

➤ **PRODUCT TRAINING – GRANTS**

ENGINEERING & TECHNICAL SERVICES
LIXIL WINDOW SYSTEMS

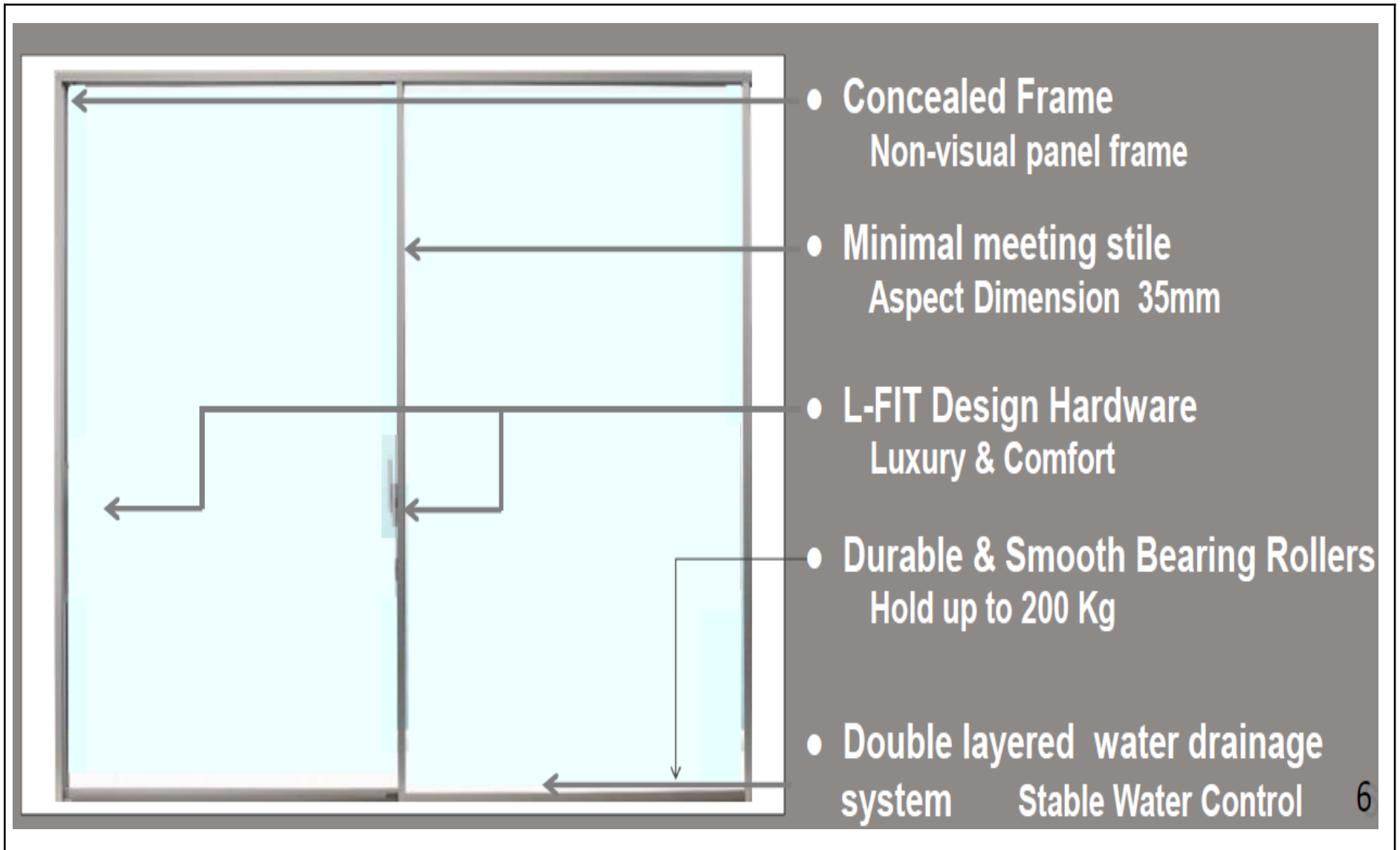
INTRODUCTION

Grants present - Perfect elegant Design, Perfect Performance & Function, Perfect Variety:



Frame / Cill Depth	101.6 mm - for Casement 120 mm – for 2 Track Slider 178 mm – for 3 Track Slider
Frame Height	50 mm – for Casements & Sliders
Glass Thickness	Up to 31.5 mm
Colour	Shine Grey, Autumn Brown, Natural Black, Natural White & Natural Silver
Wind Pressure	2000 Pa
Water Tightness	300 Pa
Air Tightness	10.7 m ³ / h·m ²
Noise Insulation	25 dB

PRODUCT FEATURES



PRODUCT FEATURES

Concealed Frame & Minimal Sightline

SLIDING WINDOW



Conventional



GRANTS

PRODUCT FEATURES

Concealed Frame & Minimal Sightline

4 PANELS WINDOW



Conventional



GRANTS

PRODUCT FEATURES

Concealed Frame & Minimal Sightline

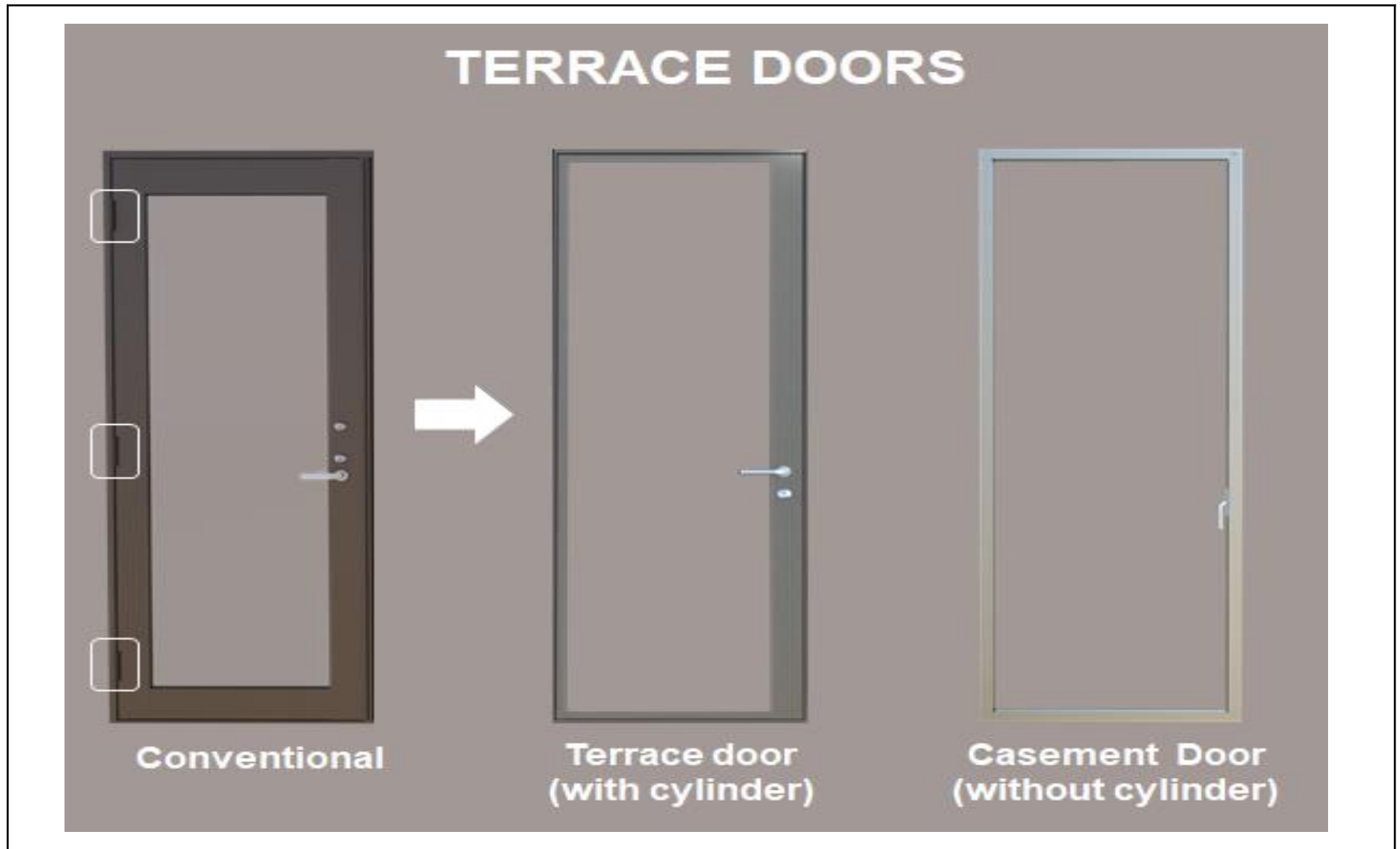


Conventional System

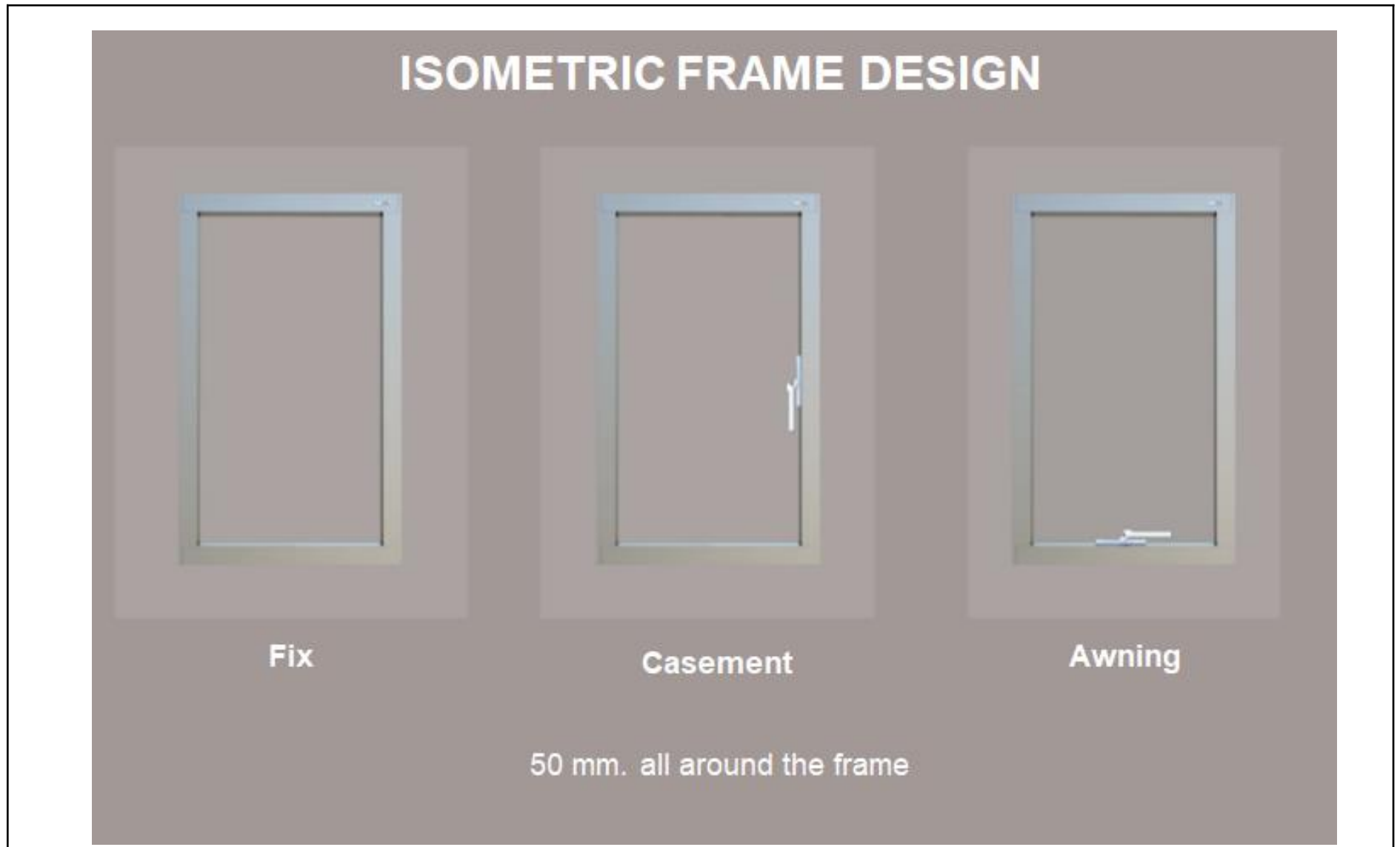


GRANTS

PRODUCT FEATURES



PRODUCT FEATURES



PRODUCT FEATURES

Accessories



“ L - Fit design

“L - Fit” means to fit in space and human hands.

“L - Fit” designs functional beauty that combines design and functionality .

Its shaping is not influenced by the times, it adapts to space even after years.

L-FIT handle Image



PRODUCT FEATURES

WIND LOAD

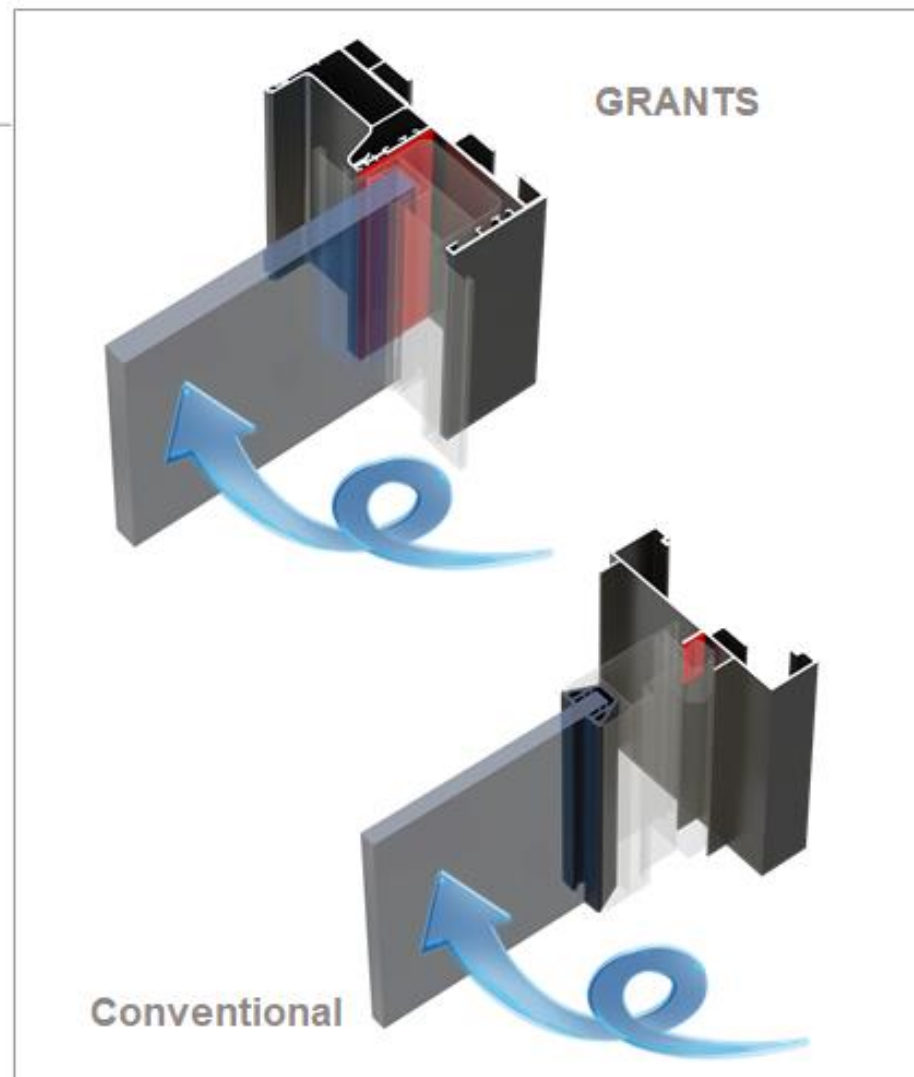


GRANTS

Slim doesn't mean weak

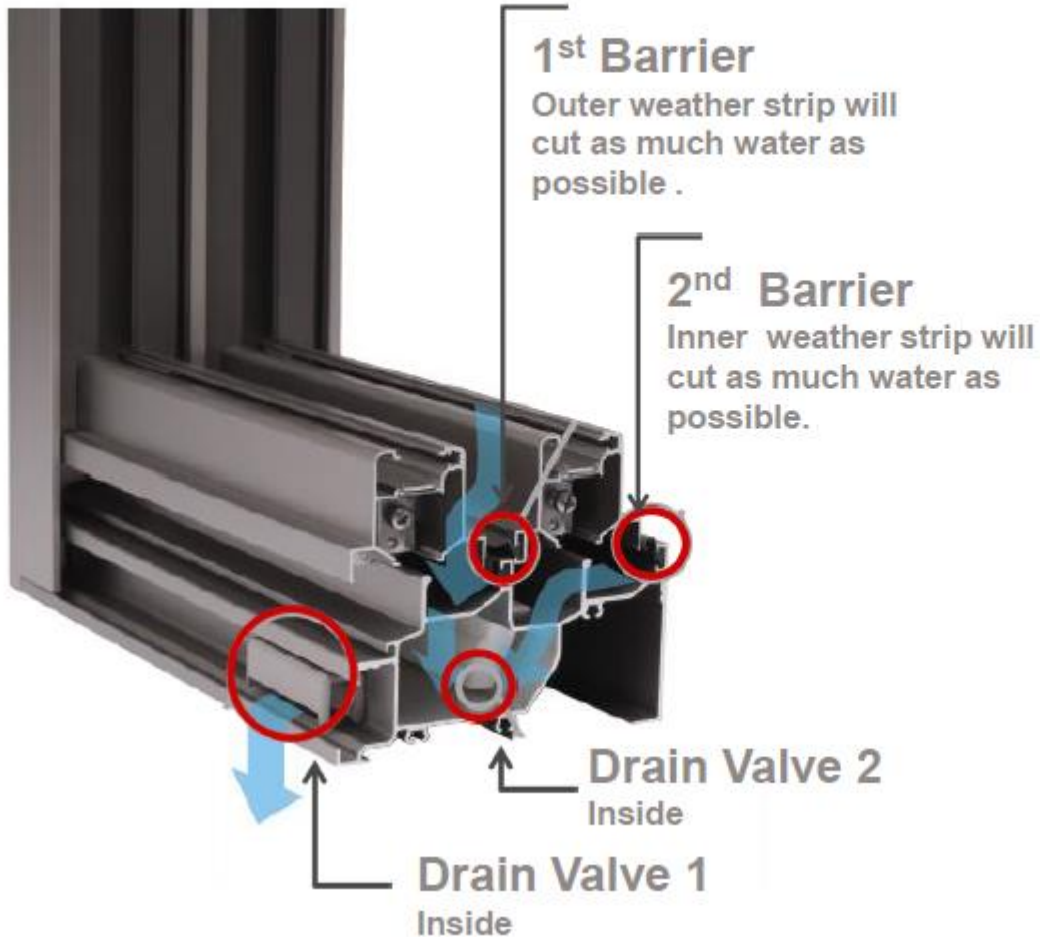
By integrating panels to the frame, Grants' sliding doors can receive wind load pressure not just with supporting "POINTS", but with whole frame. This structural advantage allows strong wind load performance even with big openings in high rise projects.

