

# CATALOGUE 2024

For residential buldings | For large-scale & industrial facilities



**AIR-TO-WATER | GROUND-TO-WATER | WATER-TO-WATER**



Czech (EU)  
product



A tradition  
since 1994



Exported into  
30 countries  
worldwide











**Dear customers and business partners,**

On behalf of the entire Master Therm company, let me welcome you to the 2024 heat pump catalogue.

The last three turbulent years have brought about a new dynamic to the heat pump market. Rising energy prices have caused an extraordinary increase in demand and put unprecedented pressure on manufacturers, supply chains and distribution partners to shorten lead times and increase production capacity. This was the most significant challenge in our industry over the last 10 years.

Thanks to the commitment of all our colleagues at Master Therm, we were able to open **a new state-of-the-art plant in Jablonec nad Jizerou, Czech Republic, in 2022, multiplying our production capacity to nearly 2,000 heat pumps per year.** In 2023, we expanded our production facilities further by adding a new warehouse.

Thanks to the commitment of all our distribution, sales and assembly partners, we have managed to install all the pumps we produce and hand them over to our satisfied clients.

And it is you, our current and future customers, who deserve our thanks. Thank you for choosing a Master Therm heat pump and for considering it as the heat source for your home or business. Thank you for trusting in our cutting-edge technology and quality control. We are confident that your trust will not be disappointed and that this catalogue will help you your decision making.

In 2024, Master Therm celebrates 30 years on the market. We will do our utmost to celebrate together another at least equally round anniversary.

On behalf of Master Therm heat pumps, Ltd.

Karel Guzek, M.Sc.  
Head of export

**MASTER THERM: A CZECH DEVELOPMENT AND MANUFACTURING TRADITION SINCE 1994**

Master Therm heat pumps, Ltd., is a Czech manufacturer of air-to-water, ground-to-water and water-to-water heat pumps for family and apartment houses as well as industrial buildings. All technical development and production of Master Therm heat pumps takes place in the Czech Republic, EU. Master Therm exports more than two thirds of its production abroad, especially to Western Europe.

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# Heat pump: questions and answers

## What is the purpose of a heat pump?

A heat pump provides heat for the building, both for heating and hot water. It fully replaces an electric or gas boiler. It provides energy without any negative impact on the environment: **the heat pump is a renewable energy source.**

## Where does its high efficiency come from?

Compared to an electric or gas boiler, a heat pump is significantly more efficient because it also provides heat for your home from the surrounding environment: air, ground or water. The electric power of the heat pump only accounts for about 20-30% of the heat energy collected.

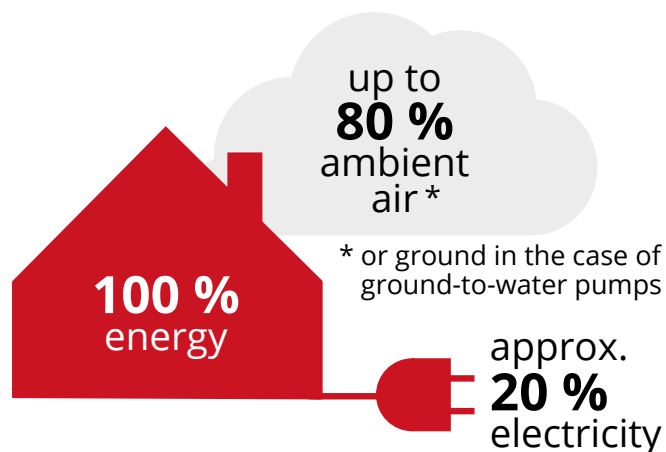
This is what yields key energy savings compared to those of a conventional electric or gas boiler. The efficient use of freely available energy from the environment multiplies the heating efficiency by up to 5.5 times (SCOP = 5.5) compared to an electric boiler. And your heating bills can be up to 80% lower.

## What is the seasonal SCOP heating factor?

The heating capacity of a heat pump is much higher than the electric power input of a compressor, i.e. the efficiency of the pump is many times higher than 100%. The ratio of the heating power and the compressor input is called the COP.

**The seasonal SCOP is the ratio of the total amount of heat produced to the total electricity consumption of the heat pump for the entire heating season.**

Depending on the kind and type of pump, it can reach values of 3.5 to 5.5.



### Prompt returns thanks to subsidies:

In most countries heat pumps are registered in the lists for the subsidy titles. Ask your local distributor about terms and conditions for subsidies. Master Therm heat pumps have a valid registration for subsidies.



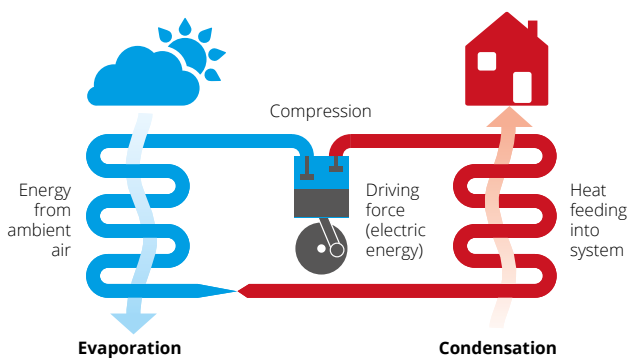
### The heat pump can also cool thanks to the reverse mode.

During the summer months, it can provide long-term cooling of the building and thus significantly increases comfort during summer.



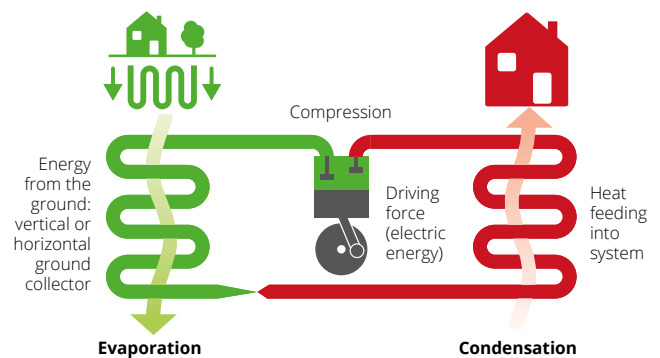


## SYSTEMS OF HEAT PUMPS



### Air-to-water

Air-to-water heat pumps are based on the principle of extracting heat from the ambient air, whose temperature can be many degrees Celsius below zero. The heat extracted from the environment is transferred by the heat pump to the heating water that heats the building, or is used for the preparation of hot water. The system achieves a seasonal efficiency of up to 4.5 times higher than that of a conventional electric boiler and thus delivers significant energy savings.



### Ground-to-water

Ground-to-water heat pumps extract energy directly from the ground using a vertical or flat plate collector. An antifreeze mixture circulates through the collector and heats the ground. Thanks to the constant temperature of the ground, the heat pump has a stable source of energy throughout the year. The heat extracted from the ground is then transferred to the building. The system achieves a seasonal efficiency up to 5.5 times higher than that of a conventional electric boiler.



### Water-to-water

Water-to-water heat pumps are also available on request for the use of thermal energy from ground or surface water. They are based on the ground-to-water AquaMaster series. They are distinctive for their more sediment-resistant evaporator (coax) and modified electrical equipment.



# Model series



## BoxAir Inverter

### Air-to-water

BoxAir Inverter is the best-selling range of air-to-water heat pump with exceptional operating efficiency. It provides heat and hot water for small newly-built housing as well as multi-generational family residences with a heat loss of up to 16 kW. Also suitable for large buildings and industrial applications.

#### KEY FEATURES

- Available in compact and split versions and with built-in hot water tank
- Power from 2 to 22 kW
- Energy efficiency A+++
- Extremely quiet operation
- Top-of-the-range frequency-controlled compressor
- Integrated control system for up to 6 heating circuits
- Online control and monitoring
- Reverse-cooling mode



## AquaMaster

### Ground-to-water

The bestselling MasterTherm heat pump range in Western Europe. By harnessing energy directly from the ground, the AquaMaster range offers the best year-round efficiency and exceptional reliability and longevity. It is suitable for heating and cooling all types of buildings: from passive houses with minimal energy loss to conventional family houses to large buildings including industrial applications.

