

UniQube Drain Back Reservoir

Installation and Operation Manual



Read and understand this manual before
installation, commissioning and operation

Safety Instructions

WARNINGS



The manufacturer of drain back reservoir does not warrant against frost damage!
Operate the installation with glycol



Collectors and all solar thermal piping system must be installed inclined. Collectors must be inclined by minimum of 2% (2cm per m), pipes must be inclined by minimum of 5% (5cm per m)



When product is in operating mode, some parts of it may reach temperature over 51°C. It can cause severe burns instantly or death from scalds. Children, disabled and elderly are at highest risk of being scalded

Notes for the installer



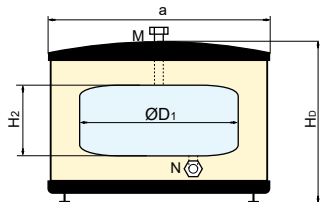
Filling valve, leaking valve, safety valve 1,5 bar, circulating pump and connectors, shown on pictures are not part of this product; it must be supplied in addition!



Use thick wall male nipple for connecting to connectors M and N



UniQube DB Reservoir		50	100	150
D ₁ (diameter)	(mm)	600	600	600
H _D (height)	(mm)	450	780	780
H ₂ (height)	(mm)	140	350	490
a (width)	(mm)	725	725	725
Tank capacity	(l)	50	100	150
Approx. weight	(kg)	30	43	46
Connections M,N		5/4"		
Max. working pressure	(bar)	1,5	1,5	1,5
Max. test pressure	(bar)	2,5	2,5	2,5
Material		Stainless steel 304		



M - Solar in
N - Drain Back out

Setup and operation procedure

The following instructions describe a fast and simple way to commissioning the installation

1. Installation of reservoir and pipe connecting

- Install the reservoir on floor standing table or on wall
- Install all pipes and valves (see page 3 and 4)

2. Filling the drain back system with glycol/water mixture

- Calculate the volume of the fluid that will circulate inside the solar thermal circuit (see page 5)

3. Pressure increasing of the solar thermal system

- Rising the pressure at 0,5 bar is important to avoid vacuum appearance while operation (see page 6)

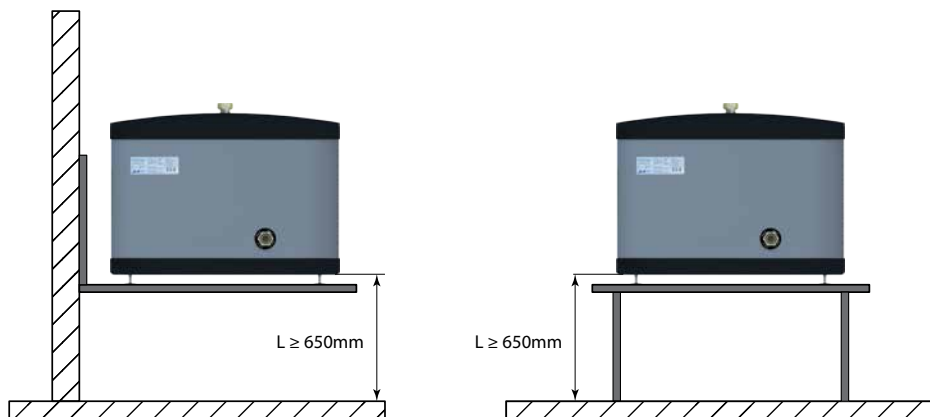
1. Installation



Drain Back reservoir must be installed in position below the lowest point of solar thermal collectors!

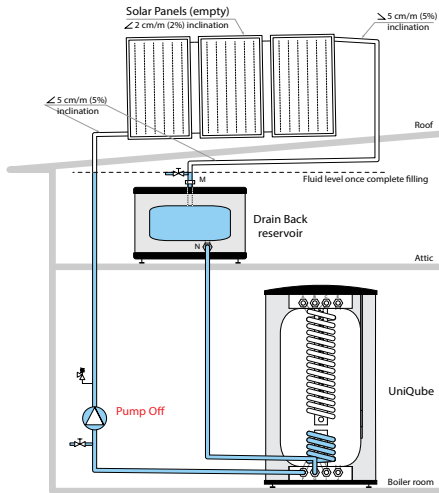
Drain Back reservoir must be installed in position above the floor, in vertical position standing on its legs

Minimum Height of installing a Drain Back reservoir in combination with UniQube tanks, measured from the lowest point of its legs to the ground is 650mm