PRODUCT FEATURES



PRODUCT FEATURES

Water tightness



Double layered water drainage system

Double weather strips cut rainwater from outside.

GRANTS even with large opening type has watertight tightness of 300 Pa .

PRODUCT FEATURES

Air tightness & Sound insulation



GRNTS adopts excellent packing System

Small friction coefficient

friction coefficient is as small as that of a fluororesin .

Abrasion resistance

it provides better abrasion resistance than Nylon.

Excellent sanitation

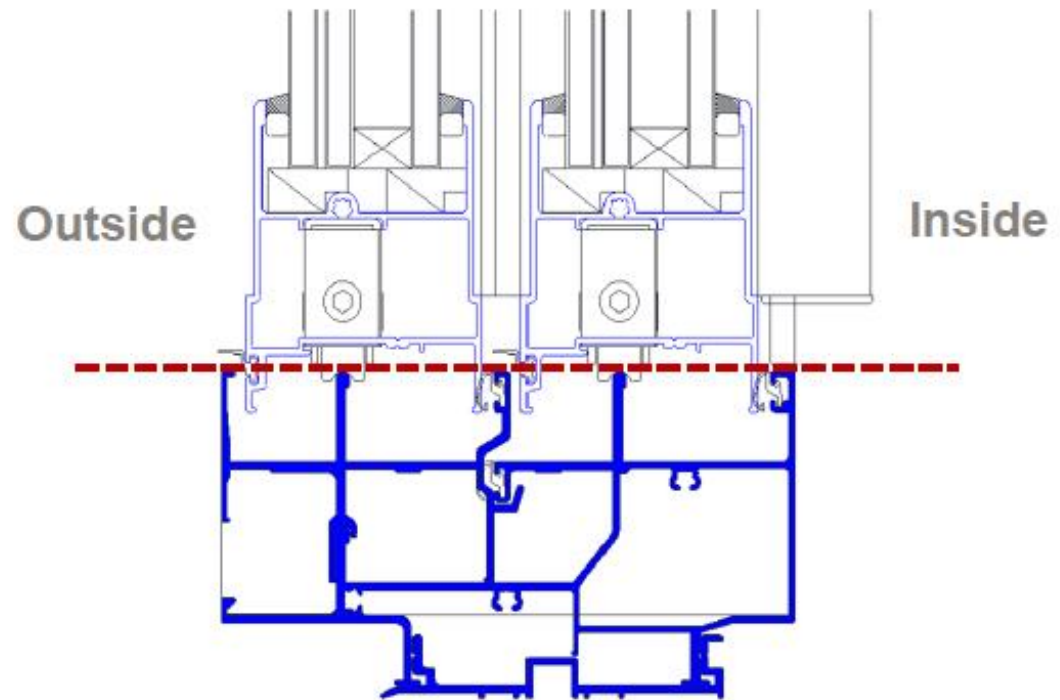
Its plasticizer-free and anti mold coating makes easy to clean

Excellent durability

It can pass impact tests at - 30°C.
It maintains its physical properties and therefore is very durable.

PRODUCT FEATURES

Flat sill (Bottom frame)



- Universal design to prevent stumbling (It does not hurt when stepping on)
- Create a space to connect to the outside

PRODUCT FEATURES

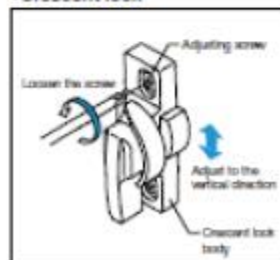
Function Parts (good operability)

Crescent lock

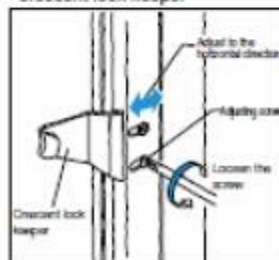


Sophisticated L-FIT Design crescent lock with adjustment function after installation

•Crescent lock



•Crescent lock keeper



Sliding

Sliding rollers



Sliding

Durable and strong bearing rollers hold up 200kg and maintain smooth operation

L-fit Handle for Sliding (Option)



Sliding

Optional large handles to improve opening and closing operability

PRODUCT FEATURES

Function Parts (high safety)

Limit arm for Awning

Awning



It is a part that limits the opening of the panel. It is the item that can ventilate safely so that small children do not go out.

Limit arm for casement

casement



You can fully open the panel by releasing the lock by hand. When the panel is closed, it automatically locks the limiting arm.

Multi-point lock parts



this lock system can locks several places by one operation. It is designed to withstand high wind pressure of 3000 Pa.

Awning

casement

PRODUCT FEATURES

Function Parts (high safety)

Pivot hinge parts



This part is a compact part which is invisible from the outside, it can open and close a very heavy panel of 100 kg.

casement

Swing
door

Roller parts/ Roller Guide parts



In just case that the panel falls down, this roller part will enable to open and close the panel . In addition, the lower frame has a roller guide part for scratch prevention

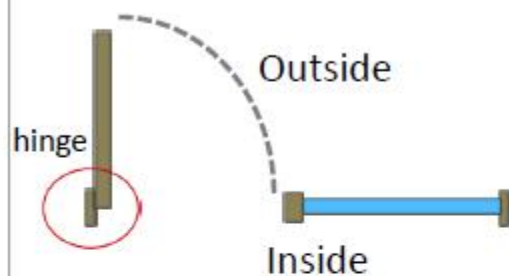
Casement
Large

Swing
door

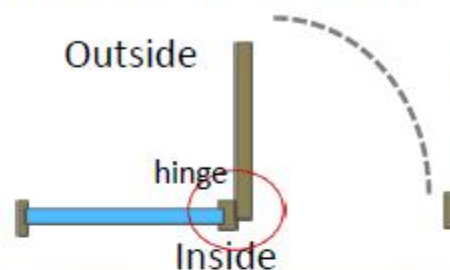
PRODUCT FEATURES

Swing Door

Conventional products



GRANTS New Point



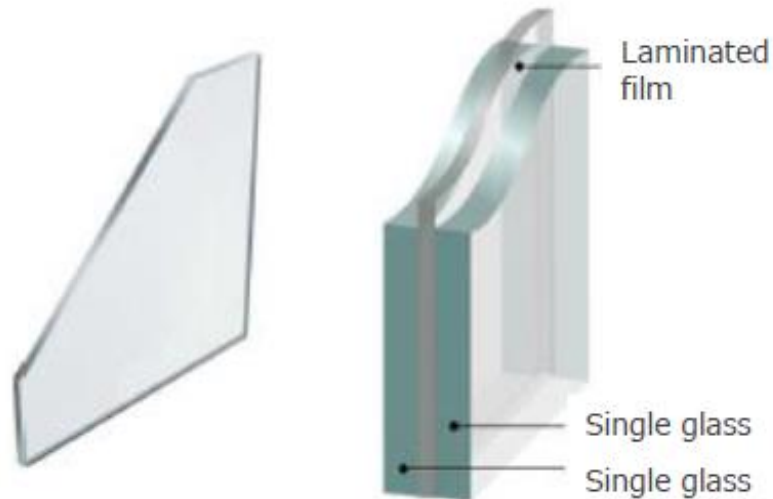
A new hinge allows you to set hinges based on the mullion side



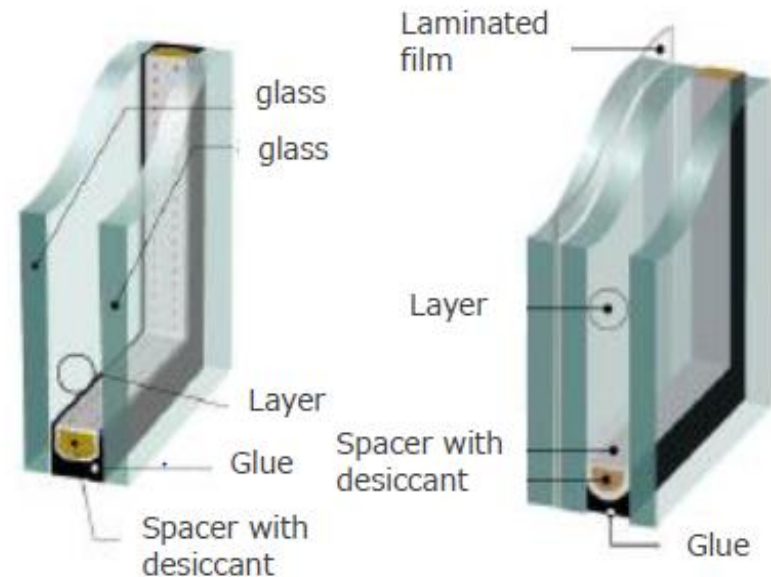
PRODUCT FEATURES

Available Glass thickness

Single glass
Laminated glass
5mm to 13.5mm

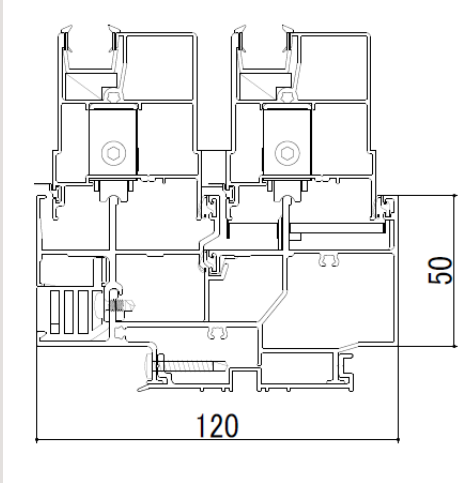
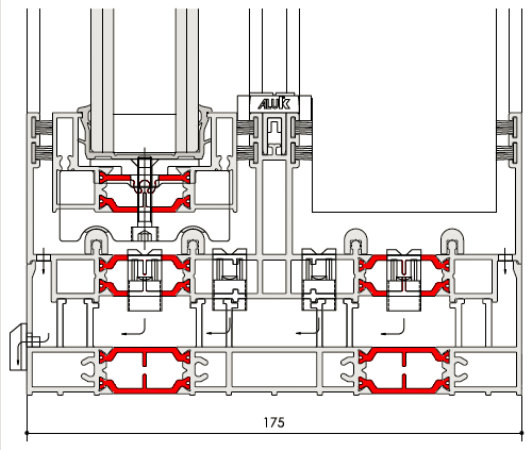
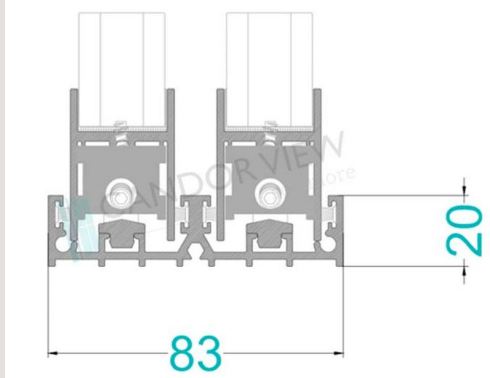


IGU
18mm to 31.5mm

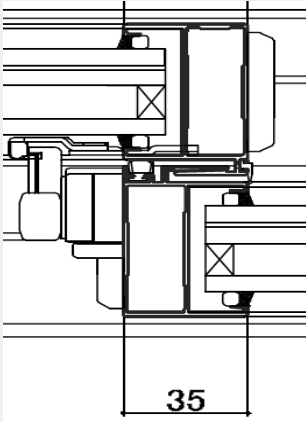
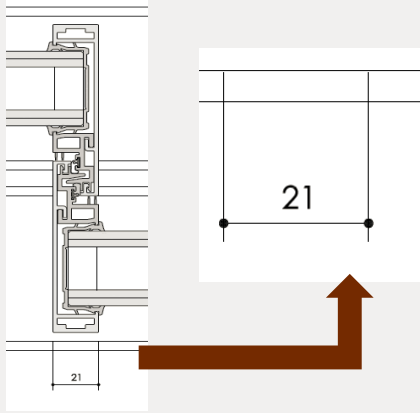
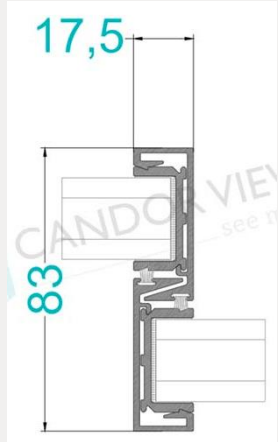


Minimum and Maximum size limitation each product

COMPARISON WITH OTHER SLIM LINE SYSTEM

	GRANTS	INFINIUM (Aluk)	LINEA MINI (Candor View)
Frame	 - 120 mm - Non thermal break - Double chamber drainage - Gasket Sealing	 - 175 mm - Thermal break - Single chamber drainage - Woolpile Sealing	 - 83 mm - Non thermal break - Single chamber drainage - Woolpile Sealing

COMPARISON WITH OTHER SLIM LINE SYSTEM

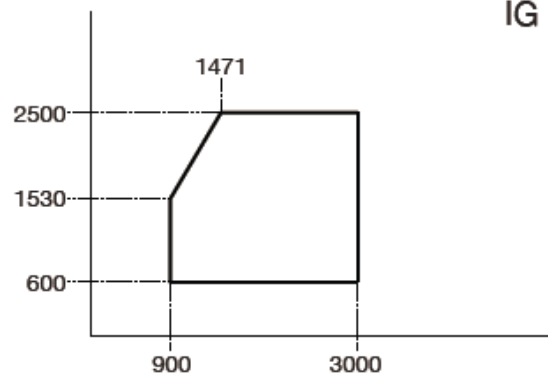
	GRANTS	INFINIUM (Aluk)	LINEA MINI (Candor View)
Design	Both Sliding & Casement	Only Sliding	Only Sliding
Wind Load	2000 PA	1600 PA	NA
GLZING OPTION	Up to 31.5 mm	38 to 52 mm	Only 24 mm
Interlock Sightline			

DESIGN & SECTION DRAWINGS

Sliding Window (2 panels on 2 tracks)



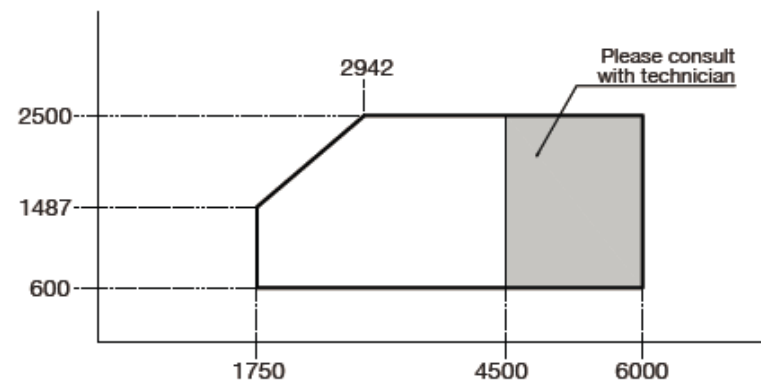
- Available in SG and IG unit
- Select panel position from L/R
- Single slide (L/R) available
- Handle option
- Pleated insect screen available
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing channel
 - IG unit : sealant



Sliding Window (4 panels on 2 tracks)



- Available in SG and IG unit
- Handle option
- Pleated insect screen available
- Select from (SSSS, FSSF)
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing channel
 - IG unit : sealant

