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**Stainless Steel Storage Tanks
& Combination Tanks**



ECOTHERM is the leading brand for turnkey solar, hot water and steam systems for hotels, hospitals and industry in the Middle East.

ECOTHERM amazes its customers with “Individual Heat Transfer Solutions” for solar, hot water and steam generation. The following advantages mark these solutions:

Individuality

ECOTHERM realizes extensive turnkey systems as well as the production of separate components. Each single plant is specifically aligned to the customer’s individual requirements. The basis is an own production in Austria and a wide product portfolio.

Premium quality

All products made of high-class duplex stainless steel guarantee a long-life cycle and perfect hygiene. ECOTHERM is certified to ISO 9001 : 2008 to all required European standards.

Innovation

We are always open to the new, we constantly research new technologies and we develop path-breaking and future-oriented products.

Premium service

Clients benefit from extensive service at consulting, planning, engineering, supervision and training. ECOTHERM regularly improves the know-how of its partners and clients via selective trainings.

Efficiency

With 110 employees the ECOTHERM Group managed by the owner has slim decision-making structures. ECOTHERM turnkey solutions from one single source and the economical handling of energy resources offer an optimal cost-benefit ratio.

Experience

With over thousand installations in the last twelve years in Europe, the Middle East, Asia, North Africa and Central America, ECOTHERM has become one of the technology and innovation leader for individual solar, hot water and steam solutions on the market.

Reliability

ECOTHERM systems are monitored around the clock and can be serviced at low cost, quickly and efficiently through remote and maintenance. Our own designed plants have low maintenance requirements and are totally dependable.

Sustainability

ECOTHERM products help our customers to save energy and money. We save valuable resources through the use of renewable energies. ECOTHERM high-performance plants have minimal space requirements and provide maximum energy return. When planning new products ECOTHERM engineers take all the qualitative and economic principles into account in accordance with ecological principles.

Partnership

We live in a partnership with all our customers, suppliers and employees. This relationship is characterised by honesty, commitment, openness, trust and reliability. The object is our joint long-term success.

Internationality

The international alignment of ECOTHERM with branches in Dubai, Kuwait, Mexico, Hungary, China and partners in more than 20 countries is the basis for our flexible and efficient project implementation that is always on schedule.

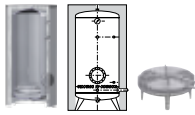
ECOTHERM stainless steel water heaters & combination tanks



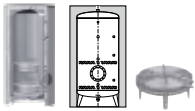
General

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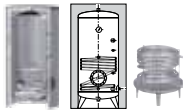
Products:



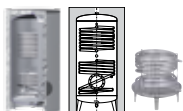
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ECOTHERM water heaters with stainless steel storage tank and one flat heating coil



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ECOTHERM water heaters with stainless steel storage tank and two flat heating coils



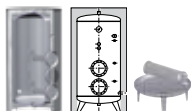
- **Type ESWH-...-1:** Pages 14 - 15
ECOTHERM water heaters with stainless steel storage tank and one heating coil



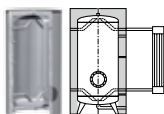
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- **Type ESGW:** Pages 18 - 19
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- **Type ESWS:** Pages 20 - 21
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- **Type ESWE:** Pages 22 – 23
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- **Type WBE:**
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- **Type ESSP-B:**
ECOTHERM solar system buffer storage tank with stainless steel sphere for domestic water, two patented flat heating coils and integrated layering sheet

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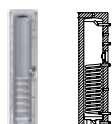
- **Type ESSP:**
ECOTHERM solar system buffer storage tank with two patented flat heating coils and integrated layering sheet

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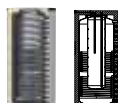
- **Type ESUP:**
ECOTHERM solar universal buffer tank

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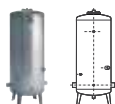
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ECOTHERM fresh water unit with big heat exchanger surface for short heating time

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ECOTHERM solar priority buffer storage tank with stainless steel domestic water unit, respectively stainless steel hygiene unit

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- **Type ESDB:**
ECOTHERM compressed-air chamber

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ECOTHERM deacidification unit with patented backwashing system

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General

For the production of its stainless steel storage tanks ECOTHERM uses only high-quality, corrosion-resistant stainless steel. The production follows its own quality management system which is certified according to ISO 9001 : 2008. All storage tanks are bath pickled in their own pickling plant. The entire production follows the guidelines of the environmental management system ISO 14001 : 1996. The long-time experience of the ECOTHERM employees ensures the professional processing of materials. The company is a certified welding company according to ISO 3834-2 : 2005. Innovative components such as the flat heating coils offer customers a unique added value to increase the efficiency of their stainless steel storage tanks - because stainless steel storage tank does not equal not stainless steel storage tank.

Stainless steel storage water heaters and heat exchangers

Stainless steel is a corrosion- and acid-resistant steel

- The resistance is created by the alloy metals chromium, molybdenum and nitrogen.
- A passive state is created of chromium by the creation of chromdioxid on the surface.
From 10.5% Cr-content is referred to as stainless steel.

Components of stainless steel e.g. 1.4571 (V4A)

- C max. 0.07%, Cr 16.5-18.5%, Ni 10.5-13.5%, Mo 2-2.5%, Ti (in addition to the stabilization)

The acid resistance of corrosion-resistant stainless steels is rather substantially improved by the addition of molybdenum (Mo). In order to maintain the structure austenitic (Mo is a ferrite former), more nickel (Ni) or nitrogen (N) (min. 10.50%) is simultaneously alloyed to the steel. Furthermore the alloying of Mo significantly improves the resistance to pitting and generally to reduced acids. This material is weldable without thermal treatment and grain decay resistant.



Stainless steel at the manufacturing of storage tanks

The storage tank is entirely made of high-quality, corrosion resistant stainless steel. This material is resistant to aggressive drinking water. For particularly aggressive water (chloride content greater than 100mg/litre) an optional external current anode helps. It protects the tank by a cathodic corrosion protection against pitting and crevice corrosion.

Processing

All cuts are made by computer-controlled (CNC) laser machines. This process provides scale-free and burr-free cutting edges. Scale-free edges have a significant advantage for the subsequent welding: scale inclusions can be prevented. The welding of the circular and longitudinal welds, and all connections is done under fully reformed protective gas atmosphere. This high effort guarantees as the final result a welding that it is as safe as the base material. The final bath pickling with subsequent passivation of the surface ensures a perfect, long-lasting surface protection of the stainless steel.

Universal use of storage tanks

By our various storage tank program we can fit any application. This allows multiple heating sources combined in one storage tank (e. g. boilers and solar panels).

Significant advantages

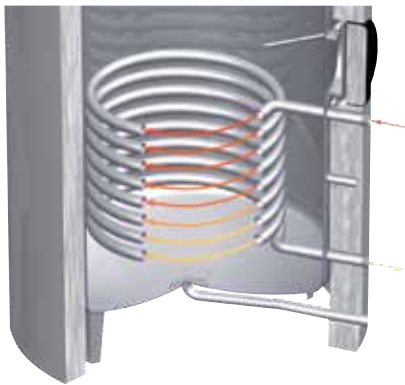
- Use of high-quality, corrosion-resistant stainless steel
- Expert processing (e. g. welding, pickling etc.)
- Long life-time and 5-year warranty for stainless steel storage tanks
- Best hygiene → deposits & anode slimes are effectively prevented
- Low-maintenance → at drinking water quality no sacrificial anode required
- Light weight → for example approx. 80 kg for 500 liters storage tank (500 liters email storage tank: 150 kg)
- Individuality → different designs and sizes of storage tanks possible
- Robust and insensitive at transport & installation
- Better efficiency of the heat exchanger → no additional coating on the tube

Advantages of patented flat heating coils

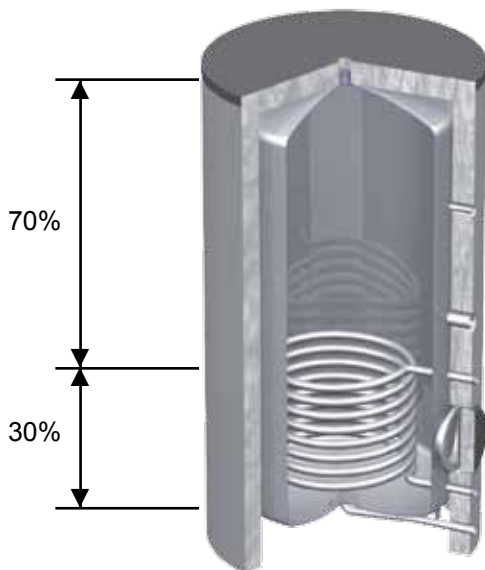
Heating coils

These heat exchangers are always in mixing temperature zones from 10°C to 60°C and thus have a reduced heat transfer rate. During the heating phase heating coils produce circulations in the storage tank and need more primary energy.

The available standby volume is usually only about 70% of the capacity of the storage tank.



- Up to 30% reduced effective volume & risk of legionella
- Reduced power consumption and poor heat layering
- Limited heat exchanger surfaces and reduced installation options
- Increased primary energy consumption

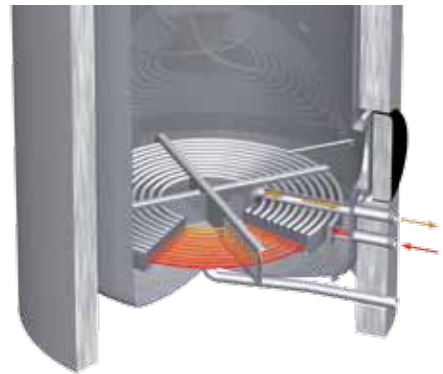


- 70% Standby volume
- 30% Mixing water area and “dead” volume

ECOTHERM flat heating coils

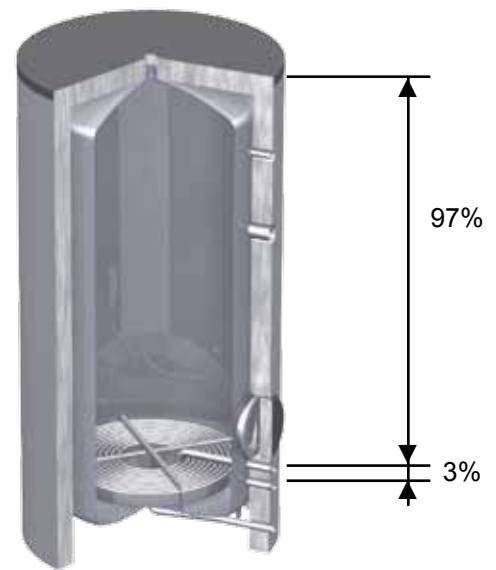
The patented flat heating coil is mounted horizontally at the bottom of the storage tank. It is 100% in the cold water zone, respectively only in one temperature zone.

The installation directly above the tank bottom and the low height (8cm) allow an almost complete heating of the storage tank.



The special construction of the register ensures:

- High standby volume (97% of the tank capacity)
- Hygienic water
- High efficiency due to efficient heat transfer
- Optimized heat layering
- Primary energy savings



- 97% Standby volume
- 3% Mixing water area and “dead” volume



ECOTHERM fiber-fleece insulation

ECOTHERM offers unequalled value for money with an own developed fibre-fleece insulation solution. Compared to standard foam insulations the ECOTHERM insulating polyester fibre-fleece reduces the heat loss in the standby mode for up to 30 percent. This material is produced from recycled PET bottles with no chemical additives and is itself 100% recyclable. The insulation is flame retardant according to DIN 4102-1 class B2, and is available upon request in B1. The robust outer PP cover is food safe, can easily be transported and is extremely impact resistant.

Patented components

The patented closure strip allows for simple and quick opening of the outer sheathing by only one person. This means any servicing and maintenance

work can be carried out simply and quickly. The newly developed covering rosettes for the connecting sleeves provide an optimal and completely reliable seal while the tight and secure fit prevents any heat loss at the connection points.

Individual design

ECOTHERM can print the sheathing individually to your wishes. This visual enhancement is particularly useful for storage tanks in the visible interior or exterior.



Carton packaging protects the insulation during transport.



The patented aluminum closure strips enable easy and quick opening of the outer sheathing by a single person.



Products

ECOTHERM produces individual stainless steel water heaters. The use of patented flat heating coils enables an extremely high standby volume (97% of the storage tank capacity). In addition, in a stainless steel storage tank several flat heating coils can be installed. So on the one hand you can realize very large heat exchanger surfaces in small storage tanks. On the other hand, the installation of these kind of heat exchangers in only one temperature zone allows for an optimized heat layering. Especially for storage tanks, which are used for the supply of hot water and for heating, this is a big advantage. The innovative and individual design of the ECOTHERM stainless steel storage tanks is the basis for intelligent energy mix concepts (solar energy, heat pumps etc.).

