



























TECHNOLOGY IN MOTION



**MACO**  
**RUSTICO**  
SHUTTER HARDWARE



Catalogue 2015

	Part number		Packer thickness
	Packing unit		Total length of fixing bolts
	Reveal depth	<b>W</b>	Overall component width
	Discharge	<b>L</b>	Overall component length
	Hinge crank		Shutter distance through lock routing plate
	Long sash-hinge total length		Shutter thickness
	Pin distance (see Section 1.2!)		Crank opener overall length
	Minimum pin depth (see Section 1.2!)		Length of crank arm
	Pin length		Offset
	Shutter pin holder height		Distance between the shutters
	Shutter pin holder width		Frame clearance
	Rawlplug total length		Number of slat supports
	Shutter pin socket diameter		Distance
	Locking hook height		Hinge size
	Distance to wall		Rebate size
	Screw distance		Lining thickness
	Screw distance to middle hinge Prima		Insulation thickness
	Screw distance to middle hinge Prima		

**BLR** = Hardware range for frame installation

**MMV** = Hardware range in steel for wall/wall cladding

**MV** = Hardware program in Zamak for wall cladding installation

**PAD** = "Padovana" hardware range

**Pcs.** = Quantity

**var.** = variable


**Note:** If not otherwise specified, all dimensions are stated in millimetres and packing units in items per box.



**Confirmation for manufacturers:**

Dear Sirs and Madams,

This MACO catalogue has been prepared to provide you with a comprehensive overview of our product range. For legal reasons we must inform you that Mayer & Co is responsible only for the functionality and safety of our hardware products.

 The **responsibility for correct installation** of hardware elements to the frame material (sashes and frames) and compliance with assembly instructions in this catalogue lies with the **window and casement door manufacturer**.

Assembly instructions are available for download at the MACO Extranet ([extranet.maco.eu](http://extranet.maco.eu)) and at [www.maco.at](http://www.maco.at). Instructions included on our package leaflets must be followed.

MACO provides operating and maintenance instructions to pass on to the home owner for download at [www.maco.at](http://www.maco.at).

It is important to check the content of this document regularly as we amend and improve it frequently. Failure to comply with instructions may adversely affect the safe operation of windows and casement doors and may result in personal injury or property damage.

We trust that we have provided you with a valuable document that will prove helpful in your daily work!

*Please fill in completely!*

**We confirm receipt and approvingly acknowledge its contents.**

Stamp:

\_\_\_\_\_

*Please print your name in capital letters*

Date: \_\_\_\_\_ Signature: \_\_\_\_\_

MACO sales manager: \_\_\_\_\_



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**Instruction for retailers:**

MACO provides a sufficient number of package leaflets. The retailer must ensure that a sufficient number of package leaflets shall be included with the product. The retailer must also ensure that the customer is informed about the relevant legally binding instructions and legal aspects of this document.

It is important to check the content of this document regularly as we amend and improve it frequently. Failure to comply with instructions may adversely affect the safe operation of windows and casement doors and may result in personal injury or property damage.

We trust that we have provided you with a valuable document that will prove helpful in your daily work!




*Please fill in completely!*

<b>We confirm receipt and approvingly acknowledge its contents.</b>	
<div style="border: 1px solid black; height: 100px; width: 100%; margin-bottom: 5px;"></div> <p><i>Stamp:</i></p>	<hr style="border: 0; border-top: 1px solid black; margin-bottom: 5px;"/> <p style="text-align: center;"><i>Please print your name in capital letters</i></p>
Date: _____	Signature: _____

MACO sales manager: \_\_\_\_\_





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MACO  
RUSTICO





## 1 Technical and General Information

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## 1 Technical and General Information

### 1.1 Guidelines for safe use

#### 1.1.1 Shutter hardware for window and balcony door shutters

To comply with the manufacturer liability defined in the 'product liability law' (§ 1), the following information must be observed for shutter hardware for window and balcony door shutters. Non-compliance shall release the manufacturer from this liability.

#### 1.1.2 Product information and proper use

"Shutter hardware" is deemed to be hardware for windows and balcony door shutters (hereinafter referred to as "shutters") in building construction.

Shutter hardware are used on vertically installed shutters made of timber, PVC or aluminium and their corresponding material combinations, whereby the professional installation of the shutters can be carried out directly on the frame, directly on the wall or on an assembly frame.

Shutter hardware as a whole can be divided into three main groups and their function considered independently:

Shutter pins, shutter hinges, shutter pin holders: These are used to close and open the shutter.

Shutter locks: These are used to hold the shutter in a closed position.

Shutter catches: These are used to hold the shutter in an open position.

Differing applications do not correspond to their proper use. Shutters that are used in an environment with aggressive and corrosive air content require special hardware. In the case of wind and draught, they must be able to hold the shutters both in the closed and in the open positions. This is achieved by using the appropriate hardware components (locking mechanisms, shutter catches etc.).

#### 1.1.3 Misuse of shutters

The manufacturer of the window shutters must satisfy his obligation to provide the user with information about the shutters produced. This information must also include appropriate advice on operation and maintenance of the shutter hardware, as well as details of how to use them properly.

Particularly damage that can result from insufficient maintenance or misuse must be pointed out. Damage to the shutter hardware and to the shutters can cause shutter components or the entire shutters to drop. This can produce the risk of severe personal injury and considerable damage to property.

The following cases, in particular, shall be deemed misuse of the shutter hardware- i.e. utilization for purposes other than their specified proper use:

if obstacles are inserted in the opening area, thereby preventing proper use of the product.

if shutters are pressed against the wall or windows and doors improperly or in an uncontrolled manner (by wind, for example) causing them to become damaged or destroyed.

if additional loads, (e.g.: dead weight of people and items ) act upon shutters, for example: attaching clothes lines, etc.

if while closing or opening the shutters, someone reaches between the respective installation points; frame and shutter edge, for example (RISK OF INJURY!)

The window shutters must be closed at wind speeds over 60 km/h! Deformities and consequential damages can otherwise occur.

#### 1.1.4 Information and instruction duties

To satisfy the requirements for information and instruction and maintenance duties in accordance with the "product liability law", the documentation listed under product information is made available to specifiers, specialised dealers, fabricators, builders and users.

In order to ensure the proper functioning of shutter hardware,

designers must request the current product information from the manufacturer and observe the details provided (refer to product information);

Specialised dealers are obliged to comply with the product information (refer to product information) and, in particular, request installation instructions, operating, maintenance and care instructions from the manufacturer and hand these over to the fabricators and/or users.

Fabricators are obliged to comply with the product information (refer to product information) and, in particular, request operating, maintenance and care instructions from the manufacturer and hand these over to the building owners and/or users.

#### 1.1.5 Product information

The following documents contain mandatory regulations for the use of shutter hardware:

- Catalogue (part no. 49445)
- e-catalogue (part no. 49636) as CD-ROM
- Installation information - frame installation (part no. 49103)
- Installation information - masonry installation (part no. 49490)



- Installation information - Padovana and Vicentina shutter hardware (part no. 756583)
- Installation information corner & centre console for frame installation (part no. 756836)
- Operation and maintenance instructions (part no. 49489)

The current versions of the above-mentioned documents are available either as printed copies or CDs (refer to the part number stated above) or can be downloaded at [www.maco.at](http://www.maco.at).

### 1.1.6 Shutter hardware product performance

The fundamental principle for the suitability of use of shutters equipped with MACO shutter components is compliance with all guidelines supplied to the user by Maco. Failure to adhere to these guidelines can result in the damage listed under "Misuse of shutters", including the risk of serious injury to persons and considerable damage to property.

If such guidelines are missing for a specific requested application, the user shall be obliged to test the suitability of the parts used for this type of application, or arrange to have them tested.

### 1.1.7 Maximum sash weights and sash sizes

The shutter weights and maximum shutter sizes specified in this catalogue and in the installation instructions must not be exceeded. (refer to product information)

### 1.1.8 Hardware combination

The manufacturer's regulations that cover the combination of original MACO components or such components that fully correspond to these original components (for example the use of additional frame hinges, consoles, sash hinges or run-up blocks, as well as the use of optional components) are obligatory and also contained in the product information.

### 1.1.9 Product maintenance

#### 1.1.9.1 General

Inspection and maintenance are basic requirements. Proven maintenance is in turn a requirement for product liability and our product guarantee.

All inspection intervals and assembly instructions must be observed!

Adjustments and replacement of components as well as hinging and unhinging must be performed by certified professionals. For surface treatment (e.g. painting) all exposed hardware components must be covered up and protected against soiling or stains from such treatment.

#### 1.1.9.2 Maintaining surface finish quality

For maintaining the quality of the RUSTICO PREMIUM-PLUS surface finish permanently please observe the following instructions:

Avoid surface damage

Avoid or remove soiling from paintwork

The hardware may only be cleaned or polished with mild, pH-neutral cleaning agents in diluted form. Never use chemically aggressive, acetic or abrasive cleaning agents. Such cleaning agents will destroy the the passivation and as a result, speed up corrosion.

Please note care instructions in coastal areas.

Care in coastal areas:

Challenging environmental conditions are present within areas app. 10 km to the sea. During storms sea water is being distributed in the form of spray and may come into contact with shutter hardware. Salt deposits will form after moisture has evaporated. In combination with other deposits and soiling (dust) these salt deposits may cause increased corrosion. The home owner can prolong the hardware service life by good care and maintenance. At least once every year a thorough cleaning and application of oil is required. Even in coastal areas you will enjoy a long service life of your shutter hardware with only a small maintenance effort.

1. Wash away salt deposits with fresh water. Never use aggressive cleaning agents!

2. Let the hardware dry.

3. After drying apply a coating of anti-corrosion spray (e.g. BRUNOX Turbo 362831). Avoid spraying other areas or components (e.g. facade, untreated timber). Anti-corrosion spray may also assist during the cleaning process.

### 1.1.9.3 Information and instruction duties

The following is available to comply with information and instruction obligation duties and perform maintenance work in accordance with the product liability legislation:

for dealers: catalogues, operation and maintenance instructions, installation instructions/information and leaflets for components

for processors: catalogues, tool drawings, operation and maintenance instructions, installation instructions/information and leaflets for components

for owners and end users: operating and maintenance instructions

All above publications are available for download from our website [www.maco.at](http://www.maco.at) or from our extranet

To ensure correct functionality of shutter hardware for windows and casement doors it is required that:

Planners obtain and observe the latest product information from the manufacturer



Retailers obtain the latest product information, especially assembly instructions and operating and maintenance instructions from the manufacturer and pass on these documents to the shutter manufacturer or home owner.

Manufacturers obtain the latest product information, especially assembly instructions and operating and maintenance instructions from the manufacturer and pass on these documents to the owner or end user.

### 1.1.10 Disclaimer

The manufacturer's liability can also be excluded, among other things,

If the fault is attributed to a regulation or an official ruling, to which product compliance was stipulated

Characteristics of the product, which have given rise to the claim (against the manufacturer), could not be identified as a fault according to the conditions of science and technology at the time

The claim (against the manufacturer) only involves a basic material or a part product that was manufactured, and the fault is due to the construction of the product that was incorporated into the basic material or the part product, or as a result of instructions issued by the manufacturer of this product.

### 1.1.11 Product information

The following documents contain mandatory regulations for the use of shutter hardware:

Catalogue (part no. 49445)

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### Maximum sash weights and sash sizes

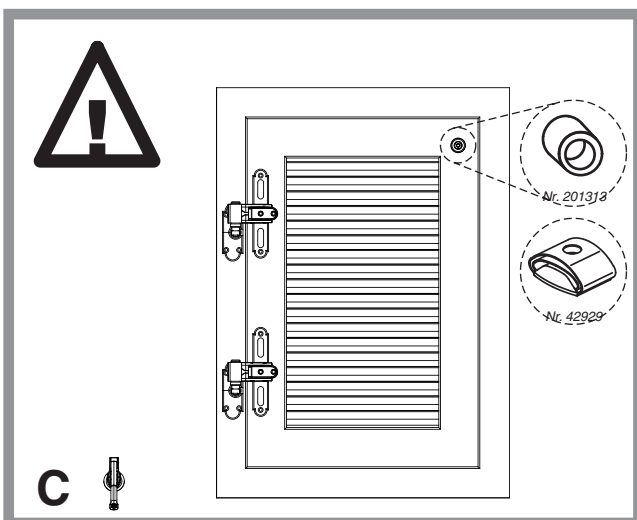
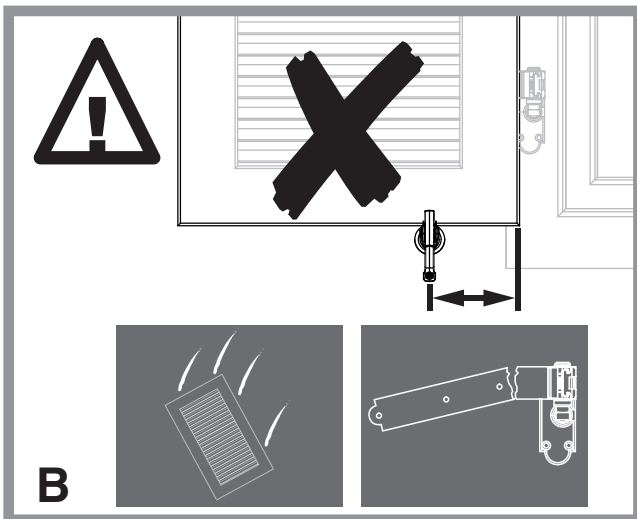
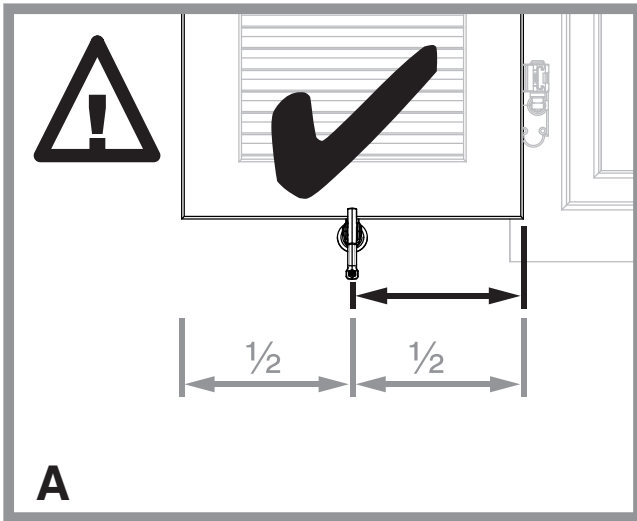
The shutter weights and maximum shutter sizes specified in this catalogue and in the assembly instructions must not be exceeded (refer to product information). The maximum permissible sash weight is determined by the component with the smallest load capacity. Observe all application diagrams, assembly instructions and exercise care when combining components from different hardware ranges!

### 1.1.12 Hardware combination

The manufacturer's regulations that cover the combination of original MACO components or such components that fully correspond to these original components (for example the use of additional frame hinges, consoles, sash hinges or run-up blocks, as well as the use of optional components) are obligatory and also contained in the product information.

Determining sash sizes for installation of RUSTICO shutter hardware  
Application diagrams show the permissible shutter width-to-height ratios with varying square metre weights; these weights depend on the shutter material (timber, PVC, etc.) and on the shutter thickness. Specified weights for different materials and shutter thickness should be used as indications only. Please contact the profile manufacturer for special calculations regarding a particular shutter type. The number of RUSTICO shutter hinges depends on the shutter height.

1.2 Important instructions for correct shutter hardware installation



Only qualified personnel may install the hardware components for shutters. The product information provided in Section 1.1 "Guidelines for safe use" must be observed.

**CAUTION:** Failure to observe the following points can cause damage due to misuse of shutters described in Section 1.1 "Guidelines for safe use", including the risk of injury to persons and damage to property!

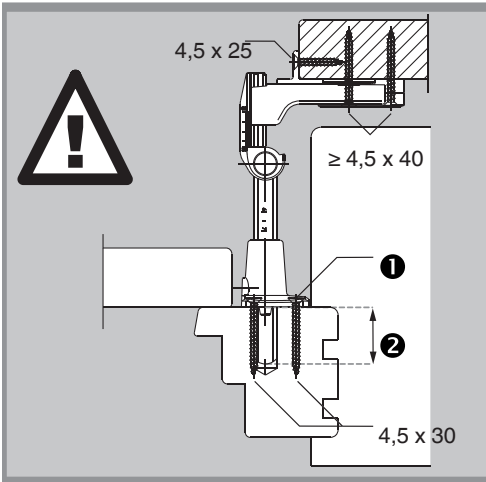
- a) A fastener must be placed in each hole in the hardware component to ensure that it is properly anchored in the foundation.
- b) Shutter holders must be installed at half the shutter width (see Figs. A + B). All shutter holders and locks must be installed so that they are held securely in the open and close position! Failure to do so can cause the hinges to break and shutter to drop, with risk of damage to property or personal injury.
- c) A buffer stop must be used to prevent the top part of the shutter springing back when it snaps into place (see Fig. C). When the buffer stop is used, make sure that the facade has sufficient compression strength (e.g. when thermal insulation is used).
- d) When heavy shutters are used, it must be expected that the free edge of the shutter sinks. For this reason, an adequate distance must be left below the shutter (especially when folding shutters are used).

For shutters with an overall weight to a maximum of 20 kg (maximum 30 kg for MMV hardware range), the distance between the shutter holder and the edge of the shutter at the hinge side must be at least 210 mm. This also permits the use of the deluxe shutter holder for windows for these shutters - independent of the width of the shutter.

For smaller shutters with a shutter width below 460 mm, shutter holder must always be installed at half the width of the sash (see Figure A).

### 1.3 Important instructions for screw fixing and shutter pin insertion depth

#### Correct fastening on timber profiles

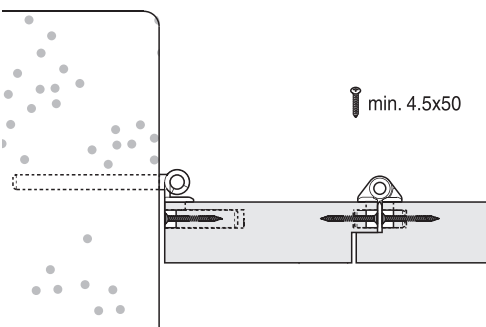


1 - In combination snap holder  $\geq 4,5 \times 40$  mm

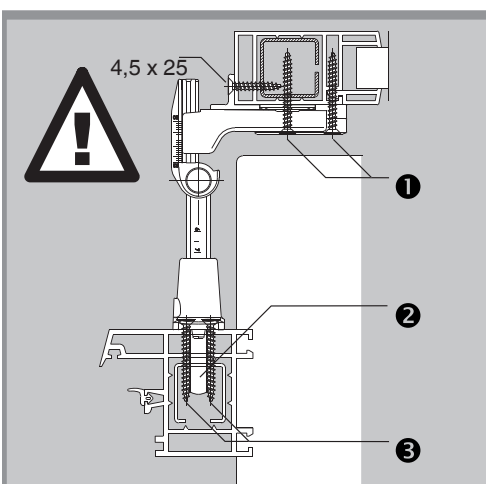
2 - Pin insert depth in  $\varnothing 12$  mm pin holes:

- at least 15 mm for pins L59-L135 (Size 0-2)
- at least 20 mm for snap holder L90 (size 0) - L140 (size 2) and for pins L150
- at least 25 mm for pins or snap holders up to L165 (size 3)

#### Correct fastening on timber profiles



#### Correct fastening on PVC profiles



1 - at least 1 screw in the reinforcement

2 - Adjusting pin must reach at least 8 mm into the reinforcement and be routed in the  $\varnothing 12$  mm pin hole

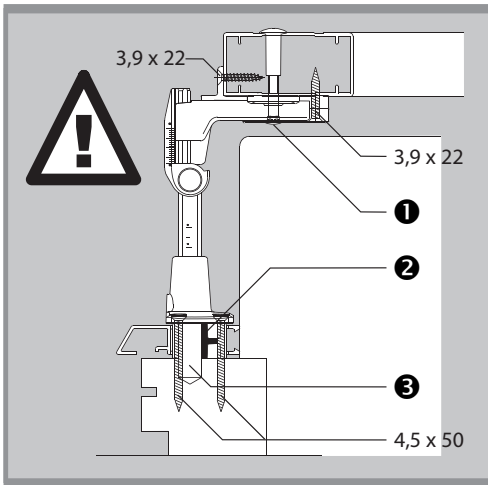
3 - Fasten the screws through at least 2 walls and through the reinforcement

If the pre-drilled hole of the straight pin causes problems, cranked pins can be used (e.g. upright reinforcement).

The force between the shutter and hinge is transferred via the hinge body, not via the decorative bracket. The hinge body and mounting bracket must be fastened through the reinforcement.



## Correct fastening on timber/aluminium profiles



1 - Fixing screw with threaded sleeve

2 - Underlay for aluminium profiles

3 - Pin depth in timber frame at least 15 mm in pin hole  $\varnothing$  12 mm

*i*



## 1.4 Instructions for determining permissible shutter sizes

To read the permissible shutter sizes in the diagrams ("Calculation diagrams ..."), the weight per square meter ( $\text{kg}/\text{m}^2$ ) of the shutter must be known.

For the diagrams shown ("Calculation diagrams ...") the weight per square meter ( $\text{kg}/\text{m}^2$ ) is always specified."

### 2.1.6 Determining the weight per square meter ( $\text{kg}/\text{m}^2$ )

The easiest method is to "Weigh - measure - divide". Proceed as follows: Use commercially available bathroom scales to determine the overall weight of the shutter, Then calculate the shutter surface by multiplying the values for the length and width (specified in meters). Then divide the weight (kg) by the surface area ( $\text{m}^2$ ).

#### Example calculation:

- Shutter height 2.10 m, shutter width 0.75 m; shutter surface  $2.1 \text{ m} \times 0.75 \text{ m} = 1.575 \text{ m}^2$
- Shutter weight acc. to weight: 18 kg
- Weight per square meter:  $18 \text{ kg} : 1.575 \text{ m}^2 = 11.4 \text{ kg}/\text{m}^2$

- Select the matching diagram: for MMV hardware range: Diagram "max.  $12 \text{ kg}/\text{m}^2$ " / for BLR and MV hardware ranges: Diagram "max.  $14 \text{ kg}/\text{m}^2$ "

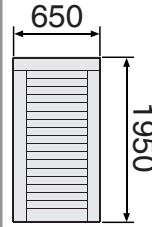
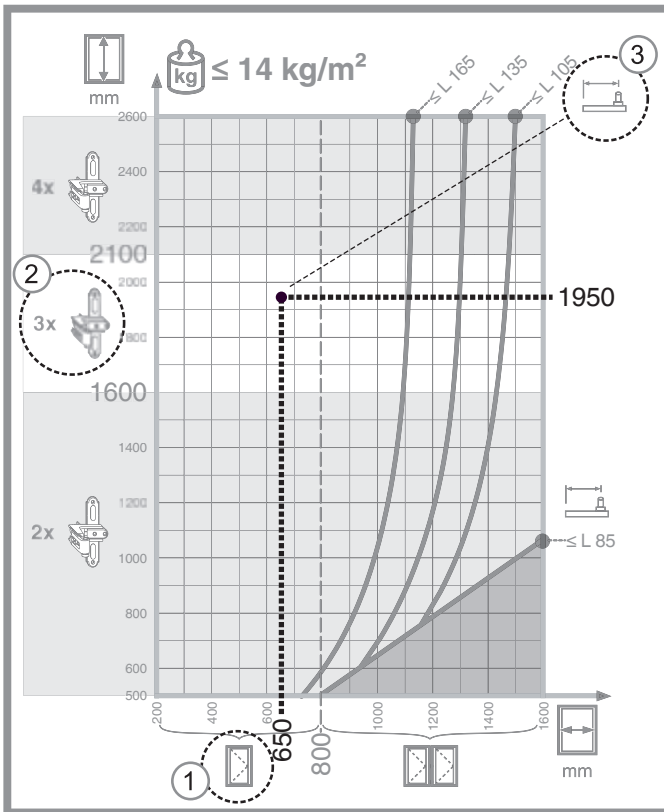
For solid timber shutters, the weight per square meter can be calculated as follows: Multiply the weight of a cubic meter of the timber used by the shutter thickness (specified in meters).

Benchmarks for timber weights: spruce  $400\text{-}500 \text{ kg}/\text{m}^3$ , oak  $670\text{-}850 \text{ kg}/\text{m}^3$

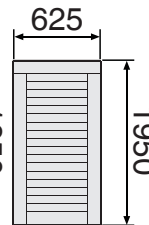
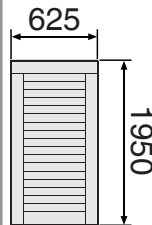
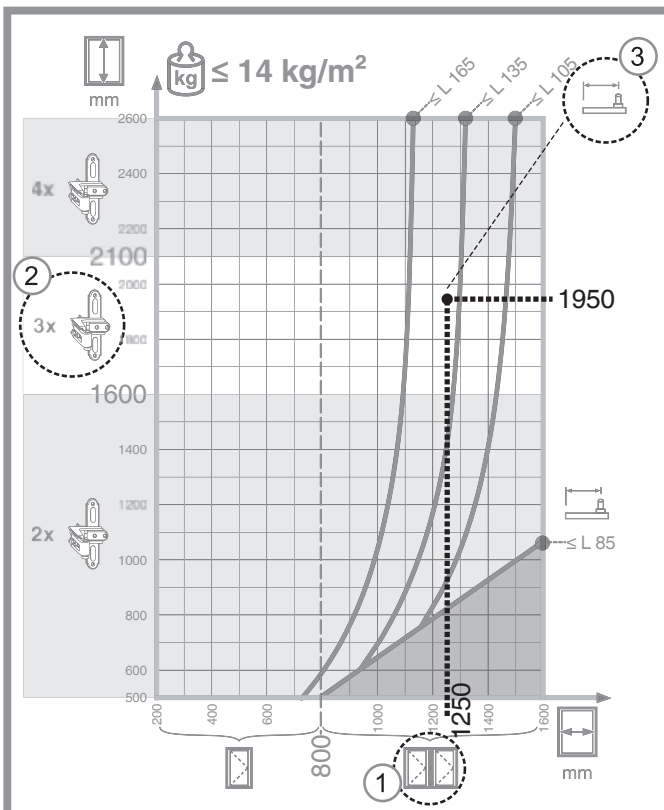
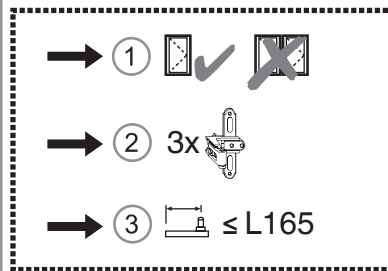
**Example calculation:**  $430 \text{ kg} \times 0.044 \text{ m} = 18.92 \text{ kg}/\text{m}^2$  (cubic meter weight x shutter thickness = weight per square meter).

When using PVC or aluminium profiles, contact the profile manufacturer to determine the weight per square meter.

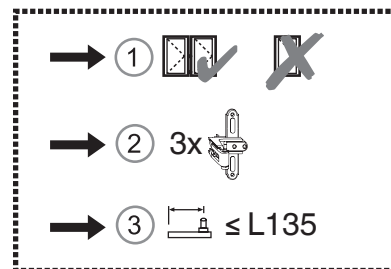
**In installations where hardware components from different hardware ranges are used, the corresponding diagrams for the hardware range BLR/MV must be taken into account when determining the permissible shutter sizes!**



$\text{kg} \leq 14 \text{ kg/m}^2$



$\text{kg} \leq 14 \text{ kg/m}^2$





## 1.5 Surface-finish “RUSTICO PREMIUM-PLUS”

### 1.5.1 Surface finish with 10-year guarantee

From 2013, the Rustico hardware comes with a new coating technology. Maco guarantees the fabricator a 10-year resistance to corrosion. This guarantee applies to all locations, including coastal regions. For more information about the guarantee, contact your Maco technical consultant.

### 1.5.2 Quality

- The resistance to corrosion is monitored in-house in compliance with EN1670 and is tested by the accredited testing institute ift-Rosenheim. Test reports and certificates are available from MACO.
- Textured surface with high scratch resistance and resistance to UV light.
- Robust and dirt-repellent.

### 1.5.3 Available colours

MACO-RUSTICO hardware components are available in three different colours with the same PREMIUM-PLUS surface-finish structure:

- Black S: fine structure RAL 9005
- Grey S: fine structure RAL 7004
- White S: fine structure RAL 9016

Alternatively, MACO offers shutter hardware in all RAL colours. Contact your technical consultant for details.

#### Care

To preserve the quality of the hardware, please observe the information provided in the operation and maintenance instructions for window shutters (Art. No. 49489).

1.6 Certificate

1.6.1 Certificate salt spray test EN 1670:2007-06



**Nachweis**

Korrosionsbeständigkeit gemäß EN 1670 : 2007 + AC:2008



Prüfbericht

Nr. 12-000182-PR01  
(PB-G02-03-de-02)

**Auftraggeber** Mayer & Co. Beschläge GmbH  
Alpenstraße 173  
5020 Salzburg  
Österreich

**Produkt** Fensterladenbeschlagteile

**Bezeichnung** gemäß Typenliste

**Leistungsrelevante Produktdetails** Material: Stahl / Zamak, gepulvert schwarz

**Besonderheiten** die Baugruppen 1-4 wurden weiter belastet bis 2000 Stunden

**Grundlagen**

EN 1670 : 2007 + AC:2008

**Prüfnormen:**  
ISO 9227 : 2006

Entsprechende nationale Fassungen (z.B. DIN EN)

**Darstellung**



**Verwendungshinweise**

Dieser Prüfbericht dient zum Nachweis der Korrosionsbeständigkeit nach EN 1670 : 2007 + AC:2008

**Ergebnis**

Klassifizierung gemäß EN 1670 : 2007 + AC:2008

**Klasse 5**

Kreuzband MMV (Baugruppe 1)  
Stahl / Zamak, gepulvert, schwarz



**Klasse 5**

Kreuzband BLR (Baugruppe 2)  
Stahl / Zamak, gepulvert, schwarz

**Klasse 5**

Langband (Baugruppe 3)  
Stahl / Zamak, gepulvert, schwarz

**Klasse 5**

Verschlussgruppe (Baugruppe 4)  
Stahl / Zamak, gepulvert, schwarz

**Gültigkeit**

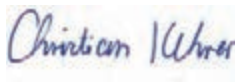
Die genannten Daten und Einzelergebnisse beziehen sich ausschließlich auf den geprüften/ beschriebenen Probekörper. Die Klassifizierung gilt so lange das Produkt unverändert ist und die o.g. Grundlagen sich nicht geändert haben. Das Ergebnis kann unter Beachtung entsprechender Festlegungen der Produktnorm in Eigenverantwortung des Herstellers übertragen werden. Diese Prüfung/Bewertung ermöglicht keine Aussage über weitere leistungs- und qualitätsbestimmende Eigenschaften der vorliegenden Konstruktion; insbesondere Witterungs- und Alterungseinflüsse wurden nicht berücksichtigt.

**Veröffentlichungshinweise**

Es gilt das ift-Merkblatt "Werbung mit ift-Prüfdokumentationen". Das Deckblatt mit Typenliste kann als Kurzfassung verwendet werden.

Der Nachweis umfasst insgesamt 17 Seiten.

ift Rosenheim  
04. Juli 2012



Christian Kehrer, Dipl.-Ing. (FH)  
Prüfstellenleiter  
Bauteile



Andreas Matschi, Dipl.-Ing. (FH)  
Stv. Prüfstellenleiter  
Bauteile



1.6.2 Certificate EN 14648:2007

**Nachweis**

Prüfung von Beschlägen für Fensterläden gemäß  
EN 14648 : 2007

Prüfbericht 215 41430



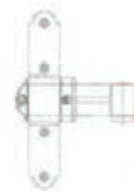
Auftraggeber **Mayer & Co. Beschläge GmbH.**  
Alpenstraße 173  
  
5020 Salzburg  
Östereich

**Grundlagen**

EN 14648 : 2007-10 -  
Schlösser und Baubeschläge – Beschläge für Fensterläden – Anforderungen und Prüfverfahren

Bauprodukt **Fensterladenbeschlag**  
  
Bezeichnung **Maco Rustico Ladenbeschlag**  
  
Ladenbänder **MMV Kreuzband Nr. 100008**  
  
Kloben **MMV Mauerkloben Gr.1 Nr. 101587**  
  
Anschlagpuffer **Soft Nr. 201313**

**Darstellung:**



Besonderheit **Das Bauprodukt ist gemäß  
EN 14648 : 2007 wie folgt zu klassifizieren:**

**Verwendungshinweise**

Dieser Prüfbericht dient zum Nachweis von Beschlägen für Fensterläden gemäß EN 14648 : 2007

	Gebrauchskategorie	Dauerhaftigkeit	Masse	Feuerbeständigkeit	Gebrauchssicherheit	Korrosionsbeständigkeit
Prüfergebnis	-/-	3	130	0	1	5

**Gültigkeit**

Die genannten Daten und Ergebnisse beziehen sich ausschließlich auf die geprüften Bauprodukte.

**Veröffentlichungshinweise**

Es gilt das ift-Merkblatt „Bedingungen und Hinweise zur Benutzung von ift-Prüfdokumentationen“. Das Deckblatt kann als Kurzfassung verwendet werden.

**Inhalt**

Der Nachweis umfasst insgesamt 15 Seiten.

- 1 Gegenstand
- 2 Durchführung
- 3 Prüfergebnisse
- 4 Beurteilung der Prüfergebnisse
- 5 Gesamtbeurteilung

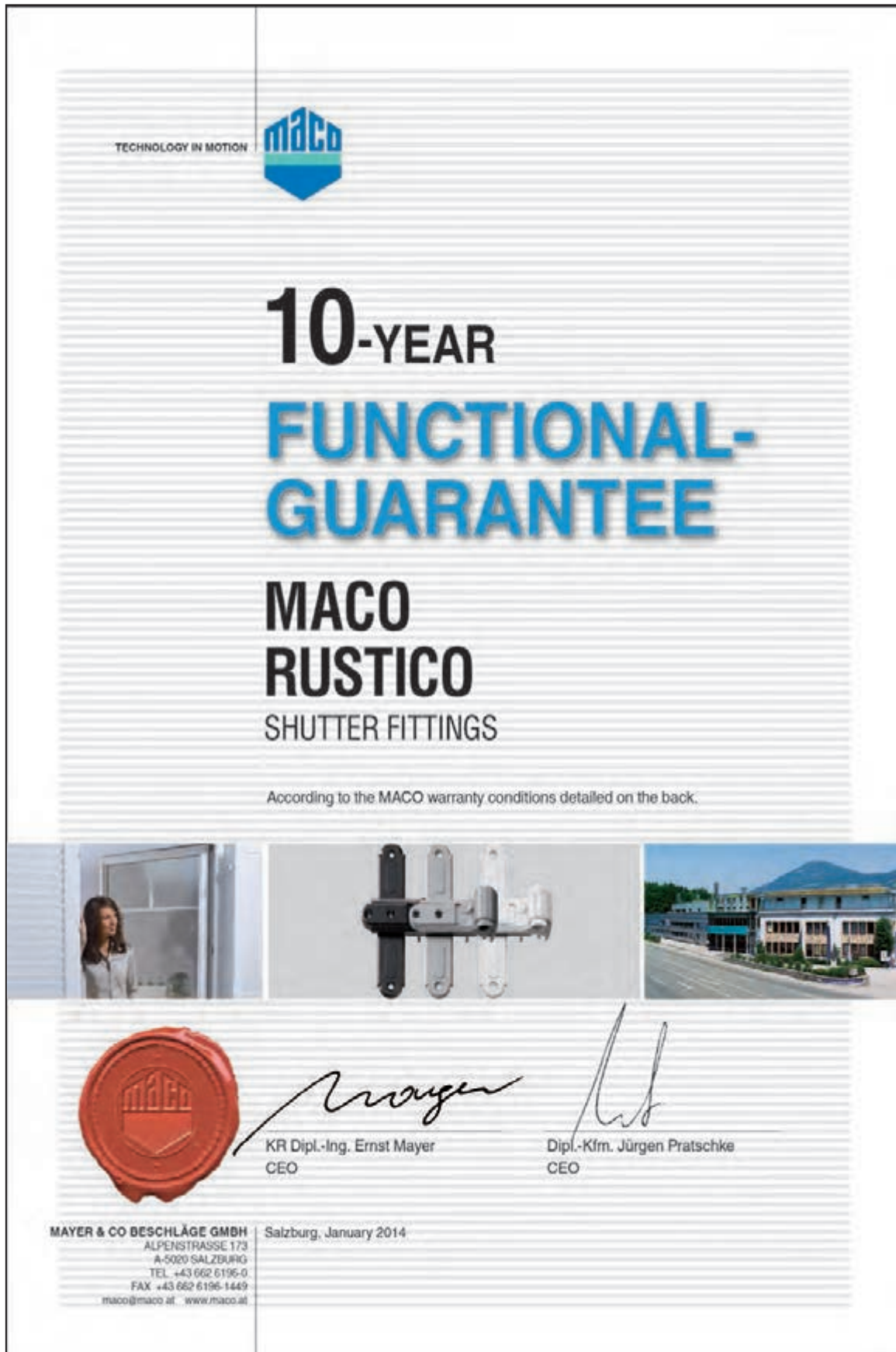
Anlage 1 (8 Seiten)


ift Rosenheim  
21. April 2010

  
Christian Kehrer, Dipl.-Ing. (FH)  
Prüfstellenleiter  
ift Zentrum Türen Tore Sicherheit

  
Alexander Spreitzer  
Prüfingenieur  
ift Zentrum Türen Tore Sicherheit

1.6.3 10-year functional guarantee







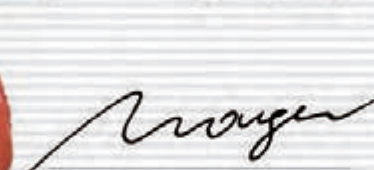
TECHNOLOGY IN MOTION 


# 10-YEAR FUNCTIONAL- GUARANTEE

## MACO RUSTICO SHUTTER FITTINGS

According to the MACO warranty conditions detailed on the back.



   
KR Dipl.-Ing. Ernst Mayer  
CEO

  
Dipl.-Kfm. Jürgen Pratschke  
CEO

MAYER & CO BESCHLÄGE GMBH    Salzburg, January 2014  
ALPENSTRASSE 173  
A-5020 SALZBURG  
TEL. +43 662 6196-0  
FAX +43 662 6196-1449  
maco@maco.at    www.maco.at



TECHNIK DIE BEWEGT



## 10-year functional guarantee

### MACO RUSTICO shutter fittings

MAYER & CO Beschläge GmbH, A-5020 Salzburg, Alpenstrasse 173 grants a functional guarantee of 10 years, in excess of the legal period, for the use of MACO RUSTICO shutter fittings, commencing on the date for delivery of the hardware to the fabricator.

### GUARANTEE CONDITIONS

The guarantee applies only to fabricators of MACO hardware.

### WARANTY CLAIM

This guarantee covers the functionality of the MACO RUSTICO shutter fittings and encompasses all defects that can be verified to result from defective manufacturing or material defects.

A warranty claim shall be deemed valid if the function of the shutter fittings can no longer be upheld in the course of proper use, and subject to compliance with all conditions of warranty.

### GUARANTEE SERVICES

- Replacement of the defective component or supply of a component with equivalent functionality free of charge
- Further reimbursements are excluded by MACO

### CONDITIONS OF THE WARRANTY:

- Compliance with all MACO specifications and processing instructions
- Verifiable professional installation of the shutter
- Verifiable compliance with all obligations to provide instructions to the end user
- Proper use in accordance with the product-specific MACO catalogues
- Demonstrable maintenance (through fabricator's service or guarantee certificate) according to MACO operating and maintenance instructions
- The hardware combination is made up exclusively of MACO hardware
- Timely replacement of worn parts
- Return of the defective parts together with the original invoice

### GUARANTEE EXCLUSION

- Operational malfunction due to defects in the shutter (e.g. distortion, incorrect installation, tension)
- Operational malfunction due to damage to the shutter fittings resulting from chemical or mechanic influences or improper use
- Improper handling, storage or transport
- Unsuitable or improper use
- Modifications or self-repair
- Natural wear, icing, soiling or salt deposits
- Use of aggressive or abrasive cleaning agents
- Hardware components that are used in the public and commercial sectors

**MAYER & CO BESCHLÄGE GMBH**  
ALPENSTRASSE 173  
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maco@maco.at www.maco.at



1.6.4 10-year guarantee for RUSTICO PREMIUM-PLUS



TECHNOLOGY IN MOTION 

**10 YEARS**  
**GUARANTEE**

**MACO**  
**PREMIUM-PLUS**  
HARDWARE SURFACE FINISH

In compliance with MACO Guarantee Conditions



   
KR Dipl.-Ing. Ernst Mayer  
CEO

  
Dipl.-Kfm. Jürgen Pratschke  
CEO

**MAYER & CO BESCHLÄGE GMBH**  
ALPENSTRASSE 173  
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FAX. +43 (0)662 6196-1449  
maco@maco.at www.maco.at

Salzburg, January 2013



TECHNOLOGY IN MOTION



# 10 YEARS GUARANTEE

## for use of MACO RUSTICO hardware with PREMIUM-PLUS surface finish

MAYER & CO Beschläge GmbH, A-5020 Salzburg, Alpenstraße 173, grants a 10-year SURFACE FINISH GUARANTEE, in excess of the legal warranty, commencing on the date for delivery of the hardware to the fabricator for use of the MACO RUSTICO PREMIUM-PLUS surface finish (delivery date from January 2013).

### GUARANTEE CONDITIONS

The guarantee applies only to fabricators of MACO hardware.

### WARANTY CLAIM

Clearly visible deterioration of the surface finish caused by red rust or detachment of the finish from the surface.

### GUARANTEE SERVICES

- Replacement of the defective component or supply of a component with equivalent functionality free of charge
- There shall be no further cost reimbursement from MACO

### PRECONDITION FOR GUARANTEE

- Compliance with all MACO processing instructions and the MACO technical and legal instructions
- Use of MACO RUSTICO stainless steel hardware bolts
- Performance of all instruction duties towards the user
- Proper use in accordance with the product-specific MACO catalogues
- Verifiable maintenance in accordance with MACO operation and maintenance instructions
- Return of defective components

### GUARANTEE EXCLUSION

- Marked items in the MACO RUSTICO catalogue
- Improper storage or transport
- Mechanical damage of the surface finish
- Bare metal at interfaces and corrosion that originates there
- Adjustment areas, clamping screws, adjusting screws and moved parts
- Unsuitable or improper use
- Transfer of corrosion through foreign materials
- Use of aggressive or abrasive cleaning agents
- Natural wear, soiling or salt deposits
- Modifications or self-repair
- Deposition of loose rust on undamaged surfaces

**MAYER & CO BESCHLÄGE GMBH**  
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maco@maco.at www.maco.at



1.6.5 Quality management certificate



**qualityaustria**  
Succeed with Quality



The current validity of the certificate is documented exclusively on the Internet under  
<http://www.qualityaustria.com/en/cert> EAC, IT

# CERTIFICATE

Quality Austria Trainings-, Zertifizierungs- und Begutachtungs GmbH awards this qualityaustria certificate to the following organisation:

**Mayer & Co Beschläge GmbH**  
A-5020 Salzburg, Alpenstraße 173

Sites:  
MACO Produktions GmbH  
A-8784 Trieben, Industriestraße 1  
MACO Baubeschlag Produktions & Betriebs GmbH  
A-5570 Mautersdorf im Lungau, Steindorf 67

Development, manufacturing and sales of:  
MULTI turn-only and turn&tilt hardware, EMOTION handles, RAIL-SYSTEMS sliding hardware, PROTECT door locks, ESPAGS espejolettes, RUSTICO shutter hardware, PRO-DOOR door hinges MACO VENT ventilation valves as well as remaining window hardware and accessories

The validity of the qualityaustria certificate will be maintained via annual surveillance audits and one renewal audit after three years.

This qualityaustria certificate confirms the application and further development of an effective

**QUALITY MANAGEMENT SYSTEM**  
complying with the requirements of standard  
**ISO 9001:2008**

Registration No.: 11971/0  
Date of initial issue: 28 March 2012  
Valid until: 29 March 2018

Vienna, 30 March 2015

Quality Austria Trainings-, Zertifizierungs- und Begutachtungs GmbH,  
A-1010 Vienna, Zelinkagasse 10/G

  
**Scheiber**  
 Konrad Scheiber  
 General Manager

  
**E. Bauer**  
 Eckhard Bauer, MSc  
 Specialist representative

Quality Austria Trainings-, Zertifizierungs- und Begutachtungs GmbH is a limited liability company registered in the Austrian Commercial Register at the Austrian Accreditation Authority (AA) in Vienna, Austria. It is authorised by the Austrian Accreditation Authority (AA) to issue certificates of conformity in the fields of Quality Management, Environmental Management, Occupational Health and Safety, Research and Development, and Energy Management.

Quality Austria is a branch of the Austrian Accreditation Authority (AA) in Vienna, Austria. It is authorised by the Austrian Accreditation Authority (AA) to issue certificates of conformity in the fields of Quality Management, Environmental Management, Occupational Health and Safety, Research and Development, and Energy Management.

