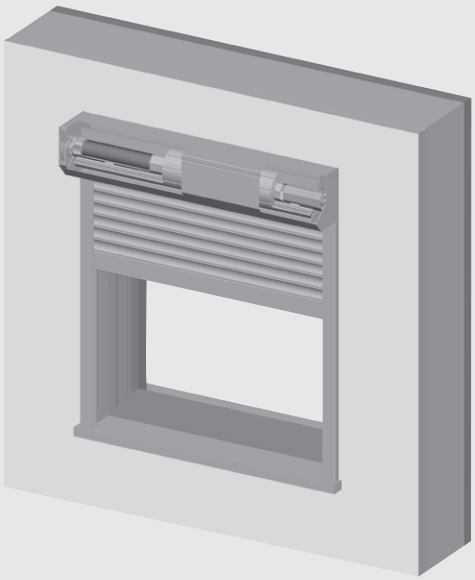


Installation and operating manual

External Box
Types: R, RS, RUKA, VA, PTR, PTS

LAKAL®

01 - Explanation of symbols

Warning symbol for potential danger
Failure to follow these instructions may result in danger of death or injury;
the user may suffer damage to health and potentially fatal injuries.

Work on non-live parts
All power supplies must be cut off before any work marked with this symbol is started.
Failure to follow these instructions may result in death or damage to health

Important instruction
This symbol indicates an important instruction for installing and handling the product correctly.
These important instructions must be obeyed at all times since otherwise the product may suffer adverse effects or malfunctions.

Tips and information
Next to this symbol, you will find tips for use and useful information and instructions to make the installation and operation easier. They will help you to use all the functions of the equipment to the full.

Exclusion of liability
This exclusion of liability symbol points out situations in which the manufacturer will not accept liability, particularly if the situation is caused by errors or omissions on the part of the operator/user.

02 - Important instructions

General
The manufacturer cannot accept any liability for any damage or malfunctions resulting from a failure to follow the operating manual.

The manufacturer cannot accept any liability for printing errors in this operating manual.
We reserve the right to make technical modifications in relation to the images and texts in this operating manual.

Installation, operation and maintenance
No design modifications may be made to the product. Furthermore, after the handover and commissioning procedures, the casing box may only be removed for maintenance and repair purposes.

Use in generally wet or damp environments in which there is a risk of the ingress of water or moisture or in an environment in which there is a risk of the ingress of gas or damage by gas (for example, in sewage farms) is prohibited.

Components which are protected from splash water must not be stored or installed outdoors since this type of protection does not provide adequate protection from moisture.

In addition, the manufacturer cannot accept any liability if the product is installed, commissioned, used or serviced incorrectly (see instructions for operation and care).
Furthermore, no liability can be accepted if the product is not used for its intended purpose, in cases of disaster caused by external influences and if the product is damaged due to incorrect transport by the purchaser.

If the external box is forwarded to the place of use, ensure that all the components on the loading space are secured to prevent them rolling and cannot be damaged.

Installation, electrical connection, commissioning, modification and dismantling work may only be carried out by qualified persons. Above all, the mains plug must be pulled before working on the drive unit and for installation and maintenance work.

Qualified persons are those who have appropriate technical training and skills in the field of windows, doors and gates.
This also includes knowledge of the state safety regulations and current directives and rules of engineering (for example, regulations and DIN sheets). Qualified persons must be able to assess the safe condition of a system objectively. The electrical installation work may only be completed by an electrician with the appropriate technical training and qualifications.

The trained personnel responsible for the installation work must have the installation instructions available. In addition, the accidental activation of the control elements must be prevented.
The purchaser of the product must notify the operator of all safety aspects.

The system may only be operated without load and in a perfectly safe condition in accordance with the instructions in the operating manual. The consistent completion of maintenance work and regular monitoring and regular replacement of wearing parts are prerequisites for maintaining this condition.

In addition, compliance with the current accident prevention regulations at the place of use is mandatory.

Do not reach into the moving roller shutter or moving parts and there must also be no persons or objects in the movement area during operation. People should keep an appropriate safe distance away.

If there is no other access point, a manual control must be provided.

Product damage caused by power failure
A motorised roller shutter cannot be raised without power.

In windy areas which suffer from frequent power failures, consideration should be given to providing a manual emergency control or back-up power supply.

Disposal
End-of-life devices must be recycled correctly after being dismantled into different materials. Please refer to the appropriate waste disposal regulations for further details.

The removal itself is carried out using the same procedure as that described in the section entitled “Installation”, but in reverse order.
The adjustment work for the motor is not required.

Directives and standards - 03

The following directives, standards and draft standards and all standards to which reference is made were used as a basis during the design and production of the external box and the production of the operating manual.
The appropriate manufacturer’s declaration is available from the manufacturer.

