

Storage systems

Heat storage tanks for cozy warmth

Perfect heat storing
for heating and domestic hot water



System technology made in Bavaria



Tank types:

- Stratification buffer tank **SPS**
- Heat pump storage tank **WP**
- Solar DHW storage tank **SKL**
- Hygienic stratification storage tank **HSK ÖKO**
- Hygienic stratification buffer tank **HSK SLS**

Fire protection insulation ISO-B1®








Our storage tanks **SPS** and **HSK-SLS** are also available with fire protection insulation ISO-B1



Solarbayer®

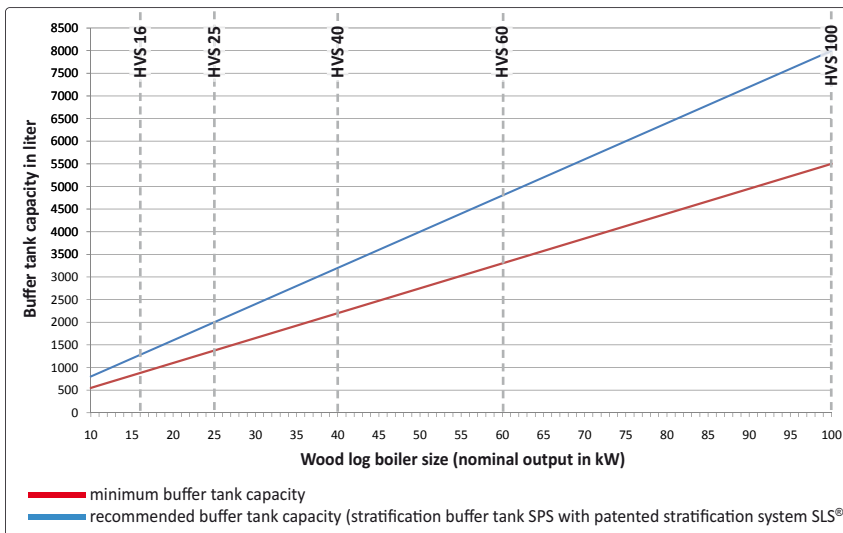
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Intended purpose and specific application areas of the different types of storage tanks

Type of storage tank	Heating buffer tank	Stratification system SLS®	Heat exchanger (1 HE, bottom)	Heat exchanger (2 HE, bottom + top)	DHW preparation	Intended purpose	Advantages
 <p>Stratification buffer tank SPS (without heat exchanger)</p>	●	●	○	○	○	<ul style="list-style-type: none"> 500 to 5.000 Liter, special sizes on request heating buffer tank for space heating 	<ul style="list-style-type: none"> perfect heat layering when loading and unloading (SLS® system) recommended for the integration of biomass boilers, heat pumps, etc.
 <p>Stratification buffer tank SPS-S (1 solar heat exchanger, bottom)</p>	●	●	●	○	○	<ul style="list-style-type: none"> 500 to 5.000 Liter, special sizes on request heating buffer tank for space heating one integrated heat exchanger 	<ul style="list-style-type: none"> perfect heat layering when loading and unloading (SLS® system) recommended for the integration of biomass boilers, heat pumps, etc. integration of a solar system is possible
 <p>Stratification buffer tank SPS-S 2 WT (2 solar heat exchanger, bottom and top)</p>	●	●	●	●	○	<ul style="list-style-type: none"> 500 to 5.000 Liter, special sizes on request heating buffer tank for space heating two integrated heat exchanger 	<ul style="list-style-type: none"> perfect heat layering when loading and unloading (SLS® system) recommended for the integration of biomass boilers, heat pumps, etc. perfect integration of a solar system is possible (2 zone arrangement) perfect for fresh water stations
 <p>Heat pump storage tank WP (enameled)</p>	○	○	●	●	●	<ul style="list-style-type: none"> 350 and 500 Liter Hot water tank for the preparation of DHW two integrated heat exchanger 	<ul style="list-style-type: none"> recommended for the integration of a heat pump or solar system especially suitable for high hot water output due to the huge double wound heat exchanger
 <p>Solar DHW storage tank SKL (enameled)</p>	○	○	●	●	●	<ul style="list-style-type: none"> 350 and 500 Liter Hot water tank for the preparation of DHW two integrated heat exchanger 	<ul style="list-style-type: none"> integration of a solar system is possible
 <p>Hygienic stratification storage tank HSK-ÖKO (stainless steel DHW exchanger)</p>	●	○	●	●	●	<ul style="list-style-type: none"> 700 and 1.000 Liter heating buffer tank for space heating as well as hygienic hot water preparation inside the integrated stainless steel heat exchanger two integrated heat exchanger 	<ul style="list-style-type: none"> perfect integration of a solar system is possible (2 zone arrangement) hot water preparation via integrated stainless steel heat exchanger (Ø 32 mm), hygienic DHW at all times cost-optimized alternative
 <p>Hygienic stratification buffer tank HSK-SLS (stainless steel DHW exchanger)</p>	●	●	●	●	●	<ul style="list-style-type: none"> 500 to 2.200 Liter, special sizes on request heating buffer tank for space heating as well as hygienic hot water preparation inside the integrated stainless steel heat exchanger two integrated heat exchanger 	<ul style="list-style-type: none"> perfect heat layering when loading and unloading (SLS® system) perfect integration of a solar system is possible (2 zone arrangement) hot water preparation via integrated stainless steel heat exchanger (Ø 48 mm), hygienic DHW at all times high hot water output

Planning aid: calculating the correct buffer tank size

Calculating the buffer tank size for wood log boilers

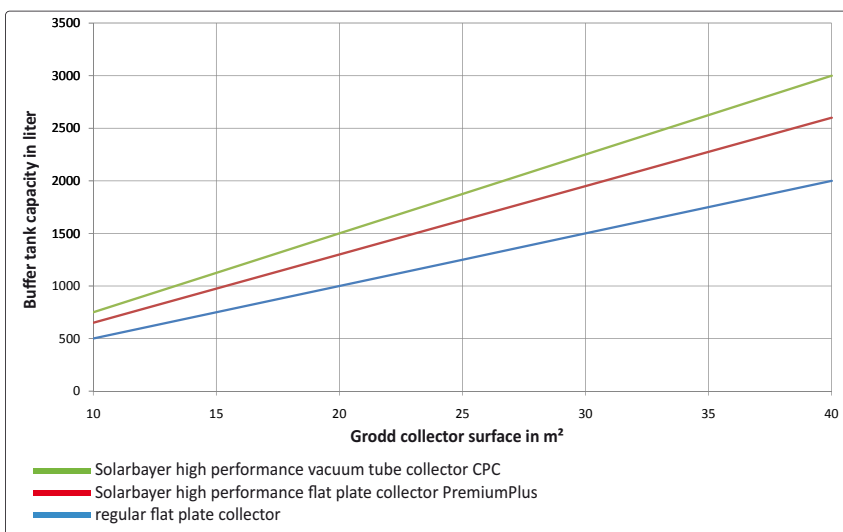


Rule of thumb for calculating the buffer tank capacity for wood log boiler systems:

- a minimum of 55 liter per kW nominal boiler output*
- even better: 80 liter per kW nominal boiler output
- with standard buffer tanks you should not use more than 100 liter per kW nominal boiler output unlike the high performance Solarbayer buffer tanks because of the exact heat layering you can apply tanks with an even larger capacity

The buffer tank capacity should also perfectly match the application of other renewable energy sources. In practice a total tank capacity of 50-70 liter per m² collector surface area has proven as useful. If a bigger tank capacity should be necessary due to wood log boiler size (see top) as for the calculated optimal dimension of the solar system, than you have to take care that the hydraulic integration of the solar system in order to load the tank has to take place in row, e.g. SPS with 2 heat exchangers resp. several buffer in a row. It is important that idleness is guaranteed when applying the collector and system technology.