Quality Austria is a branch of the Austrian Accreditation Authority (AA) in Vienna, Austria. It is authorised by the Austrian Accreditation Authority (AA) to issue certificates of conformity in the fields of Quality Management, Environmental Management, Occupational Health and Safety, Research and Development, and Energy Management.






i



1.6.6 Environmental management certificate



**qualityaustria**  
Succeed with Quality



# CERTIFICATE

Quality Austria Trainings-, Zertifizierungs- und Begutachtungs GmbH awards this qualityaustria certificate to the following organisation:

**Mayer & Co Beschläge GmbH**  
A-5020 Salzburg, Alpenstraße 173

Sites:  
**MACO Produktions GmbH**  
A-8784 Trieben, Industriestraße 1  
**MACO Baubeschlag Produktions & Betriebs GmbH**  
A-6570 Maulsendorf im Lungau, Steindorf 67

Development, manufacturing and sales of  
**MULTI** turn-only and turn&tilt hardware, **EMOTION** handles, **RAIL-SYSTEMS** sliding hardware, **PROTECT** door locks, **ESPAGS** espagnolettes, **RUSTICO** shutter hardware, **PRO-DOOR** door hinges **MACO VENT** ventilation valves as well as remaining window hardware and accessories

This qualityaustria certificate confirms the application and further development of an effective

**ENVIRONMENTAL MANAGEMENT SYSTEM**  
complying with the requirements of standard  
**ISO 14001:2004**

Registration No.: 01728/0  
 Date of initial issue: 26 March 2012  
 Valid until: 29 March 2018

Vienna, 30 March 2015

Quality Austria Trainings-, Zertifizierungs- und Begutachtungs GmbH,  
 A-1010 Vienna, Zefikagasse 10/3

  
 Konrad Scheiber  
General Manager

  
 Ing. Wolfgang Hackenauer, MSc  
Specialist representative

Quality Austria Trainings-, Zertifizierungs- und Begutachtungs GmbH is authorised to issue certificates according to the Austrian Accreditation Act by the BML/BW/BW/BW (Federal Ministry of Science, Research and Economy).

Quality Austria is accredited as an organisation for environmental certification by the BML/BW/BW/BW (Federal Ministry of Science, Research and Economy) and other foreign agencies.

Quality Austria is authorised by the VCA (Association of the Austrian Industry).

For accreditation registration which please refer to the appropriate documents or recognition documents.

Quality Austria is the Austrian member of ICQI (International Certification Organisation).

ÖZ 14 150/1518

Teilnachricht: 8014-0736-10480  
 http://www.qualityaustria.com/en/cert/ EAC 17





1.6.7 Safety management certificate



**qualityaustria**  
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# CERTIFICATE

Quality Austria Trainings-, Zertifizierungs- und Begutachtungs GmbH awards this qualityaustria certificate to the following organisation:

**Mayer & Co Beschläge GmbH**  
A-5020 Salzburg, Alpenstraße 173

**Sites:**  
MACO Produktions GmbH  
A-8784 Triesen, Industriestraße 1  
MACO Baubeschlag Produktions & Betriebs GmbH  
A-6570 Maulsendorf im Lungau, Steindorf 67

Development, manufacturing and sales of:  
MULTI turn-only and turn&tilt hardware, EMOTION handles, RAIL-SYSTEMS sliding hardware, PROTECT door locks, ESPAGS espedroletes, RUSTICO shutter hardware, PRO-DOOR door hinges MACO VENT ventilation valves as well as remaining window hardware and accessories

This qualityaustria certificate confirms the application and further development of an effective

**OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM**  
complying with the requirements of standard  
**BS OHSAS 18001:2007**

Registration No.: 00744/0  
Date of initial issue: 26 March 2012  
Valid until: 29 March 2018

Vienna, 30 March 2015

Quality Austria Trainings-, Zertifizierungs- und Begutachtungs GmbH,  
A-1010 Vienna, Zelinkagasse 10/3

*Schiber EP Bauer*  
Konrad Scheiber  
General Manager  
Eckhard Bauer, MSc  
Specialist representative



Quality Austria Trainings- und Begutachtungs GmbH is a registered company in the Austrian Republic. It is authorised to issue certificates in accordance with the Austrian Accreditation Act by the BAWOBF (Federal Ministry of Science, Research and Economy).

Quality Austria is a member of the ISO 9001:2015 and ISO 14001:2015 environmental verification system (EMAS) of the Austrian Republic. It is a member of the Austrian Chamber of Commerce (EWS) and the Austrian Chamber of Industry and Trade (IHK).





Quality Austria is a member of the Austrian Chamber of Commerce (EWS) and the Austrian Chamber of Industry and Trade (IHK).



The current validity of the certificate is documented exclusively on the Internet under <http://www.qualityaustria.com/en/cert> EAC.17

MACO Trainings- und Begutachtungs GmbH  
A-1010 Vienna, Zelinkagasse 10/3

## 1.6.8 CE - Declaration of non-objection

		Declaration of non-objection
<b>Product groups included in the declaration</b> Development, manufacturing and sales of:		
<ul style="list-style-type: none"><li>• MULTI turn-only and turn&amp;tilt hardware,</li><li>• EMOTION handles,</li><li>• RAIL-SYSTEMS sliding hardware,</li><li>• PROTECT door locks,</li><li>• ESPAGS espagnolettes,</li><li>• RUSTICO shutter hardware,</li><li>• PRO-DOOR door hinges</li><li>• MACO VENT ventilation valves</li><li>• as well as remaining window hardware and accessories.</li></ul>		
<b>Use of products</b> Window and door elements of the construction industry		
<b>Manufacturer / Supplier</b> Company Mayer & Co Beschläge GmbH		
<b>Street / PO box</b> Alpenstraße 173 / PO Box 94		
<b>Country code / Postcode / City</b> AT / 5020 / Salzburg		
<b>Phone / Fax / E-Mail</b> +43 662 6196-0 / +43 662 886196-0 / <a href="mailto:maco@maco.at">maco@maco.at</a>		
<p>The Building Products Guideline (BPR) 305/2011 EU specifies how buildings are required to be designed and constructed to avoid any hazards to the safety of persons, pets or goods, or to the environment.</p> <p>These regulations have a direct impact on the requirements for building products. They are intended, primarily in the field of product quality, to guarantee compliance with legal regulations with regard to the so-called "essential requirements" from a building or building products respectively; this also includes the "harmlessness in terms of health".</p> <p>The products of Mayer &amp; Co Beschläge do comply with the requirements of EN 14351-1:2010 "Windows and doors – Product standard, performance characteristics" in the particular item 4.6 Dangerous Substances, as well as with EU Directive 2002/95/EU from the European Parliament and the Council of 8th June 2011 on the restriction of the use of certain dangerous substances.</p> <p>We hereby declare that our products meet, according to the abovementioned standards, the "restriction of the use of certain dangerous substances", and consequently are harmless.</p>		
 KR DI Ernst Mayer	 Dkfm. Jürgen Pratschke	
Salzburg, November 2014		
<b>MAYER &amp; CO BESCHLÄGE GMBH</b> ALPENSTRASSE 173 A-5020 SALZBURG TEL. +43 662 6196-0 FAX 101		
		Page 1 of 1



## 2 Hardware Range BLR

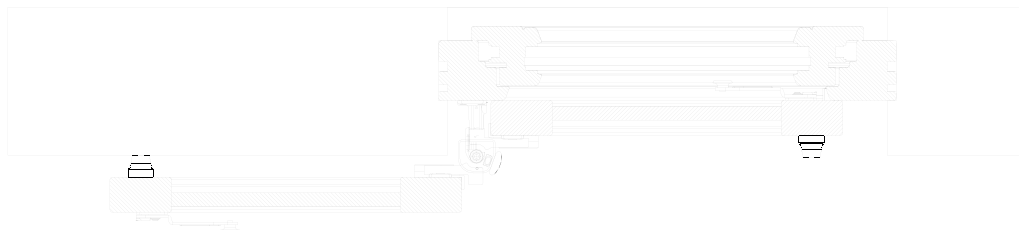
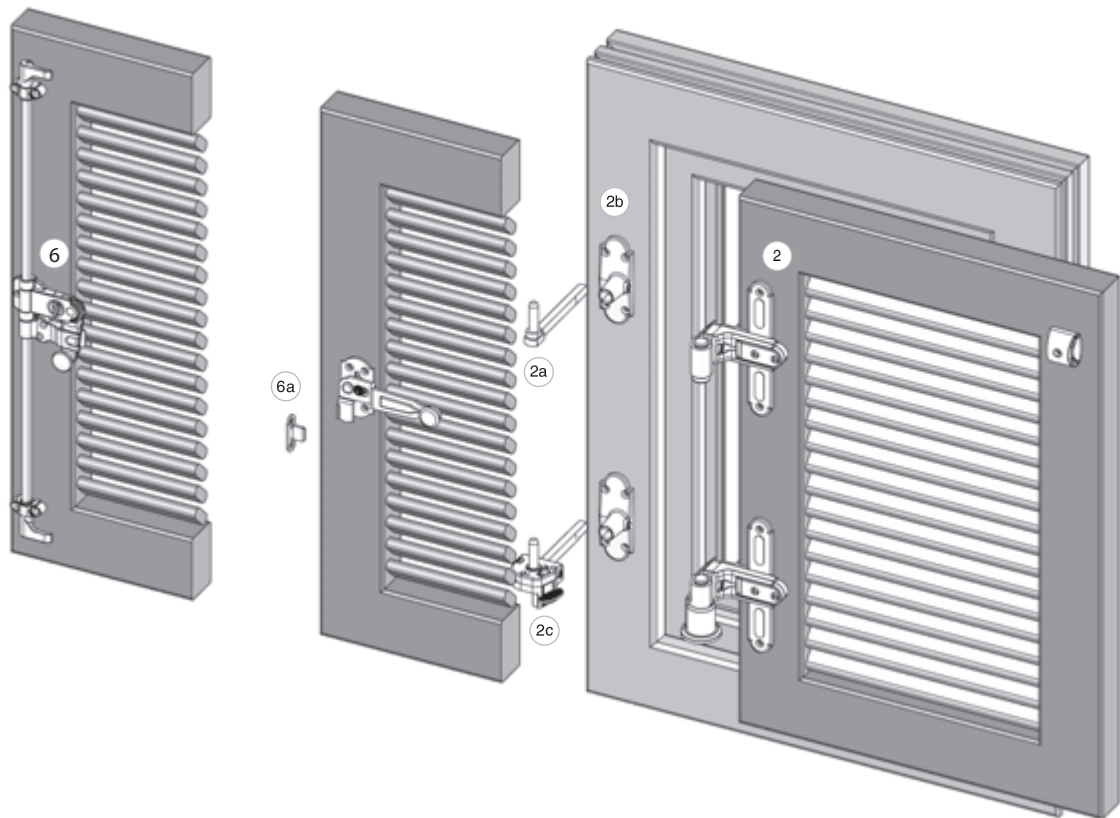
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2.1	Information for hardware selection _____	28
2.2	Shutter hinges with lateral adjustment _____	45
2.3	Shutter pins _____	49
2.4	Shutter pin holders _____	52
2.5	Snap holders _____	53
2.6	Crank openers _____	56
2.7	Jigs for hardware range BLR _____	62

## 2 Hardware Range BLR

### 2.1 Information for hardware selection

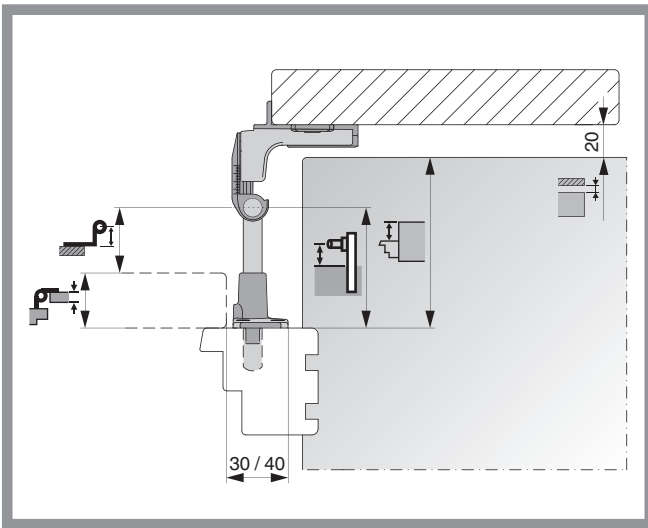
#### 2.1.1 Single-sash with snap holder



Selection guide			Page
<b>2</b>	2.2	Shutter hinges with lateral adjustment	→45
<b>2a</b>	2.3	Shutter pins	→49
<b>2b</b>	2.4	Shutter pin holders	→52
<b>2c</b>	2.5	Snap holders	→53
<b>6</b>	6.1	Rod-driven shutter locks	→112
<b>6a</b>	6.2	Centre locks	→123



2.1.1.1 Shutter flush mounted, without spacing



Calculation shutter pin distance

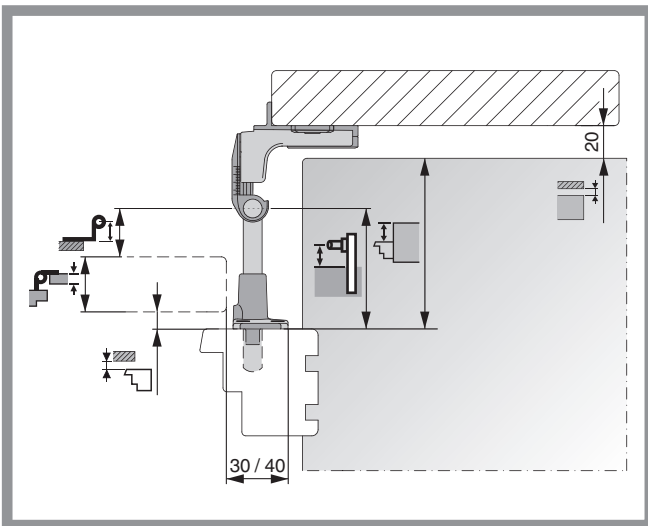
	110 mm
	+ 20 mm
	+ 30 mm
<hr/>	
=	160 mm : 2 = 80 mm
<hr/>	
→	L 105 (60 - 90 mm)

Calculation hinge crank

	110 mm
	+ 20 mm
	- 30 mm
<hr/>	
=	100 : 2 = 50 mm
<hr/>	
→	Gr. 2  (45 - 70 mm)

i  
BLR  
BLR

2.1.1.2 Shutter flush mounted, with spacing



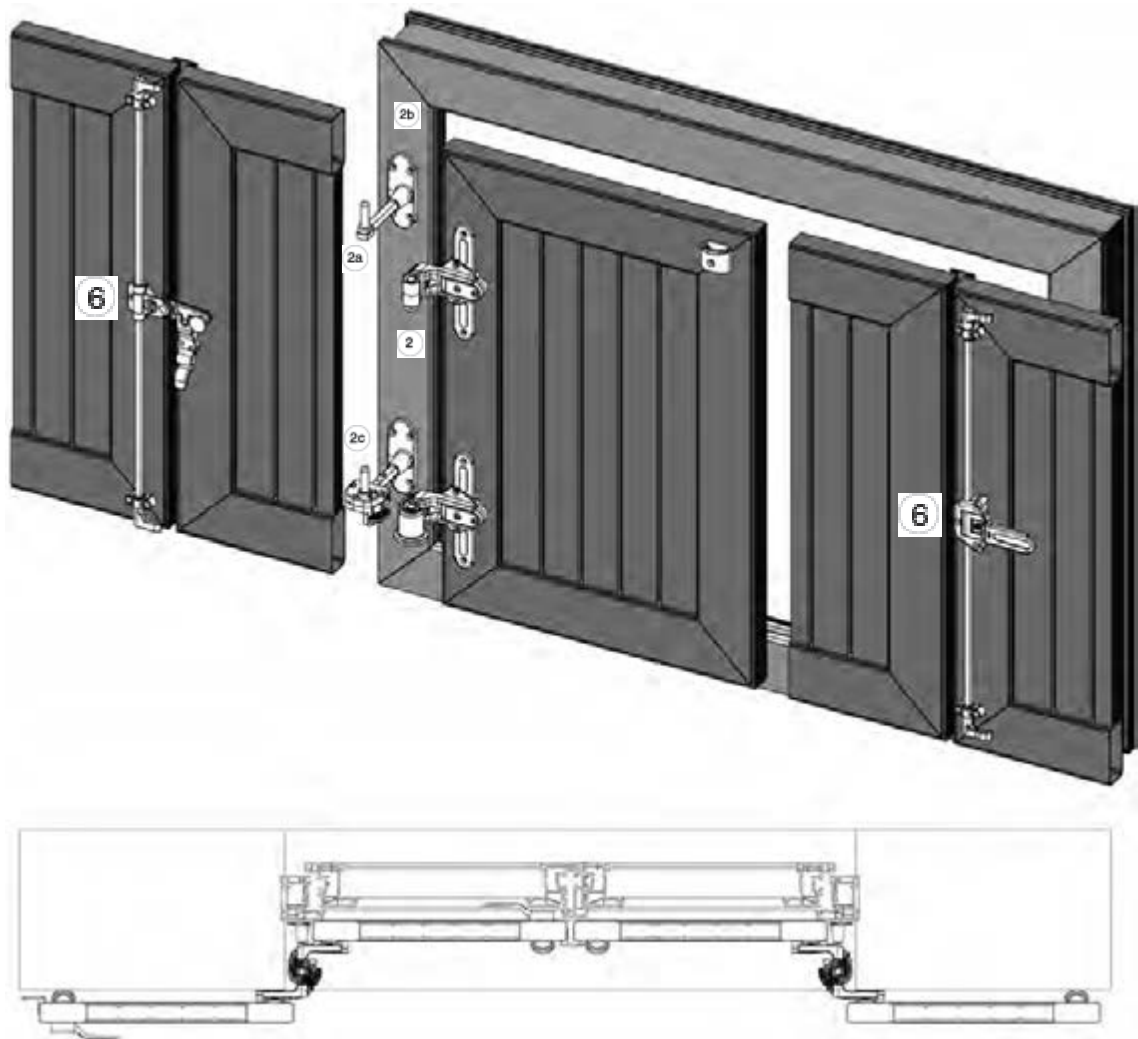
Calculation shutter pin distance

	105 mm
	+ 20 mm
	+ 47 mm
	(shutter thickness 30 mm + distance 17 mm)
<hr/>	
=	172 : 2 = 86 mm
<hr/>	
→	L 105 (60 - 90 mm)

Calculation hinge crank

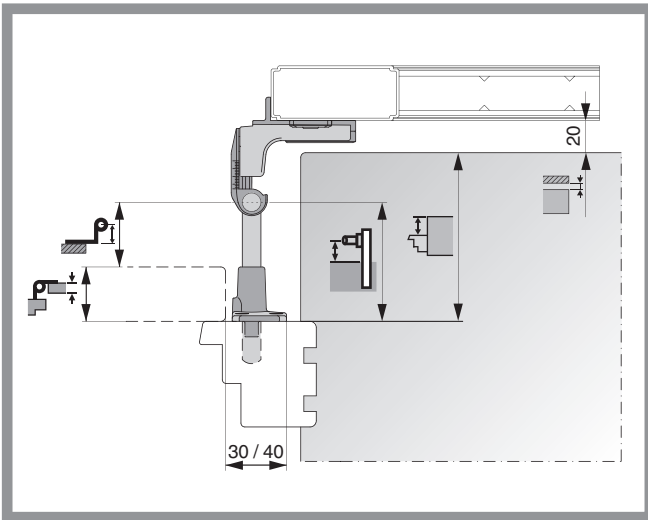
	105 mm
	+ 20 mm
	- 30 mm
	- 17 mm
<hr/>	
=	78 : 2 = 39 mm
<hr/>	
→	Gr. 1  (32 - 50 mm)

2.1.2 2-sashed with snap holder



Selection guide			Page
2	2.2	Shutter hinges with lateral adjustment	→45
2a	2.3	Shutter pins	→49
2b	2.4	Shutter pin holders	→52
2c	2.5	Snap holders	→53
6	6.1	Rod-driven shutter locks	→112

2.1.2.1 Shutter flush mounted, without spacing



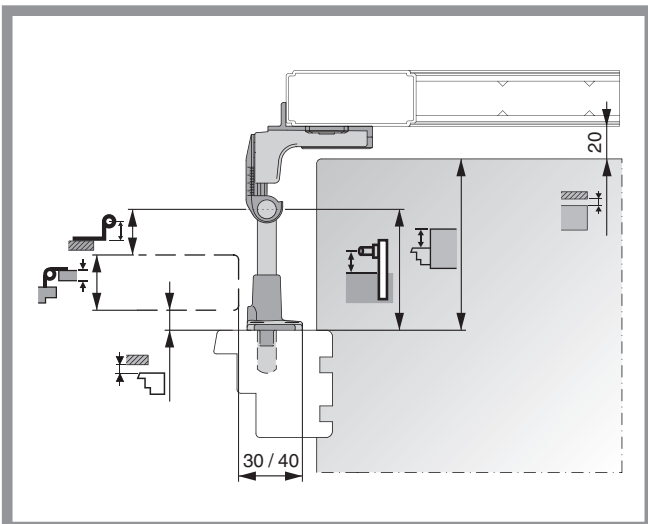
Calculation shutter pin distance

$$\begin{aligned}
 & 110 \text{ mm} \\
 & + 20 \text{ mm} \\
 & + 30 \text{ mm} \\
 \hline
 & = 160 \text{ mm} : 2 = 80 \text{ mm} \\
 & \rightarrow \text{L 105 (60 - 90 mm)}
 \end{aligned}$$

Calculation hinge crank

$$\begin{aligned}
 & 110 \text{ mm} \\
 & + 20 \text{ mm} \\
 & - 30 \text{ mm} \\
 \hline
 & = 100 : 2 = 50 \text{ mm} \\
 & \rightarrow \text{Gr. 2 (45 - 70 mm)}
 \end{aligned}$$

2.1.2.2 Shutter flush mounted, with spacing



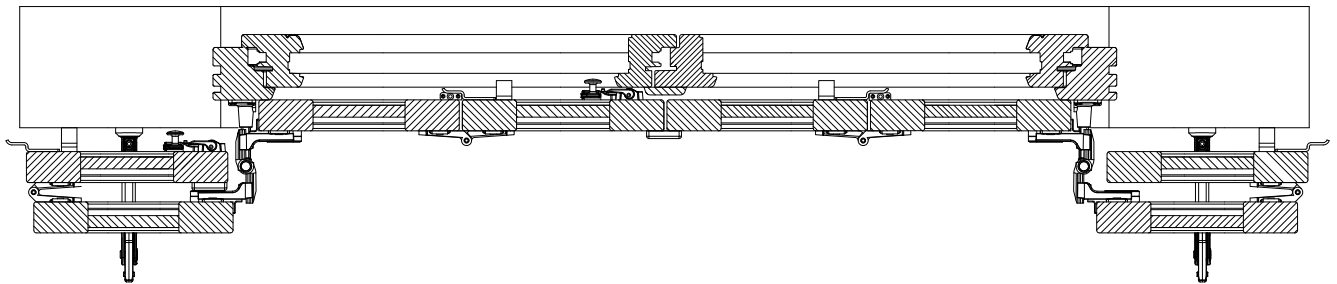
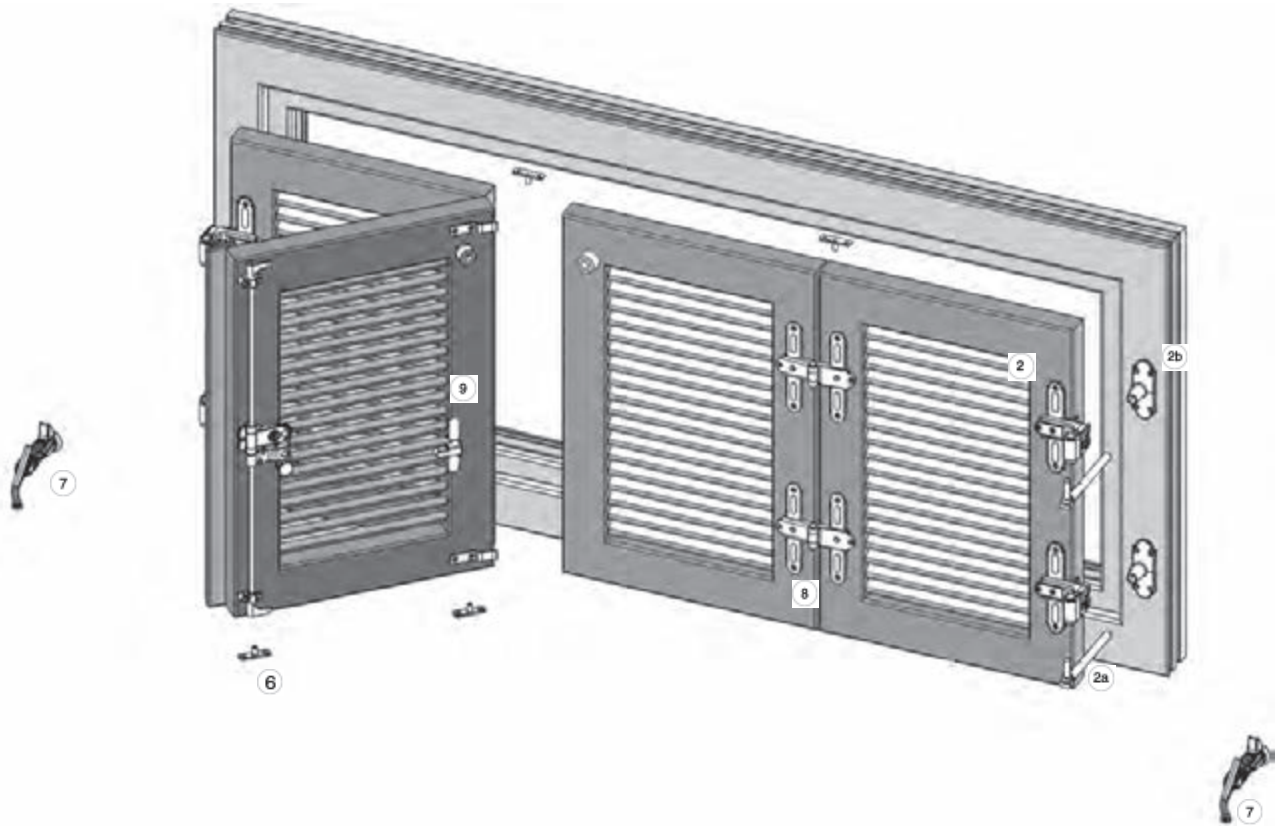
Calculation shutter pin distance

$$\begin{aligned}
 & 105 \text{ mm} \\
 & + 20 \text{ mm} \\
 & + 47 \text{ mm} \\
 & \text{(shutter thickness 30 mm + distance 17 mm)} \\
 \hline
 & = 172 : 2 = 86 \text{ mm} \\
 & \rightarrow \text{L 105 (60 - 90 mm)}
 \end{aligned}$$

Calculation hinge crank

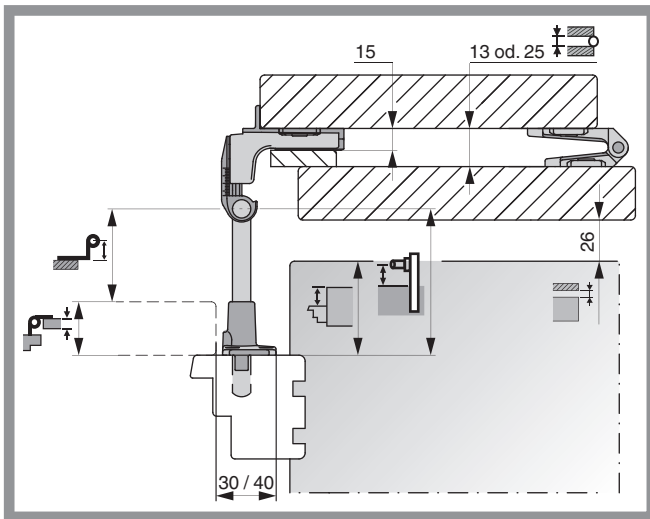
$$\begin{aligned}
 & 105 \text{ mm} \\
 & + 20 \text{ mm} \\
 & - 30 \text{ mm} \\
 & - 17 \text{ mm} \\
 \hline
 & = 78 : 2 = 39 \text{ mm} \\
 & \rightarrow \text{Gr. 1 (32 - 50 mm)}
 \end{aligned}$$

2.1.3 Multi-sashed external pivot point



Selection guide		Page
2	2.2 Shutter hinges with lateral adjustment	→45
2a	2.3 Shutter pins	→49
2b	2.4 Shutter pin holders	→52
6	6.1 Rod-driven shutter locks	→112
7	7 Shutter Catches	→126
8	8.6 Accessories for folding shutters	→140
9	9 Louvre Fittings	→148

2.1.3.1 Shutter flush mounted, without spacing



Calculation shutter pin distance

	105 mm
	+ 26 mm
	+ 25 mm
2 x	+ 60 mm
<hr/>	
=	216 : 2 = 108 mm
<hr/>	
→ L 135 (80 - 120 mm)	

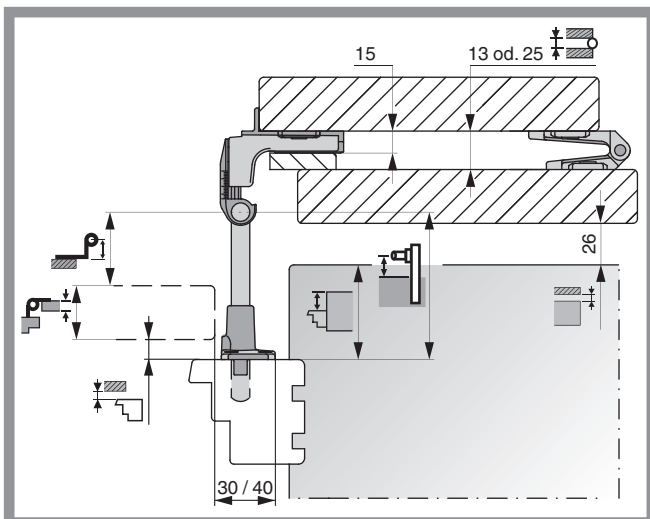
Calculation hinge crank

	105 mm
	+ 26 mm
	+ 25 mm
<hr/>	
=	156 : 2 = 78 mm
<hr/>	
→ Gr. 3  (65 - 100 mm)	

i  
BLR

BLR

2.1.3.2 Shutter flush mounted, with spacing



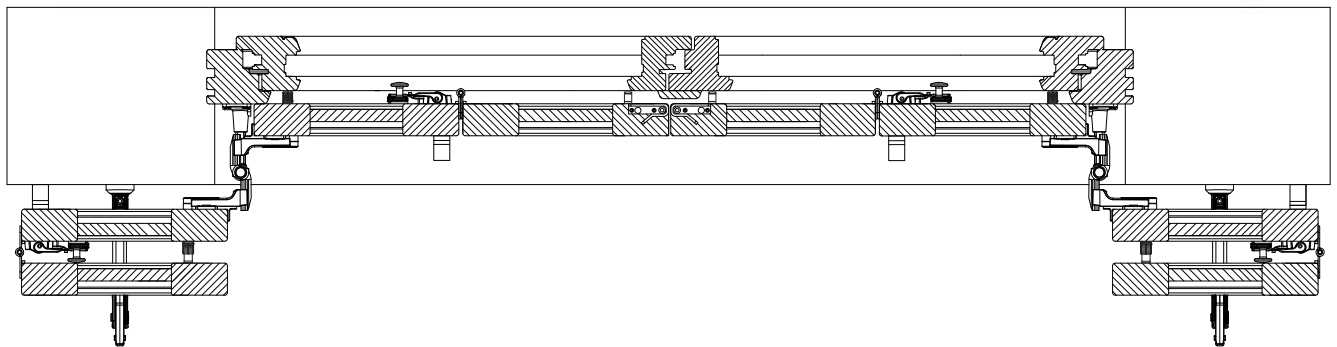
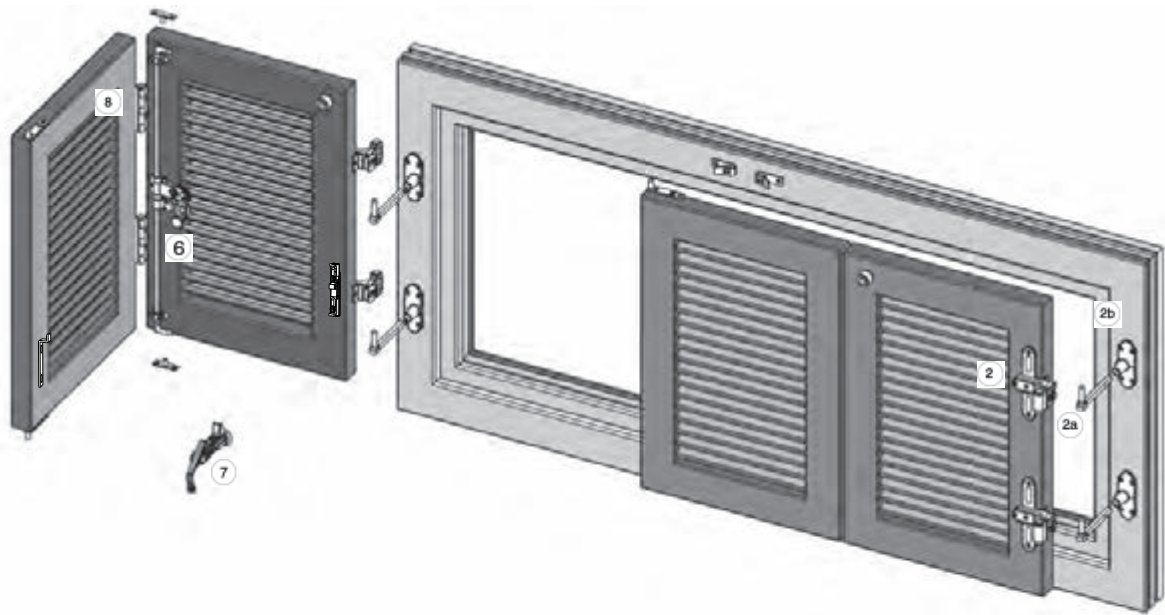
Calculation shutter pin distance

	105 mm
	+ 26 mm
	+ 25 mm
2 x	+ 70 mm
	+ 17 mm
<hr/>	
=	243 : 2 = 121,5 mm
<hr/>	
→ L 165 (120-140 mm)	

Calculation hinge crank

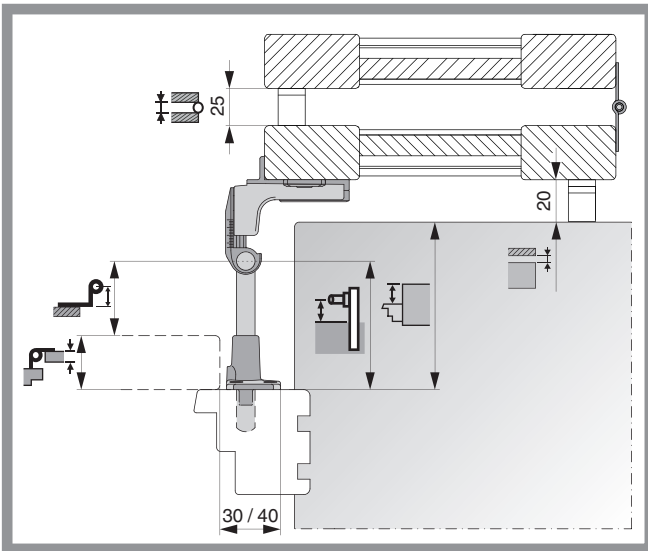
	105 mm
	+ 26 mm
	+ 25 mm
	- 17 mm
<hr/>	
=	139 : 2 = 69,5 mm
<hr/>	
→ Gr. 3  (65 - 100 mm)	

2.1.4 Multi-sashed internal pivot point



Selection guide			Page
2	2.2	Shutter hinges with lateral adjustment	→45
2a	2.3	Shutter pins	→49
2b	2.4	Shutter pin holders	→52
6	6.1	Rod-driven shutter locks	→112
7	7	Shutter Catches	→126
8	8.6	Accessories for folding shutters	→140

2.1.4.1 Shutter flush mounted, without spacing



Calculation shutter pin distance

	110 mm
	+ 20 mm
	+ 30 mm
<hr/>	
=	160 mm : 2 = 80 mm
<hr/>	
→	L 105 (60 - 90 mm)

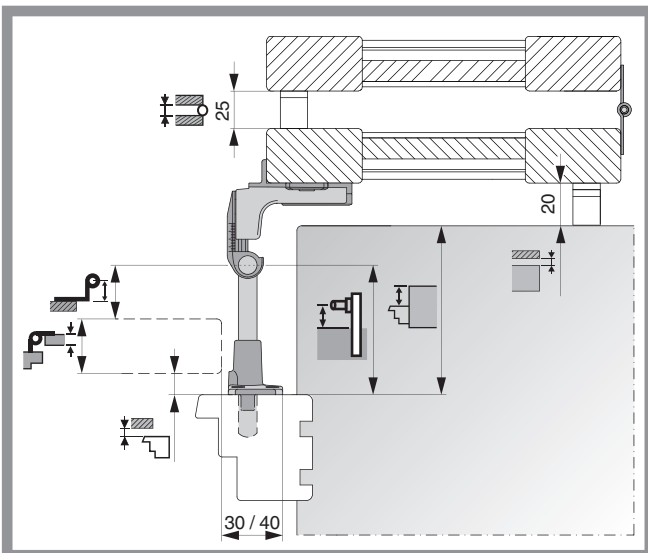
Calculation hinge crank

	110 mm
	+ 20 mm
	- 30 mm
<hr/>	
=	100 : 2 = 50 mm
<hr/>	
→	Gr. 2  (45 - 70 mm)

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2.1.4.2 Shutter flush mounted, with spacing



Calculation shutter pin distance

	105 mm
	+ 20 mm
	+ 47 mm (shutter thickness 30 mm + distance 17 mm)
<hr/>	
=	172 : 2 = 86 mm
<hr/>	
→	L 105 (60 - 90 mm)

Calculation hinge crank

	105 mm
	+ 20 mm
	- 30 mm
	- 17 mm
<hr/>	
=	78 : 2 = 39 mm
<hr/>	
→	Gr. 1  (32 - 50 mm)



### 2.1.5 Instructions for determining permissible shutter sizes

To read the permissible shutter sizes in the diagrams ("Calculation diagrams ..."), the weight per square meter ( $\text{kg}/\text{m}^2$ ) of the shutter must be known.

For the diagrams shown ("Calculation diagrams ...") the weight per square meter ( $\text{kg}/\text{m}^2$ ) is always specified."

### 2.1.6 Determining the weight per square meter ( $\text{kg}/\text{m}^2$ )

The easiest method is to "Weigh - measure - divide". Proceed as follows: Use commercially available bathroom scales to determine the overall weight of the shutter, Then calculate the shutter surface by multiplying the values for the length and width (specified in meters). Then divide the weight (kg) by the surface area ( $\text{m}^2$ ).

#### Example calculation:

- Shutter height 2.10 m, shutter width 0.75 m; shutter surface  $2.1 \text{ m} \times 0.75 \text{ m} = 1.575 \text{ m}^2$
- Shutter weight acc. to weight: 18 kg
- Weight per square meter:  $18 \text{ kg} : 1.575 \text{ m}^2 = 11.4 \text{ kg}/\text{m}^2$
- Select the matching diagram:  
for MMV hardware range: Diagram "max.  $12 \text{ kg}/\text{m}^2$ "  
for BLR and MV hardware ranges: Diagram "max.  $14 \text{ kg}/\text{m}^2$ "

For solid timber shutters, the weight per square meter can be calculated as follows: Multiply the weight of a cubic meter of the timber used by the shutter thickness (specified in meters).

Benchmarks for timber weights: spruce  $400\text{-}500 \text{ kg}/\text{m}^3$ , oak  $670\text{-}850 \text{ kg}/\text{m}^3$

**Example calculation:**  $430 \text{ kg} \times 0.044 \text{ m} = 18.92 \text{ kg}/\text{m}^2$  (cubic meter weight x shutter thickness = weight per square meter).

When using PVC or aluminium profiles, contact the profile manufacturer to determine the weight per square meter.

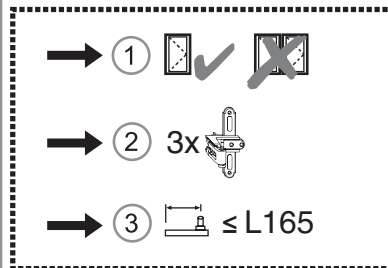
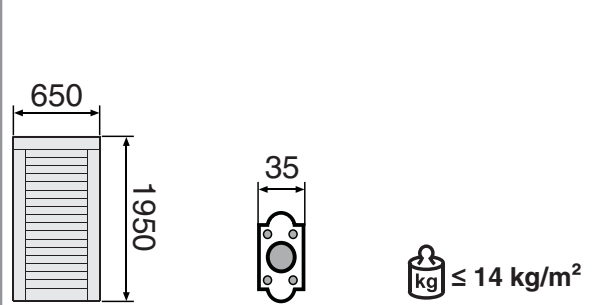
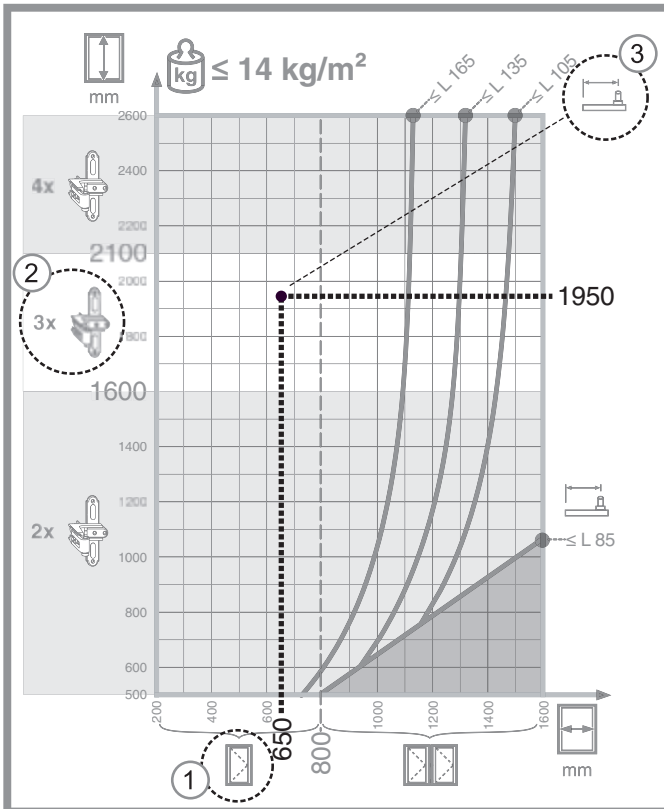
**In installations where hardware components from different hardware ranges are used, the corresponding diagrams for the hardware range BLR/MV must be taken into account when determining the permissible shutter sizes!**



Using calculation diagrams

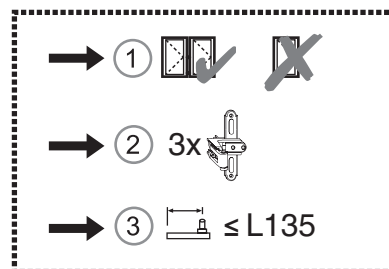
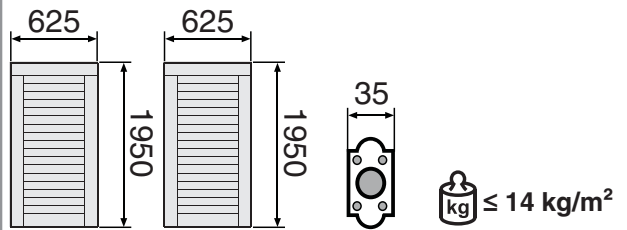
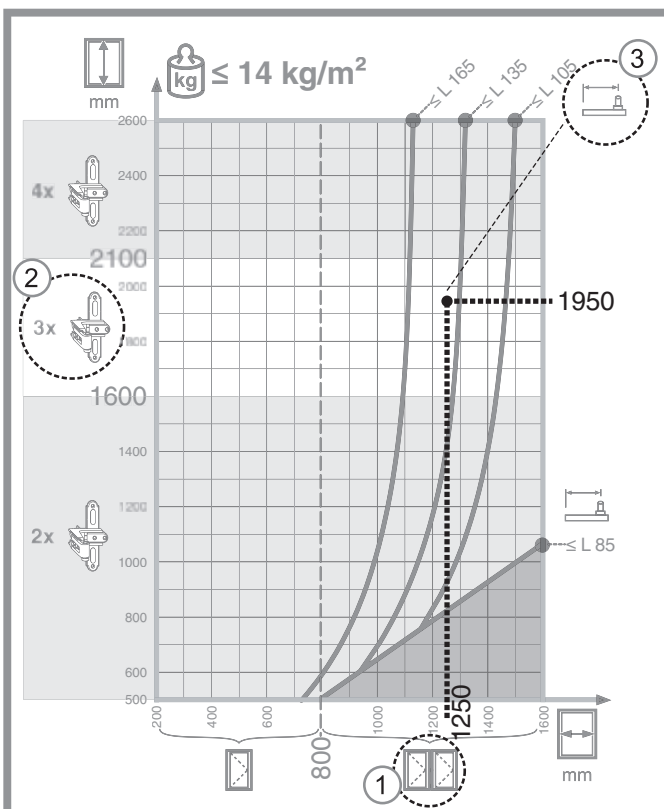
Mark the intersection of the width and height in the diagram for the shutter to be installed.

