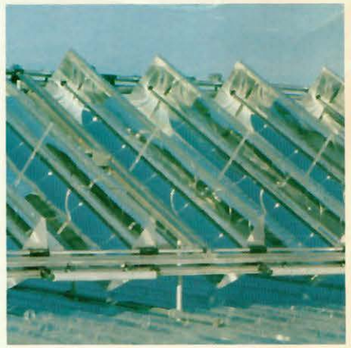
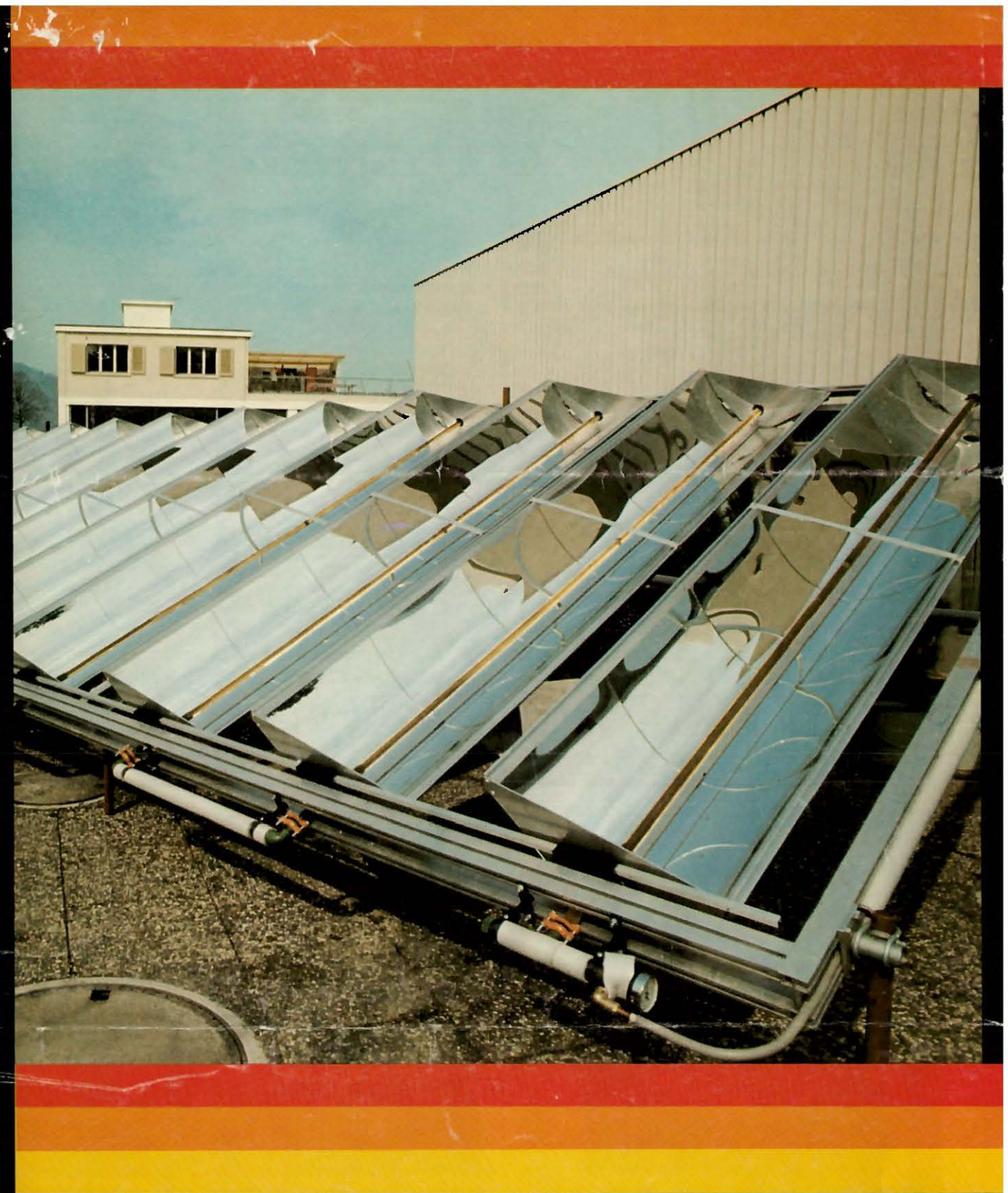


The heat requirements of a larger apartment building in the south of France is entirely covered by sun radiation collectors. The concentrating LNC-collectors generate the high temperatures required for the heat accumulators, as well as the energy for a model sea-water desalinization plant.

