Frame
	Drill holes, routing or screw positions
	Unaffected components / indirectly affected components
	Components, arrows or movements that have just been described
	Item number
	Legend
	Steps



INFO

Any dimensions without a unit in the instructions are given in millimetres (mm). Other units of measurement are clearly indicated by the presence of the differing unit.



INFO

Figures are provided in the right-hand version (DIN 107).

1.3 Symbols

Symbol	Meaning
■	First-level list
□	Second-level list
→	(Cross-)reference
▷	Result
►	Unnumbered step
1.	Numbered step
a.	Numbered second-level step
⇒	Requirement

1.4 Pictographs

Symbol	Meaning
	Timber and PVC
	Aluminium
	Timber-aluminium
	Turn-Only window
	Tilt&Turn window
	Tilt-Only window
	Diagram A
	Diagram C

1.5 Abbreviations

Abbreviation	Meaning
AC	Alternating current
°C	Degrees Celsius
CTL	Catalogue
DC	Direct current
DIN L / R	DIN left / right
d _k	Screw head diameter
T&T	Tilt&Turn
SW	Sash width
SRW	Sash rebate width
SRH	Sash rebate height
S.kg	Sash weight
SH	Sash height
RC	Rebate clearance
HH	Handle height
I	Current level
IMO	Installation instructions
Y	Yes
kg	Kilograms
LSN	Local security network
mA	Milliamperes
mm	Millimetres
MTS	MTS
CL	Centre lock
MVS	MVS
N	No
Nm	Torque in newton metres
P	Performance
RC	Resistance class
SEC	Security
ST	Striker
U	Voltage
V	Volts
W	Watts

1.6 Target groups

The information in this document is directed at the following target groups:

Hardware dealers

The “hardware dealers” target group includes all companies and individuals that purchase hardware from hardware manufacturers for resale, without modifying or further processing the hardware.

Window and balcony door manufacturers

The “window and balcony door manufacturers” target group includes all companies and individuals that purchase hardware from hardware manufacturers or hardware dealers and further process the hardware by integrating it in windows or balcony doors.

Building element dealers or installation companies

The “building element dealers or installation companies” target group includes all companies and individuals that purchase windows and balcony doors from window and balcony door manufacturers for resale and for instal-

lation in construction projects, without modifying the windows or balcony doors.

Builders

The "builders" target group includes all companies and individuals who place orders for the manufacture of windows and balcony doors for installation in their construction projects.

Qualified electrician

The "qualified electrician" target group includes all individuals who are allowed to perform electrical work on a commercial basis and to monitor work of this type due to their professional training, knowledge and experience.

End users

The "end users" target group includes all individuals who use the installed windows and balcony doors.

1.7 Target groups' obligation to give instructions



INFO

Each target group must fulfil their obligation to give instructions in full.

Unless specified otherwise in the text below, documents and information can be passed on as a printed document, on a data storage device or via the Internet.

Responsibility of hardware dealers

Hardware dealers must pass the following documents on to the window and balcony door manufacturer:

- Catalogue
- Installation, maintenance and operation instructions
- Directive on attachment of supporting fitting components for turn-only and tilt&turn fittings (TBDK)
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

Responsibility of the window and balcony door manufacturer

The window and balcony door manufacturer must pass the following documents on to building element dealers or the builder, even if a subcontractor (installation company) is involved:

- Installation, maintenance and operation instructions
- Directive on attachment of supporting fitting components for turn-only and tilt&turn fittings (TBDK)
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

They must ensure that the end users are provided with the documents and information intended for them in printed format.

Responsibility of building element dealers and the installation company

Building element dealers must pass the following documents on to the builder, even if a subcontractor (installation company) is involved:

- Installation, maintenance and operation instructions (with a focus on hardware)
- Guidelines/advice on the product and on liability (VHBH)
- Guidelines/advice for end-users (VHBE)

Responsibility of the builder

The builder must pass the following documents on to the end user:

- Installation, maintenance and operation instructions (with a focus on hardware)
- Guidelines/advice for end-users (VHBE)

1.8 Copyright protection

The contents of this document are copyright-protected. This content can be used when working with the hardware. Any other use is not permitted without written permission of the manufacturer.

1.9 Limitation of liability

All information and instructions contained in this document have been compiled in consideration of the applicable standards and regulations, the latest developments in technology and many years of knowledge and experience.

The hardware manufacturer assumes no liability for damage caused by:

- Failure to comply with this document and all product-specific documents and other applicable directives (see the chapters entitled "Security" and "Stipulated use").
- Improper use / misuse (see the chapters entitled "Security" and "Stipulated use").
- Insufficient invitation to tender, non-compliance with installation specifications and non-compliance with the application diagrams (where available).
- Increased contamination.

Claims made by third parties against the hardware manufacturer on account of damage resulting from misuse or failure to comply with the obligation to give instructions on the part of hardware dealers, window, door and balcony door manufacturers and building element dealers or the builder are passed on accordingly.

The obligations agreed in the delivery contract, the general terms and conditions, the hardware manufacturer's terms and conditions of delivery and the legal provisions applicable when the contract was concluded shall apply.

The warranty only covers original Roto components.

We reserve the right to make technical changes as part of improvement to performance characteristics and further development.

1.10 Preserving the surface finish



ATTENTION

Surface treatments may cause property damage.

Surface treatments (e.g. painting and varnishing) on elements can damage components or prevent them from working properly.

- ▶ For masking, only use adhesive tape that does not damage the paint coats. Consult the manufacturer if in doubt.
- ▶ Protect components against direct contact with the surface treatment.
- ▶ Protect components against contamination.



ATTENTION

Using incorrect cleaning agents and sealing compounds may cause property damage.

Cleaning agents and sealing compounds may damage the surfaces of components and gaskets.

- ▶ Do not use aggressive or flammable liquids, acidic cleaners or abrasive cleaners.
- ▶ Only use mild, pH-neutral cleaning agents that have been diluted.
- ▶ Apply a thin protective film to the components, for example using a cloth soaked in oil.
- ▶ Avoid aggressive vapours (e.g. produced by formic acid, acetic acid, ammonia, amine compounds, ammonia compounds, aldehyde, carbolic acid, chlorine, tannic acid) around the element.
- ▶ Do not use any acetic acid-crosslinking or acid-crosslinking sealing compounds or those with the aforementioned constituents as both direct contact with the sealing compound and its fumes can corrode the surface of the components.



ATTENTION

Contamination may cause property damage.

Contamination prevents components working properly.

- ▶ Remove deposits and contamination caused by construction materials (e.g. plaster, gypsum).
- ▶ Keep components free of deposits and contaminants.



ATTENTION

(Permanently) damp room air may cause property damage.

Damp room air can lead to mould growth and corrosion caused by condensation.

- ▶ Provide adequate ventilation for components, particularly during the construction phase.
- ▶ Intensively air out the room several times per day by opening all elements for approximately 15 minutes. If intensive airing is not an option, place the elements in the tilt position and provide airtight masking inside the room, e.g. if there is fresh screed that cannot be walked on or must not be exposed to draughts. Discharge any humidity present in the room air to the outside using condensation dryers.
- ▶ Establish a ventilation plan for more complex construction projects if necessary.
- ▶ Provide adequate ventilation during holiday periods as well.

2 Security

This manual contains instructions relating to safety. The principal safety information in this chapter includes information and instructions relevant to the safe use or maintaining the safe condition of the product. Warning instructions that relate to handling warn of residual risks and are located before steps that are relevant to safety.

- Follow all of the instructions in order to prevent personal injury and property and environmental damage.

2.1 Presentation and structure of warning instructions

The warning instructions relate to individual actions and are structured as follows with a warning symbol:



DANGER

Nature and source of the danger.

Explanation and description of the danger and the implications.

- Measures to take to avert the danger.

2.2 Security levels of warning instructions

The warning instructions that relate to handling are identified differently according to the severity of the associated danger. The signal words and the associated warning symbols used are clarified below.



DANGER

Immediate risk of death or serious injuries.

- Observe these warning instructions to avoid personal injuries.



WARNING

Potential risk of death or serious injuries.

- Observe these warning instructions to avoid personal injuries.



CAUTION

Risk of injuries

- Observe these warning instructions to avoid personal injuries.



ATTENTION

Reference to property or environmental damage.

- Observe these warning instructions to avoid property or environmental damage.

2.3 Basic safety information

The following hazards may arise when handling the product:



2.3.1 Installation

Incorrect installation poses an immediate risk of death or serious injuries.

Incorrect installation or assembly of hardware can lead to hazardous situations or property damage. Depending on the height of the fall, this can result in serious to life-threatening injuries and glass breakage.

- ▶ Only use hardware combinations that have been approved by the hardware manufacturer.
- ▶ Only use original accessories or those that have been approved by the hardware manufacturer.
- ▶ Always have installation performed by a specialist company.

Heavy loads pose a risk of injury.

Lifting and carrying heavy loads may lead to injuries in the event of a fall or physical overexertion.

- ▶ Note the applicable accident prevention regulations.
- ▶ Transport heavy loads with two people and use suitable transportation means (such as an industrial truck).

Physical overexertion may be harmful to health.

Moving heavy loads for extended periods leads to physical injury in the long term.

- ▶ When carrying and lifting by hand, comply with a maximum weight of 25 kg for men and 10 kg for women.
- ▶ Carry and lift even small loads with an ergonomically correct posture.

2.3.2 Use

Falls from open windows and balcony doors present an immediate risk of death and pose the risk of serious injuries.

Opened sashes of windows and balcony doors create a danger zone. Depending on the height of the fall, this can result in serious to life-threatening injuries and glass breakage.

- ▶ Take care when in the vicinity of open windows and balcony doors.
- ▶ Keep children and anyone unable to understand the risks away from the hazardous area.

Trapping body parts in the opening between sash and frame may lead to serious injuries.

Gripping between the sash and frame when closing windows and balcony doors poses the risk of crushing injuries.

- ▶ When closing windows and balcony doors, never grip between the sash and frame and always exercise caution.

- ▶ Keep children and anyone unable to understand the risks away from the hazardous area.

Opening and closing leaves improperly poses the risk of injury and property damage.

Incorrect opening and closing of leaves can result in serious injuries and substantial property damage.

- ▶ When moving the sash, ensure that it will not slam against the frame or other leaves once fully opened or closed.
- ▶ Ensure that the sash is slowly guided by hand throughout its entire movement range, until it has been brought into a fully closed or opening position.
- ▶ When closing a sash and locking the hardware, the gasket counter force must be overcome.

Misuse poses a risk of injury and property damage.

Misuse can lead to hazardous situations and may destroy the hardware, frame materials or other individual components within the windows or balcony doors.

- ▶ Do not introduce any obstacles in the opening area between the frame and window or balcony door sashes.
- ▶ Do not place additional loads on windows and balcony door sashes.
- ▶ Refrain from intentionally or uncontrollably slamming or pushing the window or balcony door sash against the window reveal or the opening restrictor.

Improper maintenance poses the potential risk of injury and property damage.

Windows and balcony doors, including the hardware, require expert maintenance (care, cleaning, maintenance and inspection) in order to guarantee their proper condition and safe use.

- ▶ Keep the hardware free of deposits and contaminants.
- ▶ Carry out care and cleaning tasks as specified in these instructions.
- ▶ Always have regular maintenance, adjustment and repair work carried out by a specialist company.

2.3.3 Ambient conditions

Physical and chemical influences may result in property damage.

Hardware components can be permanently damaged in a saline, aggressive or corrosive environment to the point that they can no longer function.

- ▶ Do not use the hardware components in a saline, aggressive or corrosive environment.
- ▶ Carry out care and cleaning tasks as specified in these instructions.
- ▶ Corrosion protection must be inspected by an authorised specialist company as part of regular maintenance work.

Moisture may cause property damage.

Depending on the outside temperature, relative humidity of the room air and installation situation of the windows and balcony doors, a temporary build-up of condensation may occur. This can lead to corrosion on the hardware and mould growth on the frame or wall. Ambient conditions that are too damp,



particularly during the construction phase, can lead to timber elements warping.

- ▶ Avoid preventing the circulation of air (e.g. due to deep reveals, curtains and unfavourable positioning of heaters or the like).
- ▶ Intensively air out the room several times per day.
Open all windows and balcony doors for approximately 15 minutes so that the air in the room can be completely replaced.
- ▶ Provide adequate ventilation during holiday periods as well.
- ▶ Create a ventilation plan for construction projects if necessary.

2.3.4 Stipulated use

The contact elements described in these instructions are intended for installation in windows, balcony doors and sliding elements.

MVS-B, MVS-C

The contact elements can be used for opening monitoring, locking monitoring or combined opening and locking monitoring in conjunction with burglar alarm systems and surveillance systems.

Also suitable for integration in data bus and Smart Home systems thanks to potential-free contact.

MTS

The MTS contact element can be used to monitor the window status in conjunction with heating and air conditioning systems.

Also suitable for integration in data bus and Smart Home systems thanks to potential-free contact.

The stipulated use also includes compliance with all information contained in the product-specific documentation, such as:

- These installation, maintenance and operation instructions
- Product catalogues
- Information, specifications from profile manufacturers (e.g. light metal profiles, etc.)
- Directives TBDK, VHBH and VHBE issued by the Gütegemeinschaft Schlösser und Beschläge e.V. quality assurance association
- VdS guidelines and standards for burglar alarm systems
- Applicable national laws and directives.

2.3.4.1 Misuse

Any use and processing of the products that goes beyond or differs from the stipulated use is considered misuse and can lead to hazardous situations.



WARNING

Misuse may pose a risk of death!

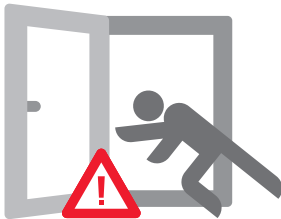
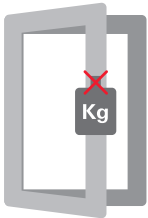
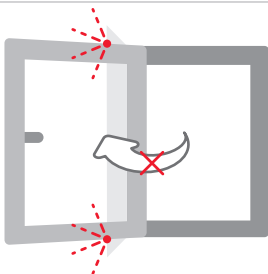
Misuse and incorrect installation of hardware can lead to serious injuries.

- ▶ Only use hardware combinations that have been approved by the hardware manufacturer.
- ▶ Only use original accessories or those that have been approved by the hardware manufacturer.
- ▶ Note the product-related documentation → *from page 7*.

2.4 Operation

The safety symbols and markings and the associated warning instructions explained below apply to the safe operation of windows and balcony doors.

Safety symbols and markings

Symbol	Meaning
	<p>Falls from open windows and balcony doors present an immediate risk of death and pose the risk of serious injuries.</p> <p>Take care when in the vicinity of open windows and balcony doors.</p> <p>Keep children and anyone unable to understand the risks away from the hazardous area.</p>
	<p>Trapping body parts in the opening between sash and frame may lead to serious injuries.</p> <p>When closing windows and balcony doors, never grip between the sash and frame and always exercise caution.</p> <p>Keep children and anyone unable to understand the risks away from the hazardous area.</p>
	<p>Placing additional loads on the sash may lead to minor injuries and property damage.</p> <p>Avoid placing additional loads on the sash.</p>
	<p>The impact of wind may lead to minor injuries and property damage.</p> <p>Avoid exposing the open sash to wind.</p> <p>Close and lock the window and balcony door sash in windy or draughty conditions.</p>
	<p>Introducing obstacles into the opening between sash and frame may result in minor injuries and property damage.</p> <p>Avoid introducing obstacles into the opening between sash and frame.</p>
	<p>Pressing the sash against the edge of an opening (reveal) may pose a risk of minor injuries and cause property damage</p> <p>Refrain from pressing the sash against the edge of an opening (reveal).</p>

3 Overview

3.1 Systems

	MVS-B	MVS-C	MTS
Roto NX	x	x	x
Roto Patio Alversa	x	x	x
Roto Patio Inowa	x	–	–

x = possible

– = not possible

4 MVS-B

4.1 General hardware characteristics

- Monitoring
 - Can be used for combined opening and locking monitoring in conjunction with burglar alarm systems and surveillance systems.
- Automated predrilling of hardware and accessory positions is possible.
- Saves on installation space, no additional room required.

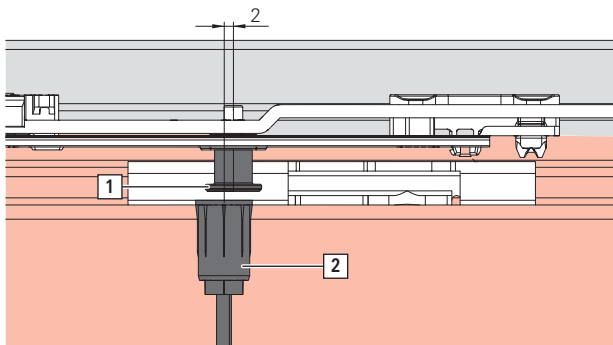


INFO

The monitoring of the tilt position is not VdS-certified. From an insurance point of view and according to VdS, tilted windows are considered to be open windows. Consequently, the monitoring of the tilt position is not compliant with VdS.

4.2 Rebate clearance and tolerance ranges

	Rebate clearance		Lateral offset relative to the hardware axis
	Striker without steel	Striker with steel top part	
MVS-B	12 ± 2 mm	12 ± 1 mm	± 2 mm



- [1] MVS cam in the locked position
[2] Contact element with drive-in sleeve

4.3 Processing instructions

Cable and wire

- To enable precision adjustment and replacement of defective contact elements, lay the contact element cables so that the contact element can be removed later.
Provide a wire loop.
- Lay the wire so that it is concealed in accordance with VdS 2311.
Laying the cable in empty conduits up to the next accessible distribution socket is also recommended.

Magnet and tolerance range

- The response values of magnets worsen if they are exposed to strong vibration or extreme heat or if they are used near ferromagnetic materials (e.g. steel or other magnets).
For this reason, ensure that no other ferromagnetic materials are installed, except for the Roto components intended for this purpose.
- The response sensitivity of the magnet and contact elements is based on the installation dimensions described in these installation instructions. Deviations may cause these components to stop working properly.
- There must be no mechanical loading of the contact element or magnet. This can lead to poorer response values or even cause the contact element or magnet to stop working properly.



Installation area

- On balcony doors, install contact elements outside the threshold area.
- Opening detectors must be installed on the elements so that every stipulated opening type results in a message being issued.
- Never use cordless screwdrivers or pneumatic screwdrivers to install the contact element. Do not use these in the immediate vicinity of the contact element either (strong vibration).
- Seal the drill hole or screw fixing in the water-conducting plane.

