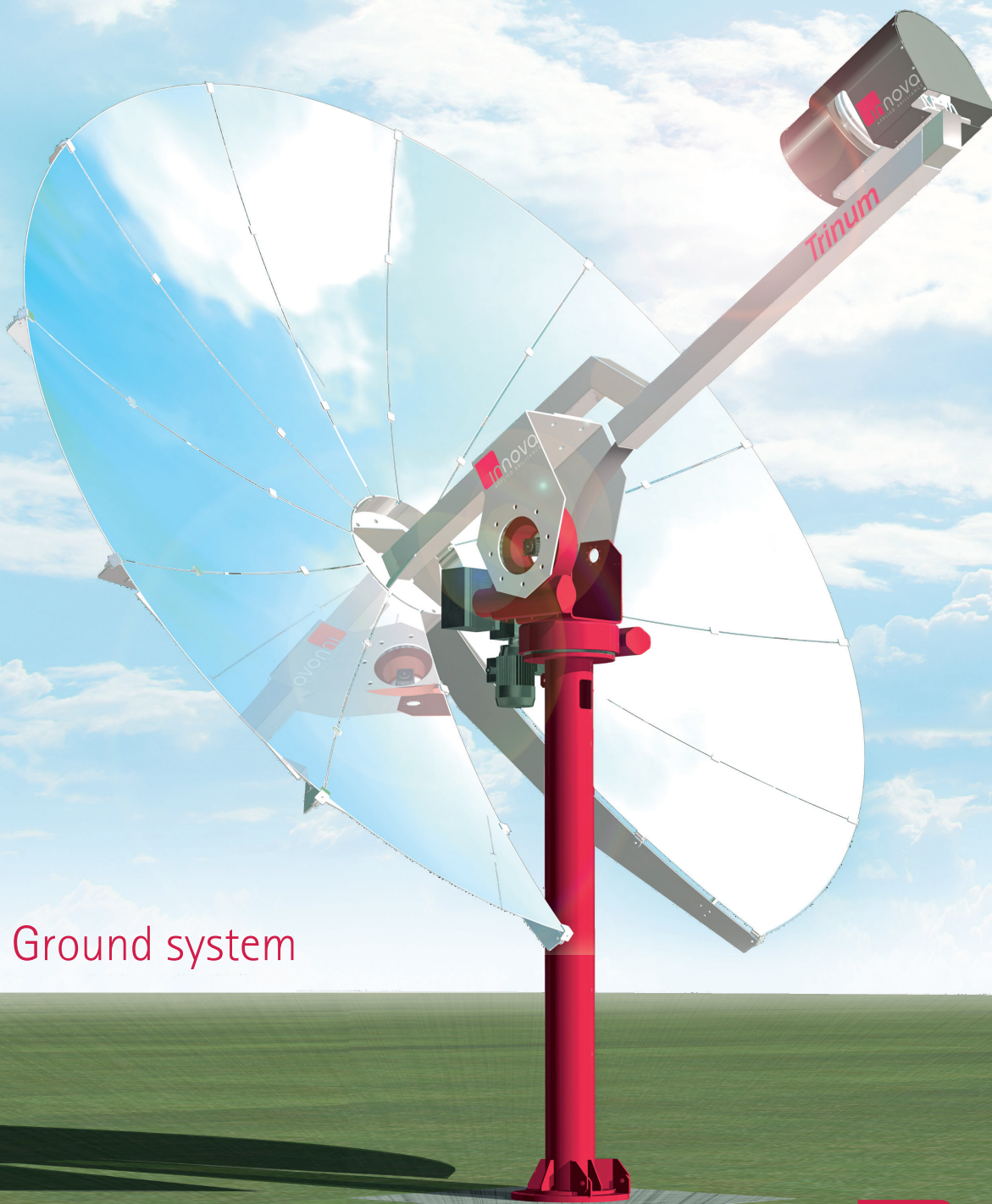


Trinum

Dish Stirling Solar Cogeneration



Ground system

Trinum

Dish Stirling Solar Cogeneration

Ground system



Co-generation

Trinum is a cogenerating system able to produce on the same time 1 KW of electric energy 230 V AC 50 Hz and 3 KW of thermal energy (warm water for heating and sanitary use). Trinum is in compliance with the EU directive 2009/28CE and with machine directive.