Use the examples below to determine which important information can be read from the diagrams to ensure correct hardware selection and shutter installation:



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## 2.1.7 Shutter sizes with 35mm wide shutter pin holder

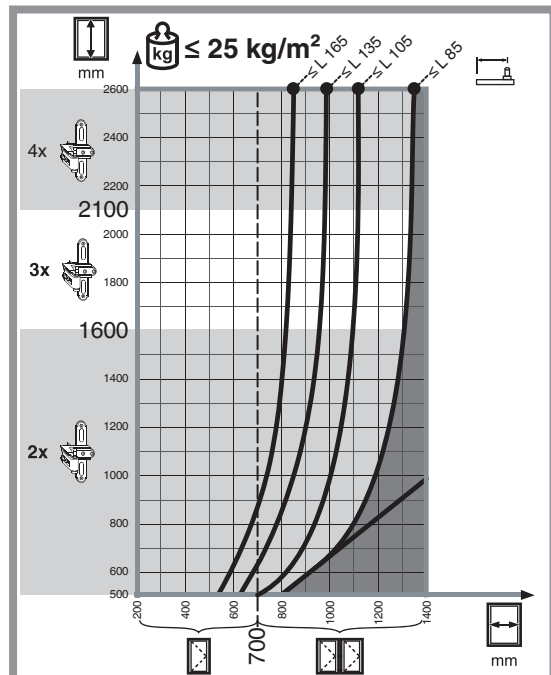
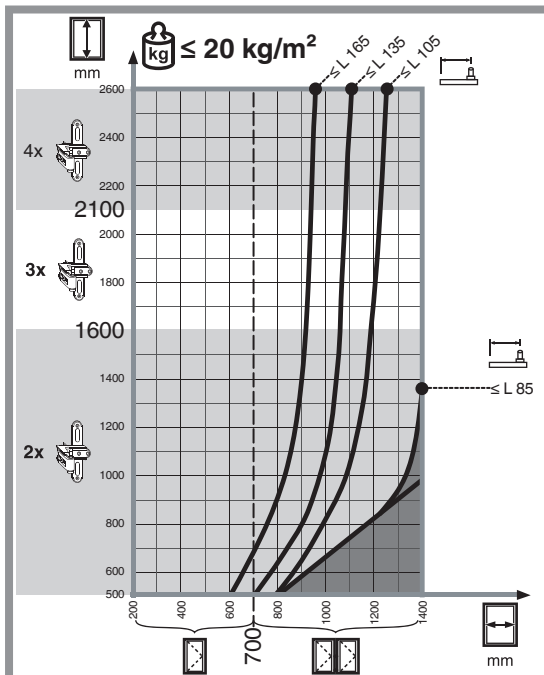
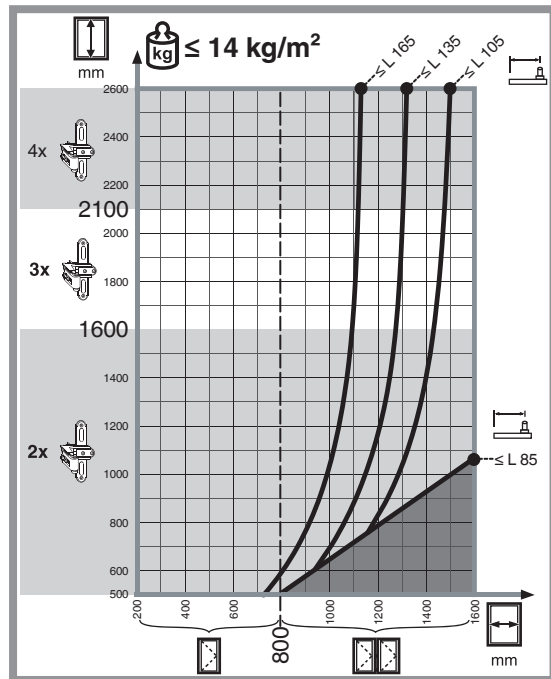
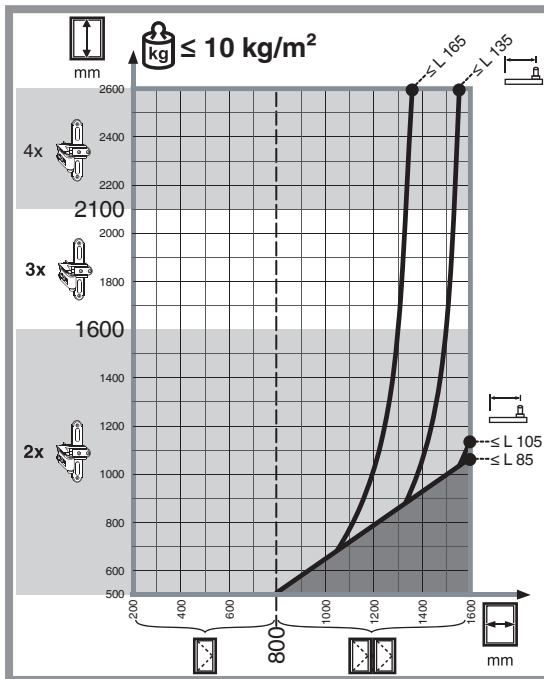
The following diagrams apply for all items from the BLR and MV hardware ranges shown in this catalogue in combination with 35 mm holder for shutter pin with surface-mounted pins and corner support for mounting frame.

Restrictions:

The permissible folding shutter sizes are reduced when a 25 mm wide shutter pin holder or "Threaded surface mounted frame hinge with lateral adjustment" is used — see diagrams "Sash sizes with 25mm wide shutter pin holder".

When snap holders and crank openers are used, please observe the footnotes below the relevant tables.

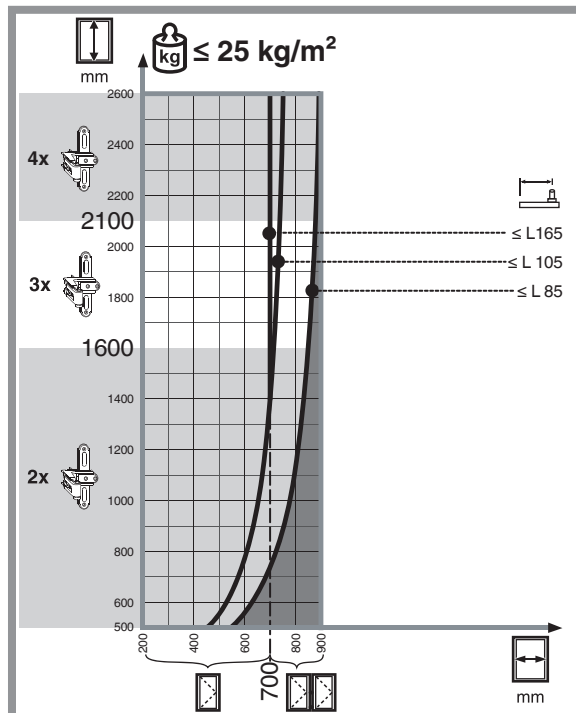
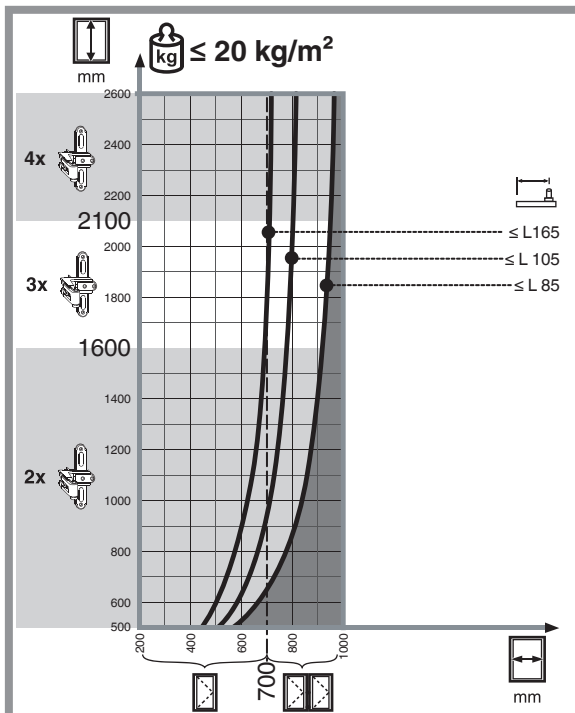
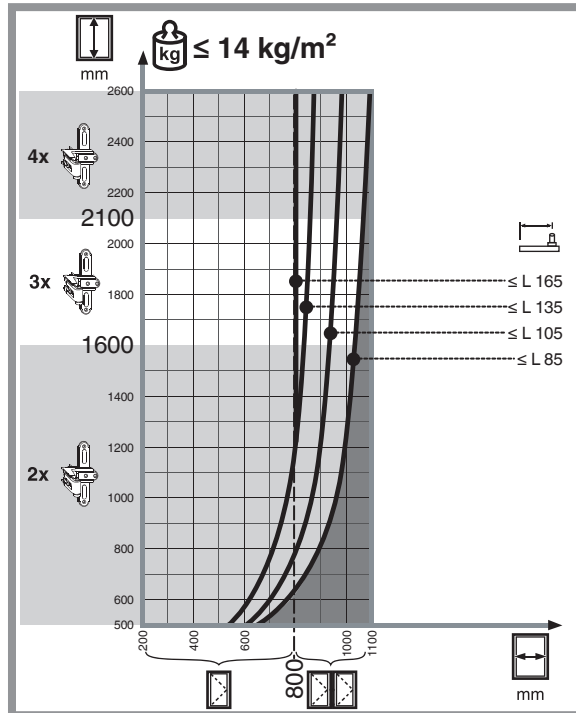
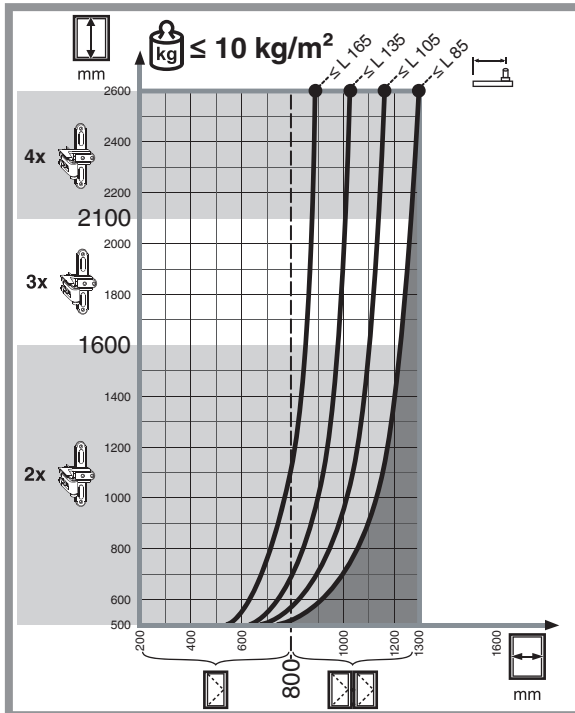
In installations where hardware components from different hardware ranges are used, the corresponding diagrams for the hardware range BLR/MV must be taken into account when determining the permissible sash sizes!



2.1.8 Shutter sizes with 25mm wide shutter pin holder

The following diagrams apply for all articles in the BLR and MV hardware ranges shown in this catalogue in combination with the 25 mm holder for shutter pin or with "Threaded surface mounted frame hinge with lateral adjustment".

In installations where hardware components from different hardware ranges are used, the corresponding diagrams for the hardware range BLR/MV must be taken into account when determining the permissible sash sizes!



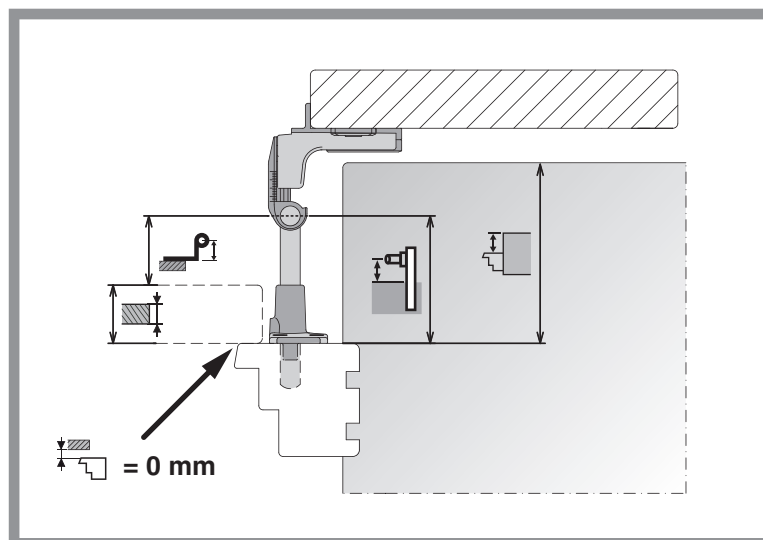
2.1.9 Determination of correct hardware dimensions

for shutter distance 0 mm (pin and snap holder sizes apply for installation on timber — see Section 1.3)

Sash hinges - Crank																				Distance	0								
		Reveal-depth in mm																											
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210						
Shutter thickness	25 mm		15	15	15	20	23	28	33	38	43	48	53	58	63	68	73	78	83	88	93	98							
	30 mm	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100						
	35 mm	0	0	15	15	15	20	23	28	33	38	43	48	53	58	63	68	73	78	83	88	93	98						
	40 mm	0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95						
	50 mm	0	0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90						
flat					flush					Gr.0					Gr.1					Gr.2					Gr.3				
Fixed Crank with lateral adjustment										Crank with lateral adjustment																			

Adjustable shutter pin - Distance																												
		Reveal-depth in mm																										
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210					
Shutter thickness	25 mm		40	40	40	45	48	53	58	63	68	73	78	83	88	93	98	103	108	113	118	123						
	30 mm	30	30	45	45	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130					
	35 mm	35	35	50	50	50	55	58	63	68	73	78	83	88	93	98	103	108	113	118	123	128	133					
	40 mm	40	40	40	55	55	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135					
	50 mm	50	50	50	50	65	65	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140					
L59		L75			L85			L95			L105			L115			L125			L135			L150			L165		

Shutter catch - Shutter pin distance																							
		Reveal-depth in mm																					
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210
Shutter thickness	25 mm						54	54	58	63	68	73	78	83	88	93	98	103	108	113	118	123	
	30 mm							59	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130
	35 mm							64	64	68	73	78	83	88	93	98	103	108	113	118	123	128	133
	40 mm							69	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140
	50 mm								79	80	85	90	95	100	105	110	115	120	125	130	135	140	
L90							L110					L140					L165 always between 2 shutter pins						



for shutter distance 10 mm (pin and snap holder sizes apply for installation on timber — see Section 1.3)

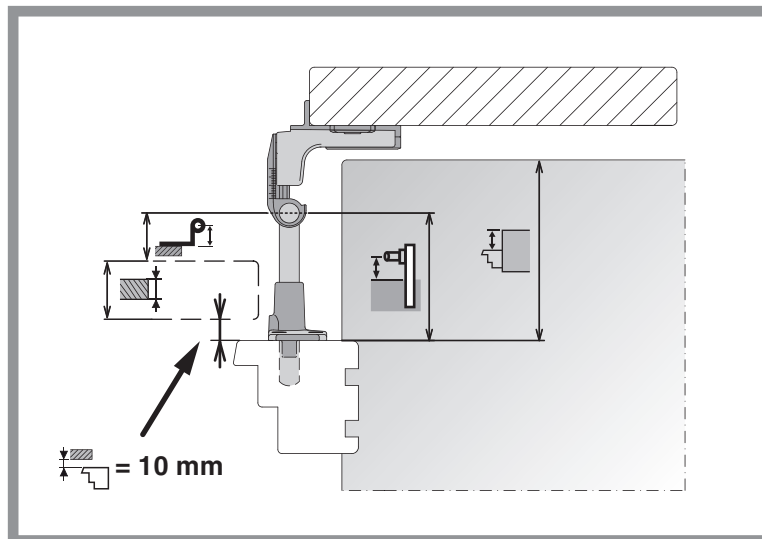
Sash hinges - Crank																		Distance	10				
		Reveal-depth in mm																					
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210
Shutter thickness	25 mm		15	15	15	20	23	28	33	38	43	48	53	58	63	68	73	78	83	88	93	98	
	30 mm	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100
	35 mm	0	0	15	15	15	20	23	28	33	38	43	48	53	58	63	68	73	78	83	88	93	98
	40 mm	0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95
	50 mm	0	0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
		flat			flush			Gr.0			Gr.1			Gr.2			Gr.3						
		Fixed Crank with lateral adjustment						Crank with lateral adjustment															

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Adjustable shutter pin - Distance																							
		Reveal-depth in mm																					
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210
Shutter thickness	25 mm		40	40	40	45	48	53	58	63	68	73	78	83	88	93	98	103	108	113	118	123	
	30 mm	30	30	45	45	45	50	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130
	35 mm	35	35	50	50	50	55	58	63	68	73	78	83	88	93	98	103	108	113	118	123	128	133
	40 mm	40	40	40	55	55	55	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135
	50 mm	50	50	50	50	65	65	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140
		L59	L75		L85			L95		L105			L115		L125		L135		L150		L165		

Shutter catch - Shutter pin distance																								
		Reveal-depth in mm																						
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	
Shutter thickness	25 mm						54	54	58	63	68	73	78	83	88	93	98	103	108	113	118	123		
	30 mm							59	60	65	70	75	80	85	90	95	100	105	110	115	120	125	130	
	35 mm							64	64	68	73	78	83	88	93	98	103	108	113	118	123	128	133	
	40 mm								69	70	75	80	85	90	95	100	105	110	115	120	125	130	135	
	50 mm									79	80	85	90	95	100	105	110	115	120	125	130	135	140	
		L90						L110					L140					L165 always between 2 shutter pins						

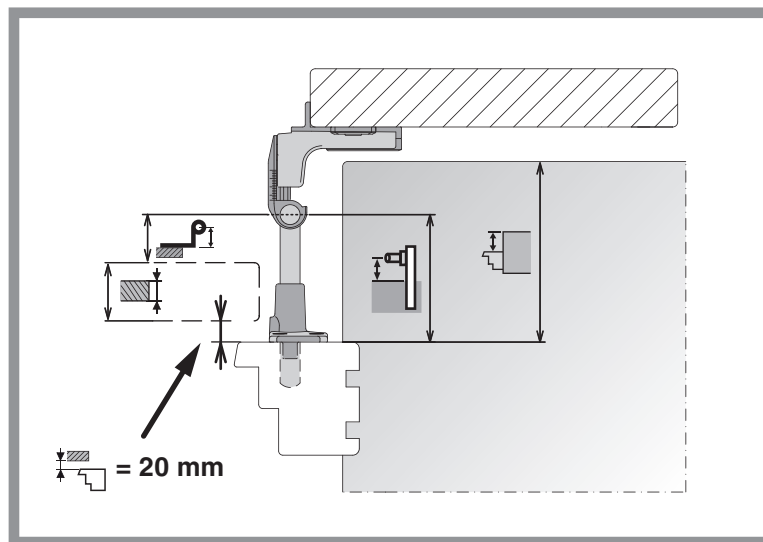


for shutter distance 20 mm (pin and snap holder sizes apply for installation on timber — see Section 1.3)

		Sash hinges - Crank																		Distance	20		
		Reveal-depth in mm																					
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210
Shutter thickness	25 mm	0	0	0	15	15	15	20	23	28	33	38	43	48	53	58	63	68	73	78	83	88	93
	30 mm		0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90
	35 mm		0	0	0	15	15	15	20	23	28	33	38	43	48	53	58	63	68	73	78	83	
	40 mm			0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	
	50 mm				0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70		
		flat					flush					Gr.0			Gr.1			Gr.2			Gr.3		
		Fixed Crank with lateral adjustment										Crank with lateral adjustment											

		Adjustable shutter pin - Distance																						
		Reveal-depth in mm																						
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	
Shutter thickness	25 mm	45	45	45	60	60	60	65	68	73	78	83	88	93	98	103	108	113	118	123	128	133	138	
	30 mm		50	50	50	65	65	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140	
	35 mm		55	55	55	70	70	70	73	78	83	88	93	98	103	108	113	118	123	128	133	138		
	40 mm			60	60	60	75	75	75	80	85	90	95	100	105	110	115	120	125	130	135	140		
	50 mm				70	70	70	85	85	85	90	95	100	105	110	115	120	125	130	135	140			
		L75			L85			L95			L105			L115		L125		L135		L150			L165	

		Shutter catch - Shutter pin distance																					
		Reveal-depth in mm																					
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210
Shutter thickness	25 mm								74	74	78	83	88	93	98	103	108	113	118	123	128	133	138
	30 mm								79	79	80	85	90	95	100	105	110	115	120	125	130	135	140
	35 mm									84	84	88	93	98	103	108	113	118	123	128	133	138	
	40 mm									89	89	90	95	100	105	110	115	120	125	130	135	140	
	50 mm										99	99	100	105	110	115	120	125	130	135	140		
											L110			L140			L165 always between 2 shutter pins						



for shutter distance 25 mm (pin and snap holder sizes apply for installation on timber — see Section 1.3)

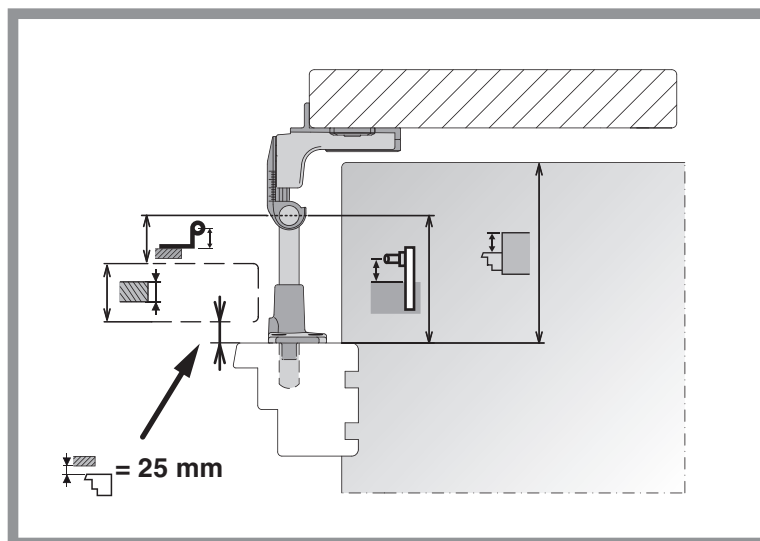
		Sash hinges - Crank																			Distance	25		
		Reveal-depth in mm																						
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210	
Shutter thickness	25 mm		0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	
	30 mm		0	0	0	15	15	15	20	23	28	33	38	43	48	53	58	63	68	73	78	83		
	35 mm			0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80		
	40 mm			0	0	0	15	15	15	20	23	28	33	38	43	48	53	58	63	68	73			
	50 mm				0	0	0	15	15	15	20	23	28	33	38	43	48	53	58	63				
		flat					flush					Gr.0			Gr.1			Gr.2			Gr.3			
		Fixed Crank with lateral adjustment										Crank with lateral adjustment												

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		Adjustable shutter pin - Distance																					
		Reveal-depth in mm																					
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210
Shutter thickness	25 mm		50	50	50	65	65	65	70	75	80	85	90	95	100	105	110	115	120	125	130	135	140
	30 mm		55	55	55	70	70	70	75	78	83	88	93	98	103	108	113	118	123	128	133	138	
	35 mm			60	60	60	75	75	75	80	85	90	95	100	105	110	115	120	125	130	135	140	
	40 mm			65	65	65	80	80	80	85	88	93	98	103	108	113	118	123	128	133	138		
	50 mm				75	75	75	90	90	90	95	98	103	108	113	118	123	128	133	138			
		L75		L85		L95		L105			L115		L125		L135		L150		L165				

		Shutter catch - Shutter pin distance																					
		Reveal-depth in mm																					
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210
Shutter thickness	25 mm								79	79	80	85	90	95	100	105	110	115	120	125	130	135	140
	30 mm									84	84	88	93	98	103	108	113	118	123	128	133	138	
	35 mm									89	89	90	95	100	105	110	115	120	125	130	135	140	
	40 mm										94	94	98	103	108	113	118	123	128	133	138		
	50 mm											104	104	108	113	118	123	128	133	138			
							L110					L140					L165 always between 2 shutter pins						

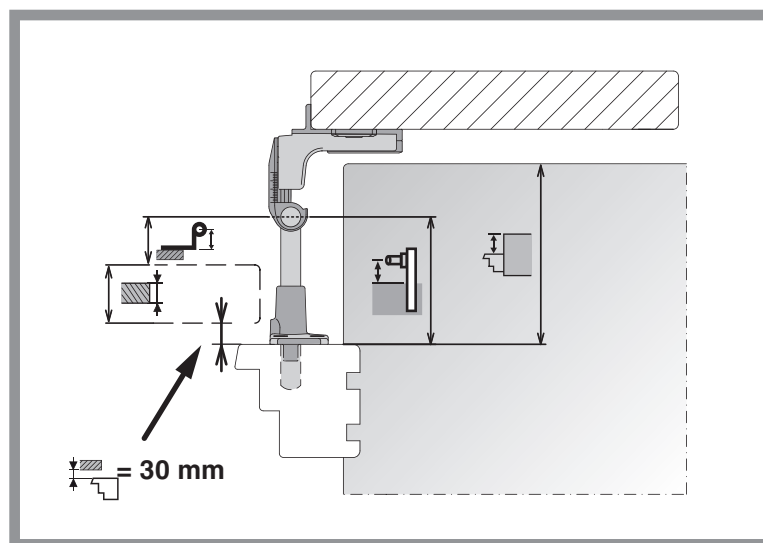


for shutter distance 30 mm (pin and snap holder sizes apply for installation on timber — see Section 1.3)

Sash hinges - Crank																				Distance	30				
		Reveal-depth in mm																							
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210		
Shutter thickness	25 mm		0	0	0	15	15	15	20	23	28	33	38	43	48	53	58	63	68	73	78	83			
	30 mm			0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70	75	80			
	35 mm				0	0	0	15	15	15	20	23	28	33	38	43	48	53	58	63	68	73			
	40 mm					0	0	0	15	15	15	20	25	30	35	40	45	50	55	60	65	70			
							0	0	0	15	15	15	20	25	30	35	40	45	50	55	60				
		flat							flush					Gr.0			Gr.1			Gr.2		Gr.3			
		Fixed Crank with lateral adjustment							Crank with lateral adjustment																

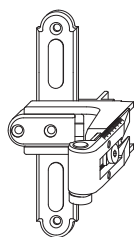
Adjustable shutter pin - Distance																							
		Reveal-depth in mm																					
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210
Shutter thickness	25 mm		55	55	55	70	70	70	73	78	83	88	93	98	103	108	113	118	123	128	133	138	
	30 mm			60	60	60	75	75	75	80	85	90	95	100	105	110	115	120	125	130	135	140	
	35 mm				65	65	65	80	80	88	88	93	98	103	108	113	118	123	128	133	138		
	40 mm					70	70	70	85	85	85	90	95	100	105	110	115	120	125	130	135	140	
							80	80	80	95	95	95	100	105	110	115	120	125	130	135	140		
		L75	L85	L95	L105			L115			L125		L135		L150		L165						

Shutter catch - Shutter pin distance																							
		Reveal-depth in mm																					
		0	10	20	30	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200	210
Shutter thickness	25 mm								84	84	84	88	93	98	103	108	113	118	123	128	133	138	
	30 mm									89	89	90	95	100	105	110	115	120	125	130	135	140	
	35 mm										94	94	94	98	103	108	113	118	123	128	133	138	
	40 mm											99	99	100	105	110	115	120	125	130	135	140	
												109	109	110	115	120	125	130	135	140			
									L110			L140					L165 always between 2 shutter pins						





## 2.2 Shutter hinges with lateral adjustment

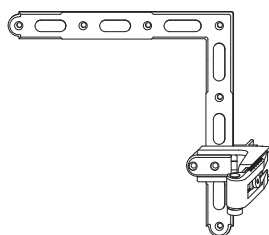


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2.2.1 Cross hinges						No
black-S	size 0	50 - 74	20 - 32	18	20	208750 <sup>1</sup>
	size 1	74 - 110	32 - 50	18	20	56966 <sup>1</sup>
	size 2	100 - 150	45 - 70	18	20	56970 <sup>1</sup>
	size 3	140 - 210	65 - 100	18	20	56974 <sup>1</sup>
grey-S	size 0	50 - 74	20 - 32	18	20	210362 <sup>1</sup>
	size 1	74 - 110	32 - 50	18	20	210363 <sup>1</sup>
	size 2	100 - 150	45 - 70	18	20	210364 <sup>1</sup>
	size 3	140 - 210	65 - 100	18	20	210365 <sup>1</sup>
white-S	size 0	50 - 74	20 - 32	18	20	208754 <sup>1</sup>
	size 1	74 - 110	32 - 50	18	20	24988 <sup>1</sup>
	size 2	100 - 150	45 - 70	18	20	24991 <sup>1</sup>
	size 3	140 - 210	65 - 100	18	20	24994 <sup>1</sup>

BLR

<sup>1</sup> The specified reveal depths apply to installation situations with 30 mm shutter thickness and 0 mm shutter distance

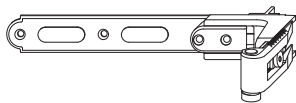


14228

2.2.2 Corner hinges						No
black-S	size 0	50 - 74	20 - 32	18	10	101796 <sup>1,2</sup>
	size 1	74 - 110	32 - 50	18	10	14224 <sup>1,2</sup>
	size 2	100 - 150	45 - 70	18	10	14228 <sup>1,2</sup>
	size 3	140 - 210	65 - 100	18	10	14232 <sup>1,2</sup>
grey-S	size 0	50 - 74	20 - 32	18	10	102181 <sup>1,2</sup>
	size 1	74 - 110	32 - 50	18	10	102182 <sup>1,2</sup>
	size 2	100 - 150	45 - 70	18	10	102183 <sup>1,2</sup>
	size 3	140 - 210	65 - 100	18	10	102184 <sup>1,2</sup>
white-S	size 0	50 - 74	20 - 32	18	10	101797 <sup>1,2</sup>
	size 1	74 - 110	32 - 50	18	10	13168 <sup>1,2</sup>
	size 2	100 - 150	45 - 70	18	10	13169 <sup>1,2</sup>
	size 3	140 - 210	65 - 100	18	10	13170 <sup>1,2</sup>

<sup>1</sup> The specified reveal depths apply to installation situations with 30 mm shutter thickness and 0 mm shutter distance

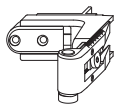
<sup>2</sup> With corner hinges, a packaging unit consists of 1 piece top corner hinge and 1 piece bottom corner hinge.



56982

2.2.3 Long hinges							No
black-S	size 0	50 - 74	20 - 32	18	340	20	<b>208751<sup>1</sup></b>
					200	20	<b>208752<sup>1</sup></b>
	size 1	74 - 110	32 - 50	18	340	20	<b>56978<sup>1</sup></b>
					200	20	<b>56990<sup>1</sup></b>
	size 2	100 - 150	45 - 70	18	340	20	<b>56982<sup>1</sup></b>
				200	20	<b>56994<sup>1</sup></b>	
grey-S	size 3	140 - 210	65 - 100	18	340	20	<b>56986<sup>1</sup></b>
					200	20	<b>56998<sup>1</sup></b>
	size 0	50 - 74	20 - 32	18	340	20	<b>210368<sup>1</sup></b>
					200	20	<b>212506<sup>1</sup></b>
	size 1	74 - 110	32 - 50	18	340	20	<b>210369<sup>1</sup></b>
				200	20	<b>212653<sup>1</sup></b>	
white-S	size 2	100 - 150	45 - 70	18	340	20	<b>210370<sup>1</sup></b>
					200	20	<b>212654<sup>1</sup></b>
	size 3	140 - 210	65 - 100	18	340	20	<b>210371<sup>1</sup></b>
					200	20	<b>212655<sup>1</sup></b>
	size 0	50 - 74	20 - 32	18	340	20	<b>208756<sup>1</sup></b>
						<b>24997<sup>1</sup></b>	
	size 1	74 - 110	32 - 50	18	340	20	<b>27001<sup>1</sup></b>
	size 2	100 - 150	45 - 70	18	340	20	<b>27001<sup>1</sup></b>
	size 3	140 - 210	65 - 100	18	340	20	<b>27004<sup>1</sup></b>

<sup>1</sup> The specified reveal depths apply to installation situations with 30 mm shutter thickness and 0 mm shutter distance

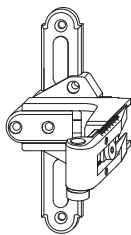


57051

2.2.4 Short hinges							No
black-S	size 0	50 - 74	20 - 32	18	20		<b>208753<sup>1</sup></b>
	size 1	74 - 100	32 - 50	18	20		<b>57050<sup>1</sup></b>
	size 2	100 - 150	45 - 70	18	20		<b>57051<sup>1</sup></b>
	size 3	140 - 210	65 - 100	18	20		<b>57052<sup>1</sup></b>
white-S	size 0	50 - 74	20 - 32	18	20		<b>208755<sup>1</sup></b>
	size 1	74 - 100	32 - 50	18	20		<b>59476<sup>1</sup></b>
	size 2	100 - 150	45 - 70	18	20		<b>59477<sup>1</sup></b>
	size 3	140 - 210	65 - 100	18	20		<b>59478<sup>1</sup></b>

<sup>1</sup> The specified reveal depths apply to installation situations with 30 mm shutter thickness and 0 mm shutter distance

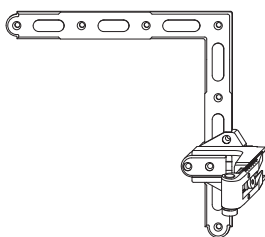
**2.2.5 Shutter hinges with lateral adjustment without lateral fixing tab**



58229

<b>2.2.5.1 Cross hinges</b>						<b>No</b>
black-S	size 0	60 - 78	40 - 49	16 - 19	20	<b>58223<sup>1</sup></b>
	size 1	80 - 116	50 - 68	16 - 19	20	<b>58226<sup>1</sup></b>
	size 2	120 - 170	70 - 95	16 - 19	20	<b>58229<sup>1</sup></b>
	size 3	150 - 190	85 - 105	16 - 19	20	<b>58232<sup>1</sup></b>
grey-S	size 0	60 - 78	40 - 49	16 - 19	20	<b>210358<sup>1</sup></b>
	size 1	80 - 116	50 - 68	16 - 19	20	<b>210359<sup>1</sup></b>
	size 2	120 - 170	70 - 95	16 - 19	20	<b>210360<sup>1</sup></b>
	size 3	150 - 190	85 - 105	16 - 19	20	<b>210361<sup>1</sup></b>
white-S	size 0	60 - 78	40 - 49	16 - 19	20	<b>58225<sup>1</sup></b>
	size 1	80 - 116	50 - 68	16 - 19	20	<b>58228<sup>1</sup></b>
	size 2	120 - 170	70 - 95	16 - 19	20	<b>58231<sup>1</sup></b>
	size 3	150 - 190	85 - 105	16 - 19	20	<b>58234<sup>1</sup></b>

<sup>1</sup> The specified reveal depths apply to installation situations with 30 mm shutter thickness and 0 mm shutter distance

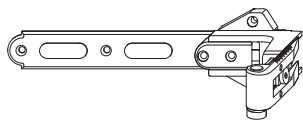


14507

<b>2.2.5.2 Corner hinges</b>						<b>No</b>
black-S	size 0	60 - 78	40 - 49	16 - 19	10	<b>14501<sup>1,2</sup></b>
	size 1	80 - 116	50 - 68	16 - 19	10	<b>14504<sup>1,2</sup></b>
	size 2	120 - 170	70 - 95	16 - 19	10	<b>14507<sup>1,2</sup></b>
	size 3	150 - 190	85 - 105	16 - 19	10	<b>14510<sup>1,2</sup></b>
grey-S	size 0	60 - 78	40 - 49	16 - 19	10	<b>102174<sup>1,2</sup></b>
	size 1	80 - 116	50 - 68	16 - 19	10	<b>102175<sup>1,2</sup></b>
	size 2	120 - 170	70 - 95	16 - 19	10	<b>102176<sup>1,2</sup></b>
	size 3	150 - 190	85 - 105	16 - 19	10	<b>102177<sup>1,2</sup></b>
white-S	size 0	60 - 78	40 - 49	16 - 19	10	<b>14503<sup>1,2</sup></b>
	size 1	80 - 116	50 - 68	16 - 19	10	<b>14506<sup>1,2</sup></b>
	size 2	120 - 170	70 - 95	16 - 19	10	<b>14509<sup>1,2</sup></b>
	size 3	150 - 190	85 - 105	16 - 19	10	<b>14512<sup>1,2</sup></b>

<sup>1</sup> The specified reveal depths apply to installation situations with 30 mm shutter thickness and 0 mm shutter distance

<sup>2</sup> With corner hinges, a packaging unit consists of 1 piece top corner hinge and 1 piece bottom corner hinge.



57274

2.2.5.3 Long hinges							No
black-S	size 0	60 - 78	40 - 49	16 - 19	340	20	<b>57272<sup>1</sup></b>
	size 1	80 - 116	50 - 68	16 - 19	340	20	<b>57273<sup>1</sup></b>
	size 2	120 - 170	70 - 95	16 - 19	340	20	<b>57274<sup>1</sup></b>
	size 3	150 - 190	85 - 105	16 - 19	340	20	<b>57275<sup>1</sup></b>
grey-S	size 0	60 - 78	40 - 49	16 - 19	340	20	<b>210372<sup>1</sup></b>
	size 1	80 - 116	50 - 68	16 - 19	340	20	<b>210373<sup>1</sup></b>
	size 2	120 - 170	70 - 95	16 - 19	340	20	<b>210374<sup>1</sup></b>
	size 3	150 - 190	85 - 105	16 - 19	340	20	<b>210375<sup>1</sup></b>

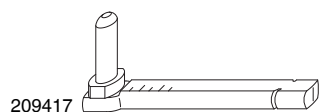
<sup>1</sup> The specified reveal depths apply to installation situations with 30 mm shutter thickness and 0 mm shutter distance



13327

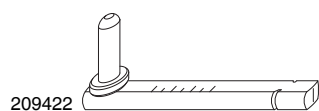
2.2.6 Anti-jemmy device			No
black	anti-jemmy device for sash hinge left	20	<b>13327</b>
	anti-jemmy device for sash hinge right	20	<b>13328</b>
grey	anti-jemmy device for sash hinge left	20	<b>212598</b>
	anti-jemmy device for sash hinge right	20	<b>212599</b>
white	anti-jemmy device for sash hinge left	20	<b>13329</b>
	anti-jemmy device for sash hinge right	20	<b>13330</b>

## 2.3 Shutter pins



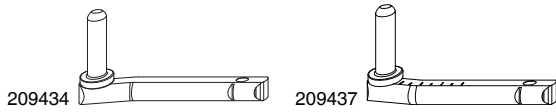
2.3.1 Adjustable shutter pins with lateral adjustment							No
black-S	L85	30 - 70	15	85	20	20	209417 <sup>1</sup>
	L105	50 - 90	15	105	35	20	209418 <sup>1</sup>
	L125	70 - 110	15	125	55	20	209470 <sup>1</sup>
	L135	80 - 120	15	135	55	20	209419 <sup>1</sup>
	L165	110 - 140	25	165	55	20	209421 <sup>1</sup>
grey-S	L85	30 - 70	15	85	20	20	213170 <sup>1</sup>
	L105	50 - 90	15	105	35	20	212745 <sup>1</sup>
	L135	80 - 120	15	135	55	20	213171 <sup>1</sup>
	L165	110 - 140	25	165	55	20	213172 <sup>1</sup>






<sup>1</sup> The specified minimum pin insert depths apply only for installation in timber (see Section 1.2)!



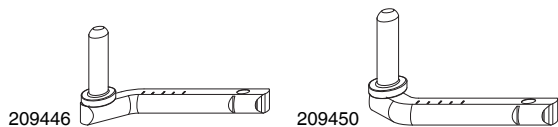
2.3.2 Adjustable shutter pins without lateral adjustment							No
black-S	L59	30 - 44	15	59	20	20	209935 <sup>1</sup>
	L75	30 - 60	15	75	20	20	209936 <sup>1</sup>
	L85	30 - 70	15	85	20	20	209422 <sup>1</sup>
	L95	45 - 80	15	95	35	20	209937 <sup>1</sup>
	L105	50 - 90	15	105	35	20	209423 <sup>1</sup>
	L115	65 - 100	15	115	55	20	209938 <sup>1</sup>
	L125	70 - 110	15	125	55	20	209471 <sup>1</sup>
	L135	80 - 120	15	135	55	20	209424 <sup>1</sup>
	L150	95 - 130	20	150	55	20	209939 <sup>1</sup>
	L165	110 - 140	25	165	55	20	209425 <sup>1</sup>
grey-S	L59	30 - 44	15	59	20	20	210402 <sup>1</sup>
	L75	30 - 60	15	75	20	20	210403 <sup>1</sup>
	L85	30 - 70	15	85	20	20	210401 <sup>1</sup>
	L95	45 - 80	15	95	35	20	210404 <sup>1</sup>
	L105	50 - 90	15	105	35	20	210409 <sup>1</sup>
	L115	65 - 100	15	115	55	20	210405 <sup>1</sup>
	L125	70 - 110	15	125	55	20	210411 <sup>1</sup>
	L135	80 - 120	15	135	55	20	210410 <sup>1</sup>
	L150	95 - 130	20	150	55	20	210406 <sup>1</sup>
	L165	110 - 140	25	165	55	20	210412 <sup>1</sup>
white-S	L59	30 - 44	15	59	20	20	209942 <sup>1</sup>
	L75	30 - 60	15	75	20	20	209943 <sup>1</sup>
	L85	30 - 70	15	85	20	20	209430 <sup>1</sup>
	L95	45 - 80	15	95	35	20	209944 <sup>1</sup>
	L105	50 - 90	15	105	35	20	209431 <sup>1</sup>
	L115	65 - 100	15	115	55	20	209945 <sup>1</sup>
	L125	70 - 110	15	125	55	20	209474 <sup>1</sup>
	L135	80 - 120	15	135	55	20	209432 <sup>1</sup>
	L150	95 - 130	20	150	55	20	209946 <sup>1</sup>
	L165	110 - 140	25	165	55	20	209433 <sup>1</sup>

<sup>1</sup> The specified minimum pin insert depths apply only for installation in timber (see Section 1.2)!



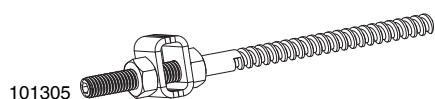
2.3.3 Adjustable shutter pins with 4 mm crank								No
black-S	left	L85	40 - 70	15	85	20	20	<b>209434<sup>1</sup></b>
		L105	55 - 90	15	105	35	20	<b>209435<sup>1</sup></b>
		L135	80 - 120	15	135	55	20	<b>209436<sup>1</sup></b>
		L165	110 - 140	25	165	55	20	<b>215469<sup>1</sup></b>
	right	L85	40 - 70	15	85	20	20	<b>209437<sup>1</sup></b>
		L105	55 - 90	15	105	35	20	<b>209438<sup>1</sup></b>
		L135	80 - 120	15	135	55	20	<b>209439<sup>1</sup></b>
		L165	110 - 140	25	165	55	20	<b>215468<sup>1</sup></b>
grey-S	left	L85	40 - 70	15	85	20	20	<b>210395<sup>1</sup></b>
		L105	55 - 90	15	105	35	20	<b>210396<sup>1</sup></b>
		L135	80 - 120	15	135	55	20	<b>210397<sup>1</sup></b>
	right	L85	40 - 70	15	85	20	20	<b>210398<sup>1</sup></b>
		L105	55 - 90	15	105	35	20	<b>210399<sup>1</sup></b>
		L135	80 - 120	15	135	55	20	<b>210400<sup>1</sup></b>
white-S	left	L85	40 - 70	15	85	20	20	<b>209440<sup>1</sup></b>
		L105	55 - 90	15	105	35	20	<b>209441<sup>1</sup></b>
		L135	80 - 120	15	135	55	20	<b>209442<sup>1</sup></b>
		L165	110 - 140	25	165	55	20	<b>224658<sup>1</sup></b>
	right	L85	40 - 70	15	85	20	20	<b>209443<sup>1</sup></b>
		L105	55 - 90	15	105	35	20	<b>209444<sup>1</sup></b>
		L135	80 - 120	15	135	55	20	<b>209445<sup>1</sup></b>
		L165	110 - 140	25	165	55	20	<b>224657<sup>1</sup></b>

<sup>1</sup> The specified minimum pin insert depths apply only for installation in timber (see Section 1.2)!



2.3.4 Adjustable shutter pins with 12.5 mm crank									No
black-S	left	L80	40 - 65	15	80	20	20		209446 <sup>1</sup>
		L100	55 - 85	15	100	35	20		209447 <sup>1</sup>
		L130	75 - 115	15	130	55	20		209448 <sup>1</sup>
	right	L150	95 - 130	20	150	55	20		209449 <sup>1</sup>
		L80	40 - 65	15	80	20	20		209450 <sup>1</sup>
		L100	55 - 85	15	100	35	20		209451 <sup>1</sup>
grey-S	left	L130	75 - 115	15	130	55	20		209452 <sup>1</sup>
		L150	95 - 130	20	150	55	20		209453 <sup>1</sup>
		L80	40 - 65	15	80	20	20		210379 <sup>1</sup>
	right	L100	55 - 85	15	100	35	20		210388 <sup>1</sup>
		L130	75 - 115	15	130	55	20		210389 <sup>1</sup>
		L150	95 - 130	20	150	55	20		210390 <sup>1</sup>
white-S	left	L80	40 - 65	15	80	20	20		210391 <sup>1</sup>
		L100	55 - 85	15	100	35	20		210392 <sup>1</sup>
		L130	75 - 115	15	130	55	20		210393 <sup>1</sup>
	right	L150	95 - 130	20	150	55	20		210394 <sup>1</sup>
		L80	40 - 65	15	80	20	20		209462 <sup>1</sup>
		L100	55 - 85	15	100	35	20		209463 <sup>1</sup>
	left	L130	75 - 115	15	130	55	20		209464 <sup>1</sup>
		L150	95 - 130	20	150	55	20		209465 <sup>1</sup>
	right	L80	40 - 65	15	80	20	20		209466 <sup>1</sup>
		L100	55 - 85	15	100	35	20		209467 <sup>1</sup>
	left	L130	75 - 115	15	130	55	20		209468 <sup>1</sup>
		L150	95 - 130	20	150	55	20		209469 <sup>1</sup>

<sup>1</sup> The specified minimum pin insert depths apply only for installation in timber (see Section 1.2)!



2.3.5 Frame hinge support					No
black-S		shutter pin support, length 180mm		20	101305 <sup>1</sup>
grey-S		shutter pin support, length 180mm		20	102484 <sup>1</sup>

<sup>1</sup> These items are excluded from the 10-year guarantee.