#### KEY FEATURE

- Available in ON/OFF and frequency-controlled compressor versions
- Power from 1 to 48 kW
- Energy efficiency A+++
- Adaptation to water-to-water at no extra cost
- Independent of outside temperature or weather
- Integrated control system for up to 6 heating circuits
- Online control and monitoring
- Reversing cooling or passive cooling



## BoxAir and AquaMaster for large-scale and industrial facilities

### Air-to-water / Ground-to-water

Special heat pumps for high performance needs and specific industrial installations. Air-to-water and ground-to-water systems, compact and split solutions, cascade connection. Extensions of the BoxAir, AquaMaster and EasyMaster model series.

#### KEY FEATURES

- Air-to-water power up to 35 kW (per compressor circuit in compact and split designs)
- Ground-to-water power up to 64 kW
- MasterLan power cascade control
- ModBUS RTU communication protocol
- Online control and monitoring



## AQ ZHX

### Industrial cooling and waste heat recovery

Cooling technology and waste heat recovery with applications in engineering, In paper, food, metal processing, plastics, energy, heat and power generation or cogeneration industries. Cooling of large data centres and server rooms.

#### KEY FEATURES

- Unique high temperature compressor
- Typical return on investment in units of years
- Precise control of heat/cooling production
- Extremely high cooling efficiency
- Minimisation of refrigerant quantity
- High operational reliability
- Low service costs
- Remote monitoring of operation
- High heating water outlet temperature (up to 82 °C)

## Industrial projects Implemented

- Cooling of the CEZ Group Energo cogeneration units
  - Cooling and heat recovery of the particle accelerator at the Institute of Nuclear Physics of the Czech Academy of Sciences
  - Cooling and heat recovery of the national supercomputer at the IT4Innovations centre
  - Cooling of diagnostic and surgical technologies at the Homolka Hospital in Prague
  - Cooling and heat recovery of the production technology of The Candy Plus Sweet Factory
- ... and many more

# 7 reasons to choose Master Therm

## 1 A tradition since 1994



Master Therm was established in the Czech Republic in the 1990s, originally as an importer of heat pumps from the USA. Over years of gradual work on our own, we have become a manufacturer with a complete in-house development. All heat pumps from Master Therm are invented, designed and manufactured in the Czech Republic.

## 2 We offer a comprehensive and smart solution



With us you get a heating system, not just a separate heat source. We supply complete heat pump systems of all types, including our own control software that can work photovoltaics or automatically react to future spot electricity prices.

## 3 Quality and innovation



Master Therm heat pumps are characterised by their efficient design, which ensures extremely quiet operation and trouble-free service access. We are among the pioneers in the development of electronic refrigerant injection (EEV), infinitely variable compressor power control (inverter) and software for controlling heating circuits.

## 4 Service and warranty



With a network of in-house technicians and immediate availability of spare parts, we guarantee nationwide service coverage. When you buy a heat pump, our journey together is just beginning. We offer online service monitoring of pumps and an extended warranty for 7 years with unlimited coverage.

## 5 Reputation abroad



Master Therm exports more than 70% of its production abroad, especially to Western Europe. The most important foreign markets include the UK, Ireland, the Netherlands, Belgium, Italy, Switzerland, Estonia and Slovakia.

## 6 Awards and certificates



Our pumps are among the most appreciated, both at home and abroad. In addition to more than 20 international awards, we hold a ISO quality management certificate, Heat Pump Keymark certificate, certificates from the authorized testing laboratory ETI (SZÚ) in Brno, Czech Republic, EU, a certificate from the BBA of the United Kingdom and others.

## 7 Subsidies



In most countries heat pumps are registered in lists for subsidy titles. Ask your local distributor about terms and conditions of subsidies.





# MASTER THERM HOLDS THE FOLLOWING CERTIFICATES:

European certification mark  
The Heat Pump KEYMARK



## Heat Pump KEYMARK

### Quality Certificate for the Single European Market

The Heat Pump KEYMARK certificate is the European independent quality certificate for heat pumps entering the Single Market and covered by EU Regulations 813/2013 and 814/2013 – efficiency requirements (ecodesign).



## Certificate of the testing institute Certificate of compliance with Czech and EU standards

Performance parameters and compliance of product characteristics with the requirements of the EN 14 511 standard. The Master Therm heat pumps are tested and certified by the accredited Engineering Testing Institute (SZÚ) in Brno, Czech Republic, EU.



## BBA MCS Certificate

### British quality certificate, allows to draw on British government incentives

Master Therm heat pumps are certified by the British Board of Agrément (BBA) according to the MCS (Microgeneration Certification Scheme) stand-ard, designed for systems for the production of heat and electricity from re-newable sources.

ISO 9001  
BUREAU VERITAS  
Certification



## ISO 9001:2015 Certificate International Quality Certificate

Quality Management System Certificate in accordance with ISO 9001:2015. Scope of certification: manufacture, sale, installation and service of heat pumps. Certification body: BUREAUVERITAS GROUP.



## Type conformity assessment protocol

### Certificate confirming the characteristics of the products with the stated parameters

Certificate confirming that the type test has been successfully carried out on Master Therm products. It proves that the stated technical specifications of the products comply with the Czech and European Union standards.



## We deliver and service all over Europe



### Production plant

Dolní Tříč 636,  
Jablonec nad Jizerou,  
Czech Republic

### Establishment & showroom

Okrajová 187,  
Chýně-Prague West,  
Czech Republic

# Advanced technologies

## Master Therm Online



Connecting the Master Therm heat pump to the internet allows it **to be controlled from anywhere via the web browser on Mastertherm.online or via an app on a mobile phone or tablet.** You are thus in full control of your home's heat, which is within easy reach. Continuous service supervision and remote diagnostics included.

### iOS app



### Android app



## Touchscreen display



The pGDx terminal with a 4.3-inch touchscreen and its own processor is the main control panel of the heat pump. With its help, the desired indoor temperature and all other pump functions can be easily set. It integrates the function of a room instrument to control the temperature of the heated / cooled space. It is possible to connect control panels or temperature sensors of adjacent heating circuits to the terminal and control everything from one place.

It supports communication within Smart Grids for efficient management of electricity production and consumption. Connection via Ethernet (cable) or Wi-Fi, automatic online updates.

## Unique control software



Master Therm heat pumps are controlled by an internally developed app for controlling the cooling circuit including its peripherals. It uses an equithermal system based on following the outside temperature and complemented by advanced backward temperature control in the building based on internal room temperature sensors. As a result, the heat pump automatically maintains the building at a constant temperature with extreme precision and never operates at a higher heating water temperature than is strictly necessary. It works also in cooperation with photovoltaics.

## Desuperheater



Desuperheater is an integrated device designed for efficient heating of water to high temperature with high efficiency. It is a heat exchanger that extracts high temperature energy at the outlet of the hot steam from the compressor. This energy is transferred through a separate hydraulic circuit to the hot-water storage tank. The water is heated while the compressor is running as a "by-product" of the building's heating. The heating efficiency when using a desuperheater is identical to the heating factor for heating.



## Electronically controlled expansion valve (EEV)



Master Therm is one of the leaders in the use of electronic refrigerant injection technology. The EEV allows for precise control of the superheat temperature of the refrigerant vapour in the evaporator. This allows the evaporator area to be used with maximum effect for the evaporation of the refrigerant, resulting in higher plant efficiency. The EEV thus increases the heating factor, operational reliability and lifetime.