4.4 Roto NX

4.4.1 Positioning



INFO

Installing contact elements on the hinge side is not permitted.

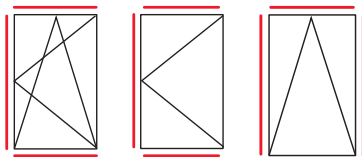
Opening detectors must be installed on windows so that every stipulated opening type results in a message being issued. Opening detectors should be installed in the centre at the top. They must be spaced no more than 60 cm away from the locking side.

Requirement

- Drive-in sleeve
PVC: mandatory
Timber: recommended
- MVS cam or MVS ring magnet

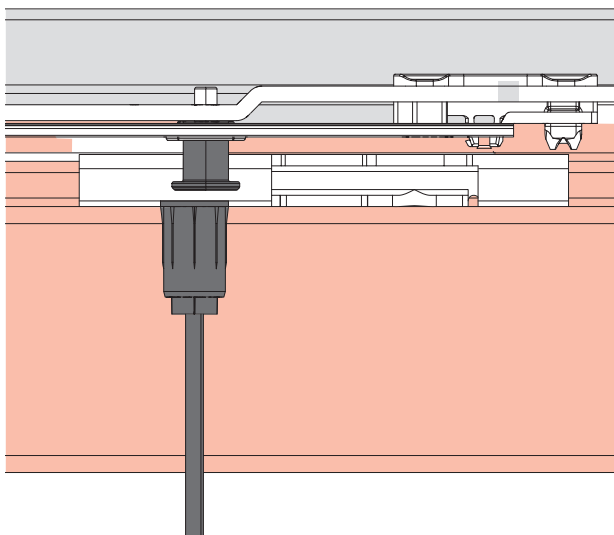
Positioning

- Combined locking and opening monitoring: anywhere except on the hinge side
- Locking monitoring: anywhere except on the hinge side
- Opening monitoring: max. 60 cm away from the locking side



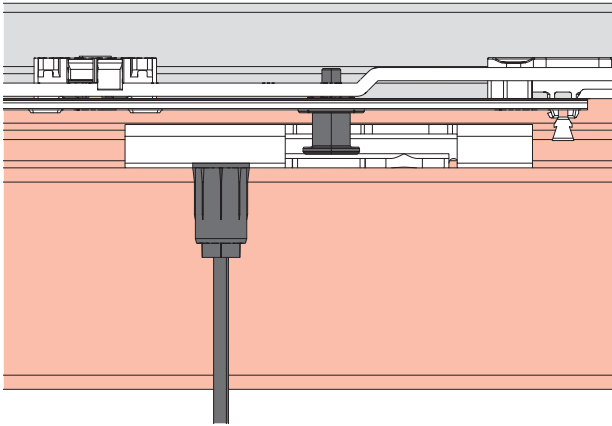
Example of MVS-B and position of MVS cam

Locked position



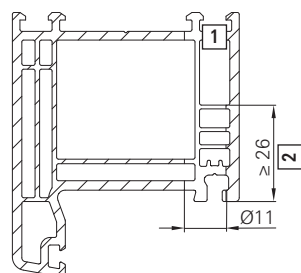


Turned, open position

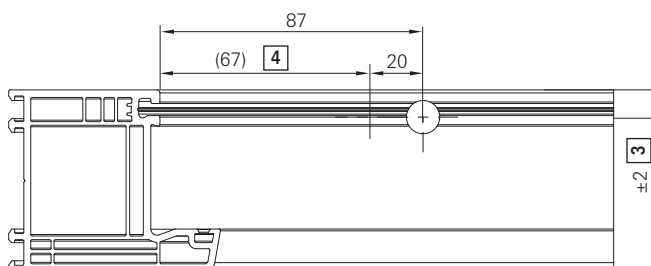


4.4.2 Drilling and routing dimensions

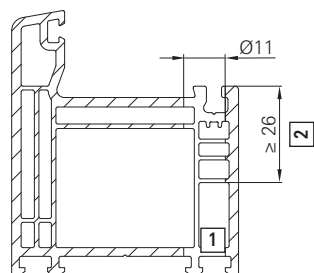
Integrated in the striker at the top



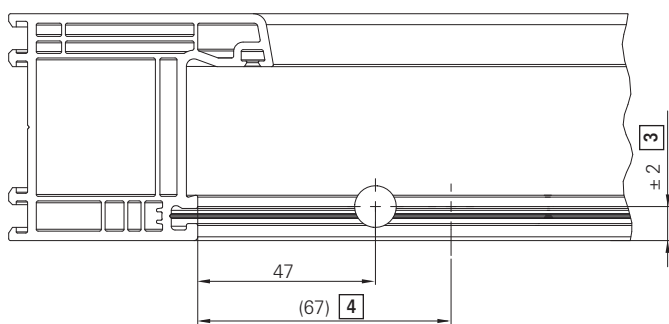
- [1] Possible cable outlet
- [2] Minimum dimension for drilling depth, if the cable outlet is not directly below
- [3] Hardware axis
- [4] Centre of MVS cam



Integrated in the tilt striker at the bottom



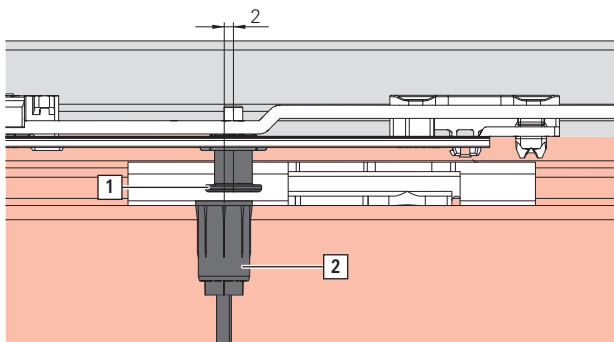
- [1] Possible cable outlet
- [2] Minimum dimension for drilling depth, if the cable outlet is not directly below
- [3] Hardware axis
- [4] Centre of MVS cam





Different position

Install the contact element of the MVS cam in the locked position or offset the MVS ring magnet by 2 mm to it.



- [1] MVS cam in the locked position
- [2] Contact element with drive-in sleeve

4.4.3 Installation



INFO

- Strikers with steel bottom part must not be used.
- Strikers with a steel top part and non-ferromagnetic bottom part (e.g. zinc die-cast, PVC) are permitted with limited tolerances.
- Any additional ferromagnetic materials must be installed at least 20 mm away from all sides of the contact element at the same height as it or above it. If the striker is less than 20 mm away from the screws, it must be fastened with non-magnetic screws.

1. Mark the position for the contact element → *from page 22.*

2. PVC

Use a drive-in sleeve.

Drill holes:

1x Ø 11 mm

Timber

A drive-in sleeve is recommended.

Drill holes:

With drive-in sleeve: 1x Ø 11 mm

Without drive-in sleeve: 1x Ø 8 mm



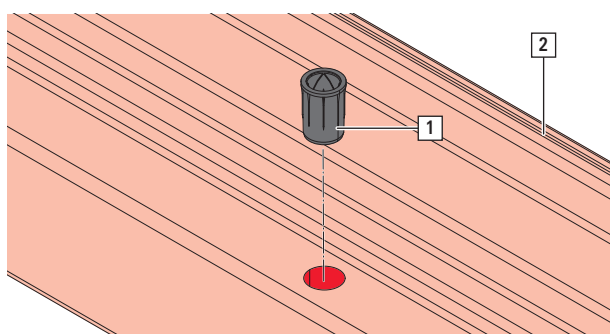
INFO

Position the drill holes precisely.

3. Insert the drive-in sleeve [1] into the frame [2] up to the edge of the sleeve.

Ensure that it is straight. The edge of the sleeve must be flush with the base of the striker.

For PVC profiles, the frame component may need to be machined so that the sleeve is flush with the base of the striker.





INFO

The drive-in sleeve must not deform as this would mean that the contact element cannot be inserted.

4. Secure the contact element with adhesive if a drive-in sleeve is not being used.

Pull the contact element [3] in and push it as far as it will go into the drive-in sleeve until it is flush.

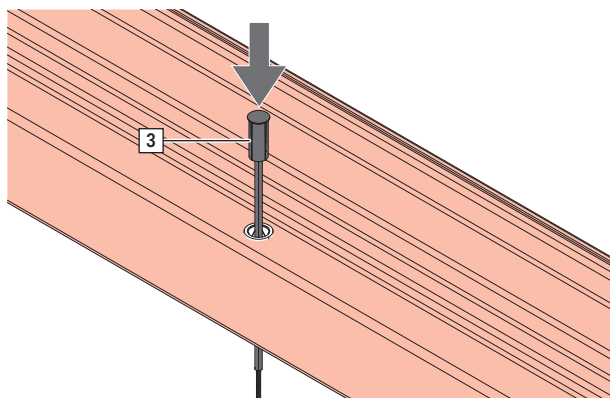


ATTENTION

Improper installation may cause property damage.

Tools can damage the glass body of the reed switch.

- Do not use tools. Push the contact element in by hand.

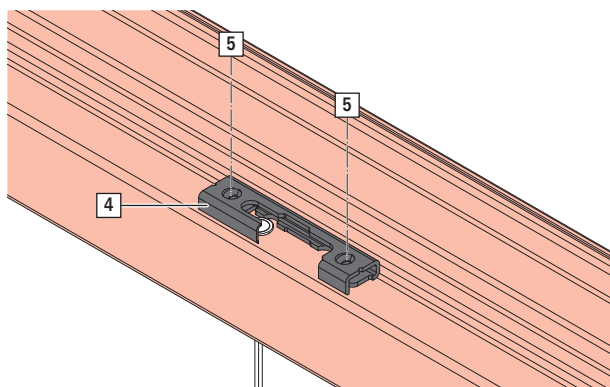


5. Ensure a sufficient length of cable is left over. Lay the cable loop.

Ensure that the cable is not pinched or damaged during frame installation.

Seal the drill hole or screw fixing in the water-conducting plane.

6. Install the tilt striker or striker [4]; for positioning see → *from page 24*.



7. Fasten with two screws [5].

8. Carry out a performance test → *from page 45*.



4.5 Roto Patio Alversa

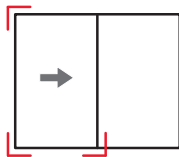
4.5.1 Positioning

Requirement

- Drive-in sleeve
PVC: mandatory
Timber: recommended
- MVS corner drive

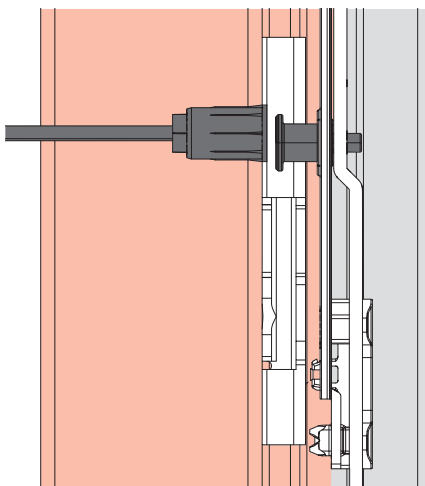
Positioning

- Anywhere on an MVS cam

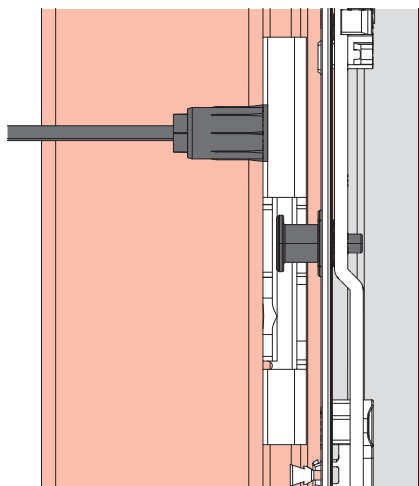


Example of MVS-B and position of MVS cam

Locked position

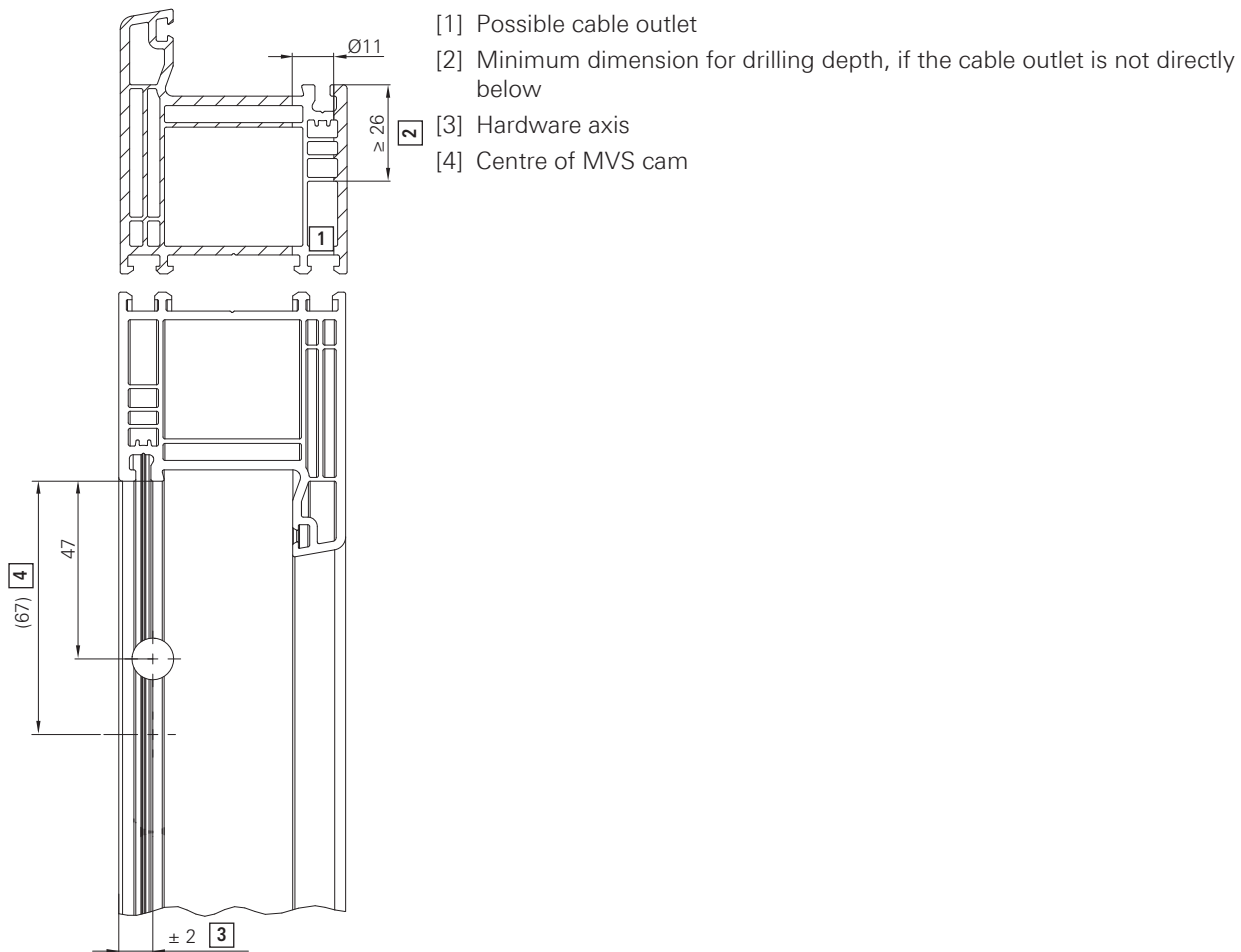


Turned, open position



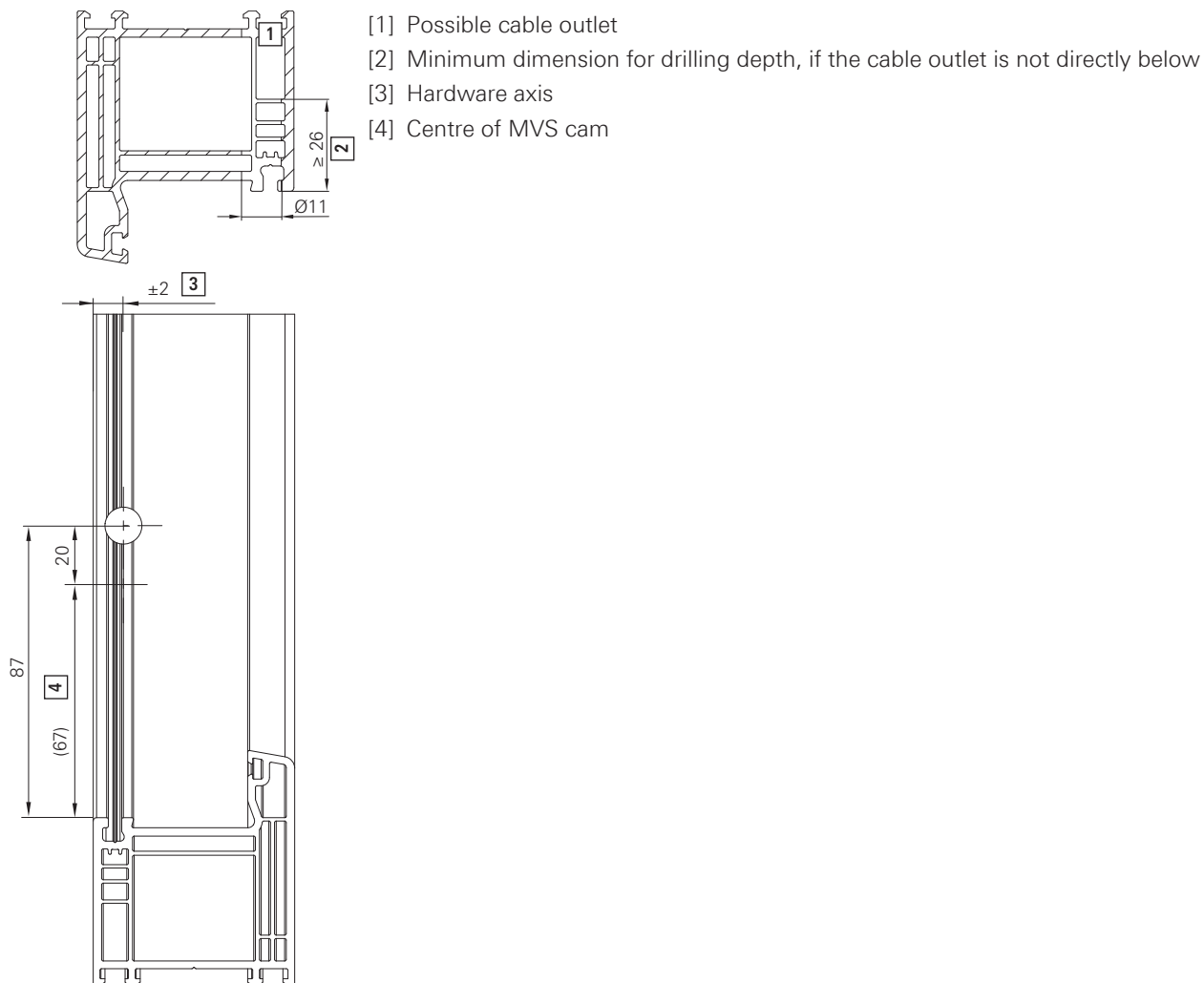
4.5.2 Drilling and routing dimensions

Lateral at the top



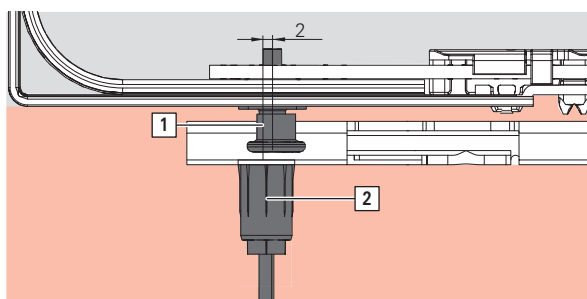


Lateral at the bottom



Different position

Install the contact element of the MVS cam with a 2 mm offset in the locked position.