By efficient heat transfer of the flat heating coils in addition, high efficiency is achieved and primary energy is saved.

ECOTHERM has been a leading supplier of stainless steel water heaters for more than 25 years.



Type ESWF-...-1: ECOTHERM water heaters with stainless steel storage tank and one flat heating coil



Design

Storage water heater made of high quality, corrosion resistant stainless steel with patented flat heating coil, welded at the bottom of the storage tank with vertical-oval cross-section for optimal performance and layering, almost 100% storage volume available, bath pickled, low maintenance, improved hygiene, flange DN 200 at front for cleaning purpose or for mounting an additional heat exchanger or screw-in heating element, sleeve 6/4" for screw-in heating element in the upper third, sleeves 1/2" for thermometers and temperature sensors, cold water connection at the front, hot water outlet at the center top.

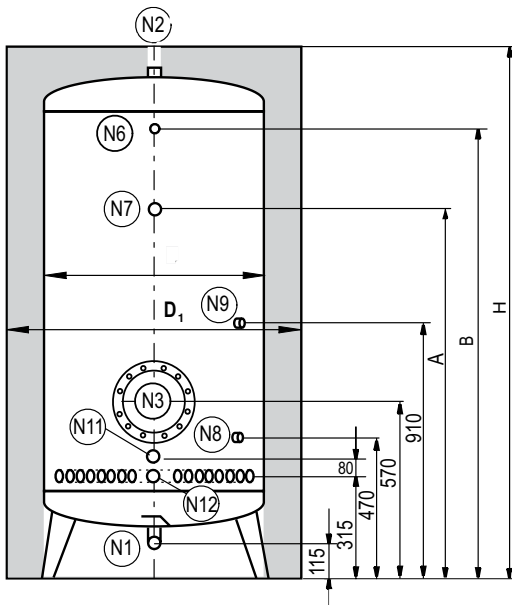
- Almost 100% volume usage
- High-efficiency heat exchanger
- Improved hygiene

Accessories see pages 37–39

Fiber-fleece insulation

Storage tank insulation made of fiber-fleece with robust PP outer sheathing RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80 mm up to 1,000 liters and above 100 mm. 100% recyclable, fire protection class B2 (B1 upon request).

Connections and installation heights (mm)



Type	Storage tank capacity (liters)	max. Operating pressure	Test pressure
Storage tank	200 - 540	10 bar	13 bar
Storage tank	800 - 1,000	6 bar	7.8 bar
Heat exchanger	-	10 bar	13 bar

Connection	Size	Sleeve position°	Description
N1 up to 540L	1" MT	180°	Cold water inlet / drain
N1 from 800L	6/4" MT	180°	Cold water inlet / drain
N2	6/4" FT	top	Hot water outlet
N3	DN 200	180°	Cleaning flange
N6	1/2" FT	180°	Thermometer
N7	6/4" FT	180°	Screw-in heater
N8	1/2" FT	135°	Temperature sensor 1
N9	1/2" FT	135°	Temperature sensor 2
N11	1" MT	180°	Heat exchanger inlet
N12	1"MT	180°	Heat exchanger return

Storage tank type	Capacity	A	B	D	D ₁	H	Continuous power 80°→60°C		Performance indicator	Pressure loss	Tank weight	Register surface
	liters	mm	mm	mm	mm	mm	l/h (45°C)	kW	NL(DIN4708) approx. 60°C	mbar	kg	m ²
ESWF-200-1	200	845	1,165	500	660	1,450	465	18.9	4	25	52	0.6
ESWF-300-1	300	1,310	1,650	500	660	1,920	465	18.9	7	25	63	0.6
ESWF-540-1	540	1,315	1,655	650	810	1,940	930	37.8	18	119	93	1.2
ESWF-800-1	800	1,315	1,655	790	1,000	1,980	1,395	56.8	30	388	137	1.8
ESWF-1000-1	1,000	1,315	1,655	890	1,110	1,980	1,627	66.2	37	588	156	1.8

ESWF-...-1 Performance data



Hot water output at primary temperatures 70 ° → 60 ° C

Storage tank type	Domestic water 10°→45°C				Domestic water 10°→60°C			
	kW	45°C l/h	primary m³/h	pressure loss mbar	kW	60°C l/h	primary m³/h	pressure loss mbar
ESWF-200-1	16.2	399	1.4	61	11.2	192	1.0	31
ESWF-300-1	16.2	399	1.4	61	11.2	192	1.0	31
ESWF-540-1	32.5	797	2.8	319	22.4	385	1.9	152
ESWF-800-1	51.9	1,276	4.5	1,236	35.8	615	3.1	587
ESWF-1000-1	56.8	1,396	5.9	2,436	39.1	673	3.4	793

Hot water output at primary temperatures 80 ° → 60 ° C

Storage tank type	Domestic water 10°→45°C				Domestic water 10°→60°C			
	kW	45°C l/h	primary m³/h	pressure loss mbar	kW	60°C l/h	primary m³/h	pressure loss mbar
ESWF-200-1	18.9	465	0.9	25	14.7	253	0.7	15
ESWF-300-1	18.9	465	0.9	25	14.7	253	0.7	15
ESWF-540-1	37.8	930	1.7	119	29.5	507	1.3	66
ESWF-800-1	56.8	1,395	2.5	388	44.2	760	1.9	220
ESWF-1000-1	66.2	1,627	2.9	588	51.6	887	2.3	515

Hot water output at primary temperatures 90 ° → 70 ° C

Storage tank type	Domestic water 10°→45°C				Domestic water 10°→60°C			
	kW	45°C l/h	primary m³/h	pressure loss mbar	kW	60°C l/h	primary m³/h	pressure loss mbar
ESWF-200-1	23.5	576	1.1	38	19.5	335	0.9	25
ESWF-300-1	23.5	576	1.1	38	19.5	335	0,9	25
ESWF-540-1	45.6	1,119	1.3	70	37.6	646	1.1	50
ESWF-800-1	75.1	1,845	3.3	675	62.3	1,072	2.7	445
ESWF-1000-1	82.1	2,017	3.6	907	68.2	1,172	3.0	630

Heat exchanger pressure loss ESWF-...-1

Storage tank type	Pressure loss in mbar at				Flow rate resistance factor (z)	Formula for calculating pressure loss
	1 m³/h	1.5 m³/h	2 m³/h	3 m³/h		
ESWF-200-1	31	70	124	279	31	$\text{mbar} = (\text{m}^3/\text{h})^2 * z$ <p>mbar = pressure loss primary circuit m³/h = flow rate z = flow rate resistance factor</p>
ESWF-300-1	31	70	124	279	31	
ESWF-540-1	41	92	164	369	41	
ESWF-800-1	62	140	248	558	62	
ESWF-1000-1	70	158	280	630	70	

Type ESWF-...-2: ECOTHERM water heaters with stainless steel storage tank and two flat heating coils



Design

Water heaters made of stainless steel with two welded patented flat heating coils with upright oval cross profile for optimum power and layering, almost 100% volume usage (bottom exchanger), bath pickled, low maintenance, optimized hygiene, flange DN 200 at front for cleaning purpose or for installation of an additional heat exchanger or screw-in heater, sleeve 6/4" for screw-in heater in the upper third, sleeves 1/2" for thermometers and temperature sensors, cold water connection at front, hot water outlet at the center top.

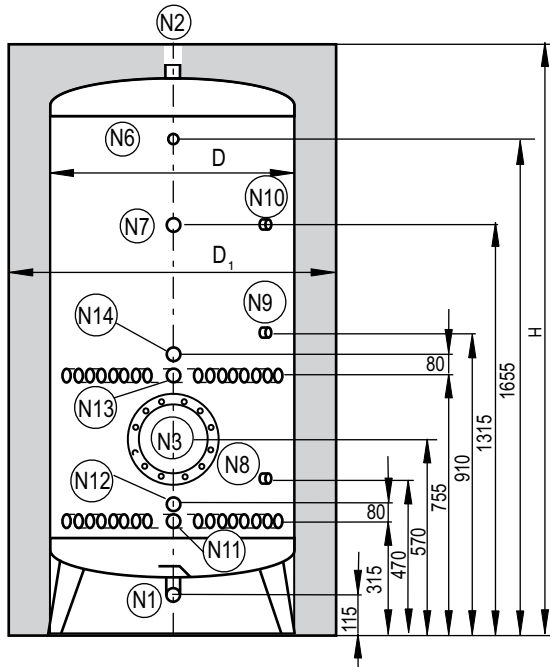
- Nearly 100% volume usage (bottom exchanger)
- Multivalent heat input (two heat exchangers)
- Optimized hygiene

Accessories see pages 37–39

Fiber-fleece insulation

Storage tank insulation made of fiber-fleece with robust PP outer sheathing RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80 mm up to 1,000 liters and above 100 mm. 100% recyclable, fire protection class B2 (B1 upon request).

Connections and installation heights (mm)



Type	Storage tank capacity (liters)	max. Operating pressure	Test pressure
Storage tank	200 - 540	10 bar	13 bar
Storage tank	800 - 1,000	6 bar	7.8 bar
Heat exchanger		10 bar	13 bar

Connection	Size	Sleeve position °	Description
N1 bis 540L	1" MT	180°	Cold water inlet / drain
N1 ab 800L	6/4" MT	180°	Cold water inlet / drain
N2	6/4" FT	top	Hot water outlet
N3	DN 200	180°	Cleaning flange
N7	6/4" FT	180°	Screw-in heater
N8	1/2" FT	135°	Temperature sensor 1
N9	1/2" FT	135°	Temperature sensor 2
N10	1/2" FT	135°	Temperature sensor 3
N11	1" MT	180°	Heat exchanger inlet
N12	1" MT	180°	Heat exchanger return
N13	1" MT	180°	Heat exchanger inlet
N14	1" MT	180°	Heat exchanger return

Storage tank type	Capacity liters	D mm	D ₁ mm	H mm	Lower register surface m ²	Upper register surface m ²	Weight storage tank kg
ESWF-300-2	300	500	660	1,920	0.6	0.6	71
ESWF-540-2	540	650	810	1,940	1.2	1.2	110
ESWF-800-2	800	790	1,000	1,980	1.8	1.8	154
ESWF-1000-2	1,000	890	1,110	1,980	1.8	1.8	169

ESWF-...-2 Performance data



Parallel operation / Single operation

The two heat exchangers can be used

- in parallel operation
- as well as in single operation.

Depending on operating mode there are different performance data.

Hot water output at parallel operation (both heat exchangers)

Storage tank type	Primary 70°→60°C		Primary 80°→60°C		Primary 90°→70°C		Performance index NL*
	Domestic water temperature		Domestic water temperature		Domestic water temperature		
	10°→45°C	10°→60°C	10°→45°C	10°→60°C	10°→45°C	10°→60°C	
	l/h	l/h	l/h	l/h	l/h	l/h	
ESWF-300-2	718	346	837	455	1,036	603	11,0
ESWF-540-2	1,434	693	1,674	912	2,014	1,162	29.0
ESWF-800-2	2,296	1,107	2,511	1,368	3,321	1,929	52.0
ESWF-1000-2	2,512	1,211	2,928	1,596	3,630	2,109	61.0

*NL = Performance index according to DIN4708: primary 80° → 60°C; domestic water 10° → 45°C

Hot water output at single operation (upper heat exchanger). See data of Type ESWF-1.

ESWF-300-2	200	4.0
ESWF-540-2	340	12.0
ESWF-800-2	515	25.0
ESWF-1000-2	600	28.0

*NL = Performance index according to DIN4708: primary 80° → 60°C; domestic water 10° → 45°C

Pressure loss ESWF-...-2 per heat exchanger

Total pressure loss at parallel operation = pressure loss / 2

Total pressure loss at series circuit = pressure loss x 2

Storage tank type	Pressure loss in mbar at				Flow rate resistance factor (z)	Formula for calculating pressure loss mbar = (m ³ /h) ² * z mbar = pressure loss primary circuit m ³ /h = flow rate z = flow rate resistance factor
	1 m ³ /h	1.5 m ³ /h	2 m ³ /h	3 m ³ /h		
ESWF-300-2	31	70	124	279	31	
ESWF-540-2	41	92	164	369	41	
ESWF-800-2	62	140	248	558	62	
ESWF-1000-2	70	158	280	630	70	

Type ESWH-...-1: ECOTHERM water heaters with stainless steel storage tank and one heating coil



Design

Water heaters made of stainless steel with a welded in, heating coil with round profile for optimal performance, bath pickled, low maintenance, suitable for thermosiphon system, cleaning flange DN 200 for cleaning purpose or for the installation of an additional heat exchanger or electric screw-in heater, cold water supply at front.

