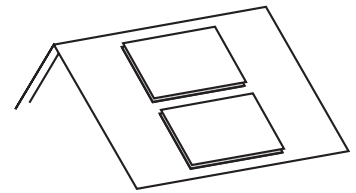
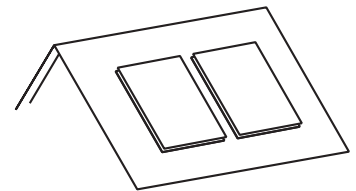
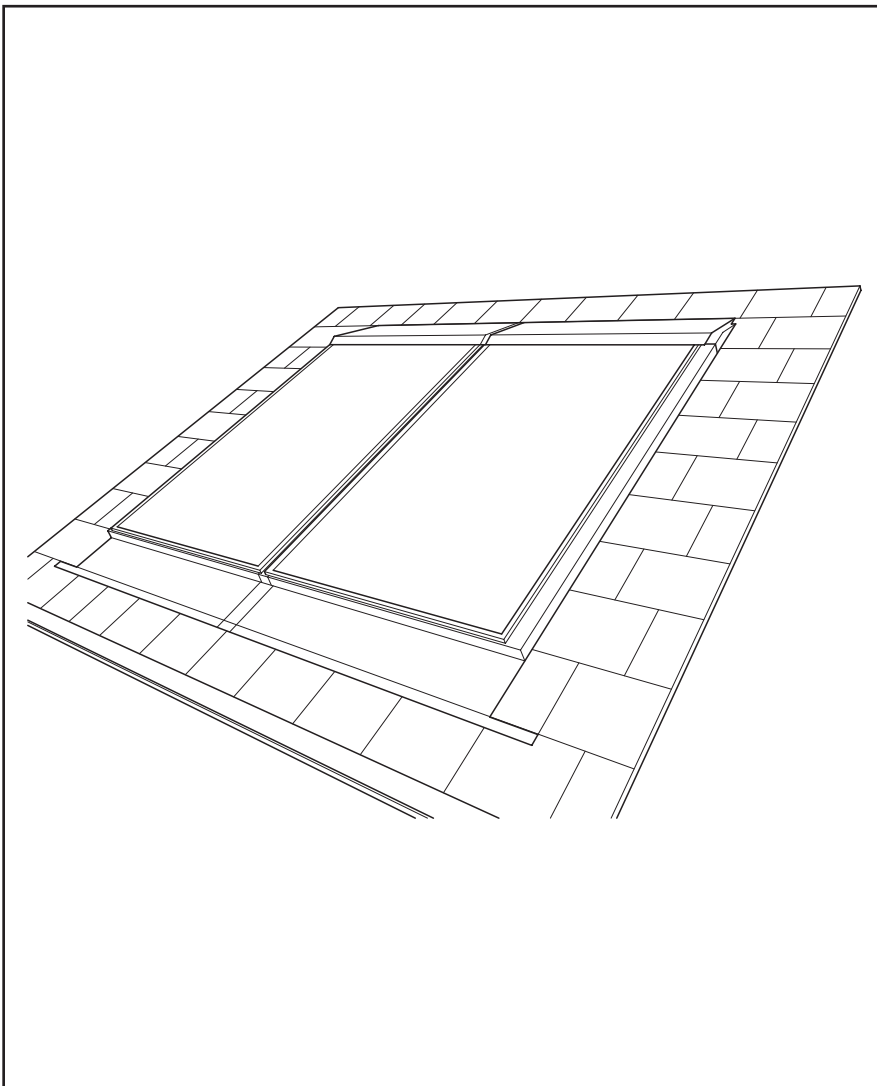


# Solar Collectors

## In-Roof Slate Installation (First Fix)



Please leave these instructions  
with the User

## Contents



|      |                               |    |
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| 1.0  | Legislation                   | 3  |
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## 1.0 Legislation

**Please note the following instructions regarding laws, regulations and technical rules.**

When setting up solar energy installations, the laws and regulations at local, state, European and international level that apply to the country in question must be observed. Generally acknowledged technical regulations apply; these are usually formulated in the form of standards, guidelines, provisions, regulations and technical rules laid down by local and national bodies, energy supply companies, trade organisations and technical committees in the relevant fields. The installation of solar units may require improved rain resistance with regard to roof, wall and sealing technology and this must be taken into account accordingly. To meet regulations for the prevention of accidents, it may be necessary to use safety equipment (straps, scaffolding, supports, etc.). Such safety equipment is not supplied and must be ordered separately. Installation must only be carried out by technically qualified and authorised personnel with a recognised qualification (verified by a state or national body) in the relevant technical area.

Use a safety harness when working at height.

The structure of the roof must be assessed for its suitability prior to commencing work.

Consult a Structural Engineer if you are unsure of the collector's siting.

Loading due to snow may exceed the capability of the property's structure.

Wind loads may cause excess forces on the structure and cause damage.

The Installer is responsible for the suitability of the site and its sub-structure.

The collector should be sited to avoid damage from falling debris and vandalism.

All pipe work within this installation must be Earth bonded.

In exposed areas, the collector must be protected against the risk of lightning.

It is recommended that a minimum of 2 people are used to lift this product.

The collector must not be lifted by its pipe connections.

Ensure all hydraulic connections are securely fixed and are free of leaks.

The system must be inspected on completion of the work.

A further inspection is recommended annually.

Avoid installing the collector in shaded areas.

The general recommended torque setting for nuts and bolts is 10Nm.

A separate second array can be installed behind the first if necessary.

Large arrays will require specialist piping, pump groups and design.

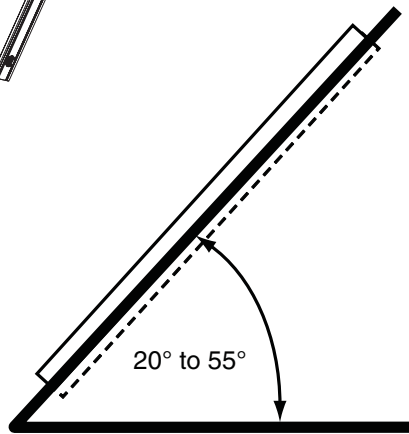
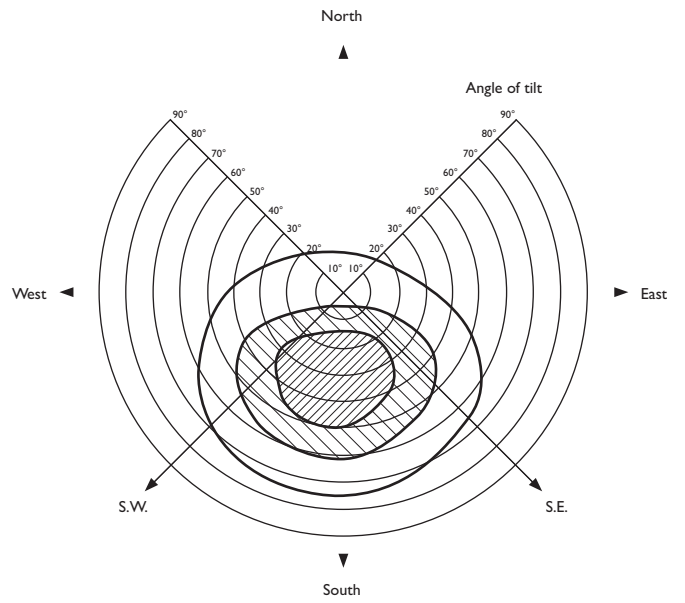
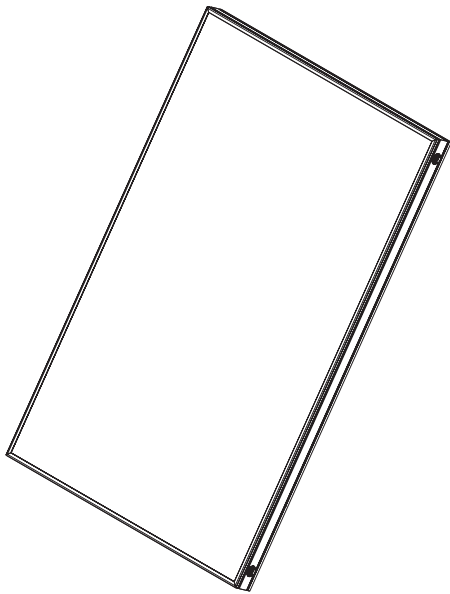
The collector must not be installed on an uneven roof surface.

Do not apply excessive force when installing the collector.

Hot, exposed surfaces that can be touched must be insulated to protect against injury.

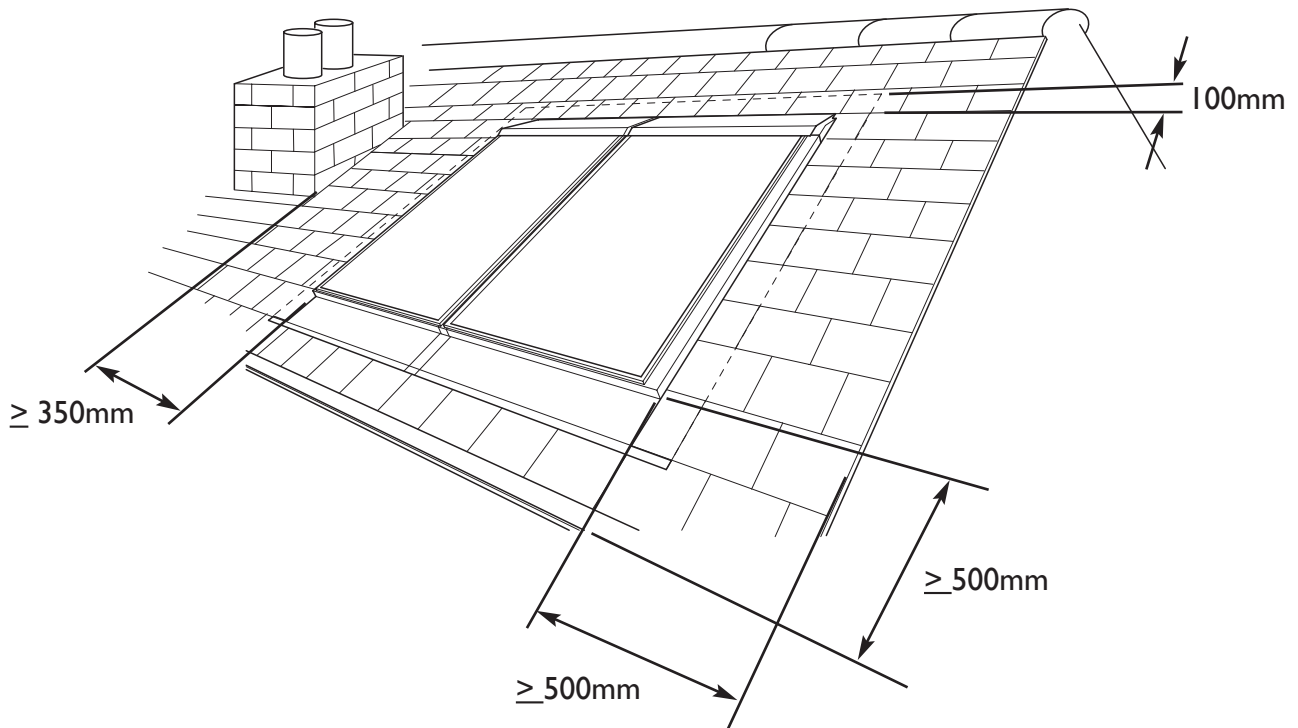
Lubrication is not required for the 'O' ring connections.

