

BL25ST

SOLAR CHARGING MODULE

SONENKRAFT

Ⓒ GB Installation- &
Operating instructions



Table of content

General	3
Usage	3
Example	3
Description	3
Warnings	3
Warranty	3
Structure of the solar charging module	4
Technical data	5
Installation and commissioning	5
Mounting	5
Positioning of the charging module	5
Mounting on the buffer tank	6
Hydraulic connection	7
Electrical connection	7
Commissioning	7
Flushing and filling the collector circuit	8
Regulations	9
Pump characteristic curve / power consumption	10

General

Before you put your new charging module into operation, read all chapters thoroughly, pay special attention to the warnings in the chapter "Warnings". Improper handling may result to damage to the system.

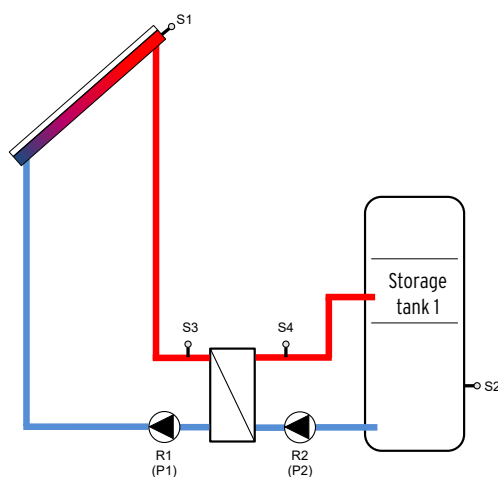
Before you start with the installation, you should pay attention to the following points:

- This device is not intended for operation by persons (including children) with limited physical abilities, sensory or mental abilities.
- Ignorant or inexperienced persons are only allowed to operate the device under the supervision or instruction of a person responsible for safety.
- The installations must comply with the respective official requirements.

Usage

The charging module BL enables a temperature-dependent loading of the buffer storage tank. The solar loading is speed controlled, energy efficient and suitable for buffer storage tanks.

Example of use



Description

The charging module is used to connect a solar collector system up to 25 m² to a buffer storage tank. Via the heat exchanger, the solar heat is transferred from the collector circuit to the buffer circuit. An intelligent control system ensures the optimum interaction depending on the sunlight of the solar and buffer charging pump and guarantees a high heat transfer capacity.

Warnings



- Installation and operation must be carried out in accordance with local regulations and common practice.
- Installation, maintenance and cleaning of the charging module may only be performed by qualified personnel.
- The specified operating pressures must not be exceeded!
- In the event of faults or failures of any kind, please contact your heating installer. Please do not take any repairs to the system which are not permitted by law and could expose you to danger.

Warranty

The manufacturer provides a 2-year warranty on the delivered products and components from the date of delivery.

Unauthorized conversions or modifications to the system are not permitted for safety reasons and will result in damage to the system inevitably that leads to loss of warranty.