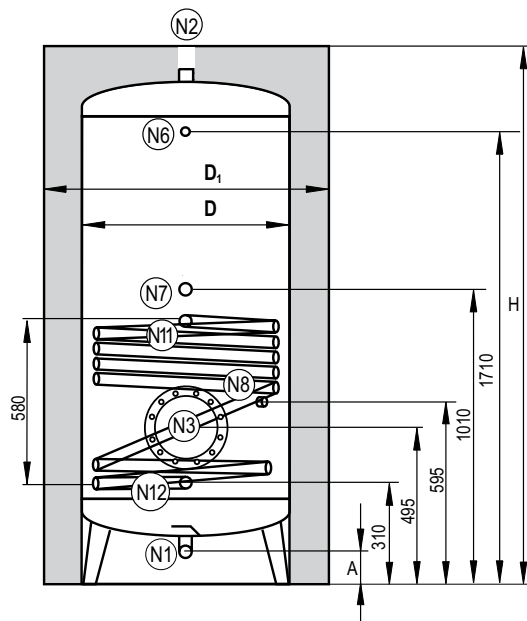
- Nearly 100% volume usage
- Suitable for thermosiphon system (without pump)
- Optimized hygiene

Accessories see pages 37–39

Fiber-fleece insulation

Storage insulation made of fiber-fleece with robust PP outer sheathing RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80 mm up to 1,000 liters and above 100 mm. 100% recyclable, fire protection class B2 (B1 upon request).

Connections and installation heights (mm)



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N2	6/4" FT	top	Hot water outlet
N3	DN 200	180°	Cleaning flange
N6	1/2" FT	180°	Thermometer
N7	6/4" FT	180°	Electric screw-in heater
N8	1/2" FT	135°	Temperature sensor
N11	1" MT	180°	Heat exchanger inlet
N12	1" MT	180°	Heat exchanger return

Storage tank type	Capacity litre	A mm	D mm	D ₁ mm	H mm	Tilt height mm	Tank weight kg	Register surface HE1 m ²
ESWH-200-1	200	100	500	660	1,420	1,400	45	0.9
ESWH-300-1	300	100	500	660	1,920	1,900	55	0.9
ESWH-540-1	540	90	650	810	1,940	1,940	70	1.2
ESWH-800-1	800	80	790	1,000	1,960	1,950	115	1.8
ESWH-1000-1	1,000	70	890	1,110	1,985	1,950	135	1.8

ESWH-...-1 Performance data - HE1



Hot water output at primary temperatures 80 ° → 60 ° C

Storage tank type	Domestic water 10°C → 45°C					Domestic water 10°C → 60°C			
	kW	45°C l/h	primary m³/h	Pressure loss mbar	NL index	kW	60°C l/h	primary m³/h	Pressure loss mbar
ESWH-200-1	22.7	558	1.0	14	6	13.4	304	0.8	9
ESWH-300-1	22.7	558	1.0	14	7	13.4	304	0.8	9
ESWH-540-1	30.3	744	1.3	40	13	17.9	405	1.0	24
ESWH-800-1	45.4	1,116	2.0	144	22	26.8	608	1.5	81
ESWH-1000-1	45.4	1,116	2.0	144	25	26.8	608	1.5	81

NL = Performance index according to DIN 4708: primary 80°C → 60°C, domestic water 10°C → 45°C, storage volume heated up to 60°C.

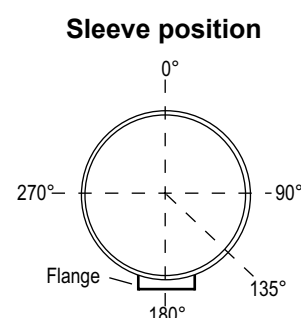
Hot water output at primary temperatures 70 ° → 50 ° C

Storage tank type	Domestic water 10°C → 45°C					Domestic water 10°C → 60°C			
	kW	45°C l/h	primary m³/h	Pressure loss mbar	NL index	kW	60°C l/h	primary m³/h	Pressure loss mbar
ESWH-200-1	17.2	423	0.74	8	5	11.7	201	0.8	0.5
ESWH-300-1	17.2	423	0,74	8	6	11.7	201	0.8	0.5
ESWH-540-1	23.0	565	1.0	24	10	15.6	268	1.0	0.7
ESWH-800-1	34.5	847	1.5	81	18	23.4	402	1.5	1.0
ESWH-1000-1	34.5	847	1.5	81	21	23.4	402	1.5	1.0

NL = Performance index according to DIN 4708: primary 80°C → 60°C, domestic water 10°C → 45°C, storage volume heated up to 60°C.

Heat exchanger pressure loss ESWH-...-1

Storage tank type	Pressure loss in mbar at				Flow rate resistance factor (z)	Formula for calculating pressure loss
	1 m³/h	1.5 m³/h	2 m³/h	3 m³/h		
ESWH-200-1	14	32	56	126	14	$\text{mbar} = (\text{m}^3/\text{h})^2 * z$ <p>mbar = pressure loss primary circuit m³/h = flow rate z = flow rate resistance factor</p>
ESWH-300-1	14	32	56	126	14	
ESWH-540-1	24	54	96	216	24	
ESWH-800-1	36	81	144	324	36	
ESWH-1000-1	36	81	144	324	36	



Type ESWH-...-2: ECOTHERM water heaters with stainless steel storage tank and two heating coils



Design

Water heaters made of stainless steel with two welded heating coils with round profile for optimal performance, bath pickled, low maintenance, suitable for thermosiphon system, cleaning flange DN 200 for cleaning purpose or for installation of an additional heat exchanger or electric screw-in heater, cold water connection at front.

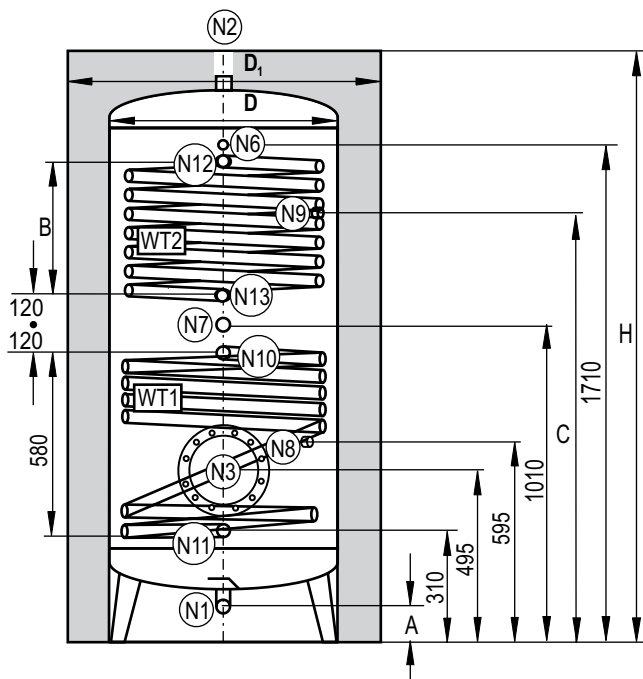
- Nearly 100% volume usage
- Suitable for thermosiphon system (without pump)
- Optimized hygiene

Accessories see pages 37–39

Fiber-fleece insulation

Storage tank insulation made of fiber-fleece with robust PP outer sheathing RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80 mm up to 1,000 liters and above 100 mm. 100% recyclable, fire protection class B2 (B1 upon request).

Connections and installation heights (mm)



Type	Storage tank capacity (liters)	max. Operating pressure	Test pressure
Storage tank	200 - 540	10 bar	13 bar
Storage tank	800 - 1,000	6 bar	7.8 bar
Heat exchanger	-	10 bar	13 bar

Connection	Size	Sleeve position °	Description
N1 up to 540L	1" MT	180°	Cold water inlet / drain
N1 from 800L	6/4" MT	180°	Cold water inlet / drain
N2	6/4" FT	above	Hot water outlet
N3	DN 200	180°	Cleaning flange
N6	1/2" FT	180°	Thermometer
N7	6/4" FT	180°	Electric screw-in heater
N8	1/2" FT	135°	Temperature sensor 1
N9	1/2" FT	135°	Temperature sensor 2
N11	1" MT	180°	HE1 lower heat exchanger inlet
N12	1" MT	180°	HE1 lower heat exchanger return
N13	1" MT	180°	HE2 upper heat exchanger inlet
N14	1" MT	180°	HE2 upper heat exchanger return

Storage tank type	Capacity liters	A	B	C	D	D ₁	H	Tilt height	Storage tank weight kg	Register surface	
		mm	mm	mm	mm	mm	mm	mm		HE1 m ²	HE2 m ²
ESWH-300-2	300	100	390	1,340	500	660	1,920	1,900	55	0.9	0.6
ESWH-540-2	540	90	450	1,380	650	810	1,940	1,940	85	1.2	0.9
ESWH-800-2	800	80	450	1,380	790	1,000	1,960	1,950	130	1.8	1.2
ESWH-1000-2	1,000	70	450	1,380	890	1,110	1,985	1,950	150	1.8	1.2

Single operation / Parallel operation

The two heat exchangers can be used in **single operation** as well as in **parallel operation**.



Single operation: HE1 or HE2

ESWH-...-2 Performance data - HE 1 (only lower heat exchanger)

Hot water output at primary temperatures 80 ° → 60 ° C

Storage tank type	Domestic water 10°C → 45°C					Domestic water 10°C → 60°C			
	kW	45°C l/h	primary m ³ /h	pressure loss mbar	NL index	kW	60°C l/h	primary m ³ /h	pressure loss mbar
ESWH-300-2	22.7	558	1.0	14	7	13.4	304	0.8	9
ESWH-540-2	30.3	744	1.3	40	13	17.9	405	1.0	24
ESWH-800-2	45.4	1,116	2.0	144	22	26.8	608	1.5	81
ESWH-1000-2	45.4	1,116	2.0	144	25	26.8	608	1.5	81

NL = Performance index according to DIN 4708: primary 80°C → 60°C, domestic water 10°C → 45°C, storage volume heated up to 60°C.

ESWH-...-2 Performance data - HE 2 (only upper heat exchanger)

Hot water output at primary temperatures 80 ° → 60 ° C

Storage tank type	Domestic water 10°C → 45°C					Domestic water 10°C → 60°C			
	kW	45°C l/h	primary m ³ /h	pressure loss mbar	NL index	kW	60°C l/h	primary m ³ /h	pressure loss mbar
ESWH-300-2	15.1	372	0.65	5	5	11.8	203	0.5	4
ESWH-540-2	22.7	558	1.0	14	10	13.4	304	0.8	9
ESWH-800-2	30.3	744	1.3	41	17	17.9	405	1.0	24
ESWH-1000-2	30.3	744	1.3	41	19	17.9	405	1.0	24

NL = Performance index according to DIN 4708: primary 80°C → 60°C, domestic water 10°C → 45°C, storage volume heated up to 60°C.

Parallel operation: HE1 and HE2

Hot water output at parallel operation (both heat exchangers) at primary temperatures 80°C → 60 ° C

Storage tank type	Domestic water 10°C → 45°C					Domestic water 10°C → 60°C			
	kW	45°C l/h	primary m ³ /h	pressure loss mbar	NL index	kW	60°C l/h	primary m ³ /h	pressure loss mbar
ESWH-300-2	34	852	1.5	13	11	27	465	1.2	9
ESWH-540-2	48	1,193	2.0	38	19	38	650	1.6	24
ESWH-800-2	69	1,705	3.0	135	31	54	929	2.3	80
ESWH-1000-2	69	1,705	3.0	135	34	54	929	2.3	80

NL = Performance index according to DIN 4708: primary 80°C → 60°C, domestic water 10°C → 45°C, storage volume heated up to 60°C.

Pressure loss (for formula used to calculate the pressure loss, see pages 7, 9 and 11)

Storage tank type	Pressure loss upper heat exchanger in mbar at				Flow rate resistance factor (z)	Pressure loss lower heat exchanger in mbar at				Flow rate resistance factor (z)
	1 m ³ /h	1.5 m ³ /h	2 m ³ /h	3 m ³ /h		1 m ³ /h	1.5 m ³ /h	2 m ³ /h	3 m ³ /h	
ESWH-300-2	14	32	56	126	14	10	23	40	90	10
ESWH-540-2	24	54	96	216	24	14	32	56	126	14
ESWH-800-2	36	81	144	324	36	24	54	96	216	24
ESWH-1000-2	36	81	144	324	36	24	54	96	216	24

Total pressure loss serial circuit = pressure loss lower HE + pressure loss upper HE

ESWG: ECOTHERM high capacity heat exchangers with patented flat heating coils and twofold or threefold heating coils



Design

Water heater made of Duplex/V4A stainless steel with partially patented heat exchangers. The heat exchangers can be used in single or in parallel operation. For both options big heat exchanger surfaces enable high heat transfer rates and low temperature spreads.

