



SOLAR COOLING

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SOLAR COOLING

The energy demand in the field of cooling and air-condition is constantly rising. In order to keep energy costs for air-conditioning low, the solar cooling system is the perfect choice.

The solar cooling system stores the surplus of energy in the summer and converts this energy into cooling energy through absorbers.

The same solar system supplies hot water and heat during the winter. Therefore the factor of efficiency is tremendous as one system can be used for the different needs throughout the year.

Highly efficient solar technology!





SOLAR COOLING - DEMO PLANT

Solution
Office
Sattledt /
Austria

Size of office
350m²
14 Arbeitspl.

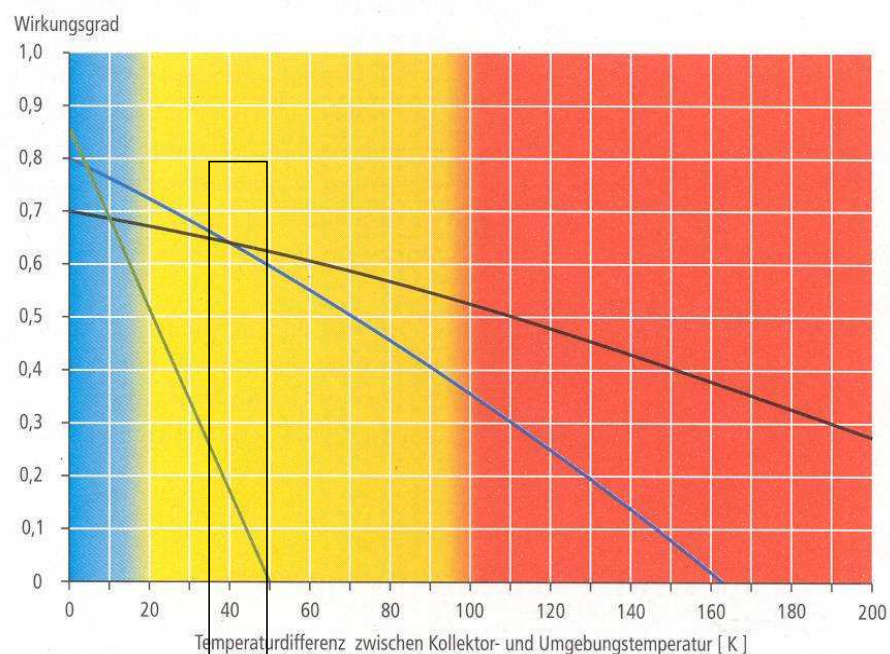
Cooling load
8kW

42m² flat plate
collector



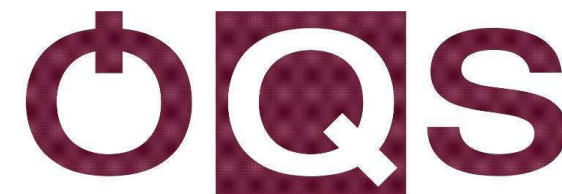


THERMAL SOLAR COLLECTOR



Solar cooling:

Area of solar cooling applications on the efficiency curve of collectors



SYSTEM CERTIFIED

ISO 9001:2000 NO. 4943/0



SOLARE KÜHLUNG

Solution Headquarter
Office
Sattledt / Austria

Cooling and heating
with conditioned ceiling

Different applications
are possible for
Solar cooling systems:

