



Solarbayer®

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PRODUCT INFORMATION



Satellite collector NANOSOL

Safety regulations

Carefully read the safety instructions before commencing the installation. It's for your own safety.

Please follow the structural instructions if the installation location of the solar system is above 600m sea level or possibly exposed to large amounts of snow (higher than zone 4). The installation needs to be carried out on a roof that is capable of bearing that load. The static bearing capacity needs to be checked on site before the installation.

The collectors can either be transported vertically or horizontally. Attention: Breakage of glass. Store the collectors in a dry and shadowy place. The protections of the manifolds have to be removed before the solar collectors are exposed to the sun and heat themselves.

Working on the roof

Appropriate safety measures have to be arranged. Familiarize yourself with the general regulations of accident prevention for construction work of your professional association or let yourself be instructed by an appropriate person. The following aspects have to be respected to achieve a secure installation of the solar system:

- always use fall protection while working on a roof
- respect safety regulations when using a ladder
- while working on roof coverings with corrugated sheets the risk of breaking through exists
- secure workplaces on steep roofs
- safety clearances have to be met if an aerial pipeline leads across the roof
up to 1.000 V >1m, more than 1.000 V to 11.000 V >3m, with unknown voltage >5m.
- always wear safety goggles and gloves while working with an angle grinder
- Flat plate collectors can achieve a stationary temperature of over 200°C due to incident light. The risk of burns exists at the connections of flow and return. Always cover the collectors on sunny days during the installation
- Even regular daylight might cause the fluid in the collector to vaporize. This vapor leaks from the collector connections. Possible risk of scalding

Attention: glass

- Don't exert mechanical pressure on the glass covering. Glass splinters might evoke cuts
- Wear safety goggles and gloves while installing the solar system to avoid injuries due to possible damages

Anschluss

- Gemäß DIN ist der Einbau eines Sicherheitsventils im Kaltwasserzulauf erforderlich. Dieses darf nicht absperrbar sein.
- Im Kaltwasserzulauf ist nach Stand der Technik ein Wasserfilter zu installieren.
- Die Brauchwassertemperatur im Rohnetz ist durch geeignete Maßnahmen auf höchstens 60°C für den Normalbetrieb zu begrenzen (Einsatz geeigneter Verbrühschutzvorrichtungen an den Zapfstellen).

With existing lightning protection system: minimum distance from this device: 1 meter

cf.: BDH (Federal Industrial Association of Germany House, Energy an Environmental Technology e. V., information sheet n° 34)



Caution frost damage:

When there is the risk of frost the collector needs to be drained completely.

Technical specifications

	unit	NANOSOL 100
dimensions (L x B x H)	mm	1035 x 1020 x 500
gross collector surface	m ²	1,33
aperture surface area	m ²	0,78
transmission collector	%	94
capacity	L	approx. 100
internal coating of tank		enameled
weight unfilled	kg	70
insulation		PU solid foam
max. operating pressure	bar	6
max. operating temperature	°C	90
min. operating temperature (only with immersion heater)	°C	-20
connection cold/hot water	inch	¾
immersion heater (optional)	kW	2



