BSHX-xx4 series
Indirect storage

BLUETECH COATED TANK
WITH MAGNESIUM PROTECTIVE ANODE

INSTALLATION GUIDE
WARRANTY CARD

HEIZER HUNGARY KFT. (Ltd.)
H-1151 Budapest, Harsányi Kálmán u. 83.
E-mail: info@ergas.eu, web: ergas.eu

INDIRECT STORAGE, WITH EXTRA LARGE SURFACE HEAT EXCHANGER

Free standing, qualified steel insulated hot water tank, with stainless steel internal heat exchanger, for heating and storing domestic hot water. The internal coil and internal heat exchanger of the indirectly heated storage are designed for an external heat source, primarily a heat pump, as it has a large cross-section, thus ensuring minimal pressure loss even with a high mass flow. Of course, the heat exchanger can also be connected to a gas boiler, solar collector or other heat source.
The exterior is painted in a modern anthracite color, high-gloss and durable, thus ensuring a very aesthetic appearance. Long-term problem-free operation is also ensured by the double internal magnesium protective anode. The internal heat exchanger of this series is a fixed ribbed stainless steel coil, to ensure better heat transfer. The tank has a cleaning flange on which periodic maintenance can be performed. Minimal heat loss is ensured by special injected polyurethane (PU-48) insulation, which is non-removable, vapor-tight, and fixed. With this newly developed insulation system, the optimal insulation capability is achieved even with a smaller thickness.
The maximum permissible operating pressure of the storage tank is 6 bar (tested at a pressure of 10 bar), the heat exchanger can be used with a maximum pressure of 3 bar, while the maximum operating temperature of the storage tank is 85°C.
The warranty is subject to compliance with the installation and maintenance regulations set out in the warranty conditions.