- [1] MVS cam in the locked position
 [2] Contact element with drive-in sleeve

4.5.3 Installation



INFO

- Strikers with steel bottom part must not be used.
- Strikers with a steel top part and non-ferromagnetic bottom part (e.g. zinc die-cast, PVC) are permitted with limited tolerances.
- Any additional ferromagnetic materials must be installed at least 20 mm away from all sides of the contact element at the same height as it or above it. If the striker is less than 20 mm away from the screws, it must be fastened with non-magnetic screws.

1. Mark the position for the contact element → *from page 27*.

2. PVC

Use a drive-in sleeve.

Drill holes:

1x Ø 11 mm

Timber

A drive-in sleeve is recommended.

Drill holes:

With drive-in sleeve: 1x Ø 11 mm

Without drive-in sleeve: 1x Ø 8 mm



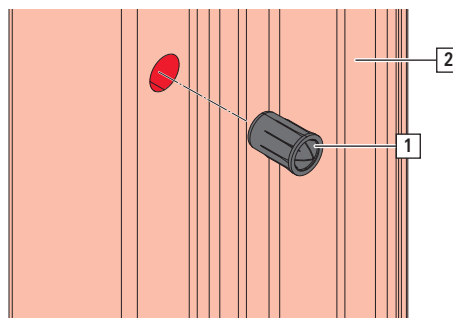
INFO

Position the drill holes precisely.

3. Insert the drive-in sleeve [1] into the frame [2] up to the edge of the sleeve.

Ensure that it is straight. The edge of the sleeve must be flush with the base of the striker.

For PVC profiles, the frame component may need to be machined so that the sleeve is flush with the base of the striker.



INFO

The drive-in sleeve must not deform as this would mean that the contact element cannot be inserted.

4. Secure the contact element with adhesive if a drive-in sleeve is not being used.

Pull the contact element [3] in and push it as far as it will go into the drive-in sleeve until it is flush.

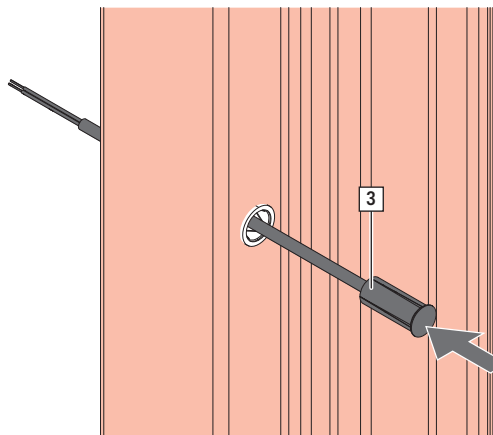


ATTENTION

Improper installation may cause property damage.

Tools can damage the glass body of the reed switch.

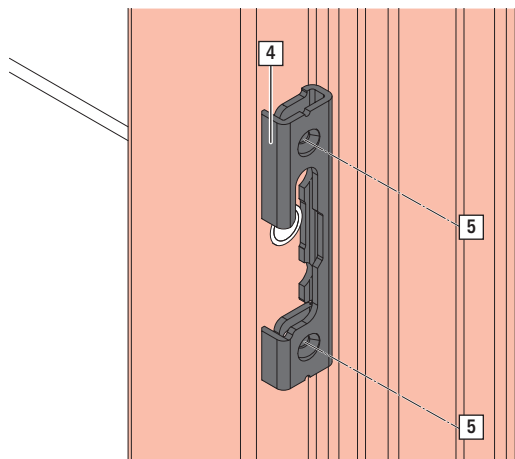
- Do not use tools. Push the contact element in by hand.





5. Ensure a sufficient length of cable is left over. Lay the cable loop.
Ensure that the cable is not pinched or damaged during frame installation.
Seal the drill hole or screw fixing in the water-conducting plane.

6. Install the striker [4]; for positioning see → *from page 27*.

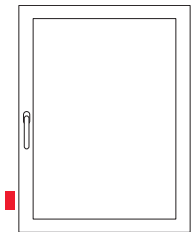
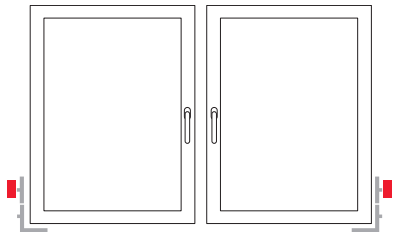
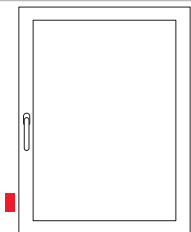
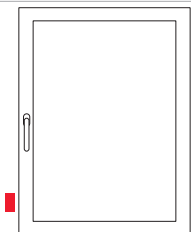
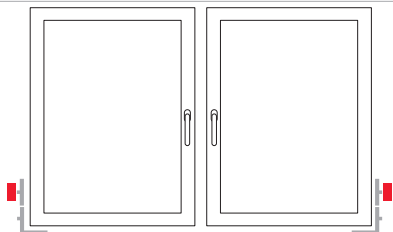
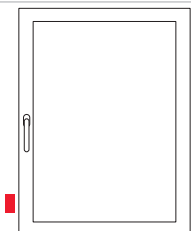
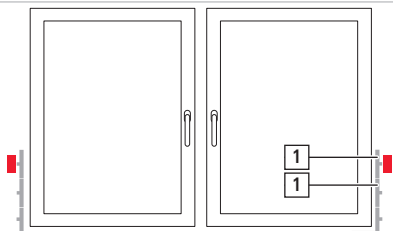
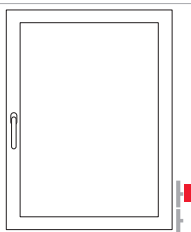
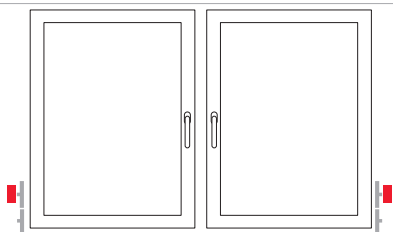
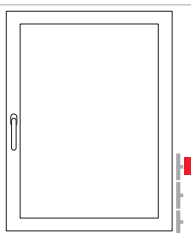


7. Fasten with two screws [5].
8. Carry out a performance test → *from page 45*.

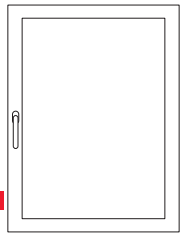
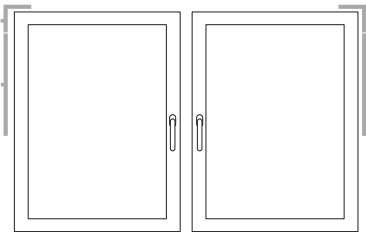
4.6 Roto Patio Inowa

4.6.1 Positioning

Overview

Frame material	Roto Patio Inowa	Diagram A	Diagram C
PVC	200		
	400		Not possible
Timber	200		
	400		
Timber-aluminium Can be routed in	200		
	400		Not possible



Frame material	Roto Patio Inowa	Diagram A	Diagram C
Aluminium	200 400		

[1] Centre lock component 130

Diagram A

Requirement

PVC, timber and timber-aluminium

- MVS corner drive
- Adapter bush
- MVS striker

Aluminium

- MVS cam
- Adapter bush
- MVS striker

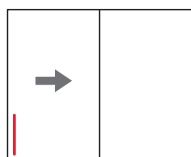
Positioning

- On the locking side

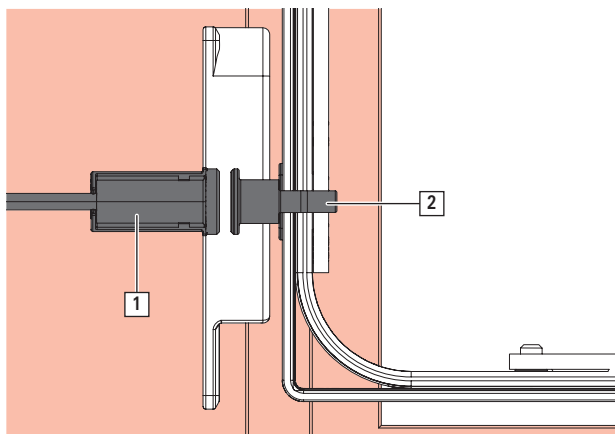


INFO

With timber profiles, for which routed-in strikers are used, the contact element is located on the mullion (see diagram C → *from page 40*).



Example of MVS-B and position of MVS cam



- [1] Contact element with adapter bush
- [2] MVS cam in the locked position

Diagram C

Requirement

PVC, timber, aluminium and timber-aluminium

- Centre closer
- Adapter bush
- MVS mullion striker
- MVS pin magnet (profile-related)



INFO

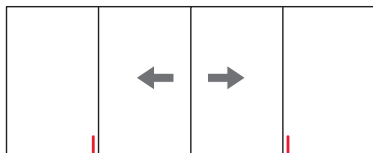
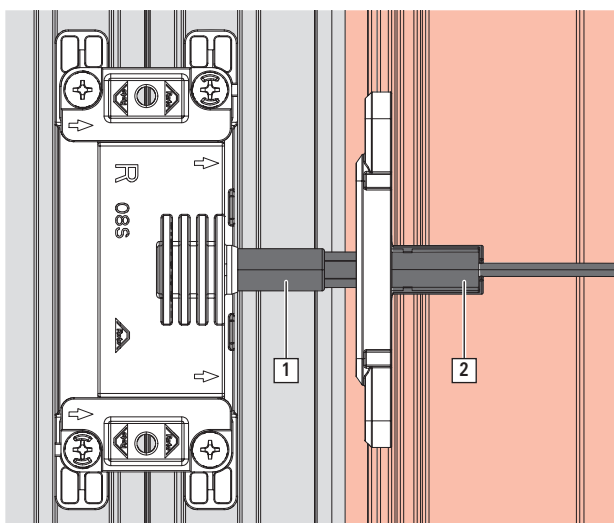
MVS components are not a substitute for components with anti-pushback function.



INFO

Diagram C not possible for Roto Patio Inowa | 400 PVC and timber-aluminium (routed-in strikers).

Positioning



[1] MVS pin magnet

[2] Contact element with adapter bush



4.6.2 Diagram A

4.6.2.1 Timber and PVC

Sash

1. Install the MVS corner drive.

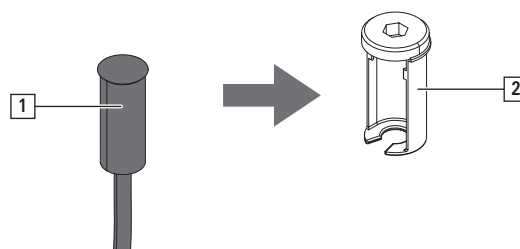
Frame



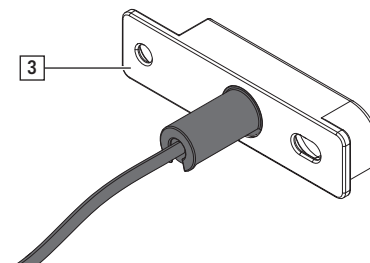
INFO

With timber profiles, for which routed-in strikers are used, the contact element is located on the mullion (see diagram C → *from page 40*).

1. Clip the contact element [1] into the adapter [2].



2. Screw the adapter with contact element fully into the striker [3].



3. Determine the position for the MVS drilling jig and MVS striker:

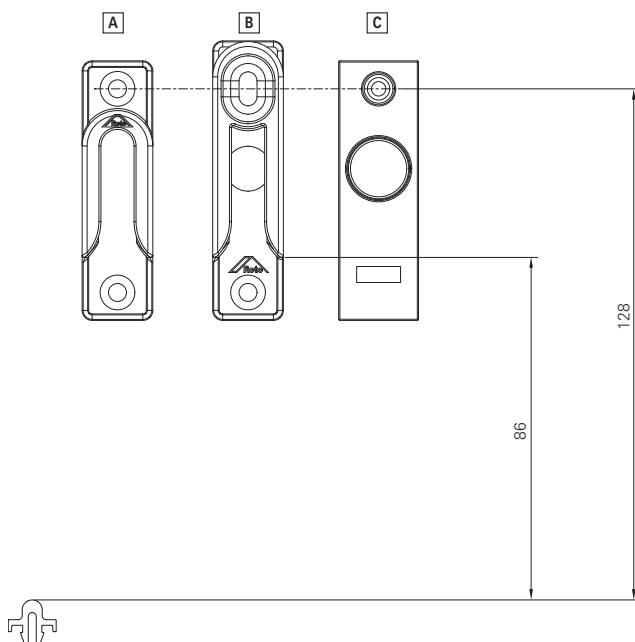
- For Roto Patio Inowa | 200, see IMO_403
- For Roto Patio Inowa | 400, see IMO_559

The MVS striker replaces the striker to prevent incorrect operation. The position, drilling distances and run-in curves are identical.

[A] Striker to prevent incorrect operation

[B] MVS striker

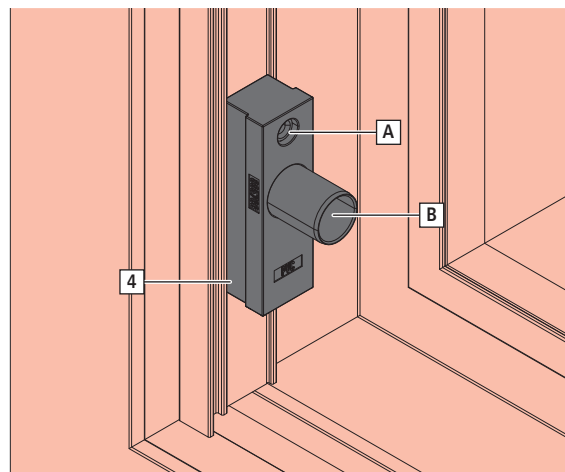
[C] MVS drilling jig



4. Fit the MVS drilling jig [4].

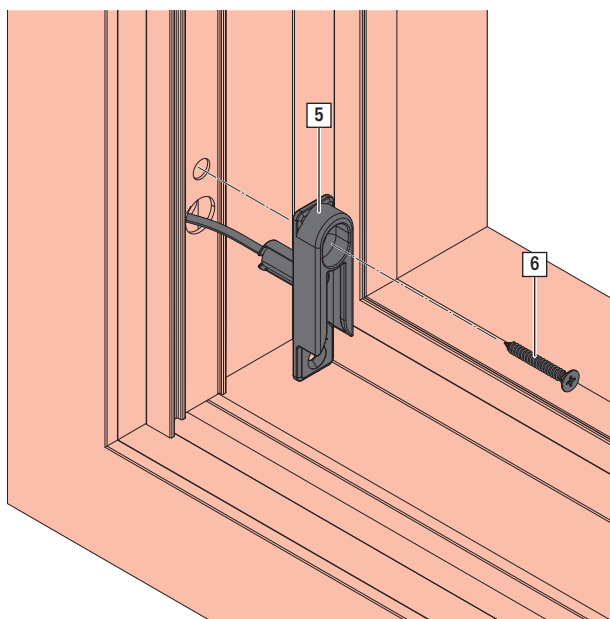
Drill holes.

	[A]	[B]	
PVC	3.5	14	25 deep
Timber	3.0	14	25 deep

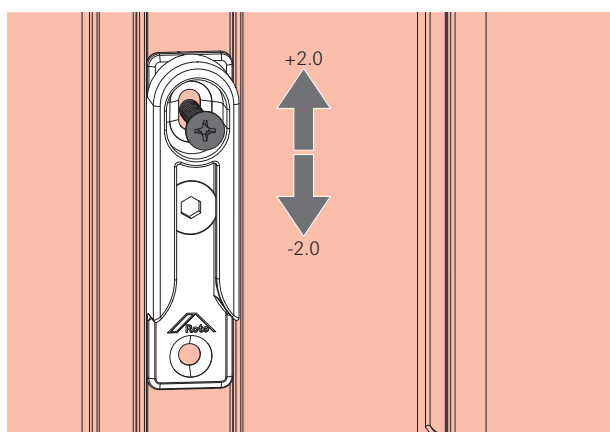




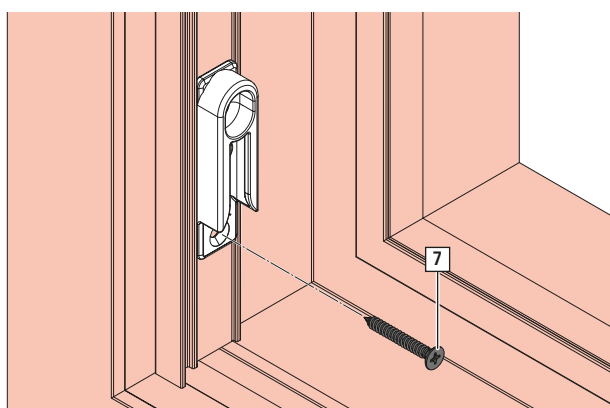
5. Insert the MVS striker with contact element [5] into the frame.
Fasten with one screw [6].
Ensure a sufficient length of cable is left over. Lay the cable loop.
Ensure that the cable is not pinched or damaged during frame installation.