**optional accessory:
immersion heater**

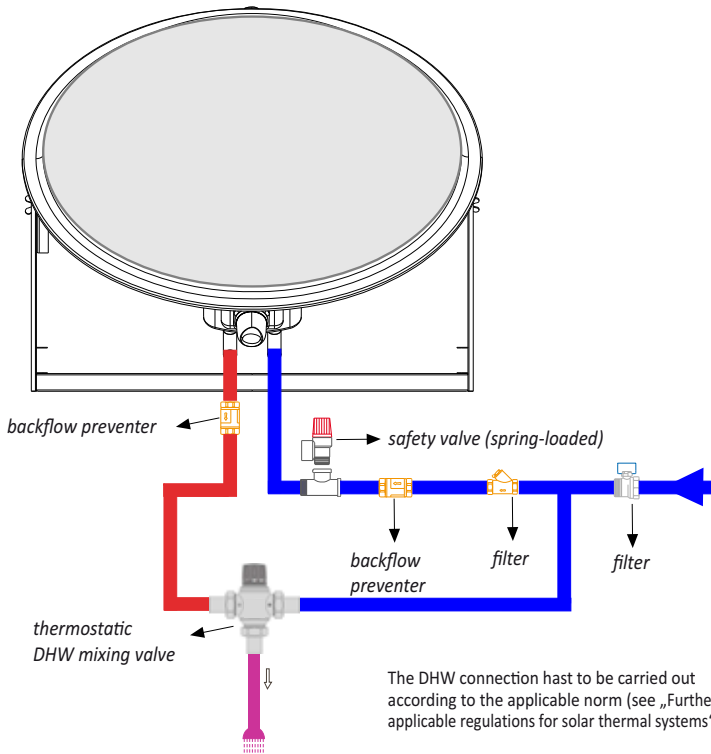
We recommend the installation of the optional available Nanosol immersion heater 2 kW



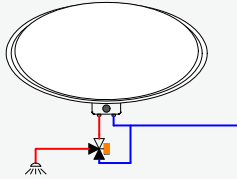
**optional accessory:
DHW mixing valve**

range from 30 to 65 °C
operating pressure 0,2 to 5 bar
incl. connection 3/4" male thread

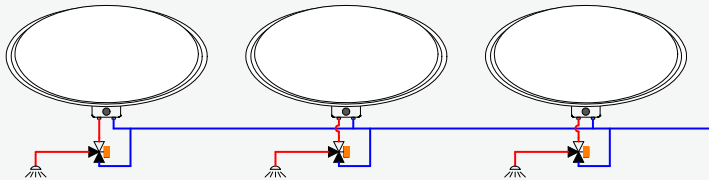
Connection



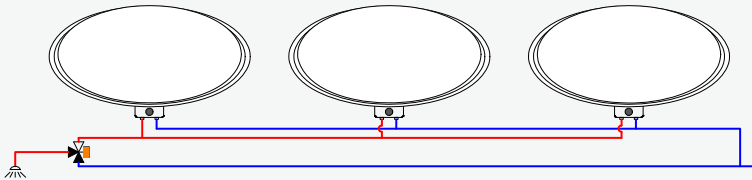
Connection example



*single, with thermostatic DHW mixing valve (optional),
existing cold water connection according to valid norms*



*multiple, with thermostatic DHW mixing valve (optional),
existing cold water connection according to valid norms*



*multiple, according to Tichelmann system, with thermostatic DHW mixing valve (optional),
existing cold water connection according to valid norms*

These schemes are only an installation example and do not replace technical planning!

Installing the immersion heater (optional)

