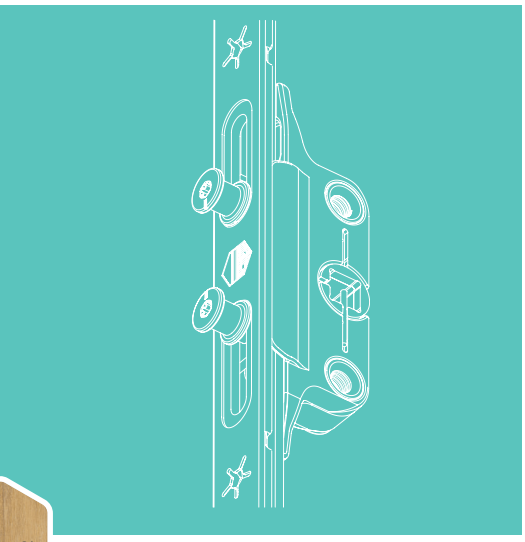
TECHNOLOGY IN MOTION

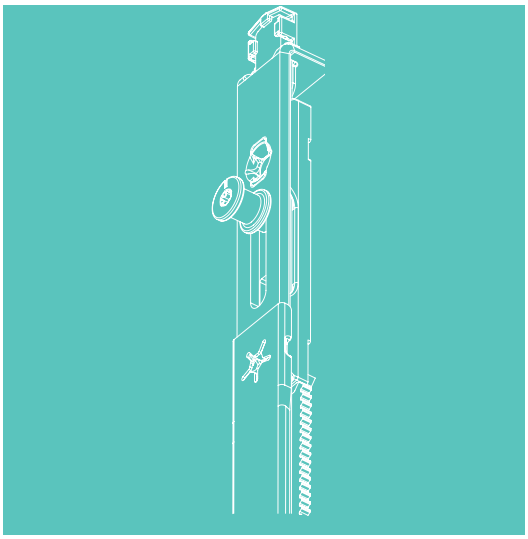
The work described in these installation instructions may only be carried out by specialist companies.

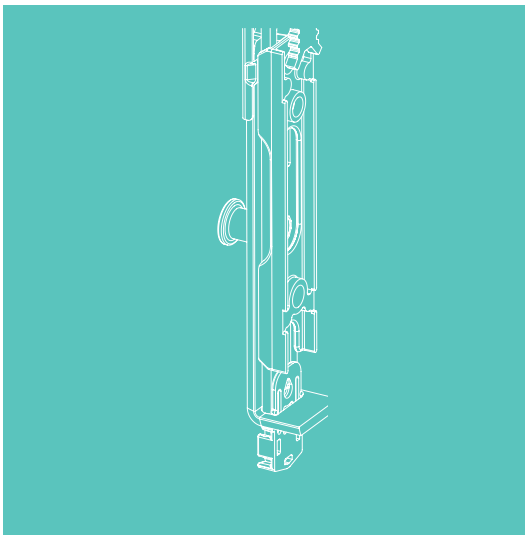
Read thoroughly before use/installation!
Keep for future reference!

MACO ESPAGS

ESPAGNOLETTES







INSTALLATION INSTRUCTIONS

MKV

TIMBER
PVC
ALUMINIUM

ORIGINAL INSTRUCTIONS

maco.eu

Abbreviations

BS	Backset
D	Diameter
HH	Handle height
IGU	Insulating glass unit
RH	Right hand side

Table of contents

1. Instructions for using these assembly instructions 5
   - 1.1 Introduction 5
   - 1.2 Target group of these instructions 5
   - 1.3 Storage of documents/Instructions 5
   - 1.4 Notes for using these assembly instructions 6
   - 1.5 Safety and warning information 6
2. Intended use 7
3. Reasonably foreseeable misuse 7
4. Installation and operation (general information) 8
5. Maintenance (general information) 9
6. Product performance 9
7. Areas of application for Espag windows 10
8. Design of the fitting groove 11
9. Fitting arrangement 12
   - 9.1 MKV Telescopic 12
   - 9.2 MKV Croppable 13
   - 9.3 MKV Croppable 2 sashes 14
   - 9.4 MKV RAIL 15
   - 9.5 MKV RAIL Croppable 16
   - 9.6 MKV Croppable REACH 17
   - 9.7 MKV RAIL REACH Croppable 18
   - 9.8 MKV Croppable TWIN CAM 19
   - 9.9 MKV RAIL Croppable TWIN CAM 20
10. Installation TWIN CAM Cover 21
11. Adjustment of shootbolt throw 10/13 mm 22
12. Release twist lock 23
13. Telescopic shootbolt installation instructions 24
14. Installation of the espag at the sash - handle drilling / profile milling 26
15. Mushroom Cams 29
    - 15.1 Mushroom cam height 29
    - 15.2 Adjustment of the mushroom cams 29

16. Lubricating/oiling the fittings 30
17. Preventing night vent 31
18. Combine Mushroom Striker with Shootbolt Striker 31
19. Striker positioning RAIL 32
20. Mushroom Striker positioning at Central Drive Gear 32
21. Recommended screw fixings for the MKV platform 33
22. Hinge Protectors on profile 33
23. Cropping of the Extensions 34
24. Operation of the window 35
25. Care and maintenance 36
26. Parts description / Article codes 37
    26.1 MKV RAIL Reach Extension HH210 + MKV Drive Gear + MKV RAIL Mushroom Extension L350 + MKV RAIL Extension croppable 37
    26.2 MKV RAIL Reach Extension HH210 + MKV Drive Gear + MKV RAIL Extension croppable 39
    26.3 MKV RAIL Extension croppable + MKV Drive Gear + MKV RAIL Extension croppable 41
27. Glass packing information 43
28. Auto-Latch and Laminated Limiting Restrictor 44
    28.1 Fitting instructions 44
    28.2 Operating instructions 45

1. Instructions for using these assembly instructions

1.1 Introduction

Read these instructions carefully before beginning installation of the Espag fitting. Install all fitting components professionally as described in these instructions and observe all safety instructions. Failure to follow these instructions will void the warranty for the proper functioning of the system. Any use other than intended or modifications to the fitting are expressly prohibited. We assume no liability for damage to persons or materials if these instructions are not followed.

Match the required fastening materials to the building structure and the corresponding load and add them, if necessary. Any fastening materials supplied only partially meet the requirements.

1.2 Target group of these instructions

These instructions are intended exclusively for specialist companies and trained personnel (e.g., carpenters, metalworkers for construction technology, window and glass facade installers). The work described may only be performed by trained personnel.

1.3 Storage of documents/Instructions

Keep these installation instructions for future reference and maintenance.

Please be sure to comply with your obligation to provide information to the end user! The complete delivery of a window or door element also includes operating and maintenance instructions, as well as, if necessary, a window sticker for alternative operating methods! We make these available to our customers in the download area of our website (www.maco.eu).

1.4 Notes for using these assembly instructions

› Unless otherwise stated, dimensions are given in millimeters.

› Install all hardware components professionally as described in these instructions and observe all safety instructions!

› All illustrations are symbolic only.

› Further technical documentation can be found in our online catalogue (eCat) at https://ecat.maco.eu.

› This printed document is continually being revised and the latest version is available for download at www.maco.eu.

› We reserve the right to make printing errors, mistakes, and changes.

› Please send suggestions or improvements to our instructions by email to: feedback@maco.eu

› Protection notice restricting the use of documents according to ISO 16016.

© Mayer & Co Beschläge GmbH

1.5 Safety and warning information

For personal safety, it is important to observe the following instructions!

When reading this document and the safety information, please pay attention to the following symbols and colors.

DANGER Failure to follow such an instruction will result in death or serious injury.

WARNING Failure to follow such an instruction may result in death or serious injury.

CAUTION Failure to follow such an instruction may result in minor or light injuries.

NOTE Note to avoid damage to property or errors when installing the fittings on the element.

2. Intended use

The "Espagnolette" (or "Espags" for short) product range includes fittings for vertical and horizontal window sashes and frames made of wood, PVC and aluminum, as well as their corresponding material combinations. They are to be used according to the application range.

MKV Telescopic or MKV Croppable Espags
When closing and locking the window, a combination of adjustable mushroom cams and rods engages the locking elements. The Espag is activated by turning the handle 90°.

MKV RAIL or RAIL Croppable Espags
When closing and locking the window, one or more pairs of adjustable mushroom cams engage the locking elements. The Espag fitting is activated by turning the handle 90°.

3. Reasonably foreseeable misuse

› The hardware components described in these installation instructions are made of galvanically passivated steel and sealed according to DIN EN 12329. They must not be used in environments with aggressive, corrosive air.

› Do not use acid-curing sealants, as these can lead to corrosion of the hardware components.

› The window elements may only be surface treated before the hardware components are installed. Subsequent surface treatment may impair the functionality of the hardware components. In this case, any warranty claims against the hardware manufacturer are void.

Improper installation, non-conforming or unusual use, the use of system accessories not expressly approved by MACO, modifications or repair work not expressly authorized by MACO, and unprofessional service can lead to malfunctions and must be avoided. Any measures not expressly authorized by MACO will result in the loss of all liability, warranty, and any separately agreed guarantee claims.

4. Installation and operation (general information)

› Before installation, ensure that the components are in perfect condition. Damaged or faulty components must not be used under any circumstances. Only use window sashes and frames that are in perfect condition.

› Espags must be installed by professionals. The locking mechanism must fit easily into the recesses of the window sash. Components forced into the recess can impair the function of the Espag.

› The Espag must be screwed to the window using suitable tools with a torque function.

› The locking parts (Mushroom Striker, Shootbolt Striker, and Combi-Striker) must be installed in such a way that the Espagnolettes can retract unhindered. Any component forced into a locking part can impair the function of the Espag.

› To ensure the correct function of the Mushroom or Night Vent Striker, they have notches on the front face that correspond to the centre of the mushroom pin and indicate the optimal position of the locking part. The Shoobolt Strikers are inserted into the mushroom-pin locking mechanism of the Mushroom Strikers and are located together in the corners of the frame. When using Combi Strikers, they are simply inserted into the corners of the frame.

› The locking parts must be screwed to the frame using screws suitable for the respective application and tools with a torque function.

5. Maintenance (general information)

To ensure proper functioning of the Espags, ...

› the necessary information and instructions must be passed on to the responsible persons;

› applicable standards must be observed;

› Espags must be used in accordance with their defined function;

› the manufacturer's instructions regarding the adjustment or modification of the fittings must be observed;

› maintenance and care instructions must be observed;

› malfunctions may only be remedied by qualified personnel.

6. Product performance

› Unless the product performance is explicitly stated in our catalogues and brochures, the requirements for individual hardware combinations must be coordinated with MACO.

› The information on product performance refers exclusively to the combination of original MACO parts.

› The performance of hardware depends, among other things, on the frequency of use, the operating method, environmental influences, maintenance, and care.

7. Areas of application for Espag windows

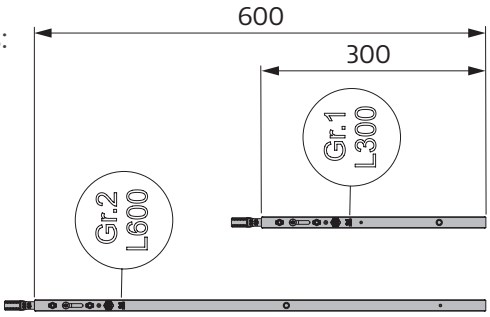
MKV Telescopic

Size	Sash rebate dimension [mm]
1	500 576
2	577 728
3	729 1032
4	1033 1336
5	1337 1640

MKV Croppable

Size	Sash rebate dimension [mm]
0	280 369
1	370 707
2	708 1179
3	1180 1652

with Mushroom Extensions:
+ 300/600 mm



MKV Croppable for secondary sash

Size	Sash rebate dimension [mm]
1	370 707
2	708 1179
3	1180 1652

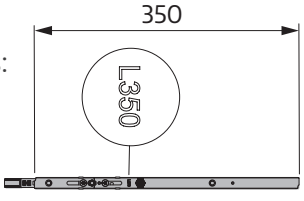
MKV RAIL

Size	Sash rebate dimension [mm]
1	200 419
2	420 619
3	620 819
4	820 1019
5	1020 1219
6	1220 1420