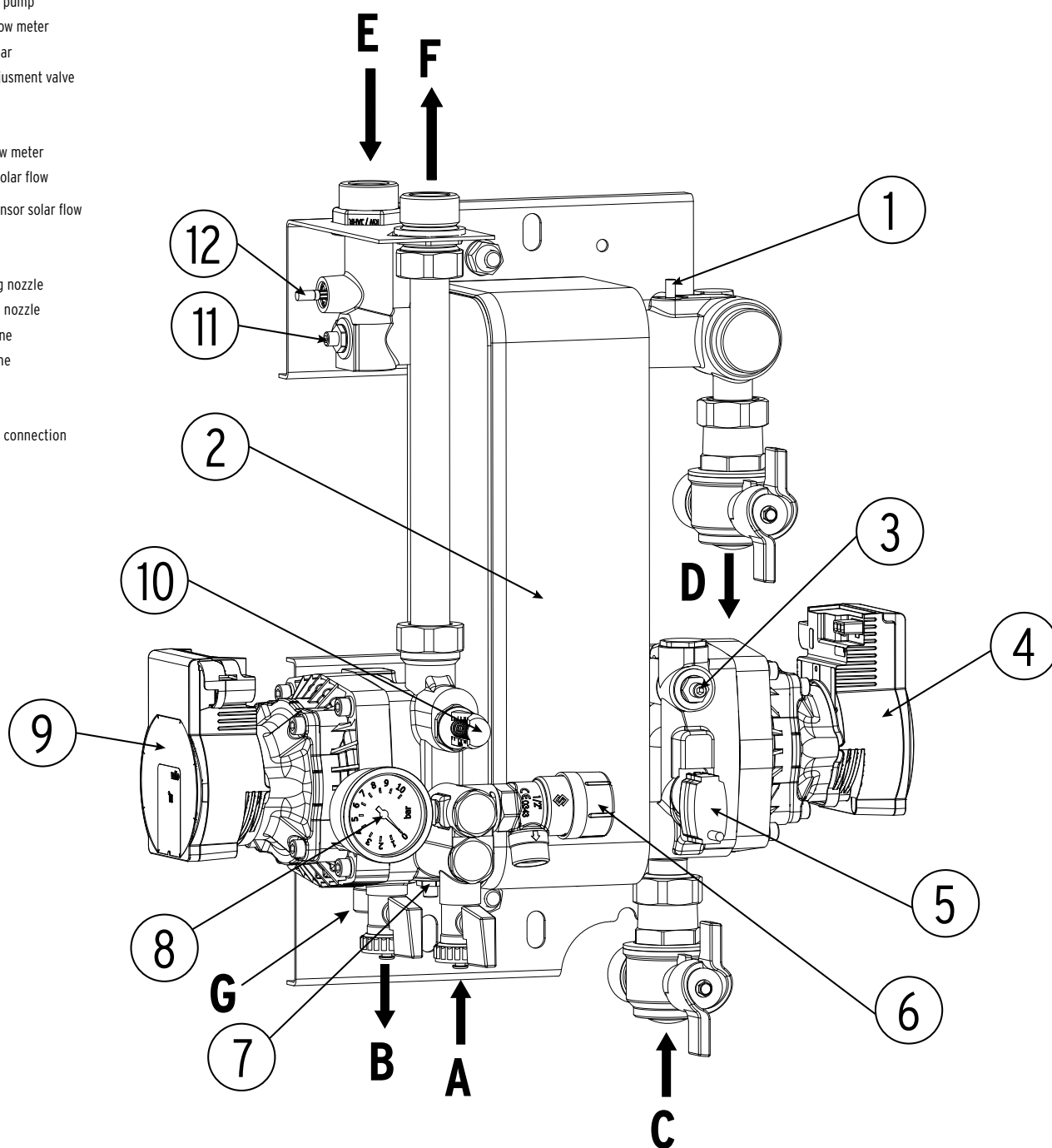
Structure of the charging modul

Due to the technical development of our products we reserve the right to change the design and construction of our products changes. The station may differ in appearance from the illustration!

- 1 Temp. sensor - buffer inflow line
- 2 Heat exchanger
- 3 Buffer circuit adjustment valve
- 4 Buffer charging pump
- 5 Buffer circuit flow meter
- 6 safety valve 6 bar
- 7 Solar circuit adjsument valve
- 8 Manometer
- 9 Solar pump
- 10 Solar circuit flow meter
- 11 Shut-off valve solar flow
- 12 Temperature sensor solar flow

Connections

- A KFE-valve filling nozzle
- B KFE-valve drain nozzle
- C Buffer return line
- D Buffer inflow line
- E Solar flow
- F Solar Return
- G Expansion tank connection



Technical data

Charging module	BL 25
width x height x depth [mm]	330 x 685 x 290
Cover	EPP black
Piping Solar [mm]	Copper pipe - Ø 22
Piping buffer [mm]	Corrugated stainless steel hose 1 "
Weight [kg]	22
Connections	
A KFE-valve filling nozzle	G 3/4" male
B KFE-valve drain nozzle	G 3/4" male
C Buffer return line	G1" male
D Buffer inflow line	G1" male
E Solar flow	G1" male
F Solar Return	G1" male
G Expansion tank connection	G3/4" male
Maximum operating pressure	
Collector circuit [bar]	max. 6
Buffer circuit [bar]	max. 3
Solar pump	Para HU 25/7.0
Nominal voltage [VAC/Hz]	230 / 50
Nominal power [W]	3 - 45
max. delivery head [m]	max. 7
Buffer charging pump	Para HU 25/7.0
Nominal voltage [V/Hz]	230 / 50
Nominal power [W]	3 - 45
max. delivery head [m]	max. 7
Plate heat exchanger (glycol/water)	
Power [kW]	15
Inlet temperature [°C] (glycol/water)	60 / 29
Outlet temperature [°C] (glycol/water)	35 / 54
Flow rate [l/h]	500

