



Solarbayer®

We develop for your future!

PRODUCT INFORMATION

Hygienic stratification storage tank HSK ÖKO

Universal heat center for legionella-safe preparation of DHW



Technical description

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Safety regulation

Please read the manual carefully to prevent damages due to improper installation. The installation has to be carried out by a specialized company in accordance with the „generally accepted codes of practice“ as well as with the valid regulations and norms. Country-specific regulations have to be regarded. Non-professional installation as well as other than the intended use will lead to the expiration of warranty.

The following engineering rules have to be particularly regarded:

DIN 1988

Codes of practice for drinking water systems

DIN 4751

Safety requirements for heating installations

DIN 4753

Water heaters and water heating installations for drinking water and service water; requirements, marking, equipment and testing

DIN EN 12975

Thermal solar systems and components

DIN 4807

Expansion vessels

DIN EN 12828

Heating systems in buildings - Design for water-based heating systems

DIN 18380

Systems for heating and central water heating

DIN 18381

Gas, water and sewage plumbing works inside of buildings

VDI 2035

Prevention of damage in water heating installations

DIN 18382

Electric Cable and Wiring Systems Inside Buildings

VDE 0100

Erection of power installations

VDE 0105

Operation of electrical installations

VDE 0190

Potential equalizing of electrical installations

*Before the installation it has to be tested if the DHW installation, especially the connection to the public water supply, is carried out in accordance with DIN 1988 and if the, stated in part 8, prescribed maintenance had taken place.
The operability of security-relevant units (e.g. pressure regulator) has to be checked in any case.

Brief description

A buffer tank as universal heat center with integrated stainless steel corrugated tube for legionella-safe preparation of DHW, with well dimensioned heat exchangers made of circular tube, improved heat layering of the heating return line in the stratification pipe.

Perfectly suitable for single and two family houses.

- ✓ connections arranged in 90° angle, possible installation in the corner
- ✓ various connection possibilities
- ✓ perfect heat stratification due to the stratification pipe
- ✓ flexible foam insulation WLG 0,039, insulation thickness approx. 100 mm, silver PVC jacket, fire protection classification B2
- ✓ high quality steel S235JR
- ✓ large solar heat exchange
- ✓ legionella-safe DHW preparation
- ✓ stainless steel corrugated hose 1.4404 with DVGW authorization
- ✓ high hot water output
- ✓ installation of an electric heating element possible