Bluetech internal coating

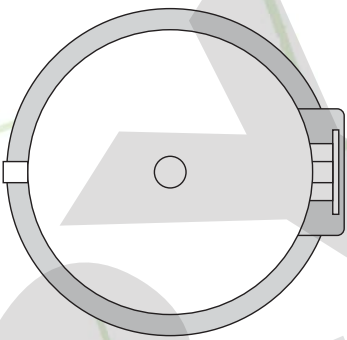
Supplied with 3 threaded feet

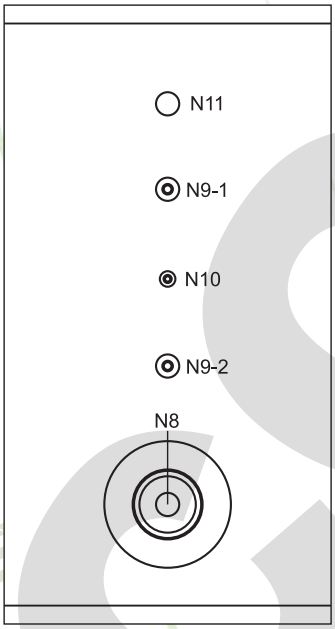
Specifications

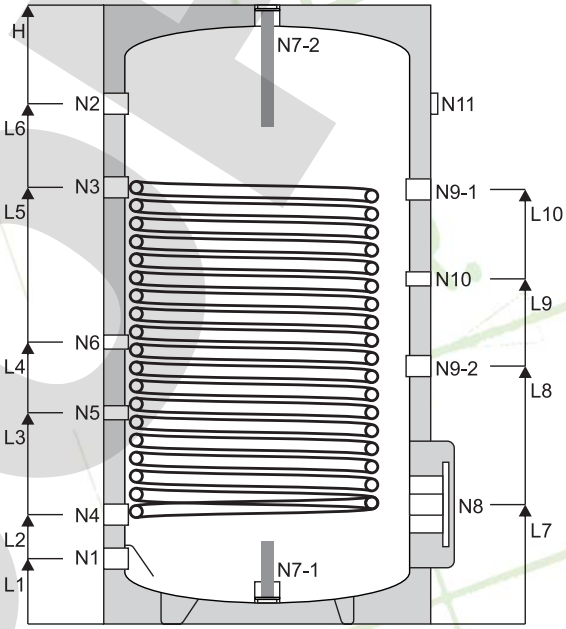
Type	Unit	BSHX-154	BSHX-204	BSHX-304
Nominal storage volume	l	150	200	300
Net storage volume	l	150	193	288
Gross storage volume	l	168	214,6	320,4
Energy efficiency class - ErP	–	B	B	B
Outer diameter	mm	560	560	560
Insulation type / thickness	mm	PU-48 / 42	PU-48 / 42	PU-48 / 42
Height (H)	mm	980	1260	1760
Net / gross weight (mass)	kg	51/61	64/78	81/96
Magnesium anode 1 length	mm	no data	100	100
Magnesium anode 2 length	mm	no data	300	450
Storage max. operating temperature	°C	85	85	85
Storage max. operating pressure	bar	6	6	6
Heat exchanger length	mm	10000	12000	18000
Heat exchanger max. operating temperature	°C	85	85	85
Heat exchanger max. operating pressure	bar	3	3	3
Heat exchanger storage volume	l	18	21,6	32,4
Heat exchanger surface	m2	1,72	2,06	3,09
Storage internal surface treatment	–	Bluetech enamel	Bluetech enamel	Bluetech enamel
Heat exchanger material	–	316L stainless steel (INOX)	316L stainless steel (INOX)	316L stainless steel (INOX)
Heat exchanger material thickness	mm	0,3	0,3	0,3
CONNECTIONS				
N1 - Cold water inlet	inch	1 1/4"	1 1/4"	1 1/4"
N2 - Hot water outlet	inch	1 1/4"	1 1/4"	1 1/4"
N3 - Heat exchanger inlet	inch	1 1/4"	1 1/4"	1 1/4"
N4 - Heat exchanger outlet	inch	1 1/4"	1 1/4"	1 1/4"
N5- Immersion sleeve for thermostat	inch	1/2"	1/2"	1/2"
N6 - Circulation	inch	3/4"	3/4"	3/4"
N7-1 - Magnesium anode 1	inch	1 1/4"	1 1/4"	1 1/4"
N7-2 - Magnesium anode 2	inch	1 1/4"	1 1/4"	1 1/4"
N8 - Electr. heating element preparation	inch	2"	2"	2"
N9-1, -2 - Free connection	inch	1 1/4"	1 1/4"	1 1/4"
N10 - Immersion sleeve for thermostat	inch	1/2"	1/2"	1/2"
N11 - Thermometer	–	yes	yes	yes
Cleaning flange external diameter	inch	5"	5"	5"
Storage material thickness	mm	2,10	2,10	2,10
Heat exchanger surface treatment	–	Bluetech enamel	Bluetech enamel	Bluetech enamel
Surface coating thickness	µm	100-130	100-130	100-130

Type	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10
BSHX-154	180	227	277	322	417	550	270	450	627	833
BSHX-204	185	296	421	546	796	1045	280	444	711	984
BSHX-304	190	365	565	770	1175	1540	265	465	795	1135

The manufacturer reserves the right to change the contents without prior notice.
Before installation of the products, please check the technical data whether it is acceptable to installing place!




N11
N9-1
N10
N9-2
N8


H
N2
L6
N3
L5
N6
L4
N5
L3
N4
L2
N1
L1
N7-2
N7-1
N11
N9-1
L10
N10
L9
N9-2
L8
N8
L7

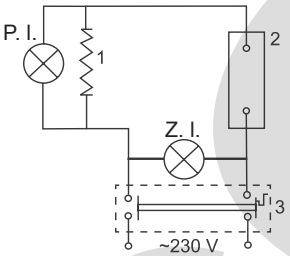
IMPORTANT - DISINFECTION AND WATER HYGIENE RULES

1) From a public health point of view, the temperature of water intended for human use that comes into contact with the product must not exceed 65°C.
2) Product field of application: domestic hot water supply.
3) The manufacturer or distributor must clearly inform the customer of the product's cleaning and disinfection instructions (including the name of the suitable disinfectant). In Government Decree 5/2023. (I.12.) regarding the chemicals used during the cleaning/disinfection of products, and those described in Government Decree 316/2013. (VIII. 28) and ESzCsM-FVM-KvVM joint decree 38/2003. (VII.7).
4) The water network section containing the product must be filled with domestic hot water for at least 1 day. The rinsing water must be discharged into the sewer, it must not be used for domestic purposes. Only then may the intended use of the water network section containing the product be started.
5) In the first weeks after using the product, you can expect metal and organic matter to dissolve, which can cause taste and odor problems, excessive growth of bacteria and a greater need for chlorine. This phenomenon is temporary and can be reduced by more frequent water changes and flushing.

WE COMMEND IT TO YOUR ATTENTION!