Calculating the buffer tank size for solar systems



Rule of thumb for calculating tank systems for solar thermal use:

- energetically perfect: per m² aperture surface approx. 50 liter buffer tank capacity.
- Bigger tank capacities can store more solar energy and are economically reasonable.
- The correct hydraulic integration is important in that case.

Wood log boiler system

Stratification buffer tanks make the application of solid fuel heating systems almost as easy and comfortable as oil and gas boilers.

Our wood log boilers produce significantly more energy with one boiler filling during the burn-off period than the heating system needs at that moment. The surplus of energy provided by the heat generator is stored in the buffer tank. After the fire in the wood log boiler is burned down the heat of the buffer tank is at the building's and maybe at the hot water generation's disposal.

The system can be fed with heat without permanently fueling the boiler. When dimensioning the wood log boiler system it is one's goal to generally heat up the wood log boiler only once or twice per day in order to supply the building with heat twenty-four-seven. At the same time the heating comfort is increased by that.

The size of the buffer tank should be chosen in such a way that the amount of energy resulting from one boiler filling can be stored completely in the buffer tank.

For an excellent operation of the system it is necessary to use a stratification buffer tank with smart layering and efficient energy utilization.

Solar system

With solar thermal systems the solar heat does not occur at the time as the heat requirements. Most heat is needed in the morning and in the evening - either for room heating or for the preparation of hot water. This always requires storage of the solar energy in a buffer or DHW tank.

The size of the solar tank has to be aligned to the size of the collector area. If the tank's capacity is too big no useful temperatures will be achieved in the tank, if the tank is tank's capacity is too small the available solar energy is not used efficiently.

Our technicians will be glad to advise you.

Stratification buffer tank SPS		500	800	1000	1500	2200	2500	3000	5000
capacity approx.	L	500	800	1000	1500	2200	2500	3000	5000
height with insulation	[A] mm	1720	1910	2090	2220	2170	2320	2770	2870
height without insulation	[B] mm	1645	1835	2015	2145	2095	2245	2695	2795
tilted height	mm	1700	1950	2100	2250	2300	2450	2900	3100
diameter with insulation	[C] mm	850	990	990	1200	1450	1450	1450	1800
diameter without insulation	[D] mm	650	790	790	1000	1250	1250	1250	1600
flexible foam insulation (PVC jacket)	mm	100	100	100	100	100	100	100	100
weight approx. (without / with heat exchanger)	kg	73/98	115/139	130/160	193/221	258/309	273/325	335/400	625/710
max. operating temperature buffer tank	°C	95	95	95	95	95	95	95	95
max. operating pressure buffer tank	bar	6	6	6	6	6	6	6	6
SLS stratification system (top and bottom)	mm	Ø 200	Ø 200	Ø 200	Ø 200	Ø 300	Ø 300	Ø 300	Ø 300
max. size of electric heating element (optional)	kW	6	9	9	9	9	9	9	9

Specifications solar heat exchanger (tank with heat ex.)		500	800	1000	1500	2200	2500	3000	5000
heating surface heat exchanger top (optional)	m²	0,9	1,5	1,5	2,4	2,4	2,4	3,8	4,2
capacity heat exchanger top (optional)	L	5,5	7,3	7,3	13,5	13,5	13,5	17,6	20,5
heating surface heat ex. bottom (optional)	m²	3,0	3,5	4,0	4,5	5,0	5,0	5,0	5,0
capacity heat exchanger bottom (optional)	L	14,1	16,5	18,9	21,2	23,5	23,5	23,5	23,5
max. operating pressure heat exchanger	bar	10	10	10	10	10	10	10	10
max. operating temperature heat exchanger	°C	110	110	110	110	110	110	110	110
recommended min. collector surface	m²	10	14	17	23	31	34	38	50

Connections with dimensioning [version SPS]		500	800	1000	1500	2200	2500	3000	5000
de-airing	1½" IG [1]	oben	oben	oben	oben	oben	oben	oben	oben
sensor	½" IG [1a]	oben	oben	oben	oben	oben	oben	oben	oben
flow line boiler/heating	1½" IG* [2]	mm 1515	1690	1870	1935	1850	2000	2450	2480
flow line boiler/heating	1½" IG* [3]	mm 1515	1690	1870	1935	1850	2000	2450	2480
sensor/thermometer	½" IG [4]	mm 1420	1590	1770	1835	1845	1875	2325	2350
sensor/thermometer	½" IG [5]	mm 1120	1290	1370	1435	1445	1505	1825	1850
electric heating element	1½" IG [6]	mm 1000	1060	1140	1125	1175	1205	1415	1500
sensor/thermometer	½" IG [7]	mm 670	730	770	835	845	845	945	1070
sensor/thermometer	½" IG [8]	mm 340	370	370	435	545	545	545	570
return line boiler/heating	1½" IG* [9]	mm 140	170	170	235	320	320	320	340
return line boiler/heating	1½" IG* [10]	mm 140	170	170	235	320	320	320	340

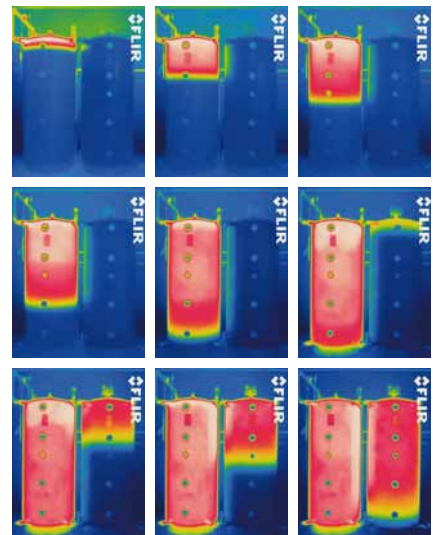
Additional connections [version SPS/S]		500	800	1000	1500	2200	2500	3000	5000
flow line solar	1" IG [11] mm	800	830	990	935	1045	1045	1195	1240
return line solar	1" IG [12] mm	240	270	270	335	445	445	445	470

Additional connections [version SPS-S 2WT]		500	800	1000	1500	2200	2500	3000	5000
flow line solar	1" IG [13] mm	1320	1440	1550	1735	1735	1775	2095	2220
return line solar	1" IG [14] mm	1120	1160	1270	1345	1295	1335	1615	1660
flow line oil boiler/ heating	1½" IG [15] mm	900	930	1100	1075	1130	1130	1330	1410
flow line oil boiler/ heating	1½" IG [16] mm	900	930	1100	1075	1130	1130	1330	1410
return line oil boiler/ heating	1½" IG [17] mm	670	730	890	835	925	925	1075	1150
return line oil boiler/ heating	1½" IG [18] mm	670	730	890	835	925	925	1075	1150