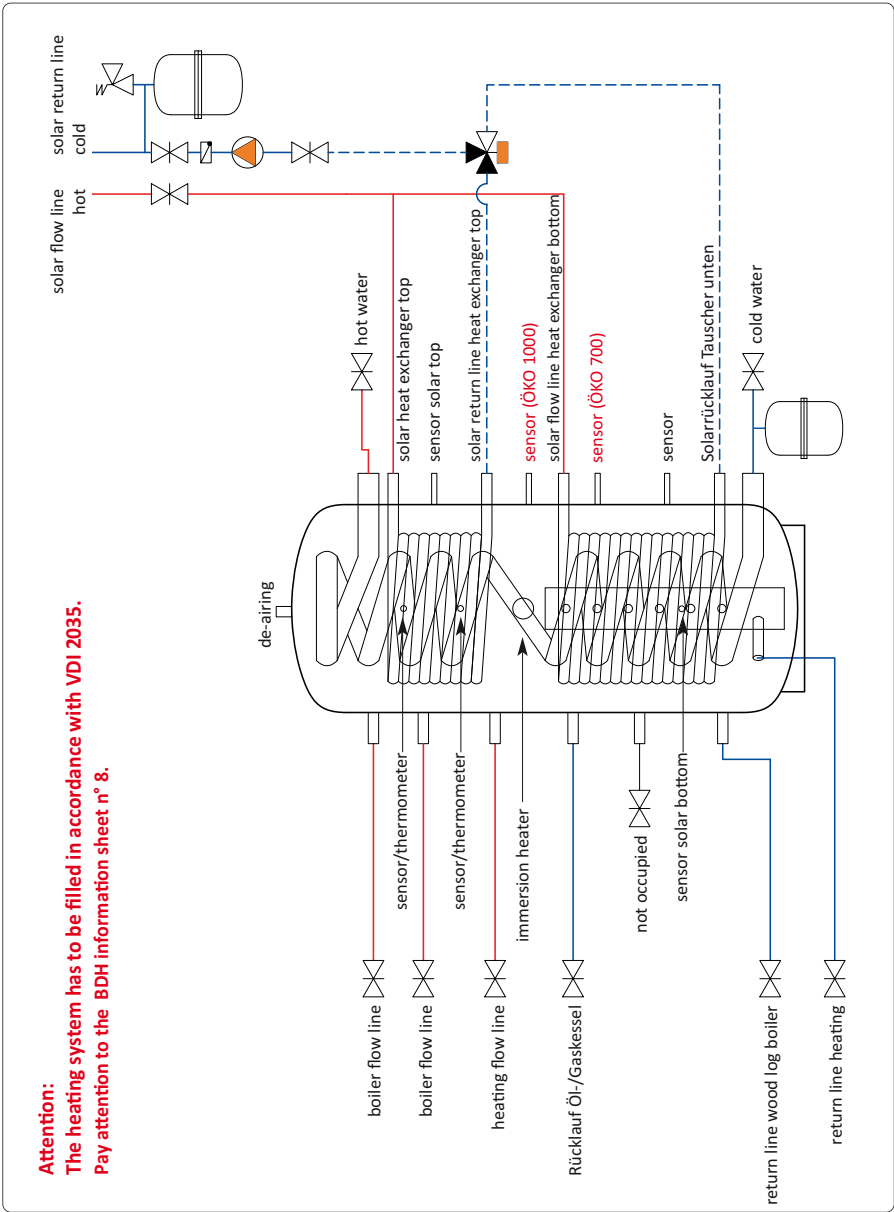
Corrosion protection

The stainless steel DHW exchanger (stainless steel corrugated tube) can be used with all DHW conditions and in every network. The corrosion protection is given by the stainless steel design.

The internal wall of the heating water tank is not corrosion protected since it is set for the application in closed heating systems as a buffer tank.

The application of the tank in pressureless heating circuits with Der Einsatz des Speichers in drucklosen Heizkreisen mit nachlaufendem Frischwasser ist nur zulässig, wenn Pufferspeicher und Holzkessel mittels Systemtrennung vom drucklosen/offenen Teil der Heizungsanlage getrennt ist.

Description of connections

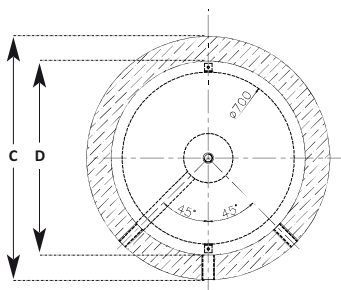
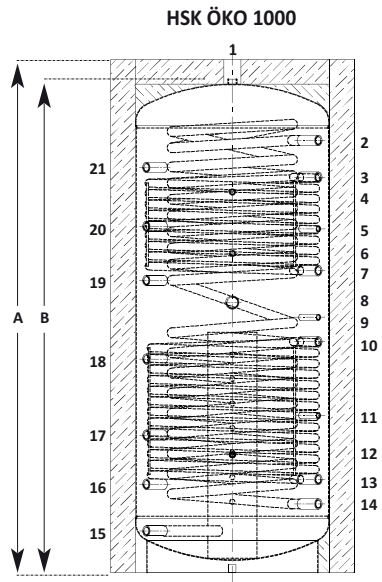
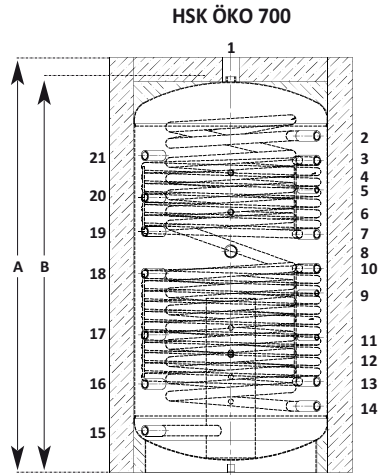