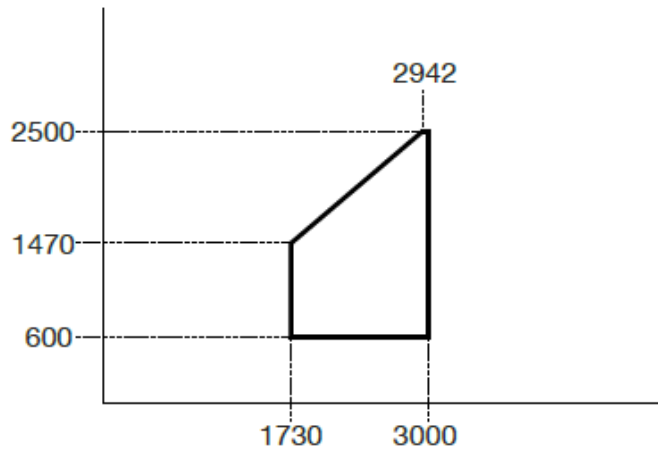


DESIGN & SECTION DRAWINGS

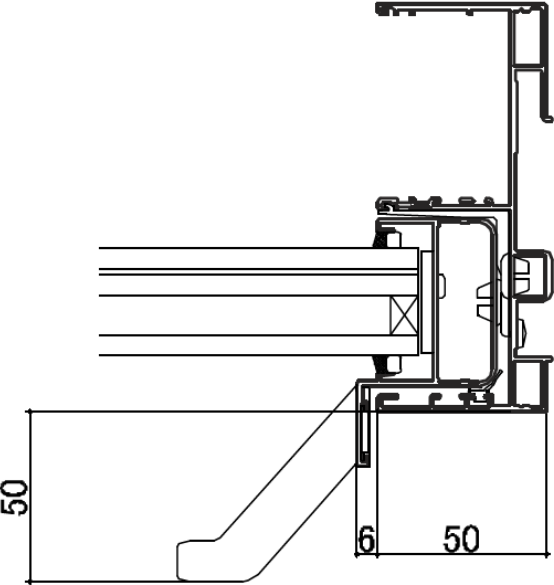
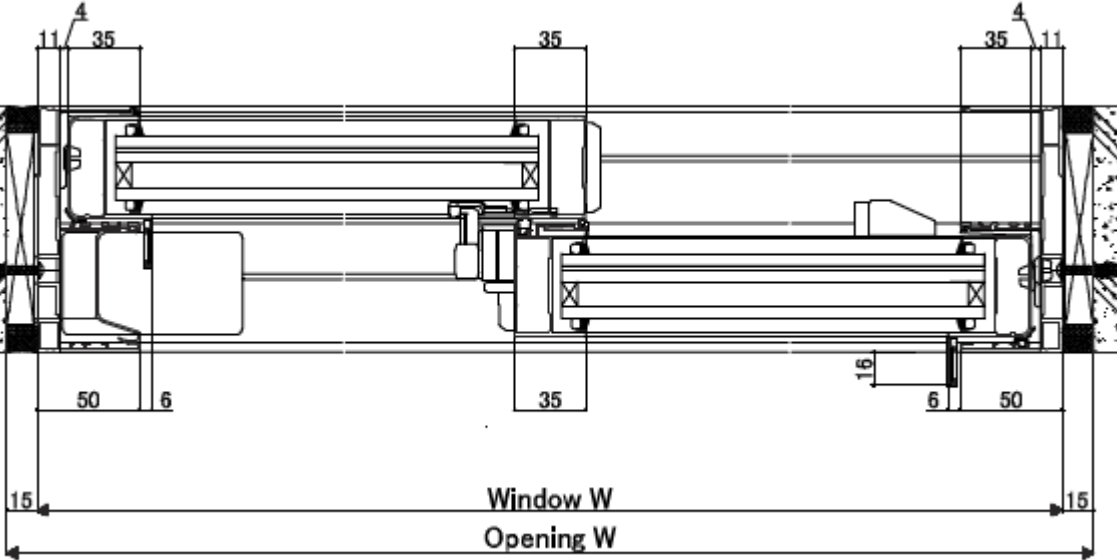
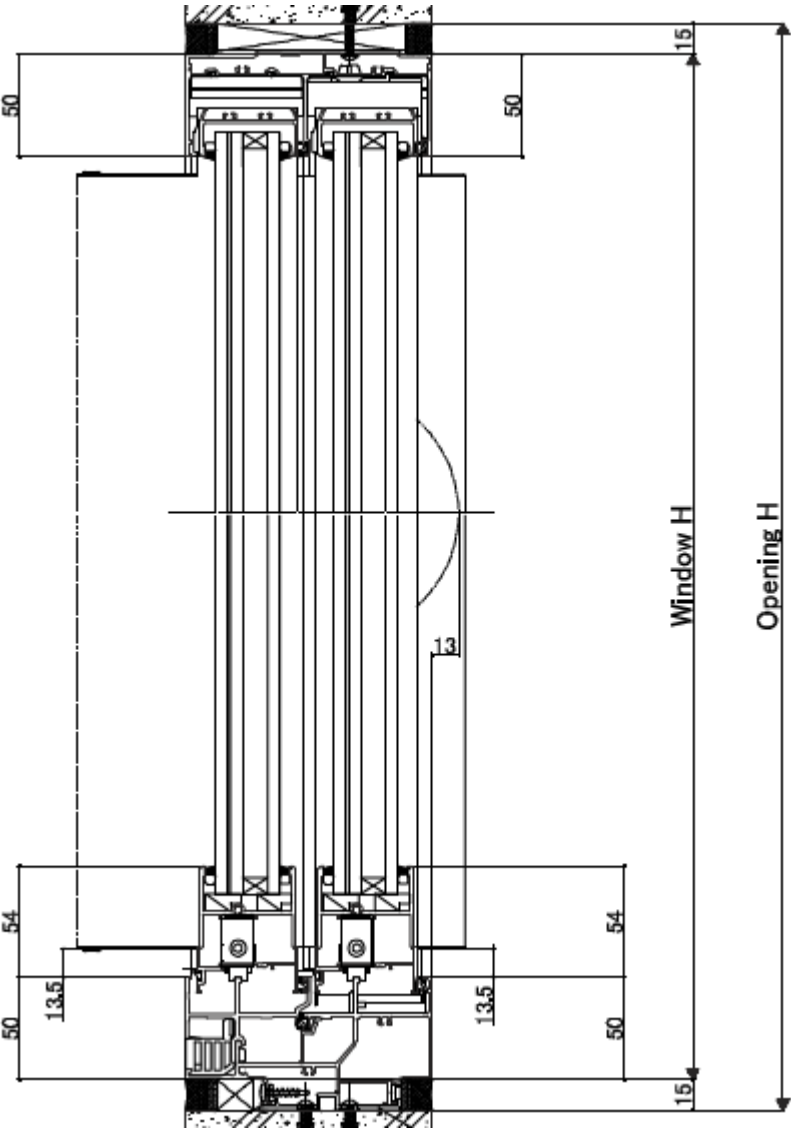
Sliding Window (3 panels on 2 tracks) SFS



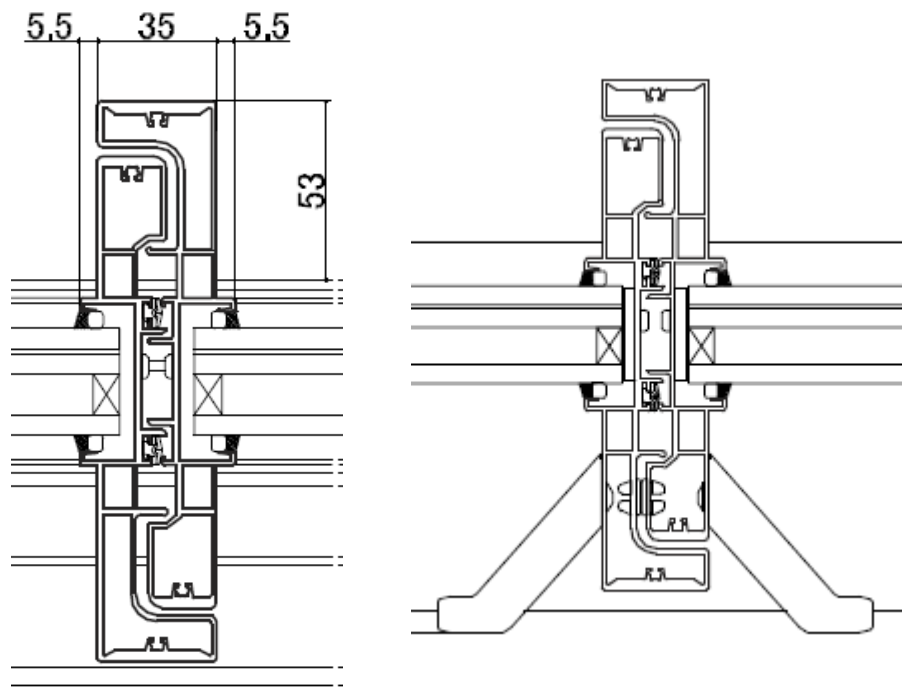
- Available in SG and IG unit
- Handle option
- Pleated insect screen available
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing channel
 - IG unit : sealant



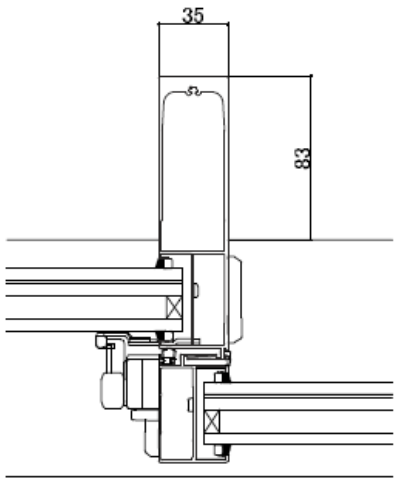
DESIGN & SECTION DRAWING



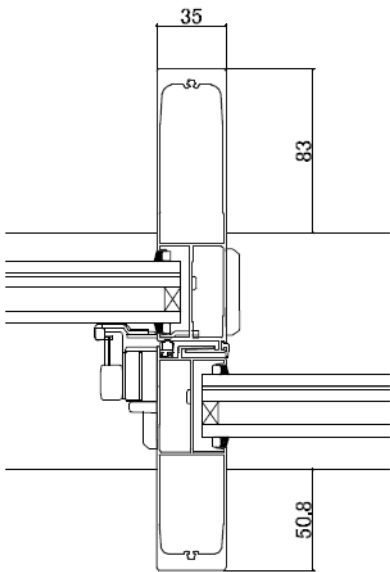
DESIGN & SECTION DRAWINGS



<Horizontal section: 4 panels sliding window>



<Meeting stile detail: In case of larger openings>



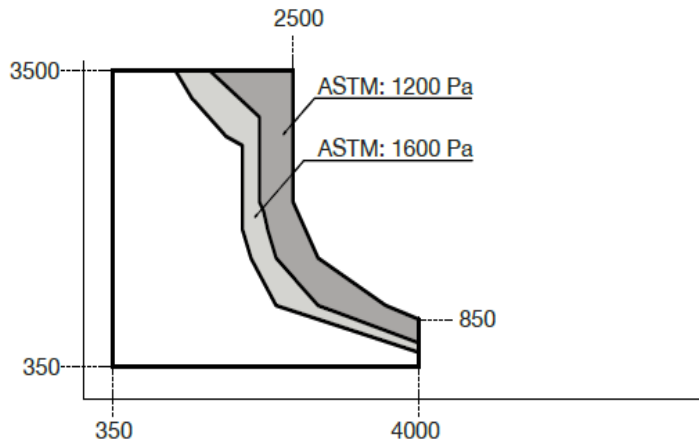
<Meeting stile detail: In case of largest openings>

DESIGN & SECTION DRAWINGS

Fixed Window



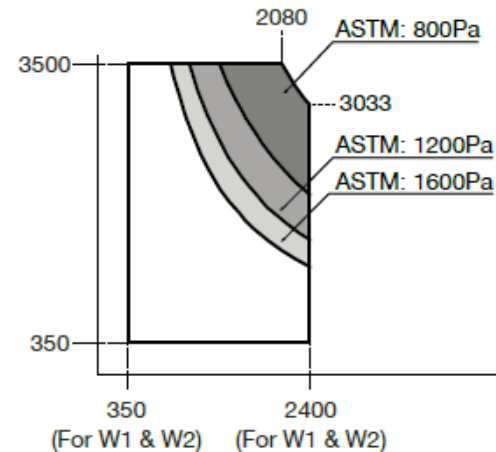
- For oversize fixed windows, please consult with our technician
- Available in SG and IG unit
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing bead
 - IG unit ~24 mm : sealant
 - IG unit 24 mm up : Glazing bead



Corner Fixed Window

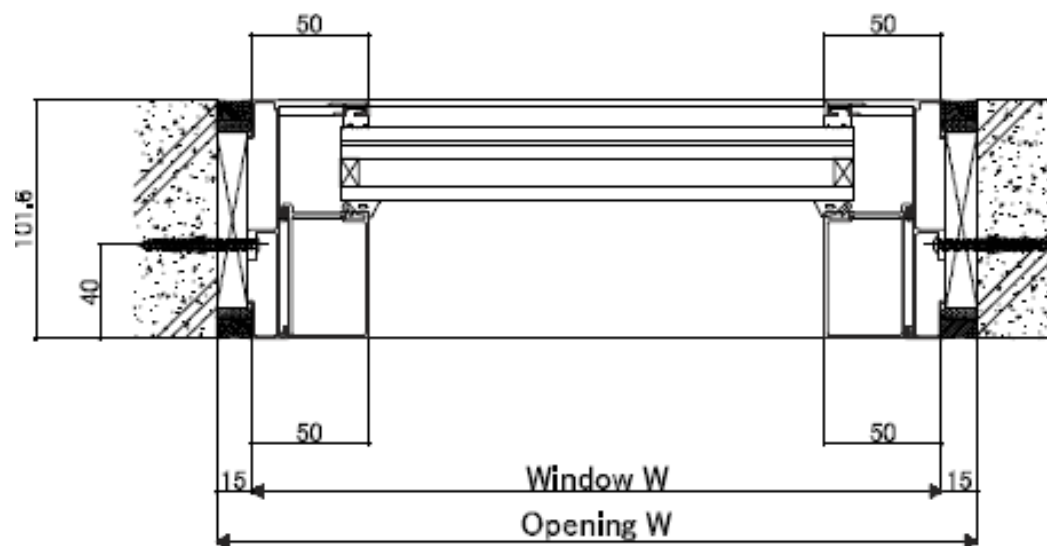
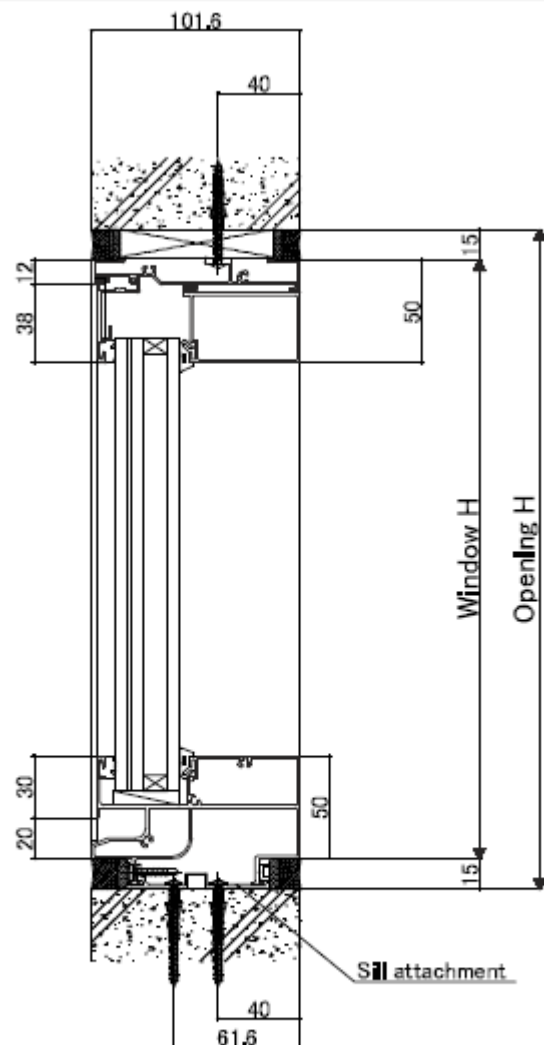


- Only available in SG
- Only available with sealant finish
- Both in/outward corner available



Inside type	Outside type
outside W1 W2 inside	outside W1 W2 inside

DESIGN & SECTION DRAWINGS



<Horizontal section: Fixed window>

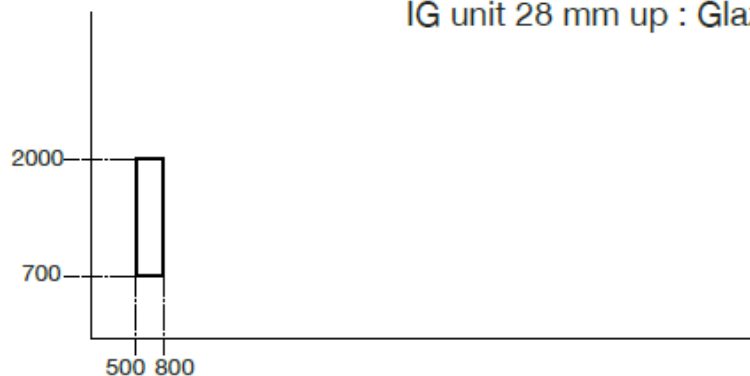
<Vertical section: Fixed window>

DESIGN & SECTION DRAWINGS

Casement Window (with friction stay)



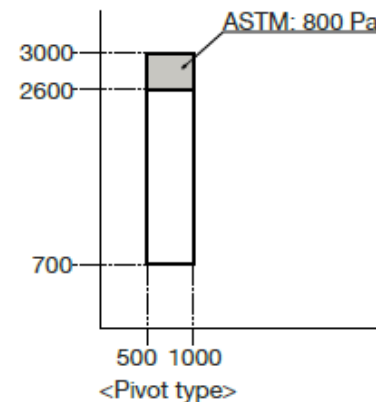
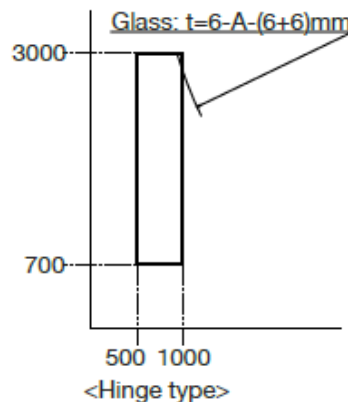
- Available in SG and IG unit
- In case of glass thickness over 8 mm and IG unit please consult with our technician
- Select from L/R
- Pleated insect screen available
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing Channel
 - IG unit ~27 mm : sealant
 - IG unit 28 mm up : Glazing Channel