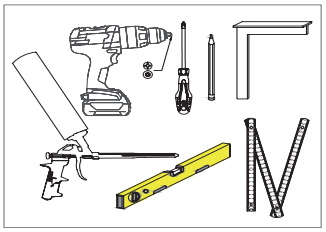
EN 13659	Shutters - Performance requirements including safety
EN 60335-1	Household and similar electrical appliances - Safety - General requirements
EN 60335-2-95	Household and similar electrical appliances - Safety - Particular requirements

04 - **Preparations for installation**

Before installation, check whether the dimensions of your installation situation are identical to the dimensions on the carton sticker.

Cordon off the installation site over a large area. The installation work must be carried out by at least two people.

Tools required:
- Spirit level
- Hammer drill
- Drill bit
- Screwdriver



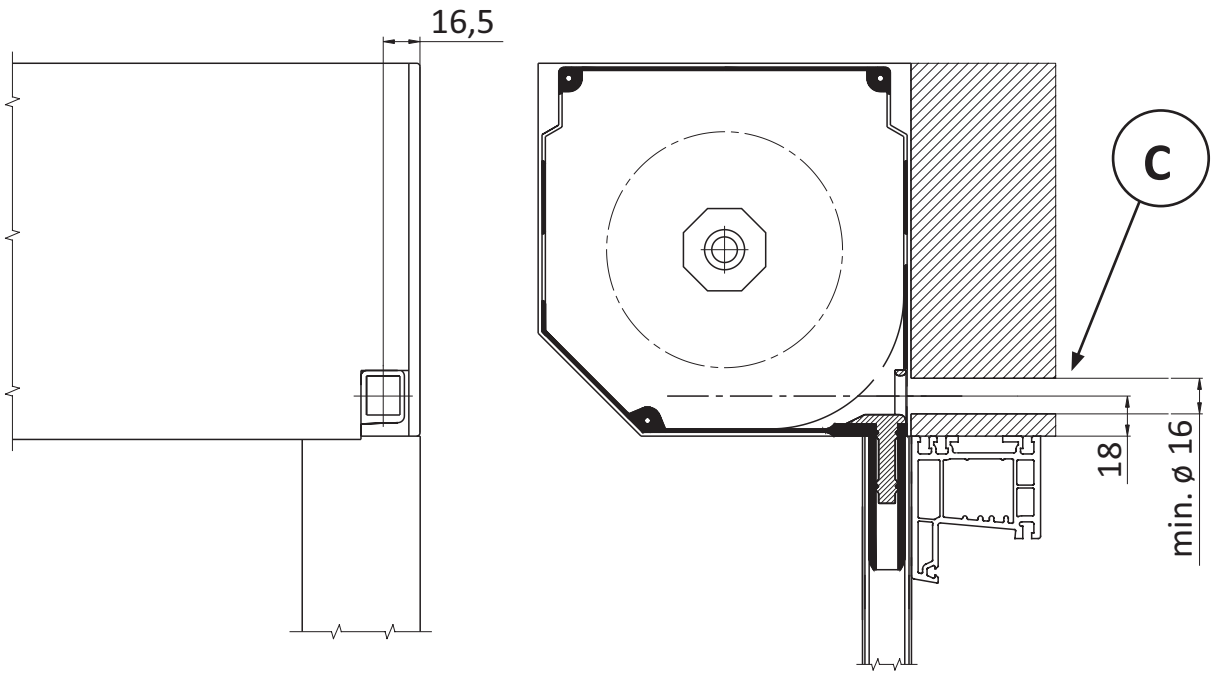
Other items required:
- Suitable rawl plugs
- Suitable screws

The elements must be secured using a suitable method for the installation surface.

Further information about using rawl plugs is available from your dealer or the appropriate rawl plug manufacturer.

05 - **Standard belt feed-through**

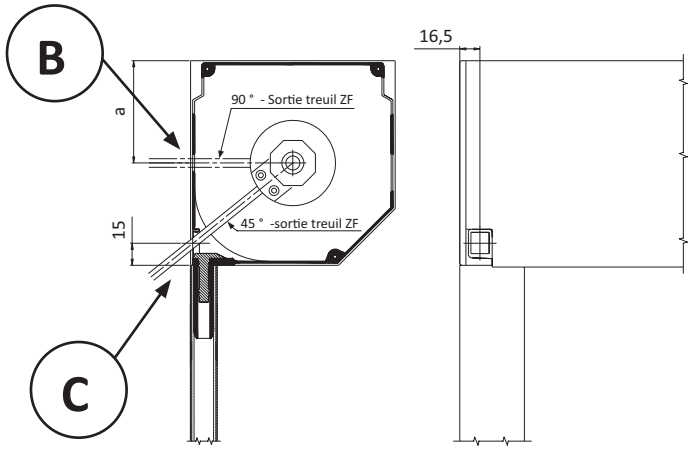
The standard belt feed-through -C- is identical for R, RS, RUKA, VA, PTR and PTS boxes.



