

E19 E8000

TECHNICAL CATALOGUE

E52

FOLDING - SLIDING WINDOW SYSTEM
WITH THERMAL BREAK

E40

E39 Q72

Q60 E1600

E2300

E70 E85

E75

E39

FOLDING - SLIDING WINDOW SYSTEM WITH THERMAL BREAK

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ETEM HISTORY

ETEM is a leading aluminium extrusion company. It was founded in 1971 as a part of the largest metal manufacturing holding on the Balkans. With over 40 years of experience ETEM is a fully integrated designer and producer of architectural systems and aluminium profiles for industrial applications.

Our mission is to listen and promptly respond to our customers' requests and design and manufacture aluminium products and systems, taking into consideration technical and aesthetic requirements.

ETEM focuses on sustainable development and has proven its concern about the protection of the natural environment by making considerable investments in anti-pollution measures and by optimizing production processes following the applicable standards of the European Union.

SERVICES WE PROVIDE

ETEM supports you with the following:

- ▷ design of conventional and bespoke architectural system solutions
- ▷ innovative engineering in the field of curtain walls, ventilated facades, doors, windows
- ▷ professional consultation and adequate technical advices ensured by our engineering team with wide experience in the field of profile extrusion as well as architectural systems' engineering

- ▷ reliable customer care constant support trainings, technical support and audits on site
- ▷ high quality engineering which guarantees offering the best solution according to the specific features of every single project
- ▷ managing the process of certification in accordance with the applicable European standards in Notified Bodies
- ▷ production of non-standard length profiles and non-standard processing
- ▷ high quality powder coating

ETEM PRODUCTS AND SUSTAINABLE DEVELOPMENT

SUSTAINABLE DEVELOPMENT IS DEVELOPMENT THAT MEETS THE NEEDS OF THE PRESENT WITHOUT COMPROMISING THE ABILITY OF FUTURE GENERATIONS TO MEET THEIR OWN NEEDS.*

For many, sustainable development is about environmental conservation. This is true but it also includes two other aspects: a social aspect and an economic aspect.

Sustainable development means striking the right balance between economic development, social equity and environmental protection.

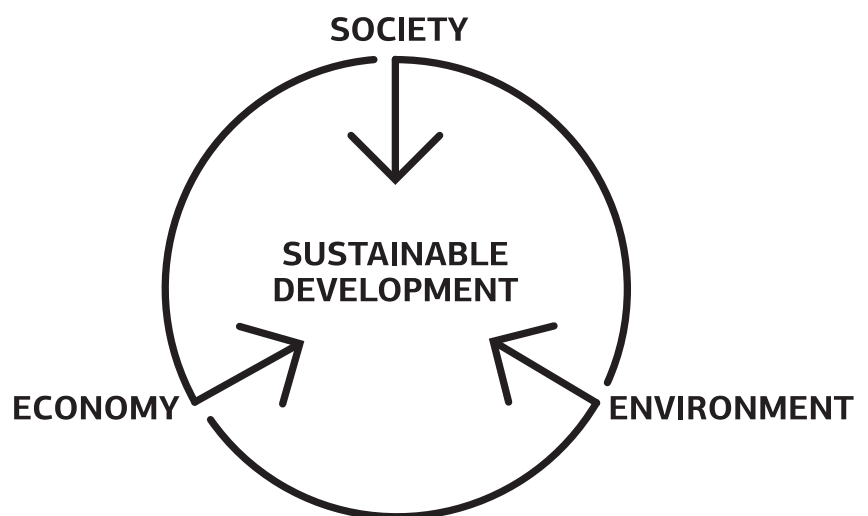
For us meeting this objective translates into the challenge of satisfying market demands at the lowest economic, social and environmental cost possible.

ETEM has always designed architectural systems which are in compliance with all requirements for achieving high energy efficiency.

In order to assure the comfort of the building inhabitants, ETEM systems adapt their functions to the changing environment.

As a moderator between outside and inside our systems provide:

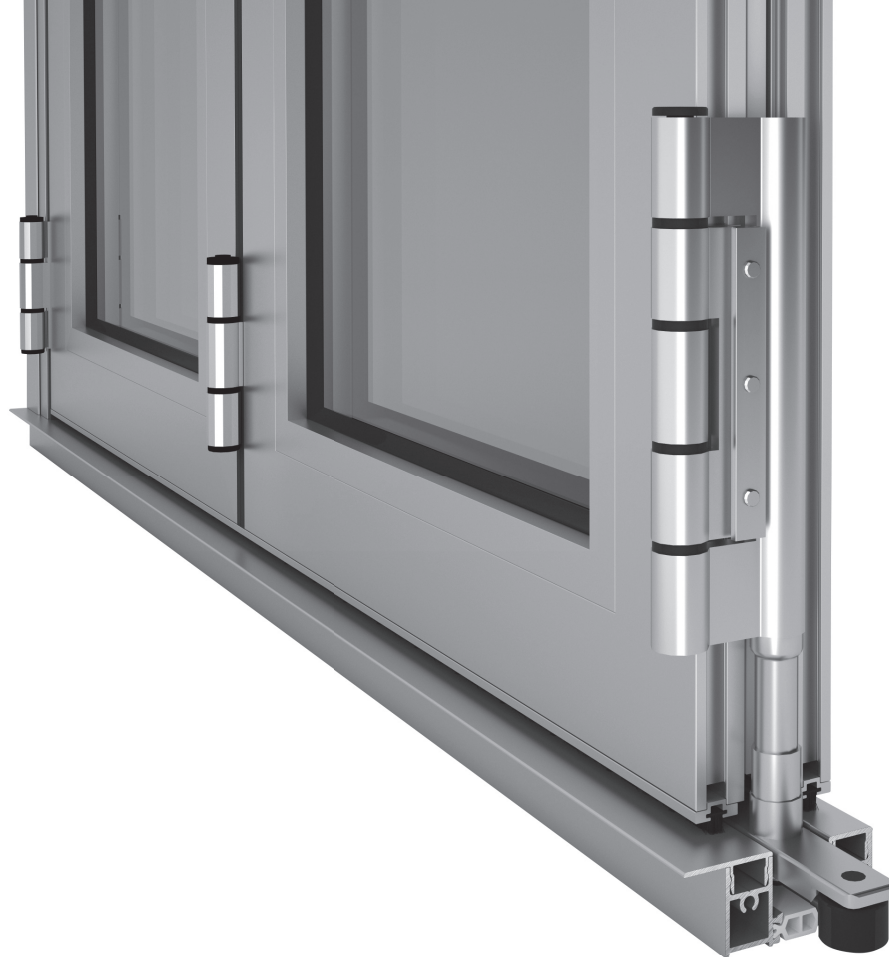
- › ENERGY EFFICIENCY
- › DAYLIGHT
- › SUN-SHADING
- › VENTILATION AND GOOD AIR QUALITY
- › SAFETY AND SECURITY



* Extract from Brundtland Report, from the United Nations World Commission on Environment and Development WCED

GENERAL INFORMATION

CONCEPT / ADVANTAGES / CERTIFICATES



E39 WINDOW CONCEPT

E39 IS A FOLDING - SLIDING WINDOW SYSTEM WITH THERMAL BREAK, SUITABLE FOR BALCONY DOORS AND WINDOWS WITH HIGH REQUIREMENTS FOR THERMAL INSULATION, FUNCTIONALITY AND AESTHETICS.

- Elegant straight design
- Limitless combinations between sash batches
- Excellent water-tightness and air-permeability
- High thermal insulation
- 50 mm Glazing sash width, allowing glass panel from 6 up to 34 mm
- High quality accessories, made by stainless steel & anodized aluminum parts
- Maximum weight per sash 110 kg.

GENERAL DESCRIPTION OF THE SYSTEM

E39 can be used for the construction of folding – sliding doors–windows. All main profiles are stapled with high quality polyamide bars for high insulation and secure and long lasting connection. There are profiles for frame that are cut and connected 90°, and one profile for glazing sash that is cut and connected 45°.

All necessary accessories and profiles are available, in order to construct all kind of number combination between sashes.

DIMENSIONS OF PROFILES

- top frame height: 90.0 mm
- top frame width: 59.0 mm
- sash height: 65.0 mm
- sash width: 50.0 mm
- bottom frame height: 28.0 mm

CONSTRUCTION TYPES

Folding – sliding doors & windows, with odd or even sash batches, and any kind of sash number combination, with theoretically limitless

TECHNICAL SPECIFICATIONS OF PROFILES

Aluminum alloy: EN-AW 6060 T6 F22 or EN-AW 6063 T6 F22

Hardness: min 11.5 Webster

Dimensional Tolerances: according to EN 12020

INSULATION ZONE

Polyamide insulation bars, width 16.0 mm, reinforced with 25% glass fibers, with friction interlocking for high static loads.

SEALING SYSTEM

Gaskets made of EPDM are used for sealing the space between frame and sashes. Also EPDM gaskets, are used between sashes. For floor sealing, there is an alternative solution with brush.

SECTION CONNECTIONS

Frame profiles are not directly connected, but they are cut and machined 90° in order to co – operate. Sash profile, can be connected with aluminum die cast corners or aluminum extruded corner, using gripping machine.

FITTING TYPES

Rollers and hinges are made by anodized or painted aluminum parts, with stainless steel parts, such as axles or screws. Plastic parts, are made from high density nylon.

HANDLE TYPES

There is a specific type of very low height handle, that allows sashes to cooperate properly.

CONSTRUCTION SIZES

Sash width: minimum 200 mm – maximum 1000 mm

Sash height: minimum 500 mm – maximum 2800 mm

Maximum weight load per sash: 110 kg (profiles & glass panel)

GLAZING TYPE

Single & double glass panels

– min : 6.0 mm

– max : 34.0 mm

Maximum vent weight : 110 kg (profiles & glass panel)

OPENING TYPES

Folding – sliding or folding – sliding with opening parts.

SURFACE FINISHES

According to the quality and inspection standards of QUALICOAT and QUALIDECO. Profiles are pretreated so that to meet the standards of SEASIDE CLASS and passivated using chrome -free agents. Wood effect decoration is possible, using powder on powder method.

PACKAGING

According to the guidelines of ASTM B660

QUALITY CONTROL

Design and production processes are certified according to European standard ISO 9001. Self checking is performed by the department of Quality Control. External inspections are performed by recognized inspection bodies, such as Lloyd's Register Verification

BUILDING PHYSICS

DIMENSIONING / FORMULAS / EXAMPLES

ALUMINIUM AS MATERIAL

ALUMINIUM IS A VERY YOUNG METAL, EXTRACTED FOR THE FIRST TIME IN 1854. COMMERCIALY PRODUCED AS A PRECIOUS METAL FROM 1886, ITS INDUSTRIAL PRODUCTION FOR CIVIL APPLICATIONS ONLY ACHIEVED WIDE USE IN THE 1950'S.

NOW ALUMINIUM PLAYS A KEY ROLE FOR THE SUSTAINABILITY OF NEW BUILDINGS AND THE RENOVATION OF EXISTING ONES. THANKS TO ITS PERFORMANCE PROPERTIES ALUMINIUM CONTRIBUTES TO THE ENERGY PERFORMANCE, SAFETY AND COMFORT OF NEW BUILDINGS.

ADVANTAGES

DESIGN FLEXIBILITY

The extrusion process offers an almost infinite range of forms and sections, allowing designers to integrate numerous functions into one profile

LONG SERVICE LIFE

Aluminium building products are made from alloys that are weatherproof, corrosion-resistant and immune to the harmful effects of UV rays, ensuring optimal performance over a very long period of time

HIGH STRENGTH-TO-WEIGHT RATIO

Thanks to the metal's inherent strength and stiffness, aluminium window and curtain wall frames can be very narrow. Material's light weight makes it easier to transport and handle on-site, reducing the risk of work-related injury

HIGH-REFLECTIVITY

This characteristic feature makes aluminium a very efficient material for light management. Aluminium shading devices can be used to reduce the need for air conditioning in summer

FIRE SAFETY

Aluminium does not burn and therefore is classified as a non-combustible construction material (European Fire Class A1). Aluminium alloys will nevertheless melt at around 6500 C, but without releasing harmful gases

NO RELEASE OF DANGEROUS SUBSTANCES

Several studies have proved that aluminium building products do not present a hazard to occupants or the surrounding environment. Aluminium building products have no negative impact, either on indoor air quality or on soil, surface and groundwater

OPTIMAL SECURITY

Where high security is required, specially designed, strengthened aluminium frames can be used. While the glass for such applications may well be heavy, the overall weight of the structure remains manageable thanks to the light weight of the aluminium frames.

ALLOYS

Aluminium in its pure form is a very soft metal. Thanks to the addition of alloying elements such as copper, manganese, magnesium, zinc, etc. and thanks to suitable production processes, the physical and mechanical properties can be varied in a wide range to satisfy the requirements of a large number of different applications.

ETEM profiles are extruded from the following alloys:

EN AW-1050 [Al 99.5]

EN AW-6060 [Al Mg Si]

EN AW-6063 [Al Mg0,7 Si]

EN AW-6061 [Al Mg1 Si Cu]

EN AW-6005 [Al Si Mg]

EN AW-6082 [Al Si1 Mg Mn]

The most common aluminium alloy which is used by ETEM is EN AW 6063. Here are the properties of this alloy:

MATERIAL PROPERTIES

Aluminium alloy	EN AW 6063 F22
Ultimate tensile strength	$R_m = 210 \text{ N/mm}^2$
Yield strength	$R_{p0.2} = 160 \text{ N/mm}^2$
Modulus of elasticity	$E_{al} = 70\,000 \text{ N/mm}^2 = 7 \cdot 10^9 \text{ kg/m}^2$
Coefficient of thermal expansion	$\alpha = 0.023 \text{ mm/m} \cdot K$ (up to 1.2 mm/m for difference up to 50°C)

EXTRUSION PROCESS

ETEM profiles are obtained through extrusion process, which consists of pushing a hot cylindrical bullet of aluminium through a shaped die. The extrusion process offers almost infinite range of forms and sections, allowing our designers to integrate numerous functions into one single profile.

aluminium surface, increasing hardness, corrosion and abrasion resistance. Anodizing gives a very decorative silver matt surface finish, and colored can also be obtained by sealing metallic dyes into the anodized layer.

MAINTENANCE

Apart from routine cleaning for aesthetic reasons, ETEM aluminium profiles do not require any maintenance which translates into a major cost and ecological advantage over lifetime of the product.

FINISHING

POWDER COATING

It is a type of paint that is applied as a dry powder. Coating is applied on ETEM profiles electrostatically and then is cured under heat to allow it to flow and form a "skin".

ETEM is authorized to use the quality sign QUALICOAT for powder coatings on aluminium for architectural applications. A wide range of colors and gloss levels can be achieved.

ETEM also offers timber imitations painting, in addition to all RAL colors. The technology EZY provides the following colors: Golden Oak, Acero, Betulla, Mogano, Verde Scuro, Wenge, Noce Fiammato, Noce Chiaro, Ciliegio Rosso, Acacia Scuro, Ciliegio Antico, Noce Reale, Ciliegio Reale.

ANODIZING

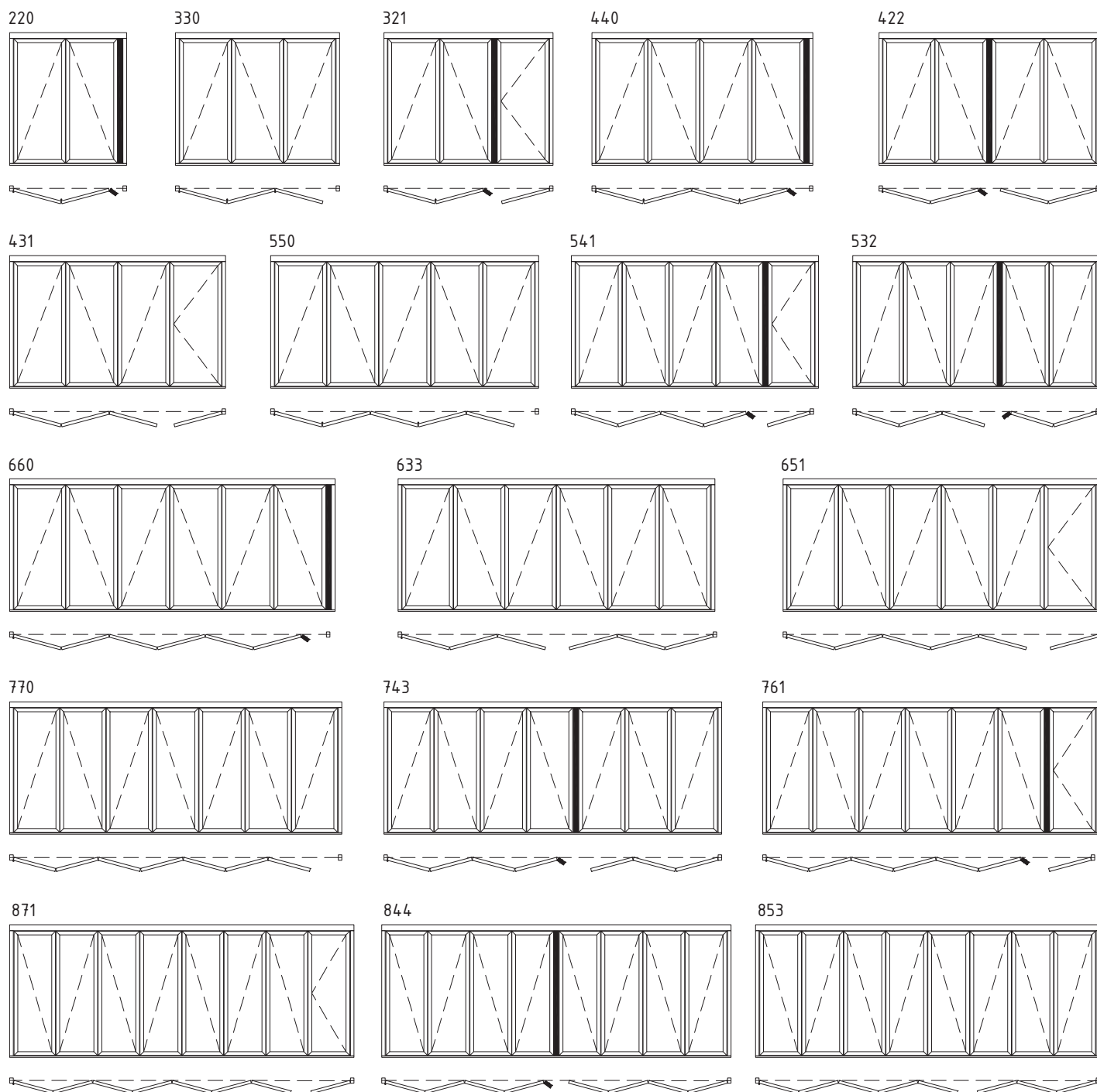
It is an electrochemical process whereby to reinforce the natural oxide film on the

RECYCLING


Aluminium scrap can be repeatedly recycled without any loss of value or properties. In many instances, aluminium is combined with other materials such as steel or plastics, which are most frequently mechanically separated from aluminium before being molten.

TABLES

TYPES / LIST OF PROFILES / CHARACTERISTICS


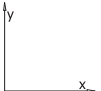
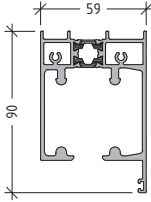
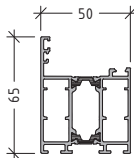
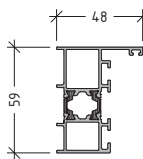
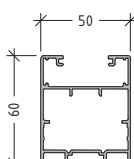
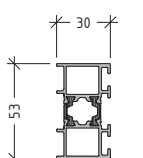
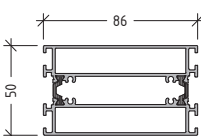
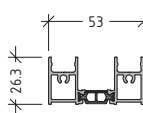
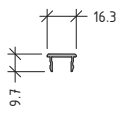
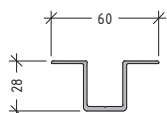
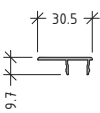
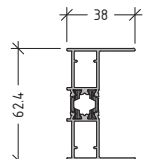
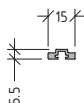


TYPES REMARKS

- WITH BLACK COLOR  POSITION OF E39501, WHEN IS NEEDED
- TYPOLGY 3-DIGIT CODING : FIRST DIGIT MEANS TOTAL NUMBER OF SASHES, SECOND DIGIT MEANS FOLDED SASHES TO ONE SIDE, THIRD DIGIT MEANS FOLDED SASHES TO OTHER SIDE




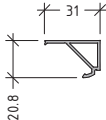
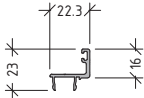
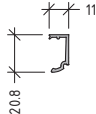
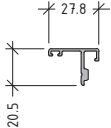
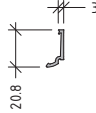
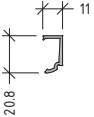
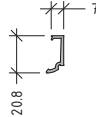
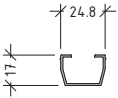
folding - sliding window system with thermal break

E39

code		profile	weight length moment of inertia	code		profile	weight length moment of inertia
E39101			2509 g/m L=6.01 m	E39201			1489 g/m L=6.01 m
E39102			1201 g/m L=6.01 m	E39250			1094 g/m L=6.01 m
E39103			1052 g/m L=6.01 m	E39501			2072 g/m L=6.01 m
E39104			941 g/m L=6.01 m	E39600			109 g/m L=6.01 m
E39105			579 g/m L=6.01 m	E39601			166 g/m L=6.01 m
E39110			1005 g/m L=6.01 m	E39602			118 g/m L=6.01 m

folding - sliding window system with thermal break

E39

code		profile	weight length moment of inertia	code		profile	weight length moment of inertia
E39603			147 g/m L=6.01 m	E50681			300 g/m L=6.01 m
E39604			230 g/m L=6.01 m	E50682			157 g/m L=6.01 m
E39605			257 g/m L=6.01 m	E50683			125 g/m L=6.01 m
E50680			154 g/m L=6.01 m	E50687			140 g/m L=6.01 m
E19643			186 g/m L=6.01 m				

