

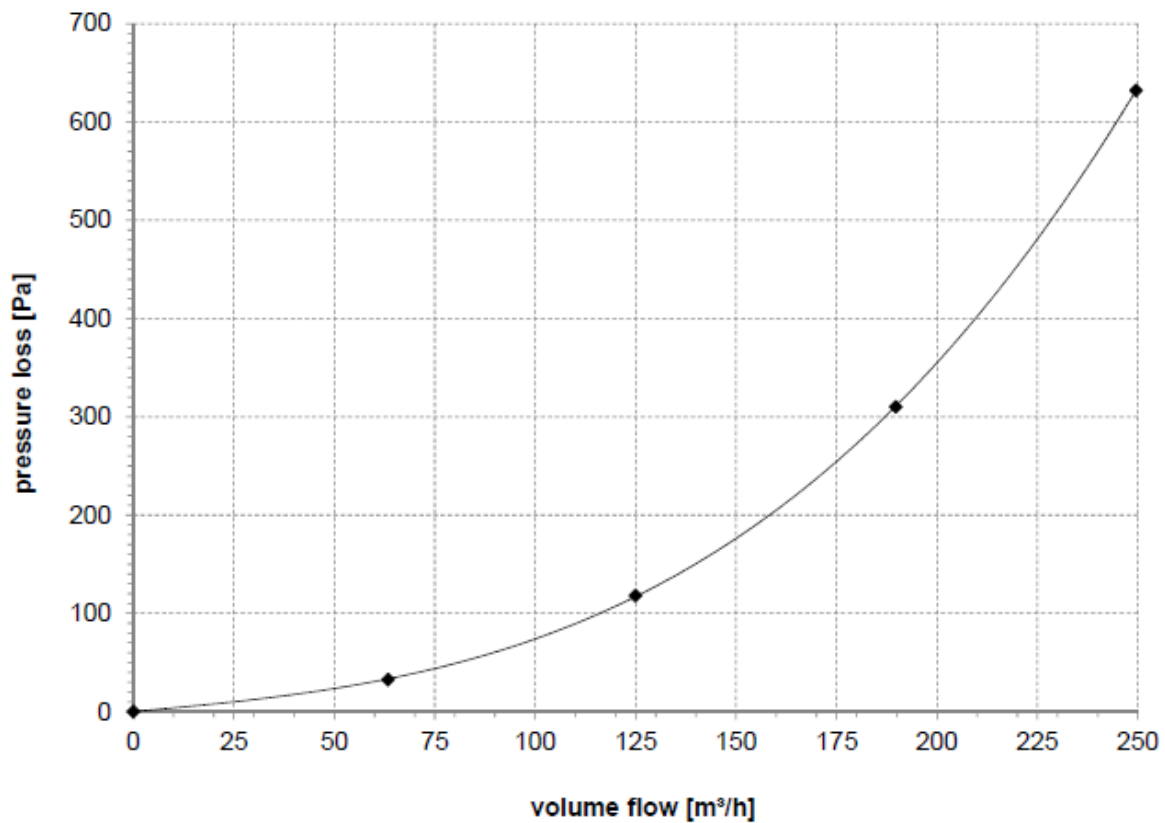
SVPro – modular unit performance testing