MKV RAIL Croppable

Size	Sash rebate dimension [mm]
1	420 767
2	768 1247

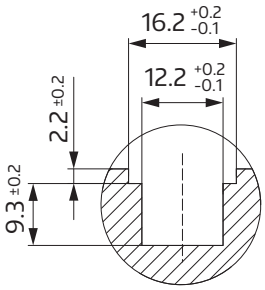
with Mushroom Extensions:
+ 350 mm



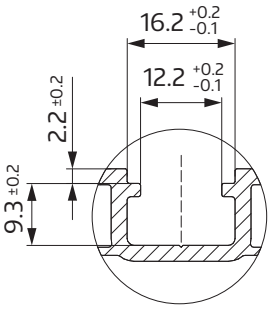
8. Design of the fitting groove

Eurogroove

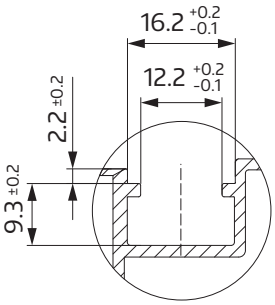
Timber



PVC

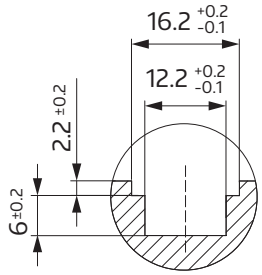


Aluminium

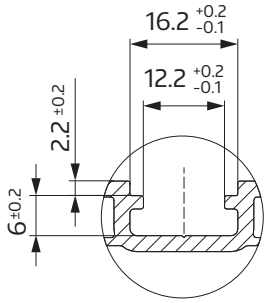


Shallow Eurogroove

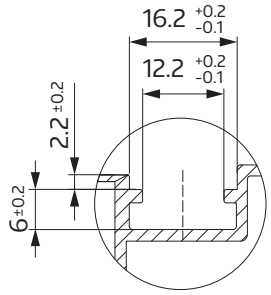
Timber



PVC

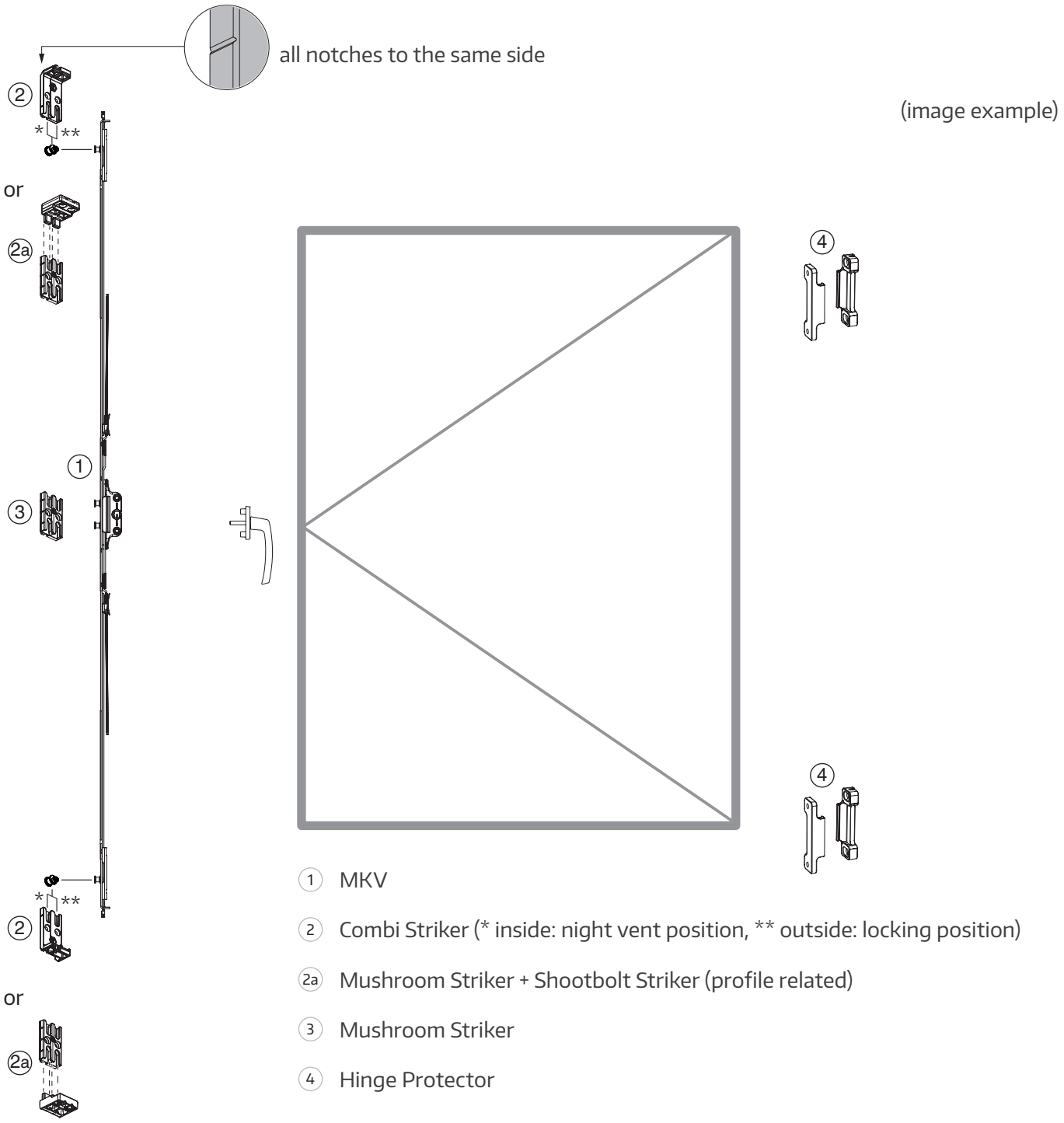


Aluminium



9. Fitting arrangement

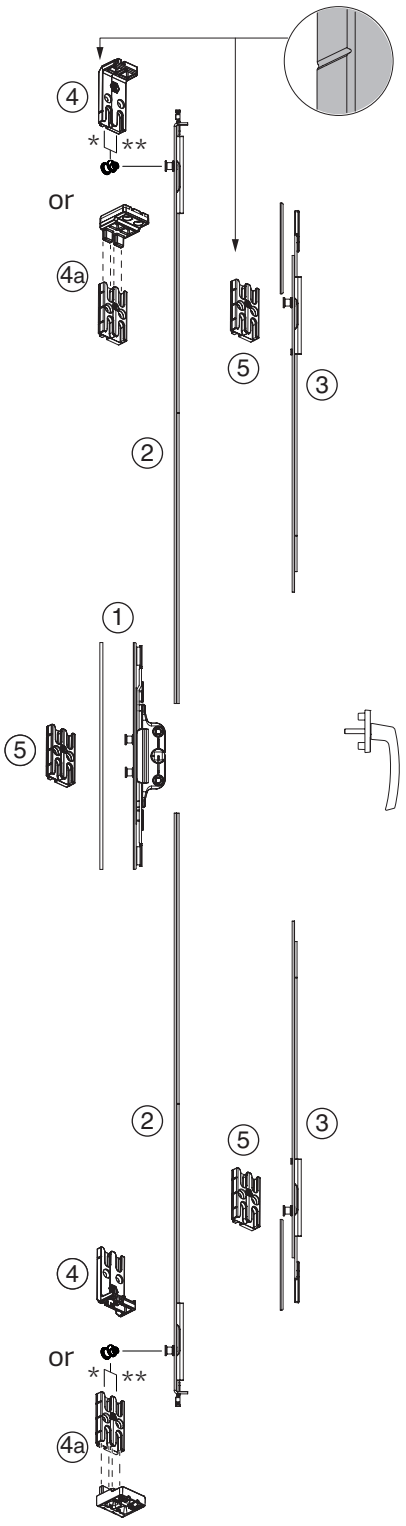
9.1 MKV Telescopic



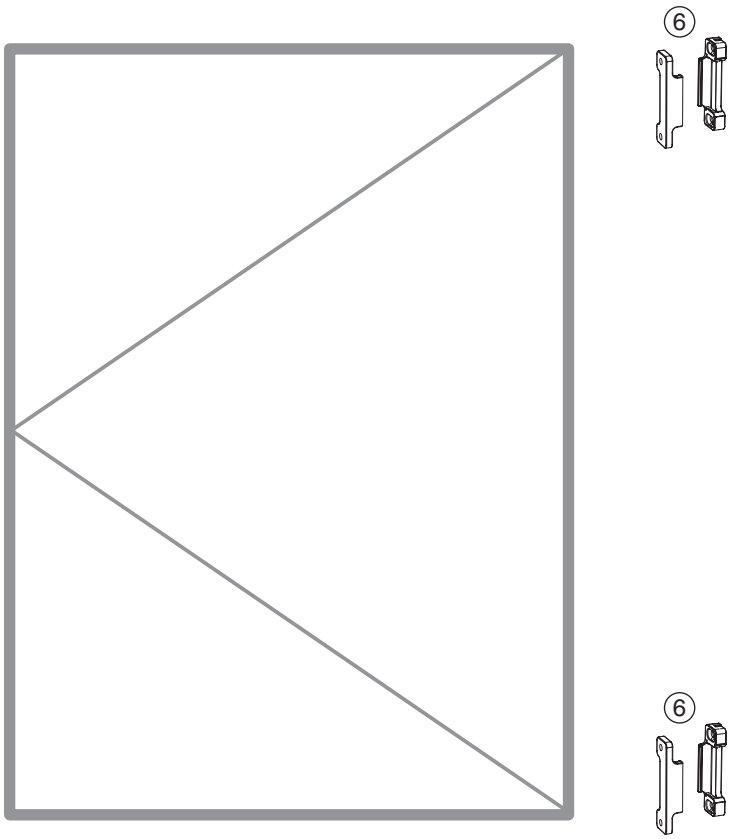
1. MKV
2. Combi Striker (* inside: night vent position, ** outside: locking position)
2a. Mushroom Striker + Shootbolt Striker (profile related)
3. Mushroom Striker
4. Hinge Protector

Fitting arrangement

9.2 MKV Croppable



(image example)

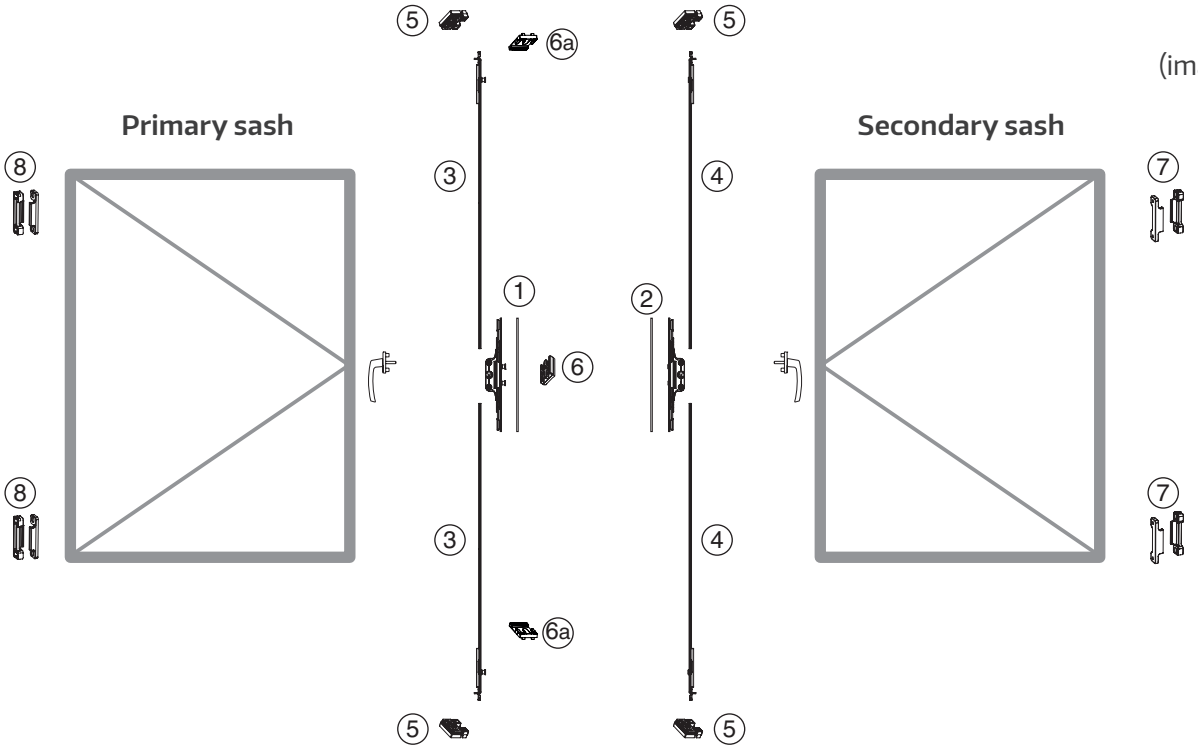


1. MKV Drive Gear
2. MKV Shootbolt Extension
3. MKV Mushroom Extension
4. Combi Striker (* inside: night vent position, ** outside: locking position)
4a. Mushroom Striker + Shootbolt Striker (profile related)
5. Mushroom Striker
6. Hinge Protector

Fitting arrangement

9.3 MKV Croppable 2 sashes

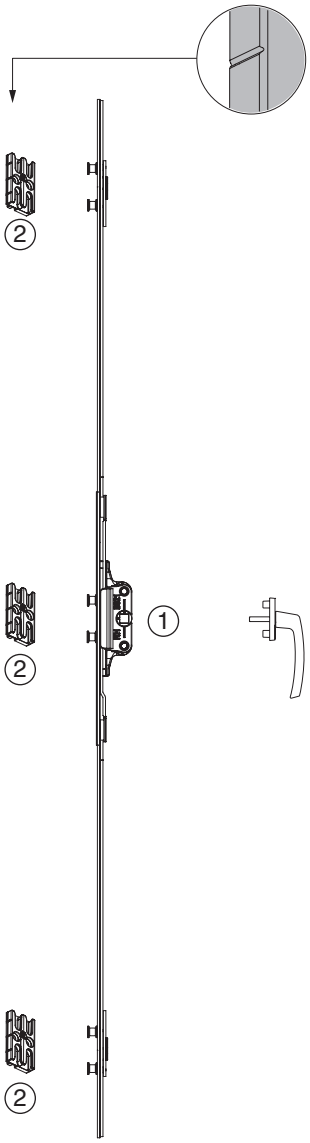
(image example)



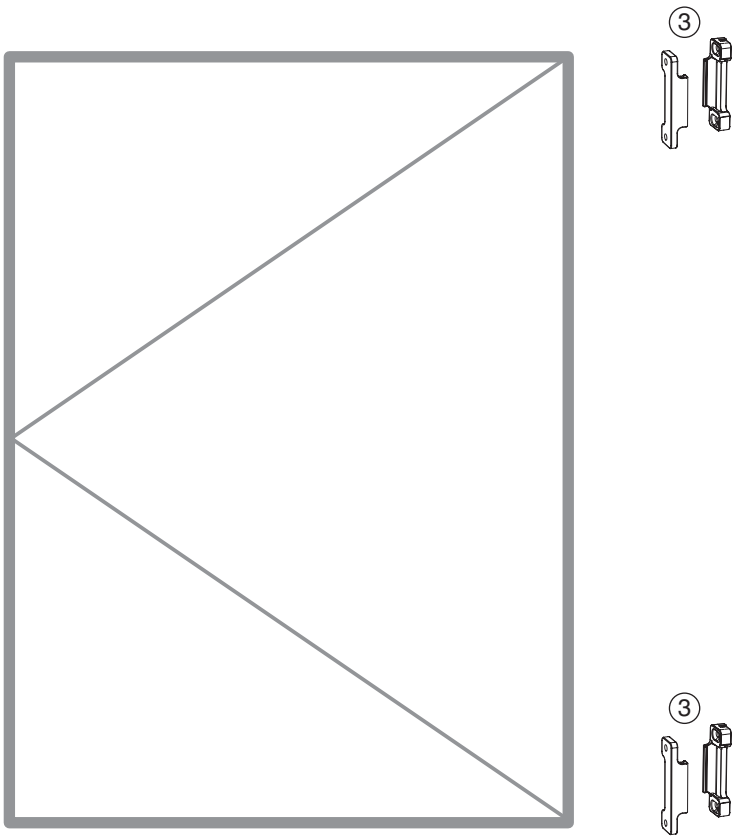
1. MKV Drive Gear
2. MKV Drive Gear without mushroom cam
3. MKV Shootbolt Extension
4. MKV Shootbolt Extension secondary sash
5. Shootbolt Striker for French Casement
6. Mushroom Striker
6a. French Casement Mushroom Striker
7. Hinge Protector

Fitting arrangement

9.4 MKV RAIL



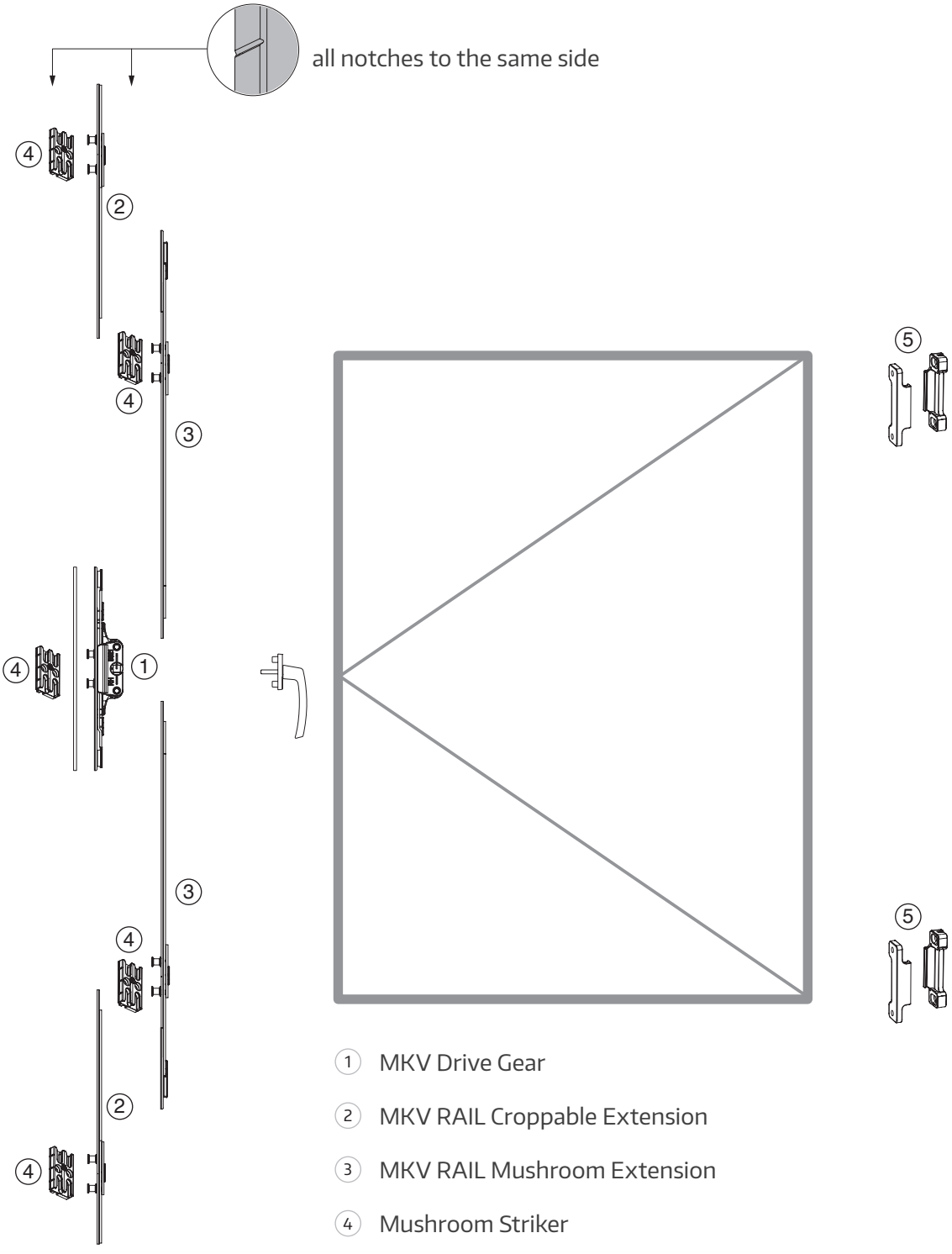
(image example)