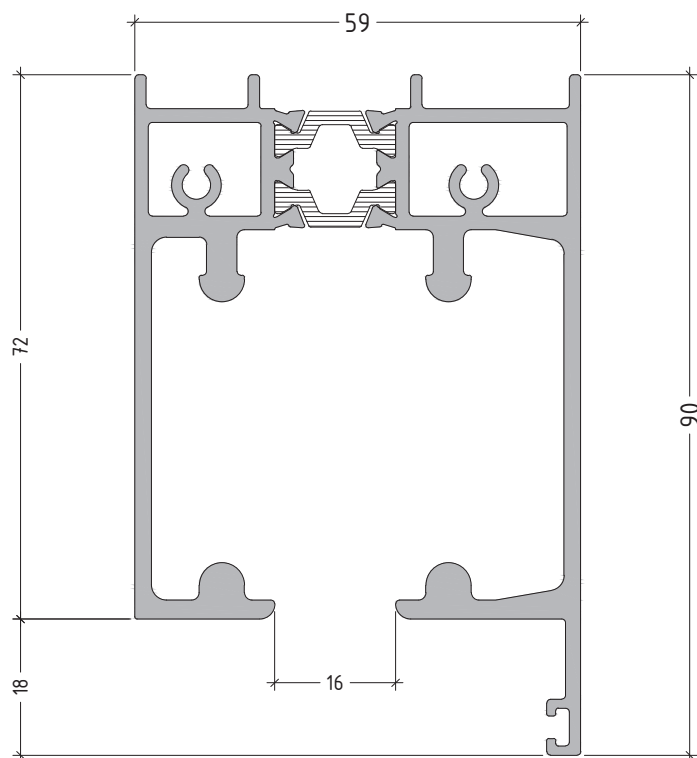
PROFILES

DRAWINGS / SCALE 1:1

E39101

Upper frame-rail

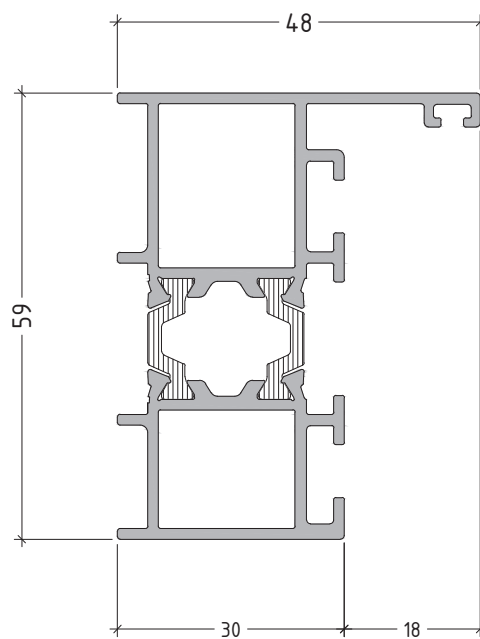
2509 gr/m



E39102

Vertical side frame

1201 gr/m

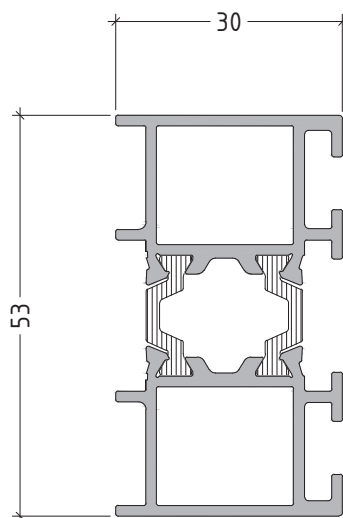


scale : 1:1

E39103

Vertical side frame
without wing

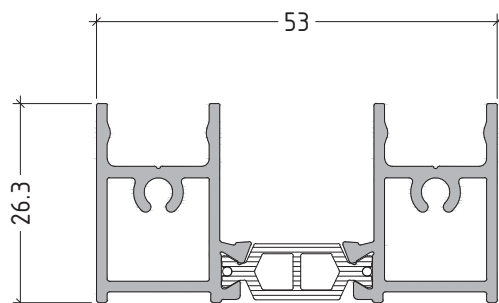
1052 gr/m



E39104

Bottom frame

854 gr/m

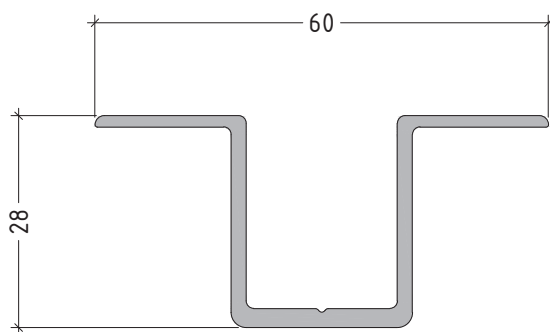


scale : 1:1

E39105

Bottom frame

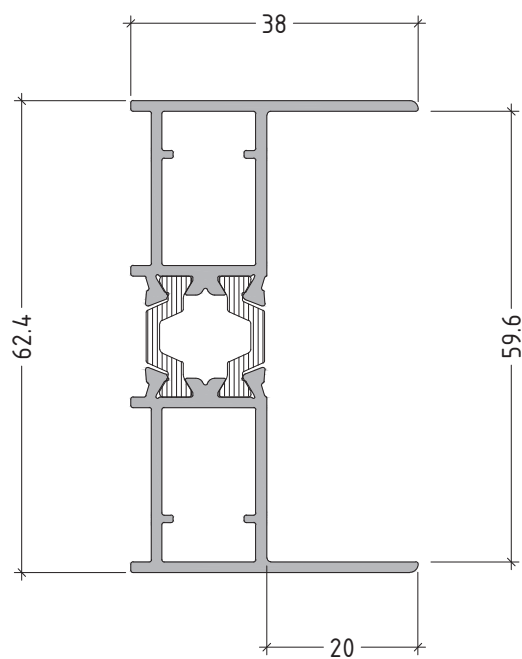
579 gr/m



E39110

Optional alignment
frame

1005 gr/m

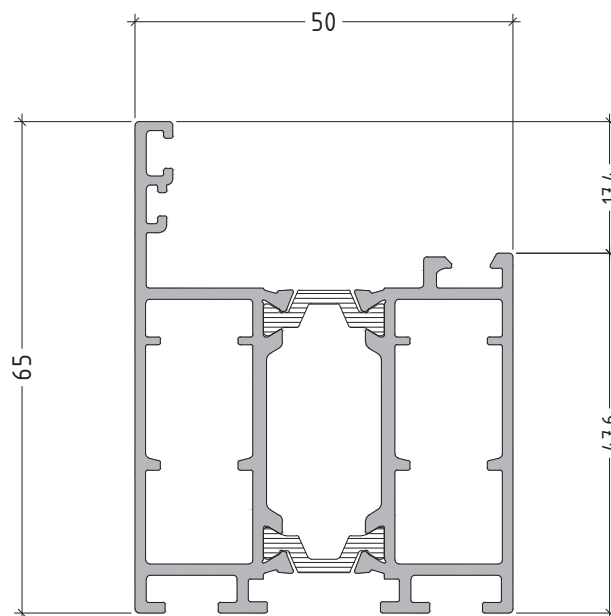


scale : 1:1

E39201

Glazing sash

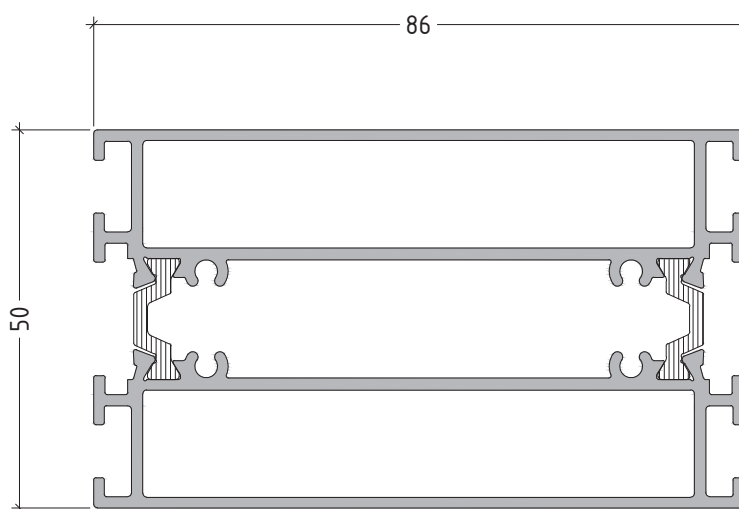
1489 gr/m



E39501

Secondary sash

2072 gr/m

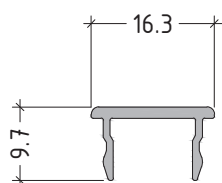


scale : 1:1

E39600

Bottom frame cover

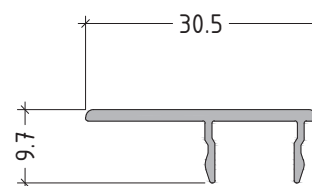
109 gr/m



E39601

Bottom frame cover
with wing

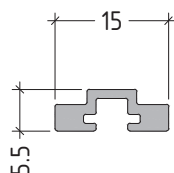
166 gr/m



E39602

Additional sash
profile for brush

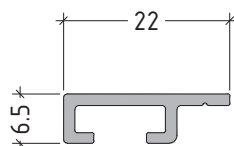
118 gr/m



E39603

Additional sealing
profile for
secondary sash

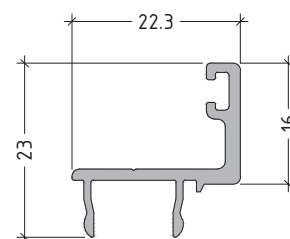
147 gr/m



E39604

Additional wing for
bottom frame E39104

230 gr/m

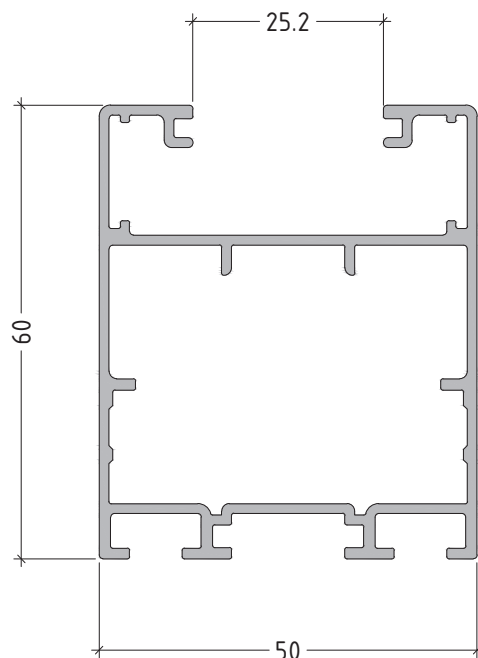


scale : 1:1

E39250

Shutter sash
profile

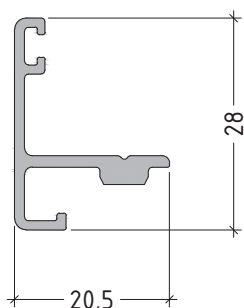
1094 g/m



E39605*

Joint cover
between sashes
E39201 & E39250

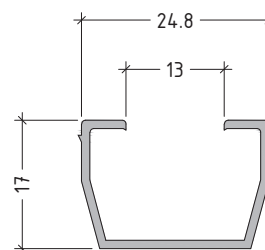
257 g/m



E19643

Receptor 13.0 mm opening
for E39250

186 g/m



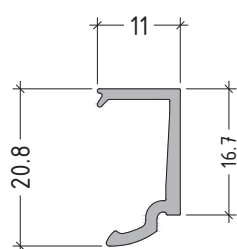
*** Optional use**

scale : 1:1

E50680

Glazing bead

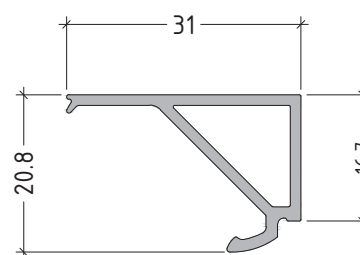
154 gr/m



E50681

Glazing bead

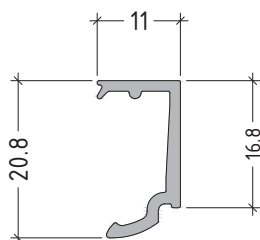
300 gr/m



E50682

Glazing bead
for anodizing only

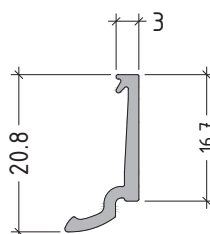
118 gr/m



E50683

Glazing bead

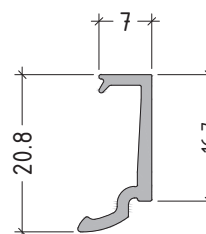
125 gr/m



E50687

Glazing bead

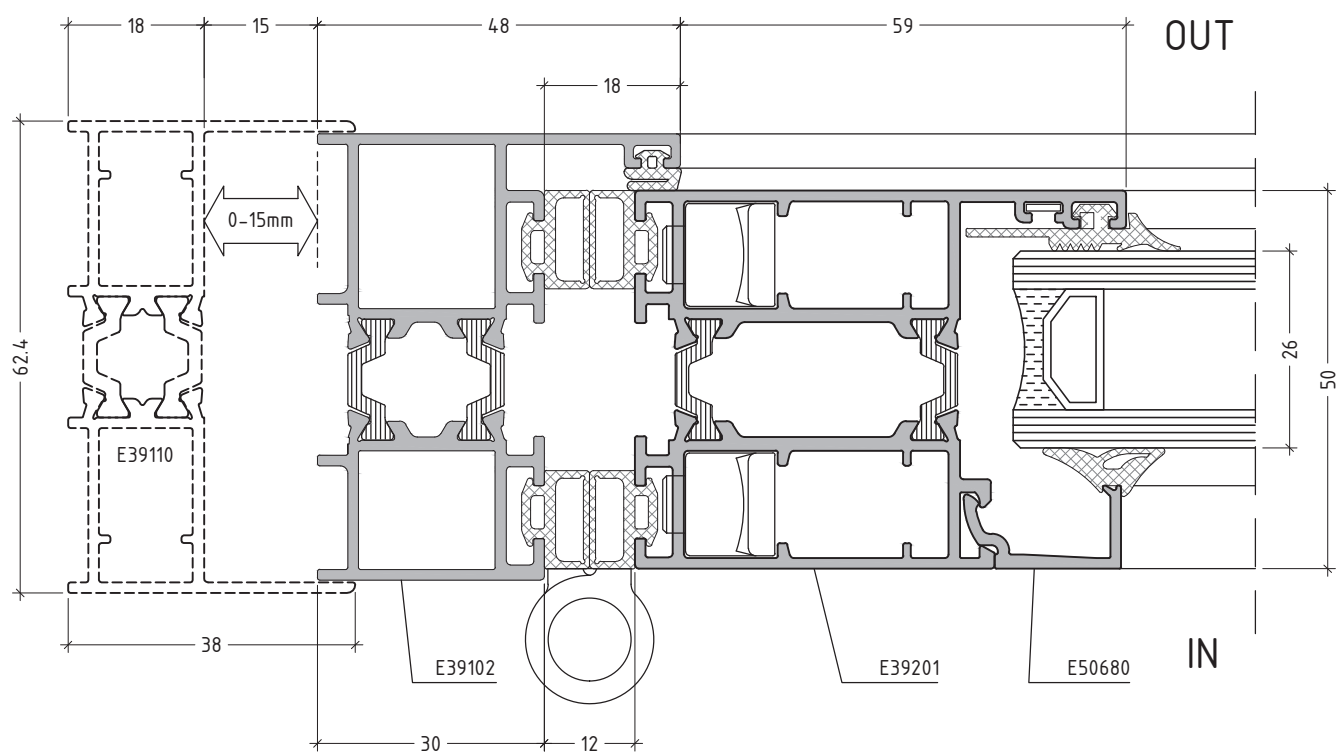
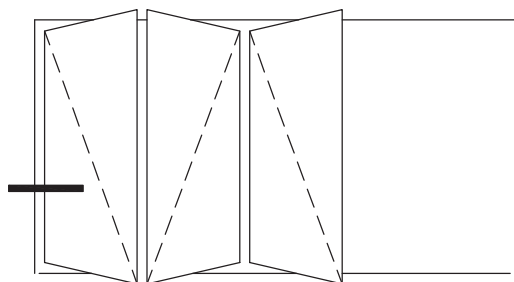
140 gr/m



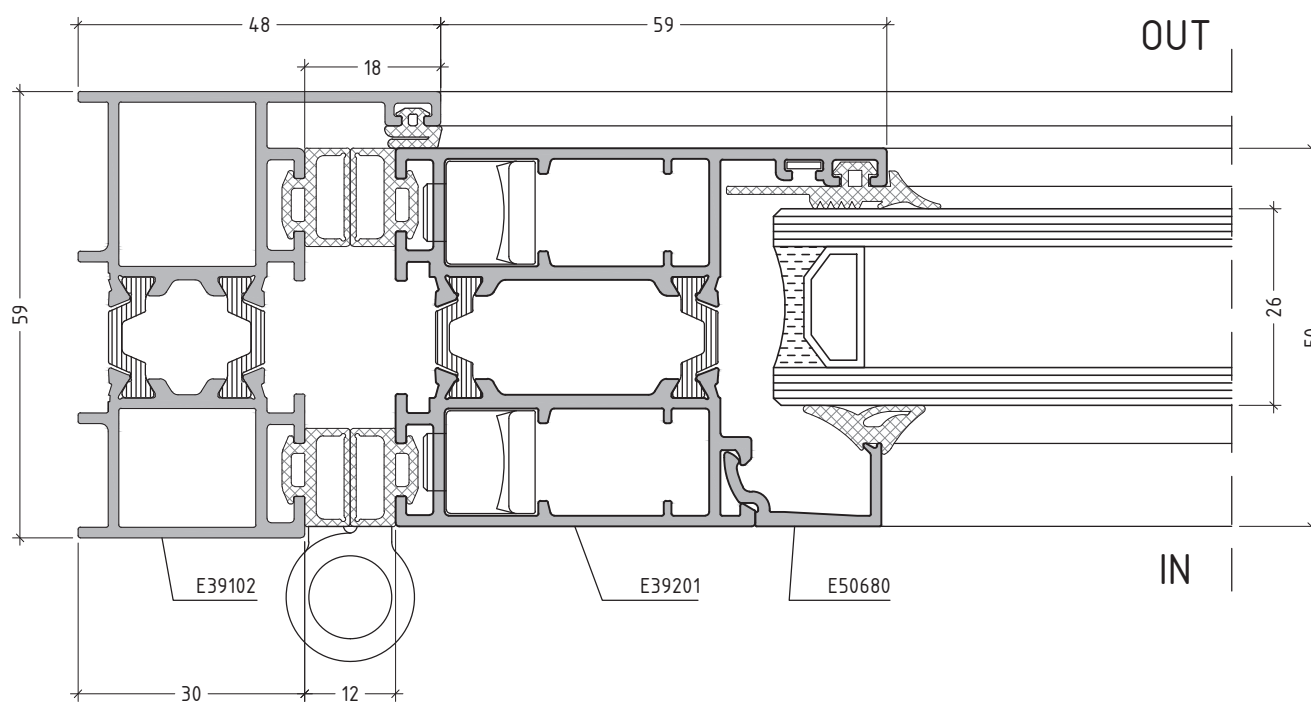
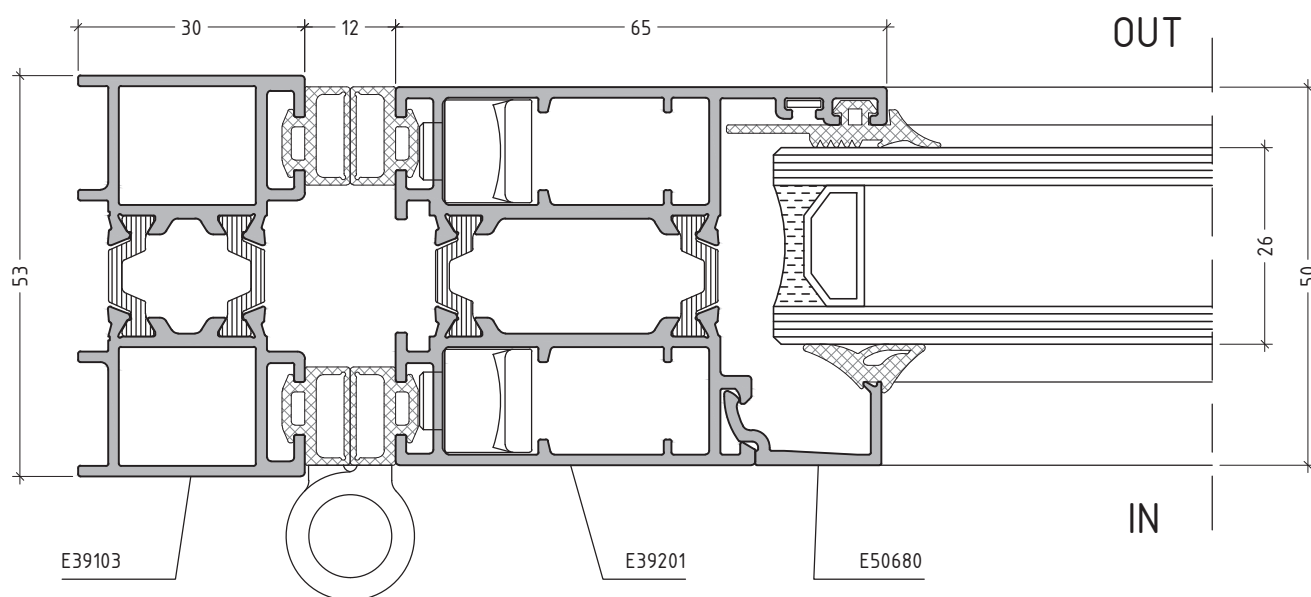
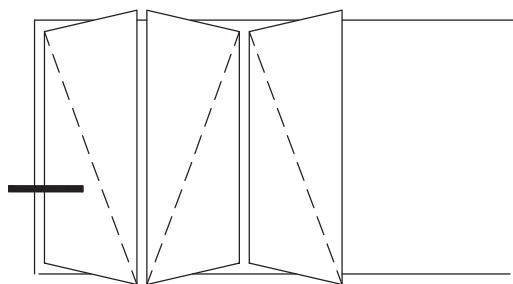
scale : 1:1

SECTIONS

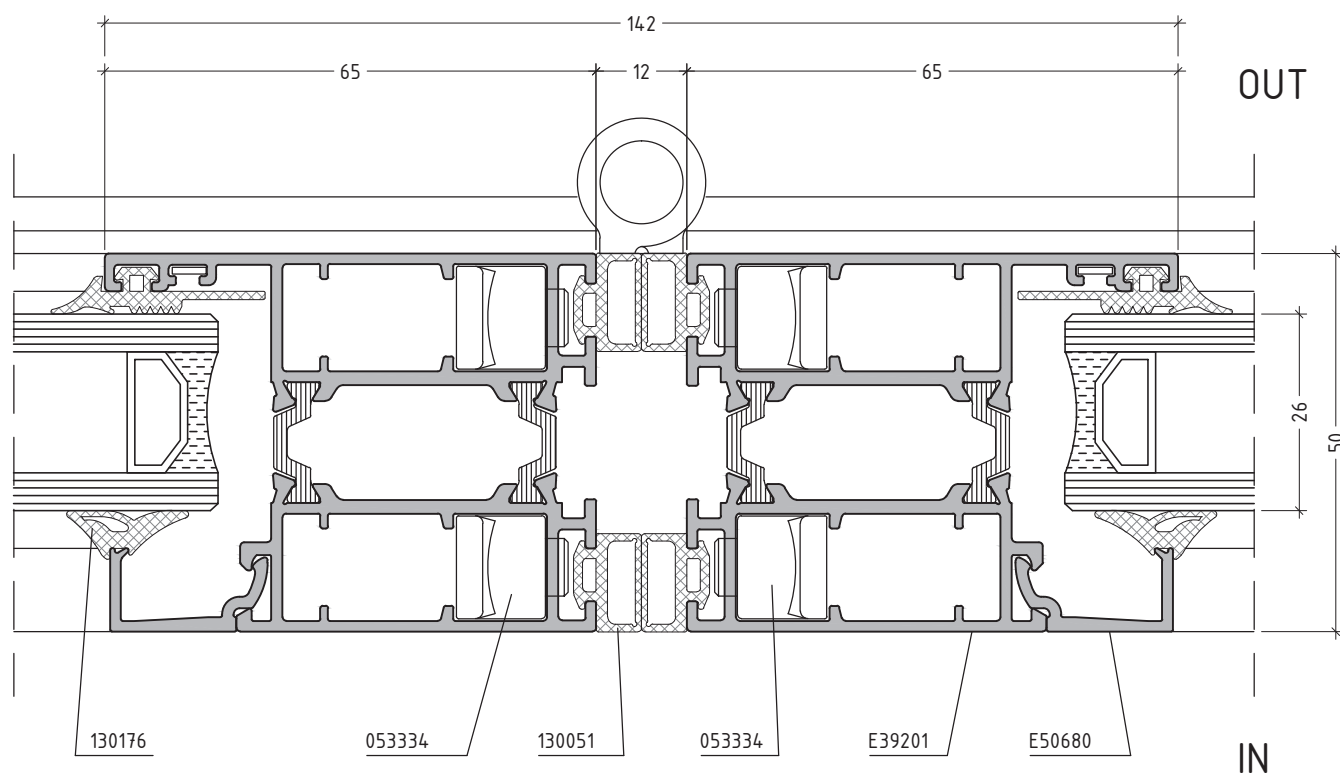
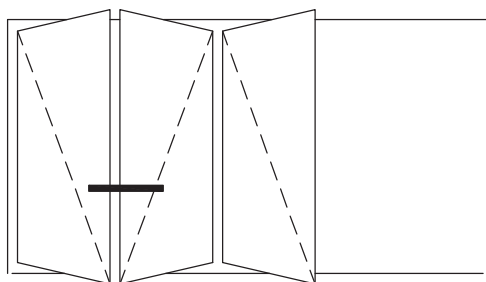
SECTIONS / DETAILS



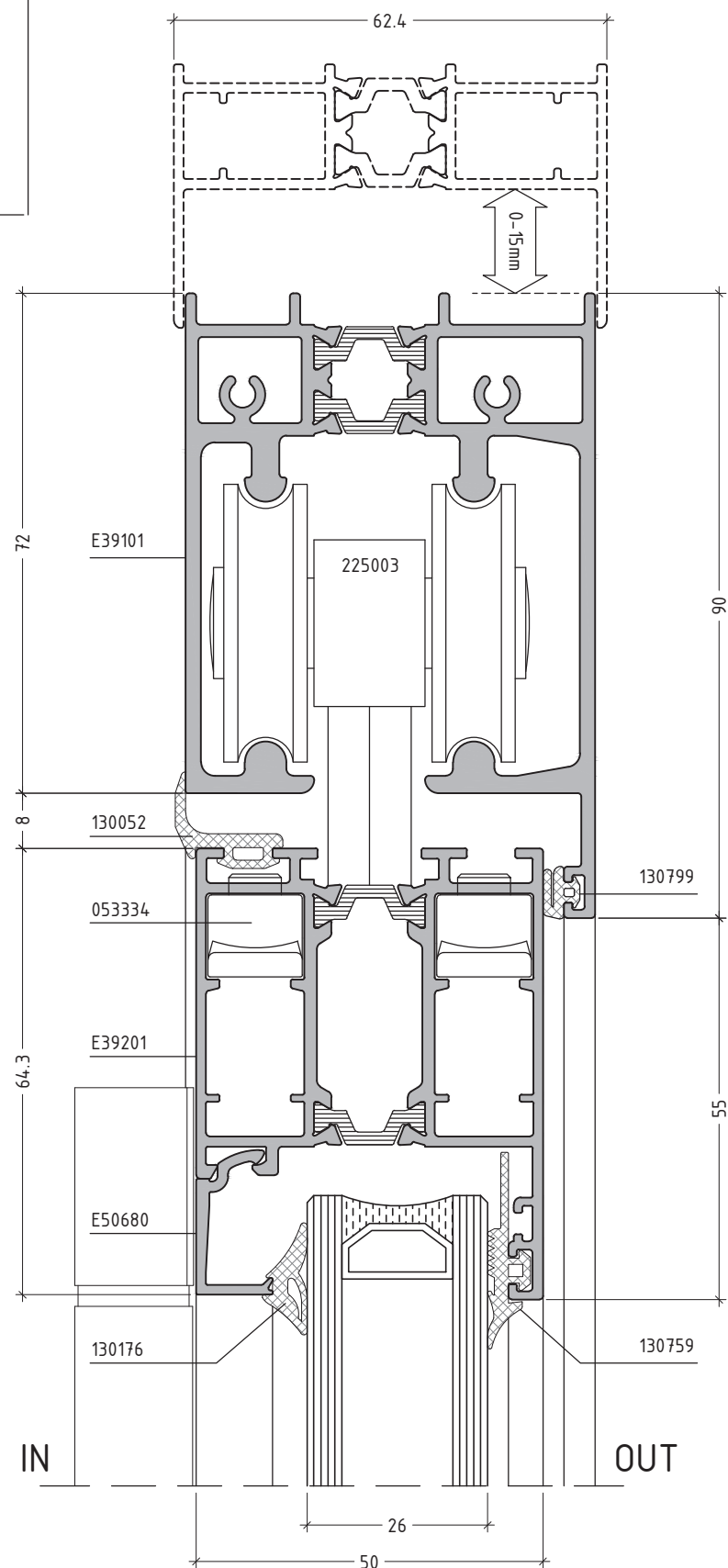
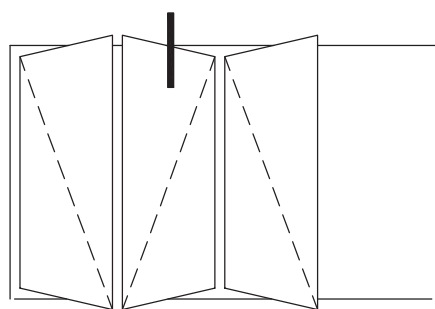
scale : 1:1

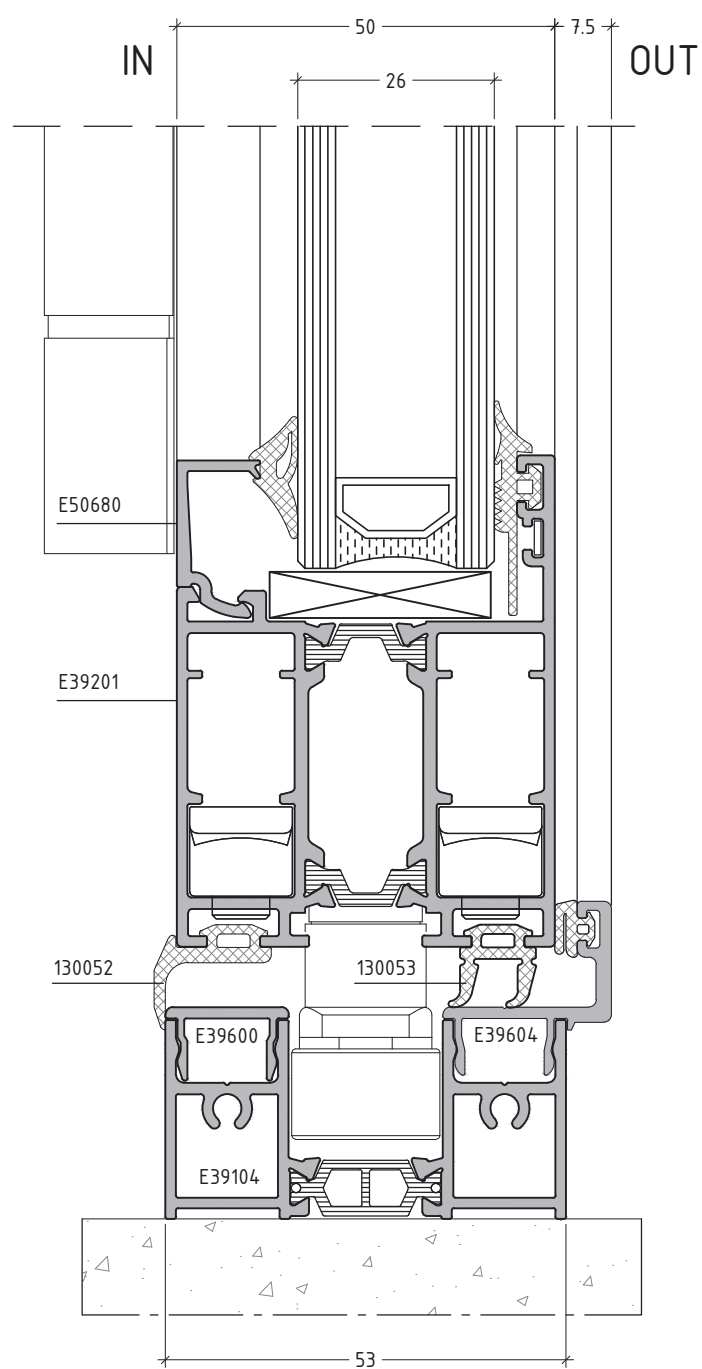
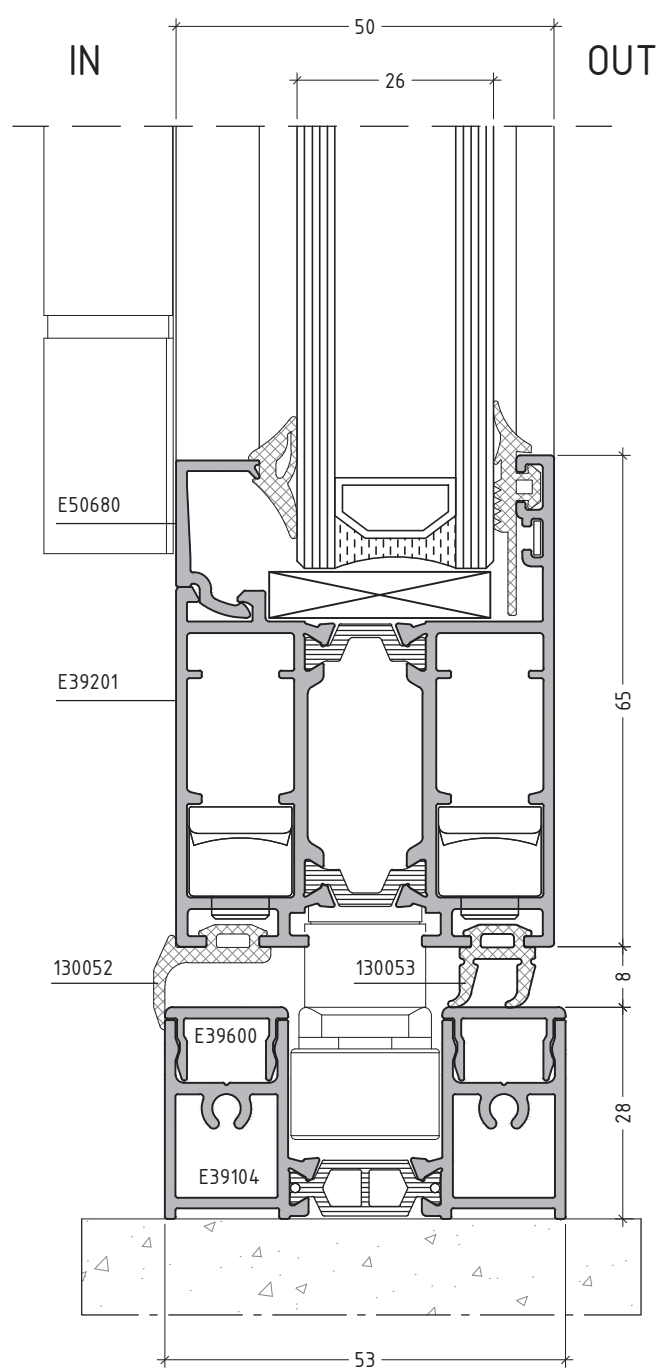
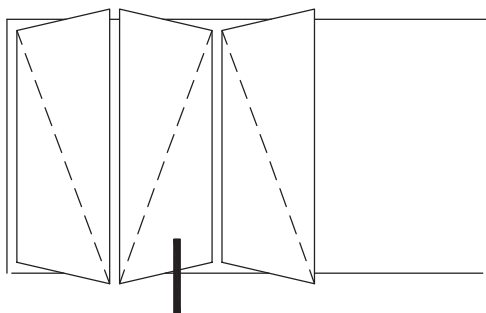


scale : 1:1

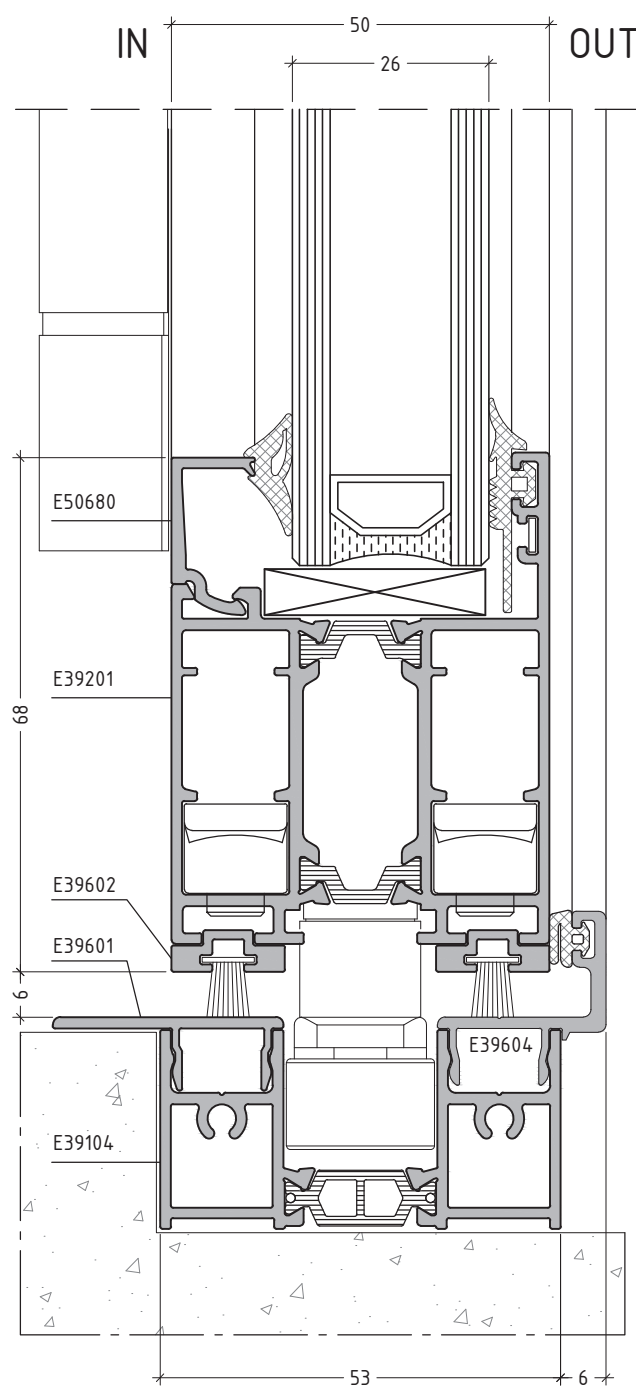
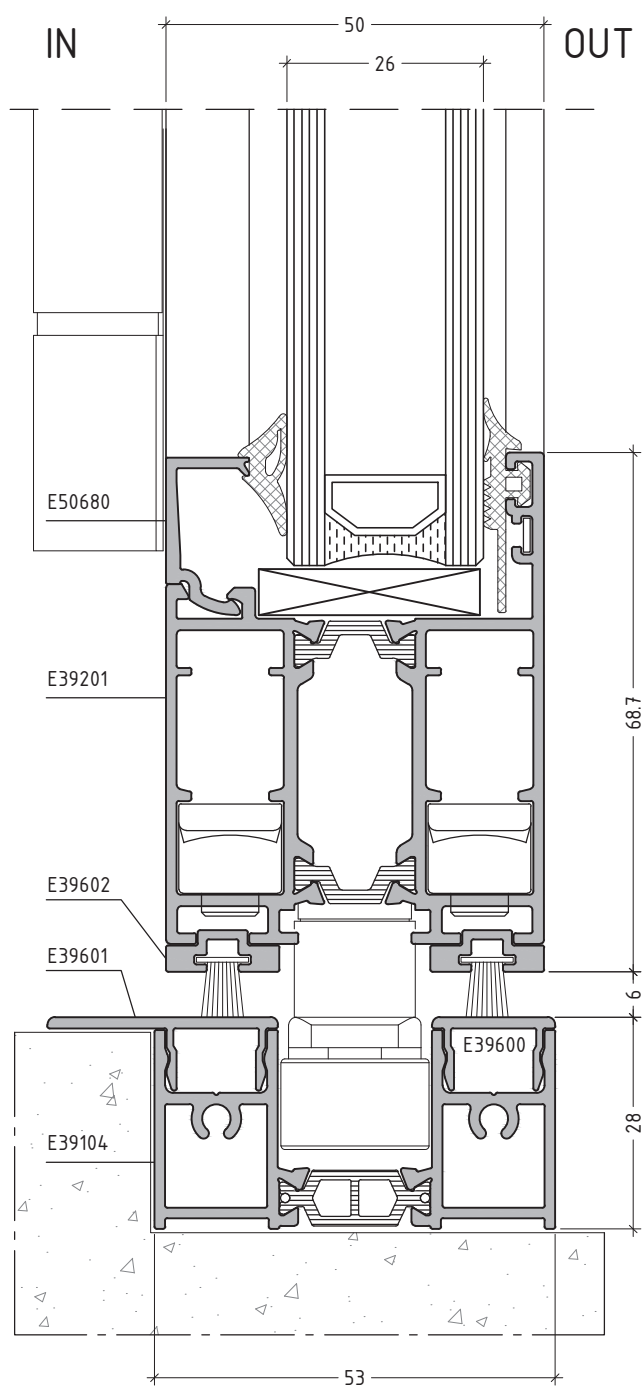
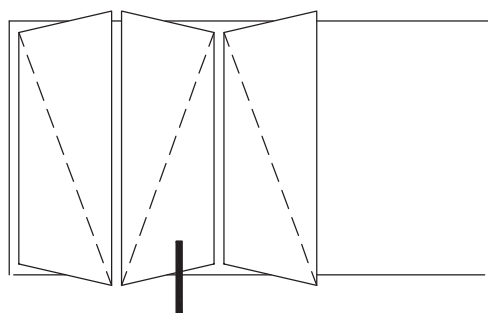