Installation and Commissioning

Installation

The installation must be carried out by an approved specialist company. This company also takes over the responsibility for proper installations and commissioning. A dry, frost-proof room is required as installation site, which offers sufficient space for maintenance work.

The charging module must be installed splash-proof and may only be used at room temperatures below 40° C.

Positioning of the charging module

To avoid heat loss, buffer tank mounting is recommended.



Excessive tightening of the mounting screws will damage the insulation.

Mounting on the tank



Mounting on the tank is done in four steps with the enclosed mounting material:

- Picture 1

Mount and tighten the two threaded rods and the two corrugated hoses including seals at the corresponding connections on the storage tank (max. 70 Nm).

- Picture 2

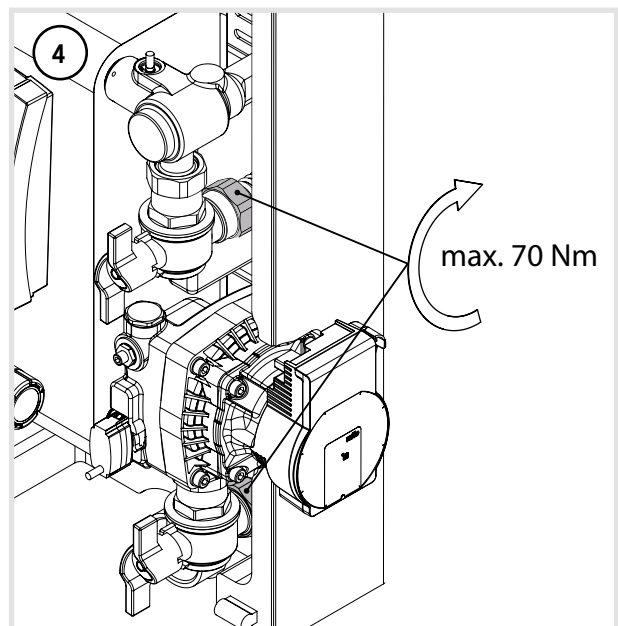
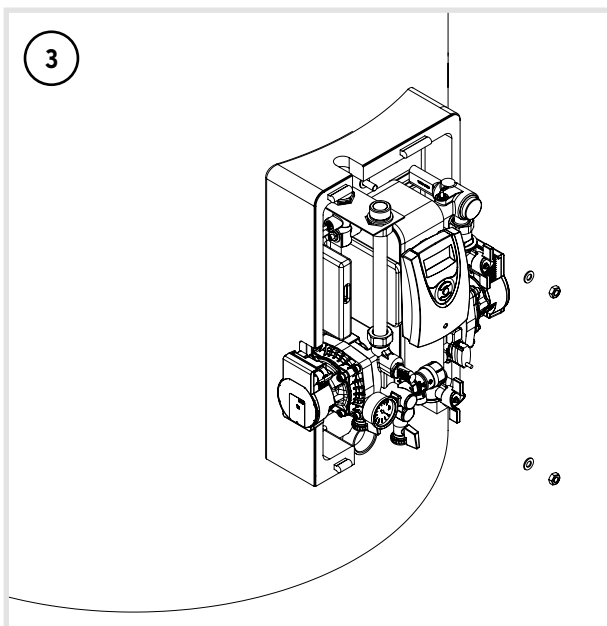
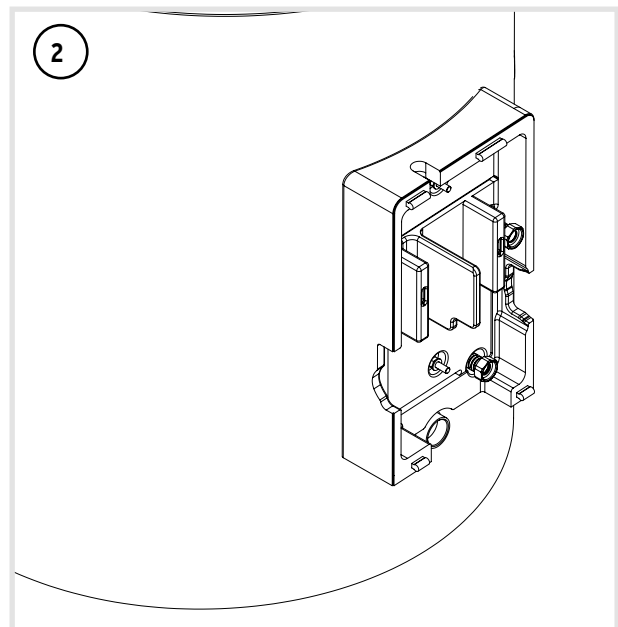
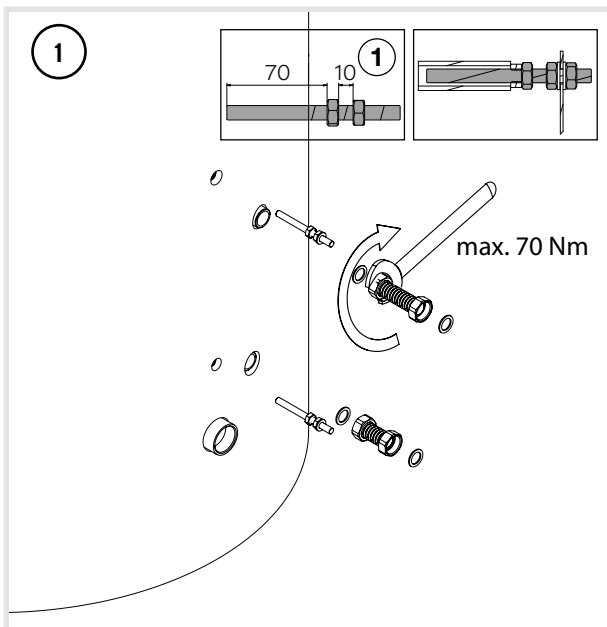
Put the charging module tray over the corrugated hoses and the threaded rods.