- Fan-coils
- Air conditioning
- Area cooling: wall cooling,
Ceiling cooling



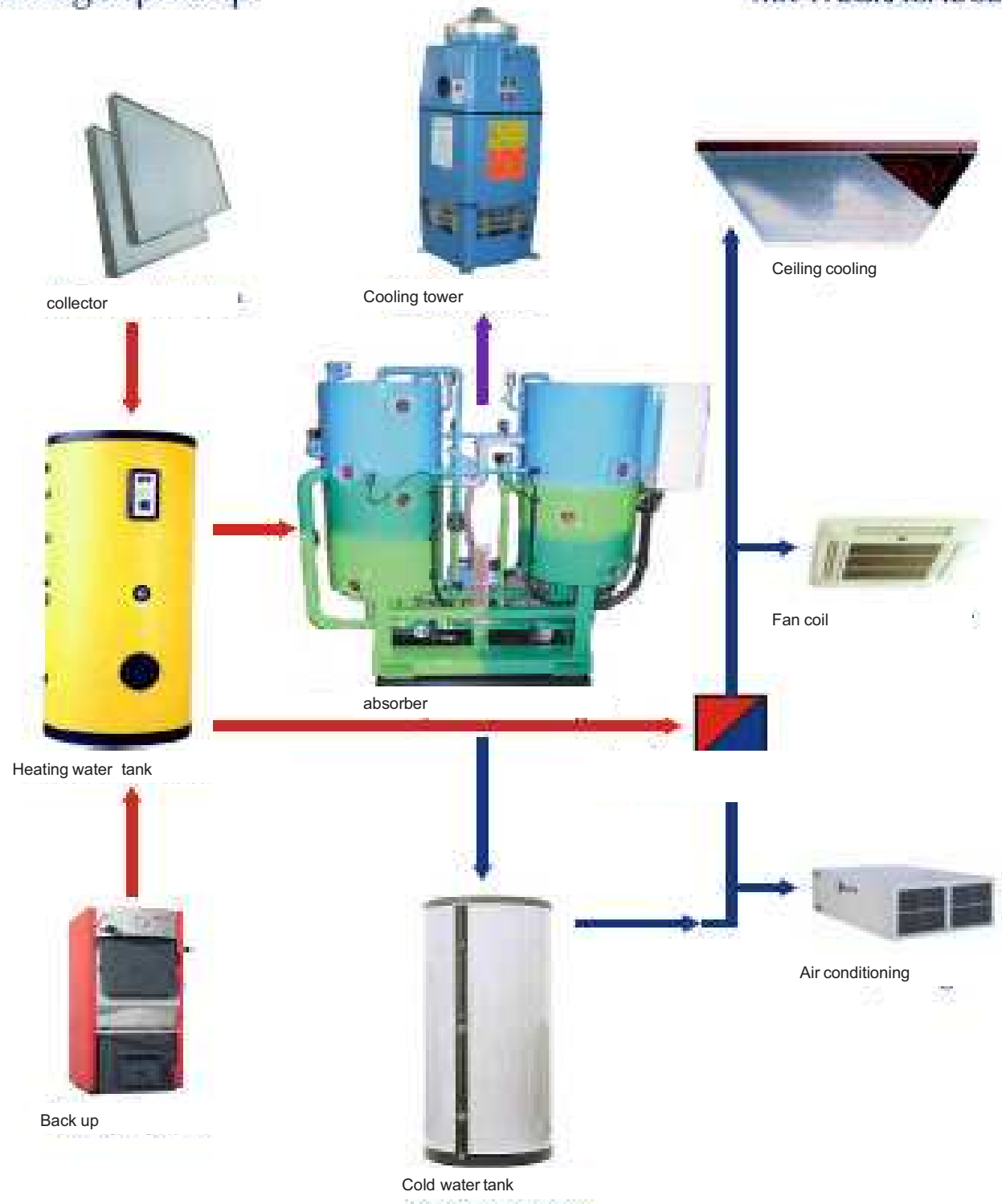
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Components:

Solar collector
Backup system
Heating water tank
Absorber
Cold water tank
Cooling tower
Conditioned ceiling or
Van coils,...

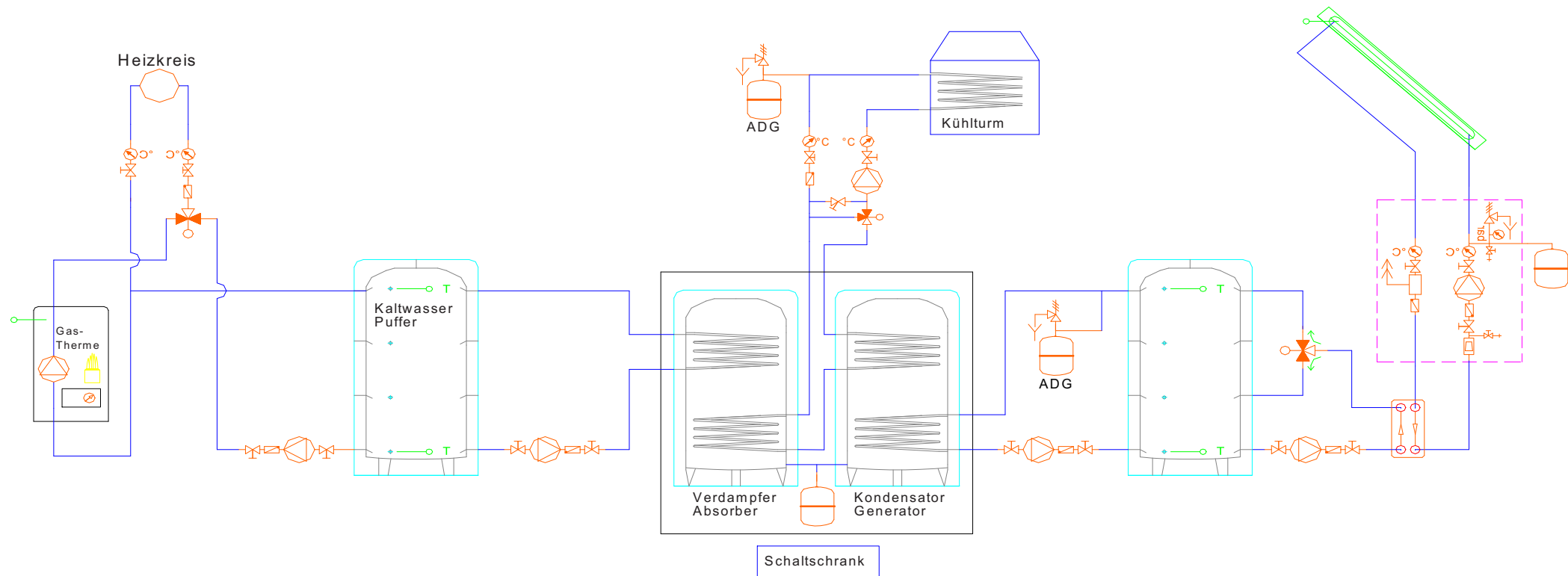
Anlagenprinzip:

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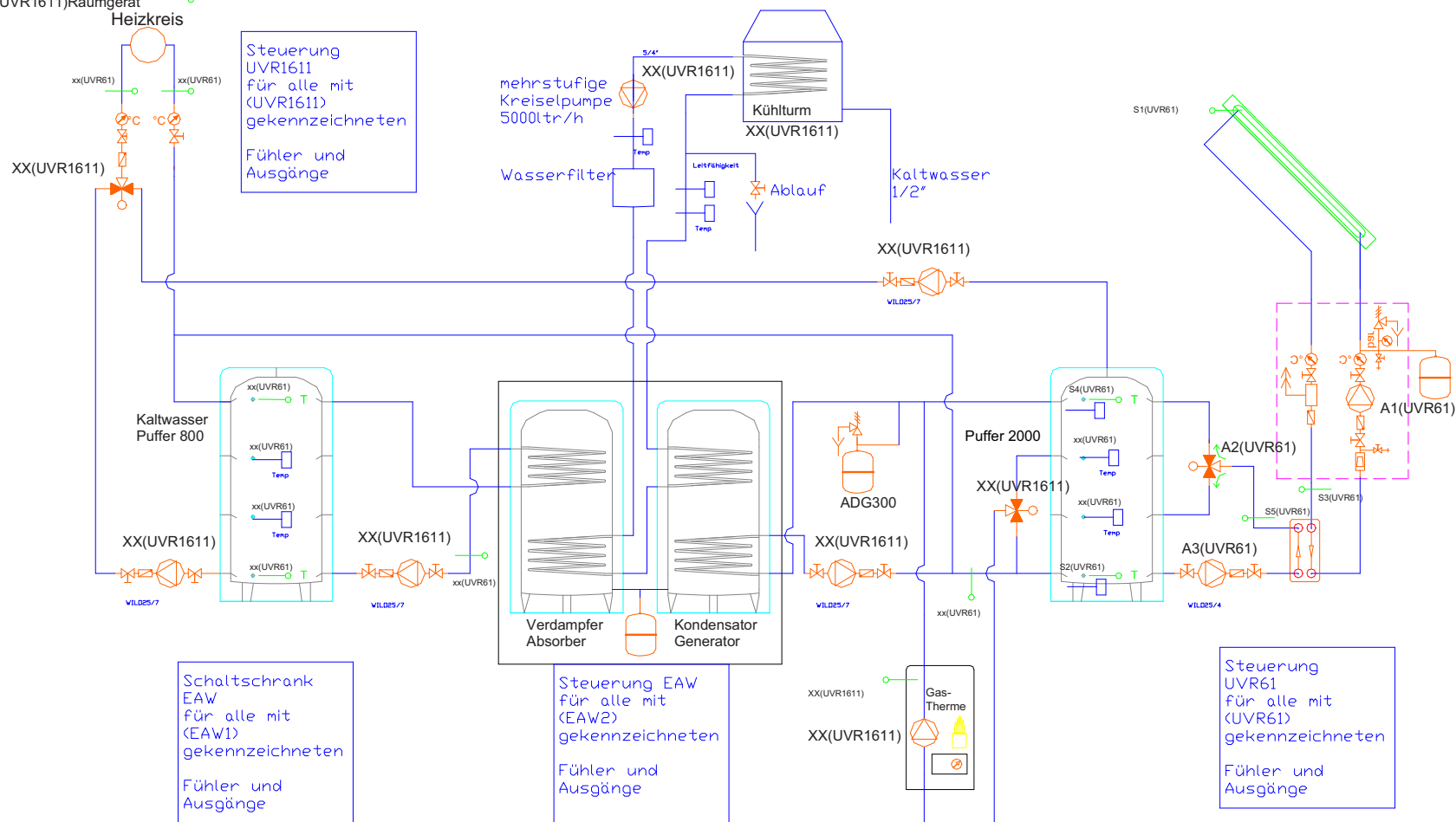


SOLAR COOLING hydraulic system



XX(UVR1611) Außenfühler

XX(UVR1611)Raumgerät





SOLAR COOLING - DEMO PLANT

Design guideline for heating- and coldwater tanks

Heating water tank
2000l

Calculation:
 $50 - 100 \text{ l/m}^2$ collector

Cold water tank
800 l

Calculation:
 $100 - 200 \text{ l} / x$
(x = cooling power – cooling load)





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Adsorption refrigeration machine >ALASKA<

Cooling power
15kW (Alaska)