6. Carry out a performance test → *from page 45*.
7. The MVS striker can be adjusted by ± 2 mm using the slot.



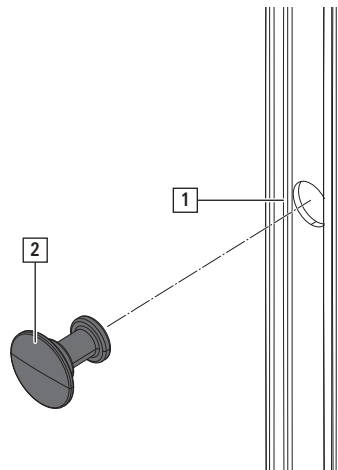
8. Fasten the MVS striker with one screw [7].



4.6.2.2 Aluminium

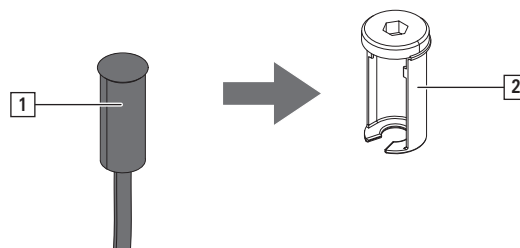
Sash

1. Insert the MVS cam [2] into the punched hole in the connecting rod [1] (replaces the locking cam for the striker to prevent incorrect operation).
- For Roto Patio Inowa | 200, see IMO_282
 - For Roto Patio Inowa | 400, see IMO_558

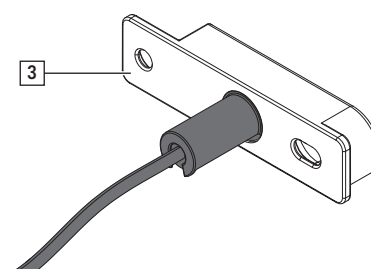


Frame

1. Clip the contact element [1] into the adapter [2].



2. Screw the adapter with contact element fully into the striker [3].





3. Determine the position for the drilling jig and the MVS striker:

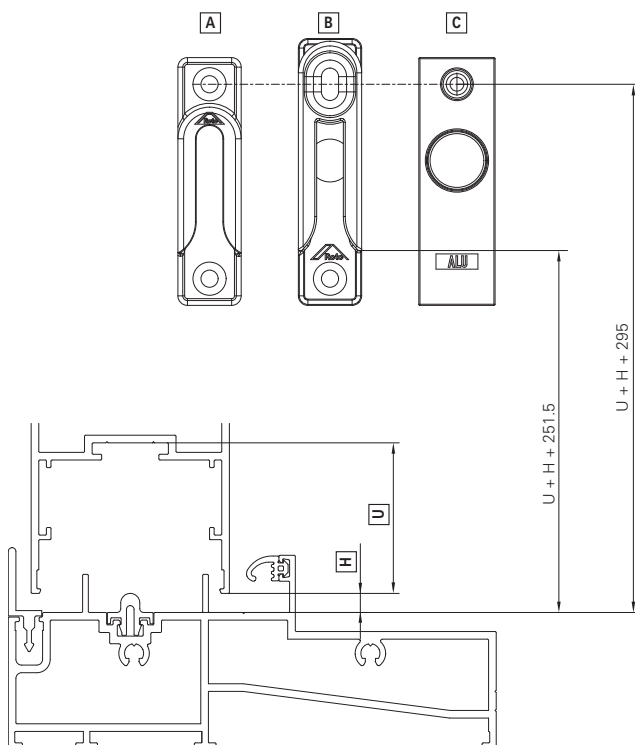
- For Roto Patio Inowa | 200, see IMO_282
- For Roto Patio Inowa | 400, see IMO_558

The MVS striker replaces the striker to prevent incorrect operation. The position, drilling distances and run-in curves are identical.

[A] Striker to prevent incorrect operation

[B] MVS striker

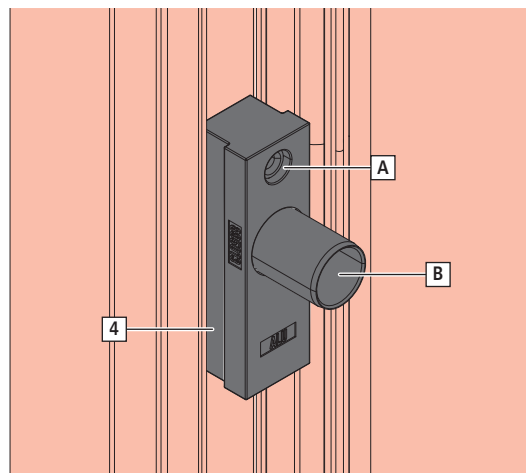
[C] MVS drilling jig



4. Fit the drilling jig [4].

Drill holes.

	[A]	[B]	
Aluminium	3.5	14	25 deep

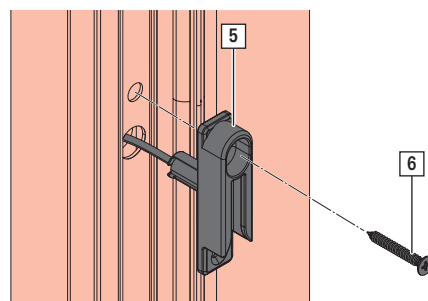


5. Insert the MVS striker with contact element [5] into the frame.

Fasten with one screw [6].

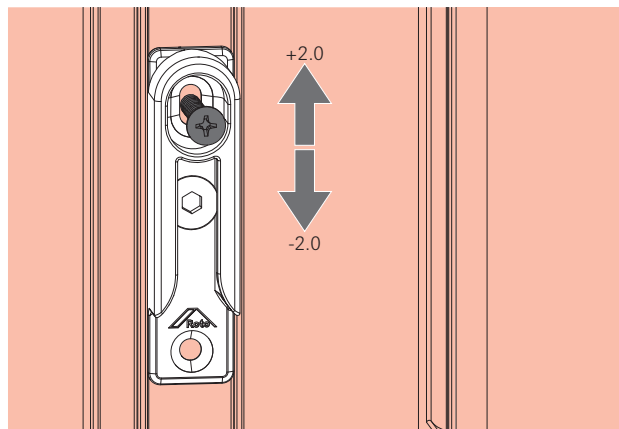
Ensure a sufficient length of cable is left over. Lay the cable loop.

Ensure that the cable is not pinched or damaged during frame installation.

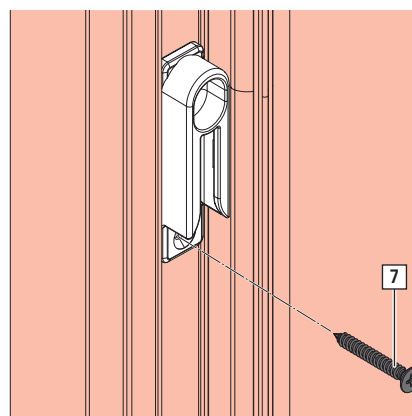


6. Carry out a performance test → *from page 45.*

7. The MVS striker can be adjusted by ± 2 mm using the slot.



8. Fasten the MVS striker with one screw [7].



4.6.3 Diagram C



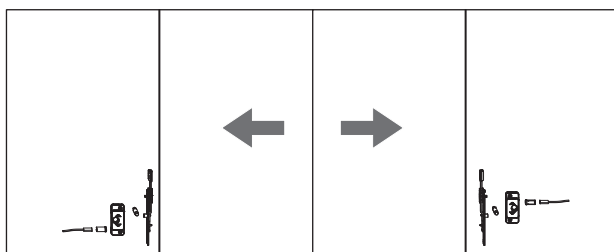
INFO

Diagram C not possible for Roto Patio Inowa | 400 PVC and timber-aluminium (routed-in strikers).

4.6.3.1 Timber and PVC

Sash mullion

Position



1. Install centre lock component 130 on the bottom corner drive.
2. Roto Patio Inowa | 400



Install centre lock component 130 on the bottom centre lock component 130.

3. Position and install the centre closer.

- Roto Patio Inowa | 200
 For timber and PVC, see IMO_403.
 For timber-aluminium, see IMO_493.
- Roto Patio Inowa | 400
 For timber, see IMO_559



INFO

For an inward running DIN left element, choose a right-hand centre closer

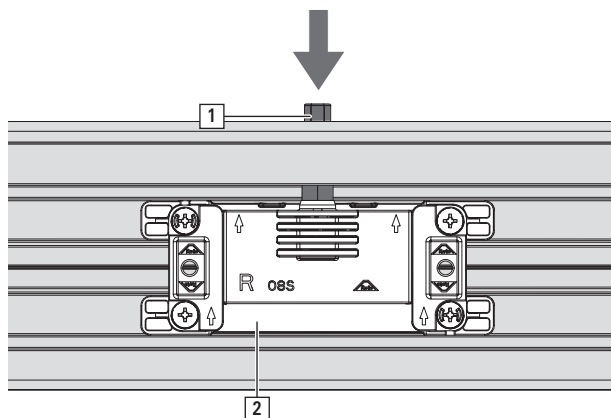
For an inward running DIN right element, choose a left-hand centre closer

For an outward running DIN left element, choose a left-hand centre closer

For an outward running DIN right element, choose a right-hand centre closer

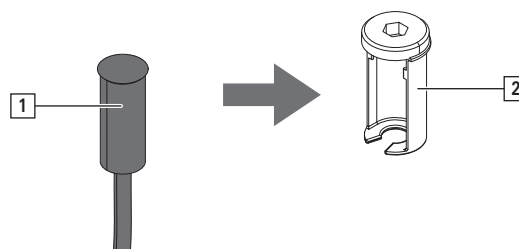
4. Screw the MVS pin [1] into the centre closer thread [2].

Tool: open-end spanner WAF7

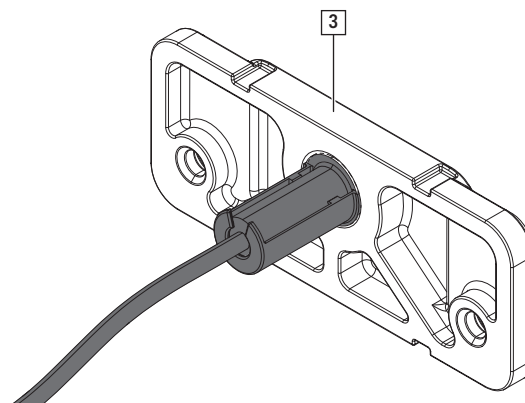


Frame mullion

1. Clip the contact element [1] into the adapter [2].



2. Screw the adapter with contact element fully into the mullion striker [3].

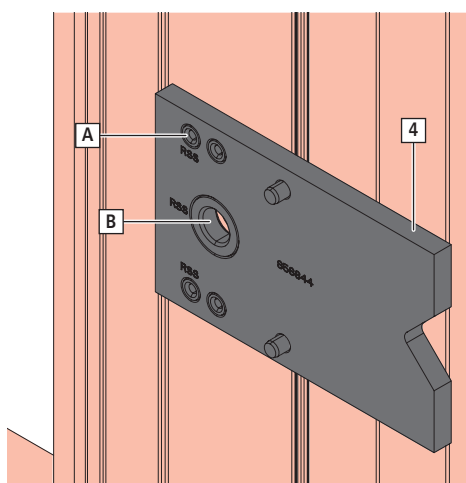


3. Use the drilling jig to determine the position for the mullion striker.

Fit the drilling jig for the striker for anti-pushback function [4].

Drill holes.

	[A]	[B]	
PVC	3.5	12.5	25 deep
Timber	3.0	12.5	25 deep
Timber-aluminium	3.0	12.5	25 deep



4. Insert the mullion striker with contact element [5] into the mullion.

The cable can be routed in the area of the mullion cover strip. Depending on the profile, the cable may be routed near the glass rebate.

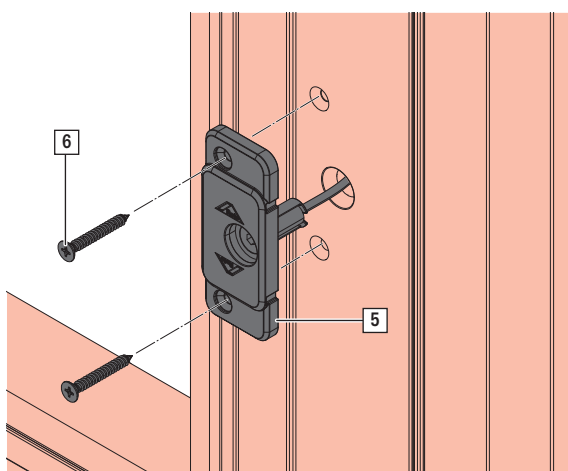


INFO

Make sure that the cable is not damaged by screws of other mullion strikers.

Ensure a sufficient length of cable is left over. Lay the cable loop.

Ensure that the cable is not pinched or damaged during frame installation.



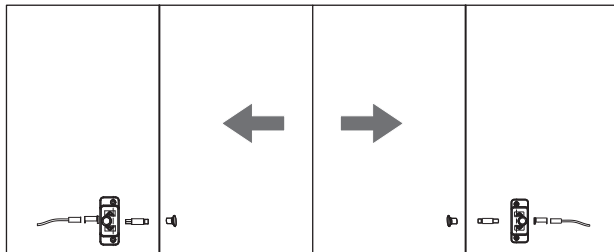
5. Fasten with two screws [6].
6. Carry out a performance test → *from page 45.*



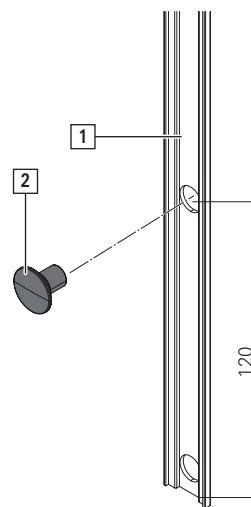
4.6.3.2 Aluminium

Sash mullion

Position



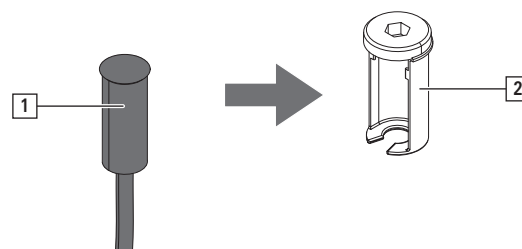
1. Punch an additional Ø 10 mm hole in the connecting rod [1].
 For Roto Patio Inowa | 200, see IMO_282
 For Roto Patio Inowa | 400, see IMO_558



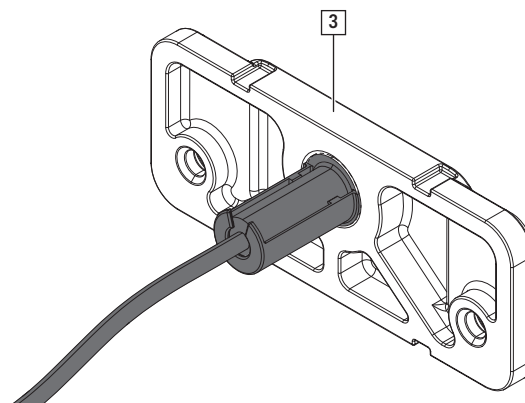
2. Roto Patio Inowa | 200
 Insert the D8 control cam into the punched hole in the connecting rod.
 Roto Patio Inowa | 400
 Insert the D13 control cam into the punched hole in the connecting rod.

Frame mullion

1. Clip the contact element [1] into the adapter [2].



2. Screw the adapter with contact element fully into the mullion striker [3].

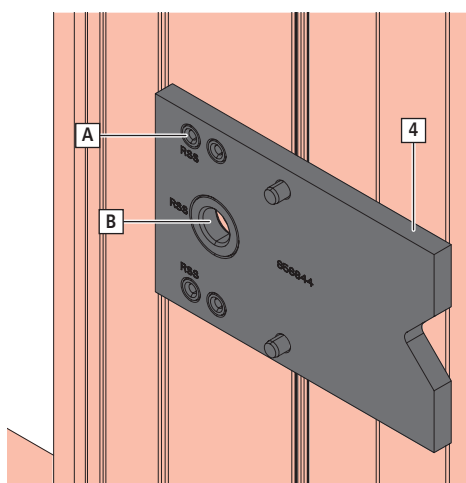


3. Use the drilling jig to determine the position for the mullion striker.

Fit the drilling jig for the striker for anti-pushback function [4].

Drill holes.

	[A]	[B]	
Aluminium	3.5	12.5	25 deep



4. Insert the mullion striker with contact element [5] into the mullion.

The cable can be routed in the area of the mullion cover strip. Depending on the profile, the cable may be routed near the glass rebate.

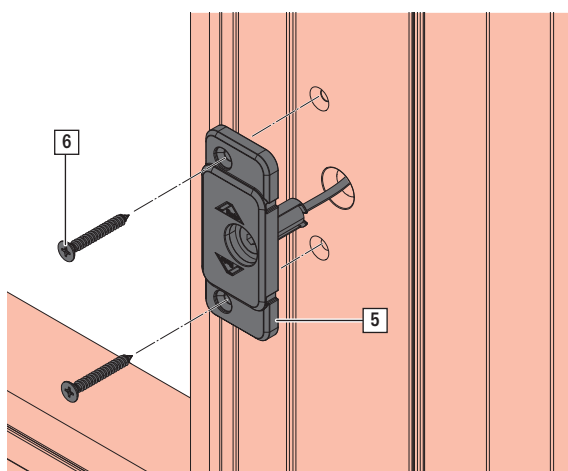


INFO

Make sure that the cable is not damaged by screws of other mullion strikers.

Ensure a sufficient length of cable is left over. Lay the cable loop.

Ensure that the cable is not pinched or damaged during frame installation.



5. Fasten with two screws [6].
6. Carry out a performance test → *from page 45*.



4.7 Performance test



INFO

The monitoring of the tilt position is not VdS-certified. From an insurance point of view and according to VdS, tilted windows are considered to be open windows. Consequently, the monitoring of the tilt position is not compliant with VdS.