A one-family house in the Forch near Zurich. Here numerous measurements were taken over a lengthy period, which proved the efficiency of the sun-oriented paraboloid concentrating mirrors.



THE CONCENTRATING SOLAR COLLECTOR

and Licencing
of Solar System

Giacomettistrasse 6

3000 Berne 32, Switzerland
Telephone 031 44 54 44

PRINCIPLE

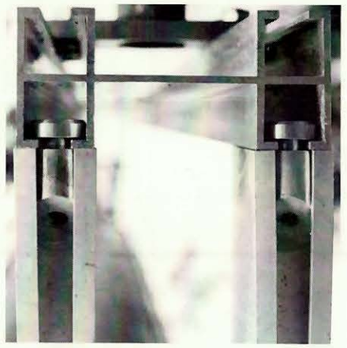
Cylindrical parabolical mirrors, which follow the sun from east to west, concentrate the solar radiation on an absorber system in which the heat carrierfluid (e.g. water) circulates.

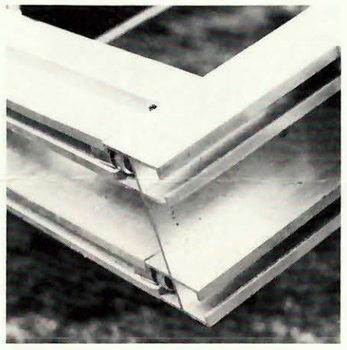
ADVANTAGES

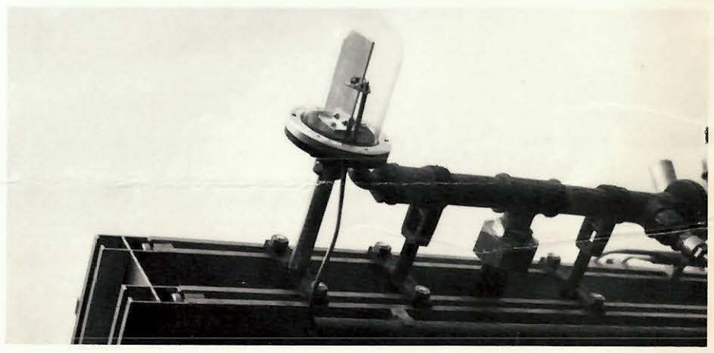
- feeding into existing high-temperature or conventional installations possible.
- maximum exploitation of solar radiation at all hours of the day.
- high efficiency thanks to the concentrating effect and the best possible absorption of the sun's radiation
- constant output of power due to the mirror following the sun.
- small size of the accumulator owing to the high temperature level generated
- small heat loss and low sensibility to wind owing to the reduced surface of the heat absorber
- matured, proven, modular system
- favourable cost/output ratio
- fullest exploitation of the available space
- minimum maintenance

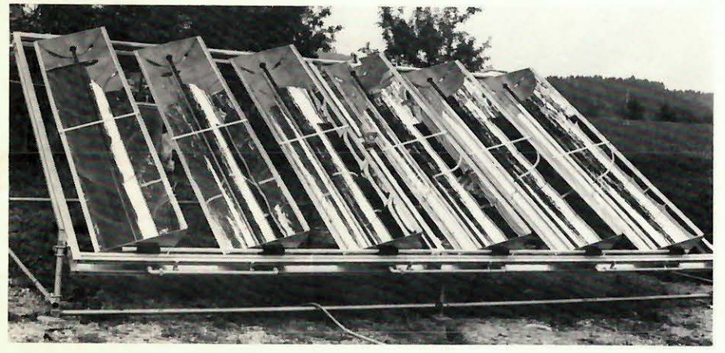
RANGE OF APPLICATION

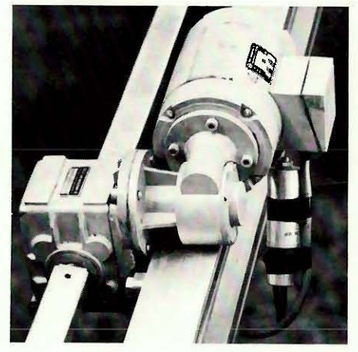
- hot water production or heating of water for industrial or household use
- heating installations in one- or multi-family houses, hospitals, swimming pools, industry etc.
- air conditioning (with absorption-type refrigerator units)
- steam generation and heat processing (laundries etc.)
- desalinization plants for sea water (multi-stage evaporation)
- power generation (heat engines, pumps, electric generators)
- energy balance of green houses