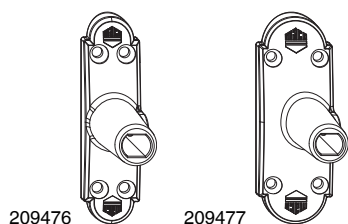


2.3.6 Spacers						No
black	spacer for shutter hinge	Ø 15 mm		1,3	100	40892
grey	spacer for shutter hinge	Ø 15 mm		1,3	100	361316



2.3.7 Regulator sleeve for shutter hinge					No
	sleeve for shutter hinge black			100	40704
	sleeve for shutter hinge grey			100	465210
	sleeve for shutter hinge white			100	41149

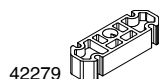
## 2.4 Shutter pin holders



209476

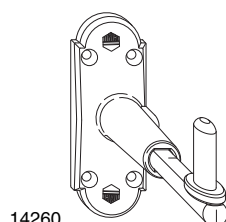
209477

2.4.1 Shutter pin holders							No
black-S	for adjustable shutter pin	L85	shutter pin holder SF	25	20	20	<b>209475</b>
		L105	shutter pin holder SF	25	35	20	<b>209476</b>
		L165	shutter pin holder SF	25	55	20	<b>209479</b>
		L105	shutter pin holder SF	35	35	20	<b>209477</b>
		L165	shutter pin holder SF	35	55	20	<b>209478</b>
grey-S	for adjustable shutter pin	L85	shutter pin holder SF	25	20	20	<b>210353</b>
		L105	shutter pin holder SF	25	35	20	<b>210354</b>
		L165	shutter pin holder SF	25	55	20	<b>210357</b>
		L105	shutter pin holder SF	35	35	20	<b>210355</b>
		L165	shutter pin holder SF	35	55	20	<b>210356</b>
white-S	for adjustable shutter pin	L85	shutter pin holder SF	25	20	20	<b>209485</b>
		L105	shutter pin holder SF	25	35	20	<b>209486</b>
		L165	shutter pin holder SF	25	55	20	<b>209488</b>
		L105	shutter pin holder SF	35	35	20	<b>209487</b>
		L165	shutter pin holder SF	35	55	20	<b>209489</b>



42279

2.4.2 Spacers for shutter pin holders for timber/aluminium windows					No
black	16 mm high for timber-alu windows			100	<b>42279</b>



14260

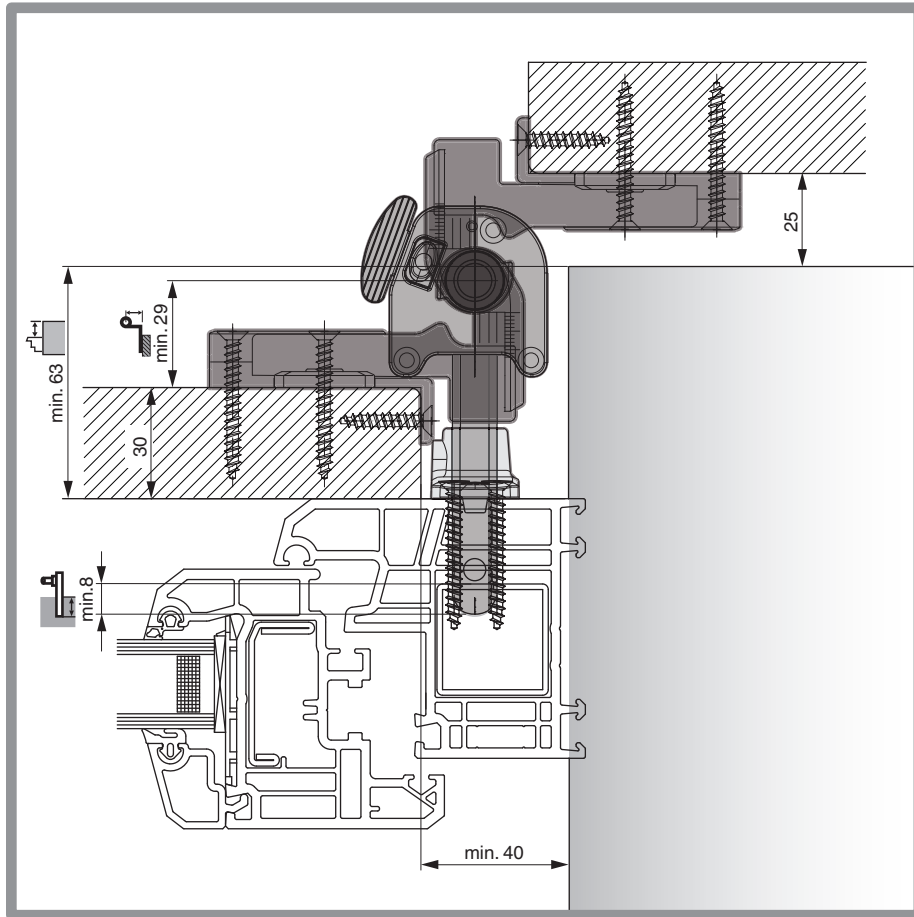
2.4.3 Surface mounted shutter pin holders with prefixed shutter pin							No
black-S	size 1	35	50	20	<b>14256<sup>1</sup></b>		
	size 2	35	65	20	<b>14260<sup>1</sup></b>		
	size 3	35	65	20	<b>14264<sup>1</sup></b>		
grey-S	size 1	35	50	20	<b>102492<sup>1</sup></b>		
	size 2	35	65	20	<b>102493<sup>1</sup></b>		
	size 3	35	65	20	<b>102494<sup>1</sup></b>		

<sup>1</sup> Not suitable for use with shutter catches and crank openers



## 2.5 Snap holders

### 2.5.1 Installation example



BLR

#### Calculation minimum reveal depth

$$2 \times \text{[Bracket Icon]} (2 \times 29) 58 \text{ mm}$$

$$\text{[Shutter Icon]} + 30 \text{ mm}$$

$$\text{[Wall Icon]} - 25 \text{ mm}$$

---

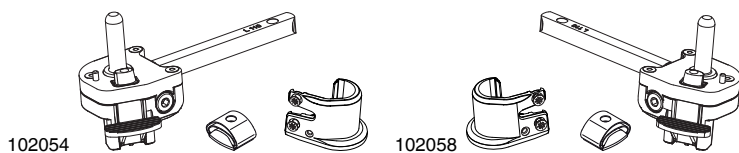

$$= 63 \text{ mm} \quad \text{Minimum reveal depth}$$


---

#### Application ranges for snap holders for pin distance and bracket height

55-70 mm	20 mm
70-90 mm	35 mm
90-140 mm	55 mm

The minimum reveal depth shown in the above example applies for installations with shutter thicknesses of 30 mm, 25 mm distance to wall and installation without clearance to frame.



**2.5.2 Snap holders with straight pin**

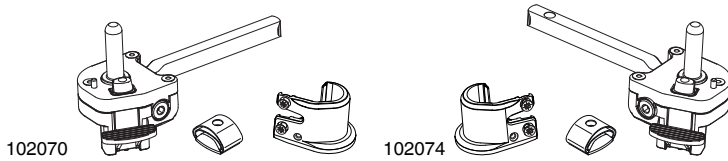


**No**

Color	Side	Size	Pin Range (mm)	Pin Length (mm)	Pin Width (mm)	Part No.	
black-S	left	L90	55 - 70	90	20	<b>102053<sup>1</sup></b>	
		L110	55 - 90	110	20	<b>102054<sup>1</sup></b>	
		L140	85 - 120	140	20	<b>102055<sup>1</sup></b>	
		L165	110 - 140	165	20	<b>102056<sup>1</sup></b>	
	right	L90	55 - 70	90	20	<b>102057<sup>1</sup></b>	
		L110	55 - 90	110	20	<b>102058<sup>1</sup></b>	
		L140	85 - 120	140	20	<b>102059<sup>1</sup></b>	
		L165	110 - 140	165	20	<b>102060<sup>1</sup></b>	
	grey-S	left	L90	55 - 70	90	20	<b>102185<sup>1</sup></b>
			L110	55 - 90	110	20	<b>102186<sup>1</sup></b>
			L140	85 - 120	140	20	<b>102187<sup>1</sup></b>
			L165	110 - 140	165	20	<b>102188<sup>1</sup></b>
right		L90	55 - 70	90	20	<b>102189<sup>1</sup></b>	
		L110	55 - 90	110	20	<b>102190<sup>1</sup></b>	
		L140	85 - 120	140	20	<b>102191<sup>1</sup></b>	
		L165	110 - 140	165	20	<b>102192<sup>1</sup></b>	
white-S		left	L90	55 - 70	90	20	<b>102061<sup>1</sup></b>
			L110	55 - 90	110	20	<b>102062<sup>1</sup></b>
			L140	85 - 120	140	20	<b>102063<sup>1</sup></b>
			L165	110 - 140	165	20	<b>102064<sup>1</sup></b>
	right	L90	55 - 70	90	20	<b>102065<sup>1</sup></b>	
		L110	55 - 90	110	20	<b>102066<sup>1</sup></b>	
		L140	85 - 120	140	20	<b>102067<sup>1</sup></b>	
		L165	110 - 140	165	20	<b>102068<sup>1</sup></b>	

<sup>1</sup> Application ranges:

- Reveal depth from 60 up to 210 mm
- Max. shutter width 600 mm (folding shutter width max. 2 x 600 mm)
- Shutter weight max. 20 kg
- Only use in conjunction with 35 mm wide shutter pin holder, except for shutter pin distances between 55-70 mm
- The buffer stop must always be installed. When the buffer stop is used, make sure that the facade has sufficient compression strength (e.g. for thermal insulation).
- DO NOT use a snap holder L165 (size 3) as a load-bearing hinge!
- Factors such as wind speeds of over 60 km/h (storm) and unfavourable locations can result in deformation of the hardware and consequential damage
- **CAUTION:** On multi-sashed shutters with an internal rotation-point, no snap holders may be used (risk of falling out during storm)!



**2.5.3 Snap holders with 4mm cranked pin**



**No**

Color	Side	Model	Reveal	Pin Dist.	Pin Len.	QTY	Part No.
black-S	left	L90	68 - 70	90	20	<b>102069<sup>1</sup></b>	
		L110	70 - 90	110	20	<b>102070<sup>1</sup></b>	
		L140	90 - 120	140	20	<b>102071<sup>1</sup></b>	
		L165	110 - 140	165	20	<b>102072<sup>1</sup></b>	
	right	L90	68 - 70	90	20	<b>102073<sup>1</sup></b>	
		L110	70 - 90	110	20	<b>102074<sup>1</sup></b>	
		L140	90 - 120	140	20	<b>102075<sup>1</sup></b>	
		L165	110 - 140	165	20	<b>102076<sup>1</sup></b>	
	grey-S	left	L90	68 - 70	90	20	<b>102617<sup>1</sup></b>
			L110	70 - 90	110	20	<b>102618<sup>1</sup></b>
			L140	90 - 120	140	20	<b>102619<sup>1</sup></b>
			L165	110 - 140	165	20	<b>102620<sup>1</sup></b>
right		L90	68 - 70	90	20	<b>102621<sup>1</sup></b>	
		L110	70 - 90	110	20	<b>102622<sup>1</sup></b>	
		L140	90 - 120	140	20	<b>102623<sup>1</sup></b>	
		L165	110 - 140	165	20	<b>102624<sup>1</sup></b>	

<sup>1</sup> Application ranges:

\* Reveal depth from 60 up to 210 mm

\* Max. shutter width 600 mm (folding shutter width max. 2 x 600 mm)

\* Shutter weight max. 20 kg

\* Only use in conjunction with 35 mm wide shutter pin holder, except for shutter pin distances between 68-70 mm

\* The buffer stop must always be installed. When the buffer stop is used, make sure that the facade has sufficient compression strength (e.g. for thermal insulation)

\* DO NOT use a snap holder L165 (size 3) as a load-bearing hinge!

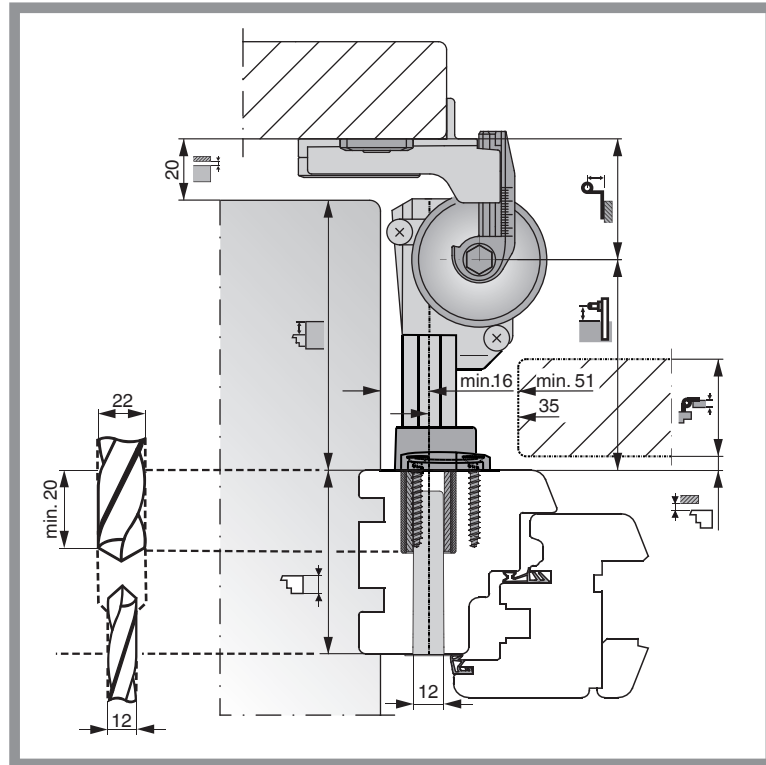
\* Factors such as wind speeds of over 60 km/h (storm) and unfavourable locations can result in deformation of the hardware and consequential damage.

\* CAUTION: On multi-sashed shutters with an internal rotation-point, no snap holder may be used (risk of falling out during storm)!

BLR

## 2.6 Crank openers

### 2.6.1 Installation example with hinge (for Timber- and PVC-Windows)



#### Calculation shutter pin distance

	105 mm
	+ 20 mm
	+ 30 mm
	+ 17 mm
<hr/>	
=	$172 : 2 = 86 \text{ mm}$
<hr/>	
→	L 105 (60-90 mm)

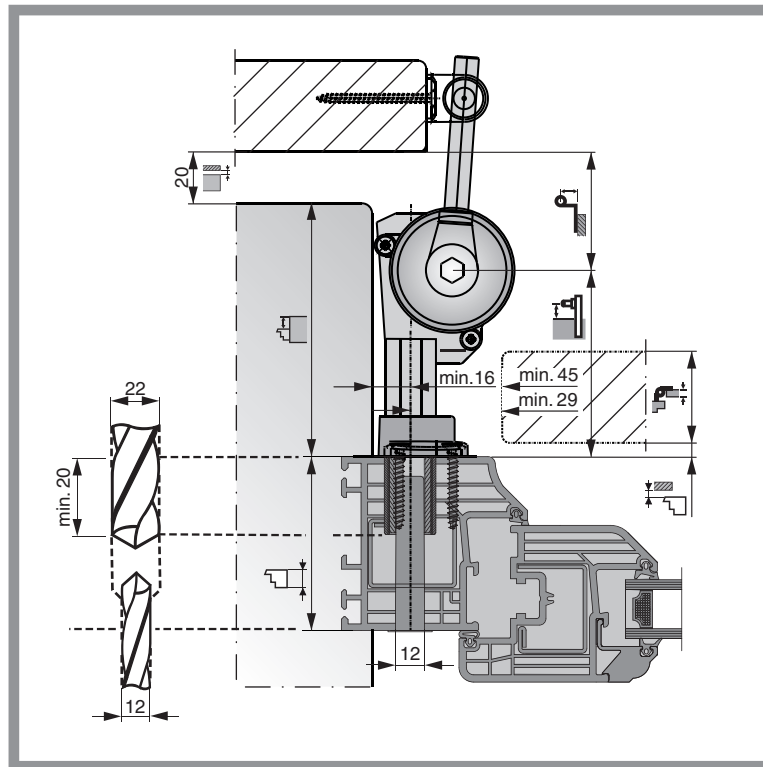
#### Calculation hinge crank

	105 mm
	+ 20 mm
	- 30 mm
	- 17 mm
<hr/>	
=	$78 : 2 = 39 \text{ mm}$
<hr/>	
→	Gr. 1 (32 - 50 mm)

#### Calculation drive gear length

	86 mm
Depth (min. 20mm)+ 40 mm*	
<hr/>	
=	126 mm Drive gear length
<hr/>	
Drive gear L130	
* Greater depth improves stability.	
→ Cut the drive pipe, insulation and rotary arm as necessary!	

2.6.2 Installation example with rotary arm (for Timber- and PVC-Windows)



BLR

Calculation shutter pin distance

	105 mm
	+ 20 mm
	+ 30 mm
	+ 17 mm

---

=  $172 : 2 = 86 \text{ mm}$

---

→ L 105 (60-90 mm)

Calculation drive gear length

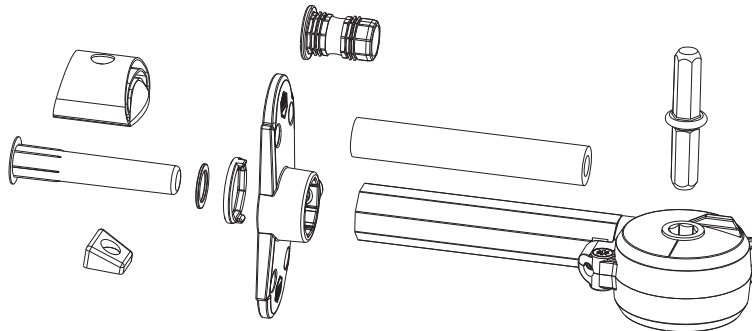
	86 mm
Depth (min. 20mm)+ 40 mm*	
<hr/>	
=	126 mm Drive gear length
<hr/>	

Drive gear L130

\* Greater depth improves stability.

→ Cut the drive pipe, insulation and rotary arm as necessary!

**2.6.3 Drive gear with octagon**



102648

**2.6.3.1 Drive gear for Timber and PVC Window**



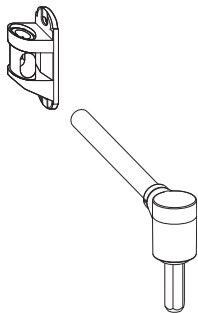
**Nº**

Color	Cranks	L130	L210	L340	Quantity	Part No.
black-S	crank opener with octagon	103 - 180	10			<b>102648<sup>1,2</sup></b>
		103 - 260	10			<b>102649<sup>1,2</sup></b>
		103 - 390	10			<b>102650<sup>1,2</sup></b>
grey-S	crank opener with octagon	103 - 180	10			<b>102758<sup>1,2</sup></b>
		103 - 260	10			<b>102759<sup>1,2</sup></b>
white-S	crank opener with octagon	103 - 180	10			<b>102651<sup>1,2</sup></b>
		103 - 260	10			<b>102652<sup>1,2</sup></b>

<sup>1</sup> When using hardware components for different designs, the responsibility for suitability of the hardware and the solution as a whole shall lie with the fabricator.

<sup>2</sup> Application ranges:

- Max. shutter width for window shutters 700 mm
- Max. shutter width for door shutters 600 mm
- Max. shutter width for multi-sashed window and door shutters 2 x 600 mm
- Max. shutter weight 20 kg
- Only use in conjunction with top and bottom supporting shutter hinges
- Factors such as wind speeds of over 60 km/h (storm) and unfavourable project locations can result in deformation of the hardware and consequential damage



14151

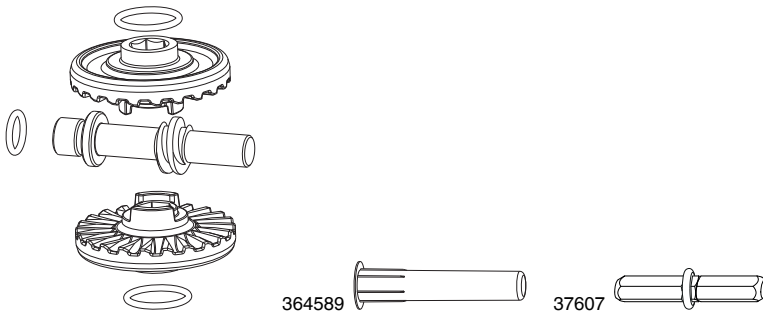
**2.6.3.2 Rotary arm for crank openers**



**Nº**

Color	Quantity	Part No.
rotary arm for crank opener white-S	10	<b>102653<sup>1</sup></b>
rotary arm for crank opener grey-S	10	<b>102760<sup>1</sup></b>
rotary arm for crank opener black-S	20	<b>14151<sup>1</sup></b>

<sup>1</sup> These items are excluded from the 10-year guarantee.



10123

364589

37607

### 2.6.3.3 Accessories for crank opener drive gear

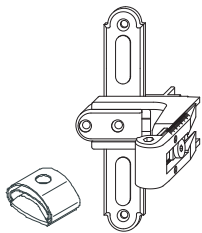


**№**

transmission set for crank opener	50	<b>10123</b>
insulation sleeve for crank opener	20	<b>364189</b>
crank opener cover grey	20	<b>364589</b>
drive gear bolt Ø 16 x 59 black	10	<b>37607</b>
crank opener cover white	10	<b>41902</b>
crank opener cover dark brown	10	<b>41903</b>
grease gun for crank opener 20ml	10	<b>362833</b>
repair cover for crank opener black-S	20	<b>367887</b>

BLR

### 2.6.4 Shutter hinges with lateral adjustment for crank openers



56936

#### 2.6.4.1 Cross hinges with lateral adjustment

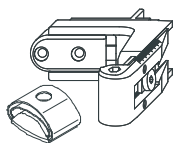


**№**

black-S	size 0	58 - 74	24 - 32	18	10	<b>101448<sup>1,2</sup></b>
	size 1	74 - 110	32 - 50	18	10	<b>56932<sup>1,2</sup></b>
	size 2	100 - 150	45 - 70	18	10	<b>56936<sup>1,2</sup></b>
	size 3	140 - 210	65 - 100	18	10	<b>56941<sup>1,2</sup></b>
grey-S	size 0	58 - 74	24 - 32	18	10	<b>102860<sup>1,2</sup></b>
	size 1	74 - 110	32 - 50	18	10	<b>102861<sup>1,2</sup></b>
	size 2	100 - 150	45 - 70	18	10	<b>102855<sup>1,2</sup></b>
	size 3	140 - 210	65 - 100	18	10	<b>102856<sup>1,2</sup></b>

<sup>1</sup> The specified reveal depths apply to installation situations with 30 mm shutter thickness and 0 mm shutter distance

<sup>2</sup> These shutter hinges may not be used as a load-bearing element!



56924

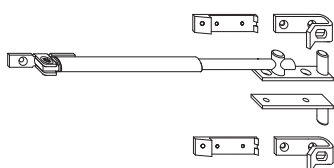
**2.6.4.2 Short hinges with lateral adjustment**



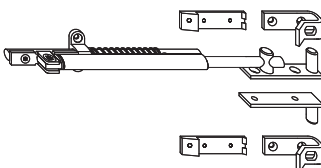
						No
black-S	size 0	58 - 74	24 - 32	18	10	56944 <sup>1,2</sup>
	size 1	74 - 110	32 - 50	18	10	56921 <sup>1,2</sup>
	size 2	100 - 150	45 - 70	18	10	56924 <sup>1,2</sup>
	size 3	140 - 210	65 - 100	18	10	56928 <sup>1,2</sup>
grey-S	size 0	58 - 74	24 - 32	18	10	104088 <sup>1,2</sup>
	size 1	74 - 110	32 - 50	18	10	210066 <sup>1,2</sup>
	size 2	100 - 150	45 - 70	18	10	210067 <sup>1,2</sup>
	size 3	140 - 210	65 - 100	18	10	104089 <sup>1,2</sup>
white-S	size 0	58 - 74	24 - 32	18	10	22691 <sup>1,2</sup>
	size 1	74 - 110	32 - 50	18	10	22060 <sup>1,2</sup>
	size 2	100 - 150	45 - 70	18	10	22063 <sup>1,2</sup>
	size 3	140 - 210	65 - 100	18	10	22066 <sup>1,2</sup>

<sup>1</sup> The specified reveal depths apply to installation situations with 30 mm shutter thickness and 0 mm shutter distance

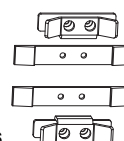
<sup>2</sup> These shutter hinges may not be used as a load-bearing element!



11280



12032



14316

**2.6.5 Folding shutter rods**

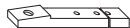


No

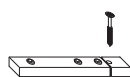
black-S	folding shutter rods for crank opener for multi-sashed shutters	10	11280
white-S	folding shutter rods for crank opener for multi-sashed shutters	10	12546
black-S	folding shutter rods for crank opener, 90° opening for multi-sashed shutters	10	12032
	top and bottom locking hook for folding shutter rods for multi-sashed shutters	10	14316
grey-S	top and bottom locking hook for folding shutter rods for multi-sashed shutters	10	102857
white-S	top and bottom locking hook for folding shutter rods for multi-sashed shutters	10	14801

**2.6.6 Crank opener accessories**

12960



12961



**2.6.6.1 Packers for folding shutter rods**




No

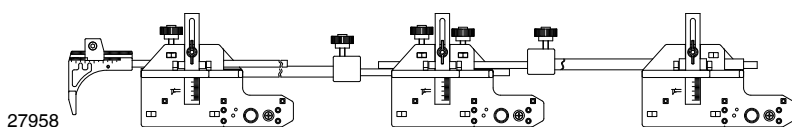
black	for locking hook for 10 mm distance	10	12960
	for locking hook for 20 mm and 30 mm distance	10	12961
white	for locking hook for 10 mm distance	20	44352
	for locking hook for 20 mm and 30 mm distance	20	44353





2.6.6.2 Crank arm	L		No
rigid	240	10	<b>23636</b>
	400	10	<b>23859</b>
	500	10	<b>27438</b>
	950	10	<b>212589</b>
with u-joint	160	10	<b>23688</b>
	240	10	<b>23635</b>

BLR



## 2.7 Jigs for hardware range BLR



**Nº**

jig BLR for dual installation hinge without fixing tab and 4 mm cranked shutter pin, on frame	1	<b>201851</b>
jig BLR for dual installation crank opener with rotary arm (distance min. 29)	1	<b>205649</b>
adjustment jig BLR for pin distance and crank opener distance	1	<b>24873</b>
jig BLR for separate installation hinge with fixing tab, shutter pin holder and straight shutter pin, on frame	1	<b>27958</b>
jig BLR for dual installation hinge with fixing tab, shutter pin holder and straight shutter pin, on frame	1	<b>27960</b>
clamp for drilling jig for separate installation on frame	1	<b>28379</b>
jig BLR for dual installation hinge without fixing tab and 12.5 mm cranked shutter pin, on frame	1	<b>28724</b>
jig BLR for dual installation crank opener with hinge (distance 35)	1	<b>102888</b>
jig BLR for separate installation crank opener with hinge or rotary arm	1	<b>102889</b>



### 3 Hardware Range MV

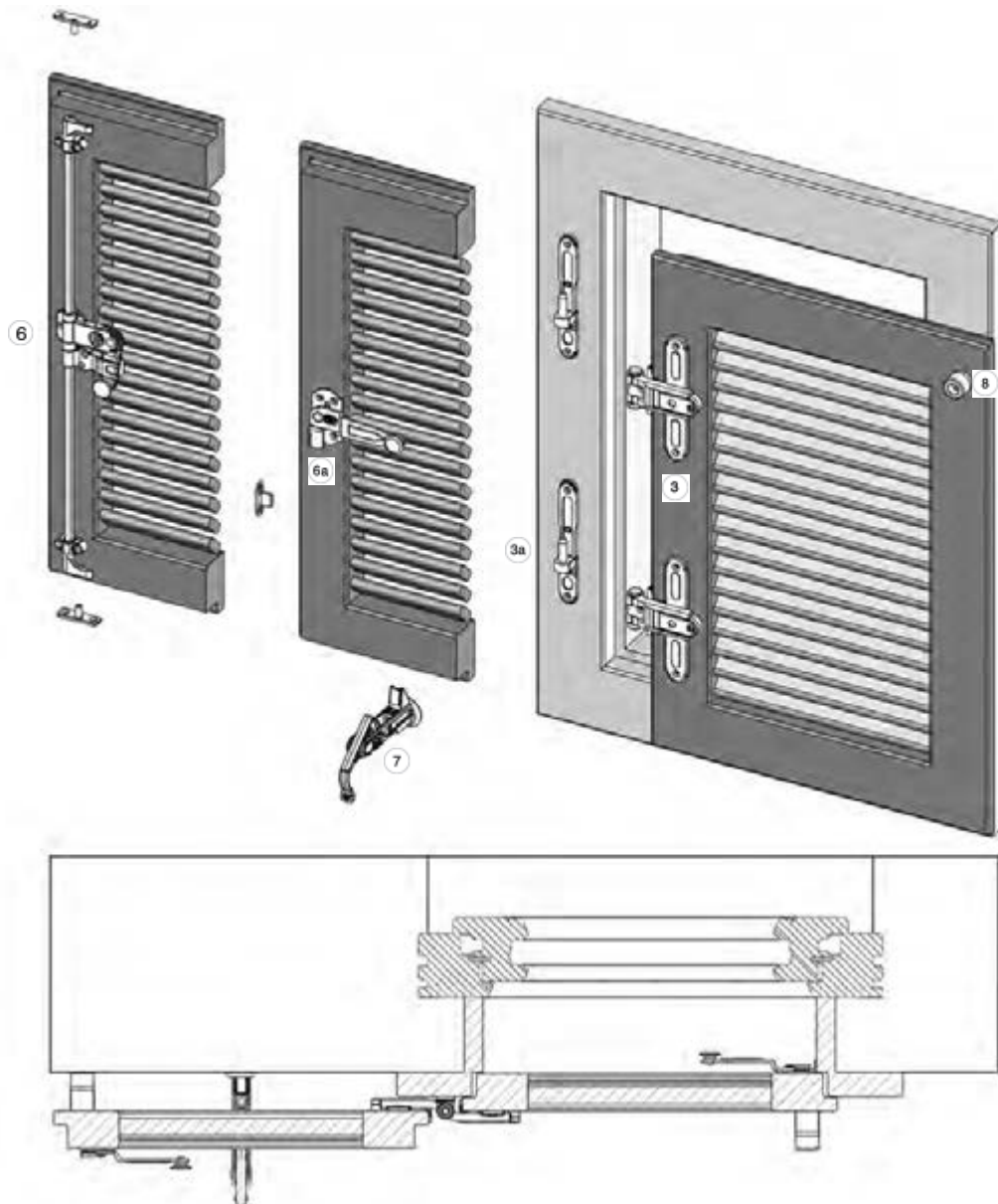
---

3.1	Information for hardware selection _____	64
3.2	Shutter hinges with lateral fixing tab _____	70
3.3	Surface mounted frame hinges _____	73
3.4	Jigs for hardware range MV _____	75

### 3 Hardware Range MV

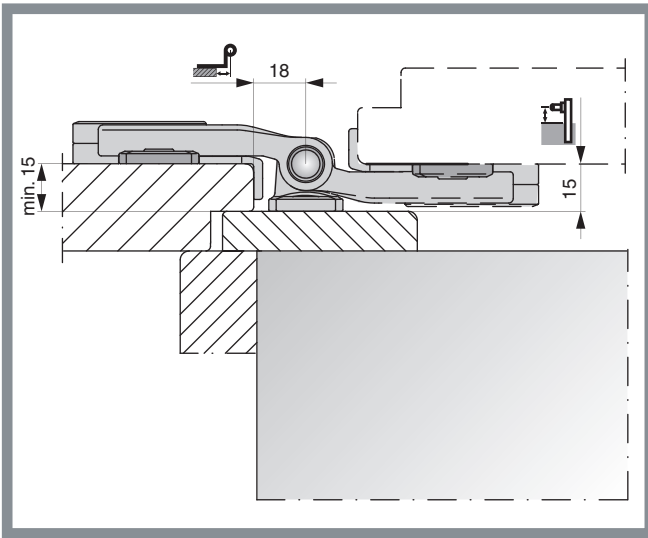
#### 3.1 Information for hardware selection

##### 3.1.1 1-sashed, with surface-mounted frame hinges



Selection guide			Page
3	3.2	Shutter hinges with lateral fixing tab	→70
3a	3.3	Surface mounted frame hinges	→73
6	6.1	Rod-driven shutter locks	→112
6a	6.2	Centre locks	→123
7	7	Shutter Catches	→126
8	8.1	Buffer stop	→136

3.1.1.1 Shutter rebated



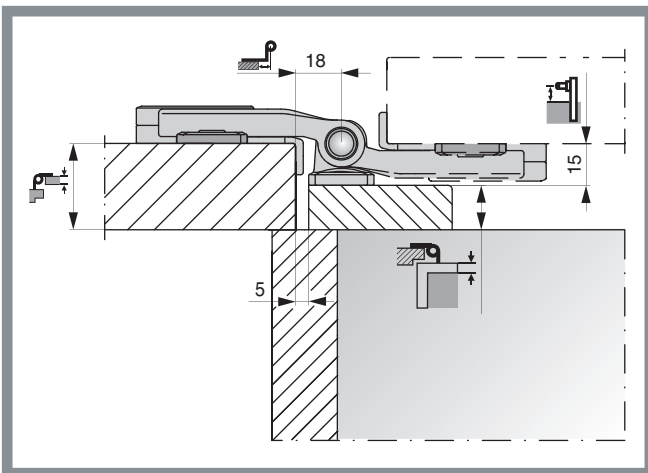
Calculation rebate leg

$$\begin{array}{r}
 \begin{array}{c} \text{Diagram} \\ \text{15 mm} \end{array} \\
 \hline
 = \text{min. 15 mm} \quad \begin{array}{c} \text{Diagram} \\ \text{min. 15 mm} \end{array}
 \end{array}$$

Calculation cladding thickness

$$\begin{array}{r}
 \begin{array}{c} \text{Diagram} \\ 40 \text{ mm} \\ \text{Diagram} \\ - 15 \text{ mm} \end{array} \\
 \hline
 = 25 \text{ mm} \quad \begin{array}{c} \text{Diagram} \\ 25 \text{ mm} \end{array}
 \end{array}$$

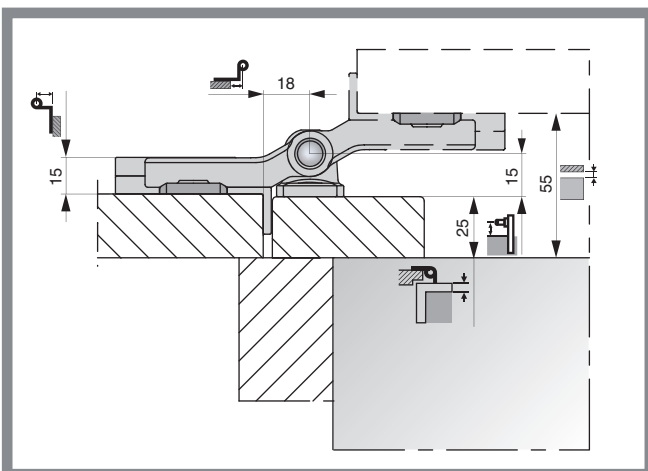
3.1.1.2 Shutter unrebrated



Calculation cladding thickness

$$\begin{array}{r}
 \begin{array}{c} \text{Diagram} \\ 40 \text{ mm} \\ \text{Diagram} \\ - 15 \text{ mm} \end{array} \\
 \hline
 = 25 \text{ mm} \quad \begin{array}{c} \text{Diagram} \\ 25 \text{ mm} \end{array}
 \end{array}$$

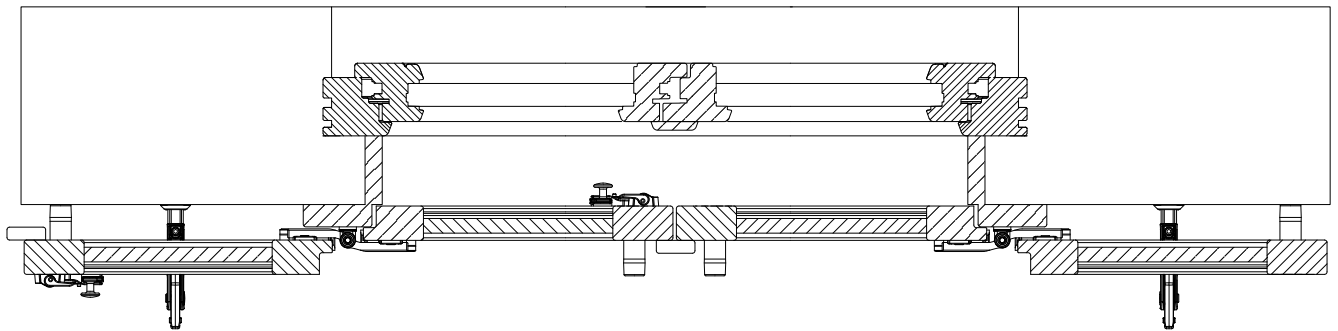
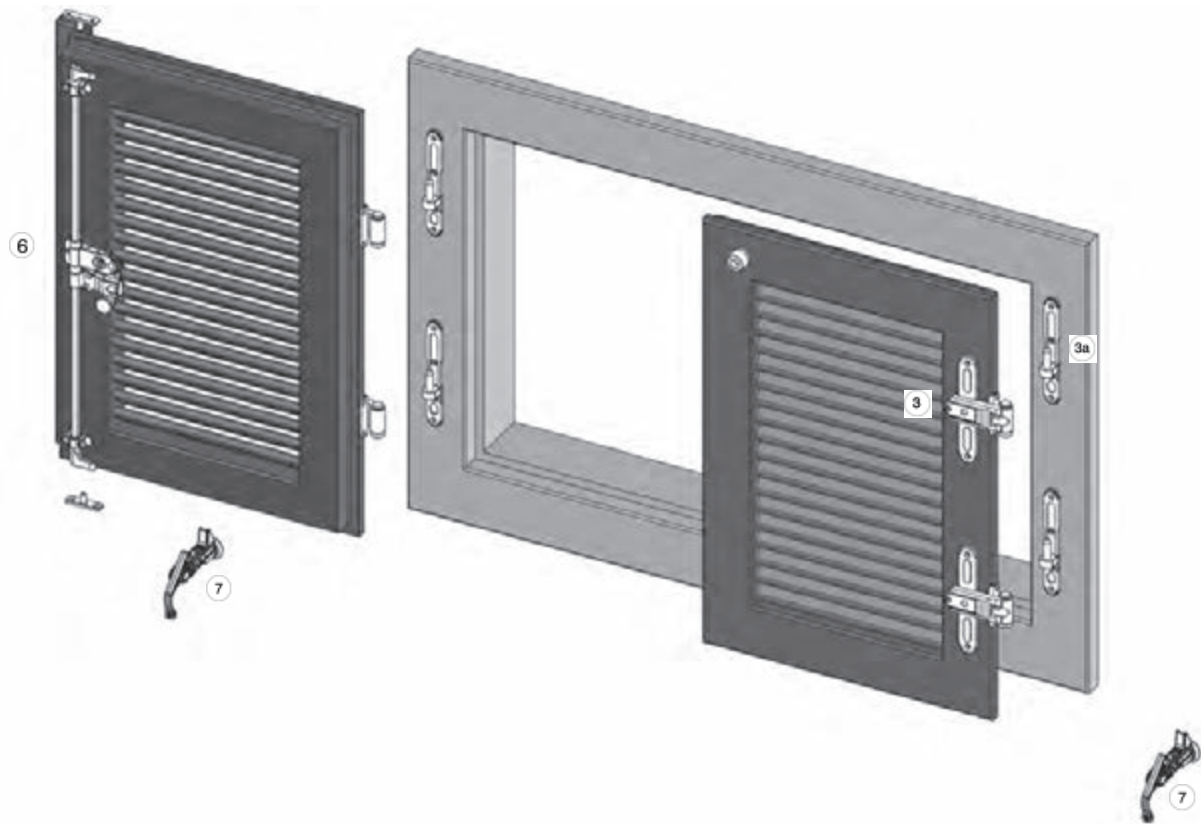
3.1.1.3 Shutter flush



Calculation distance to wall

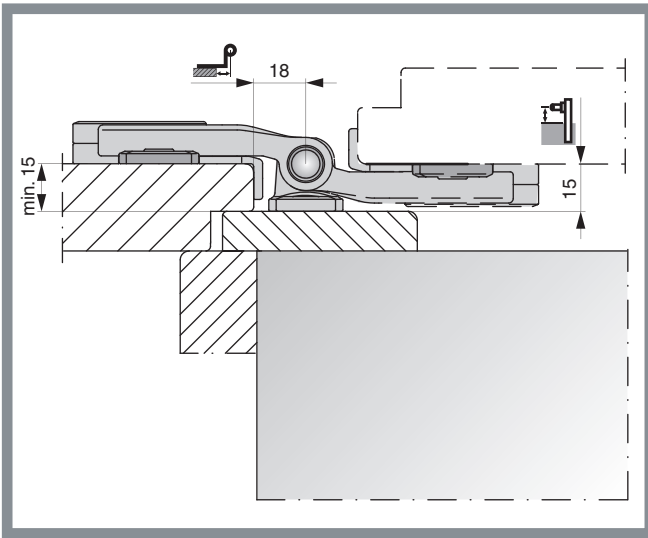
$$\begin{array}{r}
 2 \times \begin{array}{c} \text{Diagram} \\ 30 \text{ mm} \\ \text{Diagram} \\ +25 \text{ mm} \end{array} \\
 \hline
 = 55 \text{ mm} \quad \begin{array}{c} \text{Diagram} \\ 55 \text{ mm} \end{array}
 \end{array}$$

3.1.2 2-sashed, with surface-mounted frame hinges



Selection guide		Page
3	3.2 Shutter hinges with lateral fixing tab	→70
3a	3.3 Surface mounted frame hinges	→73
6	6.1 Rod-driven shutter locks	→112
7	7 Shutter Catches	→126

3.1.2.1 Shutter rebated



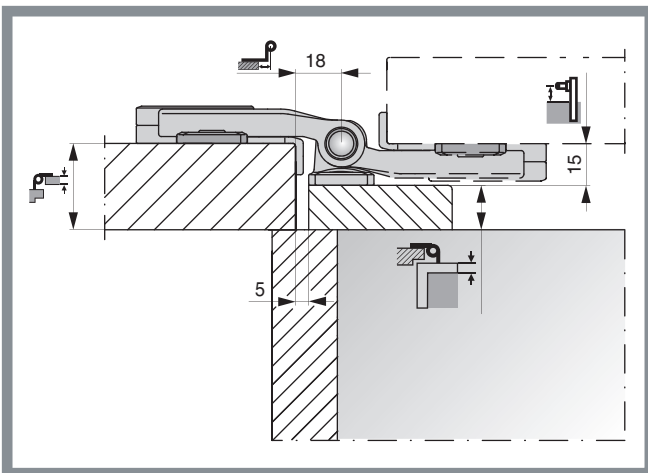
Calculation rebate leg

$$\begin{array}{r}
 \begin{array}{c} \text{Diagram} \\ \text{15 mm} \end{array} \\
 \hline
 = \text{mind. 15 mm} \begin{array}{c} \text{Diagram} \\ \text{15 mm} \end{array}
 \end{array}$$

Calculation cladding thickness

$$\begin{array}{r}
 \begin{array}{c} \text{Diagram} \\ 40 \text{ mm} \\ \text{Diagram} \\ - 15 \text{ mm} \end{array} \\
 \hline
 = 25 \text{ mm} \begin{array}{c} \text{Diagram} \\ \text{25 mm} \end{array}
 \end{array}$$

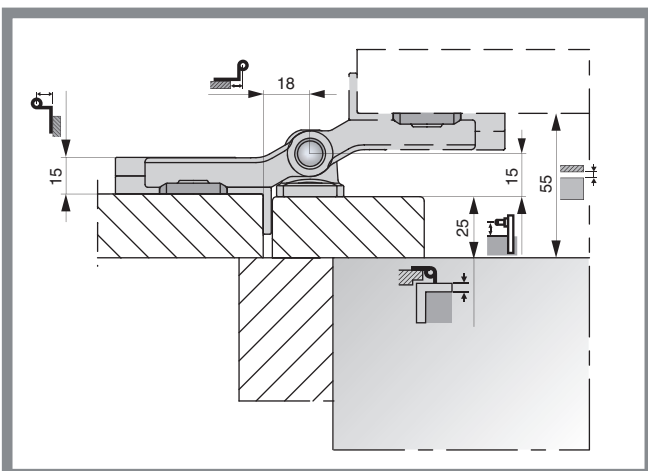
3.1.2.2 Shutter unrebated



Calculation cladding thickness

$$\begin{array}{r}
 \begin{array}{c} \text{Diagram} \\ 40 \text{ mm} \\ \text{Diagram} \\ - 15 \text{ mm} \end{array} \\
 \hline
 = 25 \text{ mm} \begin{array}{c} \text{Diagram} \\ \text{25 mm} \end{array}
 \end{array}$$

