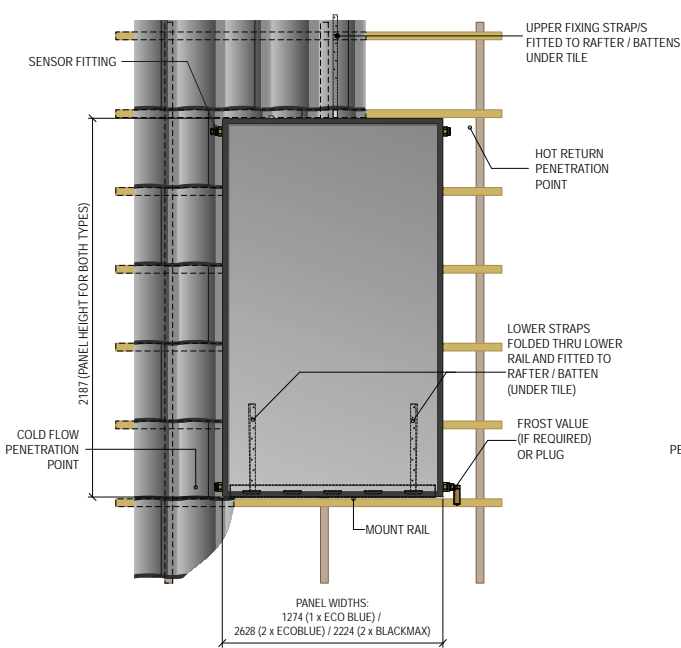
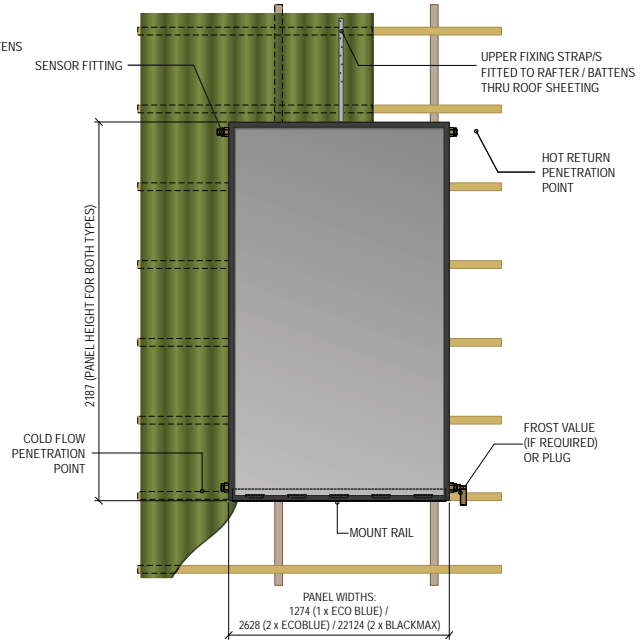


Pumped (Split) Systems: Installing Flat Plate Collectors on Pitched Roof

Collector mounting overview (EcoBlue / BlackMax)



Collector Mounting - Tiled Roof



Collector Mounting - Tin/Metal Roof

Part kits & components

Parts not included in standard kits:

A suitable means by which to seal the roof after penetration such as (but not limited to):

- A water-tight flashing for tin / metal roofs
- Lead roof flashing or watertight seal for tiled roofs

Standard kits included with the solar thermal collector systems:

Single collector system	Two collector system	Three collector system
1 x Collector Panel	2 x Collector Panel	3 x Collector Panel
1 x Single Collector Connection Kit (K0021)	1 x Two Collector Connection Kit (K0022)	1 x Three Collector Connection Kit (K1023)

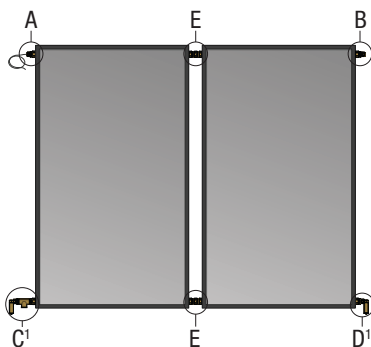
Additional kits for Frost protected systems:

Single collector system	Two collector system	Three collector system
1 x Antifreeze Kit (K1025)	1 x Antifreeze Kit (K1026)	1 x Antifreeze Kit (K1026)