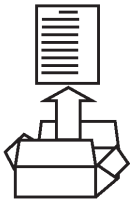
## 2.0 General Layout



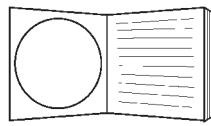
less than optimum by

|  |      |  |       |  |        |
|--|------|--|-------|--|--------|
|  | 0-5% |  | 5-10% |  | 10-20% |
|--|------|--|-------|--|--------|

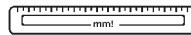




3A



3B



3C



3D



3E



3F



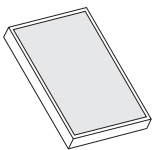
3G



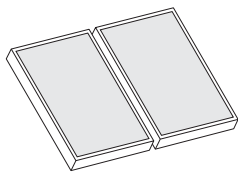
3H



3J



3K



3L

**R/H**

3M

**L/H**

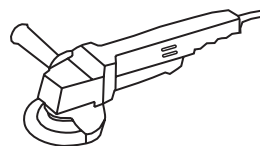
3N



3P



3Q

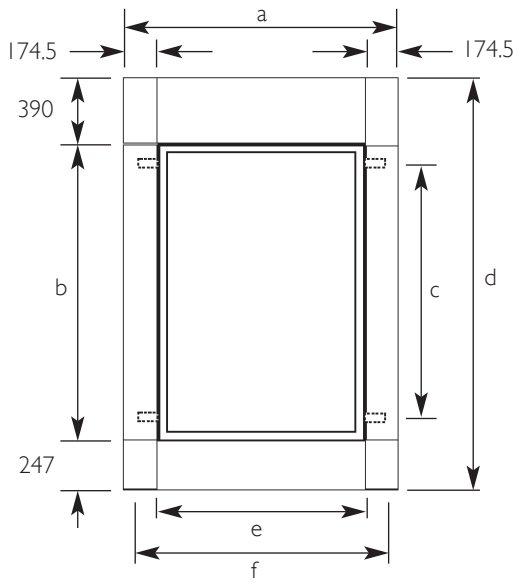


3R

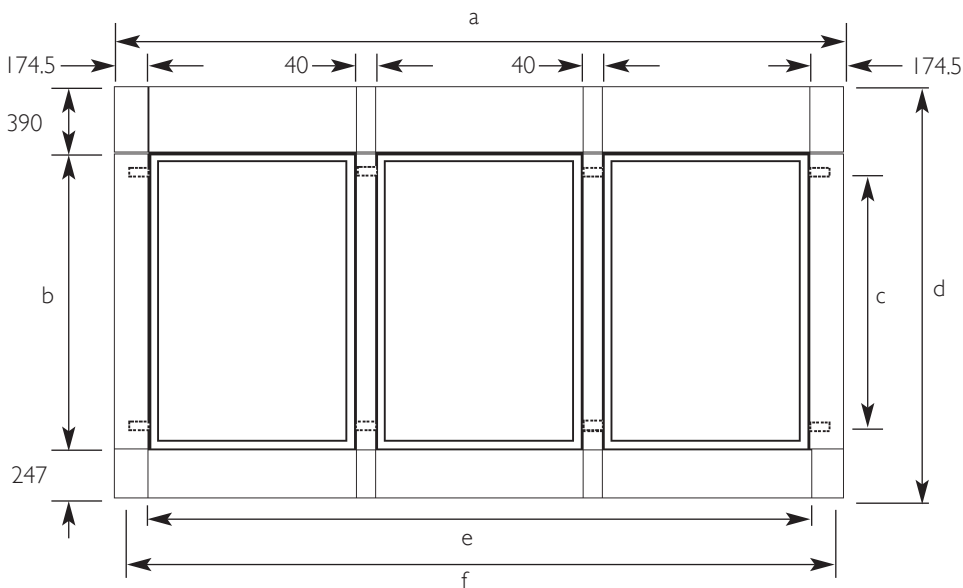
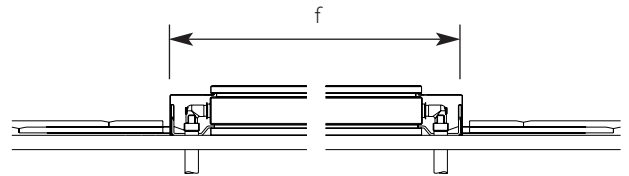
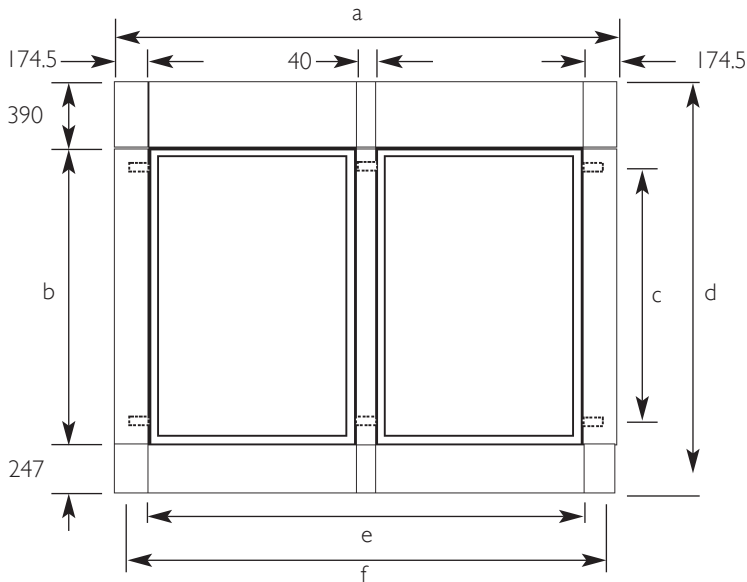
- 3A - Contents
- 3B - Page Reference Number
- 3C - Measure
- 3D - Specialist Advice Required
- 3E - Materials to be Provided by Installer
- 3F - Spanner Tight
- 3G - Information or Advice
- 3H - Screwdriver
- 3J - Hammer
- 3K - 1 Collector
- 3L - 2 Collectors
- 3M - Right Hand Side
- 3N - Left Hand Side
- 3P - Caution
- 3Q - Drill / Driver
- 3R - Tile Cutter



# 4.0 Dimensions



|  | SOL 200 | SOL 200H | SOL 250 | SOL 250H |
|--|---------|----------|---------|----------|
|  | 35kg    | 36kg     | 48kg    | 49kg     |
|  | 10bar   | 10bar    | 10bar   | 10bar    |





mm  
 Sol 200 Sol 200H Sol 250 Sol 250H

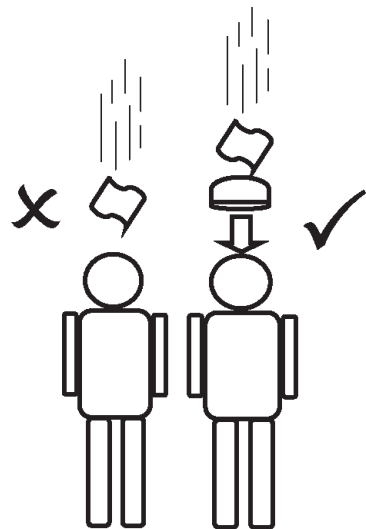
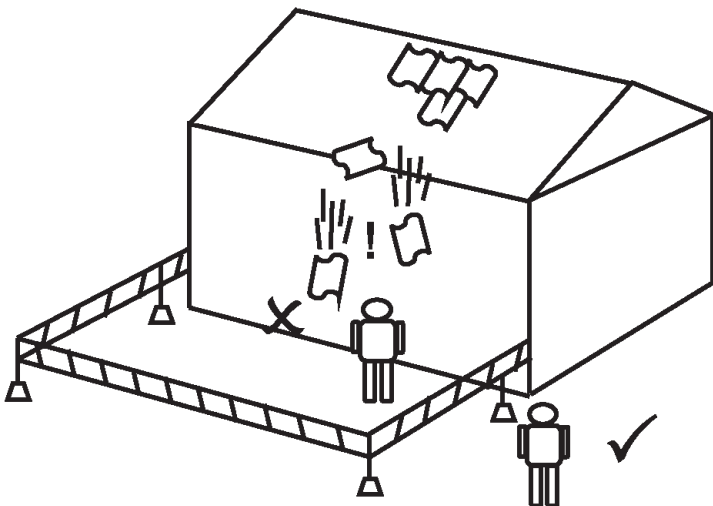
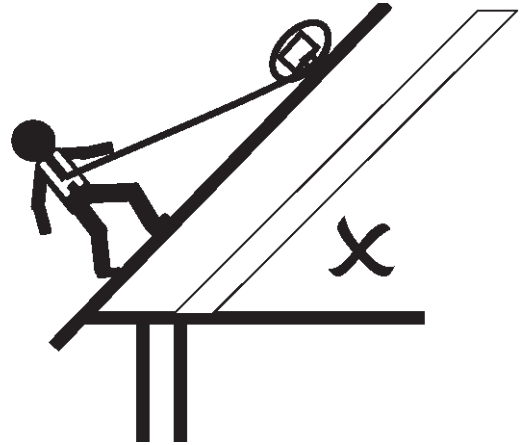
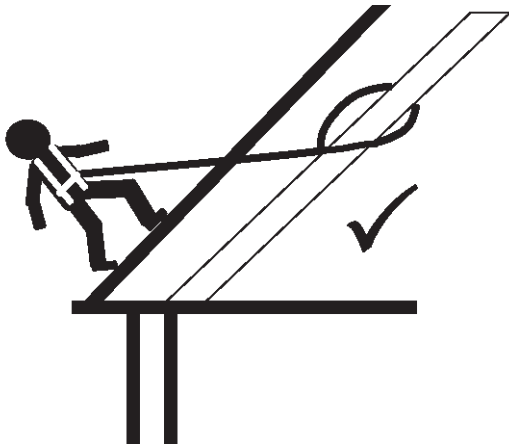
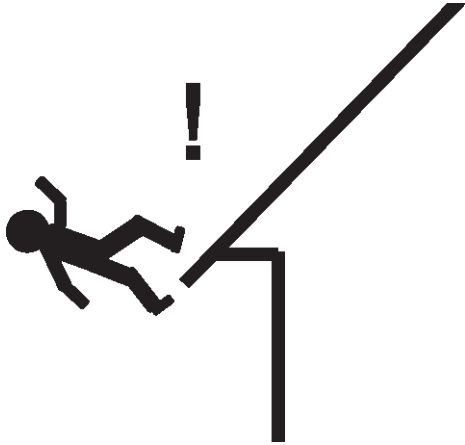
|       |   |      |      |      |       |
|-------|---|------|------|------|-------|
| <br>1 | a | 1627 | 2232 | 1627 | 2667  |
|       | b | 1753 | 1147 | 2187 | 1147  |
|       | c | 1610 | 1004 | 2044 | 1004  |
|       | d | 2388 | 1782 | 2822 | 1782  |
|       | e | 1147 | 1753 | 1147 | 2187  |
|       | f | 1289 | 1895 | 1289 | 2329  |
| <br>2 | a | 2814 | 4026 | 2814 | 4895  |
|       | b | 1753 | 1147 | 2187 | 1147  |
|       | c | 1610 | 1004 | 2044 | 1004  |
|       | d | 2388 | 1782 | 2822 | 1782  |
|       | e | 2334 | 3546 | 2334 | 4414  |
|       | f | 2476 | 3688 | 2476 | 4556  |
| <br>3 | a | 4001 | 5819 | 4001 | 7122  |
|       | b | 1753 | 1147 | 2187 | 1147  |
|       | c | 1610 | 1004 | 2044 | 1004  |
|       | d | 2388 | 1782 | 2822 | 1782  |
|       | e | 3521 | 5339 | 3521 | 6641  |
|       | f | 3663 | 5481 | 3663 | 6783  |
| <br>4 | a | 5188 | 7612 | 5188 | 9349  |
|       | b | 1753 | 1147 | 2187 | 1147  |
|       | c | 1610 | 1004 | 2044 | 1004  |
|       | d | 2388 | 1782 | 2822 | 1782  |
|       | e | 4708 | 7132 | 4708 | 8868  |
|       | f | 4850 | 7274 | 4850 | 9010  |
| <br>5 | a | 6375 | 9405 | 6375 | 11576 |
|       | b | 1753 | 1147 | 2187 | 1147  |
|       | c | 1610 | 1004 | 2044 | 1004  |
|       | d | 2388 | 1872 | 2822 | 1782  |
|       | e | 5895 | 8925 | 5895 | 11095 |
|       | f | 6037 | 9067 | 6037 | 11237 |

mm  
 Sol 200 Sol 200H Sol 250 Sol 250H

|        |   |       |       |       |       |
|--------|---|-------|-------|-------|-------|
| <br>6  | a | 7562  | 11198 | 7562  | 13803 |
|        | b | 1753  | 1147  | 2187  | 1147  |
|        | c | 1610  | 1004  | 2044  | 1004  |
|        | d | 2388  | 1782  | 2822  | 1782  |
|        | e | 7082  | 10718 | 7082  | 13322 |
|        | f | 7224  | 10860 | 7224  | 13464 |
| <br>7  | a | 8618  | 12991 | 8618  | 16030 |
|        | b | 1753  | 1147  | 2187  | 1147  |
|        | c | 1610  | 1004  | 2044  | 1004  |
|        | d | 2388  | 1782  | 2822  | 1782  |
|        | e | 8269  | 12511 | 8269  | 15549 |
|        | f | 8411  | 12653 | 8411  | 15691 |
| <br>8  | a | 9805  | 14784 | 9805  | 18257 |
|        | b | 1753  | 1147  | 2187  | 1147  |
|        | c | 1610  | 1004  | 2044  | 1004  |
|        | d | 2388  | 1782  | 2822  | 1782  |
|        | e | 9456  | 14304 | 9456  | 17776 |
|        | f | 9598  | 14446 | 9598  | 17918 |
| <br>9  | a | 11123 | 16577 | 11123 | 20484 |
|        | b | 1753  | 1147  | 2187  | 1147  |
|        | c | 1610  | 1004  | 2044  | 1004  |
|        | d | 2388  | 1782  | 2822  | 1782  |
|        | e | 10643 | 16097 | 10643 | 20003 |
|        | f | 10785 | 16239 | 10785 | 20145 |
| <br>10 | a | 12310 | 19370 | 12310 | 22711 |
|        | b | 1753  | 1147  | 2187  | 1147  |
|        | c | 1610  | 1004  | 2044  | 1004  |
|        | d | 2388  | 1782  | 2822  | 1782  |
|        | e | 11830 | 17890 | 11830 | 22230 |
|        | f | 11972 | 18032 | 11972 | 22372 |



