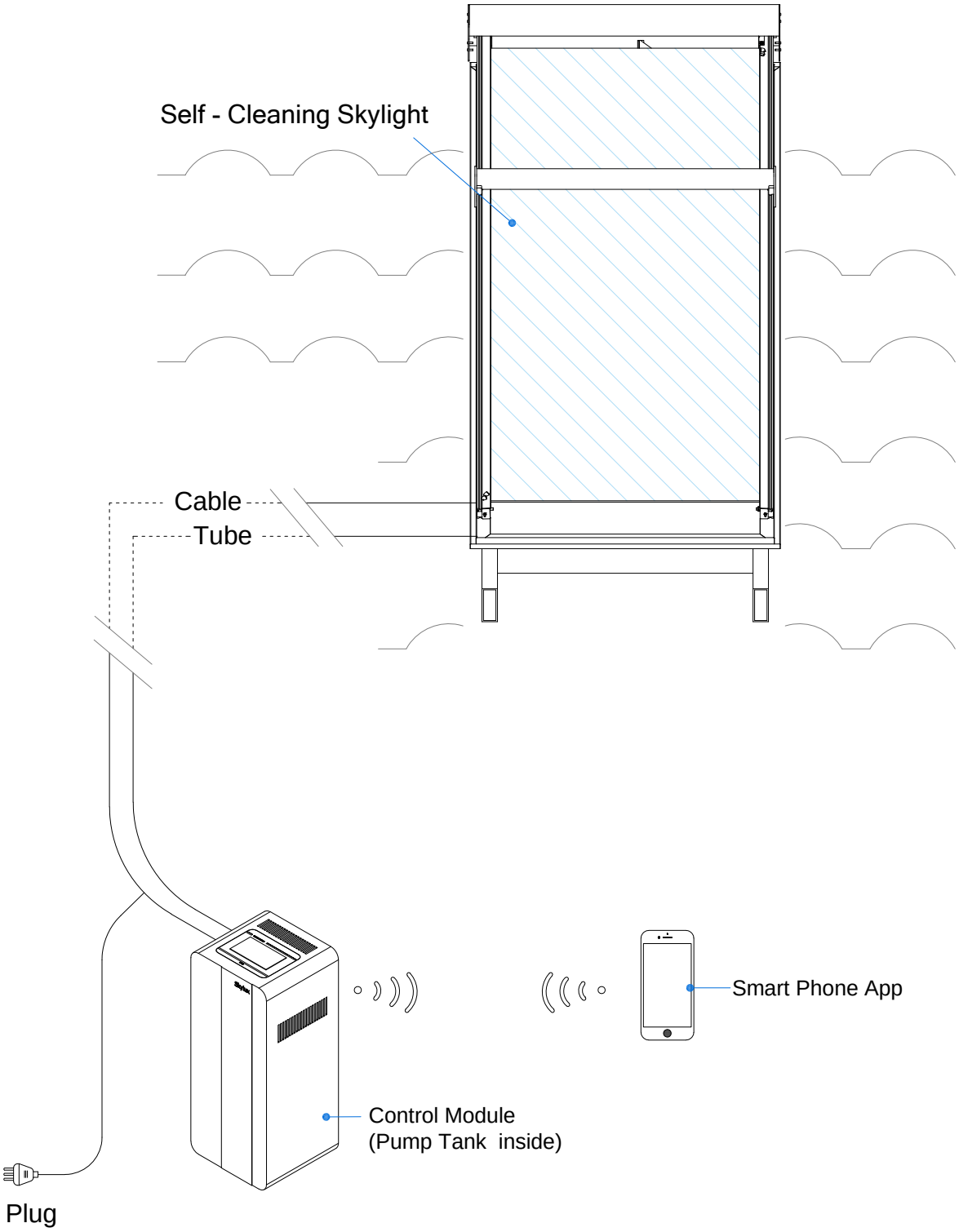
Contents

Skylight windows are installed on the roof of buildings providing natural light, heating visual ambience and ventilation whilst providing protection from the weather. Skylight windows become soiled due to deposits of dust, dirt, pollution and other airborne contaminates setting of the Skylight. These deposits, if not cleaned stick to the Skylight that are unsightly obstruct the view and reduce building performance in terms of light and energy entering the building. Skylights should be cleaned on a regular basis, however due to skylights being installed on the roof they are not always easily accessible for cleaning.

skylights are cleaned manually either by brush, cloth, or high-pressure hose. When a skylight window is installed in a location that is not easily accessible cleaning can be difficult and pose a safety hazard if working off ladders or traversing the roof. Cleaning of the skylight may require the construction of scaffolds or to engage an expensive high altitude cleaning company.

This inconvenience and expense results in skylight windows not being cleaned on a regular basis. The invention of a skylight with integrated automated cleaning mechanism is a safe and convenient invention that provides daily cleaning.

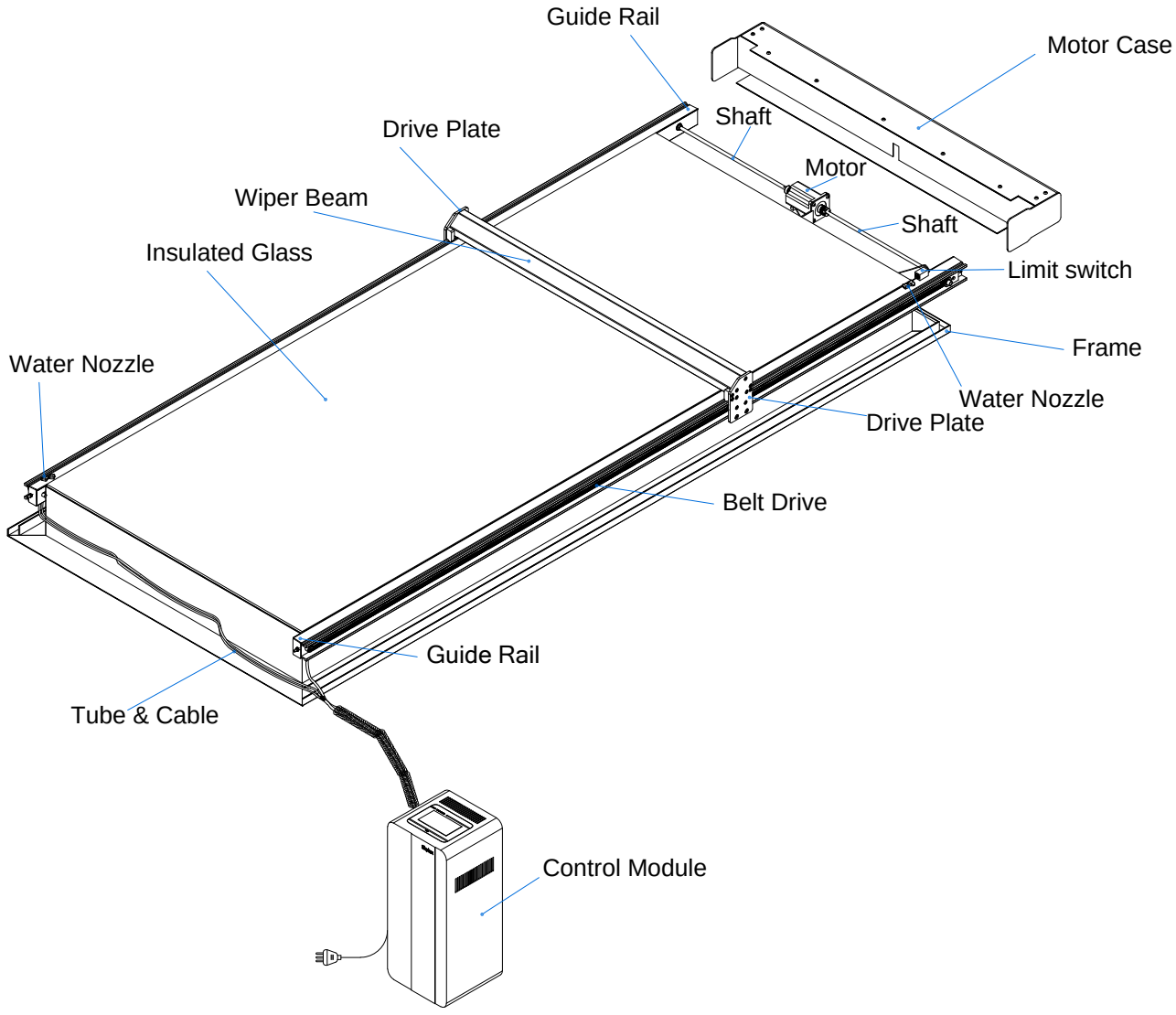
■ Skylight Connection Process Overview



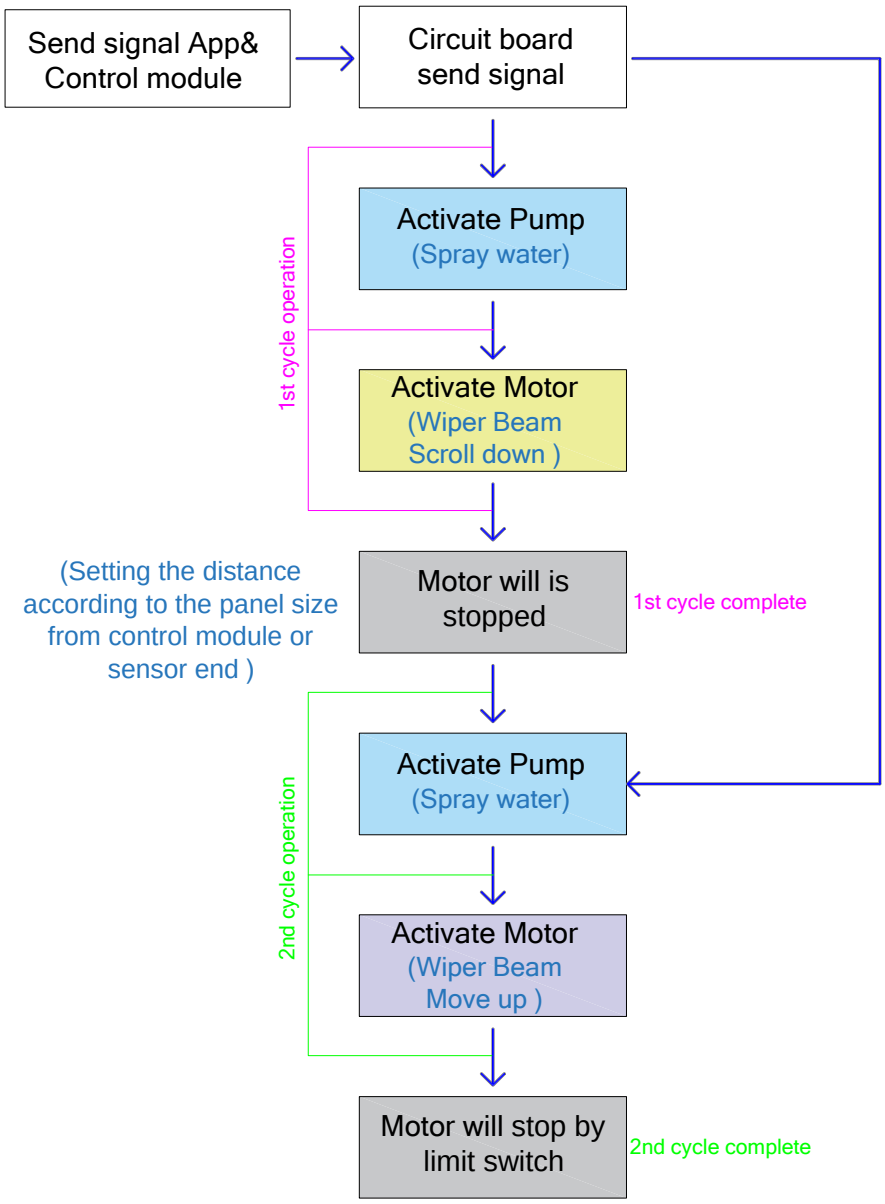
Principle of Skylight operation

The invention relates to an automated skylight cleaning mechanism, which is composed of a rectangular frame that can be fitted with a variety of glazing materials that are structurally sealed to the rectangular frame. Special spray nozzles are installed at each corner of the rectangular frame to deliver cleaning agents to the glazing surface. A horizontal wiper beam that has special cleaning blades attached that touch the glazing surface. The wiper beam is attached to guide plates that connect to a belt drive system. The side of the rectangular frame is fitted with special rails that guide the wiper beam and cleaning blade. There is a motor connected to drive shafts that attaches the wiper beam guide plates. When an energy source is applied, cleaning agents are automatically applied to the skylight surface, force from the motor is transferred from the drive shafts to the belt drive system that moves the wiper beam and cleaning blade over the surface of the skylight removing dirt and debris.

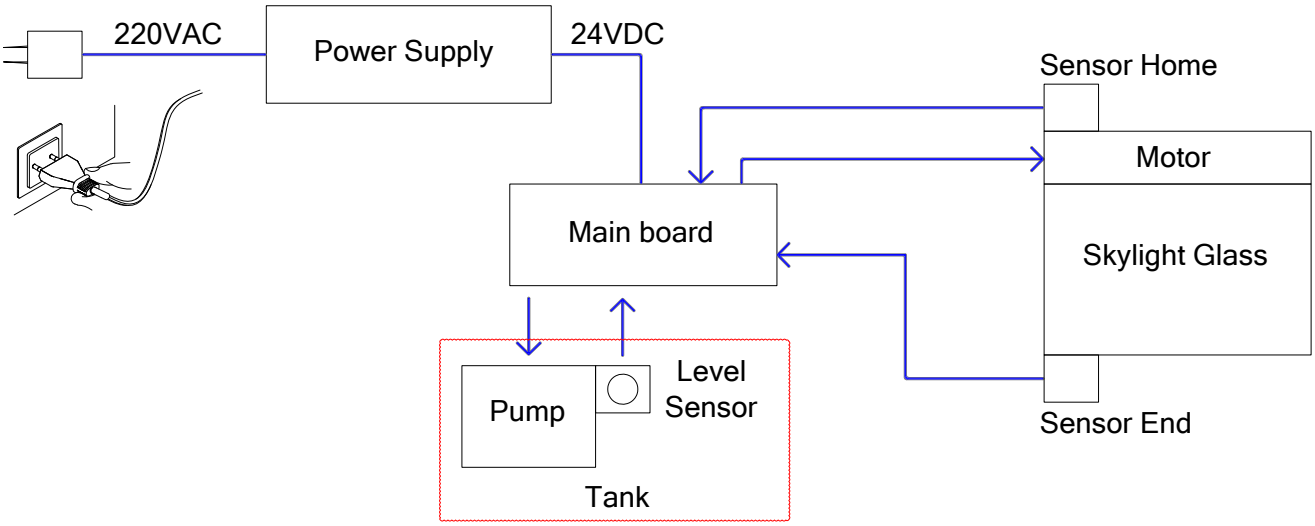
The wiper beam and cleaning blade is attached to the wiper beam guides and the belt drive system. When the motor rotates, force is transferred to the belt moving the wiper beam and cleaning blade across the skylight surface, this motion cleans the glazing automatically eliminating manual labour and the need to access the roof reducing the risk of human injury.

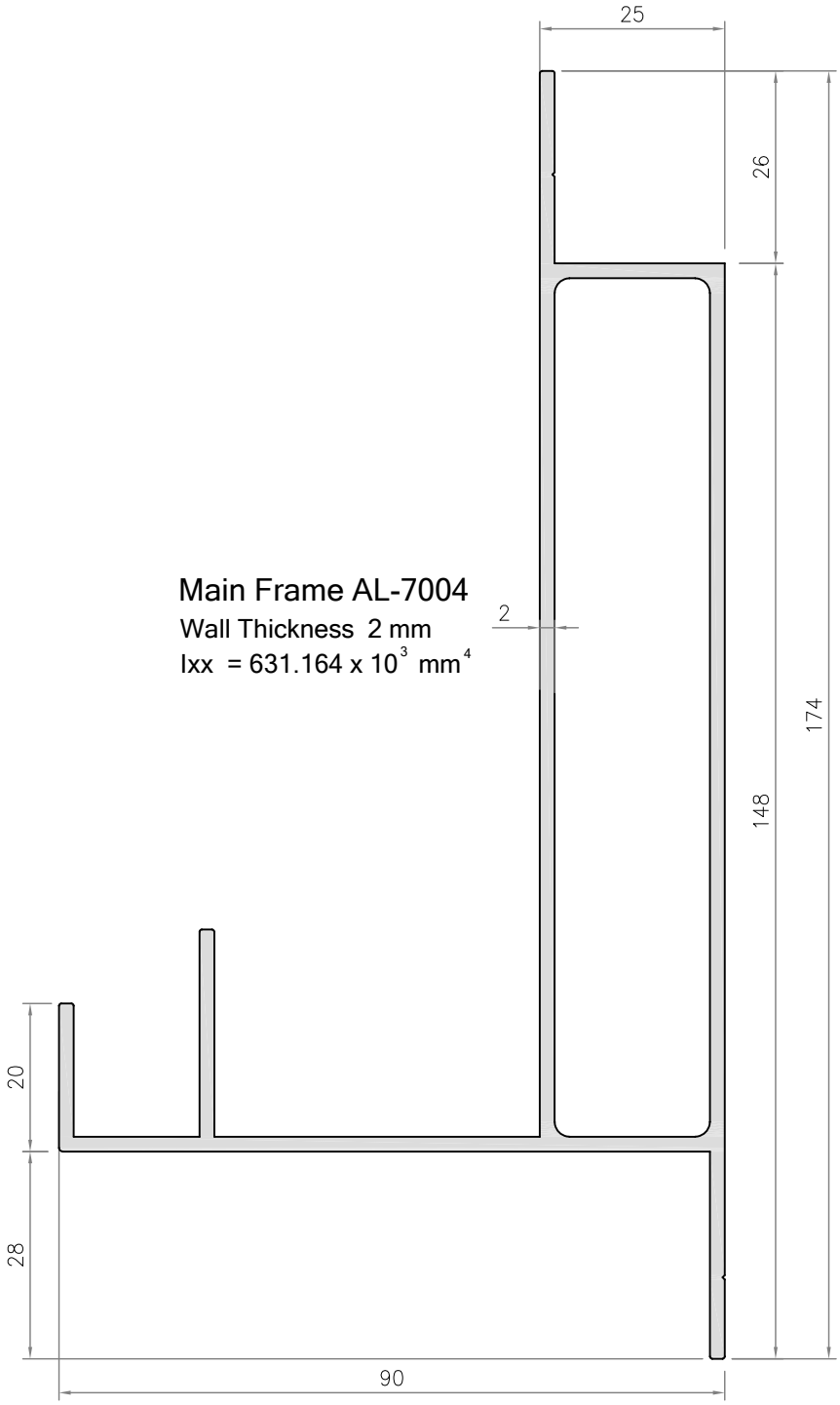


■ Skylux operation concept

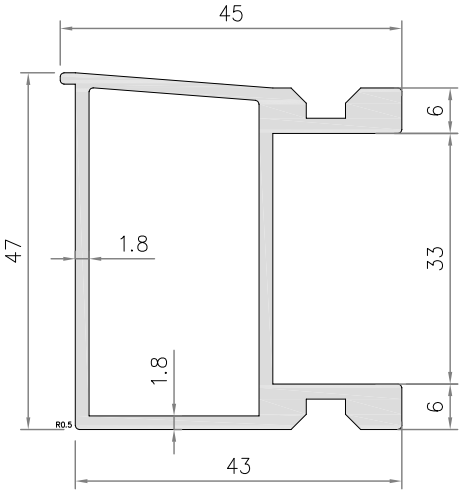


■ **Control module operation diagram**

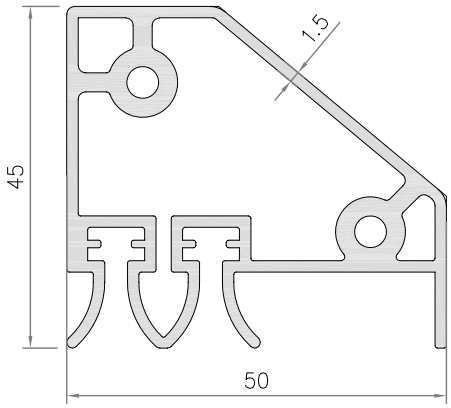




Main Frame AL-7004
Wall Thickness 2 mm
Ixx = 631.164 x 10^3 mm^4

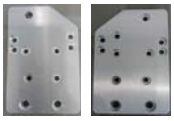
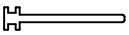