For non-standard belt feed-throughs, mark the dimensions of the external box on the window or masonry.

Standard gearbox feed-through - 06

The gearbox feed-through -C- is identical for R, RS, RUKA, VA, PTR and PTS boxes.
See table for the gearbox feed-through (with Geiger gearbox) -B-.

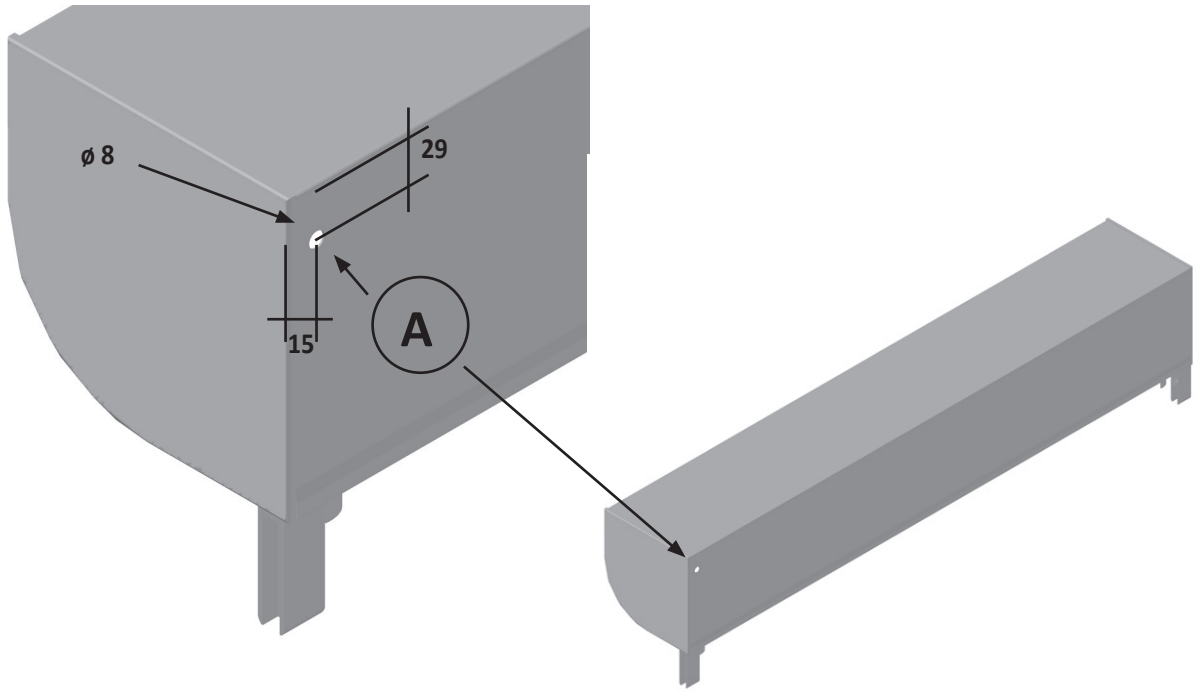


Box size	Dimension A
125	36 mm
130	37 mm
138	41 mm
150	48 mm
165	56 mm
180	62 mm
205	205 mm

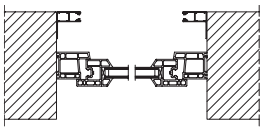
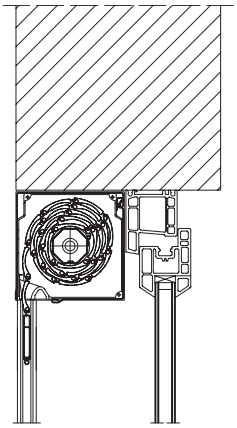
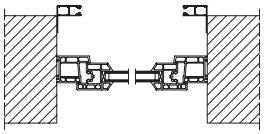
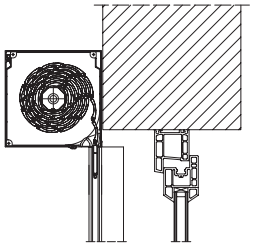
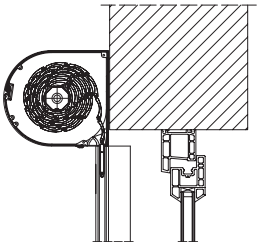
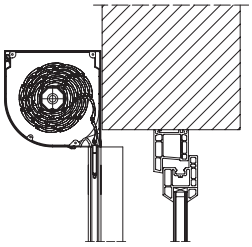
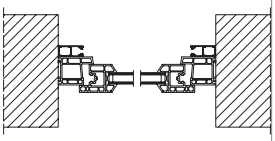
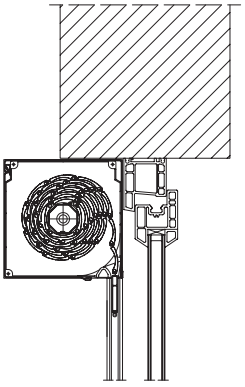
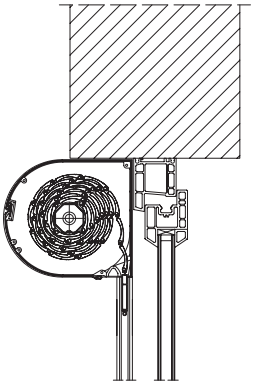
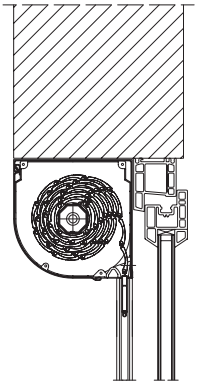
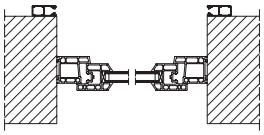
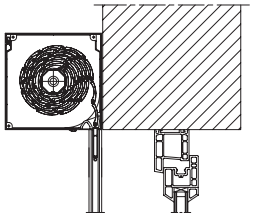
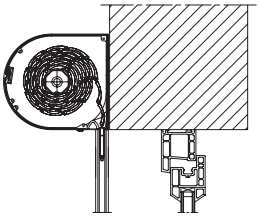
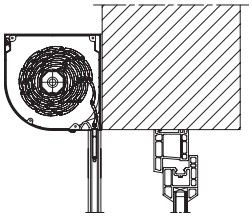
For non-standard gearbox feed-throughs and those fitted with the 5:25 ZF gearbox, mark the dimensions of the external box on the window or masonry.