1. MKV RAIL
2. Mushroom Striker
3. Hinge Protector

Fitting arrangement

9.5 MKV RAIL Croppable



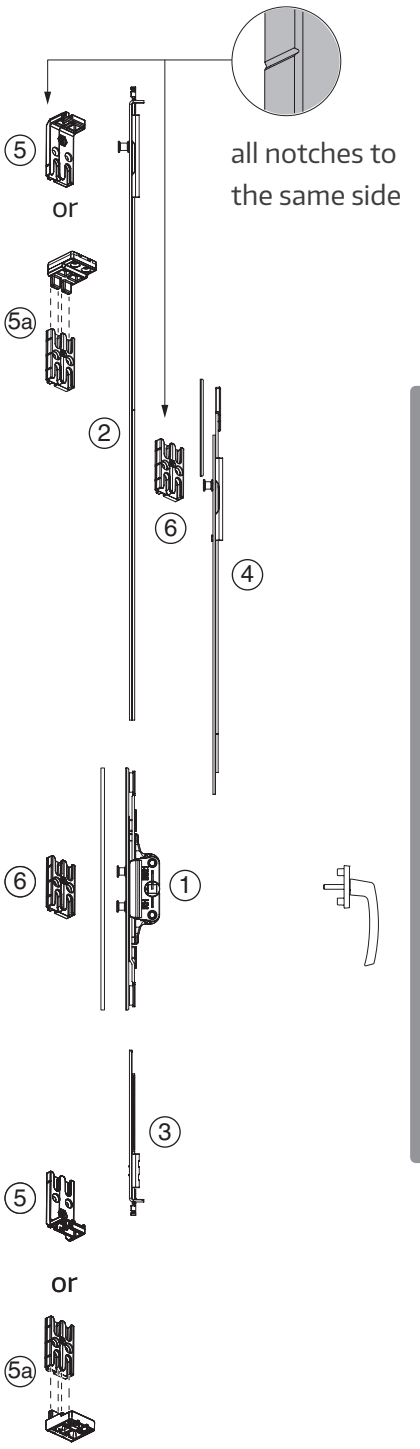
(image example)

1. MKV Drive Gear
2. MKV RAIL Croppable Extension
3. MKV RAIL Mushroom Extension
4. Mushroom Striker
5. Hinge Protector

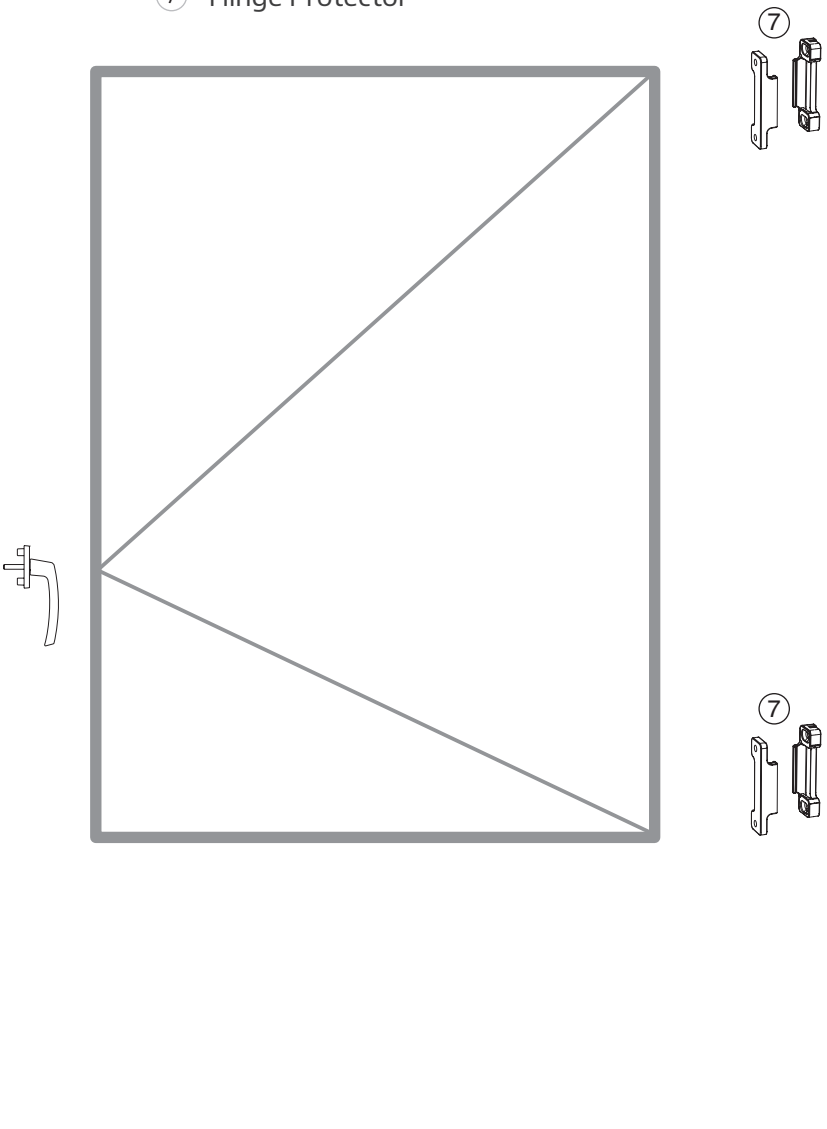
Fitting arrangement

9.6 MKV Croppable REACH

1. MKV Drive Gear
2. MKV Shootbolt Extension top
3. MKV Shootbolt Extension bottom
4. MKV Mushroom Extension
5. Combi Striker
5a. Mushroom Striker + Shootbolt Striker (profile related)
6. Mushroom Striker
7. Hinge Protector

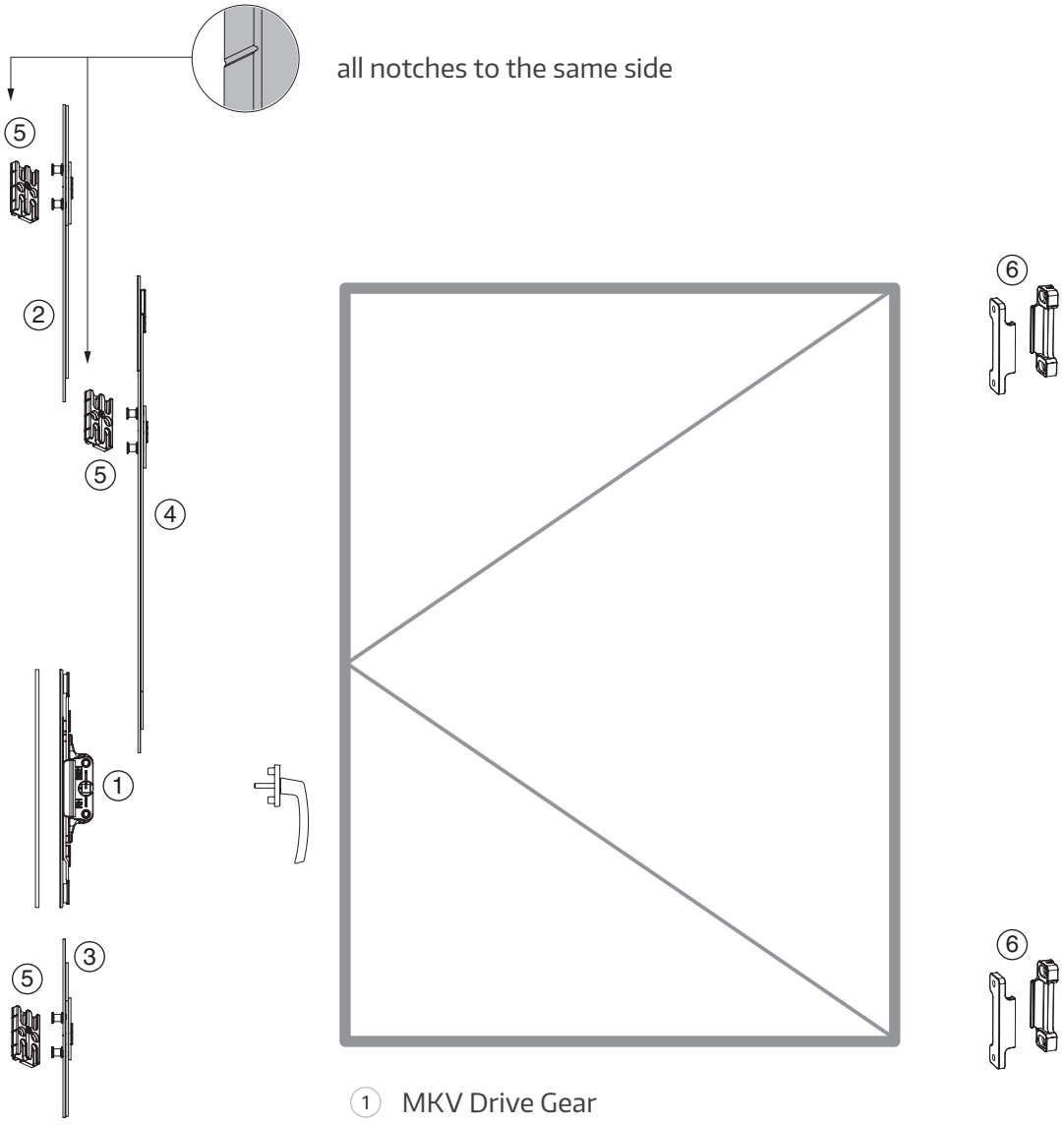


(image example)



Fitting arrangement

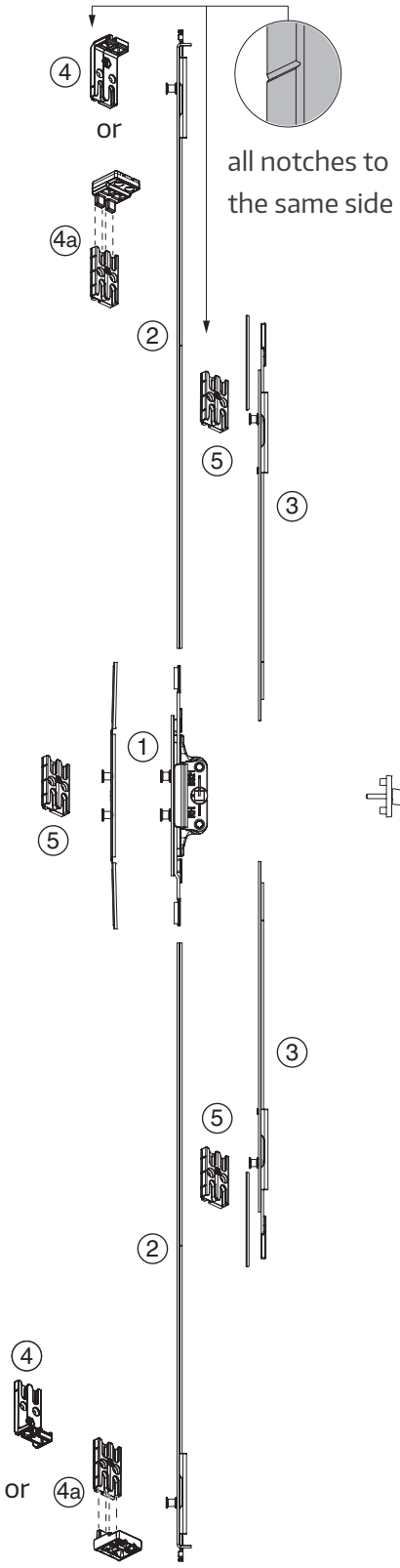
9.7 MKV RAIL REACH Croppable



1. MKV Drive Gear
2. MKV RAIL Croppable Extension top
3. MKV RAIL Croppable Extension bottom
4. MKV RAIL Mushroom Extension
5. Mushroom Striker
6. Hinge Protector

Fitting arrangement

9.8 MKV Croppable TWIN CAM



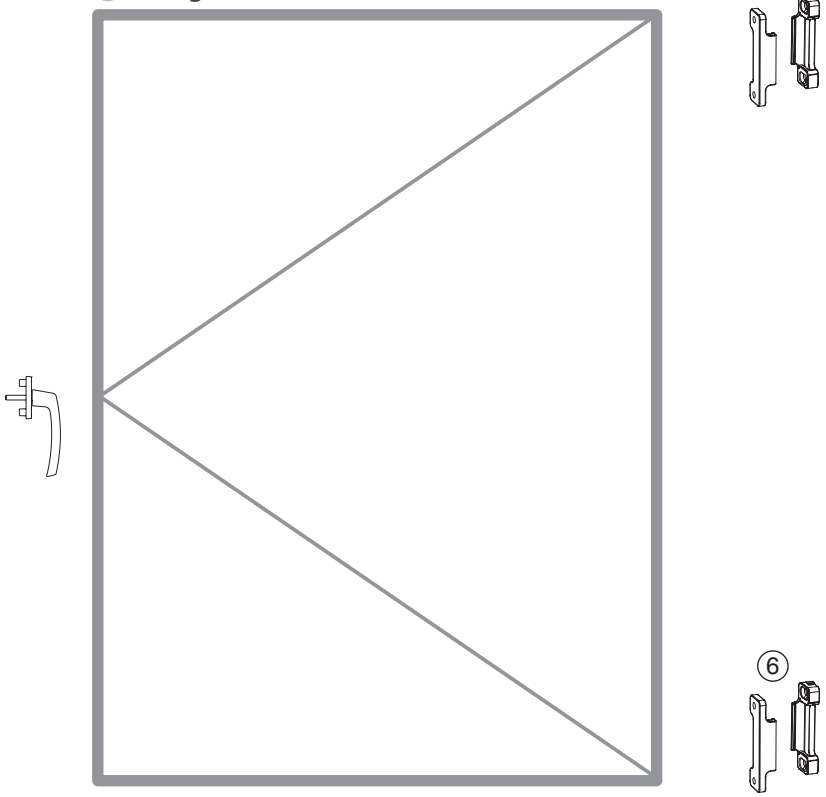
1. MKV Drive Gear TWIN CAM
2. MKV Shootbolt Extension
3. MKV Mushroom Extension
4. Combi Striker

4a. Mushroom Striker + Shootbolt Striker (profile related)