Guide Rail AL-7003
Wall Thickness 1.8 mm
Ixx = 80.179 x 10^3 mm^4

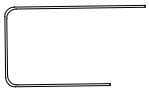


Wiper Beam AL-7002
Wall Thickness 1.5 mm
Ixx = 81.418 x 10^3 mm^4

■ Hardware

Part No.	Drawing	Description	Material
70-002R 70-002L		DRIVE PLATE (R) DRIVE PLATE (L)	Aluminium
70-003R 70-003L		TENSIONER PLATE (R) TENSIONER PLATE (L)	Aluminium
70-004		SPACER PIPE	Stainless Steel
70-005R 70-005L		BELT PROTECTOR ACROSS TRACK-R BELT PROTECTOR ACROSS TRACK-L	POM
70-006R 70-006L		SLIDING RAIL CLEARERS (SMALL) R SLIDING RAIL CLEARERS (SMALL) L	POM
70-007		SLIDING RAIL CLEARERS (BIG)	POM
70-008		BELT BLOCK	Stainless Steel
70-009		COVER BELT BLOCK	Stainless Steel
70-010		MOTOR COVER END CAP L+R	Stainless Steel
70-011		WIPER BLADE	EPDM
70-012		WATER PUMP NOZZLE	
70-014		6MM ALUMINUM SPACER (10X5.3X6MM)	Aluminium
70-015		CABLE GROMMET	

■ Hardware

Part No.	Drawing	Description	Material
70-016		SMOOTH IDLER PULLEY WHEEL	
70-017		MOTOR BRACKET	Stainless Steel
70-018		MOTOR COVER FOLDED U-CHANNEL	Stainless Steel
70-019		MOTOR COVER FOLDED ANGLE	Stainless Steel
70-020		M5 SHIMS (5X8X1MM)	Stainless Steel
70-022		M8 SHIMS (8X10X1.25MM)	Stainless Steel
70-024		ALUMINIUM BUSHINGS	Aluminium
70-001-FN		M5 x 25mm. HEX SOCKET BUTTON HEAD CAP SCREW	Stainless Steel
70-002-FN		M8 x 50mm. SOCKET HEAD CAP SCREW	Stainless Steel
70-003-FN		M5 LOCK NUTS	Stainless Steel
70-004-FN		M8 LOCK NUTS	Stainless Steel
70-005-FN		M5 x 15mm. HEX SOCKET BUTTON HEAD CAP SCREW	Stainless Steel
70-006-FN		M4 x 5mm. HEX SOCKET SET SCREW	Stainless Steel

■ Hardware

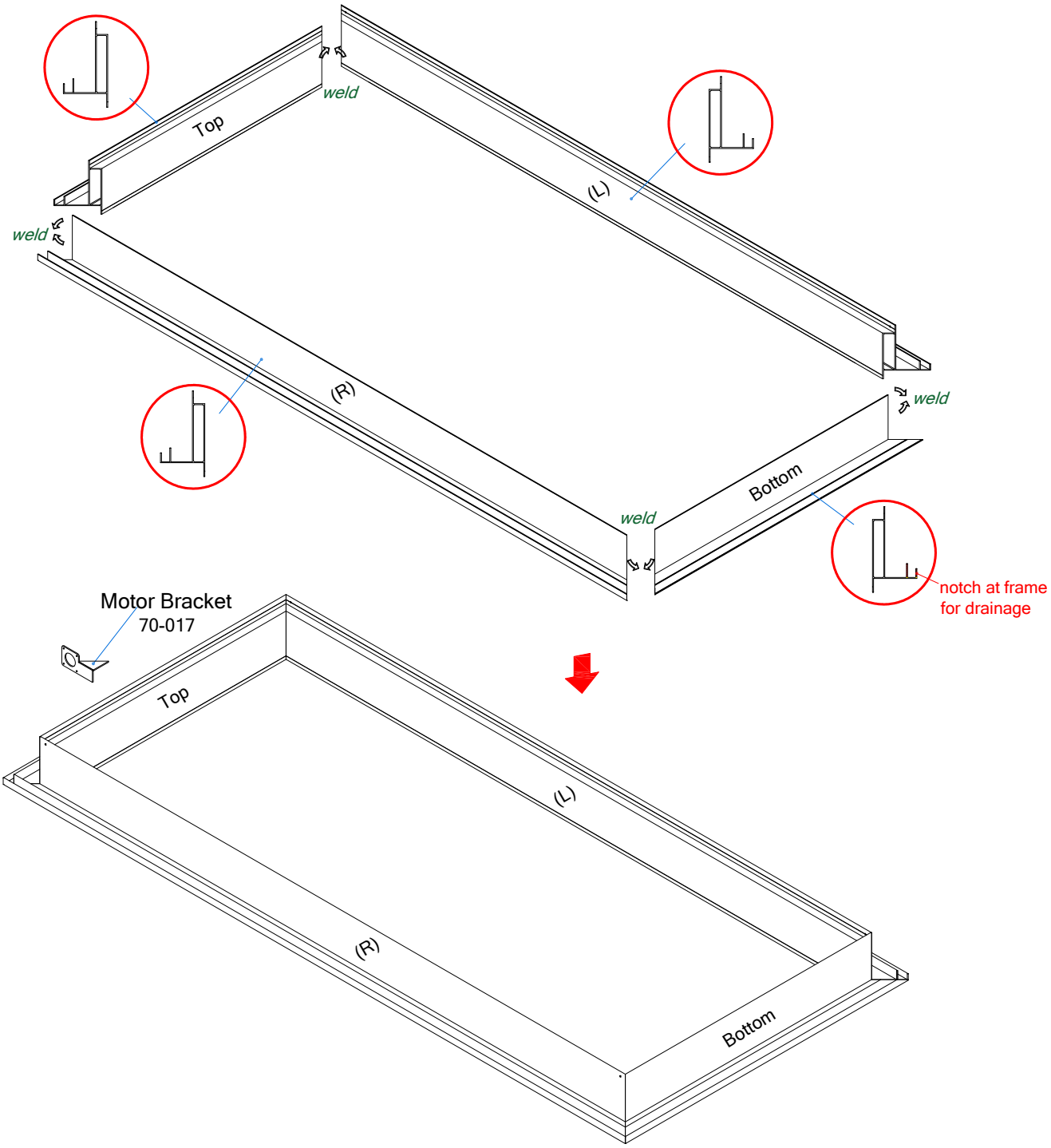
Part No.	Drawing	Description	Material
70-008-FN		M5 x 12mm. HEX SOCKET BUTTON HEAD CAP SCREW	Stainless Steel
70-009-FN		M5 x 10mm. HEXAGON SOCKET HEAD CAP SCREWS	Stainless Steel
70-010-FN		M5 x 12mm. SELF TAPPING SCREWS - TRUSS HEAD	Stainless Steel
70-011-FN		M5 x 6mm. HEX SOCKET BUTTON HEAD CAP SCREW	Stainless Steel
70-013-FN		RIVET #6-3	
70-001-AM		BALL BEARING OD Ø18mm	Stainless Steel
70-003-AM		DELRIN MINI V WHEEL (15.24X8.8MM)	
70-004-AM		MOTOR OPERATING MANUAL PK269JDB	
70-005-AM		XL-10mm RUBBER OPEN TIMING BELT	
70-006-AM		XL-10mm, 12 Tooth Timing Pulley Aluminum Bore 8mm	
70-007-AM		LINEAR SHAFTS OD Ø 8mm	Stainless Steel
70-008-AM		LIMIT SWITCH	
70-010-AM		HOSE(inner hole 4mm.)	

■ Hardware

Part No.	Drawing	Description	Material
70-011-AM		HMI TOUCH SCREEN	
70-012-AM		WATER TANK	
70-013-AM		POWER SUPPLY 24V	
70-014-AM		POWER SUPPLY 12V	
70-015-AM		METAL SHAFT SLEEVE LOCK COLLAR	Stainless Steel
70-016-AM		DRIVE COULPING	
70-017-AM		CAM ADJUST TENSION	Stainless Steel
70-018-AM		HOSE(inner hole 5mm.)	
70-020-AM		Y TYPE CONNECTORS	

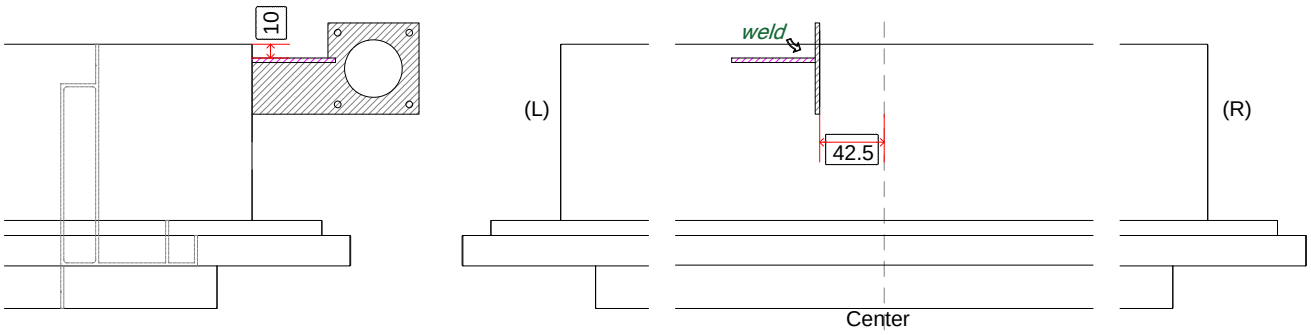
■ Skylight Frame

(1.)Take the Aluminum Main Frame (AL-7004) and cut it at 45 degrees on both sides and then weld it together.



■ Skylight Frame

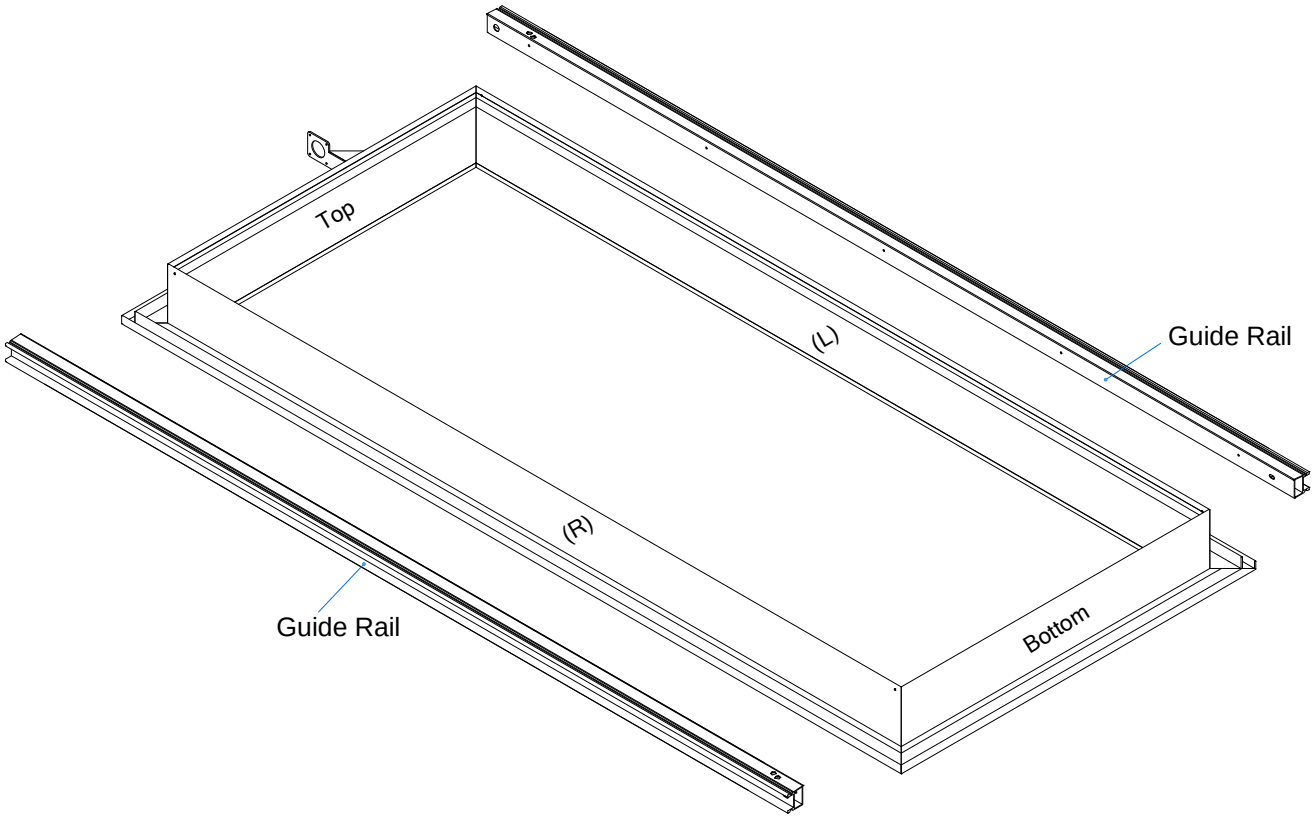
(2.)Take the Motor Bracket to weld on the Top Frame. The distance(mm.) is specified as shown in the picture.



Side View

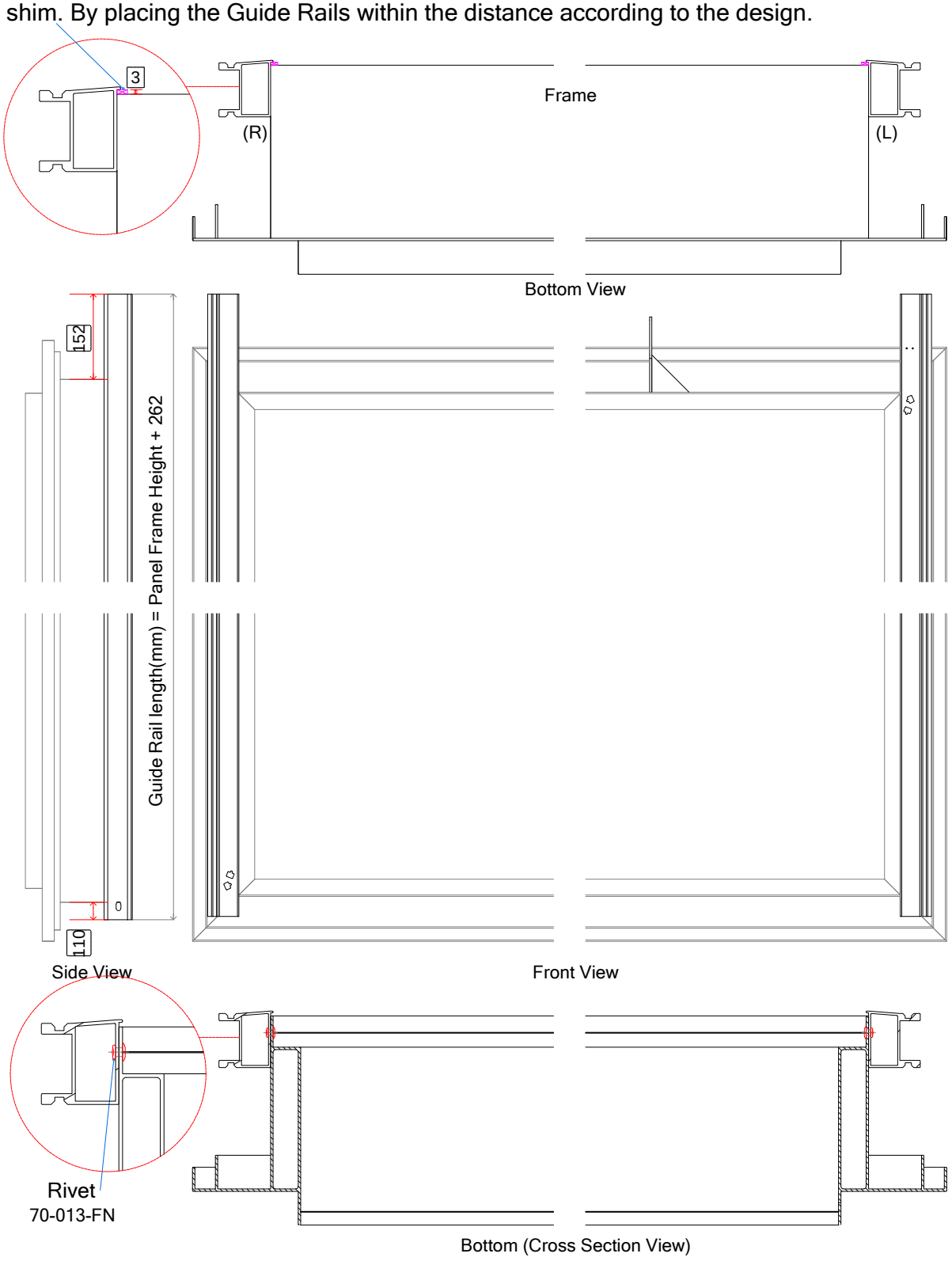
Top View

(3.)Take the Aluminum Guide Rail (AL-7003) to prepare for assembly with the Frame.

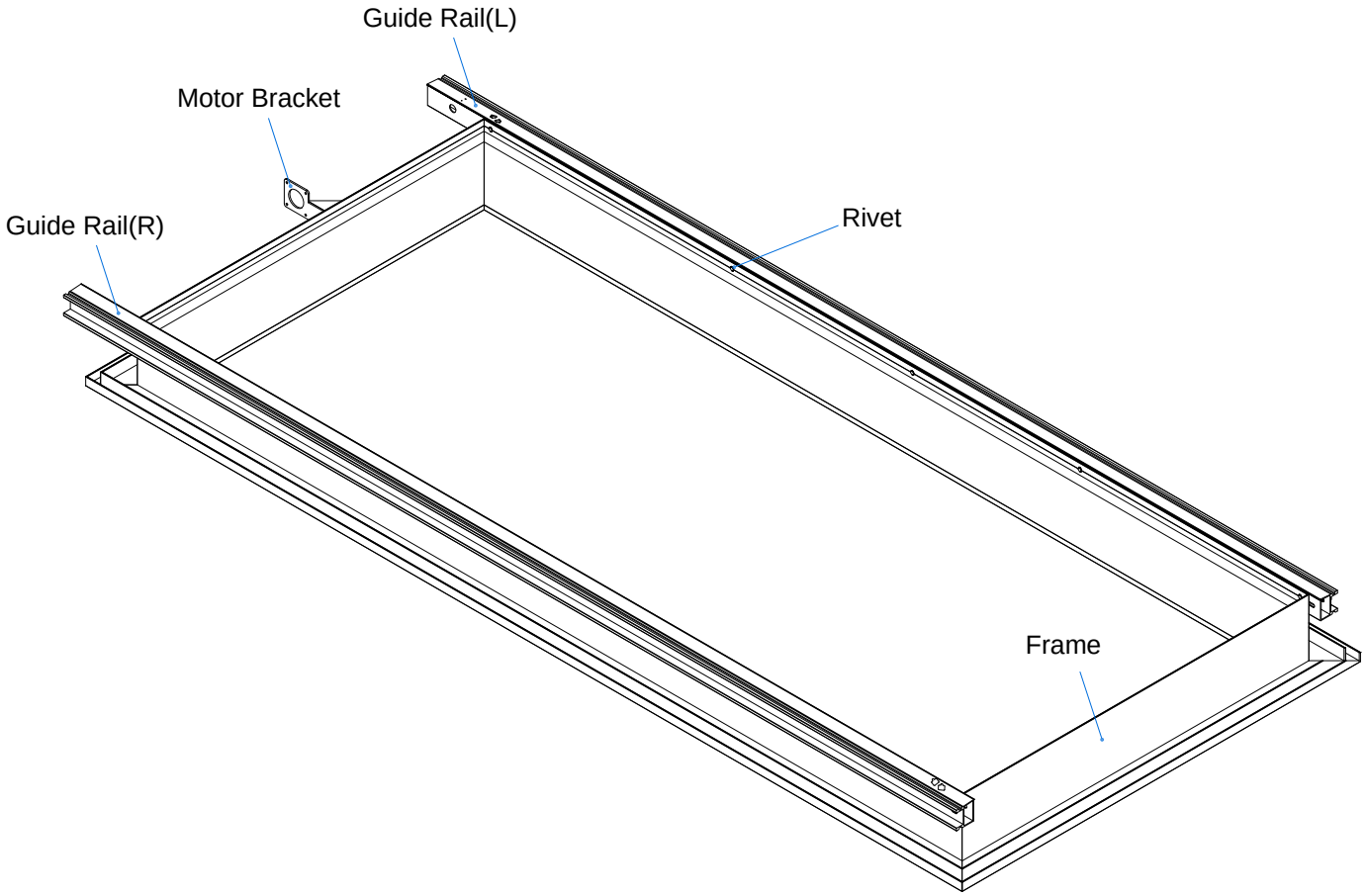


■ Skylight Frame

(4.)Prepare shim thickness 3 mm. To support for placing the Guide Rails on the Frame, then shooting rivets to attach the Guide Rails to the Frame. When fastening is complete, pull out the shim. By placing the Guide Rails within the distance according to the design.