Standard cable feed-through - 07

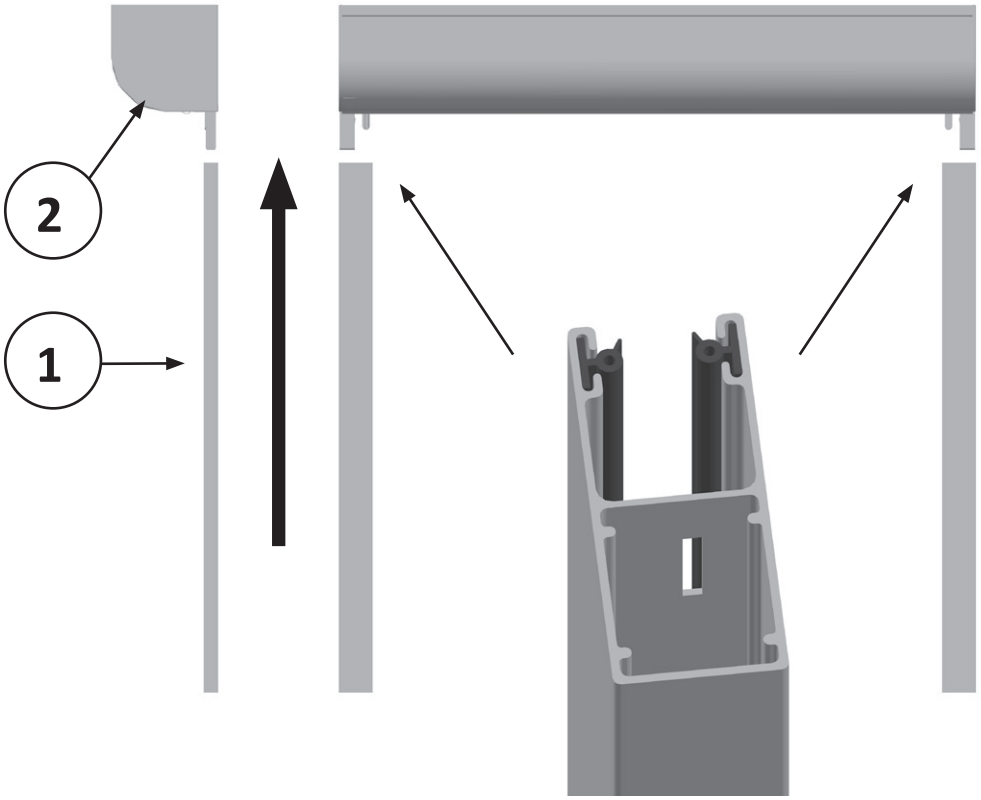
The standard cable feed-through with strain relief -A- is identical for R, RS, RUKA, VA, PTR and PTS boxes.