5. Mushroom Striker

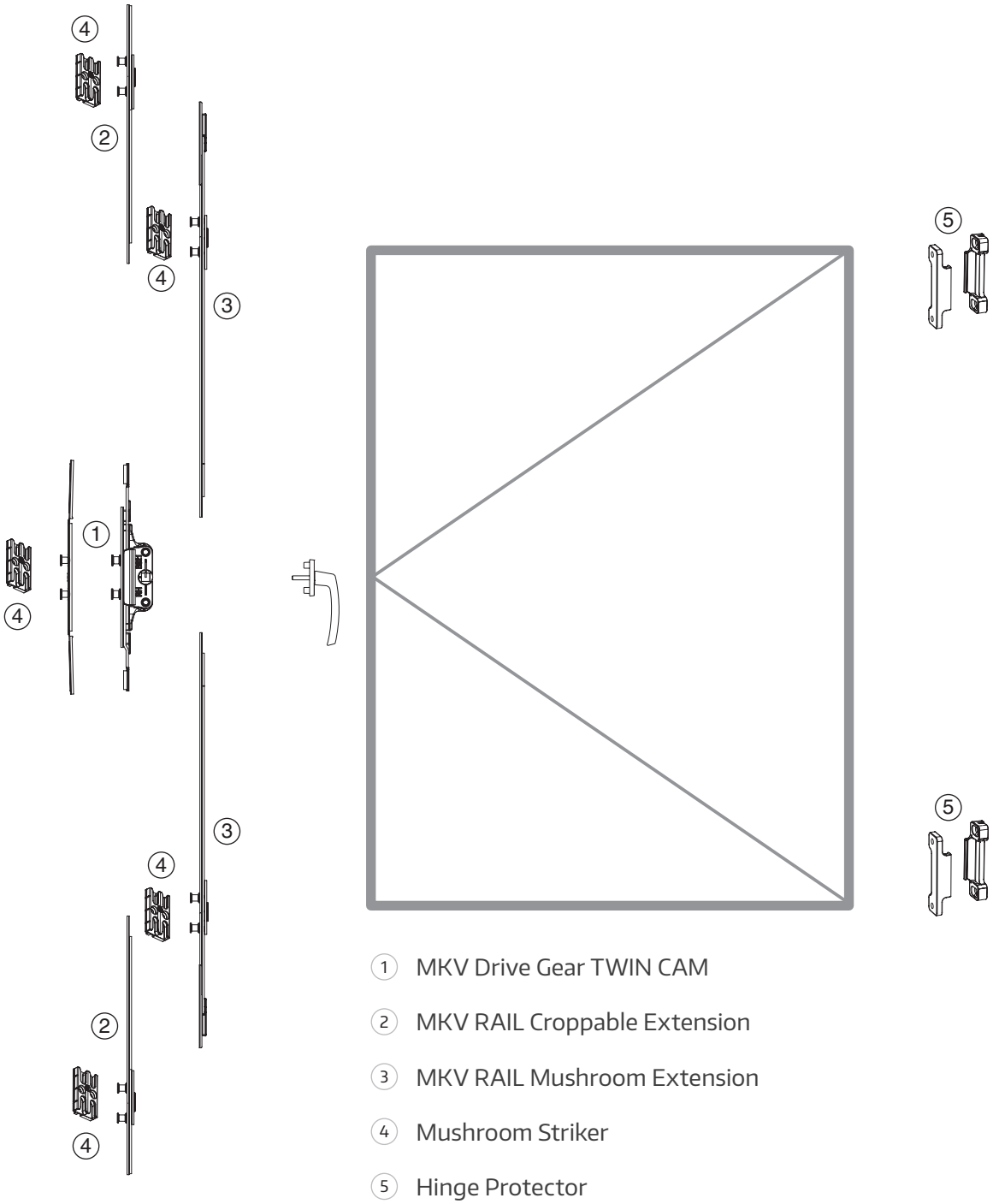
6. Hinge Protector

(image example)



Fitting arrangement

9.9 MKV RAIL Croppable TWIN CAM

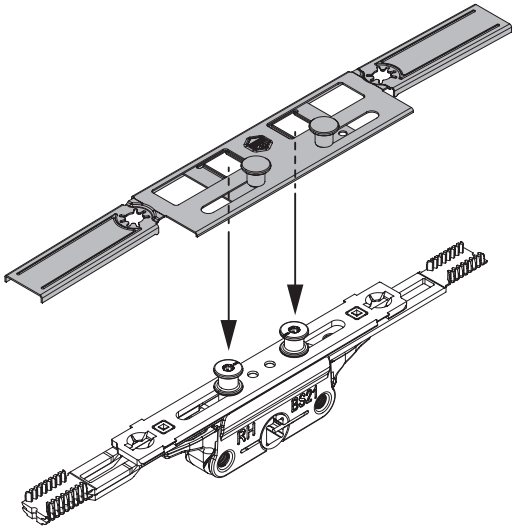


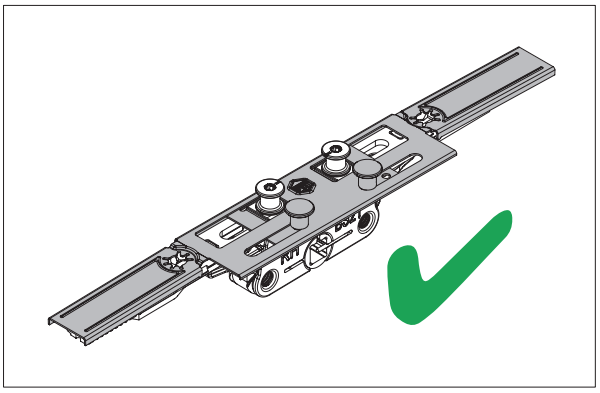
(image example)

1. MKV Drive Gear TWIN CAM
2. MKV RAIL Croppable Extension
3. MKV RAIL Mushroom Extension
4. Mushroom Striker
5. Hinge Protector

10. Installation TWIN CAM Cover

NOTE	Ensure that the TWIN CAM Cover sits correctly over both mushroom cams before screw fixing.



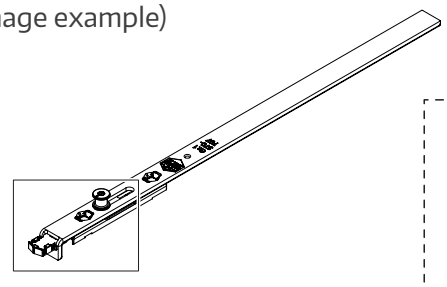


11. Adjustment of shootbolt throw 10/13 mm

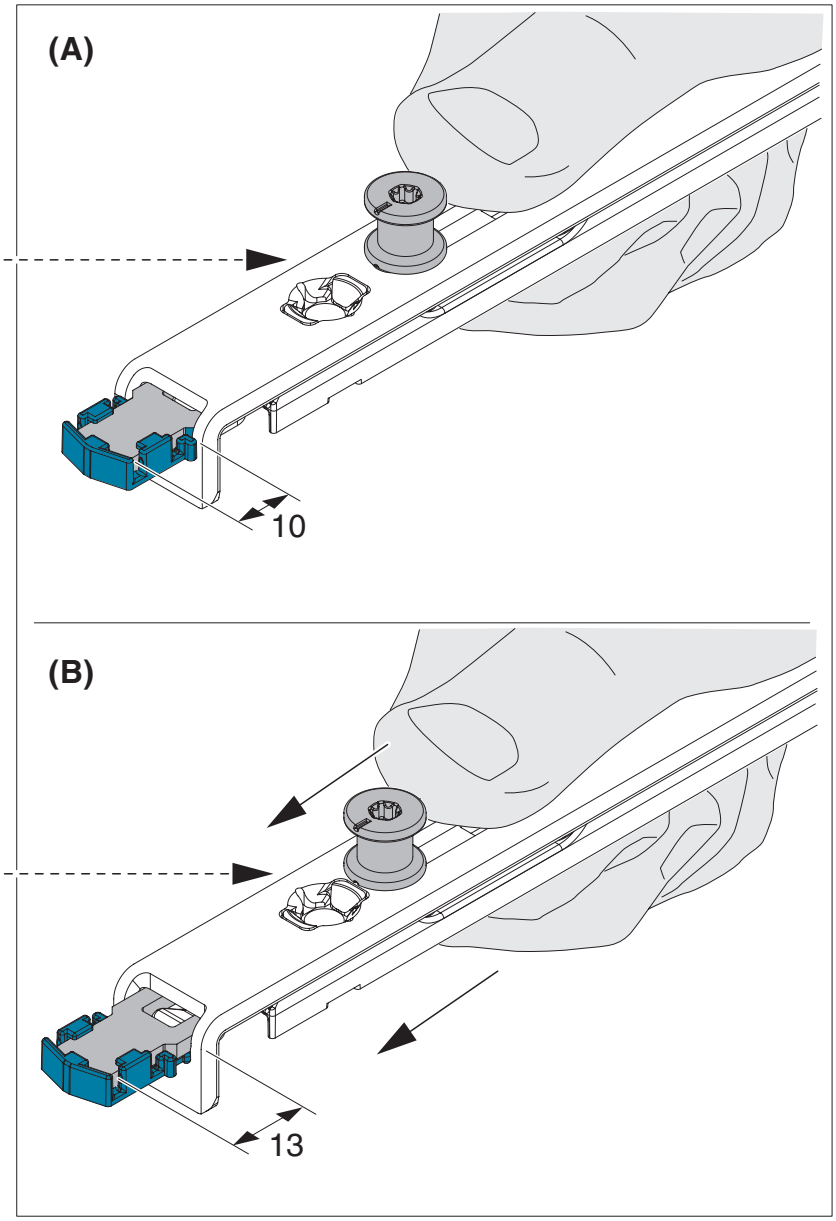
Adjust the shootbolt throw to the required setting.
The default shootbolt throw is set to 10 mm. **(A)**.
Push the mushroom cam towards the shootbolt end extends to 13 mm **(B)**.

NOTE	For PAS24 windows you should ensure the maximum shootbolt throw permissible for the profile system being used.

(image example)



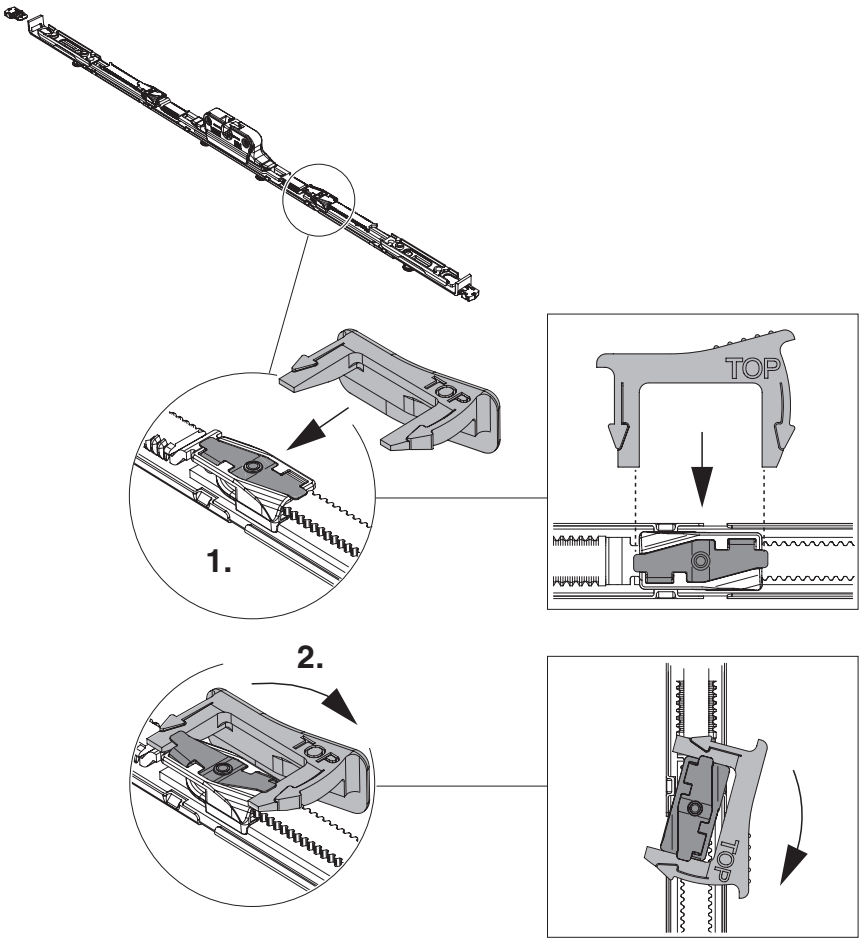
different position of the cam



Removal of the blue transport lock (M-cap) after the first operation of the drive gear using the handle; if necessary, manually after installing the fitting.

12. Release twist lock

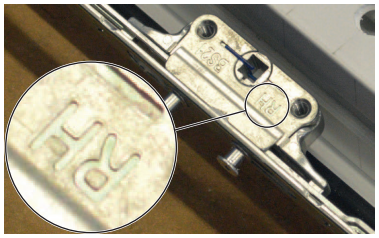
(image example)



Gently slide the twist lock release tool under the spring.

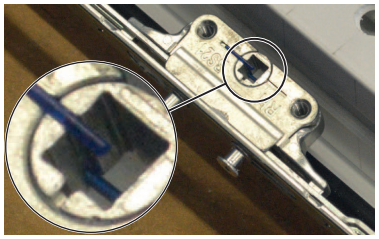
Push with your thumb on the end stop to rotate the twist lock back to the open position.

13. Telescopic shootbolt installation instructions

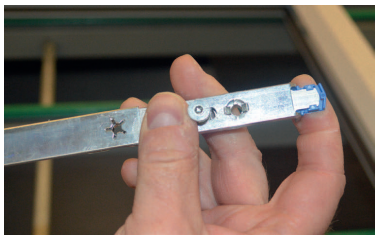


Define the handing of the window, use the guide on the side of the MKV lockcase to define the handing for the MKV shootbolt.

NOTE: The handing relates to the hinge side of the window e.g. for a RH hung window the RH handing identification should be facing the handle holes on the sash.

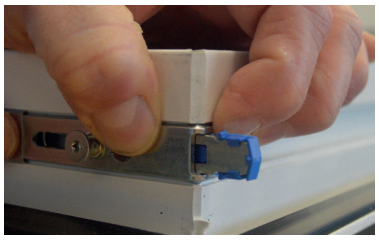


Ensure that the blue pin is within the spindle follower and that both blue end caps are in palce.



Whilst holding the end mushroom cams, gently fully extend the MKV shootbolt.

NOTE: If you extend the MKV shootbolt without holding the mushroom cams the shootbolts can become detached from the blue end caps.

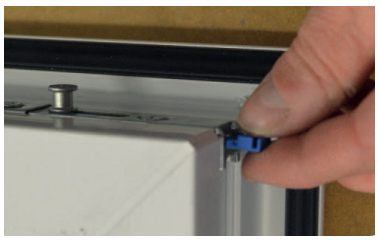


Position the drive gear centrally in the machined slot within the eurogroove, position and locate the MKV end stops into the corners.

NOTE: Ensure that the corner has been cleaned so that the MKV end stops fit flush to the top of the eurogroove.



Insert the first fixing screw from the end, then repeat with the opposite corner.



Adjust the shootbolt throw to the required setting, pushing the cap in sets it to 10 mm by pulling it out the throw extends to 13 mm.



Ensure that the MKV lockcase is central to the machining prep and that the splindle follower and handle holes are correctly aligned.



Whilst holding the gear box in position, using a glazing mallet gently tap the faceplate above one of the twist locks so that it snaps into the eurogroove. Repeat with the second twist lock.

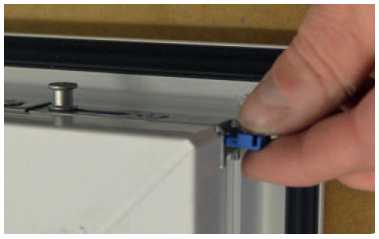


Insert all of the remaining fixing screws taking care not to overtighten them.



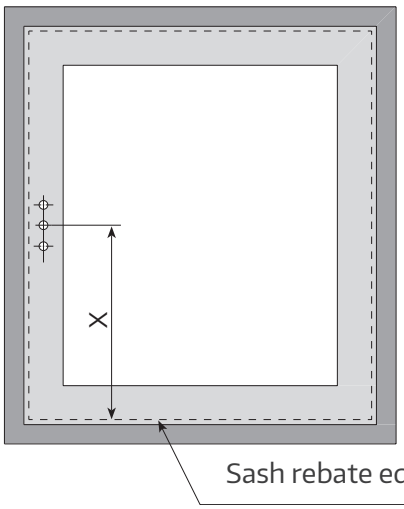
Insert the handle ensuring that it is in the closed position, twist to open and insert the M5 handle fixing screws.

NOTE: do not overtighten the handle fixing screws.