Also available in:
30kW (Polarfuchs),
54kW (Eisbär),
83, 140, 200kW





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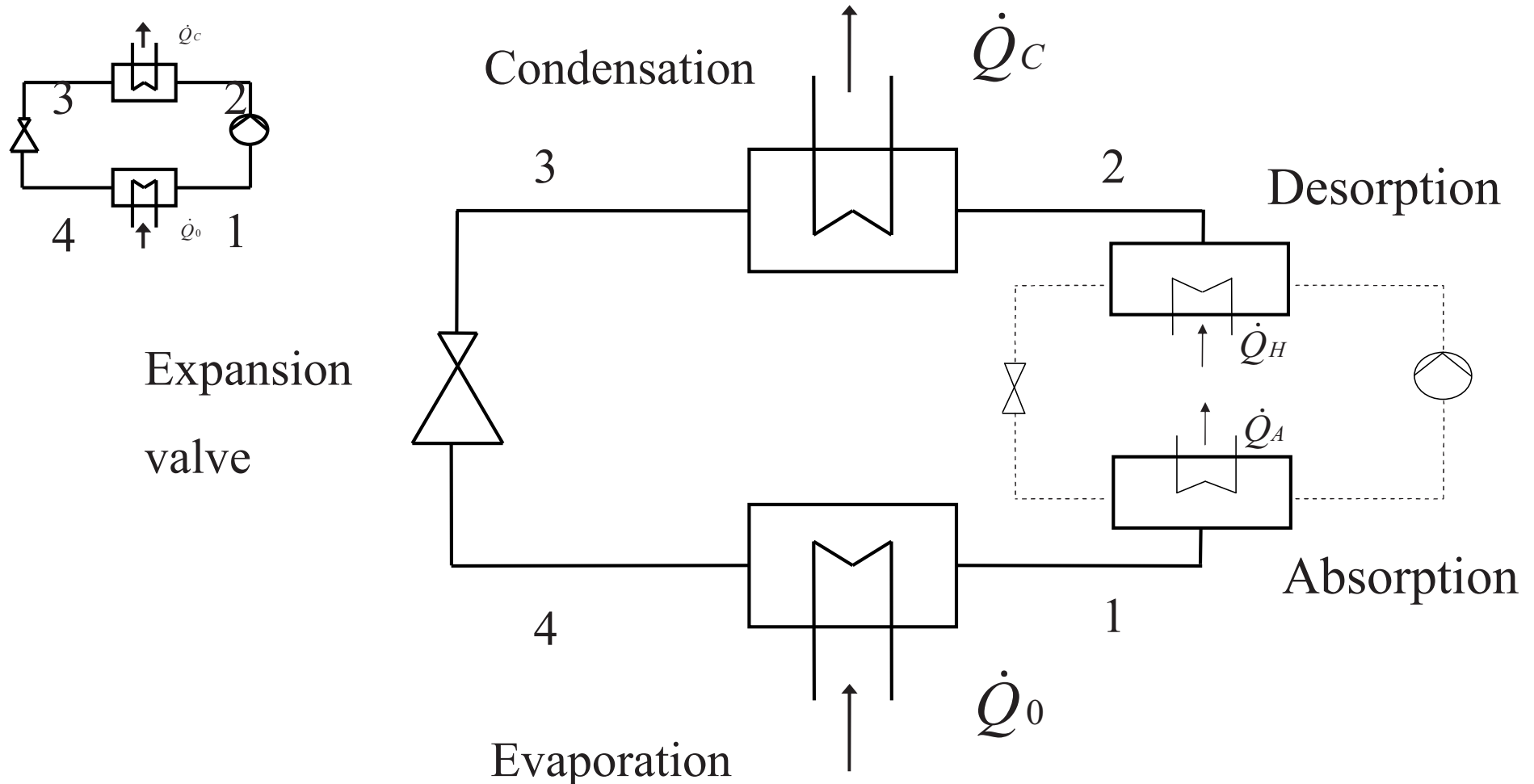
data sheet absorber refrigeration machine:

| | | |
|------------------------|-------------|----------------------|
| nominal cooling power: | 15kW | (ALASKA) |
| COP : | COP | 0,71 |
| cooled water: | return | 17,5°C |
| | flow | 11°C |
| | volume flow | 1,9m ³ /h |
| heating water: | power | 21kW |
| | flow | 90°C |
| | return | 80,5°C |
| | volume flow | 2m ³ /h |
| Re-cooling: | power | 35kW |
| (cooling tower) | flow | 30°C |
| | return | 36°C |
| | volume flow | 5m ³ /h |



