

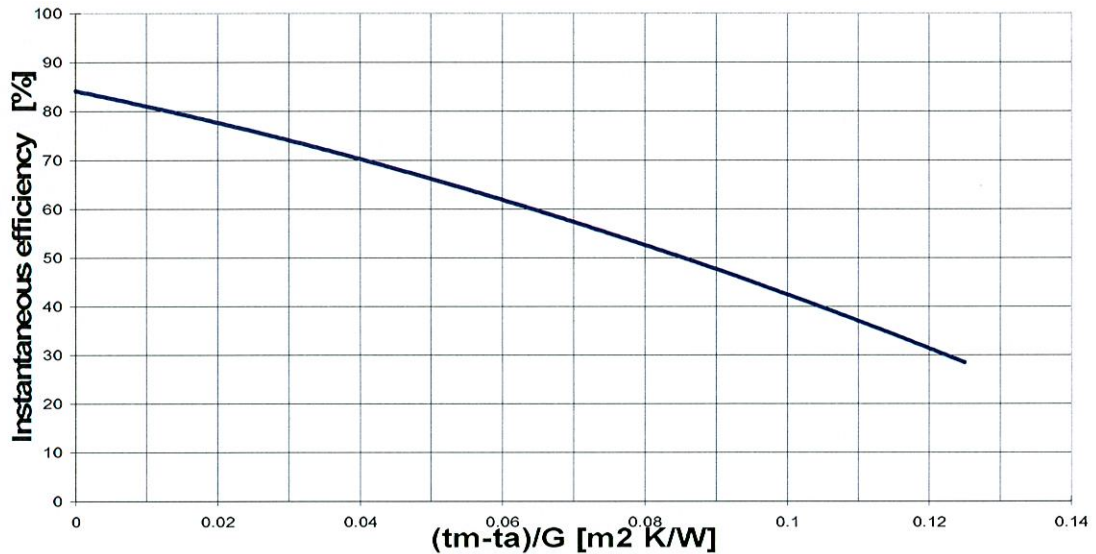
**Thermal performance indoor**

Test conditions

Mean solar irradiance: 874 W/m<sup>2</sup>  
 Wind speed: 2.2 m/s  
 Type of lamps: Xenon  
 Collector tilt: 60°  
 Fluid used during test: Water  
 Fluid rate used for the test: 0.26 l/(s\* m<sup>2</sup>)  
 Aperture area: 13.72 m<sup>2</sup>  
 Collector gross area: 15.0 m<sup>2</sup>  
 The instantaneous efficiency is defined by:  $\eta_0 = Q / AG$

Instantaneous efficiency curve based on aperture area and mean temperature of heat transfer fluid.

**Thermal performance, G=800 W/m2**



**Figure 1 – Thermal efficiency based on aperture area**

Second order fit data:

$$\eta_a = \eta_{0a} - a_{1a} ((t_m - t_a) / G) - a_{2a} G ((t_m - t_a) / G)^2$$

Coefficient based on:

Aperture area		Gross area	
$\eta_{0a}$	0.841 [-]	$\eta_{0G}$	0.770 [-]
$a_{1a}$	3.016 [W/m <sup>2</sup> K]	$a_{1G}$	2.759 [W/m <sup>2</sup> K]
$a_{2a}$	0.014 [W/m <sup>2</sup> K <sup>2</sup> ]	$a_{2G}$	0.013 [W/m <sup>2</sup> K <sup>2</sup> ]

Power output per module (W)

$t_m - t_a$ [K]	Irradiance [W/m <sup>2</sup> ]		
	400	700	1 000
10	4184	7646	11109
30	3199	6662	10124
50	2057	5520	8982