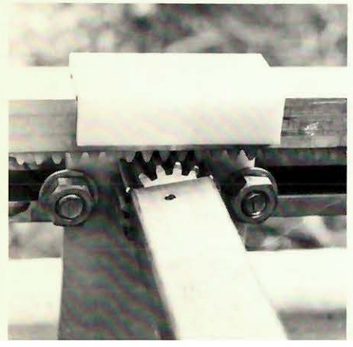












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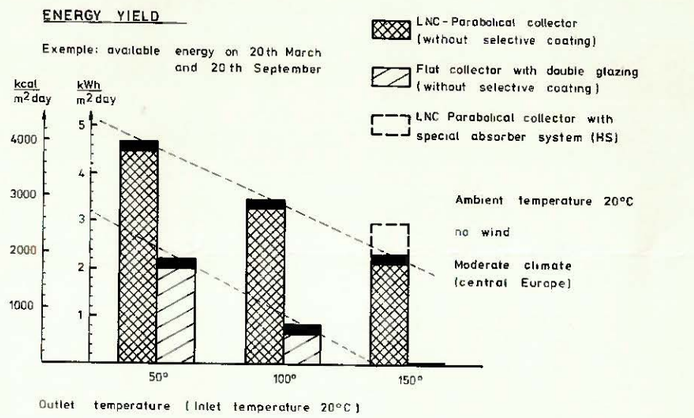
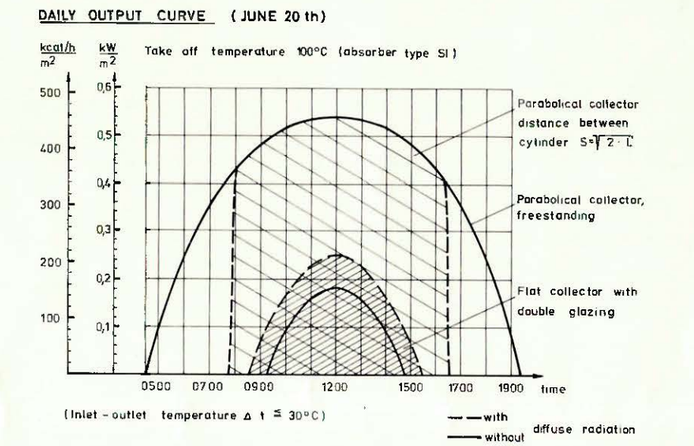
THERMIC DATA

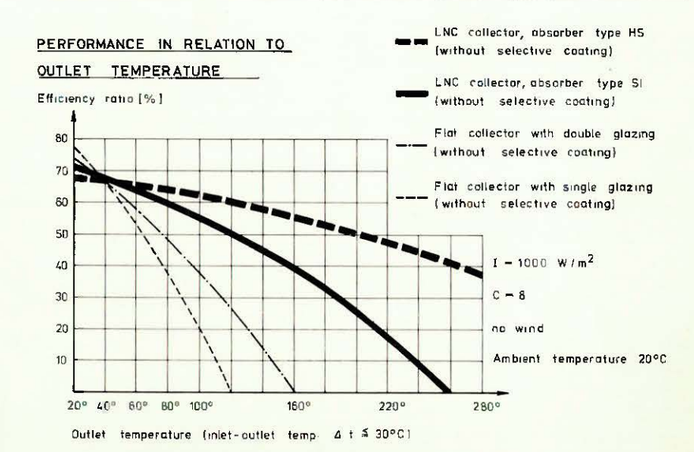
Performance, efficiency

Operation
The mirrors, controlled by a sun-sensor-driving unit, follow the progress of the sun continuously. They concentrate the sun's radiation directly on the absorber tube, placed in the centre of the focal line, where the heat-carrying medium circulates. in order to keep heat losses at the lowest possible level, the concentrated solar energy is transmitted directly inside the tube, which is of glass. Inside the glass tube is a black star-shaped absorber, which absorbs the radiation and transfers the generated heat to the heat carrier fluid (e.g. water). Different heat carrier media were developed for lower and higher heat generation. At the fall of darkness the mirrors are automatically re-oriented towards the east. An integral thermostat prevents overheating by defocusing the mirrors. Up to 18 mirrors elements are moved by a controlling device aiming them continuously at the sun.