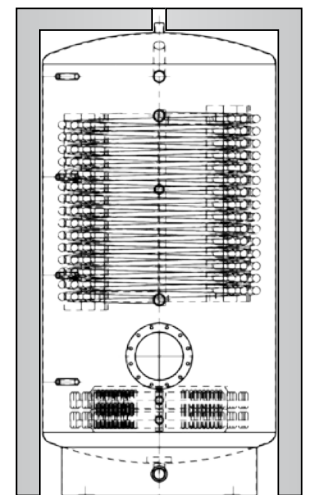
- Almost 100% volume usage
- Very high heat transfer rates even at low temperature spreads
- Applicable also for use with heat pump in combination with solar thermal collectors



HE-2



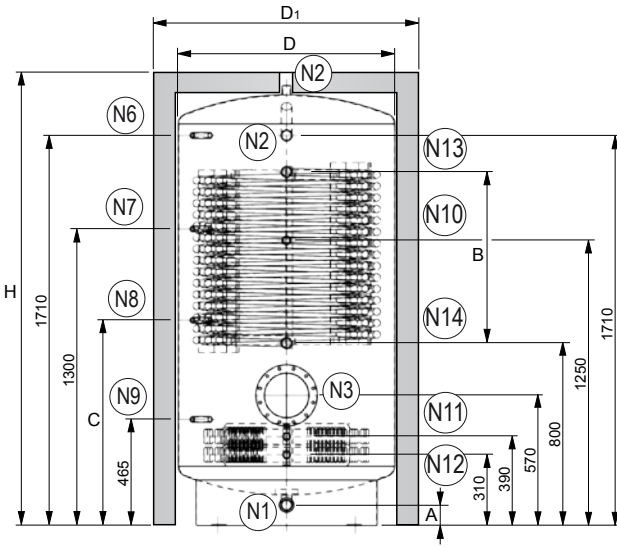
HE-1



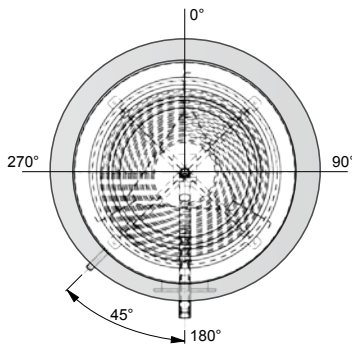
ESWG - High capacity water heater with two integrated heat exchangers

Storage tank type	Article number	Capacity liters	HE-areas			HE-capacity at 7555/1060		
			HE1 + HE2 m ²	HE1 m ²	HE2 m ²	HE1+HE2 kW	HE1 kW	HE2 kW
ESWG-540-5		540	5.1	1.6	3.5	100	40	60
ESWG-540-7		540	6.5	1.6	4.9	120	40	80
ESWG-800-8		800	7.3	2.4	4.9	140	60	80
ESWG-800-10		800	9.6	2.4	7.2	180	60	120
ESWG-1000-10		1000	9.6	2.4	7.2	180	60	120
ESWG-1000-13		1000	12.4	2.4	10.0	225	60	165
ESWG-1250-15		1250	14.8	4.8	10.0	285	120	165
ESWG-1500-17		1500	16.8	4.8	12.0	320	120	200
ESWG-2000-17		2000	16.8	4.8	12.0	320	120	200

Connections and installation heights (mm)



Connection	Size	Sleeve position°	Description
N1 to 630L	1" MT	180°	Cold water inlet / drain
N1 up 800L	6/4" MT	180°	Cold water inlet / drain
N2 to 630L	1" FT	top	Hot water outlet
N2 up 800L	6/4" MT	180°	Hot water outlet
N3	DN 200	180°	Cleaning flange
N6	1/2" FT	225°	Thermometer
N7	1/2" FT	225°	Temperature sensor 3
N8	1/2" FT	225°	Temperature sensor 2
N9	1/2" FT	225°	Temperature sensor 1
N10	1" FT	180°	Circulation
N11	1" MT	180°	HE1 lower heat exchanger inlet
N12	1" MT	180°	HE1 lower heat exchanger return
N13 to 4.9m ²	5/4" MT	180°	HE2 upper heat exchanger inlet
N14 to 4.9m ²	5/4" MT	180°	HE2 upper heat exchanger return
N13 up 6.9m ²	6/4" MT	180°	HE2 upper heat exchanger inlet
N14 up 6.9m ²	6/4" MT	180°	HE2 upper heat exchanger return



Fiber-fleece insulation

Storage tank insulation made of fiber-fleece with robust PP outer sheeting in RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80mm up to 1,000 liters above 100 mm. 100% recyclable, fire protection class B2 (B1 upon request).

Typ	max. operating pressure	test pressure
Storage tank	6 bar	7.8 bar
Heat exchanger	10 bar	13 bar

ESWG - High capacity water heater with two integrated heat exchangers

Storage tank type	Article number	Capacity liters	A mm	B mm	C mm	D mm	D ₁ mm	H mm	Tilt height mm	Weight kg	Insulation mm
ESWG-540-5		540	90	550	1,170	650	810	1,960	1,930	135	80
ESWG-540-7		540	90	750	1,300	650	810	1,960	1,930	155	80
ESWG-800-8		800	80	650	1,230	790	950	1,980	1,945	210	80
ESWG-800-10		800	80	650	1,230	790	950	1,980	1,945	235	80
ESWG-1000-10		1,000	80	650	1,230	890	1,050	1,980	1,950	250	80
ESWG-1000-13		1,000	80	750	1,230	890	1,050	1,980	1,950	280	100
ESWG-1250-15		1,250	90	750	900	950	1,150	1,990	1,975	365	100
ESWG-1500-17		1,500	70	750	900	1,100	1,300	2,000	2,010	430	100
ESWG-2000-17		2,000	70	750	900	1,200	1,400	2,050	2,050	450	100

Further storage tank sizes and heat exchanger surfaces available on request.

Type ESWS: ECOTHERM stainless steel universal water heater with variable installation options



Design

Water heaters made of stainless steel with variable energy input for all conventional and alternative energy sources, installation options for several heat exchangers and electric heating cartridges, mounting hole D 3/4" for use of a heat exchanger through the flange, bath pickled, low maintenance, optimized hygiene standard, flange DN 200 at front for cleaning purpose or for installation of an additional heat exchanger or electric screw-in heater, cold water connection at back or at front.

- Variable energy inputs
- Increased heat exchanger surfaces
- Optimized hygiene

Accessories see pages 37–39

Fiber-fleece insulation

Storage tank insulation made of fiber-fleece with robust PP outer sheathing RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80 mm up to 1,000 liters and above 100 mm. 100% recyclable, fire protection class B2 (B1 upon request).

Type	Capacity tank liters	max. operating pressure	Test pressure
Storage tank	200 - 540	10 bar	13 bar
Storage tank	800 - 1,000	6 bar	7.8 bar

Storage tank type	HE installation at (N3) liters	HE installation at (N4) liters	HE installation at (N5) liters	HE installation at (N15) liters
ESWS-300	295	-	-	257
ESWS-400	382	312	-	212
ESWS-500	483	394	-	240
ESWS-800	754	593	367	-
ESWS-1000	878	691	423	-

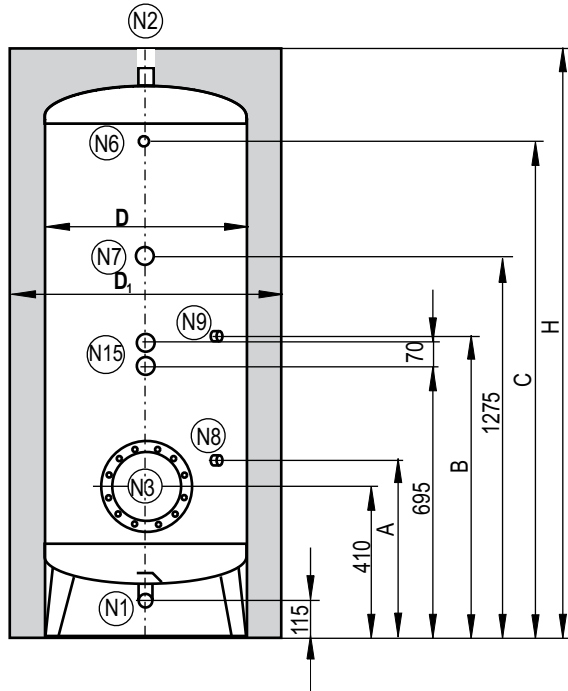
Heat exchanger Storage tank type	WT-E-18			WT-E-25			WT-E-36			WT-E-45		
	kW	l/h (10°→45°C)	NL*	kW	l/h (10°→45°C)	NL*	kW	l/h (10°→45°C)	NL*	kW	l/h (10°→45°C)	NL*
ESWH-300	24.6	604	8	-	-	-	-	-	-	-	-	-
ESWH-400	24.6	604	11	34.2	839	15	-	-	-	-	-	-
ESWH-500	24.6	604	13	34.2	839	17	49.2	1,209	21	-	-	-
ESWH-800	24.6	604	16	34.2	839	20	49.2	1,209	27	61.5	1,511	34
ESWH-1000	24.6	604	17	34.2	839	22	49.2	1,209	29	61.5	1,511	37

*NL = Performance index according to DIN4708: primary 80°→60°C; domestic water 10°→45°C

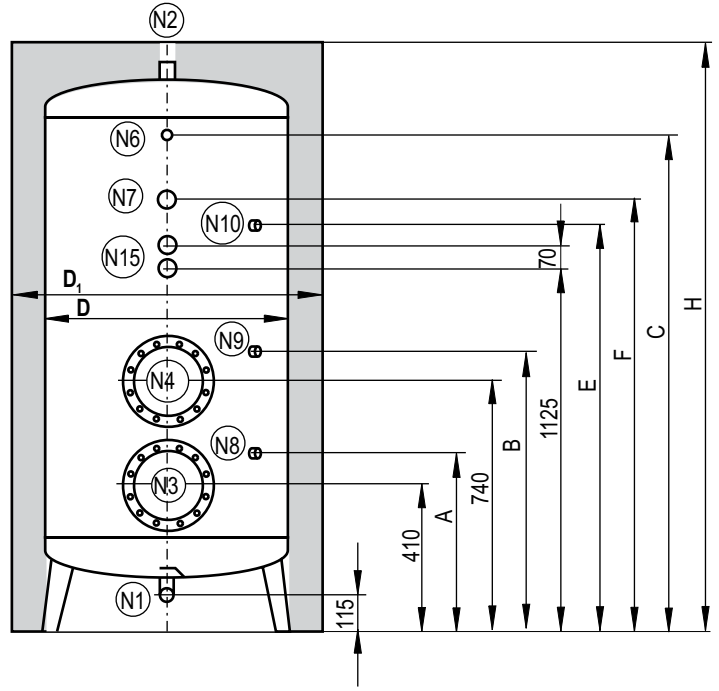
For more details about tube heat exchangers WT-E see page 26.