- Picture 3

Put the charging module over the corrugated hoses and the threaded rods and secure it with the washers and nuts on the buffer tank.

- Picture 4

Tighten the two corrugated hoses with the seals on the station.



Hydraulic connection

The piping is connected according to the system diagram (see page 3), either directly to the buffer.

- The routing of the pipes to the buffer should be as short as possible!
- We recommend steel or copper as pipe material. For all pipes and fittings, the installation sequence must be followed to avoid electrochemical corrosion.
- The installation in gravity heating systems is not permitted!
- The connection of the expansion tank of the collector circuit must be designed as a direct connection.
- The installation of shut-off valves (except suitable maintenance units such as cap valves) is not permitted!
- Connections must only be tightened after the piping has been sealed. Tightening torques or force effects on already pre-assembled components and connection points of the module must be avoided at all costs!



In addition, all flat-sealing screw connections must be checked for the correct tightening torque (max. 70 Nm) of the union nuts (by transport, screwed connections can become loose).

Electrical connection

The internal wiring of the electrical system components was carried out at the factory. The connection to the power supply system (230 V/AC, 50 Hz) is done by the already connected mains cable.

The included buffer sensor is attached to the corresponding measuring point of the buffer storage tank (see diagram on page 3) and connected to the relevant terminals of the control system, just like the collector sensor. Additional information from the integrated controller can be found in the manual of the control unit.

Work on current-carrying parts of the station may only be carried out in compliance with the respective regulations of energy supply company and the valid, relevant standards.

Commissioning



Only use treated water according to the standards (e.g. ÖNORM H 5195-1:2010).

Filling and commissioning must be carried out by an approved specialised company and licensed personnel. The function and tightness of the entire system, including the parts assembled at the manufactory, must be checked. The function of the safety valve must be checked at regular intervals. Annual maintenance by a specialist company is recommended. Slowly opening the ball valves at the outlets and inlets of the station avoids pressure shocks during the rinsing process. To fill the collector circuit, use the flushing connections provided (see page 4).