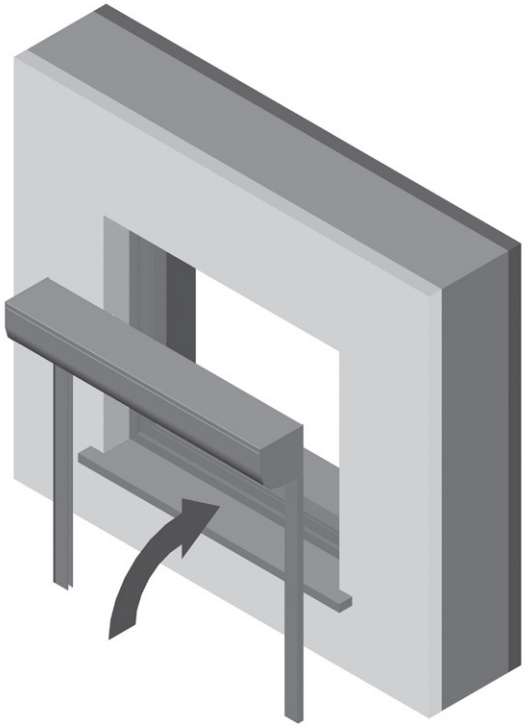
For non-standard motor feed-throughs, mark the dimensions of the external box on the window or masonry.
Please refer to the connection guidelines in the attached original manual from the motor manufacturer.

Type of installation	R/RS	RUKA	VA	
1. Right roller 				Installation of the guide rails with rib. Element box in the form of a right roller in the reveal.
2. Left roller 				Installation of the guide rails with rib in the reveal, but further to the front, and element box in the form of a left roller mounted above the clear window opening.
3. Left roller 				Installation of the guide rails without rib in the reveal on the existing window frame (mounted from the front) and element box in the form of a left roller mounted in the partial reveal.
4. Left roller 				Installation of the guide rails without rib on the masonry (mounted from the front) and element box in the form of a left roller mounted above the clear window opening.