1. Use the Control Unit to check whether the contact element is working properly.



INFO

The MVS cam must be inserted at least 50% into the striker or tilt striker before the detector moves to the locked position – this roughly corresponds to a handle position of 15° (from vertical).



INFO

The technical data (voltage, current, power) of the contact element must not be exceeded → *from page 46*.

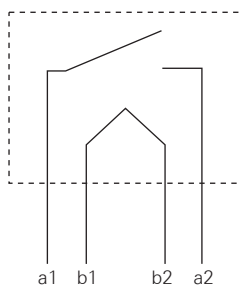
Do not use a lamp test device.

2. Connect all four conductors of the contact element to the Control Unit in any configuration.
3. Open the window.
4. Start the Control Unit.
5. After two beeps, close and lock the window.
The status of the contact element is determined.
6. After three beeps, the Control Unit signifies for five seconds that the conductor assignment of the connected contact element has been determined
LEDs light up: 2x red, 2x orange ●●●●○○
7. Check that the contact element is working properly and is installed correctly by locking and opening the window.
Window open: 2x orange LEDs light up ○○●●○○
Window closed: 2x red and 2x orange LEDs light up . ●●●●○○

4.8 Connection

Standard

Wiring diagram



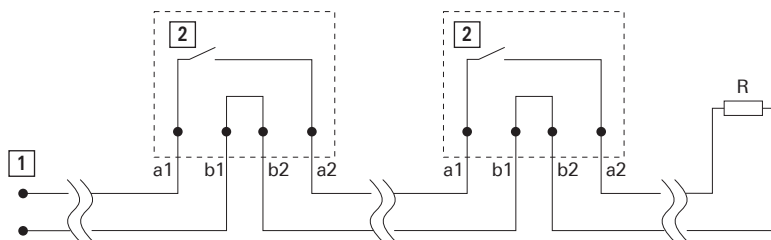
- a1 Line contact
- a2 Line contact
- b1 Sabotage cable
- b2 Sabotage cable



INFO

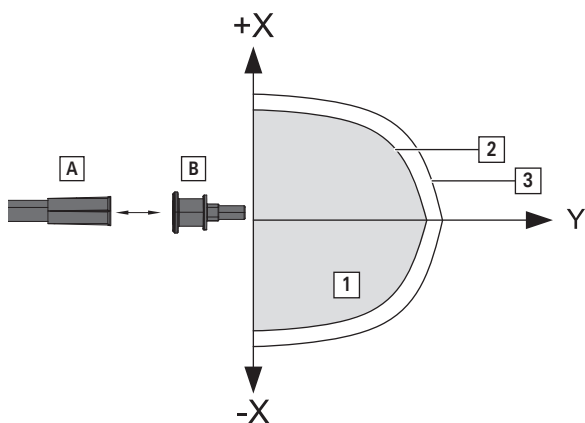
Do not switch any inductive or capacitive loads.

Wiring



- [1] Central unit
 [2] Line contact
 a1 Line contact
 a2 Line contact
 b1 Sabotage cable
 b2 Sabotage cable

Distance diagram



- [A] Contact
 [B] Magnet
 [1] Idle area
 [2] Approach and switch-on distance
 [3] Diverging and switch-off distance

MVS cam		
	Switching distance	Tolerance
[2]	10	± 3,0
[3]	12	± 3,0

4.9 Technical data VdS – class B

Technical data	
Contact type	Reed contact, N/O contact, potential-free
Voltage	$U_{max} = 40 \text{ V DC} / 40 \text{ V AC}$
Switching current	$I_{max} = 500 \text{ mA}$
Contact resistance	Ohm = max. 0.15
Switching capacity	$P_{max} = 6 \text{ W} (= U \times I)$
Temperature range	-40 °C to +70 °C with fixed cabling
IP rating	IP67



Technical data	
Environmental class	III in accordance with VdS 2110
Housing colour	RAL 9003 (Signal white)
Cable	LIYY 4 x 0.14 mm ² , white

Certificates

Certification		
VdS	G 113501	VdS class B
EN	EN-ST-000242	EN grade 2 in acc. with EN 50131-2-6



INFO

The certificates only apply when Roto hardware components with magnets are used.

5 MVS-C

5.1 General hardware characteristics

- Monitoring
 - Can be used for combined opening and locking monitoring in conjunction with burglar alarm systems and surveillance systems.
- Automated predrilling of hardware and accessory positions is possible.
- Saves on installation space, no additional room required.

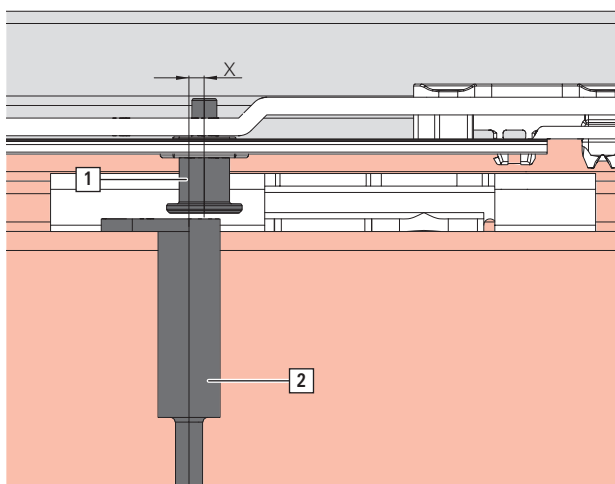


INFO

The monitoring of the tilt position is not VdS-certified. From an insurance point of view and according to VdS, tilted windows are considered to be open windows. Consequently, the monitoring of the tilt position is not compliant with VdS.

5.2 Rebate clearance and tolerance ranges

	Rebate clearance		Lateral offset relative to the hardware axis
	Striker without steel	Striker with steel top part	
MVS-C	12 ± 2 mm	–	± 1 mm



- [1] MVS cam in the locked position
[2] Contact element

Routing	Offset [X]
2	7
3	6
4	5
5	4

5.3 Processing instructions

Cable and wire

- To enable precision adjustment and replacement of defective contact elements, lay the contact element cables so that the contact element can be removed later.
Provide a wire loop.
- Lay the wire so that it is concealed in accordance with VdS 2311.
Laying the cable in empty conduits up to the next accessible distribution socket is also recommended.



Magnet and tolerance range

- The response values of magnets worsen if they are exposed to strong vibration or extreme heat or if they are used near ferromagnetic materials (e.g. steel or other magnets).

For this reason, ensure that no other ferromagnetic materials are installed, except for the Roto components intended for this purpose.

- The response sensitivity of the magnet and contact elements is based on the installation dimensions described in these installation instructions. Deviations may cause these components to stop working properly.
- In the case of MVS-C contact elements, the tolerance range between the magnet and contact element is far smaller due to the increased protection against tampering.

This means that greater care needs to be taken to ensure that the rebate clearance is set correctly on MVS-C contact elements.

- There must be no mechanical loading of the contact element or magnet. This can lead to poorer response values or even cause the contact element or magnet to stop working properly.

Installation area

- On balcony doors, install contact elements outside the threshold area.
- Opening detectors must be installed on the elements so that every stipulated opening type results in a message being issued.
- Never use cordless screwdrivers or pneumatic screwdrivers to install the contact element. Do not use these in the immediate vicinity of the contact element either (strong vibration).
- Seal the drill hole or screw fixing in the water-conducting plane.

5.4 Roto NX

5.4.1 Positioning



INFO

Installing contact elements on the hinge side is not permitted.

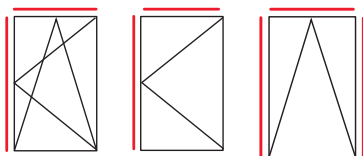
Opening detectors must be installed on windows so that every stipulated opening type results in a message being issued. Opening detectors should be installed in the centre at the top. They must be spaced no more than 60 cm away from the locking side.

Requirement

- MVS cam or
- MVS ring magnet

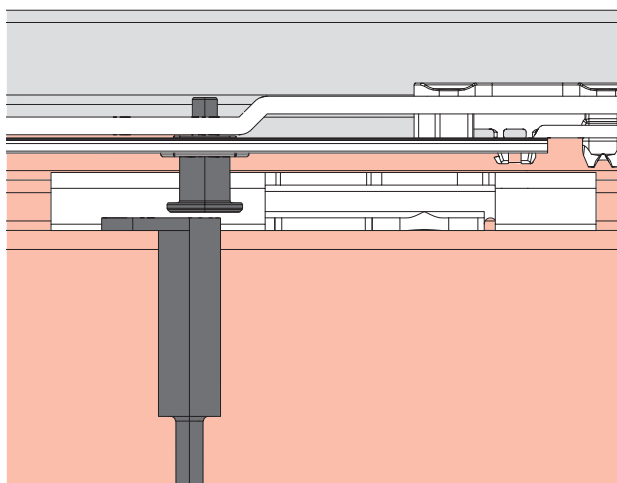
Positioning

- Combined locking and opening monitoring: anywhere except on the hinge side
- Locking monitoring: anywhere except on the hinge side
- Opening monitoring: max. 60 cm away from the locking side
- Lever-operated espagnolette: always at the top or bottom
- Anywhere on an MVS cam or ring magnet



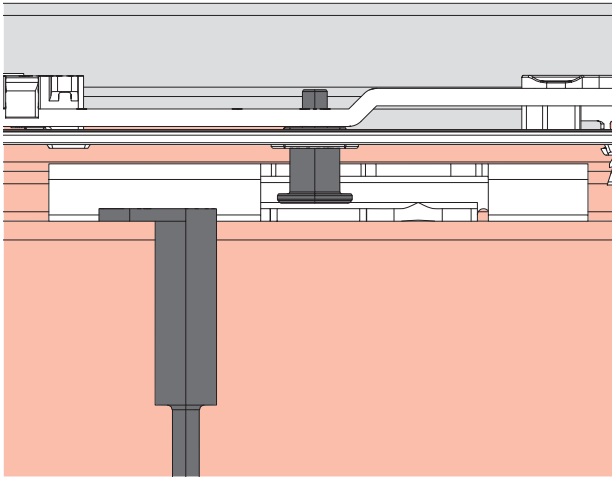
Example of MVS-C and position of MVS cam

Locked position



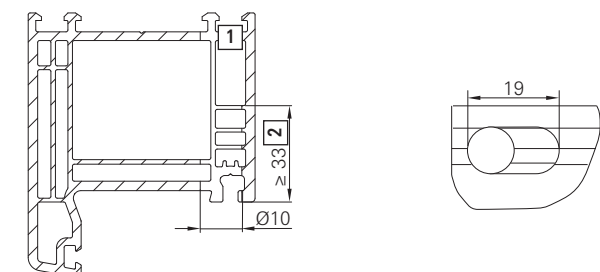


Turned, open position



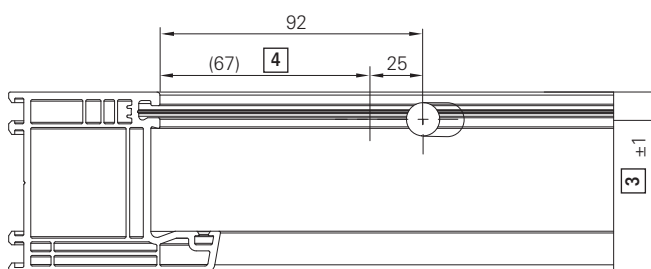
5.4.2 Drilling and routing dimensions

Integrated in the striker at the top

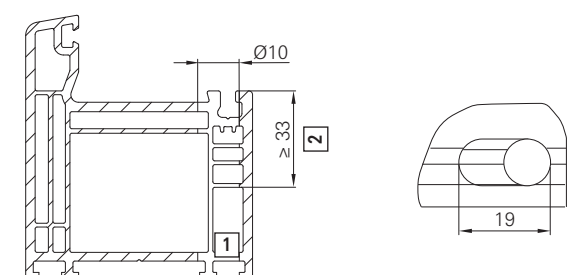


- [1] Possible cable outlet
- [2] Minimum dimension for drilling depth, if the cable outlet is not directly below
- [3] Hardware axis
- [4] Centre of MVS cam

Lug 2 – 5 mm deep

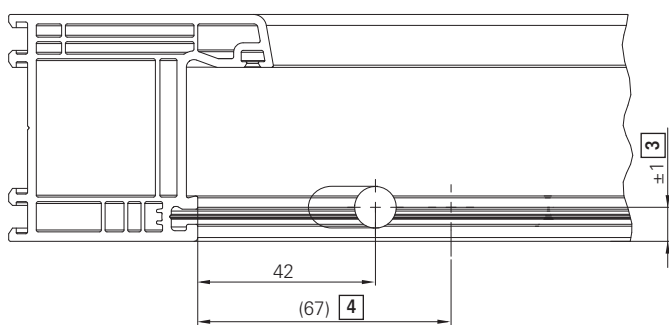


Integrated in the tilt striker at the bottom



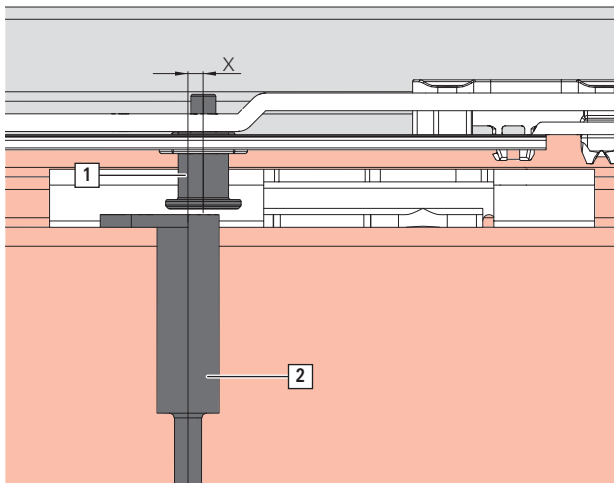
- [1] Possible cable outlet
- [2] Minimum dimension for drilling depth, if the cable outlet is not directly below
- [3] Hardware axis
- [4] Centre of MVS cam

Lug 2 – 5 mm deep



Different position

Install the contact element of the MVS cam in the locked position or offset the MVS ring magnet to it.



- [1] MVS cam in the locked position
[2] Contact element

Routing	Offset [X]
2	7
3	6
4	5
5	4

The lug must be routed in to a depth of 2 – 5 mm.

5.4.3 Installation



INFO

- Strikers with steel bottom part must not be used.
- Strikers with a steel top part and non-ferromagnetic bottom part (e.g. zinc die-cast, PVC) are not permitted.
- Any additional ferromagnetic materials must be installed at least 20 mm away from all sides of the contact element at the same height as it or above it. If the striker is less than 20 mm away from the screws, it must be fastened with non-magnetic screws.

1. Mark the position for the contact element → *from page 52*.
2. Drill holes: 1x Ø 10 mm



INFO

Position the drill holes precisely.

3. Pull the contact element [1] into the frame [2] by hand up to its edge until it is flush.



ATTENTION

Improper installation may cause property damage.

Tools can damage the glass body of the reed switch.

- Do not use tools. Push the contact element in by hand.

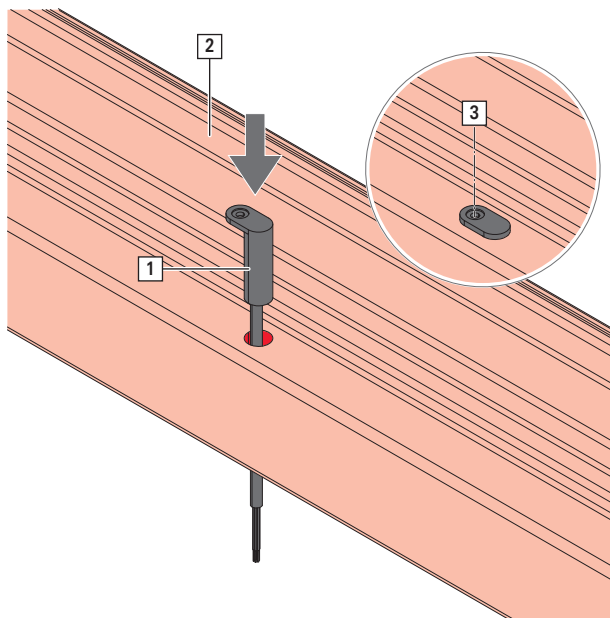
Ensure that it is straight.



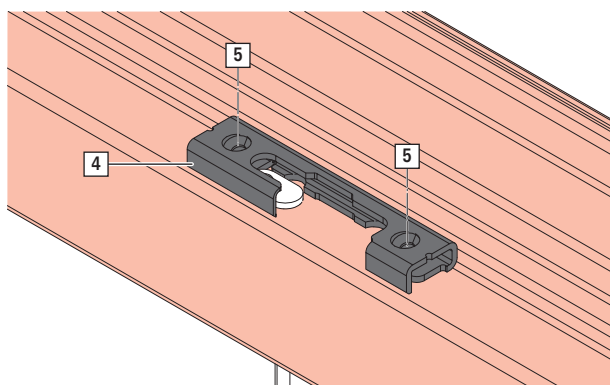
INFO

The contact element lug must always be installed in the opposite direction to the MVS cam.

Make sure that the lug is not at an angle or twisted when installing it.



4. Fasten with one screw [3].
5. Lay the cable, ensuring that a sufficient length of cable is left over. Lay the cable loop.
 Ensure that the cable is not pinched or damaged during frame installation.
 Seal the drill hole or screw fixing in the water-conducting plane.
6. Install the tilt striker or striker [4] → *from page 52*.