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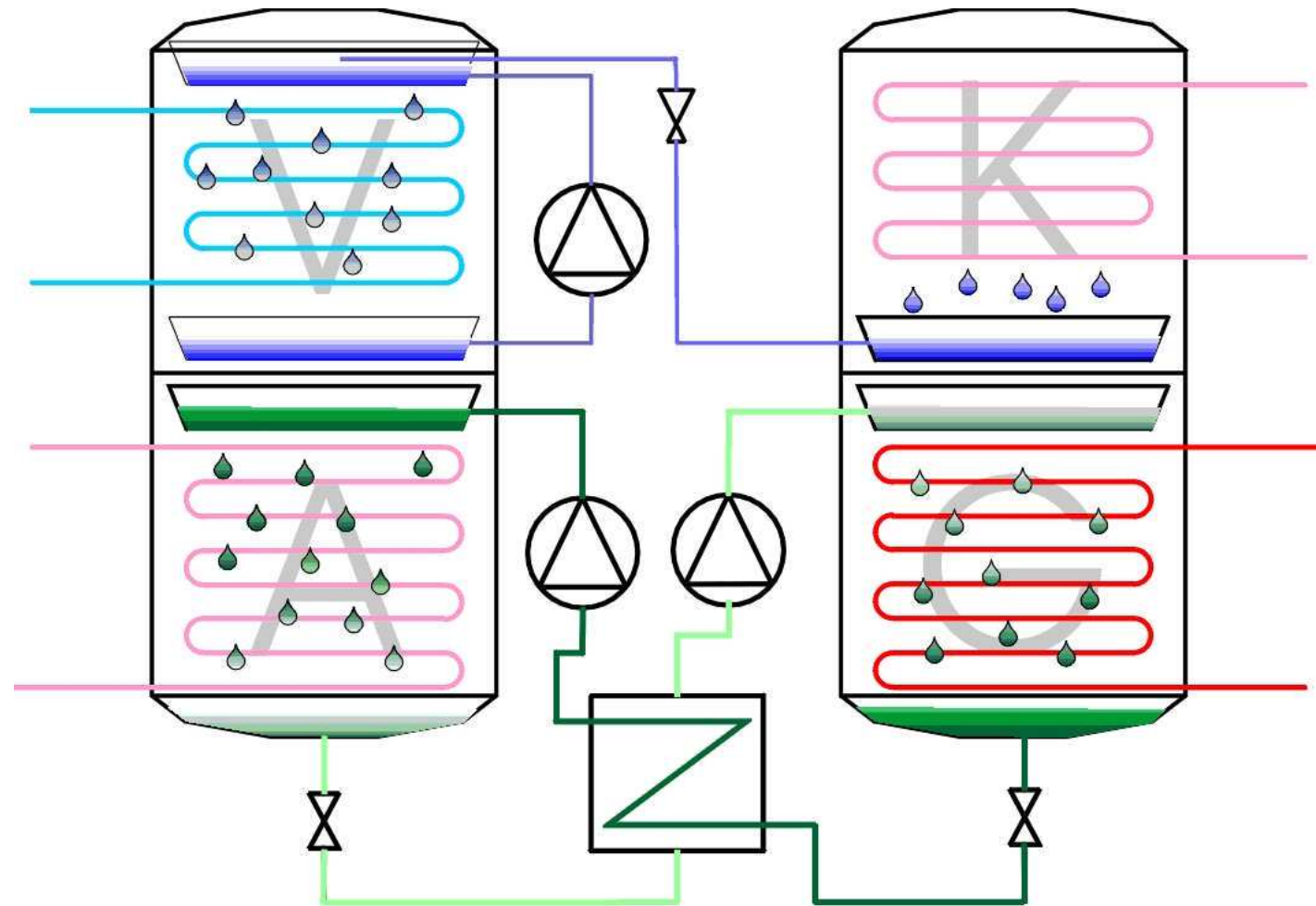
absorption refrigeration machine





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absorption
 refrigeration
 machine
 ALASKA



| | | | | | |
|---|--------------|--|-----------------|--|------------------------|
| V | Evaporator | | Recooling water | | Lithium Bromid |
| A | Absorption | | Heating water | | Lithium Bromid + water |
| G | Desorption | | Cold water | | Water |
| K | Condensation | | | | |



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Adsorption refrigeration
machine >ARCTIS<

Cooling power
5,5kW





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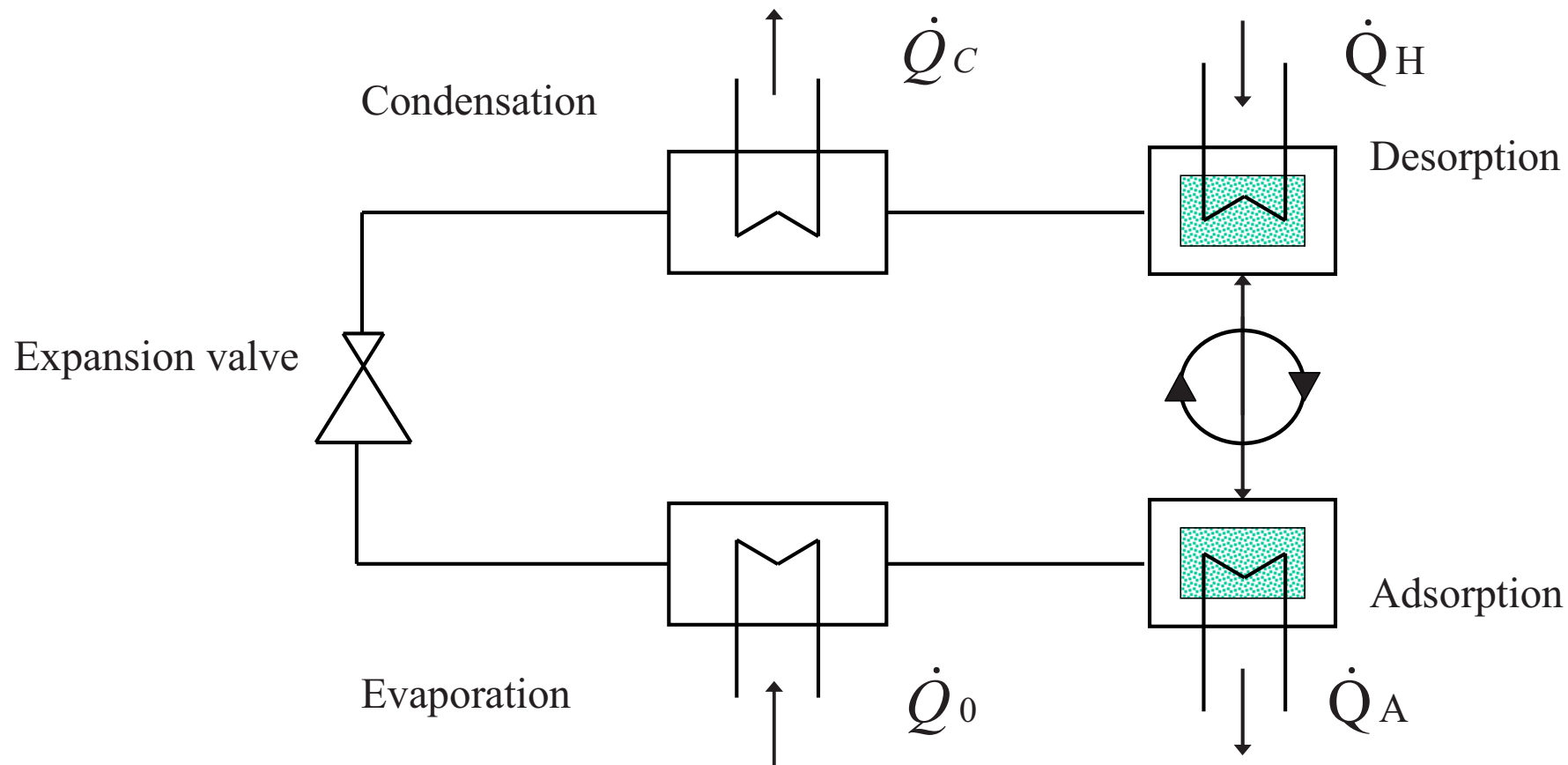
data sheet adsorber refrigeration machine:

| | | |
|------------------------|-------------|----------------|
| nominal cooling power: | | 5,5kW (Arktis) |
| COP | : | COP 0,55 |
| cooled water: | return | 6....16°C |
| | volume flow | 1,5m³/h |
| heating water: | power | 12kW |
| | flow | 60.....95°C |
| | volume flow | 1,1m³/h |
| Re-cooling: | power | 17 kW |
| (cooling tower) | flow | 25.....35°C |
| | volume flow | 2,8m³/h |



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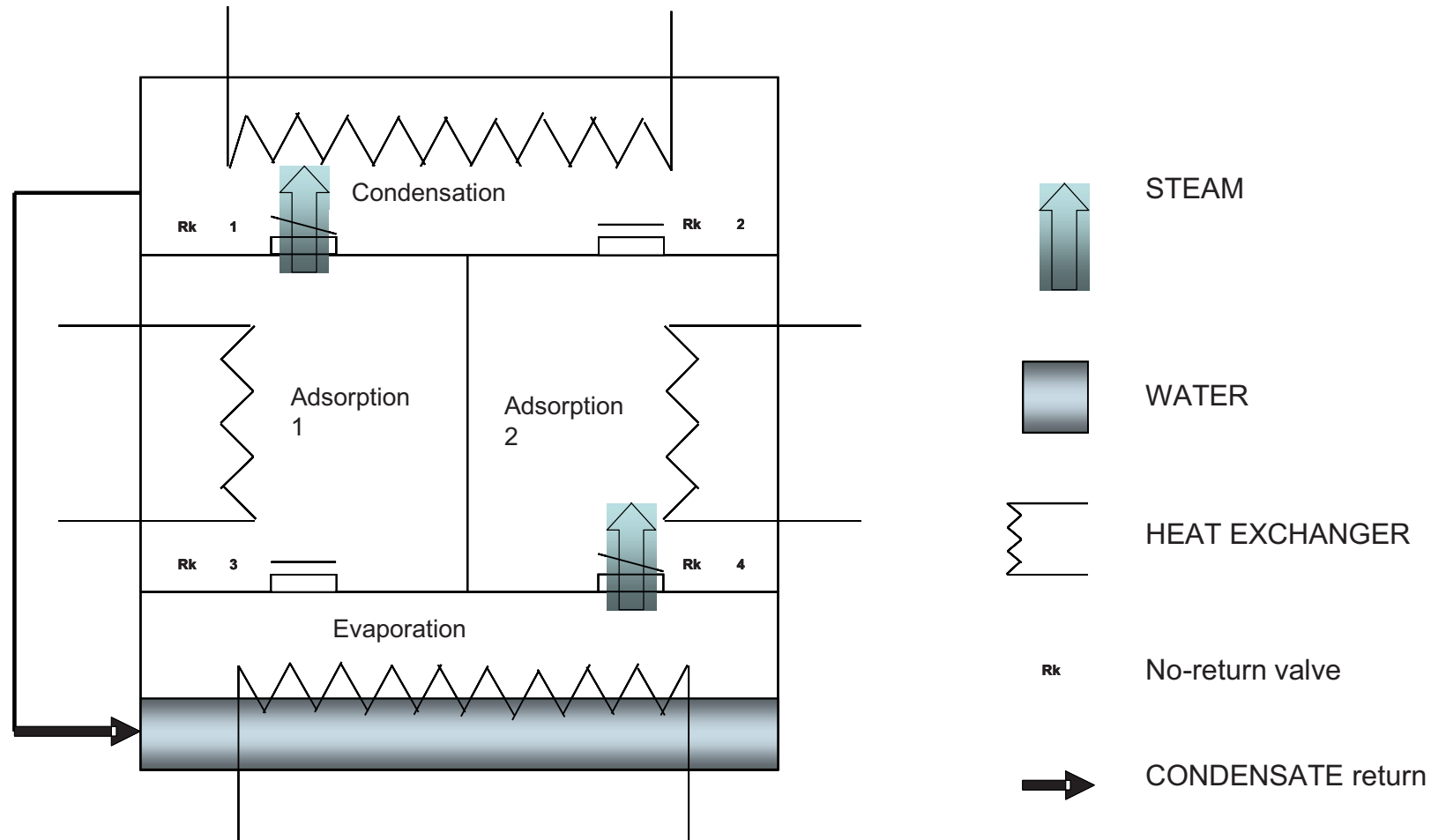
adsorption refrigeration machine