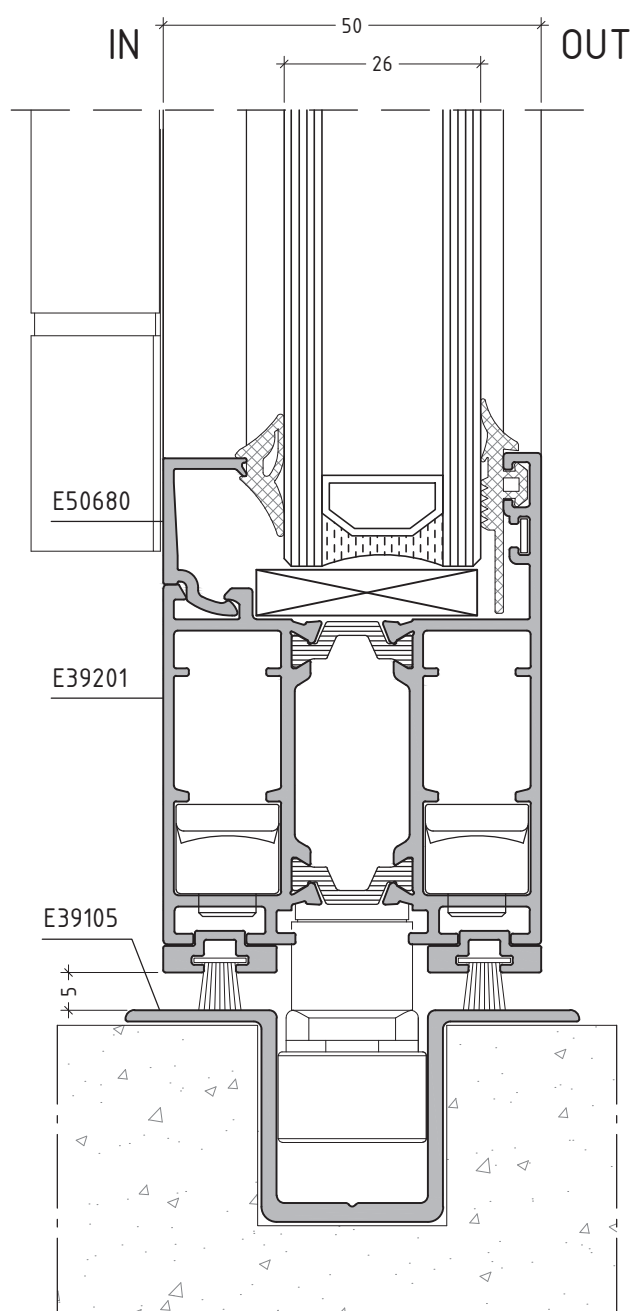
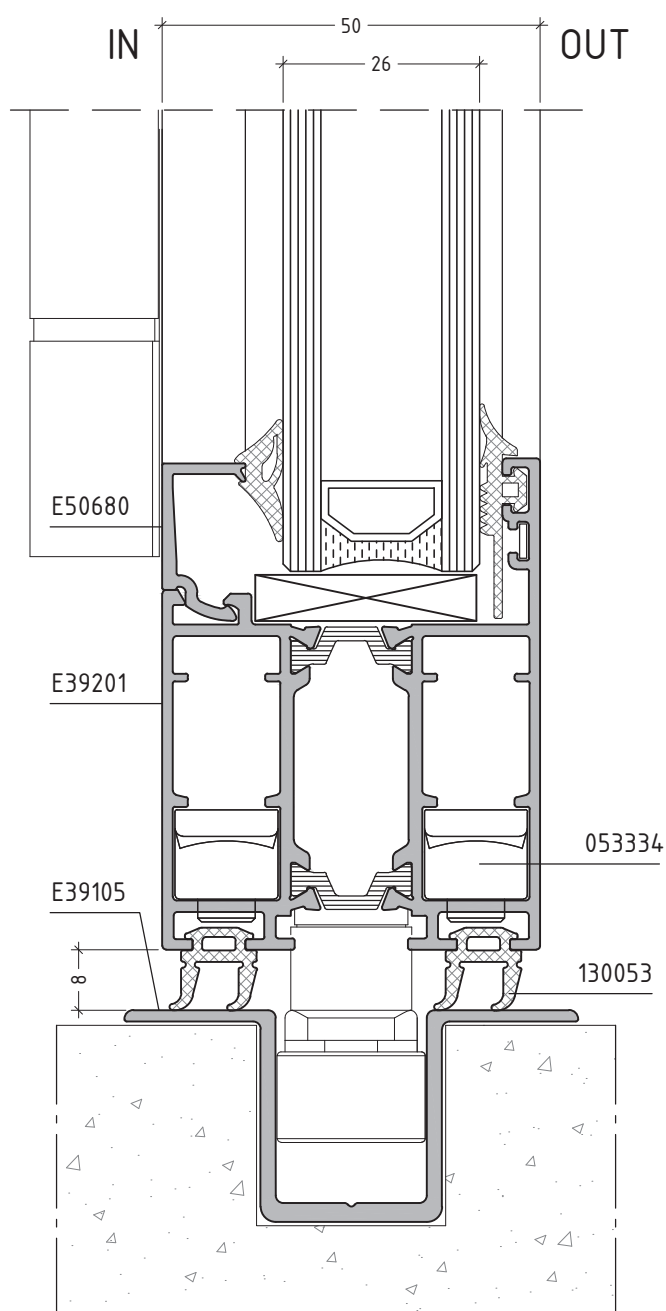
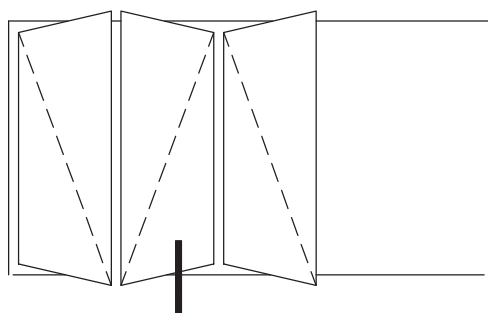
scale : 1:1

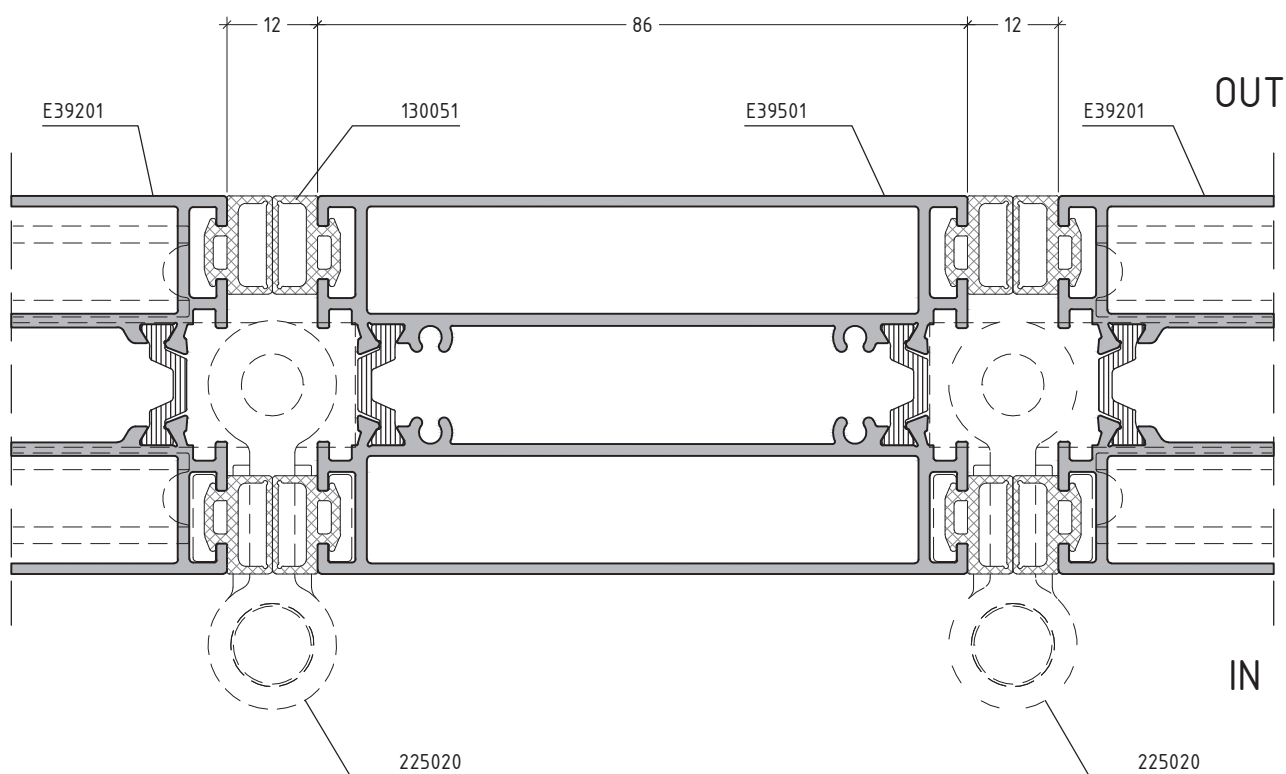
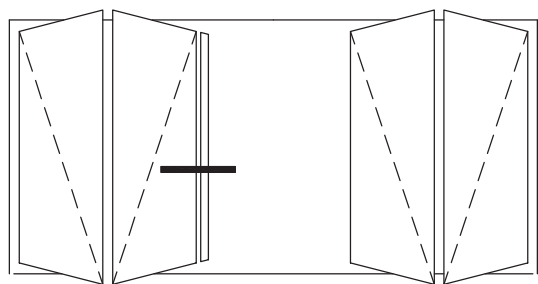


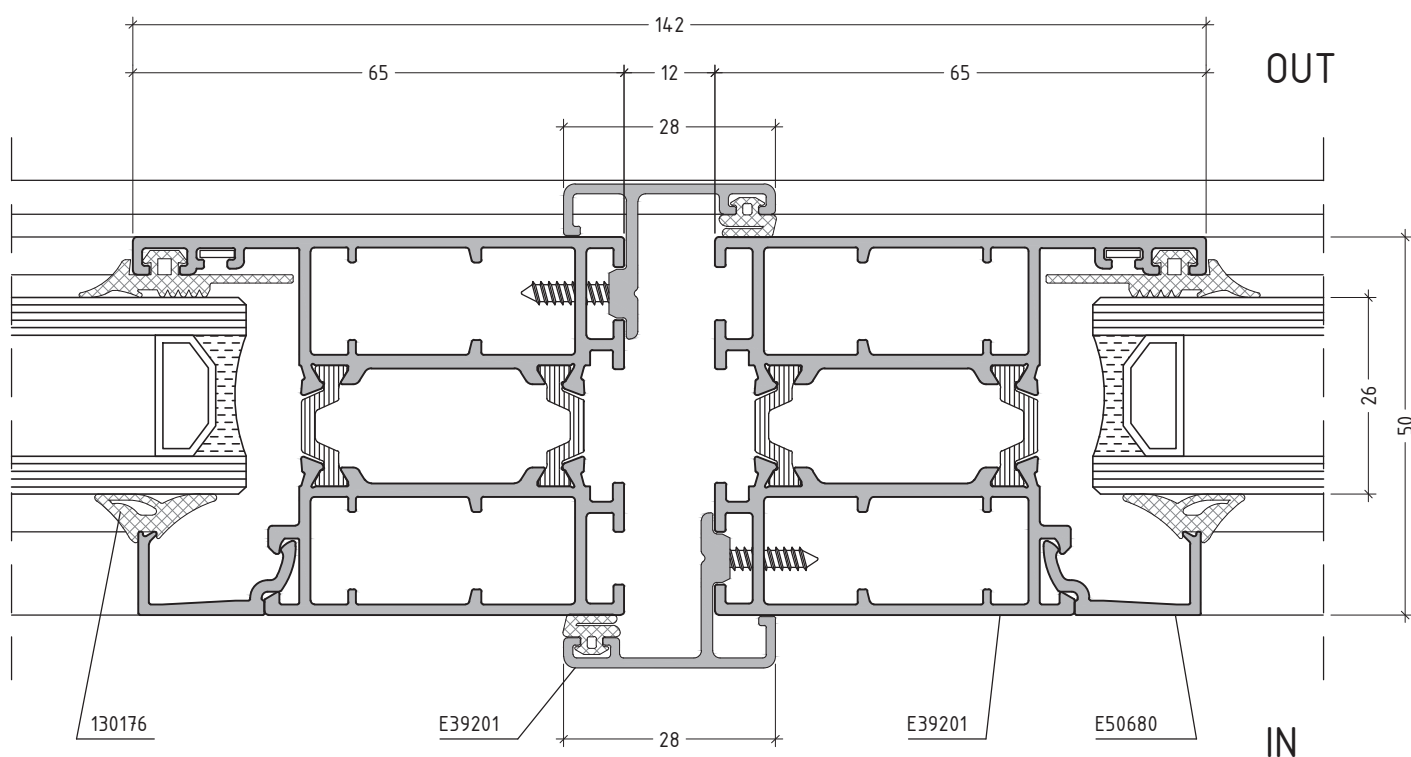
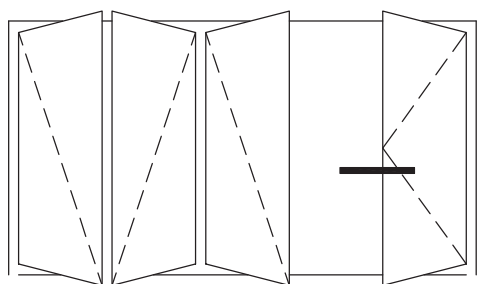


scale : 1:1

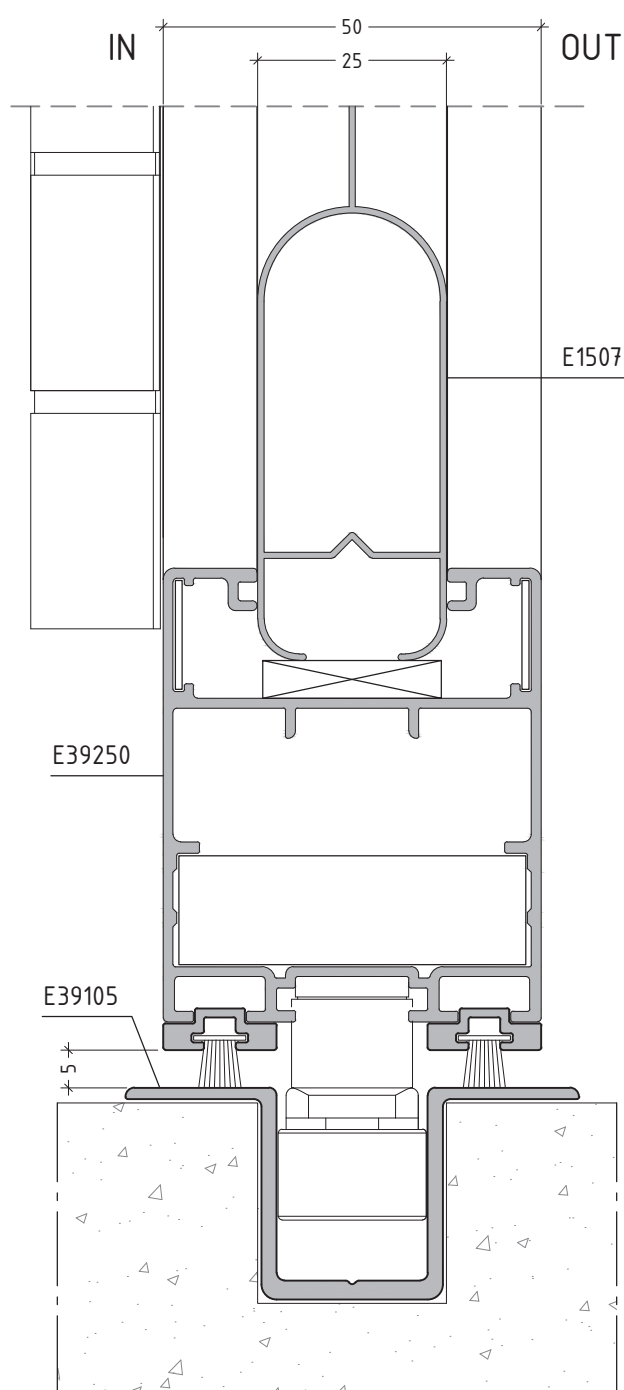
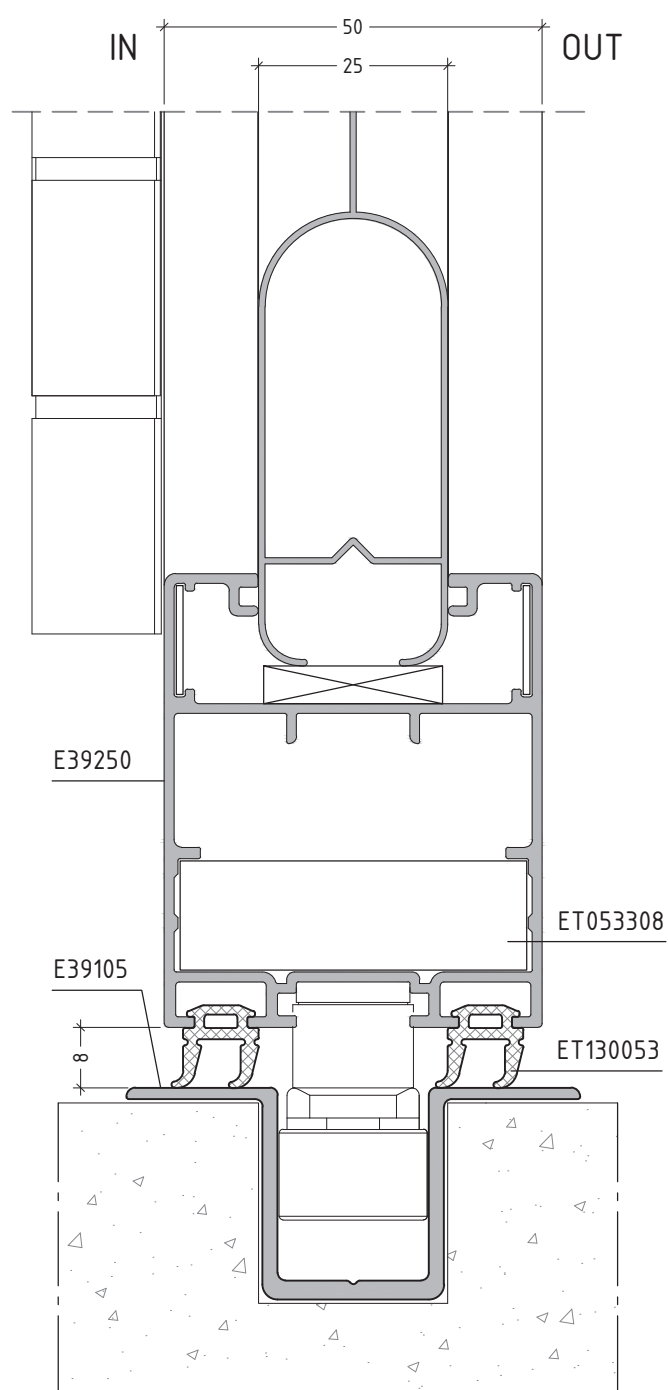
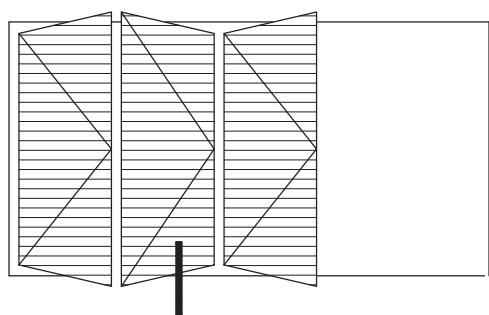




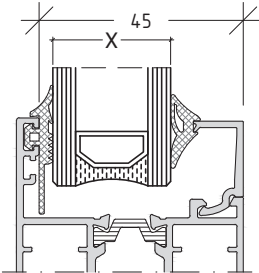






















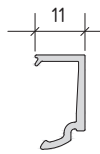




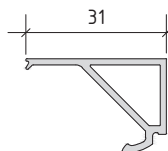




NOTE : Cutting Height of E39605 = Height of sash profile



GLAZING OPTIONS

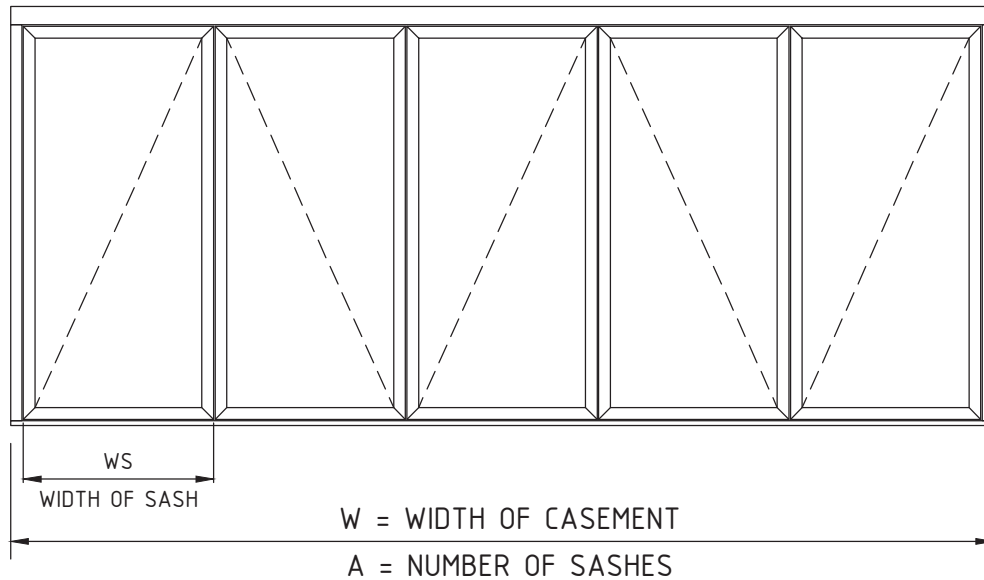
GLAZING OPTIONS					
external gaskets	INTERNAL GASKETS				GLAZING BEADS
					
 3 mm ET130411.00	 5 - 6 mm ET130176.00		 7 - 8 mm ET130177.00		
 3 mm ET130769.00	5 mm ET130205.00 	6 mm ET130206.00 	7 mm ET130207.00 	8 mm ET130208.00 	
X mm					
ET130411.00 ET130769.00	34 	33 	32 	31 	E50683 
ET130411.00 ET130769.00	30 	29 	28 	27 	E50687 
ET130411.00 ET130769.00	26 	25 	24 	23 	E50680 (E50682 anod.) 
ET130411.00 ET130769.00	6 	- 	- 	- 	E50681 

Note:
Tolerance in dimension chain $\pm 0.5\text{mm}$

CUTTING LISTS

CALCULATION OF SASH WIDTH FOR ODD * NUMBER OF SASHES

(* Both sash batches odd, i.e. 3 leaf, 3+1 leaf, 3+3 leaf, 5 leaf, 5+1 leaf, 7 leaf, 7+1 leaf, etc)



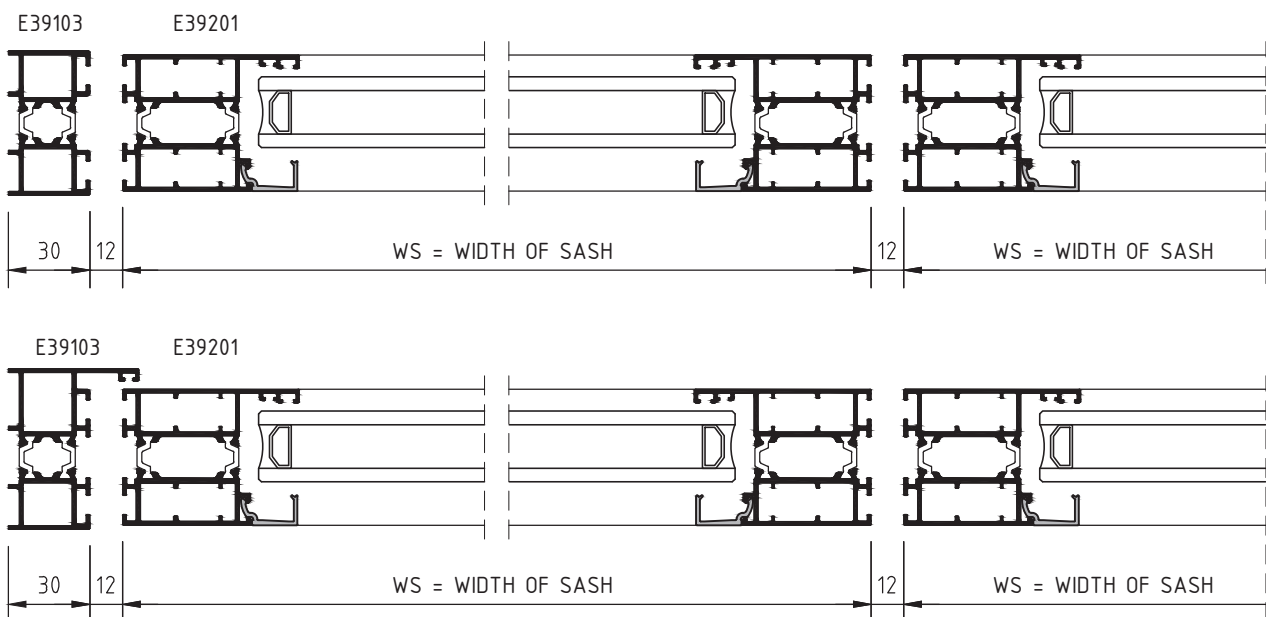
GAP DISTANCE BETWEEN FRAME to SASH or SASH to SASH = 12.0 mm

W = TOTAL WIDTH OF FRAME

WS = WIDTH OF SASH

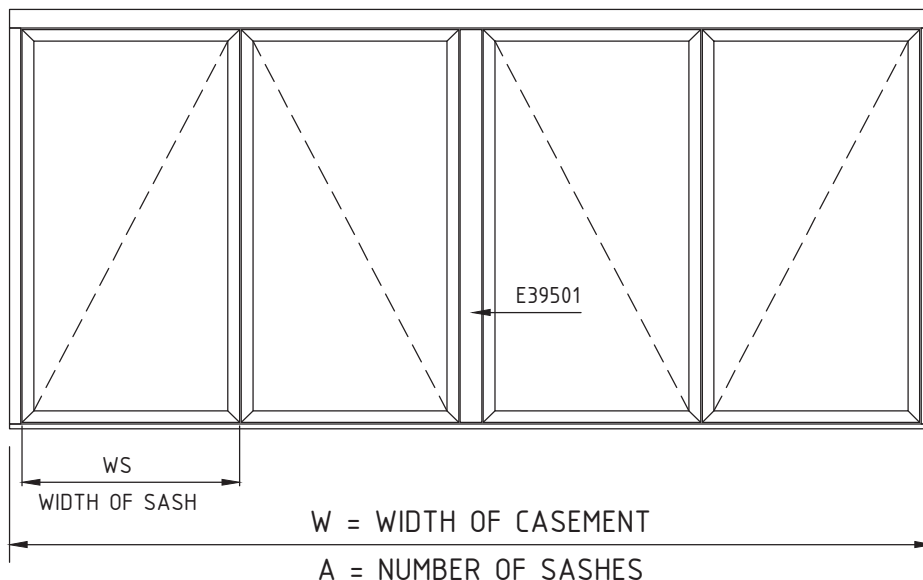
A = TOTAL NUMBER OF SASHES

$$\text{Sash Width } WS = \frac{W - [(A+1) \times 12.0\text{mm} + 60\text{mm}]}{A}$$



CALCULATION OF SASH WIDTH FOR EVEN * NUMBER OF SASHES

(* One or both sash batches parts even, i.e. 2 leaf, 2+1 leaf, 2+3 leaf, 2+2 leaf, 4+3 leaf, 4+4 leaf, etc.)



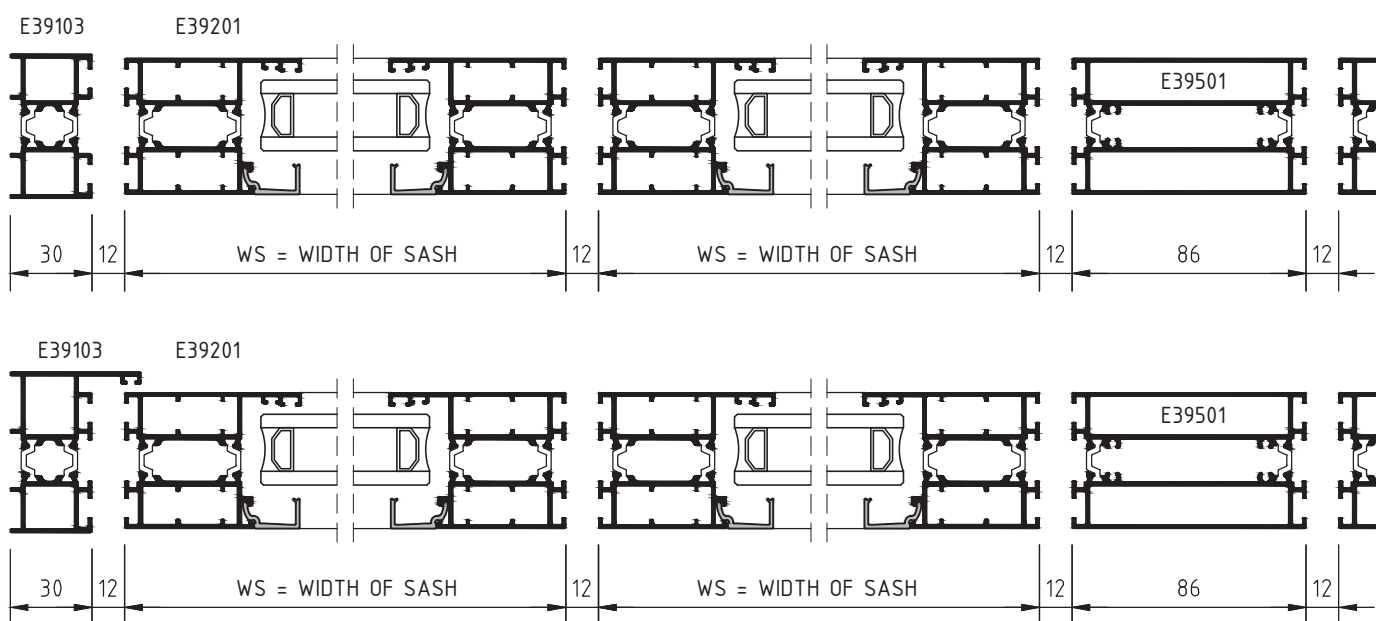
GAP DISTANCE BETWEEN FRAME to SASH , SASH to SASH or SASH to SECOND. SASH = 12.0 mm

W = TOTAL WIDTH OF FRAME

WS = WIDTH OF SASH

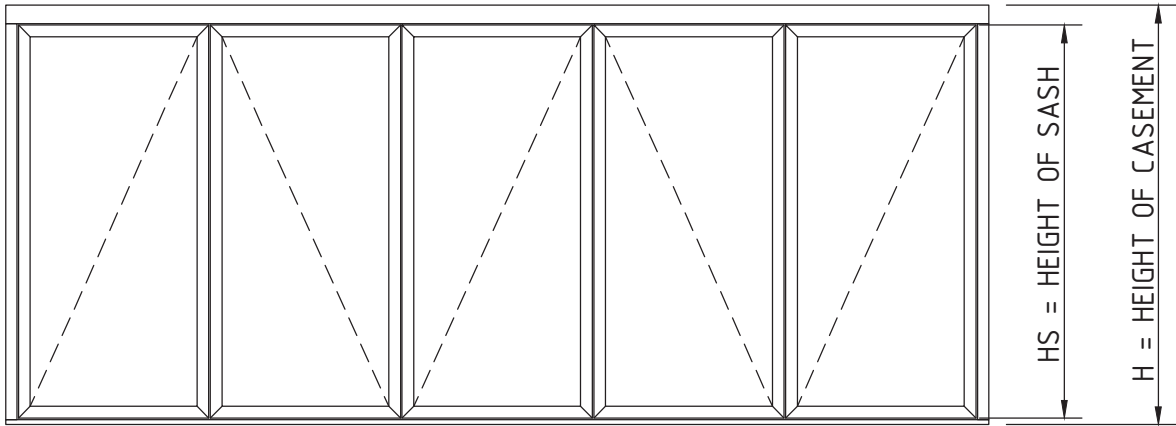
A = TOTAL NUMBER OF SASHES

$$\text{Sash Width WS} = \frac{W - [(A+2) \times 12.0\text{mm} + 146\text{mm}]}{A}$$



CALCULATION OF SASH HEIGHT

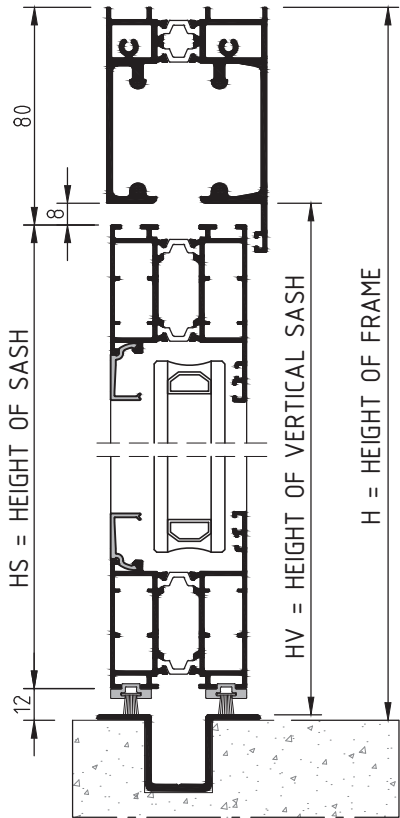
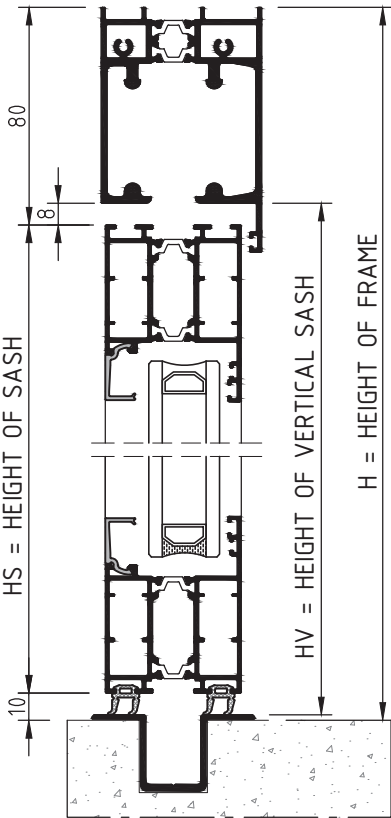
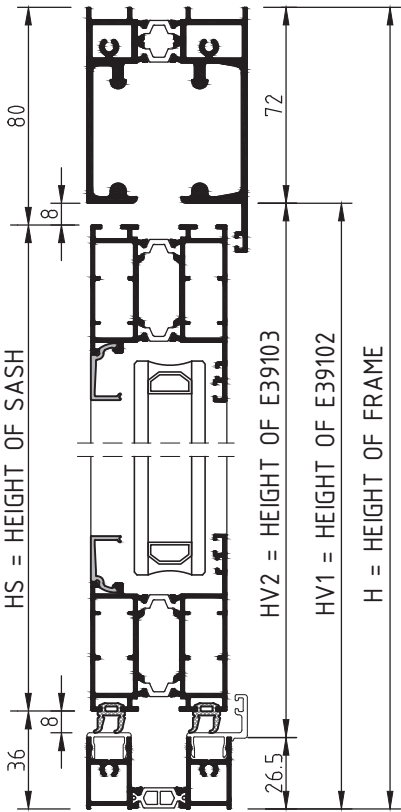
(Calculation of sash height is the same for odd or even number of sashes)