At the end of the filling process, close the collector return flow and adjust the system pressure to approx. 3 bar. This applies to expansion tanks with an inlet pressure of 2.5 bar, the static height of the system must be taken into account.



Before opening the control box housing, always ensure that it is disconnected from the mains voltage!

Do not fill during high solar radiation, as this can lead to steam hammering.

Flushing and filling the collector circuit

Filling and flushing must be carried out until it is ensured that the system is completely vented. Flow noises during operation of the solar pump indicate that there is still air in the system, which must be removed via the manual air vent.



Please read these points carefully before starting the rinsing or filling process!

Solar side (collector side)

- To fill the solar circuit, only an approved solar-glycol-water mixture (frost-proof to -25°) may be used.
- Before you start flushing and filling, make sure that all connections (solar flow/return flow etc.) have been fitted correctly with seals and are firmly connected.
- Connect the fill pump (flow) to the KFE-valve filling nozzle A.
- Connect the fill pump (return) to the KFE-valve drain nozzle B.
- First open KFE-valve A (handle vertical).
- Now open the KFE-valve B (handle vertical).
- Start the flushing process of the solar circuit by switching on the filling pump.
- Let the pump work until the glycol-water mixture flows back into the tank without any bubbles.
- Close the KFE-valve B (handle horizontal).
- Now pay attention to the manometer.
- When the manometer shows the desired operating pressure, close the fill and drain valve A (handle horizontal).
- You can now switch off the pump and disconnect the connections of the filling pump from the fill valves A and B.
- The solar circuit is now completely filled and ready for use.
- If there is an air noise in the circuit during operation, start again with point 1.

Buffer side

- For filling the buffer circuit and the buffer storage tank, only heating water may be used in accordance with standard ÖNORM H 5195-1:2010.
- Before you start connecting the charging module to the buffer tank, shut off ball valves C and D (handle horizontal) at the charging module.
- Before you start filling, make sure that all connections are correctly sealed, installed and permanently connected.
- First open all the valves on the buffer tank.
- Now open valve C, then valve D.
- When you no longer hear watersounds, switch on the buffer circuit pump manually, see the controller manual.
- Let this process run for a few minutes. Then switch the pump back to automatic.
- Vent the buffer tank and top up the heating water if necessary.
- The buffer circuit is now completely filled and ready for use.