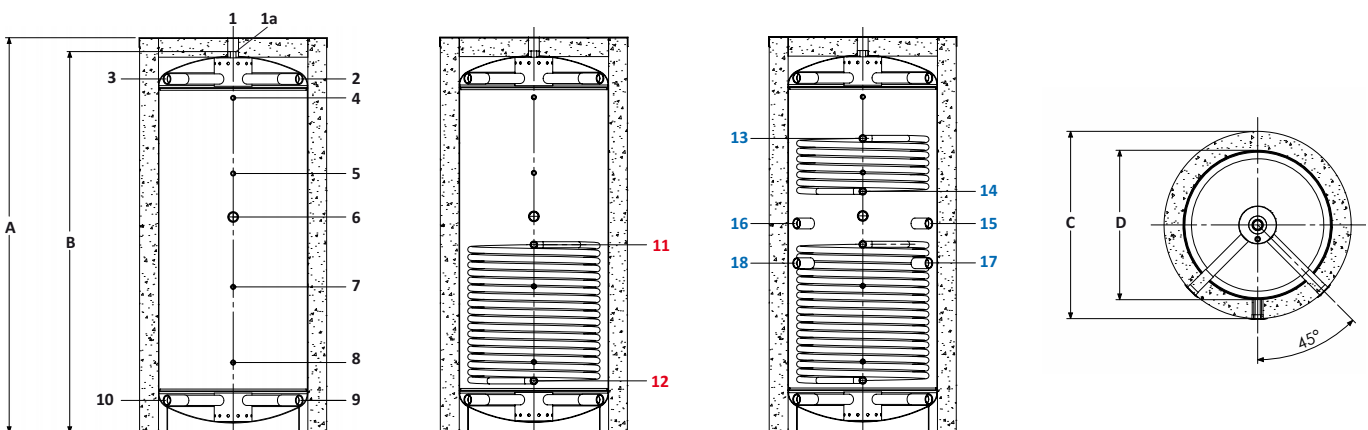
*from SPS 2200 on the connections are 2" internal thread



Speicherbeladung



The displayed time-lapse recording clearly demonstrates the even allocation and stratification of the thermal energy while loading the tank.



Energy perfectly stored in layers – energy optimized and with fast reactions

There are various possible energy sources for this new kind of storage concept. The buffer tank system with its pioneering role cleverly stores the energy in layers. Thus, the contributions of different heat generators can be combined and retrieved by each type of consumer load.

Our stratification element guarantees a constantly stable layering and therefore highest efficiency of the tank. The in- and outlet of tank water is provided by an internal stratification element SLS® in the bottom and in the top of the tank. The water sorts itself there, untroubled by pump volume streams, according to the principles of gravity in order to layer itself almost flow-less into the corresponding temperature zones. The generated heat flows through the tank almost like through a pipe and is therefore immediately ready for discharge. Thus, we have a perfect and extremely fast system. It takes over the surplus of energy, prevents the usual heat loss that occurs with standard buffer tanks and releases the stored heat according to your needs.

It are these aspects that characterize a modern tank. The Solarbayer stratification system completes every heat generator in a perfect way and without any control units. The system operates maintenance free and with high operating reliability. Due to the easy integration it offers an enormous reduction of installation efforts and of installation costs. For the connection of solar system the tanks could be equipped with either one or two solar heat exchangers. Thus, a perfect operation of the solar systems with highest solar gains is enabled.



Brief description

Buffer tank for heating water with patented thermo-hydraulic stratification system SLS® in flow and return line, for perfect heat layering.

With or without heat exchanger, also available with 2 heat exchangers.

- ✓ connections arranged in 90° angle, possible installation in the corner
- ✓ perfectly suitable for solar systems and wood log boiler systems
- ✓ either with or without solar heat exchanger available
- ✓ suitable for installations according to the Tichelmann system (up to 30000 Liter)
- ✓ max. tank charging temperature: 95°C
- ✓ high quality steel S235JR
- ✓ solid construction with overlap welding
- ✓ double welding at the straight bead
- ✓ flexible foam insulation WLG 0,039, insulation thickness approx. 100 mm, silver PVC jacket, fire protection classification: B2
- For this tank we can also offer a fire protection insulation ISO-B1
- ✓ installation of an electric heating element possible

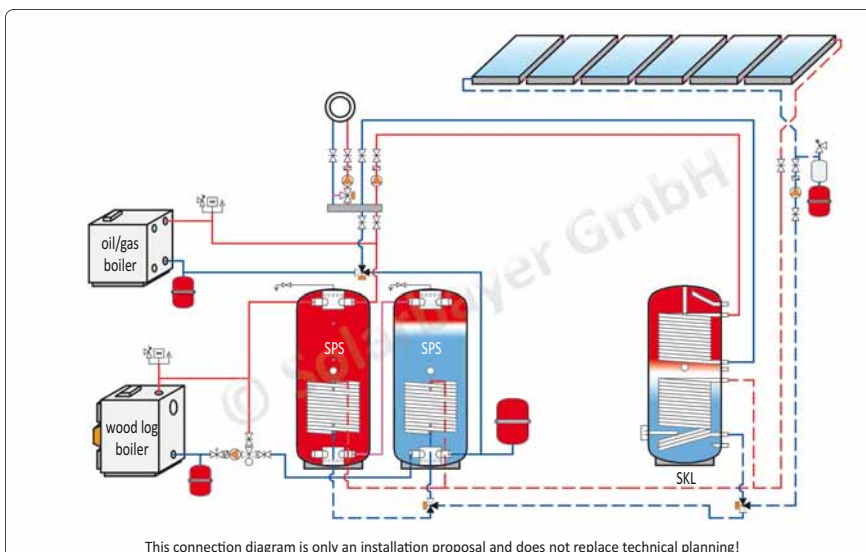
New: Fire protection insulation B1

When we are talking about safety in your heating room there is no other alternative than our „brand new“ insulation B1.

Our SPS and HSK-SLS are now also available with this fire protection insulation.



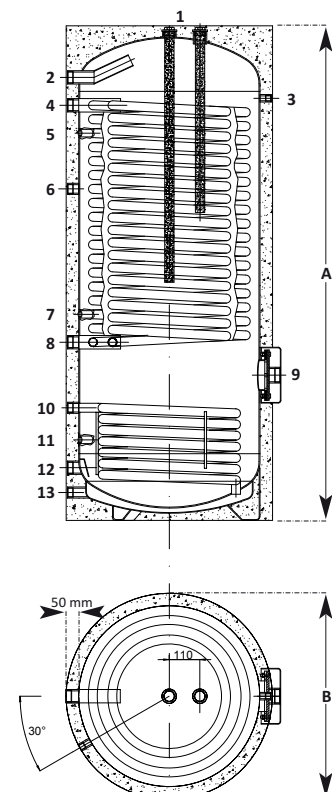
Connection example



Stratification buffer tanks with 10.000, 15.000 and 20.000 liters, with or without heat exchanger, are available on request, manufacturing time approx. 8 weeks.

We manufacture almost every type and size of tank.

Heat pump storage tank WP				350	500
capacity DHW approx.		L		390	500
height with insulation	[A]	mm		1590	1790
tilted height		mm		1765	1945
diameter (incl. non-removable solid foam insulation)	[B]	mm		750	750
solid foam PU insulation, silver OVC jacket		mm		50	50
weight approx.		kg		200	240
max. operating pressure tank		bar		10	10
max. operating temperature		°C		95	95
max. size of electric heating element (optional)		kW		6	6
Specifications double heat exchanger, top				350	500
heating surface double heat exchanger approx.		m²		4,6	5,5
capacity double heat exchanger approx.		L		22	35
max. operating pressure double heat exchanger		bar		10	10
max. operating temperature double heat exchanger		°C		95	95
flow rate double heat exchanger		m³/h		4,6	4,6
pressure loss double heat exchanger (at 3 m³/h) approx.		mbar		56	76
Specifications output performance				350	500
heating surface double heat exchanger approx.		l/h		1150	1530
capacity double heat exchanger approx.		l/h		1470	1900
max. operating pressure double heat exchanger		kWh/d		2,5	3,0
max. operating temperature double heat exchanger		L/h		1970	2570
flow rate double heat exchanger		L/h		2100	2750
pressure loss double heat exchanger (at 3 m³/h) approx.		L/h		2580	3370
performance indicator N_L at 70/50 heat exchanger top		N_L		31	38
performance indicator N_L at 70/50 both exchangers		N_L		40,8	45,2
Specifications heat exchanger bottom				350	500
heating surface solar heat exchanger		m²		1,5	1,5
capacity solar heat exchanger (total, incl. double bottom)		L		6,4 (14)	6,4 (14)
max. operating pressure solar heat exchanger		bar		10	10
max. operating temperature solar heat exchanger		°C		110	110
recommended min. collector surface		m²		7	10
Connections with dimensioning				350	500
anodes	2 x 1 ¼"	[1]	–	oben	oben
hot water	1 ¼" IG	[2]	mm	1390	1590
thermometer	½" IG	[3]	mm	1300	1515
heating flow line	1 ¼" IG	[4]	mm	1290	1490
boiler sensor BF 1 (option 1)	½" IG	[5]	mm	1190	1390
circulation	1" IG	[6]	mm	990	1190
boiler sensor BF 2 (Option 2)	½" IG	[7]	mm	640	740
heating return line	1 ¼" IG	[8]	mm	540	640
cleaning flange with connection electric heating element	1 ½" IG	[9]	mm	480	520
solar flow line	1" IG	[10]	mm	405	405
solar sensor	½" IG	[11]	mm	290	290
cold water	1 ¼" IG	[12]	mm	190	190
solar return line	1" IG	[13]	mm	100	100