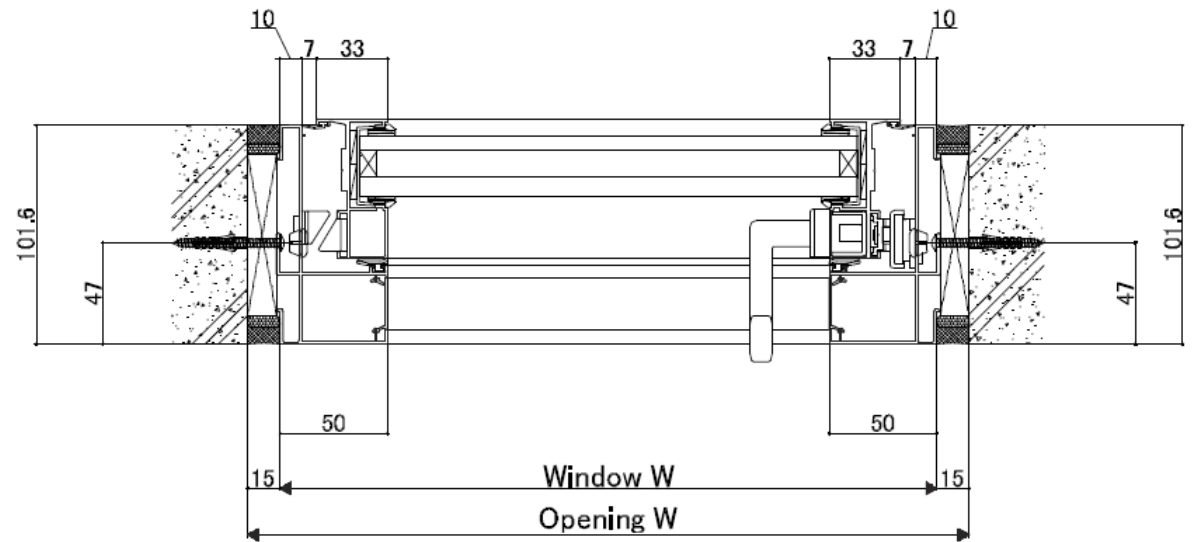
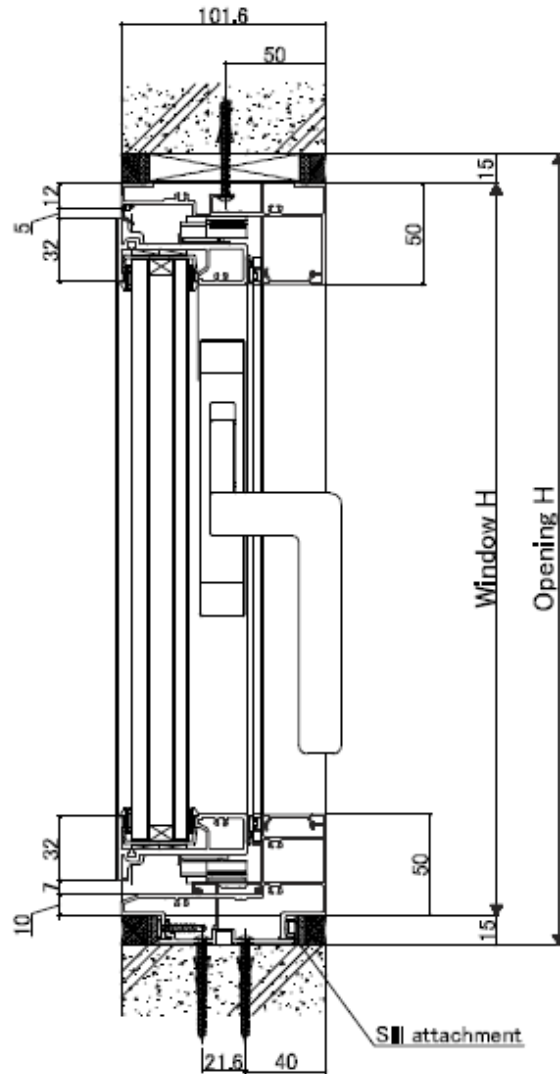
Casement Window (with hinge or pivot)



- Available in SG and IG unit
- Select from L/R
- Pleated insect screen available
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing Channel
 - IG unit ~27 mm : sealant
 - IG unit 28 mm up : Glazing Channel



DESIGN & SECTION DRAWINGS



<Horizontal section: Casement (with friction stay)>

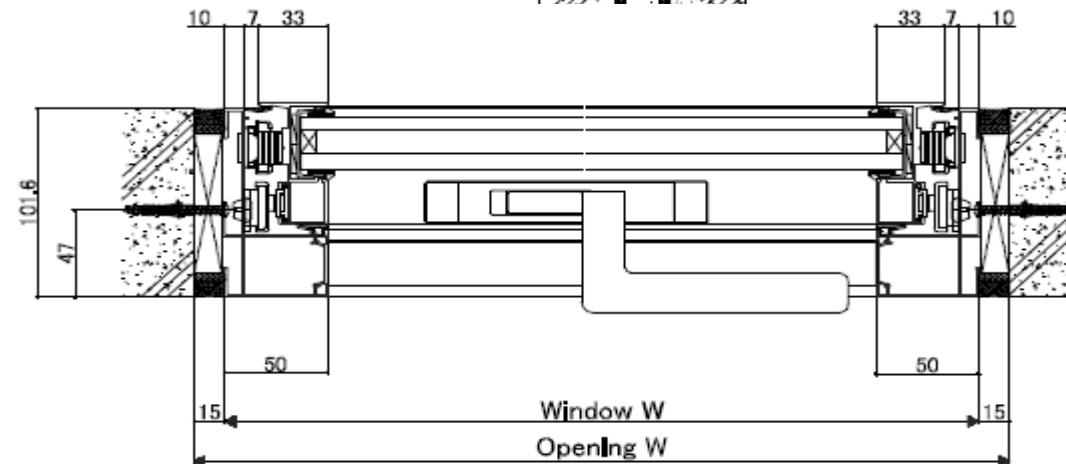
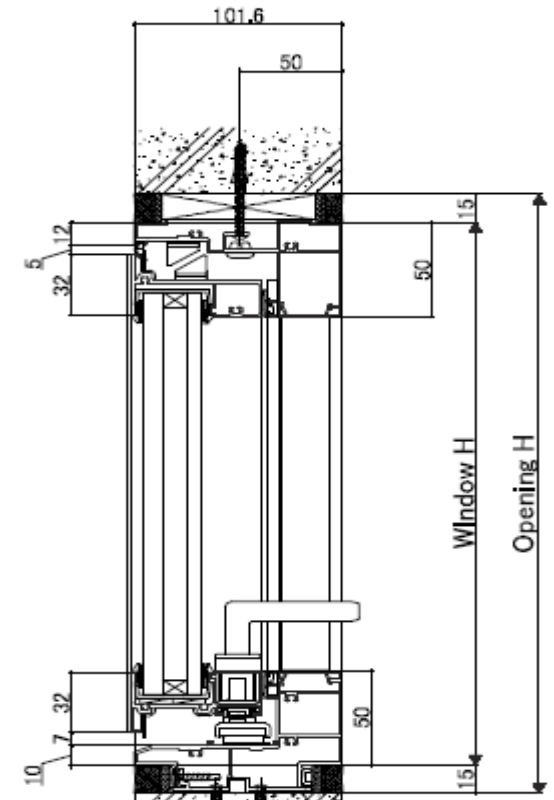
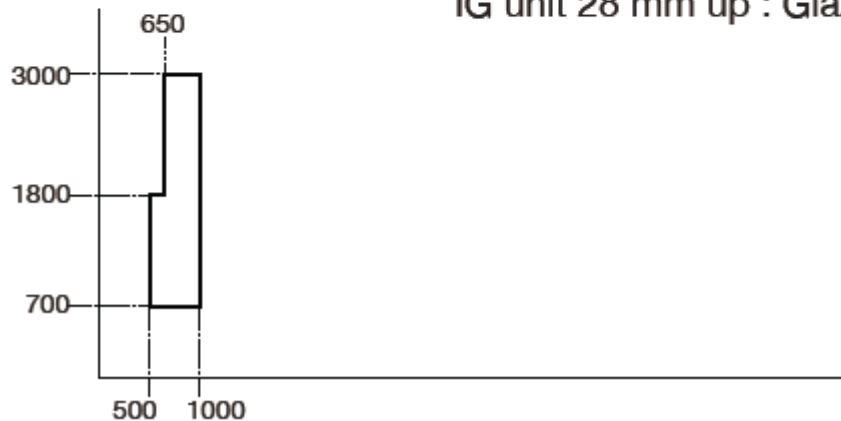
<Vertical section: Casement (with friction stay)>

DESIGN & SECTION DRAWINGS

Awning Window



- Available in SG and IG unit
- In case of IG, please consult with our technician for size and performance
- Pleated insect screen available
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing Channel
 - IG unit ~27 mm : sealant
 - IG unit 28 mm up : Glazing Channel

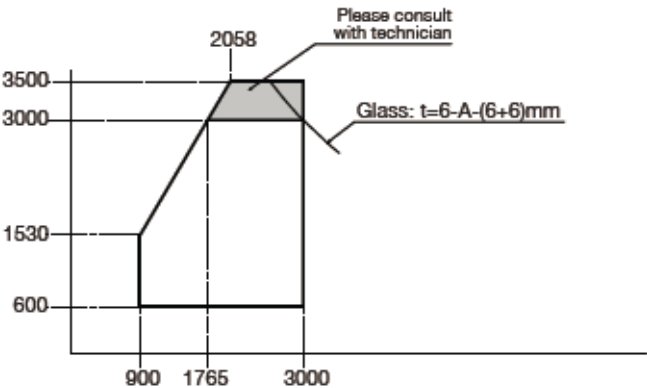


DESIGN & SECTION DRAWINGS

Sliding Door (2 panels on 2 tracks)



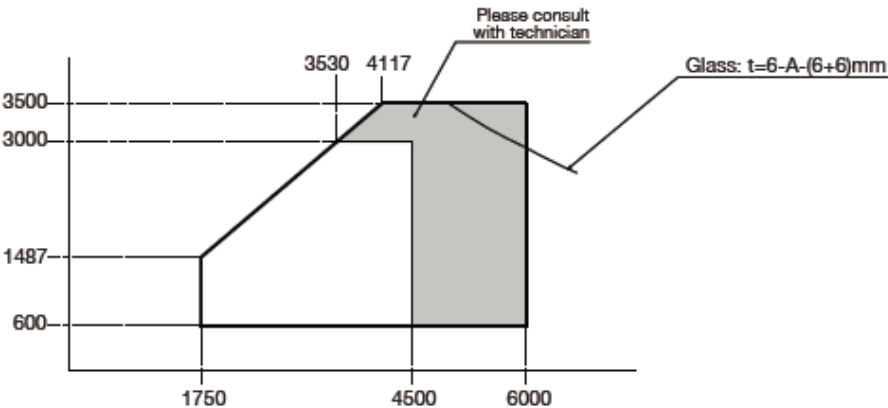
- Available in SG and IG unit
- Select panel position from L/R
- Single slide (L/R) available
- Handle option
- Pleated insect screen available
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing channel
 - IG unit : sealant



Sliding Door (4 panels on 2 tracks)



- Available in SG and IG unit
- Handle option
- Pleated insect screen available
- Select from (SSSS, FSSF)
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing channel
 - IG unit : sealant



DESIGN & SECTION DRAWINGS

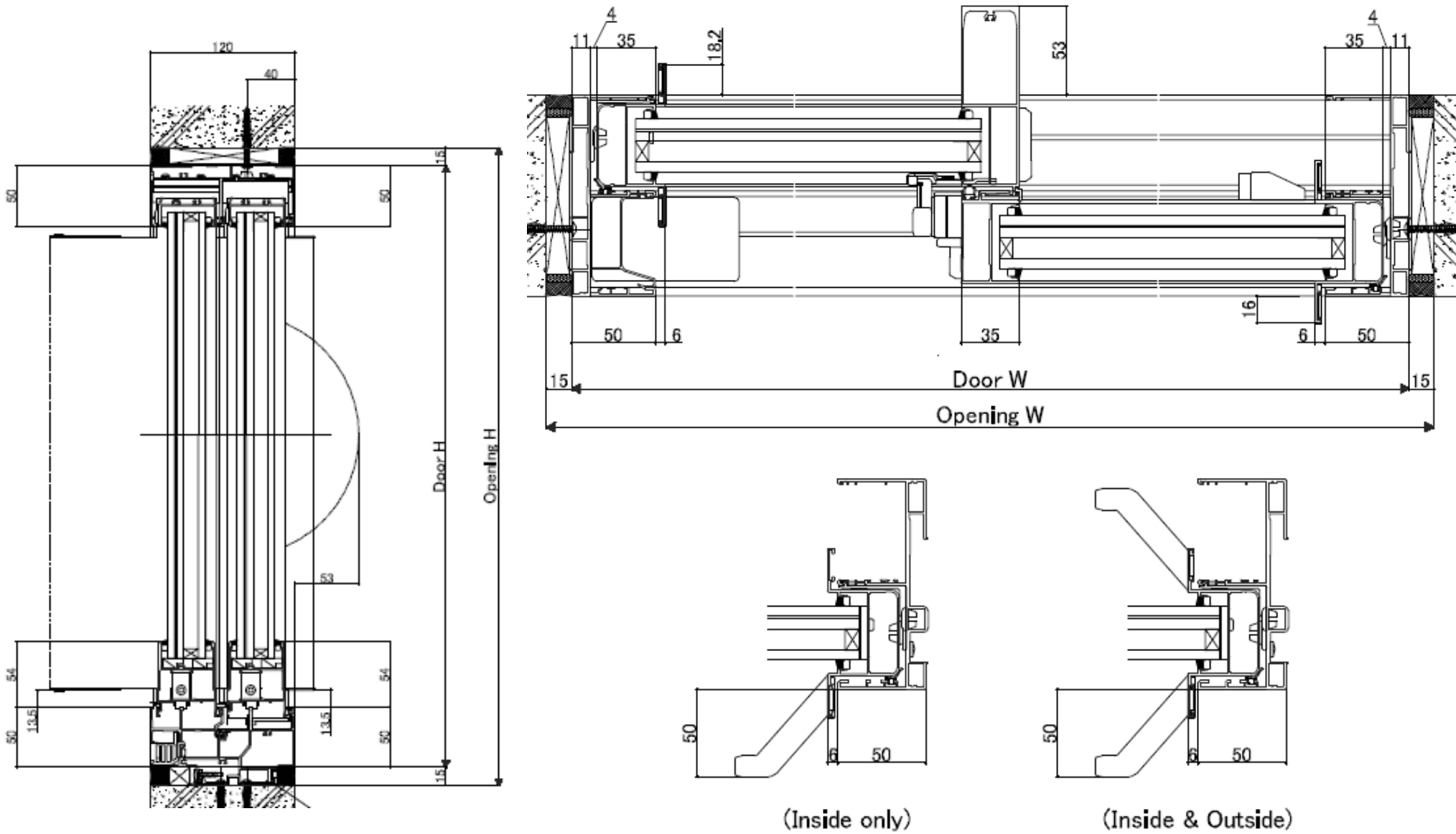
Sliding Door (3 panels on 2 tracks) SFS



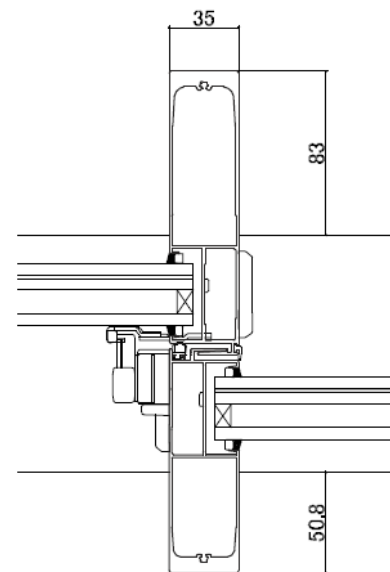
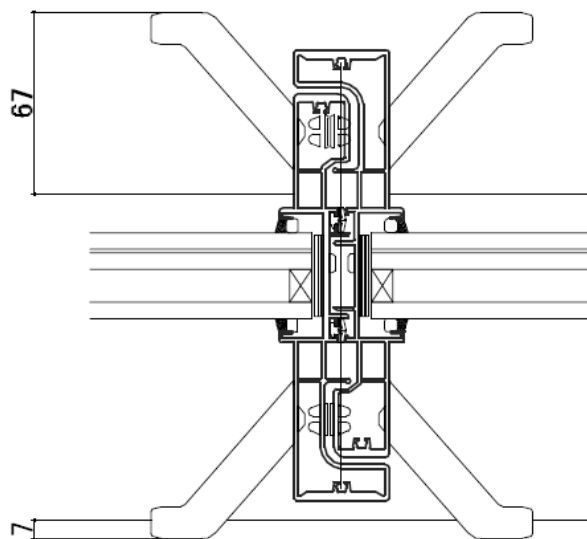
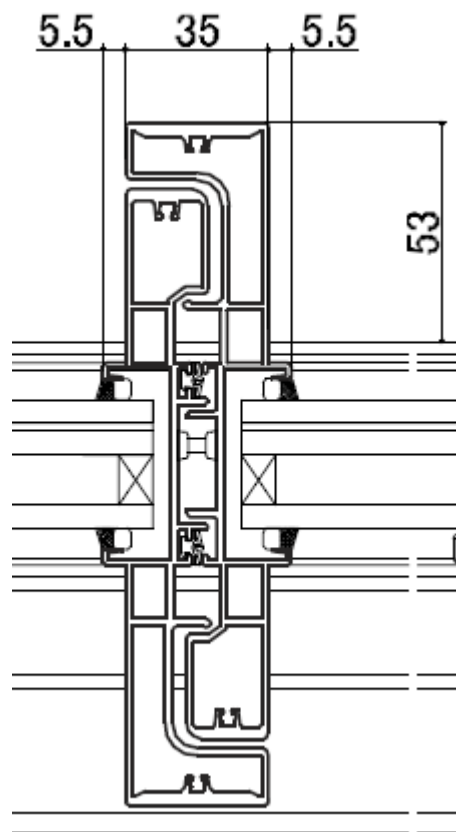
- Available in SG and IG unit
- Handle option
- Pleated insect screen available
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing channel
 - IG unit : sealant



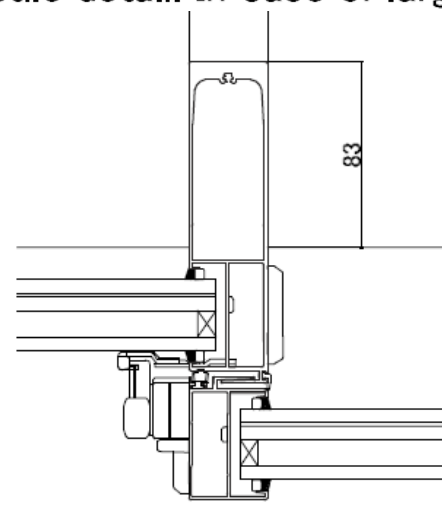
DESIGN & SECTION DRAWINGS



DESIGN & SECTION DRAWINGS



Meeting stile detail: In case of largest openings.