In the case of domestic hot water water quality problems (e.g. unpleasant odors), in addition to the above regulations and disinfection, the manufacturer's advice is: by raising the temperature of the water in the storage above 70°C for a sustained (min. 2h) period, please disinfect the storage (if required, the pipe network), most modern heating devices have the corresponding Legionella bacteria elimination weekly program (which takes care of heating the storage), please always activate this. The increasingly widespread activated carbon filters bind chlorine from tap water, so the thermal disinfection described above is vital when using them.
If the problem recurs, we recommend using an anode with an external current instead of a magnesium anode.

ELECTRIC HEATING ELEMENT WIRING DIAGRAMS

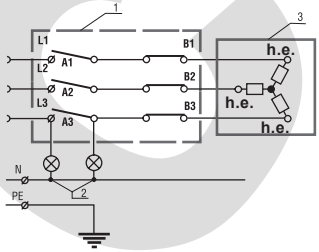


Note:
1. Heating element
2. Thermostat
3. Thermal cut-out

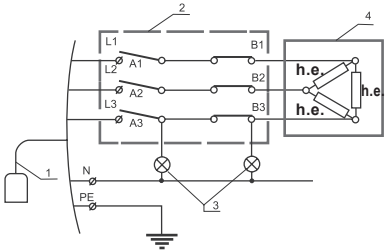
P. I. - Red light, information about the operation of the heating device

Z. I. - Green light, information about the voltage of the heating module

230 V~ electrical drawing (2-3 kW heating element)



400 V~ electrical drawing
(4,5-9 kW heating element)



400 V~ electrical drawing
(12-24 kW heating element

Electrochemical corrosion phenomena

Tips for installing storage tanks and avoiding electrochemical corrosion

1. *Thoroughly wash* the heat exchangers before putting them into operation (fill the unused heat exchanger with propylene glycol in the operating hot water tank, because it corrodes quickly due to condensation in the pipe).
2. *A magnetic sludge separation unit* for the appliance return (if there are 2, for both) (optimal is the type with a magnet of 12,000 Gauss or higher, with a glass and equipped with a filter).
3. *Grounding of the tank* (due to electrochemical corrosion), 'bonding' of the stubs to equal potential, EPH protocol, it is not enough to ground only the connections of the heating/cooling device!
4. *Use of plastic or surface-treated copper common screw* (due to electrochemical corrosion), if the heating system is connected to the heat exchanger with copper or other metal piping, it must be disconnected with a dielectric connector and brought to equal potential!
5. *Inhibitor additive use:* One reason is that low-temperature systems release gases more slowly through the air separator after start-up. We recommend materials containing molybdenum, which do not need to be reviewed as often (250 mg/l old radiator system, 140 mg/l standard systems with steel elements, 80 mg/l+biocide underfloor heating, five-layer, etc.), checked with a molybdenum tester! Polyphosphate can also be suitable for initial aqueous „passivation" of buffers.
6. *If possible, do not fill the system with tap water,* only if it meets the manufacturer's specifications of the heating/cooling device. If possible, use partially desalinated water, do not use water softened with column water softeners, because in this case the conductivity of the water (high Na content) is even worse than that of tap water.

Optimal water parameters:
chemistry pH: 7–9, water hardness 5–7 nk,
conductivity: 150–350 µS/cm^2

(other data: dry material in suspension: <2 g/l,
metric grains: <0.4 mm, chloride: max. 50 mg/l,
other contamination: no fibres)

Of course, the regulations of the manufacturer of the heating/cooling device in the mechanical system are the primary ones to be observed!

Among the above reasons, one must look for the fact that carbon steel tanks and their heat exchangers (internal carbon steel tube coil) often corrode, which destroy the heat exchanger or pump of the sensitive condensing boiler, heat pump, liquid cooler, or simply get punctured.

The cause of all errors reviewed so far is corrosion, the failure of the heating equipment is not to be found in the fault of the hot water tank, but in the improper construction.

Hot water tank connected with a copper pipe, missing: tank grounding and dielectric common screw (plus expansion tank).

ELECTROCHEMICAL CORROSION

A certificate of manufacture for the raw material used by our manufacturer (heat exchanger, tank body) is available.

Our installation manual also includes the following information in the warranty conditions, but this is obviously not the point, but to ensure trouble-free operation and customer satisfaction:

– *Due to electrochemical corrosion,* the metal pipe sections connected to the tank must be connected to the tank body with a suitable common screw or sleeve, and then they must be connected to equal potential with a suitable cable (EPH). The material of this public screw can be plastic, surface-treated (nickel-plated, chrome-plated) brass fitting or ball pin, red cast iron (bronze).