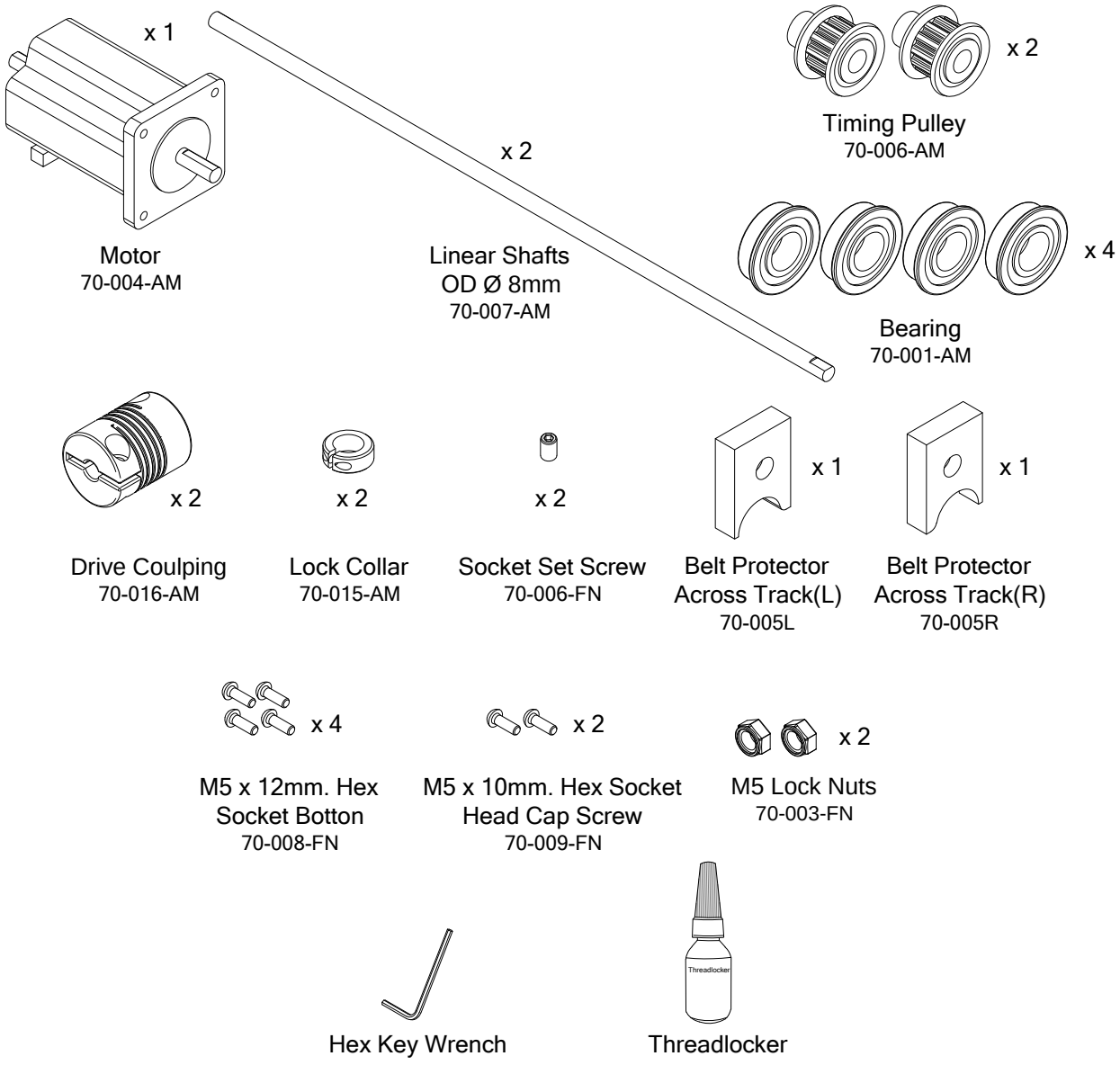


- **Skylight Frame**



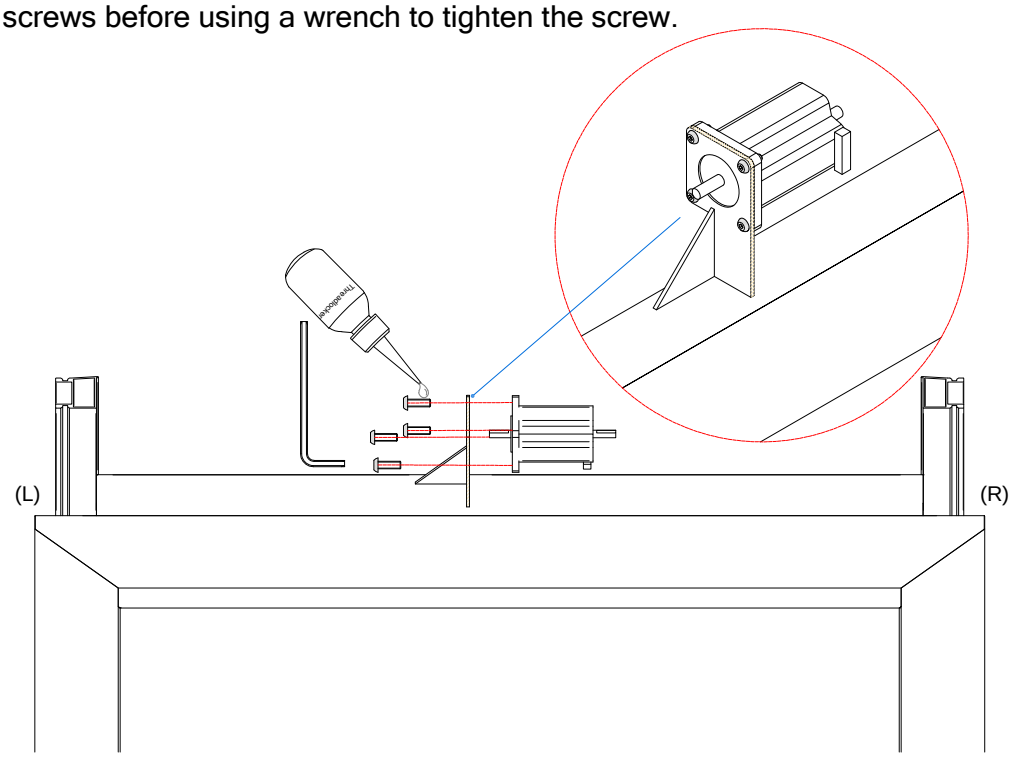
■ Motor set

(1.)Prepare equipment as follows.

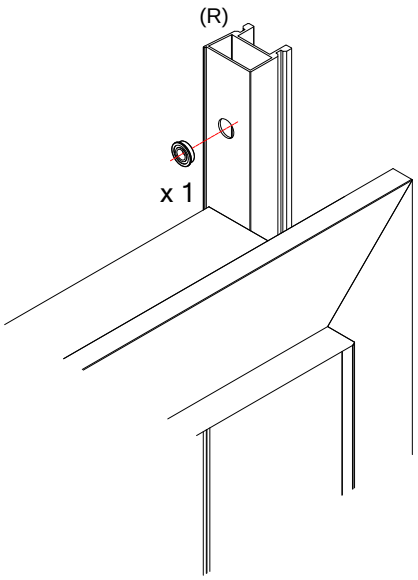


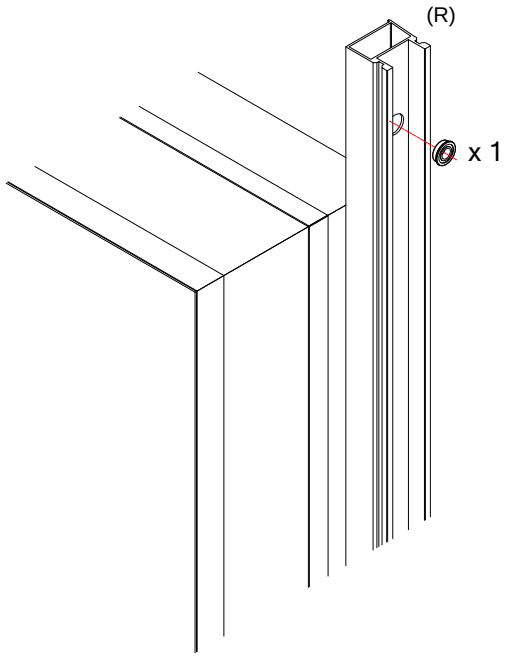
- **Motor set**

(1.1)Attach the Motor to the Motor Bracket on frame. Threadlocker must be dripped onto the M5 x 12 Hex screws before using a wrench to tighten the screw.



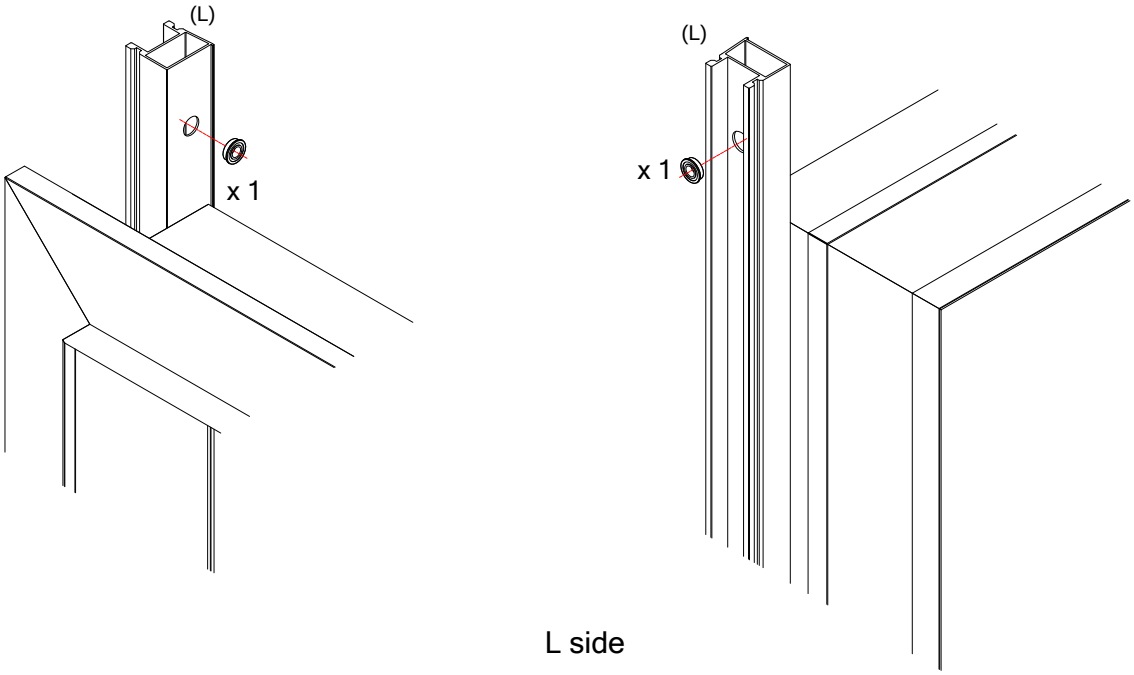
(1.2)Insert the Bearings into the hole drilled in the Guide Rail on both side.





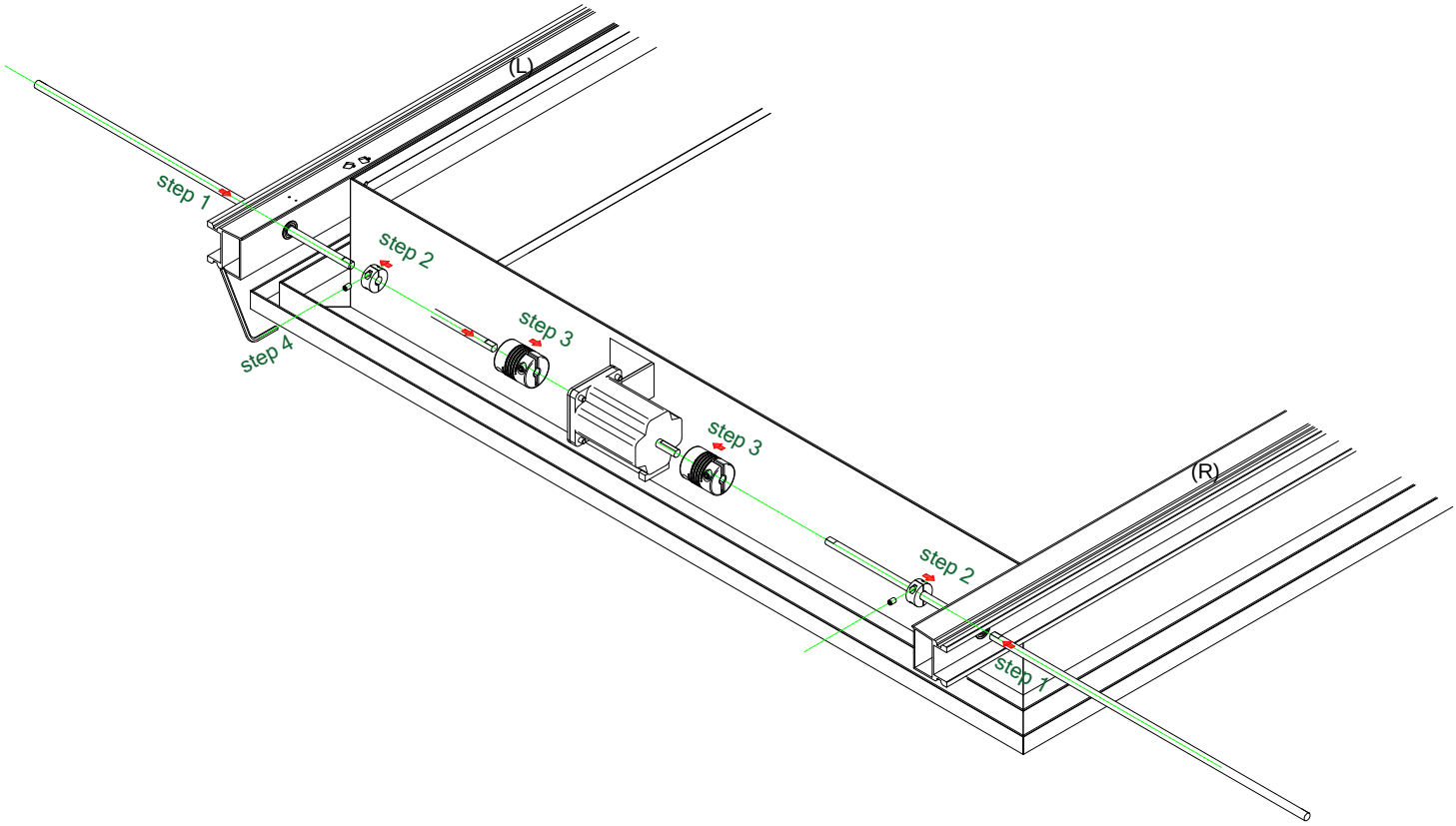
R side

- **Motor set**



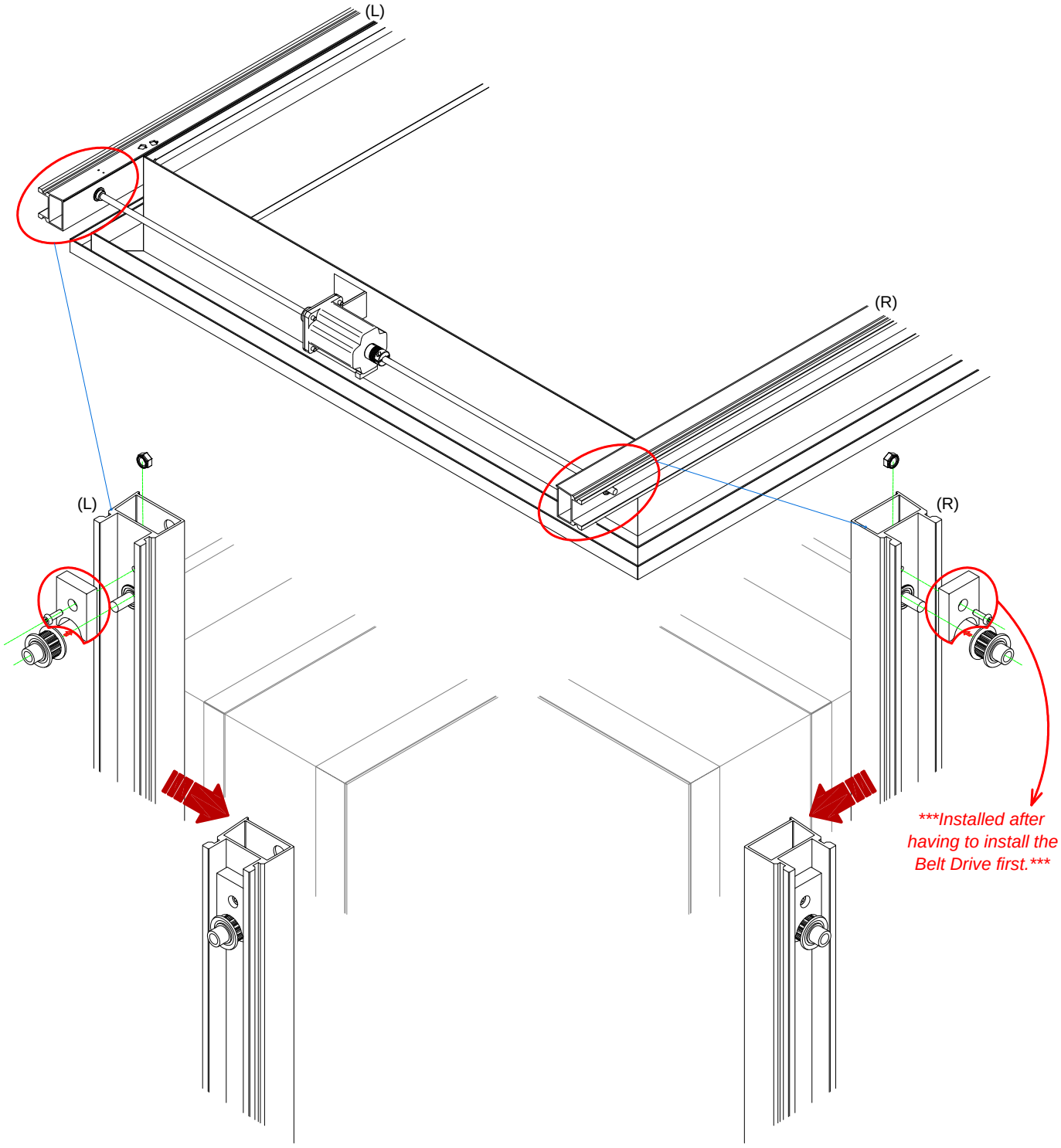
L side

(1.3)Insert the Linear Shafts into the hole of Bearings followed by Lock Collar and Drive Coulping. Until Linear Shafts collides with the Motor Shaft. Use a Hex Key Wrench to tighten the locking screw of Drive Coupling and the locking Socket Set Screw with Lock Collar.



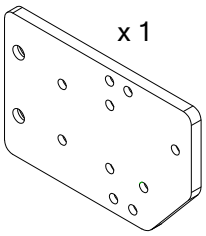
- **Motor set**

(1.4)Insert the Timing Pulley into Linear Shafts on both side. Take M5 x 10mm. Hex Socket Head Cap Screw attach it to the Belt Protector Across Track (L&R), tighten the lock with a M5 Lock Nuts.
*****Installed after having to install the Belt Drive first.*****



■ Drive Plate(L) set

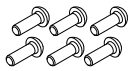
(1.)Prepare equipment as follows.