7. Fasten with two screws [5].
8. Carry out a performance test → *from page 59*.



5.5 Roto Patio Alversa

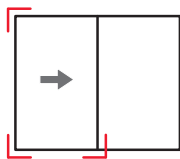
5.5.1 Positioning

Requirement

- MVS corner drive

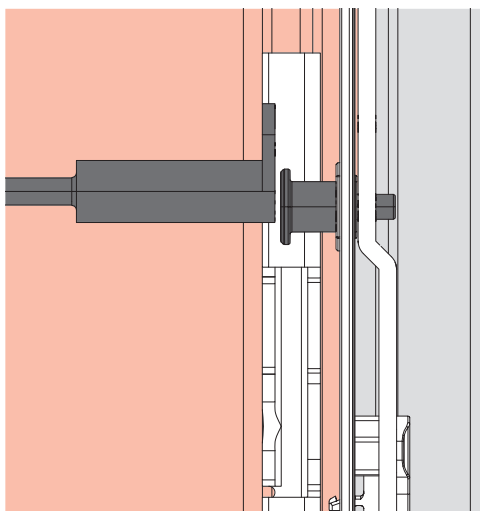
Positioning

- Anywhere on an MVS cam

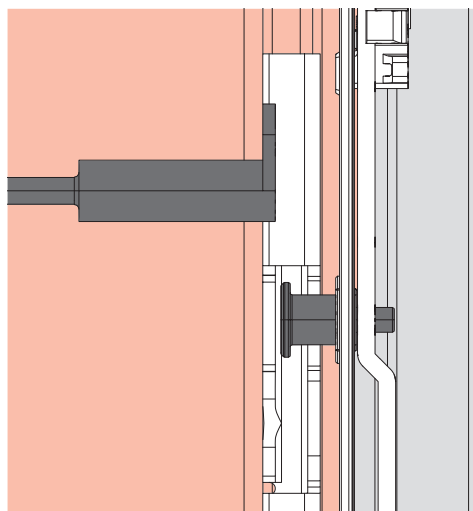


Example of MVS-C and position of MVS cam

Locked position

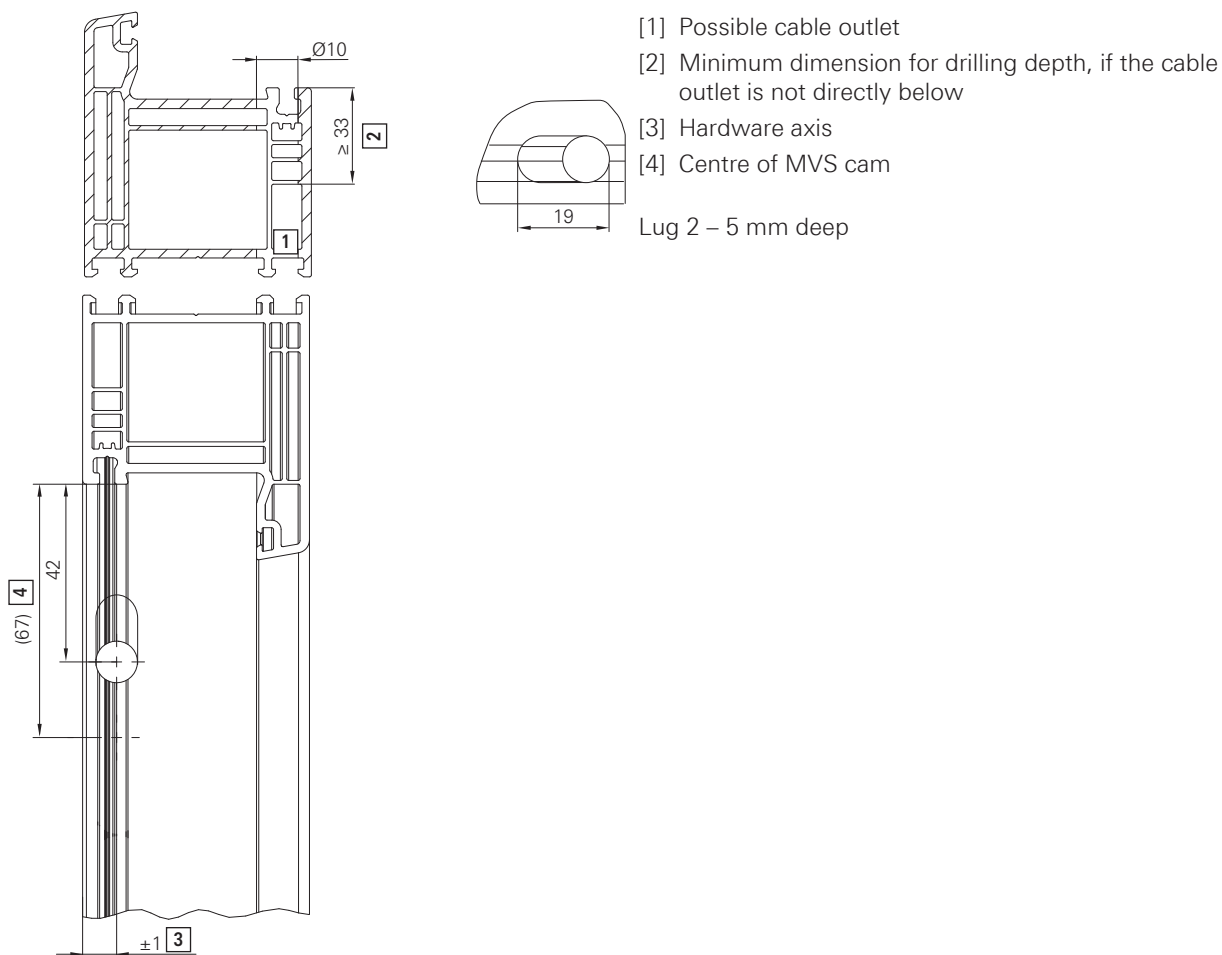


Turned, open position



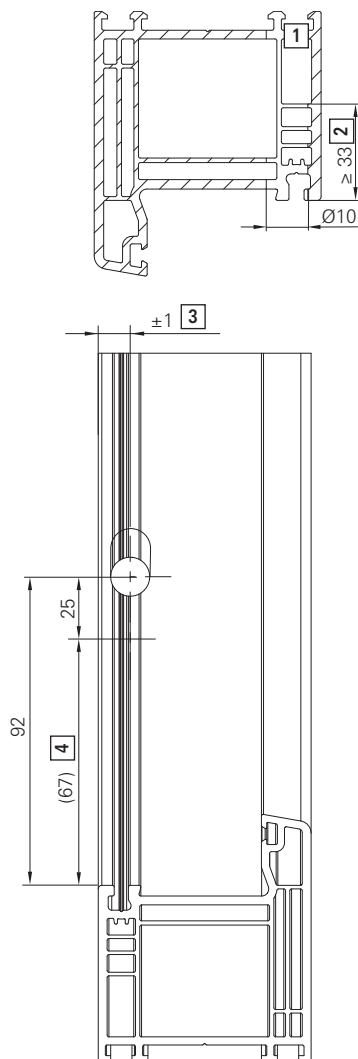
5.5.2 Drilling and routing dimensions

Lateral at the top





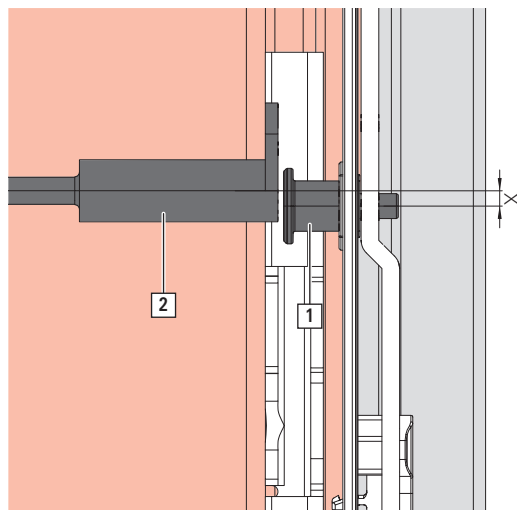
Lateral at the bottom



- [1] Possible cable outlet
 - [2] Minimum dimension for drilling depth, if the cable outlet is not directly below
 - [3] Hardware axis
 - [4] Centre of MVS cam
- Lug 2 – 5 mm deep

Different position

Install the contact element of the MVS cam with an offset in the locked position.



- [1] MVS cam in the locked position
- [2] Contact element

Routing	Offset [X]
2	7
3	6
4	5
5	4

The lug must be routed in to a depth of 2 – 5 mm.

5.5.3 Installation



INFO

- Strikers with steel bottom part must not be used.
- Strikers with a steel top part and non-ferromagnetic bottom part (e.g. zinc die-cast, PVC) are not permitted.
- Any additional ferromagnetic materials must be installed at least 20 mm away from all sides of the contact element at the same height as it or above it. If the striker is less than 20 mm away from the screws, it must be fastened with non-magnetic screws.

1. Mark the position for the contact element → *from page 55.*

2. Drill holes: 1x Ø 10 mm



INFO

Position the drill holes precisely.

3. Pull the contact element [1] into the frame [2] by hand up to its edge until it is flush.



ATTENTION

Improper installation may cause property damage.

Tools can damage the glass body of the reed switch.

- Do not use tools. Push the contact element in by hand.

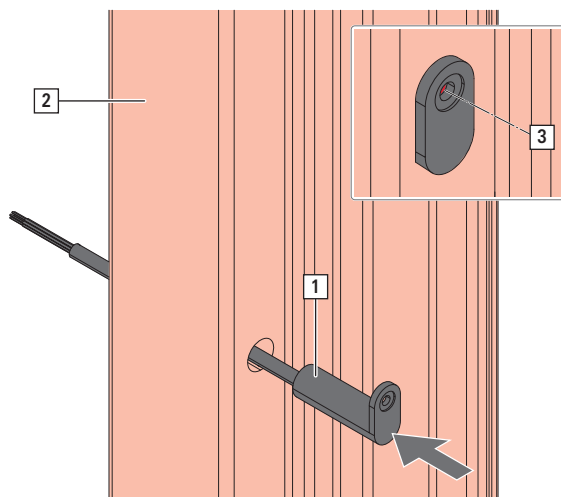
Ensure that it is straight.



INFO

The contact element lug must always be installed in the opposite direction to the MVS cam.

Make sure that the lug is not at an angle or twisted when installing it.



4. Fasten with one screw [3].

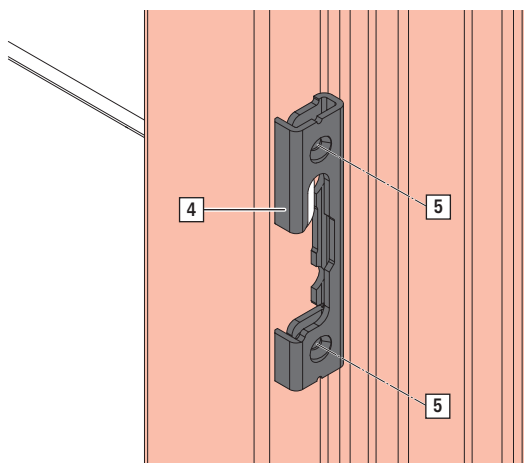
5. Lay the cable, ensuring that a sufficient length of cable is left over. Lay the cable loop.

Ensure that the cable is not pinched or damaged during frame installation.



Seal the drill hole or screw fixing in the water-conducting plane.

6. Install the striker [4] → *from page 55*.



7. Fasten with two screws [5].
8. Carry out a performance test → *from page 59*.

5.6 Performance test



INFO

The monitoring of the tilt position is not VdS-certified. From an insurance point of view and according to VdS, tilted windows are considered to be open windows. Consequently, the monitoring of the tilt position is not compliant with VdS.

1. Use the Control Unit to check whether the contact element is working properly.



INFO

The MVS cam must be inserted at least 50% into the striker or tilt striker before the detector moves to the locked position – this roughly corresponds to a handle position of 15° (from vertical).



INFO

The technical data (voltage, current, power) of the contact element must not be exceeded → *from page 62*.

Do not use a lamp test device.

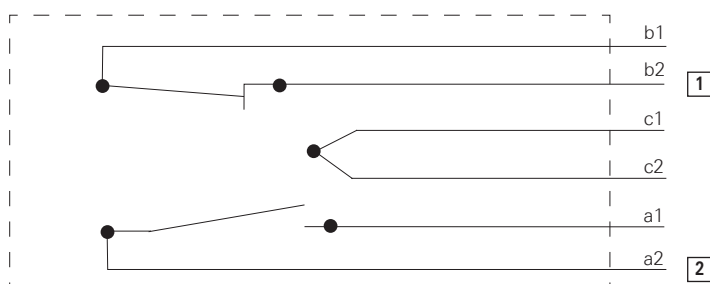
2. Connect all six conductors of the contact element to the Control Unit in any configuration.
3. Open the window.
4. Start the Control Unit.
5. After two beeps, place an uninstalled magnet directly on the contact element. This triggers the external field. The status of the contact element is determined.
6. After three beeps, the Control Unit signifies for five seconds that the conductor assignment of the connected contact element has been determined

LEDs light up: 2x red, 2x orange, 2x green ●●●●●●

7. Remove the uninstalled magnet.
8. Check that the contact element is working properly and is installed correctly by locking and opening the window.
 Window open: 2x orange and 2x green LEDs light up ○○●●●●
 Window closed: 2x red, 2x orange and 2x green LEDs light up ●●●●●●

5.7 Connection

Wiring diagram



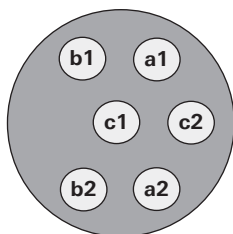
- | | |
|----------------------------|---------------------------|
| [1] External field contact | b1 External field contact |
| [2] Line contact | b2 External field contact |
| a1 Line contact | c1 Sabotage cable |
| a2 Line contact | c2 Sabotage cable |



INFO

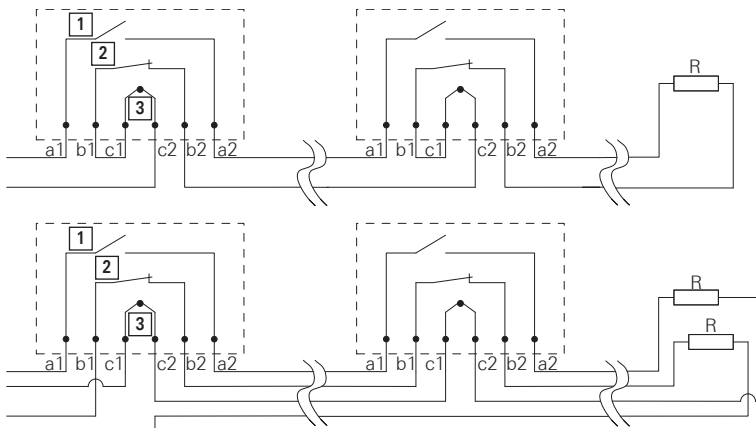
Do not switch any inductive or capacitive loads.

Connection cable





Wiring



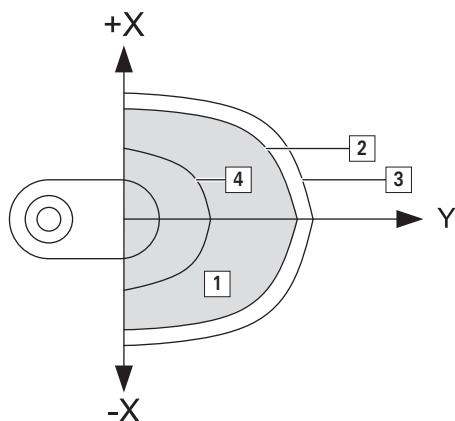
- | | |
|----------------------------|---------------------------|
| [1] Line contact | b1 External field contact |
| [2] External field contact | b2 External field contact |
| [3] Sabotage cable | c1 Sabotage cable |
| a1 Line contact | c2 Sabotage cable |
| a2 Line contact | |

Determining the conductors of the connection cable without Control Unit

The six connecting conductors, which are the same colour, are determined as follows:

1. Determine the top-level connection by testing.
2. Magnetic actuation:
 - Connection is maintained: top-level connection reached
 - Connection is interrupted: external field monitoring contact reached, top-level connection still has to be determined.
3. The remaining conductors are the connections for the normal line monitoring contact.

Distance diagram



- | |
|---|
| [1] Idle area |
| [2] Approach and switch-on distance |
| [3] Diverging and switch-off distance |
| [4] Prohibited range and sabotage range |

MVS cam		
	Switching distance ^[1]	Tolerance ^[2]
[2]	12	± 2.0
[3]	13	± 2.0
[4]	2	± 2.0

^[1] Switching distance based on a rebate dimension of 12.0 mm ± 2.0 mm.

^[2] Tolerance in X ± 3.0 mm.

5.8 Technical data VdS – class C

Technical data	
Contact type	Reed contact, N/O contact, potential-free
External field contact	N/C contact
Voltage	U _{max} = 30 V DC / AC
Switching current	I _{max} = 200 mA
Switching capacity	P _{max} = 6 W (= U x I)
Temperature range	-40 °C to +70 °C with fixed cabling
IP rating	IP67
Environmental class	III in accordance with VdS 2110
Housing colour	RAL 9003 (Signal white)
Cable	LIYY 6 x 0.14 mm ² , white

Certificates

Certification		
VdS	117017	VdS class C
		



INFO

The certificates only apply when Roto hardware components with magnets are used.



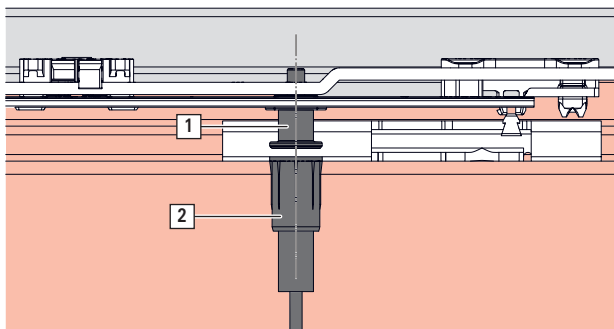
6 MTS

6.1 General hardware characteristics

- Monitoring
 - Can be used for combined opening and locking monitoring in conjunction with ventilation and temperature control systems.
- Automated predrilling of hardware and accessory positions is possible.
- Saves on installation space, no additional room required.

6.2 Rebate clearance and tolerance ranges

	Rebate clearance		Lateral offset relative to the hardware axis
	Striker without steel	Striker with steel top part	
MTS	12 ± 2 mm	12 ± 1 mm	± 2 mm



- [1] MVS cam in the locked position
[2] Contact element

6.3 Processing instructions

Cable and wire

- To enable precision adjustment and replacement of defective contact elements, lay the contact element cables so that the contact element can be removed later.
Provide a wire loop.
- Lay the wire so that it is concealed in accordance with VdS 2311.
Laying the cable in empty conduits up to the next accessible distribution socket is also recommended.

Magnet and tolerance range

- The response values of magnets worsen if they are exposed to strong vibration or extreme heat or if they are used near ferromagnetic materials (e.g. steel or other magnets).
For this reason, ensure that no other ferromagnetic materials are installed, except for the Roto components intended for this purpose.
- The response sensitivity of the magnet and contact elements is based on the installation dimensions described in these installation instructions. Deviations may cause these components to stop working properly.
- There must be no mechanical loading of the contact element or magnet. This can lead to poorer response values or even cause the contact element or magnet to stop working properly.