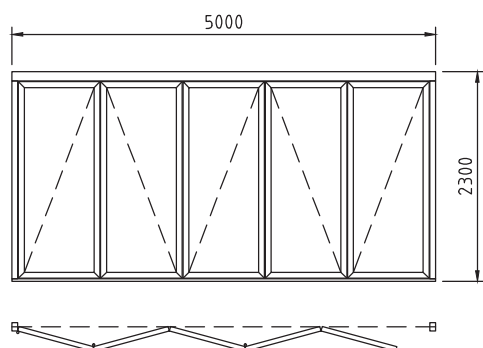
$HS = H - 116 \text{ mm}$
$HV1 = \text{CUT. HEIGHT E39102}$ $HV1 = H - 72 \text{ mm}$
$HV2 = \text{CUT. HEIGHT E39103}$ $HV2 = H - 98.5 \text{ mm}$

$HS = H - 90 \text{ mm}$
$HV = \text{CUTTING HEIGHT FOR VERTICAL FRAMES E39102 \& E39103}$ $HV = H - 74 \text{ mm}$

$HS = H - 92 \text{ mm}$
$HV = \text{CUTTING HEIGHT FOR VERTICAL FRAMES E39102 \& E39103}$ $HV = H - 74 \text{ mm}$



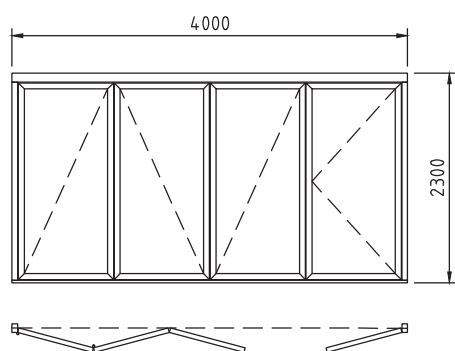
EXAMPLES OF CALCULATIONS OF CUTTING DIMENSIONS



E39 TYPE 550 (WITH E39102 SIDE FRAME & E39104 BOTTOM FRAME)

$$HS = 2300 \text{ mm} - 116 \text{ mm} = 2184 \text{ mm}$$

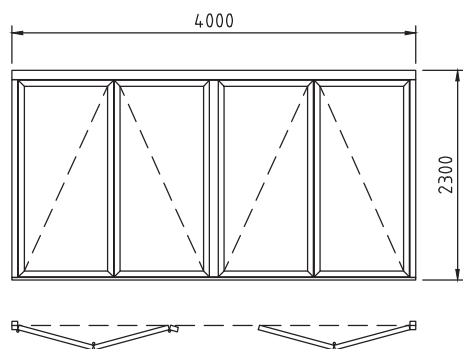
$$WS = \frac{W - [(A+1) \times 12.0 \text{ mm} + 60 \text{ mm}]}{5} = \frac{5000 - [6 \times 12.0 \text{ mm} + 60 \text{ mm}]}{5} = 973.6 \text{ mm}$$



E39 TYPE 431 (WITH E39102 SIDE FRAME & E39104 BOTTOM FRAME)

$$HS = 2300 \text{ mm} - 116 \text{ mm} = 2184 \text{ mm}$$

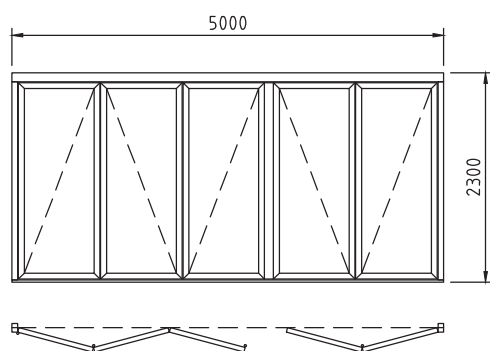
$$WS = \frac{W - [(A+1) \times 12.0 \text{ mm} + 60 \text{ mm}]}{4} = \frac{4000 - [5 \times 12.0 \text{ mm} + 60 \text{ mm}]}{4} = 970 \text{ mm}$$



E39 TYPE 422 (WITH E39103 SIDE FRAME & E39105 BOTTOM FRAME)

$$HS = 2300 \text{ mm} - 90 \text{ mm} = 2210 \text{ mm}$$

$$WS = \frac{W - [(A+2) \times 12.0 \text{ mm} + 146 \text{ mm}]}{4} = \frac{4000 - [6 \times 12.0 \text{ mm} + 146 \text{ mm}]}{4} = 945.5 \text{ mm}$$



E39 TYPE 532 (WITH E39103 SIDE FRAME & E39105 BOTTOM FRAME)

$$HS = 2300 \text{ mm} - 90 \text{ mm} = 2210 \text{ mm}$$

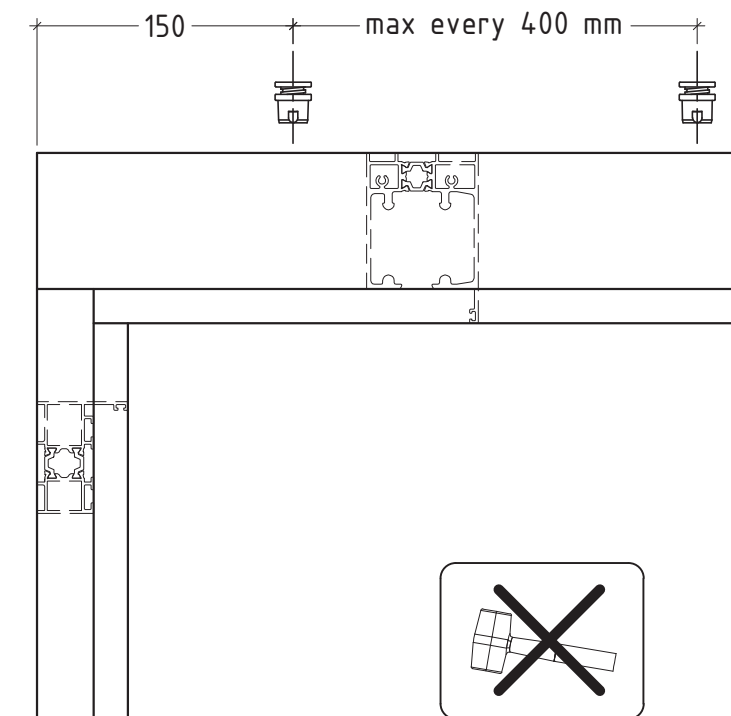
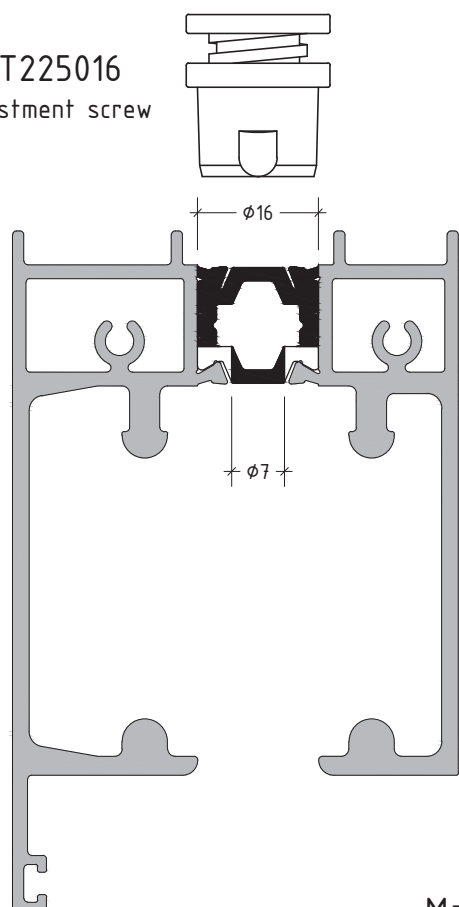
$$WS = \frac{W - [(A+2) \times 12.0 \text{ mm} + 146 \text{ mm}]}{5} = \frac{5000 - [7 \times 12.0 \text{ mm} + 146 \text{ mm}]}{5} = 954 \text{ mm}$$

MACHINING

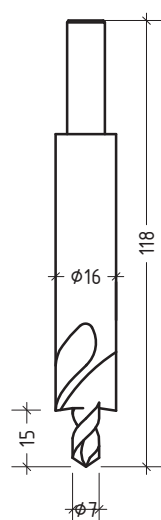
MACHINING ON TOP FRAME E39101 FOR ET225016 FITMENT

M39-01

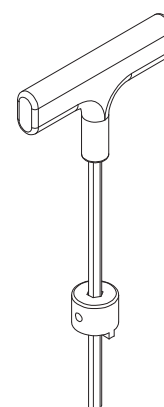
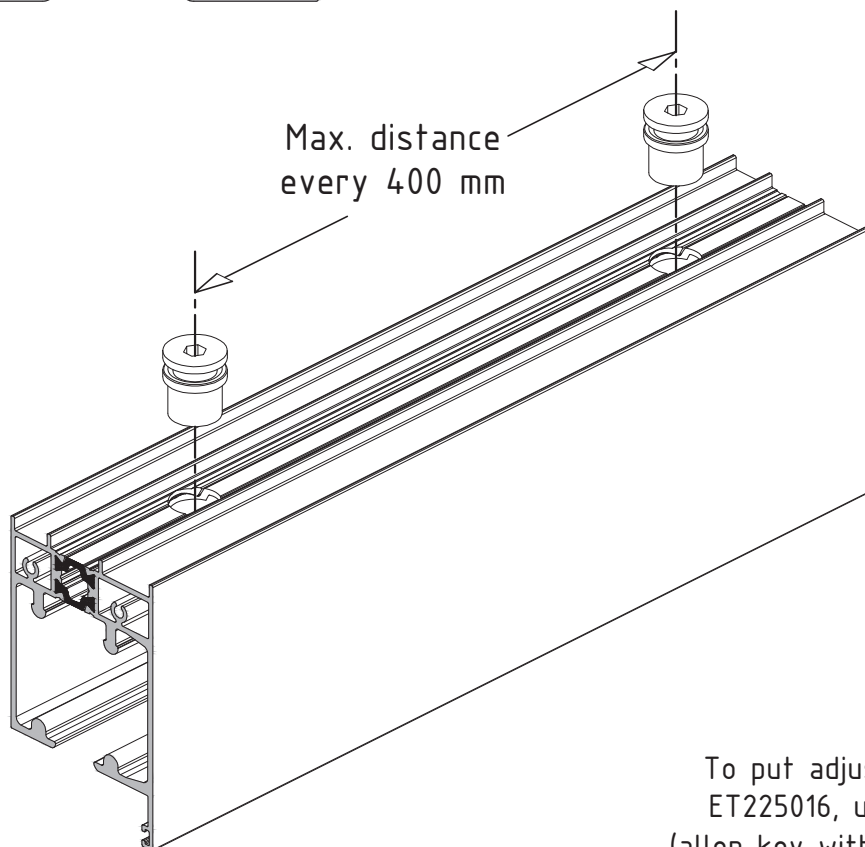
ET225016
Adjustment screw



Max. distance
every 400 mm

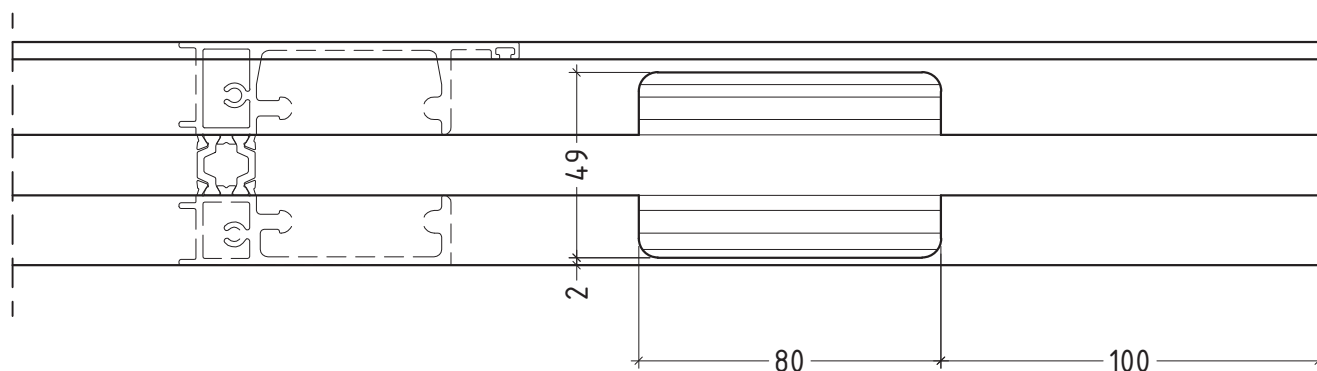


ET225017.00
Stepped drill for
adjustment screw

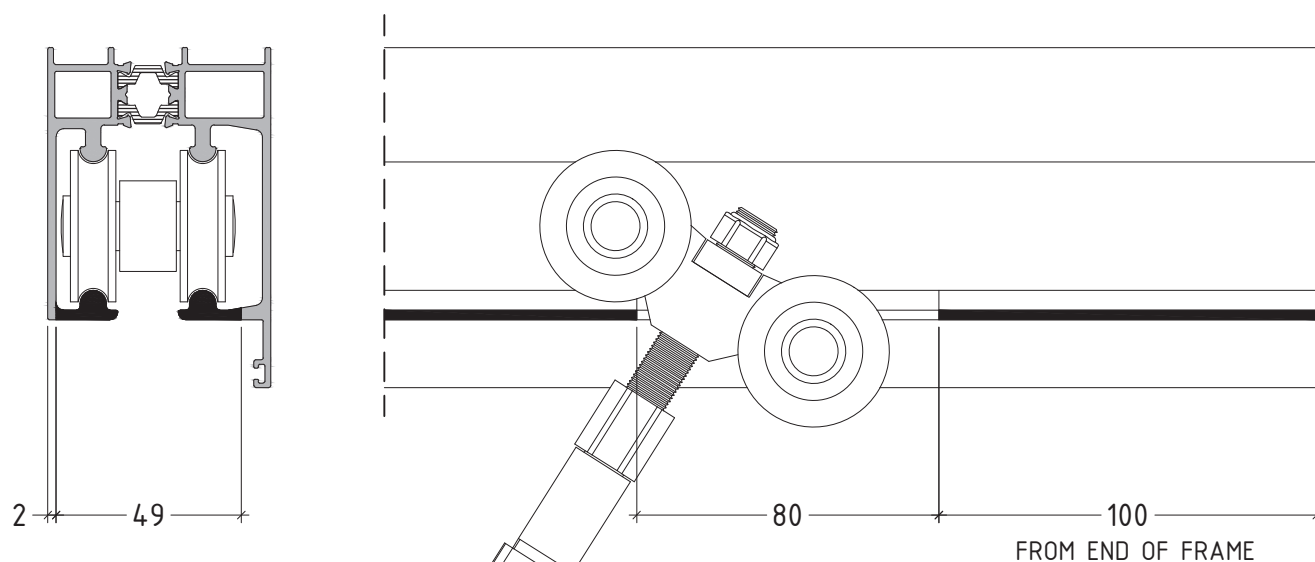


To put adjustable blocks
ET225016, use ET225026
(allen key with suitable head)

MACHINING ON TOP FRAME E39101 FOR ROLLER REMOVAL HOLE M39-02



THIS MACHINING HELPS TO INSERT OR REMOVE ROLLERS WITHOUT REMOVE FRAME



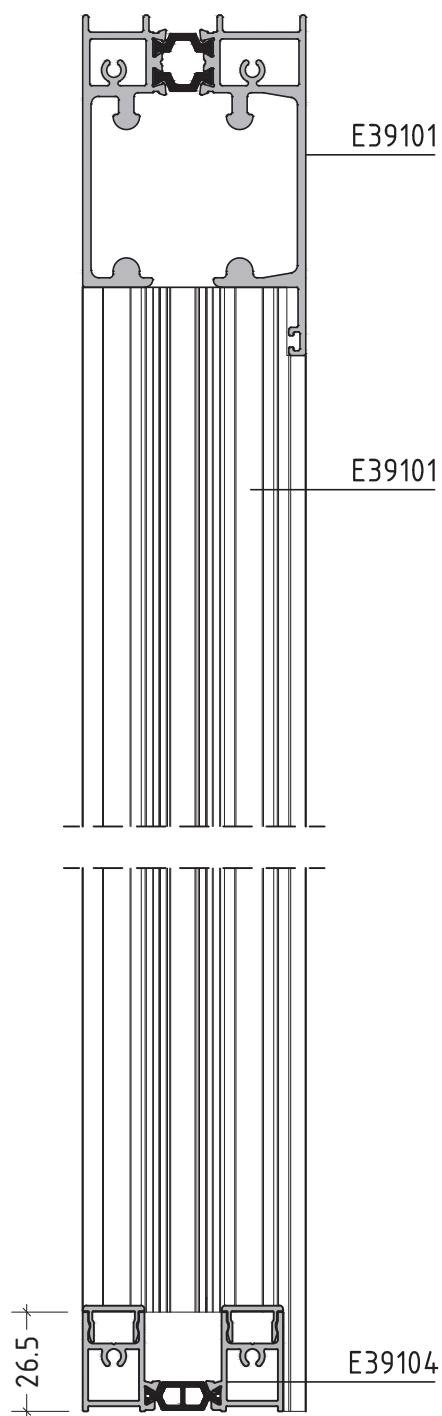
ATTENTION:

1. THIS MACHINING CAN BE DONE ONLY AT ODD SASH NUMBER FOLDING DOORS, THAT ALL SASHES FOLDS ONE SIDE
2. MACHINING ALWAYS AT OPPOSITE SIDE, FROM FOLDED SASHES

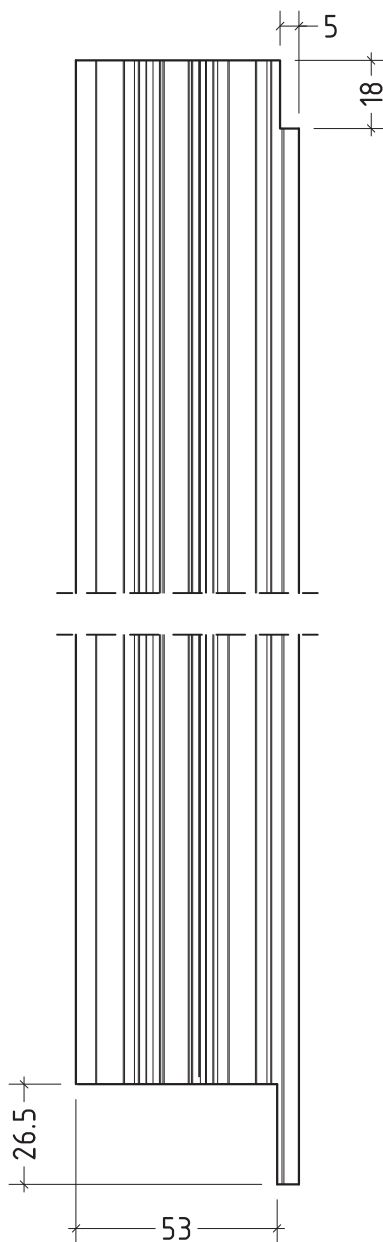


MACHINING OF VERTICAL FRAME E39102

M39-03



MACHINING ON TOP



MACHINING AT BOTTOM

ATTENTION !!

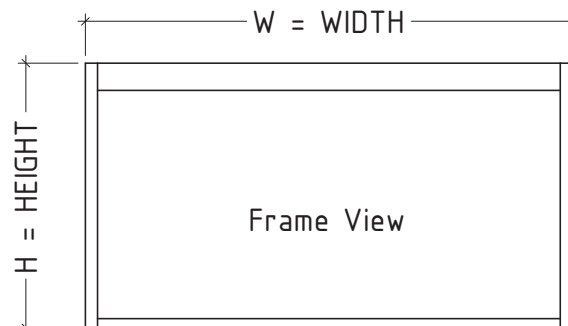
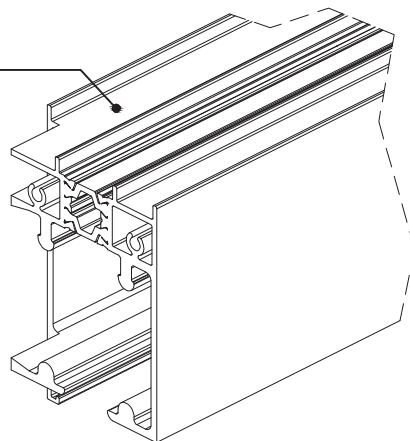
BOTTOM MACHINING DIMENSION OF
E39104 IS BEFORE PUTTING
ADDITIONAL PROFILES
E39600, E39601 or E39604



MACHINING FOR FRAME PRE-CONNECTION WITH E39101 - E39102 - E39104

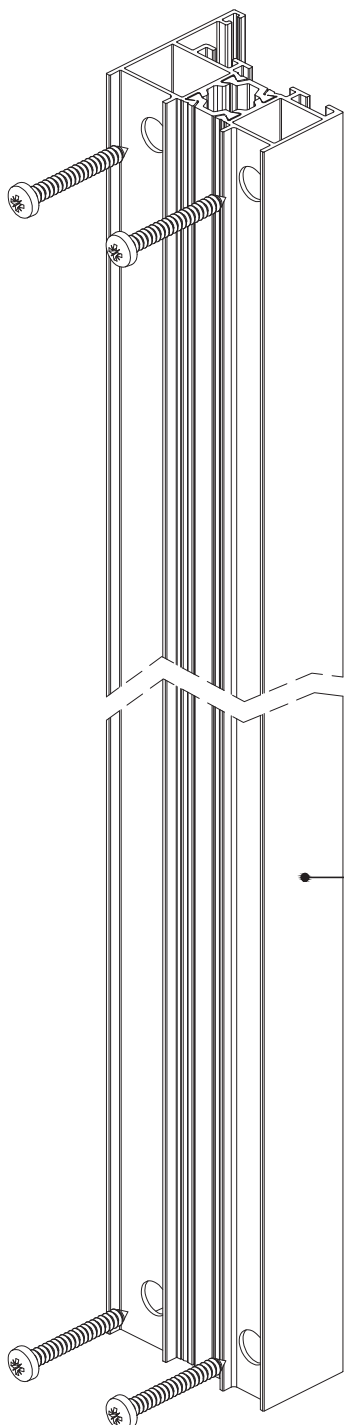
M39-20

CUTTING LENGTH E39101
WIDTH - 60.0 mm

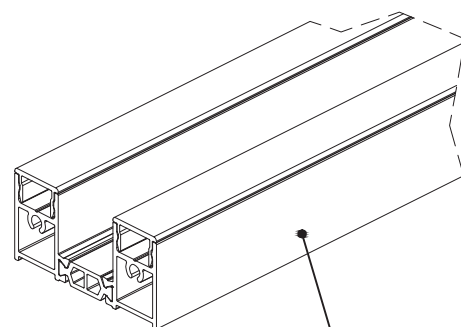
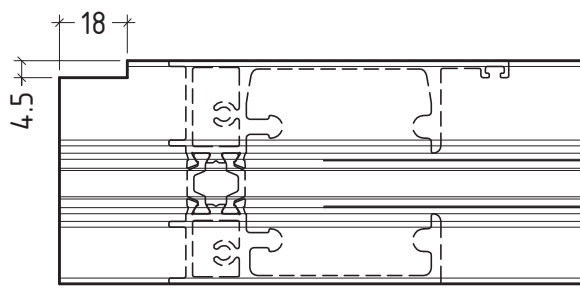
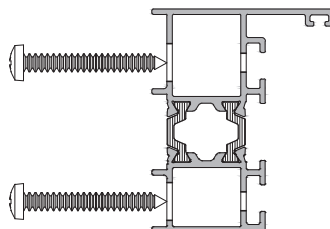


ATTENTION

- FRAME CONNECTION WITH SCREWS REQUIRES VERY CAREFUL CALCULATING OF CUTTING DIMENSIONS
- VERTICAL PARTS OF FRAME CANNOT ADJUSTED SEPARATELY
- FRAME PART OF HINGE ET225005, MUST BE INSERTED BEFORE FRAME ASSEMBLY

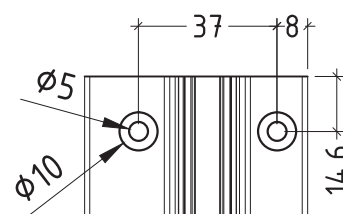


CUTTING HEIGHT OF
E39102 = H (height)

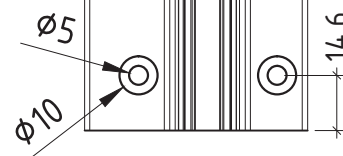


CUTTING LENGTH E39104
W - 60.0 mm

DRILLING ON
TOP OF E39102

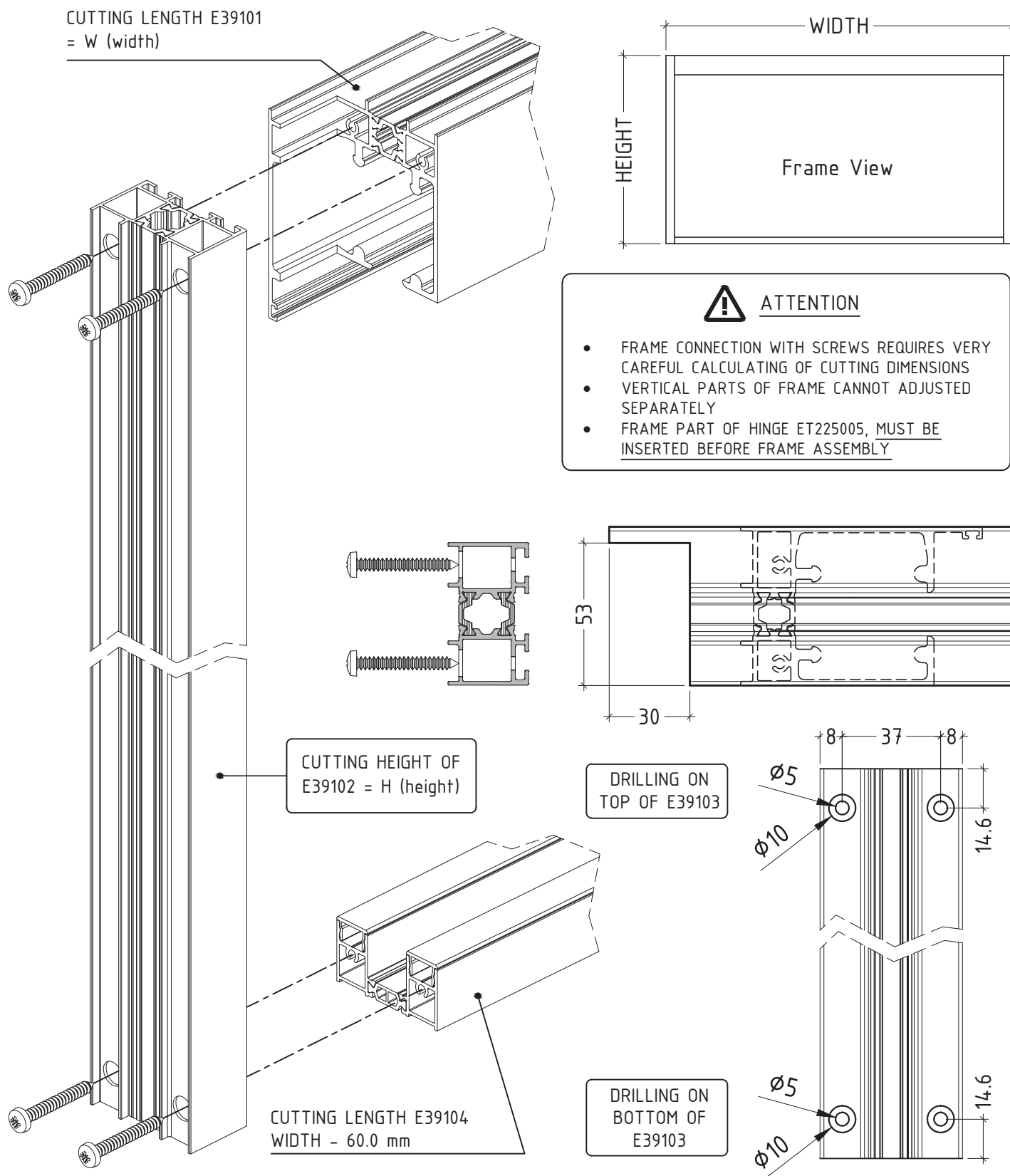


DRILLING ON
BOTTOM OF
E39102



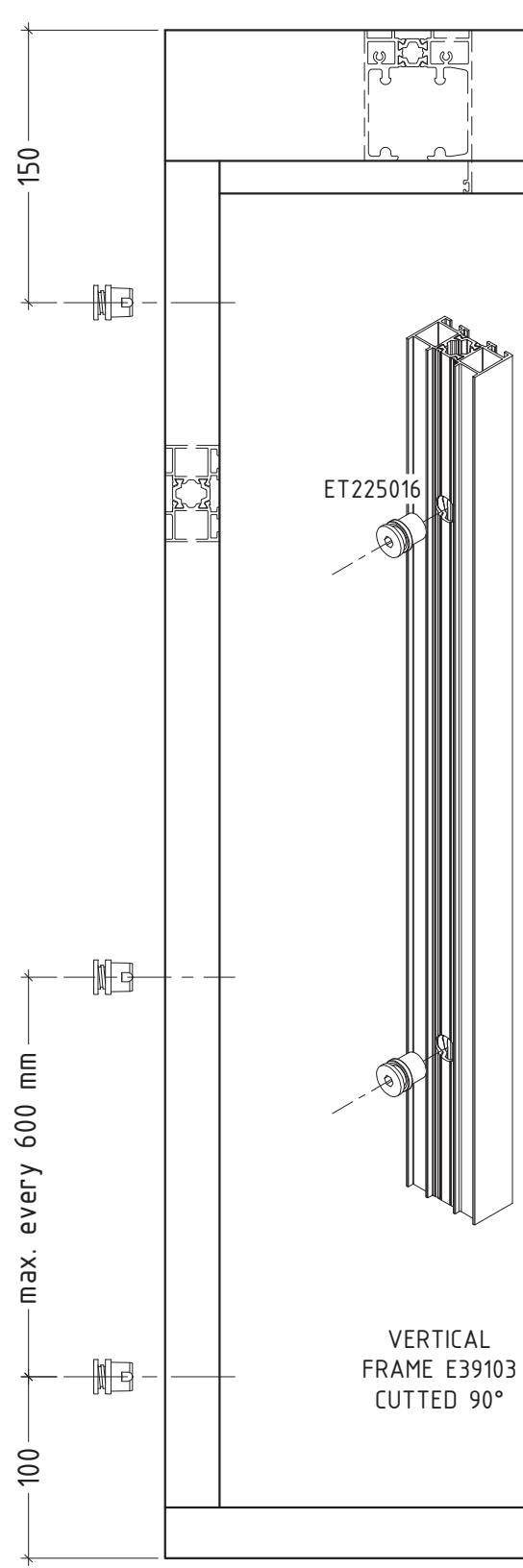
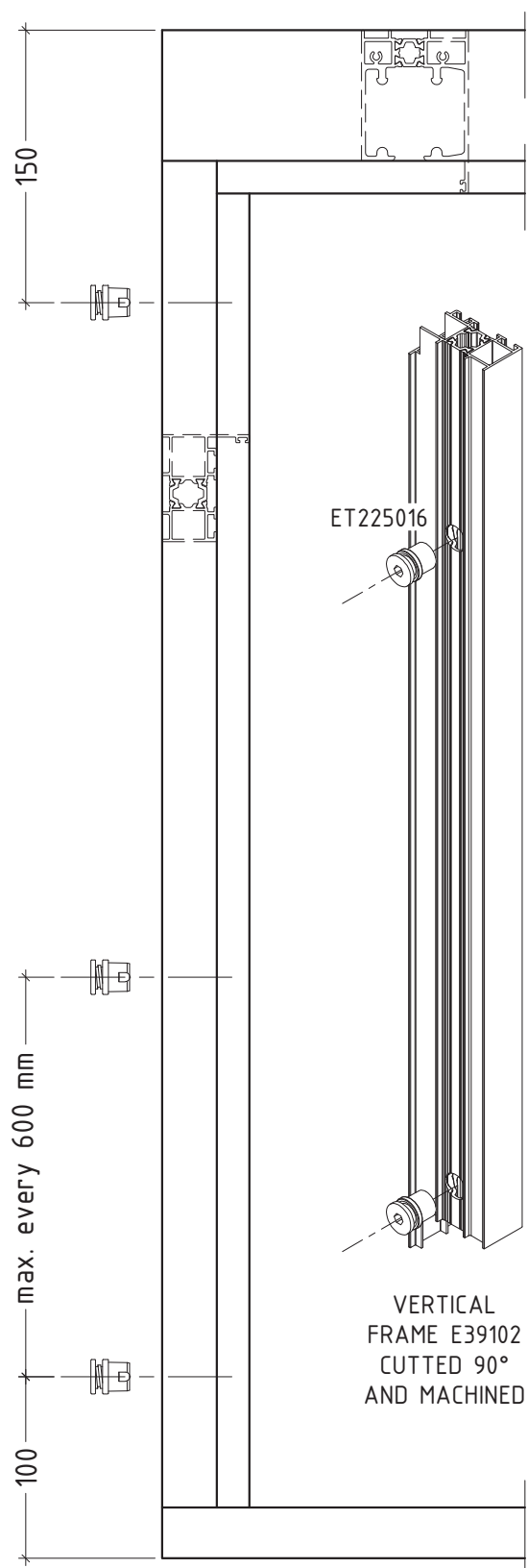
MACHINING FOR FRAME PRE-CONNECTION WITH E39101 - E39103 - E39104