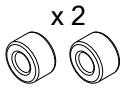

x 1
Drive Plate (L)
70-002L


x 1
Sliding Rail Clearers (Small) L
70-006L


x 1
Sliding Rail Clearers (Big)
70-007

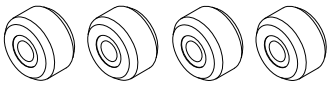

Hex Key Wrench

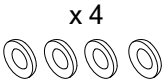

x 6
M5 x 12mm. Hex Socket Botton
70-008-FN


x 2
6mm Aluminium Spacer
70-014


x 4
M5 Lock Nuts
70-003-FN

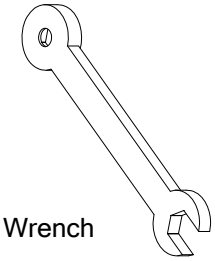

x 4
M5 x 25mm. Hex Socket Botton
70-001-FN


x 4
Delrin Mini V Wheel
70-003-AM

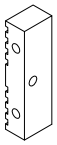

x 4
M5 Shims
70-020


x 2
Cam Adjust Tension
70-017-AM

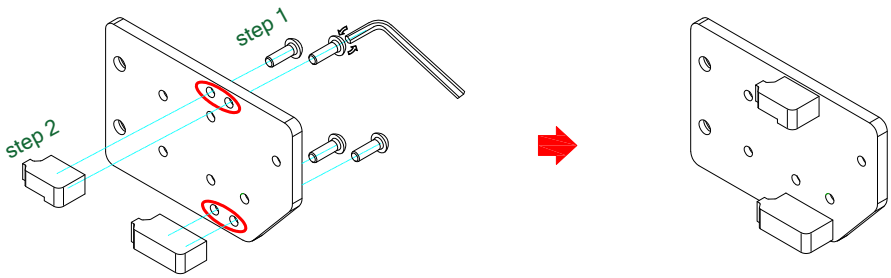

x 3
M5 x 15mm. Hex Socket Botton
70-005-FN


Nut Wrench


x 1
Cover Belt Block
70-009

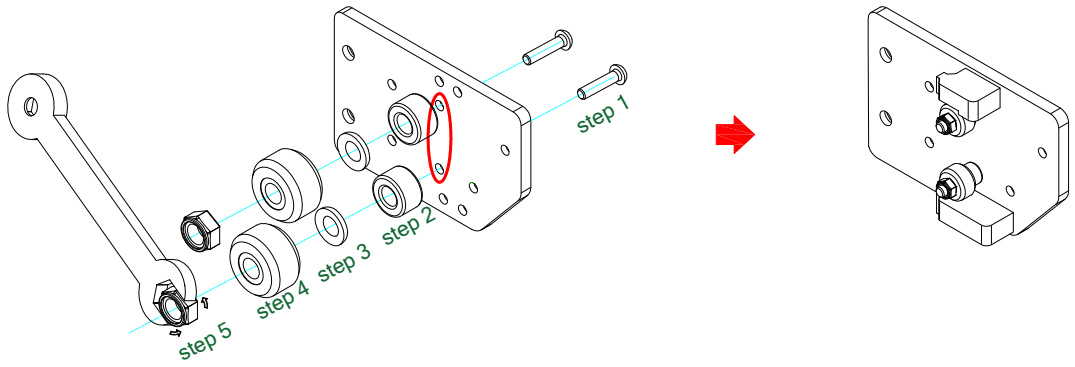

x 1
Belt Block
70-008

(1.1)Put the M5 x 12 Hex screws into the holes of the Drive plate. Use a Hex key Wrench to tighten the lock of Sliding Rail Clearers (Big&Samall) with screw. at the position as shown in the picture.

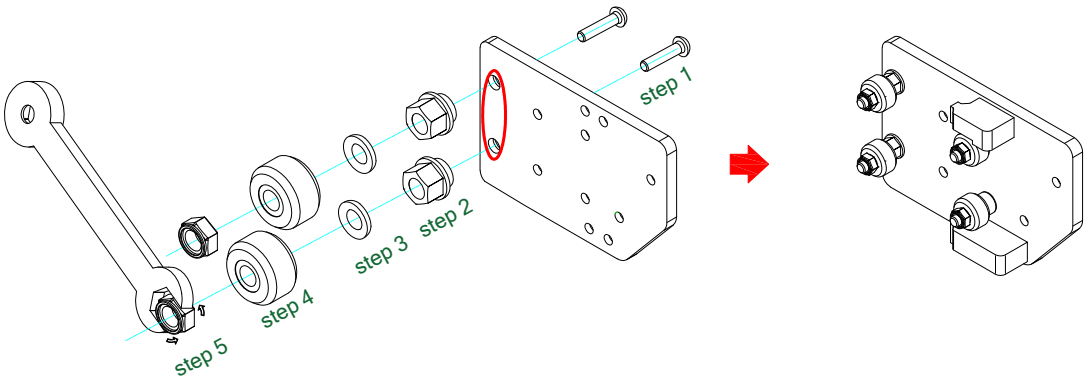


- **Drive Plate(L) set**

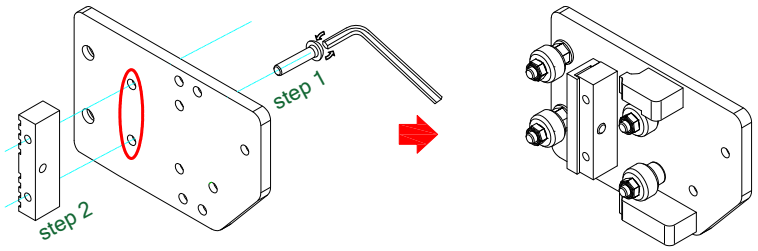
(1.2)Put the M5 x 25 Hex screws followed by 6mm Aluminium Spacer, M5 Shims, Delrin Mini V Wheel , M5 Lock Nuts and use a Nut Wrench to tighten the lock. at the position as shown in the picture.



(1.3)Put the M5 x 25 Hex screws followed by Cam Adjust Tension, M5 Shims, Delrin Mini V Wheel , M5 Lock Nuts and use a Nut Wrench to tighten the lock. at the position as shown in the picture.

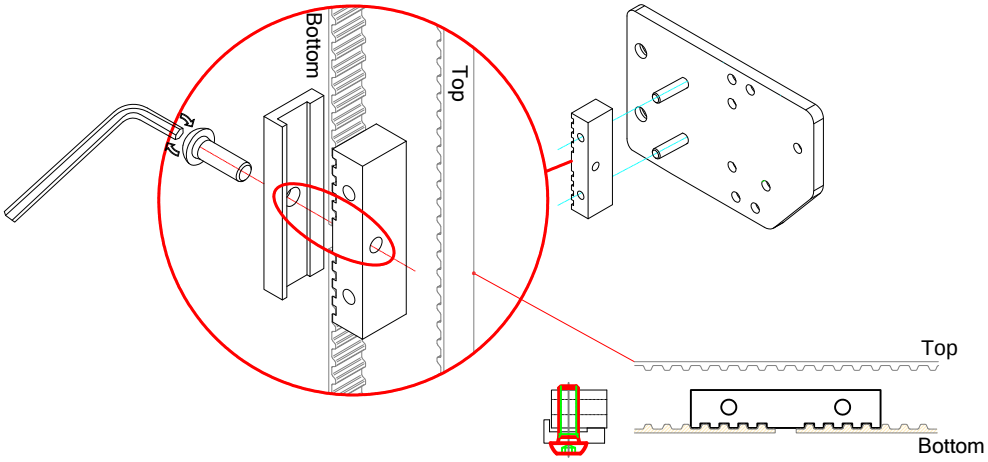


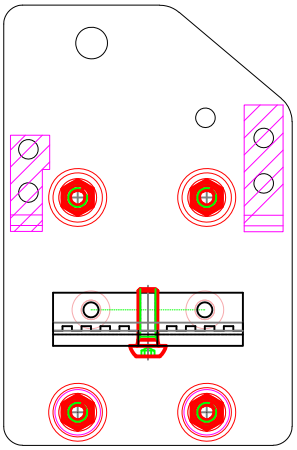
(1.4)Put the M5 x 15 Hex screws into the holes of the Drive plate. Use a Hex Key Wrench to tighten the lock of Belt Block with screw. at the position as shown in the picture.



- **Drive Plate(L) set**

When Drive plate set is assembled with the Belt Drive on the Skylight frame, Then put the Cover Belt Block (It locks the belts together) followed by the locking M5 x 15 Hex screws.

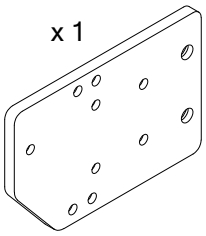




Front View

■ Drive Plate(R) set

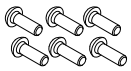
(1.)Prepare equipment as follows.

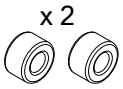

x 1
Drive Plate (R)
70-002R


x 1
Sliding Rail Clearers (Small) R
70-006R

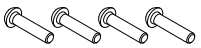

x 1
Sliding Rail Clearers (Big)
70-007

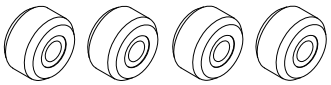

Hex Key Wrench

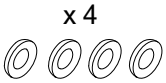

x 6
M5 x 12mm. Hex Socket Botton
70-008-FN


x 2
6mm Aluminium Spacer
70-014


x 4
M5 Lock Nuts
70-003-FN

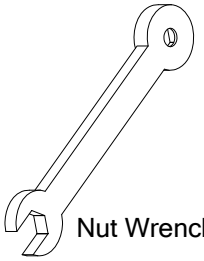

x 4
M5 x 25mm. Hex Socket Botton
70-001-FN

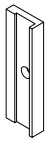

x 4
Delrin Mini V Wheel
70-003-AM

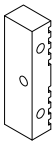

x 4
M5 Shims
70-020


x 2
Cam Adjust Tension
70-017-AM

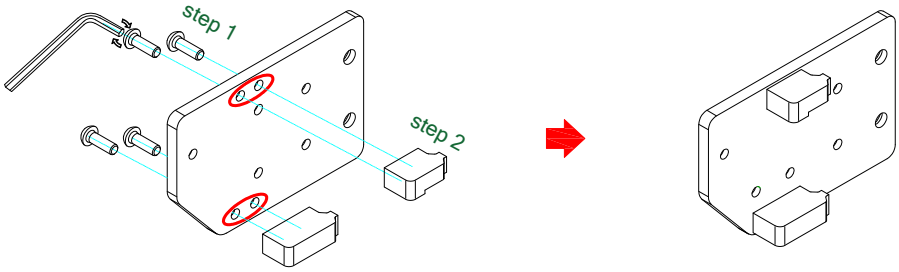

x 3
M5 x 15mm. Hex Socket Botton
70-005-FN


Nut Wrench


x 1
Cover Belt Block
70-009

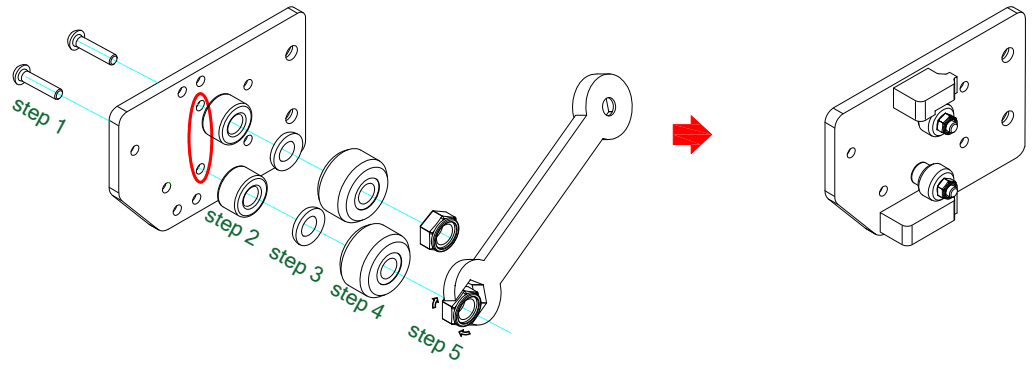

x 1
Belt Block
70-008

(1.1)Put the M5 x 12 Hex screws into the holes of the Drive plate. Use a Hex Key Wrench to tighten the lock of Sliding Rail Clearers (Big&Samall) with screw. at the position as shown in the picture.

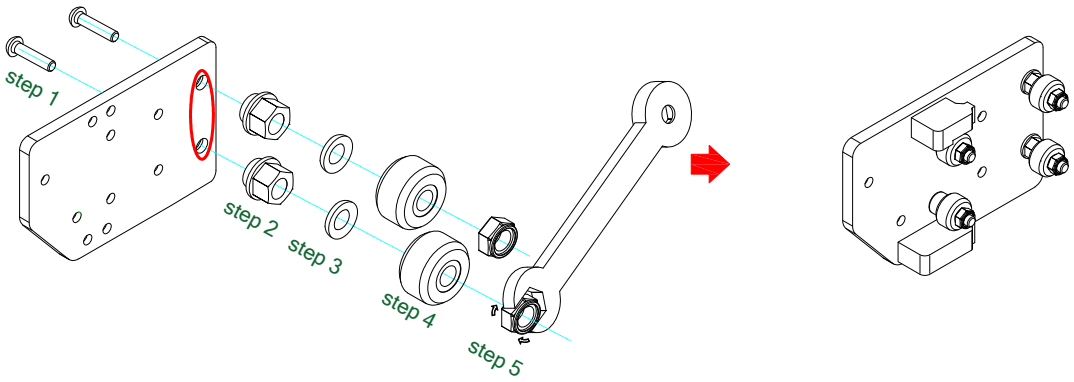


- **Drive Plate(R) set**

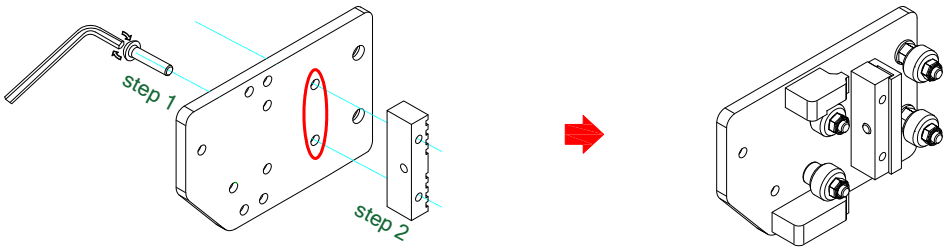
(1.2)Put the M5 x 25 Hex screws followed by 6mm Aluminium Spacer, M5 Shims, Delrin Mini V Wheel , M5 Lock Nuts and use a Nut Wrench to tighten the lock. at the position as shown in the picture.



(1.3)Put the M5 x 25 Hex screws followed by Cam Adjust Tension, M5 Shims, Delrin Mini V Wheel , M5 Lock Nuts and use a Nut Wrench to tighten the lock. at the position as shown in the picture.

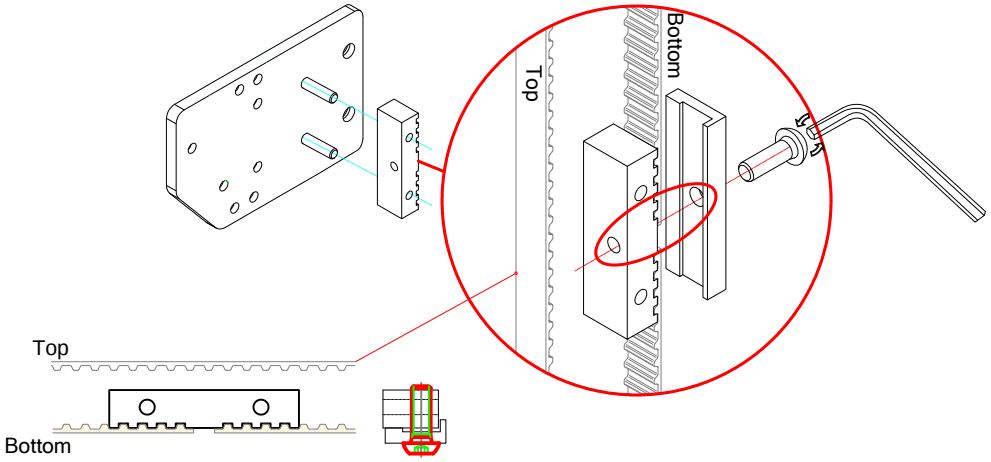


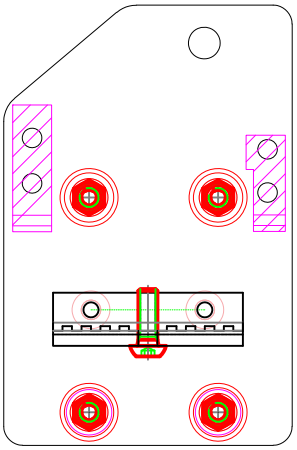
(1.4)Put the M5 x 15 Hex screws into the holes of the Drive plate. Use a Hex Key Wrench to tighten the lock of Belt Block with screw. at the position as shown in the picture.



■ Drive Plate(R) set

When Drive plate set is assembled with the Belt Drive on the Skylight frame, Then put the Cover Belt Block (It locks the belts together) followed by the locking M5 x 15 Hex screws.

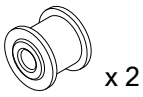




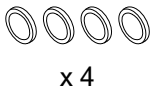
Front View

■ Belt Tensioner Set

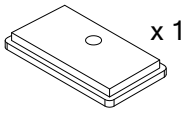
(1.)Prepare equipment as follows.



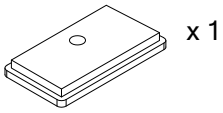
Smooth Idler Pulley Wheel
70-016



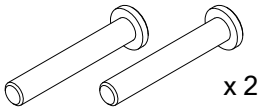
M8 Shims
70-022



Tensioner Plate(L)
70-003L



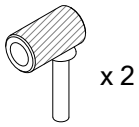
Tensioner Plate(R)
70-003R



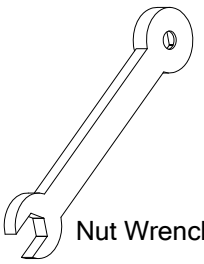
M8 x 50mm. Socket Head Cap Screw
70-002-FN