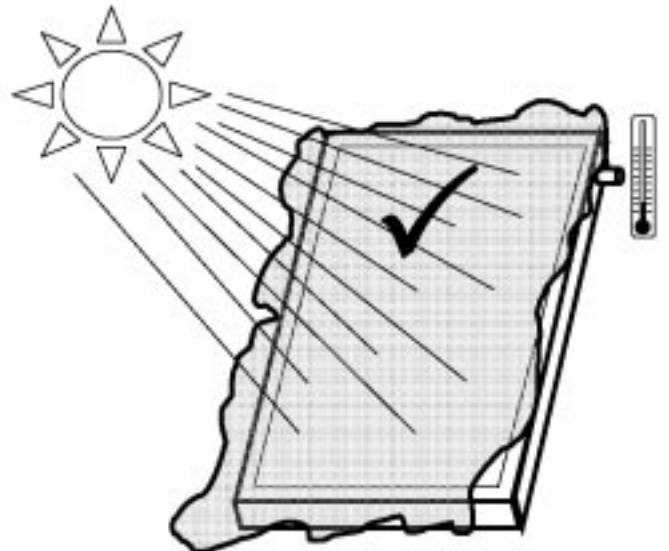
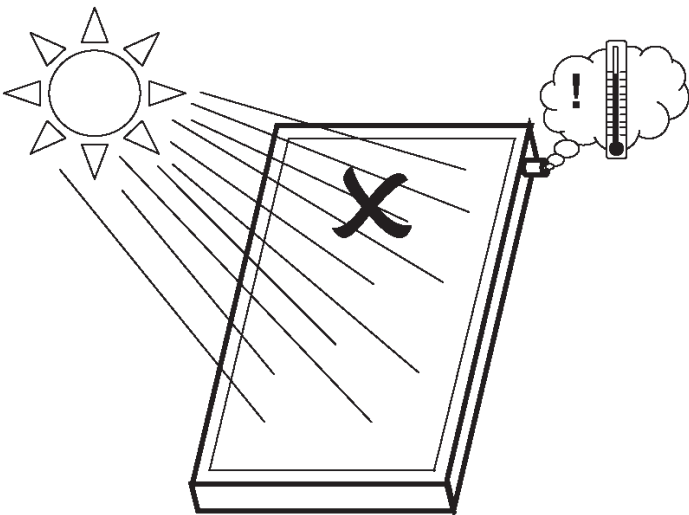
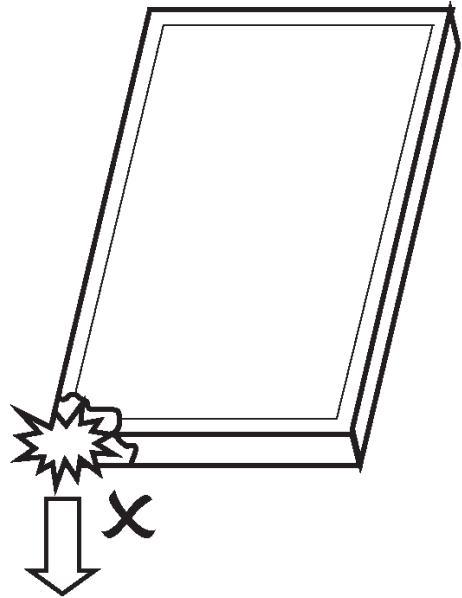
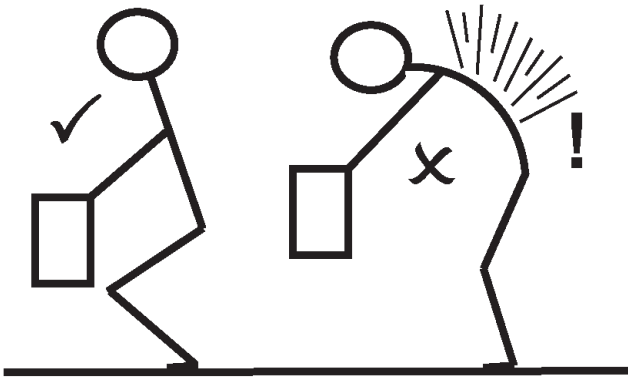
**i**







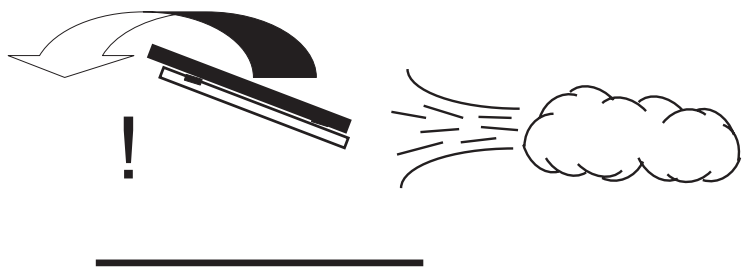
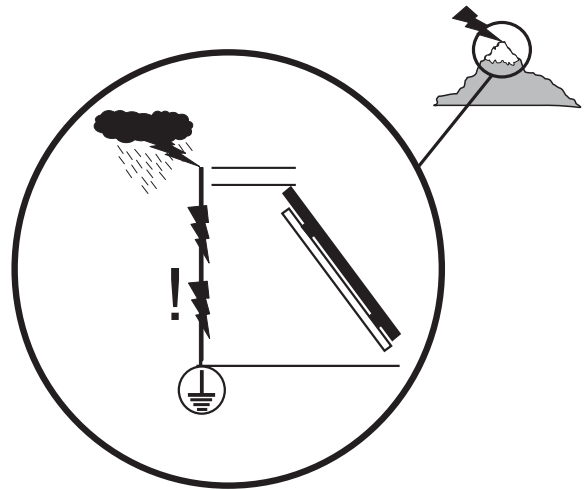
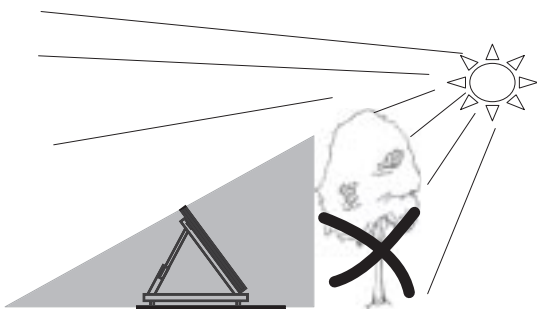
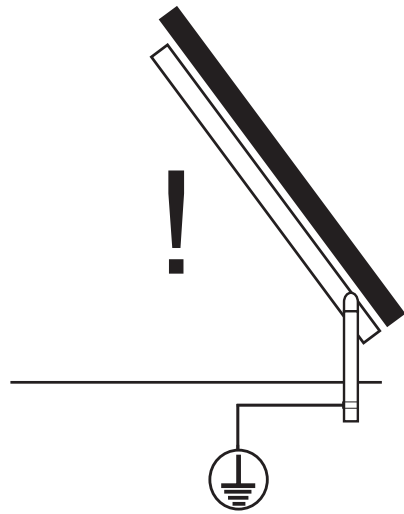
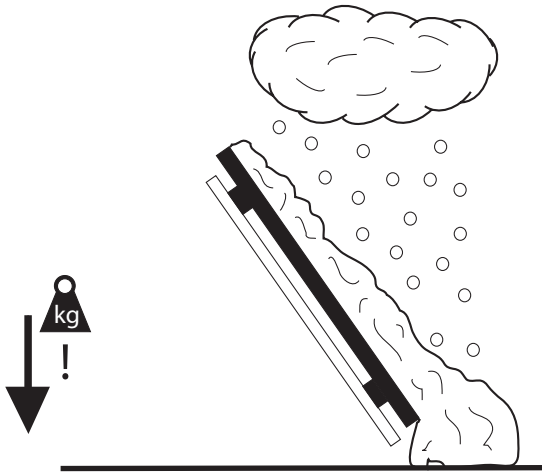
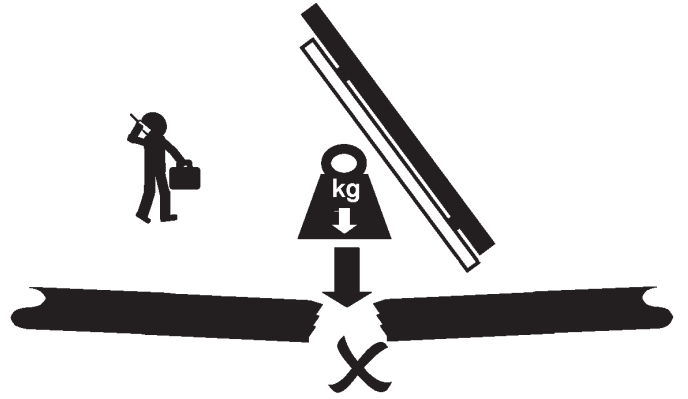
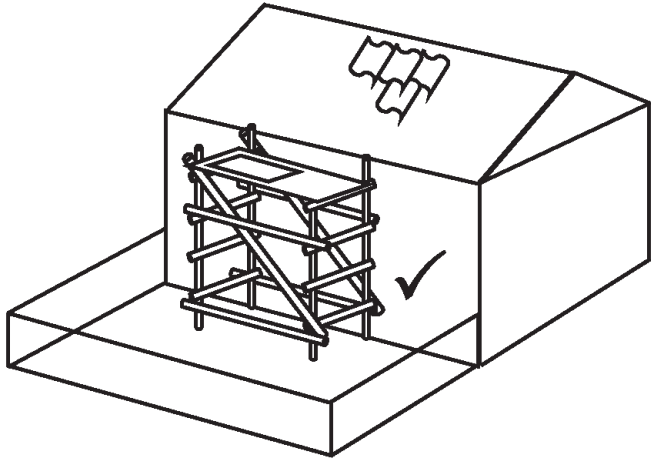
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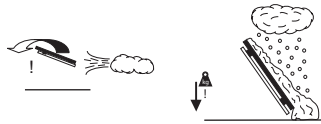




**i**

5.0 Health and Safety





**i**

## 6.0 Snow and Wind Load

EN1991-1-3:2003

- Standard - Snow Loading

SOL 200/200H/250/250H

- Design limit snow load on the ground = 2.8kN/m<sup>2</sup>



**NOTE:** This limit may be reduced for installations where abutments create additional risks of drifting or falling snow.

EN1991-1-4:2005

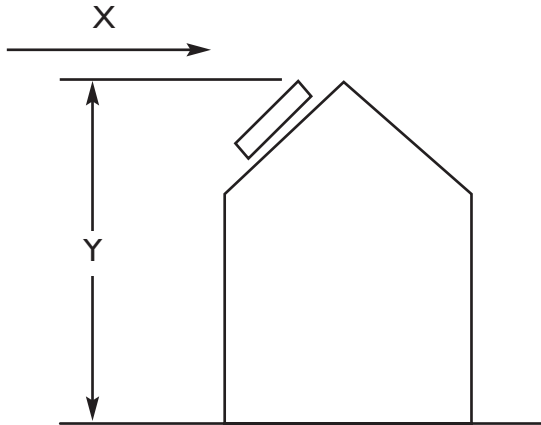
- Standard - Wind Loading

X - Basic wind speed ( $V_b, o$ ) in m/s

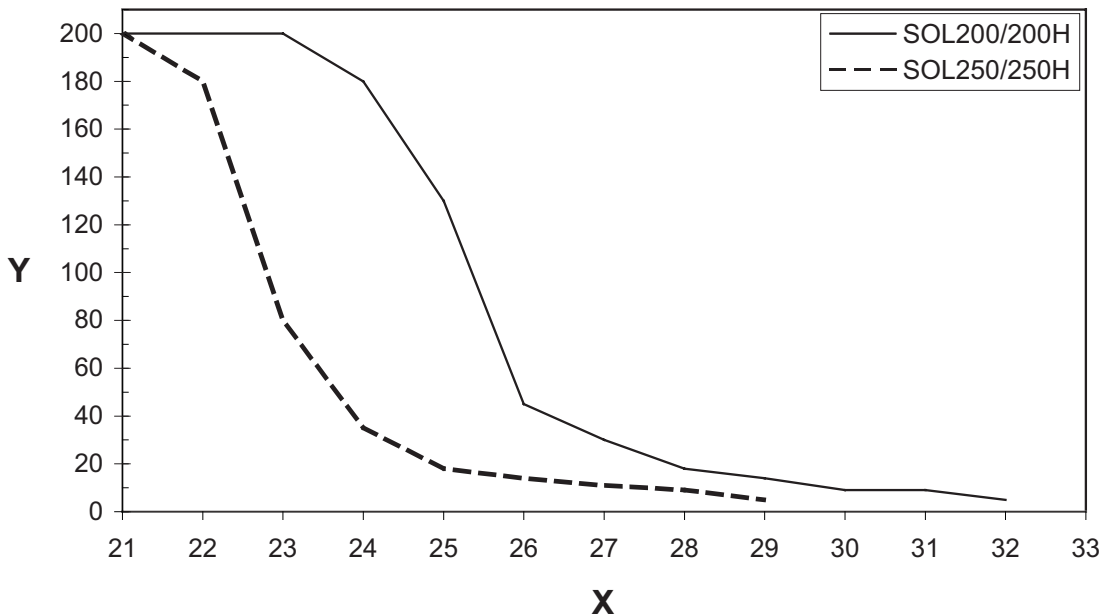
Y - Maximum height above ground for installation (m)