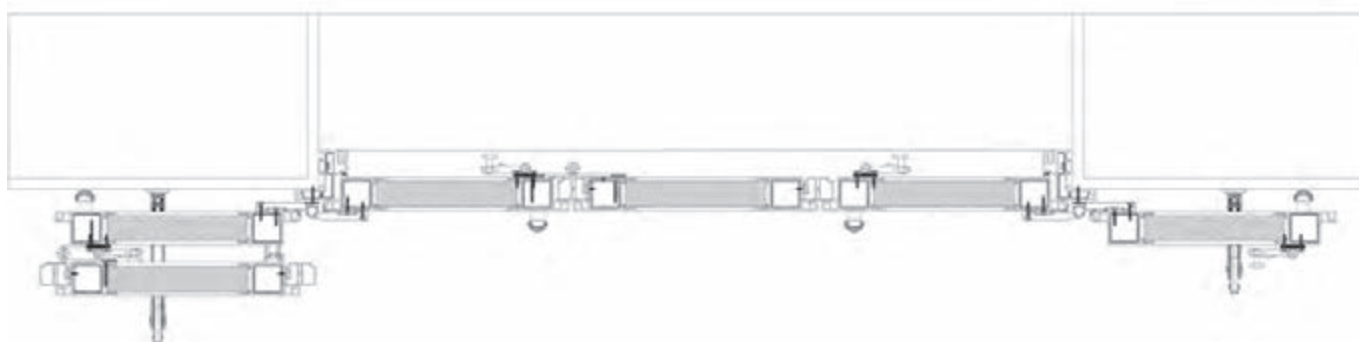
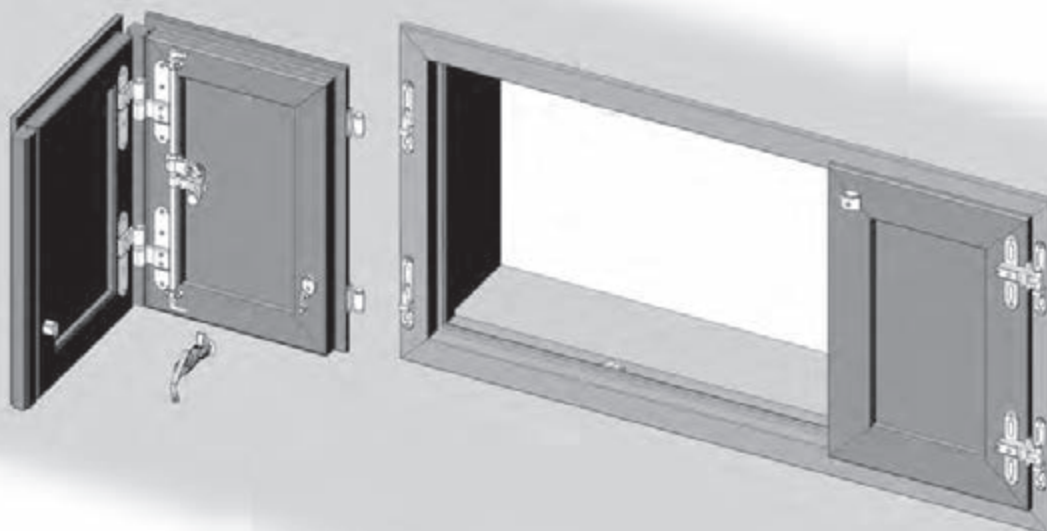
3.1.2.3 Shutter flush



Calculation distance to wall

$$\begin{array}{r}
 2 \times \begin{array}{c} \text{Diagram} \\ 30 \text{ mm} \\ \text{Diagram} \\ + 25 \text{ mm} \end{array} \\
 \hline
 = 55 \text{ mm} \begin{array}{c} \text{Diagram} \\ \text{55 mm} \end{array}
 \end{array}$$

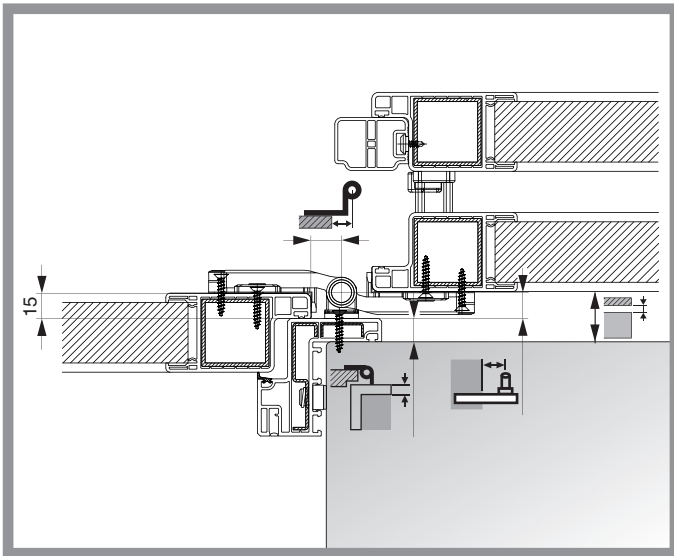
3.1.3 3-sashed, with surface-mounted frame hinges



Selection guide		Page
3	3.2 Shutter hinges with lateral fixing tab	→70
3a	3.3 Surface mounted frame hinges	→73
6	6.1 Rod-driven shutter locks	→112
7	7 Shutter Catches	→124
8	8.1 Buffer stop	→136
8a	8.6.1 Shutter centre hinges for folding shutters	→140
8b	8.6.2.6 Folding-shutter couplers	→142



3.1.3.1 Shutter rebated (1)



Calculation rebate leg



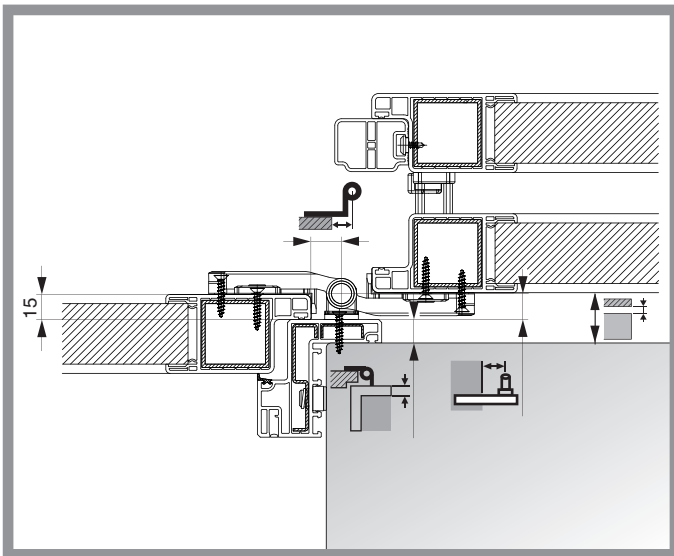
15 mm

=

mind. 15 mm



3.1.3.2 Shutter rebated (2)



Calculation distance to wall



15 mm



+ 15 mm



+ 0 mm

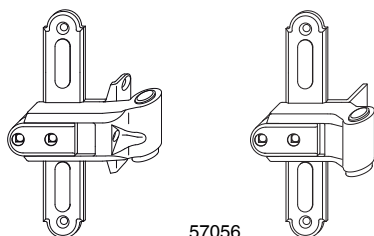
=

30 mm



## 3.2 Shutter hinges with lateral fixing tab

### 3.2.1 with lateral adjustment, with bush



14384

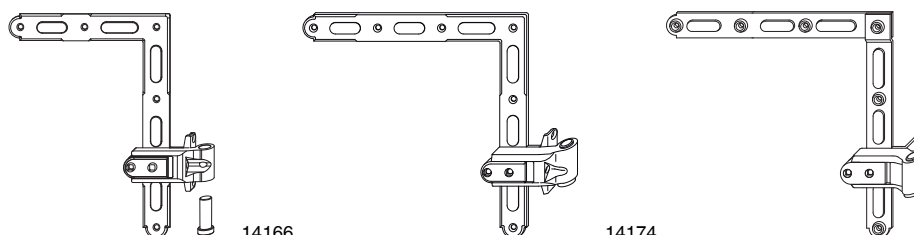
57056

#### 3.2.1.1 Cross hinges



**No**

black-S	straight	0	18	32	20	<b>14384</b>
	flush	15	18	26	20	<b>57056</b>
grey-S	straight	0	18	32	20	<b>102137</b>
	flush	15	18	26	20	<b>103421</b>
white-S	straight	0	18	26	20	<b>10703</b>
	flush	15	18	26	20	<b>52686</b>



101332

14166

14174

#### 3.2.1.2 Corner hinges



**No**

black-S	straight SL 228x163	0	18	32	10	<b>101332<sup>1</sup></b>
	straight	0	18	32	10	<b>14166<sup>1</sup></b>
	flush	15	18	26	10	<b>14174<sup>1</sup></b>
grey-S	straight	0	18	32	10	<b>102179<sup>1</sup></b>
white-S	straight SL 228x163	0	18	32	10	<b>101331<sup>1</sup></b>
	straight	0	18	32	10	<b>10706<sup>1</sup></b>
	flush	15	18	26	10	<b>10717<sup>1</sup></b>

<sup>1</sup> With corner hinges, a packaging unit consists of 1 piece top corner hinge and 1 piece bottom corner hinge.



14034

57100

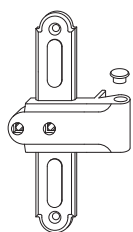
#### 3.2.1.3 Long hinges



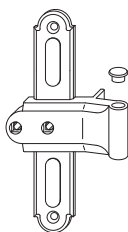
**No**

black-S	straight	0	18	340	32	20	<b>14034</b>
				200	32	20	<b>14170</b>
	flush	15	18	250	26	20	<b>57099</b>
				340	26	20	<b>57100</b>
white-S	straight	0	18	200	32	20	<b>10709</b>
				340	32	20	<b>10826</b>
	flush	15	18	250	26	20	<b>52695</b>
				340	26	20	<b>54657</b>

**3.2.2 without lateral adjustment, with bush, with cover cap**



14036



14040

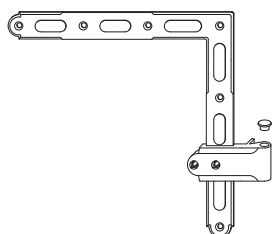
**3.2.2.1 Cross hinges**



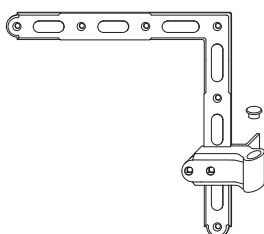
**No**

black-S	straight	0	18	26	20	<b>14036<sup>1</sup></b>
	straight with offset end position	0	12	32	20	<b>14096<sup>1</sup></b>
	straight with 38.5mm screw-fixing distance	0	18	38,5	20	<b>14336<sup>1</sup></b>
	flush	13	18	26	20	<b>14040<sup>1</sup></b>
grey-S	straight	0	18	26	20	<b>102134<sup>1</sup></b>
	straight with offset end position	0	12	32	20	<b>102135<sup>1</sup></b>
	straight with 38.5mm screw-fixing distance	0	18	38,5	20	<b>102136<sup>1</sup></b>
white-S	flush	13	18	26	20	<b>102133<sup>1</sup></b>
	straight with 38.5mm screw-fixing distance	0	18	38,5	20	<b>11777<sup>1</sup></b>
	straight	0	18	26	20	<b>12530<sup>1</sup></b>
	straight with offset end position	0	12	32	20	<b>12586<sup>1</sup></b>
	flush	13	18	26	20	<b>12531<sup>1</sup></b>

<sup>1</sup> We recommend to use pin disc 40892.



14044



14048

**3.2.2.2 Corner hinges**

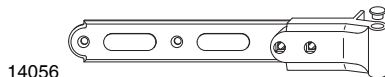
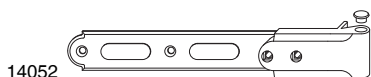


**No**






black-S	straight	0	18	26	10	<b>14044<sup>1,2</sup></b>
	straight with offset end position	0	12	32	10	<b>14100<sup>1,2</sup></b>
	straight with 38.5mm screw-fixing distance	0	18	38,5	10	<b>14340<sup>1,2</sup></b>
	flush	13	18	26	10	<b>14048<sup>1,2</sup></b>
grey-S	straight	0	18	26	10	<b>102178<sup>1,2</sup></b>
	straight with 38.5mm screw-fixing distance	0	18	38,5	10	<b>102180<sup>1,2</sup></b>
white-S	straight	0	18	26	10	<b>10238<sup>1,2</sup></b>
	straight with 38.5mm screw-fixing distance	0	18	38,5	10	<b>11778<sup>1,2</sup></b>

<sup>1</sup> We recommend to use pin disc 40892.

<sup>2</sup> With corner hinges, a packaging unit consists of 1 piece top corner hinge and 1 piece bottom corner hinge.




**3.2.2.3 Long hinges**

							<b>Nº</b>
black-S	straight	0	18	340	26	20	<b>14052<sup>1</sup></b>
				250	26	20	<b>14080<sup>1</sup></b>
	straight with offset end position	0	12	340	32	20	<b>14104<sup>1</sup></b>
	flush	13	18	340	26	20	<b>14056<sup>1</sup></b>
			250	26	20	<b>14084<sup>1</sup></b>	
grey-S	straight	0	18	250	26	20	<b>102154<sup>1</sup></b>
				340	26	20	<b>102157<sup>1</sup></b>
	flush	13	18	250	26	20	<b>102153<sup>1</sup></b>
				340	26	20	<b>102156<sup>1</sup></b>

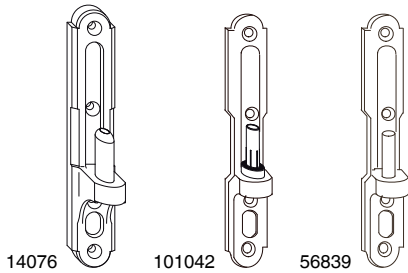
<sup>1</sup> We recommend to use pin disc 40892.



**3.2.3 Spacer 5 mm, for MV shutter hinges**

					<b>Nº</b>
	black	spacer for shutter hinge		50	<b>41193</b>
grey		spacer for shutter hinge	5 mm	50	<b>360379</b>
white		spacer for shutter hinge	5 mm	50	<b>41198</b>

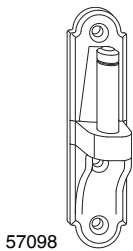
### 3.3 Surface mounted frame hinges



3.3.1 Surface mounted frame hinges					No
black-S	surface mounted frame hinge	13	25	20	<b>14076<sup>1</sup></b>
	surface mounted frame hinge with regulator-sleeve	15	20	20	<b>101042<sup>2</sup></b>
grey-S	surface mounted frame hinge	15	20	20	<b>56839</b>
	surface mounted frame hinge	13	25	20	<b>102161<sup>1</sup></b>
	surface mounted frame hinge with regulator-sleeve	15	20	20	<b>102162<sup>2</sup></b>
white-S	surface mounted frame hinge	15	20	20	<b>210376</b>
	surface mounted frame hinge	13	25	20	<b>27744<sup>1</sup></b>
		15	20	20	<b>27496</b>

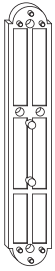
<sup>1</sup> Only suitable for "straight and flush hinges without lateral adjustment".

<sup>2</sup> Use surface-mounted frame hinge with regulator sleeve for hinges WITHOUT regulator sleeve, e.g. cross hinges 14036, 14096 and 14040.



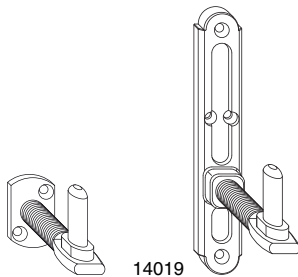
3.3.2 Short surface mounted frame hinges					No
black-S	short surface mounted frame hinge	15	25	20	<b>57098</b>
		20	25	20	<b>56891</b>
grey-S	short surface mounted frame hinge	15	25	20	<b>212657</b>
		20	25	20	<b>212649</b>
white-S	short surface mounted frame hinge	15	25	20	<b>54746</b>
		20	25	20	<b>29267</b>

MV



41882

3.3.3 Packers for surface mounted frame hinge			W	L		No
black	for short surface mounted frame hinge	2,5	25	105	100	<b>43957</b>
	for surface mounted frame hinge - 13 mm distance	3	25	150	100	<b>41882</b>
		5	25	150	100	<b>41811</b>
		8	25	150	100	<b>41810</b>
grey	for surface mounted frame hinge - 15 mm distance	2	20	150	100	<b>40436</b>
	for short surface mounted frame hinge	2,5	25	105	50	<b>361318</b>
	for surface mounted frame hinge - 13 mm distance	3	25	150	100	<b>359897</b>
		5	25	150	100	<b>359896</b>
white		8	25	150	100	<b>359895</b>
	for surface mounted frame hinge - 15 mm distance	2	20	150	100	<b>361315</b>
	for surface mounted frame hinge - 13 mm distance	3	25	150	100	<b>42837</b>
	for surface mounted frame hinge - 15 mm distance	2	20	150	100	<b>44108</b>

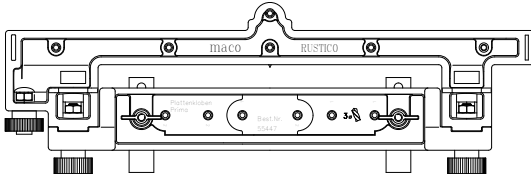


14017

14019

3.3.4 Threaded surface mounted frame hinges with lateral adjustment						No
black-S	15 - 50	15	65	25	20	<b>14017<sup>1</sup></b>
	22 - 50	15	65	25	20	<b>14019<sup>1</sup></b>
grey-S	15 - 50	15	65	25	20	<b>102731<sup>1</sup></b>
	22 - 50	15	65	25	20	<b>102173<sup>1</sup></b>

<sup>1</sup> Permissible only for installation on timber!



55447

### 3.4 Jigs for hardware range MV



**Nº**

jig MV for dual installation hinge with 26mm screw-fixing distance, surface mounted frame hinge on masonry cladding	1	<b>24081</b>
jig MV for dual installation hinge with 38.5mm screw-fixing distance, surface mounted frame hinge on masonry cladding	1	<b>54581</b>
jig MV for dual installation hinge flush with 26mm screw-fixing distance, short surface mounted frame hinge	1	<b>55447</b>
jig MV for dual installation Straight hinge with 32mm screw-fixing distance, short surface mounted frame hinge	1	<b>55905</b>

MV

MACO  
RUSTICO



Hardware Range MV





## 4 Hardware Range MMV

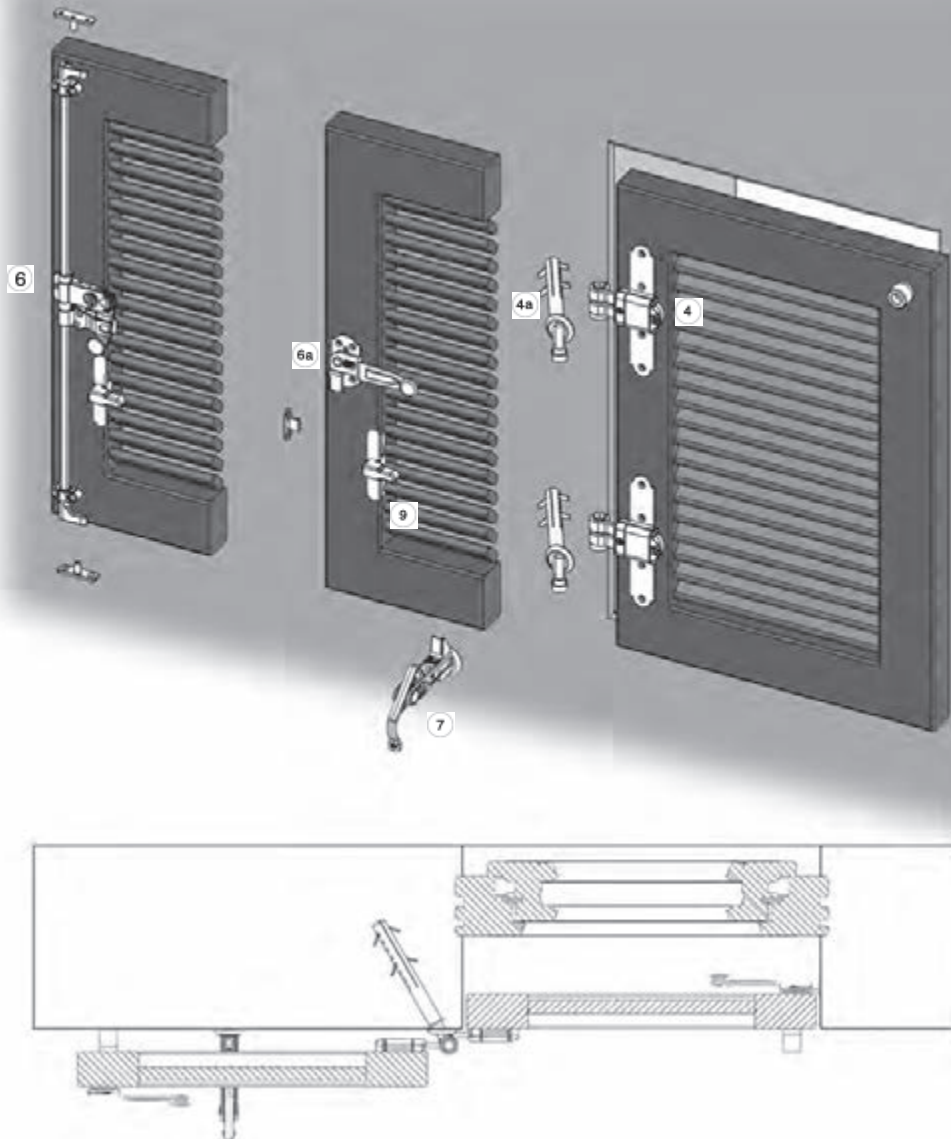
---

4.1	Information for hardware selection	78
4.2	Shutter hinges	95
4.3	Shutter pins	99
4.4	Masonry shutter pin M16 for wall insulation	102
4.5	Jigs for hardware range MMV	105

## 4 Hardware Range MMV

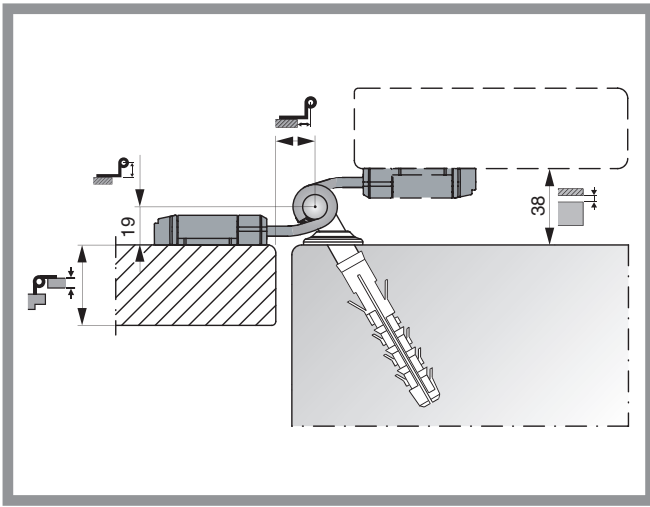
### 4.1 Information for hardware selection

#### 4.1.1 1-sashed, with universal shutter pins



Selection guide			Page
4	4.2	Shutter hinges	→95
4a	4.3	Shutter pins	→99
6	6.1	Rod-driven shutter locks	→112
6a	6.2	Centre locks	→123
7	7	Shutter Catches	→126
9	9	Louvre Fittings	→148

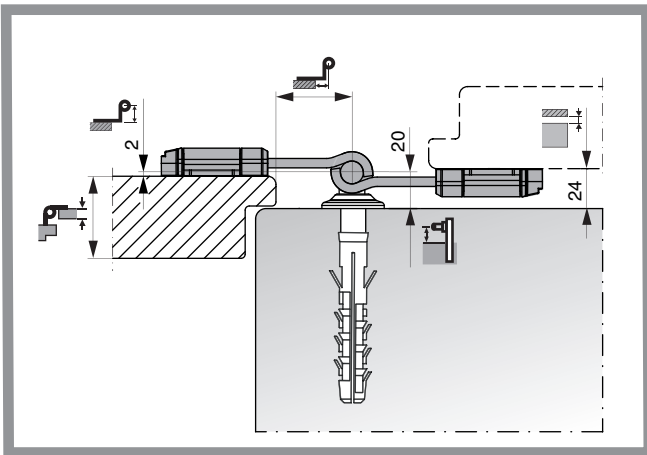
4.1.1.1 Offset mounted, with universal shutter pin 30°



Calculation distance to wall

$$\begin{aligned}
 & 2 \times \text{[Pin Icon]} \quad 38 \text{ mm} \\
 = & \quad \quad \quad 38 \text{ mm} \text{ [Shutter Icon]}
 \end{aligned}$$

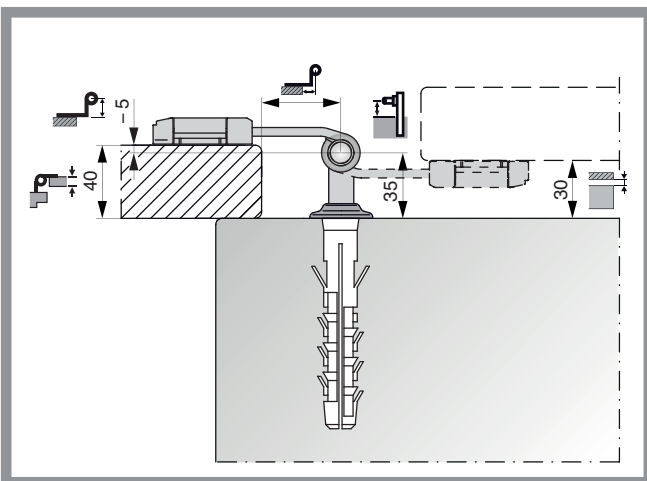
4.1.1.2 Flush mounted, shutter rebated, with universal shutter pin 90°



Calculation distance to wall

$$\begin{aligned}
 & 2 \times \text{[Pin Icon]} \quad 4 \text{ mm} \\
 & \text{[Shutter Icon]} \quad + 20 \text{ mm} \\
 = & \quad \quad \quad 24 \text{ mm} \text{ [Shutter Icon]}
 \end{aligned}$$

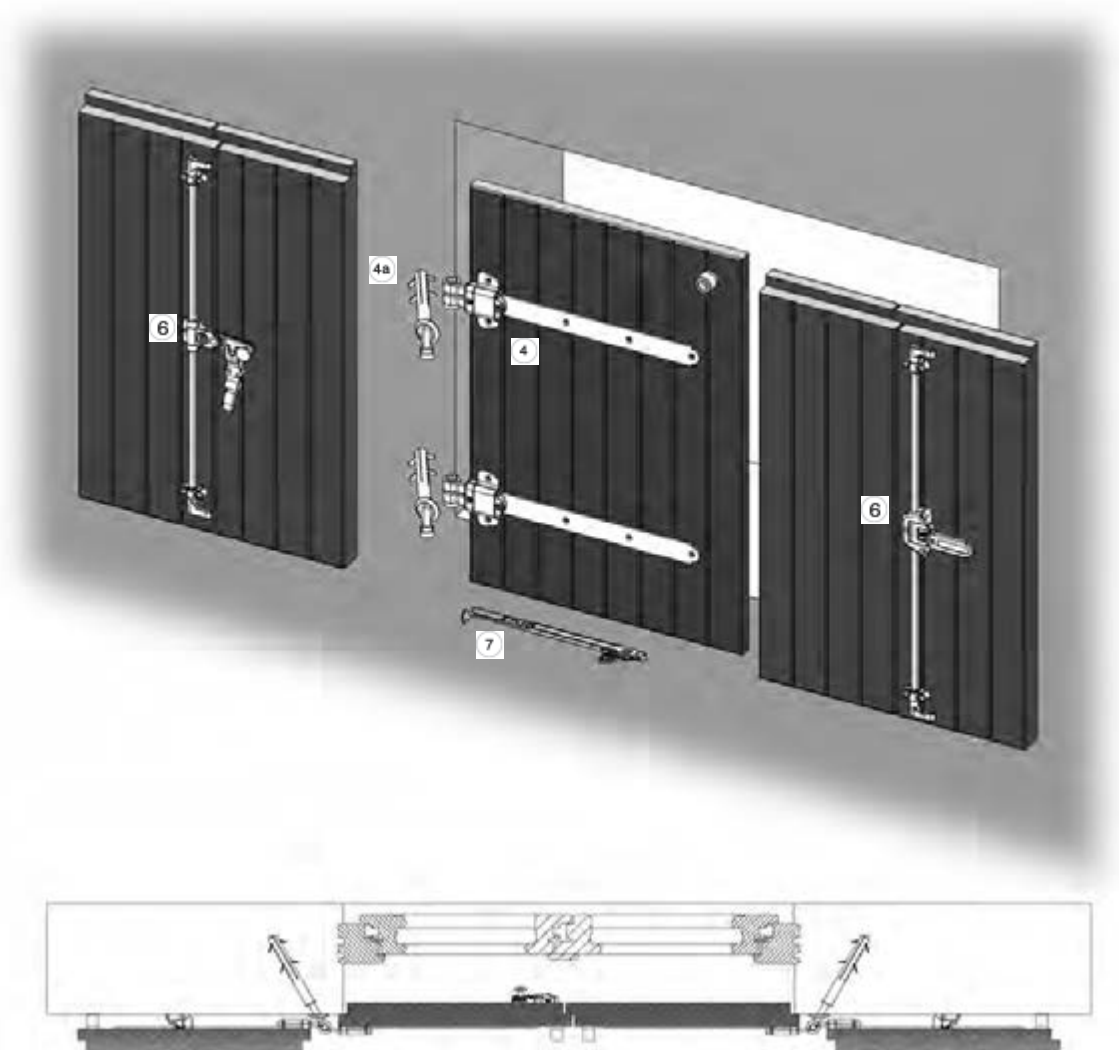
4.1.1.3 Flush mounted, with universal shutter pin 90°



Calculation distance to wall

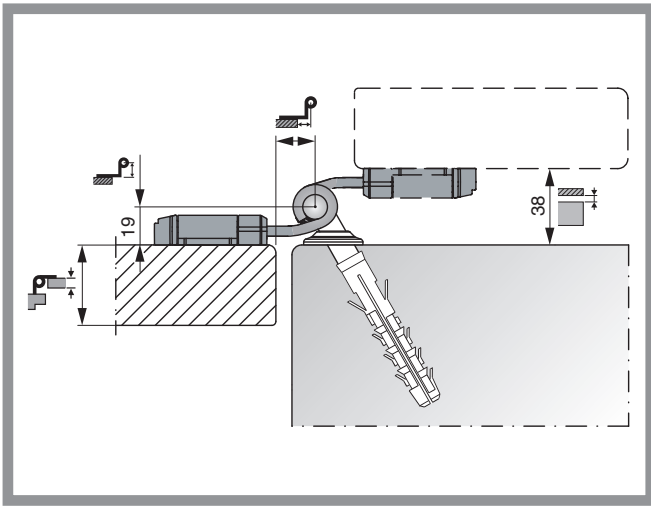
$$\begin{aligned}
 & \text{[Pin Icon]} \quad 40 \text{ mm} \\
 & + 2 \times \text{[Pin Icon]} \quad -10 \text{ mm} \\
 = & \quad \quad \quad 30 \text{ mm} \text{ [Shutter Icon]}
 \end{aligned}$$

4.1.2 2-sashed, with universal shutter pins



Selection guide			Page
4	4.2	Shutter hinges	→95
4a	4.3	Shutter pins	→99
6	6.1	Rod-driven shutter locks	→112
7	7.8	Comfort shutter catches	→133

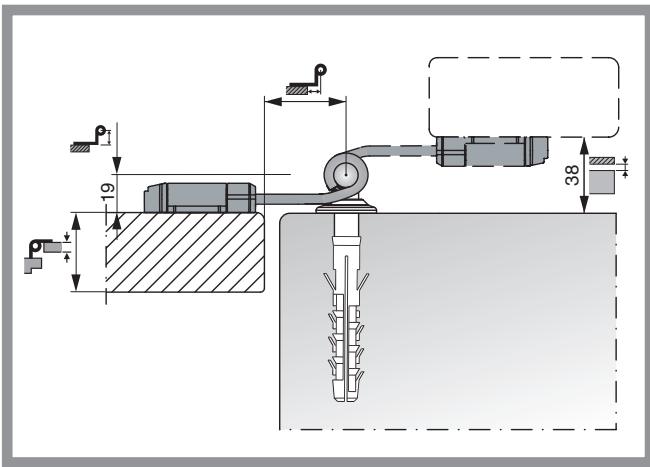
4.1.2.1 Offset mounted, with universal shutter pin 30°



Calculation distance to wall

$$\begin{aligned}
 &2 \times \text{[Shutter Pin Icon]} \quad 38 \text{ mm} \\
 = & \quad \quad \quad 38 \text{ mm} \quad \text{[Shutter Pin Icon]}
 \end{aligned}$$

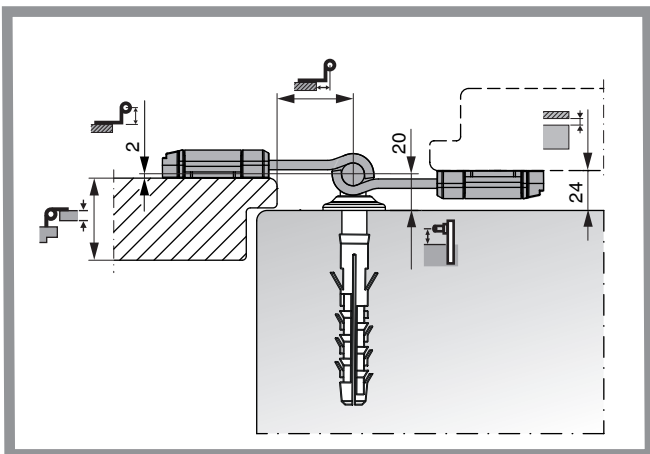
4.1.2.2 Offset mounted, with universal shutter pin 90°



Calculation distance to wall

$$\begin{aligned}
 &2 \times \text{[Shutter Pin Icon]} \quad 38 \text{ mm} \\
 = & \quad \quad \quad 38 \text{ mm} \quad \text{[Shutter Pin Icon]}
 \end{aligned}$$

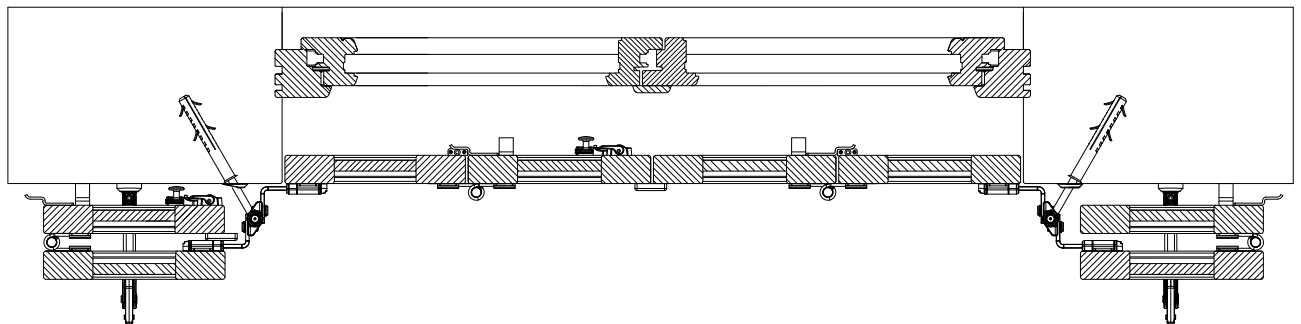
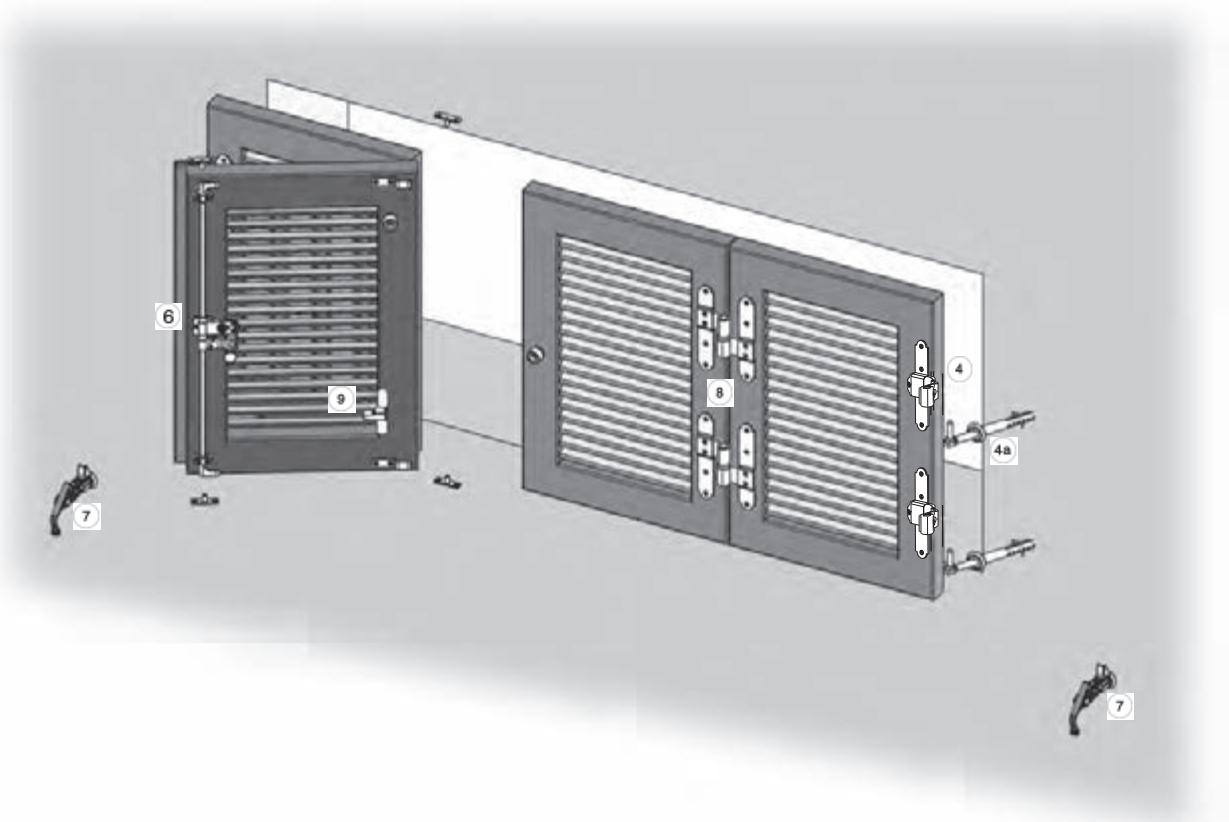
4.1.2.3 Flush mounted, shutter rebated, with universal shutter pin 90°



Calculation distance to wall

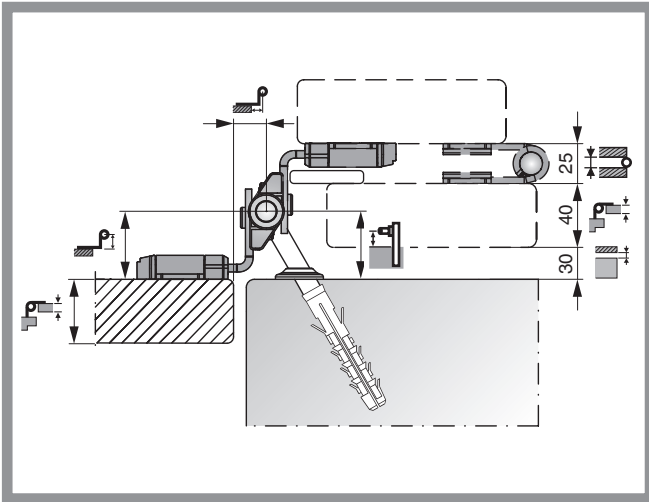
$$\begin{aligned}
 &2 \times \text{[Shutter Pin Icon]} \quad 4 \text{ mm} \\
 &\text{[Shutter Pin Icon]} \quad + 20 \text{ mm} \\
 = & \quad \quad \quad 24 \text{ mm} \quad \text{[Shutter Pin Icon]}
 \end{aligned}$$

4.1.3 4-sashed, with universal shutter pins and external pivot point



Selection guide		Page
4	4.2 Shutter hinges	→95
4a	4.3 Shutter pins	→99
6	6.1 Rod-driven shutter locks	→112
7	7 Shutter Catches	→126
8	8.6.1 Shutter centre hinges for folding shutters	→140
9	9 Louvre Fittings	→148

4.1.3.1 Offset mounted, with universal shutter pin 30°



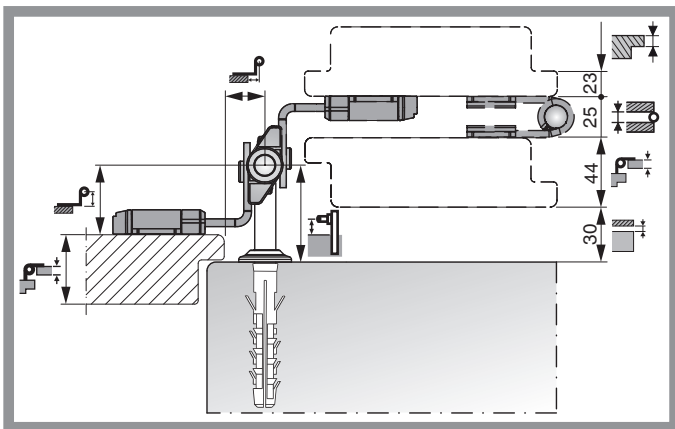
Calculation shutter pin distance

	25 mm
	+ 40 mm
	+ 30 mm
<hr/>	
=	95 mm : 2 = 47,5 mm

Calculation hinge crank

	25 mm
	+ 40 mm
	+ 30 mm
<hr/>	
=	95 mm : 2 = 47,5 mm

4.1.3.2 Offset mounted, with universal shutter pin 90°



Calculation shutter pin distance

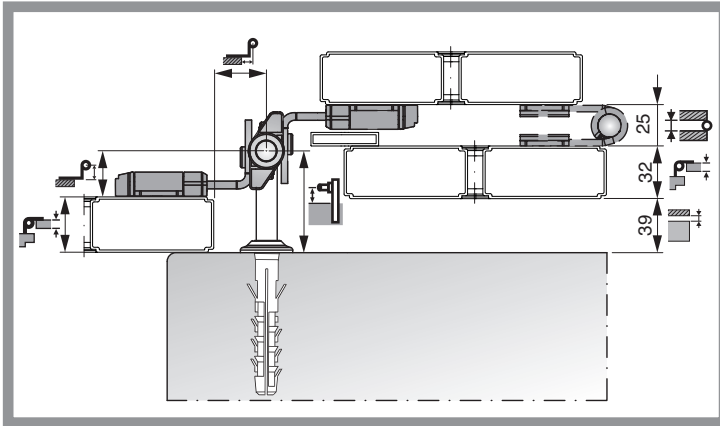
	23 mm
	+ 25 mm
	+ 44 mm
	+ 30 mm
<hr/>	
=	122 : 2 = 61 mm

Calculation hinge crank






	25 mm
	+ 44 mm
	+ 30 mm
	- 23 mm
<hr/>	
=	76 : 2 = 38 mm

→ Calculation for flush mounted shutters  
==> see next page!