M39-21



ADJUSTEMENT BLOCKS POSITION ON VERTICAL FRAMES

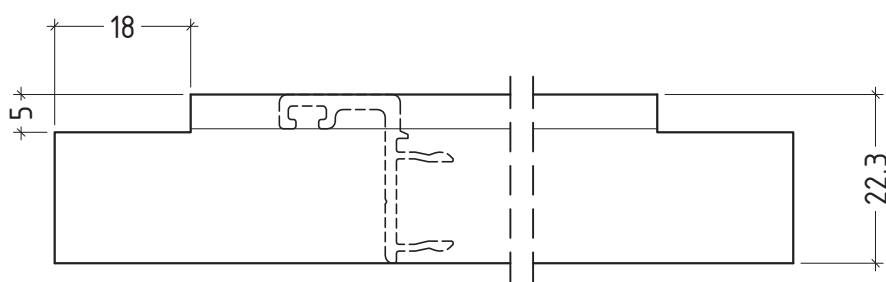
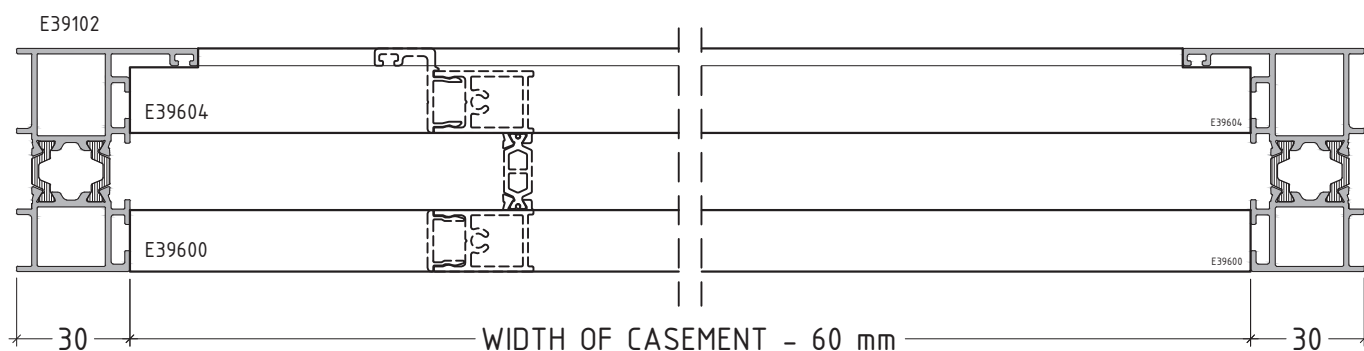
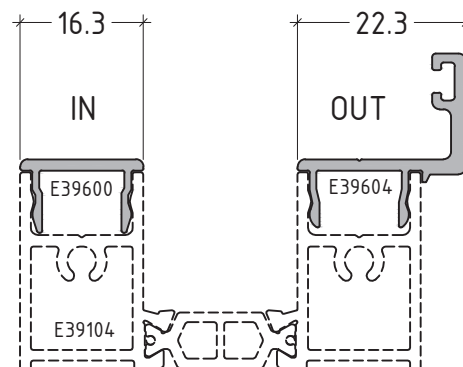
M39-04



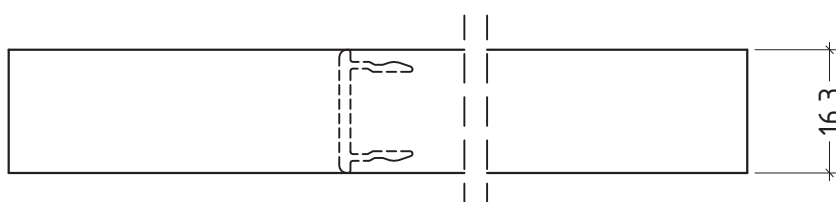
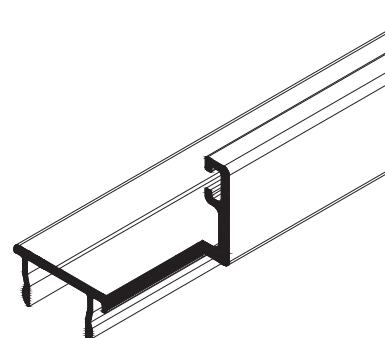
MACHINING ON ADDITIONAL BOTTOM PROFILES E39600 & E39604 M39-05

THIS MACHINING IS SUITABLE FOR THE FOLLOWING COMBINATION :

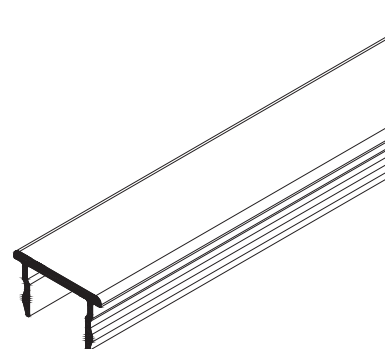
- VERTICAL FRAME E39102
- BOTTOM FRAME E39104 + E39600 + E39604



E39604 IS CUTTED 90° AND MACHINED

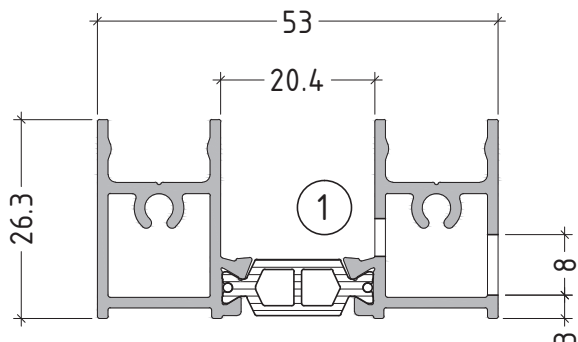


E39600 IS CUTTED 90° ONLY



scale : 1:1

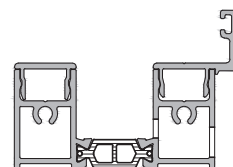
MACHINING FOR WATER DRAINAGE FOR BOTTOM FRAME E39104 M39-06



INTERNAL DRAINAGE HOLE ①
5x30mm PERFORMED
BY E39 PUNCHING MACHINE

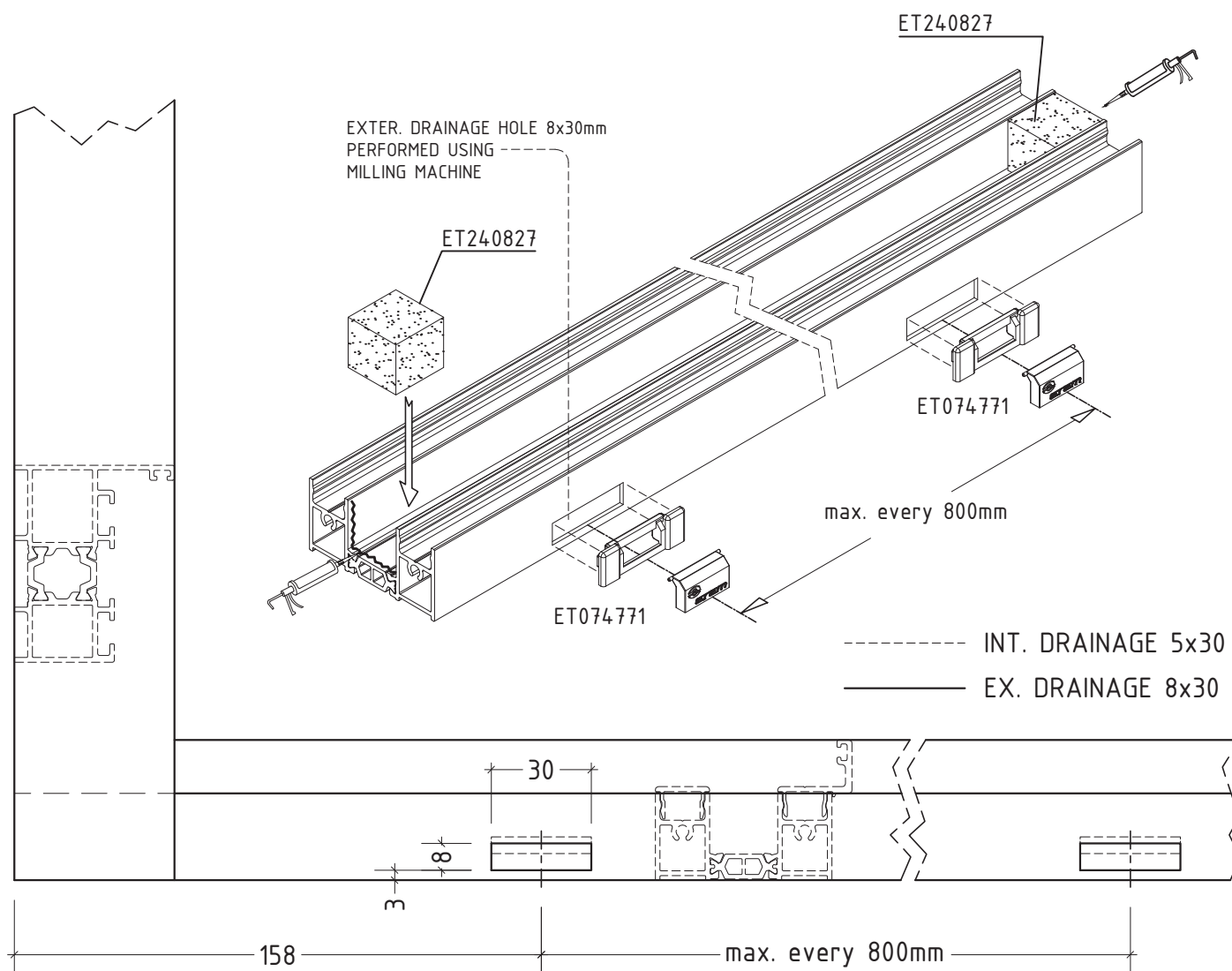
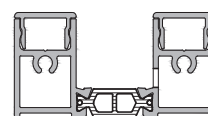
BOTTOM FRAME
COMBINATION

E39104 + E39600 + E39603



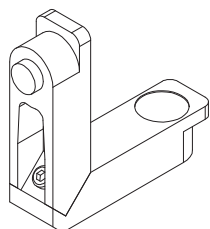
BOTTOM FRAME
COMBINATION

E39104 + E39600 + E39603

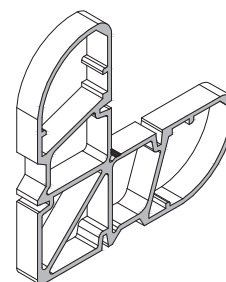


MACHINING ON SASH E39201 FOR CORNER JOINT

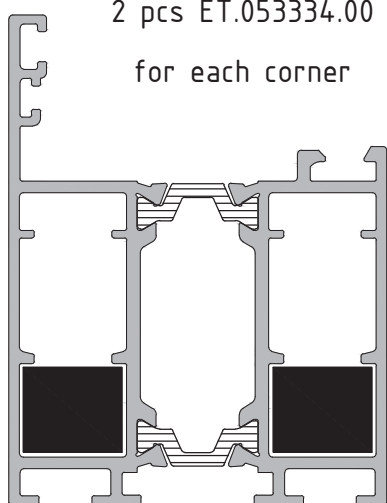
M39-07



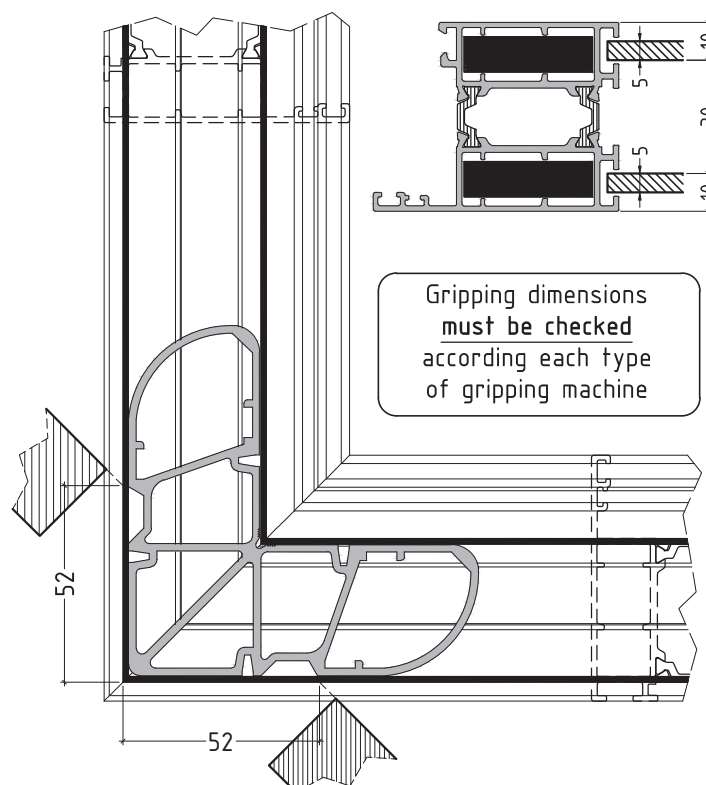
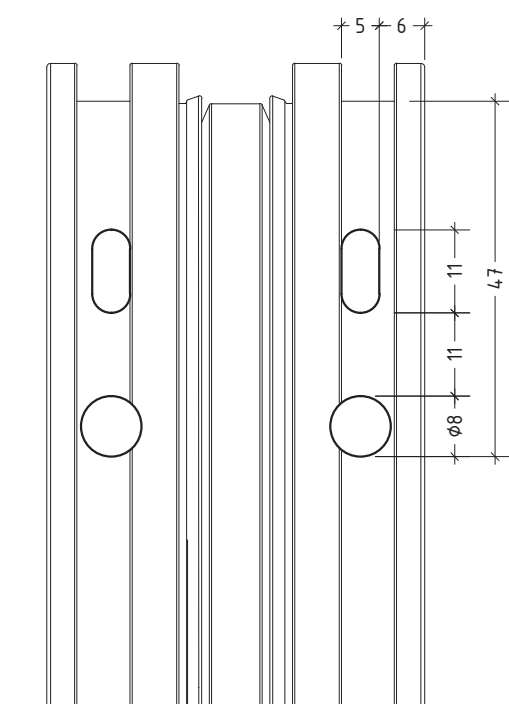
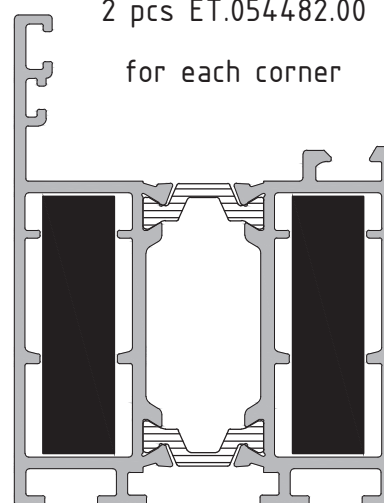
OR



2 pcs ET.053334.00
for each corner

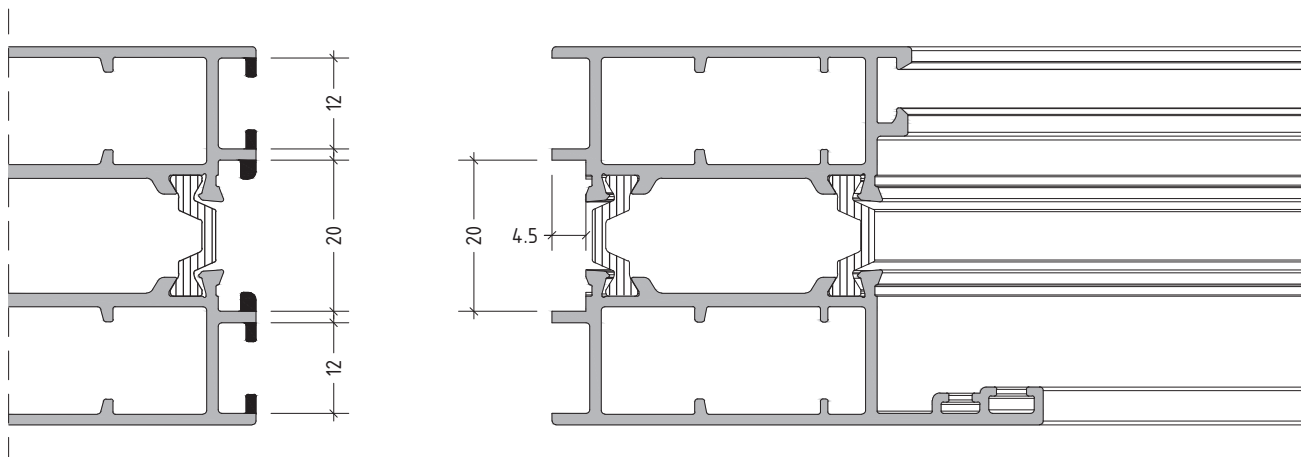


2 pcs ET.054482.00
for each corner

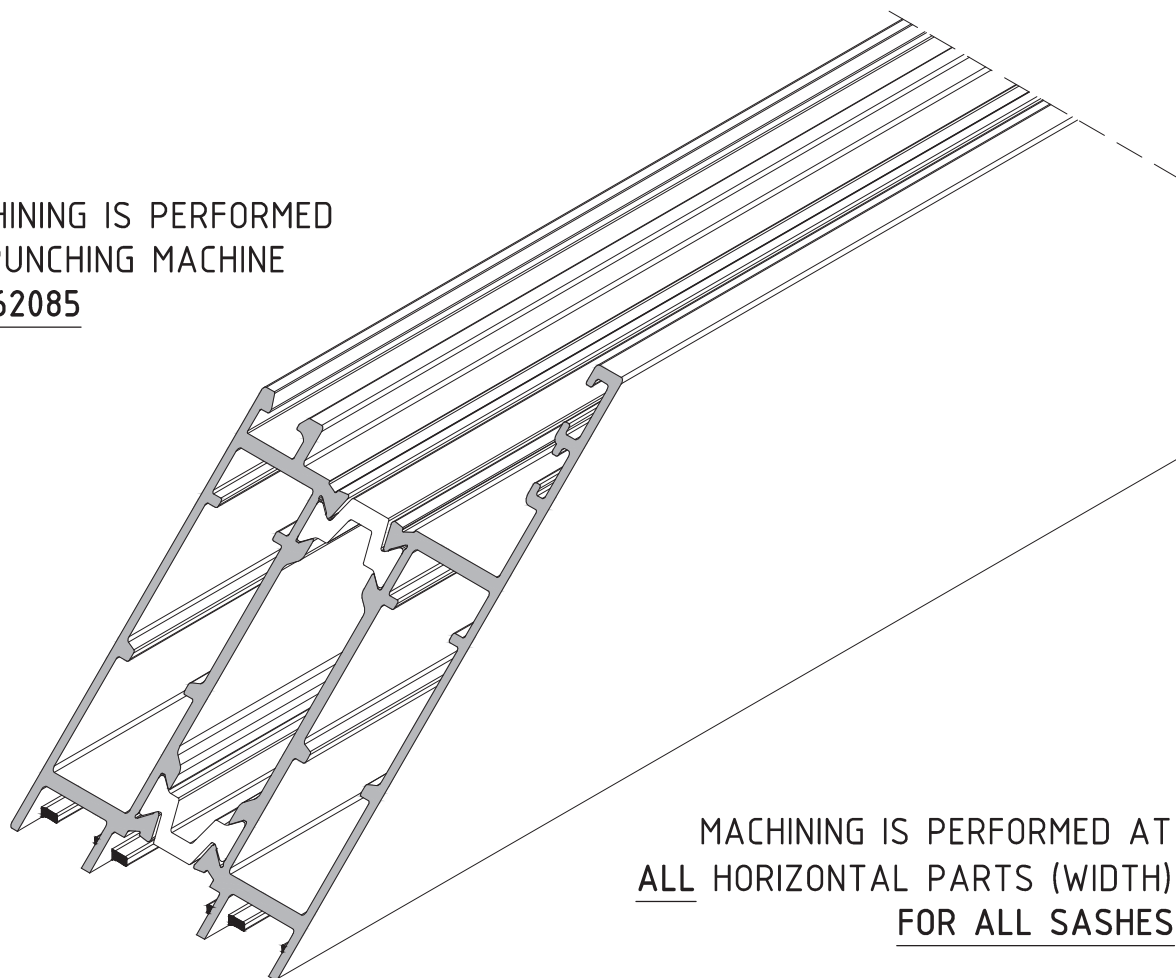


EDGE NOTCHING MACHINING ON E39201 FOR ROD
AND ACCESSORIES INSERT

M39-08



MACHINING IS PERFORMED
AT PUNCHING MACHINE
ET 162085



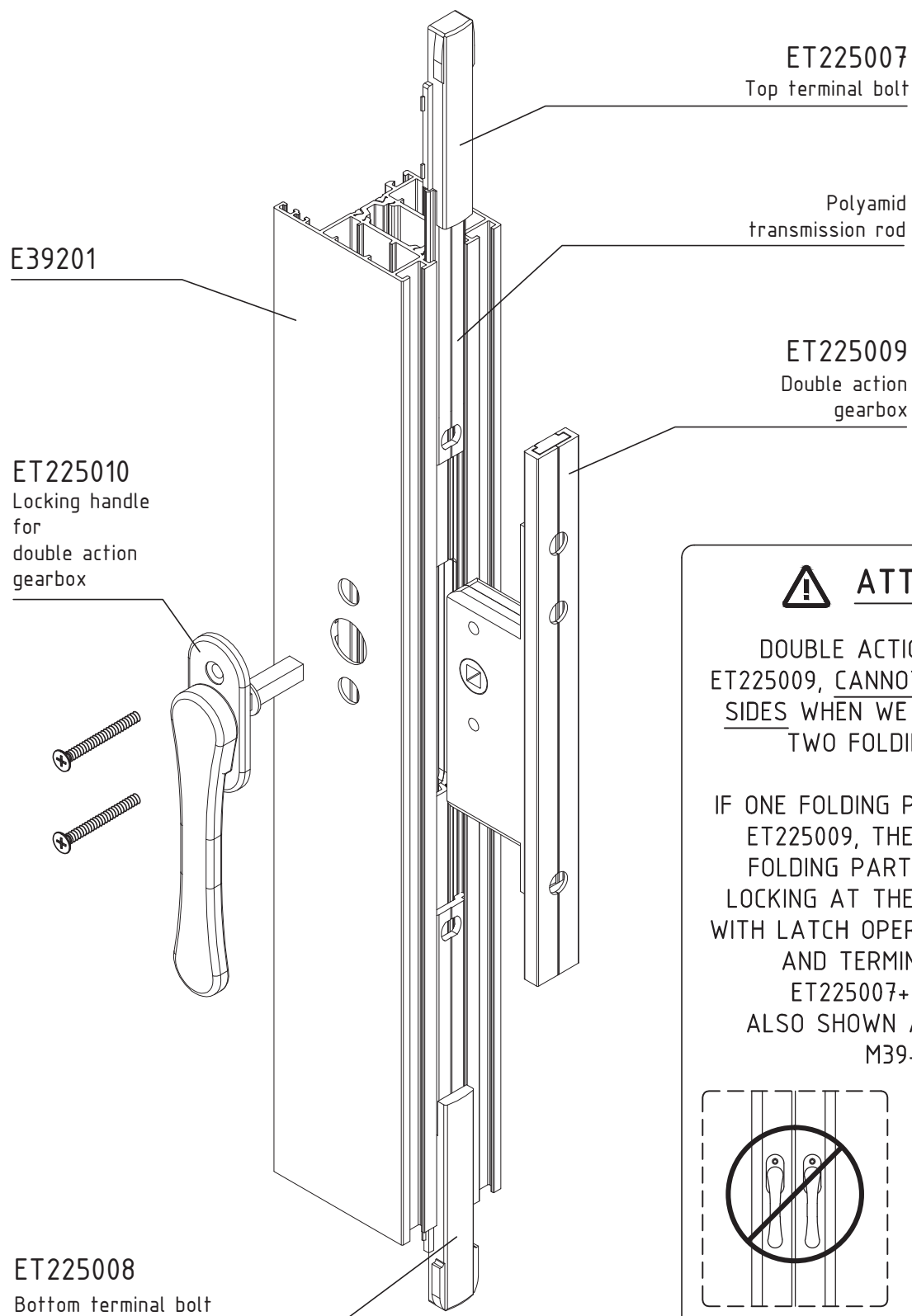
MACHINING IS PERFORMED AT
ALL HORIZONTAL PARTS (WIDTH)
FOR ALL SASHES

M39-09



APPLICATION OF DOUBLE ACTION GEARBOX ET225009 FOR PROFILES E39201, E39250, E39501

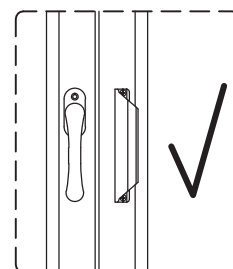
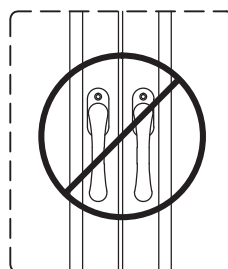
M39-10



ATTENTION

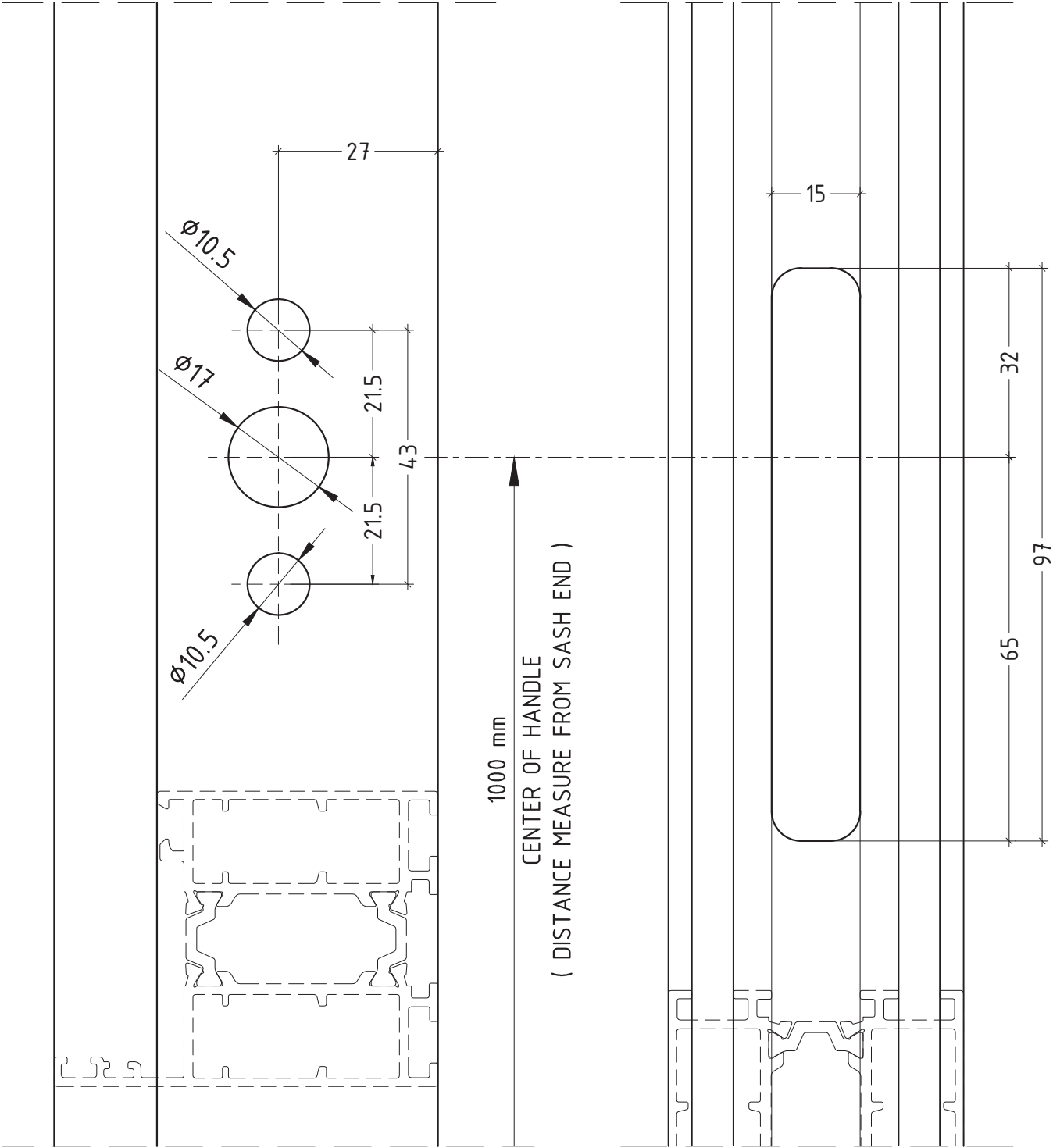
DOUBLE ACTION GEARBOX
ET225009, CANNOT USED AT BOTH
SIDES WHEN WE HAVE TO LOCK
TWO FOLDING PARTS

IF ONE FOLDING PART ENDS WITH
ET225009, THEN THE OTHER
FOLDING PART, IF REQUIRES
LOCKING AT THE END, MUST BE
WITH LATCH OPERATOR ET225027,
AND TERMINAL BOLTS
ET225007+ET225008,
ALSO SHOWN AT MACHINING
M39-24