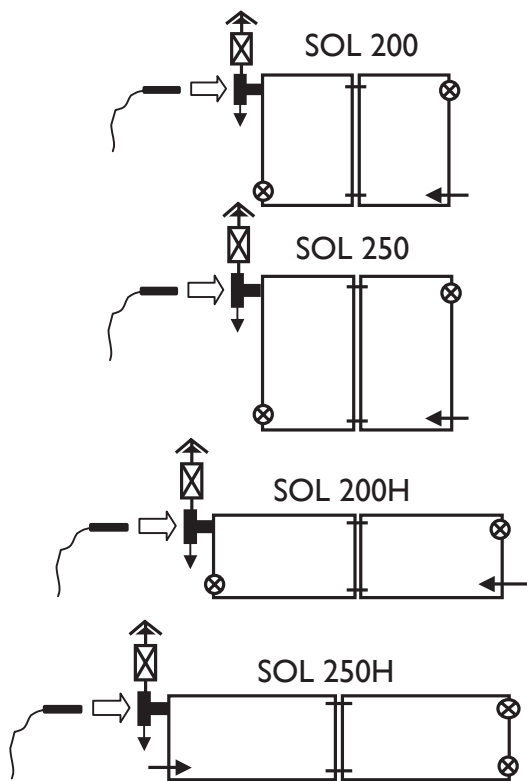
**WARNING:** The maximum wind load to be borne by the mounting structure depends on the height and geographical area of the site among other factors. This structure must be installed in accordance with the provisions of the EN1991 standard. Consult a structural engineer if in doubt.









**Limit for in-roof installation for given site basic wind speed  
(For  $c_o=1$ )**

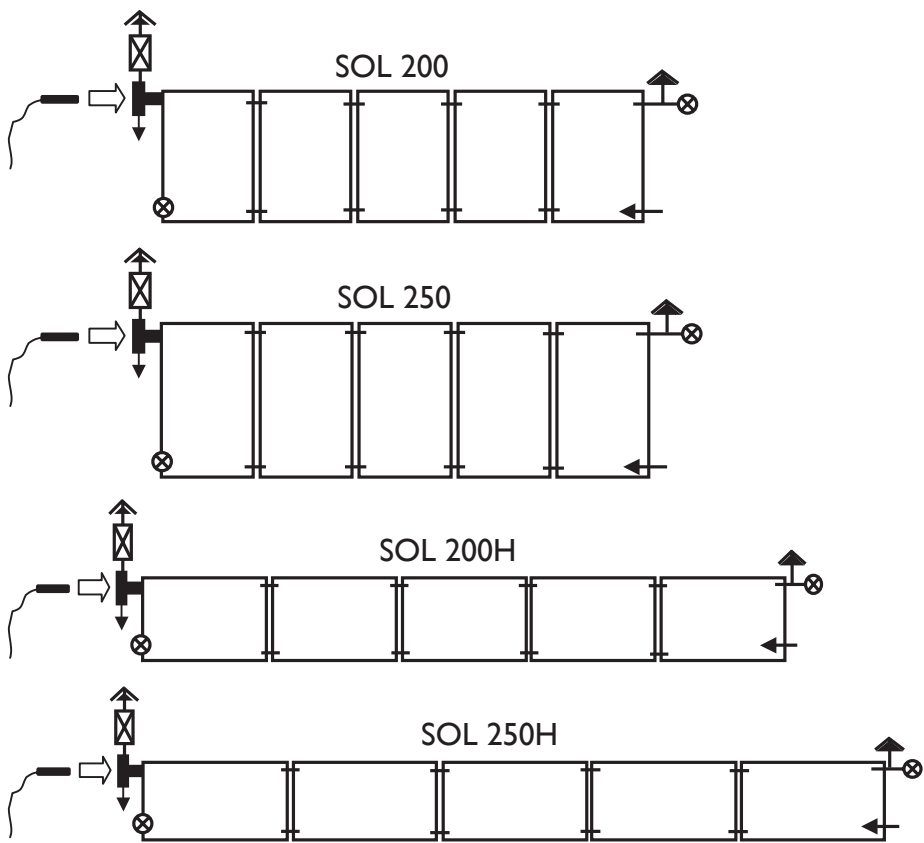


$n < 5$



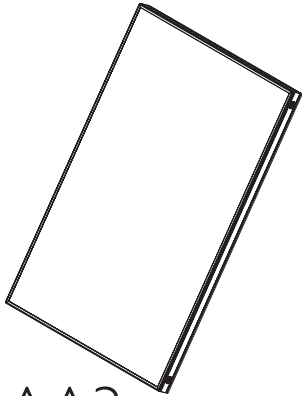
-  - Tee Piece
-  - Valve
-  - Plug
-  - Air Vent (Optional)
-  - Flow
-  - Sensor

$n \geq 5$

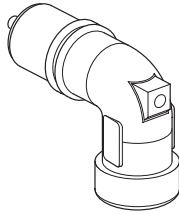




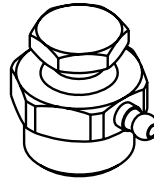
## 8.0 Kit Contents and Components



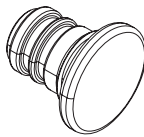
AA3



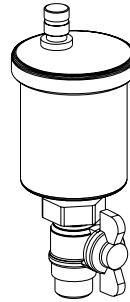
BB3



JJ3



CC3



GG3

AA3 - Collector

BB3 - Sensor Elbow

CC3 - End Cap

DD3 - Joining Piece

EE3 - Elbow

FF3 - Plug for Manual Air Vent

GG3 - Tee Piece

HH3 - Clip

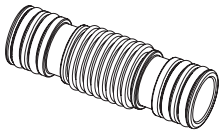
JJ3 - Manual Vent (Optional)

KK3 - Auto Air Vent (Optional)

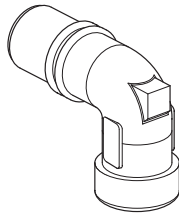
LL3 - Sensor

MM3 - 2m Pipe Kit

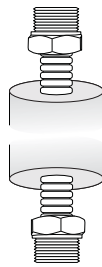
NN3 - Straight Connector with fittings



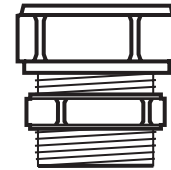
DD3



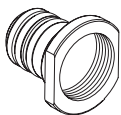
EE3



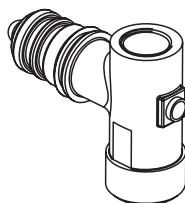
KK3



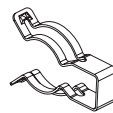
NN3



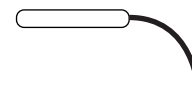
FF3



GG3



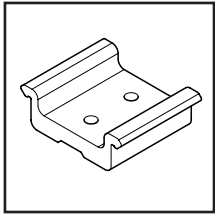
HH3



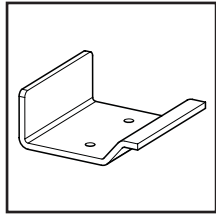
LL3



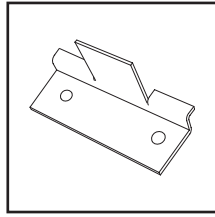
# 8.0 Kit Contents and Components



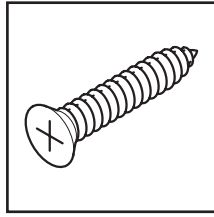
AA



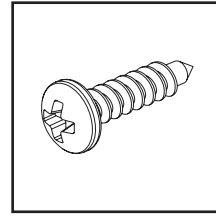
BB



CC



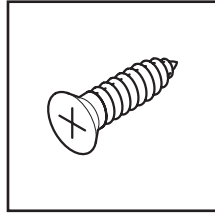
RR



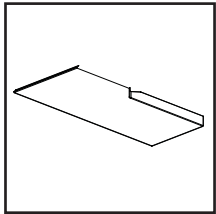
UU



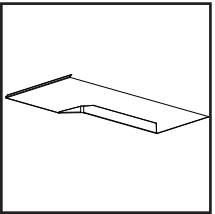
YY



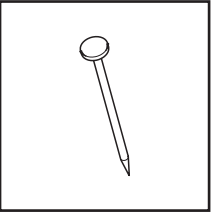
SS



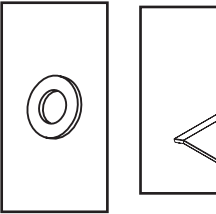
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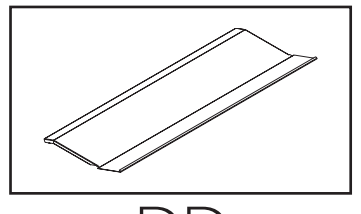
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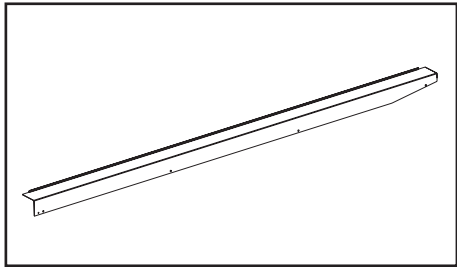
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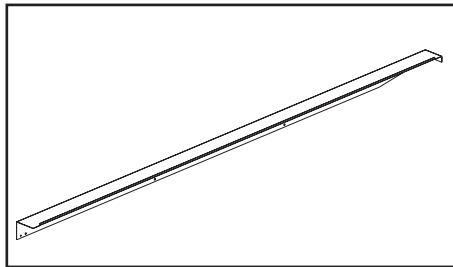
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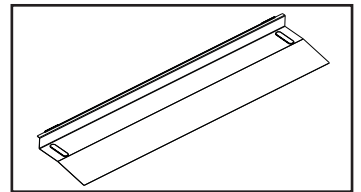
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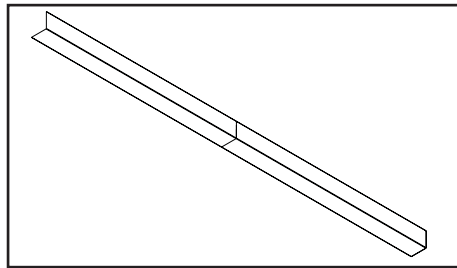
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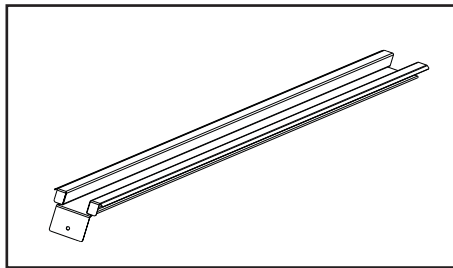
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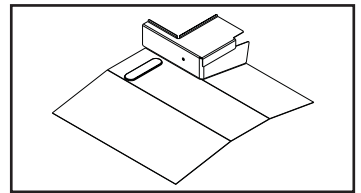
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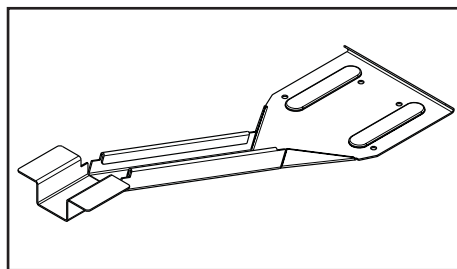
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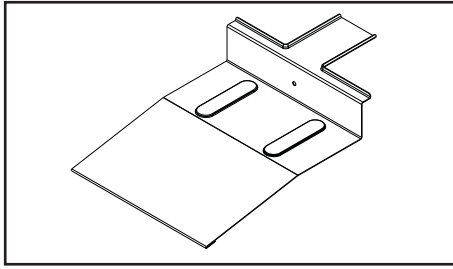
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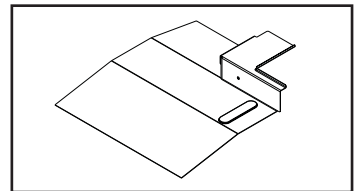
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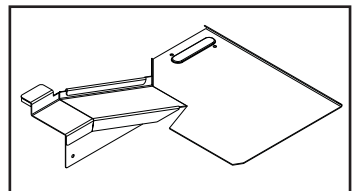
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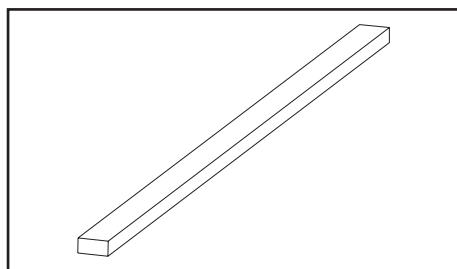
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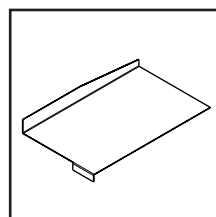
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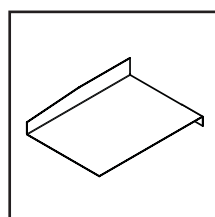
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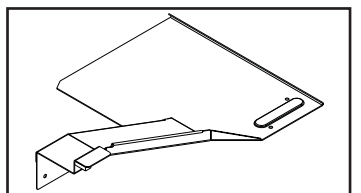
QQ