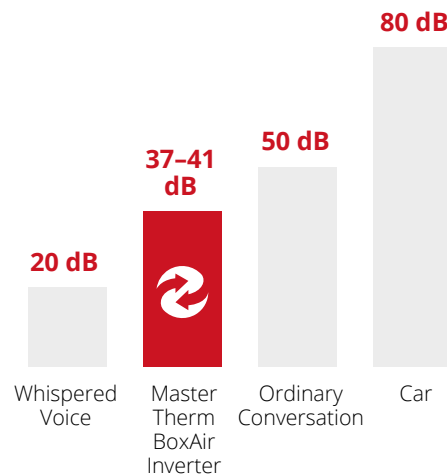
The EEV also protects the compressor against liquid injection at high loads. On the other hand, in the low-load mode (e.g., with a heating duct outlet temperature of less than 30°C), the electronic valve can be fully opened and a high-heating factor can be achieved, which is not possible with a thermostatic valve (TEV).

## Heating in winter, cooling in summer



All Master Therm heat pumps can fully cool the building. By purchasing a pump, you are, therefore, also purchasing the perfect cooling solution for summer. Thanks to its design, it has approximately half the running costs of a conventional air conditioner. Additionally, even while in cooling mode, it can simultaneously heat hot water for domestic use.

For ground-to-water pumps, we offer **a passive cooling module that transfers heat from the interior to the ground collector without the need for a compressor.** This ensures extremely efficient summer cooling and contributes to the regeneration of the collector after the heating season.



## Quiet compressors and fans



All Master Therm heat pumps use quiet-scroll or double-rotary compressors, located in the unit in a special anti-vibration frame. Of course, the pump casing itself is carefully soundproofed.

For air-to-water heat pumps, we use the most modern low-speed fans with very low sound pressure levels, which ensure minimum noise levels in outdoor units

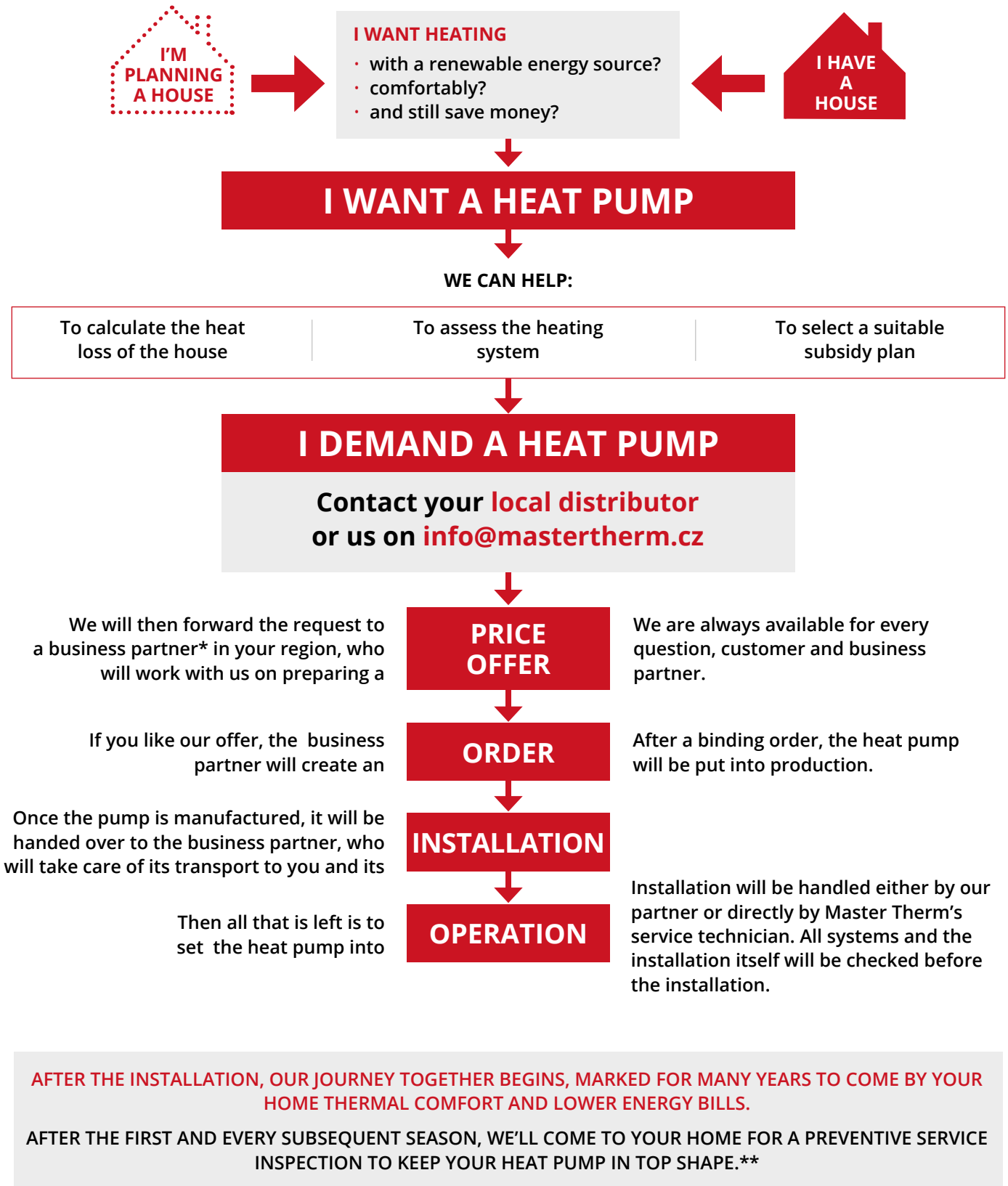
## Frequency-controlled BLDC compressor



A compressor with a frequency converter (inverter) allows the heat pump continuously to regulate the heating / cooling capacity. The main advantages of inverter technology are electricity savings, more efficient use of heat exchangers, a reduction in the number of compressor starts, a reduction in the energy required to defrost the evaporator (air-to-water system), and as a result, an increase in the heating factor.

Thanks to the inverter, the pump does not require the installation of a storage tank, thus saving investment costs and space in the machine room.

# HOW TO GET A MASTER THERM HEAT PUMP?



\*Master Therm's partner network consists of only certified and vetted companies.

\*\*Regular service inspections are a mandatory part of the optional 7-year warranty.



# The BoxAir Inverter Series

Air-to-water



Czech  
product



A tradition  
since 1994



Exported into  
30 countries  
worldwide



7-year  
warranty



Online  
control

# BoxAir Inverter

The BoxAir Inverter is the best-selling range of high-end air-to-water heat pumps with exceptional operating efficiency.

The BoxAir Inverter provides heat and hot water for small housing units as well as intergenerational family residences with a heat loss of up to 16 kW. And it can also serve as a cooling facility in the summer months.

The BoxAir Inverter is also suitable for apartment buildings or commercial installations. Several heat pumps can be cascaded in succession if higher heating output is required.



## BoxAir Inverter

All in one, all outside.



## BoxAir Inverter Split

Evaporator outside, compressor electronics inside.



## BoxAir Inverter Split Combi

Split with an integrated hot water storage tank.



### KEY FEATURES OF THE BoxAir Inverter SERIES

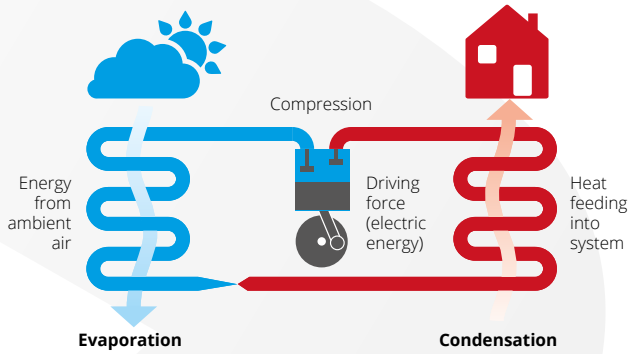
- Power from 2 to 22 kW
- Energy efficiency A++(+)
- Extremely quiet operation according to current EU standards
- Top-quality frequency-controlled compressor
- Integrated control system for up to 6 heating circuits
- Online control and monitoring
- Warranty and after-warranty service with direct cooperation with the manufacturer
- Reverse cooling mode

European certification mark  
The Heat Pump KEYMARK





## AIR-TO-WATER HEAT PUMPS



### HOW THEY WORK

Air-to-water heat pumps are based on the principle of extracting heat from the ambient air, the temperature of which can be many degrees Celsius below zero. The heat extracted from the environment is transferred by the heat pump to the heating water that heats the building or is used in the preparation of hot water. **The system achieves seasonal efficiencies of up to 4.5 times higher than those of a conventional electric boiler and thus delivers significant energy savings.**



### MAIN ADVANTAGES

The major advantages of air-to-water pumps include **relatively low investment costs, quick and easy installation and the easy availability of a primary energy source:** air is everywhere around us.