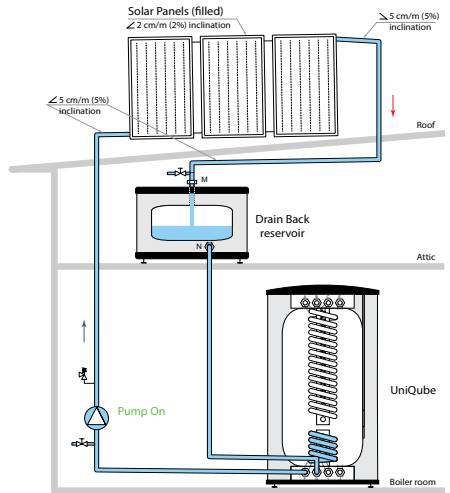


1.1 Installation Diagrams

DB Reservoir in the attic

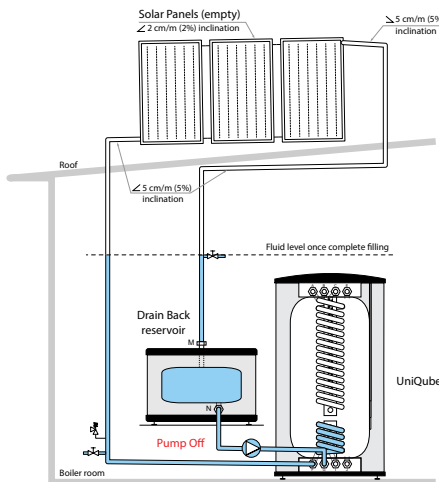


Idle

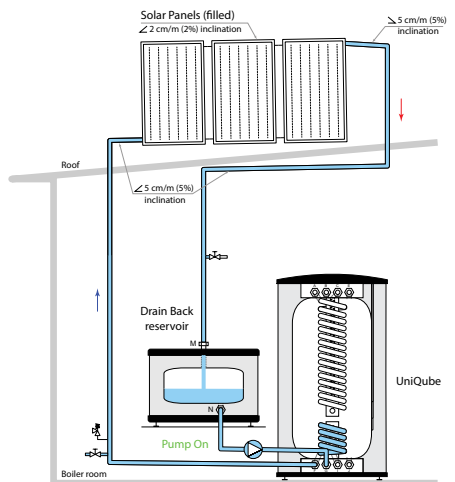


In operation

DB Reservoir in the boiler room



Idle



In operation

2. Filling of the system

1. Determine and calculate the overall volume of the solar thermal circuit:

Total Volume = Drain Back reservoir Volume + Heat Exchanger Volume + All Collectors Volume +
+ Pipes Volume + Volume of the Connectors, Valves, Pump and Fittings



- Collector volume is declared in the technical data of the UniPlate collectors
- Heat Exchanger volume is declared in the technical data of the UniQube hot water tanks
- The volume of copper or corrugated stainless steel pipes can be read on page 7.



The volume of the drain back reservoir must be at least 1,5 times bigger than the volume of the rest components of the solar thermal circuit, otherwise the system may not work properly!

2. Connect filling Valve (or pumping set), Leaking Valve, Safety Valve, circulating pump



Filling valve 1, Leaking valve 2, Pump 3 and Safety valve 4, are not part of this product and must be installed on a „cold line“ of the solar thermal circuit, on a height lower than L, i.e. below the lowest level of the drain back reservoir

3. Determine the Expansion Volume of the system, from this table:

Total Volume	Expansion Volume
50 l	3 l
51 l ÷ 100 l	6 l
101 l ÷ 150 l	9 l
151 l ÷ 200 l	12 l

4. Leave the Leaking Valve 2 open, connect the filling pump to the Filling Valve 1 and then start slowly filling until the first leak appears on the Leaking Valve 2
5. By using filling valve 1, drain previously determined Expansion Volume out of the system
6. Close the Leaking Valve 2
7. System is filled

3. Pressure increasing

In order to avoid vacuum appearance during the pump operating, it is important to add 0,5 bars to the filled system. There are two ways to do it:

A. Pressure increasing with draining and charging of previously determined volume of fluid

1. Fill the solar system as described in previous chapter. Calculate the volume of fluid inside the solar system
2. Determine the Discharge Volume from the right column of the table below

Volume of fluid filled in the solar system	Discharge Volume
20 l	10 l
21 l ÷ 40 l	20 l
41 l ÷ 60 l	30 l
61 l ÷ 80 l	40 l
81 l ÷ 100 l	50 l

3. Open the Filling Valve, open Leaking Valve and Discharge previously determined volume.
4. Close the Leaking Valve.
5. Fill the discharged volume back into the solar system.
6. Pressure is increased.

B. Pressure increasing with air compressor

1. Ensure the solar thermal circuit is properly filled with glycol/water mixture, as previously described
2. Close all valves. Connect the Air Compressor to Leaking Valve.
3. Make sure the pressure in compressed air is bigger than the pressure in solar circuit.
4. Slowly, partial open the Leaking Valve and add compressed air slowly until system pressure increases for 0,5 bars.
5. Close the Leaking Valve.
6. System is ready to run.

Useful notes for the installers



The following table shows what is the maximum allowed pipe length for your solar thermal drain back system, depending on which type of UniQube Drain Back Tank you use, and how many UniPlate collectors you install.



- Up to 5 UniPlate collectors is allowed to be installed in a system with UniQube Drain Back 310 liter tank
- Up to 6 UniPlate collectors is allowed to be installed in a system with UniQube Drain Back 440 liter tank

Maximum allowed pipe length for installed UniQube Drain Back	UniPlate collectors / pipe				
	2 pc. Ø15x0.7	3 pc. Ø18x0.7	4 pc. Ø22x0.8	5 pc. Ø22x0.8	6 pc. Ø22x0.8
UniQube DB 310 Liters	100m	60m	36m	29m	X
UniQube DB 440 Liters	X	48m	26m	20m	15m

Pipe Volume

Copper Pipe

Dimension	Volume (l/m)
Ø15 x 0,7	0,15
Ø18 x 0,7	0,22
Ø22 x 0,8	0,33
Ø28 x 0,8	0,55

Stainless Steel Corrugated Pipe

Dimension	Volume (l/m)
DN 16	0,24
DN 18	0,27
DN 20	0,37
DN 25	0,66
DN 32	1
DN 40	1,42
DN 50	2,33



The volume l/m for the stainless steel corrugated pipe can vary. Please observe the manufacturer's information.

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GUARANTEE

Type

Serial number

Guarantee

Manufacturing date

Signature

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