– *The storage tank must be provided with an EPH certificate* upon commissioning. The storage tank must be earthed and its connectors must be brought to equal potential, for contact protection and mainly for correct corrosion protection.

– *Chemistry of the heating system medium:* the chemistry of the heating water can be neutral or slightly alkaline (max. 9 pH). The manufacturer does not accept responsibility for corrosion from the heating system, for damage caused by corrosion, the acidification of the heating system medium may cause larger pieces of steel to detach from the inner surface of the heat exchanger, which may damage the elements of the heating system.

– *The expansion tank is a warranty condition* (min. 5% of the tank volume), since its absence can result in continuous dripping of the safety valve, its contamination, and abnormal operation. Diaphragm pre-pressure should be checked every 3 months.

Electrochemical corrosion of steel tank connections „connected" with copper pipes can cause leakage after 16 months of operation, in the welding seams of the connections already within the first year of operation.

One of the consequences of electrochemical corrosion is rapid anode loss, which is why the first anode replacement is justified at 12 months, so in case of significant loss, the problem can be identified in time without damaging the storage body (18 months after that).

Rust sludge, this is the result of electrochemical and oxidative corrosion.

COMMISSIONING PROTOCOL (CHECKLIST)

DURING INSTALLATION, PLEASE CHECK:	☐ SAFETY VALVE (NO SHUT-OFF FITTING) ☐ EPH PROTOCOL ☐ EXPANSION TANK ☐ EXPANSION TANK MEMBRANE PRESSURE: ..... BAR ☐ NETWORK PRESSURE MEASUREMENT: ..... BAR, POSSIBLY PRESSURE REDUCER ☐ HEAT EXCHANGER HAS BEEN FLUSHED ☐ SHUT-OFF FITTINGS FOR EASY DISASSEMBLY ☐ WATER FILTER ☐ SIGNATURE OF A SPECIALIST
MAINTENANCE 1 YEAR LATER*	☐ MAGNESIUM ANODE REPLACEMENT, KEEP AN INVOICE ☐ STORAGE CLEANING
WARRANTY REVIEW 2 YEARS LATER**	☐ REVIEW OF OPERATING CONDITIONS, ANODE REPLACEMENT, CLEANING

Do not install a damaged product, if you have such a complaint, please keep the packaging!

Details of the seller	■ Name / Company name: ■ Date of sale: ..... ■ Product type: .....
Manufacturer's details	■ Name / Company name ..... ■ Address: ..... ■ Date: .....

WARRANTY CARD

INFORMATION ON THE CORRECT DISPOSAL OF THE PRODUCT 2012/19 / EU NO. ACCORDING TO A EUROPEAN DIRECTIVE

At the end of its lifetime, this equipment should not be treated as household waste and should not be disposed of in municipal landfills.
It must be taken to the local selective collection centre or returned to the trader who provided the service. The selective disposal of electronic equipment avoids the negative environmental and human health impacts that may result from inappropriate disposal and allows the recycling and processing of components, with significant energy and resource savings. In order to emphasise the obligation to dispose of the appliance in a selective way, the product is marked with a crossed-out waste container.

Installation date	
Installer's stamp and signature	

GUARANTEE VOUCHER 1.	GUARANTEE VOUCHER 2.	GUARANTEE VOUCHER 3.	GUARANTEE VOUCHER 4.	GUARANTEE VOUCHER 5.
Type of water heater:	Type of water heater:	Type of water heater:	Type of water heater:	Type of water heater:
Serial Number:	Serial Number:	Serial Number:	Serial Number:	Serial Number:
Date of sale:	Date of sale:	Date of sale:	Date of sale:	Date of sale:
Seller's stamp and signature	Seller's stamp and signature	Seller's stamp and signature	Seller's stamp and signature	Seller's stamp and signature

GUARANTEE CONDITIONS - ENAMEL-COATED HOT WATER TANKS

IN THE EVENT OF A WARRANTY FAULT, PLEASE CONTACT OUR SERVICE DEPARTMENT OR OUR COMPANY!