JA



JB



EE

|          |                                       |
|----------|---------------------------------------|
| <b>A</b> | - One SOL200 Portrait Collector Kit   |
| <b>B</b> | - One SOL250 Portrait Collector Kit   |
| <b>C</b> | - One SOL200H Landscape Collector Kit |
| <b>D</b> | - One SOL250H Landscape Collector Kit |
| <b>E</b> | - Two SOL200 Portrait Collector Kit   |
| <b>F</b> | - Two SOL250 Portrait Collector Kit   |
| <b>G</b> | - Two SOL200H Landscape Collector Kit |
| <b>H</b> | - Two SOL250H Landscape Collector Kit |
| <b>J</b> | - SOL200 + I Extension Portrait Kit   |
| <b>K</b> | - SOL250 + I Extension Portrait Kit   |
| <b>L</b> | - SOL200H + I Extension Landscape Kit |
| <b>M</b> | - SOL250H + I Extension Landscape Kit |

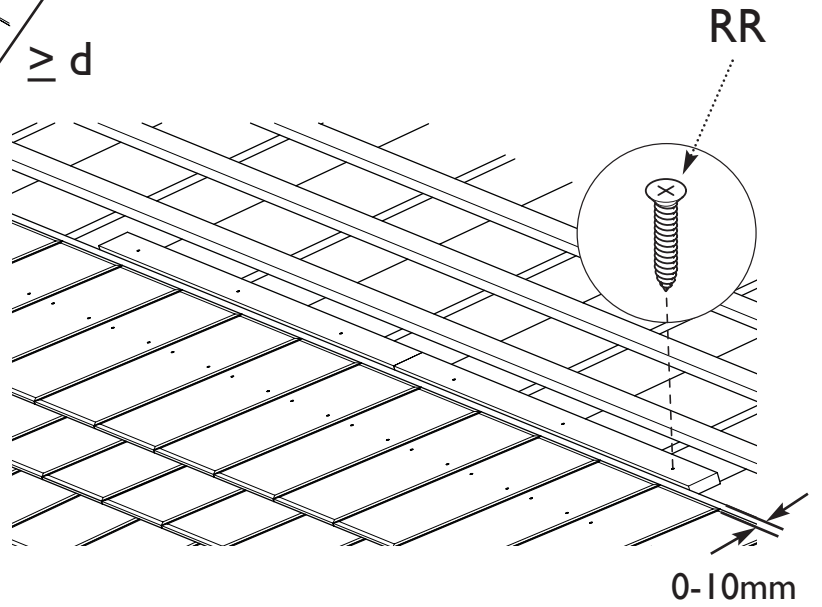
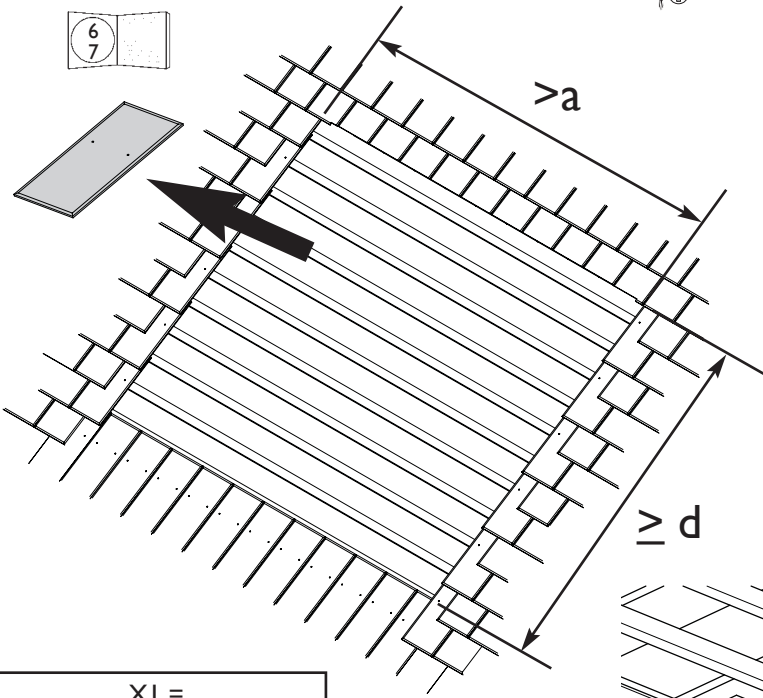
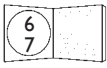
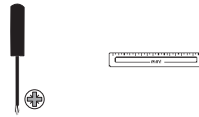


## 8.0 Kit Contents and Components

|              |  |
|--------------|--|
| <b>AA</b>    | - Intermediate Clamp   |
| <b>BB</b>    | - Side Clamp   |
| <b>CC</b>    | - Bottom Bracket   |
| <b>DD</b>    | - Top Panel Portrait SOL200/250<br>- Top Panel Landscape SOL200H<br>- Top Panel Landscape SOL250H                                    |
| <b>EE</b>    | - Top Corner L/H   |
| <b>FF</b>    | - Top Corner R/H   |
| <b>GG</b>    | - Top Infill Section   |
| <b>HH</b>    | - Side Lower Portrait SOL200<br>- Side Lower Landscape SOL200H/250H  |
| <b>HA/HB</b> | - Side Lower Portrait SOL250   |
| <b>JA</b>    | - Soaker L/H   |
| <b>JB</b>    | - Soaker R/H   |
| <b>KK</b>    | - Side Cover L/H Portrait SOL200<br>- Side Cover L/H Portrait SOL250<br>- Side Cover L/H Landscape SOL200H/250H                      |
| <b>LL</b>    | - Side Cover R/H Portrait SOL200<br>- Side Cover R/H Portrait SOL250<br>- Side Cover R/H Landscape SOL200H/250H                      |
| <b>MM</b>    | - Middle Infill Section Portrait SOL200<br>- Middle Infill Section Portrait SOL250<br>- Middle Infill Section Landscape SOL200H/250H |
| <b>NN</b>    | - Bottom Section Portrait SOL200/250<br>- Bottom Section Landscape SOL200H<br>- Bottom Section Landscape SOL250H                     |
| <b>OO</b>    | - Bottom Corner L/H  |
| <b>PP</b>    | - Bottom Corner R/H  |
| <b>QQ</b>    | - Batten 25 x 70 x 1320 (mm) SOL200/250<br>- Batten 25 x 70 x 1920 (mm) SOL200H<br>- Batten 25 x 70 x 1175 (mm) SOL250H              |
| <b>RR</b>    | - Wood Screw (70mm)  |
| <b>SS</b>    | - Wood Screw (35mm)  |
| <b>TT</b>    | - Coloured Waterproof Washer   |
| <b>UU</b>    | - Coloured Self Drilling Screw   |
| <b>VV</b>    | - Nail   |
| <b>WW</b>    | -  |
| <b>XX</b>    | -  |
| <b>YY</b>    | - Instructions   |
| <b>ZZ</b>    | - Bottom Infill Piece  |

|           | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> | <b>E</b> | <b>F</b> | <b>G</b> | <b>H</b> | <b>J</b> | <b>K</b> | <b>L</b> | <b>M</b> |
|-----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| <b>AA</b> | -        | -        | -        | -        | 3        | 3        | 3        | 3        | 3        | 3        | 3        | 3        |
| <b>BB</b> | 6        | 6        | 6        | 6        | 6        | 6        | 6        | 6        | -        | -        | -        | -        |
| <b>CC</b> | 2        | 2        | 2        | 2        | 3        | 3        | 3        | 3        | 1        | 1        | 1        | 1        |
| <b>DD</b> | 1        | 1        | 1        | 1        | 2        | 2        | 2        | 2        | 1        | 1        | 1        | 1        |
| <b>GG</b> | -        | -        | -        | -        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        |
| <b>MM</b> | -        | -        | -        | -        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        |
| <b>QQ</b> | 5        | 5        | 5        | 10       | 10       | 10       | 10       | 20       | 5        | 5        | 5        | 10       |
| <b>RR</b> | 15       | 15       | 15       | 20       | 30       | 30       | 30       | 40       | 15       | 15       | 15       | 20       |
| <b>SS</b> | 16       | 16       | 16       | 16       | 24       | 24       | 24       | 24       | 8        | 8        | 8        | 8        |
| <b>TT</b> | 14       | 14       | 14       | 14       | 19       | 19       | 19       | 19       | 5        | 5        | 5        | 5        |
| <b>UU</b> | 14       | 14       | 14       | 14       | 19       | 19       | 19       | 19       | 5        | 5        | 5        | 5        |
| <b>HH</b> | 2        | 2        | 2        | 2        | 2        | 2        | 2        | 2        | -        | -        | -        | -        |
| <b>KK</b> | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | -        | -        | -        | -        |
| <b>LL</b> | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | -        | -        | -        | -        |
| <b>OO</b> | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | -        | -        | -        | -        |
| <b>PP</b> | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | -        | -        | -        | -        |
| <b>EE</b> | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | -        | -        | -        | -        |
| <b>FF</b> | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | -        | -        | -        | -        |
| <b>JA</b> | 13       | 15       | 10       | 10       | 13       | 15       | 10       | 10       | -        | -        | -        | -        |
| <b>JB</b> | 13       | 15       | 10       | 10       | 13       | 15       | 10       | 10       | -        | -        | -        | -        |
| <b>WW</b> | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | -        | -        | -        | -        |
| <b>XX</b> | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | -        | -        | -        | -        |
| <b>ZZ</b> | -        | -        | -        | -        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        |
| <b>NN</b> | 1        | 1        | 1        | 1        | 2        | 2        | 2        | 2        | 1        | 1        | 1        | 1        |
| <b>VV</b> | 6        | 6        | 6        | 6        | 6        | 6        | 6        | 6        | -        | -        | -        | -        |
| <b>YY</b> | 1        | 1        | 1        | 1        | 1        | 1        | 1        | 1        | -        | -        | -        | -        |

# 9.0 Installation of the Collector

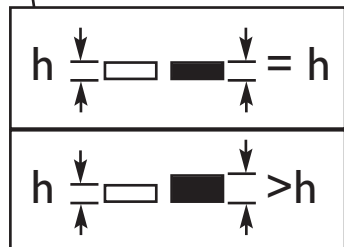
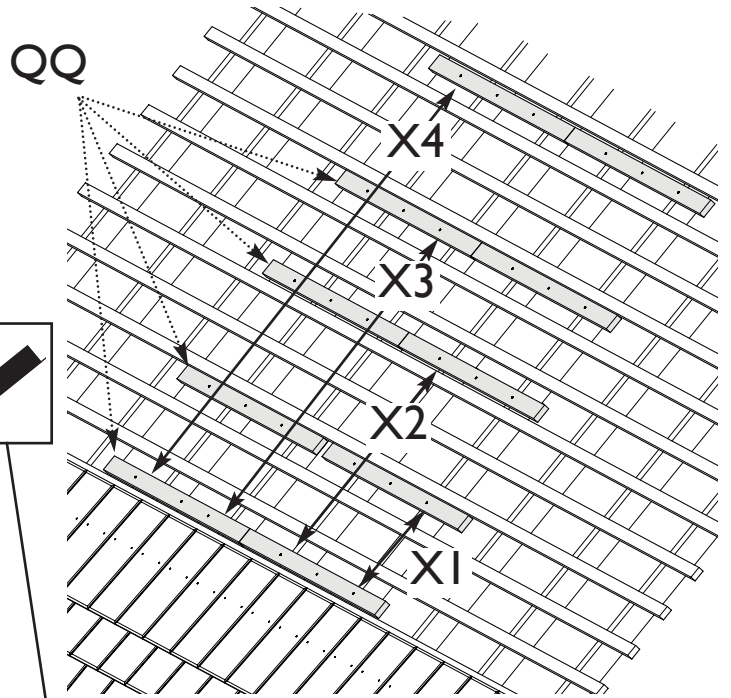
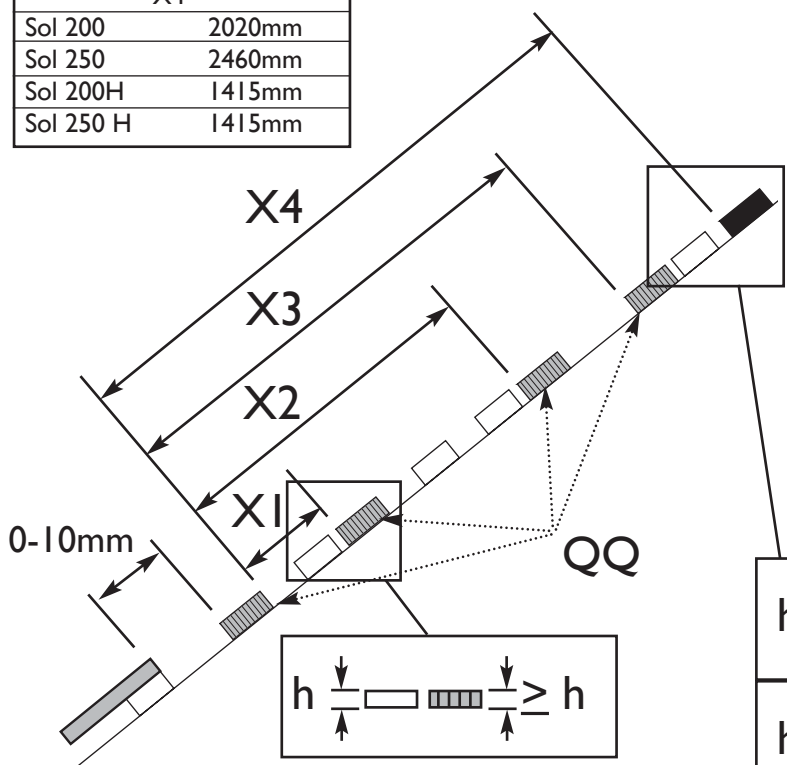


| X1 =      |       |
|-----------|-------|
| Sol 200   | 435mm |
| Sol 250   | 560mm |
| Sol 200H  | 260mm |
| Sol 250 H | 260mm |

| X2 =      |        |
|-----------|--------|
| Sol 200   | 935mm  |
| Sol 250   | 1185mm |
| Sol 200H  | 585mm  |
| Sol 250 H | 585mm  |

