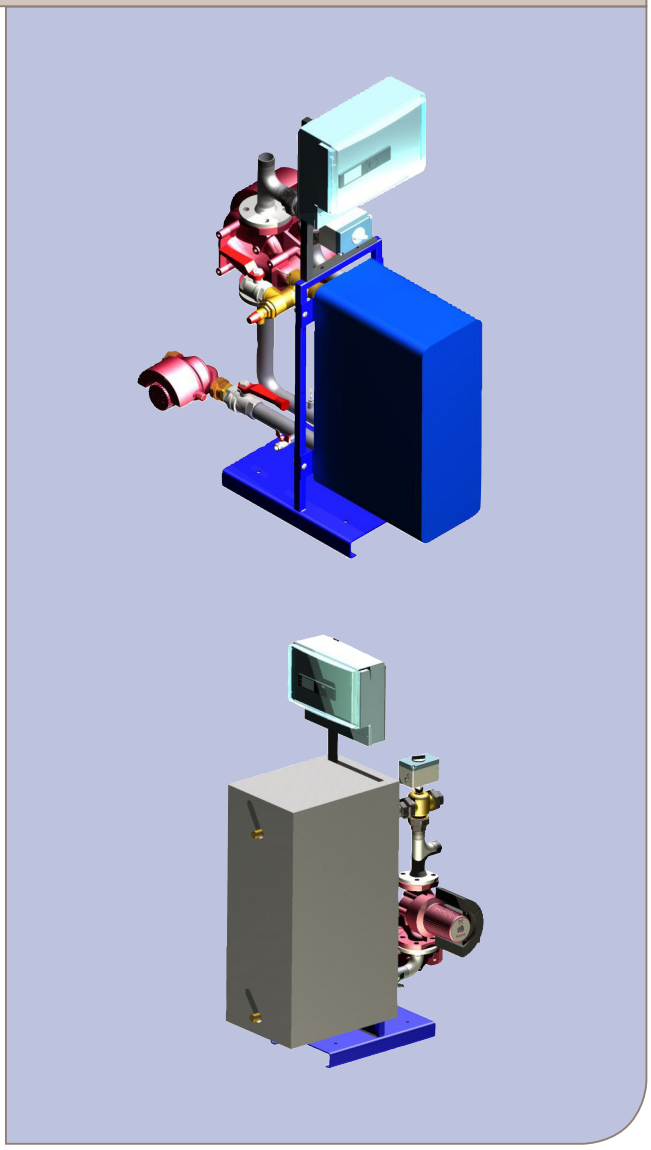
AquaEfficiency

The most efficient tap water system



Applications

AquaEfficiency is a tap water system designed to meet the upcoming European legislation demanding low energy consuming pumps in tap water systems; the variable speed pumps. A further development has made the AquaEfficiency especially ideal for connecting to condensing boilers.
Customer's benefits are:

- Savings of up to 2500 EUR a year in reduced electrical consumption, reduced thermal energy losses and increased boiler efficiency.
- Reduced CO_2 emissions by up to 18.000 Kg/year

AquaEfficiency supplies domestic hot water in large quantities for applications such as apartment buildings, hospitals, hotels, retirement homes, nursing homes, schools, sports centers, prisons etc.

Two different models of AquaEfficiency are available, to fit with any installation arrangement: Instantaneous and semi-instantaneous configuration operating both with a 3-port valve for connection to local boilers, primary tanks or solar systems.

When it comes to the selection of heat exchanger, AquaEfficiency offers three choices: Plates & Gaskets, Copper Brazed or AlfaNova®: exclusive to Alfa Laval (100% stainless steel, Fusion-bonded).

Dependable performance

Since 1923, Alfa Laval has been in the water heating business, and has become a leading manufacturer and supplier. AquaEfficiency incorporates a wealth of background experience for secure and reliable hot water production. The components have been carefully selected and tested to perform well in combination with one another.

Working principle

In the tap water system, energy is exchanged through a heat exchanger from the primary to the secondary side.

On the primary side, both AquaEfficiency instantaneous and semi-instantaneous models have to be fed by a heating source that can be provided by a local boiler, a primary tank or a solar system for example. The temperature of the media entering the heat exchanger on the primary side is adapted to the demand detected on the domestic side. This eliminates themal shock in the heat exchanger and reduces the build-up of lime-scale in the secondary side.

On the secondary side, AquaEfficiency instantaneous is connected to the main water circuit and provides domestic hot water to the distribution pipe-work when tapping occurs.