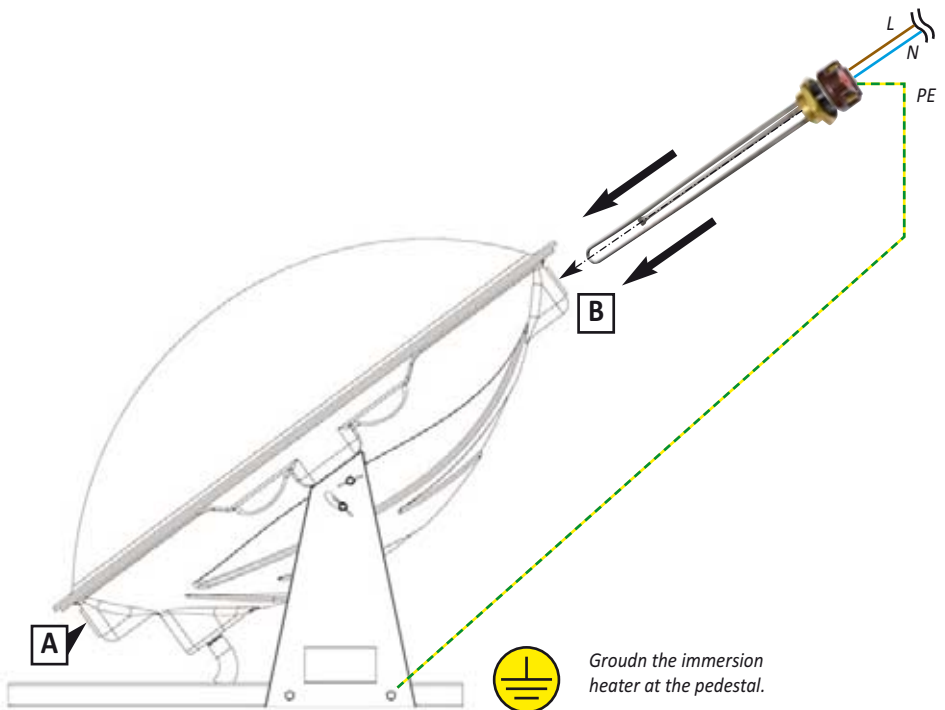
Electrical connections

Electrical installations need to be carried out by an electrician by observing the regulations VDE 0100 and the guidelines of the local public utility.

Either screw the immersion heater into the lower (A) or into the upper opening (B) on the collector, you have to make sure that the threads are properly sealed in order to prevent the emission of water and steam.



Caution: danger of life:
 Disconnect the power supply before the installation! Never touch live parts!



Further applicable regulations for solar thermal systems

The general and special quality and test regulations are only applicable in combination with the applicable laws, regulations and norms and their sections that refer to the scope of application of quality regulations for solar systems. The most recent version is to be kept as basis for the quality regulations:

BGI 656 Personal protective equipment against falls – correct use,
BGR 203 - Working on roofs,
BGV A1 *Accident-Prevention Regulation* - Principles of Prevention,
BGV A2, A3 Electrical Installations and Equipment,
BGV C22 Construction work,
Chemicals Act (ChemG),
DIN 1055 Actions on structures,
DIN EN 1057 Copper and copper alloys - Seamless, round copper tubes for water and gas in sanitary and heating applications,
Technical rules of DVGW,
DIN EN 12449 Copper and copper alloys - Seamless, round tubes for general purposes,
DIN EN 1652 Copper and copper alloys - Plate, sheet, strip and circles for general purposes
DIN EN 12735-1 Copper and copper alloys - Seamless, round copper tubes for air conditioning and refrigeration - Part 1: Tubes for piping systems,
DIN 1988 Codes of practice for drinking water installations (TRWI); general information,
DIN 1988-4 Codes of practice for drinking water installations (TRWI); drinking water protection and drinking water quality control,
DIN EN 806 - 1-3 Specification for installations inside buildings conveying water for human consumption,
DIN EN 1717 Protection against pollution of potable water installations and general requirements of devices to prevent pollution by backflow,
DIN 4753 - 1 Water heaters, water heating installations and storage water heaters for drinking water,
DIN 4753 - 11 Water heaters and hot water systems for drinking and service water; indirect heat exchangers; requirements, testing and marking,
DIN EN 1991 Teil 1-3 Eurocode 1,
DIN EN 1991 Teil 1-4 Eurocode 1,
DIN 1946 Ventilation systems (VDI ventilation code),
DIN 4102 Fire behaviour of building materials and building components,
DIN 4807 Expansion vessels,
DIN 53384 Testing of plastics; artificial weathering or exposure in laboratory apparatus; exposure to UV-radiation,
pr DIN EN 12897 Water supply - Specification for indirectly heated unvented (closed) storage water heaters,
DIN EN 12975-1 Thermal solar systems and components - Solar collectors - Part 1: General requirements,
DIN EN 12975-2 Thermal solar systems and components - Solar collectors - Part 2: Test methods (including corrigendum AC:2002),
DIN EN 12976-1 Thermal solar systems and components - Factory made systems - Part 1: General requirements,
DIN EN 12976-2 Thermal solar systems and components - Factory made systems - Part 2: Test methods,
DIN V ENV 12977-1 Thermal solar systems and components - Custom built systems - Part 1: General requirements for solar water heaters and combisystems,
DIN V ENV 12977-2 Thermal solar systems and components - Custom built systems - Part 2: Test methods,
BDH Information sheet n° 34: Operational safety of solar thermal systems,
DIN V ENV 12977-3 Thermal solar systems and components - Custom built systems - Part 3: Performance test methods for solar water heater stores,
DVGW – worksheet GW2 Connecting copper pipes for gas and water installations
KTW – recommendation 1-6,
DVGW – worksheet W 270 Reproduction of microorganisms on materias for drinking water – Test methods and rating,
DVGW – worksheet W 551 „Potable water heating systems; technical measures for the decrease of legionella growth; planning, formation, operation and restoration of potable water systems“,