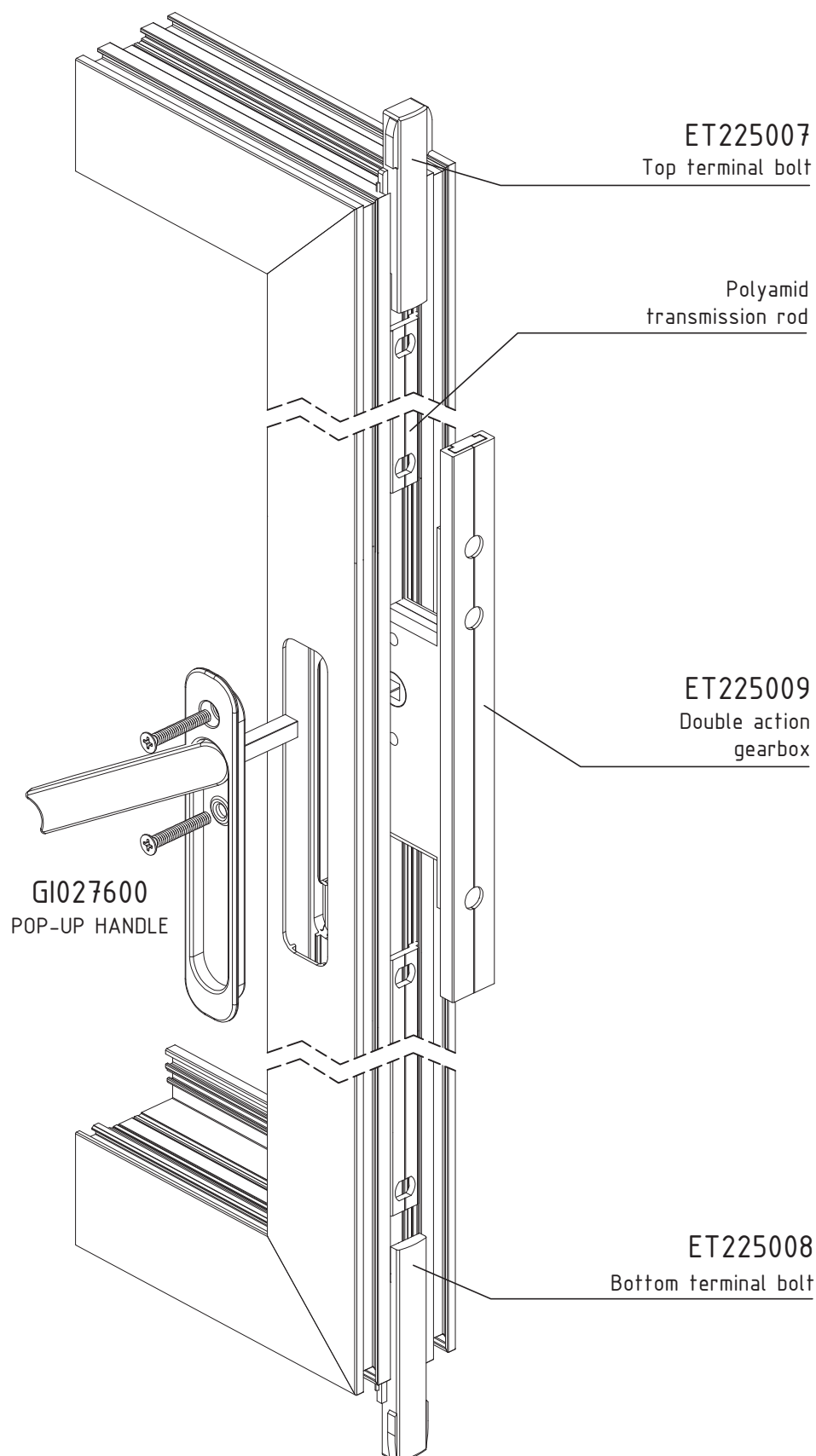
MACHINING DIMENSIONS ON SASH E39201
FOR DOUBLE ACTION GEARBOX AND HANDLE

M39-11



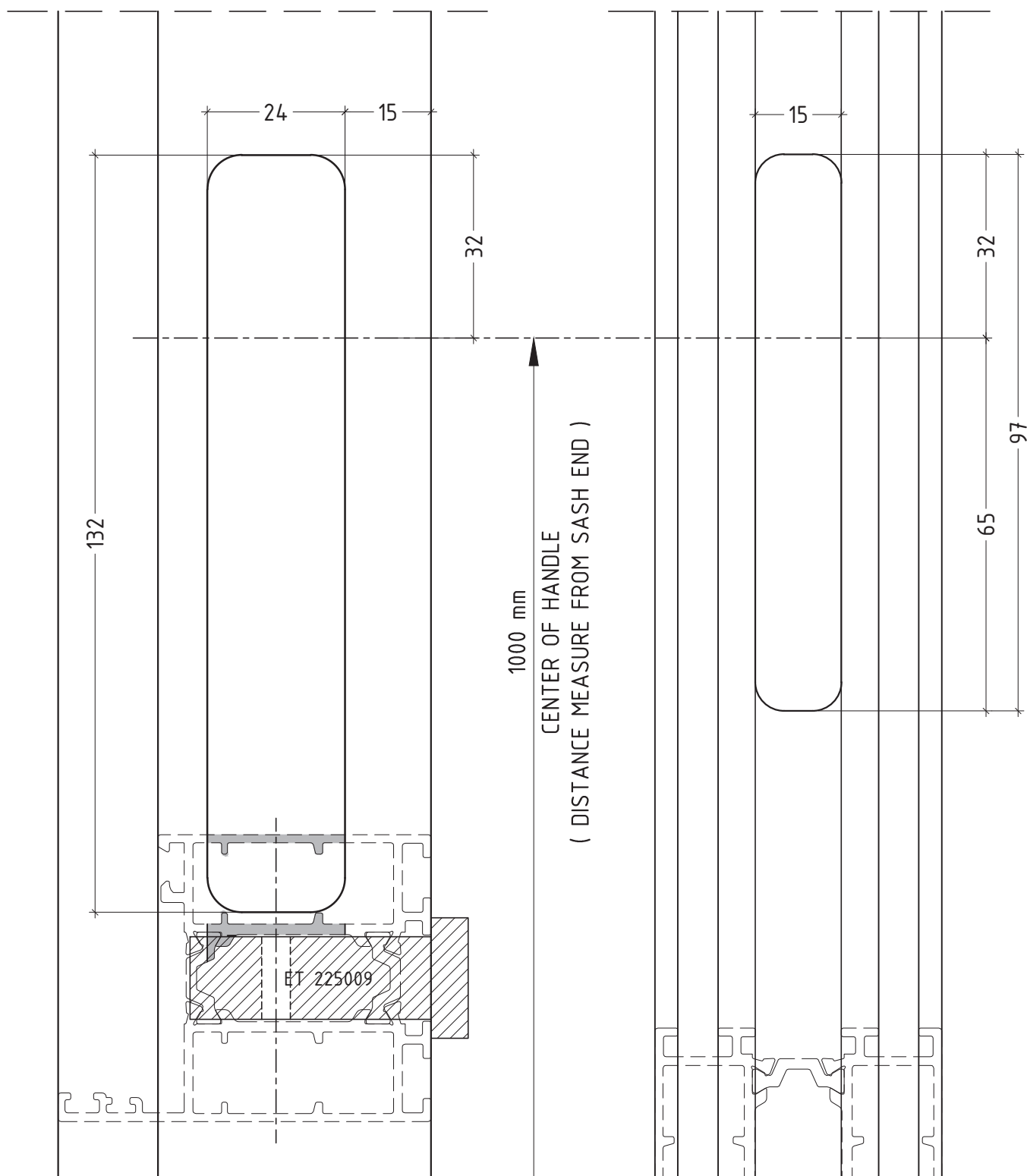
INSTALLATION OF DOUBLE ACTION GEARBOX ET225009 AND HANDLE GI 027600

M39-22



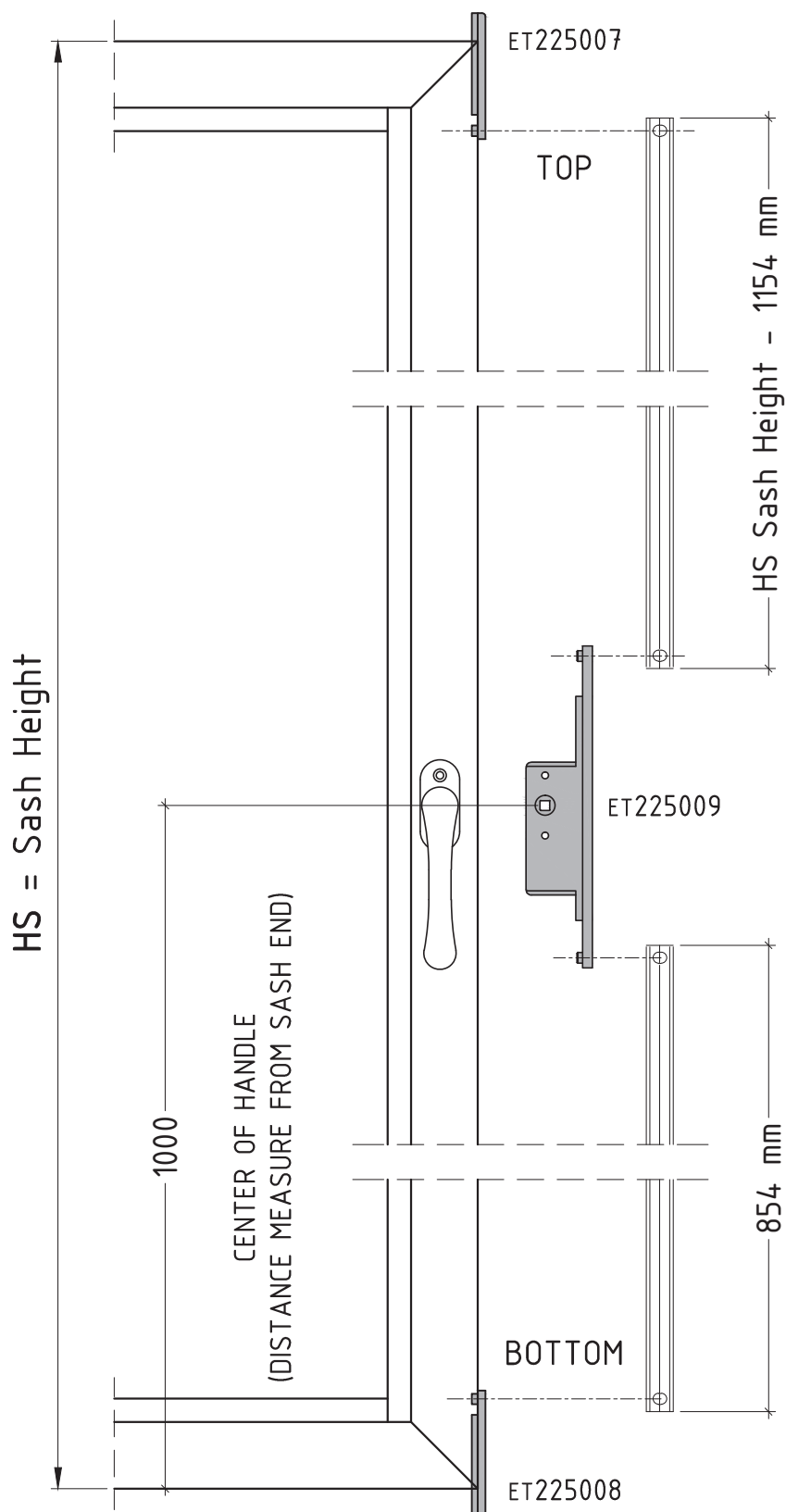
**MACHINING DIMENSIONS ON SASH E39201 - E39501 FOR DOUBLE ACTION
GEARBOX AND HANDLE GI 027600**

M39-23



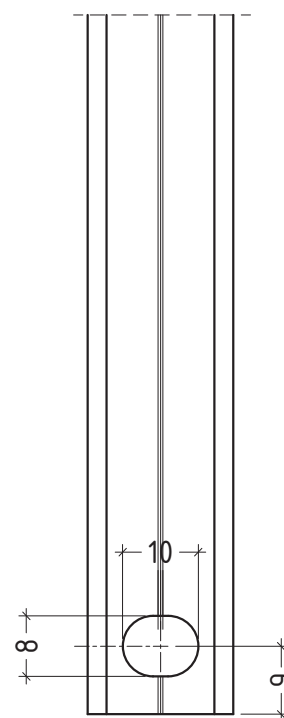
CUTTING DIMENSIONS FOR TRANSMISSION RODS

M39-12



ATTENTION:

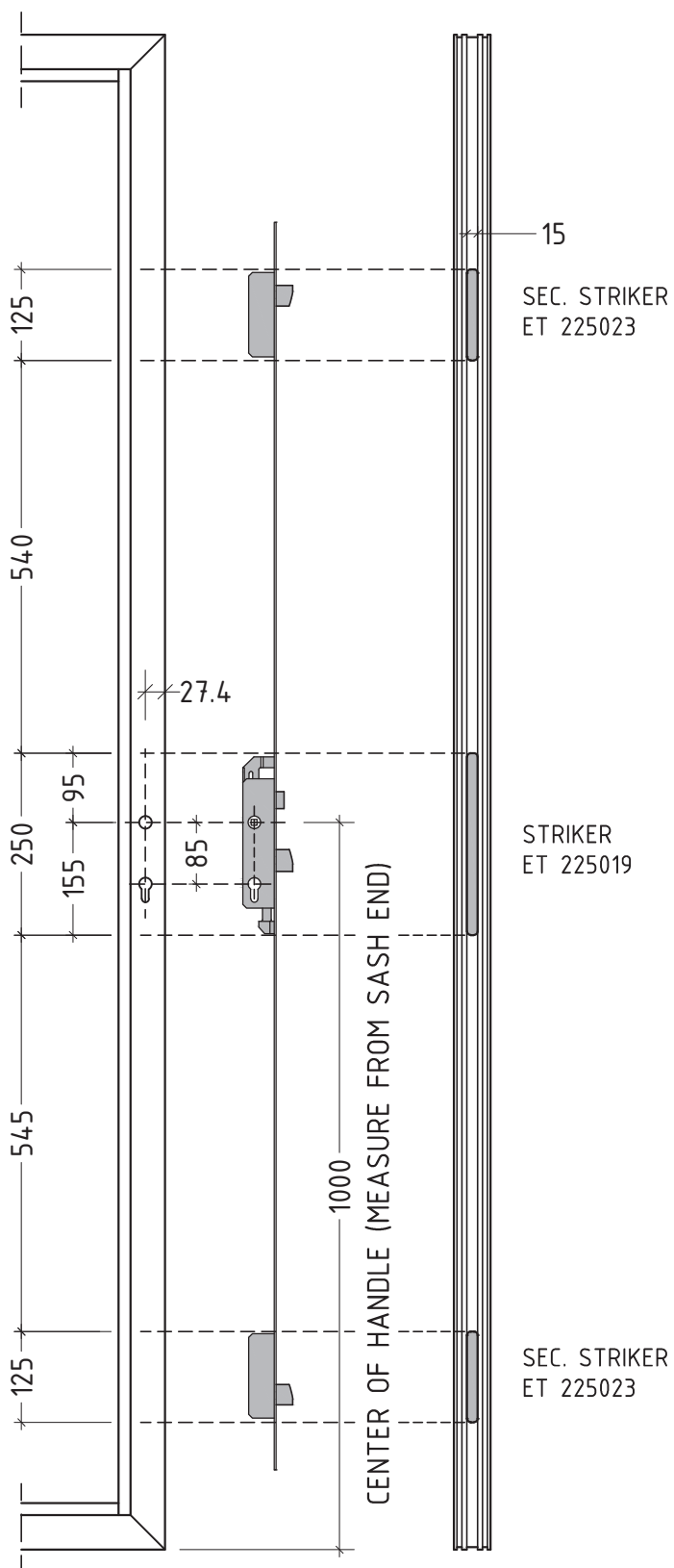
ALL MACHINING
MEASUREMENTS
ARE VALID FOR HEIGHT
OF HANDLE 1000 mm



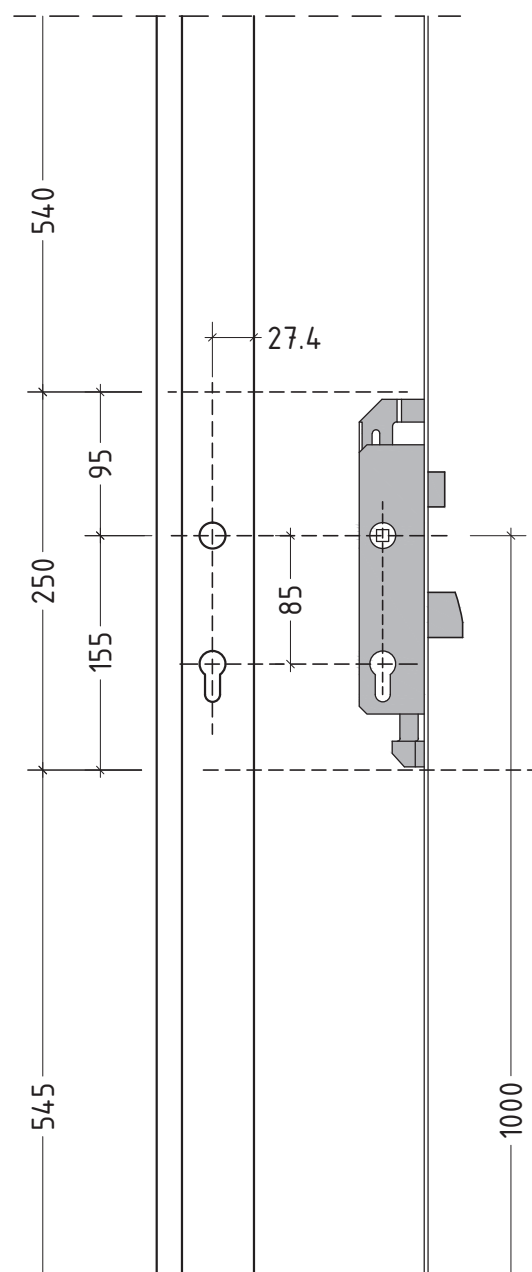
MACHINING OF TRANSMISSION
ROD IS PERFORMED
AT PUNCHING MACHINE
ET 162085

MACHINING ON SASH E39201 FOR 3-POINT LOCK ET225022

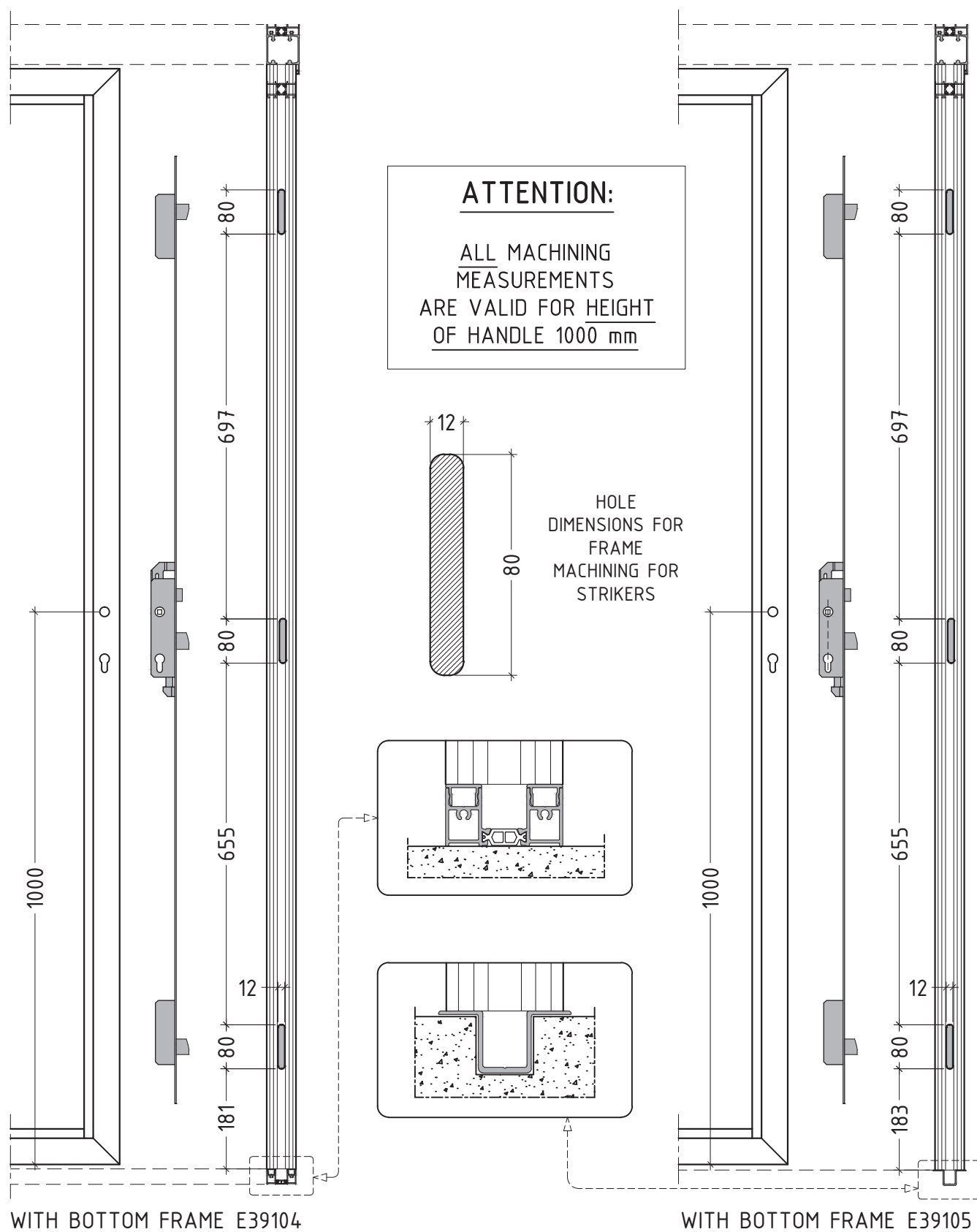
M39-13



3-POINT LOCK ET225022
IS NOT VALID FOR
DOORS WITH BOTH EVEN
NUMBER OF SASHES
(422, 844, e.g)

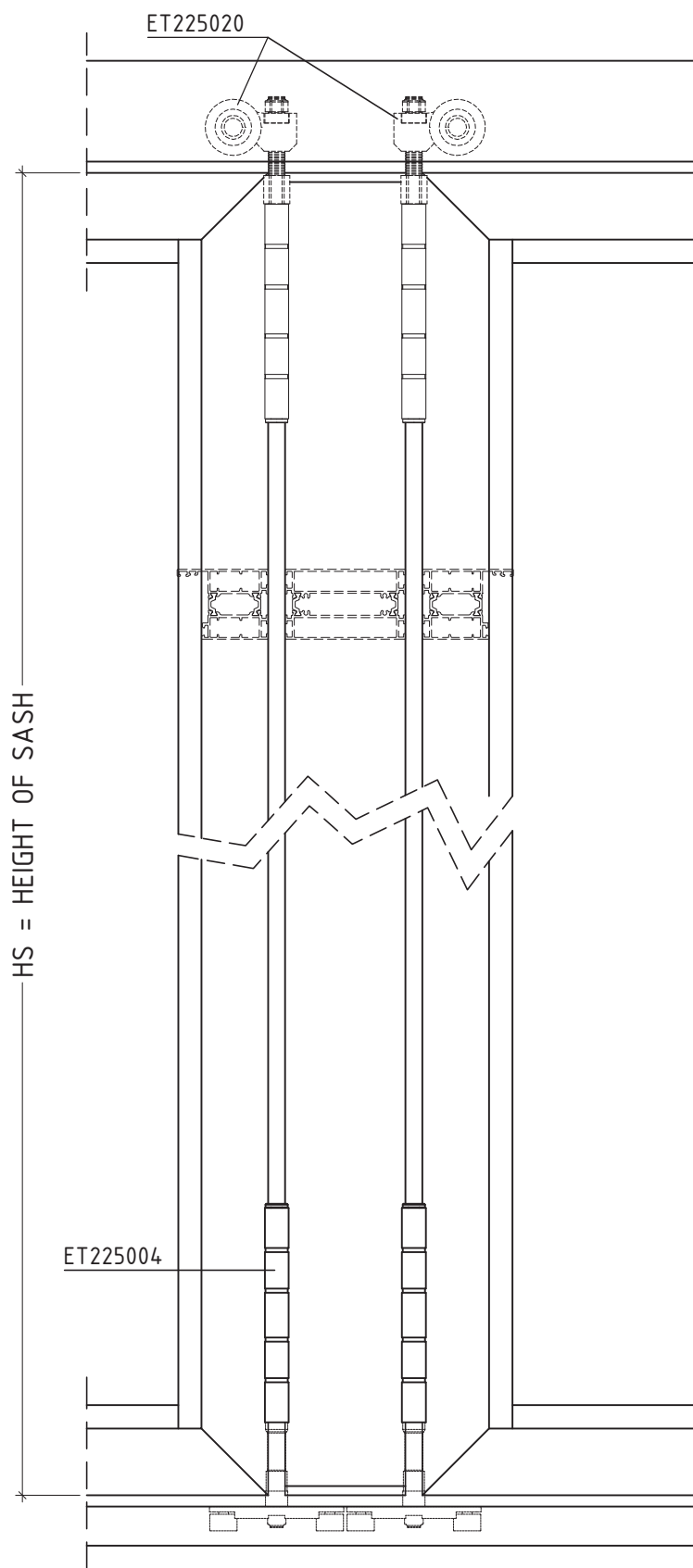


MACHINING ON VERTICAL FRAMES FOR 3-POINT LOCK STRIKERS M39-14



MACHINING FOR SECONDARY SASH E39501

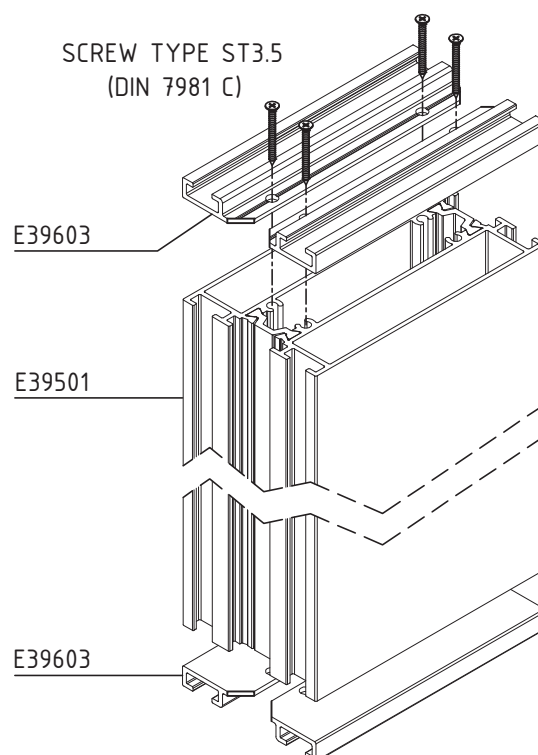
M39-15



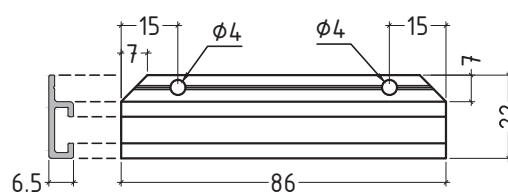
SECONDARY SASH E39501
IS NECESSARY WHEN ONE OR
BOTH SASH BATCHES ARE EVEN
example : 2+1, 2+2, 2+3,
4+3, 4+4 etc.

E39501 CUTTING HEIGHT

$$E39501 = HS - 13mm$$

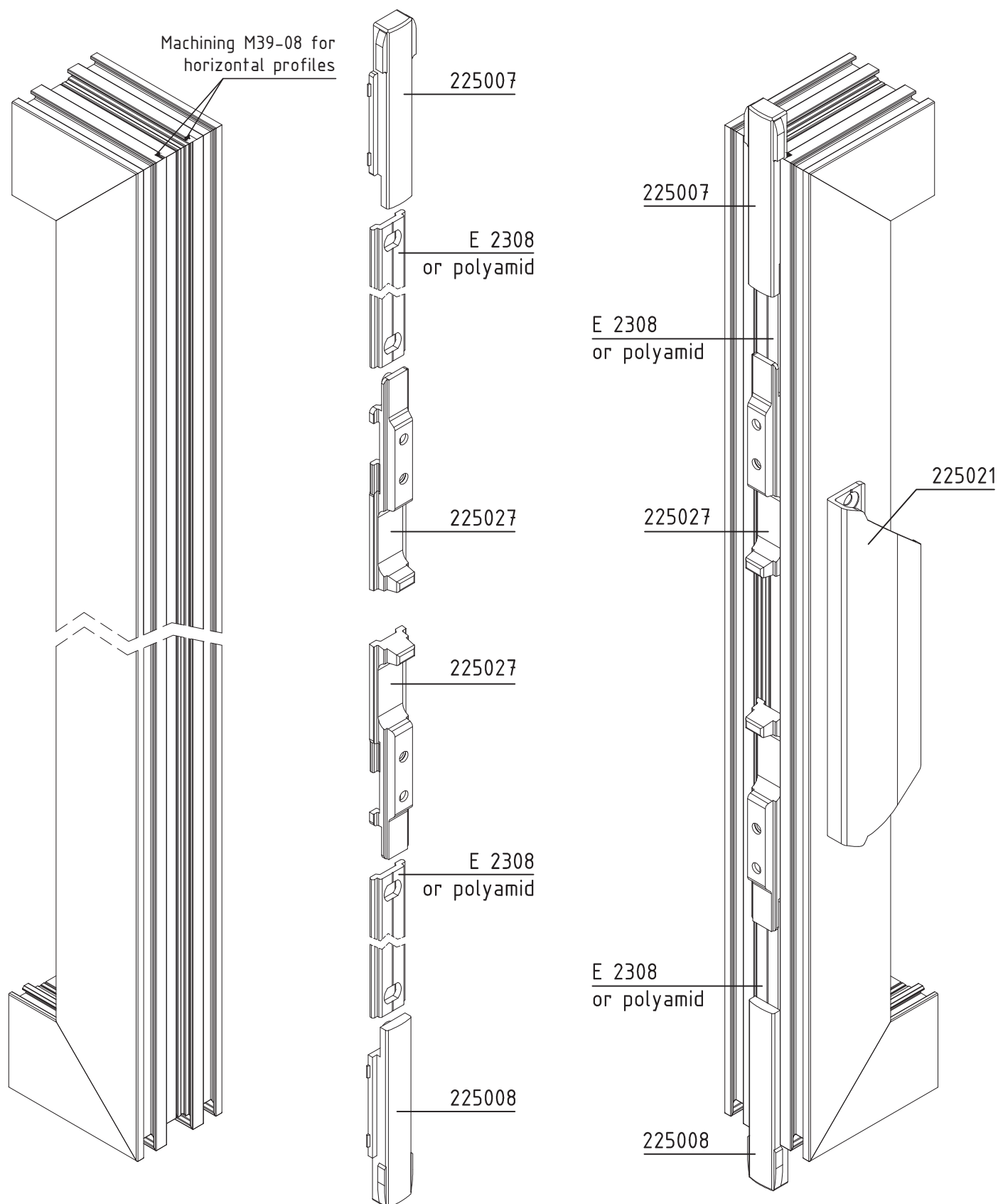


4 PCS OF PROFILE E39603 ARE CUTTED
86 mm LENGTH AND SCREWED ON TOP AND
BOTTOM OF E39501



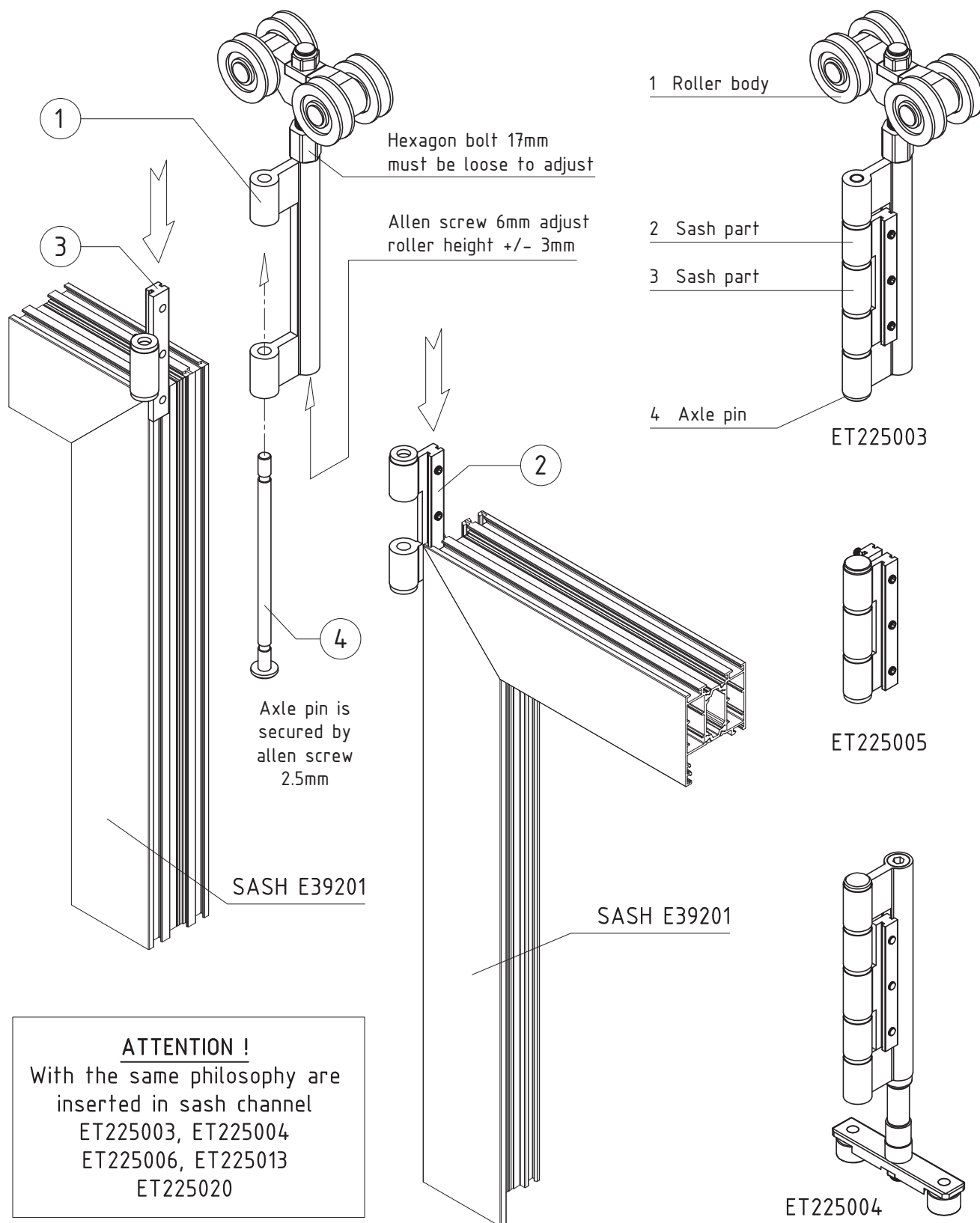
LOCKING DETAIL WITH LACHES (CAN BE USED FOR E39201 - E39501)

M39-24



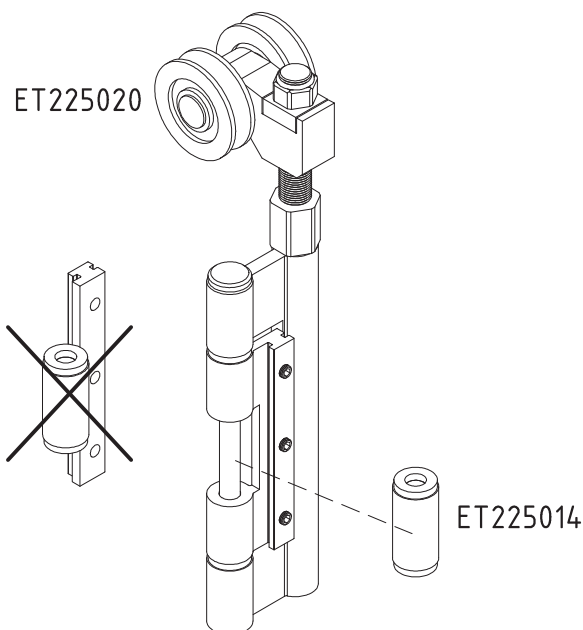
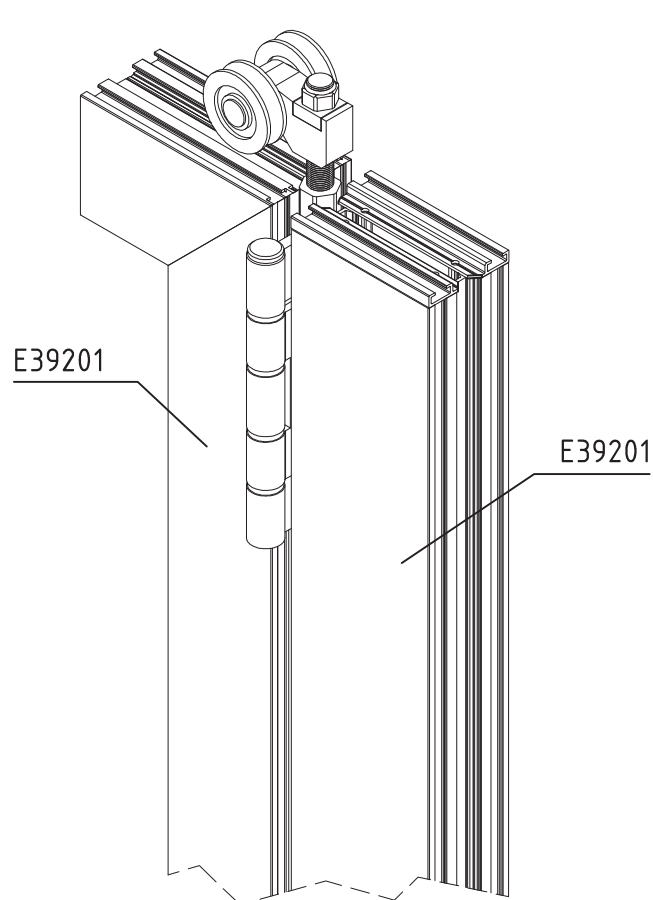
INSTALLATION OF ROLLERS & SASH CHANNEL ACCESSORIES

M39-16



APPLICATION OF HALF TOP ROLLER ET 225020

M39-29



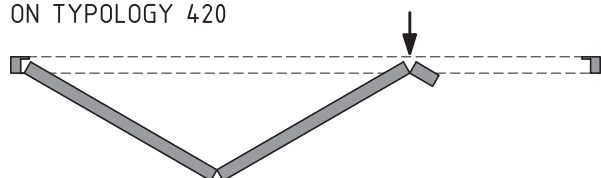
If we have visible roller or hinge at the end of folding part, we must remove middle part of hinge and replace it with spacer ET 225014

⚠ ATTENTION

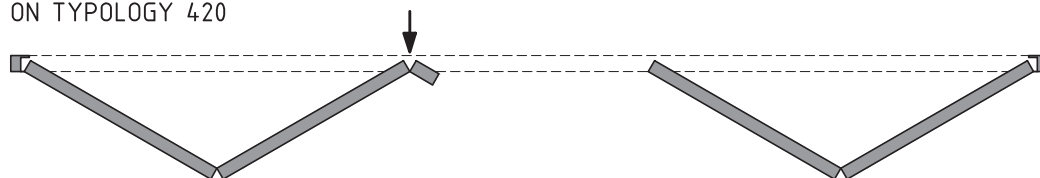
APPLICATION OF HALF ROLLER ET225020 IS MANDATORY, WHEN ONE OR BOTH FOLDING PARTS HAVE EVEN NUMBER OF SASHES (types 220, 422, 523, 743, etc.)