A circulation pump - which is usually used to limit the time needed to deliver domestic hot water to the tap at the right temperature- maintains a constant flow rate through the heat exchanger and through the distribution pipe-work.

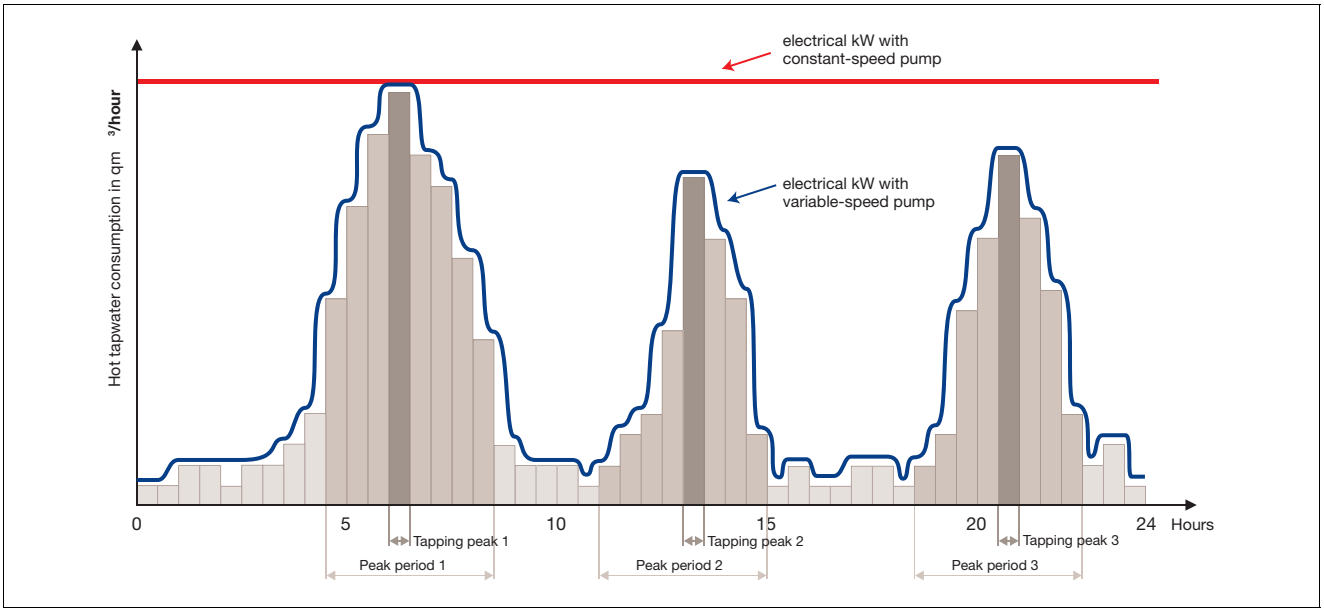
For AquaEfficiency semi-instantaneous a charging pump follows the variable flow rate through the heat exchanger according to the demand profile for the given installation, thus reducing the electrical energy consumption of the pumps.

AquaEfficiency offers electronic control equipment that provides several user-definable functions to customize the system and ensures precise temperature control.

