A step in the right direction of reducing pollution and CO_2 emissions.

The increase of CO_2 and other green house gases is a key concern.
Following the European commitment of reducing 20% of the emissions by 2020, energy waste from residential space heating and domestic hot water have been identified as the possible reduction targets.
Air-to-water heat pumps are considered as renewable energy technology compared to heating systems dependent on fossil fuel or non efficient electrical heating.
They are now considered as ideal solutions for space heating and domestic hot water.

Residential heat production by means of gas, oil or electricity contribute to raise the CO_2 emissions level in the atmosphere. In addition these traditional heating systems are less efficient and therefore the energy running costs increase.
Toshiba Estía air to water heat pumps are the ideal solution to increase energy efficiency (COP), using air as a main source of energy. This is an all in one system designed to deliver the right temperature for space heating, for domestic sanitary hot water and with the additional advantage of offering air conditioning in the warmer seasons.

Estía

INVETER SYSTEMS

AIR TO WATER

World-leading energy efficiency - COP of 4,77*.

With its best in class COP performance, Estía air to water heat pump system delivers more heating power with less energy consumption.
Estía uses high quality components and material which contribute to the overall savings in energy consumption.
With the Toshiba advanced inverter, Estía air to water heat pump system only delivers the heating capacity required; thus consuming only the necessary electricity.
The hot water temperature is also optimized thanks to Toshiba advanced control depending on the outside air temperature. The milder outside, the air-to-water systems automatically produces lower water temperature to anticipate decreased needs of space heating. The same control logic allows to anticipate as well increasing heating needs when weather conditions become extreme; this overall temperature management gives the best conditions of comfort.
All this saving has a positive impact on the personal electricity bill and the whole community by reducing the CO_2 emissions in the atmosphere.

*HWS-1103H-E model


OUTDOOR UNITS


HYDRO UNITS

HOT WATER TANK

Estía

INVETER SYSTEMS

AIR TO WATER

Easy to install
Quick and easy to install. The hydro module unit can be placed safely in the most suitable place within the house. There's no need for chimney or underground captors which require additional works on site. The compact outdoor unit can be placed anywhere outside the house or on a balcony, thanks to extensive piping options.

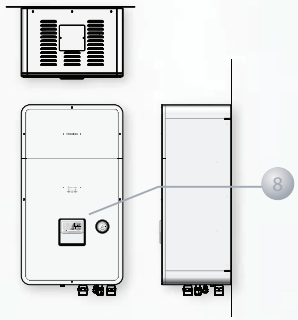
Environment conscious
The use of Toshiba Estía heat pump contribute to the reduction of global CO_2 emissions in the atmosphere and limit the use of fossil fuels or other non-renewable energy primary sources. Whenever required for maintenance purpose, all the R410A refrigerant (non ozone depleting) can be completely sucked back to the outdoor unit through the powerful embedded Toshiba "pump down" operation.

One system, multiple solutions
Estía heat pump systems can be used in combination with different types of emitters: existing heating low temperature radiators, floor heating or fan coil units.

Incentives
Every country in Europe has already issued or is in the process of promoting incentives programs for the installation of heat pump systems. Grants or tax rebates are calculated using the nominal COP as a reference, with progressively annual efficiency entering into consideration. The installation of an Estía air to water heat pump system with top nominal COP and outstandingly high partial load COP thanks to its inverter DC Twin rotary compressor, guarantees to match most of the local governments requirements.

The right temperature at the right time
It can produce water at different temperatures for several applications simultaneously.
Toshiba Estía air to water heat pump system operates smoothly both with low outdoor air temperature down to -20 °C in winter and up to 43 °C in the summer season.
The system has a unique anti-ice build-up protection embedded. For low ambient countries, a new specific range of outdoor units (HWS-***3H8R-E) is proposed with an additional tape heater in the drain pan to prevent any ice build-up in extreme climate conditions.

ESTÍA



1. Outdoor unit
2. Hydro unit
3. Domestic hot water tank
4. Buffer tank*
5. Mixing valve*
6. Temperature sensor
7. Hot water supply
8. Remote controller with weekly timer
9. Floor heating*
10. Low temperature radiator*
11. Fan coil unit*
12. Room temperature remote controller

*Local supply

Outdoor unit (single and three phases)

Toshiba has a long term experience of successes in air to air heat pump production. The same reliable and award winning technology is at the core of the new air to water heat pumps. Above all the advanced inverter technology and the DC twin rotary compressor.
Heat pumps are available also with three phases power supply with a capacity range up to 16kW.