POSITION OF ET225020, IS BETWEEN SASH E39201 AND SECONDARY SASH E39501

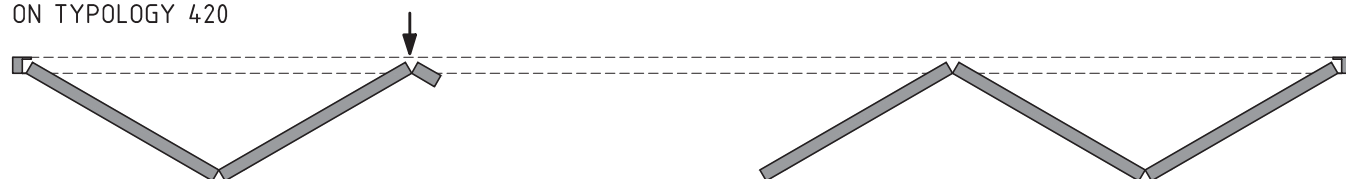
EXAMPLE OF POSITION OF ET225020 ON TYPOLOGY 420



EXAMPLE OF POSITION OF ET225020 ON TYPOLOGY 420

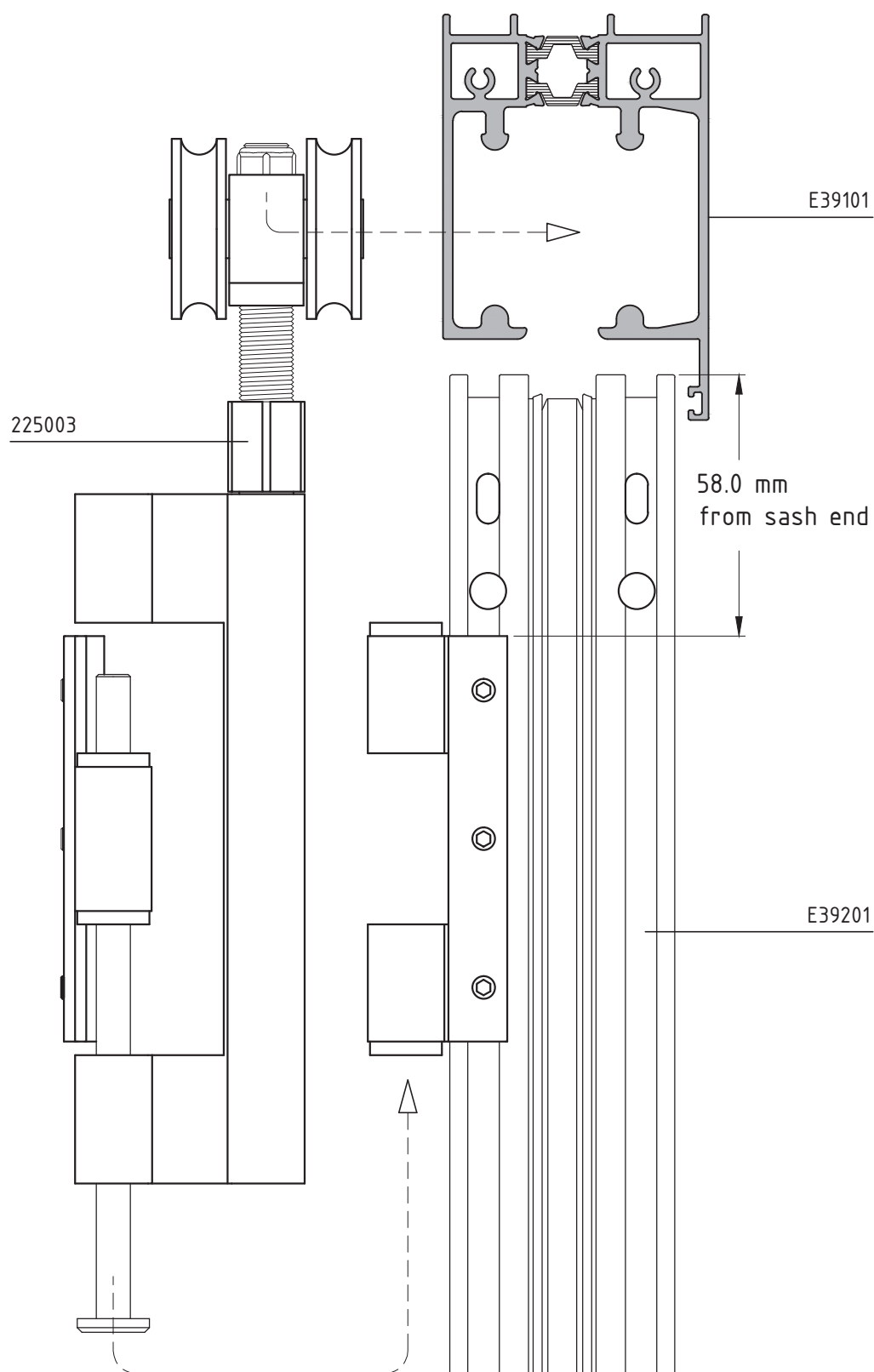


EXAMPLE OF POSITION OF ET225020 ON TYPOLOGY 420



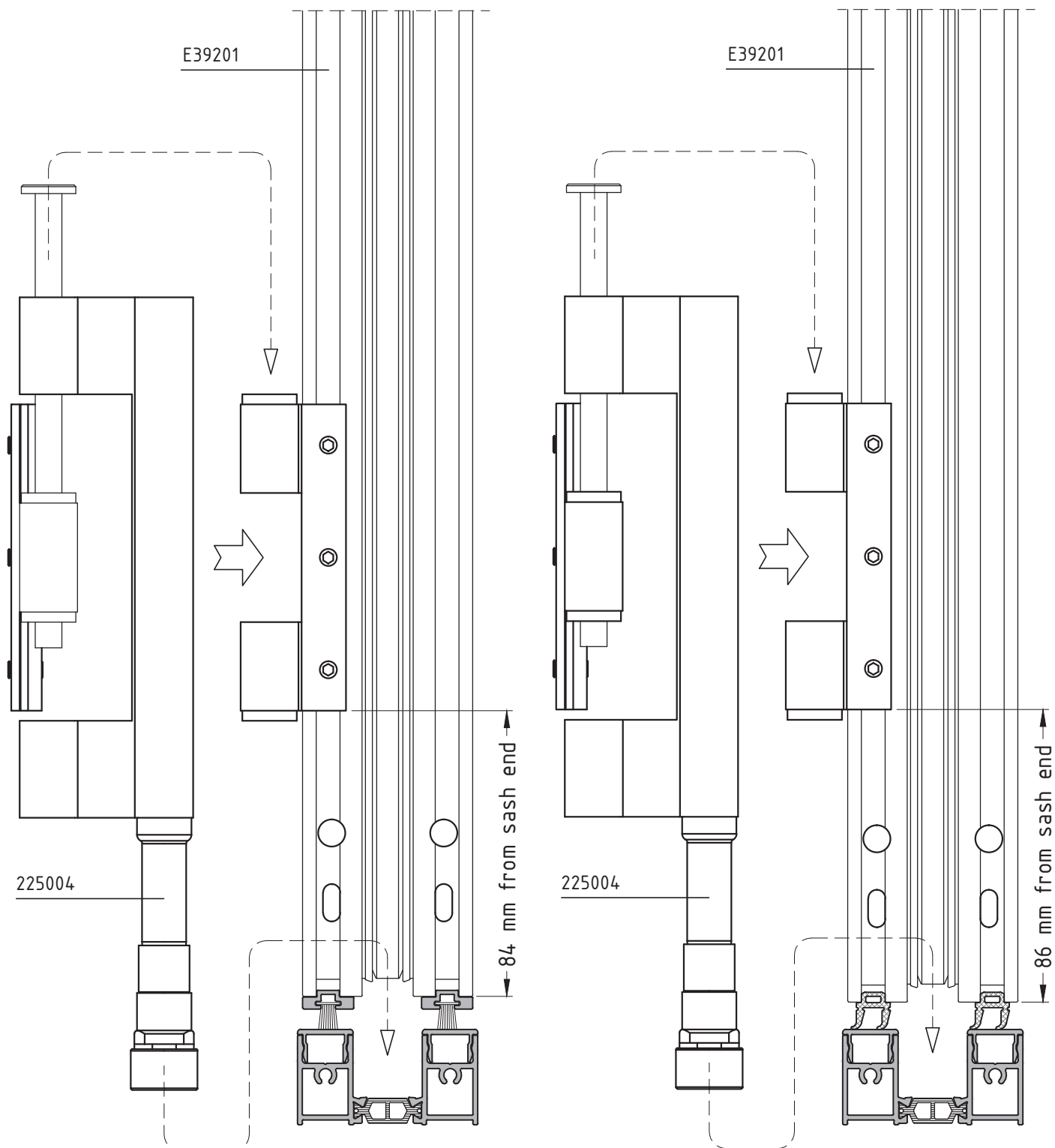
POSITIONING DIMENSIONS FOR TOP ROLLER ET225003-225020

M39-25



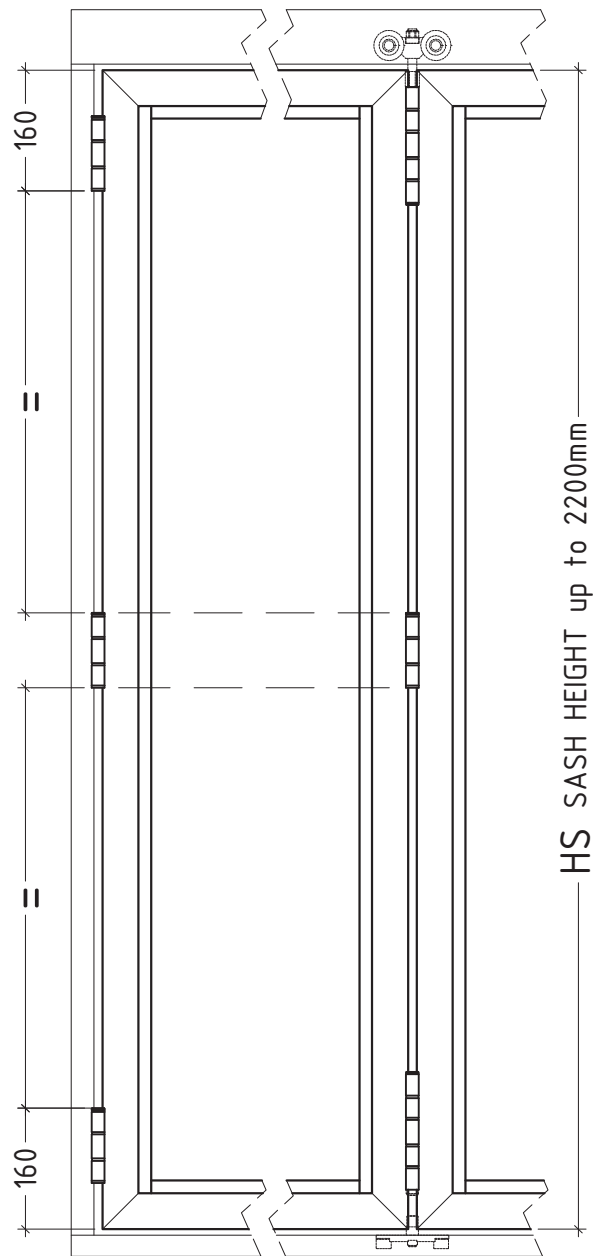
POSITIONING DIMENSIONS FOR BOTTOM ROLLER ET 225004

M39-26



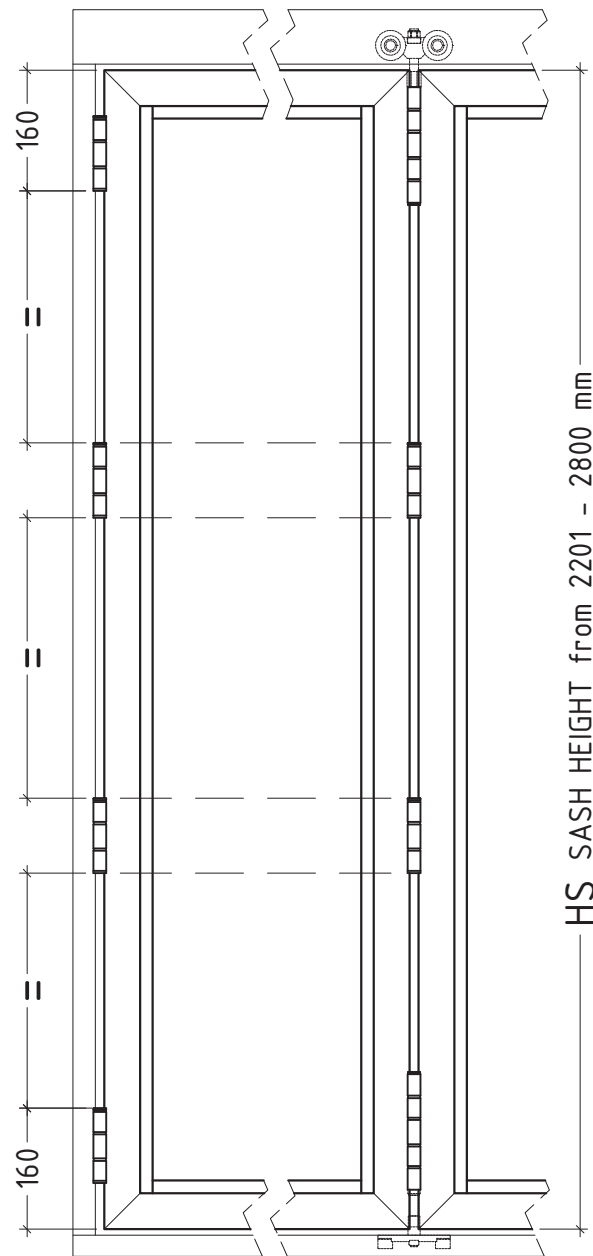
POSITIONING DIMENSIONS FOR ROLLERS - HINGES ON E39201

M39-17



FOR HS (SASH HEIGHT)
UP TO 2200mm

min. 3 HINGES or
TOP - BOTTOM ROLLER
& 1 HINGE

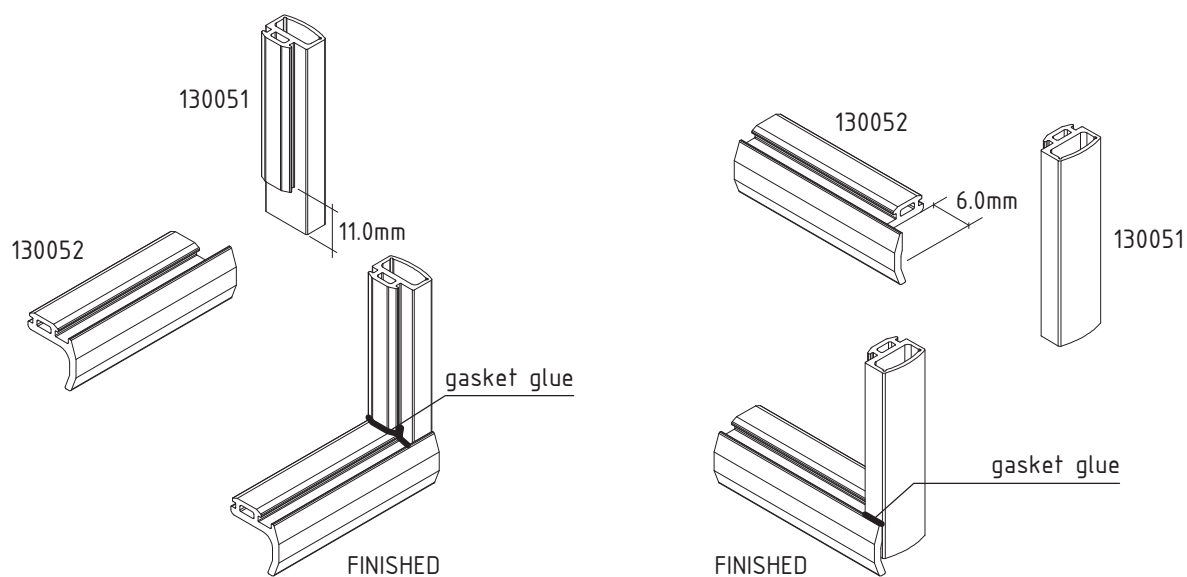
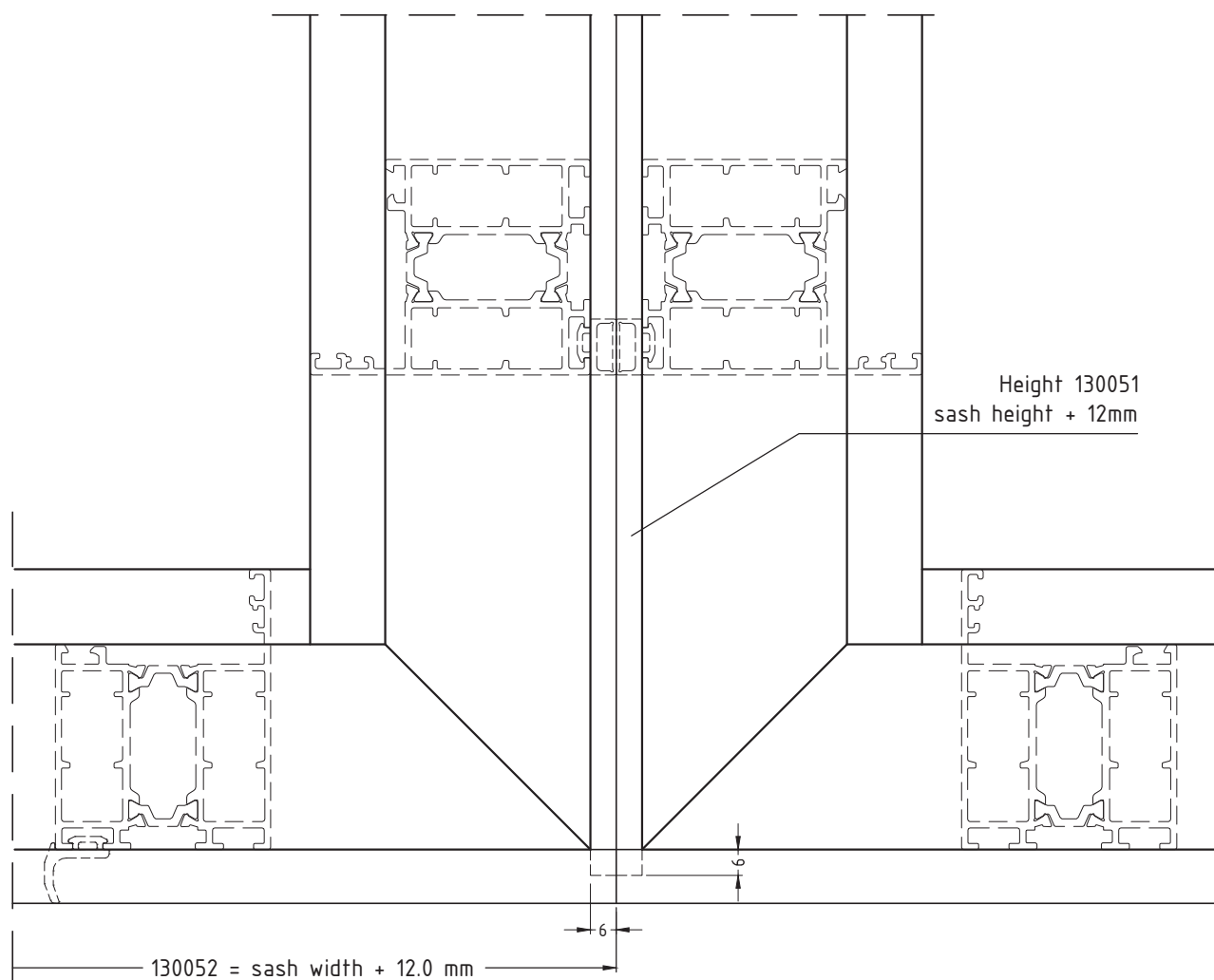


FOR HS (SASH HEIGHT)
from 2201 - 2800mm

min. 4 HINGES or
TOP - BOTTOM ROLLER
& 2 HINGE

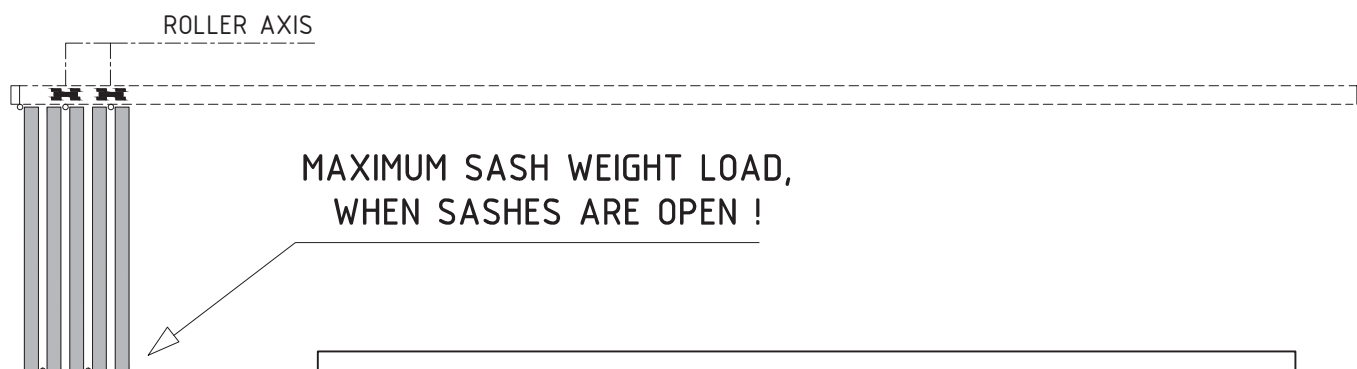
CONNECTION CUTTING FOR SASH GASKETS ET130051 & 130052

M39-27



APPLICATIONS OF GLAZING SHIMS

M39-18

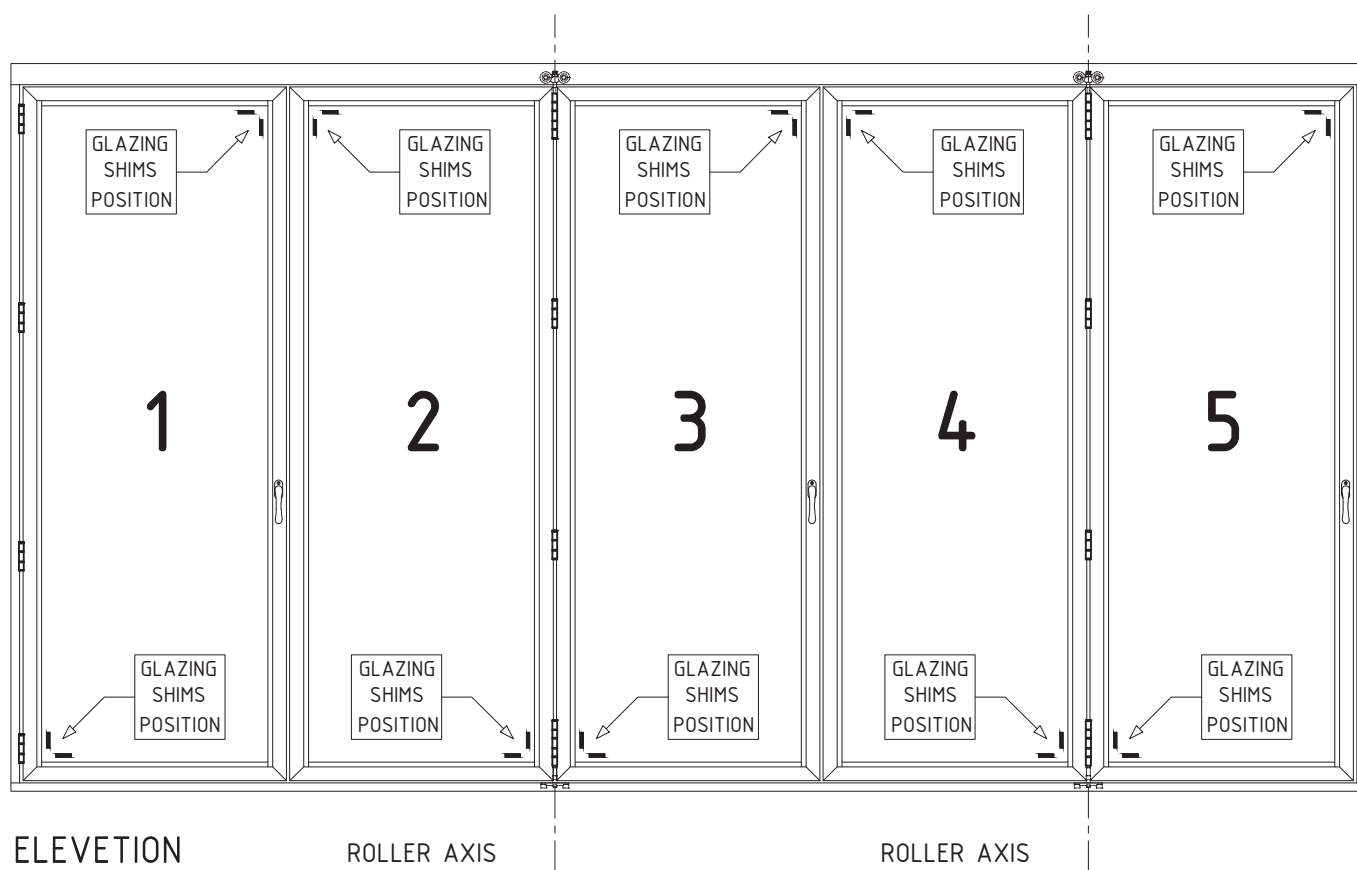


PLAN

IMPORTANT !!