4.1.3.3 Flush mounted, with universal shutter pin 90°



Calculation shutter pin distance/hinge crank/  
distance to wall

-  = always 32 mm
-  =  + 32 mm
-  →  = always 39 mm



MACO  
RUSTICO



## Hardware Range MMV

*i*  
MMV

MMV

4.1.4 2-sashed, with surface-mounted frame hinges, PVC-shutter

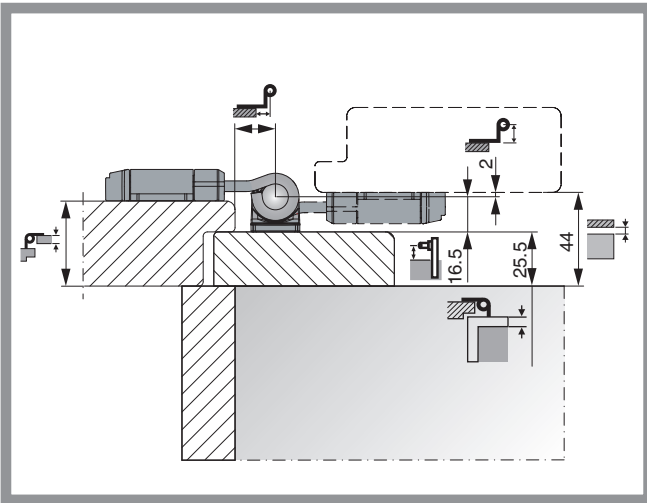


**Selection guide**

**Page**

<b>4</b>	4.2	Shutter hinges	→95
<b>4a</b>	4.3.6	Surface mounted frame hinges	→100
<b>6</b>	6.1	Rod-driven shutter locks	→112
<b>7</b>	7	Shutter Catches	→126

4.1.4.1 Shutter flush



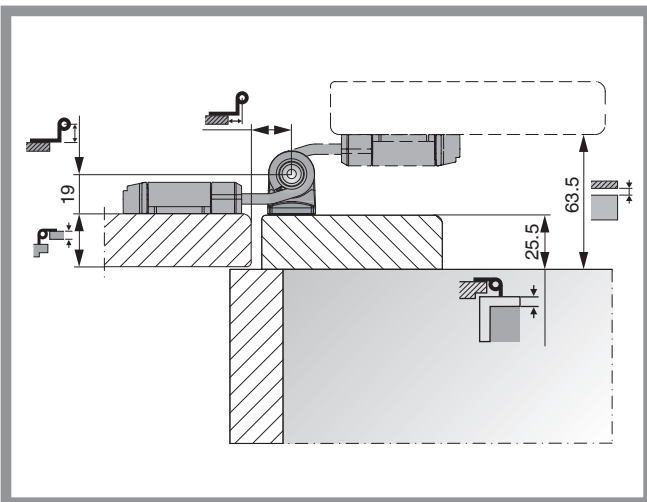
Calculation distance to wall

	25,5 mm
	+16,5 mm
	+2,0 mm
<hr/>	
=	44,0 mm

Calculation lining thickness

	40 mm
	+ 2,0 mm
	- 16,5 mm
	- 0,0 mm Packer surface-mounted frame hinge
<hr/>	
=	25,5 mm

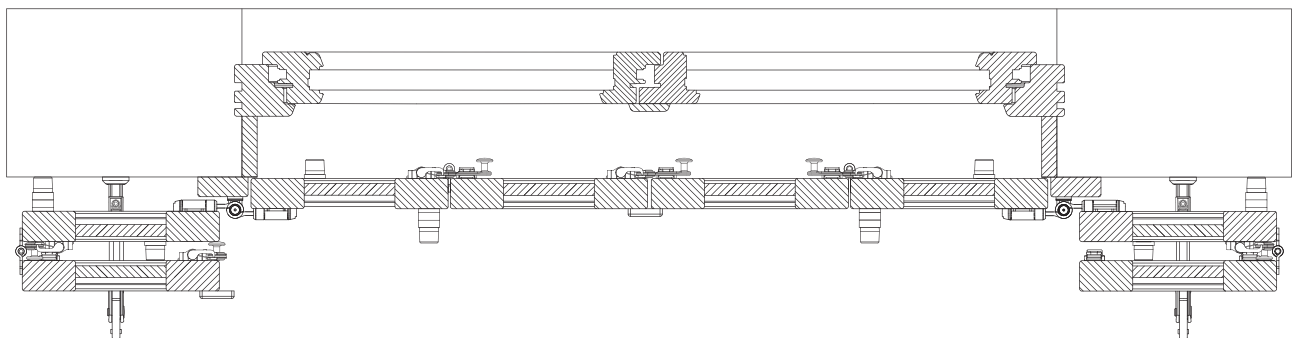
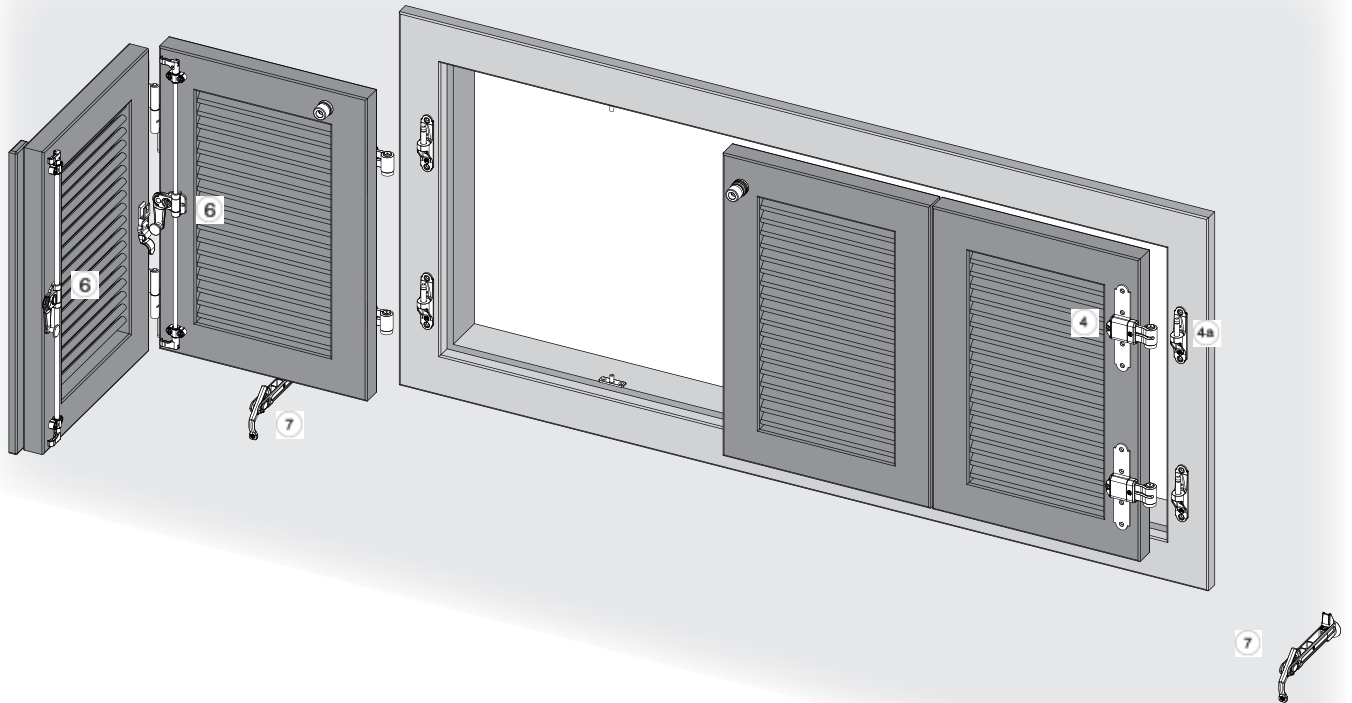
4.1.4.2 Shutter rebated



Calculation distance to wall

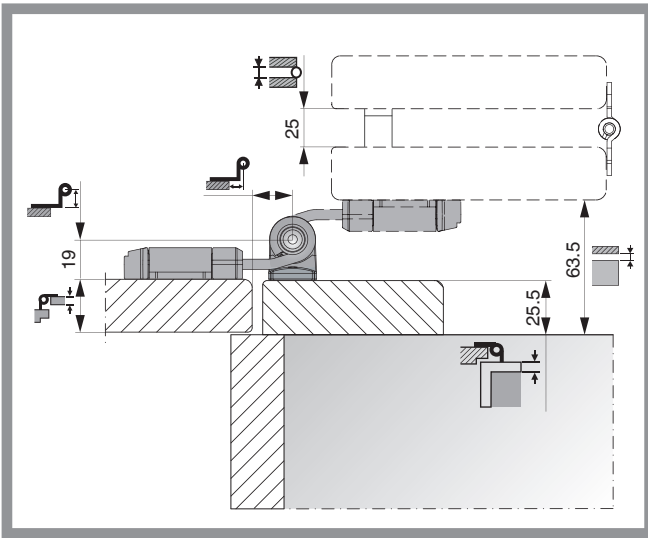
	25,5 mm
2 x	+38,0 mm
<hr/>	
=	63,5 mm

4.1.5 4-sashed, with surface-mounted frame hinges, internal pivot point



Selection guide			Page
4	4.2	Shutter hinges	→95
4a	4.3.6	Surface mounted frame hinges	→100
6	6.1	Rod-driven shutter locks	→112
6a	6.2	Centre locks	→123
7	7	Shutter Catches	→126

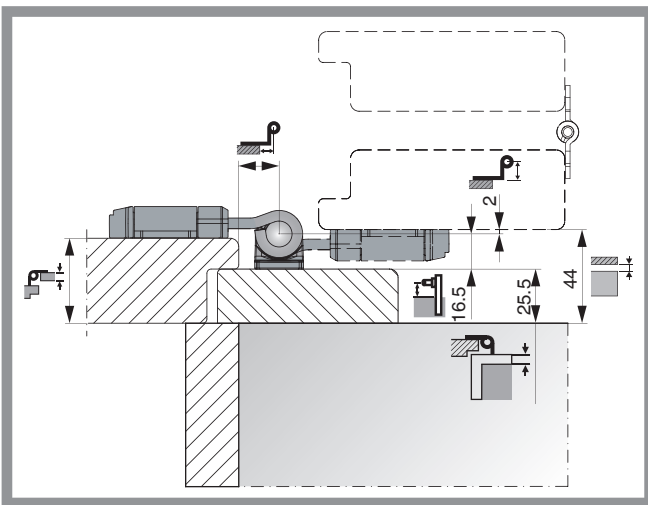
4.1.5.1 Shutter rebated



Calculation distance to wall

	25,5 mm	
2 x	38,0 mm	
=	63,5 mm	

4.1.5.2 Shutter flush























Calculation distance to wall

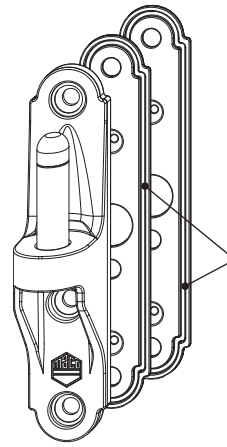
	25,5 mm	
	+16,5 mm	
	+2,0 mm	
=	44,0 mm	


Calculation lining thickness

	40 mm	
	+ 2,0 mm	
	- 16,5 mm	
	- 0,0 mm	Packer surface-mounted frame
hinge		
=	25,5 mm	

4.1.6 Overview of hardware variants

	 16-24 mm	 37-45 mm
 -5 mm		
 2 mm		
 7 mm		
 12 mm		
 19 mm		
 32-55 mm		




16,5
19,5
22,5
25,5

- Unterlagen 1 mm stapelbar
- Packers 1 mm stackable
- Espessor 1 mm da combinar
- Cales empilables de 1 mm
- Spessori 1 mm da combinare
- Vulplaat 1 mm stapelbaar
- Προσθήκη 1 mm για συνδυασμό
- Подкладка, 1 мм, собираемая в стопку



#### 4.1.7 Instructions for calculating of the permissible shutter sizes

To read the permissible shutter sizes in the diagrams ("Calculation diagrams ..."), the weight per square meter ( $\text{kg}/\text{m}^2$ ) of the shutter must be known.

For the diagrams shown ("Calculation diagrams ...") the weight per square meter ( $\text{kg}/\text{m}^2$ ) is always specified."

#### 4.1.8 Determining the weight per square meter ( $\text{kg}/\text{m}^2$ )

The easiest method is to "Weigh - measure - divide". Proceed as follows: Use commercially available bathroom scales to determine the overall weight of the shutter, Then calculate the shutter surface by multiplying the values for the length and width (specified in meters). Then divide the weight (kg) by the surface area ( $\text{m}^2$ ).

##### Example calculation:

- Shutter height 2.10 m, shutter width 0.75 m; shutter surface  $2.1 \text{ m} \times 0.75 \text{ m} = 1.575 \text{ m}^2$
- Shutter weight acc. to weight: 18 kg
- Weight per square meter:  $18 \text{ kg} : 1.575 \text{ m}^2 = 11.4 \text{ kg}/\text{m}^2$

- Select the matching diagram: for MMV hardware range: Diagram "max.  $12 \text{ kg}/\text{m}^2$ " / for BLR and MV hardware ranges: Diagram "max.  $14 \text{ kg}/\text{m}^2$ "

For solid timber shutters, the weight per square meter can be calculated as follows: Multiply the weight of a cubic meter of the timber used by the shutter thickness (specified in meters).

Benchmarks for timber weights: spruce  $400\text{-}500 \text{ kg}/\text{m}^3$ , oak  $670\text{-}850 \text{ kg}/\text{m}^3$

**Example calculation:**  $430 \text{ kg} \times 0.044 \text{ m} = 18.92 \text{ kg}/\text{m}^2$  (cubic meter weight x shutter thickness = weight per square meter).

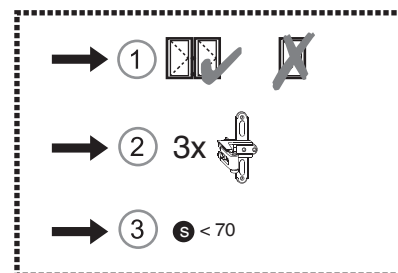
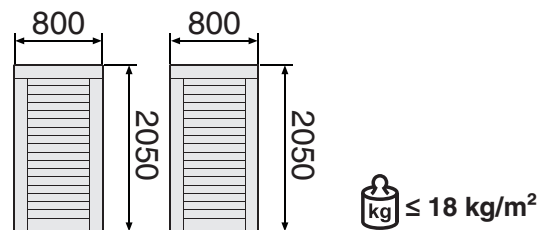
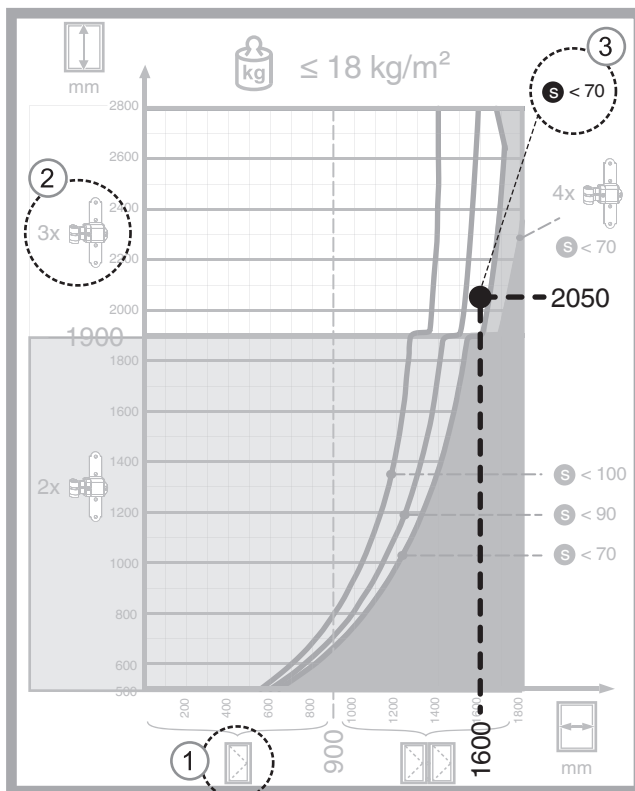
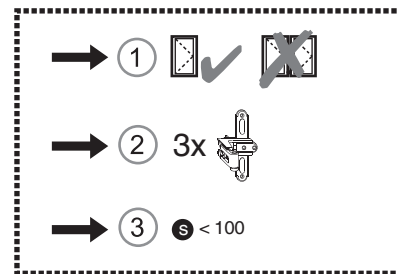
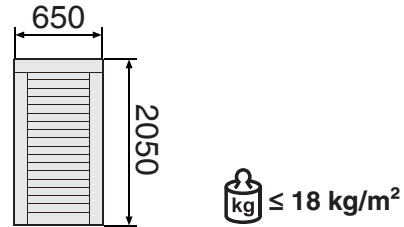
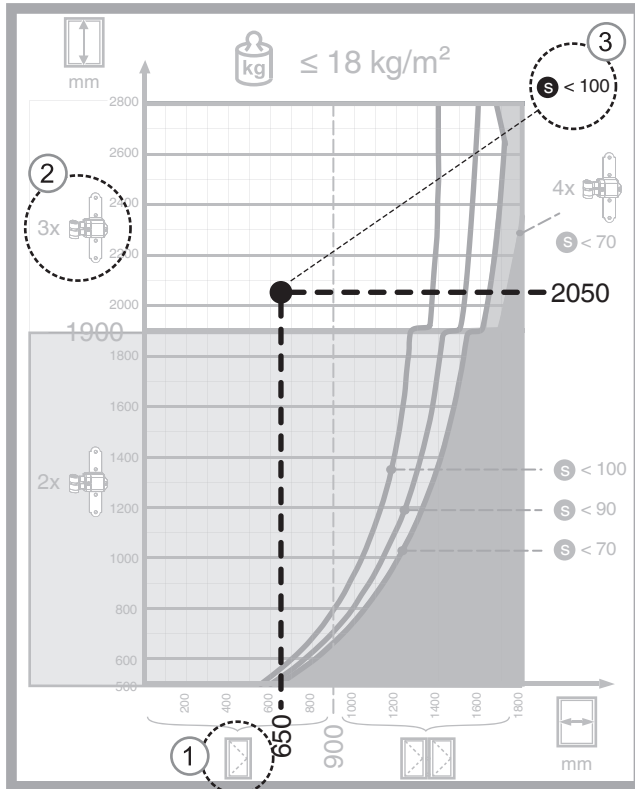
When using PVC or aluminium profiles, contact the profile manufacturer to determine the weight per square meter.

**In installations where hardware components from different hardware ranges are used, the corresponding diagrams for the hardware range BLR/MV must be taken into account when determining the permissible shutter sizes!**

## Using calculation diagrams

Mark the intersection of the width and height in the diagram for the shutter to be installed.

Use the examples below to determine which important information can be read from the diagrams to ensure correct hardware selection and shutter installation:





## 4.1.9 Application range hardware system MMV

The MMV hardware range offers a stable steel hinge and the advantages of adjustability!

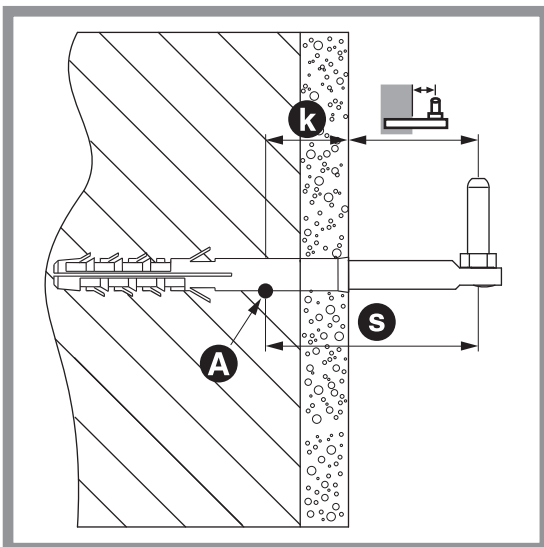
The lateral adjustment is used to correct deviations that can arise in the following situations:

- Inaccuracies during installation
- Sash deformation ("hanging")
- Deformation of fasteners and/or hardware components

Observe the following points for all following diagrams:

Use folding shutters for wider shutters and use folding shutter couplings to fasten them to the inside shutter or shutter holders to fasten them the doors.

### Pin support span



The diagrams on the next page apply for all articles in the MMV hardware range and MMV shutter middle hinges shown in this catalogue and for "Prima" hardware range (Prima shutter hinge, Prima shutter middle hinge, short surface-mounted frame hinge).

Restrictions: When long hinges are used, the overall weight must not exceed 60 kg!

In installations where hardware components from different hardware ranges are used, the corresponding diagrams for the hardware range BLR/MV must be taken into account when determining the permissible shutter sizes!

Installation instructions for wall fastening (Art. No.: 49490) must be observed! In particular, make sure that the shutter catch and buffer stop are positioned correctly.

The load-carrying capacity of the shutter pin in the masonry must be checked by the user.

If necessary, a different suitable fastening method (e.g. chemical dowel pin, etc.) must be used.

The support span **s** depends on how the shutter pin is fastened and on the properties of the masonry (plaster, insulation)

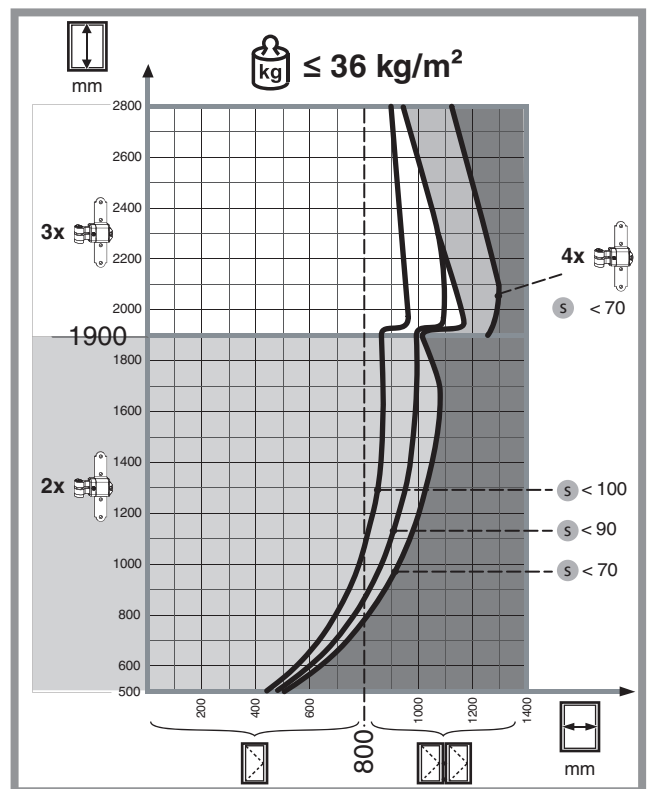
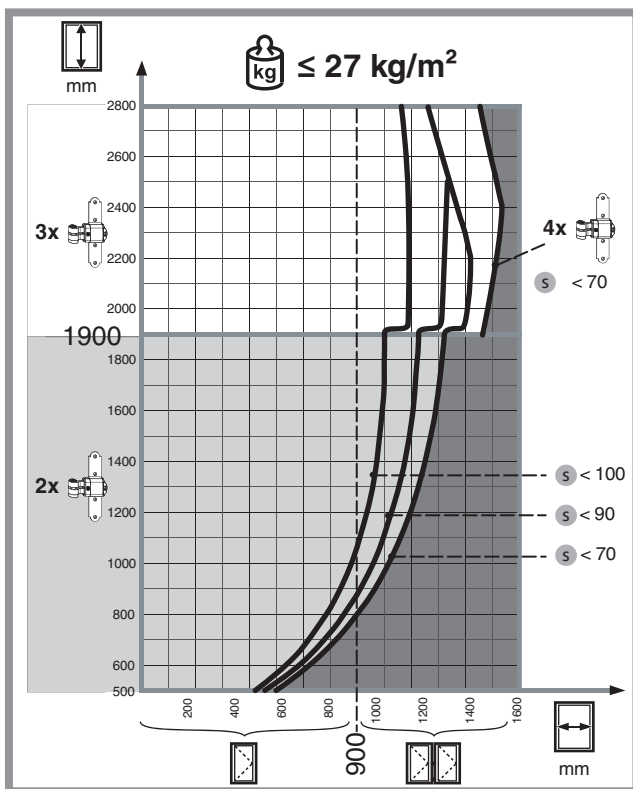
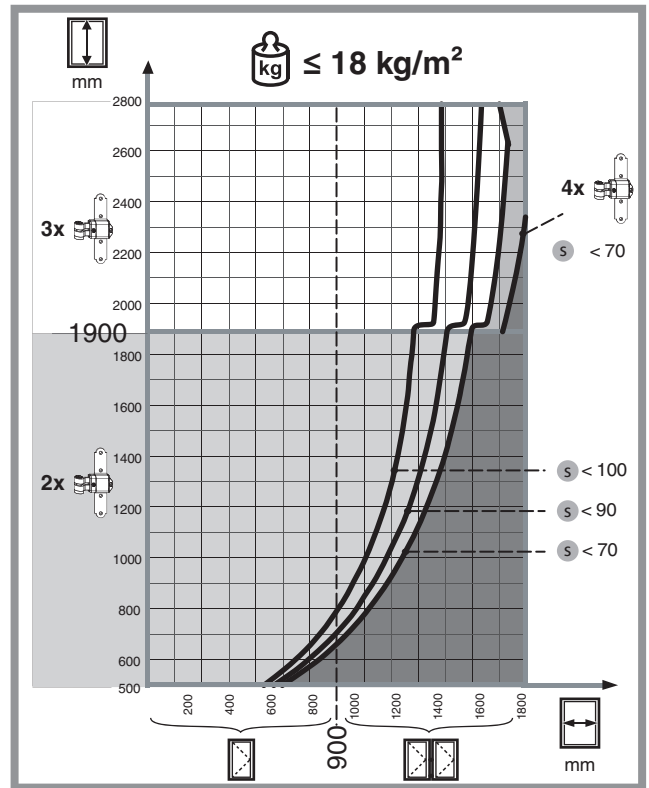
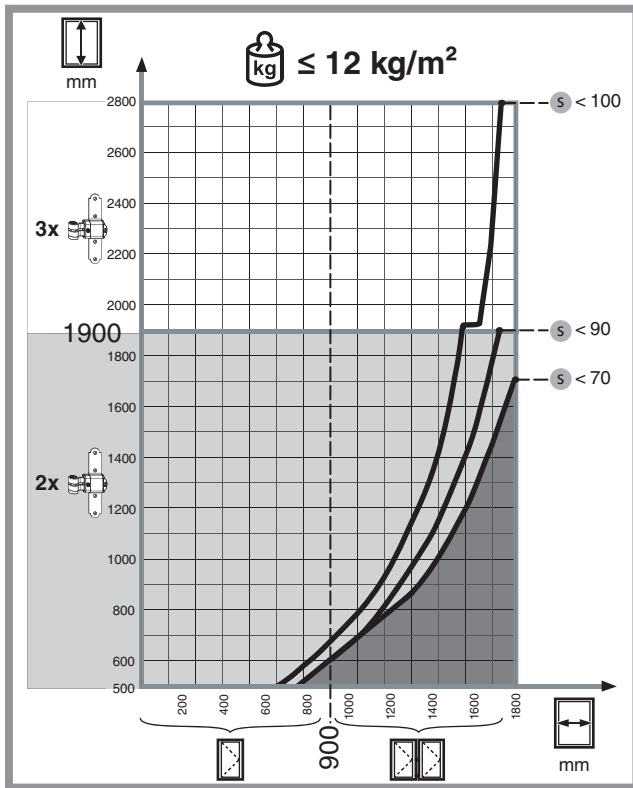
— see schematic below "Pin support span":

- S** Support span This length is decisive for the shutter pin strength — refer to diagrams for MMV hardware range.
  - A** Support point Pin support span in the masonry
  - k** Distance This is the distance from the wall surface to point A. This distance depends on how the shutter pin is fastened and on the properties of the masonry (plaster, insulation).
- Shutter pin distance

For shutters with a total weight up to a maximum of 30 kg, the distance between the shutter catch and the pivot point of the hinge must be at least 230 mm. This also permits the use of the deluxe shutter catch for these shutters - independent of the width of the shutter.

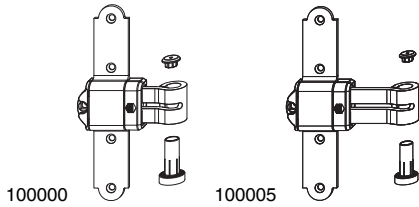
For smaller shutters with a shutter width below 460 mm, the shutter catch must always be installed at half the width of the shutter (refer to Section 1.3 "Important information for proper installation of shutter hardware").

4.1.10 Calculation diagrams hardware range MMV






## 4.2 Shutter hinges

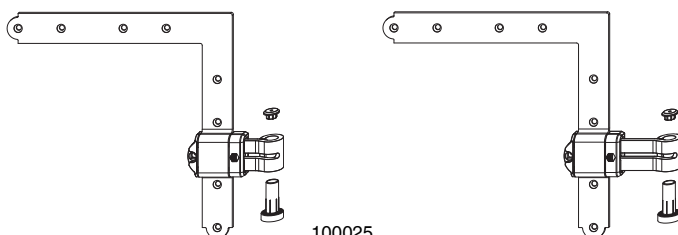
### 4.2.1 with fixed crank



#### 4.2.1.1 Cross hinges

					<b>No</b>		
black-S	with hinge regulator-sleeve and cover cap	-5	16 - 24	20	<b>101449</b>		
			37 - 45	20	<b>101450</b>		
		2	16 - 24	20	<b>100000</b>		
			37 - 45	20	<b>100005</b>		
		7	16 - 24	20	<b>100001</b>		
			37 - 45	20	<b>100006</b>		
		12	16 - 24	20	<b>100002</b>		
			37 - 45	20	<b>100007</b>		
		19	16 - 24	20	<b>100003</b>		
			37 - 45	20	<b>100008</b>		
		grey-S	with hinge regulator-sleeve and cover cap	-5	16 - 24	20	<b>102636</b>
					37 - 45	20	<b>102480</b>
2	16 - 24			20	<b>102342</b>		
	37 - 45			20	<b>102446</b>		
7	16 - 24			20	<b>102253</b>		
	37 - 45			20	<b>102255</b>		
12	16 - 24			20	<b>102509</b>		
	37 - 45			20	<b>102511</b>		
19	16 - 24			20	<b>102510</b>		
	37 - 45			20	<b>102512</b>		
white-S	with hinge regulator-sleeve and cover cap			-5	16 - 24	20	<b>102037</b>
					37 - 45	20	<b>102038</b>
		2	16 - 24	20	<b>101359</b>		
			37 - 45	20	<b>101364</b>		
		7	16 - 24	20	<b>101360</b>		
			37 - 45	20	<b>101365</b>		
		12	16 - 24	20	<b>101361</b>		
			37 - 45	20	<b>101366</b>		
		19	16 - 24	20	<b>101362</b>		
			37 - 45	20	<b>101367</b>		

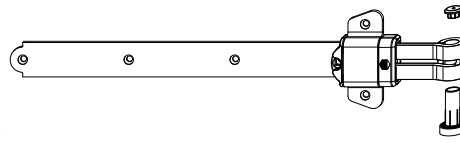
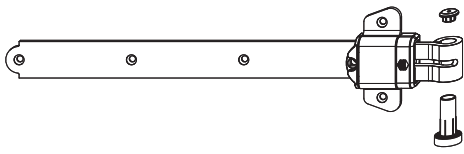
MMV



**4.2.1.2 Corner hinges**

					<b>Nº</b>
black-S	with hinge regulator-sleeve and cover cap	-5	16 - 24	10	<b>101453<sup>1</sup></b>
			37 - 45	10	<b>101454<sup>1</sup></b>
		2	16 - 24	10	<b>100020<sup>1</sup></b>
			37 - 45	10	<b>100025<sup>1</sup></b>
		7	16 - 24	10	<b>100021<sup>1</sup></b>
			37 - 45	10	<b>100026<sup>1</sup></b>
		12	16 - 24	10	<b>100022<sup>1</sup></b>
			37 - 45	10	<b>100027<sup>1</sup></b>
		19	16 - 24	10	<b>100023<sup>1</sup></b>
			37 - 45	10	<b>100028<sup>1</sup></b>
grey-S	with hinge regulator-sleeve and cover cap	-5	16 - 24	10	<b>102639<sup>1</sup></b>
			37 - 45	10	<b>102640<sup>1</sup></b>
		2	16 - 24	10	<b>102520<sup>1</sup></b>
			37 - 45	10	<b>102445<sup>1</sup></b>
		7	16 - 24	10	<b>102257<sup>1</sup></b>
			37 - 45	10	<b>102259<sup>1</sup></b>
		12	16 - 24	10	<b>102521<sup>1</sup></b>
			37 - 45	10	<b>102523<sup>1</sup></b>
		19	16 - 24	10	<b>102522<sup>1</sup></b>
			37 - 45	10	<b>102524<sup>1</sup></b>
white-S	with hinge regulator-sleeve and cover cap	-5	16 - 24	10	<b>102039<sup>1</sup></b>
			37 - 45	10	<b>102040<sup>1</sup></b>
		2	16 - 24	10	<b>101379<sup>1</sup></b>
			37 - 45	10	<b>101384<sup>1</sup></b>
		7	16 - 24	10	<b>101380<sup>1</sup></b>
			37 - 45	10	<b>101385<sup>1</sup></b>
		12	16 - 24	10	<b>101381<sup>1</sup></b>
			37 - 45	10	<b>101386<sup>1</sup></b>
		19	16 - 24	10	<b>101382<sup>1</sup></b>
			37 - 45	10	<b>101387<sup>1</sup></b>

<sup>1</sup> With corner hinges, a packaging unit consists of 1 piece top corner hinge and 1 piece bottom corner hinge.



100010

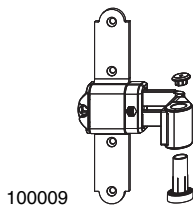
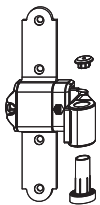
100015

**4.2.1.3 Long hinges**

						<b>No</b>		
black-S	with hinge regulator-sleeve and cover cap	-5	16 - 24	340	20	<b>101451</b>		
			37 - 45	340	20	<b>101452</b>		
		2	16 - 24	340	20	<b>100010</b>		
			37 - 45	340	20	<b>100015</b>		
		7	16 - 24	340	20	<b>100011</b>		
			37 - 45	340	20	<b>100016</b>		
		12	16 - 24	340	20	<b>100012</b>		
			37 - 45	340	20	<b>100017</b>		
		19	16 - 24	340	20	<b>100013</b>		
			37 - 45	340	20	<b>100018</b>		
		grey-S	with hinge regulator-sleeve and cover cap	-5	16 - 24	340	20	<b>102637</b>
					37 - 45	340	20	<b>102638</b>
2	16 - 24			340	20	<b>102513</b>		
	37 - 45			340	20	<b>102517</b>		
7	16 - 24			340	20	<b>102606</b>		
	37 - 45			340	20	<b>102607</b>		
12	16 - 24			340	20	<b>102514</b>		
	37 - 45			340	20	<b>102608</b>		
19	16 - 24			340	20	<b>102515</b>		
	37 - 45			340	20	<b>102518</b>		
white-S	with hinge regulator-sleeve and cover cap			-5	16 - 24	340	20	<b>102041</b>
					37 - 45	340	20	<b>102042</b>
		2	16 - 24	340	20	<b>101369</b>		
			37 - 45	340	20	<b>101374</b>		
		7	16 - 24	340	20	<b>101370</b>		
			37 - 45	340	20	<b>101375</b>		
		12	16 - 24	340	20	<b>101371</b>		
			37 - 45	340	20	<b>101376</b>		
		19	16 - 24	340	20	<b>101372</b>		
			37 - 45	340	20	<b>101377</b>		

MMV

**4.2.2 with variable crank**

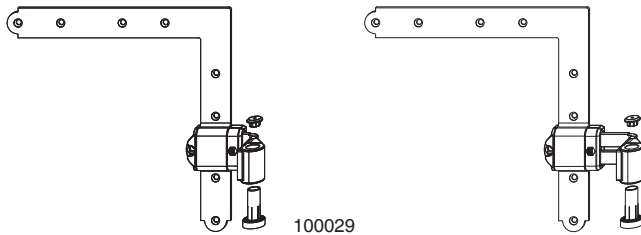


100004

100009

**4.2.2.1 Cross hinges**

						<b>No</b>
black-S		32 - 55	16 - 24	20		<b>100004</b>
			37 - 45	20		<b>100009</b>
grey-S		32 - 55	16 - 24	20		<b>102254</b>
			37 - 45	20		<b>102256</b>
white-S		32 - 55	16 - 24	20		<b>101363</b>
			37 - 45	20		<b>101368</b>

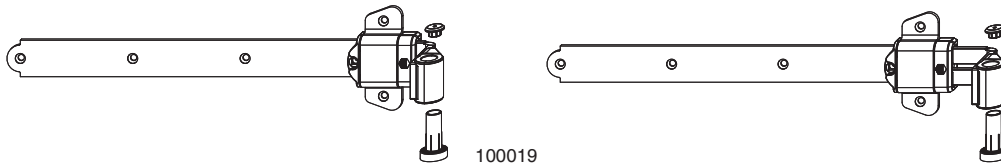


100024

100029

4.2.2.2 Corner hinges					No
black-S		32 - 55	16 - 24	10	100024 <sup>1</sup>
			37 - 45	10	100029 <sup>1</sup>
grey-S		32 - 55	16 - 24	10	102258 <sup>1</sup>
			37 - 45	10	102260 <sup>1</sup>
white-S		32 - 55	16 - 24	10	101383 <sup>1</sup>
			37 - 45	10	101388 <sup>1</sup>

<sup>1</sup> With corner hinges, a packaging unit consists of 1 piece top corner hinge and 1 piece bottom corner hinge.



100014

100019

4.2.2.3 Long hinges						No
black-S		32 - 55	16 - 24	340	20	100014
			37 - 45	340	20	100019
grey-S		32 - 55	16 - 24	340	20	102516
			37 - 45	340	20	102519
white-S		32 - 55	16 - 24	340	20	101373
			37 - 45	340	20	101378



44383

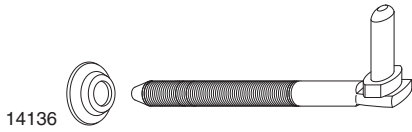
44380

4.2.3 Regulator sleeves and Cover caps MMV				No	
black	black	long cover cap	100	44384 <sup>1</sup>	
		short cover cap	100	44383 <sup>2</sup>	
		open hinge regulator sleeve	Ø10mm	100	44382
			Ø8mm	100	44380
		Ø9mm	100	44381	
grey	grey	long cover cap	100	360382 <sup>1</sup>	
		short cover cap	100	360381 <sup>2</sup>	
		open hinge regulator sleeve	Ø10mm	50	465423
			Ø8mm	50	465422
		Ø9mm	100	360380	
white	white	long cover cap	100	454979 <sup>1</sup>	
		short cover cap	100	454978 <sup>2</sup>	
		open hinge regulator sleeve	Ø10mm	100	454977
			Ø8mm	100	454975
		Ø9mm	100	454976	

<sup>1</sup> For hinges with variable crank 32-55 mm

<sup>2</sup> For hinges with fixed crank.

## 4.3 Shutter pins



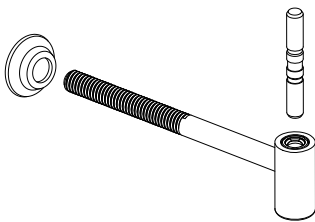
14136

### 4.3.1 Universal shutter pins with lateral adjustment



**No**

black-S	size 1	122	20	<b>14136</b>
	size 2	147	20	<b>14140</b>
	size 3	172	20	<b>14144</b>
	size 4	250	20	<b>14148</b>
grey-S	size 1	122	20	<b>102448</b>
	size 2	147	20	<b>102449</b>
	size 3	172	20	<b>102545</b>
	size 4	250	20	<b>102546</b>
white-S	size 1	122	20	<b>101016</b>
	size 4	250	20	<b>101028</b>
	size 3	172	20	<b>11245</b>
	size 2	147	20	<b>11781</b>



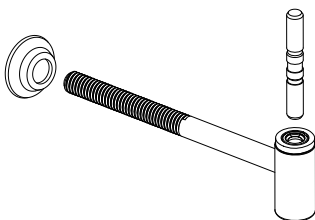
101588

### 4.3.2 Masonry shutter pins without vertical adjustment



**No**

black-S	with loose pin and lock washer	size 1	22	100	20	<b>101587</b>
		size 2	22	145	20	<b>101588</b>
		size 3	22	170	20	<b>101589</b>
grey-S	with loose pin and lock washer	size 2	22	145	20	<b>102263</b>
		size 3	22	170	20	<b>102264</b>
		size 1	22	100	20	<b>102527</b>
white-S	with loose pin and lock washer	size 1	22	100	20	<b>101590</b>
		size 2	22	145	20	<b>101591</b>
		size 3	22	170	20	<b>101592</b>



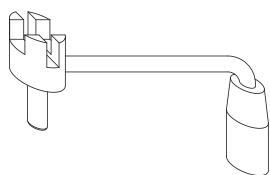
101596

### 4.3.3 Masonry shutter pins with vertical adjustment



**No**

black-S	with loose pin and lock washer	size 1	22	100	20	<b>101596</b>
		size 2	22	145	20	<b>101597</b>
		size 3	22	170	20	<b>101598</b>
grey-S	with loose pin and lock washer	size 1	22	100	20	<b>102374</b>
		size 2	22	145	20	<b>102375</b>
		size 3	22	170	20	<b>102528</b>
white-S	with loose pin and lock washer	size 1	22	100	20	<b>101599</b>
		size 2	22	145	20	<b>101600</b>
		size 3	22	170	20	<b>101601</b>



24596

**4.3.4 Screw-driving tool**

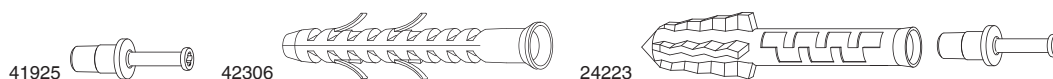


**Nº**

screw-driving tool with crank handle for universal shutter pin

1

**24596**



**4.3.5 Rawplug for universal shutter pin**

Ø

L



**Nº**

installation aid for rawplug to be plastered in

20

**41925**

rawplug for shutter pin

16

100

20

**42306**

140

20

**42308**

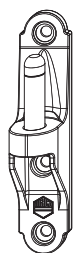
rawplug to be plastered in - with installation aid

16

117

20

**24223**



202223

**4.3.6 Surface mounted frame hinges**



**Nº**

black-S

surface mounted frame hinge

16,5

23

20

**202223**

19,5

23

20

**202224**

22,5

23

20

**202225**

25,5

23

20

**202226**

grey-S

surface mounted frame hinge

16,5

23

20

**211811**

19,5

23

20

**212742**

22,5

23

20

**211230**

25,5

23

20

**212743**

white-S

surface mounted frame hinge

16,5

23

20

**201813**

19,5

23

20

**201814**

22,5

23

20

**201815**

25,5

23

20

**201816**



441782

**4.3.7 Packers for surface mounted frame hinge**



W

L



**Nº**

black

surface mounted frame hinge MMV stackable

1

23

111

100

**441782**

grey

surface mounted frame hinge MMV stackable

1

23

111

100

**360816**





441783



**4.3.8 Positioning pin for surface mounted frame hinge**



**Nº**

positioning pin for surface mounted frame hinge MMV black

100

**441783**

355518



**4.3.9 Spacers**



**Nº**

black spacer MMV, for shutter pin Ø 9mm

Ø22mm

1,5

100

**355518**

grey spacer MMV, for shutter pin Ø 9mm

Ø22mm

1,5

50

**363286**

white spacer MMV, for shutter pin Ø 9mm

Ø22mm

1,5

100

**363323**

MMV

## 4.4 Masonry shutter pin M16 for wall insulation

### 4.4.1 Application range for M16 masonry pins for wall insulation

The installation instructions for M16 masonry pins (Art. No. 756580) and the package insert (Art.No. 750487) must be observed! In particular, make sure that the drilled hole is resistant to heavy rain and that the shutter catch and buffer stop are positioned correctly. (refer to Section 1.3 "Important information for proper installation of shutter hardware").

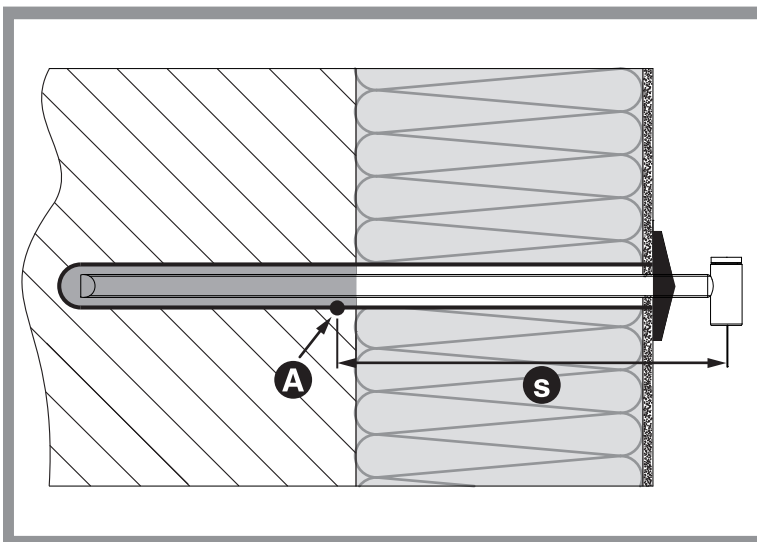
To fasten correctly, we recommend the use of a chemical rawlplug (e.g. from HILTI or WÜRTH).

The load-carrying capacity of the shutter pin in the masonry must be checked by the user.

To fasten the shutter pin in the masonry, be sure to observe the specifications provided by the manufacturer of the adhesive (chemical rawlplug)!

When using certain types of chemical rawlplugs, it may be necessary to chamfer the end of the pin to prevent subsequent rotation of the pin after installation.

#### Pin support span



**S** Support span

This length is decisive for the shutter pin strength — refer to diagrams on the following page!

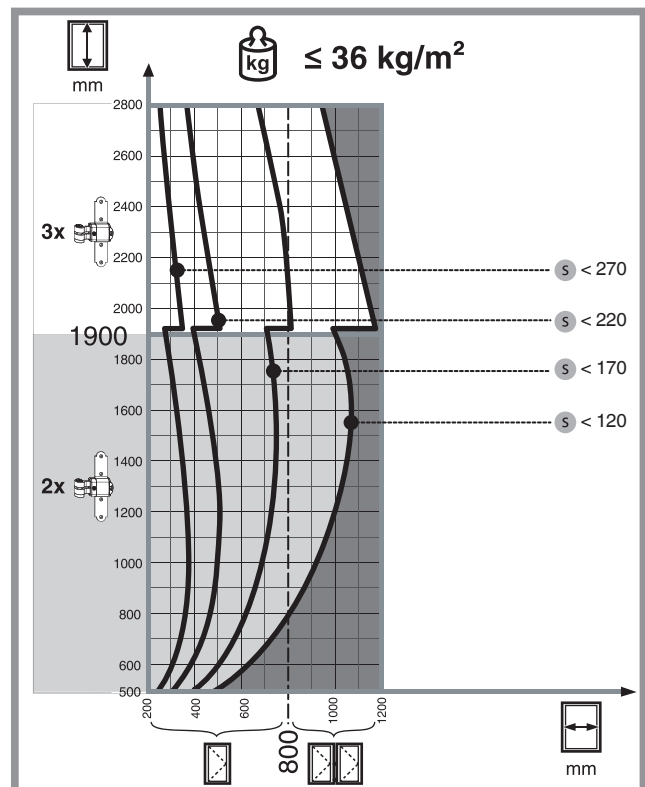
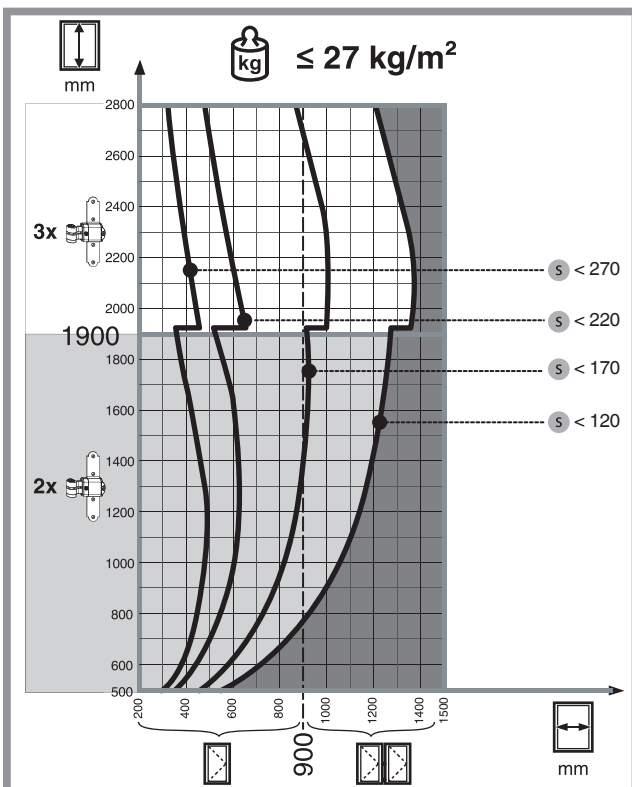
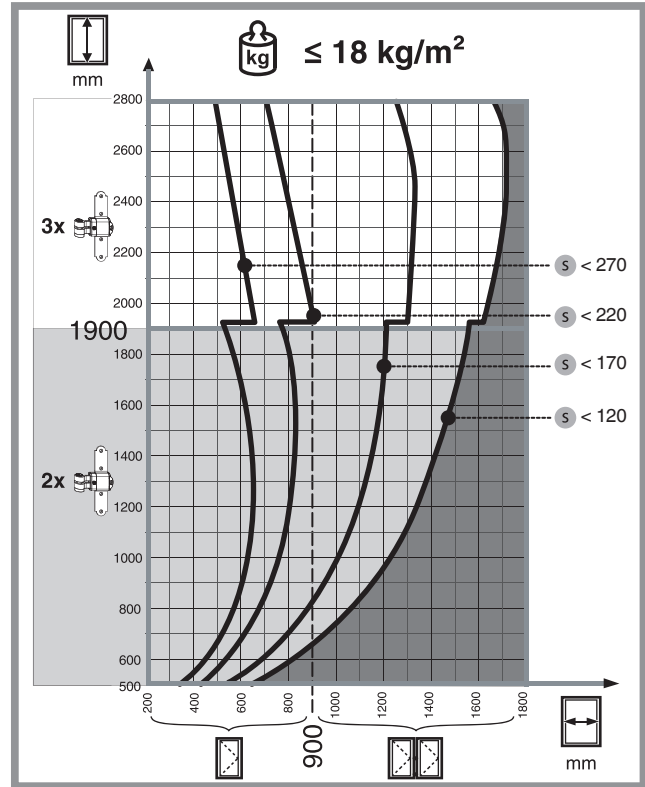
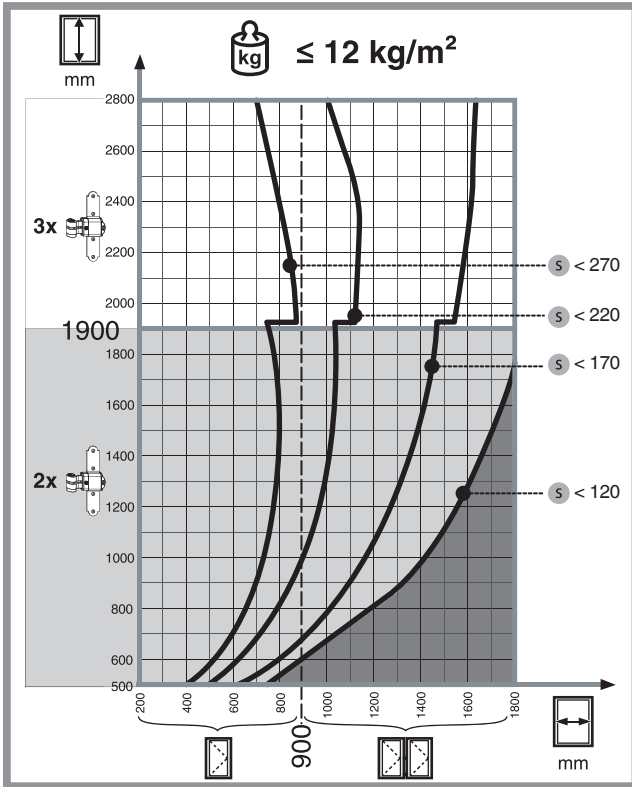
**A** Support point

Pin support span in the masonry

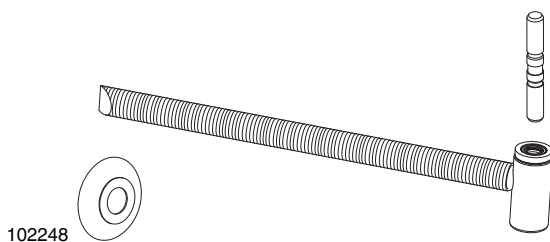
4.4.2 Calculation diagrams for M16 masonry shutter pins for wall insulation

The following diagrams apply only for pins used with masonry insulation in combination with the MMV hardware range!

