



DRC 10



1 The new standard



2 The advanced solar absorber tube



3 The collector for every budget



4 Efficient modular installation system



5 Intelligent DRC system technology

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Meilleure qualité de vie, faible consommation d'énergie





The new
standard

AMK collectors – the new standard in using solar thermal energy



AMK-SOLAC Systems AG, who pioneered the 360° absorber technology and developed the OPC10/15 high-performance collectors, recognised the advantages of three-dimensionally shaped absorbers more than ten years ago. Being awarded with the gold medal at the Exhibition of Inventions in Geneva, Switzerland, was the logical result of a brilliant implementation. AMK-Solac Systems AG has over 15 years of experience in developing and producing evacuated tube collectors. AMK collectors are developed and produced in Switzerland. The quality is aligned with European standards of quality (Euro-Norm).



AMK-Products



All AMK products have proven to be outstanding through maximum performance at minimum dimensions. In all our product series, the surface area of the absorber is larger than the gross surface area of the collector. This intentional target of maximising the absorber surface area is combined with the optimised reflectors to guarantee the maximum absorption of direct and diffuse radiation.

All AMK collectors are equipped with evacuated tubes developed by AMK. AMK vacuum tubes have a nine-layer, highly selective coating, and vacuum loss is avoided completely due to the mechanical vacuum insulation.

Did you know that the installation costs for conventional collectors can be up to 70% of the price of the collector? That is why AMK products are very easy to mount. We offer you optimised mounting systems for all kinds of applications (pitched roof, flat roof, facades, folded seam roof, fibre cement roof, installation of the collectors in open spaces).

In terms of performance, quality, easy installation and flexibility, AMK collectors represent a new standard. AMK collector technology is protected by patent.



At the „International Fair of Installation Technology and Industry“ (March 28 – 31 2006) in Poznan (Poland) OPC15 Edition EU21 has won the **gold medal** for a technical innovative development

DRC 10  diffuse reflection collector

Application areas for AMK collectors include:

- Standard hot water heating DRC, OPC, OTC
- Auxiliary heating DRC, OPC
- Process heat recovery OPC
- Refrigeration for air-conditioning systems supported by absorption cold generation OPC
- For single-family homes, apartment buildings, hotels, commercial and industrial properties DRC, OPC, OTC

Leading through experience

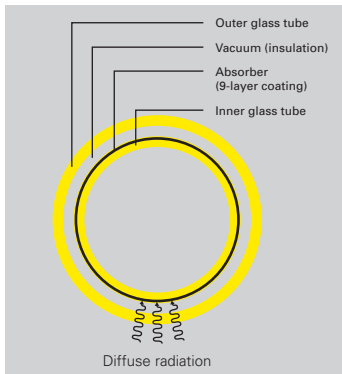


The advanced absorber tube

A tube for all kinds of weather throughout the entire year

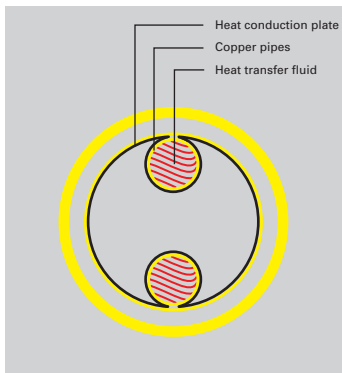
Our 360° absorber tube uses solar energy efficiently throughout the entire year and provides a building with heat even when the weather is cloudy. Due to the 360° technology, the absorber collects direct and diffuse radiation to a much greater extent when compared to other collectors. In combination with the vacuum insulation, our 360° absorber tubes have reached previously unknown levels of performance. The construction prevents heat loss even at temperatures below zero.

The vacuum between the glass tubes that are fused together cannot be broken, and the insulating effect remains unchanged. This vacuum enables the 360° absorber tube to return consistently high output data over the entire service life of the tubes.



From the sun to the 360° absorber tube...

Solar radiation – both direct and diffuse – penetrates the outer glass tube and is collected by the nine-layer coated, black absorber on the outer surface of the inner glass tubes.



...and from the tube to the solar circuit

The 360° absorber tube is separated from the solar circuit completely. The collected energy is transferred to the close-fitting aluminium plate and to the copper pipes filled with heat transfer fluid. Very large contact surfaces facilitate a rapid energy transfer.