M5 Lock Nuts
70-003-FN

M8 Lock Nuts
70-004-FN



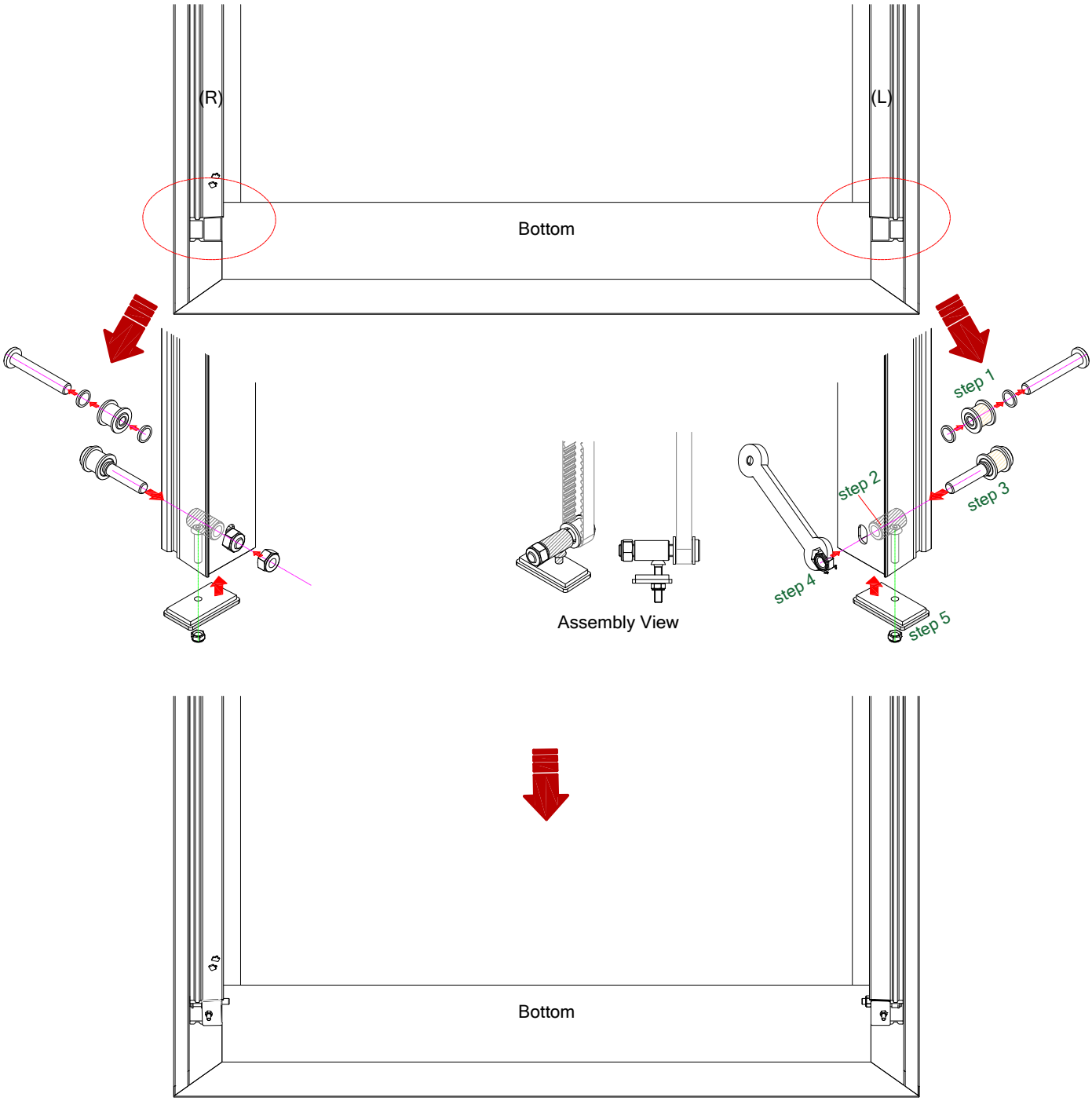
Spacer Pipe
70-004



Nut Wrench

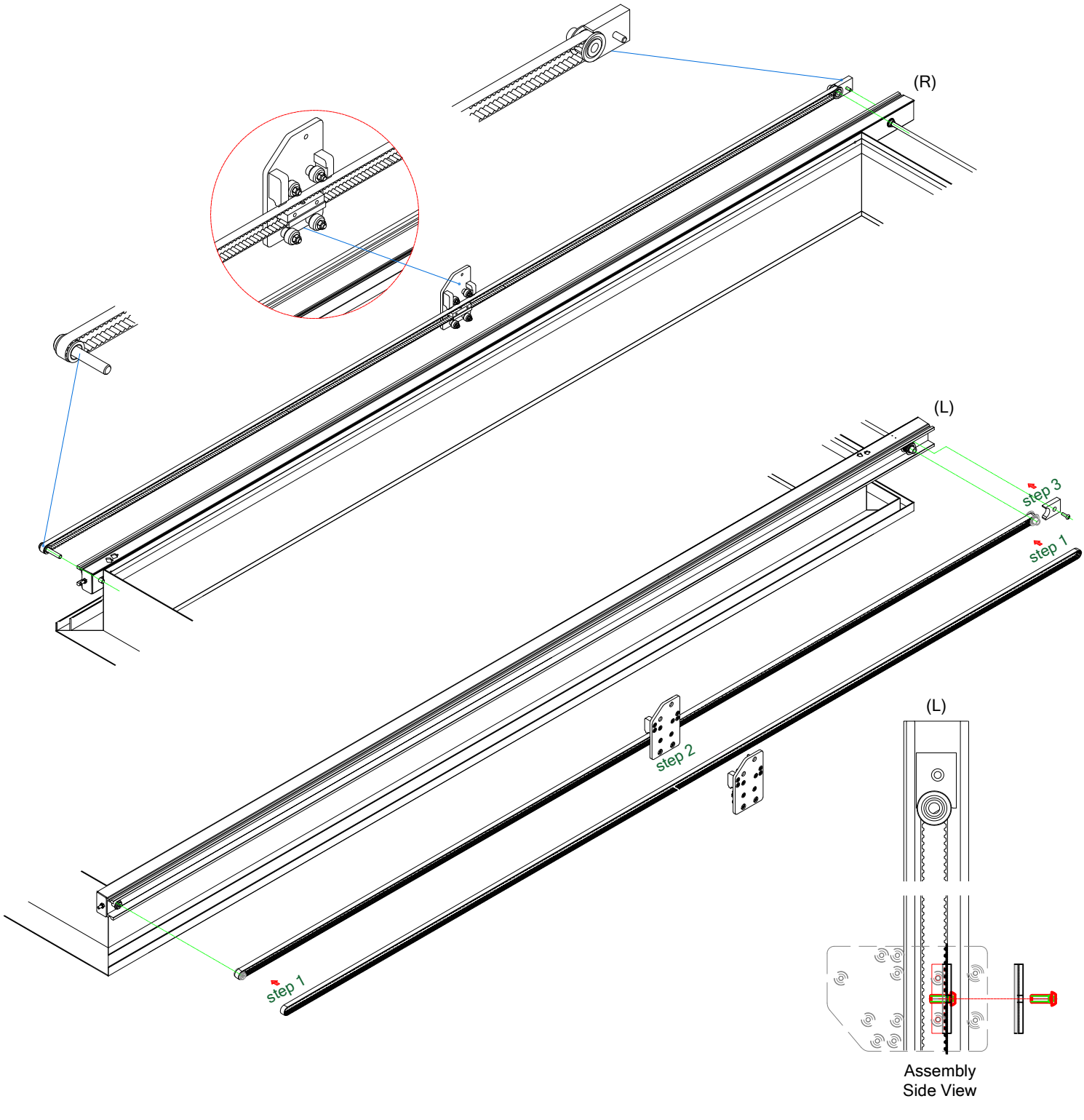
■ Belt Tensioner Set

(1.1)Put M8 Shims, Smooth Idler Pulley Wheel into the M8 x 50mm Screw(step 1). Place the Spacer Pipe inside Guide rail(step 2). Insert the screw into the hole of Guide Rail, through the hole in the Spacer Pipe(step 3) then insert the M8 Lock Nuts to lock the screw in place(step 4). Put Tensioner Plate(L&R) attach the Guide rail by using a M5 Lock Nuts to lock it(step 5). at the position as shown in the picture.



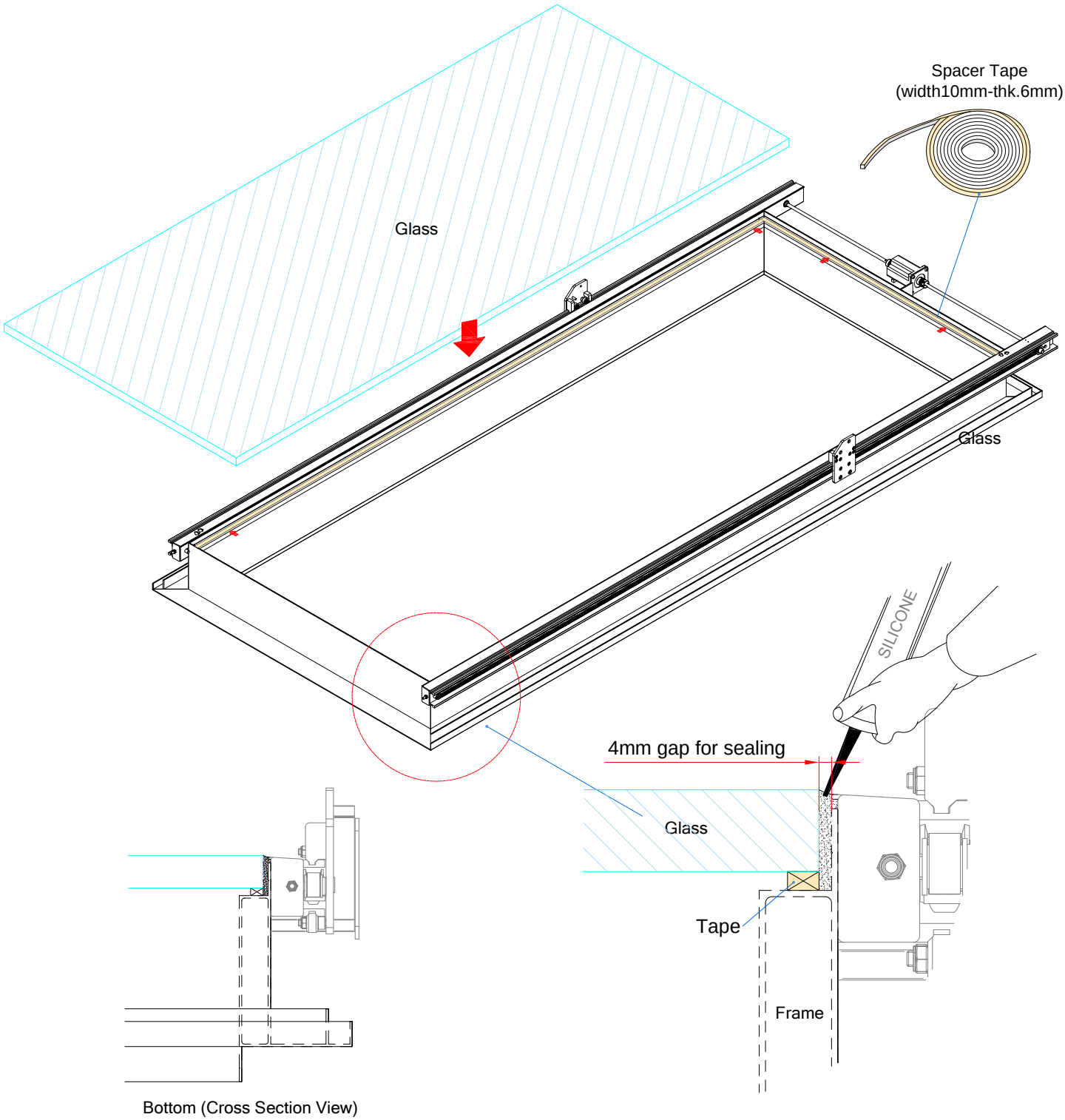
■ Belt Tensioner Set

(1.2)Take the Belt Drive and loop it onto the top and bottom Pulleys at main frame. Then take the Drive Plate Set and assemble it onto the Belt Drive on both side. Then insert Belt Protector Across Track(L&R) into its position.

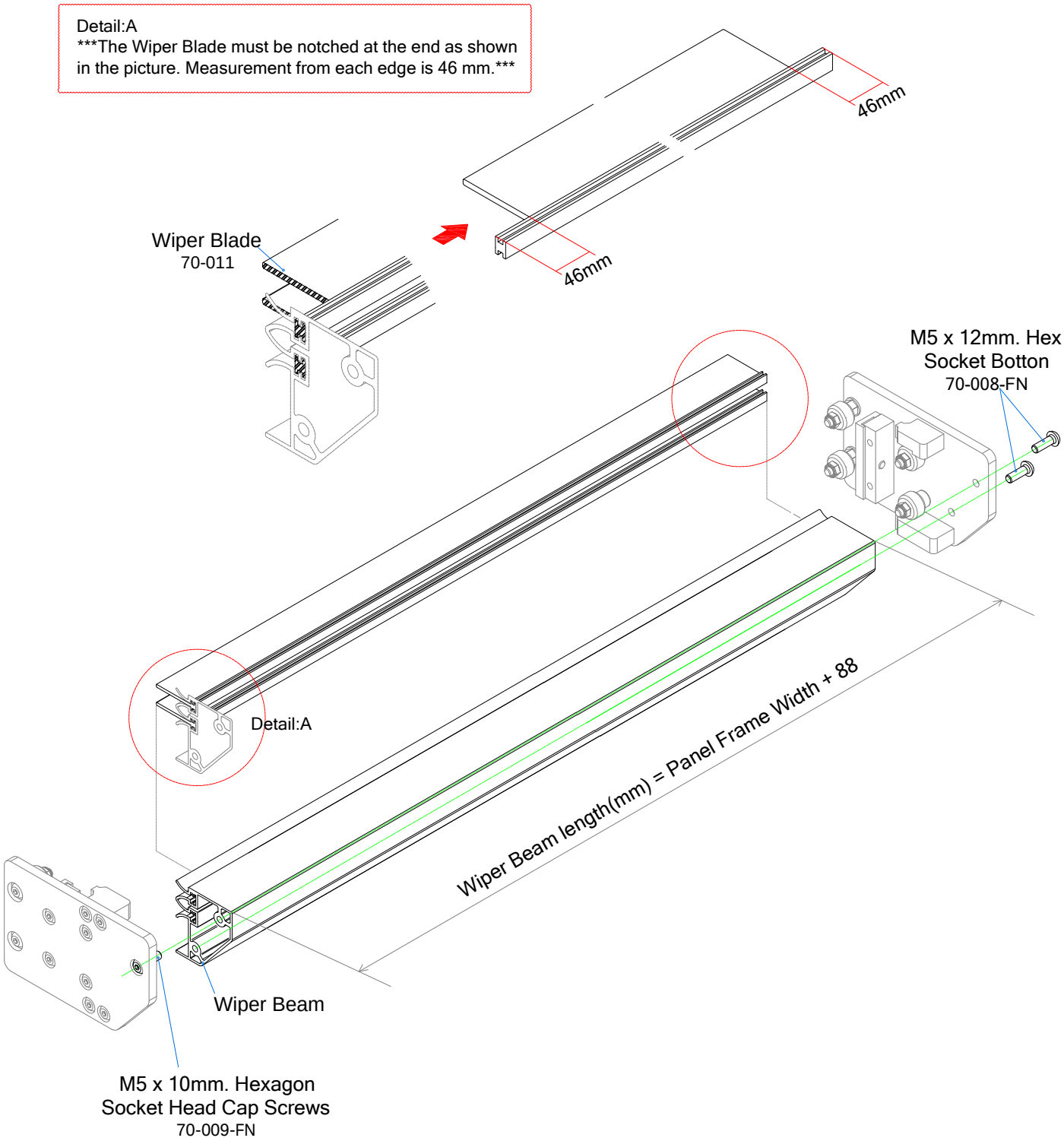


■ Installation of Glass

(1.1)Take Norton tape and stick it on 4 sides of the frame. Lift the glass and place it on the tape. Leave a distance of 4 mm from the edge of the frame on all 4 sides to allow space for the silicone seal.

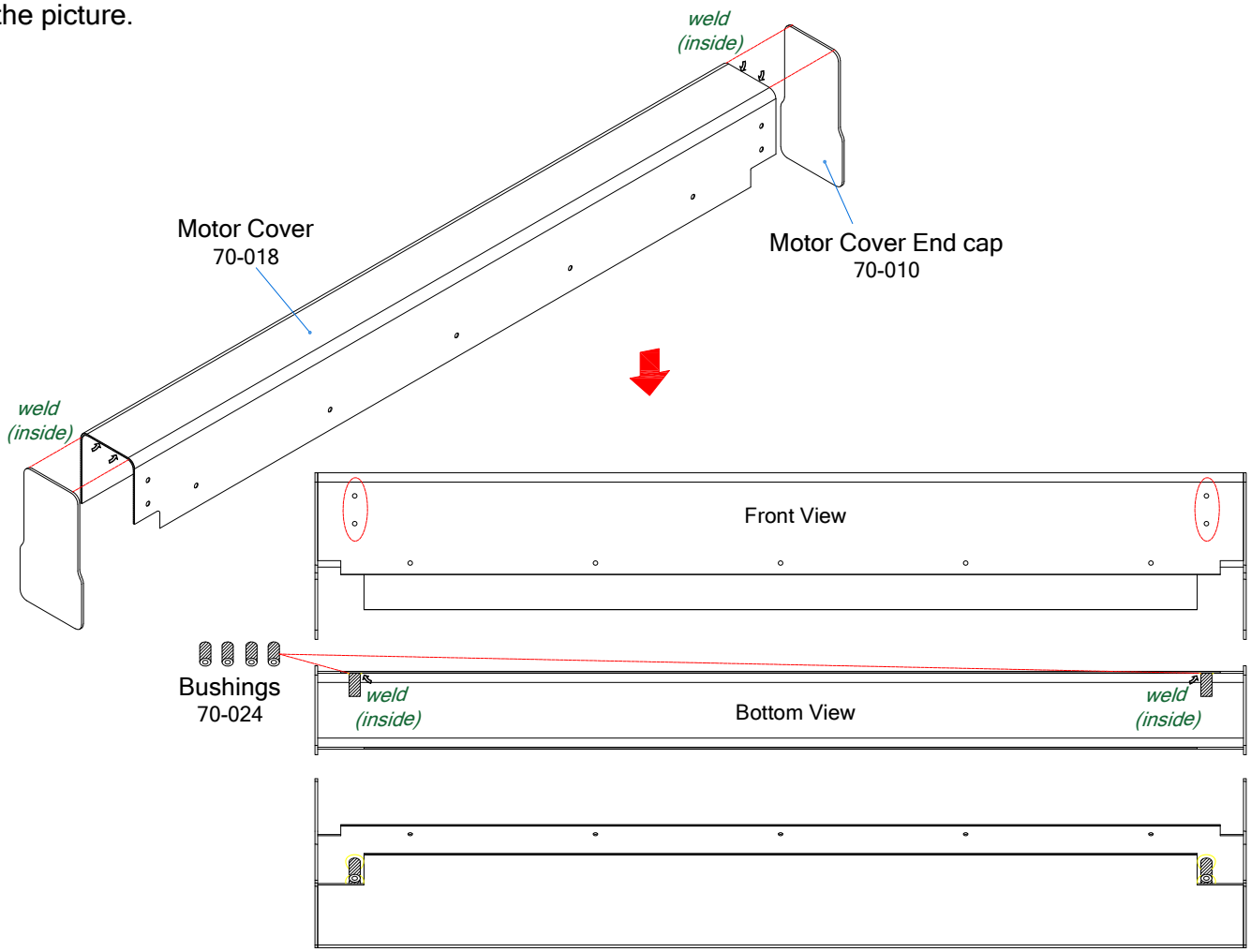


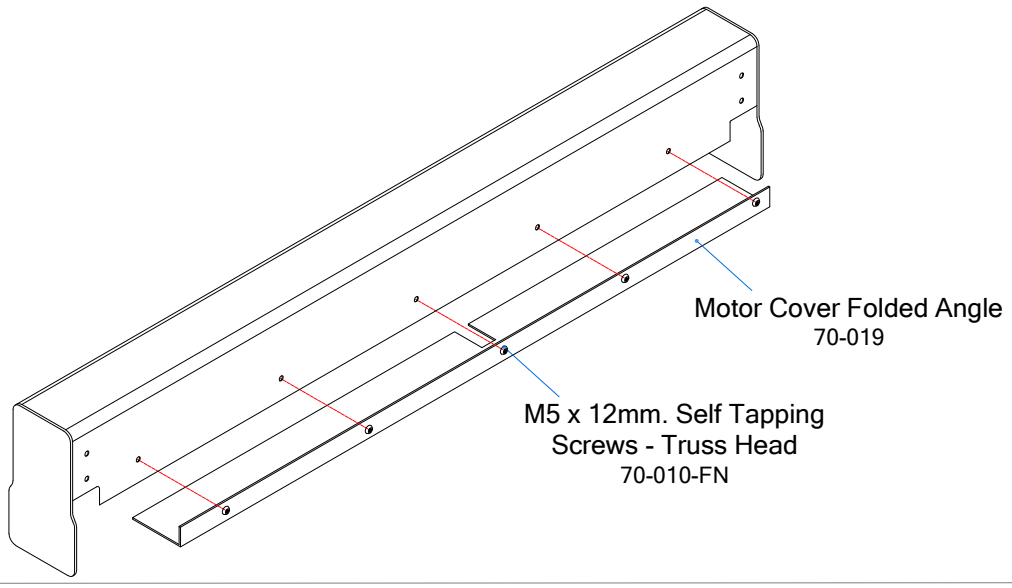
■ Wiper Beam&Blade



Motor Case

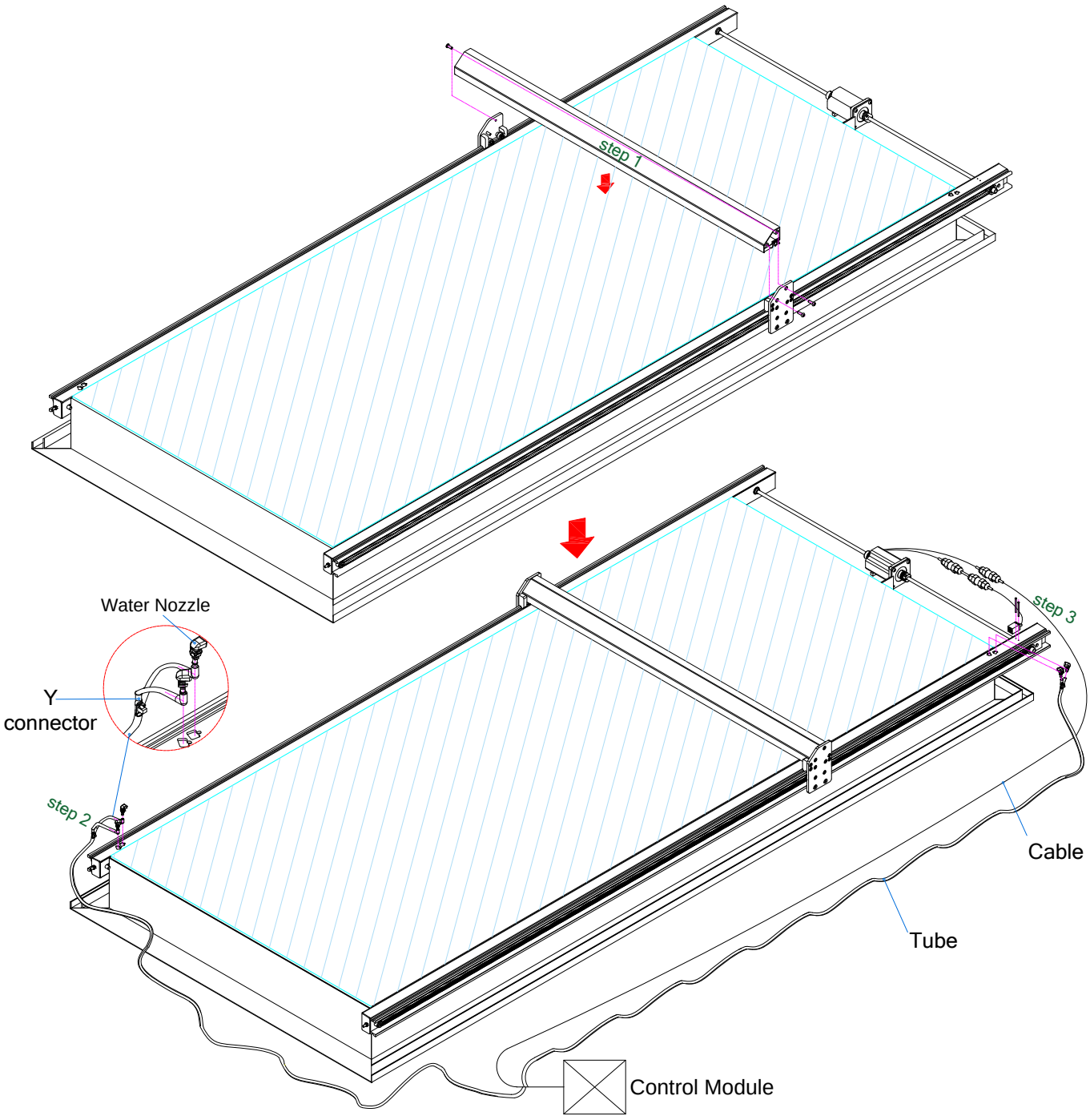
(1)Prepare U-shaped folded aluminum and the Motor Cover End cap and weld(from the inside) them together. After that, the Bushings were welded(from the inside) in the position as shown in the picture.