Please observe the installation instructions provided on the previous page!

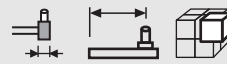


MMV



102248

**4.4.3 Masonry shutter pin M16 vertically adjustable**



**Nº**

black-S	with loose pin and lock washer	L300	22	300	20	<b>102248</b>
		L450	22	450	20	<b>102249</b>
		L240	22	240	20	<b>103002</b>
grey-S	with loose pin and lock washer	L300	22	300	20	<b>102645</b>
		L450	22	450	20	<b>102646</b>
white-S	with loose pin and lock washer	L300	22	300	20	<b>102885</b>

364274

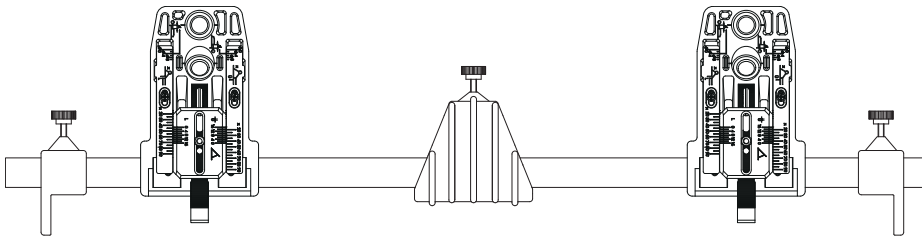


**4.4.4 Accessories for masonry shutter pin M16**



**Nº**

cover disk for masonry shutter pin M16 black	100	<b>364274</b>
cover disk for masonry shutter pin M16 white	50	<b>367600</b>
cover disk for masonry shutter pin M16 grey	50	<b>365880</b>



101265

#### 4.5 Jigs for hardware range MMV



**Nº**

jig MMV for separate installation hinge and surface mounted frame hinge	1	<b>101263</b>
jig MMV for universal shutter pin 30° pitched drillhole	1	<b>101265</b>
jig MMV for universal shutter pin straight drillhole	1	<b>101266</b>
jig conversion set MMV for shutter pin drillhole from 90° to 30° drillhole	10	<b>101315</b>
jig conversion set MMV for shutter pin drillhole from 30° to 90° drillhole	10	<b>101316</b>
jig MMV for shutter pin with separate pin drill hole Ø 16 mm	1	<b>22616</b>
jig MMV for shutter pin with separate pin drill hole Ø 20 mm	1	<b>27054</b>

MACO  
RUSTICO



Hardware Range MMV



## 5 Hardware Range "Padovana"

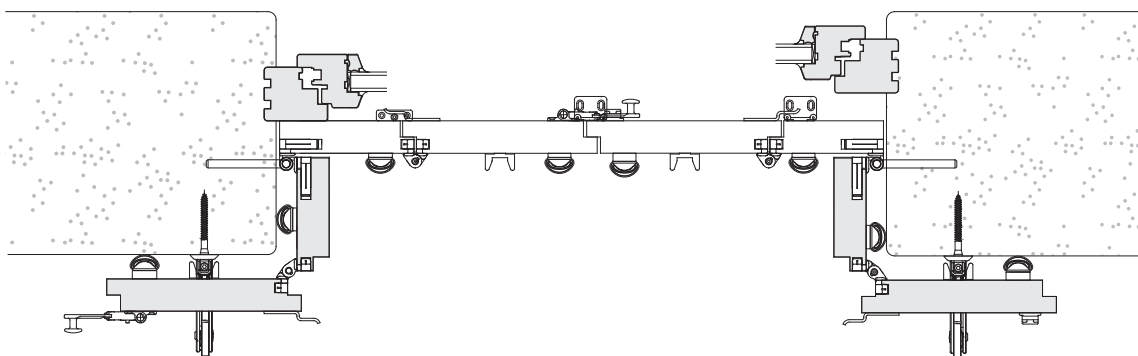
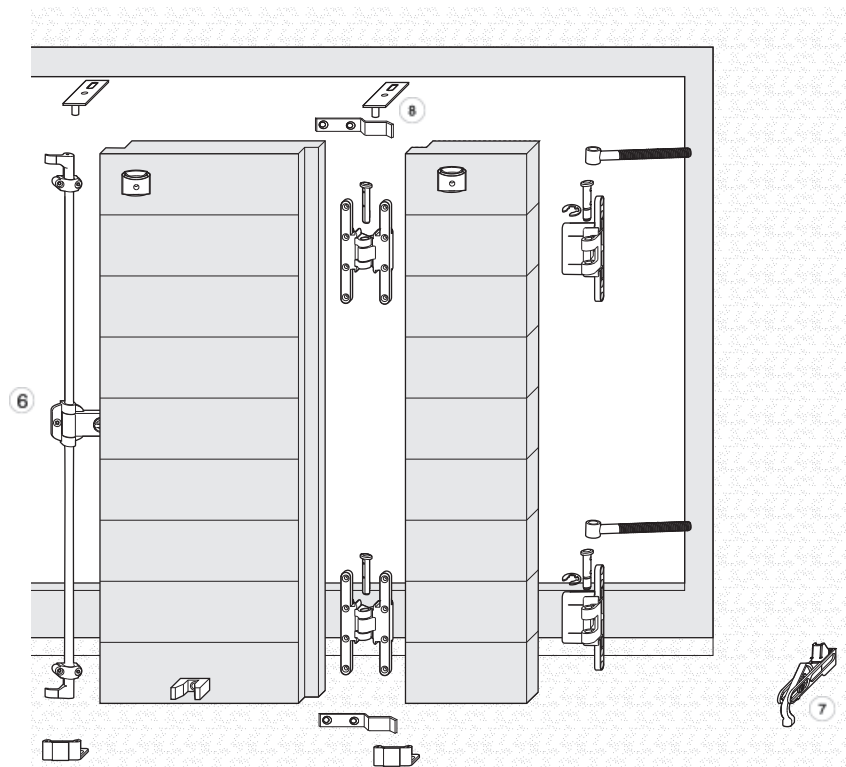
---

5.1	Information for hardware selection _____	108
5.2	Padovana shutter hinges for 12 mm routing _____	109
5.3	"Padovana" shutter centre hinges for 12 mm routing _____	109
5.4	Shutter pins for shutter hinges "Padovana" _____	109
5.5	Accessories _____	109

## 5 Hardware Range "Padovana"

### 5.1 Information for hardware selection

#### 5.1.1 2-sashed, with masonry shutter pins

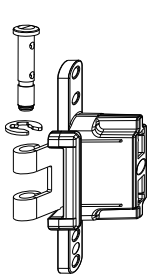


Selection guide		Page
6	Shutter Locks	→112
7	Shutter Catches	→126
8	8.6.2.9 Multi-sashed hook brackets	→143

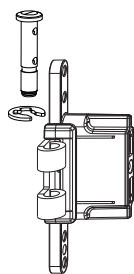


**5.1.2 Application ranges for "Padovana" shutter weight max. 21kg/m<sup>2</sup>**

Number of shutter hinges	Shutter height	Shutter width
2	≤ 1600 mm	max. 900 mm
2	≤ 1900 mm	max. 800 mm
3	≤ 2200 mm	max. 900 mm
3	≤ 2400 mm	max. 800 mm



102280



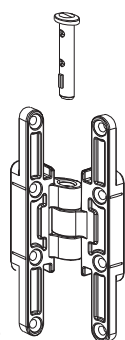
101571

**5.2 Padovana shutter hinges for 12 mm routing**



**No**

black-S	for frame installation	0	12	20	<b>102280</b>
	for masonry installation	13	-8	20	<b>101571</b>
grey-S	for frame installation	0	12	20	<b>102352</b>
	for masonry installation	13	-8	20	<b>102139</b>



101572

**5.3 "Padovana" shutter centre hinges for 12 mm routing**



**No**

black-S	20	20	<b>101572</b>
grey-S	20	20	<b>102158</b>



357305

**5.4 Shutter pins for shutter hinges "Padovana"**



**No**

black-S	17	100	20	<b>357305</b>
grey-S	17	100	20	<b>359885</b>



41138

**5.5 Accessories**



**No**

stop for Padovana shutter catches black	50	<b>41138</b>
stop for Padovana shutter catches grey	50	<b>359889</b>

PAD

MACO  
RUSTICO



## Hardware Range "Padovana"



## 6 Shutter Locks

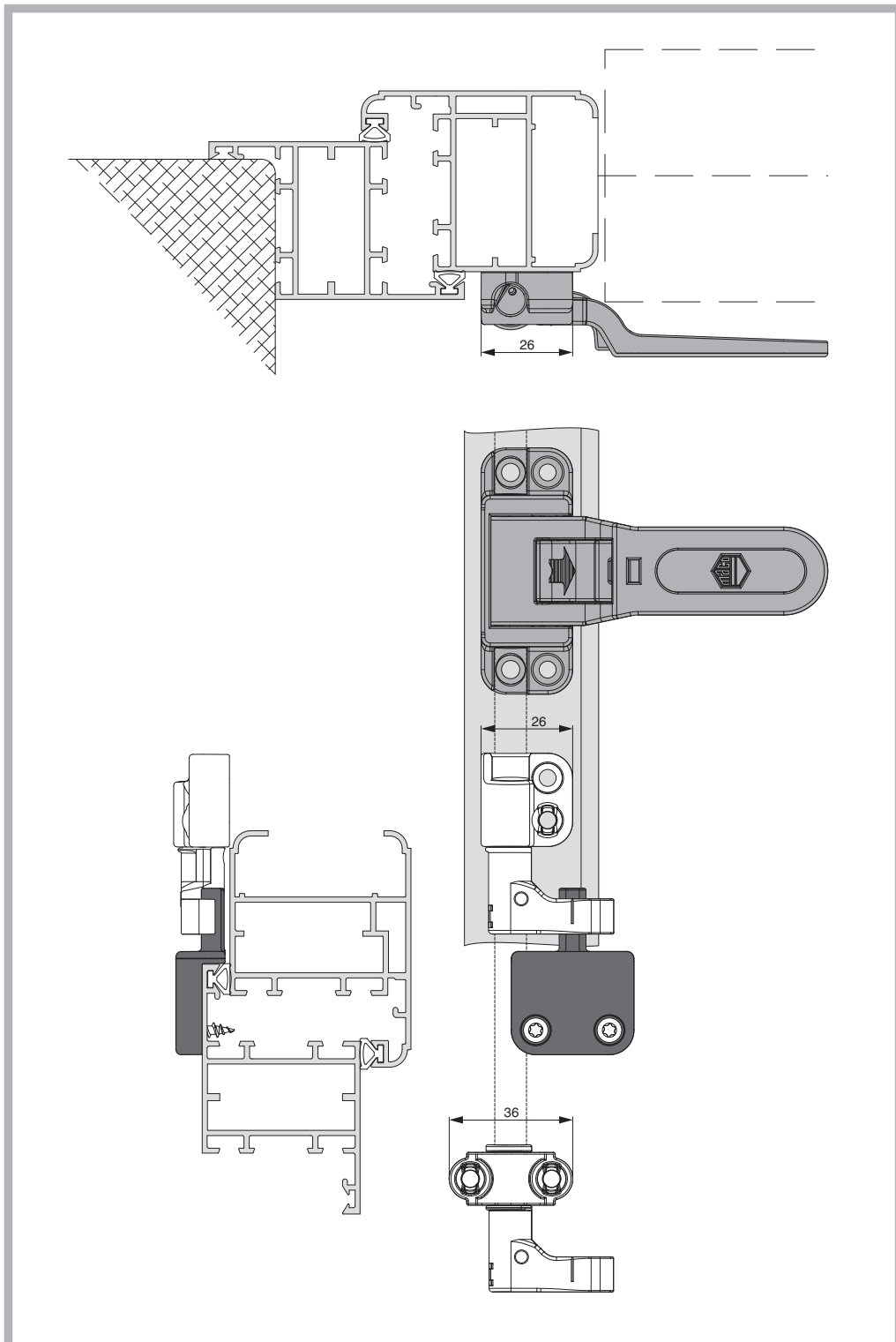
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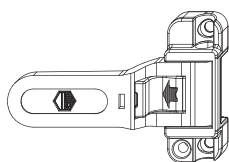
6.1	Rod-driven shutter locks	112
6.2	Centre locks	123

## 6 Shutter Locks

### 6.1 Rod-driven shutter locks

#### 6.1.1 Safety-catch shutter locks 26mm wide

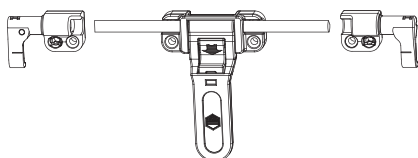




219841

**6.1.1.1 Safety-catch shutter locks 26mm wide without locking hooks**

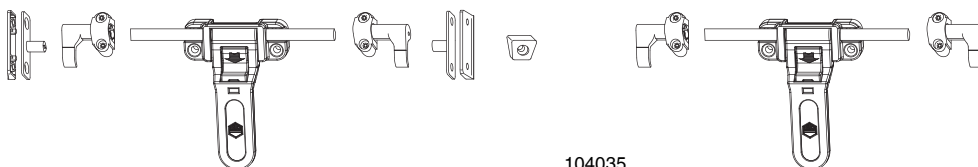
	L		No
black-S	98	50	<b>219841</b>
grey-S	98	20	<b>225586</b>
white-S	98	20	<b>225585</b>



104033

**6.1.1.2 Safety-catch shutter locks 26mm wide with locking hooks 26mm wide**

	L		No
black-S without striker pin brackets without protective block with 26mm high spring-loaded locking hooks 26 wide	98	20	<b>104033</b>



104036

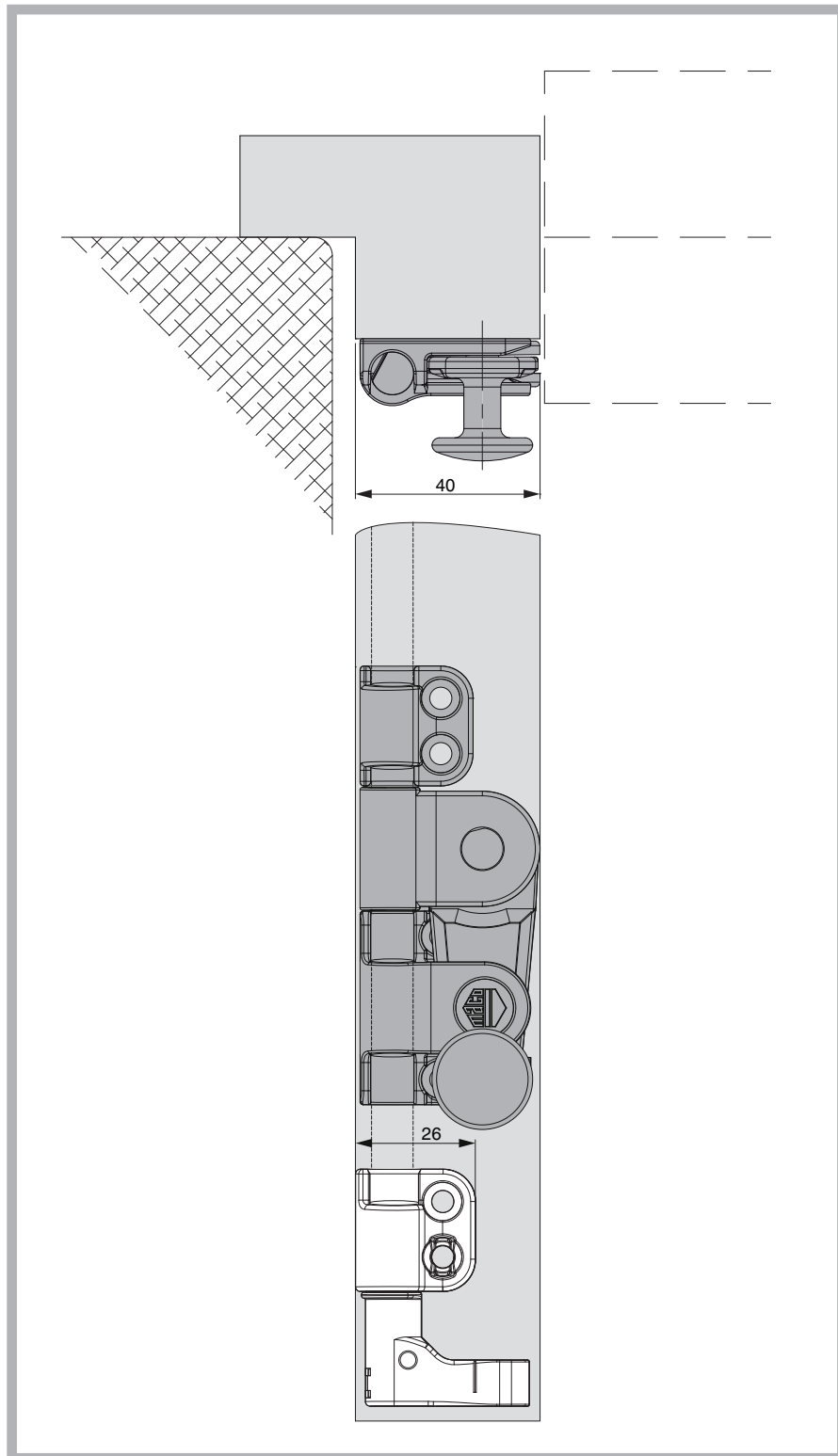
104035

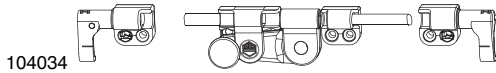
**6.1.1.3 Safety-catch shutter locks 26mm wide with locking hooks 36mm wide**

	L		No
black-S with striker pin brackets and packers with protective block with 15mm high locking hooks 26 wide	98	20	<b>104036</b>
black-S without striker pin brackets without protective block with 15mm high locking hooks 26 wide	98	20	<b>104035</b>
black-S without striker pin brackets without protective block with 15mm high spring-loaded locking hooks 26 wide	98	20	<b>104037</b>
grey-S with striker pin brackets and packers with protective block with 15mm high locking hooks 26 wide	98	20	<b>104057</b>
grey-S without striker pin brackets without protective block with 15mm high locking hooks 26 wide	98	20	<b>104056</b>
white-S with striker pin brackets and packers with protective block with 15mm high locking hooks 26 wide	98	20	<b>104054</b>
white-S without striker pin brackets without protective block with 15mm high locking hooks 26 wide	98	20	<b>104053</b>
white-S without striker pin brackets without protective block with 15mm high spring-loaded locking hooks 26 wide	98	20	<b>104055</b>



6.1.2 Shutter locks 1F 40 mm wide





104034

**6.1.2.1 Shutter locks 1F 40mm wide with locking hooks 26mm wide**

**L**



**Nº**

black-S without striker pin brackets without protective block with 26mm high spring-loaded locking hooks 40 wide

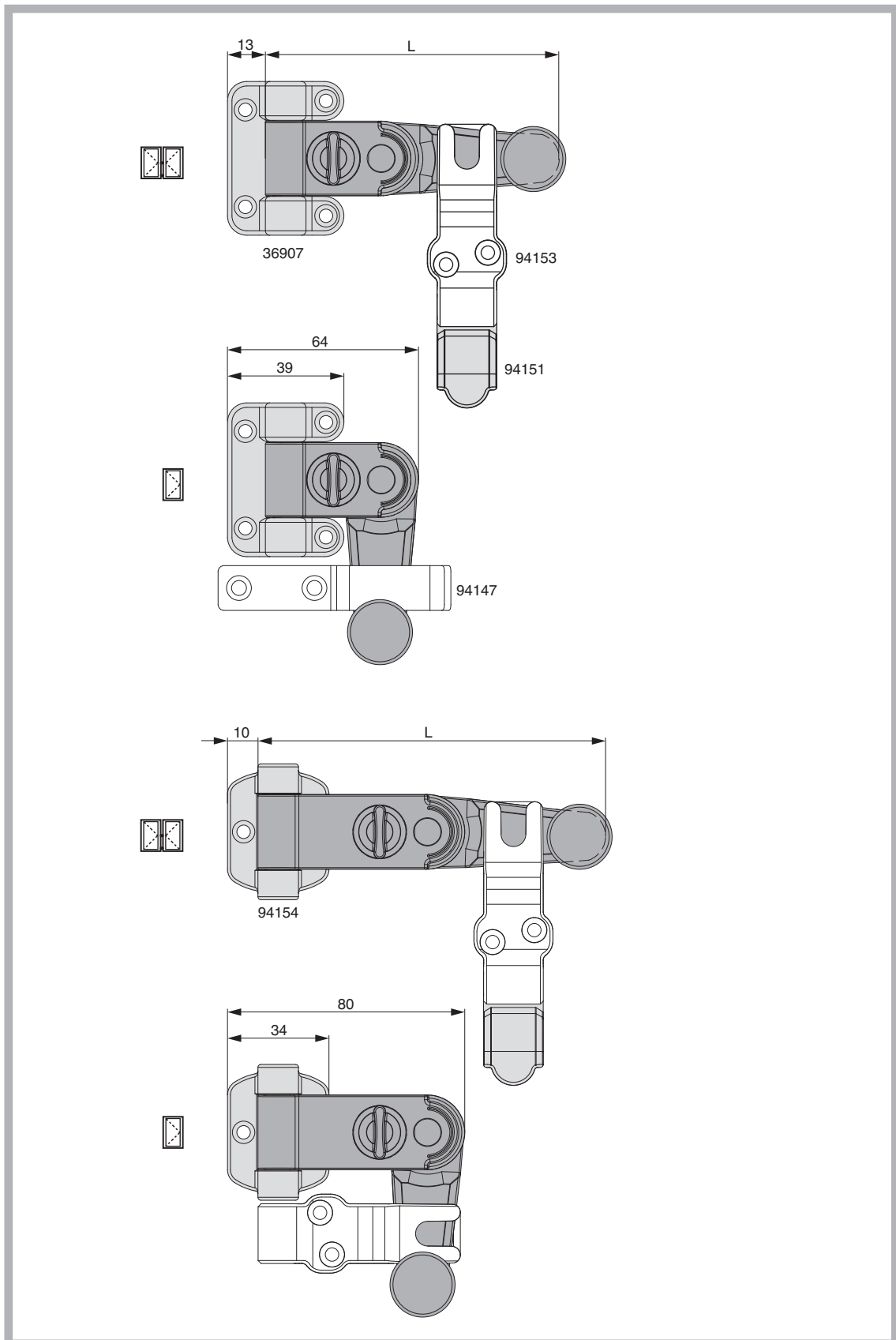
86

20

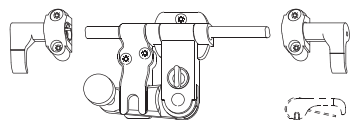
**104034**



6.1.3 Shutter locks 2F

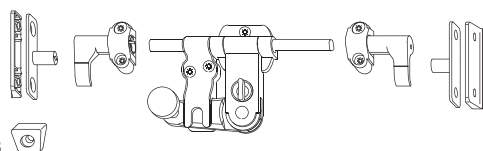




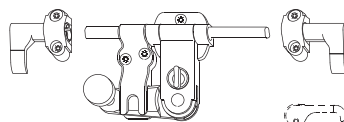


14360

<b>6.1.3.1 Shutter locks 2F with spring-loaded locking hooks</b>		<b>L</b>		<b>No</b>
black-S	without striker pin brackets without protective block with 15mm high spring-loaded locking hooks with short crank handle	101	20	<b>14154</b>
	without striker pin brackets without protective block with 15mm high spring-loaded locking hooks with standard crank handle	119	20	<b>14360</b>
	without striker pin brackets without protective block with 15mm high spring-loaded locking hooks with long crank handle	139	20	<b>14364</b>
grey-S	without striker pin brackets without protective block with 15mm high spring-loaded locking hooks with short crank handle	101	20	<b>102477</b>
	without striker pin brackets without protective block with 15mm high spring-loaded locking hooks with standard crank handle	119	20	<b>102152</b>
	without striker pin brackets without protective block with 15mm high spring-loaded locking hooks with long crank handle	139	20	<b>102483</b>



14208

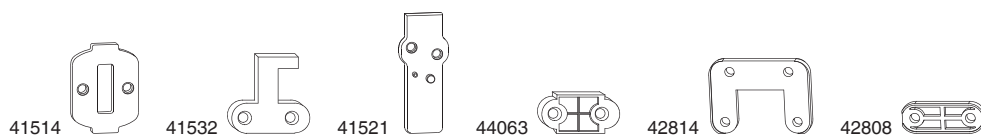


14204

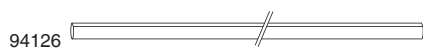
<b>6.1.3.2 Shutter locks 2F with locking hooks not spring-loaded</b>		<b>L</b>		<b>No</b>
black-S	without striker pin brackets without protective block with 15mm high locking hooks with short crank handle	101	20	<b>14150</b>
	with striker pin brackets and packers with protective block with 15mm high locking hooks with standard crank handle	119	20	<b>14208</b>
	without striker pin brackets without protective block with 15mm high locking hooks with standard crank handle	119	20	<b>14204</b>
	without striker pin brackets without protective block with 15mm high locking hooks with long crank handle	139	20	<b>14470</b>
grey-S	without striker pin brackets without protective block with 15mm high locking hooks with short crank handle	101	20	<b>102251</b>
	with striker pin brackets and packers with protective block with 15mm high locking hooks with standard crank handle	119	20	<b>102469</b>
	without striker pin brackets without protective block with 15mm high locking hooks with standard crank handle	119	20	<b>102481</b>
	without striker pin brackets without protective block with 15mm high locking hooks with long crank handle	139	20	<b>102252</b>
white-S	with striker pin brackets and packers with protective block with 15mm high locking hooks with standard crank handle	119	20	<b>13273</b>
	without striker pin brackets without protective block with 15mm high locking hooks with standard crank handle	119	20	<b>13267</b>
	without striker pin brackets without protective block with 15mm high locking hooks with long crank handle	139	20	<b>100040</b>



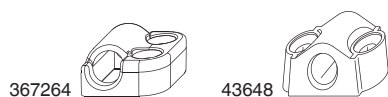
**6.1.4 Accessories for rod-driven shutter locks**



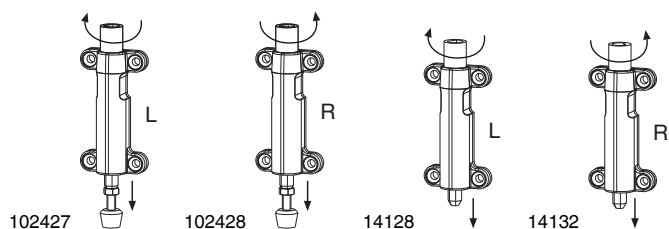
<b>6.1.4.1 Packers for shutter locks 1F and 2F</b>				<b>No</b>
black	for 2-sashed rod guide	5	100	<b>41514</b>
		8	100	<b>44184</b>
	for locking hook 15mm high	5	100	<b>41532</b>
		8	100	<b>44180</b>
	for multi-purpose double-sashed shutter latch	5	100	<b>41521</b>
		8	100	<b>44182</b>
	for rod guide	5	100	<b>44063</b>
	8	100	<b>364330</b>	
	for rod guide C	5	100	<b>42814</b>
	for shutter lock with shootbolt protrusion	5	100	<b>42808</b>
		8	100	<b>364332</b>
grey	for 2-sashed rod guide	5	100	<b>359899</b>
	for locking hook 15mm high	5	100	<b>359898</b>
	for multi-purpose double-sashed shutter latch	5	100	<b>359894</b>
	for rod guide	5	100	<b>359901</b>
	for shutter lock with shootbolt protrusion	5	100	<b>359900</b>
white	for 2-sashed rod guide	5	100	<b>355950</b>
	for locking hook 15mm high	5	100	<b>355952</b>
	for multi-purpose double-sashed shutter latch	5	100	<b>355951</b>
	for rod guide	5	100	<b>44072</b>
	for shutter lock with shootbolt protrusion	5	100	<b>363325</b>



<b>6.1.4.2 Locking rods</b>		<b>L</b>		<b>No</b>
black-S		1.400	10	<b>94126</b>
		2.200	10	<b>94130</b>
		2.600	10	<b>94134</b>
grey-S		1.400	10	<b>465217</b>
		2.200	10	<b>465218</b>
		2.600	10	<b>465220</b>
white-S		1.400	10	<b>30053</b>
		2.200	10	<b>36860</b>
		2.600	10	<b>97509</b>



<b>6.1.4.3 Rod guides</b>				<b>No</b>
black-S	rod guide	26 wide	50	<b>367264</b>
black	rod guide closed	15 mm	20	<b>356988</b>
	rod guide	15 mm	100	<b>43648</b>
grey	rod guide	15 mm	100	<b>359888</b>
	rod guide closed	15 mm	20	<b>360958</b>
white	rod guide	15 mm	100	<b>43649</b>
	rod guide closed	15 mm	20	<b>365566</b>



**6.1.4.4 Shutter lock end pieces**

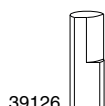


**No**

black-S	shutter lock end piece with shootbolt protrusion	locking to the left	20	<b>102427<sup>1,2</sup></b>
		locking to the right	20	<b>102428<sup>1,2</sup></b>
		locking to the left	20	<b>14128</b>
		locking to the right	20	<b>14132</b>
grey-S	shutter lock end piece with shootbolt protrusion	locking to the left	20	<b>102140</b>
		locking to the right	20	<b>102141</b>
white-S	shutter lock end piece with shootbolt protrusion	locking to the left	20	<b>102470<sup>1,2</sup></b>
		locking to the right	20	<b>102471<sup>1,2</sup></b>
		locking to the left	20	<b>11248</b>
		locking to the right	20	<b>11249</b>

<sup>1</sup> These items are excluded from the 10-year guarantee.

<sup>2</sup> Using gasket compression to latch does not produce a high resistance to storms.



39126

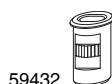
**6.1.4.5 Turn-alignment for shutter end pieces**



**No**

turn-alignment for left-handed shutter lock end piece on folding shutters silver	100	<b>39126<sup>1</sup></b>
turn-alignment for right-handed shutter lock end piece on folding shutters silver	100	<b>39125<sup>1</sup></b>

<sup>1</sup> Required for folding shutters with shutter end piece.



59432

**6.1.4.6 Shootbolt locking bush for shutter lock end pieces**



**No**

silver	20	<b>59432<sup>1</sup></b>
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<sup>1</sup> These items are excluded from the 10-year guarantee.



94148

**6.1.4.7 Arresting tab for shutter lock end pieces**

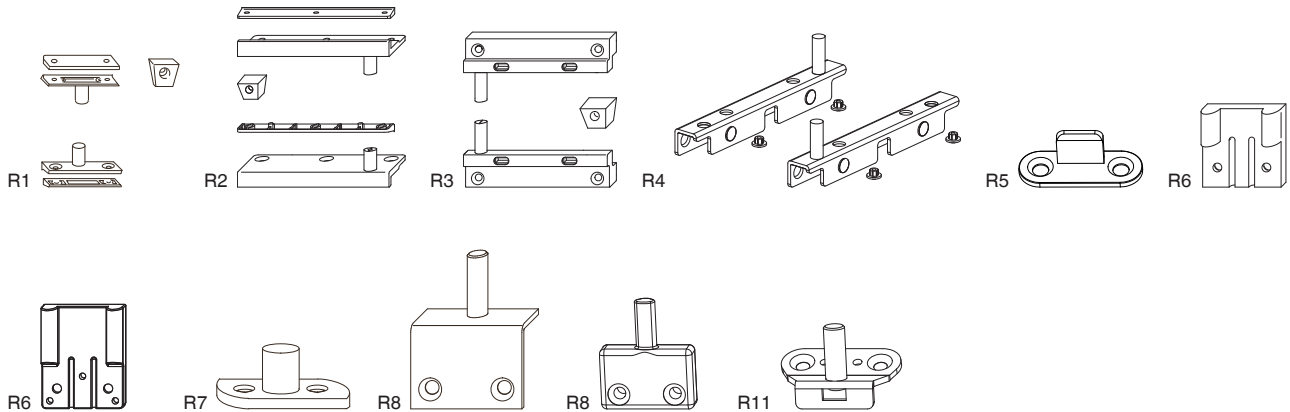


**No**

black-S	20	<b>94148</b>
grey-S	20	<b>359859</b>
white-S	20	<b>358473</b>



6.1.5 Striker pin brackets



6.1.5.1 Striker pin brackets for frame fixing



**No**

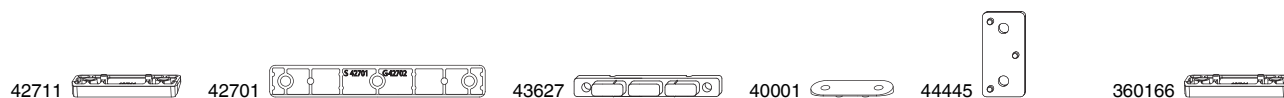
black-S	striker pin bracket R1	in pairs with 15° packer and protective block	0	50	14214	
		single	0	50	94137	
	R11	25° pitched	0	200	57073	
	R2	in pairs with 15° packer and protective block	10	20	14021	
		single				
			left	10	50	94433
			right	10	50	94434
		in pairs with 15° packer and protective block	17	20	14024	
		single				
			left	17	50	97500
			right	17	50	94184
			left	34	20	97501
			right	34	20	97502
	R3	in pairs with protective block	17	20	14005	
			20	20	14008	
			25	20	14011	
	R4	in pairs with buffer 1.8 mm	15	50	11429	
			20	20	11459	
			25	20	11465	
			30	20	11467	
	latch plate for 1-sashed shutter lock	R5	0	100	56819	
			10	100	56823	
			17	100	56827	
			25	100	55904	
	striker pin bracket R6	40mm high	4	50	94489	
		50mm high	4	50	202366	
	R7		0	50	94157	
	R8	rebate leg 8	0	50	367511	
		rebate leg 15	0	100	57094	
		rebate leg 6	4	50	94246	
		rebate leg 0	10	50	94159	
grey-S	striker pin bracket R1	in pairs with 15° packer and protective block	0	50	102163	
		single	0	50	212479	
	R2	in pairs with 15° packer and protective block	10	20	102377	
			17	20	102474	
	R3	in pairs with protective block	17	20	102757	
	R7		0	50	359870	
	R8	rebate leg 15	0	100	211809	
		rebate leg 0	10	50	361183	

**6.1.5.1 Striker pin brackets for frame fixing**



**No**

white-S	striker pin bracket R1	in pairs with 15° packer and protective block		0	50	<b>101532</b>
		single		0	50	<b>39020</b>
	R2	single	left	10	50	<b>36862</b>
			right	10	50	<b>36864</b>
		in pairs with 15° packer and protective block		17	20	<b>12563</b>
			single	left	17	50
			right	17	50	<b>36866</b>
		R3	in pairs with protective block		17	20
				20	20	<b>10330</b>
				25	20	<b>10333</b>
				15	50	<b>11456</b>
	R4	in pairs with buffer 1.8 mm		20	20	<b>11462</b>
				25	20	<b>11466</b>
				30	20	<b>11468</b>
	latch plate for 1-sashed shutter lock	R5		0	100	<b>28828</b>
			10	100	<b>28829</b>	
			17	100	<b>28830</b>	
striker pin bracket R6	40mm high		4	50	<b>94490</b>	
	50mm high		4	50	<b>202367</b>	
	R7		0	50	<b>97531</b>	
	R8	rebate leg 0	10	50	<b>364275</b>	



**6.1.5.2 Packers for striker pin bracket for frame installation**



**L**



**No**

black	R1	15° pitched		47	100	<b>42711</b>
		r = 14		47	500	<b>42922</b>
		r = 10		47	100	<b>43539</b>
		20° pitched		47	100	<b>441311</b>
		Alphacan R18		47	100	<b>44655</b>
	R2	20° pitched		95	200	<b>42282</b>
		15° pitched		95	200	<b>42701</b>
		6.5° pitched		95	200	<b>365243</b>
	R3		5	95	100	<b>43627</b>
	R5, R7 and R11	15° pitched		40	100	<b>40001</b>
R6	stackable	2	40	100	<b>44445</b>	
grey	R1	15° pitched		47	100	<b>360166</b>
	R5, R7 and R11	15° pitched		40	100	<b>465213</b>
white	R1	15° pitched		47	100	<b>40044</b>
		20° pitched		47	100	<b>44422</b>
		Alphacan R18		47	100	<b>44654</b>
	R2	15° pitched		95	100	<b>40043</b>
	R3		5	95	100	<b>43851</b>
	R5, R7 and R11	15° pitched		40	100	<b>43850</b>
R6	stackable	2	40	100	<b>44455</b>	

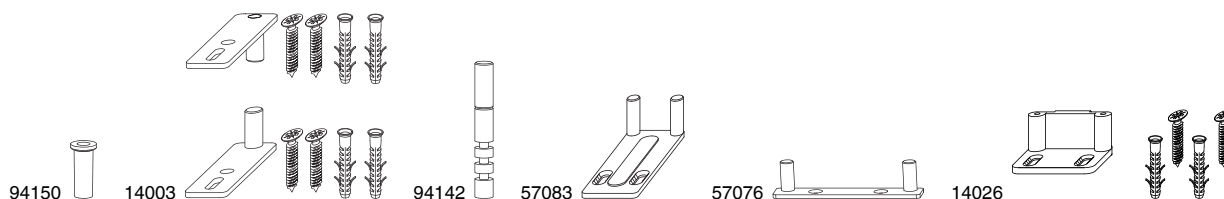


**6.1.5.3 Buffers for striker pin brackets for frame installation**



**No**

black	buffer for striker pin bracket R3	1.3 mm high		100	<b>42911</b>
	buffer for striker pin bracket R4 and R6	1.3 mm high		100	<b>44444</b>
		1.8 mm high		100	<b>44333</b>
white	buffer for striker pin bracket R3	1.3 mm high		100	<b>44277</b>
	buffer for striker pin bracket R4 and R6	1.3 mm high		100	<b>44443</b>
		1.8 mm high		100	<b>44433</b>



**6.1.5.4 Striker pin brackets for wall installation**



**No**

black-S	striker pin bracket	M1	in pairs with screws and rawlplugs	50	<b>94150</b>
			single	20	<b>14003</b>
		M1+M2	with screws and rawlplugs	50	<b>57067</b>
		M2	single with raw plug	20	<b>14210</b>
			single without rawplugs and screws	20	<b>14176</b>
		M3	single	50	<b>94165</b>
		M4, size 1 (40-60)	single	50	<b>94142</b>
		M4, size 2 (60-80)	single without rawplugs and screws	20	<b>57083</b>
			single without rawplugs and screws	20	<b>57082</b>
		M5	single	20	<b>57076</b>
grey-S	striker pin bracket	M1+M2	with screws and rawlplugs	50	<b>361320</b>
		M2	single without rawplugs and screws	20	<b>102482</b>
		M3	single	50	<b>359867</b>
		M4, size 1 (40-60)	single	50	<b>359869</b>
		M4, size 2 (60-80)	single without rawplugs and screws	20	<b>211578</b>
			single without rawplugs and screws	20	<b>211960</b>
		M5	single	50	<b>211506</b>
white-S	striker pin bracket	M1	in pairs with screws and rawlplugs	20	<b>14025</b>
		M2	single with raw plug	20	<b>14026</b>
		M4, size 1 (40-60)	single without rawplugs and screws	20	<b>206077</b>
		M5	single	50	<b>57215</b>



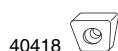
**6.1.5.5 Packer for striker pin bracket for wall installation**

**L**



**No**

black	M2	15° pitched	40	100	<b>42487</b>
grey	M2	15° pitched	40	50	<b>361175</b>



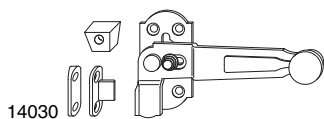
**6.1.5.6 Anti lift blocks**



**No**

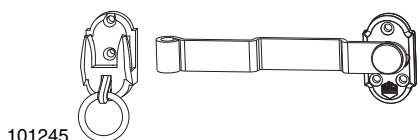
grey	anti lift block 10mm	20 mm high	100	<b>357950</b>
		10 mm high	100	<b>359892</b>
white	anti lift block 10mm	10 mm high	100	<b>40058</b>
		20 mm high	100	<b>40571</b>
dark brown	anti lift block 10mm	10 mm high	100	<b>40002</b>
		20 mm high	100	<b>40418</b>
		30 mm high	20	<b>41632</b>

## 6.2 Centre locks

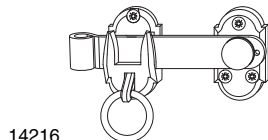


### 6.2.1 For 1-sashed shutters

				<b>No</b>
black-S	with striker pin brackets and packers with protective block	right	20	<b>14027</b>
		left	20	<b>14030</b>
grey-S	with striker pin brackets and packers with protective block	right	20	<b>102150</b>
		left	20	<b>102151</b>
white-S	with striker pin brackets and packers with protective block	right	20	<b>13095</b>
		left	20	<b>13096</b>



101245



14216

### 6.2.2 For 2-sashed shutters, with ring part

				<b>No</b>
black-S	with 160 mm offset crank handle	left/right	20	<b>101245</b>
	with 175 mm offset crank handle	left/right	20	<b>14212</b>
	with short crank handle	left/right	20	<b>14216</b>
grey-S	with 175 mm offset crank handle	left/right	20	<b>102148</b>
	with short crank handle	left/right	20	<b>102149</b>
white-S	with 160 mm offset crank handle	left/right	20	<b>101247</b>
	with 175 mm offset crank handle	left/right	20	<b>13187</b>
	with short crank handle	left/right	20	<b>13308</b>



359860

### 6.2.3 Packer for centre lock

				<b>No</b>
packer for double-sash shutter lock stackable 5 mm high black			100	<b>359860</b>
packer for double-sash shutter lock stackable 5 mm high white			100	<b>361191</b>



94166



354163

### 6.2.4 Stop plates

					<b>No</b>
black-S	R2	single	10	50	<b>94141</b>
			17	50	<b>94143</b>
	R3	single	17	20	<b>360441</b>
			25	20	<b>94166</b>
white-S	R2	single	17	50	<b>354163</b>



MACO  
RUSTICO



Shutter Locks





## 7 Shutter Catches

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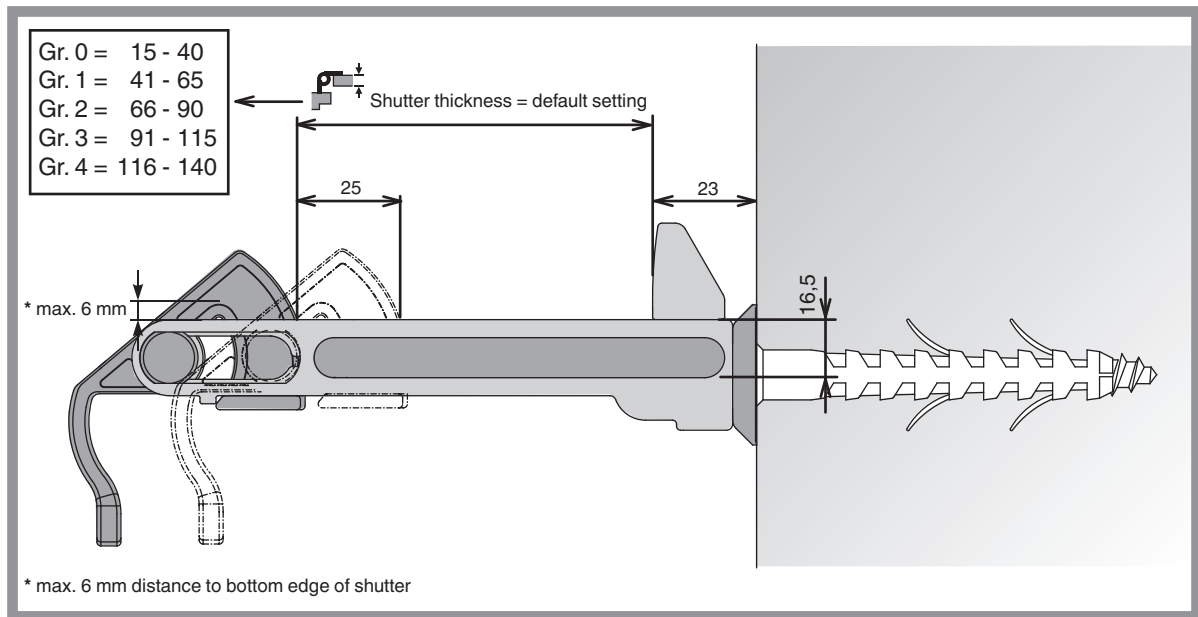
7.1	"Classic" model	126
7.2	"Fir cone head" model	125
7.3	Installation accessories for Classic and fir cone models	125
7.4	Installation instructions for fixing bolts	130
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7.9	Packers for comfort shutter catch	133
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## 7 Shutter Catches

### 7.1 "Classic" model

#### 7.1.1 Application range with basic setting

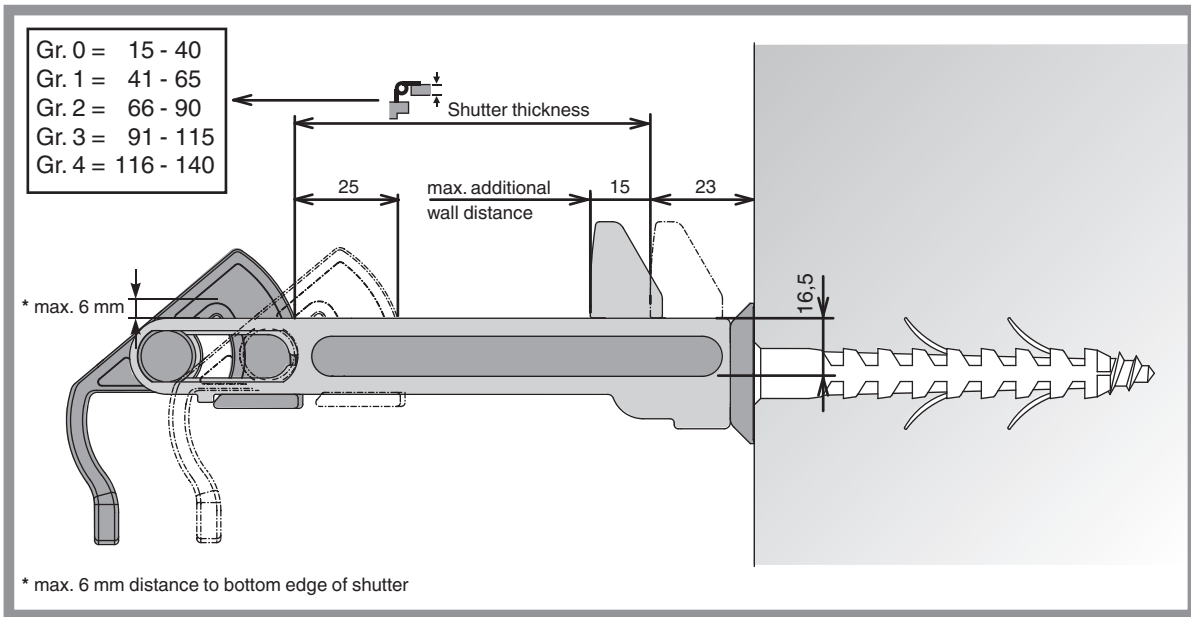


#### Calculation of application range with default setting

35 mm	Shutter thickness
+ 0 mm	Additional distance to wall
<hr/>	
= 35 mm	Application range
<hr/>	
==> Shutter catch size 0(15 - 40 mm)	

\* max. 6 mm distance to bottom edge of shutter

7.1.2 Application range with additional wall distance

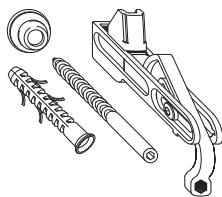


Calculation of application range with additional wall distance

35 mm	Shutter thickness
+ 15 mm	Additional distance to wall
<hr/>	
= 50 mm	Application range
<hr/>	
==>Shutter catch size 1(41 - 65 mm)	

\* max. 6 mm distance to bottom edge of shutter

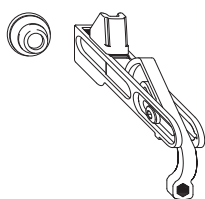




A

<b>7.1.3 With fixing bolt</b>					<b>N<sup>o</sup></b>
black-S <sup>1</sup>	size 0	15 - 40	20	A	<b>10857</b>
	size 1	41 - 65	20		<b>10863</b>
white-S <sup>1</sup>	size 0	15 - 40	20		<b>10859*</b>

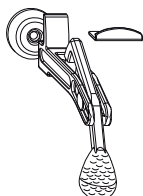
<sup>1</sup> Contents of package: Shutter latch Classic, cover disk, fixing bolt L 96, rawl plug S10.