The system of mirrors
The radiation collector is composed of individual cylindrical-parabolic concave mirror elements. The reflecting silver layer of the glass mirrors is particularly protected against the environmental effects. Owing to the high quality of their surface, their inclination and the action of wind and rain, the mirrors are self-cleaning. In climates with little rainfall they may occasionally be in need of cleaning with water (garden hose)



TECHNICAL DATA OF A STANDARD COLLECTOR UNIT

The smallest standard collector battery consists of 6 mirrors. A medium standard collector battery has 12 to 18 mirrors

Energy surface of the smallest unit	11 m² (6 cylinders of 1.83 m² each)
Space required for the smallest unit	18 m²
Weight of the smallest unit	200 kg
Concentration factor	6–10
Current draw of the control motor	(60 W) max. 0.03 kWh/day (sunshine)

ABSORBER SYSTEMS

(* PAT. POLISOLAR LTD.)

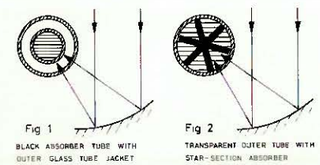


Fig. 1 BLACK ABSORBER TUBE WITH OUTER GLASS TUBE JACKET

Fig. 2 TRANSPARENT OUTER TUBE WITH STAR-SECTION ABSORBER

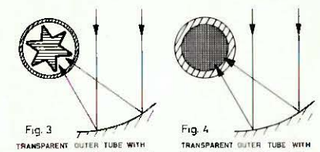


Fig. 3 TRANSPARENT OUTER TUBE WITH HOLLOW STAR-SECTION ABSORBER

Fig. 4 TRANSPARENT OUTER TUBE WITH BLACK HEAT-CARRIER LIQUID

BLACK BODY EFFECT OBTAINED BY MEANS OF STAR SECTION SHAPED ABSORBER

(PAT. POLISOLAR LTD.)

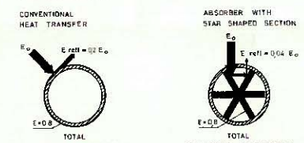
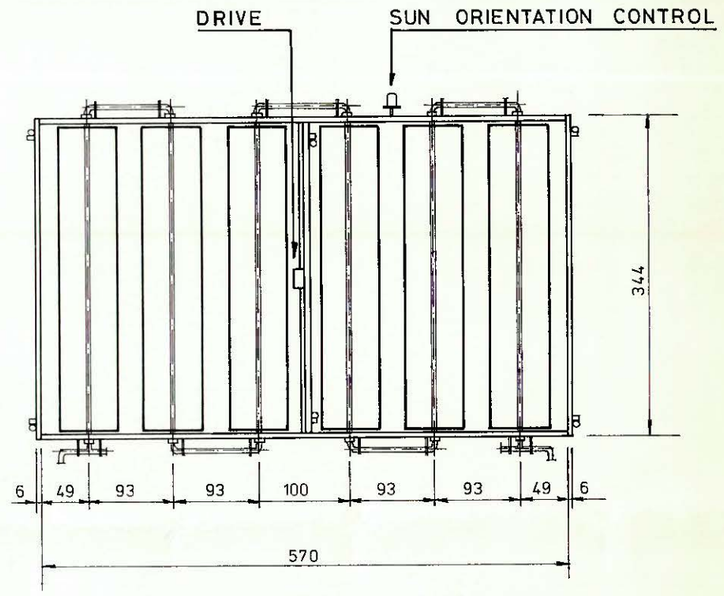


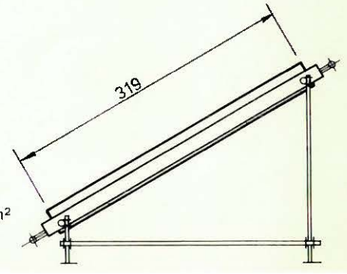
Fig. 5 Fig. 6



Absorber Systems

Two Absorber Systems have been developed:
The Low-Temperature Absorber consist of a glass tube, which is either equipped with a star-section insert or filled with a black liquid. The sun's rays are therefore radiated directly into the heat-carrier medium. If plain water (instead of black liquid) is the carrier, absorption takes place inside by the star-section absorber. This absorber is shaped in such a manner, that an effect of black-body absorption is obtained by means of multiple absorption. In case of high-temperature absorption, the heat-carrier medium flows through the hollow core of the star-shaped absorber, and the outer glas tube acts as insulator.

Space required abt. 18 m²



1 collector element:
energy absorbing area = 3190×575 mm = 1,83 m²

6 collector elements:
energy absorbing area total = 11 m²