

## A step in the right direction of reducing pollution and CO<sub>2</sub> emissions

The increase of CO<sub>2</sub> 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<sub>2</sub> 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.



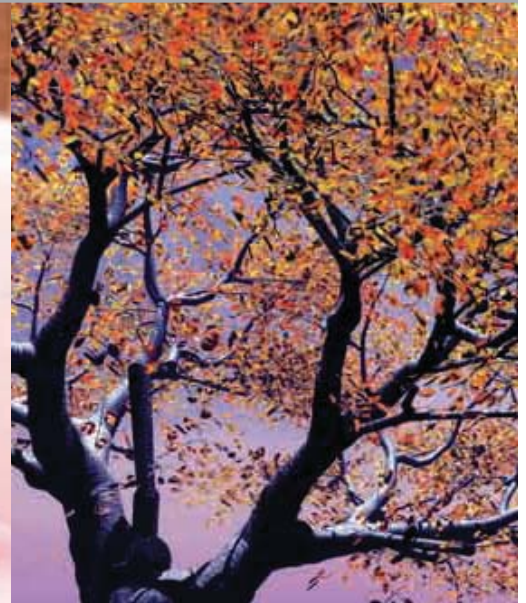
# Estía

Air to water

The heating and cooling systems of the future.



# Estía



## 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<sub>2</sub> emissions in the atmosphere.



\*HWS-1103H-E model



## 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.

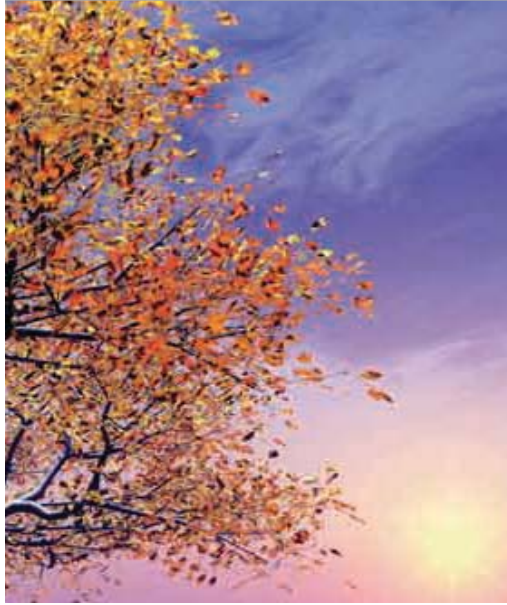
The compact outdoor unit can be placed anywhere outside the house or on a balcony, thanks to extensive piping options.

## Environment conscious

The use of Toshiba Estía heat pump contribute to the reduction of global CO<sub>2</sub> 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.





World-leading energy efficiency

Environment conscious

Multiple solutions

Easy to install



## One system, multiple solutions

Estia 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 Estia 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.



## One system, full combination flexibility

In existing dwellings already equipped with traditional gas or fuel boilers, Toshiba Estia air to water heat pump system can be combined with the existing heating system to cover exclusively and in an optimized way all the heating needs, all year round. Then, the boiler is only used as a back-up source during some extreme weather days of the winter.

The intelligent Toshiba control balances the energy source in the most efficient way.



**UP TO 4,66 COP**

**R-410A**

**DUAL STAGE COMPRESSOR**

**3 SIZES RANGE**



**Hydro unit**

**Stainless steel tank**

**Weekly timer**

**Three phases units**

## Estia<BR>Heat Pump System

### Features

Toshiba Estia 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.

### Key features

World leading energy efficiency – COP of 4,77.

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

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.

Contribute to reduce the CO<sub>2</sub> 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



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

## Residential heating

## Technical specifications air to water heat pump

Outdoor unit		HWS-	803H-E	1103H-E	1103H8(R)-E	1403H-E	1403H8-E	1603H8-E
Hydro unit combination		HWS-	803XWH**E	1403XWH**E	1403XWH**E	1403XWH**E	1403XWH**E	1403XWH**E
Nominal heating power	kW	HP	8,0	11,2	11,2	14,0	14,0	16,0
Power input	kW	HP	1,82	2,35	2,39	3,11	3,21	3,72
COP	W/W	HP	4,40	4,77	4,69	4,50	4,36	4,30
Nominal cooling power	kW	CO	6,0	10,0	10,0	11,0	11,0	13,0
Power input	kW	CO	2,13	3,52	3,52	4,08	4,08	4,80
EER	W/W	CO	2,82	2,84	2,84	2,70	2,70	2,71
Dimensions (HxWxD)	mm		890x900x320	1340x900x320	1340x900x320	1340x900x320	1340x900x320	1340x900x320
Weight	kg		63	93	93	93	93	93
Airflow	m <sup>3</sup> /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

\* 3H8R Models only - Back-up heater operates depending on conditions

## Technical specifications air to water heat pump

Hydro unit		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		925 x 525 x 355	925 x 525 x 355	925 x 525 x 355	925 x 525 x 355	925 x 525 x 355	925 x 525 x 355
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

## Technical specifications air to water heat pump

Domestic hot water tank		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