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Adsorption heat pump Arctis

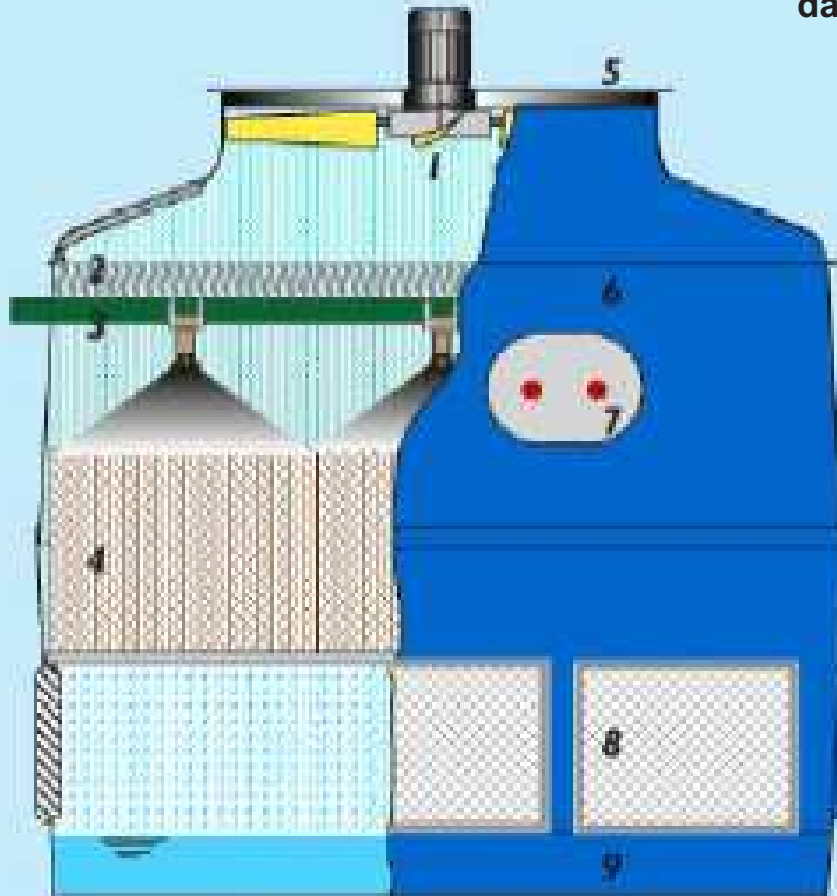




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cooling tower

data sheet open-circuit cooler for the demo plant:



nominal power: 35 kW
flow 36°
return 30°
water consumptionf: 50 ltr/h

size: 739mm * 739mm * 1856mm
weight: 120kg

- 1 Fan
- 2 Droplet separator
- 3 Manifold with full cone spray nozzle
- 4 Filler block
- 5 Protective grid
- 6 Cooling tower case
- 7 Window
- 8 Air in
- 9 Drain pan



