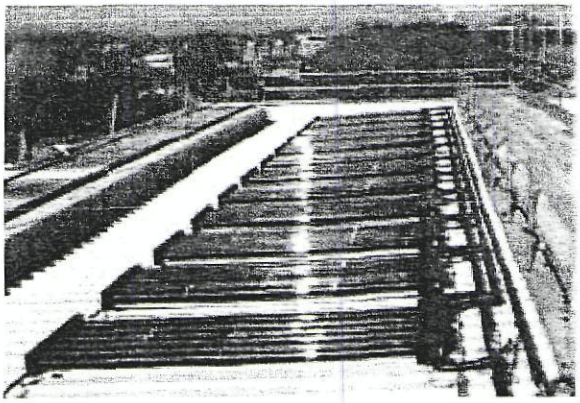
SPF Solartechnik Prüfung Forschung

C939

Solar Collector Factsheet
Riomay Ecotube



Model	Ecotube
Type	Evacuated tube collector
Manufacturer	Riomay Ltd
Address	15a Maple Road
	GB-BN23 6NY Eastbourne
Telephone	+44 1323 648641
Fax	+44 1323 720682
Email	tonybook@riomay.com
Internet	**www.riomay.com**
Test date	06.2007

☑ Performance test EN12975:2006
☐ Quality test EN12975:2006

Dimensions

Total length	2.923 m
Total width	0.842 m
Gross area	2.461 m²
Aperture area	1.799 m²
Absorber area	1.715 m²
Weight empty	60 kg

Technical data

Minimum flowrate	50 l/h
Nominal flowrate	100 l/h
Maximum flowrate	200 l/h
Fluid content	1.7 l
Maximum operating pressure	6 bar
Stagnation temperature	– °C

Type of mounting

☑ Construction for sloping roof
☐ Integration into sloping roof
☑ On flat roof with stand
☑ Facade

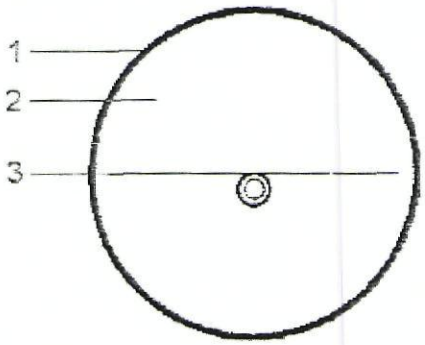
Further information

☑ Units in different sizes available
☐ Glazing replaceable

Hydraulic connection

Copper pipe, nominal diameter 22 mm

Construction



1 Glazing
2 Vacuum
3 Absorber

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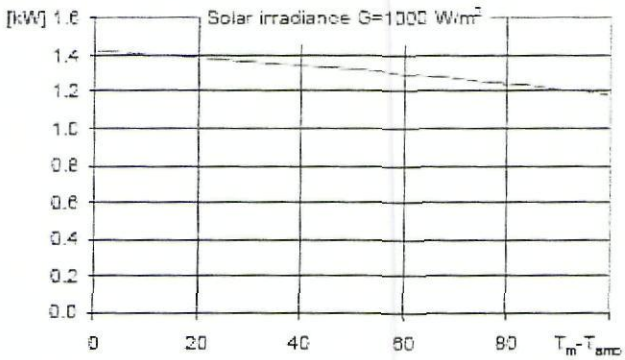
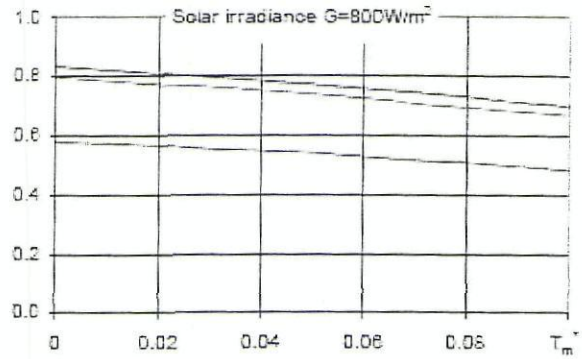
Peak Power per collector and W_{peak} — Relative efficiency η