Technical specifications

Hygienic stratification storage tank HSK-ÖKO			700	1000
capacity approx.		L	674	913
height with insulation	[A]	mm	1690	2090
height without insulation	[B]	mm	1610	2010
tilted height		mm	1795	2040
diameter with insulation	[C]	mm	990	990
diameter without insulation	[D]	mm	790	790
flexible foam insulation (PVC jacket)		mm	100	100
weight approx. (without / with heat exchanger)		kg	185	240
max. operating temperature heating water		bar	6	6
max. operating pressure heating water		°C	95	95
internal stratification system		mm	∅ 185	∅ 185
max. size of electric heating element (optional)		kW	6	6
Specification stainless steel DHW heat exchanger			700	1000
capacity DHW heat exchanger approx.		L	39	39
heating surface DHW heat exchanger approx.		m ²	5,64	5,64
continuous output 10/45 at 17 kW and temperature buffer 65°C		L/h	426	426
continuous output 10/45 at 27 kW and temperature buffer 65°C		L/h	670	670
continuous output 10/45 at 50 kW and temperature buffer 65°C		L/h	1200	1200
stainless steel DHW heat exchanger		mm	∅ 32	∅ 32
max. operating pressure DHW heat exchanger		bar	6	6
max. operating temperature DHW heat exchanger		°C	95	95
Specification solar heat exchanger			700	1000
heating surface solar heat exchanger top		m ²	1,6	2,0
capacity solar heat exchanger top		L	6,8	8,0
heating surface solar heat exchanger bottom		m ²	2,5	2,8
capacity solar heat exchanger bottom		L	14,1	15,1
max. operating pressure solar heat exchanger		bar	10	10
max. operating temperature solar heat exchanger		°C	110	110
recommended min. collector surface		m ²	14	17
Thermotechnical facts HSK ÖKO			700	1000
rate of heat loss in stagnancy according to DIN EN 12976 or DIN ENV 12977-3		W/K	2,02	2,22
rate of standby loss ΔT 45°C according DIN 4753-8		kWh/d	2,18	2,39

Technical facts, dimensions

Connections with dimensioning				700	1000
de-airing	1" IG	[1]	–	top	top
hot water	1" IG	[2]	mm	1370	1760
flow line solar exchanger top	1" IG	[3]	mm	1270	1610
sensor/thermometer	½" IG	[4]	mm	1220	1550
sensor solar top	½" IG	[5]	mm	1150	1400
sensor/thermometer	½" IG	[6]	mm	1060	1300
return line solar top	1" IG	[7]	mm	970	1230
electric heating element	1½" IG	[8]	mm	900	1100
sensor	½" IG	[9]	mm	730	1040
flow line solar exchanger bottom	1" IG	[10]	mm	830	940
sensor	½" IG	[11]	mm	550	640
sensor solar bottom	½" IG	[12]	mm	480	480
return line solar exchanger bottom	1" IG	[13]	mm	370	380
cold water	1" IG	[14]	mm	270	280
return line heating	1" IG	[15]	mm	170	170
return line wood log boiler	1" IG	[16]	mm	360	360
not occupied	1" IG	[17]	mm	560	560
return line oil/gas boiler	1" IG	[18]	mm	810	870
flow line heating	1" IG	[19]	mm	980	1190
flow line boiler	1" IG	[20]	mm	1120	1410
flow line boiler	1" IG	[21]	mm	1290	1650



Installation / general information

Location

The tank has to be located in a frost-protected place. Ice formation inside the system may lead to the tank's destruction.

The location has to have the necessary space for maintenance and repair work, as well as sufficient load-bearing capacity of the ground!

Site clearance for dismantling the tank and for transport has to be ensured permanently.

Insulation

The insulation has to be mounted before piping begins.

Do not get near the insulation with fire, brazing flame, welding torch, etc.; fire hazard!

Piping

The tank is to be installed in accordance with the piping diagram [*chapter: Description of connections*]. This diagram is only a mounting proposal and does not replace professional planning. The connection has to be carried out in accordance with DIN. .

The minimum diameter of the safety valve has to be DN20 (¾").

Attention has to be paid to possible electro-chemical reactions when choosing the installation material (mixed installation)! Galvanized pipe installations have to be replaced.

