

# GSE CASCADA COUNTERFLOW BUFFER TANK



A versatile all-in-one system, ideal for applications involving domestic hot water (FRESH WATER) and heating. It combines a specially designed stainless steel buffer tank with an integrated stainless steel counterflow heat exchanger and optionally, a solar collector heat exchanger (see product model table). It can be powered by multiple heat sources, including heat pumps, boilers, solar systems, and electric resistance.

Its operation can be fully automated via a PLC with real-time display on a touch screen or computer. Its scope of application extends from hotels and industries to residences.



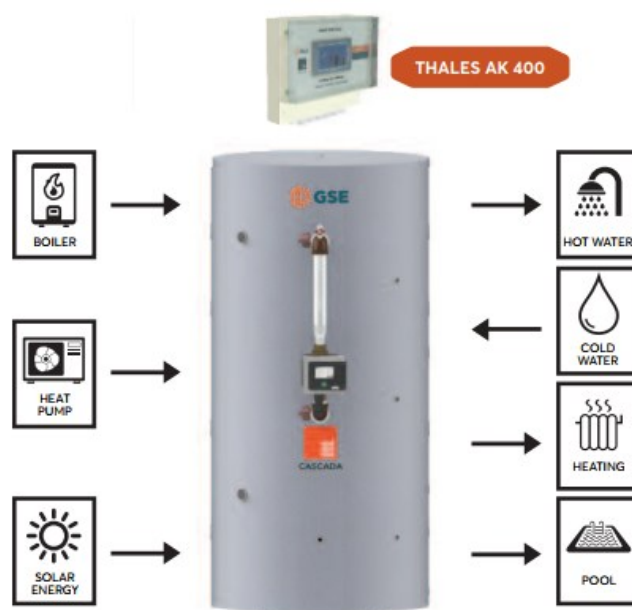
***A distinctive product in its category, combining a stainless-steel tank with a matching stainless steel heat exchanger for enhanced durability and performance.***



## AVAILABLE MODELS

MODEL		NominalDHW Flow Rate (m <sup>3</sup> /h)	Useful Volume (lt)	Nominal Power (KW)***	Height (mm)	Diameter (mm)	Weight [Without / with Solar Heat Exchanger] (Kg)	Solar Heat Exchanger Area (m <sup>2</sup> ) *
GSE CASCADA VER BF-FW-CF-(S)	300/10 INOX/LR*	1.0	285	35	1680	690	78/82*	1.0*
	600/20 INOX/LR*	2.0	550	70	2020	810	107/112*	1.4*
	1000/20 INOX/LR*	2.0	914	70	2030	1000	165/170*	3.0*
	1000/30 INOX/LR*	3.0	914	105	2030	1000	165/170*	3.0*
	1000/45 INOX/LR**	4.5	914	157	2030	1000	165**	-
	1500/45 INOX/LR **	4.5	1420	157	2900	1000	230**	-
<ul style="list-style-type: none"> <li>All dimensions include the insulation of the tank.</li> <li>Perimeter insulation thickness: 100 mm of polyurethane.</li> <li>The 1500lt model is available only <b>ON DEMAND</b>.</li> </ul> <p>* Models available with optional integrated solar heat exchanger (S).  ** The models are available without a solar heat exchanger.  *** Tank temperature: 51°C, secondary circuit temperatures: 20-50°C.</p>								