Heizer Hungary Kft. (hereinafter referred to as the Hungarian Distributor) for ERGAS enamel-coated hot water storage tanks from the date of delivery to the consumer (the date of commissioning, only if the commissioning report is applicable). This period is extended by a maximum of 6 months storage period if the consumer does not purchase the product directly from the Hungarian Distributor. Pursuant to the relevant articles of the Civil Code, the Hungarian Distributor shall provide a mandatory warranty for the installation in Hungary and for the products it distributes as follows: the appliance which is defective within the warranty period shall be repaired by our specialist service free of charge, the warranty period shall be restarted in the event of replacement of the storage unit, and in the event of repair of the product, the warranty period shall be extended by the time during which the operator was unable to use the appliance as intended due to the defect.
Thus, our indirect storage devices are not subject to commissioning, but can only be commissioned by a professional, by filling in and signing (and possibly stamping) a commissioning report, certifying that he has undertaken to commission the product correctly.
The container must be taken out of service immediately if steam is coming from the system or if the container temperature exceeds 100°C.

It is not considered a defect for warranty purposes and the warranty is void:

- *unpacking, removal, alteration of operating conditions of the container prior to warranty inspection; arbitrary unpacking and return of the product prior to warranty inspection; installation of a damaged product*
- rough, negligent handling, damage caused by external mechanical damage
- if the device has been operated at higher than permissible values (normally max. operating pressure: 6 bar), power, damage caused by hydraulic shock (hammer effect)
- absence or invalidity of the commissioning report or irregular corrections or subsequent entry of data in the commissioning report. The warranty shall be void if the installation report does not include the purchase and installation data.
- Lack of a signed commissioning report (or grounding of the container). The container must be earthed for reasons of contact protection and, above all, for correct corrosion protection.
- in case of damage from freezing, external weather, environmental factors, elemental damage
- if the failure is caused by adverse effects from building services or electrical network connected to the unit (water scale formation, heating water contamination, oxygen diffusion, voltage fluctuations, overpressure, contaminated gas, other).

• lack of safety fitting, improper use of safety fitting, lack of expansion tank (min. 5% of the storage volume), as its absence may result in continuous dripping of the safety valve, its contamination, abnormal operation.

The Hungarian Distributor only provides a guarantee for the products it distributes if:

• for domestic use: the annual maintenance has been verifiably carried out by a professional ("Maintenance Record") as follows: in case of hard water (above 14°nk), annual chemical (not hydrochloric acid) cleaning, removal of any accumulated sediment, scale, replacement of the magnesium anode and other maintenance operations.
• **manufacturer's specification: anode invoice must be kept within the warranty period**
• **in the event of a claim for a damaged product, retain the product packaging**
• the device has been operated as intended:

– The water heater may be connected to the heating system after it has been filled with water, heated (by means of an electric heating element or heat exchanger).
– The safety valve must be installed directly on the cold water supply to the storage tank, of a suitable type in terms of capacity and pressure.
– No fitting (shut-off fitting, non-return valve) should be installed between the safety valve and the storage tank, its condition should be checked every 14 days, caution: hot water may escape from the safety valve, which may cause scalding. Large quantities of water may escape from the safety valve, install with the outlet downwards and with an unclosed drainage system (drainage funnel).
– The long-term correct functioning of the safety valve, the use of a suitable expansion tank, which must be checked every six months for membrane pre-filling, is a condition of the guarantee against damage to the reservoir due to the hammer effect (hydraulic shock) and also from the point of view of water saving. It should be installed between the non-return valve and the reservoir, without a shut-off fitting, possibly with a double non-return valve (expansion tank min 5% of the reservoir volume, air pressure in the vessel 90% of the hydraulic system pressure at 0bar hydraulic system pressure).
– For cold water connection, use pollution trap filters in heating system
– Please flush heat exchangers before connecting to heating system, boiler, solar collector system
– The container must be installed with free access, with locking fittings for easy removal, the manufacturer will not be liable for any damage caused during removal and will not bear the additional costs of removal.
– For combi-storage (storage in storage), it is advisable to connect the cold water and hot water connections with a T-connector and two ball valves for easy internal storage cleaning (acidification, but not with hydrochloric acid)
– The piping connected to the storage tank must have a min. 7 bar and 100°C operating conditions

– **Storage coil must be flushed before connection to the heating system, and the heat exchanger must be filled with propylene glycol when not in use and not connected to the system, as the heat exchanger is not internally corrosion protected and is designed for continuous use.**
– Due to electrochemical corrosion, metal pipe sections connected to the container should be connected to the container body with plastic intermediate bolts.
– Heating system medium chemistry: the heating water chemistry should be neutral or slightly alkaline (max. 9pH). The manufacturer cannot be held responsible for corrosion or damage caused by corrosion from the heating system, acidification of the heating system medium may cause large pieces of steel to detach from the inner surface of the heat exchanger, which may damage the heating system components.
– Water scaling, excessively hard water: the heating medium in the heating system connected to the tank may cause damage to the heating system. The heating system connected to the heating system must have a hardness of at least 7°nk and a maximum hardness of 14°nk is recommended. A calcified heating element or heat exchanger is not a fault under guarantee, it is caused by too hard service water or heating water, the optimum temperature for the tank is 50°C, which results in less heat loss and less scale formation. Legionella bacteria should be discharged weekly, with weekly heating, and the role of this is even more important if the service water is dechlorinated with an alkaline carbon filter.
– Softened water: at a hardness value of less than 5°nk, the used water will damage the heating element, tank elements, as it leaches out some of the components of the product material, this is not a warranty fault. In a softened water system, a special surface treated heating insert must be installed.