With DHW temperatures of more than 60°C it is generally recommended to limit the temperature by a mixing valve to 60°C!

The connection components have to be aligned to these temperatures or the temperature has to be limited by means of a mixing valve!

Operating pressure

The permissible operating pressures according to our technical specifications [*chapter: technical specifications*] have to be observed. Exceeding the permissible operating pressure may lead to leaks and destruction of the tank!

Pressure-reducing valve

The installation of a pressure-reducing valve is recommended. If the DHW supply is operated with higher pressure a pressure reducing valve has to be installed.

In order to reduce sounds caused by fluxion inside the building the pipeline pressure should be adjusted to approx. 3,5 bar.

DHW filter

It is highly recommended to install a DHW filter in the cold water pipeline since floating particles may block fittings, etc. and may cause corrosion in the pipes.

Safety devices

The tank has to be equipped with a non-lockable safety valve. Moreover, an expansion vessel has to be installed that is dimensioned according to the tank's capacity. It is to be locked only with a cap valve.

An expansion vessel for sanitary water has to be installed for the stainless steel heat exchanger.

A safety temperature limiter has to be installed in accordance with heating system regulations for scalding protection means.

Next to the exhaust line of the safety valve, or even better, on the valve itself, an indication plate has to be installed, saying: :

"Water is leaking from the valve's pipe for safety reasons during the heating. Do not close!"

Draining/de-airing

The tank has to be installed in such a way that it can be drained without demounting it.

While draining, hot water might exit and cause injuries.

The upper socket is provided for de-airing the tank.

We do not recommend the use of an automatic bleeder.

Immersion heater (optional)

The tank can additionally be equipped with an electric heating element. You have to respect the regulations of your local public utility when installing an immersion heater.

The electric heating elements have to be insulated. It is only with insulation that the corrosion protection is guaranteed.

Electric heating elements with insulation and integrated temperature control and safety temperature limiter are optional available at Solarbayer.

If electric heating elements without insulation are used, the tank's warranty expires. .

Initial operation

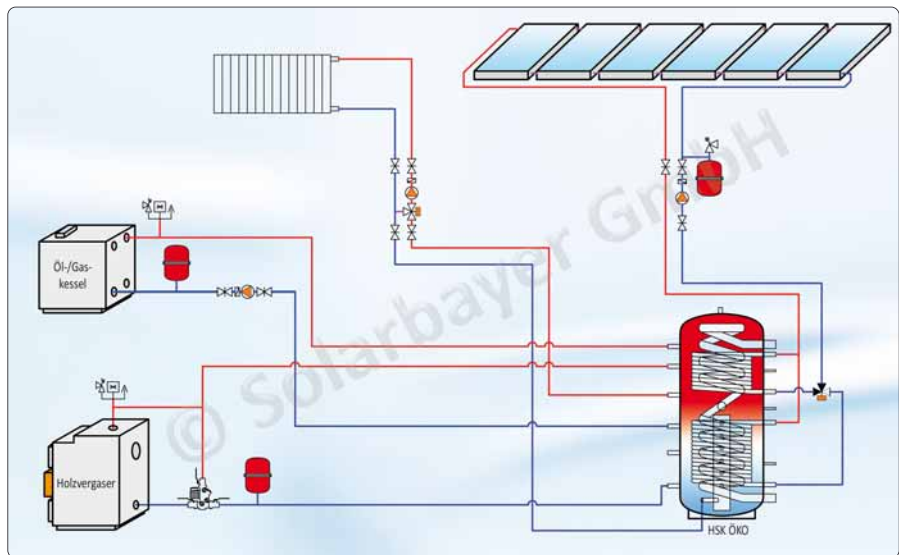
Connections that are not used have to be sealed professionally with plugs.

Thoroughly rinse pipes and tank after mounting, **heating system has to be filled with treated water according to VDI 2035** and bled.

Note for installers :

Record the pressure test and the proper filling of the heating system with water in accordance with VDI 2035 and let it countersign by your customer.

Connection example



This connection diagram is only an installation proposal and does not replace technical planning!