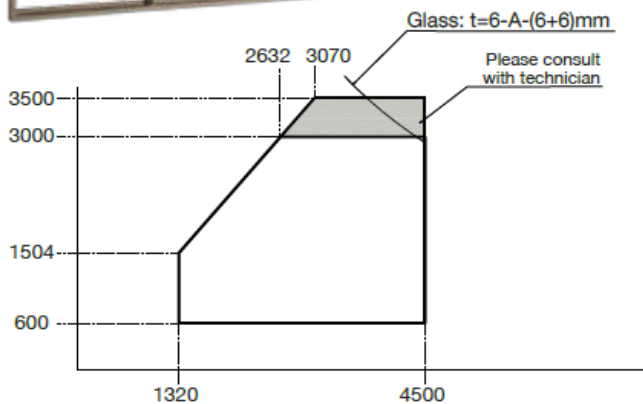
〈Meeting stile detail: In case of larger openings〉

DESIGN & SECTION DRAWINGS

Sliding Door (3 panels on 3 tracks)



- Available in SG and IG unit
- Select panel position from L/R
- Handle option
- Pleated insect screen available
- Select from (SSS, FSS, SSF)
- Glazing Finish

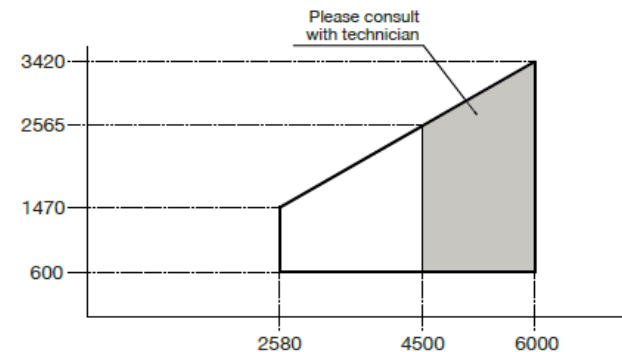


5 – 7 mm : Sealant
8 mm up : Glazing channel
IG unit : sealant

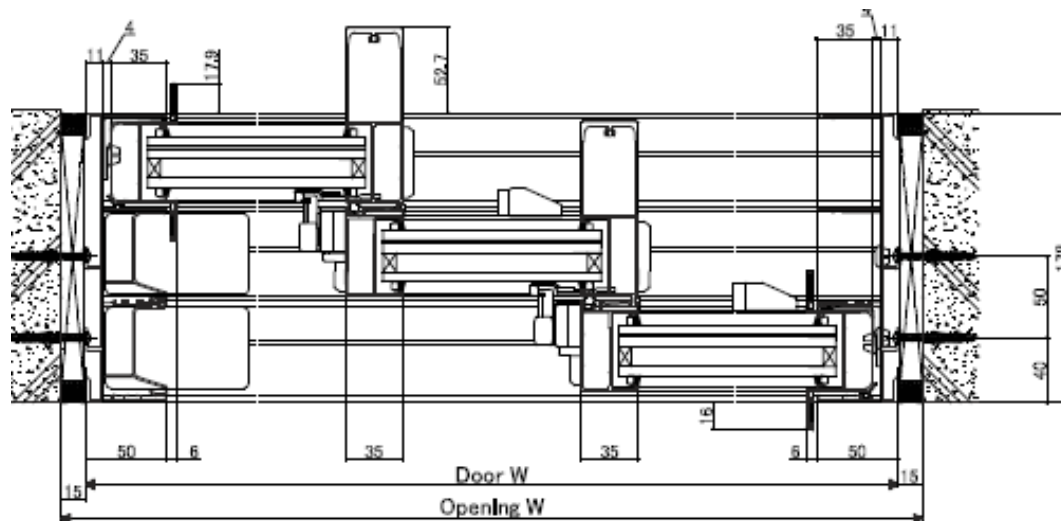
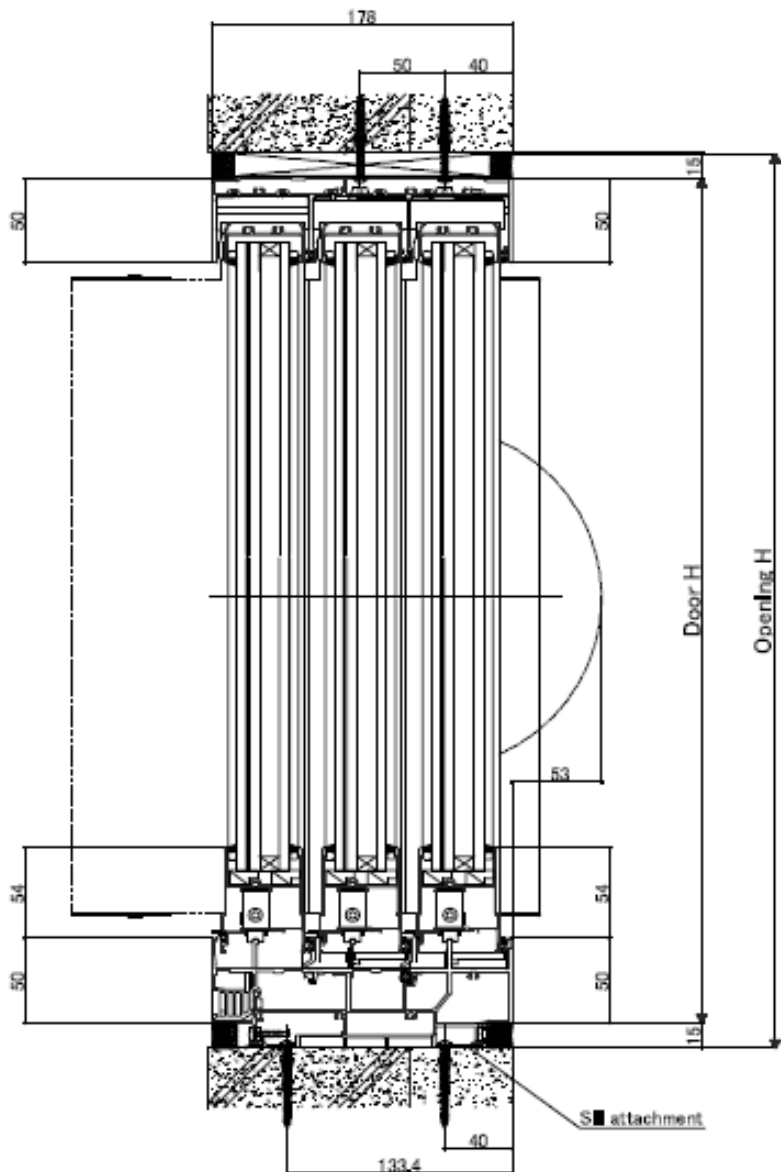
Sliding Door (6 panels on 3 tracks)



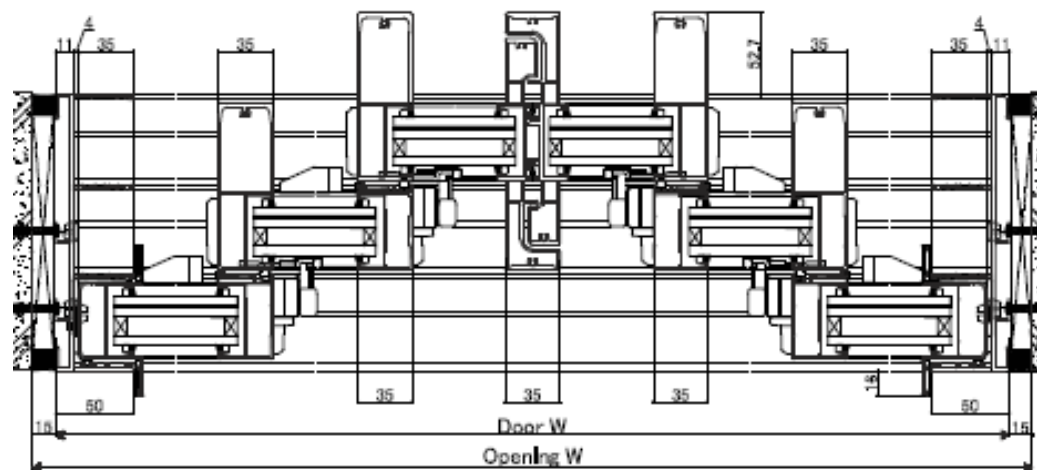
- Available in SG and IG unit
- Handle option
- Pleated insect screen available
- Select from (SSSSSS, FSSSSF)
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing channel
 - IG unit : sealant



DESIGN & SECTION DRAWINGS



<Horizontal section: 3 panels sliding door>



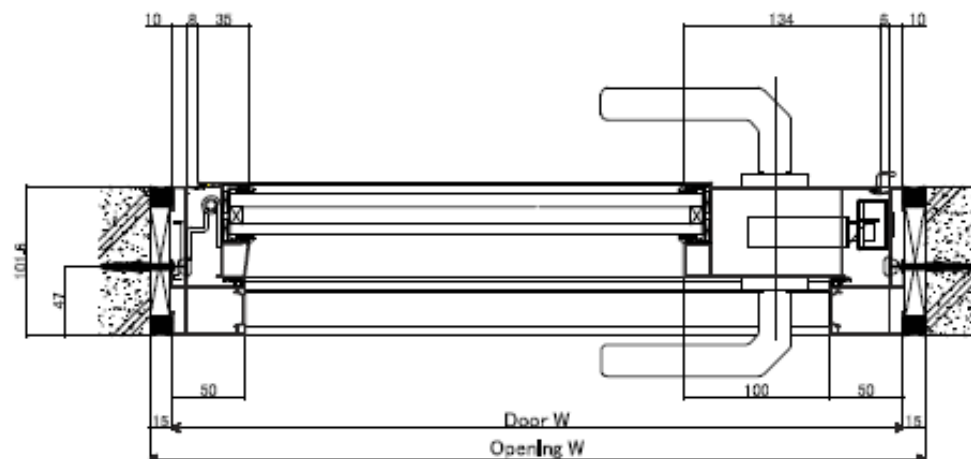
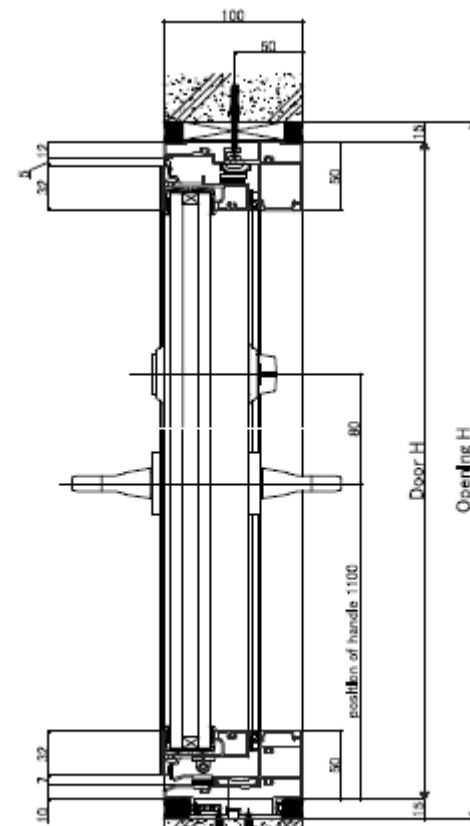
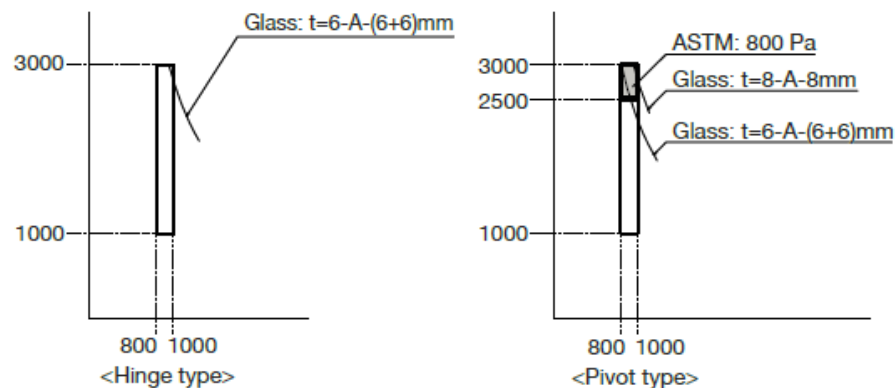
<Horizontal section: 6 panels sliding door>

DESIGN & SECTION DRAWINGS

Out-Swing Door (Single)



- Available in SG and IG unit
- Pivot hinge option
- Door closer NOT available
- Select from L/R
- Pleated insect screen available
- Glazing Finish
 - 5 – 7 mm : Sealant
 - 8 mm up : Glazing Channel
 - IG unit ~27 mm : sealant
 - IG unit 28 mm up : Glazing Channel



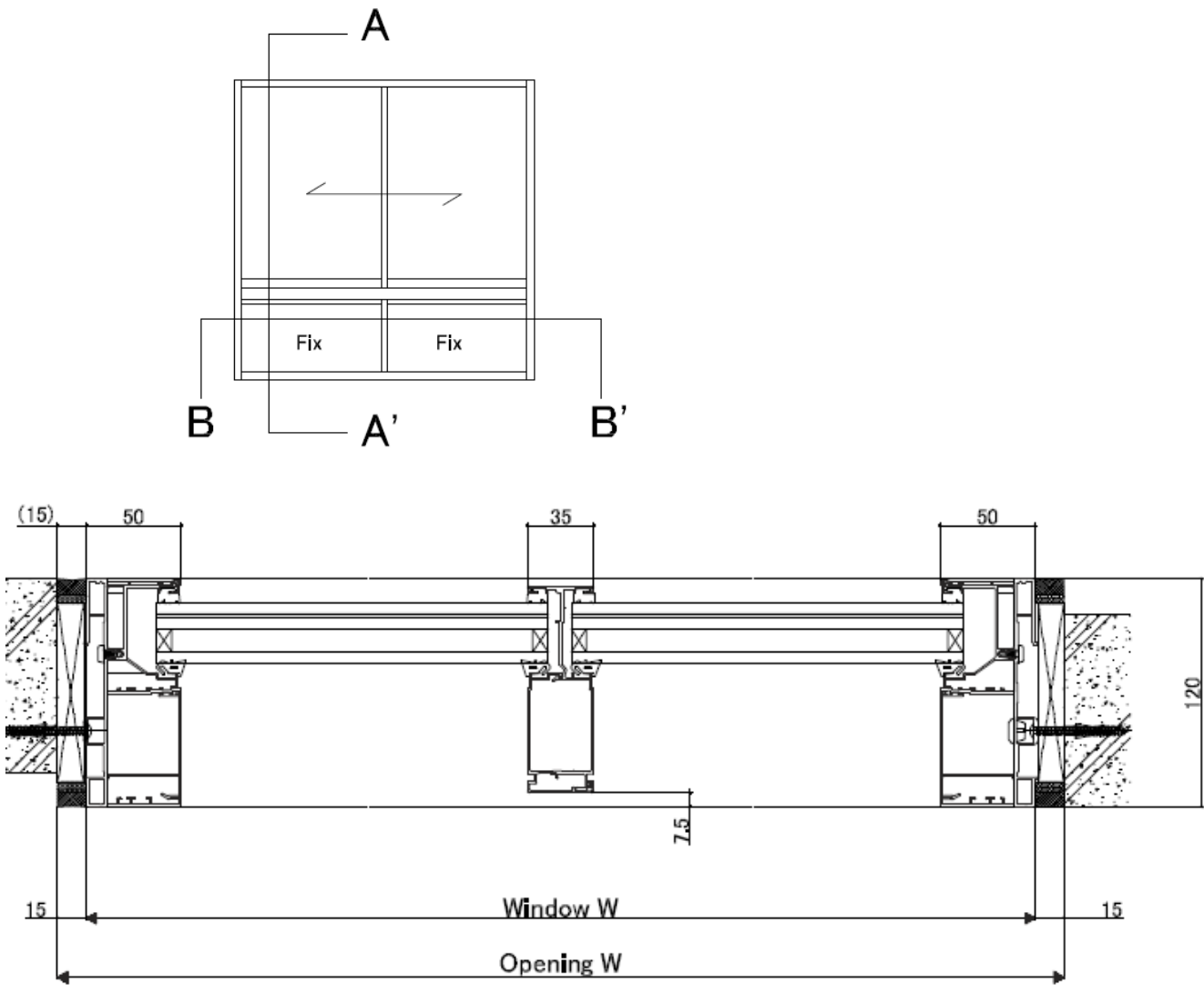
MIXED & COMBINATION WINDOW

- Mullions are available for various windows and doors. Please consult with our sales representative for selection.
 - 180°mullion (standard and reinforced)
 - 90°mullion (only for outward corner)