## CONNECTION DIAGRAM



## TECHNICAL SPECIFICATIONS FOR GSE CASCADA VER BF-FW-CF-(S)

Buffer Tank		Material	Stainless-Steel 304	
		Insulation	Polyurethane	
		Insulation Thickness	100 mm	
		Outer Casing	PVC δερματίνη	
		Welding Type	Automated Robotic Welding	
		Nominal Operating Pressure	3 bar	
		Maximum Operating Pressure	4 bar	
		Test Pressure	8 bar	
		Maximum operating Temperature	95°C	
Fresh Water Counterflow Heat Exchanger		General Specifications of the Fresh Water Counterflow Heat Exchanger	Type	Pipe-in-pipe, spiral. Corrugated, Counterflow
			Material	Stainless-Steel 316L
			Welding Type	Automatic Circular Welding
		DHW Circuit (Secondary Fresh Water Circuit)	Nominal Operating pressure	6 bar
			Maximum Operating Pressure	12 bar
		Energy Circuit (Primary Circuit)	Nominal Operating pressure	3 bar
			Maximum Operating Pressure	6 bar
			Heat transfer circulator	PWM ή (0-10 V)
Solar collector heat exchanger (optional)		Heat Exchanger Type	Immersed spiral, corrugated single-pipe	
		Material	Stainless-Steel 316L	

- Flow-Temperature Charging Diagram and Pressure Drop-Flow Diagrams are available for each model in the technical brochure.

## FEATURES

FEATURE	ΟΦΕΛΟΣ
In-Line water heating	<ul style="list-style-type: none"> <li>• <i>Prevents the growth of Legionella bacteria.</i></li> <li>• <i>Ensures instant production of hygienic Domestic Hot Water.</i></li> </ul>
Tank body made of Stainless Steel 304	<ul style="list-style-type: none"> <li>• <i>Ensures a long product lifespan</i></li> </ul>
Minimal temperature difference between the primary and secondary circuits.	<ul style="list-style-type: none"> <li>• <i>Lower charging temperatures</i></li> <li>• <i>Low operating cost</i></li> </ul>
Design supported by patent: Counterflow, Innovative control, DHW exchanger position.	<ul style="list-style-type: none"> <li>• <i>High efficiency</i></li> <li>• <i>Stable water supply at the desired temperature, without the need of a mixing valve.</i></li> <li>• <i>Minimal pressure-drop in the domestic water.</i></li> </ul>
Polyurethane insulation	<ul style="list-style-type: none"> <li>• <i>Reduced thermal loss</i></li> <li>• <i>Energy saving</i></li> </ul>
Complete compatibility with existing heating systems and heat pump installations.	<ul style="list-style-type: none"> <li>• <i>Utilization of existing equipment</i></li> <li>• <i>Efficient tank charging without the need for a coil heat exchanger</i></li> </ul>
Prevention of scale-buildup due to careful design.	<ul style="list-style-type: none"> <li>• <i>Long lifespan of the heat exchanger</i></li> <li>• <i>Stable operation</i></li> <li>• <i>Easy and quick maintenance</i></li> </ul> <p>The design and geometry of the heat exchanger are optimized to allow for scale removal through reverse flow cleaning and complete drainage.</p>
Side-mounted connections	<ul style="list-style-type: none"> <li>• <i>Easy installation</i></li> <li>• <i>Space-saving in engine rooms, maximizing the use of available height</i></li> </ul>
A 2-in-1 combination: stainless steel DHW heat exchanger and stainless-steel buffer tank.	<ul style="list-style-type: none"> <li>• <i>Space-saving by eliminating the need for a separate heat exchanger</i></li> <li>• <i>Prevention of installation damage due to the high quality of materials (stainless steel)</i></li> </ul>

## **AUTOMATION FUNCTIONS\* - THALES AK300'H AK400**



FUNCTION	AK 300 CD	UPGRADE TO AK 400
Control and operation via an integrated 4.3" touchscreen		✓
Display of operations on a 2.2" screen	✓	
Real-time system operation visualization	✓	✓
Control of Domestic Hot Water temperature (set point 1, schedule)	✓	✓
Control of heat pump or boiler	✓	✓
Control of electric resistance up to 3 kW (integrated thermostat with schedule, temperature setting for tank, set point 3)	✓	✓
Control of variable-speed water pump (PWM/0-10V) for energy transfer.	✓	✓
Recirculation control (on/off)	✓	✓
Solar field control with variable-speed water pump (PWM/0-10V)	✓	✓
Future firmware upgrades		✓

\* Further details on the automatic control system can be found in the THALES brochure.