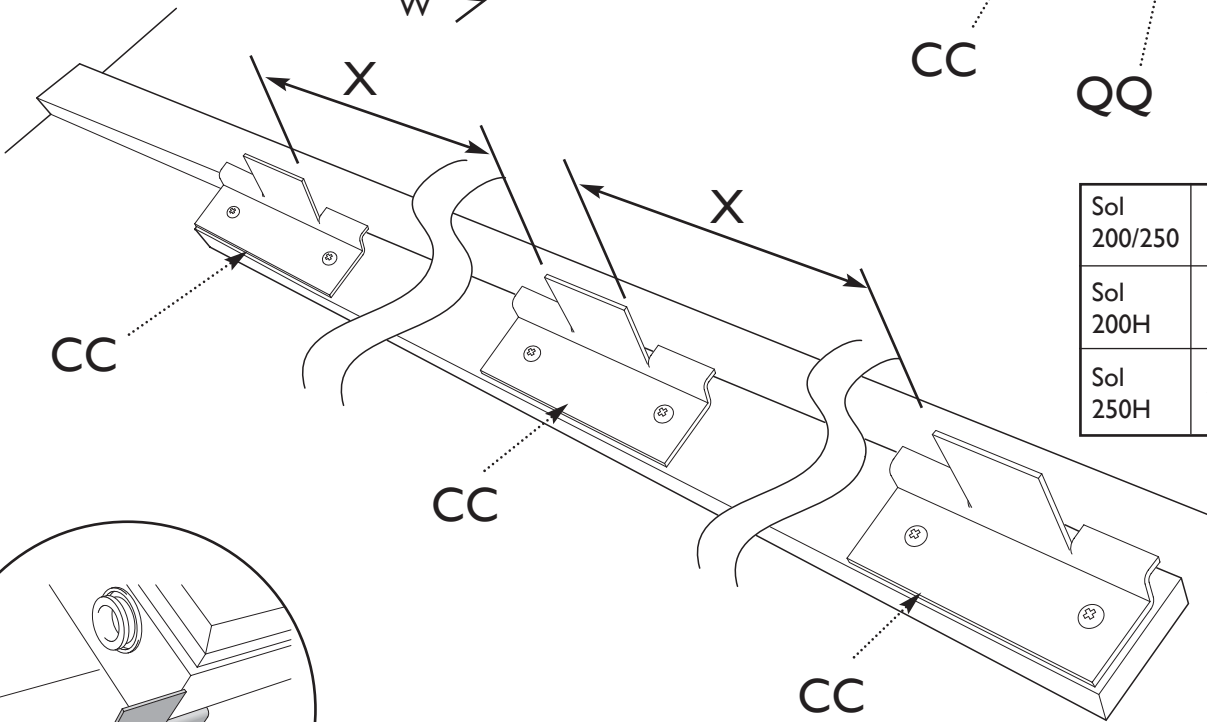
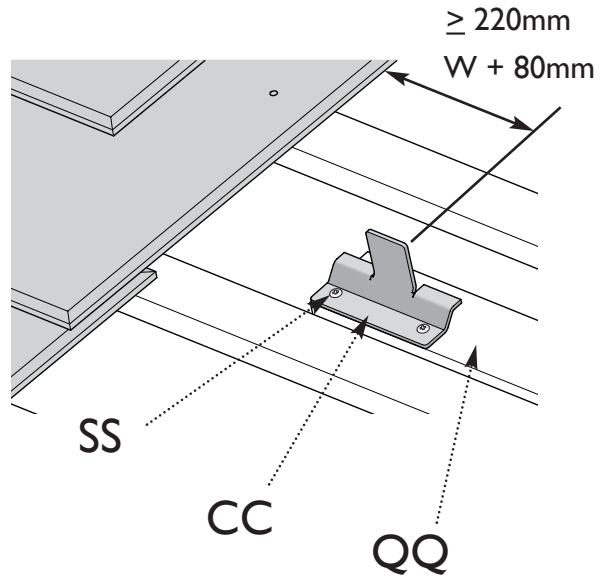
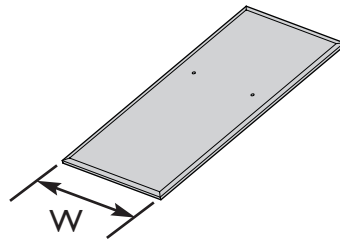
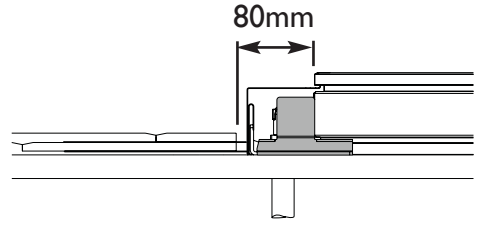
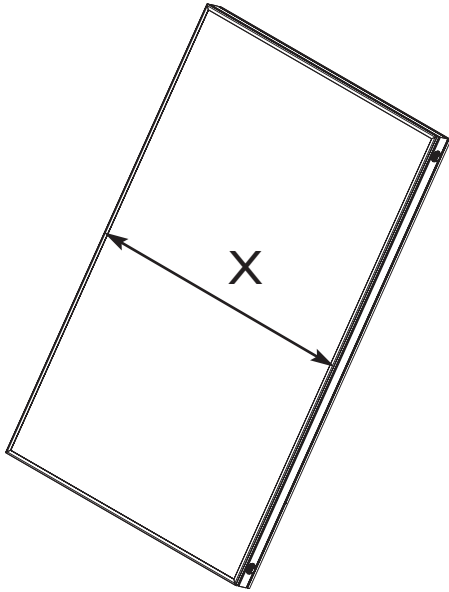
| X3 =      |        |
|-----------|--------|
| Sol 200   | 1435mm |
| Sol 250   | 1810mm |
| Sol 200H  | 910mm  |
| Sol 250 H | 910mm  |

| X4 =      |        |
|-----------|--------|
| Sol 200   | 2020mm |
| Sol 250   | 2460mm |
| Sol 200H  | 1415mm |
| Sol 250 H | 1415mm |



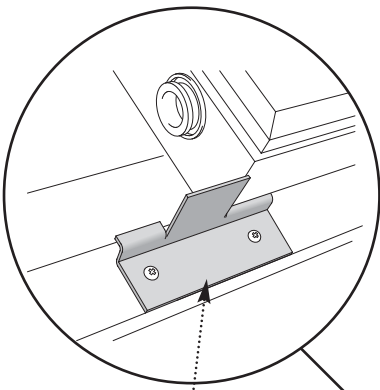


# 9.0 Installation of the Collector

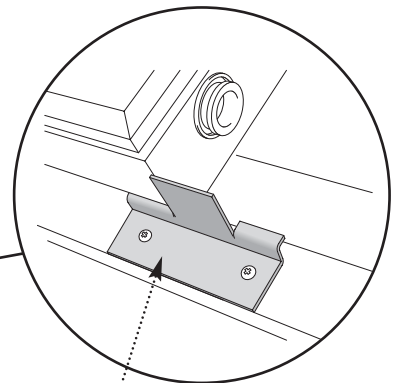
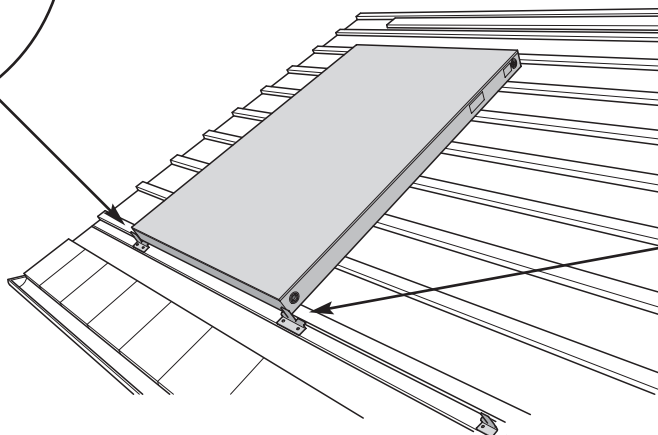


X =

|             |        |
|-------------|--------|
| Sol 200/250 | 1147mm |
| Sol 200H    | 1753mm |
| Sol 250H    | 2186mm |