### HEATS IN WINTER, COOLS IN SUMMER

Air-to-water heat pumps are suitable not only for heating and heating hot water or swimming pools all year round, but also for cooling the building in the summer months thanks to the possibility of reverse operation.



### HEAT PUMPS AND SUBSIDIES

Heat pumps are recognised as a **renewable energy source**. Ask your local distributor if it is possible to obtain subsidies for them.

## MASTER THERM: A CZECH MANUFACTURING TRADITION SINCE 1994

Master Therm is a manufacturer of air-to-water, ground-to-water and water-to-water heat pumps for family and apartment houses and industrial buildings. All technical development and production of Master Therm heat pumps is carried out in the Czech Republic, EU.



More than two-thirds of Master Therm's production are exported abroad, especially to Western Europe. Master Therm also carries out special projects such as heat recovery systems at the IT4Innovations supercomputer centre in Ostrava, Czech Republic, the cooling and recovery of waste heat from particle accelerators at the Institute of Nuclear Physics of the Czech Academy of Sciences or cooling and heat recovery of CEZ Group Energo cogeneration units.



# BoxAir Inverter

All in one, all outside

Extremely quiet and efficient air-to-water heat pump for family or apartment houses. Repeatedly awarded by experts worldwide.



#### Fans and evaporator

Super-quiet fans with fluent rotation control and evaporator with directed condensate drain.

#### Frequency-controlled compressor and electronically-controlled expansion valve

Top-notch technology increases efficiency (heating factor), operational reliability and equipment lifetime. Also included is a built-in speed-controlled circulator.

#### Durable all-aluminium cabinet

Constructed of aluminium profiles and panels, it resists weathering and corrosion over the long term. Default colour: grey RAL 9006.

**A<sup>++(+)</sup>** energy efficiency



7-year warranty



online control

#### Unique Master Therm software for pump control

- Custom application for controlling the cooling circuit and peripherals
- Equithermal MaR (measurement and regulation) system
- Advanced **feedback control of building temperature** based on internal room temperature sensors
- Control via touchscreen terminal or online application
- Includes **remote service monitoring** and diagnostics
- Control of up to 6 heating circuits, including the possibility of connecting a pool or solar panel





## INSTALLATION EXAMPLES







Model	Performance at A7W35	Thermal loss of the object $Q_z$	Seasonal energy efficiency of heating at 35 °C low temperature operation		Seasonal energy efficiency of heating at 55 °C medium temperature operation		Acoustic pressure level $L_p$ (5 m outside of unit)	Order number (according to heating circuit control)		
	kW		SCOP	Class	SCOP	Class		Regulation STANDARD ( $\mu$ PC)	Regulation PLUS (pCO5)	
	<b>BoxAir 22I</b>	2-7	up to 5,5	4.38	A++	3.33	A++	37	1BA22I-01	1BA22I-11
	<b>BoxAir 26I</b>	3-9	up to 8,5	4.29	A++	3.24	A++	37	1BA26I-01	1BA26I-11
	<b>BoxAir 30I</b>	5-12	up to 10	4.75	A+++	3.61	A++	37	1BA30I-01	1BA30I-11
	<b>BoxAir 37I</b>	5-17	up to 13	4.49	A+++	3.51	A++	41	1BA37I-01	1BA37I-11
	<b>BoxAir 45I</b>	7-22	up to 16	4.46	A+++	3.48	A++	41	1BA45I-01	1BA45I-11

Installation diagrams, dimensions and detailed technical data for all models can be found in the Technical Data section.



The BoxAir 22I and BoxAir 26I models offer even more compact dimensions.

<b>Designed for</b>	single-circuit heating systems	multiple-circuit heating systems
<b>Main heating circuit</b>	yes	yes
<b>Auxiliary heating circuit</b>	-	independently 2 incl. mixing
<b>Space temperature</b>	in 1 zone	in 2 zones
<b>Hot water (DHW)</b>	yes	yes
<b>Selectable</b>	-	up to 6 heating circuits

## BASIC FEATURES

- Compact monobloc outdoor air-to-water heat pump
  - Easy installation without the need for intervention of the cooling (compressor) circuit and the heating system in place
  - Low requirements for the volume of heating water in the system
  - Support for connection to the power cascade without the need for a third-party MaR (measurement and regulation) system
- 
- Zero internal noise
  - Minimised external noise due to ultra-quiet fans
- 
- Use for heating and cooling of the building including hot water preparation
- 
- Heating water temperature up to 60 °C
  - Outdoor temperature range from -20 °C to +40 °C
  - Integrated electric boiler (automatic connection of an electric supply if required without affecting the thermal comfort of the building)



### Optional equipment

#### 7-year warranty on the complete pump **107Z**

Extended warranty valid from the time of the pump's installation

#### Master Therm Online App **10ICON**

Connecting the pump to a central Master Therm server allows the pump to be controlled online from anywhere via the web or app. Includes remote service access.

#### Reverse cooling mode **10CH**

Reverse pump operation allowing long-term cooling of the interior in summer.

#### Room unit for auxiliary heating circuit **10PAD**

Terminal with temperature sensor for placing additional heating circuits in the reference rooms (only for PLUS control).

#### Room unit for auxiliary heating circuit with humidity sensor **10PADH**

An extra humidity sensor for eliminating condensation during cooling (only for PLUS control regulation).

#### Expansion module for PLUS control **10EK**

Increases the number of regulated auxiliary heating circuits up to 6 (from the basic 2).

#### Integrated electric meter 3x 65 A **10EM65AMID**

Built-in 3-phase electric meter for local measurement of electricity consumption. MID certification.

#### RAL colour **10CO**

Individual colour for pump panels.

# BoxAir Inverter Split

Evaporator outside,  
compressor electronics  
inside

Extremely quiet and economical air-to-water heat pump in split design. The most valuable parts are stored in the unit inside the object. Even lower outdoor noise level of the pump.

## Unique indoor unit

Typically located in the mechanical room of the building and therefore protected against the weather. It contains the most valuable parts of the pump including a frequency-controlled compressor, an electronically-controlled expansion valve, control electronics, circulator and more.



## Outdoor unit

It is more dimensionally efficient than the BoxAir Inverter all-in-one pumps. It includes an evaporator and ultra-quiet fans with widely variable speed control. Thanks to the compressor located in the indoor unit, the outdoor unit is even quieter than the BoxAir Inverter all-in-one model. The durable all-aluminum construction of profiles and panels is long-lasting and resistant to weathering and corrosion.



The BoxAir 22IS and BoxAir 26IS models offer a more compact size of the outdoor unit due to the presence of only one fan and a smaller evaporator.