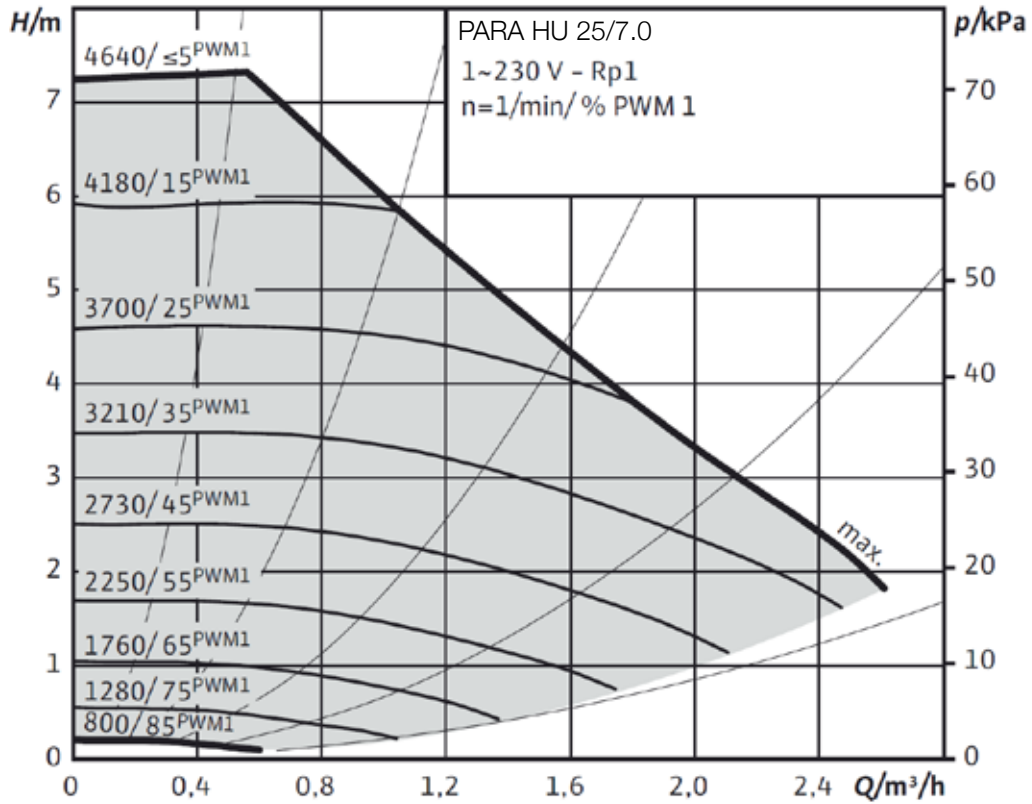
Regulations

The module must be connected in accordance with the following standards, the country-specific guidelines and the regulations of the local water company:

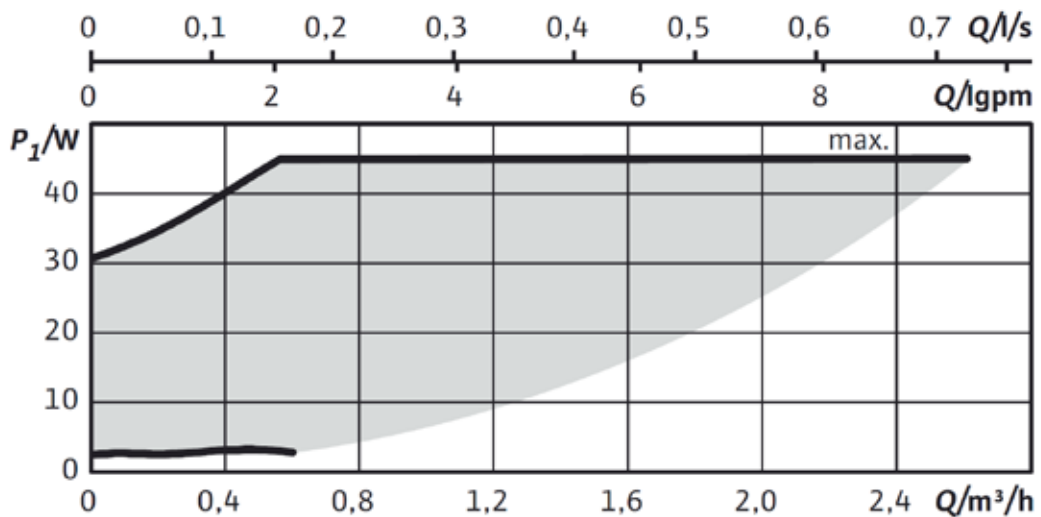
- DIN EN 12828 Heating systems in buildings
- DIN 1988 Technical rules for drinking water installations
- DIN 4708 Central hot water heating systems
- DIN 4751 Safety equipment of heating systems
- DIN 4753 Water heaters and water heating systems for drinking and process water
- DIN 4757 Solar heating and solar thermal systems
- DIN 18380 Heating and service water systems
- DIN 18381 Gas, water and sewage installation work
- DIN 18382 Electrical cable and wiring installations in buildings
- DIN EN 12975 Solar thermal systems and their components
- VDE 0100 Installation of electrical equipment
- VDE 0185 General information for the installation of lightning protection systems
- VDE 0190 Main equipotential bonding of electrical systems
- ÖNORM EN ISO9488 Solar energy - Vocabulary (ISO 9488:1999)
- ÖNORM ENV 12977-1 Thermal solar systems and their components - Customised solar systems
- ÖNORM M7700 Solar energy - Designations with definitions
- ÖNORM M7701 Solar thermal systems - Approximation method for the design of flat plate collectors in hot water installations
- ÖNORM M7731 Solar heating systems for water heating - Requirements and tests

This appliance is not intended for use by persons (including children) with reduced physical, sensory or mental capabilities or to be used for lack of experience and/or knowledge, unless they are supervised by a person responsible for their safety or have received instructions from that person on how to use it. If the power supply cord of this machine is damaged, it must be replaced by a qualified person to prevent hazards.

Pump characteristics



Power consumption



SONENKRAFT