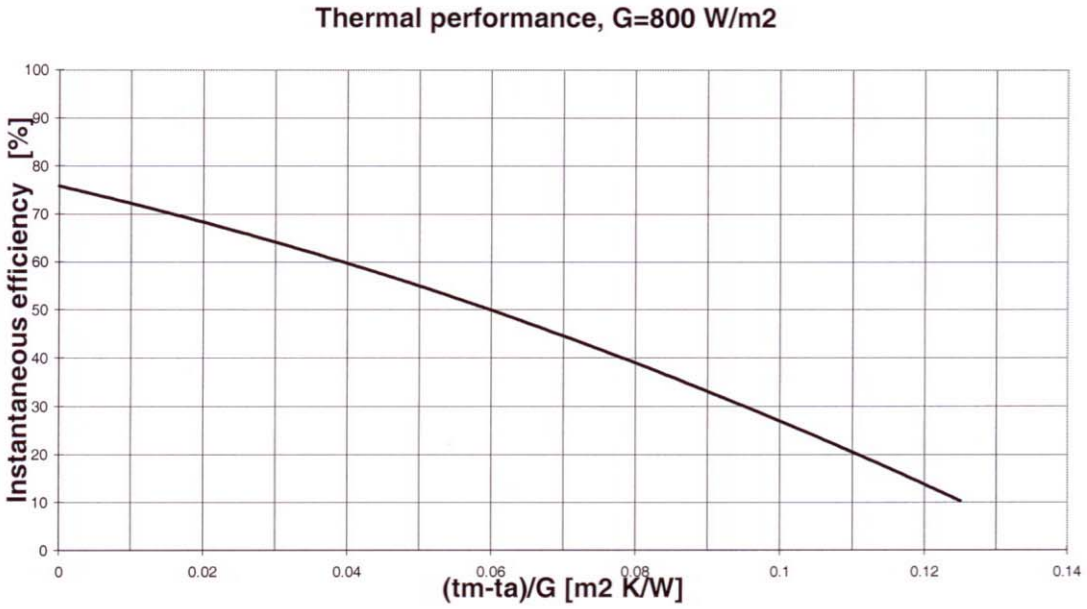
Thermal performance, glazed collector, GJ020D

Outdoor

Based on test method:	Semi dynamic, QDT
Latitude:	57.7
Collector tilt:	45 °
Local time at zenith:	12:07 (Stockholm 12:00)
Longitude:	12.9
Collector azimuth:	0 ° (South)
Heat transfer fluid:	Water

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

Aperture area used for curve in m^2:	2.042 m^2
The instantaneous efficiency is defined by:	$\eta_a = Q / AG'$
Fluid rate used for the test:	0.039 kg/s



Collector gross area:	2.31 m^2
Collector absorber area:	1.95 m^2

Second order fit data:

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

Where $\eta_{0a} = F'(\tau\alpha)_{en} * K_{\theta b}(\theta=15) * 0.85 + F'(\tau\alpha)_{en} * K_{\theta d} * 0.15$ [--]

Coefficients based on (including wind 3 m/s i.e. $a_1=c_1+3*c_3$)

Coefficients based upon aperture area		Coefficients based upon absorber area		Coefficients based upon gross area	
η_{0a}	0.758 [-]	η_{0A}	0.794 [-]	η_{0G}	0.670 [-]
a_{1a}	4.136 [W/m^{2}K^2]	a_{1A}	4.331 [W/m^{2}K^2]	a_{1G}	3.656 [W/m^{2}K^2]
a_{2a}	0.0177 [W/m^{2}K^2]	a_{2A}	0.0185 [W/m^{2}K^2]	a_{2G}	0.0156 [W/m^{2}K^2]

Effective thermal capacity
C=3 374 J/m^{2}K

Power output per collector unit, without wind (W)

t_m-t_a [K]	Irradiance [W/m^2]		
	400	**700**	**1000**
0	619	1 083	1 548
10	545	1 009	1 473
30	374	838	1 303
50	174	639	1 103
80	--	285	750

Incidence angle modifier

K_{50} = 0.905 [-]
b_0 = 0.171 [-]