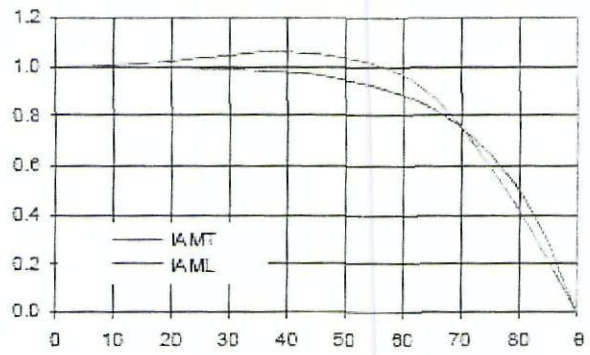


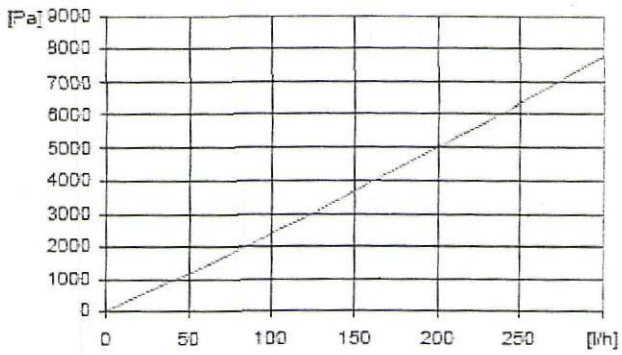


Peak Power W_{peak}	1429 W	Reference	Gross	Aperture	Absorber
Thermal capacity*	4.0 kJ/K	η_0	0.580	0.794	0.833
Flowrate during test	150 l/h	a_1 [$WK^{-1}m^{-2}$]	0.75	1.02	1.07
Fluid for test	Water-Glycol 33.3%	a_2 [$WK^{-2}m^{-2}$]	0.0024	0.0032	0.0034

*) Specific thermal capacity C of the collector without fluid, determined according to 6.1.6.2 of EN12975-2:2006

Incident angle modifier IAM — Pressure drop Δp





K1, transversal IAM at 50°	1.04	Pressure drop at nominal flowrate
K2, longitudinal IAM at 50°	0.95	Δp = 2380 Pa (T=20°C)

SPF Simulation of systems using Polysun

Short description of the system	Surface demand** Number of collectors	Solar yield**
Climate: Central Switzerland, orientation of the collectors: South, Cold water 10°C, Hot water 50°		
Domestic hot water: Fss* = 60% Tank 450 l, collector inclination 45°, Daily energy demand 10 kWh (4-6 persons) Energy demand of the reference system 4200 kWh/year	3.59 m² 2.0 collectors	712 kWh/m²
Water pre-heating: Fss* = 25% 2 Tanks: 1500 l & 2500 l, collector inclination 30°. Domestic hot water consumption 10'000 l/day (200 persons) Daily heat losses (circulation and tanks) 60 kWh. Energy demand of the reference system 191'700 kWh/year	54.1 m² 30.1 collectors	888 kWh/m²
Space heating system: Fss* = 25% Combined storage1200 l, collector inclination 45°. Daily energy demand 10 kWh (4-6 persons), Building 200 m², moderately heavy construction, well insulated, Heating power demand 5.8 kW (ambient temperature -8°C), Energy demand space heating 12140 kWh/year, Energy demand of the reference system 16340 kWh/year	9.3 m² 5.1 collectors	597 kWh/m²