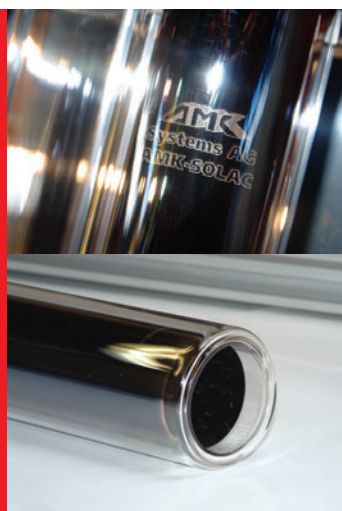
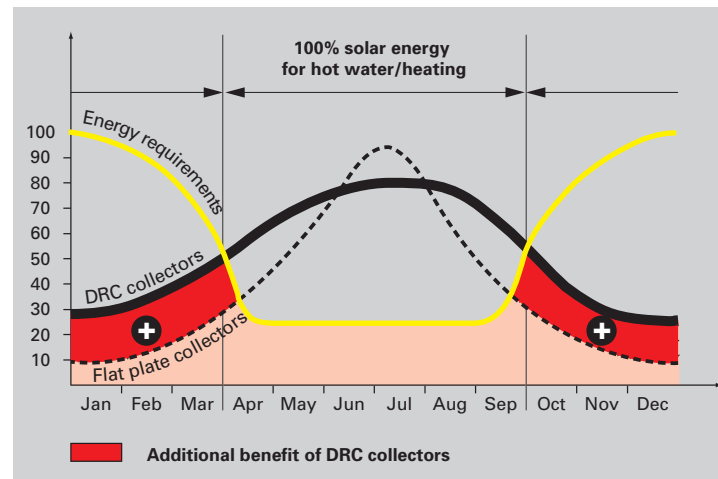
Specifications

DRC 10

Length:	2040	mm
Width:	1000	mm
Height (including frame):	102	mm
Gross surface area:	2.04	m ²
Active absorber surface area 360°:	2.73	m ²
Aperture area:	1.72	m ²
Weight:	50	kg
Absorber/glass:	360°	Borosilicate 3.3
Frame:	Aluminium	
Coating:	9-layer, highly selective	
Connections:	4 x 1/2"	
Total content:	2.1	litres
Permissible operating pressure:	10	bar
Flow rate recommended:	1.0	l/min./module

Twice the benefits, more solar energy yield for the whole year

The vacuum insulation and the large 360° absorber surface area ensure 100% solar energy coverage even in transitional periods. Inefficient heating systems are no longer needed. This combination collects highly useful energy from the sun, even at sub-zero temperatures in winter or under cloudy or rainy conditions.



- The absorber tube is a uniform glass body. No metal-to-glass bonding.
- The vacuum remains unbroken as an excellent insulation over the entire product life.
- 360° absorber for the greatest possible surface area for energy absorption, utilises up to 80% of diffuse radiation.
- The efficiency remains at a constant, high level throughout the product life because the insulation and the absorber layer do not degrade.
- Damage can be done to the tube only mechanically. A tube that loses vacuum, even without visible broken glass damage, can be detected immediately by the white condensation of water vapor inside the tube. This detection eliminates any gradual yield loss of the solar system.
- Nine-layer, highly selective aluminium-nitrite coating.

Minimum loss of energy – through integrated hydraulics and vacuum insulation

The 1/2" collector hydraulics minimises energy losses by having no external piping and by having the inlet and outlet for the solar water circulation on the same side. With 1/2" hydraulics, it is possible to have the largest systems with the lowest pressure loss. The collector hydraulics are fully integrated, enabling complete flexibility in attaching the hydraulics. Simple connection under balanced-pressure conditions. With the option of connections on the same or opposite sides for supply and return. Piping losses are minimised in the DRC because the piping is integrated into the collector.