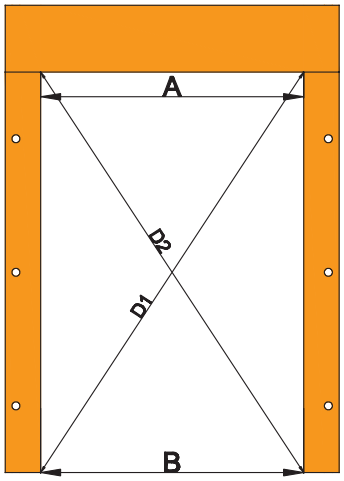
01 Fit rails

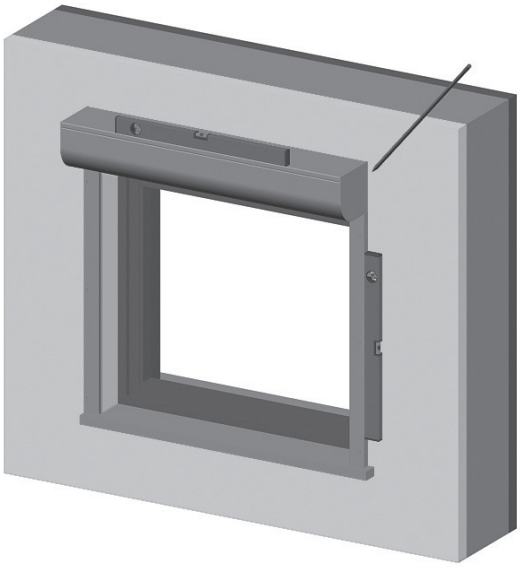


02 Install external box



03 Align external box and mark outline of box





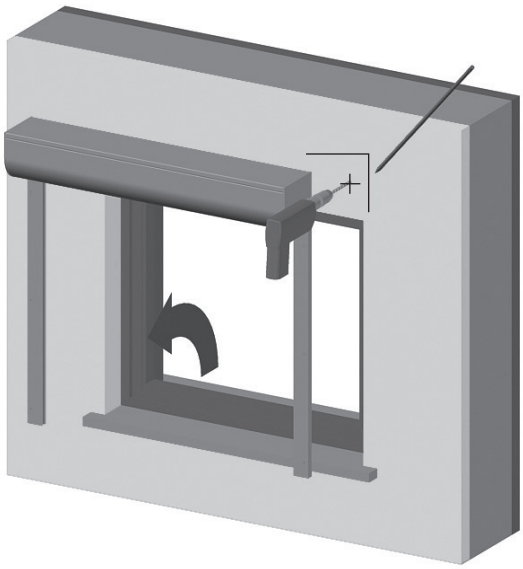
Note

Distance A = B +/- 1 mm

Diagonal D1 = D2 +/- 1 mm

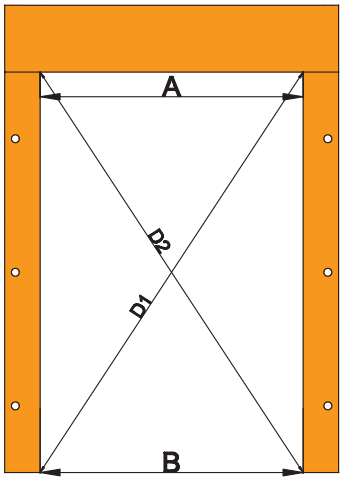
Mark outline of the box

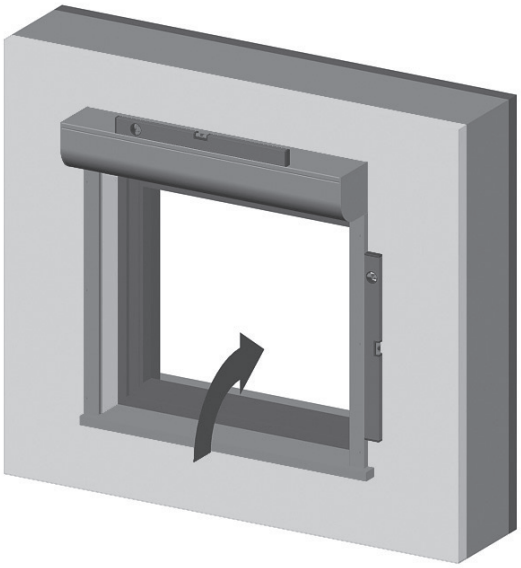
04 Drill belt/cable/gearbox feed-through



See section 5 or 6 for drilling dimensions for belt, gearbox or motor feed-through

05 Align external box

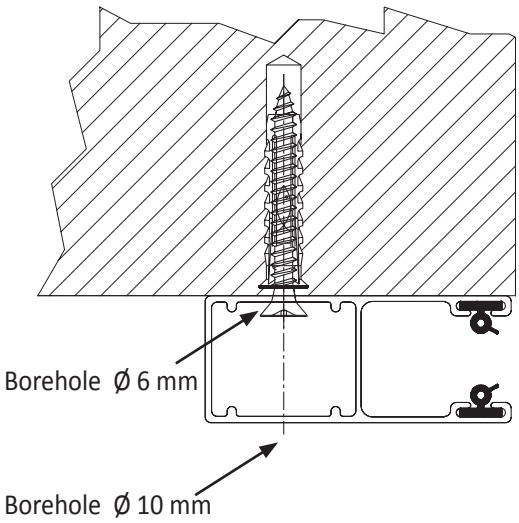


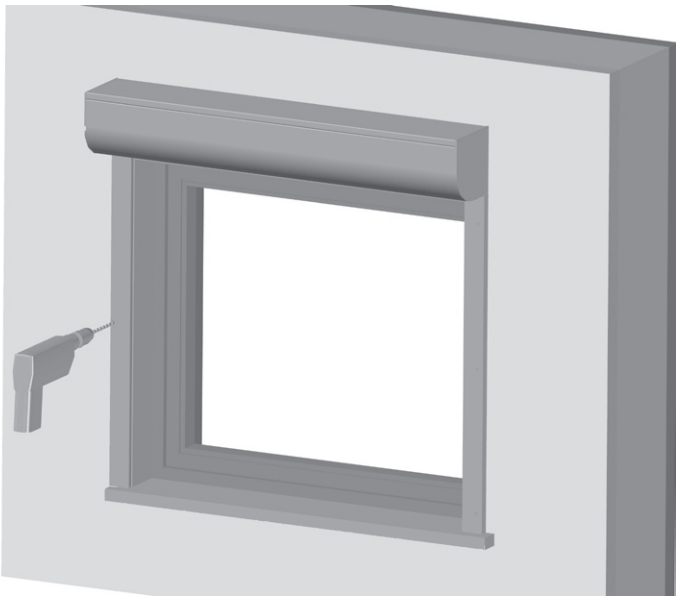


Note

Distance	A = B +/- 1 mm
Diagonal	D1 = D2 +/- 1 mm

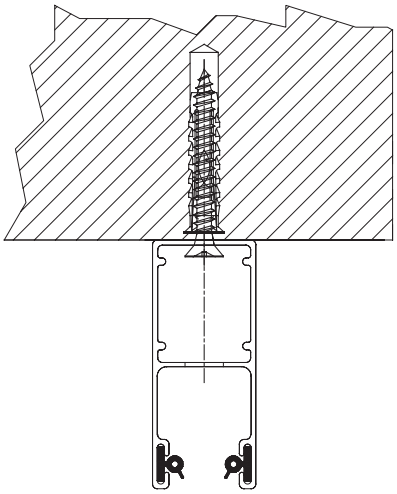
06 Drill - guide rail drilled from the front