Heat pump solar storage tank with high performance heat exchangers

The use of modern heat pumps in combination with our high performance solar collectors has been a challenge for our constructing engineers. The sophisticated technology guarantees highest gains.

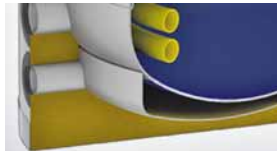
Heat pump application: the heat pump can achieve the best energy performance due to the huge double register in the upper area of the tank. The heat exchanger surfaces are more than sufficient to achieve an adequate coefficient of performance even for the preparation of DHW.

Solar application: the lower tank area consists of a special heat exchanger with additional exchanger surface in the tank's double bottom. This bottom integrates the usually idle tank area underneath the heat exchanger into the solar heat zone. The solar return line is the lowest connection of the tank. Thus, the DHW is completely heated up to the bottom which guarantees ideal heat efficiency.

Due to its special design the Solarbayer heat pump tank provides for a continuous output and best quality drinking water. Furthermore, the operating costs of the heat pumps are kept low. The heat pump solar storage tank offers many advantages for the condensing technology as well. The burner operating time is going to be elongated due to the bigger refueling capacity and at the same time the burner starts are decreased. Condensing boilers prefer low return line temperatures. The enormously vast refueling heat exchanger increases the ΔT between boiler flow line and boiler return line and therefore enables a high boiler efficiency factor.



Double heat exchanger register for a gigantic heat exchanger performance



Double tank bottom for highest heat transmission of the solar system

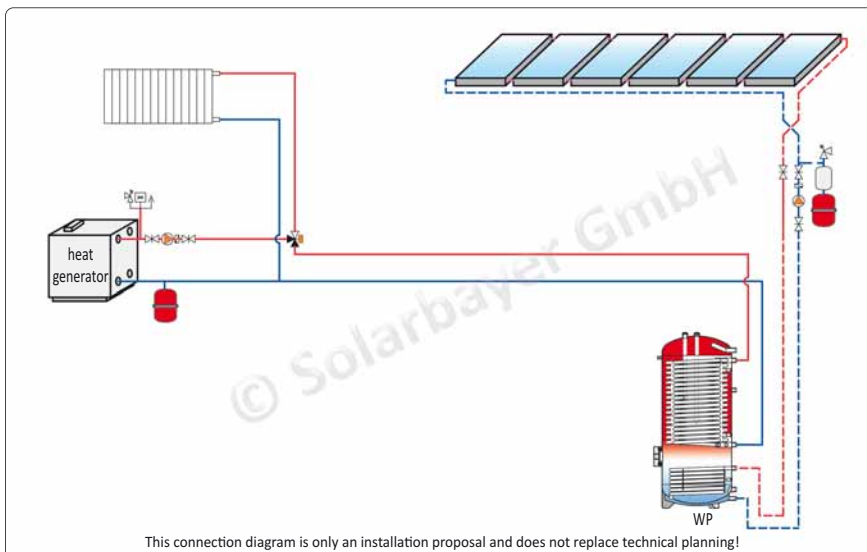


Brief description

Heat pump solar tank with high performance heat exchangers for single- and multi-family houses

- ✓ **double heat exchanger register** for the heat pump
- ✓ plain tube solar heat exchanger
- ✓ **double tank bottom** for highest heat transmission of your solar system
- ✓ perfectly suitable for condensing technology due to the vast upper heat exchanger surface
- ✓ this tank is a high performance DHW tank due to the enormous power of the upper heat exchanger, it even meets the demands of multi-family houses
- ✓ high quality steel S235JR (thick walled, compression proof)
- ✓ internal corrosion protection with double enameling (Made in Germany), two magnesia anodes
- ✓ rigid foam PU insulation, non-removable, insulation protection approx. 50 mm, silver PVC jacket, fire protection classification: B2
- ✓ installation of electric heating element is possible

Connection example



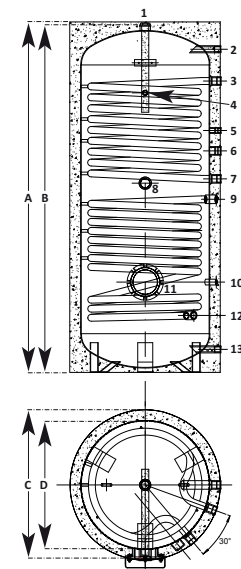
Solar DHW storage tank SKL		200	300	400	500	750	1000
capacity DHW approx.	L	200	300	400	500	750	1000
height with insulation	[A]	mm	1265	1515	1630	1805	2120
height without insulation	[B]	mm	-	-	-	1805	2055
tilted height	mm	1450	1650	1780	1960	1900	2150
diameter with insulation	[C]	mm	610	650	700	750	950
diameter without insulation	[D]	mm	-	-	-	790	790
solid foam PU insulation (non-removable)	mm	50	50	50	50	-	-
flexibel foam insulation (removable)	mm	-	-	-	-	80	80
jacket		PVC, Farbe Silber					
max. operating pressure tank	bar	10	10	10	10	10	10
max. operating temperature tank	°C	95	95	95	95	95	95
weight aaprox.	kg	92	114	149	173	238	250
max. size of electric heating element (optional)	kW	4,5	4,5	4,5	6	9	9

Specifications heat exchanger top		200	300	400	500	750	1000
heating surface heat exchanger	m²	0,9	1,4	1,4	1,4	2,5	2,5
capacity heat exchanger	L	5,5	6,5	6,5	6,5	15	15
max. operating pressure heat exchanger	bar	10	10	10	10	10	10
max. operating temperature heat exchanger	°C	95	95	95	95	95	95

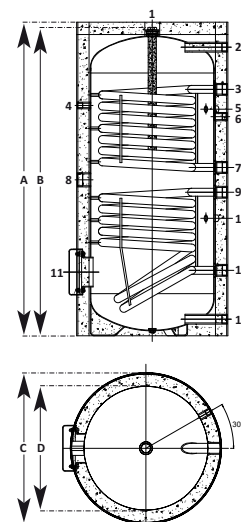
Specifications output performance		200	300	400	500	750	1000
continuous output 10/45 – 80/60 (kW) heat exchanger top	L/h	340 (20)	1020 (41)	1020 (41)	1020 (41)	1850 (75)	1850 (75)
performance indicator N _L at 70/50 WT top	N _L	2,4	3,1	3,6	4,8	11,6	16,8
continuous output 10/45 – 80/60 (kW) heat exchanger bottom	L/h	480 (28)	1290 (52)	1570 (64)	1720 (70)	1850 (75)	1850 (75)
performance indicator N _L at 70/50 both exchangers	N _L	5,6	7,2	11,4	13,7	26,5	34,2