Connections and installation heights (mm)

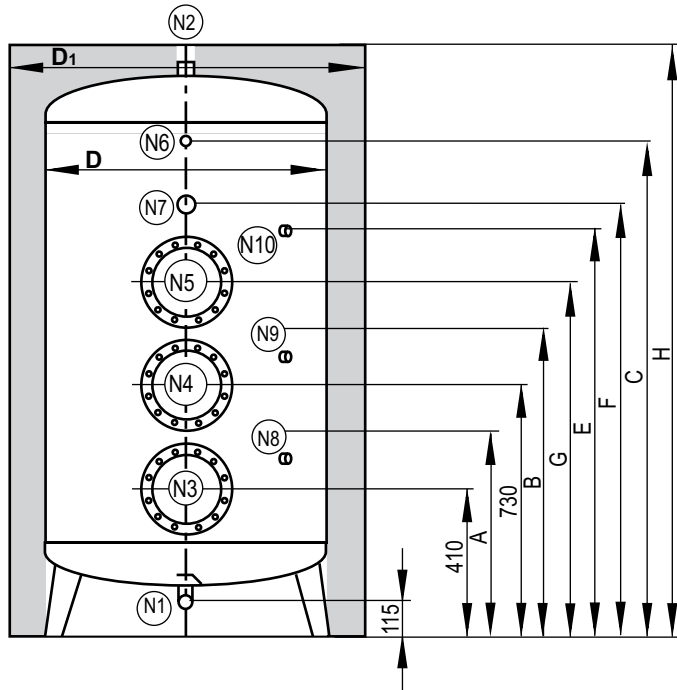
ESWS-300



ESWS-400, ESWS-500



ESWS-800, ESWS-1000



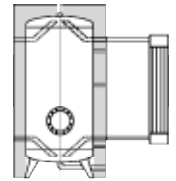
Dimensions and installation heights (mm)

Connection	Size	Sleeve position°	Description
N1 up to 500	1" MT	180°	Cold water inlet, drain
N1 from 800L	6/4" MT	180°	Cold water inlet, drain
N2	6/4" FT	top	Hot water outlet
N3	DN 200	180°	Cleaning or mounting flange
N4*)	DN 200	180°	2. Cleaning or mounting flange
N5*)	DN 200	180°	3. Cleaning or mounting flange
N6	1/2" FT	180°	Thermometer
N7	6/4" FT	180°	Electric screw-in heater
N8	1/2" FT	135°	Temperature sensor 1
N9	1/2" FT	135°	Temperature sensor 2
N10	1/2" FT	135°	Temperature sensor 3
N15*)	2 x DN 3/4"	180°	installation for tube heat exchanger

*) N4, N5 & N15 are only available for some models

Storage tank type	Capacity	A	B	C	D	D ₁	E	F	G	H	Tilt height	Storage tank weight
	liters	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
ESWS-300	300	480	780	1,445	500	660	-	-	-	1,920	1,900	53
ESWS-400	400	500	830	1,465	600	760	1,250	1,340	-	1,920	1,840	64
ESWS-500	500	500	830	1,465	650	810	1,250	1,340	-	1,890	1,920	81
ESWS-800	800	500	820	1,485	790	1,000	1,290	1,380	1,200	1,980	1,945	128
ESWS-1000	1,000	500	820	1,485	890	1,110	1,290	1,235	1,045	1,980	1,950	143

Type ESWE: ECOTHERM stainless steel water heaters for external heat exchanger



Design

Water heaters made of stainless steel, connections for external plates and/or shell & tube heat exchangers, designed for optimal layering with almost 100% volume usage, bath pickled, low maintenance. Up to 3,000 liters capacity - flange DN 200 at front for cleaning purpose or for installation of an additional heat exchanger or screw-in heater. From 4,000 liter capacity - inspection flange DN 400. Cold water connection from the sides or bottom, circulation connection.

- For external plate or shell & tube heat exchangers
- Almost 100% volume usage
- Optimal layering
- Optimized hygiene

Accessories see pages 37–39

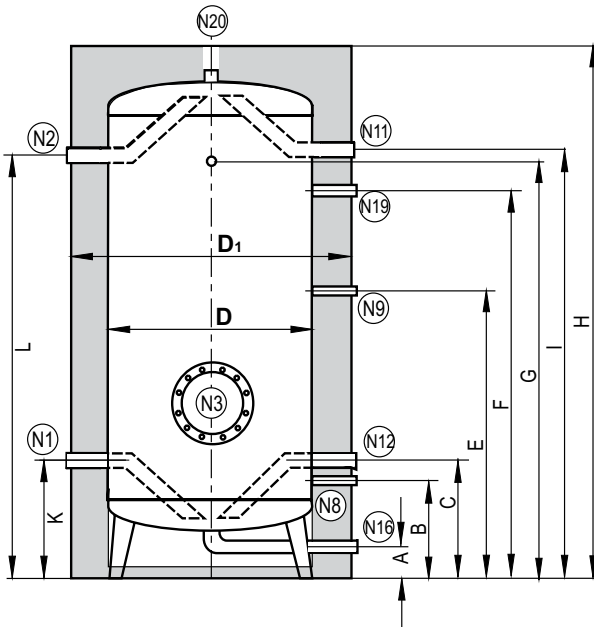
Fiber-fleece insulation

Storage tank insulation made of fiber-fleece with robust PP outer sheathing RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80 mm up to 1,000 liters and above 100 mm. 100% recyclable, fire protection class B2 (B1 upon request).

Dimensions and installation heights (mm)

Storage tank type	Capacity liters	A mm	B mm	C mm	D mm	D ₁ mm	E mm	F mm	G mm	I mm	H mm	K mm	L mm	Tilt height mm	Tank weight kg
ESWE-200	200	115	310	390	500	660	760	1,010	1,160	1,160	1,450	390	1,160	1,400	59
ESWE-300	300	115	310	390	500	660	1,010	1,320	1,580	1,580	1,920	390	1,580	1,900	71
ESWE-540	540	115	310	390	650	810	1,010	1,320	1,580	1,580	1,940	390	1,580	1,920	85
ESWE-750	750	115	310	390	750	910	1,010	1,400	1,660	1,660	1,980	390	1,660	1,950	113
ESWE-1000	1,000	115	310	390	890	1,110	1,010	1,400	1,660	1,660	1,980	390	1,660	1,950	147
ESWE-1250	1,250	115	310	390	950	1,220	1,010	1,400	1,660	1,660	2,010	390	1,660	1,975	197
ESWE-1500	1,500	115	310	390	1,100	1,320	1,010	1,400	1,660	1,660	2,025	390	1,660	2,010	228
ESWE-2000	2,000	115	310	390	1,250	1,470	1,010	1,400	1,660	1,660	2,050	390	1,660	2,045	335
ESWE-2500	2,500	115	310	390	1,350	1,570	1,010	1,400	1,660	1,660	2,215	390	1,660	2,290	417
ESWE-3000	3,000	115	310	390	1,350	1,570	1,160	1,730	2,160	1,990	2,615	390	2,160	2,490	470
ESWE-4000	4,000	165	360	440	1,500	1,760	1,560	1,950	2,210	2,210	2,630	440	2,210	2,750	557
ESWE-5000	5,000	165	360	440	1,680	1,940	1,560	1,950	2,210	2,210	2,900	440	2,210	2,960	662
ESWE-6000	6,000	165	410	490	1,680	1,940	1,610	2,000	2,260	2,260	3,000	490	2,260	3,100	740
ESWE-7000	7,000	165	410	490	1,900	2,160	1,810	2,250	2,540	2,540	3,500	490	2,540	3,550	825
ESWE-8000	8,000	165	410	490	1,900	2,160	2,010	2,500	2,820	2,820	4,100	490	2,820	4,150	910

Connections and installation heights (mm)



Connection	Size	Sleeve position °	Description
N1 up to 1,000L	5/4" MT	270°	Cold water inlet
N1 from 1,250L	6/4" MT	270°	Cold water inlet
N1 from 3,000L	2" MT	270°	Cold water inlet
N2 up to 1,000L	5/4" MT	270°	Hot water outlet
N2 from 1,250L	6/4" MT	270°	Hot water outlet
N2 from 3,000L	2" MT	270°	Hot water outlet
N3 up to 3,000L	DN 200	180°	Cleaning flange
N3 from 4,000L	DN 400	180°	Inspection flange
N8	1/2" FT	90°	Temperature sensor
N9	1/2" FT	90°	Temperature sensor
N11 up to 5,000L	5/4" MT	90°	HW from ext. heat exchanger (inlet)
N11 from 6,000L	6/4" MT	90°	HW from ext. heat exchanger (inlet)
N11 from 6,000L	6/4" MT	90°	HW from ext. heat exchanger (inlet)
N12 up to 5,000L	5/4" MT	90°	Outlet to ext. heat exchanger (return)
N12 from 6,000L	6/4" MT	90°	Outlet to ext. heat exchanger (return)
N16 up to 1,500L	1" MT	90°	Drain
N16 from 2,000L	6/4" MT	90°	Drain
N19 up to 1,000L	1" MT	90°	Circulating
N19 from 1,250L	6/4" MT	90°	Circulating
N20	6/4" FT	top	Air vent

Storage tank type	max. Operating pressure	Test pressure
all sizes	6 bar	7.8 bar

ECOTHERM Individual Water Heaters

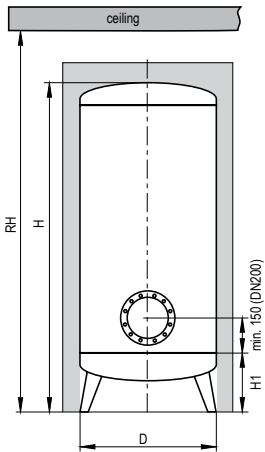
Configure your individual stainless steel water heater step by step:

1) Type



- Type ESWE;** no heat exchanger
- Type ESWF1;** one flat heating coil
- Type ESWF2;** two flat heating coils
- Type ESWH1;** one heating coil
- Type ESWH2;** two heating coils
- Type ESWG;** High capacity water heaters with combined heat exchangers

2) Storage Tank



- Capacity [200 to 20,000 liters]
- Height of storage tank without insulation [H; mm]
- Height of lower edge of the mantle [H1; mm]
- Ceiling height / tilt height [RH; mm]
- Diameter of storage tank without insulation [D; mm]
- Material of storage tank [1.4571, Duplex etc.]
- Maximal operational pressure [6 or 10 bar]
- Standard operational pressure [6 oder 10 bar]
- Maximal water temperature [°C]
- Orientation [vertically on pedestals, vertically on ring, horizontally]

As a standard all ECOTHERM water heaters are shipped with a high quality fibre-fleece insulation (up to 1,000 liters 80mm and above 100m).

3) Flange

For all ECOTHERM stainless steel tanks a cleaning flange with a minimal diameter of 200mm is required for bath pickling.

- Number of flanges:
- Flange diameter: [200, 300 or 400 mm]:



DN200

DN300

DN400

Type WT-E: ECOTHERM stainless steel tube heat exchanger for hot water operation, 6 bar



Design

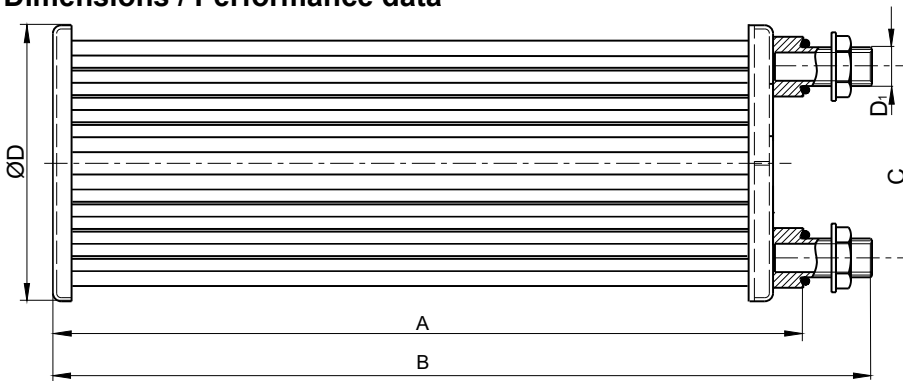
Tube heat exchanger made of stainless steel 1.4571, designed as built-in register, installation by appropriate flange or installation in the tank, low fouling and low danger of calcification by plain pipe surface, installation with flange DN 200. Galvanic isolation up to 90°C operating temperature (above 90°C: Special seal - see accessories).