**A<sup>+++</sup>** energy efficiency



7-year warranty



online control

## Unique Master Therm software for pump control





- Custom application for controlling the cooling circuit and peripherals
- Equithermal MaR (measurement and regulation) system
- Advanced **feedback control of the building temperature** based on internal room temperature sensors
- Control via touchscreen terminal or **online application**
- Includes **remote service monitoring** and diagnostics
- Control of up to 6 heating circuits, including the possibility of connecting a pool or solar panel



## INSTALLATION EXAMPLES





Model	Performance at A7W35	Thermal loss of the object $Q_z$	Seasonal energy efficiency of heating at 35 °C low temperature operation		Seasonal energy efficiency of heating at 55 °C medium temperature operation		Acoustic pressure level $L_p$ (5 m outside of unit)	Order number (according to heating circuit control)
	kW	kW	SCOP	Class	SCOP	Class	dB(A)	
 <b>BoxAir 22IS</b>	2-7	up to 5,5	4.38	A++	3.33	A++	34	1BA22IS-11
 <b>BoxAir 26IS</b>	3-9	up to 8,5	4.29	A++	3.24	A++	34	1BA26IS-11
 <b>BoxAir 37IS</b>	5-17	up to 13	4.49	A+++	3.51	A++	41	1BA37IS-11
 <b>BoxAir 45IS</b>	7-22	up to 16	4.46	A+++	3.48	A++	41	1BA45IS-11

Installation diagrams, dimensions and detailed technical data for all models can be found in the Technical Data section.

<b>Heating circuit control</b>	PLUS Regulation
<b>Main heating circuit</b>	yes
<b>Auxiliary heating circuit</b>	independently 2 incl. mixing
<b>Space temperature</b>	in 2 zones
<b>Hot water (DHW)</b>	yes
<b>Optional</b>	up to 6 heating circuits

## BASIC FEATURES

- Air-to-water heat pump of split design
  - The most valuable parts of the heat pump are stored in a unit inside the building
  - The connecting pipes of the indoor and outdoor units form the low pressure (cold) part of the cooling circuit, so that heat loss through the pipe-work is completely eliminated
  - Distance between indoor and outdoor units up to 15 metres
  - Low heating water volume requirements in the system
  - Support for connection to the power cascade without the need for a third-party MaR (measurement and control) system
- 
- Minimised noise in the outdoor unit due to ultra-quiet fans and no compressor
  - Indoor unit with compressor sound attenuated to the level of a conventional refrigerator
- 
- Use for heating and cooling of the building including hot water supply
- 
- Heating water temperature up to 60 °C
  - Outdoor temperature range from -20 °C to +40 °C
  - Integrated electric boiler (automatic connection of electric supply if required without affecting the thermal comfort of the building)



## Optional equipment

### 7-year warranty on the complete pump 107Z

Extended warranty valid from the time the pump is delivered. Only in combination with 10ICON.

### Master Therm Online App 10ICON

Connecting the pump to a central MasterTherm server allows the pump to be controlled online from anywhere using the web or app. Includes remote service access.

### Reverse cooling mode 10CH

Reverse operation of the pump for long-term cooling of the interior in summer.

### Desuperheater for high efficiency hot water heating 10DESUP

Integrated device that uses a separate hydraulic circuit to remove the heat of superheated steam at the compressor outlet and increase the efficiency of hot water preparation (heating). When the compressor is in operation (heating and cooling mode), part of its thermal energy is permanently transferred to the hot water tank.

### Room unit for auxiliary heating circuit 10PAD

Terminal with temperature sensor for placing additional heating circuits in the reference rooms (only for PLUS control).

### Room unit for auxiliary heating circuit with humidity sensor 10PADH

Includes humidity sensor for eliminating condensation of air humidity during cooling (only for PLUS control).

### PLUS control expansion module 10EK

Increases the number of regulated auxiliary heating circuits up to 6 (from the basic 2).

### Integrated electric meter 3x 65 A 10EM65AMID

Integrated 3-phase electric meter for local metering of electricity consumption. MID certification.

### RAL colour 10CO

Individual colour for the pump panels.

**Bracket for hanging the external unit on the wall**  
Suitable for tighter space conditions.

# BoxAir Inverter Split Combi

## Split with integrated hot water tank

### Indoor unit including 170l hot water storage tank

The Combi version differs from the BoxAir Inverter Split by having an integrated hot water storage tank.



### Outdoor unit

Constructed of aluminum profiles and panels, the outdoor unit resists weather and corrosion for a long time. Here the BoxAir 22ISC and 26ISC models are shown. For the 37ISC model, the cabinet is twice as high.



### BASIC FEATURES



- Air-to-water heat pump of split design
- Includes integrated 170-litre hot water tank to save space in the utility room. (BoxAir Inverter and BoxAir Inverter Split models work with an external tank.)

**A<sup>++(+)</sup>** energy efficiency

7-year warranty

online control

Model	Performance at A7W35	Thermal loss of the object Q <sub>z</sub>	Seasonal heating energy efficiency at 35°C low temperature operation		Seasonal heating energy efficiency at 55°C medium temperature operation		Sound pressure level L <sub>p</sub> (5 m from the outdoor unit)	Ordering number
	kW		kW	SCOP	Class	SCOP		
<b>BoxAir 22ISC</b>	2-7	up to 5,5	4,38	A++	3,33	A++	34	1BA22ISC-11
<b>BoxAir 26ISC</b>	3-9	up to 8,5	4,29	A++	3,24	A++	34	1BA26ISC-11
<b>BoxAir 37ISC</b>	5-17	up to 13	4,49	A+++	3,51	A++	41	1BA37ISC-11

For installation diagrams, dimensions and detailed technical data for all models, please refer to the Technical Data section.

### Optional equipment

#### 7-year warranty on the complete pump

Extended warranty valid from commissioning of the pump. Only in combination with 1OICON.

107Z

#### Room unit for auxiliary heating circuit

Terminal with temperature sensor for placement in reference rooms of other heating circuits (only for PLUS control).

10PAD

#### Integrated electric meter 3x 65 A

Integrated 3-phase electric meter for local measurement of electricity consumption. LCD panel, MID certification, data transfer to the heat pump controller.

1OEM65AMID

#### Master Therm Online App

Connecting the pump to the Master Therm central server allows the pump to be controlled online from anywhere using the app's website. Including remote service access.

1OICON

#### Room unit for auxiliary heating circuit with humidity sensor

Includes humidity sensor for elimination of air humidity condensation during cooling (only for PLUS control).

10PADH

#### Colour according to RAL

Individual colour for the pump panels.

1OCO

#### Reverse cooling mode

Reverse operation of the pump allowing for long-term cooling of the interior in the summer.

1OCH

#### PLUS control expansion module

Increases the number of regulated auxiliary heating circuits up to 6 (from the basic 2).

1OEK

#### Bracket for hanging the outdoor unit on the wall

Suitable for more confined space conditions.