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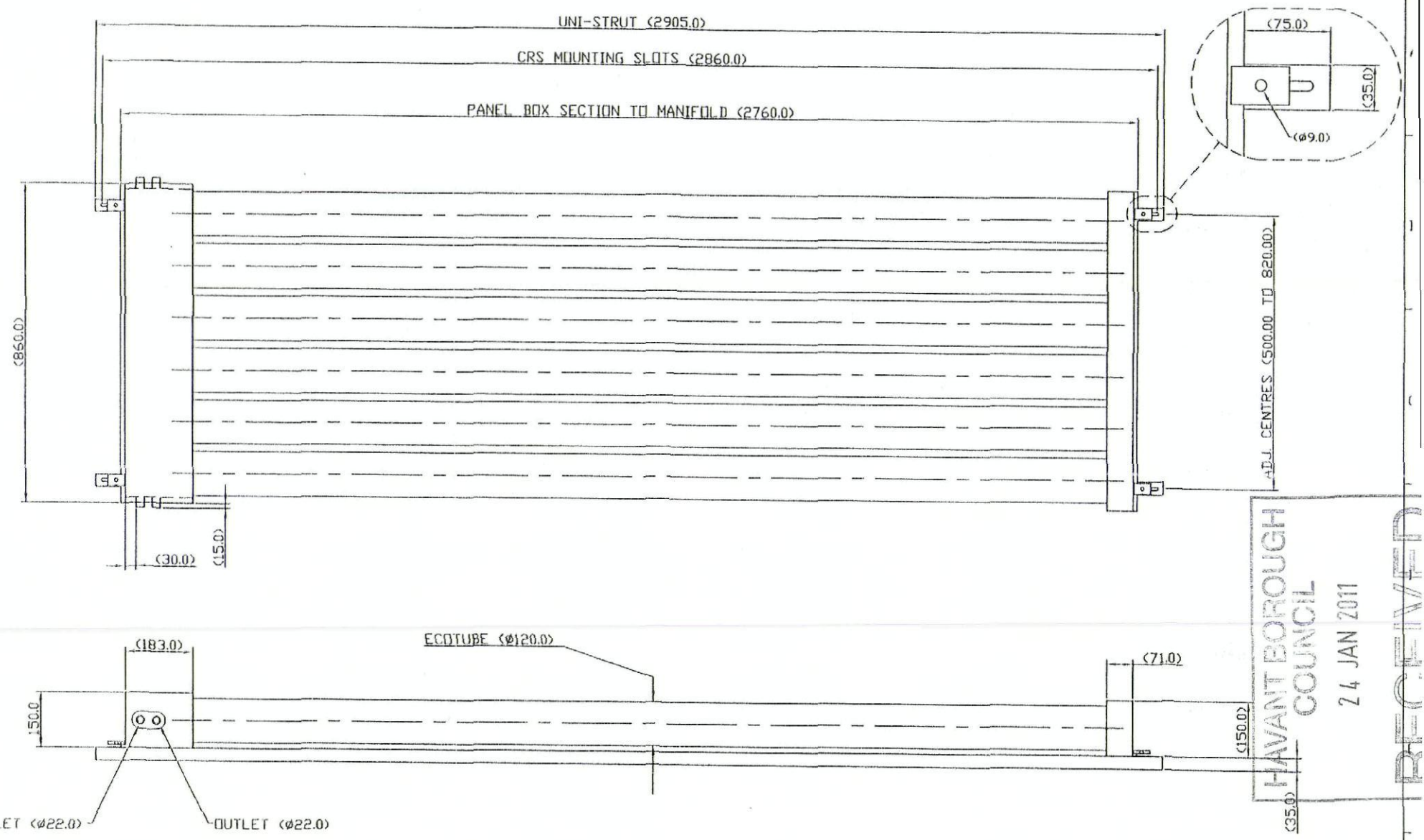
*) Fractional solar savings: Proportion of the final energy that, thanks to the solar system, can be saved compared to a reference system.
**) Surface demand and solar yield are given with respect to the aperture area.



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REV.	DESCRIPTION	DATE
00	FIRST ISSUE	09.05.08

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DWG NO. 0003.GA00 REV. 00

TITLE: RIOMAY SOLAR PANEL (ECOTUBE) GENERAL ASSEMBLY

APPLICATION SOFTWARE: AUTOCAD LITE 2007

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