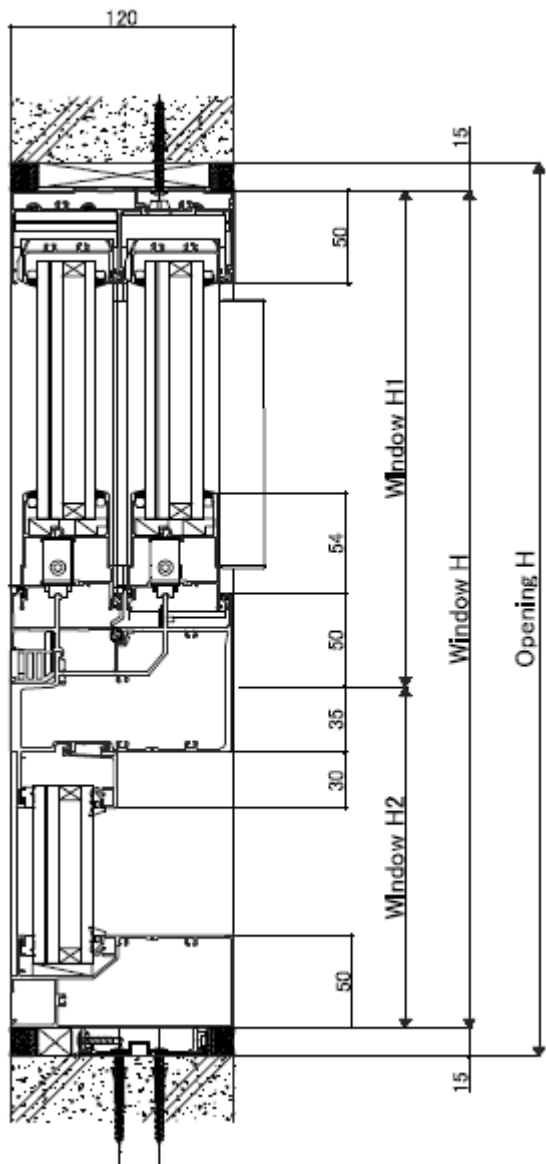
UNIT WINDOWS

Bottom Windows	Top Windows			
	Single Awning	Single Casement	Single Fix	Sliding
Single Awning			●	
Single Casement			●	
Swing Door			●	
Single Fix	●	●	●	●
Double Fix				●

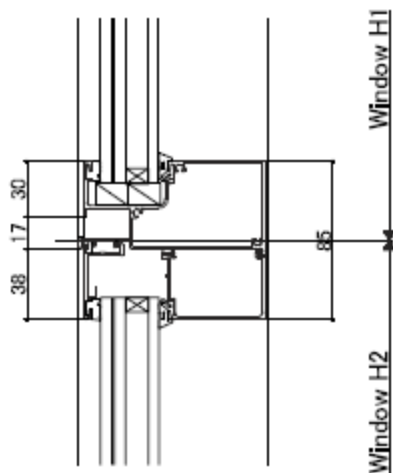
DESIGN & SECTION DRAWINGS



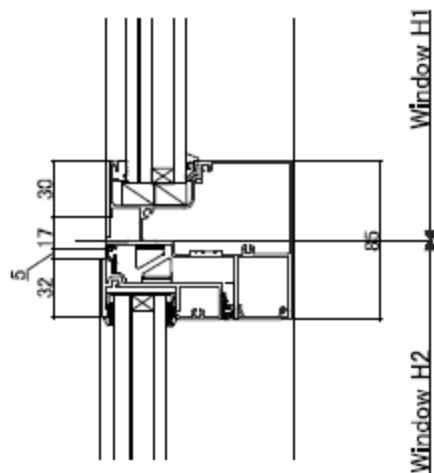
<Horizontal section: Sliding/Fixed B-B'>



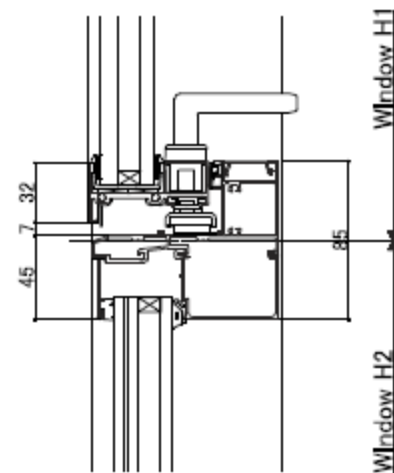
DESIGN & SECTION DRAWINGS



<Vertical: Fixed / Fixed transom>

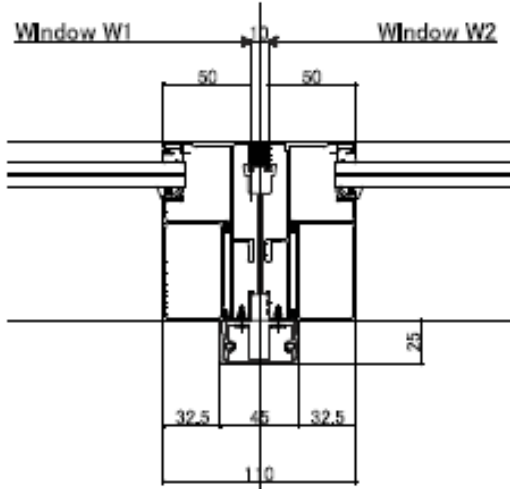


<Vertical: Fixed / Projection transom>

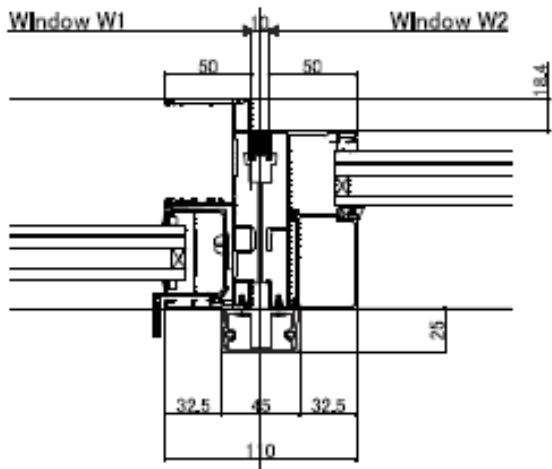


<Vertical: Projection / Fixed transom>

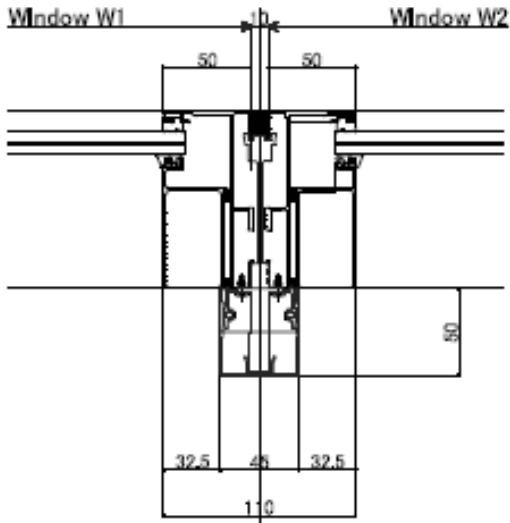
DESIGN & SECTION DRAWINGS



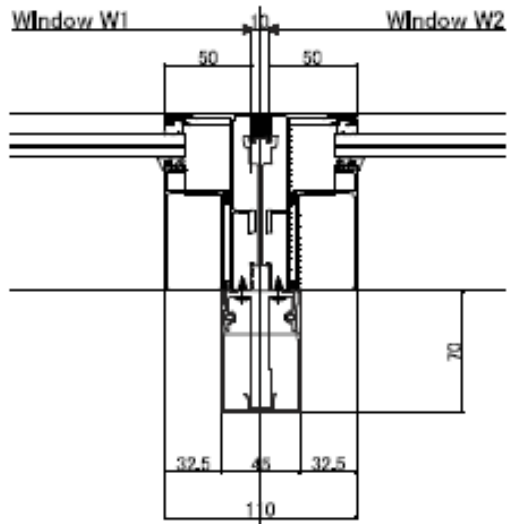
<Mullion type A>



<Mullion type A with sliding window>

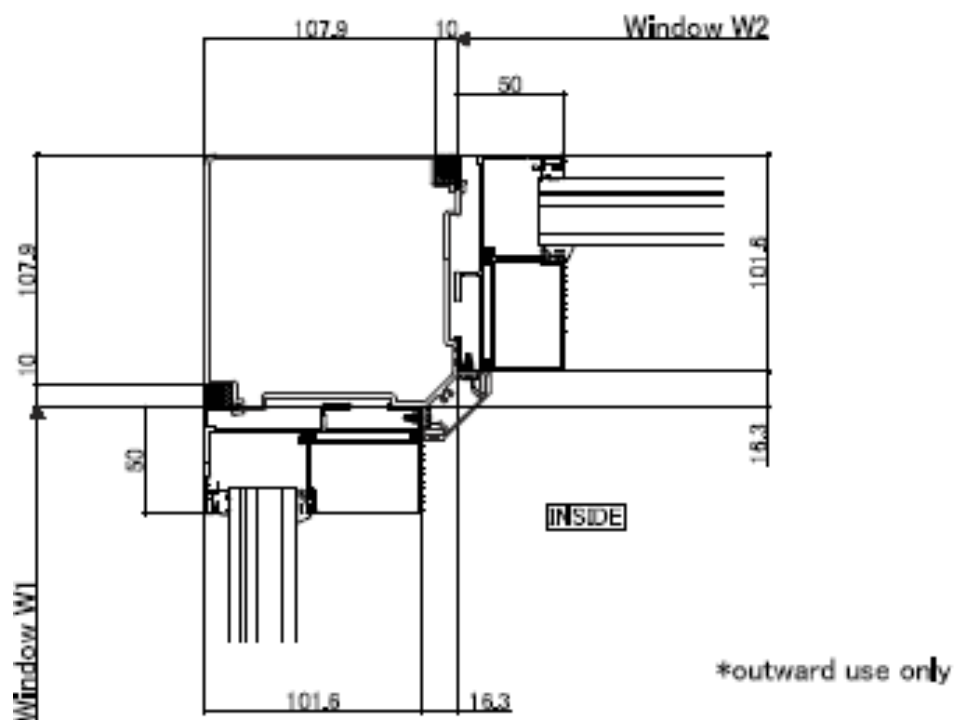


<Mullion type B>

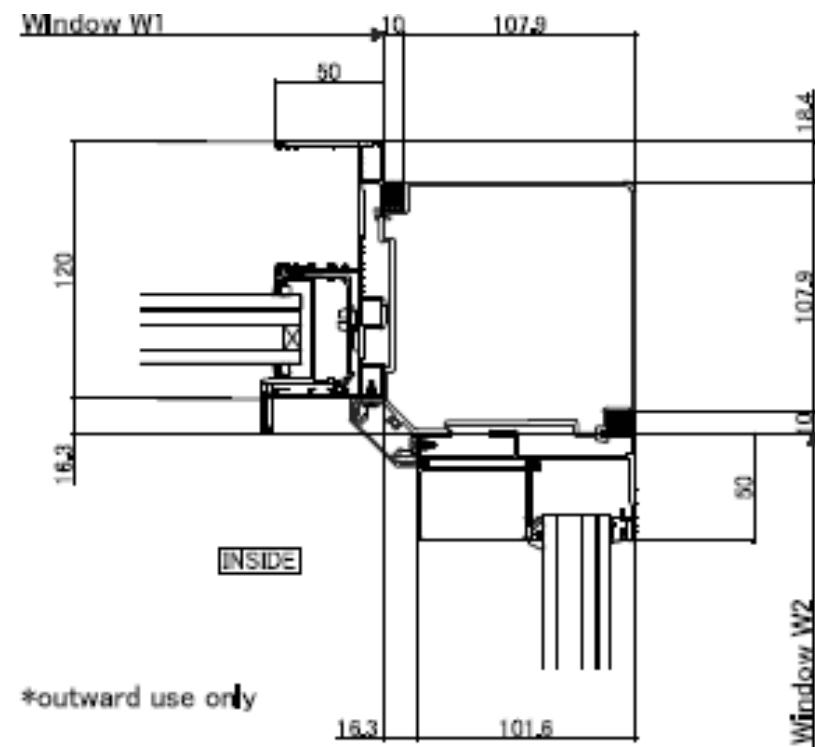


<Mullion type C>

DESIGN & SECTION DRAWINGS



<Corner mullion>



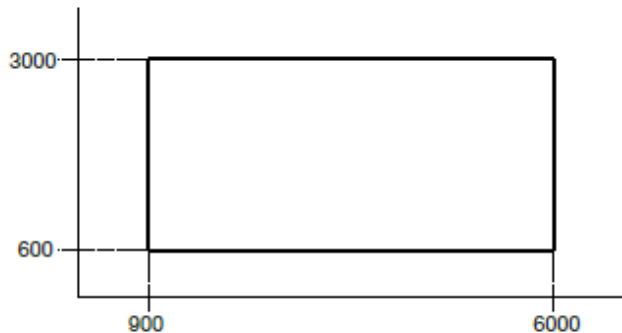
<Corner mullion with sliding window>

DESIGN & SECTION DRAWINGS

Insect sliding screen doors



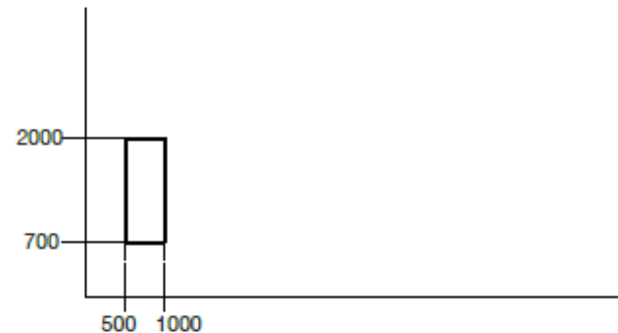
- Select sub-frame from 60 or 125 mm
- Maximum width of single screen is 1500 mm
- In case of a single screen width above 1300 mm, there will be a center pole
- Please consult with technician for screen combination



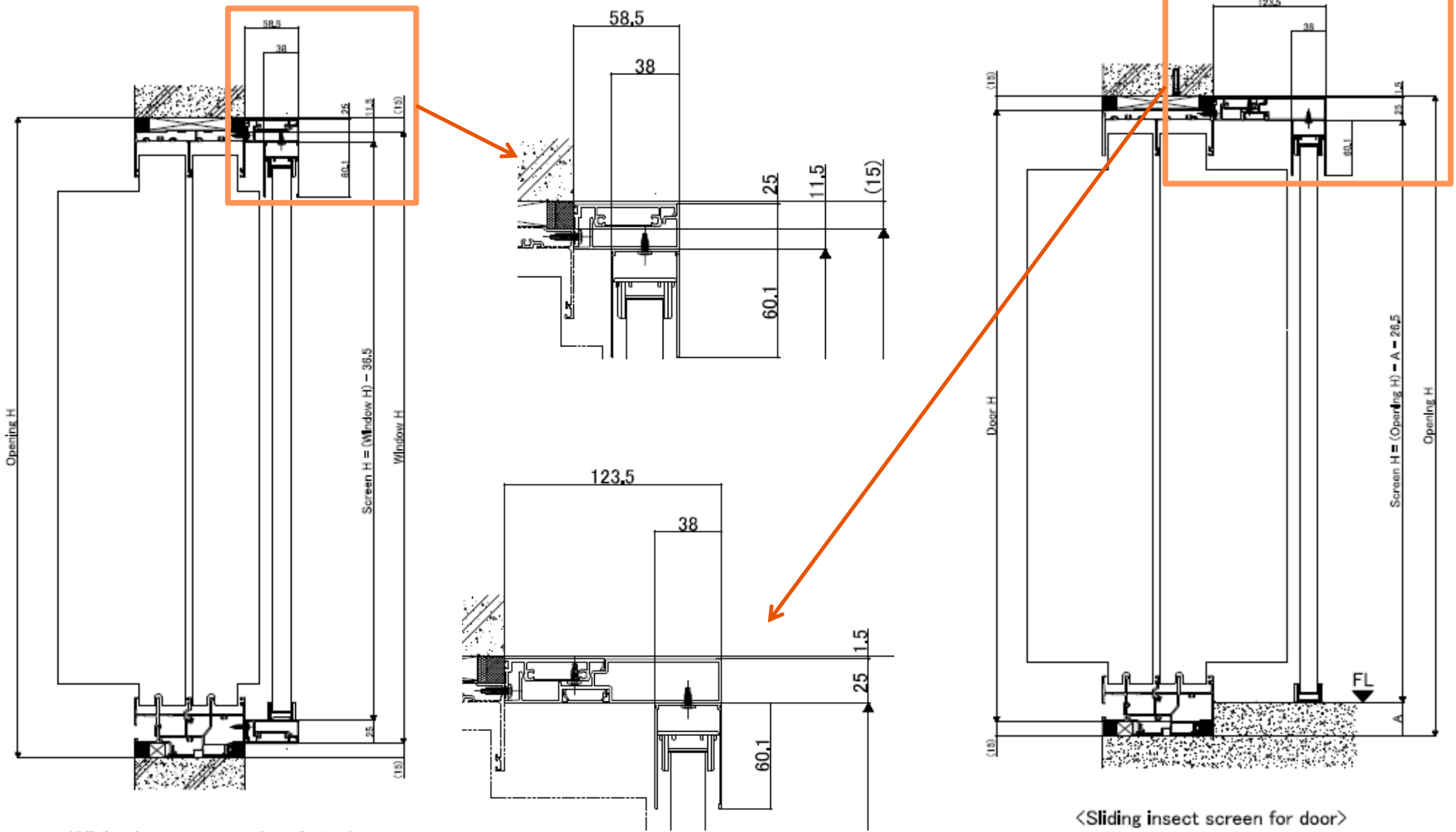
Insect screen for awning & casement



- For awning and casement window over 2000 mm in height, use insect sliding screen