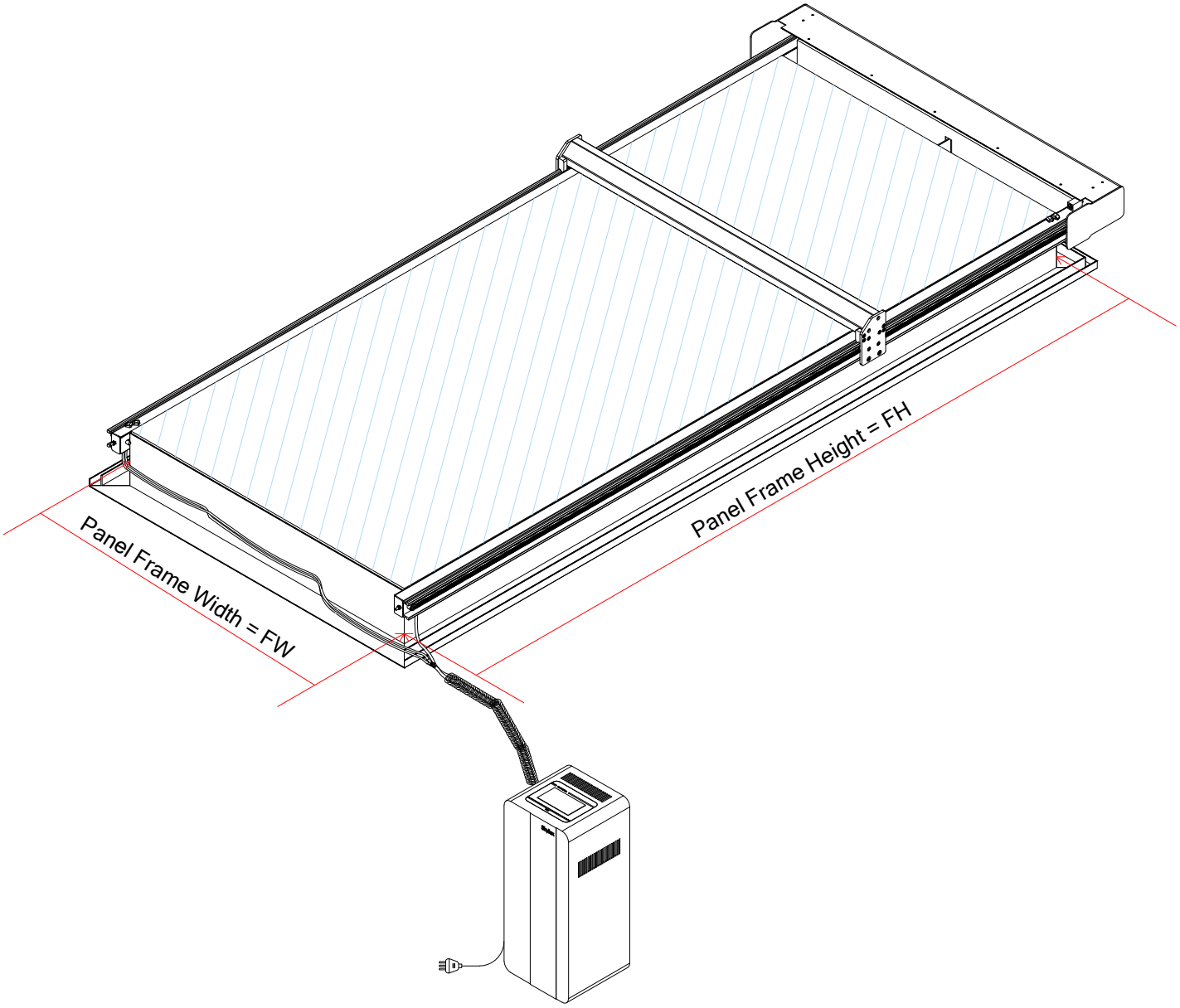


■ Skylight Structure

(1.1)Take Wiper Beam attach it to the Drive Plate set.
(1.2)Take Water Nozzle put into the hole on the Guide Rail and connect with the Y connector for connected to tube.
(1.3)Take Limit Switch put into the hole on the Guide Rail and connect cable to Control Module.



- **Skylight Structure**



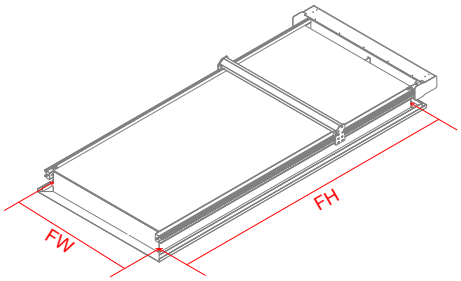
Self - Cleaning Skylight

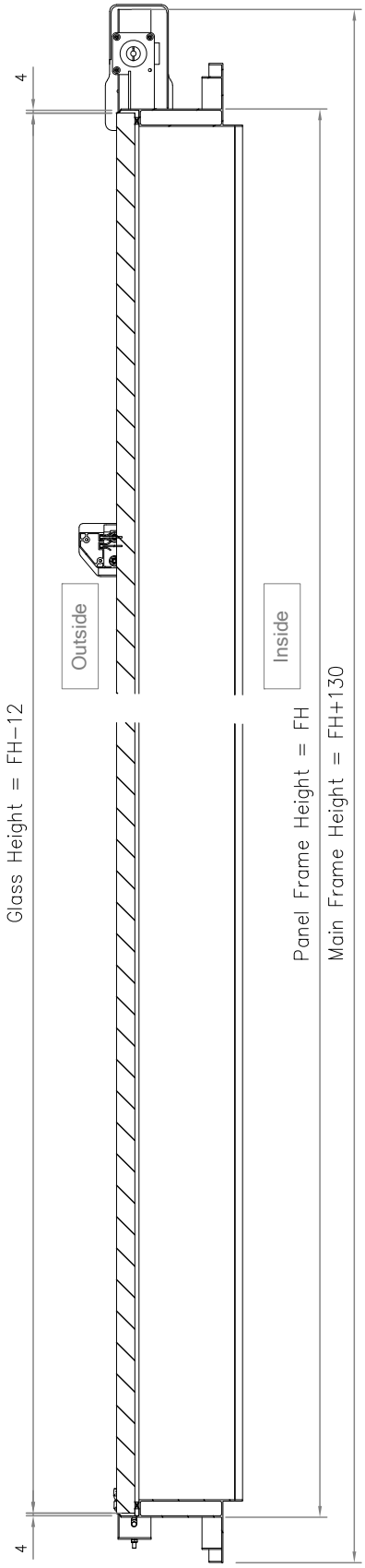
Typical Frame Sizes

Skylux is suitable for installation on tile, metal and concrete roofs. Skylux is availible custom manufactured in sizes ranging up to 4.5m long x 1.5m wide. Or choose from our standard size ranges below:

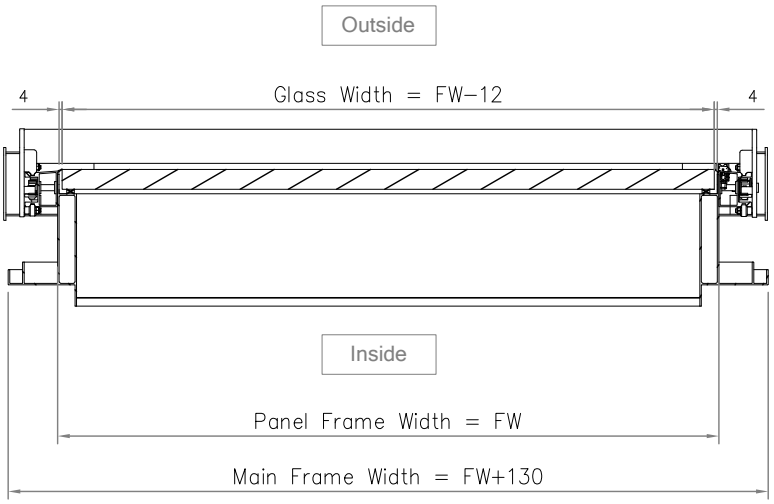
Skylux Frame Sizes			
Code	Frame Height H(mm)	X	Frame Width W(mm)
S1506	1500	X	600
S1509	1500	X	900
S1512	1500	X	1200
S1515	1500	X	1500
S1806	1800	X	600
S1809	1800	X	900
S1812	1800	X	1200
S2109	2100	X	900
S2112	2100	X	1200
S2115	2100	X	1500
S2409	2400	X	900
S2412	2400	X	1200
S2415	2400	X	1500

■ Single Type



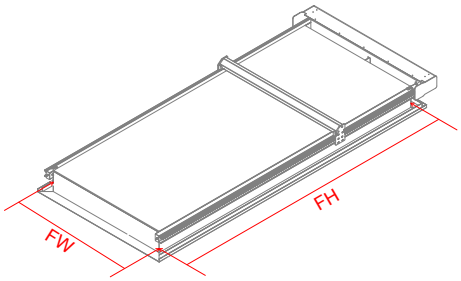


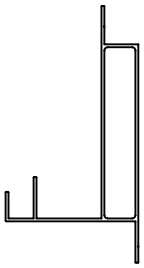
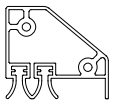
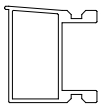
Vertical (Cross Section View)



Horizontal (Cross Section View)

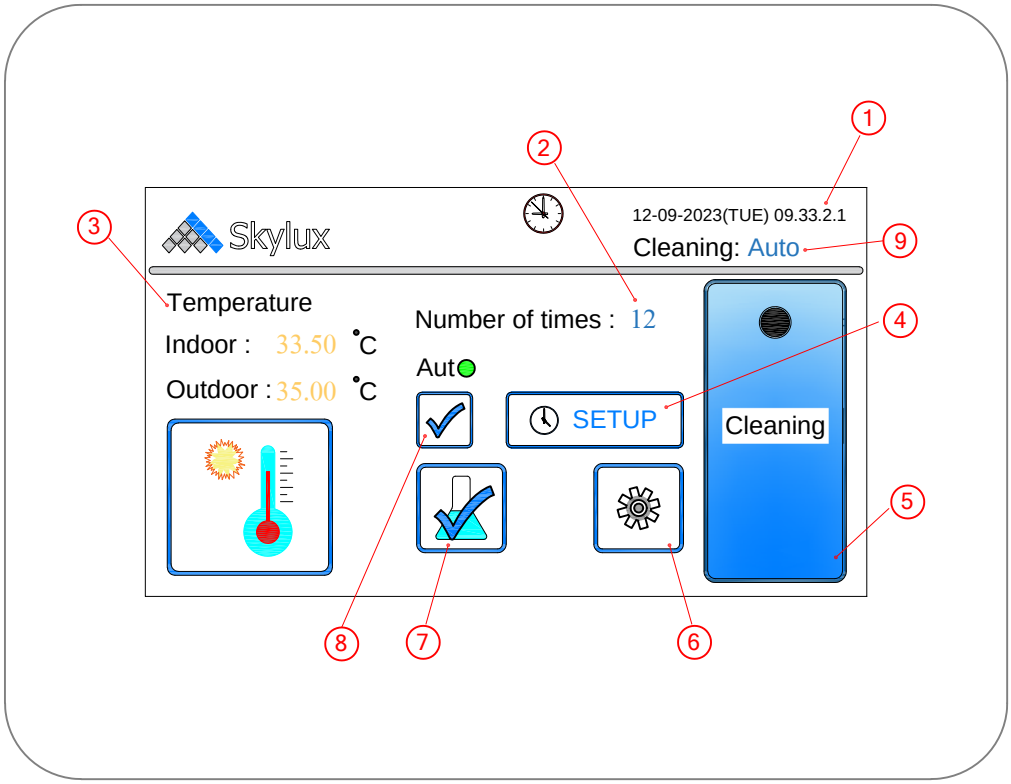
■ Single Type



Profile	Section No.	Description	Cutting Formula	Qty
	AL-7004	Main Frame	Frame Height + 130mm Frame Width + 130mm	2 2
	AL-7002	Wiper Beam	Frame Width + 88mm	1
	AL-7003	Guide Rail	Frame Height + 262mm	2
	70-011	Wiper Bade	Frame Width + 88mm	2
Glass			Frame Height - 12mm Frame Width - 12mm	1

■ How to use Control Module setting

(1.)Plug in the control cabinet Wait until the screen shows.



Item	Description
1	Show date&times
2	Number of times pressed to use
3	Displays temperature values outside and inside the building
4	Cleaning time setting button
5	Action button
6	Keypad lock to factory settings
7	Shows the level of cleaning solution in the water tank.
8	Command selection button Auto or Manual
9	Show cleaning system status

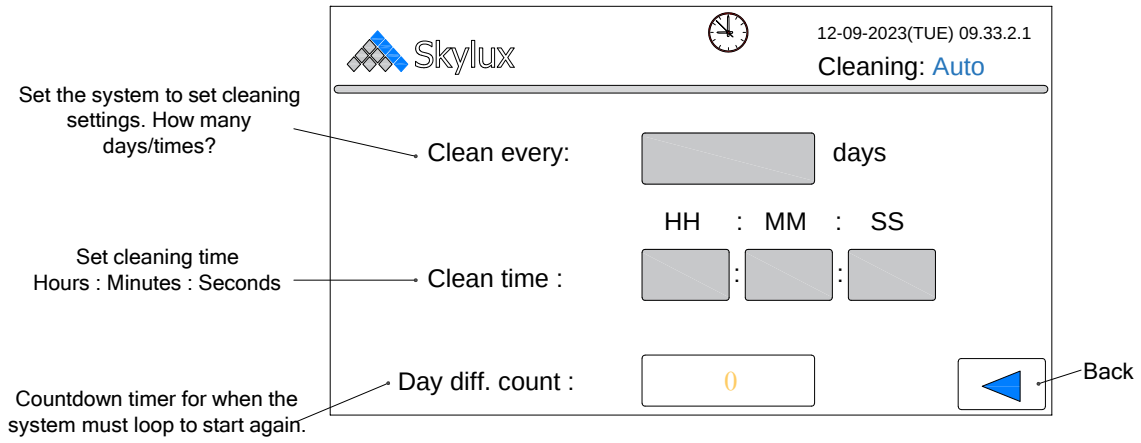
There are 2 types of cleaning system settings.

Cleaning: Auto	Set timing for cleaning
Cleaning: Manual	No set timing for cleaning

■ How to use Control Module setting

(2.)Setting up the Cleaning: Auto cleaning system to work automatically.

Press the SETUP button and the display screen will appear as shown.



(2.1) Press the number field on the [Clean every] line, then a number screen will appear, then press the number. that you want to give How many days is the skylight cleaned? For example, press 1 and the skylight will be cleaned every day.

(2.2) Once the numbers are entered, press Enter.

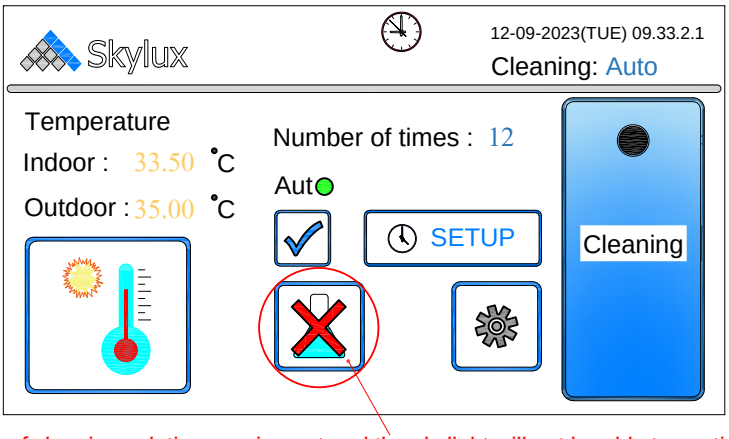
(2.3) Press the number on the [Clean time] line. By pressing the [HH] field, a number screen will appear. Then press the number to set the time. It is recommended to set the time between 11-16 o'clock, for example, press 13, the machine will clean at 1 p.m., then press enter.

(2.4) Press the button to return to the home screen.

(2.5) Press this button to make a green check mark appear. Aut

■ How to use Control Module setting

(3.)If the display screen warns you of the cleaning solution in the tank as follows:



Notification of cleaning solution running out and the skylight will not be able to continue working

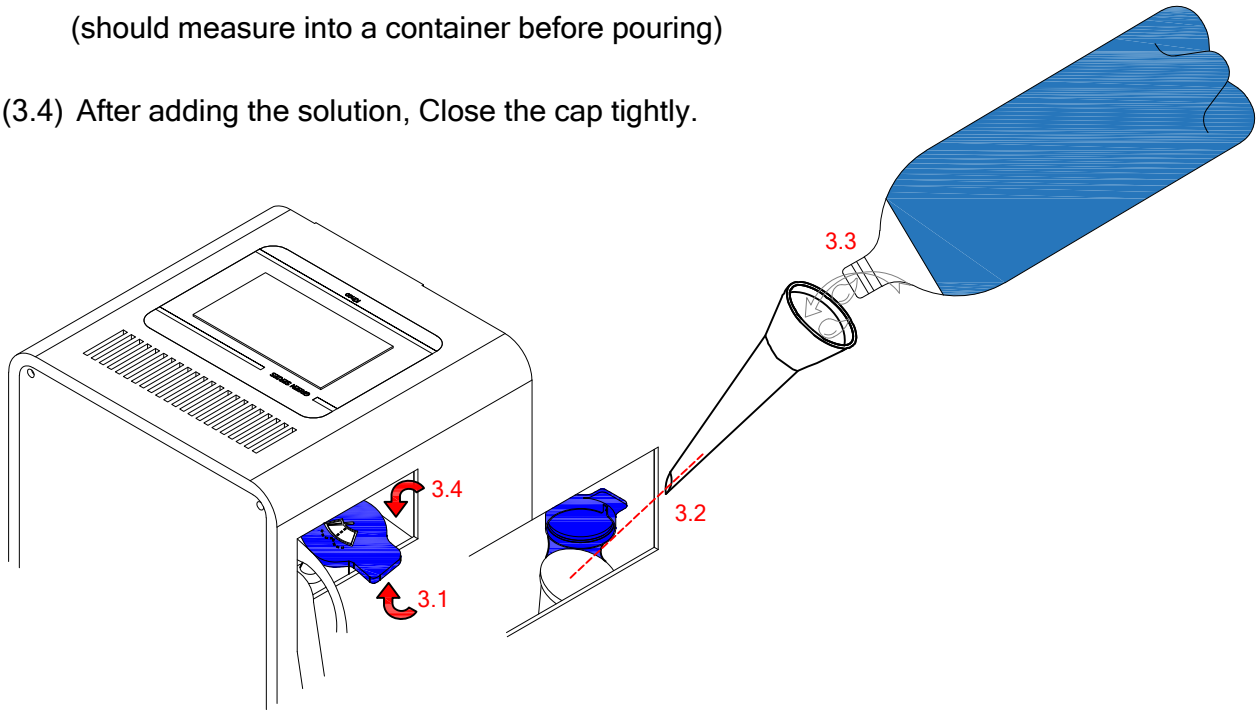
Procedure for adding cleaning solution

(3.1) Open the blue tank cover.