Hydro unit

The high efficiency plate heat exchanger receives the optimum quantity of refrigerant to produce hot water at low or medium temperature (20-55 °C), or cold water (10-20 °C). A back-up heater (3, 6 or 9 kW options) further supports the operation for extreme conditions. The hydro unit integrates the advanced control of water temperature to allow an optimized distribution to emitters and to the domestic hot water tank.

Domestic hot water tank

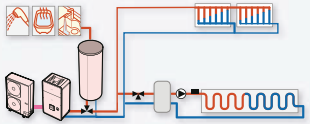
The Estía tank is a compact stainless steel insulated tank producing domestic hot water for sanitary use. The performance of the overall system is also maximized thanks to the integrated coaxial heat exchanger which uses hot water produced by the heat pump (whenever energy efficient and possible). With the optimized control logic, whenever additional hot water is needed, an internal electrical heater is activated. This solution reduces running cost and guarantees a constant level hot water temperature.
Three storage capacities (150, 210 or 300 litres) meet any household requirements.

Controller with weekly timer

It controls the distribution of hot water for up to 2 zones and to the domestic hot water tank.
The built in software logic collects the signals from the sensors, regulates the water temperature and optimizes the system's energy consumption. In addition the anti-bacteria control routinely increases the temperature in the domestic hot water tank. The easy to use remote control is conveniently attached to the hydronic unit. With its large and detailed display it is possible to visualize and set all the major operating parameters and also program the weekly timer.

An additional controller directly linked to the hydronic module can be placed directly in the living area.
The new HWS-AMS11E wired remote controller allows an immediate access to set and achieve directly the desired room air temperature.

Two independent zones



Toshiba air to water heat pump systems can manage two independent zones.
This solution enables the delivery of water to diverse emitters at different temperature levels up to 55 °C.

This is an all in one system designed to deliver the right temperature for space heating, for domestic sanitary hot water and with the additional advantage of offering air conditioning in the warmer seasons.

World leading energy efficiency - COP up to 4,77.

Estía heat pump systems can be used in combination with different types of emitters: existing heating low temperature radiators, floor heating or fan coil units.

Contribute to reduce the CO_2 emissions in the atmosphere.

The remote controller is designed to be simple, intuitive and easy to use.

Toshiba Inverter uses the new vector controlled Intelligent Power Drive Unit, which enables a wider range of frequencies and voltages.

Domestic hot water from +40°C to +75°C.

Systems available in single and three phases.

E S T Í A

ESTÍA

HEAT PUMP SYSTEM

OUTDOOR UNITS

HWS-803H-E

HWS-1103H-E
HWS-1103H8(R)-E
HWS-1403H-E
HWS-1403H8(R)-E
HWS-1603H8(R)-E

HYDRO UNITS

HWS-803XWHM3-E
HWS-803XWHT6-E
HWS-803XWHT9-E
HWS-1403XWHM3-E
HWS-1403XWHT6-E
HWS-1403XWH79-E

HOT WATER TANK

HWS-1501CSHM3-E
HWS-2101CSHM3-E
HWS-3001CSHM3-E

REMOTE CONTROLS

Wired - HWS-AMS11E
Optional additional controller directly linked to the hydronic module. It can be placed directly in the living area for immediate and easy access.

HWS_XWH / HWS_H			System capacities					
Outdoor unit		HWS-	803H-E	1103H-E	1103H8(R)-E	1403H-E	1403H8(R)-E	1603H8(R)-E
Hydro unit combination		HWS-	803XWH**-E	1403XWH**-E	1403XWH**-E	1403XWH**-E	1403XWH**-E	1403XWH**-E
Nominal cooling power	kW	CO	6	10	10	11	11	13
Power input	kW	CO	2,13	3,52	3,52	4,08	4,08	4,8
EER	W/W	CO	2,82	2,84	2,84	2,7	2,7	2,71
Nominal heating power	kW	HP	8	11,2	11,2	14	14	16
Power input	kW	HP	1,82	2,35	2,39	3,11	3,21	3,72
COP	W/W	HP	4,4	4,77	4,69	4,5	4,36	4,3