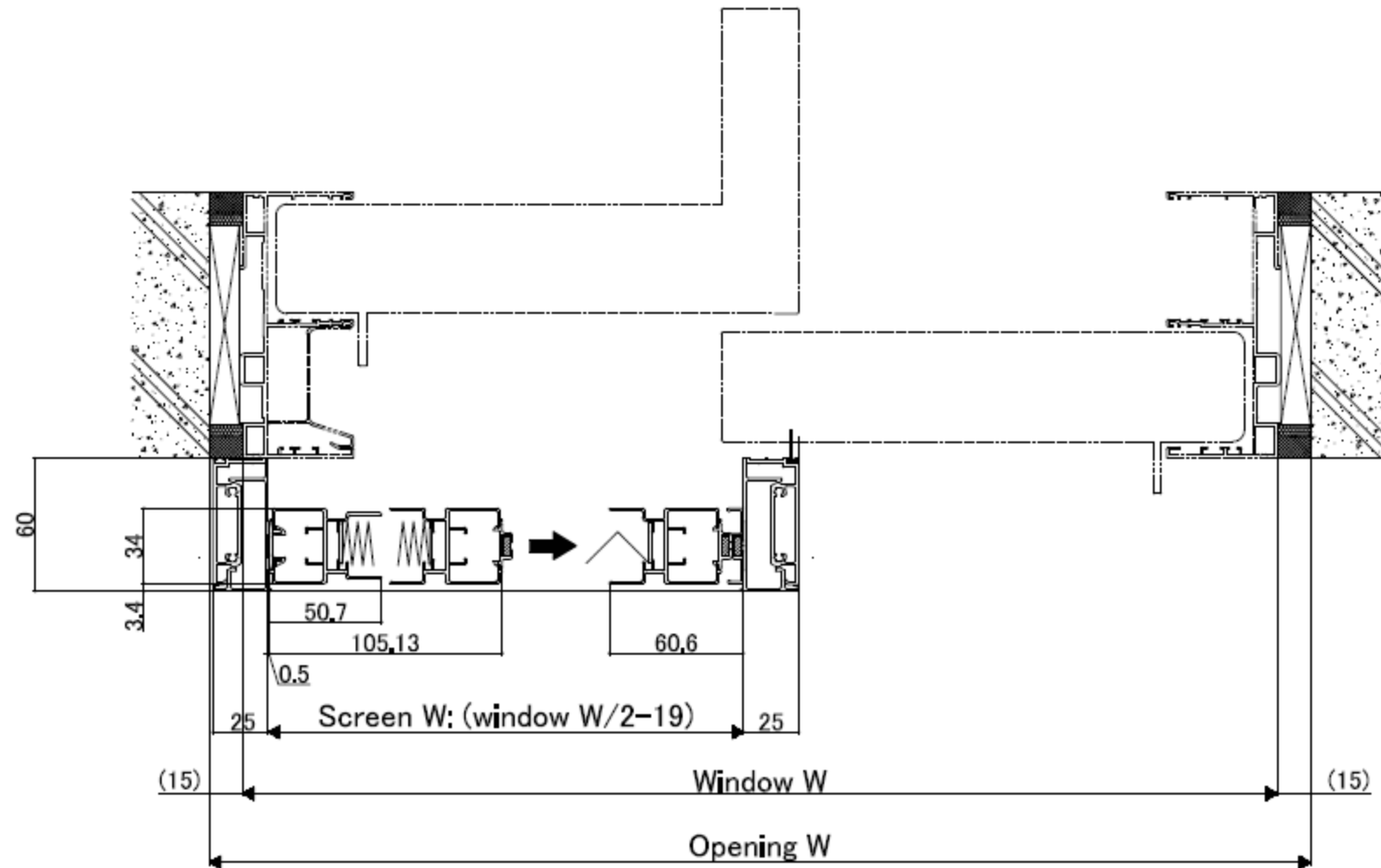
DESIGN & SECTION DRAWINGS



<Sliding insect screen for window>

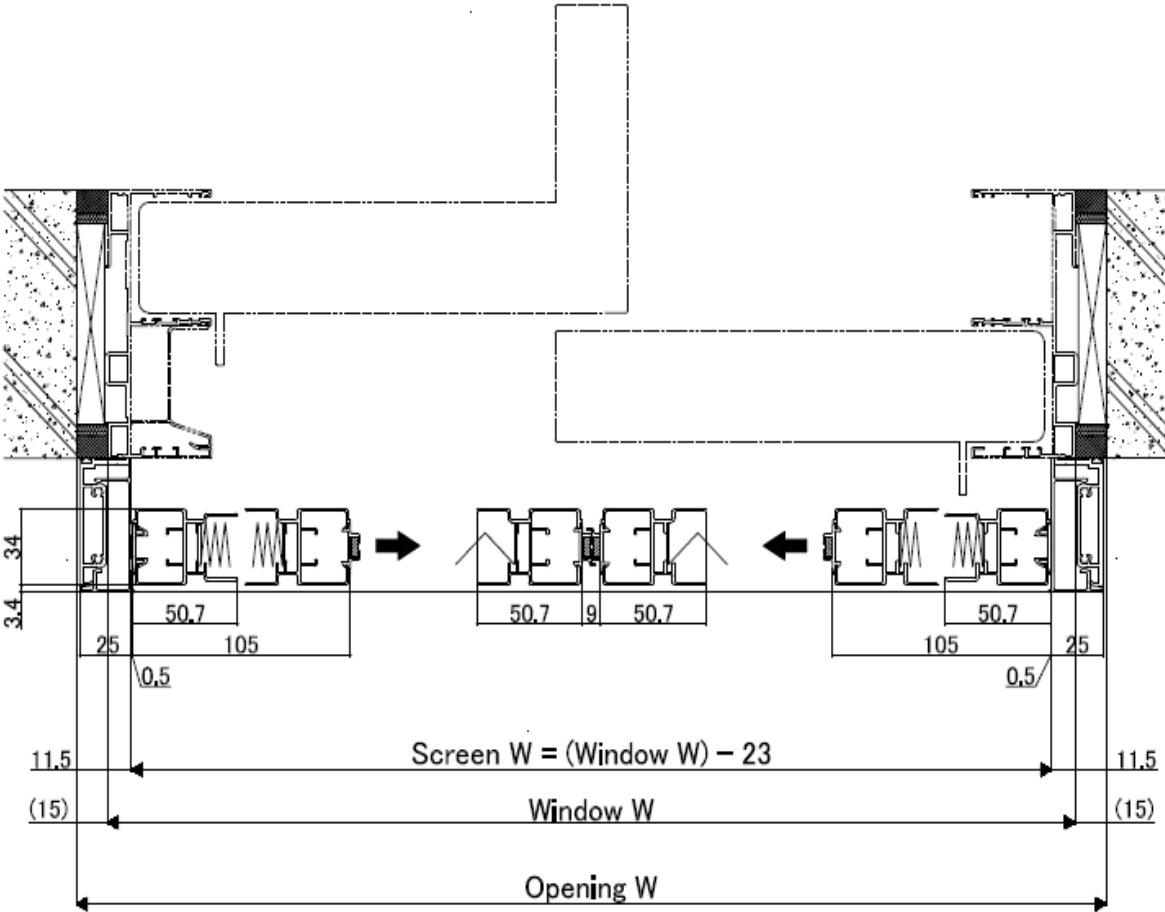
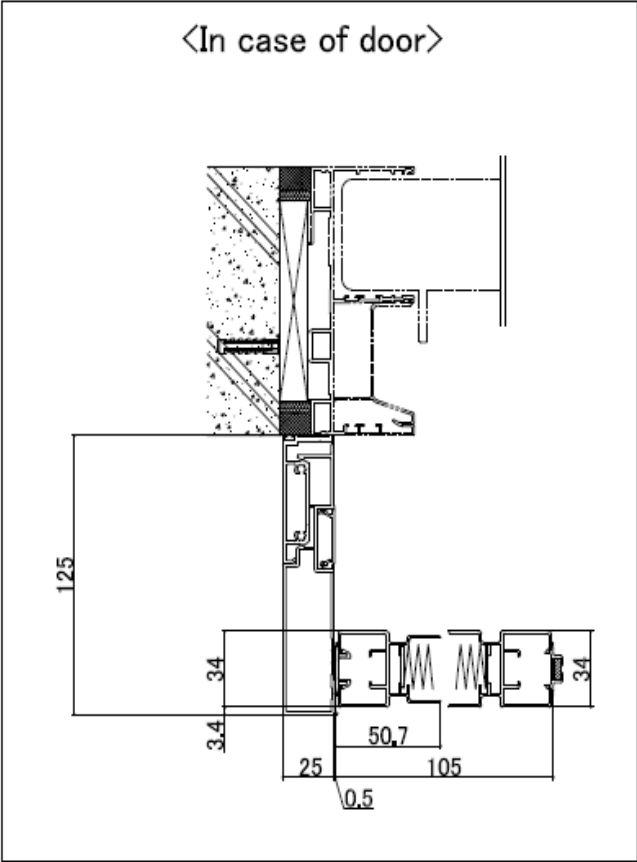
<Sliding insect screen for door>

DESIGN & SECTION DRAWINGS



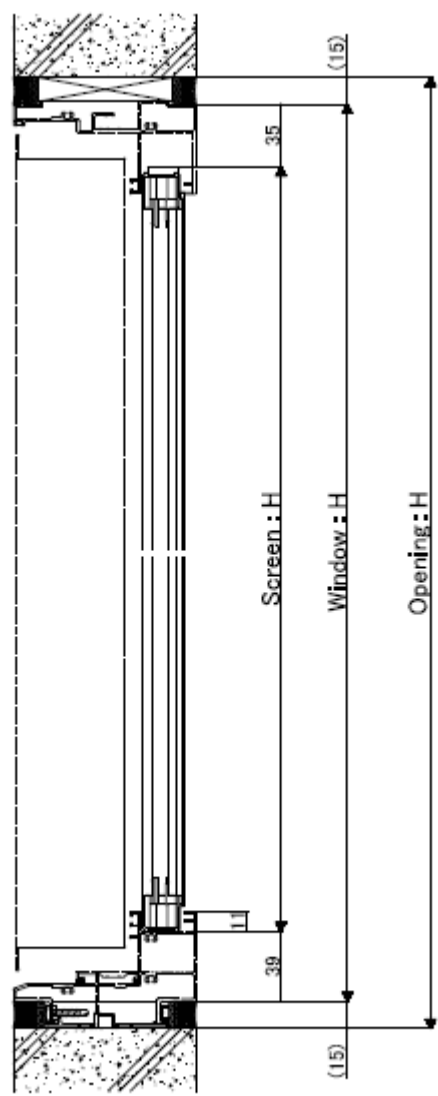
<Sliding insect screen for 2 panels window (half-screen)>