(3.2) Insert the funnel into the cleaning solution filling hole.

(3.3) Add only 2 liters of cleaning solution into the funnel. Recommendations (should measure into a container before pouring)

(3.4) After adding the solution, Close the cap tightly.



How to install Skylux Application

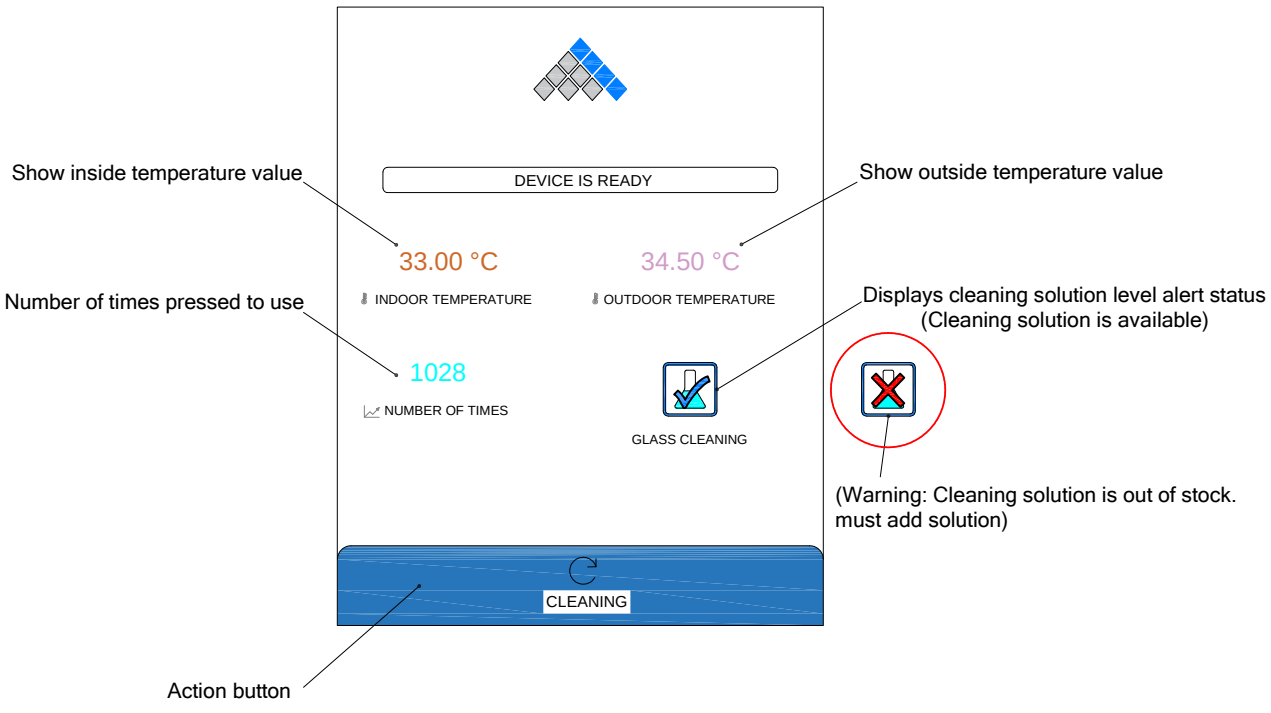
Can be used with iOS and Android systems and connects to the skylight via Wifi.

(1.) Download Skylux application on App store or Play store and install.

(2.) Prepare the control module and plug it in ready for use.

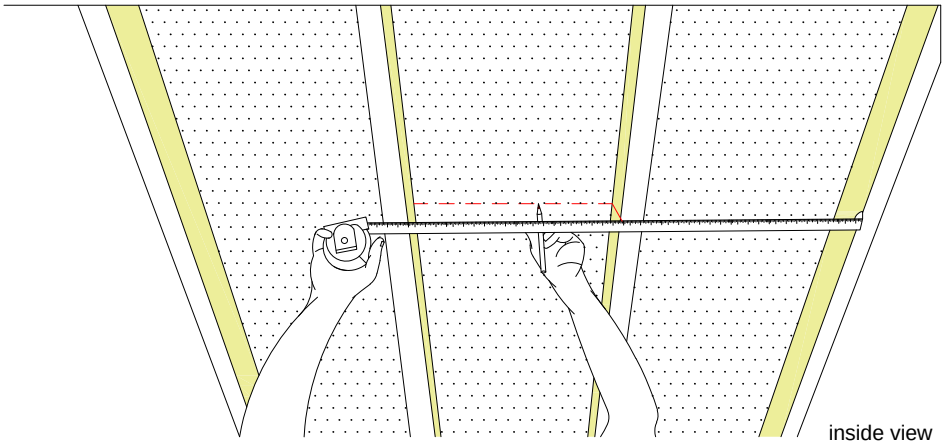
(3.) Before using the Skylux application, you must select the Wifi network named **Skylux**
(Emitted from control module equipment)

(4.) Go to the Skylux app and you will see the ready-to-use screen as follows.

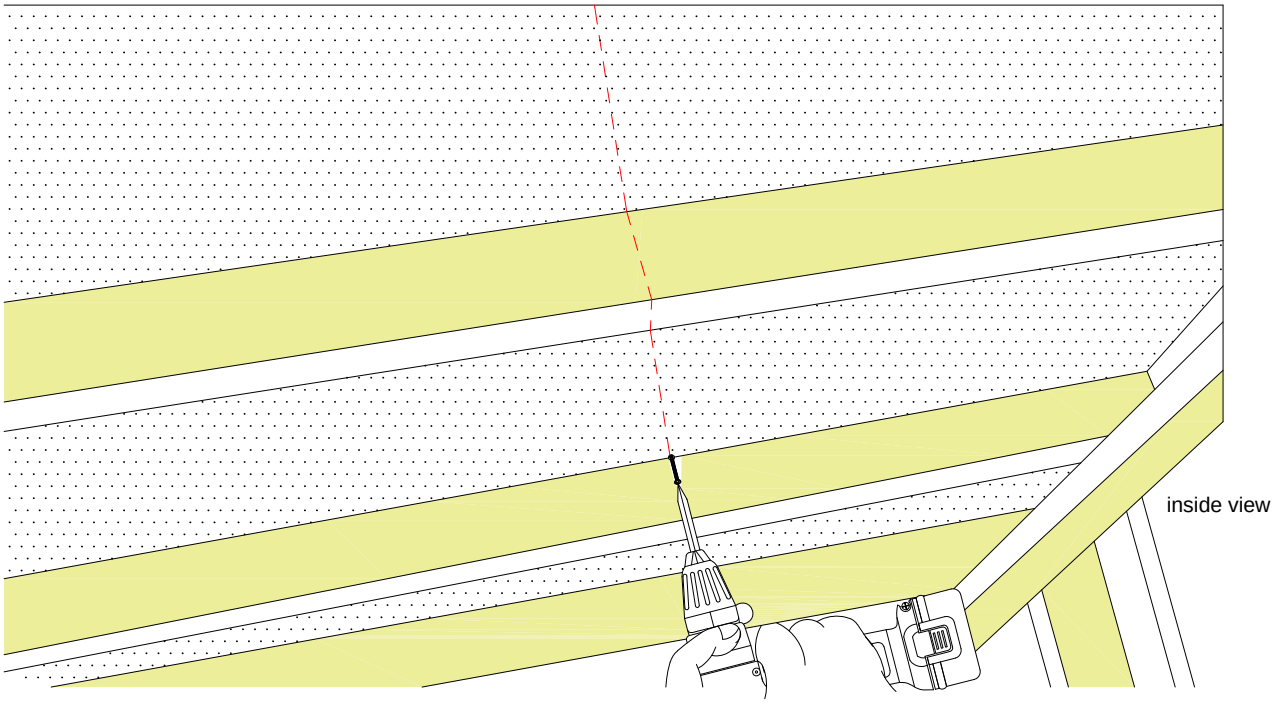


■ Installation of skylight with shingle roof

1.Measure the size of the window opening and mark the position.

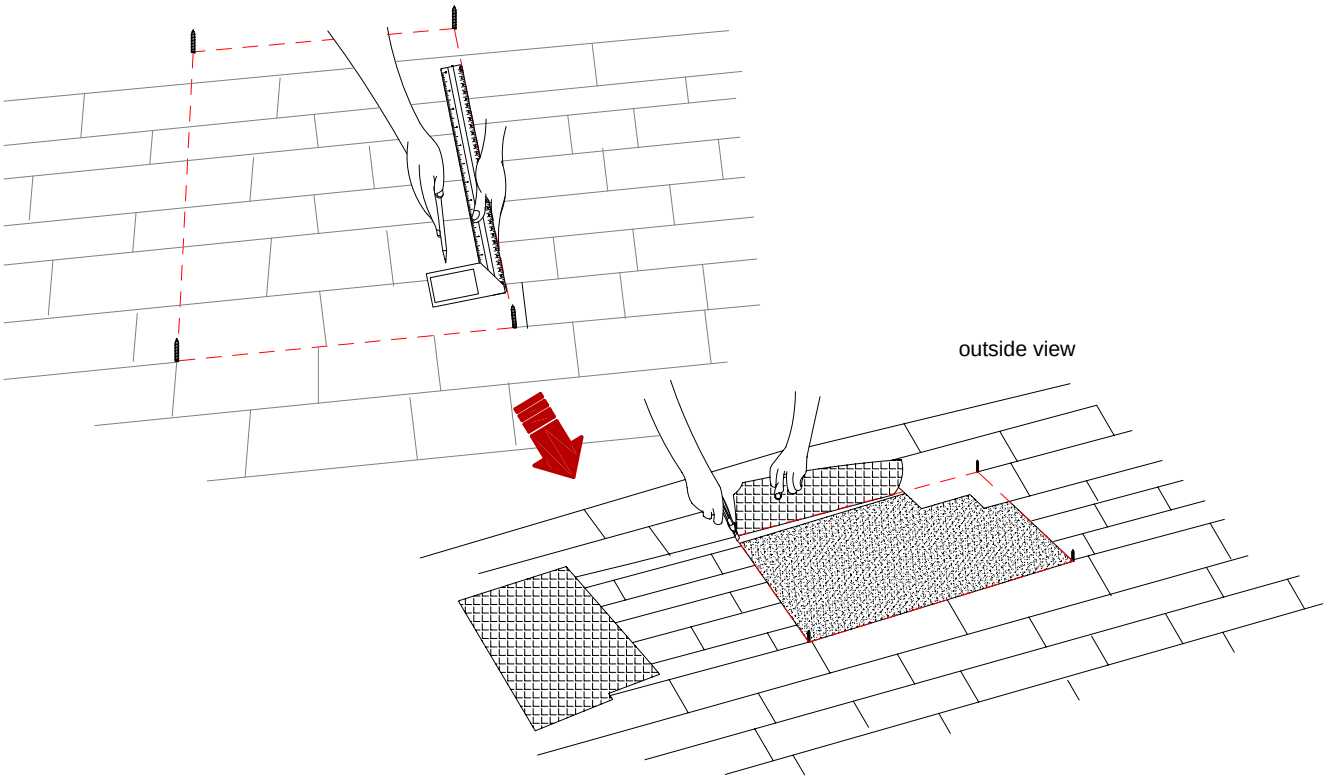


2.Make a mark by drilling screws into the roof wall from inside to the outside.

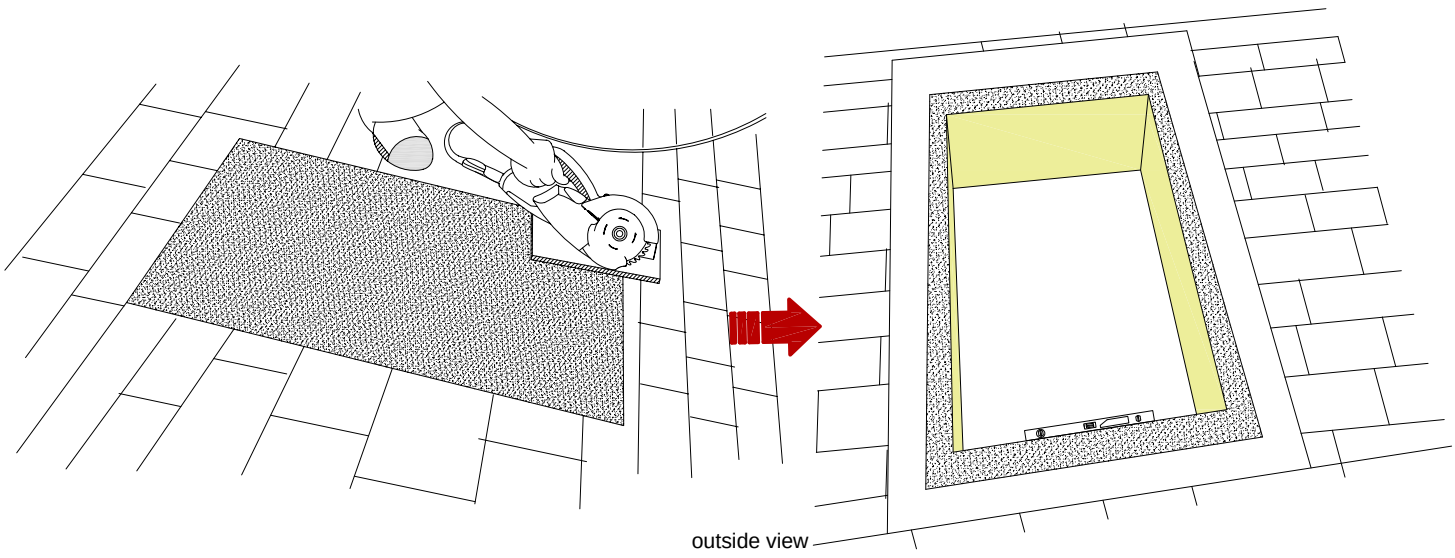


■ Installation of skylight with shingle roof

3.Use a cutter to cut and peel off the asphalt at the location where the skylight will be installed.

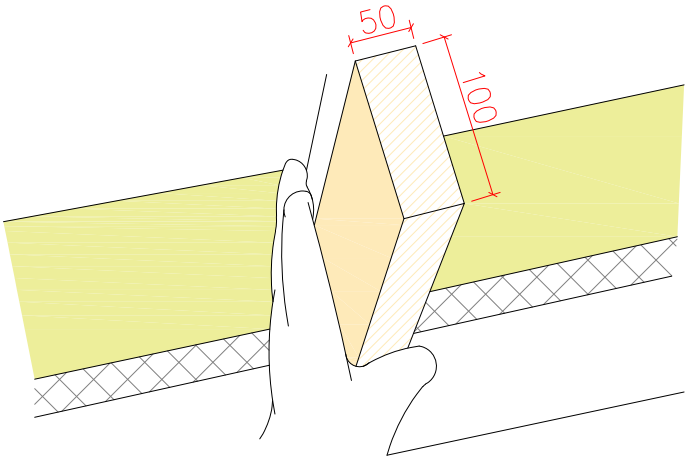


4.Use an electric saw to drill a hole in the roof according to the measured size. Make it parallel and perpendicular.

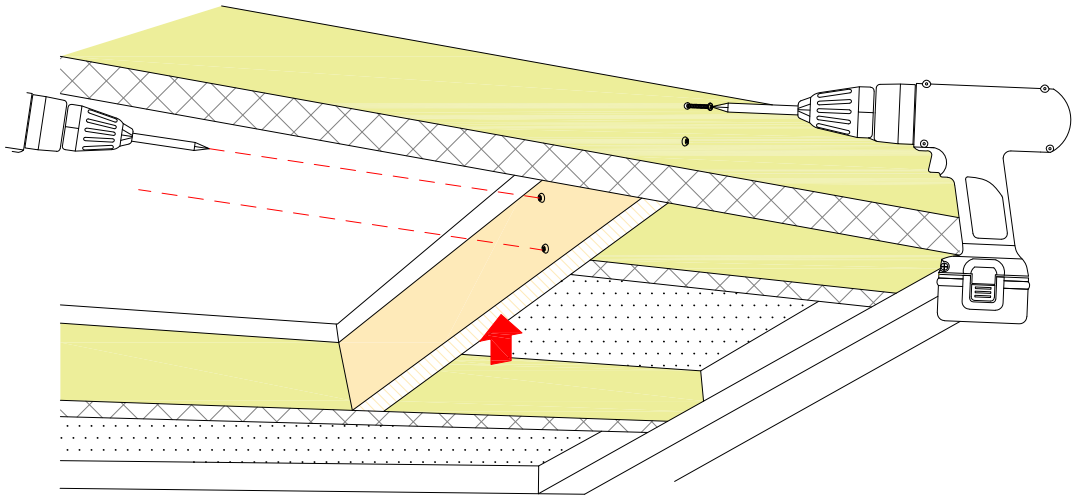


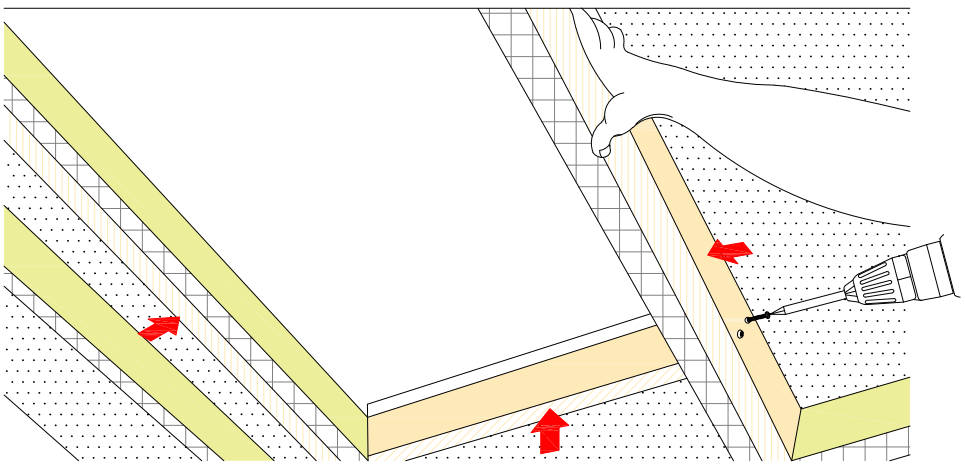
■ Installation of skylight with shingle roof

5.Add 50×100 mm pieces of wood to the underside of the roof sheet with nails or screws.