HWS_H		Outdoor units data					
Outdoor unit	HWS-	803H-E	1103H-E	1103H8(R)-E	1403H-E	1403H8(R)-E	1603H8(R)-E
Dimensions (HxWxD)	mm	890x900x320	1340x900x320	1340x900x320	1340x900x320	1340x900x320	1340x900x320
Weight	kg	63	93	93	93	93	93
Airflow	m^3/h - l/s	3420 - 950	6060 - 1683	6060 - 1683	6180 - 1717	6180 - 1717	6180 - 1717
Sound pressure Level	dB(A)	49	49	50	51	51	52
Sound power level	dB(A)	64	66	66	68	68	69
Compressor type		DC Twin rotary	DC Twin rotary	DC Twin rotary	DC Twin rotary	DC Twin rotary	DC Twin rotary
Refrigerant		R410A	R410A	R410A	R410A	R410A	R410A
Flare connections (gas-liquid)		5/8" - 3/8"	5/8" - 3/8"	5/8" - 3/8"	5/8" - 3/8"	5/8" - 3/8"	5/8" - 3/8"
Minimum pipe length	m	5	5	5	5	5	5
Maximum pipe length	m	30	30	30	30	30	30
Maximum height difference	m	30	30	30	30	30	30
Chargeless pipe length	m	30	30	30	30	30	30
Operating range in space heating	°C	-20÷25	-20÷25	-20÷25	-20÷25	-20÷25	-20÷25
Operating range Domestic hot water	°C	-20÷43	-20÷43	-20÷43	-20÷43	-20÷43	-20÷43
Operating range in cooling	°C	10÷43	10÷43	10÷43	10÷43	10÷43	10÷43
Bottom tape heater power*	W	-	-	75	-	75	75
Power supply	V-ph-Hz	220/230-1-50	220/230-1-50	380/400-3N-50	220~230-1-50	380/400-3N-50	380/400-3N-50

HWS_XWH			Hydro units data					
	HWS-		803XWHM3-E	803XWHT6-E	803XWHT9-E	1403XWHM3-E	1403XWHT6-E	1403XWHT9-E
To be used with size			80	80	80	110-140-160	110-140-160	110-140-160
Leaving water temperature	°C	H	20 ~ 55°C	20 ~ 55°C	20 ~ 55°C	20 ~ 55°C	20 ~ 55°C	20 ~ 55°C
	°C	C	10 ~ 25°C	10 ~ 25°C	10 ~ 25°C	10 ~ 25°C	10 ~ 25°C	10 ~ 25°C
Dimensions (HxWxD)	mm		925x525x355	925x525x355	925x525x355	925x525x355	925x525x355	925x525x355
Weight	Kg		54	54	54	54	54	54
Sound pressure level	dB(A)		29	29	29	29	29	29
Electric back up heater capacity	kW		3	6	9	3	6	9
Electric back up heater supply	V-ph-Hz		220/230-1-50	380/400-3N-50	380/400-3N-50	220~230-1-50	380/400-3N-50	380/400-3N-50
Maximum current	A		13	13 x 2	13 x 3	13	13 x 2	13 x 3

HWS_CSHM		Domestic hot water tanks data		
	HWS-	1501CSHM3-E	2101CSHM3-E	3001CSHM3-E
Water volume	litres	150	210	300
Max water temperature	°C	75	75	75
Electric heater	kW	2,75	2,75	2,75
Power supply	V-ph-Hz	220/230-1-50	220/230-1-50	220/230-1-50
Height	mm	1090	1474	2040
Diameter	mm	550	550	550
Weight	Kg	31	41	60
Material		Stainless steel	Stainless steel	Stainless steel

Accessories

Model Name	Description	Functions
TCB-PCIN3E	Output signal PCB	Boiler operation output signal, Alarm output signal, Defrost output signal, Compressor operation output signal
TCB-PCMO3E	Input signal PCB	Room thermostat input, Emergency stop input
HWS-AMS11E	Wired RC	Wired Remote controller for Room air temperature control

* The capacities in this catalogue are calculated based on following conditions:
Heating: Leaving hot water temperature: 35°C (ΔT 5°C). Outdoor air temperature: 7 °C DB / 6 °C WB.
Cooling: Leaving cold water temperature: 7°C (ΔT 5°C). Outdoor air temperature: 35 °C DB.
The sound pressure level is given at 1 m distance from outdoor units, and 1.5 m distance from hydro units.

CO = cooling mode HP = heating mode