Performance specifications for certification testing

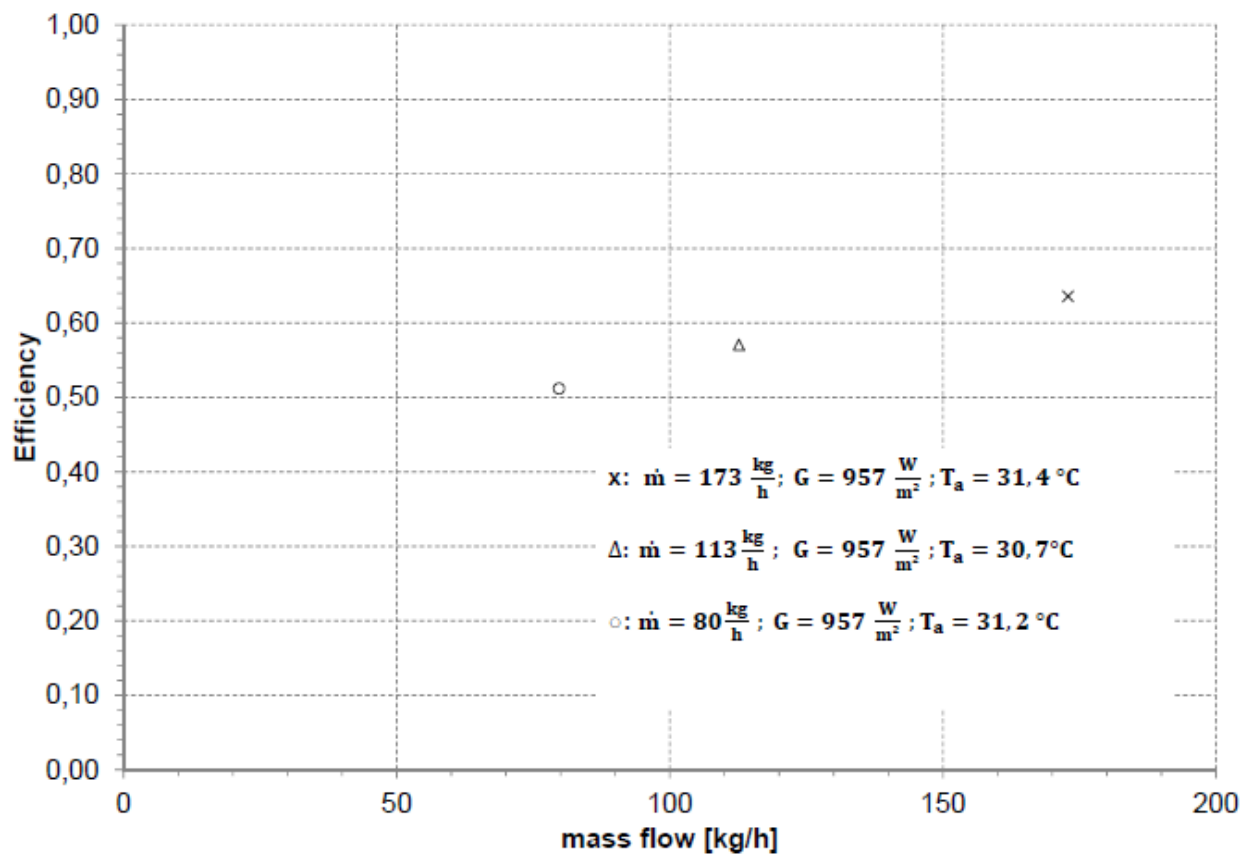
- single unit, solar collection area: $1.926\text{m} \times 0.656\text{m} = 1.263\text{m}^2$
- felt absorber thickness: 2mm
- cover transmissivity: 84%±2%
- physical casing dimensions: $1.974\text{m} \times 0.704\text{m} = 1.390\text{m}^2$
- maximum wind load: 1500Pa (1.5kPa)
- recommended tilt angle: 60-90 degrees
- recommended flow range: 90-120m³/h

Figures are based on a single module. When designing solutions, scale appropriate to intended application and purpose.