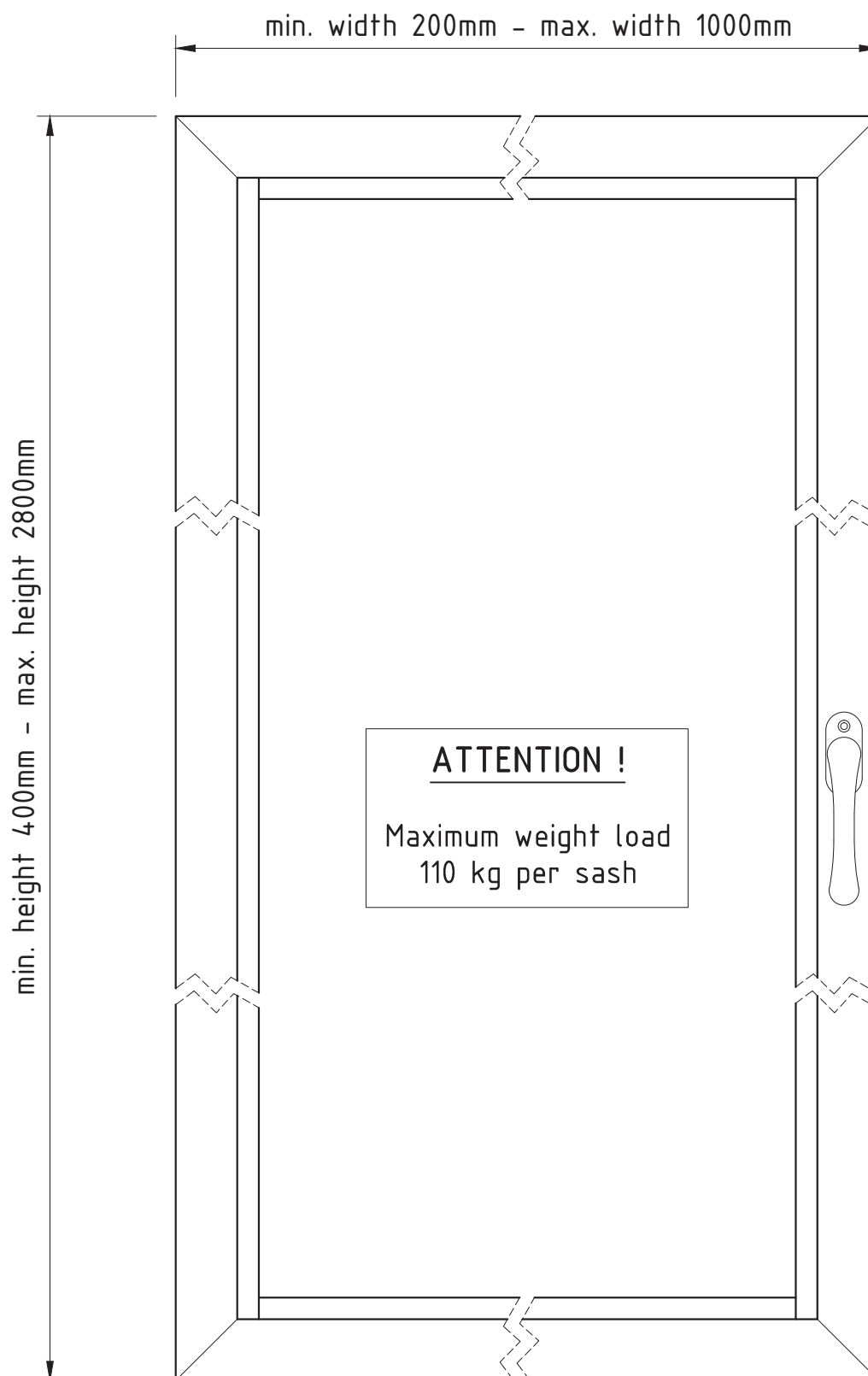
GLASS PANEL GLAZING SHIMS, MUST BE MIRROR PLACED
(ONE BY ONE SASH) IN ORDER ROLLERS & HINGES
RECEIVE GLASS PANEL WEIGHT LOAD WHEN SASHES
ARE IN OPEN POSITION

example with 5-LEAF FOLDING DOOR



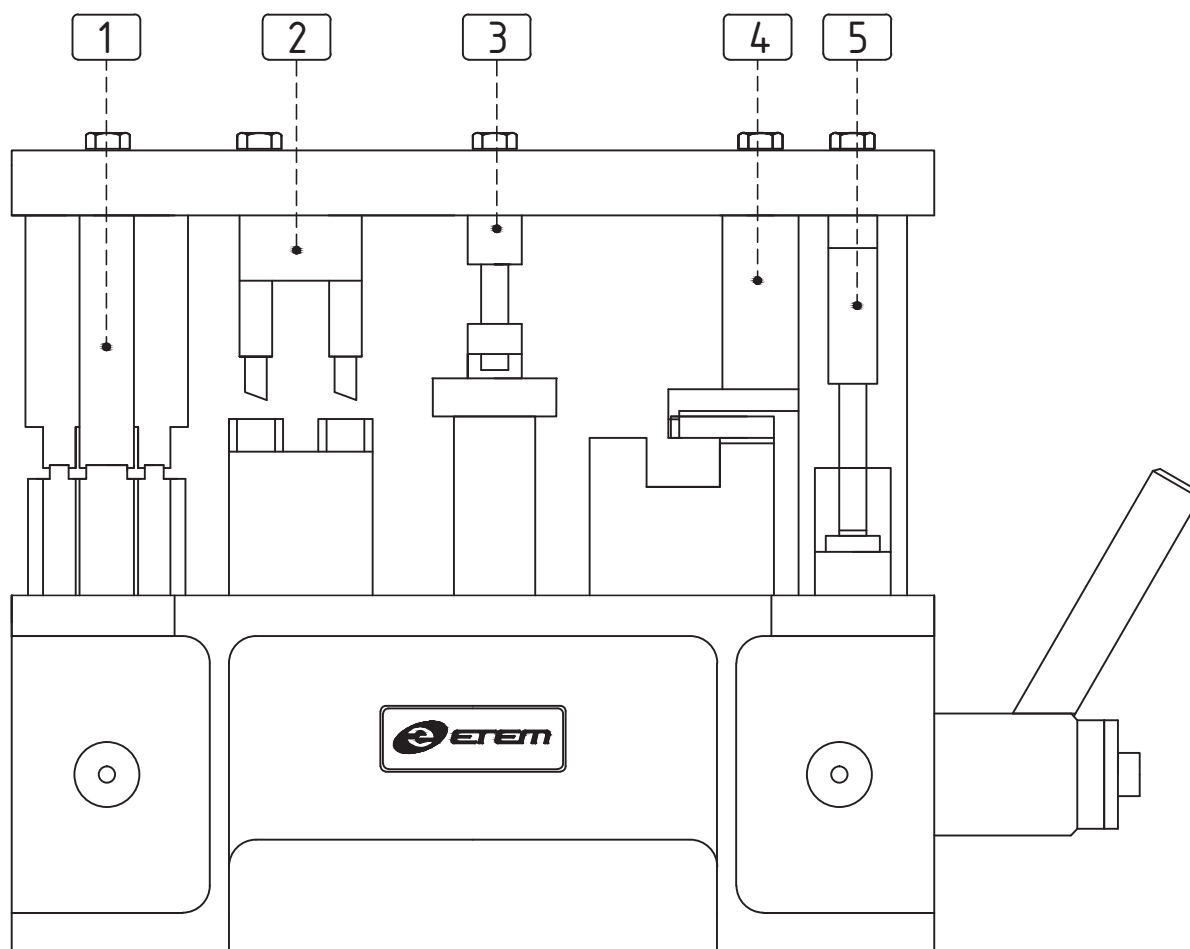
MINIMUM - MAXIMUM DIMENSIONS FOR SASH E39201

M39-19



PUNCHING MACHINE FOR E39 PROFILES, CODE No ET162085.00

M39-28



- 1 Machining of sash groove for accessories insert (Machining M39-08)
- 2 Machining of sash for corner joint (Machining M39-07)
- 3 Machining of profile E39250 for corner joint
- 4 Machining of profile E39104 for water drainage (Machining M39-06)
- 5 Machining of connection rod E2308 (Machining M39-12)

ACCESSORIES

code/description

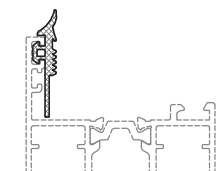
package/pcs

colour

ET 130769.00



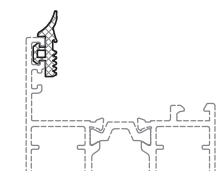
Elongated glazing epdm
gasket 3.0 mm



ET 130411.00



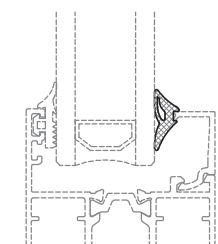
EPDM glazing gasket
press-in 3.0 mm



ET 130176.00



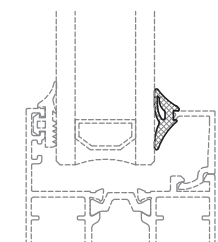
Internal EPDM glazing
gasket 5-6 mm



ET 130177.00


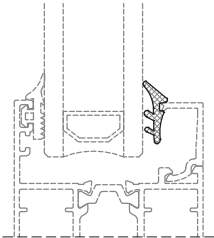

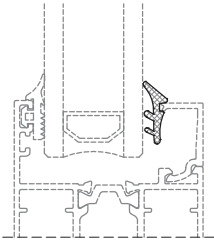

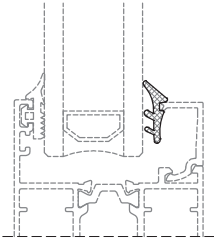

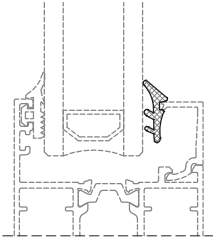


Internal EPDM glazing
gasket 7-8 mm



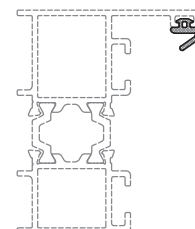
folding - sliding window system with thermal break

E39

code/description	package/pcs	colour		
ET 130205.00		●		
Internal EPDM glazing gasket 5 mm				
ET 130206.00		●		
Internal EPDM glazing gasket 6 mm				
ET 130207.00		●		
Internal EPDM glazing gasket 7 mm				
ET 130208.00		●		
Internal EPDM glazing gasket 8 mm				

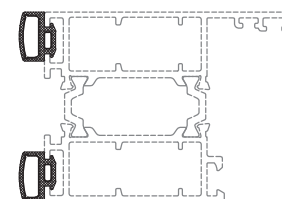
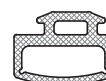
code/description	package/pcs	colour
ET 130799.00		●

Internal EPDM sealing gasket



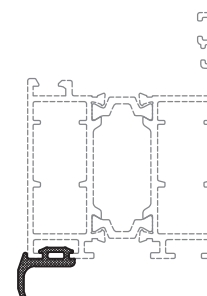
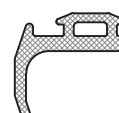
ET 130051.00

Vertical sealing gasket for sash



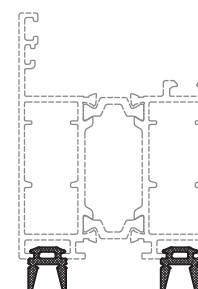
ET 130052.00

Single wing gasket for horizontal parts of sashes

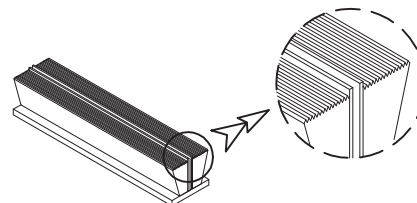


ET 130053.00

Double wing gasket for horizontal parts of sashes

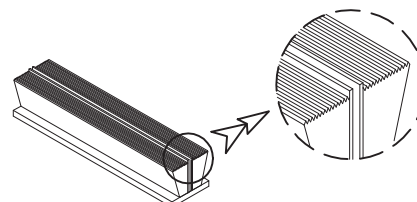


code/description	package/pcs	colour
ET 135508.01		●
ET 135508.02		●
ET 135508.04		○



Pile weatherseal
FP 8 mm

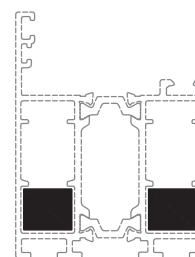
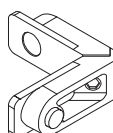
ET 135510.01		●
ET 135510.02		●
ET 135510.04		○



Pile weatherseal
FP 10 mm

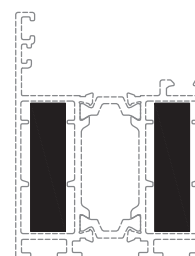
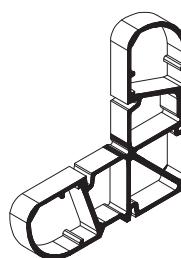
ET 053334.00		
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Die cast aluminium corner
for sash E39201



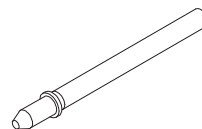
ET 054482.00		
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Extruded aluminium corner
bracket for sash E39201



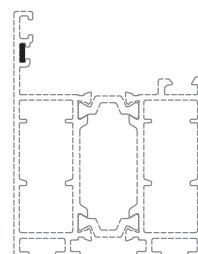
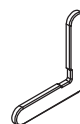
code/description	package/pcs	colour
ET 143900.00		

Pin for extruded aluminium
corner bracket
for sash E39201



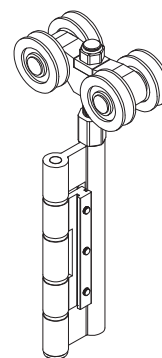
ET 055507.00		galv.steel
ET 056604.00		inox

Alignment square for
E19, E22, E50, E52
E1000, E40, E45



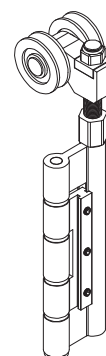
ET 225003.01		●
ET 225003.02		●
ET 225003.11		○

Hinge for folding doors
with rollers



ET 225020.01		●
ET 225020.02		●
ET 225020.11		○

Half hinge for folding doors
with rollers

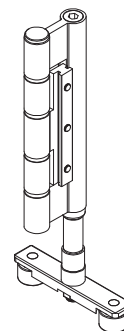


folding - sliding window system with thermal break

E39

code/description	package/pcs	colour
ET 225004.01		●
ET 225004.02		●
ET 225004.11		○

Alignment hinge
for folding doors



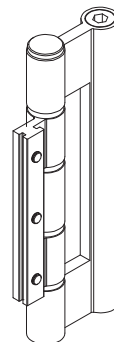
ET 225005.01		●
ET 225005.02		●
ET 225005.11		○

Leaf hinge for folding doors



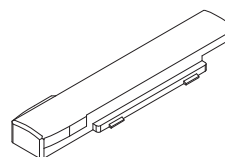
ET 225006.01		●
ET 225006.02		●
ET 225006.11		○

Leaf hinge for folding doors
with rotating handle



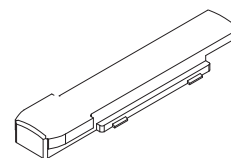
ET 225007.00		
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Top terminal bolt



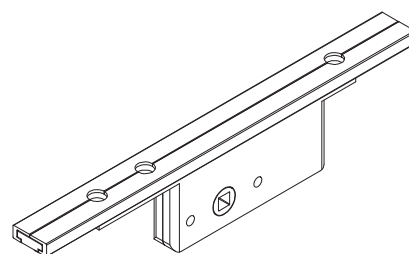
code/description	package/pcs	colour
ET 225008.00		

Bottom terminal bolt



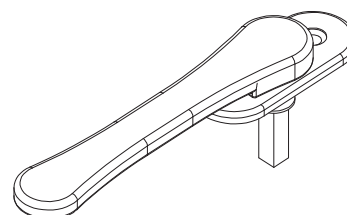
ET 225009.01		●
ET 225009.02		●
ET 225009.05		○

Double action gearbox
for locking



ET 225010.01		●
ET 225010.02		●
ET 225010.05		○

Locking handle for double
action gearbox



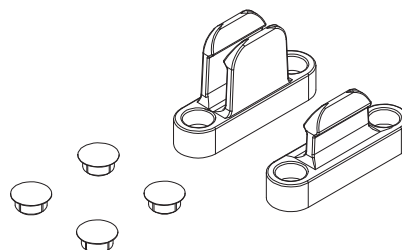
ET 225011.00		
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Screw for locking handle
M5 x 35 mm



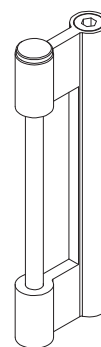
code/description	package/pcs	colour
ET 225012.02		

Clip for folding door sashes
(optional clip and hold
sashes in open position)



ET 225013.01		○
ET 225013.02		●
ET 225013.11		○

Rotating handle with pin only



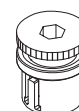
ET 225014.01		○
ET 225014.02		●
ET 225014.11		○

Hinge spacer for
single mechanism



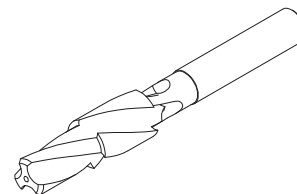
ET 225016.00		
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Adjustment block for frame



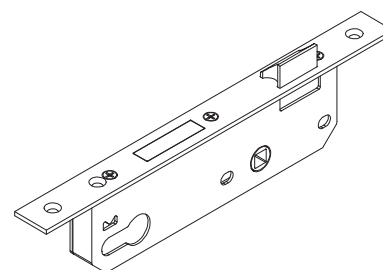
code/description	package/pcs	colour
ET 225017.00		

Stepped drill for frame
adjustment screw



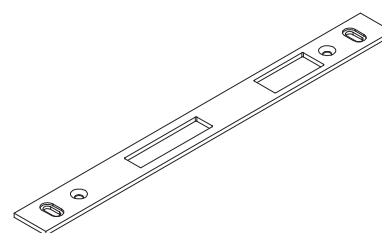
ET 225018.00		
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Door single point lock 30 mm



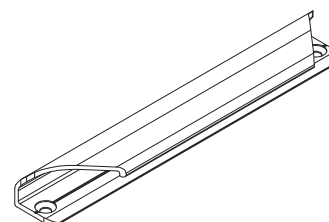
ET 225025.00		
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Adjustable striker for
door lock ET 225018.00



ET 225021.01		●
ET 225021.02		●
ET 225021.11		○

External fixed handle



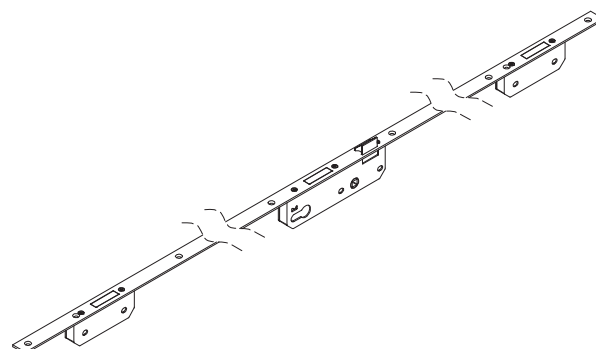
code/description

package/pcs

colour

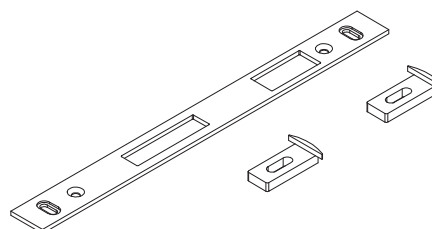
ET 225022.00

3-Point door lock



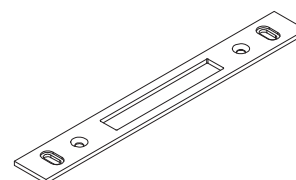
ET 225019.02

Striker for 3-point
door lock ET 225022



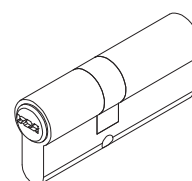
ET 225023.00

Secondary striker for
3-point door lock ET 225022



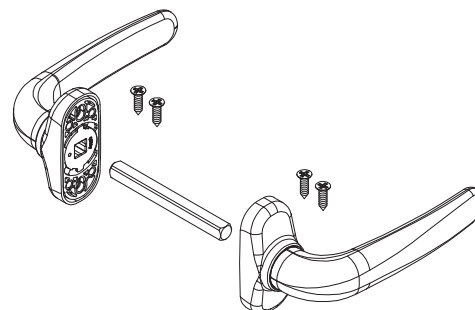
ET 225024.00

Cylinder for lock (25-10-25)



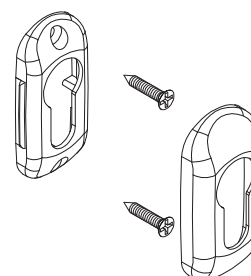
code/description	package/pcs	colour
GI 027920.01		●
GI 027920.02		●
GI 027920.06		●

Double lever handle



GI 206672.01		●
GI 206672.02		●
GI 206672.06		●

Oval washer for cylinder



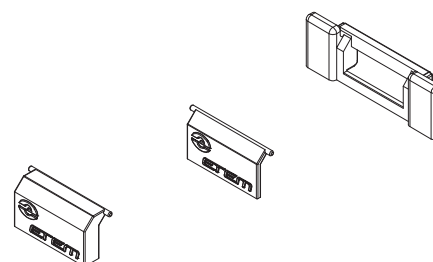
ET 240827.00		
--------------	--	--

Foam sealing for E39104 endings



ET 074771.00		
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Plastic cap with flap for drainage hole 8x30mm

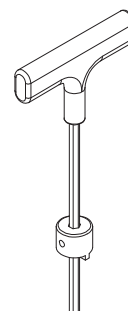


folding - sliding window system with thermal break

E39

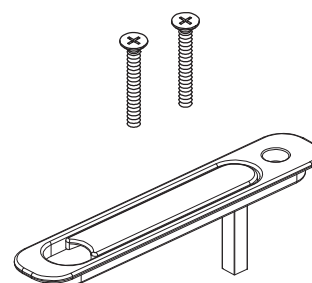
code/description	package/pcs	colour
ET 225026.00		

Hexagon allen key for frame
adjustable blocks



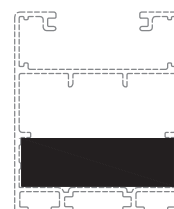
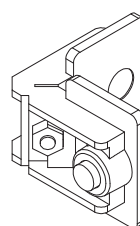
GI 027600.01		white
GI 027600.02		black
GI 027600.06		grey

Embedding handle IN LINE



ET 053308.00		natural
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Die cast al. joint corner
bracket (E8000)



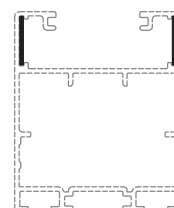
E39250

ET 056607.00		inox
ET 055508.00		galv.steel
ET 057705.00		polyamid 6.6

Alignment square for
E19, E22, E50, E52



polyamid 6.6



E39250

folding - sliding window system with thermal break

E39

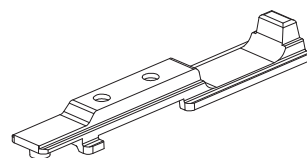
code/description

package/pcs

colour

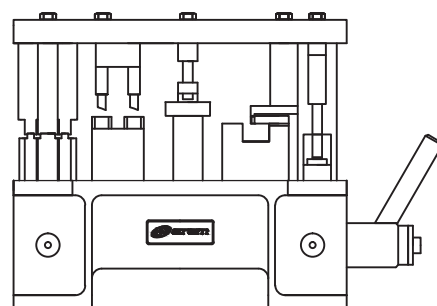
ET 225027.02

Latch operator



ET 162085.00

Punching machine for
E39 profiles



CE MARKING

STANDARDS / REQUIREMENTS

CE MARKING

WHAT DOES THE SIGN CE MEAN?

It is an abbreviation of the French "Conformite Europeene"- i.e. European Conformity. By placing the CE marking the manufacturer declares that the product complies with the general safety requirements set out in the Construction Product Regulation 305/2011.

WHAT IS THE PURPOSE OF CE MARKING?

The CE marking represents "the European passport" of the product, its main objectives are:

CE is a declaration by the manufacturer that the product meets the essential requirements of relevant European legislation relating to health, safety and environmental protection;

CE indicates to officials in relevant ministries and departments that the product can be put on the market lawfully in the country;

CE ensures free movement of goods within the EU and the European Free Trade Association (EFTA);

CE permits the withdrawal of products that do not meet the standards by monitoring and custom authorities;

Marking with the CE mark is necessary in cases where the product is distributed within the internal market.

WHAT ARE THE REQUIREMENTS FOR THE CE MARKING?

Doors, windows and gates (except those intended to be used for internal communication only, for fire/smoke compartmentation and on escape routes) are covered by System 3 of assessment and verification of constancy of performance.

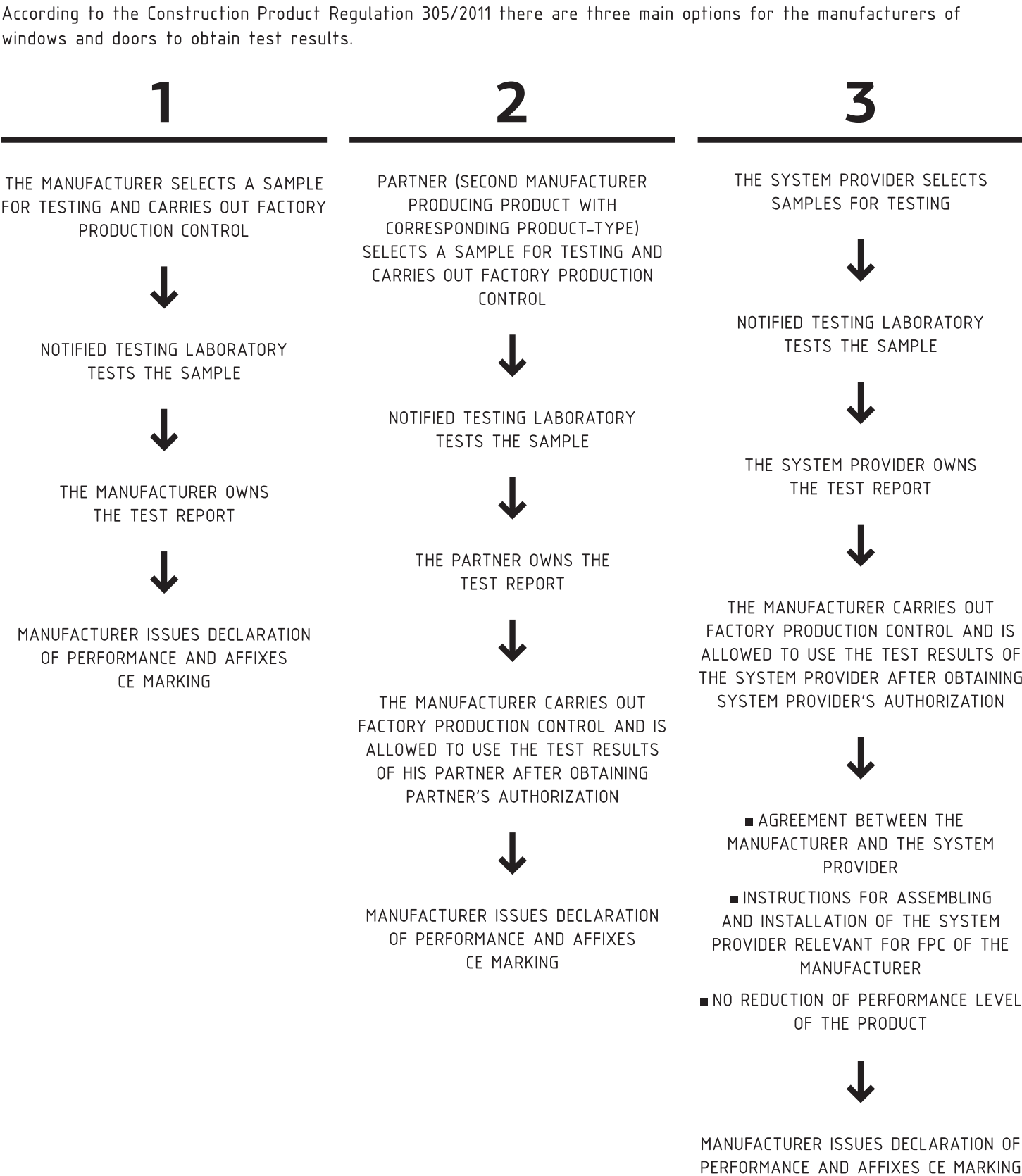
According to the Construction Product Regulation 305/2011, this system sets the following duties:

Tasks to be performed by the manufacturer	Tasks to be performed by Notified testing laboratory	Conformity assessment (the basis for CE marking, which is set by the final producer)
factory production control – FPC	Determination of the product type on the basis of type testing, type calculation, tabulated values, etc.	Declaration of performance issued by the manufacturer or his authorized representative based on test results.

LEGAL ACTS

- Construction Products Regulation (305/2011/EU – CPR) – replacing the Construction Products Directive (89/106/EEC – CPD)
- EN 14351-1:2006+A1:2010 – Windows and doors – Product standard, performance characteristics – Part 1: Windows and external pedestrian doorsets without resistance to fire and/or smoke leakage characteristics

MAIN METHODS FOR OBTAINING TEST RESULTS BY THE MANUFACTURER



SAMPLE DECLARATION FOR WINDOWS/DOORS

Declaration of performance Nº

1. Unique identification code of the product type: W-01
2. Intended use / uses: Window/ External pedestrian doorset intended to be used in domestic and commercial locations
3. Manufacturer: Name
Address
Phone
Email
Website
4. Authorized representative (if applicable) Name
Address
Phone
Email
Website
5. System of assessment and verification of constancy of performance: 3
6. Harmonized standard: EN 14351-1:2006 + A1:2010
7. Notified body/bodies: Notified body XXX, Identification number of NB 1234 performed determination of the product-type on the basis of type testing under system 3 and issued test and classification report Nº123456, issued on 01.02.2015

8. Declared performance:

Essential characteristics	Performance	Harmonized technical specification
Watertightness	8A	EN 14351-1:2006 + A1:2010
Resistance to wind load	C3	
Sound insulation	38 (-1;-2) dB	
Air permeability	4	
Thermal transmittance		
frame	1,3 W/(m².K)	
glazing	1,3 W/(m².K)	
sample	1,4 W/(m².K)	
Radiation properties		
solar factor	0,55	
light transmittance	0,75	
Dangerous substances	NPD	

9. Specific technical documentation used (if applicable): N/A

The performance of the product identified in point 1 is in conformity with the declared performance in point 8.
This declaration of performance is issued under the sole responsibility of the manufacturer identified in point 3.

Signed for and on behalf of the manufacturer by:

.....
(name and function)

Place and date of issue:
Sofia, 01.07.2016

Signature:
.....

STANDARDS

GENERAL

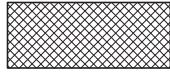
- EN 12020 (1÷2) – ALUMINIUM AND ALUMINIUM ALLOYS – EXTRUDED PRECISION PROFILES IN ALLOYS EN AW-6060 AND EN AW-6063
- EN 755 (1÷9) – ALUMINIUM AND ALUMINIUM ALLOYS – EXTRUDED ROD/BAR, TUBE AND PROFILES
- EN 573 (1÷3) – ALUMINIUM AND ALUMINIUM ALLOYS – CHEMICAL COMPOSITION AND FORM OF WROUGHT PRODUCTS
- EN 1990 EUROCODE – BASIS OF STRUCTURAL DESIGN
- EN 1991 EUROCODE 1 – ACTIONS ON STRUCTURES
- EN 1998 EUROCODE 8 – DESIGN OF STRUCTURES FOR EARTHQUAKE RESISTANCE
- EN 1999 EUROCODE 9 – DESIGN OF ALUMINIUM STRUCTURES

WINDOWS AND DOORS

1. EN 14351 – WINDOWS AND DOORS – PRODUCT STANDARD, PERFORMANCE CHARACTERISTICS
2. EN 12519 – WINDOWS AND PEDESTRIAN DOORS – TERMINOLOGY
3. EN 12207 – WINDOWS AND DOORS – AIR PERMEABILITY – CLASSIFICATION
4. EN 1026 – WINDOWS AND DOORS – AIR PERMEABILITY – TEST METHOD
5. EN 12208 – WINDOWS AND DOORS – WATERTIGHTNESS – CLASSIFICATION
6. EN 1027 – WINDOWS AND DOORS – WATERTIGHTNESS – TEST METHOD
7. EN 12210 – WINDOWS AND DOORS – RESISTANCE TO WIND LOAD – CLASSIFICATION
8. EN 12211 – WINDOWS AND DOORS – RESISTANCE TO WIND LOAD – TEST METHOD
9. EN 1191 – WINDOWS AND DOORS – RESISTANCE TO REPEATED OPENING AND CLOSING – TEST METHOD
10. EN ISO 10077 (1÷2) – THERMAL PERFORMANCE OF WINDOWS, DOORS AND SHUTTERS – CALCULATION OF THERMAL TRANSMITTANCE
11. EN 12412-2 – THERMAL PERFORMANCE OF WINDOWS, DOORS AND SHUTTERS – DETERMINATION OF THERMAL TRANSMITTANCE BY HOT BOX METHOD – PART 2: FRAMES
12. EN 13115 – WINDOWS – CLASSIFICATION OF MECHANICAL PROPERTIES – RACKING, TORSION AND OPERATING FORCES
13. EN 1627 – WINDOWS, DOORS, SHUTTERS – BURGLAR RESISTANCE – REQUIREMENTS AND CLASSIFICATION
14. EN 1628 – WINDOWS, DOORS, SHUTTERS – BURGLAR RESISTANCE – TEST METHOD FOR THE DETERMINATION OF RESISTANCE UNDER STATIC LOADING
15. EN 1629 – WINDOWS, DOORS, SHUTTERS – BURGLAR RESISTANCE – TEST METHOD FOR THE DETERMINATION OF RESISTANCE UNDER DYNAMIC LOADING
16. EN 1630 – WINDOWS, DOORS, SHUTTERS – BURGLAR RESISTANCE – TEST METHOD FOR THE DETERMINATION OF RESISTANCE TO MANUAL BURGLARY ATTEMPTS
17. EN ISO 717-1 – ACOUSTICS – RATING OF SOUND INSULATION IN BUILDINGS AND OF BUILDING ELEMENTS – PART 1: AIRBORNE SOUND INSULATION
18. EN ISO 10140 – ACOUSTICS – LABORATORY MEASUREMENT OF SOUND INSULATION OF BUILDING ELEMENTS

HATCHES

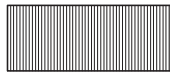
Hatches for different materials



EPDM



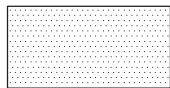
butyl seal



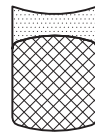
PVC



membrane



gypsum board



silicone seal

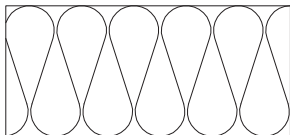
backer rod



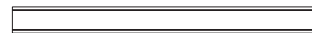
silicone seal



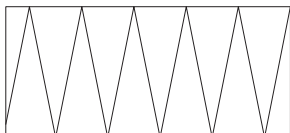
PVC spacer



Insulation soft



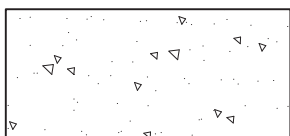
etalbond



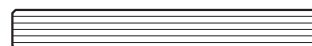
Insulation hard



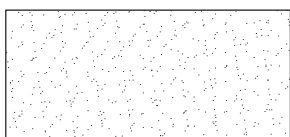
sheet aluminium



concrete wall



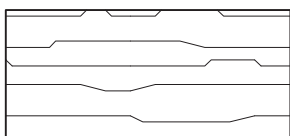
glass



plaster



aluminium profile



wood



steel

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The specific conditions and technical details of every particular project have to be taken into consideration.

The right choice of all elements as well as any special requirements regarding stability of the structure must always be considered by the structural/façade engineer, responsible for the project.

The solutions presented in these pages are indicative and can not cover all possible project cases. Because of that every single project has to be evaluated by the structural/facade engineer in charge taking into consideration the specific features, such as climate conditions, location, orientation, etc.

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