# Technical data

Air-to-water



Czech  
product



A tradition  
since 1994



Exported into  
30 countries  
worldwide



7-year  
warranty



Online  
control

# BoxAir Inverter



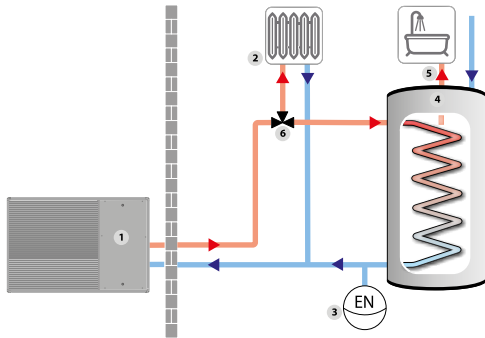
		BoxAir 221	BoxAir 261	BoxAir 301	BoxAir 371	BoxAir 451
Power range at A7W35		2-7	3-9	5-12	5-17	7-22
Thermal loss of the object $Q_z$		up to 5.5	up to 8.5	up to 10	up to 13	up to 16
Power A7W35 <sup>1</sup>	60 rps	4.9	8.1	8.65	11.5	15.3
	COP	4.7	4.8	5.2	4.7	4.7
Power A2W35	60 rps	3.6	5.8	6.25	8.8	10.6
	COP	3.5	3.5	3.8	3.7	3.5
Power A-7W35	80 rps	3.6	5.5	6.0	8.7	11.1
	COP	2.8	2.8	2.9	2.8	2.75
Power A-15W35	90 rps	3.2	5.1	5.3	8.2	9.8
	COP	2.6	2.5	2.4	2.3	2.2
Seasonal heating energy efficiency at 35 °C low temperature operation	Power <sup>3</sup>	5	7	8	11	13
	SCOP	4.38	4.29	4.75	4.49	4.46
	$\eta_s$	172	168	187	177	176
	Class	A++	A++	A+++	A+++	A+++
Seasonal heating energy efficiency at 55 °C medium temperature operation	Power <sup>3</sup>	4	6	7	10	12
	SCOP	3.33	3.24	3.61	3.51	3.48
	$\eta_s$	130	126	141	137	136
	Class	A++	A++	A++	A++	A++
Refrigerant		R410a	R410a	R410a	R410a	R410a
Electric circuit breaker <sup>2</sup>	3-phase	16 A"B"	20 A"B"	25 A"B"	25 A"B"	32 A"B"
	1-phase	20 A"B"	20 A"B"	25 A"B"	25 A"B"	32 A"B"
Compressor, supply voltage	3-phase	1x 230 V~	1x 230 V~	1x 230 V~	3x 400 V~	3x 400 V~
	1-phase	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~
Weight		115	120	155	165	165
Mandatory leakage checks according to EP 517/2014		no	no	no	no	no
Maximum heating water temperature		60	60	60	60	60
Heating capacity of integrated electric boiler	bivalence mode	4.5	4.5	6	7.5	7.5
	backup mode (and at temperatures below -20 °C)	4.5 + 4.5	4.5 + 4.5	6 + 6	7.5 + 7.5	7.5 + 7.5
Acoustic performance $L_w$		58	58	58	62	62
Sound pressure level $L_p$ at a distance from the outdoor unit	1 m	49	49	49	53	53
	5 m	37	37	37	41	41
	10 m	31	31	31	35	35
Order number (according to heating circuit control)	STANDARD Regulation	1BA221-01	1BA261-01	1BA301-01	1BA371-01	1BA451-01
	PLUS regulation	1BA221-11	1BA261-11	1BA301-11	1BA371-11	1BA451-11

Heating circuit control	Designed for	Main heating circuit	Auxiliary heating circuit	Space temperature	Hot Water	Optional
STANDARD Regulation ( $\mu$ PC)	single circuit heating system	yes	-	in 1 zone	yes	-
PLUS Regulation ( $p$ CO5)	multi-circuit heating system	yes	independently 2 incl. mixing	in 2 zones	yes	up to 6 heating circuits

1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.

2 Recommended value of electrical protection 3x 400 V, incl. auxiliary integrated electric boiler. The 221, 261 and 301 units can also be connected to a mains supply of 1x 230 V with a fuse of 40 A "B" (221) or 50 A "B" (261, 301).

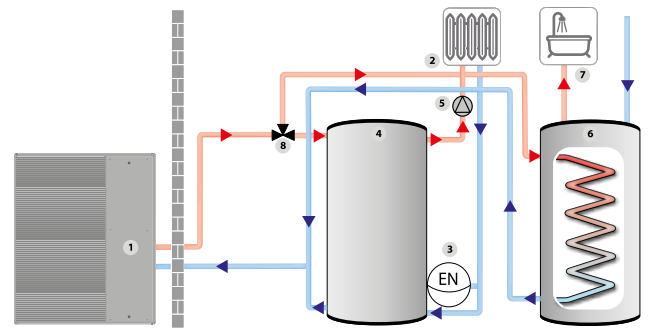
3 Design output at an outdoor temperature of -10 °C according to EN 14 825.



### DIRECT CONNECTION OF HEAT PUMP TO HEATING SYSTEM AND HW (HEATING-WATER) TRANSFER MODE

- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 HW indirect heating storage tank
- 5 HW outlet
- 6 3-way valve

The heat pump (1) is directly connected to the heating system. The heating water temperature varies depending on the outside temperature. When HW heating is required, the heating is interrupted, and the 3-way valve (6) is switched on. By increasing the heating water outlet temperature from the heat pump, the HW storage tank (4) is heated. After the heating of water is finished, the system returns to area heating mode. The scheme is particularly suitable for underfloor heating, exceptional also for systems with a sufficiently sizeable volume of heating water. The possibility for local control of the heating system (control of the heating water flow through the heating system) is limited.

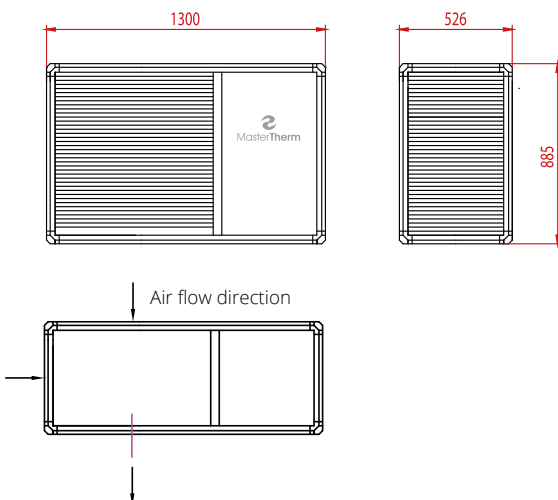


### CONNECTION WITH HEATING WATER ACCUMULATION TANK AND HW HEATING TRANSFER MODE

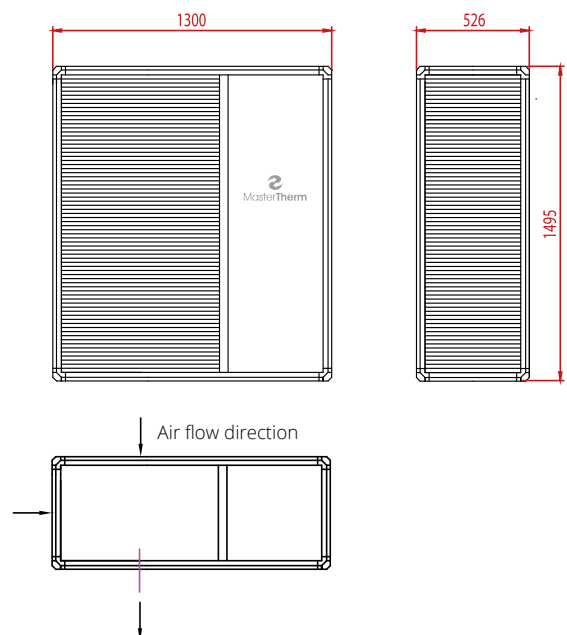
- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 storage tank
- 5 heating system PC
- 6 HW indirect heating storage tank
- 7 HW outlet
- 8 3-way valve

The heat pump (1) is connected to the heating system via the storage tank (4), which acts as both heat storage and thermohydraulic distributor. The temperature of the heating water varies depending on the outside temperature. The flow of heating water through the heating system is provided by a circulating pump (5). When HW heating is required, area heating is interrupted, and the 3-way valve (8) is switched on. By increasing the outlet temperature of the heating line from the heat pump, the HW storage tank is heated (6). After HW heating is finished, the system returns to area heating mode.

