The unrivaled benchmark in solar receiver efficiency

The Siemens UVAC 2010 is designed for outstanding thermal output

Siemens' UVAC (Universal Vacuum Air Collector) offers solar field operators increased thermal heat production and an outstanding degree of efficiency.

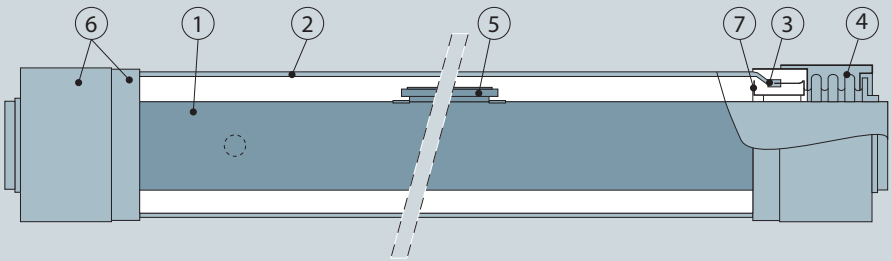
The UVAC 2010, the company's next-generation solar receiver, advances the field-proven UVAC technology even further with reduced heat emissivity and a larger active area. Its resulting thermal heat production is superior in the market. The UVAC 2010 includes Siemens' patented vacuum maintenance unit and anti-"fluorescent phenomenon" coating, designed to provide stable performance over time, even under extreme conditions.

UVAC 2010 benefits at a glance:

- Extremely high solar absorption
- Reduced heat loss
- Larger active area
- Increased thermal heat production
- No fluorescent phenomenon
- Long-term hydrogen prevention
- Siemens-backed limited warranty
- Based on 20 years of field-proven experience

Components of the Siemens UVAC 2010

1. Coated stainless steel absorber tube
2. Coated glass sleeve enclosure
3. Glass-to-metal joint
4. Bellows
5. Hydrogen and barium getters
6. External shields
7. Internal shield



Technical specifications

Dimensions	Length: 4,060 mm
	Stainless steel tube with selective coating outer diameter: 70 mm
	Borosilicate anti-reflective (AR) glass envelope outer diameter: 115 mm
Transmittance	Solar transmittance factor: ≥ 96.5%
Absorptance	Active area-to-length ratio: 96.4% at 350°C
	Solar absorptance factor: $\alpha \geq 96\%$
Emittance	Thermal emissivity factor: $\varepsilon \leq 9\%$ at 400°C
Vacuum maintenance	Designed for > 25 years

Answers for energy.

SIEMENS

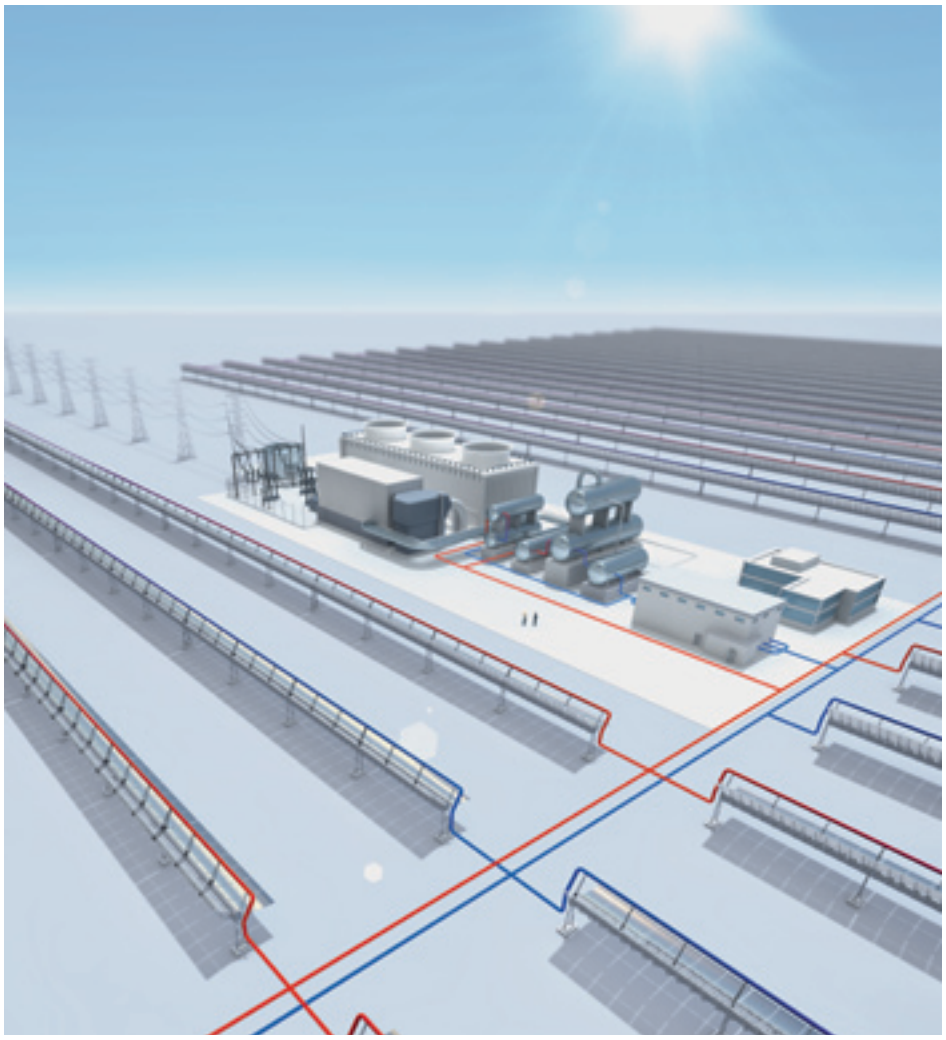
Precise engineering ensures peak performance

The UVAC 2010 is the heart of a parabolic trough solar field. It absorbs the sun's energy and converts it into heat, which is finally converted into electricity. No single component has more influence on the commercial success of a solar field. The high efficiency of the UVAC 2010 can lead to the development of more productive and cost-competitive solar fields.

With market leadership in all key optical and thermal parameters, the UVAC 2010 can absorb and maintain extremely high levels of solar energy. Its active area of 96.4 percent and solar transmission factor of 96.5 percent or more enable exceptional concentrations of sunlight to reach the receiver. And, thanks to the UVAC 2010's groundbreaking cermet selective coating, the sun's energy is efficiently absorbed and trapped inside. The UVAC 2010's solar absorptance rate of greater than or equal to 96 percent and its design emission rate of less than 9 percent are unmatched.

The UVAC 2010 also features glass-to-metal seals and metal bellows to achieve vacuum-tightness of the enclosure. Siemens welds have proven their excellent integrity in actual field operation for over two decades. By preventing hydrogen permeation that would otherwise diminish the vacuum and permit heat loss, Siemens' patented getter bridge is designed to help keep the UVAC 2010 performing at peak levels over many years.

All of these optical and thermal advantages of the UVAC 2010 are designed to create more robust heat than any other receiver, which can translate into significantly increased annual solar power plant revenues.



The UVAC 2010 solar receiver is the technological heart of the parabolic trough solar field, converting solar radiation into heat and then into power. The solar collectors are aligned on a north-south axis and rotate with the movement of the sun to maximize the production of electricity.

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