

Vacuum tube collector with parabolic reflector

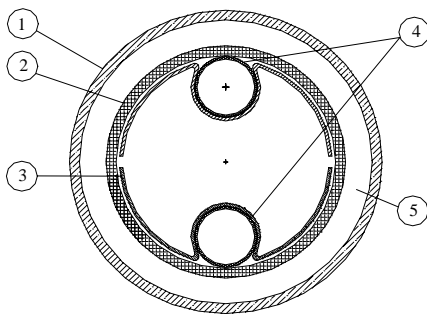
Our new range of vacuum tube collectors consists of vacuum tubes with two concentric glass tubes between which there is high grade vacuum providing a perfect insulation, thus these collectors withstand frost up to -18°C .

In the inner part of the tube there is a U- shape copper tube with an aluminum fin in which the water (brine) of the system is heated.

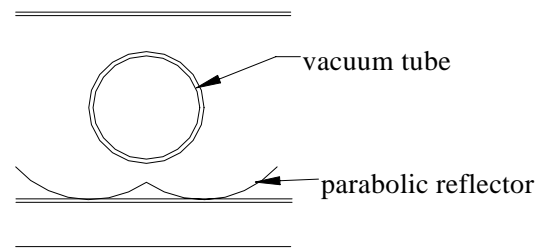
The newly designed reflector in the parabolic shape is made of highly reflecting aluminum. This type of reflector improves the efficiency as it concentrates the sun radiation on the tubes.

Our model Calpak 14 VTN consists of 14 tubes 1,5 m long.
Other sizes from 6 to 16 tubes can be delivered on request.

Demonstrative cut

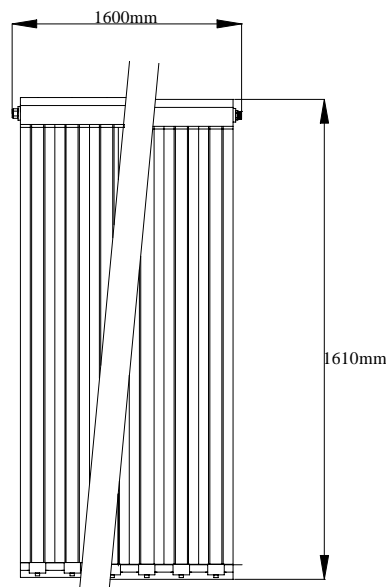


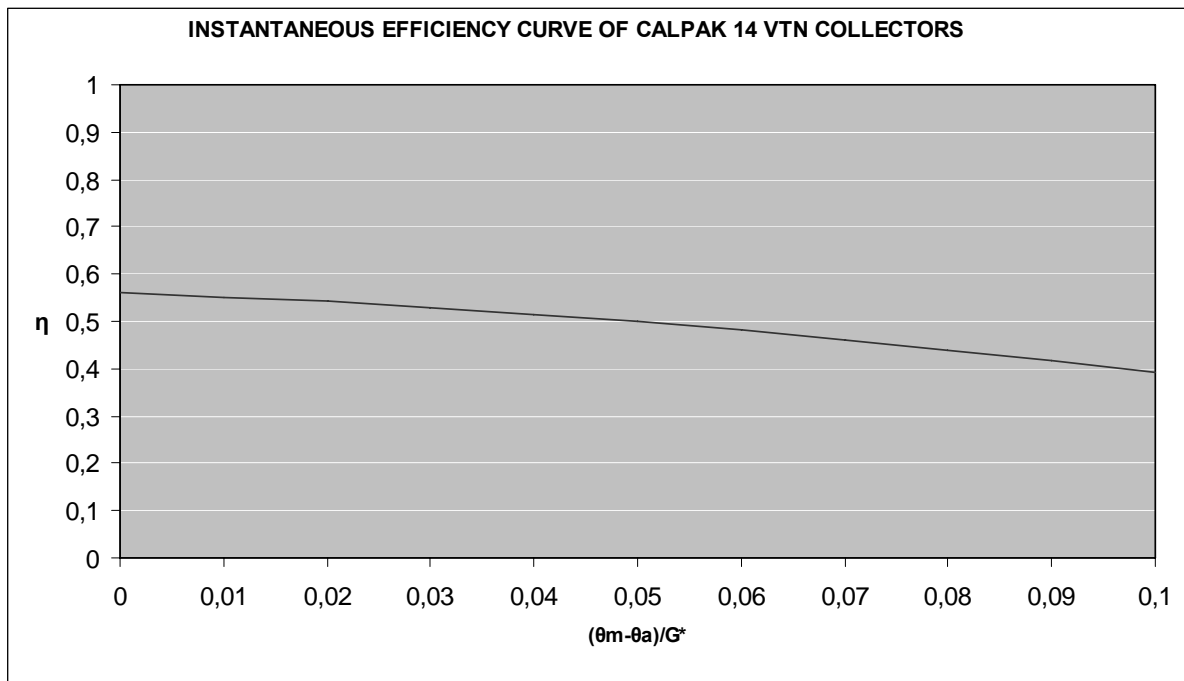
1. Outer glass
2. Inner glass
3. Aluminum fin
4. Copper tube in U-form
5. Vacuum



cut 14 VTN

Construction layout





Technical characteristics

		14VTN
Collector:		
External dimensions:	length / width / height	1610 mm / 1600 mm / 110 mm
Weight		41 kg
Gross area		2,50 m ²
Aperture area		2,27 m ²
Number of vacuum tubes		14
Glass cover tube external diameter		47 mm
Glass cover tube length		1500 mm
Cover material		Borosilicate glass
Cover thickness		1,5 mm
Vacuum		p < 0,005 Pa
Absorber:		
Absorber material:	copper tubes with external diameter	9,5 mm
	aluminum fin	0,8 mm
Surface treatment		Sputtered selective
Absorption coefficient		a > 0,92
Emission coefficient		e < 0,08
Absorbing surface glass tube diameter		33 mm
Fluid content		3 l
Heat transfer medium:	open circuit	Water
	closed circuit	Glycol brine
Insulation and Casing:		
Thermal insulation thickness of header		30 mm
Insulation material of header		Fiber glass + Expanded Polyurethane
Casing material		Aluminum
Diameter of connections		22 mm
Limitations:		
Maximum temperature of operation		220 °C
Maximum operating pressure		10 bar
Pressure tested in production		15 bar
Output for Germany (Würzburg)		525 kWh/m ² /year
Certification:		
EN 12975-2 / ISO 9806-1		