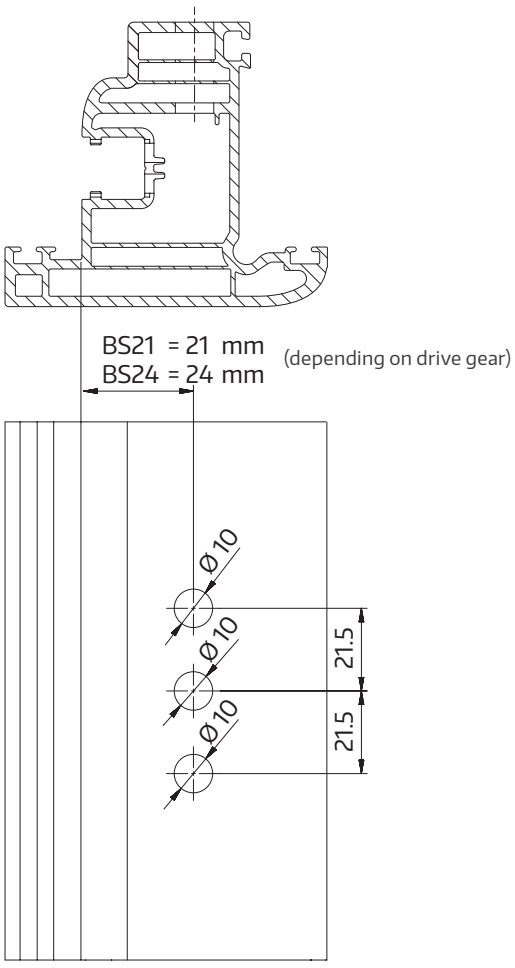
Before closing the window remove both of the blue end caps with the handle in the open position.

14. Installation of the espag at the sash - handle drilling / profile milling



	Dimension X
REACH	210
bei Shootbolt extension croppable:	sash centre

(Profile sections available on request)



Routing

Routing

recommended slot				
first slot: slot width 14 / slot length 58 / slot depth 12,6				
second slot: depending on the eurogroove depth				
eurogroove depth	slot length	slot width	slot depth	cutter diameter
6	94	12	27,5	10
6,5	94	12	27,5	10
7	94	12	27,5	10
7,5	82	12	27,5	10
8	78	12	27,5	10
8,5	76	12	27,5	10
9	74	12	27,5	10
9,5	70	12	27,5	10

alternative slot				
single slot: depending on the eurogroove depth				
eurogroove depth	slot length	slot width	slot depth	cutter diameter
6	92	14	27,5	10
6,5	92	14	27,5	10
7	92	14	27,5	10
7,5	82	14	27,5	10
8	78	14	27,5	10
8,5	74	14	27,5	10
9	68	14	27,5	10
9,5	68	14	27,5	10

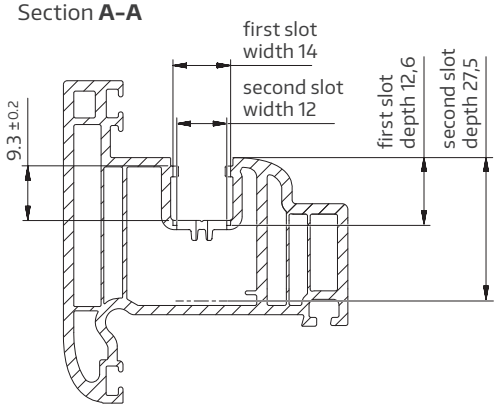
The lockcase machining slot must be centred within the Eurogroove. Tolerances of the milling machine must be taken into account.

Note: All dimensions listed, machine milling tolerances must be added.

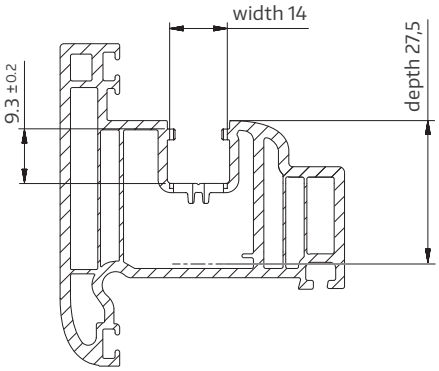
Eurogroove, depth 9,3 mm

NO SCALE!

Section **A–A**

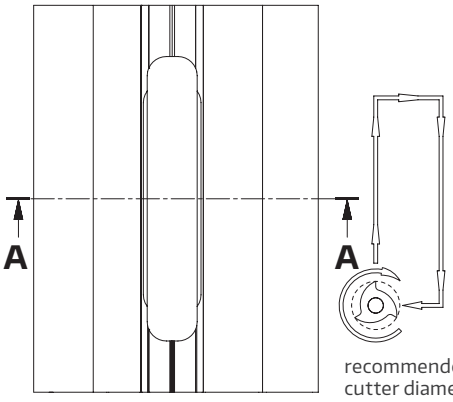


Section **B–B**

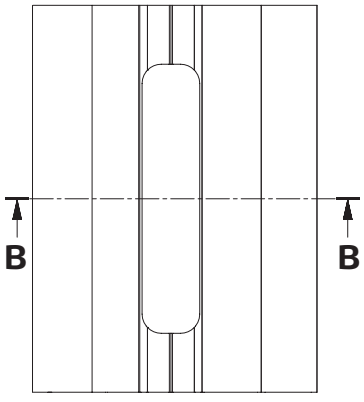


recommended slot
first slot: width 14, length 58, depth 12,6
second slot: width 12, length 68, depth 27,5

alternative slot
one slot: width 14, length 68, depth 27,5



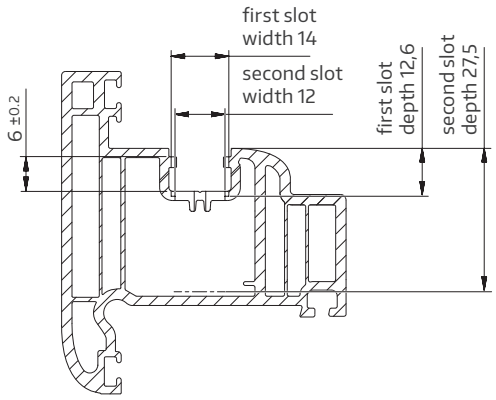
recommended milling path; cutter diameter 10 turn clockwise



Eurogroove, depth 6 mm (Shallow Eurogroove)

NO SCALE!

Section **A–A**

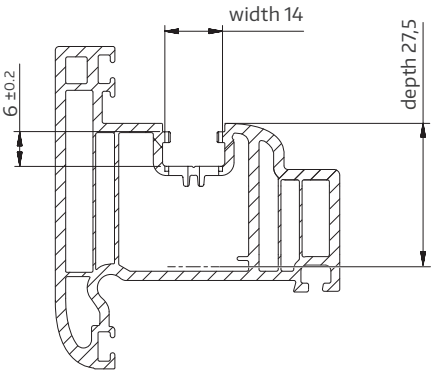


recommended slot

first slot: width 14, length 58, depth 12,6

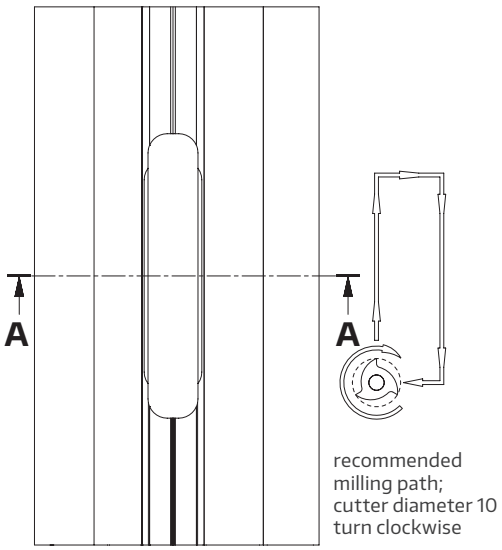
second slot: width 12, length 68, depth 27,5

Section **B–B**

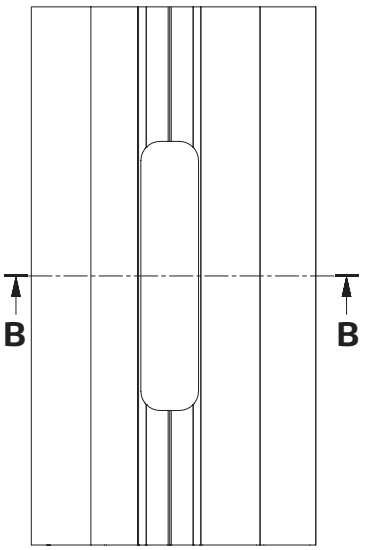


alternative slot

one slot: width 14, length 68, depth 27,5



recommended
milling path;
cutter diameter 10
turn clockwise



15. Mushroom Cams

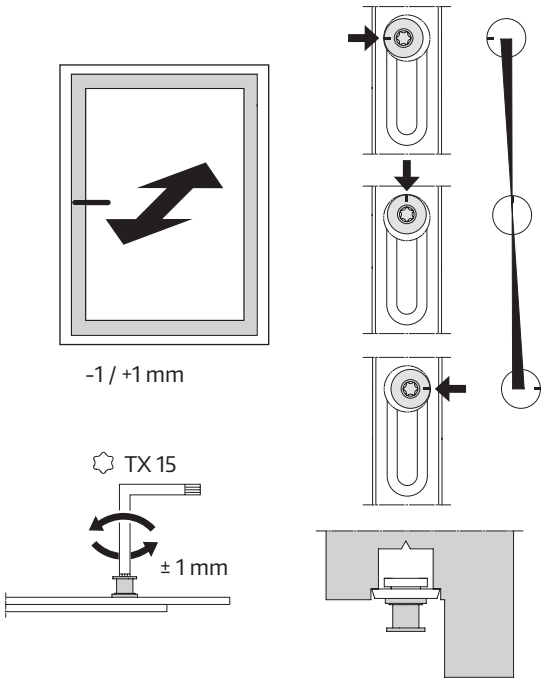
Mushroom cams are used on all MACO espags. They are designed to provide both security and weather protection for the window.

15.1 Mushroom cam height

MACO produces three different mushroom cam heights: 7.7, 9.0, and 10.5 mm. These different heights ensure that the window can be opened and closed without colliding with the frame.

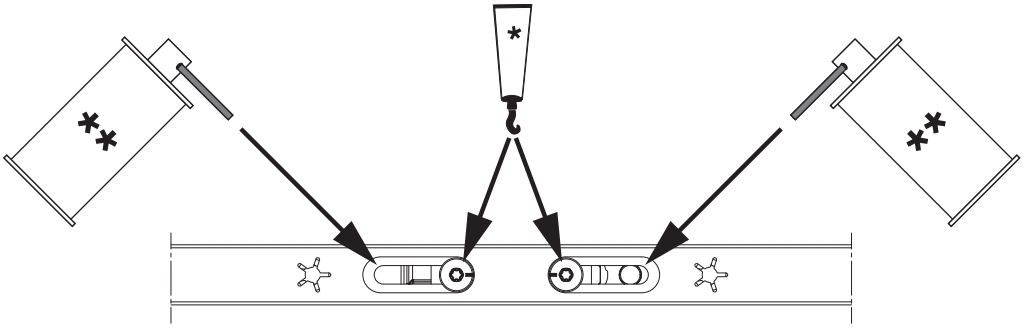
15.2 Adjustment of the mushroom cams

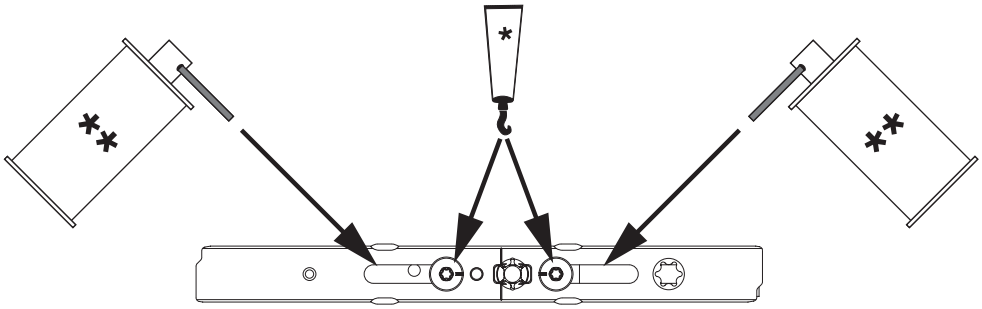
MACO mushroom cams can be adjusted with a TX 15 screwdriver (⛭) to ensure smooth window operation by varying the contact pressure. MACO mushroom cams allow the contact pressure to be adjusted by +/- 1 mm.

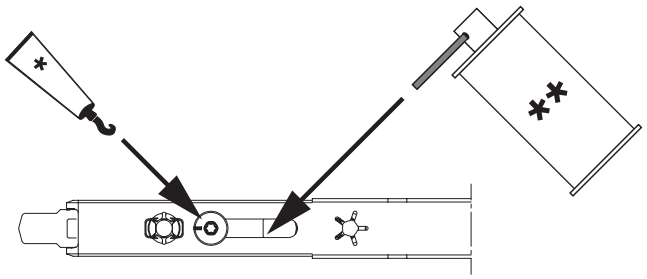


16. Lubricating/oiling the fittings

NOTE	**Do not use lubricating oils, rust removers, silicone sprays, etc.!** * Grease with acid-free lubricant or technical vaseline, only. ** Put a few drops of light machine oil into all guide slots.



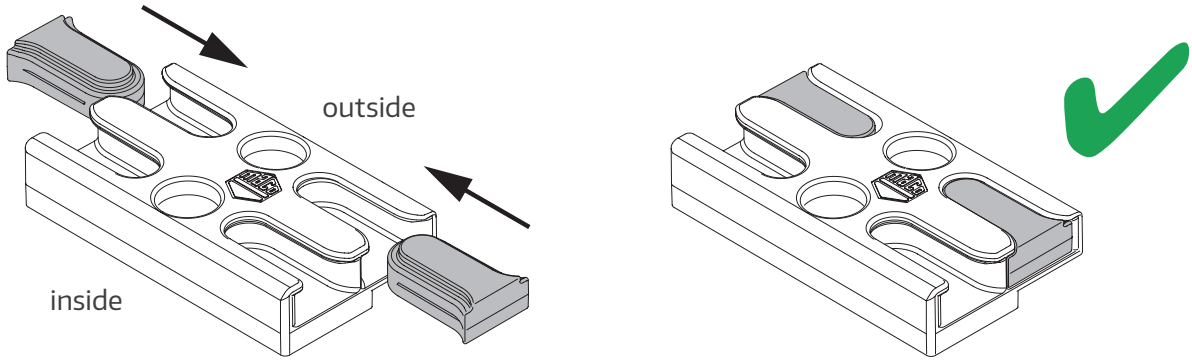




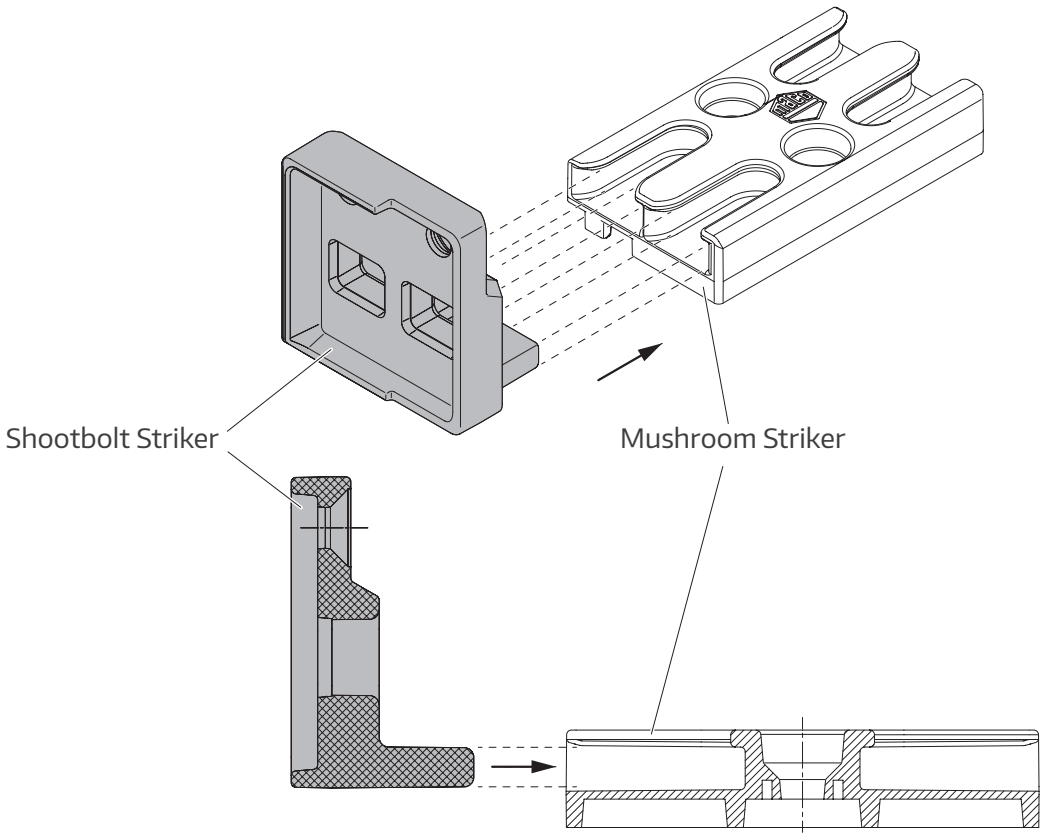
17. Preventing night vent

The blanking plates are simply pushed into the striker in the night vent position and prevent the mushroom cams from snapping into the striker. For a more permanent fixation, the blanking plates can be glued into the striker.