- Designed as built-in register
- Operating/test pressure of 6/7.8 bar
- Stainless steel 1.4571
- For variable energy inputs

Optional accessories

- Flange plate for installation via the cleaning flange
- Flange plate for "secondary storage tank" on request

Dimensions / Performance data



Heat exchanger type	Surface m ²	A mm	B mm	C mm	D mm	D ₁ mm	Continuous performance primary 80°→60°C			Pressure loss mbar	Weight kg
							l/h (45°C)	kW	primary m ³ /h		
WT-18-E	0.84	430	480	70	175	R3/4"	604	24.6	1.1	8	10.1
WT-25-E	1.2	580	625	70	175	R3/4"	839	34.2	1.5	26	12.5
WT-36-E	1.6	660	705	120	175	R3/4"	1209	49.2	2.2	40	14.1
WT-45-E	2	820	865	120	175	R3/4"	1511	61.5	2.7	80	17.8

Heat exchanger pressure loss WT-E

Heat exchanger type	Pressure loss in mbar at				Flow rate resistance factor (z)	Formula for calculating of pressure loss
	1 m ³ /h	1.5 m ³ /h	2 m ³ /h	3 m ³ /h		
WT-18-E	40	90	160	360	40	$\text{mbar} = (\text{m}^3/\text{h})^2 * z$ <p>mbar = pressure loss primary circuit m³/h = flow rate z = flow rate resistance factor</p>
WT-25-E	42	95	168	378	42	
WT-36-E	45	102	180	405	45	
WT-45-E	48	108	192	432	48	

Type WBE: ECOTHERM stainless steel tube heat exchanger for steam operation, 12 bar



Design

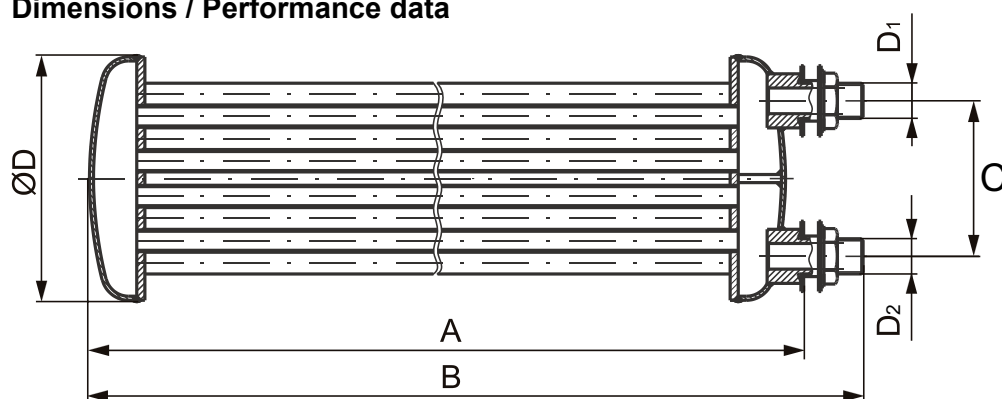
Tube heat exchanger made of stainless steel 1.4571, designed as a built-in register, installation by appropriate flange or installation in the tank, low fouling and low danger of calcification by plain pipe surface, installation with flange DN 200 with heat exchanger area to 2.1 m² DN 200, up to 4.0 m² DN 300 and above 4 m² DN 400. Galvanic isolation up to 90°C operating temperature (above 90°C: Special seal - see accessories)

- Design as built-in register
- Operating/test pressure 12/16 bar
- Stainless steel 1.4571
- For steam operation

Optional accessories

- Flange plate for installation via the cleaning flange
- Flange plate for "secondary storage tank" on request

Dimensions / Performance data



Heat exchanger type	Surface m ²	A mm	B mm	C mm	D mm	D ₁ mm	D ₂ mm	Continuous performance primary 80°→60°C			Pressure loss mbar	FRR-factor z*	Weight kg**
								45°C l/h	kW	primary m ³ /h			
WBE-04-D	0.4	420	465	85	140	3/4" MT	3/4" MT	269	10.9	0.47	5	22	5
WBE-06-D	0.5	520	565	85	140	3/4" MT	3/4" MT	336	13.7	0.59	10	28	6
WBE-07-D	0.7	620	665	85	140	3/4" MT	3/4" MT	470	19.1	0.83	19	28	7
WBE-10-D	1.0	560	605	115	185	3/4" MT	3/4" MT	672	27.3	1.18	20	14	11
WBE-13-D	1.3	700	745	115	180	3/4" MT	3/4" MT	873	35.5	1.53	26	14	13
WBE-15-D	1.5	785	830	115	180	3/4" MT	3/4" MT	1,007	41.1	1.77	54	17	15
WBE-21-D	2.1	845	890	115	180	3/4" MT	3/4" MT	1,343	54.7	2.35	76	13	18
WBE-26-D	2.6	700	745	200	275	1" MT	1" MT	1,746	71.1	3.11	82	9	30
WBE-30-D	3.0	842	907	180	275	5/4" MT	5/4" MT	2,015	82.1	3.57	90	7	33
WBE-40-D	4.0	1,000	1,055	180	275	5/4" MT	5/4" MT	2,451	100	4.29	108	6	41
WBE-60-D	6.0	971	1,034	200	325	6/4" MT	6/4" MT	4,029	164	7.05	172	3.5	64
WBE-80-D	8.0	1,192	1,257	200	325	2" MT	2" MT	5,372	218.7	9.4	298	3.5	77
WBE-100-D	10.0	1,288	1,253	230	355	2" MT	2" MT	6,716	273.4	11.75	378	3	100
WBE-120-D	12.0	1,380	1,445	230	355	2" MT	2" MT	8,059	328	14.1	604	3	114

Type ESSP-B: ECOTHERM solar system buffer storage tank with stainless steel sphere for domestic hot water, two patented flat heating coils and layering sheet



Design

The ESSP-B solar system buffer storage tank with its two built-in flat heating coils has minimal height. The integrated layering sheet is made of high quality mild steel Voest (P235JR). The storage tank has a sleeve for the installation of an electrical heater.

The domestic water unit (BWK) in spherical form (patented) is made of stainless steel (V4A) and has a low overall height the optimum ratio of surface area to content with high external pressure resistance at an optimized wall thickness for best heat transfer.

Fiber-fleece insulation

Storage tank insulation made of fiber-fleece with robust PP outer sheeting RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80mm up to 1,000 liters above 100mm. 100% recyclable, fire protection class B2 (B1 available on request).

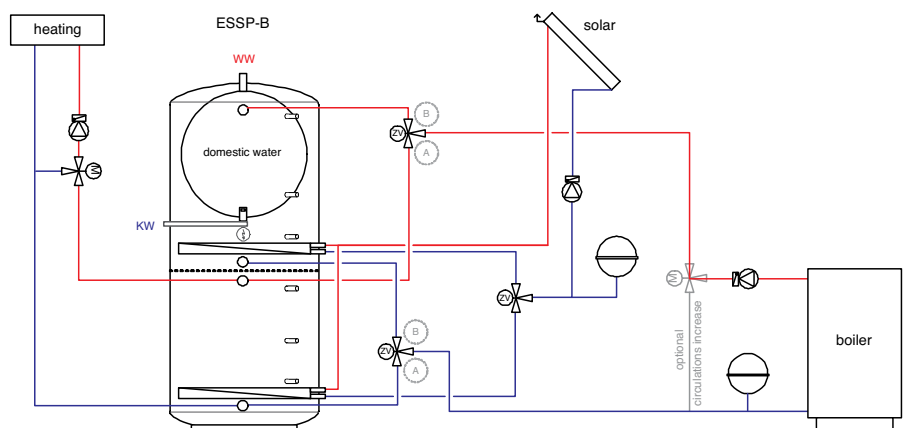
Type	max. Operating pressure	max. Test pressure
Storage/Heating water	3 bar	4.5 bar
Heat exchanger/Solar	10 bar	13 bar
Domestic water unit	10 bar	13 bar

Storage tank type	D mm	D ₁ mm	H mm	Weight kg
ESSP-1000-2FS-B220	790	990	2,012	230
ESSP-1250-2FS-B320	900	1,100	2,193	275

Function and Effectiveness

With the special design of the flat heating coils and the sphere for the domestic water, the storage tank can be used for various applications and all heat sources. The design allows a separation between the hot water and heating buffer for different temperature ranges, and thus the use of heat pumps. The two registers allow a more efficient small solar system for free flow layering and use the energy for hot water and heating. In summer surpluses are stored to bridge bad weather periods.

The simple hydraulic installation saves space and reduces installation and operating costs with high reliability and excellent hygiene.



Type ESSP: ECOTHERM solar system buffer storage tank with two patented flat heating coils and layer sheet



Design

The ESSP solar system buffer storage tank with two built-in flat heating coils with minimal height and layering sheet is made of high quality steel Voest (P235JR). The storage tank has a sleeve for the installation of an electrical heater.

Fiber-fleece insulation

Storage tank insulation made of fiber-fleece with robust PP outer sheeting RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80mm up to 1,000 liters above 100mm. 100% recyclable, fire protection class B2 (B1 available on request).

Type	max. Operating pressure	max. Test pressure
Storage/Heating water	3 bar	4.5 bar
Heat exchanger/Solar	10 bar	13 bar

Storage tank type	D mm	D ₁ mm	H mm	Weight kg
ESSP-0800-2FS	790	1,000	1,712	190
ESSP-1000-2FS	790	1,000	2,012	210
ESSP-1250-2FS	900	1,100	2,193	250

Function and Effectiveness

The ESSP “ECOTHERM solar system buffer tank” inspires particularly by the two patented flat heating coils. The design of this heat exchanger ensures optimal charging, layering and volume utilization (about 97%) of the storage tank. The integrated metal layer protects the hot water temperature range in the upper part of the buffer tank from undesired mixing with cold water and simultaneously enables additional charging from the lower buffer tank area.

This buffer tank is particularly suitable for combination with external fresh water heat exchangers. The compact design allows the use of the buffer tank for domestic hot water and heating at small space requirements.

The high efficiency of the flat heating coils allows a solar thermal system to operate at a very high efficiency. The heat exchanger is always in a cold area and never in a mixed temperature range. If the entire heating system with storage tank, solar heating and supplementary heat is perfectly designed, the consumption of the primary energy is significantly reduced. The solar system operates with a relatively low area having a high efficiency and therefore extending the life time of the primary heating source.

Type ESUP: ECOTHERM solar universal buffer storage tank



Design

The ESSP-B solar system buffer storage tank is made of high quality Voest steel (P235JR).

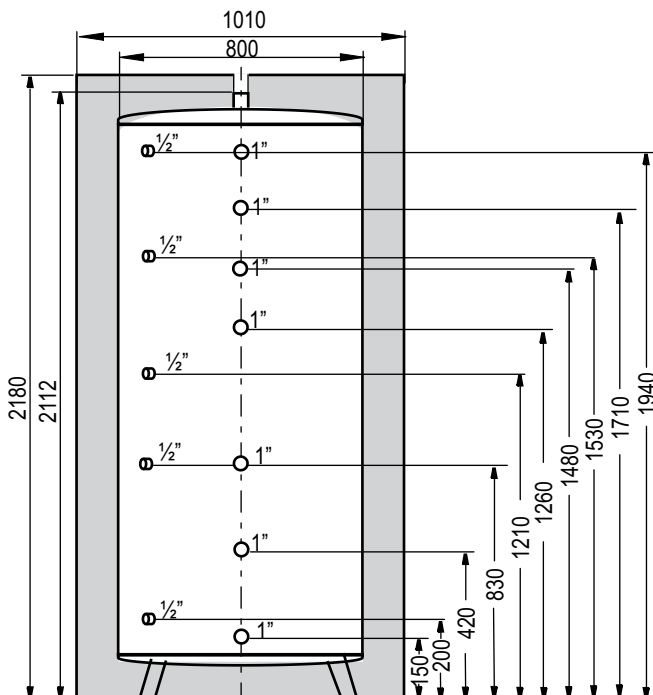
Fiber-fleece insulation

Storage tank insulation made of fiber-fleece with robust PP outer sheeting RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80mm up to 1,000 liters above 100mm. 100% recyclable, fire protection class B2 (B1 available on request).

Type	max. Operating pressure	max. Test pressure
Storage/Heating water	3 bar	4.5 bar

Storage Type	D mm	D ₁ mm	H mm	Weight kg
ESUP-1000	790	1,000	2,012	144

Connections and installation heights (mm)



Description:

The ECOTHERM solar universal buffer storage tank can be universally used and combined. It is suitable for a variety of hydraulic connection types, for series as well as for parallel operation. Due to its special design with the gently curved bottom and short pedestals the buffer tank has an optimum volume usage, very high flexibility, and the transfer is comfortable.

A professional installation, and the careful insulation increase the efficiency of the solar system, as well as of the entire heating system. It also extends the service life (boilers), saves energy and costs.

Type ESWU: ECOTHERM fresh water unit



Type ESWU-...
(110, 200 or 300 liters)

Design

Universal water heaters ESWU made of stainless steel 1.4571, bath pickled. The large heat exchanger surface in relation to the storage volume results in a short heat-up time.

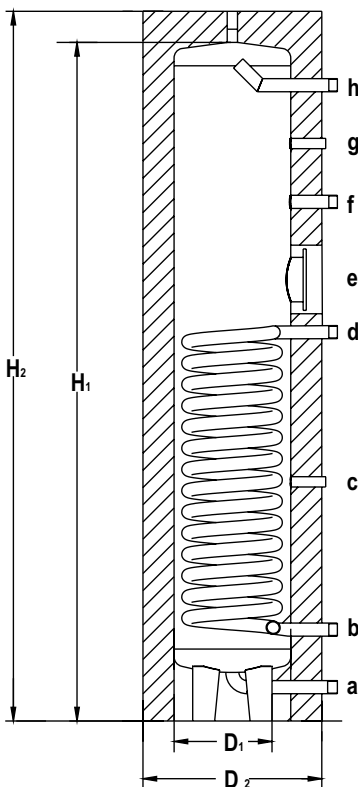
Fiber-fleece insulation

Storage tank insulation made of fiber-fleece with robust PP outer sheeting RAL7037, patented aluminum closure strip and self-fixing sleeve caps, quick and easy installation, insulation thickness 80mm up to 1,000 liters above 100mm. 100% recyclable, fire protection class B2 (B1 available on request).