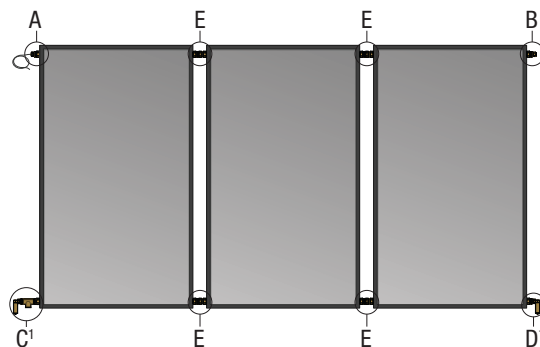
Collector Connection Points



Single Collector (Panel) System with frost valve



Two Collector (Panel) System with frost valves



Three Collector (Panel) System with frost valves

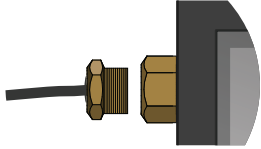
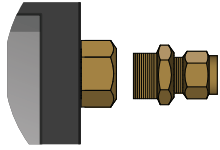
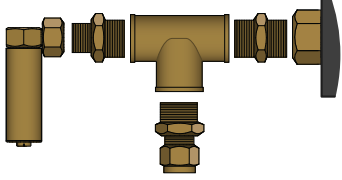
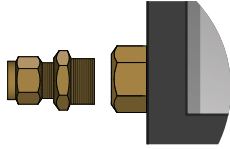
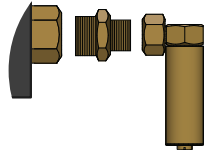
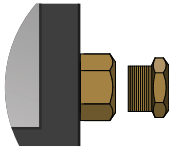
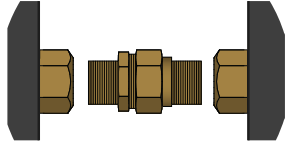
NOTE: C1 & D1 = With frost valve / C2 & D2 = Without frost valve

Collector Connections Table

IMPORTANT! Before lifting and fitting the collectors to the roof, ensure all brass fittings are connected to the collectors, to minimise time working at heights.

The table below indicates all brass fittings & connections required for collectors
Please Note: The connection of the solar flow and return lines must be diagonal to each other with the flow in the bottom and the return from the top on the opposite side.

NOTE: Collector connections are “reversible” in which case, please make connections as a “mirror image” of what is described below.

Connection Location	Fit	Image
A	20mm MI brass collector sensor (Hot)	
B	20mm MI - 15mm conetite reducing union	
C ¹ With frost valve	20mm MI - 20mm MI brass hex nipple	
	20mm FI - FI brass tee	
	20mm MI - 15mm MI brass hex nipple	
	15mm brass frost (antifreeze) valve	
	20mm MI - 15mm conetite reducing union	
C ² Without frost valve	20mm MI - 15mm conetite reducing union	
D ¹ With frost valve	20mm MI - 15mm MI brass hex nipple	
	15mm brass frost (antifreeze) valve	
D ² Without frost valve	20mm brass plug	
E	20mm MI – 20mm MI barrel union	

IMPORTANT! Ensure all connections are tight and leak-free

IMPORTANT! Frost valves must always be installed at an angle equal to the roof surface or facing down to allow water to drain freely. Installing the valve incorrectly may result in water freezing inside the valve and valve failure. Frost valve should be inspected annually and replaced as required.

Installing Flat Plate Collector/s

Preparation

1. Check the roof for broken/loose tiles and rusted/loose tin sheets, and make good.
2. Before preparing to lift the collector/s onto the roof area, install all brass fittings to the collectors using appropriate jointing methods and referring to the relevant collector connections table
3. Secure the TOP straps to the top horizontal section of the collector with the screws supplied (Fig 1). NOTE. Do not use longer screws than those supplied or the copper header pipe in the collector may be pierced, causing leaks

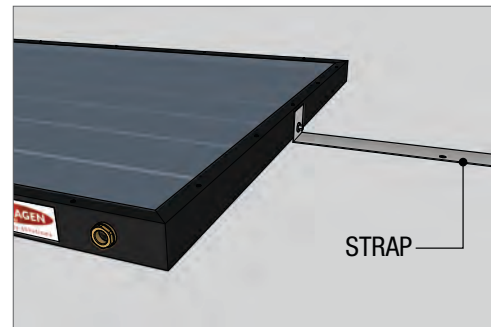


Fig 1

Fitting the collector mounting rail

4. Fit collector mounting rail to roof area using the appropriate method below:

To Tiled Roofs (Fig 2A, 2B & 3)