Insulation

flexible foam insulation		100 mm
jacket with zipper		PVC foil 0,8 mm + 5 mm flexibel foam
jacket color		silver
foam density	kg/m ³	14,1 (+/- 5%)
compressive resistance 40%	KPo	2,1 (+/- 5%)
initial heat conductivity	W/mK	0,039 (+/- 5%)
loss of density	%	5 Max
rebound elasticity	%	45 (+/- 5%)
porosity	N° Celle cml	17 (+/- 5%)
fire protection classification		B2

Attention! Only install the insulation with a room temperature of at least 22°C!
Pre-heat the insulation several hours in a heated room and mount it when still heated!
The flexible foam and the PVC jacket are too hard and too short when the insulation is cold!

Never use a tong or other tools in order to close the insulation!

Installation of the insulation



1

Delivery condition



2

Store single components in a warm room



3

Lift the tank of the pallet



4

Only mount insulation when pre-heated!
Pre-heat it for 24 hours to at least of 22 °C.



5

Adjust sockets to insulation



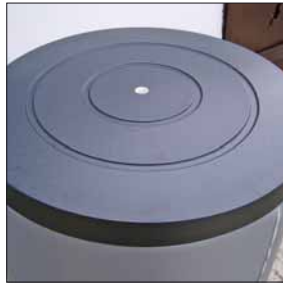
6

Watch out when closing the zipper (danger of tearing the insulation when cold)
Do not use a tong or other tools.





Put on the insulation cap and its cover



Feel for the sockets



Carefully cut out holes



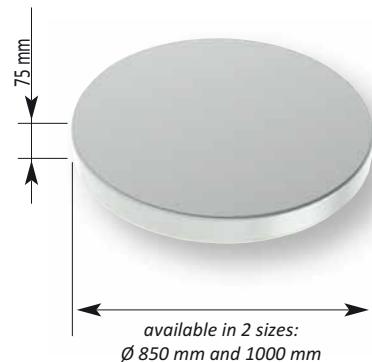
Attach covering rosette

We disclaim any liability for damages due to inappropriate installation.

Inappropriate insulation of the tank's bottom is not allowed.

Tank sockets are available for the common tank sizes up to 1000 liter. You can increase the energetic efficiency with a perfect bottom insulation. Especially when renovating old buildings an additional bottom insulation is recommended. Our tank socket is an easy to realize alternative for this since it has excellent insulation characteristics.

Our tank sockets are made of galvanized steel and the rear side is insulated with rigid foam.



Trouble shooting

problem	possible reason	solution
leakage	leaky pipe connection	<ul style="list-style-type: none"> • seal the connections • tighten pipe connections
heating-up period too long	air in the system	<ul style="list-style-type: none"> • bleed the system
	heating water temperature set too low with control unit	<ul style="list-style-type: none"> • increase temperature setting at the control unit
	scaled heat exchanger surfaces	<ul style="list-style-type: none"> • run system with water treated in accordance with VDI 2035
no/too small loading and unloading of the tank when heating is required (in the heating water circuit)	heating controller not set correctly	<ul style="list-style-type: none"> • set controller
	tank temperature too low	<ul style="list-style-type: none"> • check heat sources (e.g. performance data)
	changeover valve defect or installed incorrectly	<ul style="list-style-type: none"> • check function
	flow-rate is too low in the heating circuit	<ul style="list-style-type: none"> • bleed heating circuits • increase pump performance • check pipe dimensions, if necessary adjust them
unwanted tank cooling	gravity circulation in the solar/heating/circulation circuit	<ul style="list-style-type: none"> • check/install check valve with gravity break
	pipng insulation not sufficient	<ul style="list-style-type: none"> • insulate piping/tank connections
	tank insulation not sufficient	<ul style="list-style-type: none"> • mount Solarbayer tank insulation
DHW temperature too low	safety temperature limiter set too low	<ul style="list-style-type: none"> • increase temperature at the safety temperature limiter (thermostatic DHW mixing valve)
	heating water temperature too low	<ul style="list-style-type: none"> • place tank sensor correctly • increase tank temperature at the control unit
	supplementary heating starts too late	<ul style="list-style-type: none"> • check parameter of the heating controller (turn-on temperature difference)



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