Type	max. Operating pressure	max. Test pressure
Storage tank	6 bar	10 bar
Heat exchanger	6 bar	10 bar

ESWU

Storage Type	D ₁ mm	D ₂ mm	H ₁ mm	H ₂ mm	Weight kg
ESWU-110	300	460	1745	1845	47
ESWU-200	400	560	1760	1860	65
ESWU-300	500	660	1773	1873	81



Data

Dimensions ESWU	Tank capacity in liters		
	110	200	300
Tilt height mm	1,820	1,830	1,850
HE-surface m ²	1.3	1.6	1.9
HE-rating kW	35.5	43.7	51.9
Liters/h 12°C → 45°C	925	1,140	1,355

Connections

Connection Dimensions	Storage capacity in liters	
	110, 200, 300	
h 1"MT	1,635	
g 1/2"FT	1,470	
f 1"MT	1,335	
e DN 100	1,135	
d 1"MT	1,000	
c 1/2"FT	615	
b 1"MT	235	
a 1"MT	87	

Type SOLVP: ECOTHERM solar priority buffer tank

Combination storage tank for solar energy

- Priority heating of the upper half of buffer tank and cooling of the lower half of buffer tank
- The optimum buffer tank for the combination of solar energy with other heating sources
- Fast heat transfer by large heat exchanger surface



Design

The priority buffer tank is made of high-quality Voest steel (St 37-2) and is available with two or without solar heat exchangers. Due to the various connections of the priority buffer tank, the tank can be used and combined according to the current demand due to the solar collector surfaces and the conventional heating.

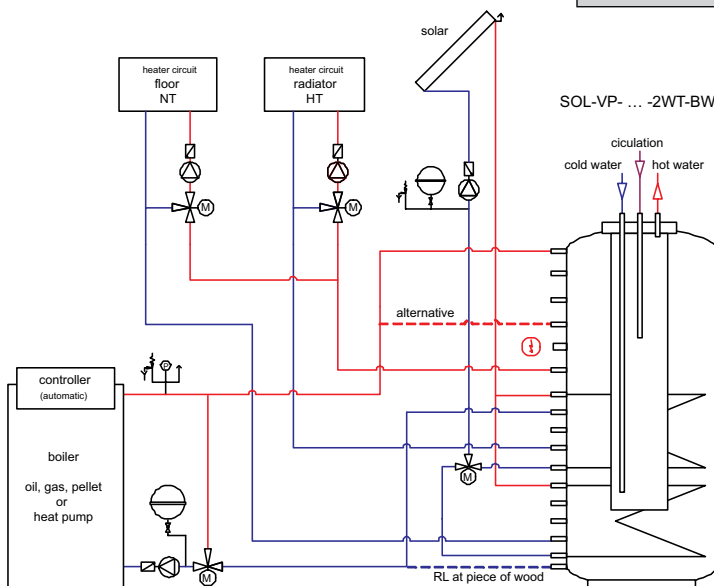
- The 200 liter domestic water boiler (BW) has 400 mm in diameter and is made of stainless steel (V4A). Cleaning flange and circulation connection are standard. 200 liters capacity, 2m² surface.
- The 50 liter hygiene boiler (HB) made of 32 meters stainless steel tube (V4A) has the dimensions Ø 48.3 x 1.6 mm and is available on request with circulation connection. 5m² surface.

PU Hard shell insulation

PU Hard shell insulation from 500 litre to 800 litre 70mm insulation, up 900 litre 90mm insulation.

Typ SOLVP-...-2WT-HB
with Hygiene Boiler - Use 50L

Type	max. Operating pressure	max. Test pressure
Heating water	3 bar	4.5 bar
Domestic water	10 bar	13 bar



Operation of the SOLVP solar priority buffer tank:

Primary the top half of the buffer tank is heated up to the desired temperature. This is easily done with two specially folded heating coils in combination with a power control of the solar pump and a simple priority control.

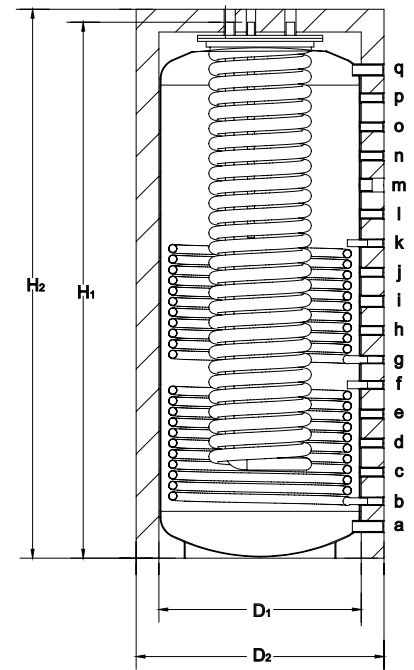
The lower half of the buffer tank is primarily cooled down. The cold water is fed into the BW stainless steel hot water boiler and the HB stainless steel hygiene boiler at the deepest point.

Connections & heat exchanger data

Connection dimensions	Buffer tank capacity in liters									
	500	700	800	900	1,000	1,200	1,350	1,650	2,000	
q	5/4"FT	1,715	1,720	1,980	1,745	1,930	1,730	1,935	1,910	1,915
p	1"FT	1,610	1,615	1,860	1,645	1,820	1,630	1,825	1,810	1,815
o	1"FT	1,505	1,510	1,740	1,555	1,705	1,540	1,710	1,705	1,710
n	1"FT	1,400	1,405	1,620	1,465	1,590	1,450	1,595	1,600	1,605
m	6/4"FT	1,295	1,300	1,485	1,365	1,475	1,350	1,480	1,495	1,500
l	1"FT	1,195	1,200	1,350	1,265	1,360	1,250	1,365	1,390	1,395
k	1"MT	1,095	1,100	1,230	1,165	1,245	1,150	1,250	1,285	1,290
j	1"FT	995	1,000	1,115	1,060	1,130	1,045	1,135	1,170	1,175
i	5/4"FT	895	900	1,000	955	1,015	940	1,020	1,055	1,060
h	1"FT	795	800	885	850	900	835	905	940	945
g	1"MT	695	700	770	745	785	730	790	825	830
f	1"MT	595	600	670	645	685	630	690	725	730
e	1"FT	495	500	555	540	570	525	575	610	615
d	1"FT	395	400	440	435	455	420	460	495	500
c	1"FT	295	300	325	330	340	315	345	380	385
b	1"MT	195	200	210	225	225	210	230	265	270
a	5/4"FT	105	110	110	125	125	110	130	165	170
H2										
H1										
Tilt heigh										
D1										
D2										
2 HE Area										
2 HE Contents										
0 HE Weight										
2 HE Weight										
BW Weight										60 kg
HB Weight										90 kg

Heating water temperature °C	Hot water capacity liters/min.
52	16.7
55	21.0
60	36.5
Cold water supply	10 °C
Hot water supply	45 °C

Flow rate liters/min.	Pressure loss mbar
12	11
24	40
36	83
48	136
60	206
72	285

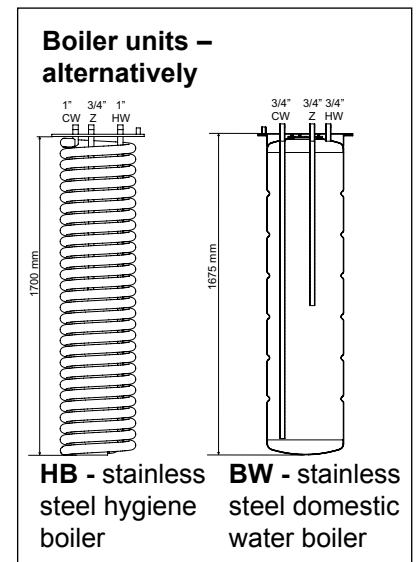
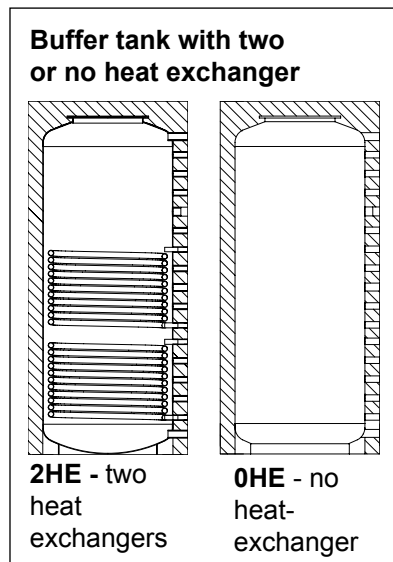


g+f at SOLVP-...-1HE-.. designed as buffer tank connection
k+g+f+b at SOLVP-...-0HE-.. designed as buffer tank connection

Model number legend

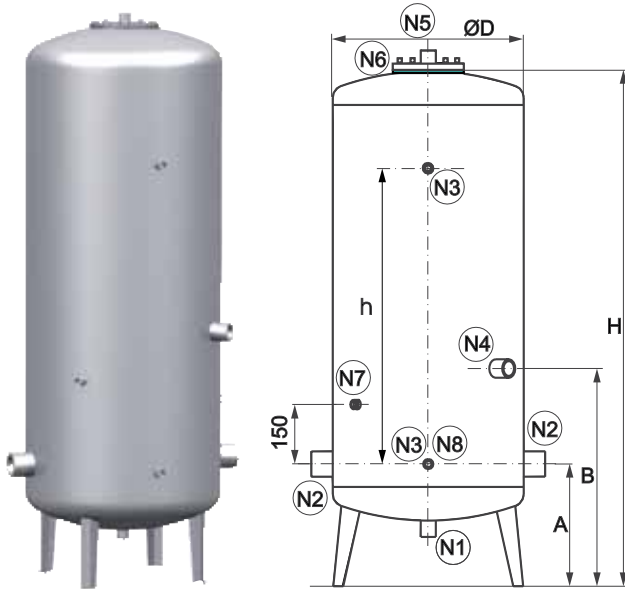
SOLVP	Liters	nHE	Unit
1.	2.	3.	4.

- 1. Digit: **SOLVP**
- 2. Digit: Liter = Storage capacity
- 3. Digit: nHE = Number of heat exchangers **0HE, 2HE**
- 4. Digit: Unit: **HB** = Stainless steel - hygiene boiler
BW = Stainless steel - domestic water boiler
- 5/7** = surface in m²
- Z** = Circulation



Type ESDB: Stainless steel pressure air vessel

- Long service life
- Sizes: 150, 300 and 500 liters



Design

Standing on the pedestals the air pressure vessel is made of stainless steel and bath pickled.

Connection	Size	Sleeve position °	Description
N1	3/4" FT	unten	Drain
N2 up to 300 L	5/4" FT	90/270°	Inlet or outlet
N2 from 500 L	6/4" FT	90/270°	Inlet or outlet
N3 only from 300 L	1/2" FT	180°	Water level set
N4	5/4" FT	135°	Water level controller
N5	3/4" FT	oben	Air vent
N6	Top cleaning flange with sleeve 3/4" FT		
N7 only from 300 L	1/2" FT	225°	Pressure switch, manometer
N8 only up to 150 L	1/2" FT	180°	Pressure switch, manometer

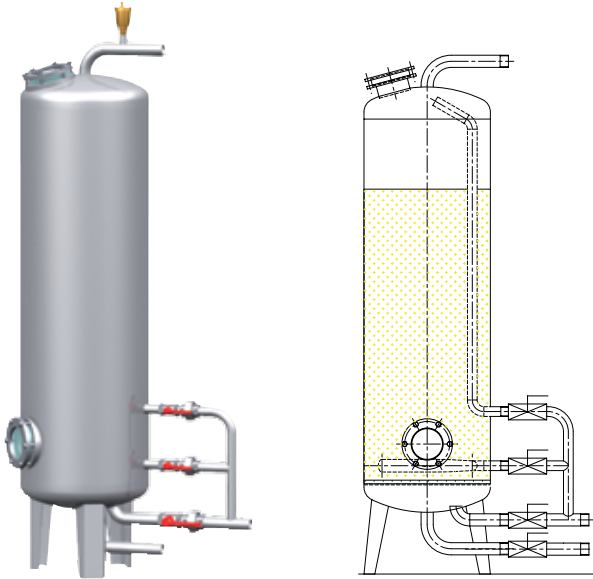
Type	max. Operating pressure	max. Test pressure
Storage tank	6 bar	7.8 bar

Dimensions

Vessel type	Capacity	A	B	Ø D	H	h	Vessel weight
	liters	mm	mm	mm	mm	mm	
ESDB-150	150	250	390	450	1,100	-	38.5
ESDB-300	300	300	550	550	1,450	1,000	54.5
ESDB-500	500	500	550	650	1,700	1,000	75

Type ESES: Deacidification unit

- 100 liters stainless steel storage tank with two sight glasses
- Patented backwashing



Design

The deacidification tank with 100 liters is made of stainless steel V4A, bath pickled, free standing on pedestals and provided with two sight glasses. The backwashing is patented. The deacidification filter is filled with a dolomitic deacidification material consisting primarily of calcium carbonate and magnesium oxide.