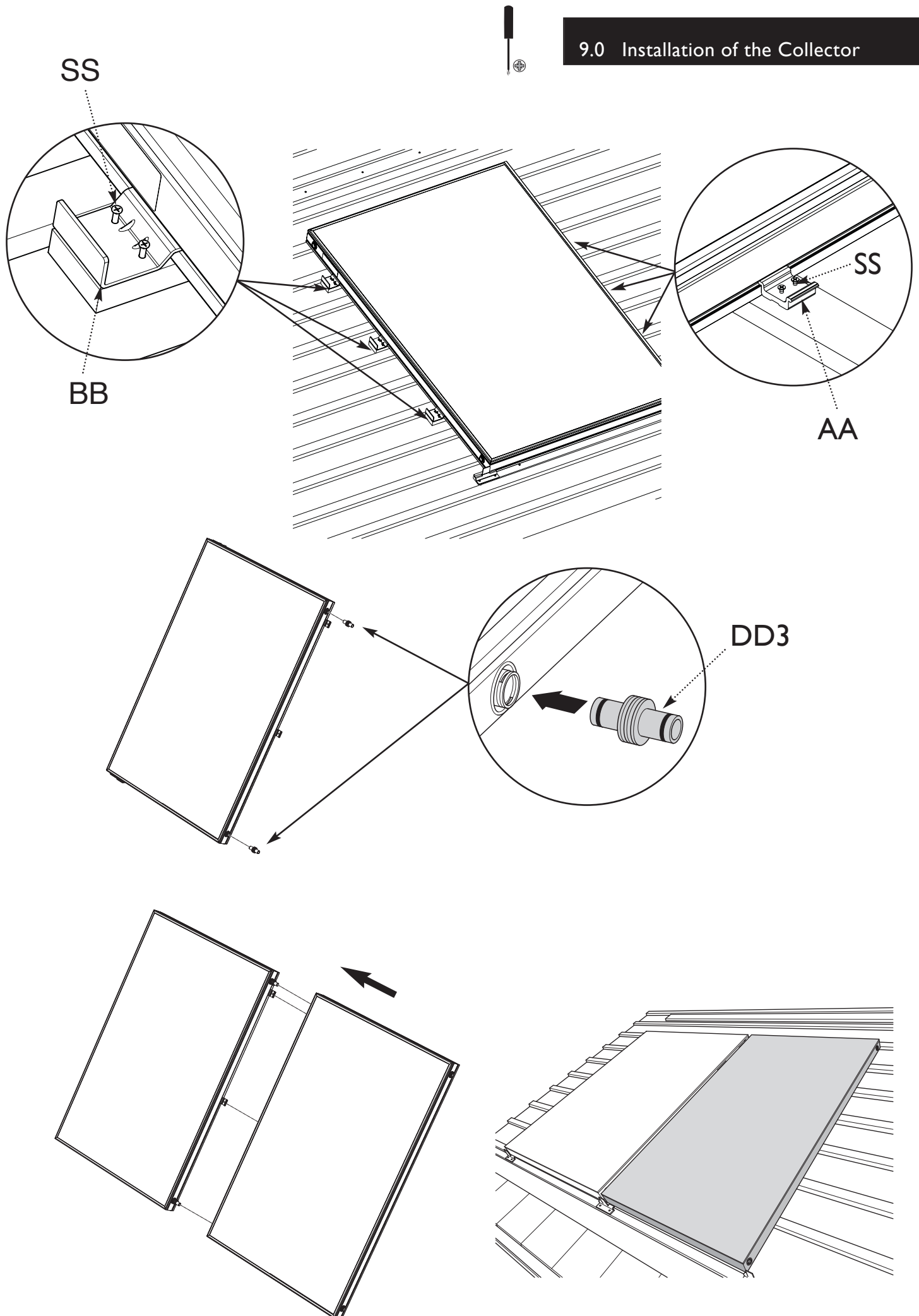


CC

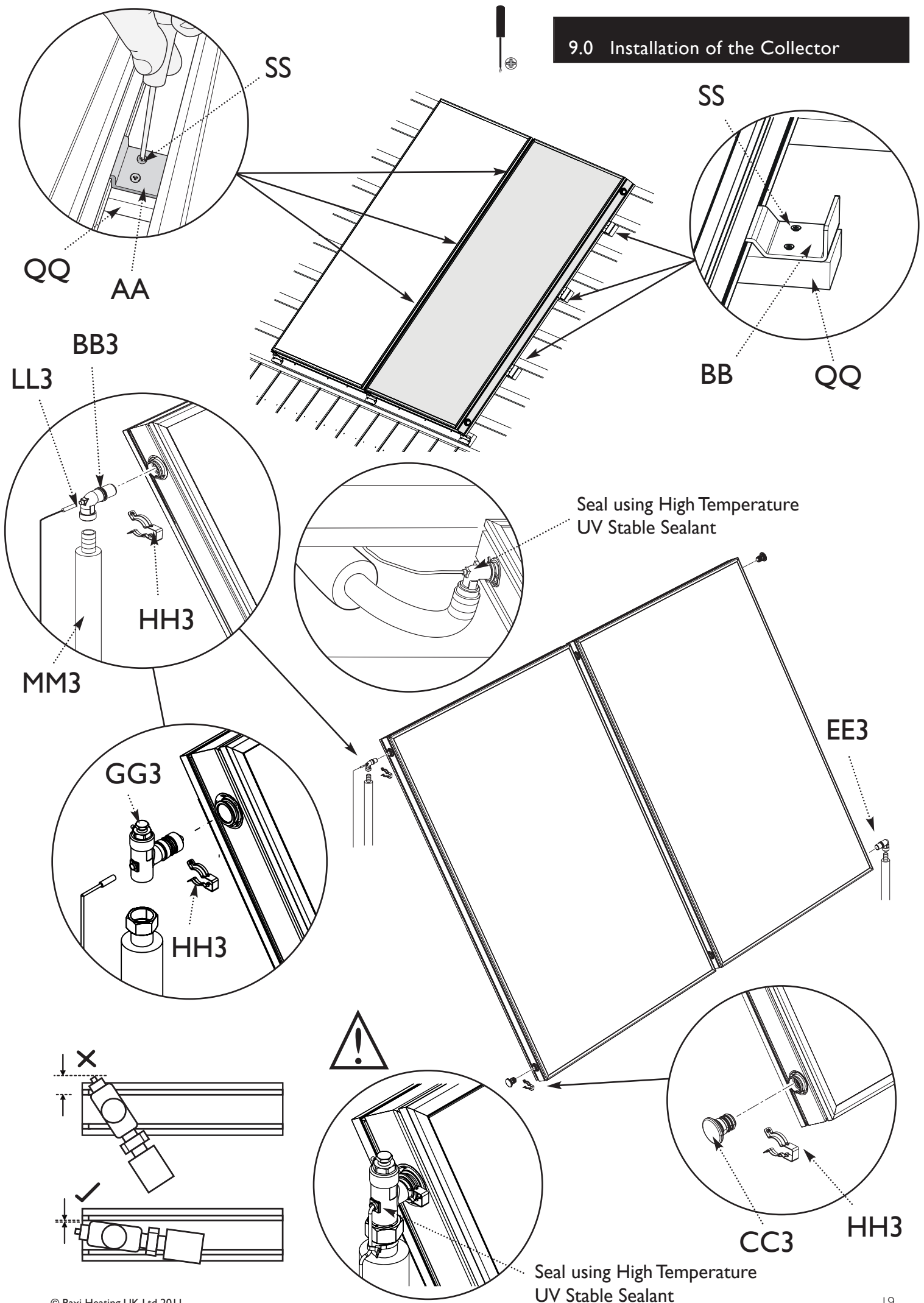


CC

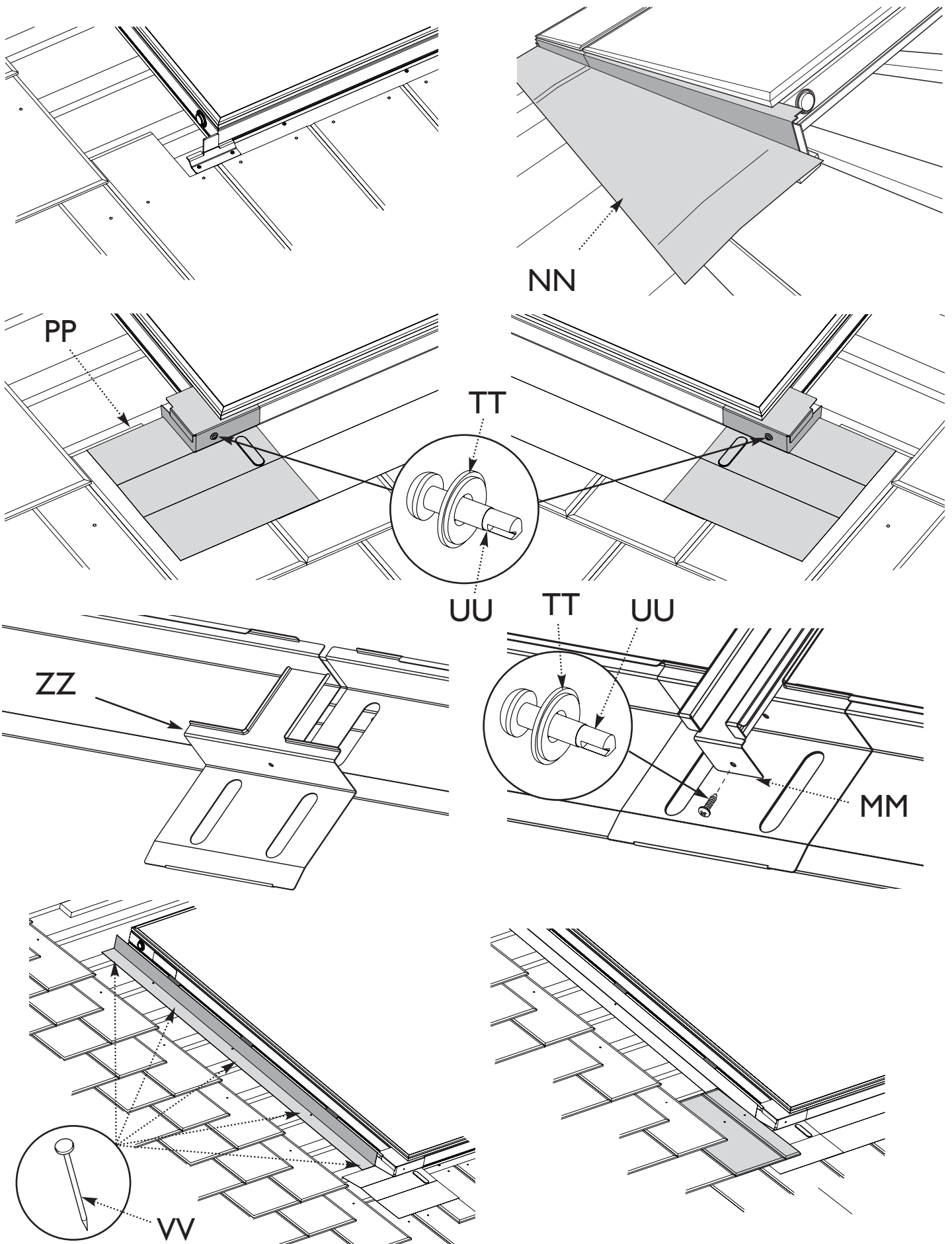
## 9.0 Installation of the Collector



## 9.0 Installation of the Collector

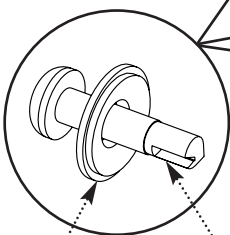
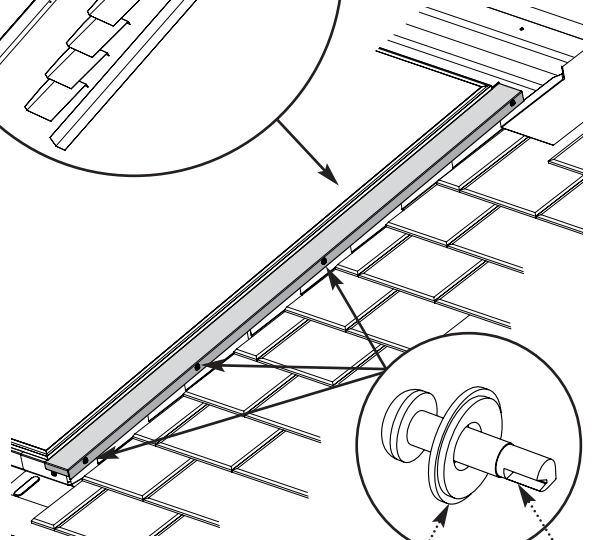
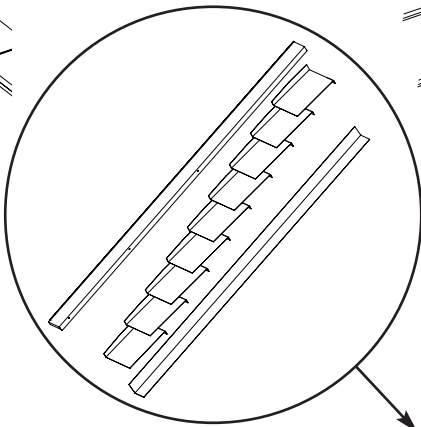
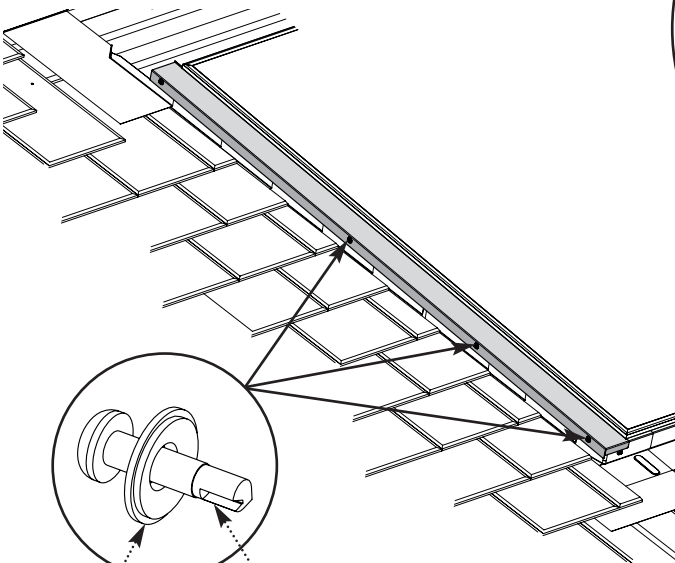
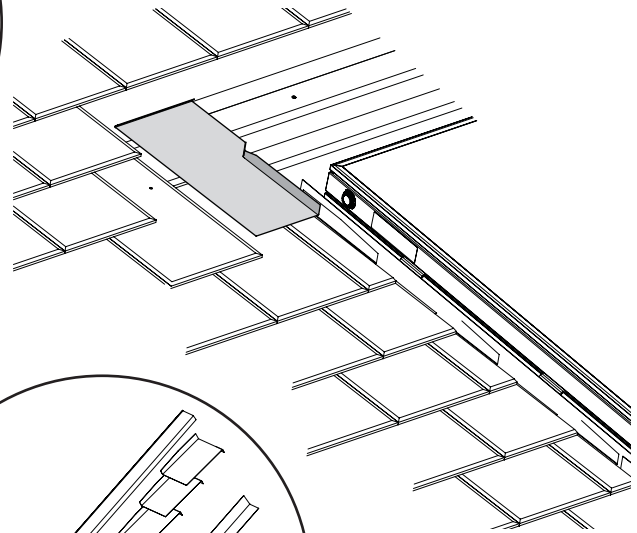
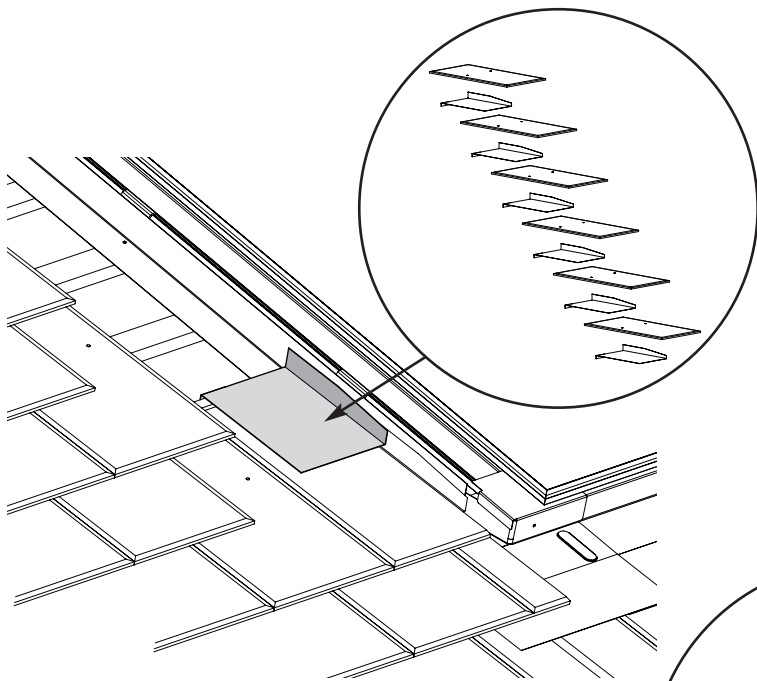
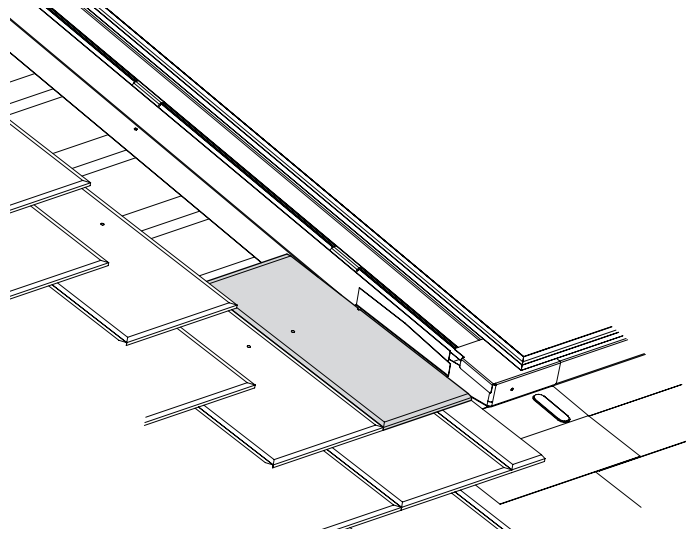
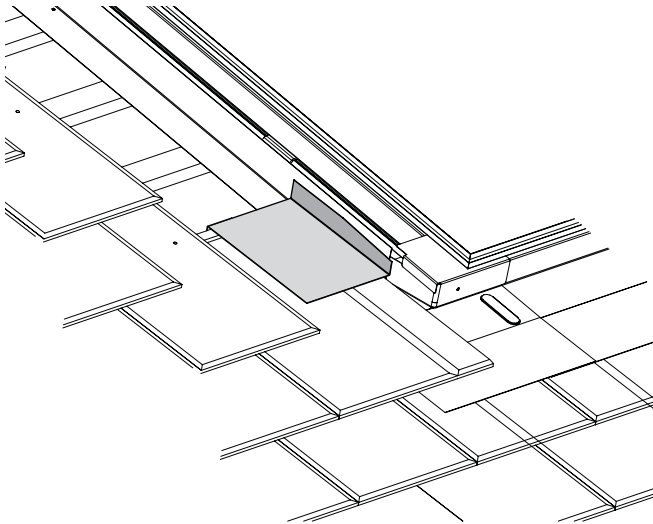