Efficiency

The overall conversion efficiency of the solar energy (DNI 725 W/m²) in thermal and electric energy is 55,2%, with 13,8% of electrical efficiency and 41,4% of thermal efficiency.



Electric Energy

Trinum is able to generate 1 KW of electric power. In one year Trinum produces 2100* kWh of electric energy.



Thermal Energy

Trinum is able to generate 3 KW of thermal power. In one year Trinum produces 6400* kWh of thermal energy.



Recyclable

Trinum is 100% recyclable.



Stirling Engine

Trinum is the only system in the world equipped with a free piston Stirling engine with an electrical power of 1 KW named LFPEG (Linear Free Piston Engine Generator) class EM1 produced by MEC, Microgen Engine Corporation.



Self Protection

Trinum can close on itself protecting the whole system from bad weather conditions. Trinum is equipped with an automatic solar tracking system and with digital data transmission devices for remote control.



Operating Space

With the same production of electric and thermal energy, Trinum makes use of an area that is about the half of the one used by traditional photovoltaic and thermal panels (the occupied area is about 20 m², equivalent to a circumference with a diameter of about 5,00 m).



Economics

With the same installed power rating, Trinum generates up to 40% more of electric energy than a normal photovoltaic panel.

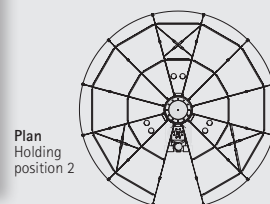
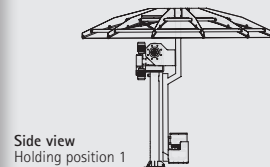
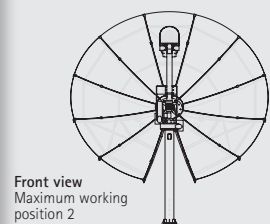
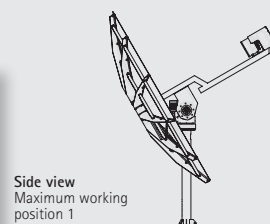


Plug and Play

Trinum generates alternate electric energy that can be input directly into the electric grid. Trinum needs no INVERTER.

	Data	Unit	
General	Tap Area	m ²	10
	Solar tracking technology		biaxial
	Azimuth range	α°	[-110°; +110°]
	Elevation above the horizon	α°	[-90°; +90°]
	Mirror segments with high reflectivity	n.	11
	Peak electric power	kWp	1
	Power supply	V/Hz	230/50
Electric	Yearly average electric energy*	kWh e	2.100
	Peak thermal power	kWp	3
	Yearly average thermal energy*	kWh t	6.400
Thermal	Cooling fluid	Water 90% + Glicol ethilenic antifreeze 10%	
	Cooling fluid flow	L/min	15
	Hot hot water production at 45°C*	l/h	80
	Hot hot water production at 50°C *	l/h	73
	Hot water production at 60°C*	l/h	57
	Max input temperature for Stirling engine	C°	60°
	Min input temperature for Stirling engine	C°	6°
	Max cooling fluid pressure inside Stirling engine	Bar	7
	Piping connection for cooling circuit	inches	3/4
Environmental performances, weight and dimensions	Max speed wind in operating conditions	Km/h	50
	Max wind speed in safety position	Km/h	162
	Weight	kg	600
	Concentrator diameter	m	3,75
	Max overall dimensions in operating conditions	m	d.5,00 x h.4,60
	Height in holding position	m	3,00
Warranty	Maximum operating height	m	4,60
			2 years

*Data resources to Rende CS Italia with an average DNI of 725 w/mq



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