Installation area

- On balcony doors, install contact elements outside the threshold area.
- Opening detectors must be installed on the elements so that every stipulated opening type results in a message being issued.
- Never use cordless screwdrivers or pneumatic screwdrivers to install the contact element. Do not use these in the immediate vicinity of the contact element either (strong vibration).

- Seal the drill hole or screw fixing in the water-conducting plane.



6.4 Roto NX

6.4.1 Positioning

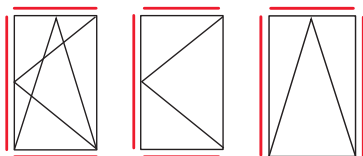
Opening detectors must be installed on windows so that every stipulated opening type results in a message being issued. Opening detectors should be installed in the centre at the top. They must be spaced no more than 60 cm away from the locking side.

Requirement

- Drive-in sleeve
 - PVC: mandatory
 - Timber: recommended
- MVS cam or MVS ring magnet

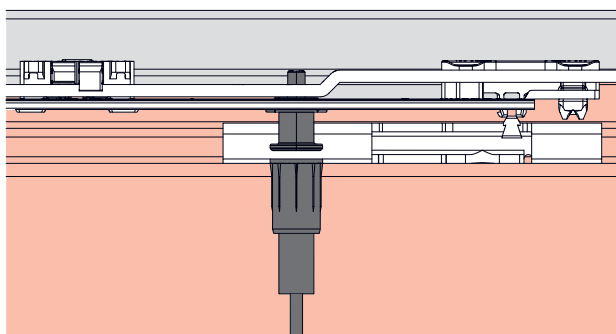
Positioning

- Combined locking and opening monitoring: anywhere except on the hinge side
- Locking monitoring: anywhere except on the hinge side
- Opening monitoring: max. 60 cm away from the locking side
- Lever-operated espagnolette: always at the top or bottom
- Anywhere on an MVS cam or ring magnet

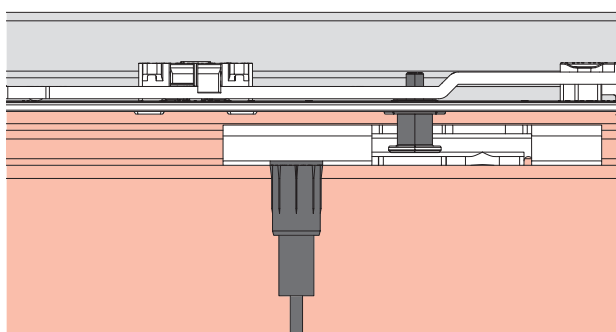


Example of MTS and position of MVS cam

Locked position

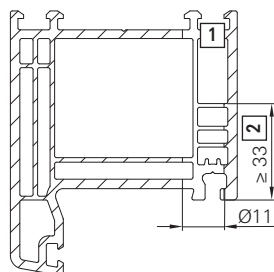


Turned, open position

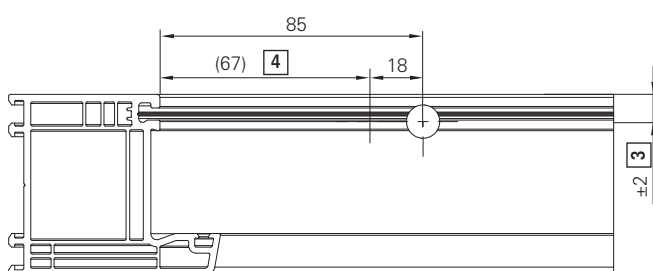


6.4.2 Drilling and routing dimensions

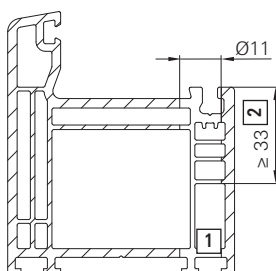
Integrated in the striker at the top



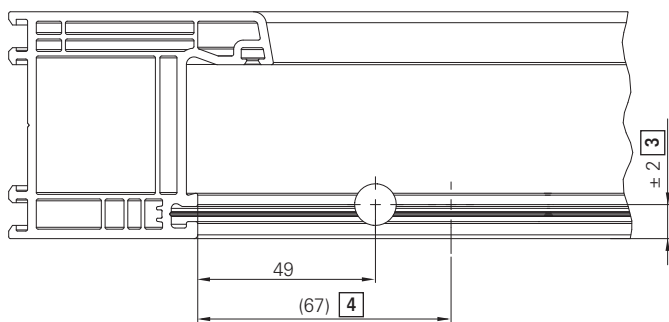
- [1] Possible cable outlet
- [2] Minimum dimension for drilling depth, if the cable outlet is not directly below
- [3] Hardware axis
- [4] Centre of MVS cam



Integrated in the tilt striker at the bottom

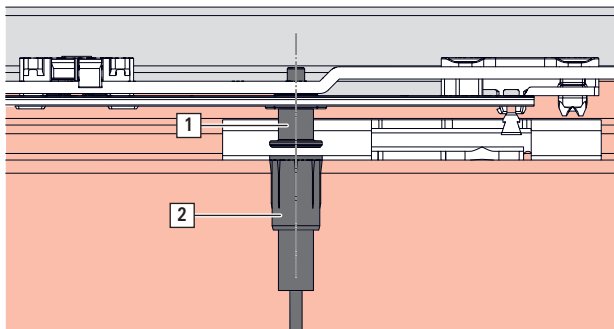


- [1] Possible cable outlet
- [2] Minimum dimension for drilling depth, if the cable outlet is not directly below
- [3] Hardware axis
- [4] Centre of MVS cam



Different position

The contact element and MVS cam or MVS ring magnet must be directly above one other.



- [1] MVS cam in the locked position
[2] Contact element

6.4.3 Installation



INFO

- Strikers with steel bottom part must not be used.
- Strikers with a steel top part and non-ferromagnetic bottom part (e.g. zinc die-cast, PVC) are permitted with limited tolerances.
- Any additional ferromagnetic materials must be installed at least 20 mm away from all sides of the contact element at the same height as it or above it. If the striker is less than 20 mm away from the screws, it must be fastened with non-magnetic screws.

1. Mark the position for the contact element → *from page 65.*

2. PVC

Use a drive-in sleeve.

Drill holes: 1x Ø 11 mm

Timber

Drive-in sleeve not mandatory.

Drill holes:

With drive-in sleeve: 1x Ø 11 mm

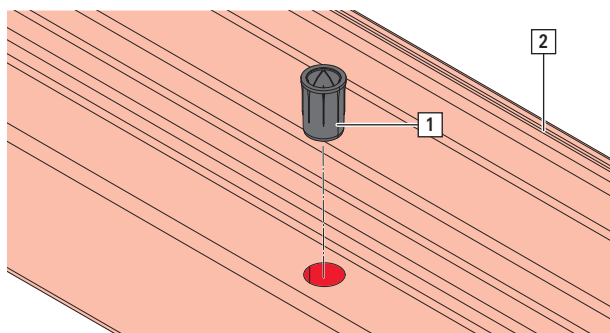
Without drive-in sleeve: 1x Ø 8 mm



INFO

Position the drill holes precisely.

3. Insert the drive-in sleeve [1] into the frame [2] up to the edge of the sleeve.
Ensure that it is straight. The edge of the sleeve must be flush with the base of the striker.
For PVC profiles, the frame component may need to be machined so that the sleeve is flush with the base of the striker.





INFO

The drive-in sleeve must not deform as this would mean that the contact element cannot be inserted.

- Secure the contact element with adhesive if a drive-in sleeve is not being used.

Pull the contact element [3] in and push it as far as it will go into the drive-in sleeve until it is flush.

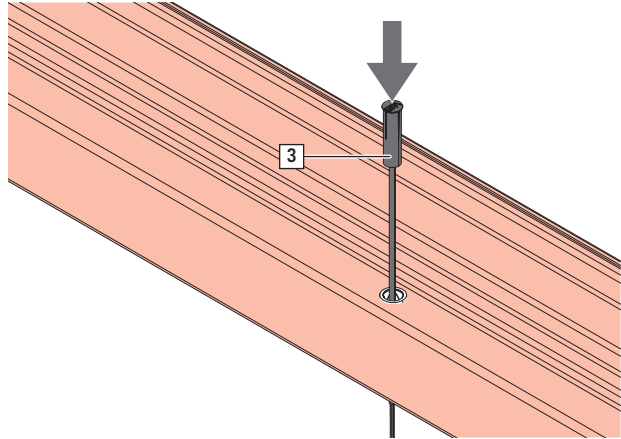


ATTENTION

Improper installation may cause property damage.

Tools can damage the glass body of the reed switch.

- Do not use tools. Push the contact element in by hand.

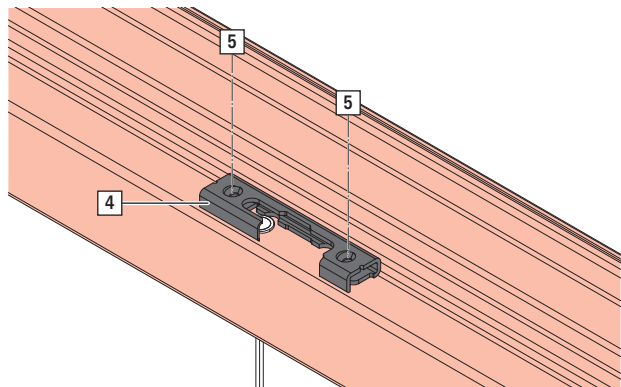


- Ensure a sufficient length of cable is left over. Lay the cable loop.

Ensure that the cable is not pinched or damaged during frame installation.

Seal the drill hole or screw fixing in the water-conducting plane.

- Install the tilt striker or striker [4]; for positioning see → *from page 66*.



- Fasten with two screws [5].

- Carry out a performance test → *from page 73*.

6.5 Roto Patio Alversa

6.5.1 Positioning

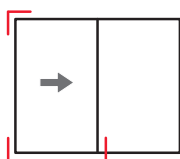
Requirement

- Drive-in sleeve
PVC: mandatory
Timber: recommended
- MVS corner drive



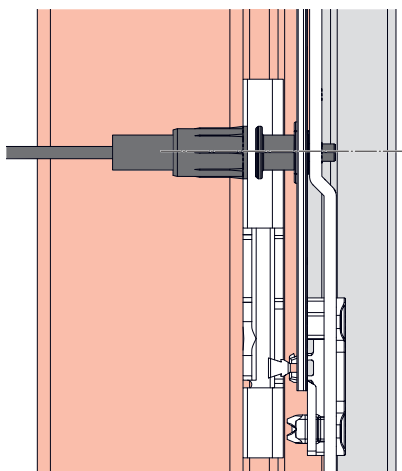
Positioning

- Anywhere on an MVS cam

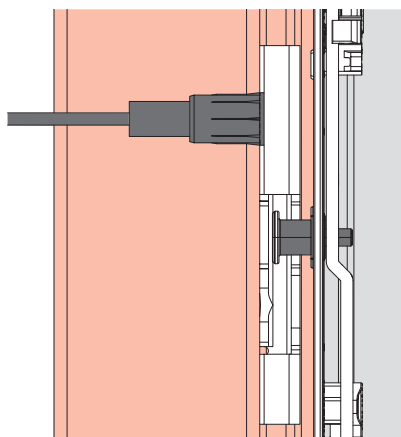


Example of MTS and position of MVS cam

Locked position

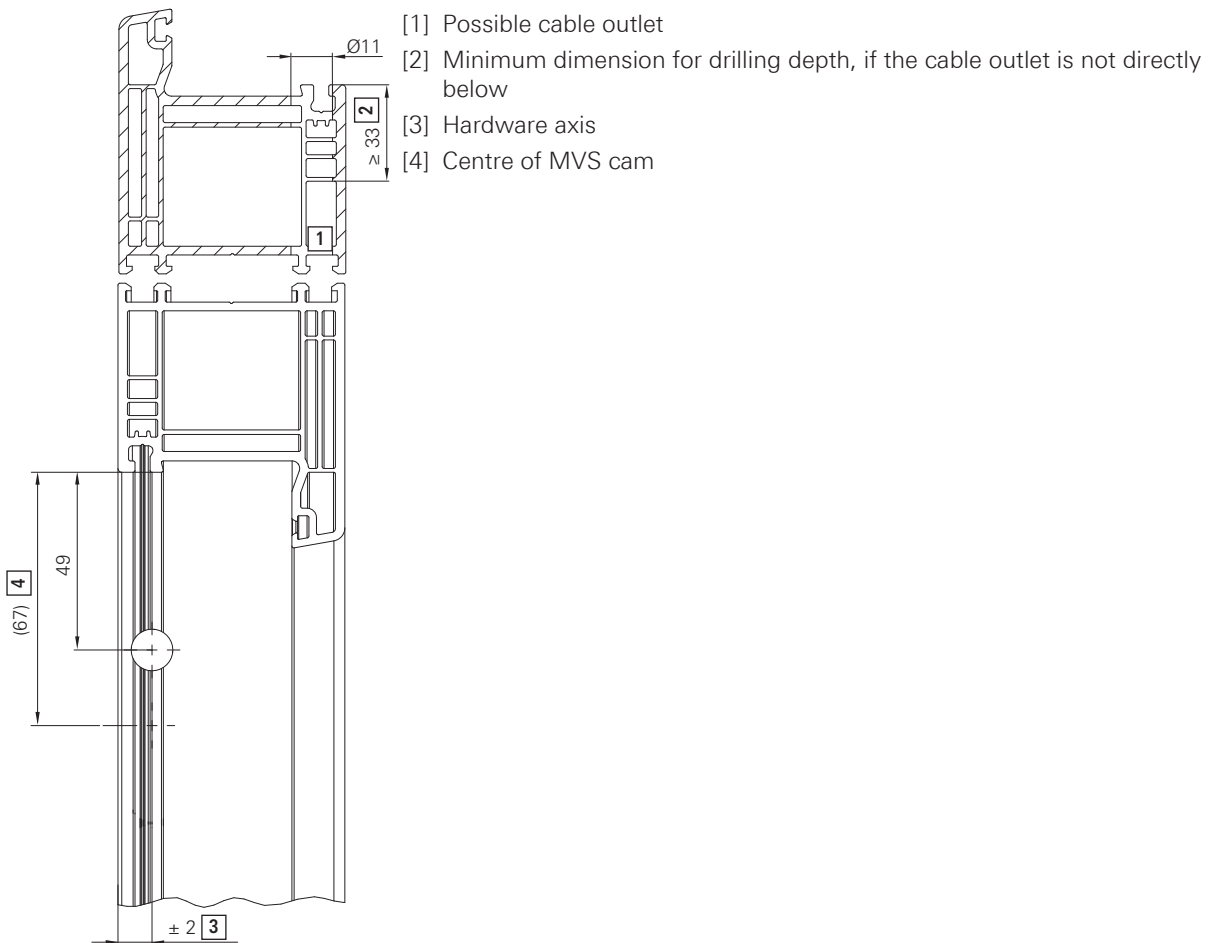


Turned, open position



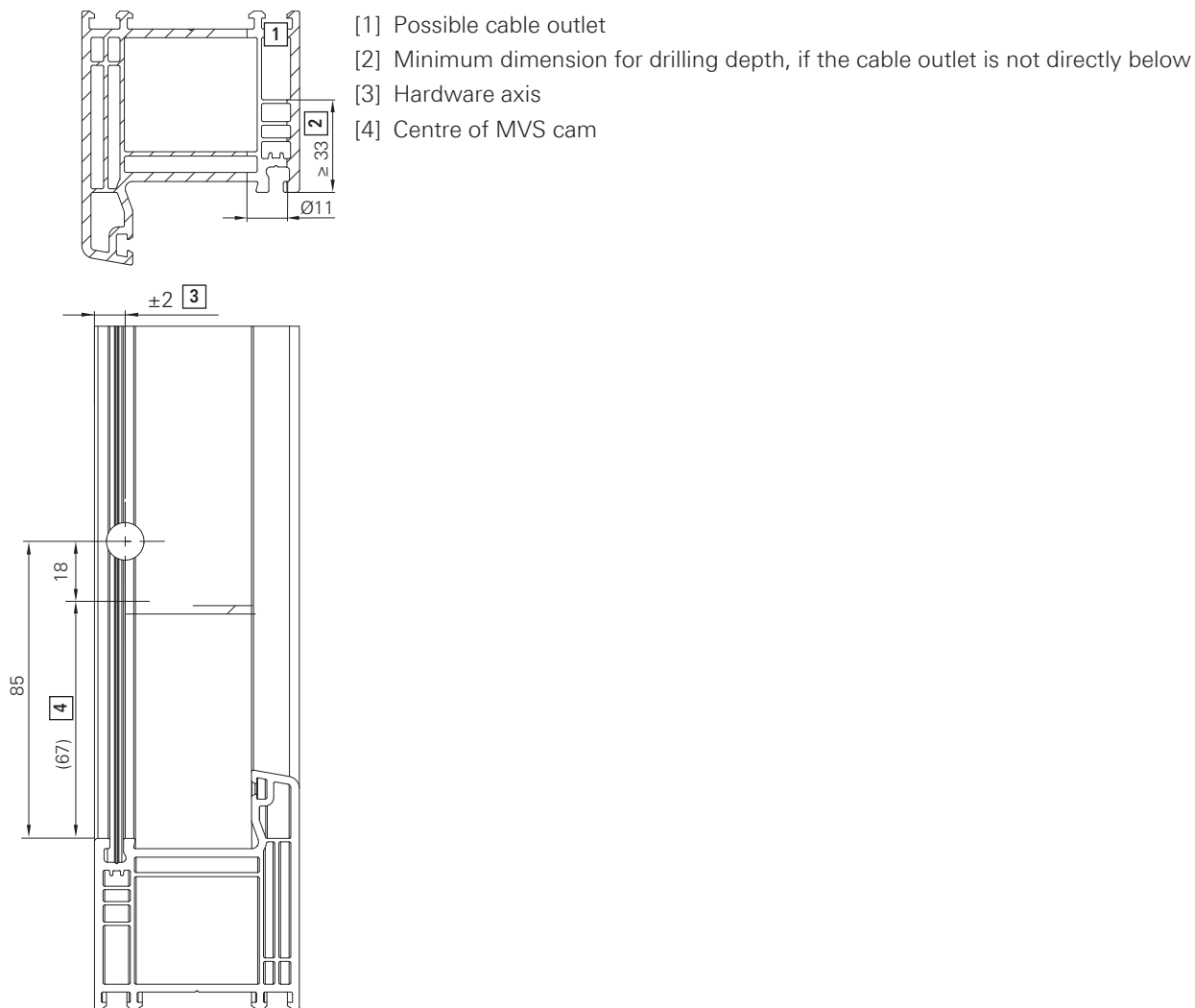
6.5.2 Drilling and routing dimensions

Lateral at the top





Lateral at the bottom



Different position

The contact element and MVS cam must be directly above one other.