### DIMENSIONS OF MODELS BA22I AND BA26I



### DIMENSIONS OF MODELS BA30I TO BA45



# BoxAir Inverter Split

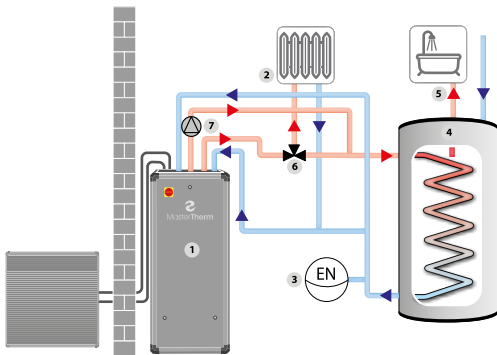


			BoxAir 22IS	BoxAir 26IS	BoxAir 37IS	BoxAir 45IS
Power range at A7W35		kW	2-7	3-9	5-17	7-22
Thermal loss of the object $Q_z$		kW	up to 5.5	up to 8.5	up to 13	up to 16
Power A7W35 <sup>1</sup>	60 rps	kW	4.9	8.1	11.5	15.3
	COP		4.7	4.6	4.7	4.7
Power A2W35	60 rps	kW	3.6	5.6	8.8	10.6
	COP		3.5	3.5	3.7	3.5
Power A-7W35	80 rps	kW	3.6	5.5	8.7	11.1
	COP		2.8	2.8	2.8	2.75
Power A-15W35	90 rps	kW	3.2	5.1	8.2	9.8
	COP		2.6	2.4	2.3	2.2
Seasonal heating energy efficiency at 35 °C low temperature operation	Power <sup>3</sup>	kW	5	7	11	13
	SCOP		4.38	4.29	4.49	4.46
	$\eta_s$	%	172	168	177	176
	Class		A++	A++	A+++	A+++
Seasonal heating energy efficiency at 55 °C medium temperature operation	Power <sup>3</sup>	kW	4	6	10	12
	SCOP		3.33	3.24	3.51	3.48
	$\eta_s$	%	130	126	137	136
	Class		A++	A++	A++	A++
Refrigerant			R410a	R410a	R410a	R410a
Electric circuit breaker <sup>2</sup>	3-phase		16 A"B"	20 A"B"	25 A"B"	32 A"B"
	1-phase		20 A"B"	20 A"B"	n/a	n/a
Compressor, supply voltage	3-phase		1x 230 V~	1x 230 V~	3x 400 V~	3x 400 V~
	1-phase		1x 230 V~	1x 230 V~	n/a	n/a
Weight		kg	160	165	165	170
Mandatory leakage checks according to EP 517/2014			no	no	no	no
Maximum heating water temperature		°C	60	60	60	60
Heating capacity of integrated electric boiler	bivalence mode	kW	4.5	4.5	7.5	7.5
	backup mode(and at temperatures below -20 °C)	kW	4.5 + 4.5	4.5 + 4.5	7.5 + 7.5	7.5 + 7.5
Acoustic performance $L_w$		dB(A)	55	55	62	62
Sound pressure level $L_p$ at a distance from the outdoor unit	1 m	dB(A)	46	46	53	53
	5 m	dB(A)	34	34	41	41
	10 m	dB(A)	28	28	35	35
Order number (according to heating circuit control)	PLUS regulation		1BA22IS-11	1BA26IS-11	1BA37IS-11	1BA45IS-11

Heating circuit control	Designed for	Main heating circuit	Auxiliary heating circuit	Space temperature	Hot Water	Optional
PLUS Regulation (pCO5)	multi-circuit heating system	yes	independently 2 incl. mixing	in 2 zones	yes	up to 6 heating circuits

1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.  
 2 Recommended value of electrical protection 3x 400 V, incl. auxiliary integrated electric boiler. The 22I, 26I and 30I units can also be connected to a mains supply of 1x 230 V with a fuse of 40 A "B" (22I) or 50 A "B" (26I, 30I).  
 3 Design output at an outdoor temperature of -10 °C according to EN 14 825.

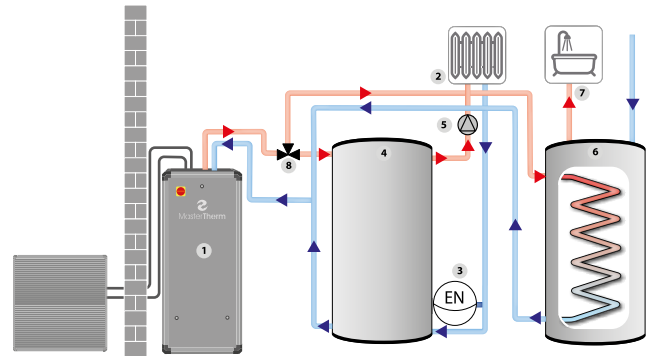




**DIRECT CONNECTION OF HEAT PUMP TO HEATING SYSTEM AND DHW SWITCH-HEATING MODE**

- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 indirect HW heating storage tank
- 5 HW outlet
- 6 3-way valve
- 7 desuperheater

The heat pump (1) is directly connected to the heating system. The temperature of the heating water varies depending on the outside temperature. When HW heating is required, area heating is interrupted and the 3-way valve (6) is switched on. By increasing the outlet temperature of the heating water from the heat pump, the HW storage tank (4) is heated. When HW heating is finished, the system returns to area heating mode. The desuperheater (optional) is a special heat exchanger that extracts high temperature energy from the compressor and transfers it with high efficiency to the HW tank. With this wiring scheme, the possibility of additional heating system control by reducing the heating water flow (zone valves, thermostatic valves) is limited. A heat pump control can be used for precise control of the interior temperature.

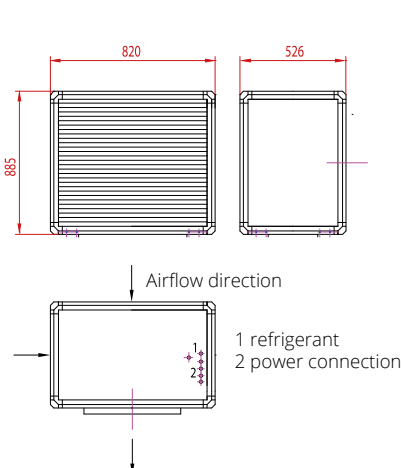


**CONNECTION WITH HEATING WATER ACCUMULATION TANK AND HW HEATING TRANSFER MODE**

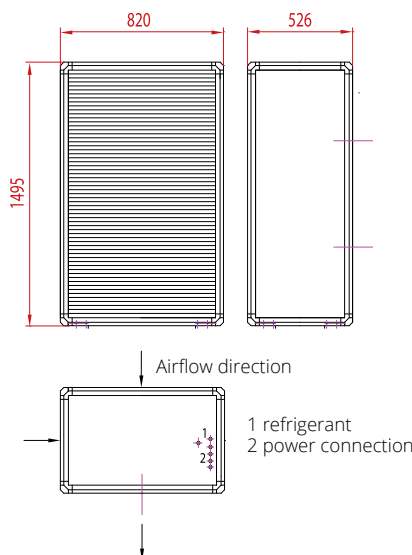
- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 accumulation tank
- 5 heating system
- 6 indirect heating of HW accumulation tank
- 7 HW outlet
- 8 3-way valve

The heat pump (1) is connected to the heating system via the accumulation tank (4), which acts as both heat storage and thermohydraulic distributor. The temperature of the heating water varies depending on the outside temperature. The flow of heating water through the heating system is provided by a circulating pump (5). When HW heating is required, area heating is interrupted, and the 3-way valve (8) is switched on. By increasing the heating outlet temperature of the heat pump, the HW storage tank (6) is heated. After the heating has stopped, the returns to area heating mode. This system is suitable in buildings with a minimal capacity for a heating system and where local heating control is used to limit the flow of heating water. The system also allows the heat pump to be combined with other heat sources (e.g. a fireplace insert).