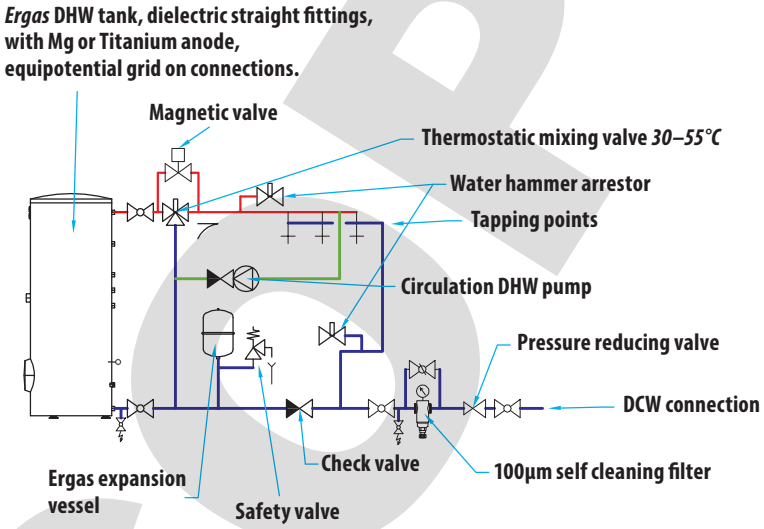
The manufacturer is not responsible for the quality of the water, discolouration, chemical compounds in the water, water scale, the internal surface protection meets the requirements for domestic hot water production. If you experience discoloured, sulphurous smelling (hydrogen sulphide) water, after cleaning the storage tank and replacing the magnesium anode, raise the storage tank water permanently above 60°C. In case of recurring problems, we recommend the use of an anode with a foreign current (titanium anode).

On-site repairs and requested inspections will be carried out in accordance with the relevant legal requirements, but any costs incurred due to unjustified removal of the anode or non-compliance with the warranty conditions (removal, expert opinion, etc.) will be charged to the customer. Repairs covered by the mandatory warranty may only be carried out by an authorised repairer. Any repair or modification affecting the compulsory warranty carried out by unauthorised service providers will result in the termination of the warranty (maintenance is not included). The service provider is always responsible for determining the warranty defect, but the distributor may decide immediately on the basis of photographs obtained, in an emergency, in an accelerated procedure. The validity of the replacement will be decided by the Hun-

garian Distributor, if the Buyer does not accept the opinion of the brand service, he may appeal to the Hungarian Distributor. In the event of an unsuccessful agreement, the opinion of the competent quality testing institute will be sought on the basis of the statutory obligation to inform both parties. In the event of failure to fulfil the warranty obligations, the Buyer shall have the right to take legal action or to request a warranty review, subject to the payment of costs as provided by law.

Warranty and repair work may only be carried out on the basis of the inclusion and careful completion of one of the enclosed repair coupons. The Buyer must ensure that this has been done and sign to certify that the work has been carried out. For the repair of the appliances, the Hungarian Distributor shall provide spare parts for the duration of the repair in accordance with the provisions in force.

Example: DHW mixing valve with central installation location



Product information sheets

(based on the provision of EU 812/2013, EU 814/2013)

Type	BSHX-154	BSHX-204	BSHX-304
Tank material	Bluetech coated steel		
ErP energy efficiency class	B	B	B
Storage capacity	150 liters	193 liters	288 liters
Additional electric heating element conn.	2” conn. prep.	2” conn. prep.	2” conn. prep.
Storage max. operating temperature	85°C	85°C	85°C
Storage max. operating pressure	6 bar	6 bar	6 bar
Heat exchanger max. operating temp.	85°C	85°C	85°C
Heat exchanger max. operating pressure	3 bar	3 bar	3 bar
Net weight	51 kg	64 kg	81 kg