DESIGN & SECTION DRAWINGS

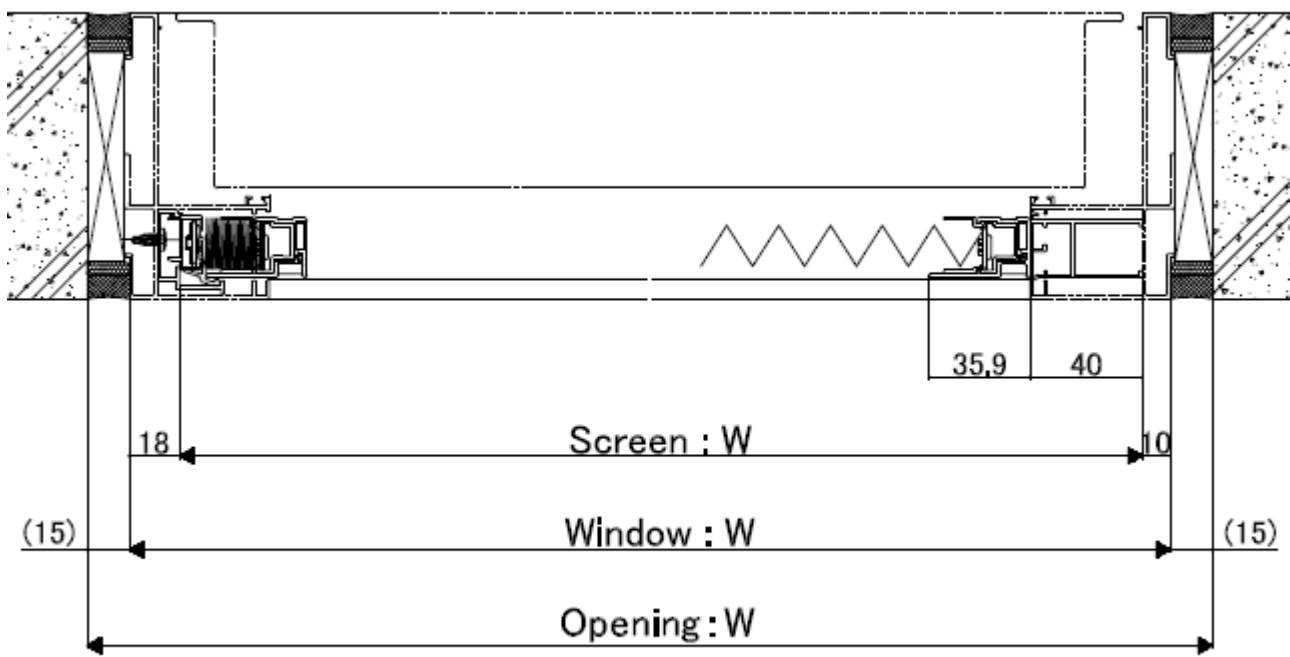


<Sliding insect screen for 2 panels window (full-screen)>

DESIGN & SECTION DRAWINGS

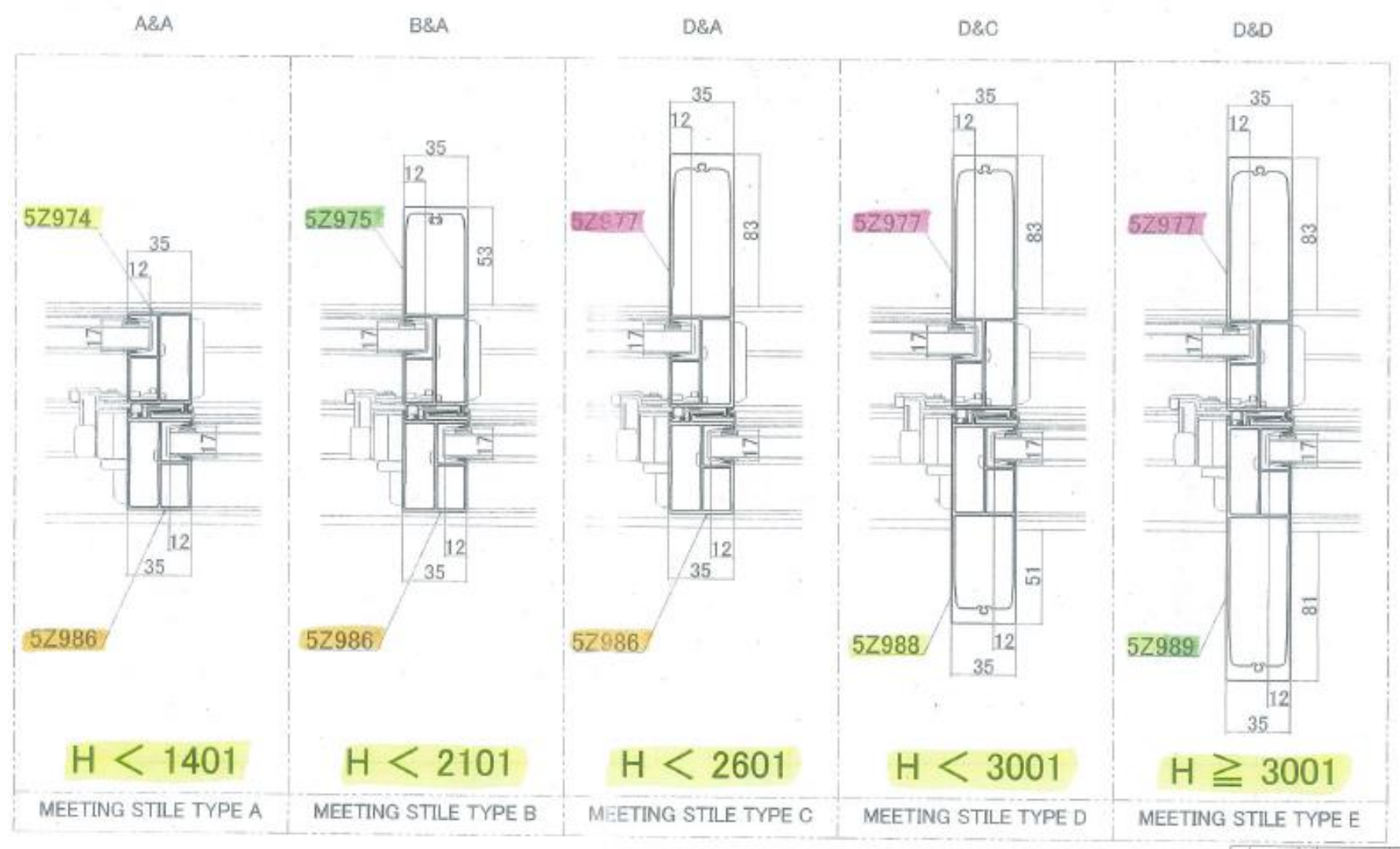


Vertical section: Awning & Casement

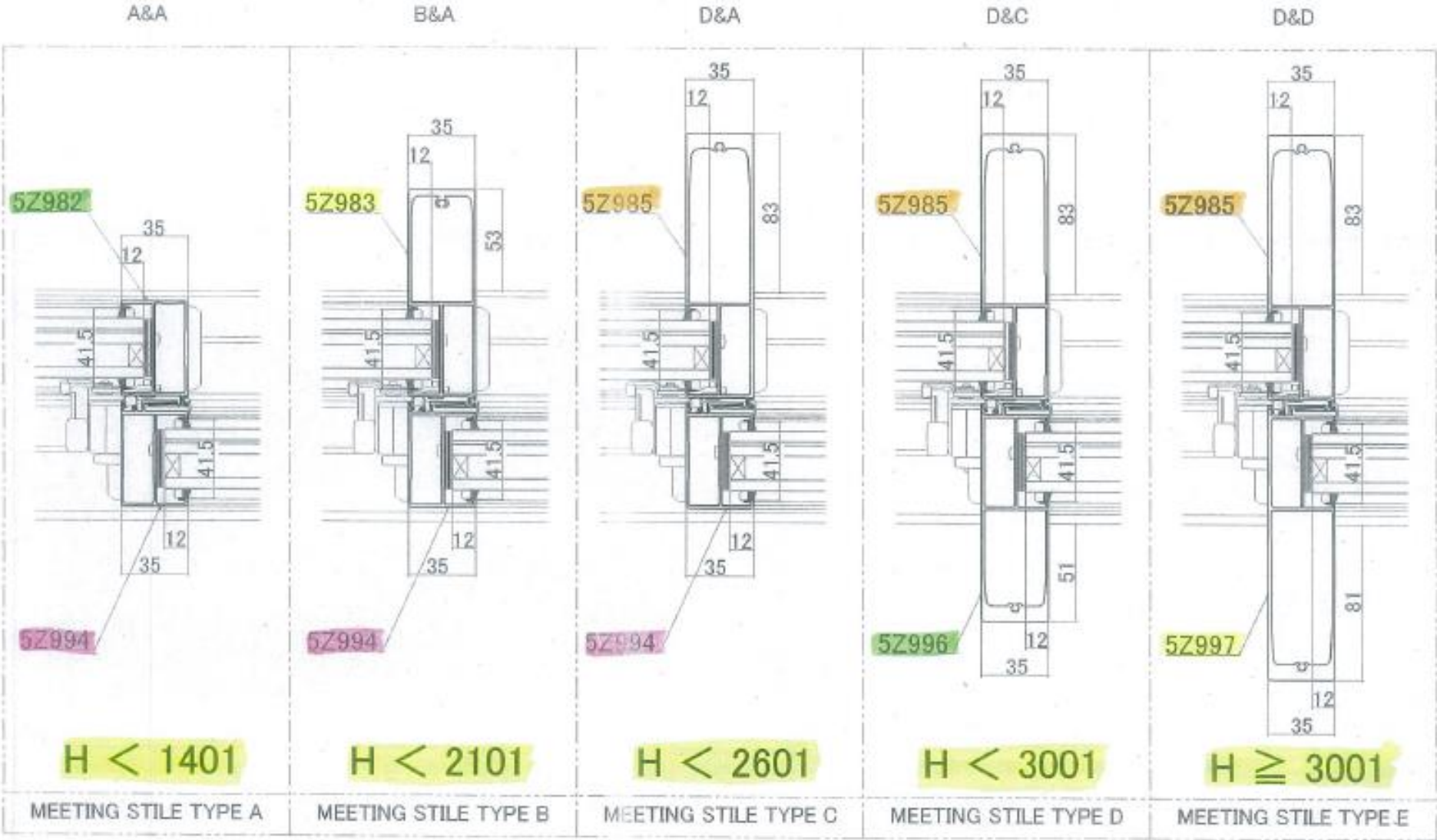


Horizontal section: Awning & Casement

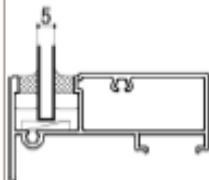
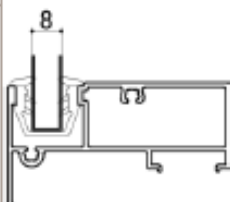
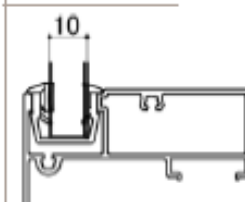
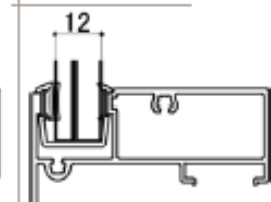
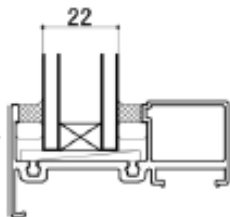
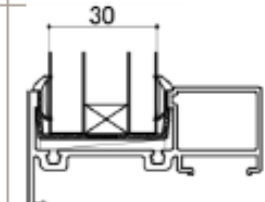
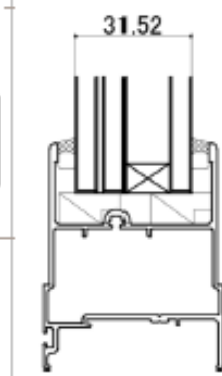
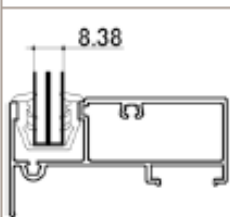
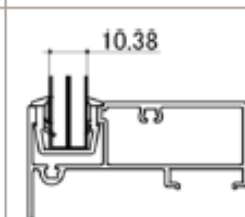
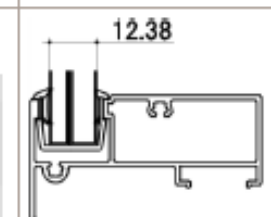
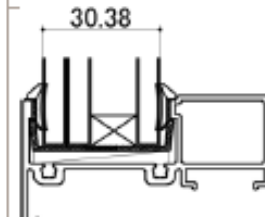
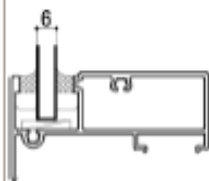
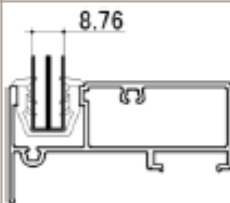
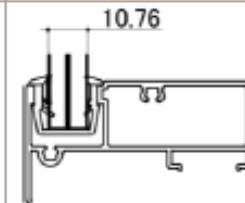
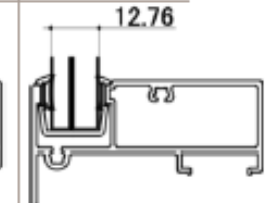
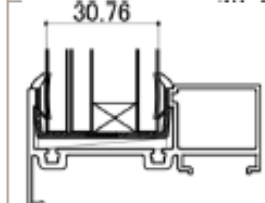
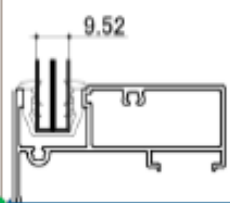
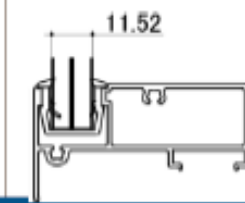
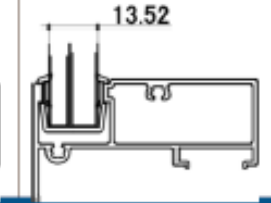
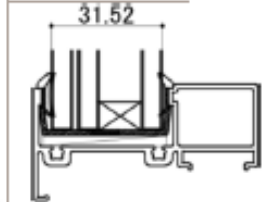
MEETING STILE VARIATION – SINGLE GLASS



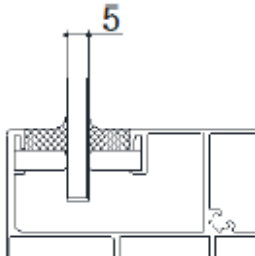
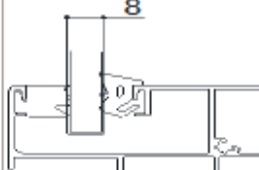
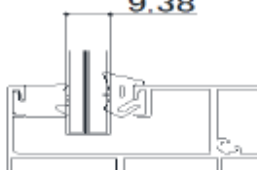
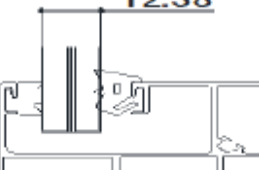
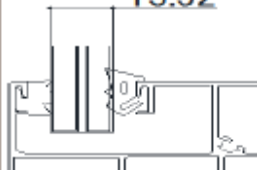
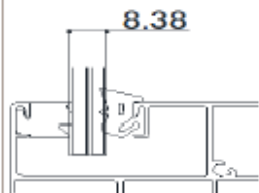
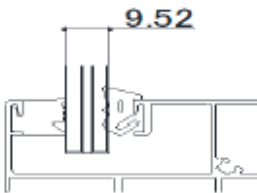
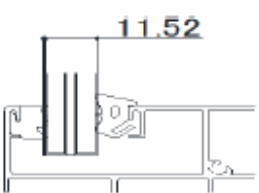
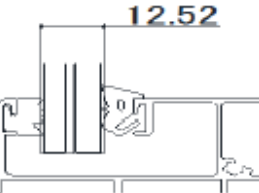
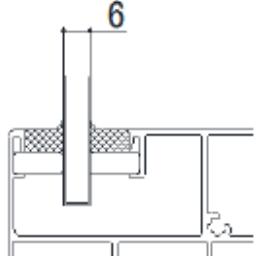
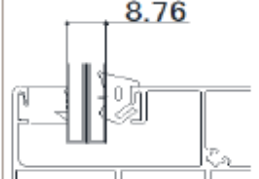
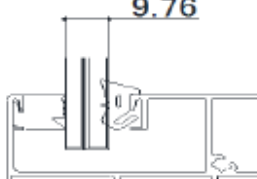
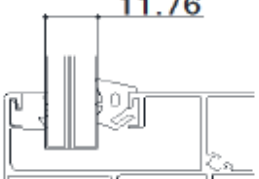
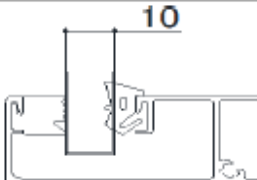
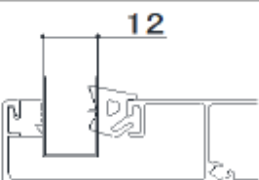
MEETING STILE VARIATION – DOUBLE GLASS



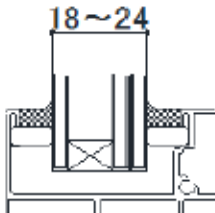
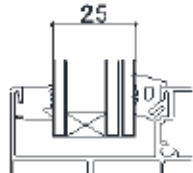
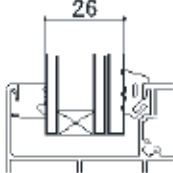
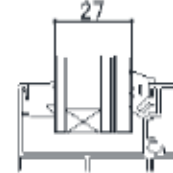
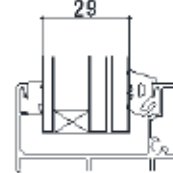
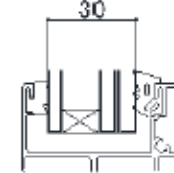
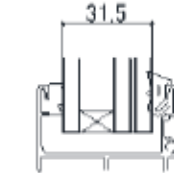
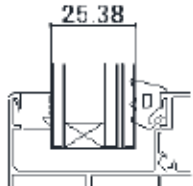
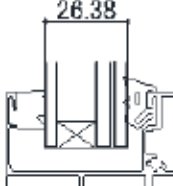
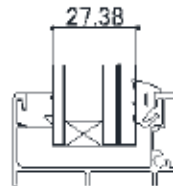
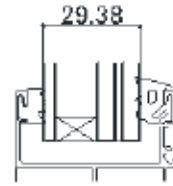
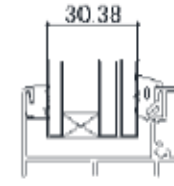
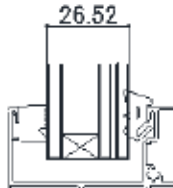
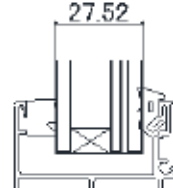
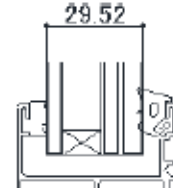
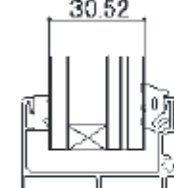
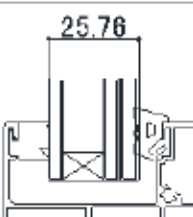
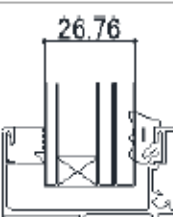
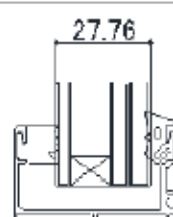
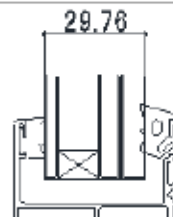
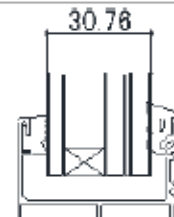
GLAZING PATTERN

		SG				PG		
Glass Groove	17 (Sliding,Swing)				36 (Swing)		41.5 (Sliding)	
Glass Thickness	5, 6 mm	8~9.52 mm	10~11.52 mm	12~13.52 mm	18~22 mm	30~31.52mm	18~31.52mm	
Setting								
								
								
								
Seal		Glazing			Seal	Glazing	Seal	

GLAZING PATTERN

	SG					
Glass Groove	23.5					
Glass Thickness	5,6	8~8.76	9.38~10	11.38~12	12.38~12.79	13.5
Setting						
						
						
						
	Seal	Bead				

GLAZING PATTERN

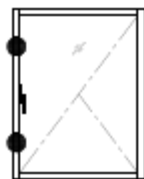
	PG							
Glass Groove	41.5							
Glass Thickness	18~24	25~25.76	26~26.76	27~27.76	29~29.76	30~30.76	31.5	
Setting								
							—	
		—					—	
							—	
Seal		Bead						

DESIGN & SECTION DRAWINGS

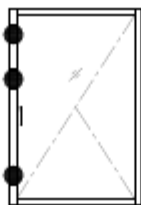
GRANTS CASEMENT

● Lock catch point

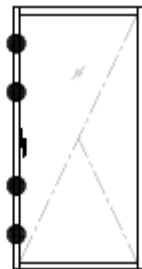
$700 \leq \text{Sash H} \leq 1350$ 2 Points



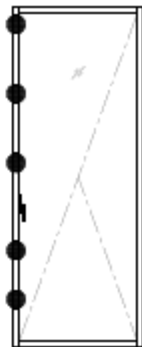
$1350 < \text{Sash H} \leq 1750$ 3 Points



$1750 < \text{Sash H} \leq 2550$ 4 Points



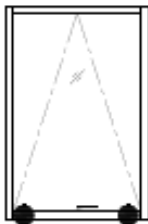
$2550 < \text{Sash H} \leq 3000$ 5 Points



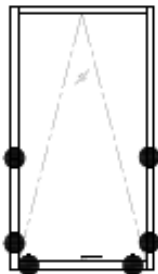
GRANTS AWNING

● Lock catch point

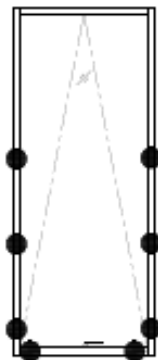
$\text{Sash H} \leq 1800$ 2 Points



$1800 < \text{Sash H} \leq 2400$ 6 Points



$2400 < \text{Sash H} \leq 3000$ 8 Points



COLOUR COMBINATION

Parts color chart for Grants					
Product color code	P	D	K	G	T
Product color name	Natural white	Natural silver	Shine gray	Autmn Brown	Black
Aluminium color	Natural white	Natural silver	Shine gray	Autmn Brown	Black
Hardware color	Silver	Silver	Silver	Silver	Silver
Other PARTS color	White	Grey	Grey	Dark Brown	Dark Brown
CRESCENT	S (silver)	S (silver)	S (silver)	S (silver)	S (silver)
HANDLE FOR SLIDING	S (silver)	S (silver)	S (silver)	S (silver)	S (silver)
HANDLE FOR CASEMENT	S (silver)	S (silver)	S (silver)	S (silver)	S (silver)
HANDLE FOR AWNING	S (silver)	S (silver)	S (silver)	S (silver)	S (silver)
LEVER HANDLE	S (silver)	S (silver)	S (silver)	S (silver)	S (silver)
HOLLOW CAP FOR SLIDING	X (white)	K (Grey)	K (Grey)	G (Dark Brown)	G (Dark Brown)
PUSH BUTTON FOR SLIDING PANEL	W (white)	K (Grey)	K (Grey)	U (Dark Brown)	T (Black)
PANEL STOPPER FOR SLIDING	D (ivory white)	K (Grey)	K (Grey)	U (Dark Brown)	U (Dark Brown)
CAULKING SEALE	S (Grey)	S (Grey)	S (Grey)	T (Black)	T (Black)
GASKET	G (Dark Brown)	G (Dark Brown)	G (Dark Brown)	G (Dark Brown)	G (Dark Brown)
PUSH BUTTON	N (white)	K (Grey)	K (Grey)	G (Dark Brown)	G (Dark Brown)

HANDLE HEIGHT RULE

Kind of sash	Parts	Sash H	Parts height
2 SLIDING WINDOW 4 SLIDING WINDOW SLIDING WINDOW HKK 2 SLIDING DOOR 4 SLIDING DOOR SLIDING DOOR HKK 3 SLIDING DOOR 6 SLIDING DOOR	CRESCENT , HANDLE	$H \leq 2000$	$H/2$
		$2000 < H$	1000
CASEMENT	HANDLE	$H \leq 2000$	$H/2$
		$2000 < H$	1000
SWING DOOR	LEVER HANDLE	$1034 \leq H \leq 1834$	$H/2$
		$1834 < H$	1100

THANKS