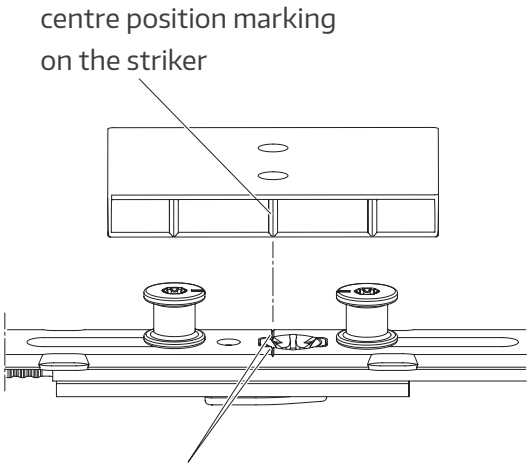
necessary at Mushroom Striker
at the central drive gear, only



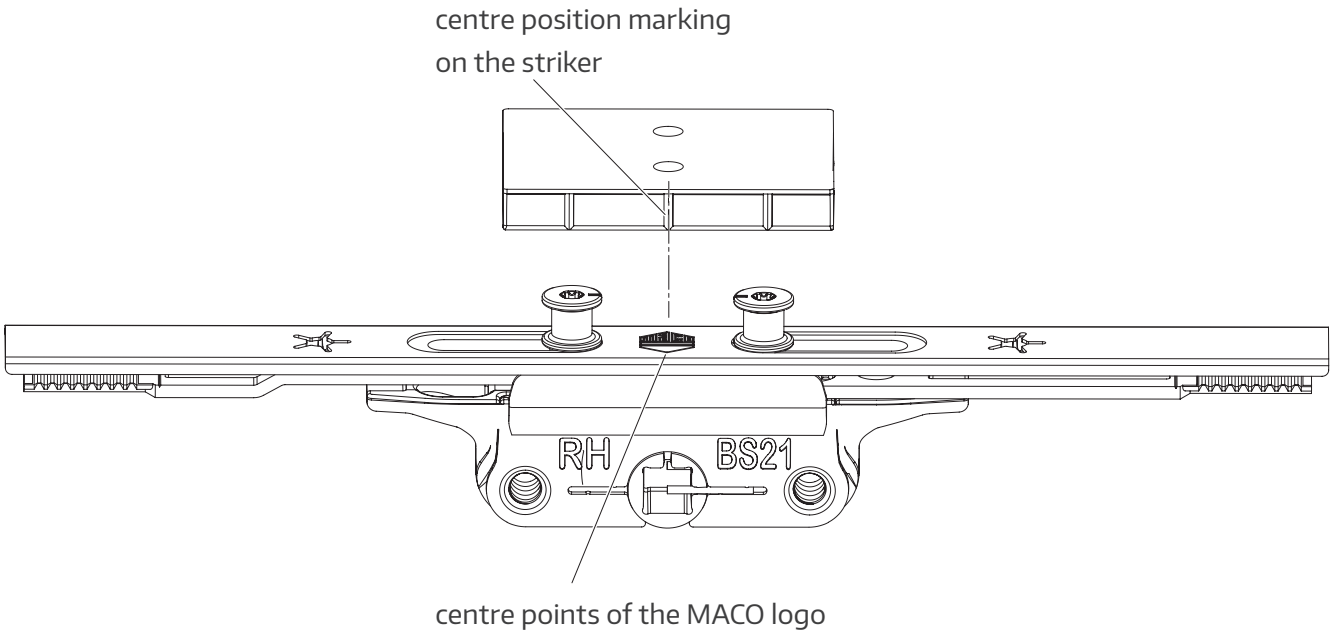
18. Combine Mushroom Striker with Shootbolt Striker



19. Striker positioning RAIL

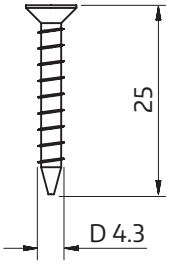


20. Mushroom Striker positioning at Central Drive Gear



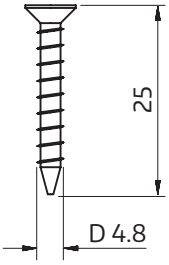
21. Recommended screw fixings for the MKV platform

new fitting



D 4.3 x 25
with countersunk head

for repairs

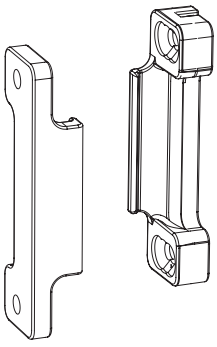


D 4.8 x 25
with countersunk head

NOTE	For full screw specifications and for striker plate screw recommendations please consult your systems house.

22. Hinge Protectors on profile

WARNING	Hinge Protectors are essential security devices to protect the friction stay hinges for PAS24 security windows. **Failure to follow this may result in death or serious injury.**

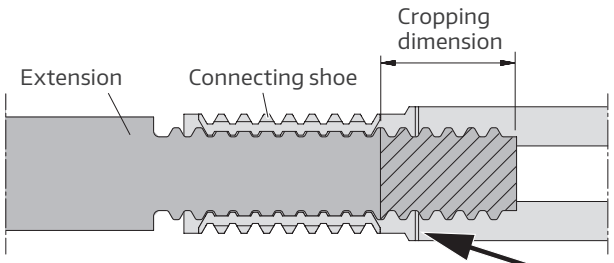


NOTE	For reccomendations on the correct hinge protector, the application and screw fixings please consult your MACO partner and systems house.

23. Cropping of the Extensions

(image example)

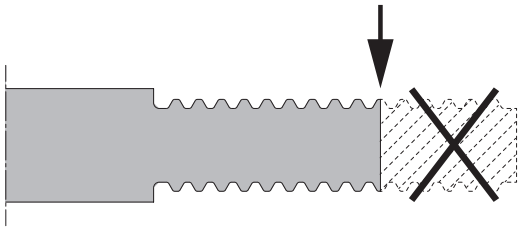
Cropping dimension determined



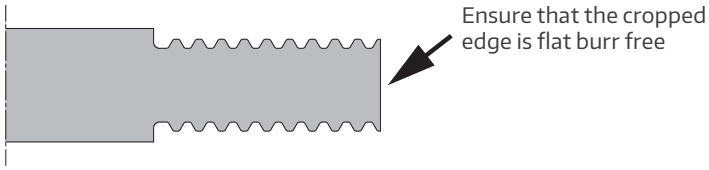
NOTE

Do not crop over this line.
Risk of clashing!

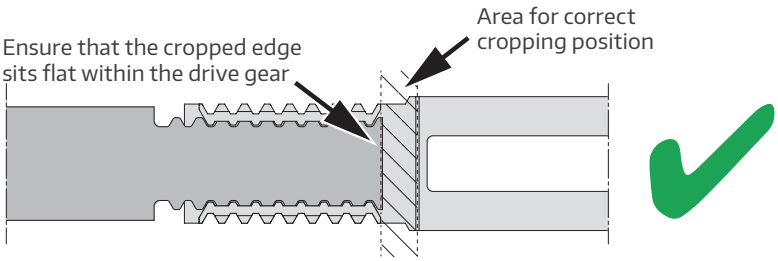
Crop extension to length

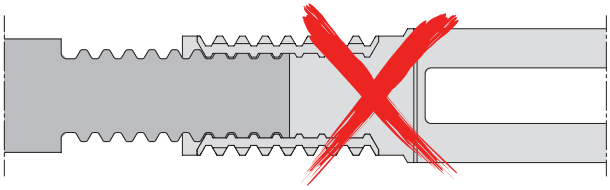


Deburring the edge



Extension cropped/ checked





WARNING

Risk of disconnection due to insufficient engagement!

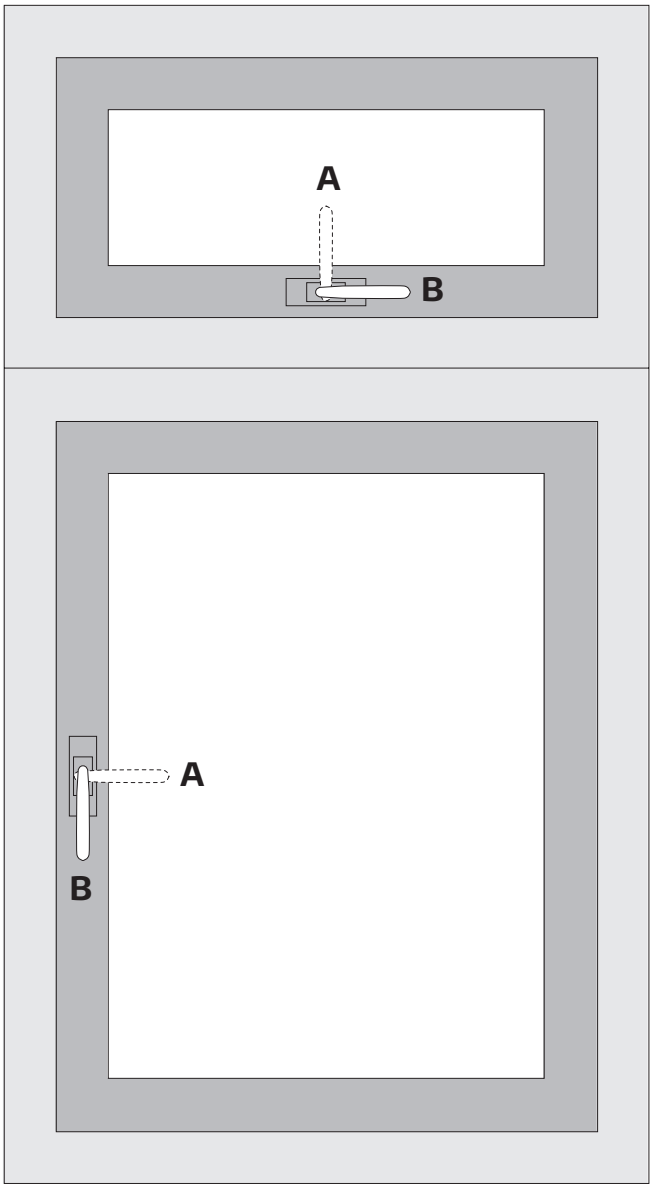
24. Operation of the window

(refer to „Auto-Latch and Laminated Limiting Restrictor," page 45, too)

A - Opening

B - Closing or night vent *)

*) not possible in case of mounted blanking plates at the strikers



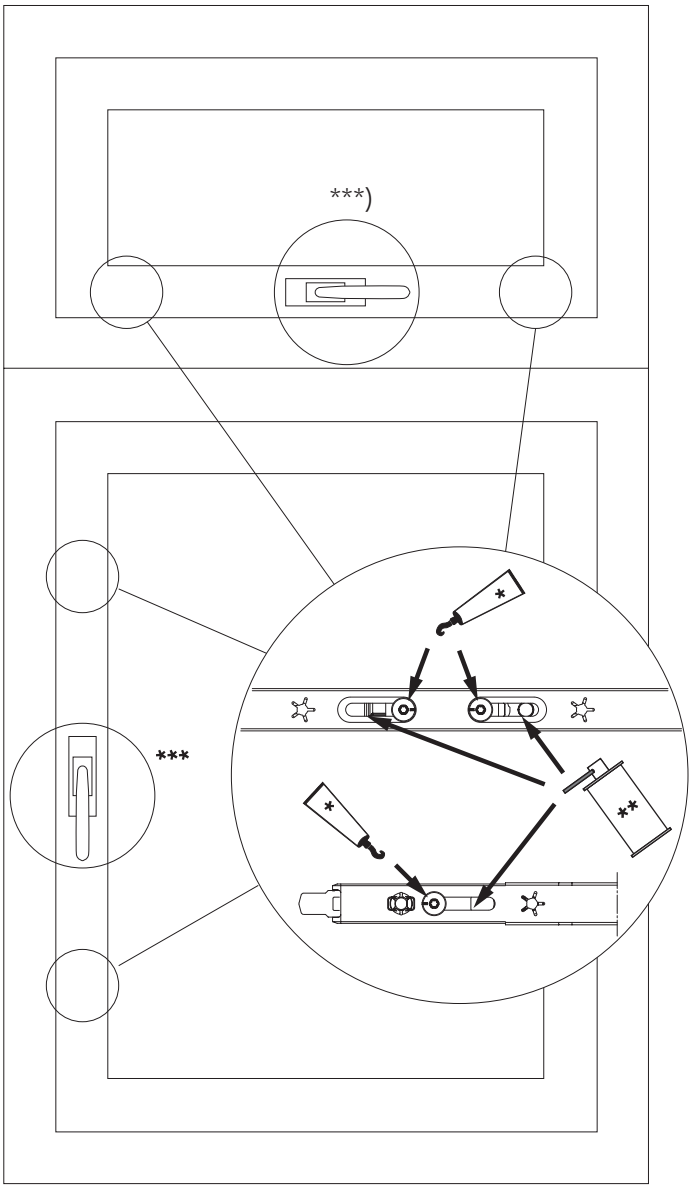
25. Care and maintenance

To ensure that your window shootbolt espagnolettes function correctly for years to come it is important to carry out some basic maintenance at least once a year.

› All fittings must be regularly inspected to ensure that they are firmly fixed. Where neccessary fixing screws should be tightened by a suitably qualified person.

› All handles and locking mechanisms must be lubricated as shown.
DO NOT LUBRICATE THE FRICTION HINGES.

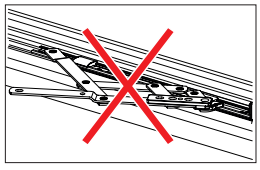
› Ammonia based and abrasive cleaning fluids should not be used on any hardware, only use cleaners that have no effect on the corrosion protection properties of the fittings.



* Grease with acid free lubricant (e.g. Petroleum Jelly).

** Place a few drops of light machine oil in all guide slots.

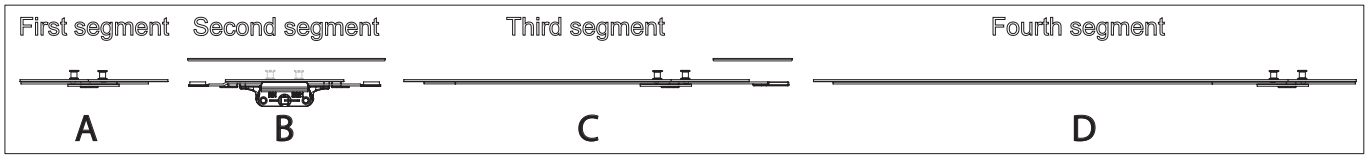
*** The information provided by the respective manufacturer must be observed.
Otherwise: Lightly lubricate (twice a year) with a light machine oil between the handle and the backplate.
Clean the handle with a damp cloth only.