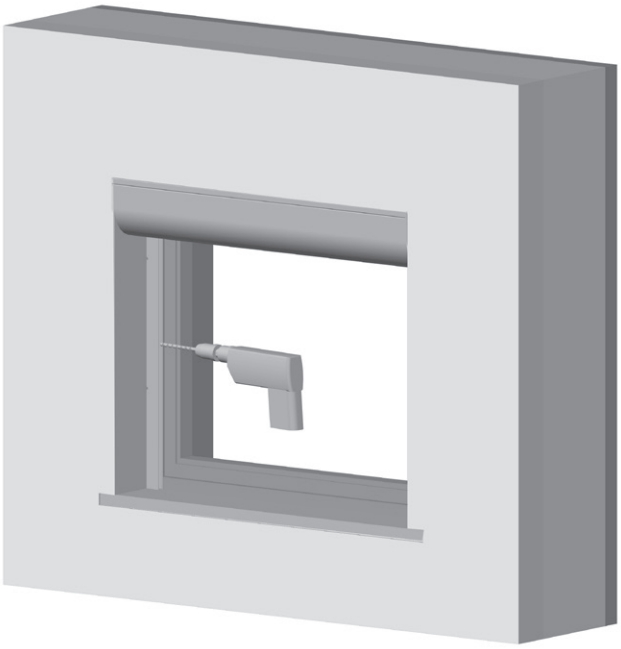




From a size > 4 m², the box must also be secured on the installation surface using either conventional brackets, flat bars or through the rear wall of the box.

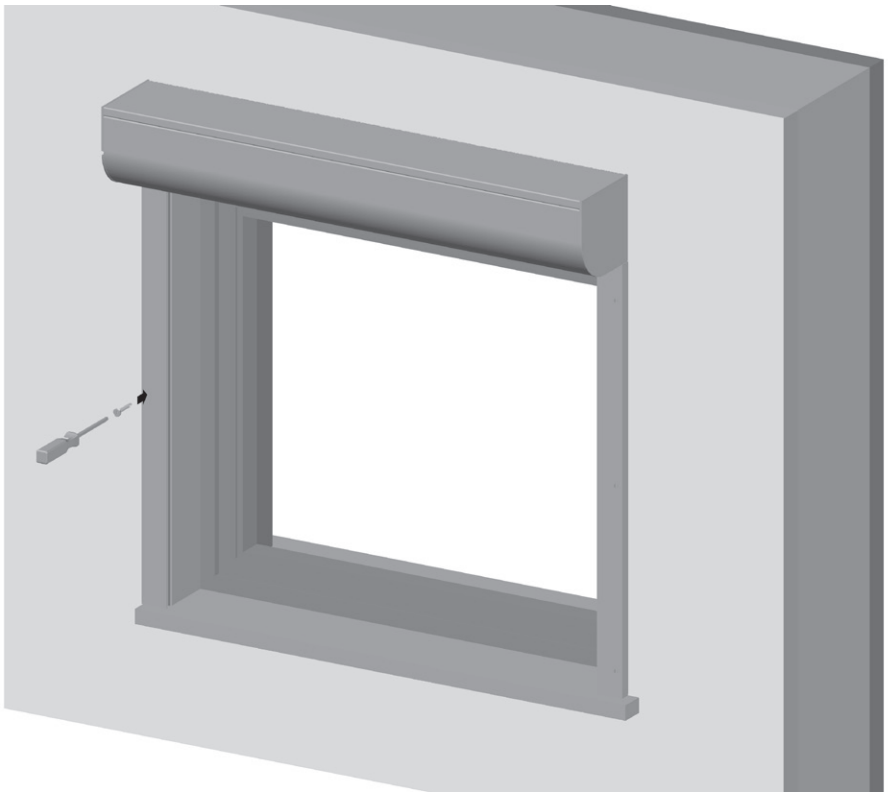
07 Drill-guide rail drilled through the rear



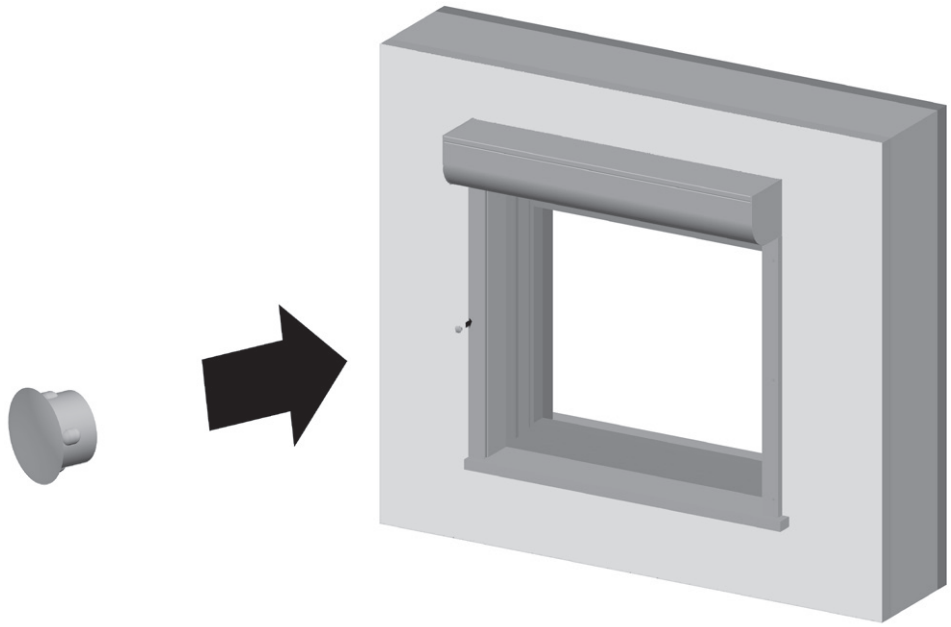


From a size > 4 m², the box must also be secured on the installation surface using either conventional brackets, flat bars or through the rear wall of the box.