Equipments

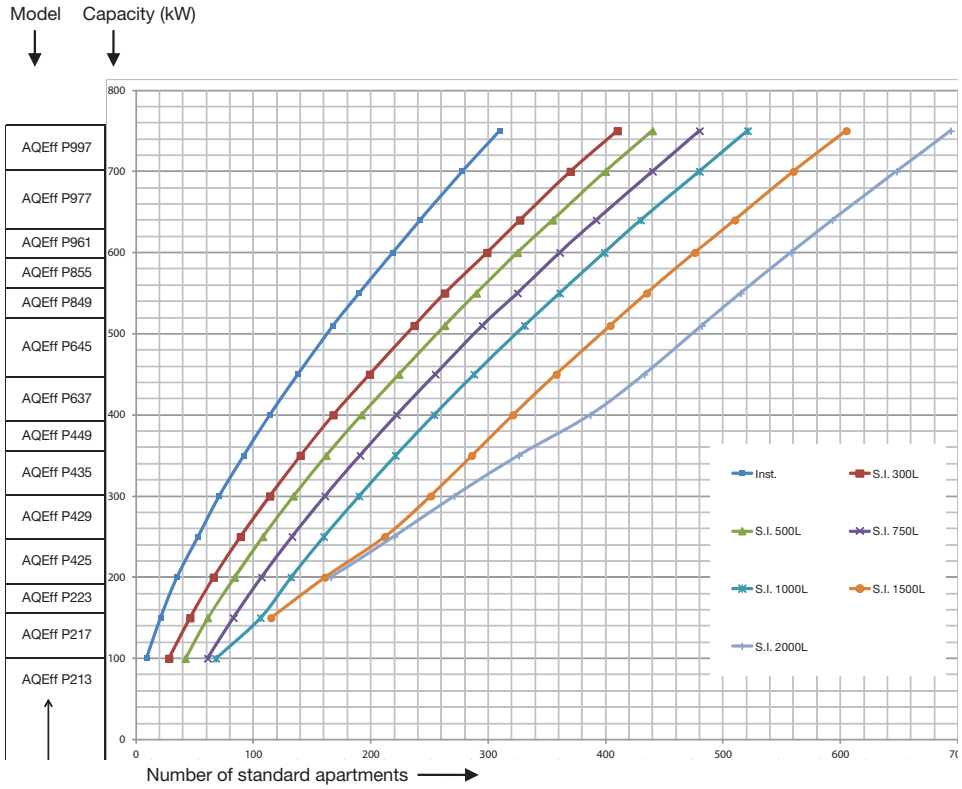
AquaEfficiency 3-Port	
Heat Exchanger	**Plates & Gaskets** • AISI 316 plates & EPDM Clip-on gaskets • Possibility to increase capacity • Compact design • Insulation **Copper Brazed** • Cost effective solution • Thermal efficiency for optimum comfort and reliability • Increased turbulence to increase heat transfer and reduce fouling • Temperature stability • Compact design (large heat transfer surface within a small footprint) • Insulation **Fusion-bonded** AlfaNova is the world's first and only heat exchanger made of 100% stainless steel • High heat transfer • Corrosion resistance • Maximum cleanliness • 100% copper free, suitable for all DHW pipeworks • Insulation
Control Valve	**3-Port Electronic** 24V 0-10V
Controller	**AquaBox Micro3000** Multi functional control box with possibility to connect to a l ocal Building Management System
Primary Pump	Variable Single or Double Head
Charging Pump	Variable Single or Double Head Flooded Rotor
Valves	Drain valve (primary), pressure relief valve (secondary)
Sensors	**Three temperature sensors** • Secondary outlet • Secondary inlet • Primary outlet