# 10.0 Fixing the Flashing



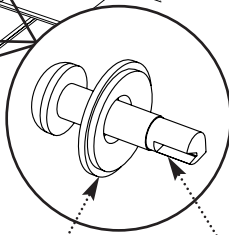


# 10.0 Fixing the Flashing



TT

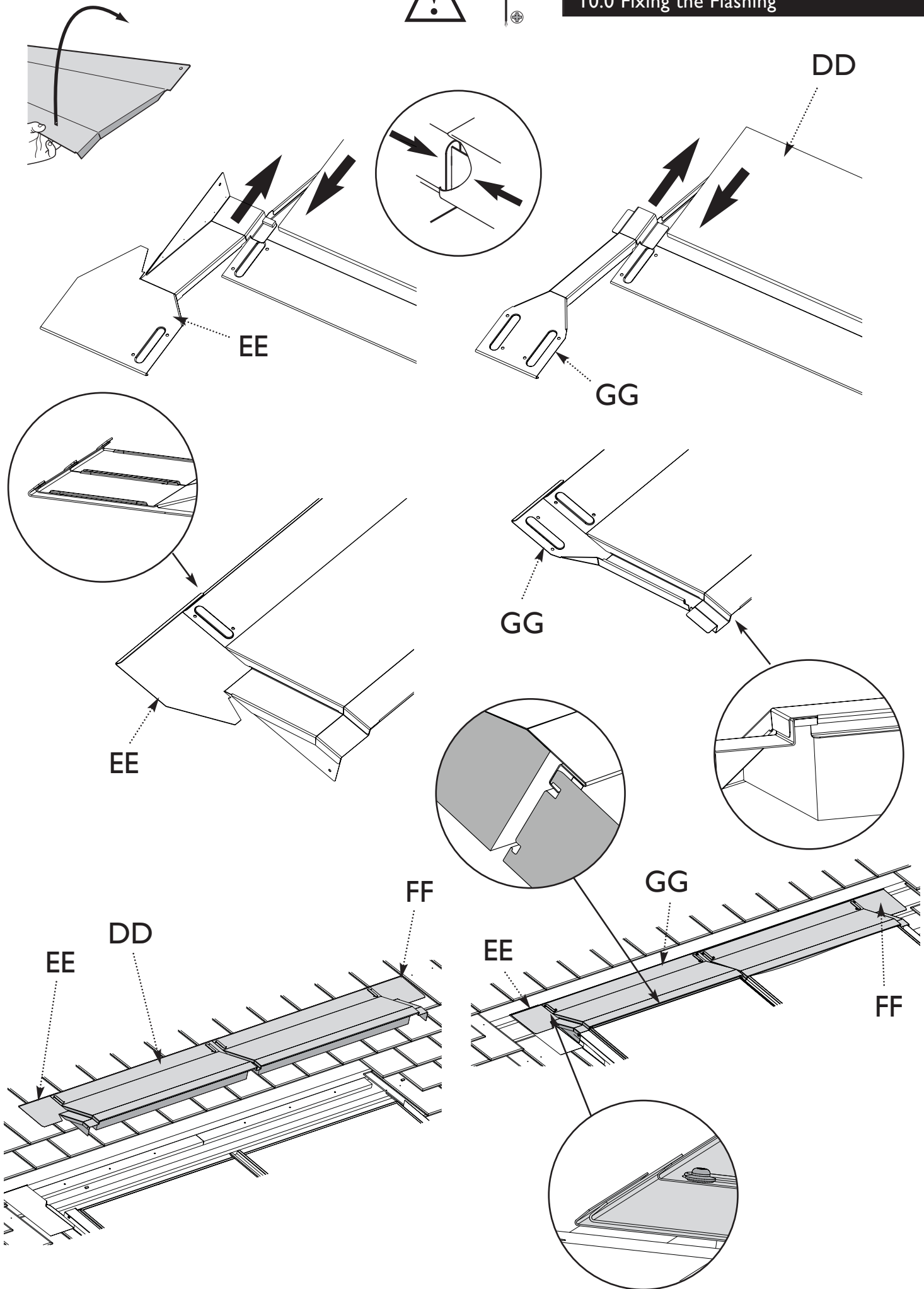
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TT

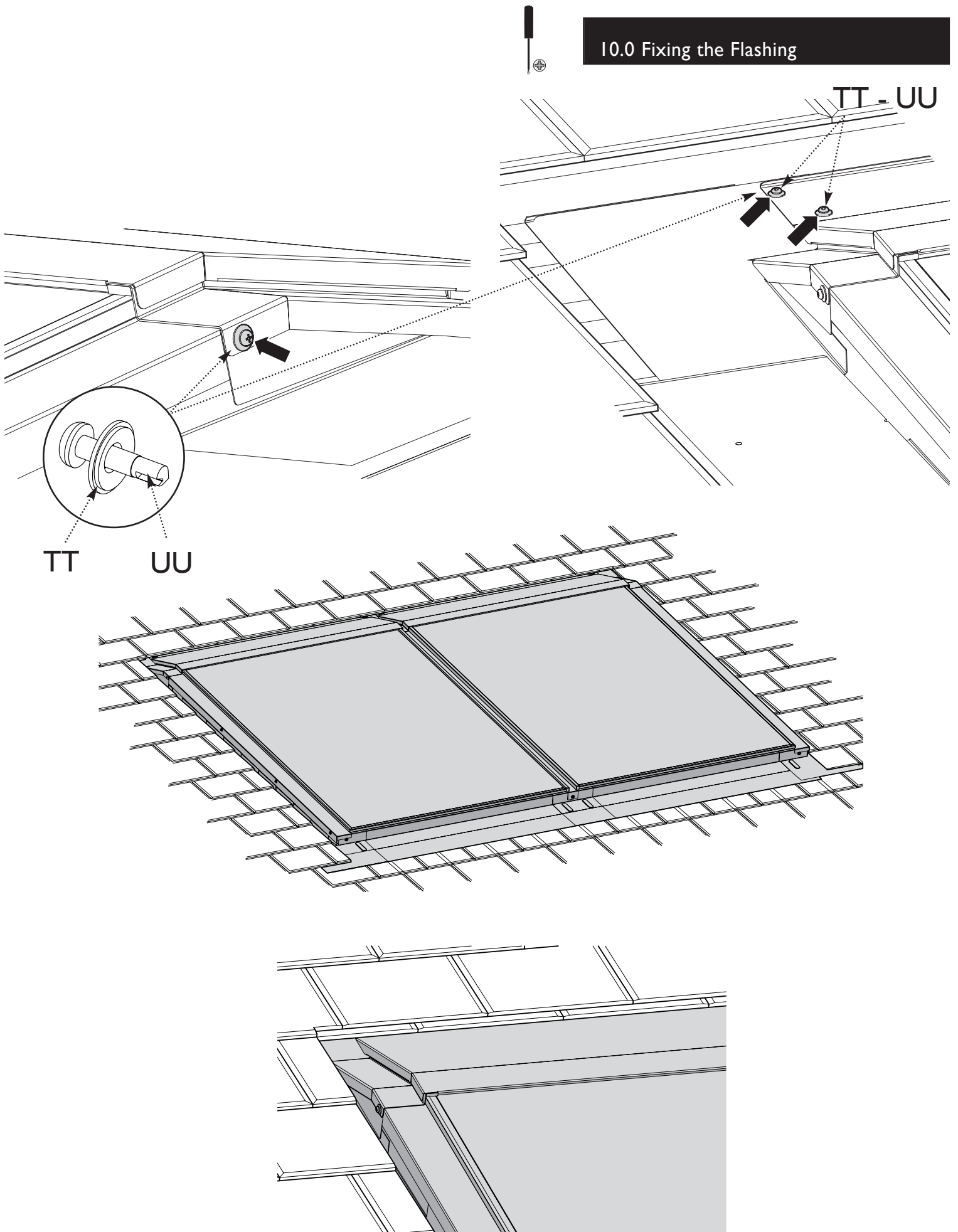
UU

# 10.0 Fixing the Flashing





## 10.0 Fixing the Flashing



## 11.0 Maintenance

It is recommended that the following checks are carried out on an annual basis:

- 1) Check the collector installation for any signs of damage or any build up of debris.
- 2) Check for any corrosion to the collector or the mounting system and repair if necessary.
- 3) Check the tightness of the fasteners. Where fasteners cannot be readily accessed, the overall security of the collector installation may indicate whether problems exist.
- 4) Check the fittings and pipe work for any signs of fluid leakage or damage, including the condition of the pipe insulation, and repair if necessary. Check inside the building for any evidence of leaks.
- 5) Examine the roof tiles around the collector installation for any damage or deterioration, and repair if necessary.
- 6) Check for any foliage growth that may cause shading of the collectors.
- 7) Where applicable, check the condition of any ballast used to secure the system.
- 8) In areas where there may be a build up of dirt on the collector, only non-abrasive cleaning materials and methods should be used to clean the collectors and mounting system components.

All descriptions and illustrations provided in this leaflet have been carefully prepared but we reserve the right to make changes and improvements in our products which may affect the accuracy of the information contained in this leaflet. All goods are sold subject to our standard Conditions of Sale which are available on request.

### MULTIFIT

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Website [www.bdrthermea.com](http://www.bdrthermea.com)  
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