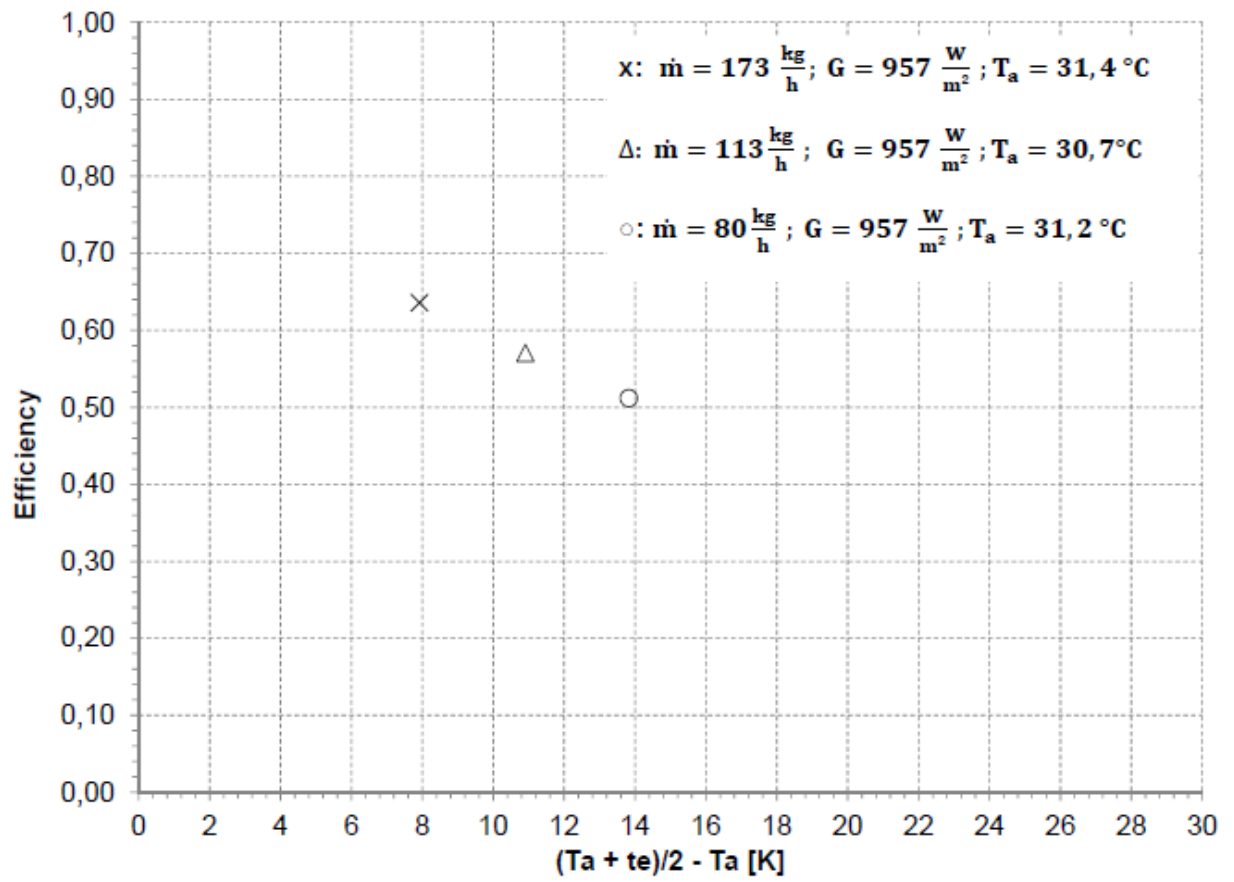
Pressure drop:



Efficiency vs. mass air flow rate:



Instantaneous efficiency:



Test calculation method:

The solar energy intercept is $A * G$, where the area is A_A when referred to the absorber area, A_a when referred to the aperture area and A_G when referred to the gross area of the collector.

$$\eta = \frac{\dot{Q}}{AG} = \frac{(\dot{m}p_e * c_{f,e} * t_e) - (\dot{m}p_i * c_{f,i} * t_i) - ((\dot{m}p_e - \dot{m}p_i)c_{f,amb} * T_a)}{AG} \quad (4)$$

η :	Wirkungsgrad - <i>efficiency</i> :
\dot{Q} :	Nutzwärmeleistung [W] - <i>power output [W]</i>
A :	Bezugsfläche [m ²]- <i>reference area [m²]</i>
G :	Globalstrahlung [W/m ²]- <i>global irradiation [W/m²]</i>
$\dot{m}p_e$:	Massenstrom, Kollektorausritt [kg/s] - <i>mass flow, collector outlet [kg/s]</i>
$\dot{m}p_i$:	Massenstrom, Kollektoreintritt [kg/s] - <i>mass flow, collector inlet [kg/s]</i>
$c_{f,e}$:	spezifische Wärmekapazität des Wärmeträgerfluids, Kollektorausritt [kJ/kgK] - <i>specific heat capacity of the heat transfer medium, collector outlet [kJ/kgK]</i>
$c_{f,i}$:	spezifische Wärmekapazität des Wärmeträgerfluids, Kollektoreintritt [kJ/kgK] - <i>specific heat capacity of the heat transfer medium, collector inlet [kJ/kgK]</i>
$c_{f,amb}$:	spezifische Wärmekapazität der Umgebungsluft [kJ/kgK] - <i>specific heat capacity of the surrounding air [kJ/kgK]</i>
t_e :	Temperatur des Wärmeträgerfluids, Kollektorausritt [K] - <i>temperature of the heat transfer medium, collector outlet [K]</i>
t_i :	Temperatur des Wärmeträgerfluids, Kollektoreintritt [K] - <i>temperature of the heat transfer medium, collector inlet [K]</i>
T_a :	Umgebungstempertur [K] - <i>ambient Temperature [K]</i>