- a. Connect the strap to the collector rail via the corresponding rail supplied

Type A: Fold the straps in half & feed through each of the eyelets on the black collector rail ('L' shape) with suitable spacing (Fig 2A)

Type B: Slide the required number of straps along the lower rail ('T' Shaped) and space accordingly (Fig 2B)

- b. Position the bottom collector rail on the front edge of a tile ensuring the rail is at least 500mm up from the gutter (Fig 3)
- c. Angle the collector rail slightly (max 2° from horizontal) on the side where the hot outlet will be, to allow any air to be bled from the highest point (Fig 5)
- d. Remove the tiles above the rail at strap location and secure the straps to the batten with the screws supplied (Fig 3)
- e. Replace tiles

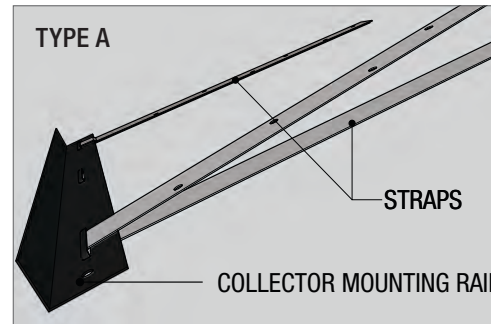


Fig 2A

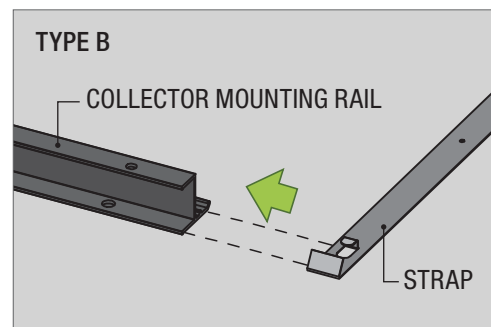


Fig 2B

To Tin / Metal Roofs (Fig 4)

- a. Remove screws along batten line where collector rail is to be fastened. Ensure rail position is at least 500mm up from the gutter
- b. Angle the collector rail slightly (max 2° from horizontal) on the side where the hot outlet will be, to allow any air to be bled from the highest point (Fig 5)
- c. Mark hole locations and pre-drill collector mounting rail
- d. Place rubber washers between collector mounting rail and roof surface at each hole
- e. Re-attach roofing screws through collector rail into existing screw holes of roof sheeting

NOTE: If a batten is not in a suitable position use the straps provided and feed through collector mounting rail (Fig 2) and fasten straps to a suitable roof batten through the roof sheeting.