1/2" dual tube system

- for small and large-scale systems
- minimal pressure loss
- 2 pre-installed sensor sleeves



Integrated collector hydraulics

- no external piping
- best insulation possible
- parallel connections



Quick installation

- single-sided connection
- in and out on the same side
- only one roof penetration

Maximum energy yield – through 360° absorber tube and parabolic reflector

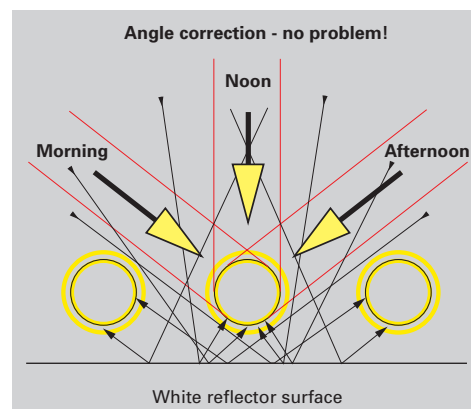
The large tubes and the reflectors adjusted to them enable the DRC to gain large amounts of energy from direct and diffuse solar irradiation. The large-sized absorber surface area is very important. AMK provides the DRC10 collector with an absorber surface area of 2.73m² for 2.04m² of collector surface area. AMK is the only manufacturer that has a greater absorber surface area in comparison with the gross surface area in all its products. This design makes it possible to use diffuse energy irradiation optimally.

Collectors	DRC 10
max. power output per collector*	1250 W
max. power output per m ² of aperture	722 W
K(0)trans	
1.00 / 1.05 / 1.08 / 1.08 / 1.08 / 1.20 / 1.39 / 1.15 / 0.05	white
1.00 / 1.00 / 1.37 / 1.51 / 1.51 / 1.53 / 1.68 / 1.30 / 0.05	mirror

* at 1000 W/m² solar irradiation

No irradiation problem – long use of energy every day

The right collector geometry of tube interval, tube diameter, and reflector does the trick. From early morning to late into the afternoon, the absorber is always irradiated ideally. The optimised white reflector ensures that direct and indirect solar irradiation is reflected to the back side of the absorber tube.



- High yields at small dimensions
- Certification based on performance and quality
- Close tube spacing and advanced reflector technology
- No optical reduction due to diffuse irradiation in the morning and the afternoon
- High utilisation degree throughout the year
- High utilisation degree throughout the day
- High utilisation degree throughout the service life of the product
- High-quality materials and workmanship: aluminium, borosilicate glass 3.3/nitrite-coated,

copper, steel, EPDM/silicone, glass fibre reinforced plastic, glass wool

- Can be used for hot water and auxiliary heating
- Collector can be connected using standard tools without soldering or welding
- Flexible system size, from small to large-scale with a guaranteed maximum performance
- All materials are recyclable
- Suitable for new buildings, renovations or as a replacement for existing systems
- Solar calculation program Polysun, T-SOL



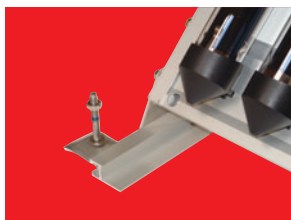
DRC – the collector with the simple, cost-saving installation

A roof is a roof – that is why DRC collectors are mounted on the roof, not into it! DRC collectors stand out not only because of their top-line quality but also their excellent design. At not even nine centimeters in height, they look elegant yet functional on every roof. Even large DRC collector arrays can be connected on one side. This means that the roof is penetrated at one single position for the piping to enter the house. No external piping is necessary on the roof.



Of course, the DRC mounting system is also available for flat roofs, fibre-cement roofs and wall mounting. On a flat roof, the DRC collector

comprises a mounting rail with flexible options for angle adjustments; the mounting is even faster than for a tiled roof.



Multi-functional sliding rails make installing the DRC collectors extremely easy. At the same time, the hydraulic connections of the collectors are

be screwed on using standard tools – no soldering, no welding, no special parts. All parts and steps are self-explanatory, and there is nearly no



taken into account. Newly developed high-temperature, pressure-resistant steel expansion joints can

measuring necessary for the installer due to flexible mounting technology.