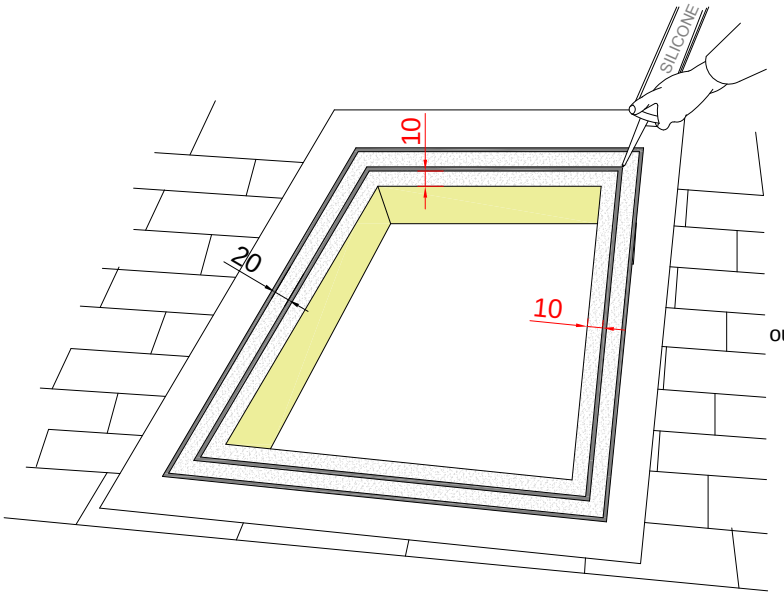
inside view



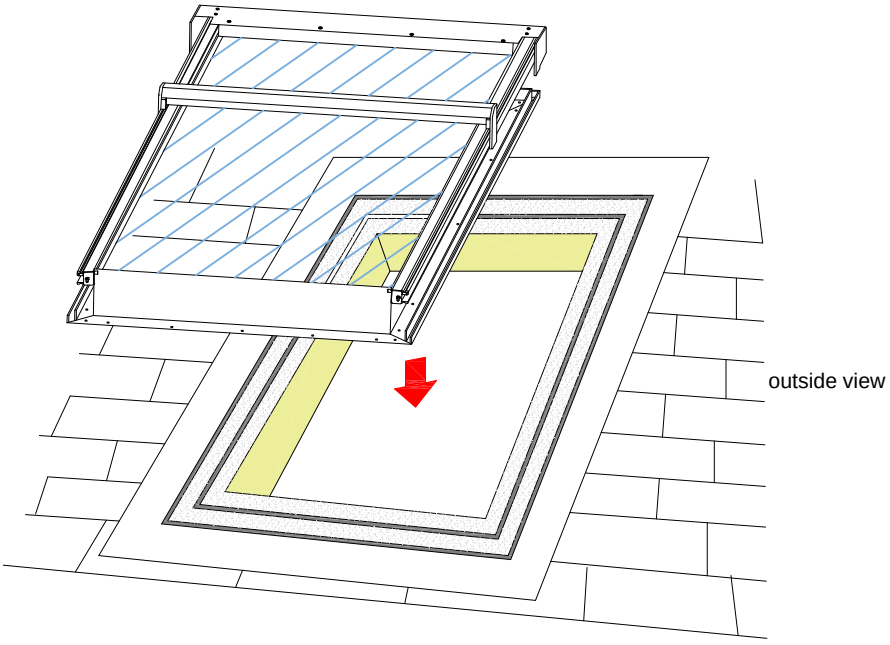


■ Installation of skylight with shingle roof

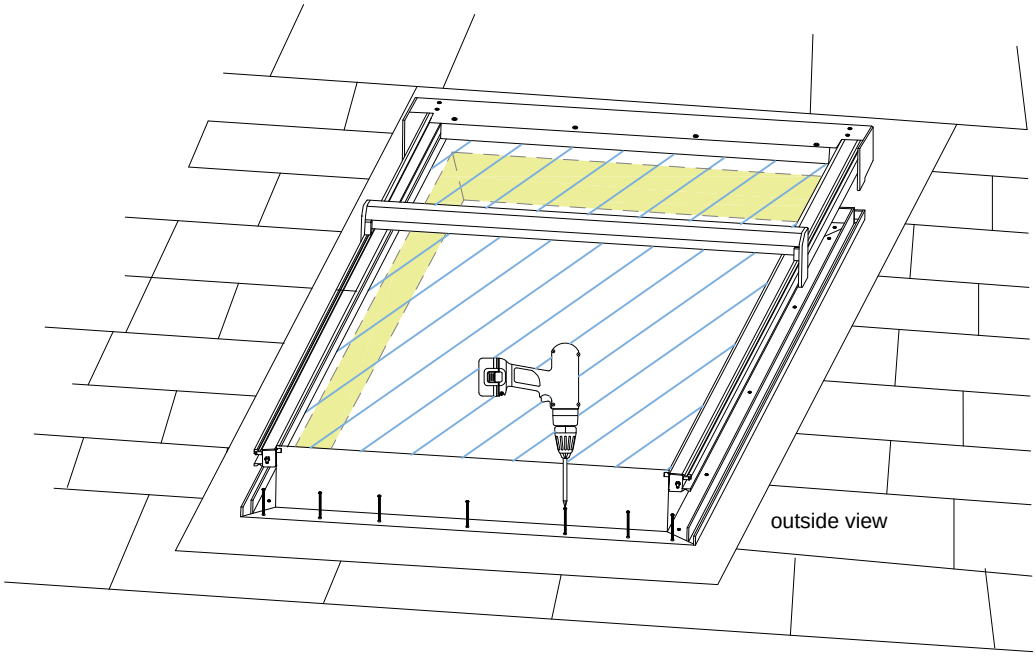
6.Silicone seal around the roof cavity. Keep it approximately 10 millimeters away from the edge of the roof opening. Then seal the silicone again, keeping it about 20 millimeters away from the first round of silicone.



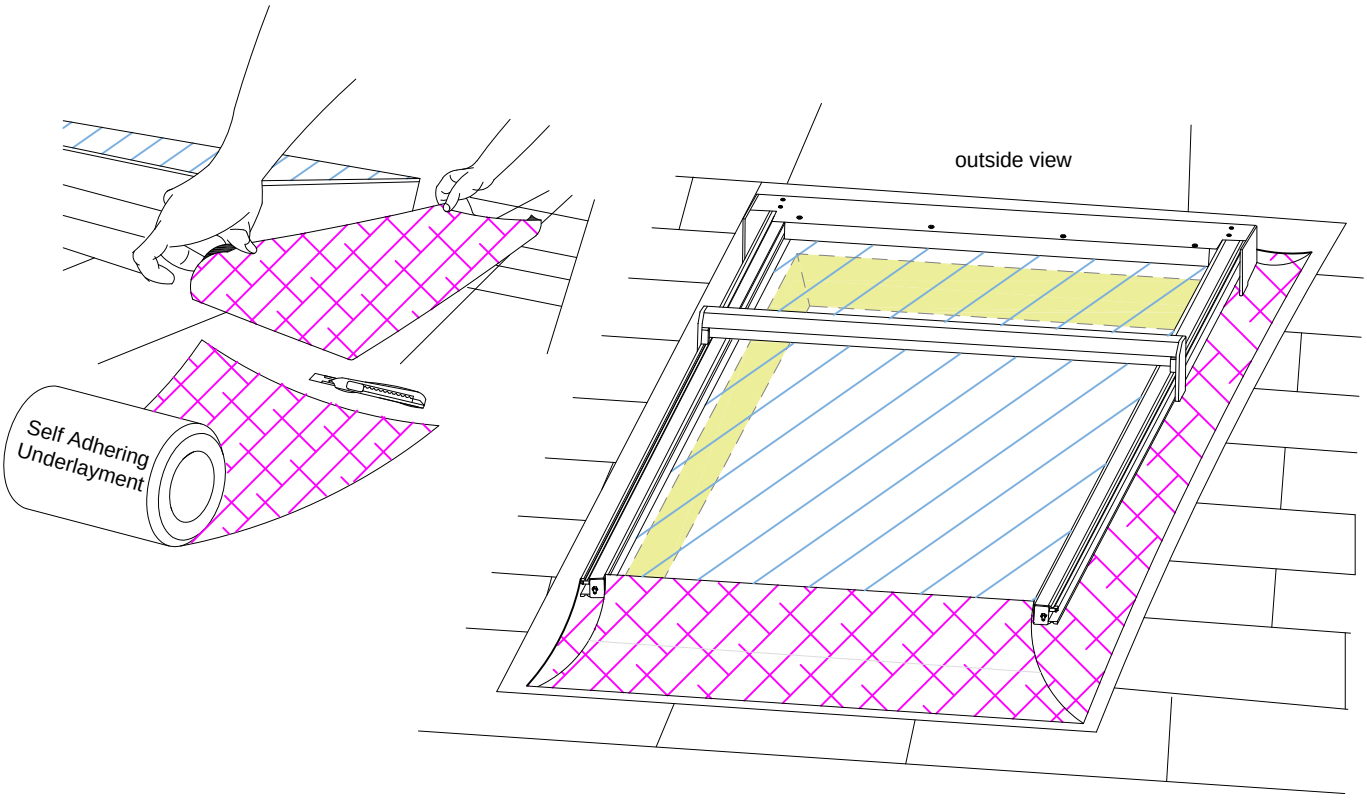
7.Lift the skylight and place it in the slot. and fasten with the screws provided in the kit in all positions.



■ **Installation of skylight with shingle roof**

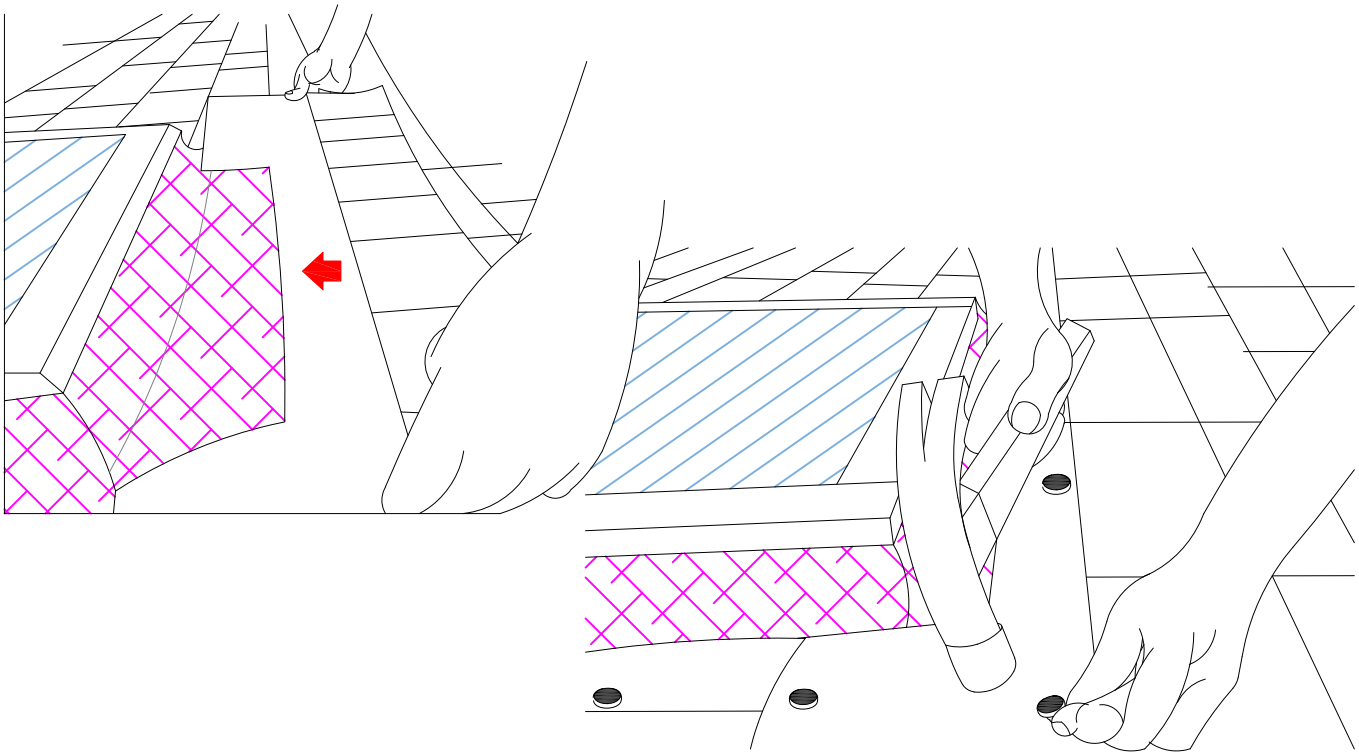


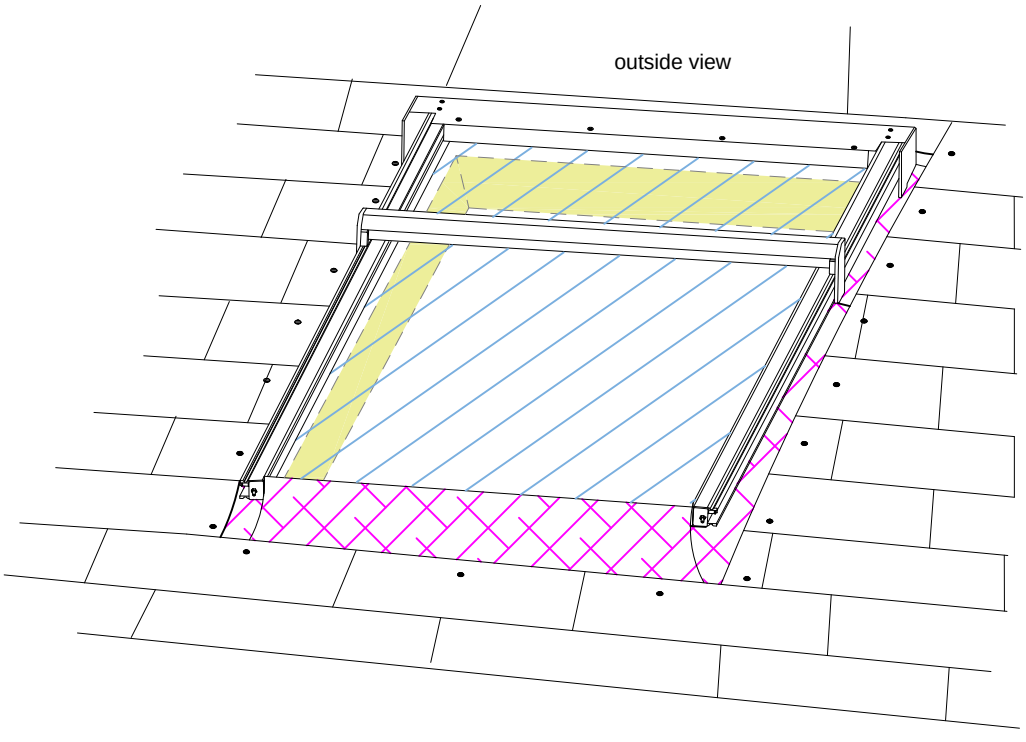
8.Attach masking tape around all 4 sides of the skylight, placing the masking tape between the skylight roof wings and the roof frame.



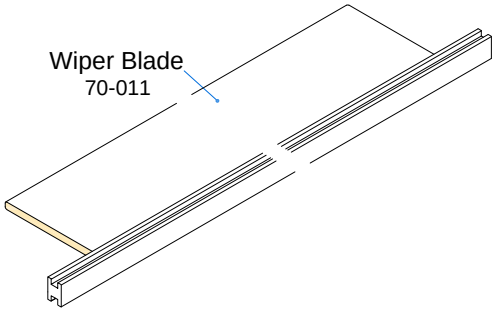
■ Installation of skylight with shingle roof

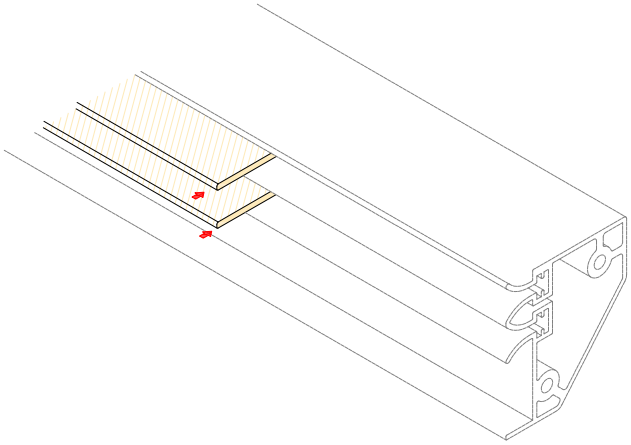
9.Place the asphalt close to the edge of the skylight roof. Use a hammer to pound nails between the skylight roof and the asphalt.



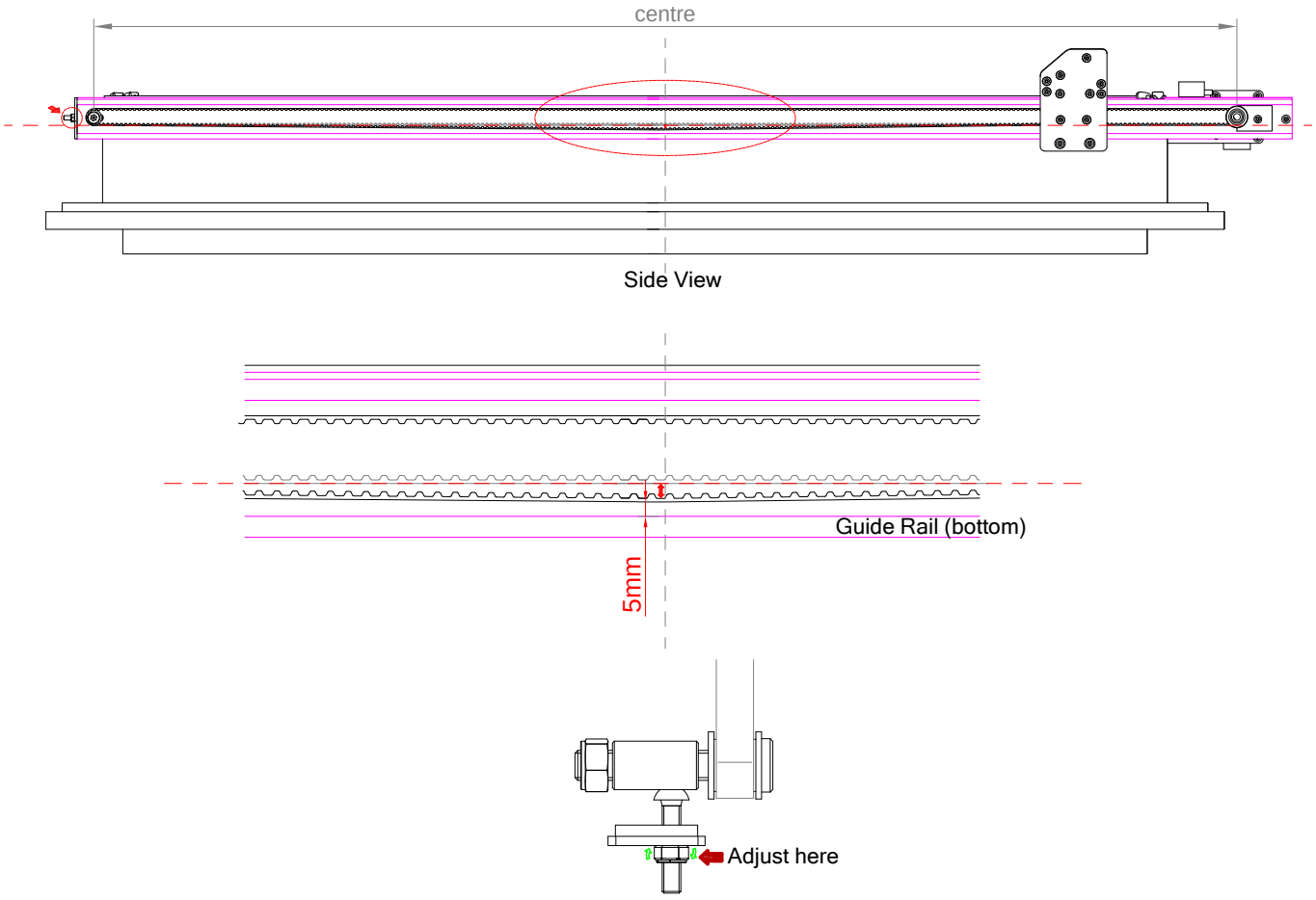


1. Change the Wiper Blades every 3 years.





2. Set the Belt Drive tension every 3 years. By having a distance of 5 mm. Between the bottom Guide Rail and the Belt Drive, Measured from the highest part at the Deflection of belt (midway between the Timing Pulley and Smooth Idler Pulley Wheel on both sides)



Warranty conditions

(1.) The product is subject to warranty conditions. Skylux will repair or replace the product parts free of charge. However, Skylux has absolute discretion to consider repairing or replacing the parts that are damaged. By considering as appropriate

(2.) Product warranty does not cover in the following cases. Even though it is under warranty period The customer must be responsible for the cost of repairs or replacement parts. and any expenses incurred at all

(2.1) Breakdown or damage caused by improper use improper maintenance Including installation at Not according to the manual

(2.2) Modification or repair by the customer.

(2.3) Damage caused by public disasters, natural disasters, power outages, overloads, or accidents such as things falling from a height. loss of parts, etc.

(2.4) General wear and tear over age.

(3.) The warranty covers only defects that occur with the product. Does not include damage from lack of business opportunities. or loss

Warranty period

(1.) Insulated glass, 3 year warranty

(2.) Electronic parts including motors are guaranteed for 1 year.

(3.) Other than the parts mentioned in points 1 and 2, they are considered to be wear and tear according to use of life. (not subject to warranty conditions)

*****Want to ask for more information or make a product claim (scan QR code)******