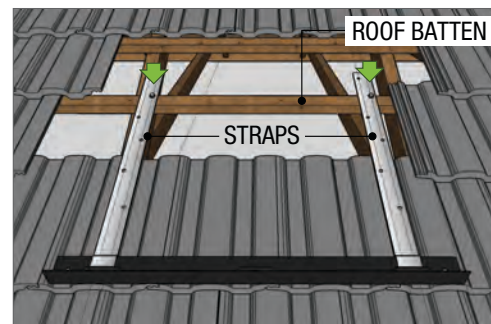


Fig 3

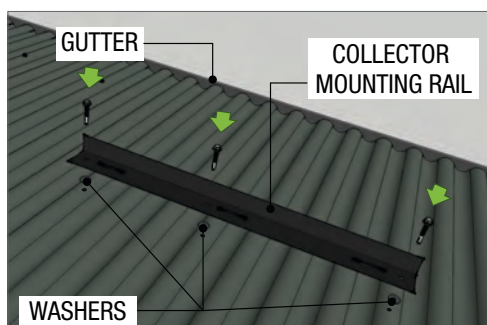


Fig 4

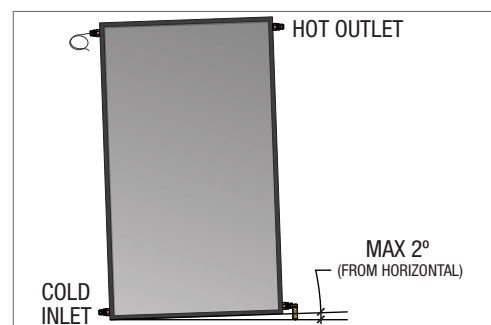


Fig 5

Attaching the collector/s

1. Fit a cover over the collector to ensure you don't get burnt by the hot surface
2. Safely lift the collector/s with the pre-fitted brass fittings to the roof area
3. Position the collector/s on the collector mounting rail (Fig 6)
4. Tighten the inter-connecting brass barrel unions (if applicable) Ensure only a suitable high-temp. jointing system is used.
5. Fasten the collector/s to the mounting rail using the screws supplied (Fig 7).
6. Fix the top collector strap to roof either directly through tin / metal sheet and into batten below (Fig 8) or by removing tiles and fastening directly to batten (Fig 9). Replace tiles back over the fastened strap.

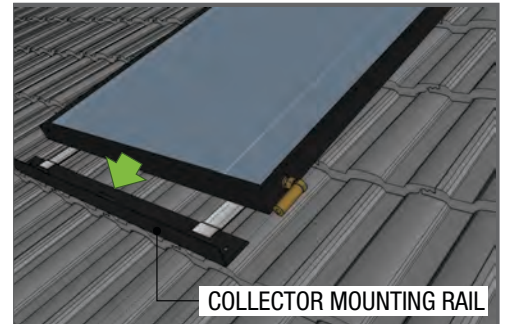


Fig 6

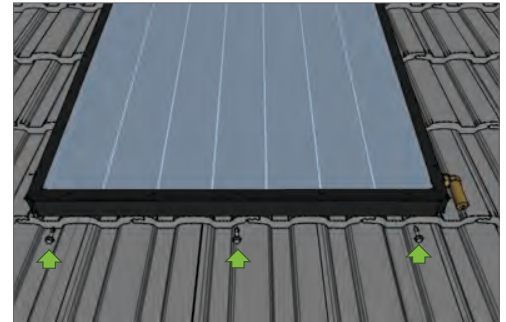


Fig 7

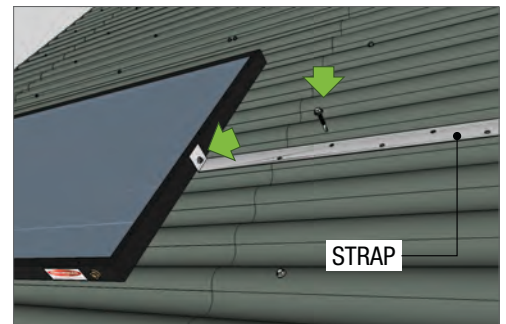


Fig 8

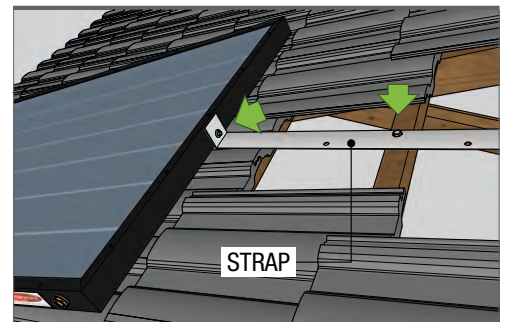


Fig 9

Frost Protection

Frost valves are recommended for all solar hot water systems installed in Victoria and areas where the temperature drops below 10°C.

Solar flow and return lines

Run the solar flow and return lines from collector/s to tank using insulated copper (or suitable high temp material) with a gradual fall to the storage tank.

Approved flashings must be used when penetrating the roof, following the flashing manufacturer's recommendations

Sensor wire

The solar sensor wire will need to be run with the flow and return lines from collectors to tank. Make sure the sensor wire is inserted into the sensor fitting and sealed. Make sure the sensor wire is protected from damage. If this wire is cut or broken it will need to be replaced.

Ensure the sensor wire does not come into contact with the collector or tank flow and return line, as very high temperatures can interfere with the sensor wire and cause the solar controller to malfunction.

Care should be taken to ensure that the sensor wire is protected from damage. The use of protective conduit is advised in high traffic areas and to protect against damage by wildlife / rodents.

NOTE: Illustrations within this document are indicative only.



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