Specifications heat exchanger bottom		200	300	400	500	750	1000
heating surface heat exchanger	m²	0,9	1,8	2,2	2,4	2,5	2,5
capacity heat exchanger	L	5,5	8,3	10,5	13,5	15	15
max. operating pressure heat exchanger	bar	10	10	10	10	10	10
max. operating temperature heat exchanger	°C	110	110	110	110	110	110
recommended min. collector surface	m²	4	6	8	10	14	17

Connections with dimensioning			200	300	400	500	750	1000
anode (from SKL 400 on an additional anode in the flange)	[1]	oben	1¼"	1¼"	1¼"	1¼"	1¼"	1¼"
hot water	[2]	mm	1165 (1"IG)	1345 (¾"IG)	1505 (¾"IG)	1640 (¾"IG)	1590 (1¼"IG)	1840 (1¼"IG)
heating flow line	[3]	mm	995 (1¼"IG)	1245 (1"IG)	1355 (1"IG)	1510 (1"IG)	1440 (1¼"IG)	1440 (1¼"IG)
thermometer	[4]	mm	930 (½"IG)	1200 (½"IG)	1300 (18x2)	1450 (18x2)	1460 (½"IG)	1680 (½"IG)
boiler sensor	[5]	mm	915 (½"IG)	1080 (½"IG)	1125 (½"IG)	1285 (½"IG)	1340 (½"IG)	1340 (½"IG)
circulation	[6]	mm	885 (¾"IG)	985 (¾"IG)	1030 (¾"IG)	1185 (¾"IG)	1235 (1"IG)	1235 (1"IG)
heating return line	[7]	mm	680 (1¼"IG)	885 (1"IG)	935 (1"IG)	1060 (1"IG)	990 (1¼"IG)	990 (1¼"IG)
electric heating element	[8]	mm	630 (1½"IG)	830 (1½"IG)	880 (1½"IG)	1010 (1½"IG)	890 (1½"IG)	890 (1½"IG)
solar flow line	[9]	mm	580 (1¼"IG)	770 (¾"IG)	805 (¾"IG)	885 (¾"IG)	835 (1¼"IG)	835 (1¼"IG)
solar sensor	[10]	mm	475 (½"IG)	400 (½"IG)	420 (½"IG)	370 (½"IG)	685 (½"IG)	685 (½"IG)
flange Ø 114 mm (from SKL 400 on with anode)	[11]	mm	260	400	420 (M8x30)	390 (M8x30)	400 (M8x30)	400 (M8x30)
solar return line	[12]	mm	265 (1¼"IG)	245 (1"IG)	265 (1"IG)	285 (1"IG)	385 (1¼"IG)	385 (1¼"IG)
cold water	[13]	mm	70 (1"IG)	145 (¾"IG)	110 (¾"IG)	165 (¾"IG)	220 (1¼"IG)	220 (1¼"IG)



Baureihe: SKL 300
SKL 400
SKL 500



Baureihe: SKL 200
SKL 750
SKL 1000

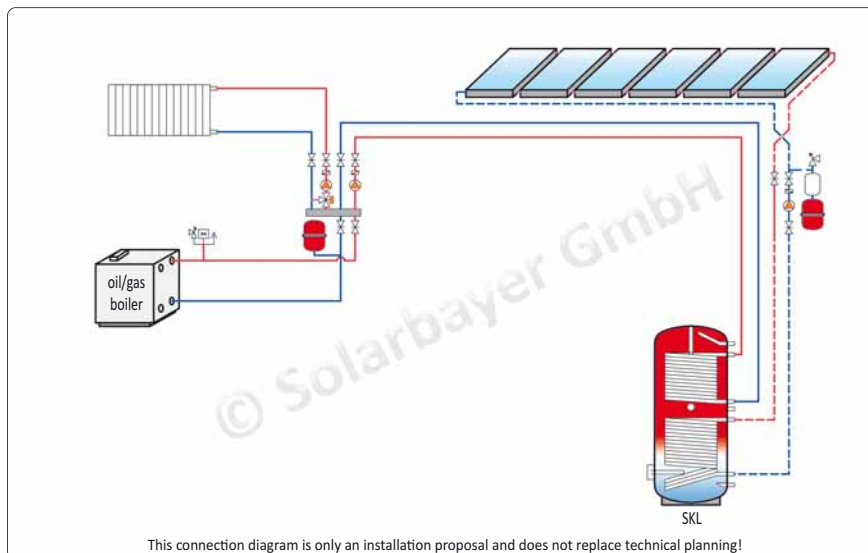
Solar energy rationally stored in the solar tank for DHW

Hygiene in the high performance DHW tank SKL is guaranteed by heating up the special heat exchangers during solar operation. The high power solar exchanger is decisive for the performance of the solar system. The temperature in the solar return line of the SKL is up to 15°C lower than with regular DHW tanks and with their regular heat exchangers due to its arrangement far down of the tank. Thus, the efficiency factor of the solar system and the performance of the collectors is increased up to 15%.

Due to the supplementary heat exchanger, which is located in the upper part of the tank, the heating value is guaranteed even when heating up with a condensing boiler. Therefore, the DHW output capacity of our tanks is a lot higher than the output capacity of regular solar tanks. An interconnection of both heat exchangers is possible to get an high performance anti-legionella tank, p. ex. for the application with heat pumps or in the hotel industry.



Connection example



Brief description

- The solar DHW tank SKL is used either in solar systems just for the preparation of domestic hot water or in multi-tank systems in combination with buffer tanks
- ✓ perfectly aligned to all our solar systems, also suitable for condensing technology
 - ✓ bivalent tank, two plain tube heat exchangers
 - ✓ high quality steel S235JR
 - ✓ internal corrosion protection with double enameling (Made in Germany)
 - ✓ magnesia anode
 - ✓ insulation for SKL 200 to SKL 500: PU rigid foam (non-removable), insulation thickness approx. 50 mm
 - ✓ insulation for SKL 750 and SKL 1000: removable flexible foam insulation WLG 0,039, insulation thickness approx. 75 mm
 - ✓ silver PVC jacket, fire protection classification: B2
 - ✓ installation of an electric heating elements

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	Ø 185	Ø 185
max. size of electric heating element (optional)		kW	6	6

Specifications stainless steel DHW heat exchanger			700	1000
capacity DHW heat exchanger approx.		L	39	39
heating surface DHW heat exchanger approx.		m²	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	Ø 32	Ø 32
max. operating pressure DHW heat exchanger		bar	6	6
max. operating temperature DHW heat exchanger		°C	95	95

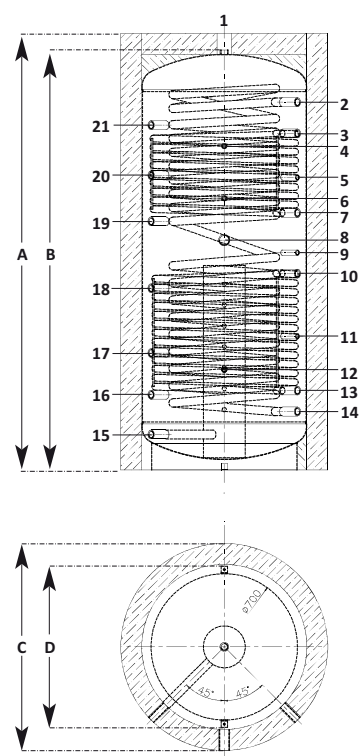
Specifications solar coil			700	1000
heating surface solar heat exchanger top		m²	1,6	2,0
capacity solar heat exchanger top		L	6,8	8,0
heating surface solar heat exchanger bottom		m²	2,5	2,8
capacity solar heat exchanger bottom		L	14,1	15,1
max. operating pressure solar heat exchanger		bar	10	10
max. operating temperature solar heat exchanger		°C	110	110
recommended min. collector surface		m²	14	17

