



Ground-breaking
technology
for domestic hot water



with incredible economy savings

Optimizing the heat transfer process had always been a major challenge for our R&D department. Transmission of thermal energy from the energy source to the storage tank and from there to consumption traditionally suffered from substantial heat losses that affect both efficiency and the ultimate operational cost of the hot water system.

The intelligent X-flow technology developed and patented by Calpak overcomes the issues of thermal losses and low efficiency rates typical in conventional heat exchangers. The Calpak X-flow ultratank ensures exceptionally fast and efficient thermal exchange between the closed and open circuits resulting in at least 25% energy savings compared to a conventional storage or fresh water tank in any given hot water installation.

What is the Calpak X-flow ultratank*?

The Calpak X-flow is a fresh water tank of very high efficiency.

It can be charged by any available energy source (e.g heat pump, gas or diesel boiler, solar collectors, electrical element). It stores the energy in its buffer tank and can instantaneously transfer this energy to the fresh water heat exchanger quickly heating up the domestic water to the desired temperature. The energy stored in the buffer tank can also be used for space heating or any other similar use that requires thermal energy.



Why is the X-flow tank ideal for your hot water demand?

3 principal reasons:



At least **25% energy savings**



Very long life span with minimum maintenance requirements



Fresh & clean water supply free of any bacteria such as Legionella

Ideally combined with a heat pump, or gas/diesel boiler and/or solar collectors

Easy initial installation or replacement of existing hot water tank

100% customer satisfaction amongst the many hotels, hospitals & households that already enjoy the benefits of the X-flow technology!

Is the hot water supply enough to cover increased demand?

The conduction of thermal energy stored in the buffer tank to the fresh water heat exchanger is literally instantaneous. Consequently, the constant flow of domestic hot water at the desired temperature is ensured **meeting practically any consumption demand!**

Is the operation of the X-flow ultratank economical?

The Calpak X-flow ultratank consumes the least possible energy for the production of the hot water you require. In comparison to any other conventional tank it demands at least 25% less energy from any given energy source connected to it. This unparalleled performance results from the internal fresh water heat exchanger that we have patented which is highly efficient and does not allow for any thermal loss. The overall economy provided by the X-flow ultratank is verifiably substantial. **Payback is achieved within less than a year!**

What are the core achievements of the X-flow technology?

$$\eta_{th} = 99\%$$

Taking full advantage of the principle of counter-flow we achieved an unprecedented 99% efficiency factor in the transmission of thermal energy from the source to the domestic hot water circuit. In addition, thermal losses are eliminated as the heat exchanger is incorporated in the buffer tank. Hence, the exploitation of the energy provided by the source is total and economy savings are certainly substantial! (see Figure 1).

$$\Delta t = 1$$

The very high efficiency factor of the fresh water heat exchanger enables the instant heat transfer from the buffer tank to the domestic hot water at a temperature difference of only 1°C! This allows rapid achievement of the desired temperature, constant and adequate supply of hot water to consumption and most importantly very economical operation of the energy source due to the lower temperature at which the power source has to operate. (see Figure 2).

Figure 1

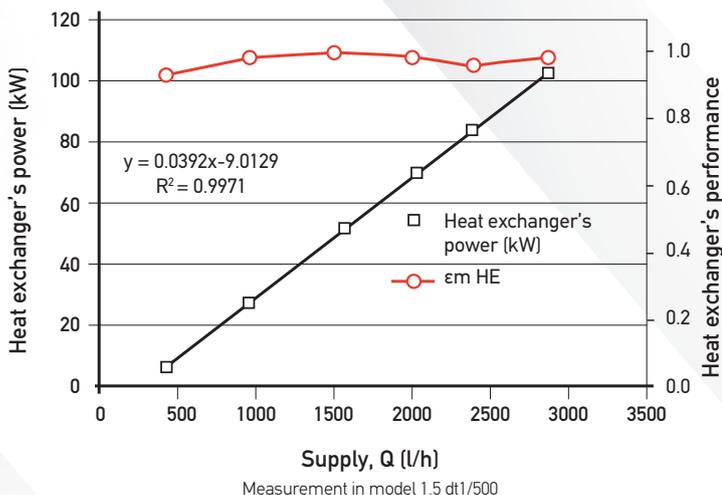
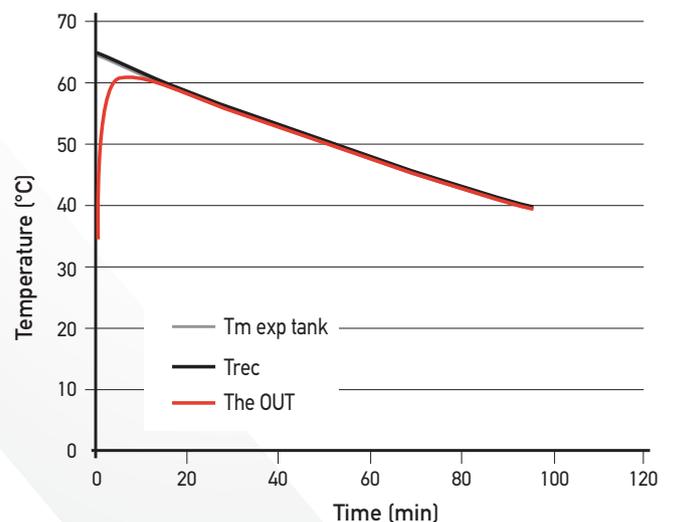


Figure 2



Lab tests & performance measurements carried out by



NCSR "DEMOKRITOS" SOLAR & OTHER ENERGY SYSTEMS LABORATORY



	0.8dt1/300 (plus)	1.5dt1/500 (plus)	3.0dt1/1000 (plus)	4.5dt1/2000 (plus)
	Ideal for houses with increased hot water consumption	Ideal for small hotels (25-50 guests)	Ideal for medium capacity hotels (50-100 guests)	Ideal for large hotels (>100 guests)
Hot water supply @ $\Delta T1$	800 liters / hour	1,500 liters / hour	3,000 liters / hour	4,500 liters / hour
Hot water supply @ $\Delta T5$	1,100 liters / hour	2,000 liters / hour	4,000 liters / hour	6,000 liters / hour
Counter-flow kit with circulator and CFA/3 controller	YES	YES	YES	YES
Buffer tank capacity	300 lt	500 lt	1,000 lt	2,000 lt
Insulation Thickness	100 mm	100 mm	100 mm	100 mm
Thermal Losses	1.6 kwh/24h	1.8 kwh/24h	2.1 kwh/24h	2.5 kwh/24h
Connection with Heat Pump	YES	YES	YES	YES
Connection with Boiler (gas or oil)	YES	YES	YES	YES
Connection with Solar collectors	YES (model "plus")	YES (model "plus")	YES (model "plus")	YES (model "plus")
Recommended Heating element	3KW	4KW	6KW	9KW
Total efficiency of the tank (charge & discharge)	99%	99%	99%	99%
Energy Savings	>25%	>25%	>25%	>25%
Pure water without bacteria	100%	100%	100%	100%



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