Example of tap water demand apartment block

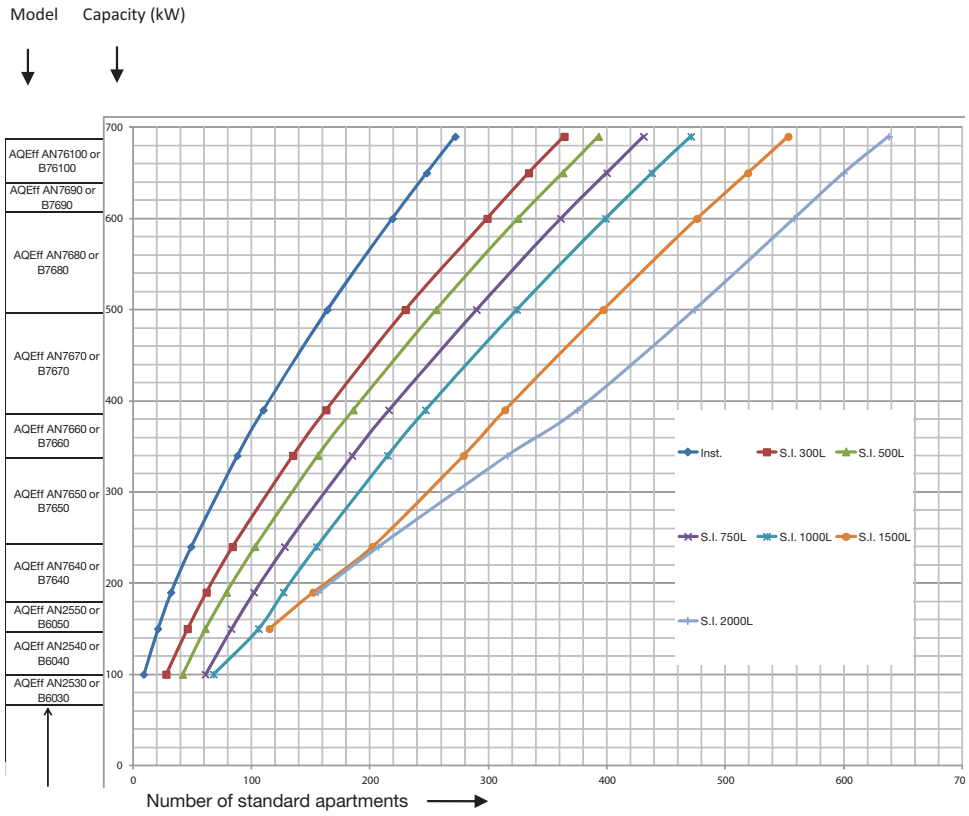


Temperature program	
Primary	70 - 30°C
Secondary	10 - 60°C

Example of selection curves - Plates & Gasket (instantaneous and semi-instantaneous)



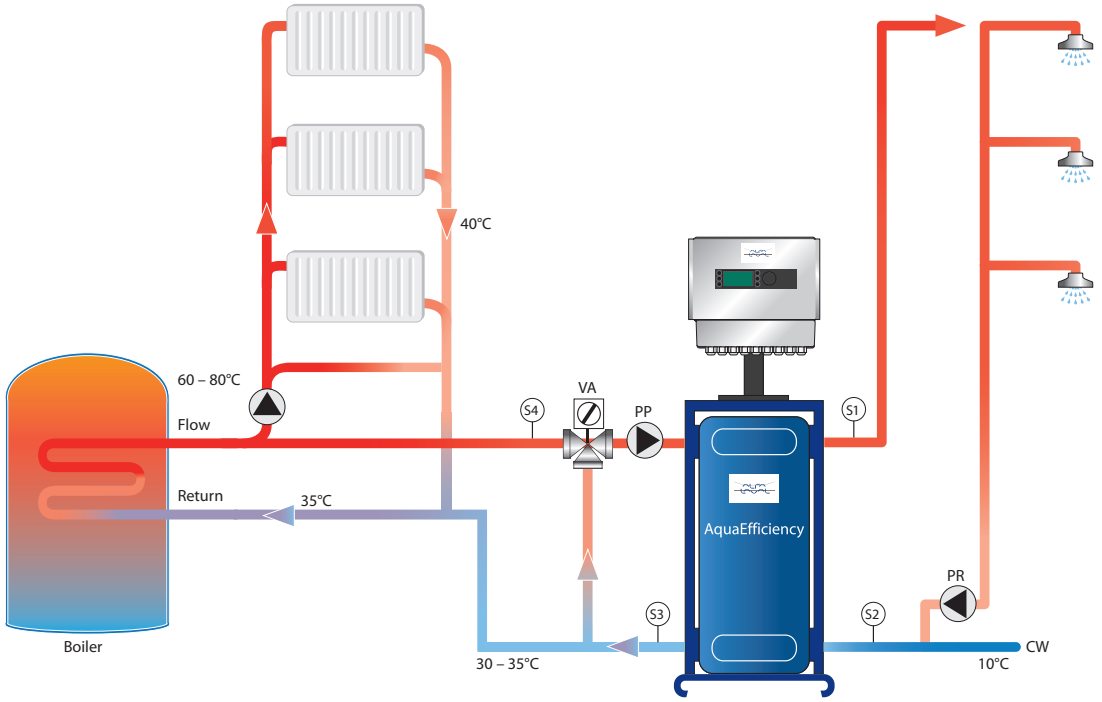
Example of selection curves - AlfaNova and Copper Brazed (instantaneous and semi-instantaneous)



Operating pressures and temperatures

AquaEfficiency 3-port		Primary	Secondary
Plates & Gaskets	Max. operating pressure	10 bar	10 bar
	Max. operating temperature	110°C	90°C
Copper Brazed	Max. operating pressure	10 bar	10 bar
	Max. operating temperature	110°C	90°C
AlfaNova	Max. operating pressure	10 bar	10 bar
	Max. operating temperature	110°C	90°C

AquaEfficiency flowchart



VA	Actuator	S1	DHW temperature sensor
PP	Primary Pump	S2	Thermal treatment sensor
PR	Circulation Pump	S3	Scaling control sensor
CW	Cold water	S4	Optional sensor

How to contact Alfa Laval
Up-to-date AlfaLaval contact details for all countries are always available on our website on www.alfalaval.com