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cooling tower

Open-circuit cooler

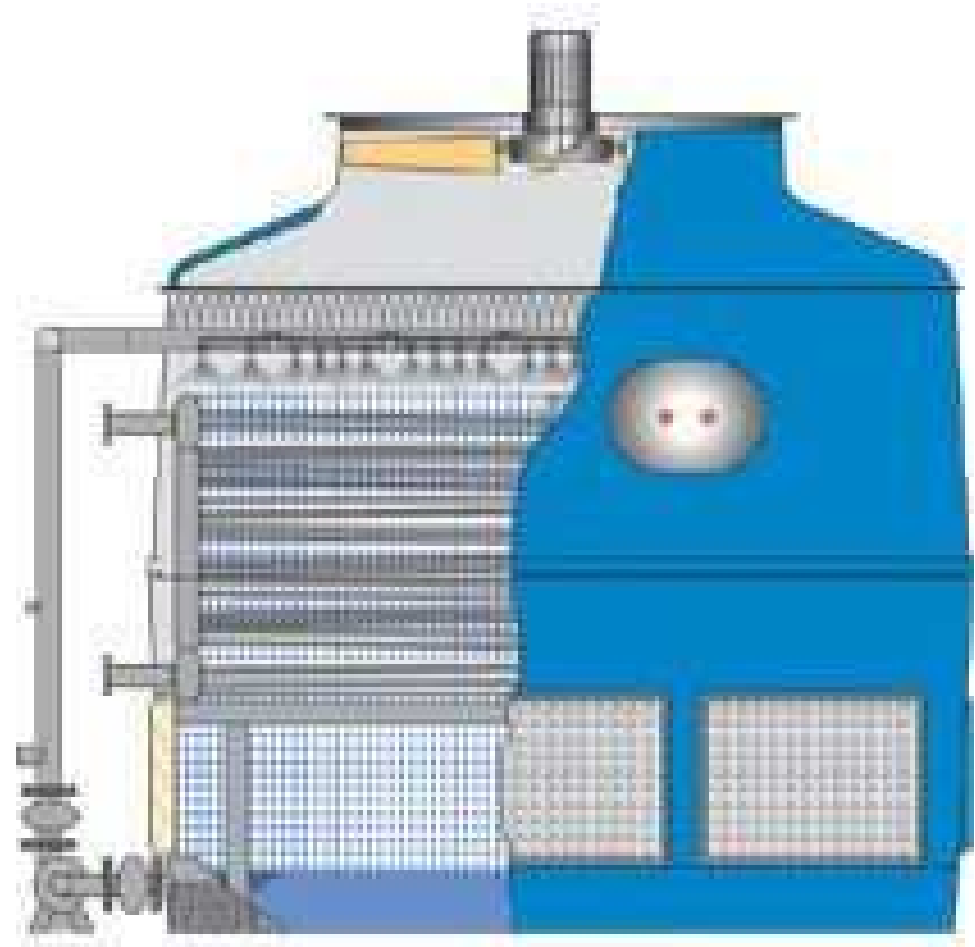




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cooling tower

closed-circuit cooler

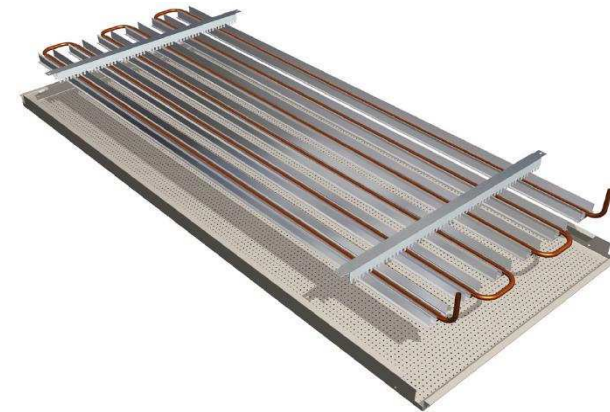




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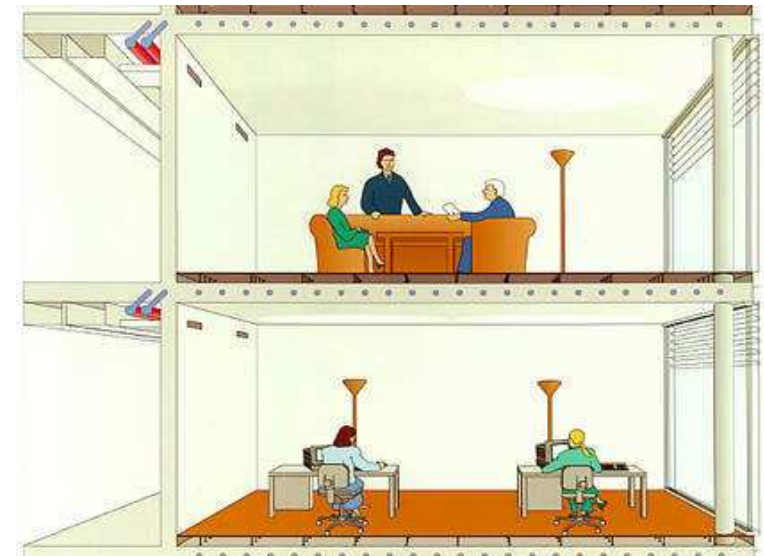
applications

1) Area / surface cooling:
wall cooling
ceiling cooling



2) Fan-coil systems

3) Air-conditioning





SOLAR COOLING

cooling and heating !!

Cooling, heating and hot water, one system for all!

Maximal use of solar energy

Air conditioning in summer and heating in winter

Air conditioning without energy costs

***Come and visit our demonstration plant
in our head quarter!***



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prices

SOLution Alaska solution for solar cooling and solar heating

Set consisting of solar panels, fixing equipment, primary and secondary solar circuit components for layer loading, recirculation group, expansion tank, antifreeze and external plate-type heat exchanger. Buffer storage system consists of heating buffer and cooling buffer incl. insulation. Absorbing cooling machine including the proper cooling tower (open construction). Freely programmable control. Costs of installation are not included.

| | |
|---|-------------|
| AL1540M <u>Alaska</u> solution for a cooling load of 15 kW | 46.502,00 € |
| Absorbing cooling machine 15 kW Cooling tower (open construction) 35 kW | |
| Flat solar panels 40 m2 Heating buffer storage tank 2.000 l | |
| cooling buffer storage tank 1.000 l | |

| | |
|---|-------------|
| AL3070M <u>Polarfuchs</u> solution for a cooling load of 30 kW | 82.352,00 € |
| Absorbing cooling machine 30 kW Cooling tower (open construction) 65 kW | |
| Flat solar panels 70 m2 Heating buffer storage tank 5.000 l | |
| cooling buffer storage tank 2.000 l | |

| | |
|--|--------------|
| AL54130M <u>Eisbär</u> solution for a cooling load of 54 kW | 143.894,00 € |
| Absorbing cooling machine 54 kW Cooling tower (open construction) 120 kW | |
| Flat solar panels 130 m2 Heating buffer storage tank 10.000 l | |
| cooling buffer storage tank 3.000 l | |

| | |
|--|----------|
| AL520M <u>ARCTIC</u> solution for a cooling load of 5,5 kW | 23.000 € |
| Adsorbing cooling machine 5,5 kW Cooling tower (open construction) 17 kW | |
| Flat solar panels 20 m2 Heating buffer storage tank 1.000 l | |

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