Connections with dimensioning				700	1000
de-airing	1" IG	[1]	–	oben	oben
hot water	1" IG	[2]	mm	1370	1760
solar flow line 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
solar return line exchanger top	1" IG	[7]	mm	970	1230
electric heating element	1½" IG	[8]	mm	900	1100
sensor	½" IG	[9]	mm	730	1040
solar flow line exchanger bottom	1" IG	[10]	mm	830	940
sensor	½" IG	[11]	mm	550	640
sensor solar bottom	½" IG	[12]	mm	480	480
solar return line 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



HSK standard version

Despite its above-average equipment compared with conventional HSK tanks of other manufacturers it is an economical version of an HSK tank. The hanging of the stainless steel heat exchanger is especially designed by Solarbayer and guarantees a long operating life even with this low price version.



Hygienic preparation of DHW with the stainless steel heat exchanger

The cost efficient HSK version „HSK ÖKO“ with integrated stainless steel corrugated hose for the preparation of DHW, is perfectly suitable for the economical application in single and two family houses. It convinces with its versatility just as much as the exclusive version „HSK-SLS“. Almost all heat generators, e.g. solar panels, oil/gas boilers, wood log boilers, electric heating elements, pellet boiler, etc. as well as the energy consumers (hot water and heating) can be operated by one single tank. Even though the storage system is that multifunctional the effort of controlling the tank is kept very simple because all connections are constructed in such a way that each heat generator and consumer connected to the tank can operate absolutely independent, according to requirement and availability.

The DHW is freshly heated up by the corrugated stainless steel hose coiled in the tank. The advantages of a boiler and a continuous flow heater are cleverly combined in this system. An extremely fast heat transwithtance from solar energy to hot water is achieved by an additional plain tube heat exchanger in the upper part of the tank.

The corrugated design precludes the calcification of the DHW. The heat exchanger insignificantly expands itself during heating up and cooling and thus limescale deposits are avoided as far as possible. During the removal the corrugated design causes velocity. These turbulences enable the washing out of the limescale particles together with the hot water. When necessary the stainless steel DHW heat exchanger could be rinsed with a suitable descaler. As you can see the cost efficient version „HSK-Öko“ with its outstanding quality sticks out of the wide range of conventional HSK tanks.

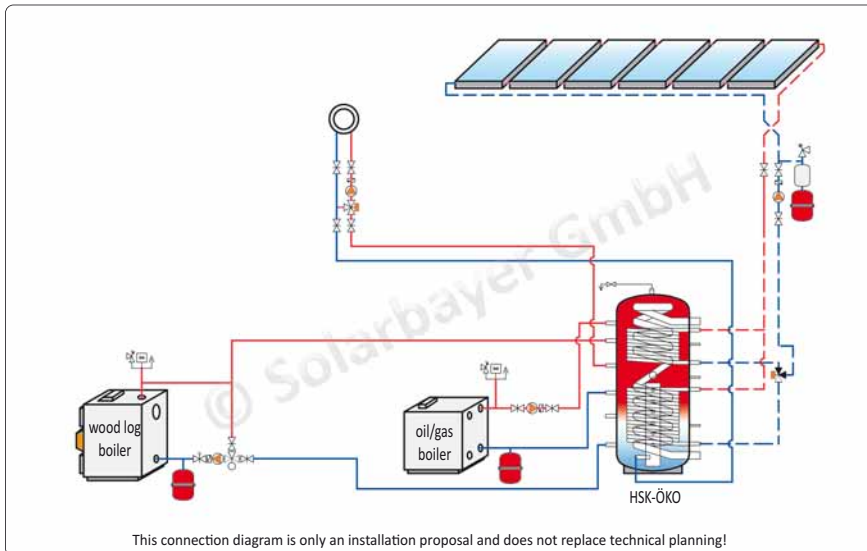


Brief description

Universal heat center with integrated stainless steel corrugated tube for legionella safe preparation of DHW, with well dimensioned heat exchangers out of circular tube, improved 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

Connection example



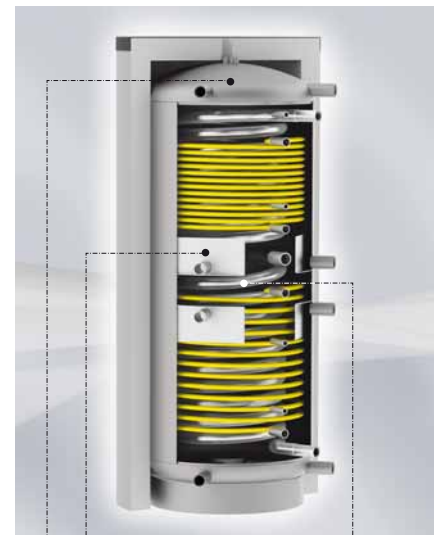
Hygienic stratification buffer tank HSK-SLS			500	800	1000	1250	1500	2200
capacity approx.		L	500	800	1000	1250	1500	2200
height with insulation	[A]	mm	1720	1910	2090	2080	2220	2170
height without insulation	[B]	mm	1645	1835	2015	2005	2145	2095
tilted height		mm	1700	1950	2100	2130	2250	2300
diameter with insulation	[C]	mm	850	990	990	1100	1200	1450
diameter without insulation	[D]	mm	650	790	790	900	1000	1250
flexible foam insulation (PVC jacket)		mm	100	100	100	100	100	100
weight approx. (without / with heat exchanger)		kg	158	214	240	290	302	413
max. operating temperature heating water		bar	6	6	6	6	6	6
max. operating pressure heating water		°C	95	95	95	95	95	95
internal stratification system		mm	200	200	200	200	200	300
max. size of electric heating element (optional)		kW	4,5	6,0	6,0	6	9	9

Specifications stainless steel DHW heat exchanger			500	800	1000	1250	1500	2200
capacity DHW heat exchanger approx.		L	75	96	96	111	111	126
heating surface DHW heat exchanger (Spiro HT)		m²	7,2	9,0	9,0	10,5	10,5	12
capacity DHW heat exchanger approx.		L/h	480	510	510	522	522	540
heating surface DHW heat exchanger (Spiro HT)		L/h	685	735	735	750	750	790
Dauerzapfleistung 10/45 bei 50 kW u. TSP 65° C		L/h	1090	1345	1345	1380	1380	1465
stainless steel DHW heat exchanger		mm	Ø 48	Ø 48	Ø 48	Ø 48	Ø 48	Ø 48
max. operating pressure DHW heat exchanger		bar	6	6	6	6	6	6
max. operating temperature DHW heat exchanger		°C	95	95	95	95	95	95

Specifications solar coil			500	800	1000	1250	1500	2200
heating surface solar heat exchanger top		m²	1,3	2,0	3,0	3,0	3,5	4,2
capacity solar heat exchanger top		L	6,2	8,0	12,0	12,0	14	16,8
heating surface solar heat exchanger bottom		m²	2,3	3,0	3,0	3,0	3,0	5,5
capacity solar heat exchanger bottom		L	10,4	12,0	12,0	12,0	12,0	22,0
max. operating pressure solar heat exchanger		bar	10	10	10	10	10	10
max. operating temperature solar heat exchanger		°C	110	110	110	110	110	110
recommended min. collector surface		m²	10	14	17	20	23	31