EU Pressure equipment directive PED 97/23/EC,
EEC directive 89/336/EEC Electromagnetic compatibility,
EEC directive 73/23/EEC Low voltage,
EEC directive 89/292/EEC Machinery,
EU directive 67/548/EEC classification, packaging and labelling of dangerous substances,
EU directive 91/155/EEC safety documents,
Ordinance on Hazardous Substances (GefStoffV),
RAL-GZ 429, Roof construction,
RAL-RG 641/1, Copper pipe,
RAL-RG 641/2, brazing solder and brazing flux and solder paste for copper,
RAL-RG 641/3, soft solder, solder flux and solder paste for copper,
RAL-RG 641/4, Capillary soldered fittings made of copper pipes,
RAL-GZ 655, Pipe supports,
Regulation guideline of the ZVDH (German Central Association of the Roofing Trade),
Technical Rule for Hazardous Substances (TRGS 519),
Energy Saving regulation EnEV on energy saving thermal insulation and on energy efficiency in buildings,
VDI 2067 Economic efficiency of building installations,
VDI 6002 Solar heating for potable water,
VDI 2035-1 Prevention of damage in water heating installations - Scale formation in domestic hot water supply installations and water heating installations,
VDI 2035-2 Prevention of damage in water heating installations - Water-side corrosion,
Regulation on the classification on substances hazardous to water (VwVwS),
Drinking water Ordinance (TrinkwV).

Instructions for lightning protection

The general principles for protection against lightning are stated in DIN EN 62305 part 3 / VDE 0185-305-3 (protection against lightning, physical damage to structures and life hazard) and in supplementary sheet 2 (Photovoltaic and solar thermal systems).

If a lightning protection system is installed on a structure as external lightning protection the collectors and its installation rails have to be connected to the protection system. A specialist for lightning protection has to check if either the solar system is within the range of a lightning protection system or what arrangements have to be met. Attention: It is not allowed to draw a conductive connection between the collector and the existing lightning protection system (danger of launching the lightning into the house!) A safety clearance of approx. 0,5 m from the collector array to the conductive parts of the lightning protection system has to be maintained to all sides. The exact calculation of the safety clearance is stated in DIN EN 62305 part 3. If it is impossible to keep up the safety clearance a specialist for lightning protection has to realize the necessary regulations.

Furthermore it has to be considered: If the lightning protection is outdated and no longer in accordance with the norm, the right of continuance expires due to the mounting of the collectors. In this case the lightning protection system has to be revised.

Source: information sheet no. 34, march 2009, Operating Reliability of Solar Thermal Systems. For further information see: www.BDH-Koeln.de

Overload protection: In order to protect the collector sensor and the control unit against overload you can install an overload arrester. Nearby lightning might induce voltage peaks which can destroy the sensor or the control unit. Protective diodes limit the damage caused by overload to a minimum. Solarbayer control units are regularly equipped with an overload protection.

Potential equalization: The solar system is to be connected to the structure's existing potential equalization by a specialist.

When planning and mounting, it is always the most recent version of this guidelines and regulations that has to be paid attention to!



We develop for your future

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