6.5.3 Installation



INFO

- Strikers with steel bottom part must not be used.
- Strikers with a steel top part and non-ferromagnetic bottom part (e.g. zinc die-cast, PVC) are permitted with limited tolerances.
- Any additional ferromagnetic materials must be installed at least 20 mm away from all sides of the contact element at the same height as it or above it. If the striker is less than 20 mm away from the screws, it must be fastened with non-magnetic screws.

1. Mark the position for the contact element → *from page 68*.

2. PVC

Use a drive-in sleeve.

Drill holes: 1x Ø 11 mm

Timber

Drive-in sleeve not mandatory.

Drill holes:

With drive-in sleeve: 1x Ø 11 mm

Without drive-in sleeve: 1x Ø 8 mm



INFO

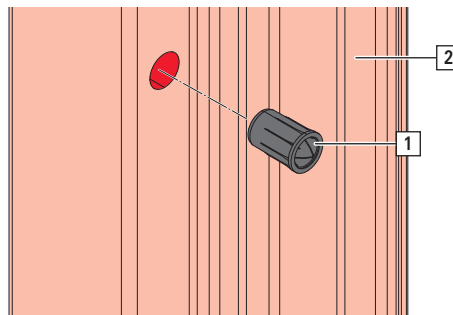
Position the drill holes precisely.

3. Insert the drive-in sleeve [1] into the frame [2] up to the edge of the sleeve.
- Ensure that it is straight. The edge of the sleeve must be flush with the base of the striker.
- For PVC profiles, the frame component may need to be machined so that the sleeve is flush with the base of the striker.



INFO

The drive-in sleeve must not deform as this would mean that the contact element cannot be inserted.



4. Secure the contact element with adhesive if a drive-in sleeve is not being used.
- Pull the contact element [3] in and push it as far as it will go into the drive-in sleeve until it is flush.

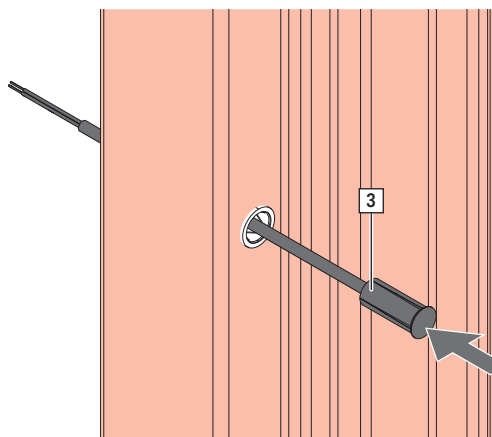


ATTENTION

Improper installation may cause property damage.

Tools can damage the glass body of the reed switch.

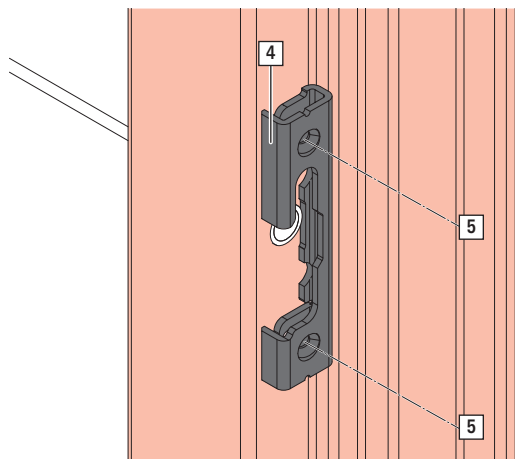
- Do not use tools. Push the contact element in by hand.





5. Ensure a sufficient length of cable is left over. Lay the cable loop.
Ensure that the cable is not pinched or damaged during frame installation.
Seal the drill hole or screw fixing in the water-conducting plane.

6. Install the striker [4]; for positioning see → *from page 68*.



7. Fasten with two screws [5].
8. Carry out a performance test → *from page 73*.

6.6 Performance test

1. Use the Control Unit to check whether the contact element is working properly.



INFO

The MVS cam must be inserted at least 50% into the striker or tilt striker before the detector moves to the locked position – this roughly corresponds to a handle position of 15° (from vertical).



INFO

The technical data (voltage, current, power) of the contact element must not be exceeded → *from page 74*.

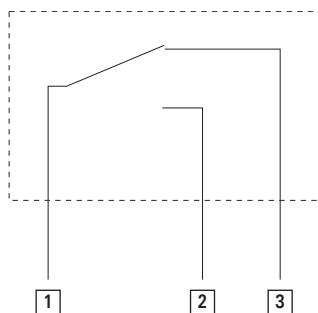
Do not use a lamp test device.

2. Connect all four conductors of the contact element to the Control Unit in any configuration.
3. Open the window.
4. Start the Control Unit.
5. After two beeps, close and lock the window.
The status of the contact element is determined.
6. After three beeps, the Control Unit signifies for five seconds that the conductor assignment of the connected contact element has been determined
LEDs light up: 1x red, 1x orange, 1x green ● ○ ● ○ ● ○ .

7. Check that the contact element is working properly and is installed correctly by locking and opening the window.
Window open: 1x orange and 1x green LED light up ○○●○○○.
Window closed: 1x red and 1x orange LED light up ●○○○○○.

6.7 Connection

Wiring diagram



- [1] White
[2] Brown
[3] Green



INFO

Do not switch any inductive or capacitive loads.

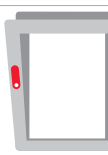
6.8 Technical data

Technical data	
Contact type	Reed contact, changeover contact, potential-free
Voltage	$U_{\max} = 30 \text{ V DC} / 30 \text{ V AC}$
Switching current	$I_{\max} = 200 \text{ mA}$
Switching capacity	$P_{\max} = 3 \text{ W} (= U \times I)$
Temperature range	-25 °C to +70 °C, with fixed cabling
IP rating	IP67
Environmental class	III in accordance with VdS 2110
Housing colour	RAL 9003 (Signal white)
Cable	LIYY 3 x 0.14 mm ² , white



7 Operation

7.1 Handle position

Handle position	Sash position	Meaning
		Sash in closed position.
		Contact closure for the closed position of the sash.
		Sash in turned, open position.
		Sash in tilted, open position.

7.2 Fault assistance

Fault	Cause	Corrective action	To be carried out by
False alarm.	Lateral, longitudinal or height offset between magnet and contact element. Below coverage range or borderline.	Check the installation dimensions and adapt them if necessary.	■
False alarm, despite correct lateral and/or longitudinal offset.	Magnet and contact element spaced too far apart. Below coverage range or borderline.	Check the rebate clearance and adjust it if necessary. Check the handle position.	■
Contact element fails to switch although the magnet is installed correctly.	Cable / connection elements damaged.	Check all electrical connections (e.g. distributor, connecting terminal on the burglar alarm system, etc.). Retighten the terminals. Mechanical loading of the cable (pinching). Replace the cable. Damage to the cable (e.g. due to screws, etc.). Replace the cable.	■
Contact element fails to switch although the magnet is installed correctly and the cable is intact.	Reed switch is faulty.	Replace the contact element. Ensure that there are no inductive or capacitive loads, no vibration and no mechanical loading due to screw connections. Also make sure that the switching capacity is not exceeded.	■
Contact element fails to switch although the magnet is installed correctly and the cable and reed switch are intact.	Magnet is faulty.	Replace the magnet. Ensure that there is no vibration and no mechanical loading due to screw connections.	■

□ = May be carried out by a specialist company or the end user

■ = **Must** be carried out by a specialist company

8 Maintenance



CAUTION

Performing maintenance work incorrectly can lead to injuries.

Performing maintenance incorrectly can lead to injuries.

- ▶ Ensure that there is sufficient space for installation before starting work.
 - ▶ Ensure that the installation site is clean and tidy.
 - ▶ Always have hardware adjustment and replacement work performed by a specialist company.
 - ▶ Secure the sash against unintentionally opening or closing.
 - ▶ Do not unhinge the sash for maintenance.
-



INFO

Have adjustment work on the contact elements performed by a specialist company.



INFO

Have a specialist company check the distance between the magnet and contact element on a regular basis (at least annually). The position may need to be corrected to prevent malfunctions



9 Dismantling

9.1 Contact elements

**INFO**

Unless otherwise stated, dismantling is performed in reverse order to installation.

10 Transport

10.1 Transporting contact elements

The contact element is a delicate electromechanical component.

Do not expose the contact element to mechanical loading, impact, collisions, extreme heat or electric overload during transport, storage and operation.

This also applies to the installed state in the frame, when the window is subsequently transported.

10.2 Transporting elements and hardware



DANGER

Improper transport poses a risk of death!

Improper procedures for transporting, loading or unloading elements may cause serious injuries and glass breakage as a result of the elements swinging open, falling or becoming overloaded.

- ▶ Note the applicable accident prevention regulations.
- ▶ Note force application points and reaction forces.
- ▶ Prevent the sash from opening uncontrollably.
- ▶ Avoid jerky movements.
- ▶ Use suitable transportation means and protective devices.
- ▶ Watch out for protruding components.
- ▶ Transport heavy loads with two people and use suitable transportation means (such as an industrial truck).



CAUTION

Trapped limbs may result in injuries.

The transported goods can skid, open, close or fall during transportation tasks. This can result in limbs being trapped and seriously injured.

- ▶ Never reach near the scissor stays.
- ▶ Close the sash after installation and secure it in place for transport.
- ▶ Wear safety gloves and protective footwear.



CAUTION

Physical strain may cause injury and damage to health.

Carrying and lifting heavy loads for extended periods leads to physical injury in the long term.

- ▶ When carrying or lifting loads, maintain an ergonomically correct posture. The maximum permissible load is 25 kg for men and 10 kg for women.

Hardware is supplied to the specialist company as complete sets. The components are packaged accordingly for each scope of delivery. The instructions for safely transporting the hardware are described below.

Observe the following basic instructions when transporting hardware:

- ▶ Transport larger scopes of delivery using appropriate transportation means (such as industrial trucks).
- ▶ Note the transport weight in order to select appropriate transportation means.
- ▶ Ensure that the transport process is careful and appropriate for the material and that components are protected against dirt during transport.



- Immediately check the delivery for completeness and transport damage on receipt.



INFO

Submit a complaint about any defects as soon as they are identified. Claims for damages may only be made within the reclamation period.

Use the following transportation means for support when transporting, loading and unloading larger scopes of delivery:

- Industrial trucks, e.g. forklifts, telescopic handlers, pallet trucks
- Lifting equipment, e.g. transport nets, carry straps, round slings
- Protective devices, e.g. edge protection, spacer blocks



INFO

Industrial trucks and lifting devices may only be operated by qualified persons.



INFO

Lifting equipment and protective devices may only be used if they are in full working order.

10.3 Storing the hardware

Store all hardware components as follows until they are installed:

- Dry and protected
- On a level surface
- Protected against sunlight

10.4 Transport inspection

Immediately check the delivery for completeness and transport damage on receipt.



ATTENTION

Strong vibration may cause property damage.

Strong vibration can permanently damage the magnet and contact element.

- Avoid vibration during transport.

11 Disposal



ATTENTION

Incorrect disposal may pollute the environment.

Pieces of hardware are raw materials.

- ▶ Dispose of hardware for environmentally friendly material reutilisation as mixed scrap.

11.1 Disposing of packaging

The hardware is supplied as complete sets together with the packaging. Once unpacked, the installation company or builder is responsible for disposing of the packaging properly. The packaging materials are produced in accordance with current environmental protection standards. The materials can be recycled separately.

Follow the basic instructions below for the proper disposal of packaging:

- ▶ Do not dispose of packaging in household waste.
- ▶ Hand over packaging at local waste collection points or recycling centres.
- ▶ Observe the national regulations on the disposal of recyclable materials.
- ▶ Contact the local authorities if necessary.

11.2 Disposing of hardware

Once the hardware is finished with, the end user or builder is responsible for properly disposing of the windows, doors or balcony doors and the hardware, including any accessories. Hardware is produced in accordance with current environmental protection standards. The materials can be recycled separately.

Follow the basic instructions below for the proper disposal of hardware:

- ▶ Observe the information and specifications for disposal contained in the other applicable documents.
- ▶ Separate hardware components from windows, doors or balcony doors.
- ▶ Do not dispose of hardware in household waste.
- ▶ Hand over hardware at local waste collection points or recycling centres.
- ▶ Observe the national regulations on the disposal of recyclable materials.
- ▶ Contact the local authorities if necessary.

11.3 Electronic waste

Disposal of electronic waste in accordance with the legal regulations in the individual countries, e.g. in accordance with EU directives (2002/95/EC: Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment, RoHs and 2002/96/EC: Requirements for the take-back and recycling of waste electrical and electronic equipment (WEEE)).

According to the Federal Electrical and Electronic Equipment Act (ElektroG) in Germany, waste electronic equipment must not be disposed of in household waste; it must be taken to an appropriate disposal site.





12 Additional information

12.1 Declaration of Conformity



EU-Konformitätserklärung EU Declaration of Conformity

Hersteller:
manufacturer: Roto Frank Fenster- und Türtechnologie GmbH
Wilhelm-Frank-Platz 1
D-70771 Leinfelden-Echterdingen

Die alleinige Verantwortung für die Ausstellung dieser Konformitätserklärung trägt der Hersteller.
This declaration of conformity is issued under the sole responsibility of the manufacturer.

Produkt- / Typbezeichnung:
name of product / type: MVS/MTS-Kontaktelemente (siehe Anhang 1)
MVS/MTS-contact elements (see annex 1)

Seriennummer, Baujahr
serial number, year of manufacture: siehe Typenschild
according to identification plate

Die Gegenstände dieser Erklärung erfüllen die einschlägigen, nachstehend benannten Harmonisierungsrechtsvorschriften der Union.
The items addressed by this declaration satisfy the relevant harmonization legislation of the European Union.

EU-Richtlinie EU Directive	Norm Standard
2014/30/EU Elektromagnetische Verträglichkeit (EMV) Electromagnetic Compatibility (EMC)	EN 50130-4: 2015-04 EN 61000-4-2: 2009-12 EN 61000-4-3: 2011-04 EN 61000-4-4: 2013-04 EN 61000-4-5: 2015-03 EN 61000-4-6: 2014-08 EN 61000-4-11: 2016-10 EN 61000-6-3: 2011-09
2011/65/EU (RoHS) 2011/65/EU (RoHS II) 2015/863/EU (RoHS III)	EN 50581: 2013-02

Leinfelden-Echterdingen, 23.11.2020

Ort, Datum
place, date

Hartmut Schmidt
Direktor Produktinnovation
VP Product Innovation



Anhang 1
Annex 1

Artikel-Nr. <i>product-ID</i>	Artikelbezeichnung	<i>name of product</i>
292101	MVS-KONTAKTELEMENT VDS B 6M	MVS-CONTACT VDS B 6M
292114	MVS-KONTAKTELEMENT VDS C 6M	MVS-CONTACT VDS C 6M
292118	MTS-KONTAKTELEMENT 6M	MTS-CONTACT 6M
335077	MTS-KONTAKTELEMENT 10M	MTS-KONTAKTELEMENT 10M
335078	MVS-KONTAKTELEMENT VDS B 10M	MVS-CONTACT VDS B 10M
335079	MVS-KONTAKTELEMENT VDS C 10M	MVS-CONTACT VDS C 10M
336318	MVS-KONTAKTELEMENT LSN VDS B 6M	MVS-CONTACT LSN VDS B 6M
384016	MVS-KONTAKTEL.-SET o.VDS 6M SILBER	MVS-CONTACT-SET wo.VDS 6M SILVER
485530	MVS-KONTAKTEL.-SET o.VDS 4-ADR. 10M SILBER	MVS-CONTACT-SET wo.VDS 4-wire 10M silver
635289	MVS-KONTAKTELEMENT VDS B RUND 6M	MVS-CONTACT VDS B ROUND 6M
737983	MVS-KONTAKTELEMENT VDS B RUND 10M	MVS-CONTACT VDS B ROUND 10M
791950	MVS-KONTAKTELEMENT VDS C RUND 6M	MVS-CONTACT VDS C ROUND 6M
791951	MTS-KONTAKTELEMENT RUND 6M	MTS-CONTACT ROUND 6M
794823	MVS-KONTAKTELEMENT-SET RUND 3M SCHRAUBB	MVS-CONTACT-SET ROUND 3M
814899	MVS-KONTAKTELEMENT VDS B 20M	MVS-CONTACT VDS B 20M
858477	MVS-KONTAKTELEMENT VDS B RUND 6M	MVS-CONTACT VDS B 6M
858478	MVS-KONTAKTELEMENT VDS B RUND 10M	MVS-CONTACT VDS B ROUND 10M
891372	CONTROL-UNIT KONTAKTELEMENTE	CONTROL-UNIT CONTACT-ELEMENTS
891373	KABEL 6POL F CONTROL-UNIT PG MK 6	CABLE 6PIN CONTROL-UNIT PG MK 6
896748	MVS-KONTAKTELEMENT VDS B RUND 20M	MVS-CONTACT VDS B ROUND 20M
899191	MVS-KONTAKTELEMENT VDS C RUND 10M	MVS-CONTACT VDS C ROUND 10M
2024961	MVS-KONTAKTELEMENT Vds C RUND 20M	MVS-CONTACT VDS C ROUND 20M



Roto Frank
Fenster- und Türtechnologie GmbH

Wilhelm-Frank-Platz 1
70771 Leinfelden-Echterdingen
Germany

Phone +49 (0) 711 7598 0
Fax +49 (0) 711 7598 253
info@roto-frank.com

www.roto-frank.com

From a single source: Optimum hardware systems to meet all challenges

Roto Window	Hardware systems for windows and balcony doors
Roto Sliding	Hardware systems for large sliding windows and doors
Roto Door	Matching hardware technology everything about doors
Roto Equipment	Additional technology for windows and doors