26. Parts description / Article codes

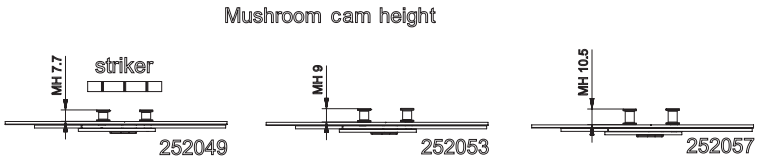
26.1 MKV RAIL Reach Extension HH210 + MKV Drive Gear + MKV RAIL Mushroom Extension L350 + MKV RAIL Extension croppable

(refer to next page, too)



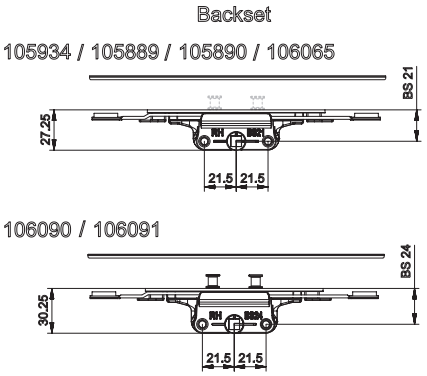
A First segment: MKV RAIL Reach Extension HH210

Article code	Naming	Cutting area	Striker count
252049	MKV RAIL Reach Extension HH210 MH7.7 Silver	fixed length	1
252053	MKV RAIL Reach Extension HH210 MH9 Silver	fixed length	1
252057	MKV RAIL Reach Extension HH210 MH10.5 Silver	fixed length	1



B Second segment: MKV drive gear croppable

Article code	Naming	Cutting area	Striker count
105934	MKV drive gear croppable BS21 w.o. MB	fixed length	-
105889	MKV drive gear croppable BS21 MH 7.7	fixed length	1
105890	MKV drive gear croppable BS21 MH 9	fixed length	1
106065	MKV drive gear croppable BS21 MH 10.5	fixed length	1
106090	MKV drive gear croppable BS24 MH 7.7	fixed length	1
106091	MKV drive gear croppable BS24 MH 9	fixed length	1



C Third segment: MKV RAIL Mushroom Extension L350

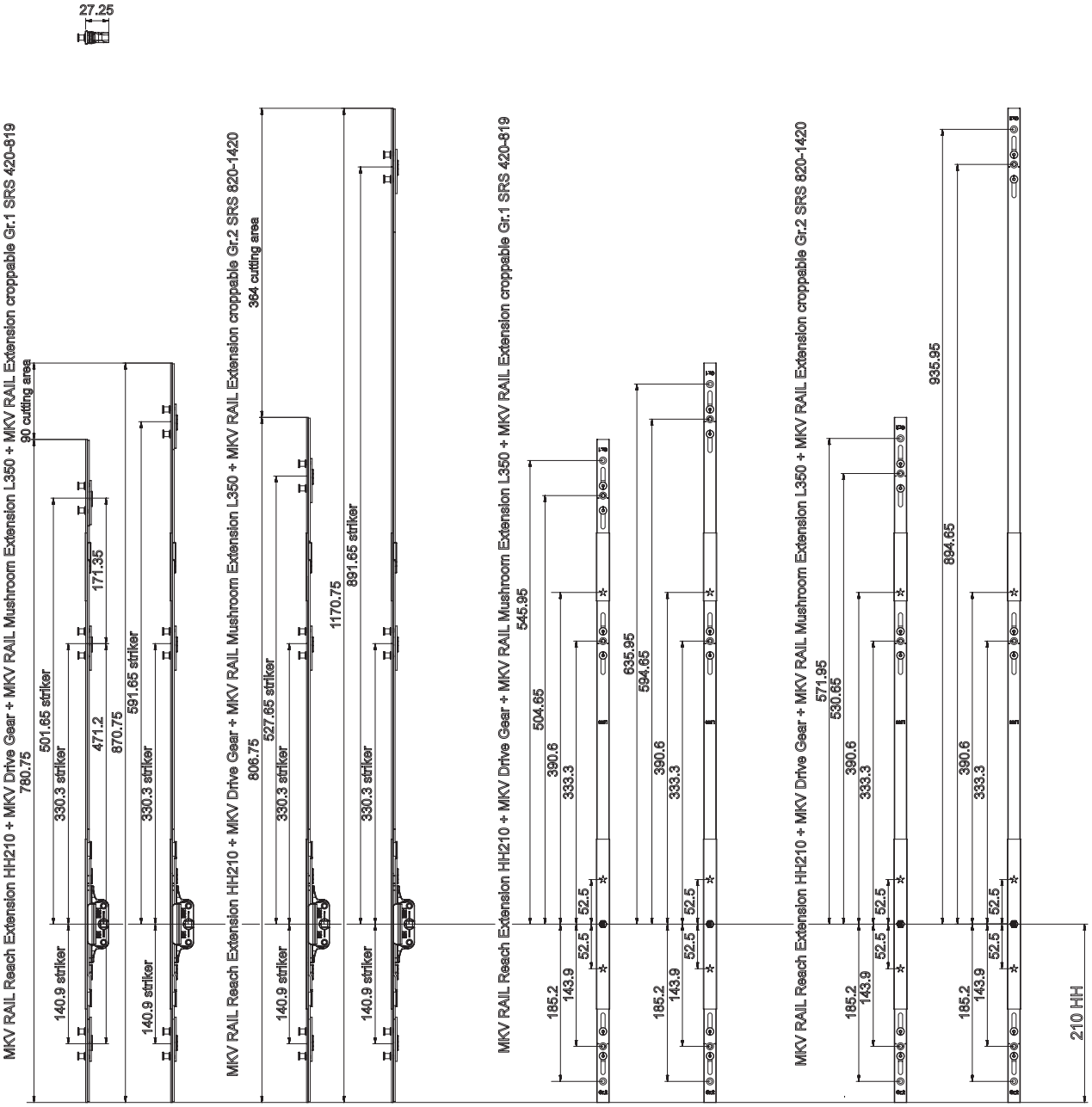
Article code	Naming	Cutting area	Striker count
107082	MKV RAIL Mushroom Extension L350 MH7.7 Silver	fixed length	1
107083	MKV RAIL Mushroom Extension L350 MH9 Silver	fixed length	1

D Fourth segment: MKV RAIL Extension

Article code	Naming	Cutting area	Striker count
252050	MKV RAIL Extension Gr.1 SRS 420-819 MH7.7 Silver	90	1
252051	MKV RAIL Extension Gr.2 SRS 820-1420 MH7.7 Silver	364	1
252054	MKV RAIL Extension Gr.1 SRS 420-819 MH9 Silver	90	1
252055	MKV RAIL Extension Gr.2 SRS 820-1420 MH9 Silver	364	1
252058	MKV RAIL Extension Gr.1 SRS 420-819 MH10.5 Silver	90	1
252059	MKV RAIL Extension Gr.2 SRS 820-1420 MH10.5 Silver	364	1

Parts description / Article codes

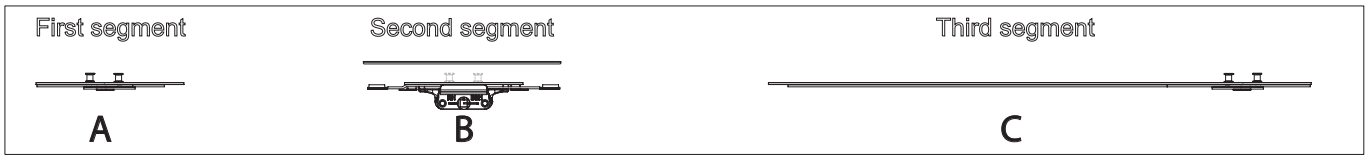
MKV RAIL Reach Extension HH210 + MKV Drive Gear + MKV RAIL Mushroom Extension L350 + MKV RAIL Extension croppable



Parts description / Article codes

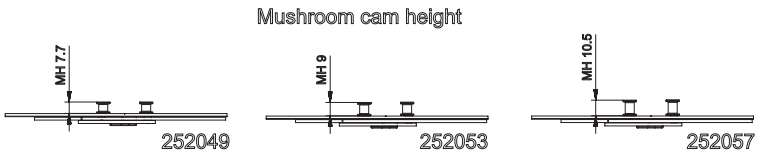
26.2 MKV RAIL Reach Extension HH210 + MKV Drive Gear + MKV RAIL Extension croppable

(refer to next page, too)



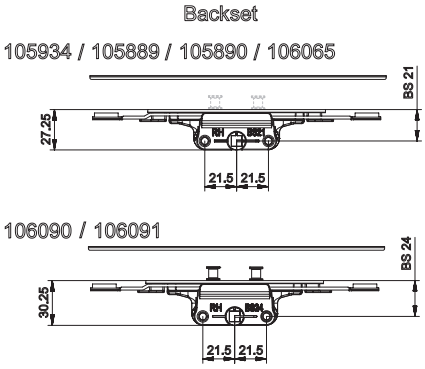
A First segment: MKV RAIL Reach Extension HH210

Article code	Naming	Cutting area	Striker count
252049	MKV RAIL Reach Extension HH210 MH7.7 Silver	fixed length	1
252053	MKV RAIL Reach Extension HH210 MH9 Silver	fixed length	1
252057	MKV RAIL Reach Extension HH210 MH10.5 Silver	fixed length	1



B Second segment: MKV drive gear croppable

Article code	Naming	Cutting area	Striker count
105934	MKV drive gear croppable BS21 w.o. MB	fixed length	-
105889	MKV drive gear croppable BS21 MH 7.7	fixed length	1
105890	MKV drive gear croppable BS21 MH 9	fixed length	1
106065	MKV drive gear croppable BS21 MH 10.5	fixed length	1
106090	MKV drive gear croppable BS24 MH 7.7	fixed length	1
106091	MKV drive gear croppable BS24 MH 9	fixed length	1

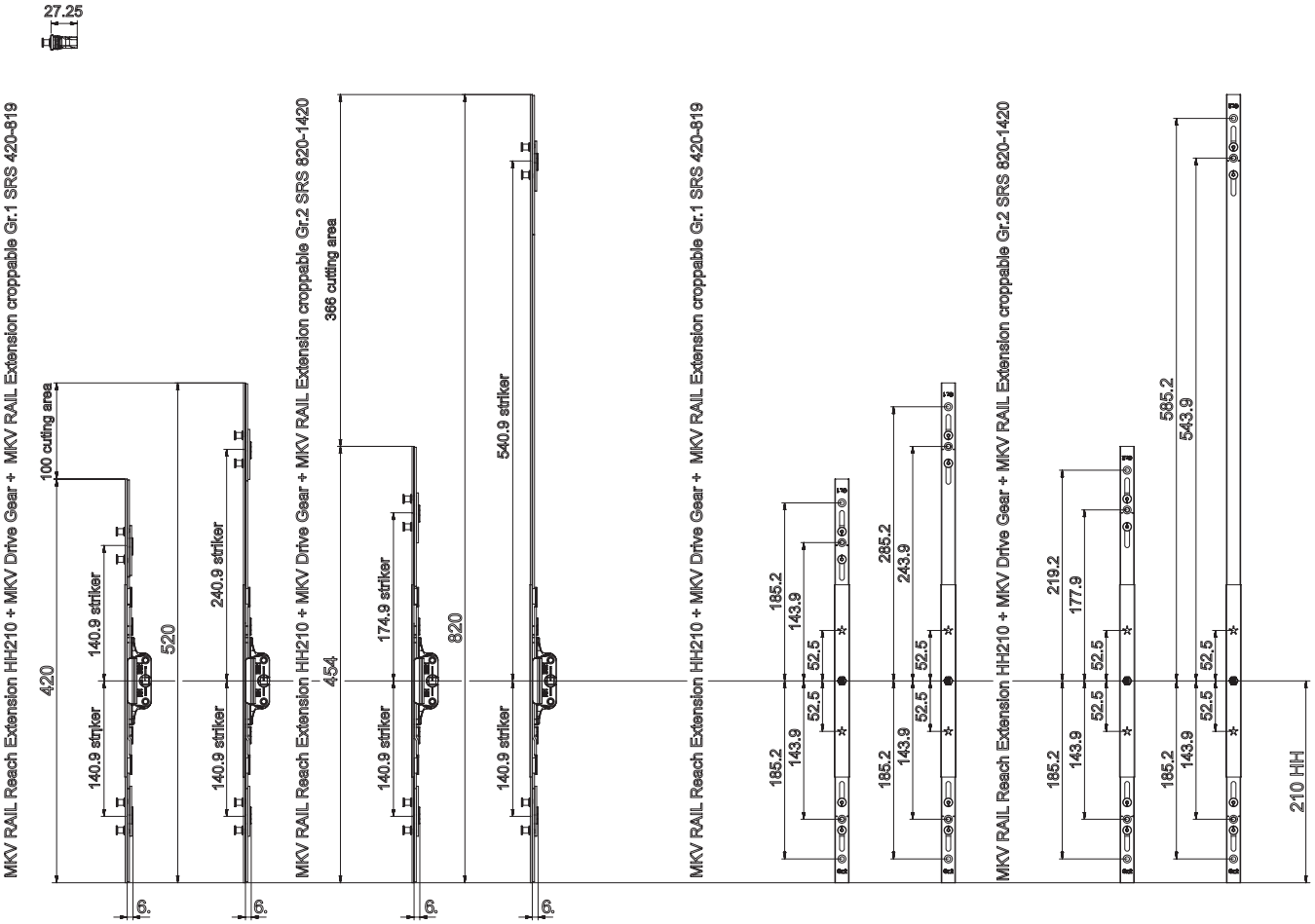


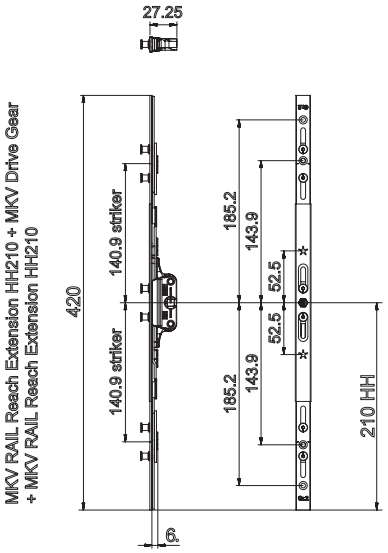
C Third segment: MKV RAIL Extension

Article code	Naming	Cutting area	Striker count
252050	MKV RAIL Extension Gr.1 SRS 420-819 MH7.7 Silver	100	1
252051	MKV RAIL Extension Gr.2 SRS 820-1420 MH7.7 Silver	366	1
252054	MKV RAIL Extension Gr.1 SRS 420-819 MH9 Silver	100	1
252055	MKV RAIL Extension Gr.2 SRS 820-1420 MH9 Silver	366	1
252058	MKV RAIL Extension Gr.1 SRS 420-819 MH10.5 Silver	100	1
252059	MKV RAIL Extension Gr.2 SRS 820-1420 MH10.5 Silver	366	1

Parts description / Article codes

MKV RAIL Reach Extension HH210 + MKV Drive Gear + MKV RAIL Extension croppable

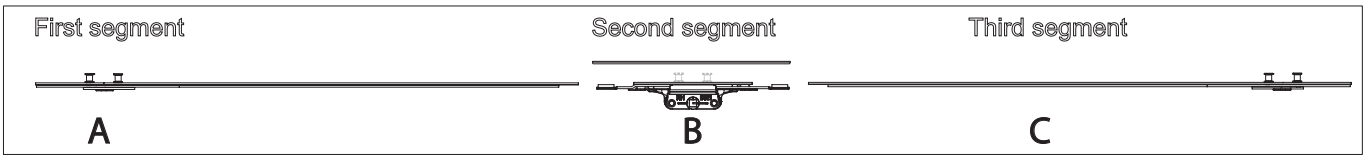




Parts description / Article codes

26.3 MKV RAIL Extension croppable + MKV Drive Gear + MKV RAIL Extension croppable

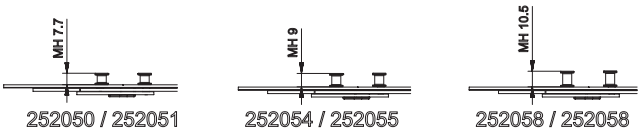
(refer to next page, too)