Connections with dimensioning			500	800	1000	1250	1500	2200
de-airing	1½"IG [1]	–	Oben	Oben	Oben	Oben	Oben	Oben
sensor	½"IG [2]	mm	Oben	Oben	Oben	Oben	Oben	Oben
flow line boiler/heating	1½"IG* [3]	mm	1515	1690	1870	1835	1935	1850
flow line boiler/heating	1½"IG* [4]	mm	1515	1690	1870	1835	1935	1850
sensor/thermometer	½"IG [5]	mm	1420	1590	1770	1735	1835	1845
hot water	1½"IG [6]	mm	1410	1580	1760	1725	1825	1835
flow line solar exchanger top	1"IG [7]	mm	1320	1440	1650	1585	1735	1735
sensor solar top	½"IG [8]	mm	1220	1290	1370	1405	1435	1445
return line solar exchanger top	1"IG [9]	mm	1120	1160	1270	1165	1235	1295
electric heating element	1½"IG [10]	mm	1000	1060	1140	1045	1125	1175
flow line boiler/heating	1½"IG [11]	mm	900	930	1100	885	1075	1130
flow line boiler/heating	1½"IG [12]	mm	900	930	1100	885	1075	1130
flow line solar exchanger bottom	1"IG [13]	mm	800	830	990	765	935	1045
return line boiler/heating	1½"IG [14]	mm	670	730	890	665	835	925
return line boiler/heating	1½"IG [15]	mm	670	730	890	665	835	925
sensor/thermometer	½"IG [16]	mm	670	730	770	665	835	845
sensor solar bottom	½"IG [17]	mm	440	470	470	495	535	545
return line solar exchanger bottom	1"IG [18]	mm	340	370	370	395	435	445
cold water	1½"IG [19]	mm	240	270	270	295	335	335
return line boiler/heating	1½"IG* [20]	mm	140	170	170	195	235	320
return line boiler/heating	1½"IG* [21]	mm	140	170	170	195	235	320

*from HSK-SLS 2200 on the connections are 2" internal thread

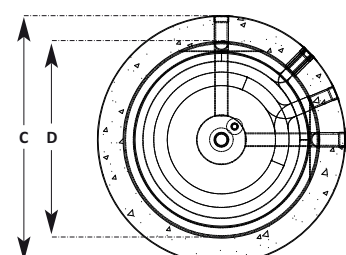
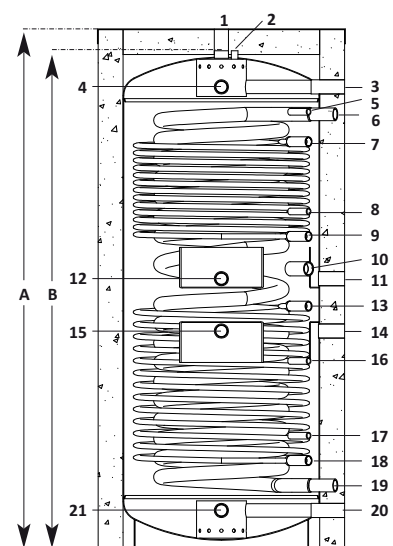


baffle plates in inlet and outlet
stainless steel DHW heat exchanger with Spiro-HT-Technology
stratification system SLS® top and bottom

HSK exclusive version

Highest efficiency of solar input and high hot water output.

With patented thermo-hydraulic stratification system SLS®
Unique in its category!



Hygienic preparation of DHW – efficient heating due to SLS® system

The hygienic stratification storage tank HSK-SLS, with integrated Spiro-HT-stainless steel-DHW heat exchanger, is perfectly suitable for the preparation of DHW. You will achieve excellent performance values due to the [Spiro-HT-technology](#), which qualifies the tank for either high performance or heat pump installations.

It also qualifies for the integration of versatile heat sources with its patented thermo-hydraulic stratification system SLS®. The heat management can be realized with very low control effort due to its exact stratification characteristics. The integration of thermal solar energy via the two very large dimensioned oval solar heat exchanger provides for a heat transmission that optimizes the efficiency factor of the solar panels.

Established systems are combined in a smart way. The hygienic stratification buffer tank HSK-SLS is therefore the perfect heat center for new buildings, as well as for renovations of old buildings. The high DHW output qualifies the tank for the application in single family as well as in multifamily houses. An intelligent hydraulic connection of several hygienic stratification storage tanks HSK-SLS even enable the application in large scale plants as well as housing blocks, hotels and diverse industrial objects.

In the hygienic stratification buffer tank HSK-SLS our established Solarbayer-specific HSK system is combined with the patented stratification system SLS®.



Brief description

Universal heat center with integrated stainless steel corrugated tube for legionella safe preparation of DHW, with large dimensioned oval tube heat exchangers. The area of application ranges from single-family houses to hotels and industrial buildings

- ✓ versatile connection possibilities
- ✓ perfect heat stratification due to the patented stratification system SLS®
- ✓ flexible foam insulation WLG 0,039, insulation thickness approx. 100 mm, silver PVC jacket, fire protection classification B2

For this tank we can also offer a fire protection insulation ISO-B1

- ✓ high quality steel S235JR
- ✓ large dimensioned solar oval tube heat exchanger, top and bottom
- ✓ legionella-safe DHW preparation
- ✓ stainless steel corrugated hose 1.4404 with DVGW authorization
- ✓ high hot water output
- ✓ installation of an electric heating element possible

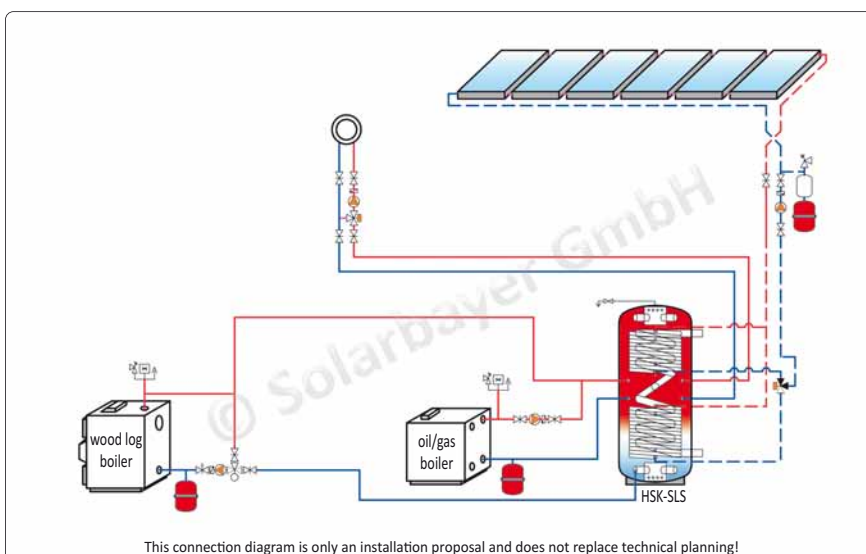
New: Fire protection insulation B1

When we are talking about safety in your heating room there is no other alternative than our „brand new“ insulation B1.

Our SPS and HSK-SLS are now also available with this fire protection insulation.



Connection example



Optional tank accessories



Screw-in immersion heater as supplementary or emergency heating

Solarbayer electric heating elements are perfectly suitable as supplementary or emergency heating. The electric heating element is highly effective and fast due to the direct installation into the DHW or buffer tank.

But the area of application has not only to be heating. Due to the high quality construction the electric heating elements are suitable for direct heating of different liquids in almost all tanks. The u-shaped, highly compressed heating rods made of noncorrosive nickel-chromium steel 2.4858 (AISI B424) are welded in liquid tight. An integrated insulation separation defends from electro-chemical voltage and prevents long lasting corrosion.