Description

This deacidification material is subject to the natural decomposition at flow of carbonated water. During backwashing the resulting sludge residue is dispersed and completely washed out of the filter container.




Tank Type	Capacity liters	H mm	Connections mm	Tank weight kg
ESES-100	100	1550	1" MT	40



Accessories





“Quality” is one of the key values of ECOTHERM. For stainless steel water heaters and combination buffer tanks on the one hand this means the premium service at consulting, design and visualization of the products. The top quality in manufacturing is sustainably lived by the ISO 9001 : 2008 certification. But for ECOTHERM “premium quality” also means to offer a suitable range of accessories or spare parts. These components meet the same high quality standards as ECOTHERM products and are carefully selected.

Thermowells made of stainless steel 1.4571


	Accessories Type	Article Number	Description
 Thermowell with cable fitting	TH1/2"x60M16x1,5	59210001	Thermowell with cable fitting for temperature sensor, L = 60 mm, Inside Ø 8 mm, stainless steel 1.4571
	TH1/2"x160M16x1,5	59210000	Thermowell with cable fitting for temperature sensor, L = 160 mm, Inside Ø 8 mm, stainless steel 1.4571
	TH1/2"x200M16x1,5	59210004	Thermowell with cable fitting for temperature sensor, L = 200 mm, Inside Ø 8 mm, stainless steel 1.4571
 Thermowell with clamping screw	TH1/2"x60K	59220000	Thermowell with clamping screw for Thermometer, L = 60 mm, Inside Ø 8 mm, stainless steel 1.4571
	TH1/2"x160K	59220002	Thermowell with clamping screw for Thermometer, L = 160 mm, Inside Ø 8 mm, stainless steel 1.4571
	TH1/2"x200K	59220005	Thermowell with clamping screw for Thermometer, L = 200 mm, Inside Ø 8 mm, stainless steel 1.4571
 Thermowell with long shaft	TH1/2"x160LS	49220020	Thermowell for Temperature sensors with long shaft, L = 160 mm, Inside Ø 8 mm, stainless steel 1.4571
	TH1/2"x250LS	49220021	Thermowell for Temperature sensors with long shaft, L = 250 mm, Inside Ø 8 mm, stainless steel 1.4301

Flanges



Flange plates for cleaning-mounting flange (including seal and bolts) for stainless steel storage tanks

	Accessories Type	Article Number	Description
	NBFL270/6	59150002	Blank flange, flange NW 200, 6mm, stainless steel 1.4571
	NBFL270/10	59150005	Blank flange, flange NW 200, 10mm, stainless steel 1.4571
	FLM1,5/270	59110000	Flange with 6/4" sleeve for electric screw-in heaters, flange NW 200 stainless steel 1.4571
	FL0,75/70	59120003	Flange for tube heat exchanger Type H (heating water) WT-18-E und WT-25-E, Flansch NW 200
	FL0,75/120	59120004	Flange for tube heat exchanger Type H (heating water) WT-36-E und WT-45-E, Flansch NW 200
	FL0,75/85	59120005	Flange for tube heat exchanger Type D (steam) WBE04-D bis WBE07-D, Flansch NW 200
	FL0,75/115	59120006	Flange for tube heat exchanger Type D (steam) WBE10-D bis WBE15-D, Flansch NW 200
	FL1,00/200	59120007	Flange for tube heat exchanger Type D (steam) WBE20-D und WBE26-D, Flansch NW 300
	FL1,25/180	59120008	Flange for tube heat exchanger Type D (steam) WBE30-D und WBE40-D, Flansch NW 300
	GD 265(60x180)x4	23640003	Flat gasket 265 (60 x 180) x 4 mat.: EPDM (70° Shore) to FL-NW200
	KD 165/205/2	23610000	Flange gasket Klingerit 265/205x2 C-4400


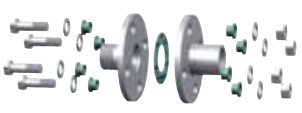
Thermometer

	Accessories Type	Description
	TM63x150	Disc thermometer Ø 63 x 150 mm

Screwings Screw-type blank cap and blanking plug out of stainless steel 1.4571


	Accessories Type	Description
	NBVS	Screw-type blank cap for WT-implementation 3/4" stainless steel 1.4571, (Set = 2 Pcs.)
	SKST-1/2"	Stainless steel-blanking plug 1/2", stainless steel 1.4571
	SKST-3/4"	Stainless steel-blanking plug 3/4", stainless steel 1.4571
	SKST-1"	Stainless steel-blanking plug 1", stainless steel 1.4571
	SKST-5/4"	Stainless steel-blanking plug 5/4", stainless steel 1.4571
	SKST-6/4"	Stainless steel-blanking plug 6/4", stainless steel 1.4571

Galvanic separating screwing

	Accessories Type	Description
	TR0,75	Electrical separating screwing 3/4", Material Ms
	TR1	Electrical separating screwing 1", Material Ms
	TR1,25/1,25 IA	Electr. separating screwing 5/4", in flange design Mat. V4A
	TR1,5/1,5 IA	Electr. separating screwing 6/4", in flange design Mat. V4A
	TR2,0/2,0 IA	Electr. separating screwing 2", in flange design Mat. V4A


Electric heating elements

Electrical screw-in heaters made of stainless steel Incoloy-825

	Accessories Type	Nominal Rating kW	Connection Volt	Loading W/cm ²	Bolting	Immersion depth mm	Thermostat (integrated)
	EHK-I-2000	2.00	230/400	7.81	6/4"	250	yes
	EHK-I-2250	2.25	230/400	3.50	6/4"	500	yes
	EHK-I-3000	3.0	230/400	4.57	6/4"	500	yes
	EHK-I-4500	4.5	230/400	6.85	6/4"	500	yes
	EHK-I-6000	6.0	230/400	9.13	6/4"	500	yes
	EHK-I-7500	7.5	230/400	11.42	6/4"	500	yes
	EHK-I-9000	9.0	230/400	8.51	6/4"	750	yes
	EHK-I-12000	12.0	230/400	11.35	6/4"	750	yes
	EHK-I-15000	15.0	230/400	8.50	6/4"	1,150	not possible
	EHK-I-25000	25.0	400	6.80	2 1/2"	1,100	not possible

Ceramic heaters

- Replacement of ceramic heating elements without emptying tank
- Long life expectancy
- 2 years guarantee

	Accessories Type	Nominal rating kW	Con-nection Volt, AC	Load current Ampere	Area loading W/cm ²	Top Ø mm	Immersi-on depth mm	Tube Ø mm
	EHK-K-2000	2	230/400	2.9	5.03	47	370	50
	EHK-K-2500	2.5	230/400	3.6	5.25	47	425	50
	EHK-K-3000	3	230/400	4.3	5.39	47	480	50
	EHK-K-4000	4	400	5.8	4.41	47	700	50
	EHK-K-4000	4.5	400	6.5	4.23	47	800	50
	EHK-K-5000	5	400	7.2	4.01	47	900	50
	EHK-K-6000	6	400	8.7	4.12	47	1,050	50
	EHK-K-7000	7	400	10.1	4.14	47	1,200	50
	EHK-K-8000	8	400	11.6	3.99	47	1,400	50
	EHK-K-9000	9	400	13.0	3.88	47	1,600	50
	EHK-K-10000	10	400	14.5	4.04	47	1,800	50

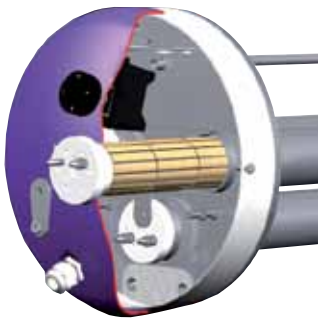
Electric flange with ceramic inserts

Electric heating inserts: Stainless steel immersion flange with ceramic heating elements, mountable in flange DN 200, including cover.


- Replacement of ceramic heating elements without emptying tank
- Long life expectancy
- 2 years warranty




Accessories Type	Frame size	Flange quantity	Regulating thermostat	Heaters/ Flange	Heater type	Voltage	Ø of tank
Heating flange 1x DN 200							
EHK-KF-2000	2 kW	1	1	1	2 kW/230V	2x230V/50Hz	500 mm
EHK-KF-3000	3 kW	1	1	1	3 kW/230V	2x230V/50Hz	500 mm
EHK-KF-4000	4 kW	1	1	2	2 kW/230V	3x230V/50Hz	500 mm
EHK-KF-6000	6 kW	1	1	3	2 kW/400V	3x400V/50Hz	500 mm
EHK-KF-7500	7,5 kW	1	1	3	2.5 kW/400V	3x400V/50Hz	500 mm
EHK-KF-9000	9 kW	1	1	3	3 kW/400V	3x400V/50Hz	500 mm
EHK-KF-12000	12 kW	1	1	3	4 kW/400V	3x400V/50Hz	750 mm
Heating flange 2x DN 200							
EHK-KF-15000	15 kW	2	2	3	2.5 kW/400V	3x400V/50Hz	500 mm
EHK-KF-18000	18 kW	2	2	3	3 kW/400V	3x400V/50Hz	500 mm
EHK-KF-24000	24 kW	2	2	3	4 kW/400V	3x400V/50Hz	750 mm
Heating flange 2x DN 300							
EHK-KF-30000	30 kW	2	double-pole	6	2.5 kW/400V	3x400V/50Hz	800 mm
EHK-KF-36000	36 kW	2	double-pole	6	3 kW/400V	3x400V/50Hz	800 mm




External current anode

Accessories Type		Description
	FSA-402	Titanium electrode 402 mm Art.60000038 (for Storage from 200 - 540 Liter)
	FSA-832	Titanium electrode 832 mm Art.60000043 (for Storage from 750 Liter)
	Drilling	Plugs, cap, flange and bolt for ground weld on


Layer lance for buffer tanks

	Accessories Type	Article Number	Description
	SL-PSP		Layer lance 1" MT/MT, 700 mm
	SL-PSP		Layer lance 5/4" MT/MT, 700 mm

Top 12 Advantages




Efficiency
High performance-shell & tube heat exchangers with patented free floating turbulator rods



Individuality
Each system is individually designed and optimized.




Premium quality
Components are made of high quality stainless steel (1.4571/Duplex)



Highest savings
Energy efficient, minimal maintenance costs




Minimum space requirement
by individual design and high performance components (shell & tube heat exchangers, flat heating coils)



Easy to operate
Electronic control with touch-screen and option for remote maintenance via PC




High quality fiber-fleece insulation
Up to 30 percent less heat losses, patented aluminum closure strips and patented covering rosettes



Easy installation on site
Preinstalled, wired, space-saving packaging




ECOTHERM Academy
Training and Support



Maximum hygiene
Optimal hot water hygiene, prevention of Legionella and scaling



Fresh water system
Hot water is generated on demand, low storage volumes



Experience
Worldwide more than 1,000 installed systems

Find our references
on www.ecotherm.com



Philosophy

Mission

ECOTHERM inspires its customers with individual solutions for solar, hot water and steam systems.

Vision

ECOTHERM is the leading brand of individual solutions in solar, hot water and steam systems for hotels, hospitals and industry in Europe, the Middle East, Asia, North Africa and Central America.

Values

Quality
Individuality
Innovation
Experience
Partnership
Sustainability

ECOTHERM

Individual Heat Transfer Solutions

ECOTHERM Customer Support Centre:

ECOTHERM
High capacity water heaters:

17 square meters
heat exchanger surface in a
1,000 litre storage tank.

Optimal efficiency.
Optimal hygiene.
Premium quality.



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