A First segment: MKV RAIL Extension

Article code	Naming	Cutting area	Striker count
252050	MKV RAIL Extension Gr.1 SRS 420-819 MH7.7 Silver	100	1
252051	MKV RAIL Extension Gr.2 SRS 820-1420 MH7.7 Silver	366	1
252054	MKV RAIL Extension Gr.1 SRS 420-819 MH9 Silver	100	1
252055	MKV RAIL Extension Gr.2 SRS 820-1420 MH9 Silver	366	1
252058	MKV RAIL Extension Gr.1 SRS 420-819 MH10.5 Silver	100	1
252059	MKV RAIL Extension Gr.2 SRS 820-1420 MH10.5 Silver	366	1

Mushroom cam height

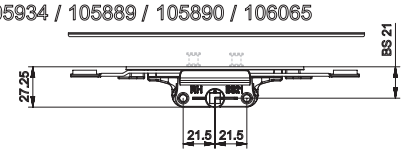


B Second segment: MKV drive gear croppable

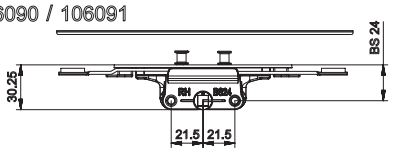
Article code	Naming	Cutting area	Striker count
105934	MKV drive gear croppable BS21 w.o. MB	fixed length	-
105889	MKV drive gear croppable BS21 MH 7.7	fixed length	1
105890	MKV drive gear croppable BS21 MH 9	fixed length	1
106065	MKV drive gear croppable BS21 MH 10.5	fixed length	1
106090	MKV drive gear croppable BS24 MH 7.7	fixed length	1
106091	MKV drive gear croppable BS24 MH 9	fixed length	1

Backset

105934 / 105889 / 105890 / 106065



106090 / 106091

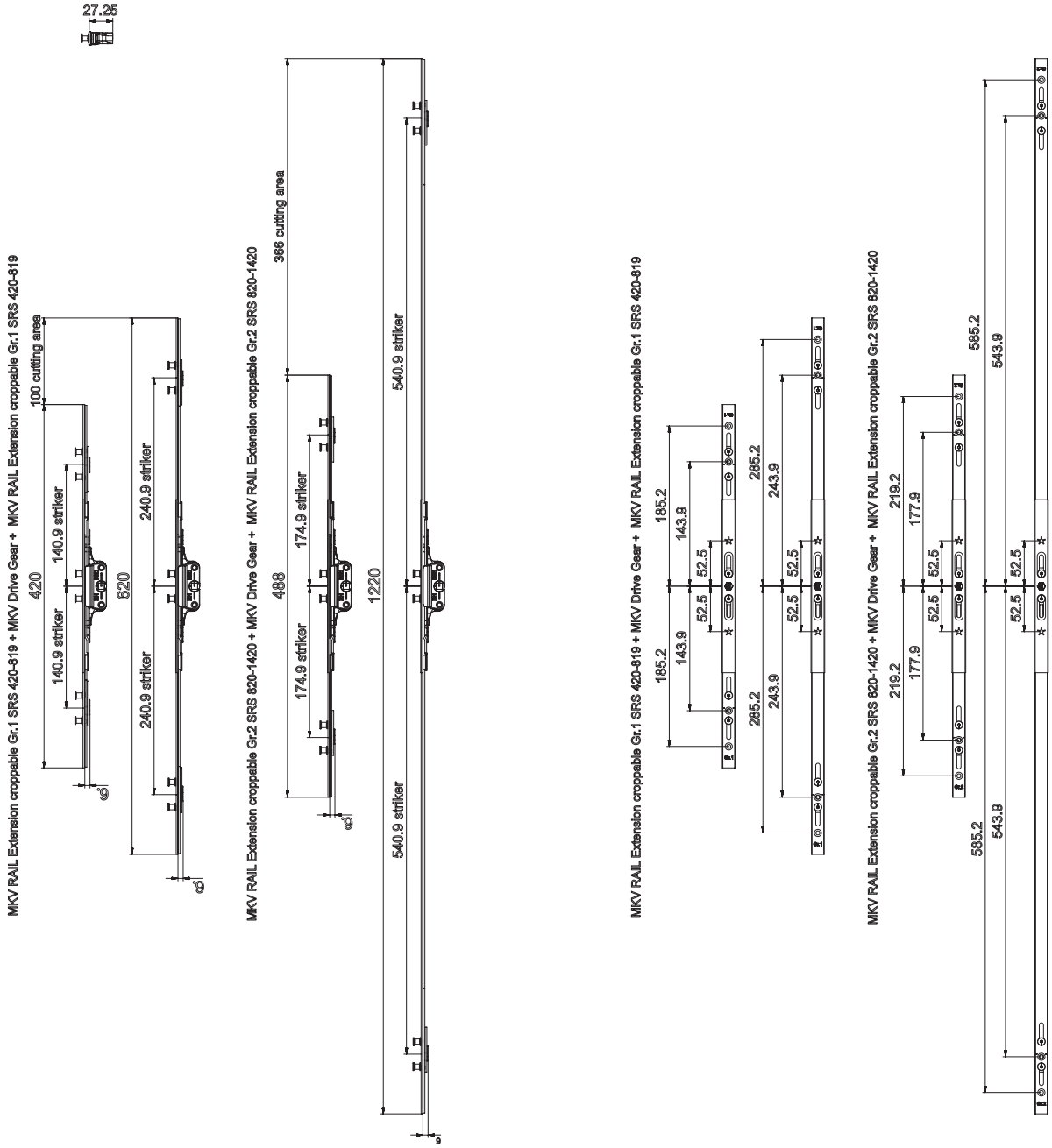


C Third segment: MKV RAIL Extension

Article code	Naming	Cutting area	Striker count
252050	MKV RAIL Extension Gr.1 SRS 420-819 MH7.7 Silver	100	1
252051	MKV RAIL Extension Gr.2 SRS 820-1420 MH7.7 Silver	366	1
252054	MKV RAIL Extension Gr.1 SRS 420-819 MH9 Silver	100	1
252055	MKV RAIL Extension Gr.2 SRS 820-1420 MH9 Silver	366	1
252058	MKV RAIL Extension Gr.1 SRS 420-819 MH10.5 Silver	100	1
252059	MKV RAIL Extension Gr.2 SRS 820-1420 MH10.5 Silver	366	1

Parts description / Article codes

MKV RAIL Extension croppable + MKV Drive Gear + MKV RAIL Extension croppable

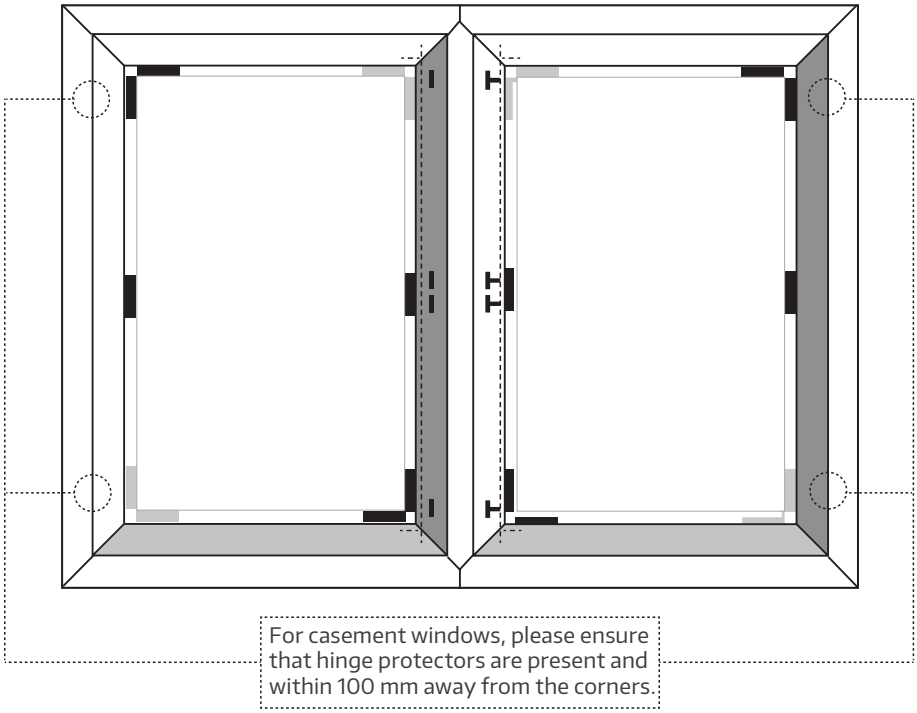


27. Glass packing information

⚠ WARNING

Correct packing of the glass is essential to ensure the function of the window and to prevent failure of the IGU.

IMPORTANT: For PAS24 security windows it is essential that additional packers are fitted behind and opposite all locking points and corners to limit the sash movement. Hinge protectors have to be used.



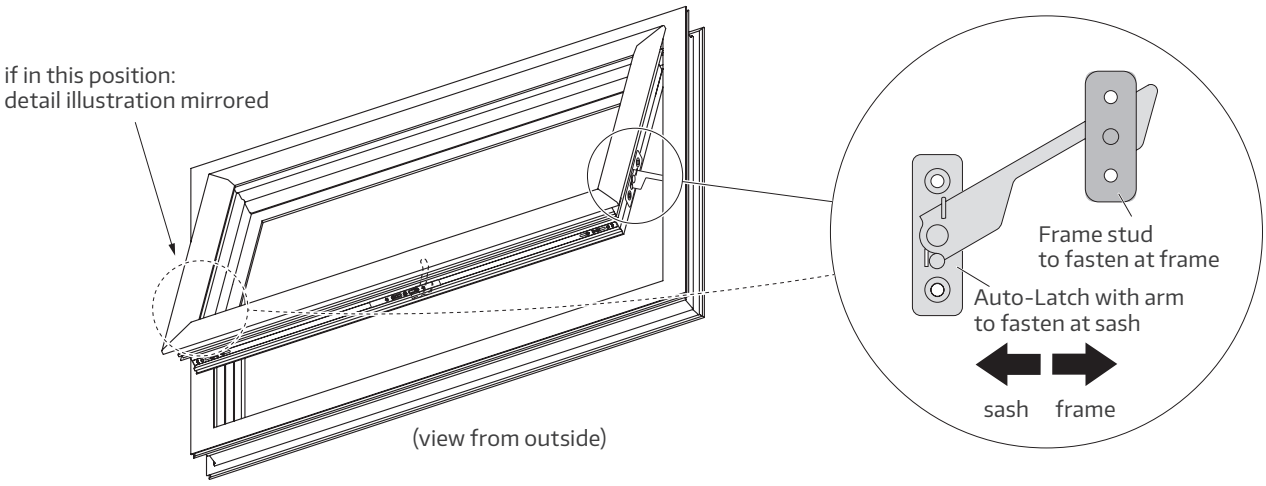
Principle of 'Heel & Toe' Packing:

Position wedges/spacers so that the sash rests evenly against the frame when closed, preventing air gaps and distributing the tension correctly.

- Heel: position the rear/upper part of the sash close to the frame.
- Toe: position the front/lower part further away from the frame.
- Goal: even contact of the sash with the frame when closed, no tilting, even pressure distribution.
- Steps:
  - Position the sash and hold the closure open to prevent pressure buildup.
  - Position the wedges so that the sash tilts slightly inwards in the closure area (heel), and make a slight toe adjustment if necessary.
  - Test the closure: Close the sash, check for a straight fit, and fine-tune the wedges if needed.
  - Check the tension and ensure that no air gaps remain.

28. Auto-Latch and Laminated Limiting Restrictor

(if applicable)

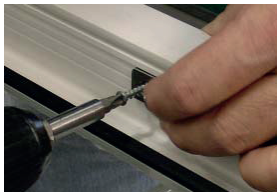


28.1 Fitting instructions



Position the Auto-Latch onto the sash so that the window opening is restricted to no more than 100 mm. It is normal practice to fix the restrictor and frame stud in the same position as the friction stay hinges.

Important: Please note that open face of the Auto-Latch arm must face the inside of the window.



Position and fix the frame stud so that when the window is closing the front edge of the restrictor is laterally centered with the frame stud.



Important: Please ensure that you use the frame stud with the correct height.

⚠ WARNING

Use stainless steel screws, only.

If the screws are not made of stainless steel, they can fail suddenly and the sash closes quickly. This may result in death or serious injury.

Auto-Latch and Laminated Limiting Restrictor

(if applicable)

28.2 Operating instructions



When you open your window the Auto-Latch and Laminated Limiting Restrictor is automatically engaged and restricts how far the window will open.
To release the restrictor please follow the procedure listed bellow.



Pull the window part way towards the closed position about 20 mm movement of the sash.

Move the arm of the Auto-Latch and Laminated Limiting Restrictor away from the stud fitted onto the frame.

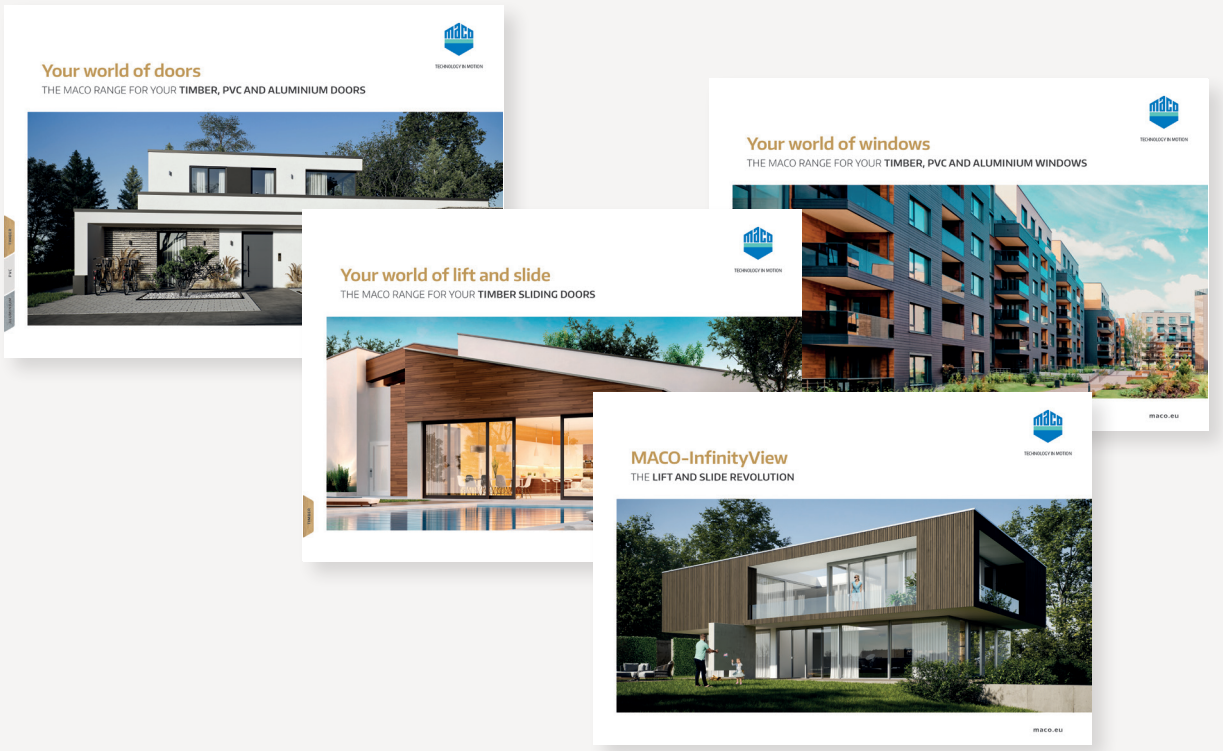


Push the window fully open whilst holding the Auto-Latch and Laminated Limiting Restrictor until the arm releases the frame stud.

When you close your window the Auto-Latch and Laminated Limiting Restrictor automatically re-engages onto the frame stud ready for next time the window is opened.

Would you like everything from a single source?

With us you get complete solutions for your large surfaces, windows and doors – for timber, PVC and aluminium. Experience our versatile systems range with comprehensive service included. Discover more on our website **www.maco.eu**, or contact your MACO customer advisor.



MACO near you:
www.maco.eu/contact

TECHNOLOGY IN MOTION

This document is constantly being revised.
You can find the current version at https://www.maco.eu/assets/760338
or by scanning the QR code.

Created: 07/2026
Order no. 760338
All rights and changes reserved.