Installation in 7 steps, for example tiled roof:

1. Remove the tiles from the rafters
2. Install the mounting angle and put back the tiles.
3. Screw on the mounting rail
4. Fasten the collector hooks to the DRC collector
5. Lift the DRC collectors onto the roof and hook them on
6. Tighten the DRC collector with one single screw
7. Insert the collector connector for hydraulics

- The collectors can be installed for producing hot water in less than half a day.
- Estimate for a hot water system:
1 person = 10 tubes = 100 l storage tank

- Quick installation
- No structural changes necessary
- Expandable at any time
- Self-explanatory mounting technology
- Only standard tools need to be used
- Later functionality already guaranteed at installation
- Light, easy-to-handle materials
- Modular, flexible mounting technology

Advantages

DRC collector provides more advantages for users

Our DRC collectors produce maximum power output when properly integrated into the building's service technology. DRC collectors are burner and heater-friendly; they last longer, run with less faults and require less maintenance because the inefficient stop-and-go operation of the burner is avoided. Additional benefits in all areas: lower operating costs and high energy savings (70–80%, depending on the system combination), longer useful life and thus lower investment costs.



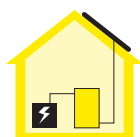
Oil/gas heating and DRC collectors

Turn off your oil or gas burner for six months! Then your burner will run more effectively during the winter and transitional periods. Maintenance efforts, investment and consumption of oil or gas decrease.



Wood heating and DRC collectors

The ideal combined system: wood stove with a storage tank readily available that can be used for solar energy. Additionally, the consumption of firewood is greatly reduced which simplifies handling as well.



Heat pumps and DRC collectors

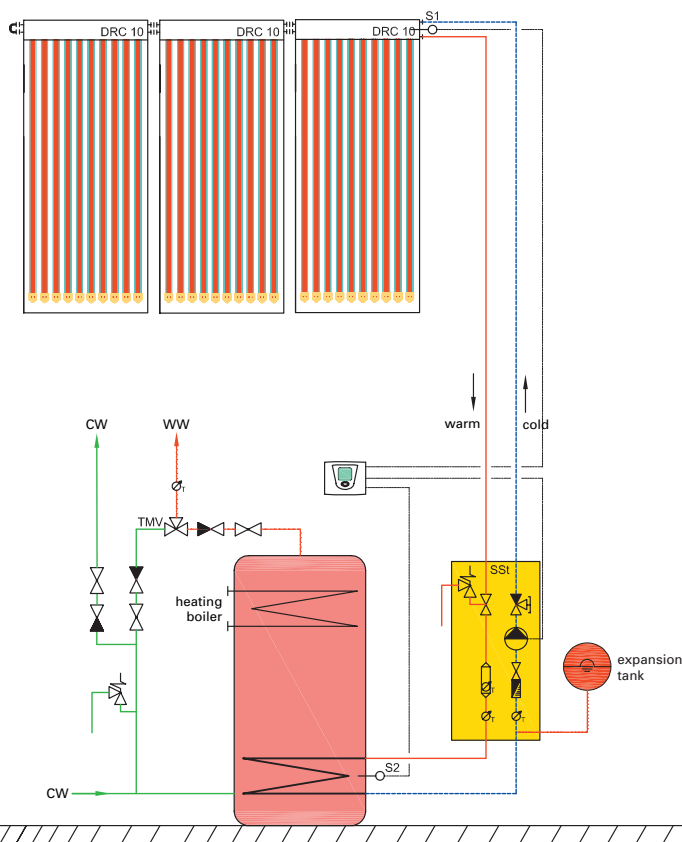
The combination of a solar system and a heat pump uses electrical energy even more efficiently. The heat pump is not needed in summer and is supported by the solar system in winter. That pays for itself twice over.



What is your DRC combination?

DRC collectors optimise your building's technology. They can be combined with conventional and new renewable energy systems such as controlled ventilation systems.

Take advantage of a DRC system combination!



- Saving fossil fuels by optimising the solar system
- Much lower maintenance costs for the burner from longer operating times
- Burners last longer because of optimised burner operating times
- DRC solar systems are suitable for new buildings and renovation of energy systems
- DRC solar systems become the key component of modern building technology
- DRC solar systems can use all new technologies to connect to systems even more useful for customers
- DRC solar systems produce solar power throughout the entire year; greater degree of system efficiency due to the most advanced technology

Advantages



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The manufacturer reserves the right to make modifications at any time that contribute to the technical progress of the product.



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