In order to regulate the temperature the electric heating elements contain an integrated thermostat with hysteresis that is continuously adjustable by a temperature switch. For the integration of the heating element into the tank you only need a 1 1/2" socket with internal thread. The installation always has to be done horizontally.

According to application and tank size we have electric heating elements with power output from 3 to 9 kW.



Tank socket

You can increase the energetic efficiency with a perfect bottom insulation. Especially when renovating old buildings an additional insulation at the bottom 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 flexible foam.

The following sizes are available:
 Ø 850 mm for tank sizes up to 500 Liter
 Ø 1000 mm for tank sizes from 650 to 1000 Liter



Connection kits

We offer suitable connection kits for all our tank types.

You will find further information on the single components of the connection kits in our pricelist.

The picture shows the connection kit for the stratification buffer tank SPS

Use our brochure with hydraulic diagrams and system designs as planning aid for the perfect configuration of your heating system.

You will find different examples for integration possibilities of wood log or oil boilers, solar systems and heat pumps, etc. always in combination with our high performance storage tanks.

We give you information as planning aid for your heating system on heat reloading, supplementary heating, boiler charging units or hydraulic switches.

You can download the brochure here:

<http://www.solarbayer.de/Hydrauliksystemen.html>

Our technicians will be glad to assist you with any questions you have.



Solarbayer fire protection insulation ISO-B1® – Excellent insulation characteristics combined with safety



ISO-B1®

Brandschutzisolierung ISO-B1®

Die neue Brandschutzklasse von Solarbayer

If we are talking about safety in the boiler room there is no alternative to our brand new insulation „ISO-B1®“.

Our fire protection insulation „ISO B1“ guarantees perfect insulation quality. In accordance with DIN 4102-1: 1998-05 the insulation is difficult to ignite.

The **water-repellent characteristics of the fire protection insulation** enable the application of an additional bottom insulation (included in scope of delivery) which guarantees an even better protection from heat loss.

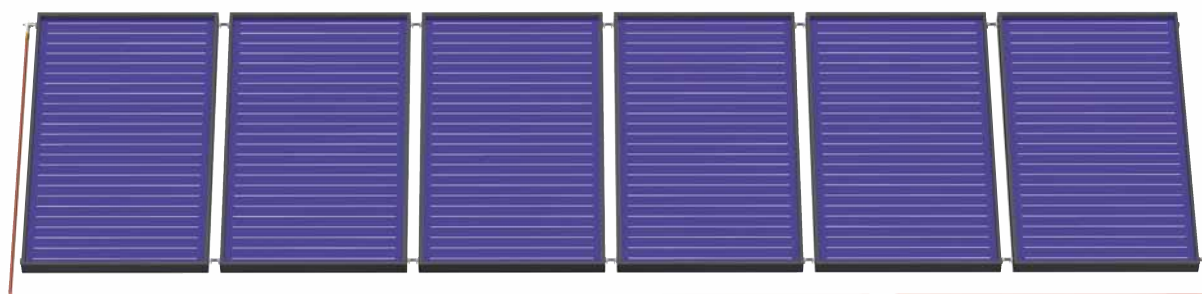
The fire protection insulation ISO-B1 is available with extra charge for our stratification buffer tanks SPS and for the hygienic-stratification buffer tanks HSK-SLS. In general out tanks are delivered with the standard insulation (100 mm flexible foam insulation). The technical specifications of the flexible foam insulation can be found in the corresponding instruction manual.



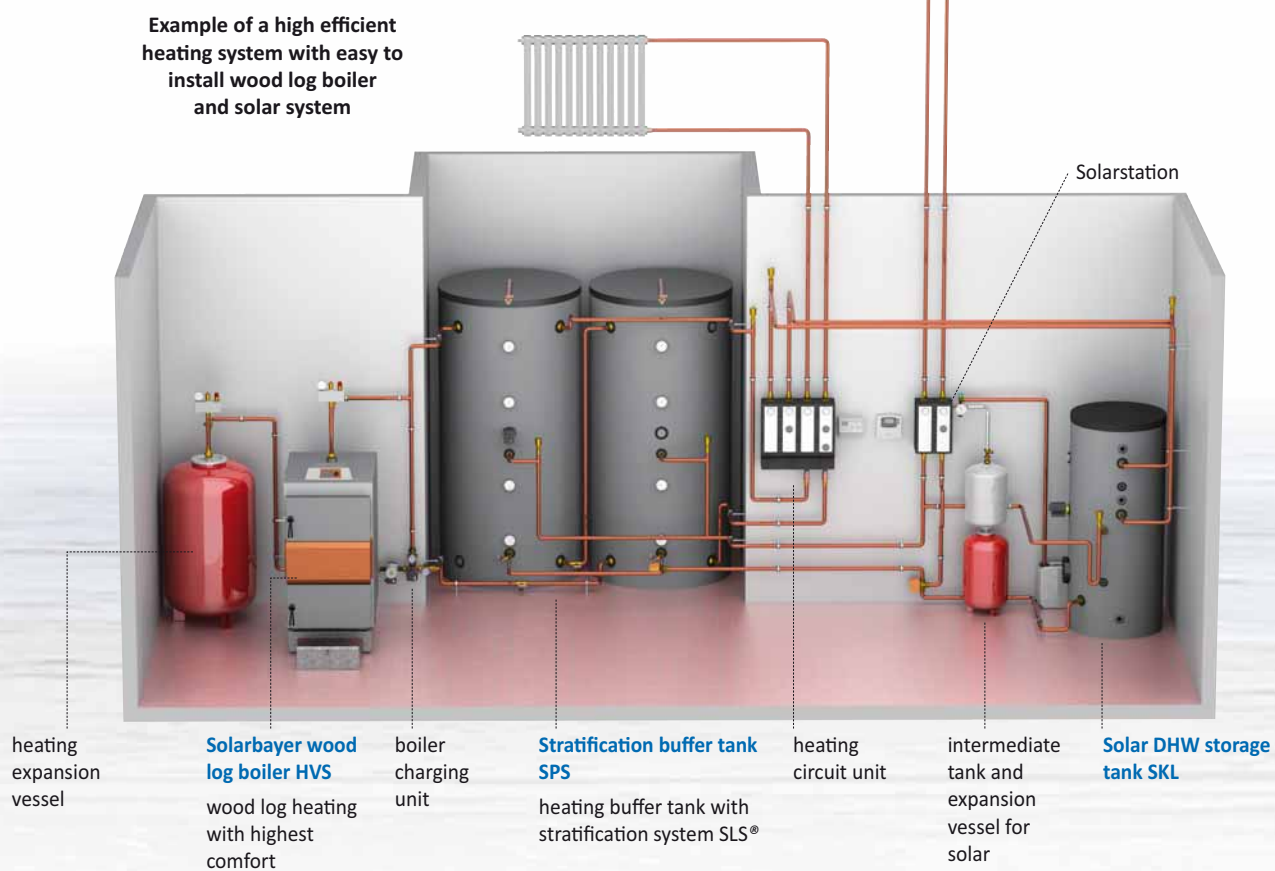
*This test report can serve as basis for
the prescribed proof of usability
in the building-authority process.*

Technical specifications:

proof of fire behaviour according to DIN 4102-1: 1998-05		Fire classification B1
thickness of the fiber mat insulation, not compressed	mm	115
thickness of PVC foil (color: grey)	mm	0,55
lambda value (at 10°C ambient temperature)	W/mK	0,039
standby loss (with a tank capacity of 750 L)	W/h	126



Example of a high efficient heating system with easy to install wood log boiler and solar system



Information on solar systems and wood log boiler technology can be found in the respective brochures or on our homepage www.solarbayer.com