08 Secure the external box with screws



09 Seal boreholes with borehole caps included in the delivery



Remove the protective foil after installation.
Conduct a function test (lower and raise the roller shutter several times).
Give the instructions for operation and care to the user.

DECLARATION OF CONFORMITY

The Products: Vorbau- Rollladen R, RS, VA, Ruka, PTR und PTS, Lakal Swing
Aufbauelement LAKAL CLASSIC und LAKAL DESIGN
Montage Tradi, Lakal Rapid, Tradifast, Coffre Tunnel, Demi Linteau,
IsoProtect³, Aufbauelemente Isotop RI, RE, SUN und WDVS-Elemente.

Intended purpose: Sun-shading system

meet in case of motor drives the provisions of the Machinery Directive 2006/42/EC.

In particular, the following standards have been applied:

EN 13659 Shutters - Performance requirements including safety

EN 60335-2-97 Household and similar electrical appliances - Safety –
Part 2-97: Particular requirements for drives for rolling shutters, awnings, blinds and similar equipment

The safety objectives of the Low Voltage Directive 2014/35/EU were guaranteed according to Appendix 1 Nr.1.5.1 of Directive 2006/42/EC.

Person in charge of the compilation of the technical documents:

Pierre Huwer, Head of Research and Development, for address, see manufacturer.

Manufacturer: LAKAL GmbH
Am Pitzberg 2
D-66740 Saarlouis-Lisdorf

LAKAL GmbH

Alfons Ney
Managing Director

Saarlouis, March 2017

General technical data - 11

Curtain Material	Double-walled, foamed, specially coated aluminium laths (single-walled aluminium section on A9) or double-walled PVC laths
Connection	Locking clips on both sides, PVC version secured by nails on one side
Hangers	Linked or spring strip hangers ZF roll-up security devices
Rails	Extruded aluminium guide rails
Box	Bent aluminium
Shaft	Octagonal steel shaft Ø 40 mm x 0.6 or 0.8 (with shaft ring in the case of aluminium laths) Ø 60 mm x 0.6 or 0.9 (with shaft ring in the case of aluminium laths)
Cover caps	Aluminium cover caps
Drive unit	Designed for 10,000 cycles See original manual from the motor manufacturer for technical data

Maintenance instructions - 12

Curtain and mechanical components

Maintenance instructions can be found in the separate instructions for operation and care
Please read these instructions carefully before the initial operation and pay particular attention to the safety information.

Troubleshooting - 13

Problems may only be rectified by authorised trained personnel or the maintenance contractor.

Power failure

In the event of a power failure, the external box can be operated manually as long as an emergency control is available.

Fuse tripped

Switch the fuse on again and check the circuit.

Fuse trips again

Have the circuit checked by an electrician.

Declaration of performance

The product: LAKAL shutters

Type:
External box R
External box RS
External box VA
External box RUKA
External box PTR
External box PTS

Purpose: external sun protection

Manufacturer:
LAKAL GmbH
Am Pitzberg 2
66740 Saarlouis, Germany
www.lakal.de
info@lakal.de

Certification pursuant to assessment system 4 of the Construction Products Regulation 305/2011/EC by the manufacturer.

If used as intended, the product complies with the main properties set out in the following standards.

Declared performance:

Main features/performance	Standard	
Wind resistance class (0-6)	EN 13659:2009-01	The table in section 1 clearly **defines the wind class.**

Authorised person for the compilation of the technical documents:

Huwer Pierre, Systems Engineering Director, see manufacturer's details for address

LAKAL GmbH

Alfons Ney
Managing director

Saarlouis, March 2017

Installation dimension	22mm (e.g. HK 53 M)						32 mm (e.g. HK 66)		52 mm (e.g. HK 95)	
Section	**A 9**	**AHS 37**	**AHS 40**	**DUR 40**	**AHS 46**	**Z38**	**Z52**	**Z56**	**AHS 55**	**DUR 55**
Class 1	180	310	370	390	315	180	250	390	430	430
Class 2	160	285	330	355	290	160	235	390	420	420
Class 3	140	255	285	305	250	140	200	360	400	400
Class 4	115	215	240	260	215	115	160	315	360	370
Class 5	100	170	205	225	180	-	-	275	330	340
Class 6	80	45	180	195	150	-	-	240	-	310

LAKAL GmbH
Am Pitzberg 2
66740 SAARLOUIS - Germany

www.lakal.de

synchro | www.studio-synchro.fr | 2017

03.2017