A

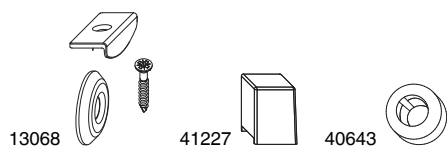
<b>7.1.4 Without fixing bolt</b>					<b>N<sup>o</sup></b>
black-S	size 0	15 - 40	20 <sup>1</sup>	A	<b>10860</b>
	size 1	41 - 65	20 <sup>1</sup>		<b>10865</b>
	size 2	66 - 90	20 <sup>1</sup>		<b>10868</b>
	size 3	91 - 115	20 <sup>1</sup>		<b>10871</b>
	size 4	116 - 140	20 <sup>1</sup>		<b>10874</b>
grey-S	size 0	15 - 40	20 <sup>1</sup>		<b>102142</b>
	size 1	41 - 65	20 <sup>1</sup>		<b>102143</b>
	size 2	66 - 90	20 <sup>1</sup>		<b>102144</b>
	size 3	91 - 115	20 <sup>1</sup>		<b>102145</b>
	size 4	116 - 140	20 <sup>1</sup>		<b>102146</b>
white-S	size 0	15 - 40	20 <sup>1</sup>		<b>10862</b>
	size 1	41 - 65	20 <sup>1</sup>		<b>10867</b>
	size 2	66 - 90	20 <sup>1</sup>		<b>10870*</b>
	size 3	91 - 115	20 <sup>1</sup>		<b>10873*</b>
	size 4	116 - 140	20 <sup>1</sup>		<b>10876*</b>

<sup>1</sup> Packaging contents: shutter catch Classic, cover disk.



A

7.2 "Fir cone head" model				No
black-S	size 1	25 - 50	20	<b>13058</b>
	size 2	50 - 75	20	<b>13059</b>
	size 3	75 - 100	20	<b>13060</b>
	size 0	12 - 35	20	<b>13065</b>
grey-S	size 0	12 - 35	20	<b>102787</b>
	size 1	25 - 50	20	<b>102788</b>
	size 2	50 - 75	20	<b>102789</b>
	size 3	75 - 100	20	<b>102790</b>
white-S	size 0	12 - 35	20	<b>101279</b>
	size 1	25 - 50	20	<b>13071</b>
	size 2	50 - 75	20	<b>13072</b>
	size 3	75 - 100	20	<b>13073</b>

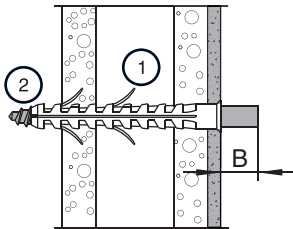


7.3 Installation accessories for Classic and fir cone models			No	
black	accessories pack for shutter catches		20	<b>13068</b>
	spacer for shutter catches	5 mm	50	<b>40365</b>
		10 mm	50	<b>40370</b>
	clip-on component for shutter catch fir cone	15 mm	50	<b>41227</b>
grey	spacer for shutter catches	5 mm	20	<b>361311</b>
		10 mm	50	<b>361313</b>
white	accessories pack for shutter catches		20	<b>13078</b>
	spacer for shutter catches	5 mm	50	<b>40643</b>
		10 mm	50	<b>40644</b>
	clip-on component for shutter catch fir cone	15 mm	50	<b>41446</b>

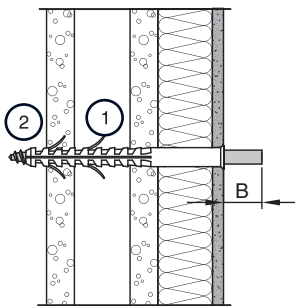


## 7.4 Installation instructions for fixing bolts

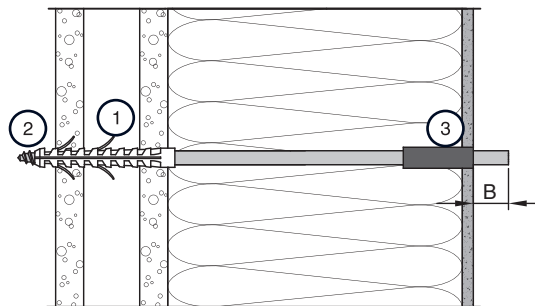
**Without wall insulation**  
Fixing bolt L96 and L140



**With wall insulation**  
Fixing bolt L180, L215 and L265



Fixing bolt L350 and L450



B = Fixing bolt distance

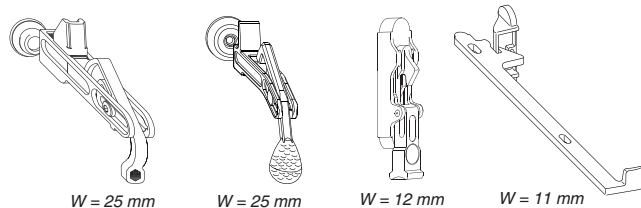
- 1 The dowel pin must be long enough to penetrate through two brick walls. It must be ensured that the dowel pin spreads vertically. Otherwise, the brick could break.
- 2 The fixing bolt must be fastened through the dowel pin.
- 3 When using L350 and L450 fixing bolts, it must be ensured that the support pipe included can rest on the masonry plaster and masonry insulation. To do this, push the support pipe onto the fixing bolt flush with the plaster.

Fixing bolt	Insulation thickness	Rawplug	Drilling-Ø	Support pipe
L96	0	50	10	-
L140	0	100	14	-
L180	20 - 45	135	14	-
L215	45 - 95	185	14	-
L265	95 - 140	230	14	-
L350	140 - 215	100 (without flush)	14	ja
L450	215 - 315	100 (without flush)	14	ja

Values in mm

Selection of the correct rawplug is essential for the stability of the fixing bolt.

When using L350 and L450 fixing bolts, it is essential to use the included support pipe.



## 7.5 Fixing material for shutter catches

40226 43823

7.5.1 Fixing bolts			Ø		Nº
black	L140	0	10	20	<b>40226</b>
	L180	20 - 45	10	20	<b>40227</b>
	L215	45 - 95	10	20	<b>40232</b>
	L265	95 - 140	10	20	<b>40234</b>
	L96	0	7,7	20	<b>43823</b>
	L350	140 - 215	10	20	<b>103318</b>
	L450	215 - 315	10	20	<b>103319</b>

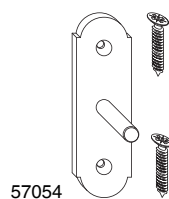
40304

7.5.2 Rawplugs for fixing bolts		Ø	L		Nº
rawplug		10	50	20	<b>40013</b>
		14	100	20	<b>40304</b>
			135	20	<b>40305</b>
			185	20	<b>40306</b>
			230	20	<b>365607</b>
rawplug without collar	14	100	20	<b>365729</b>	



103139

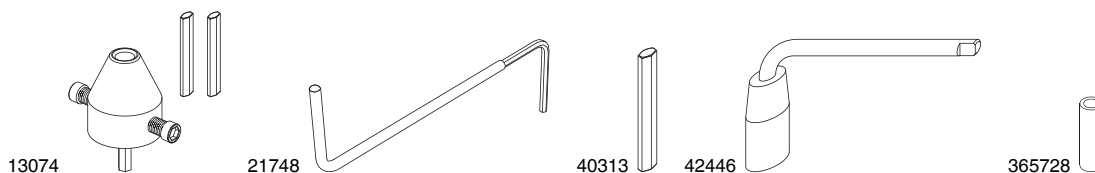
7.5.3 Fixing bolts with thermal barrier			Ø		Nº
black	L190	120 - 140	9	20	<b>103141</b>
	L210	140 - 160	9	20	<b>103142</b>
	L150	80 - 100	9	20	<b>103139</b>
	L170	100 - 120	9	20	<b>103140</b>



7.5.4 Support plates with bolt for shutter catch			Nº
black-S		20	<b>57054<sup>1</sup></b>
grey-S		20	<b>212656<sup>1</sup></b>

<sup>1</sup> Pin length 25mm



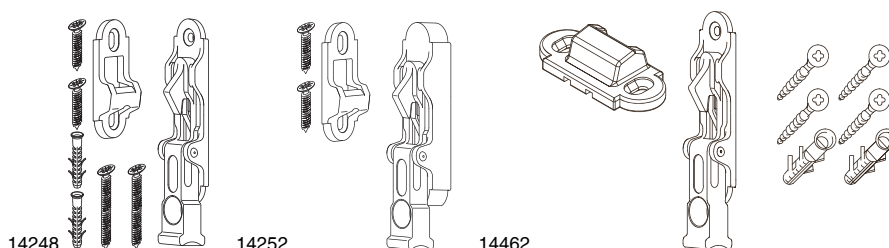


**7.5 Accessories for fixing bolts**



**No**

drill adapter for fixing bolts	1	<b>13074</b>
screw-driving tool with crank handle for fixing bolts with 5 mm allen key	20	<b>21748</b>
5 mm allen key for drill adapter for fixing bolts	50	<b>40313</b>
crank handle for drill adapter for fixing bolt	1	<b>42446</b>
grub screw for fixing bolt with thermal barrier M10X50 black	20	<b>364520</b>
support pipe 50 mm for fixing bolt grey	50	<b>365728</b>



**7.6 Door shutter catches**

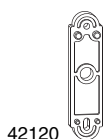


**No**

black-S	door shutter catch	25	20	<b>14248<sup>1</sup></b>
	door shutter catch for fixing bolt	35	20	<b>14252<sup>2</sup></b>
	door shutter catch with short locking console	25	20	<b>14462<sup>1</sup></b>
grey-S	door shutter catch	25	20	<b>102147</b>
	door shutter catch for fixing bolt	35	20	<b>102376</b>
	door shutter catch with short locking console	25	20	<b>102497</b>
white-S	door shutter catch	25	20	<b>13110<sup>1</sup></b>
	door shutter catch for fixing bolt	35	20	<b>13111<sup>2</sup></b>

<sup>1</sup> Packaging contents: 1 shutter catch for doors, 2 chipboard screws 4,5 x 25, 2 rawlplugs, 2 chipboard screws 4,5 x 50

<sup>2</sup> Packaging contents: 1 shutter catch for doors, 2 chipboard screws 4,5 x 25



42120

**7.7 Packers for door shutter catch**



**W**

**L**

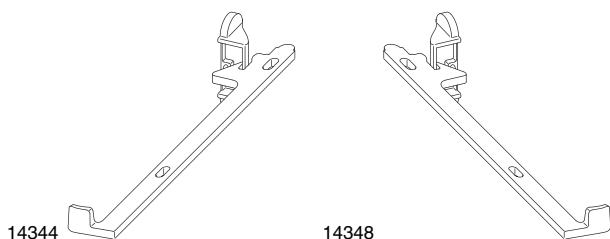


**No**

black	for door shutter catches	stackable 5 mm high	5	25	100	100	<b>42120</b>
		stackable 15 mm high	15	25	100	50	<b>40427</b>
grey	for door shutter catches	stackable 5 mm high	5	25	100	50	<b>360621</b>
		stackable 15 mm high	15	25	100	50	<b>360619</b>
white	for door shutter catches	stackable 5 mm high	5	25	100	100	<b>42122</b>
		stackable 15 mm high	15	25	100	50	<b>40430</b>



## 7.8 Comfort shutter catches

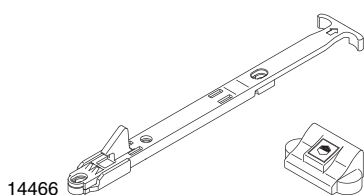


### 7.8.1 For windows

				<b>No</b>
black-S	with screws and Ø10 mm rawlplugs	25	20	<b>14344</b> <sup>1,2</sup>
			20	<b>14348</b> <sup>1,2</sup>
grey-S	with screws and Ø10 mm rawlplugs	25	20	<b>102315</b> <sup>1,2</sup>
			20	<b>102316</b> <sup>1,2</sup>
white-S	with screws and Ø10 mm rawlplugs	25	20	<b>13003</b> <sup>1,2</sup>
			20	<b>13004</b> <sup>1,2</sup>

<sup>1</sup> Application ranges: max. shutter weight 20 kg, with MMV 30 kg.

<sup>2</sup> Packaging contents: 1 shutter catch for windows, 3 chipboard screws 4 x 30 / 4,5 x 30 / 70 x 80, 1 rawlplug, 1 locking console



### 7.8.2 For doors

				<b>No</b>
black-S	with screws and Ø10 mm rawlplugs	33	20	<b>14466</b> <sup>1,2</sup>
grey-S	with screws and Ø10 mm rawlplugs	33	20	<b>102317</b> <sup>1,2</sup>
white-S	with screws and Ø10 mm rawlplugs	33	20	<b>10791</b> <sup>1,2</sup>

<sup>1</sup> Max. shutter weight 20 kg. Use of a bolt increases the permissible shutter weight to 30 kg.

<sup>2</sup> Contents of package: 1 shutter catch for doors, 2 countersunk self-tapping screws 4 x 25, 1 countersunk self-tapping screw 7 x 80, 1 rawl plugs S10, 1 lock console.



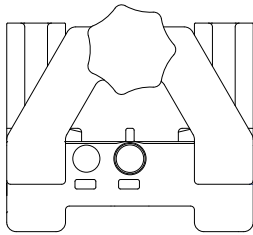
### 7.8.3 Locking hook for reinforcement for doors

			<b>No</b>
black-S	2-sashed locking hook	200	<b>94163</b>
grey-S	2-sashed locking hook	200	<b>359871</b>
white-S	2-sashed locking hook	200	<b>365862</b>



### 7.9 Packers for comfort shutter catch

			W	L		<b>No</b>	
black	for comfort shutter catch	stackable 5 mm high	5	25	100	50	<b>40318</b>
		stackable 20 mm high	20	25	100	50	<b>40377</b>
grey	for comfort shutter catch	stackable 5 mm high	5	25	100	50	<b>361190</b>
		stackable 20 mm high	20	25	100	50	<b>361314</b>
white	for comfort shutter catch	stackable 5 mm high	5	25	100	50	<b>40319</b>
		stackable 20 mm high	20	25	100	50	<b>40378</b>



13009

### 7.10 Jigs for shutter catches



**Nº**

jig for shutter catches classic and comfort shutter catches	1	<b>13009</b>
jig for door shutter catches	50	<b>40407</b>
jig for door shutter catches short base-plate	50	<b>43614</b>
jig for comfort shutter catch on balcony doors	50	<b>43712</b>
disposable jig for comfort shutter catch on windows	50	<b>40323</b>



## 8 General Accessories

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8.1	Buffer stop _____	136
8.2	Decorative corner-bracket for BLR and MV hardware range _____	137
8.3	Decorative corner-bracket for MMV hardware range _____	137
8.4	Screws _____	138
8.5	Adjusting keys _____	139
8.6	Accessories for folding shutters _____	140
8.7	Accessories for projecting shutter-inserts _____	145




## 8 General Accessories

### 8.1 Buffer stop




42929

8.1.1 Buffer stop for snap holder				<b>No</b>
black	buffer stop for snap holder	20 mm high	20	<b>42929<sup>1</sup></b>
grey	buffer stop for snap holder	20 mm high	20	<b>359891<sup>1</sup></b>
white	buffer stop for snap holder	20 mm high	20	<b>42932<sup>1</sup></b>

<sup>1</sup> The buffer stop must always be installed. When the buffer stop is used, make sure that the facade has sufficient compression strength (e.g. for thermal insulation).



201313

8.1.2 Buffer stop soft				<b>No</b>
black	buffer stop soft	20 mm high	20	<b>201313<sup>1</sup></b>
grey	buffer stop soft	20 mm high	20	<b>216813<sup>1</sup></b>
white	buffer stop soft	20 mm high	20	<b>201314<sup>1</sup></b>


<sup>1</sup> The buffer stop must always be installed. When the buffer stop is used, make sure that the facade has sufficient compression strength (e.g. for thermal insulation).

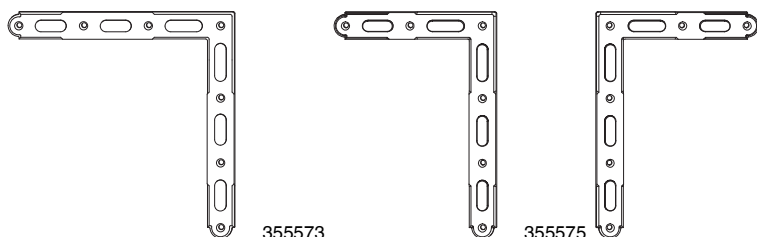


43556



44749


8.1.3 Packers for buffer stop				<b>No</b>
black	for buffer stop for snap holder	stackable 5 mm high	100	<b>43556</b>
		S=10 mm, stackable	50	<b>43559</b>
grey	for soft buffer stop	stackable 5 mm high	100	<b>44749</b>
		stackable 5 mm high	100	<b>359893</b>
white	for buffer stop for snap holder	stackable 5 mm high	100	<b>360559</b>
		S=10 mm, stackable	50	<b>361317</b>
white	for soft buffer stop	stackable 5 mm high	100	<b>43558</b>
		S=10 mm, stackable	50	<b>43561</b>
		stackable 5 mm high	50	<b>44750</b>

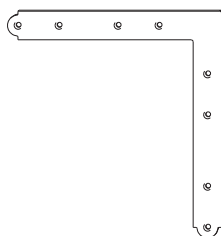


94122


355573

355575

<b>8.2 Decorative corner-bracket for BLR and MV hardware range</b>				<b>Nº</b>
black-S	decorative corner-bracket		20	<b>94122</b>
	decorative corner-bracket SL	left top	20	<b>355573</b>
	228x163	right top	20	<b>355575</b>
grey-S	decorative corner-bracket		20	<b>361319</b>
white-S	decorative corner-bracket		20	<b>32410</b>
	decorative corner-bracket SL	left top	20	<b>355572</b>
	228x163	right top	20	<b>355574</b>




101987

<b>8.3 Decorative corner-bracket for MMV hardware range</b>				<b>Nº</b>
black-S	decorative corner-bracket MMV	in pairs	10	<b>101987</b>
grey-S	decorative corner-bracket MMV	in pairs	10	<b>102343</b>




## 8.4 Screws




8.4.1 Chipboard screws			Ø	L		No
black	Pozidrive		4,5	25	500	<b>11185<sup>1</sup></b>
				30	500	<b>11434<sup>1</sup></b>
				35	500	<b>14022<sup>1</sup></b>
				40	500	<b>11186<sup>1</sup></b>
				50	500	<b>10898<sup>1</sup></b>

<sup>1</sup> These parts are excluded from the 10-year warranty.




8.4.2 Hardware screw 4.5 mm stainless steel (warranty)			Ø	L		No
Stainless steel black	Pozidrive		4,5	25	500	<b>12472</b>
				30	500	<b>12473</b>
				40	500	<b>12474</b>
				60	500	<b>101549</b>
Stainless steel grey	Pozidrive		4,5	25	500	<b>104346</b>
				30	500	<b>104348</b>
				40	500	<b>104349</b>
				60	500	<b>104350</b>
Stainless steel white	Pozidrive		4,5	25	500	<b>12577</b>
				30	500	<b>12578</b>
				40	500	<b>12579</b>



8.4.3 Self-tapping screws			Ø	L		No
black	cross recess		3,9	22	1.000	<b>38207<sup>1</sup></b>
white	cross recess		3,9	22	1.000	<b>38208<sup>1</sup></b>


<sup>1</sup> These parts are excluded from the 10-year warranty.



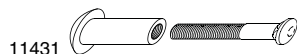
8.4.4 Fillister head screws			Ø	L		No
black	Pozidrive	round head	4,8	13	500	<b>11883<sup>1</sup></b>
white	Pozidrive	round head	4,8	13	500	<b>11884<sup>1</sup></b>



<sup>1</sup> These parts are excluded from the 10-year warranty.



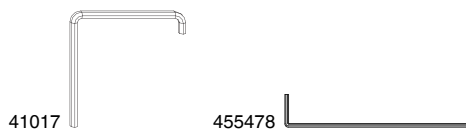
8.4.5 One-way security screws			Ø	L		No
black	slot		4	25	100	<b>41295<sup>1</sup></b>
Tricoat	slot		4	25	500	<b>102559<sup>1</sup></b>


<sup>1</sup> These parts are excluded from the 10-year warranty.



<b>8.4.6 Fittings screws with female threaded bush</b>			$\emptyset$	L		<b>Nº</b>
black	M	22 - 26	5	23	100	<b>11431<sup>1</sup></b>
		26 - 38	5	35	100	<b>11432<sup>1</sup></b>
		36 - 48	5	45	100	<b>11433<sup>1</sup></b>
		43 - 53	5	50	100	<b>11207<sup>1</sup></b>
		53 - 63	5	60	100	<b>11208<sup>1</sup></b>
grey-S	M	22 - 26	5	23	100	<b>102549<sup>1</sup></b>
		26 - 38	5	35	100	<b>102550<sup>1</sup></b>
		36 - 48	5	45	100	<b>102551<sup>1</sup></b>
		43 - 53	5	50	100	<b>102547<sup>1</sup></b>
		53 - 63	5	60	100	<b>102548<sup>1</sup></b>
white	M	22 - 26	5	23	100	<b>12543<sup>1</sup></b>
		26 - 38	5	35	100	<b>12544<sup>1</sup></b>
		36 - 48	5	45	100	<b>12545<sup>1</sup></b>

<sup>1</sup> The dimensions for the shutter thickness increase by 6 mm for hinges without side regulation!



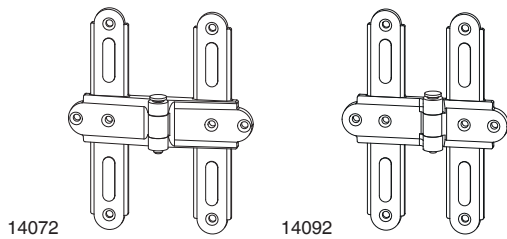
<b>8.5 Adjusting keys</b>		<b>Nº</b>
adjusting spanner/key allen key, bent twice, 75 mm long SW4	50	<b>41017<sup>1</sup></b>
spring trigger for cornered and centre shutter pin holder for mounting frame	50	<b>364582<sup>1</sup></b>
Spring trigger for security console SW1,5	50	<b>455478<sup>1</sup></b>

<sup>1</sup> Can also be supplied in quantities less than one packaging unit.






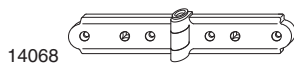
## 8.6 Accessories for folding shutters

### 8.6.1 Shutter centre hinges for folding shutters





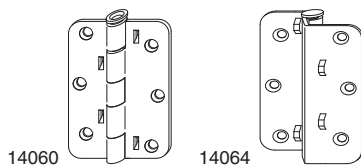
#### 8.6.1.1 Centre cross hinges BLR

				<b>No</b>
black-S	0	25	20	<b>14072</b>
	0-25	13	20	<b>14092</b>
		25	20	<b>14312</b>
grey-S	0	25	20	<b>102159</b>
	0-25	25	20	<b>102160</b>
		13	20	<b>102332</b>
white-S	0	25	20	<b>20293</b>
	0-25	13	20	<b>27746</b>
		25	20	<b>27747</b>






#### 8.6.1.2 Batten hinges BLR

			<b>No</b>
black-S	13	20	<b>14068</b>
grey-S	13	20	<b>212500</b>

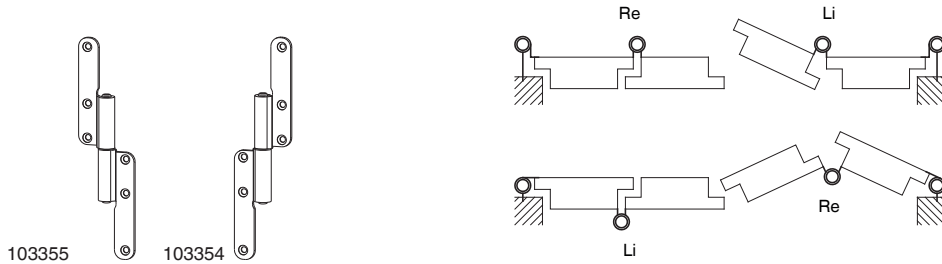


#### 8.6.1.3 Shutter centre hinges straight/cranked BLR

				<b>No</b>
black-S	0	25	20	<b>14060</b>
	25	25	20	<b>14064</b>
grey-S	0	25	20	<b>102490</b>
	25	25	20	<b>102379</b>
white-S	0	25	20	<b>21883</b>
	25	25	20	<b>10107</b>



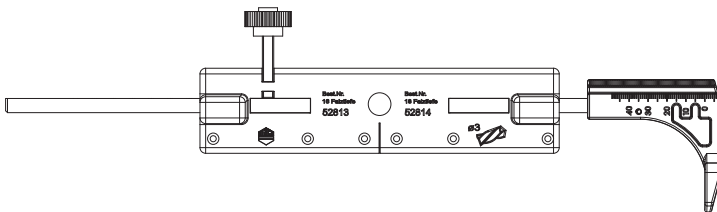
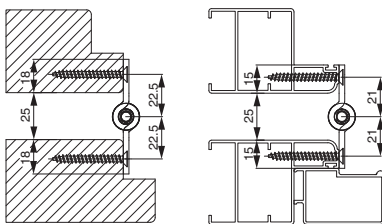
**8.6.2 Shutter centre hinges for folding shutters with opening direction left or right**



**8.6.2.1 Prima shutter centre hinges**

					<b>No</b>	
black-S	left	17.5	15	20	<b>103355</b>	
		21	25	20	<b>103288</b>	
		22.5	25	20	<b>103357</b>	
	right	27.5	35	20	<b>103359</b>	
		17.5	15	20	<b>103354</b>	
		21	25	20	<b>103289</b>	
grey-S	left	22.5	25	20	<b>103356</b>	
		27.5	35	20	<b>103358</b>	
	right	17.5	15	20	<b>103369</b>	
white-S	left	22.5	25	20	<b>103371</b>	
		27.5	35	20	<b>103370</b>	
	right	17.5	15	20	<b>103368</b>	
		21	25	20	<b>103370</b>	
	white-S	left	17.5	15	20	<b>103361</b>
			21	25	20	<b>104105</b>
right		22.5	25	20	<b>103363</b>	
		27.5	35	20	<b>103365</b>	
white-S	right	17.5	15	20	<b>103360</b>	
		21	25	20	<b>104114</b>	
	right	22.5	25	20	<b>103362</b>	
		27.5	35	20	<b>103364</b>	

**8.6.2.2 Different Prima shutter centre hinges for 25 mm clearance**

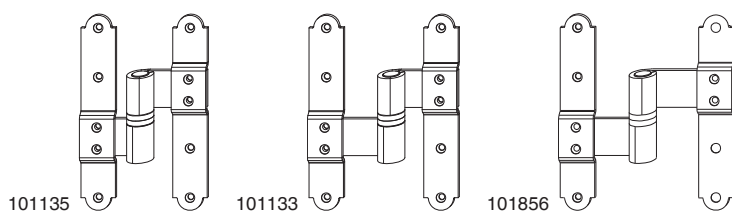


217458

**8.6.2.3 Jigs for Prima shutter centre hinges**

		<b>No</b>
jig for shutter centre hinge Prima 16mm rebate depth with PVC sleeve	1	<b>217458</b>
jig for shutter centre hinge Prima 18mm rebate depth with PVC sleeve	1	<b>217459</b>



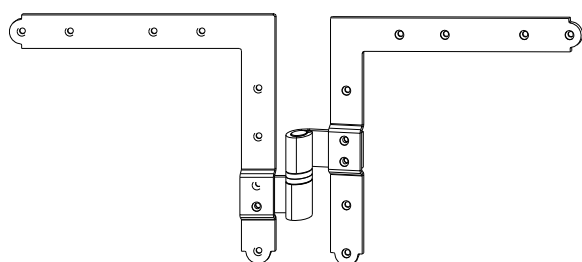


**8.6.2.4 Shutter centre hinges MMV**



**No**

black-S	left	40-40	0-40	25	20	<b>101135</b>	
		60-40	0-80	25	20	<b>101133</b>	
		60-60	0-40	25	20	<b>101856</b>	
	right	40-40	0-40	25	20	<b>101136</b>	
		60-40	0-80	25	20	<b>101134</b>	
		60-60	0-40	25	20	<b>101883</b>	
grey-S	left	40-40	0-40	25	20	<b>102261</b>	
		60-40	0-80	25	20	<b>102525</b>	
		60-60	0-40	25	20	<b>102262</b>	
	right	40-40	0-40	25	20	<b>102262</b>	
		60-40	0-80	25	20	<b>102526</b>	
		60-60	0-40	25	20	<b>102526</b>	
white-S	left	40-40	0-40	25	20	<b>101259</b>	
		60-40	0-80	25	20	<b>101257</b>	
		60-60	0-40	25	20	<b>101884</b>	
	right	40-40	0-40	25	20	<b>101260</b>	
		60-40	0-80	25	20	<b>101258</b>	
		60-60	0-40	25	20	<b>101885</b>	



102267

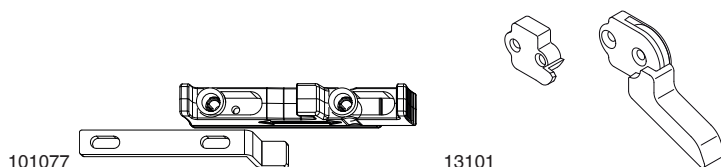
**8.6.2.5 Centre corner-bracket hinges MMV**



**No**

black-S	left	40-40	0-40	25	10	<b>102267<sup>1</sup></b>
	right	40-40	0-40	25	10	<b>102268<sup>1</sup></b>
grey-S	left	40-40	0-40	25	10	<b>102625<sup>1</sup></b>
	right	40-40	0-40	25	10	<b>102626<sup>1</sup></b>
white-S	left	40-40	0-40	25	10	<b>103863<sup>1</sup></b>
	right	40-40	0-40	25	10	<b>103864<sup>1</sup></b>

<sup>1</sup> With centre corner-bracket hinges, a packaging unit consists of 1 top centre corner-bracket hinge and 1 bottom centre corner-bracket hinge.



101077

13101

**8.6.2.6 Folding-shutter couplers**



**No**

black-S	folding shutter coupling small	for 25 mm distance	20	<b>101077</b>
		for 20 mm distance	20	<b>101799</b>
black	folding shutter coupling	for 13 mm distance	20	<b>12949</b>
		for 25 mm distance	20	<b>13101</b>
white	folding shutter coupling	for 25 mm distance	20	<b>10223</b>
white-S	folding shutter coupling small	for 25 mm distance	20	<b>101261</b>

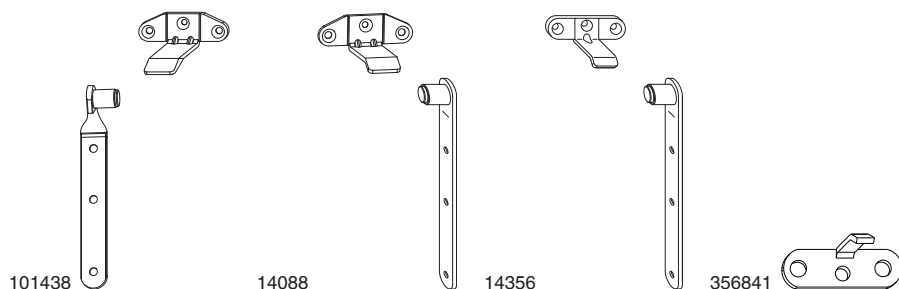


**8.6.2.7 Packers for folding-shutter couplers**



**No**

black	for folding shutter coupling - slimline	2,5	50	<b>441422</b>
white	for folding shutter coupling - slimline	2,5	50	<b>454768</b>

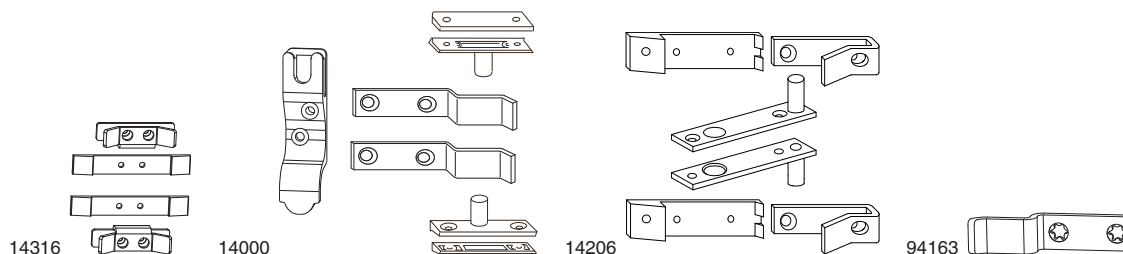


**8.6.2.8 Shutter run-up block**



**No**

black-S	shutter suspending run-up block cranked	20	<b>101438</b>	
	shutter suspending run-up block	for 5-32 mm shutter distance	20	<b>14088</b>
			20	<b>14356</b>
grey-S	bottom shutter suspending run-up block	50	<b>356841</b>	
	shutter suspending run-up block	for 5-32 mm shutter distance	20	<b>102138</b>
white-S	shutter suspending run-up block	for 5-32 mm shutter distance	20	<b>101304</b>
	cranked shutter suspending run-up block		20	<b>101695</b>
	shutter suspending run-up block		20	<b>10235</b>
	bottom shutter suspending run-up block		50	<b>356842</b>



**8.6.2.9 Multi-sashed hook brackets**



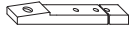
**No**

black-S	with striker pin brackets and packers	in pairs, multi-sashed, external pivot point	10	<b>14316</b>
		in pairs, multi-sashed, internal pivot point	20	<b>14000</b>
		external pivot point single multi-sashed external pivot point	10	<b>14206</b>
grey-S	with striker pin brackets and packers	in pairs, multi-sashed, external pivot point	200	<b>94163</b>
		in pairs, multi-sashed, internal pivot point	10	<b>102857</b>
		external pivot point single multi-sashed external pivot point	20	<b>102165</b>
white-S	with striker pin brackets and packers	in pairs, multi-sashed, internal pivot point	10	<b>102166</b>
		in pairs, multi-sashed, external pivot point	200	<b>359871</b>
		external pivot point single multi-sashed external pivot point	10	<b>14801</b>
		in pairs, multi-sashed, internal pivot point	10	<b>101554</b>
		in pairs, multi-sashed, external pivot point	20	<b>12537</b>
		external pivot point single multi-sashed external pivot point	200	<b>365862</b>





12960



12961



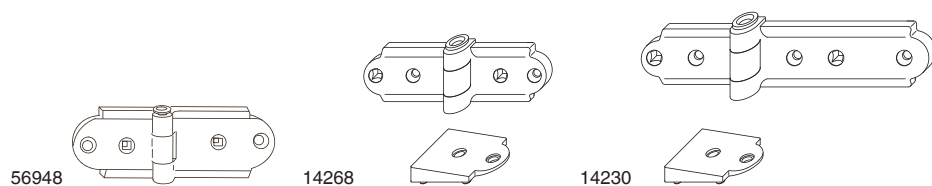
**8.6.2.10 Packers for locking hooks**



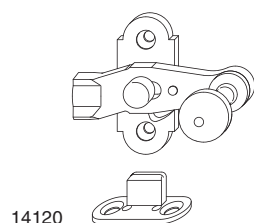
**No**

black	for locking hook for 10 mm distance	10	<b>12960</b>
	for locking hook for 20 mm and 30 mm distance	10	<b>12961</b>
white	for locking hook for 10 mm distance	20	<b>44352</b>
	for locking hook for 20 mm and 30 mm distance	20	<b>44353</b>

## 8.7 Accessories for projecting shutter-inserts



8.7.1 Hinges for projecting shutter-inserts			No
black-S	hinge for projecting shutter-insert flush	20	56948
	hinge for projecting shutter-insert with 15mm rebate leg packer	20	14268
	long hinge for projecting shutter-insert with 15mm rebate leg packer	10	14230
grey-S	hinge for projecting shutter-insert flush	20	212651
	hinge for projecting shutter-insert with 15mm rebate leg packer	20	102495
white-S	hinge for projecting shutter-insert with 13mm rebate leg packer	20	101986



8.7.2 Locking mechanisms for projecting shutter-inserts			No
black-S		20	14120
grey-S		20	102476
white-S		20	101988



8.7.3 Opening restrictors for projecting shutter-inserts		L		No
silver	opening restrictor with brake	arm length 250 mm	333 20	52977 <sup>1</sup>

<sup>1</sup> These items are excluded from the 10-year guarantee.



8.7.4 Strikers for opening restrictors			No
silver	striker plate for opening restrictor for 4 mm air gap angled screw-fixing	50	55988 <sup>1,2</sup>

<sup>1</sup> These items are excluded from the 10-year guarantee.

<sup>2</sup> Routing length 90 mm



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General Accessories



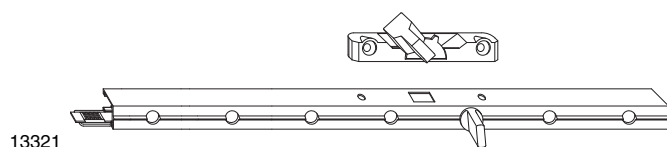
## 9 Louvre Fittings

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## 9 Louvre Fittings

### 9.1 Sets

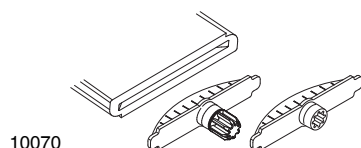


13321


9.1.1 Without louvre end pieces					No
black-S	size 1	300 - 360	6	5	13321 <sup>1</sup>
	size 2	420 - 540	9	5	13322 <sup>1</sup>
	size 3	600 - 720	12	5	13323 <sup>1</sup>
	size 4	780 - 900	15	5	13324 <sup>1</sup>
	size 5	960 - 1.080	18	5	13325 <sup>1</sup>
	size 6	1.140 - 1.260	21	5	13326 <sup>1</sup>

<sup>1</sup> A set consists of: 1 locking rod, 1 pivoting rod, 1 lock

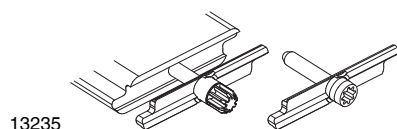
### 9.2 Louvre end pieces



10070

9.2.1 Routed-in end pieces			No
black	left/right	100	10070 <sup>1</sup>

<sup>1</sup> On louvre end pieces, a packaging unit consists of 1 left end piece and 1 right end piece



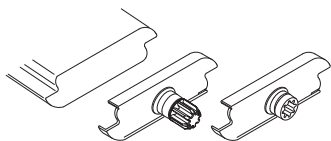
13235

9.2.2 Drilled-in end pieces			No
black	left	50	13235 <sup>1,2</sup>
	right	50	13236 <sup>1,2</sup>

<sup>1</sup> Depending on the desired position of the operating lever (viewed from the inside), the corresponding end piece pack must be ordered. For example: Operating lever right - End pieces part no. 13354

<sup>2</sup> On louvre end pieces, a packaging unit consists of 1 left end piece and 1 right end piece





13354

**9.2.3 "Gripping" end pieces**



**No**

black	left	20	<b>13355<sup>1,2</sup></b>
	right	20	<b>13354<sup>1,2</sup></b>

<sup>1</sup> Depending on the desired position of the operating lever (viewed from the inside), the corresponding end piece pack must be ordered. For example: Operating lever right - End pieces part no. 13354

<sup>2</sup> On louvre end pieces, a packaging unit consists of 1 left end piece and 1 right end piece

**9.3 Accessories**



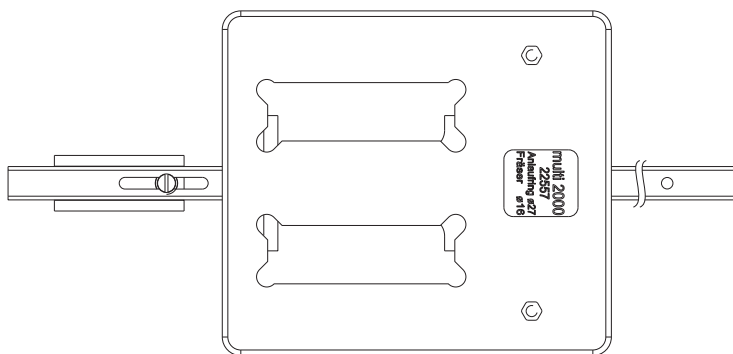
41255

**9.3.1 End pieces for pitched frieze**



**No**

black	end piece for pitched frieze	100	<b>41255</b>
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10057

**9.4 Jigs for louvre fittings**



**No**

jig	for Vario louvre fittings	for lock	1	<b>10057</b>
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