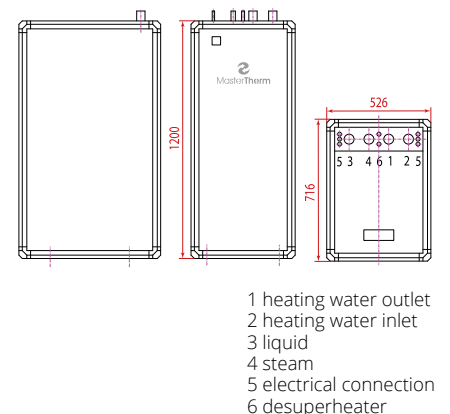
**DIMENSIONS OF THE BA22IS AND BA26IS HEATING UNIT MODELS**



**DIMENSIONS OF THE BA37IS AND BA45IS HEATING UNIT MODELS**



**INHEATING UNIT**

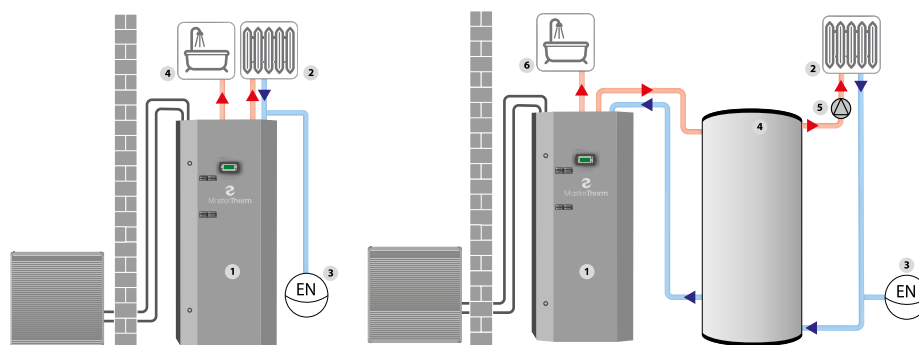


# BoxAir Inverter Split Combi



			BoxAir 22ISC	BoxAir 26ISC	BoxAir 37ISC	
Power range at A7W35			2-7	3-9	5-17	
Thermal loss of the object $Q_z$		kW	up to 5.5	up to 8.5	up to 13	
Power A7W35 <sup>1</sup>	60 rps	kW	4.9	8.1	11.5	
	COP		4.7	4.6	4.7	
Seasonal heating energy efficiency at 35 °C low temperature operation	Power <sup>3</sup>	kW	5	7	11	
	SCOP		4.38	4.29	4.49	
	$\eta_s$	%	172	168	177	
	Class		A++	A++	A+++	
Seasonal heating energy efficiency at 55 °C medium temperature operation	Power <sup>3</sup>	kW	4	6	10	
	SCOP		3.33	3.24	3.51	
	$\eta_s$	%	130	126	137	
	Class		A++	A++	A+++	
Refrigerant			R410a	R410a	R410a	
Electric circuit breaker <sup>2</sup>	3-phase		16 A"B"	20 A"B"	25 A"B"	
	1-phase		20 A"B"	20 A"B"	n/a	
Compressor, supply voltage	3-phase		1x 230 V~	1x 230 V~	3x 400 V~	
	1-phase		1x 230 V~	1x 230 V~	n/a	
Weight		kg	260	265	275	
Maximum heating water temperature		°C	60	60	60	
Heating capacity of integrated electric boiler	bivalence mode	kW	4.5	6	6	
	backup mode(and at temperatures below -20 °C)	kW	4.5	6	6	
Acoustic performance $L_w$		dB(A)	55	55	62	
Sound pressure level $L_p$ at a distance from the outdoor unit	1 m	dB(A)	46	46	53	
	5 m	dB(A)	34	34	41	
	10 m	dB(A)	28	28	35	
Order number (according to heating circuit control)	PLUS regulation		1BA22ISC-11	1BA26ISC-11	1BA37ISC-11	
<b>Heating circuit control</b>	<b>Designed for</b>	<b>Main heating circuit</b>	<b>Auxiliary heating circuit</b>	<b>Space temperature</b>	<b>Hot Water</b>	<b>Optional</b>
PLUS Regulation (pCO5)	multi-circuit heating system	yes	independently 2 incl. mixing	in 2 zones	yes	up to 6 heating circuits

1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.  
 2 Recommended value of electrical protection 3x 400 V, incl. auxiliary integrated electric boiler. The 22i, 26i and 30i units can also be connected to a mains supply of 1x 230 V with a fuse of 40 A "B" (22i) or 50 A "B" (26i, 30i).  
 3 Design output at an outdoor temperature of -10 °C according to EN 14 825.



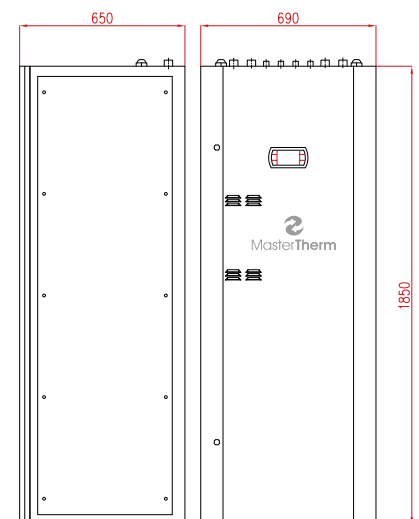
## DIRECT HEATING PUMP CONNECTION INTO HEATING SYSTEM

- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 HW outlet

## CONNECTION WITH HEATING WATER STORAGE TANK

- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 HW outlet
- 5 storage tank
- 6 heating system

## DIMENSIONS OF THE INDOOR UNIT



Dimensions of outdoor unit same as BoxAir Inverter Split

# The AquaMaster Series

Ground-to-water



Czech product



A tradition since 1994



Exported into 30 countries worldwide



7-year warranty



Online control

# AquaMaster

The best-selling Master Therm heat pump range in Western Europe.\*

By harnessing energy directly from the ground, the AquaMaster range offers the best year-round efficiency, exceptional reliability and durability.

Suitable for heating and cooling all types of buildings: from passive houses with minimal energy loss to conventional family homes and large buildings, including industrial applications (with the possibility of connection to a cascade of pumps).

\* 70% of Master Therm's production is exported abroad, especially to Great Britain, Ireland, the Netherlands, Belgium, Italy, Switzerland, Estonia and Slovakia.



**AquaMaster**  
With ON/OFF  
compressor.



**AquaMaster  
Inverter**  
With frequency-  
controlled compressor.



**AquaMaster  
Inverter Combi**  
Inverter with integrated  
heat exchanger.



## KEY FEATURES OF THE AquaMaster SERIES

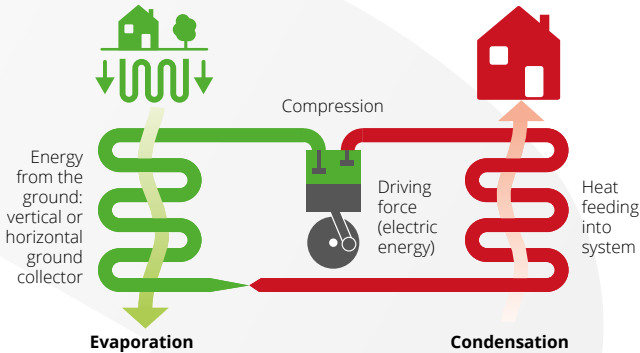
- Power from 1 to 48 kW
- Energy efficiency A+++
- Adaptation to water-to-water at no extra cost
- Independent of outside temperature or weather
- Integrated control system for up to 6 heating circuits
- Online control and monitoring
- Warranty and after-warranty service directly from the manufacturer
- Reversible cooling mode and passive cooling

European certification mark  
The Heat Pump KEYMARK





## GROUND-TO-WATER HEAT PUMPS



### ? HOW THEY WORK

Ground-to-water heat pumps extract energy from the ground by means of a vertical or horizontal collector\*\*. Antifreeze circulates through the collector and removes ground heat. Thanks to the constant temperature of the ground, the heat pump has a stable source of energy throughout the year. The heat extracted from the ground is then transferred to the building. **The system achieves a seasonal efficiency up to 5.5 times higher than that of a conventional electric boiler.**

### 👍 MAIN ADVANTAGES

The ground-to-water system offers **stable heating performance throughout the year** and generally higher efficiency than air-to-water systems. The ground collector with a predicted lifetime of up to 100 years is an enduring investment in your building(s) and/or land(s).

### ☀️ HEATS IN WINTER, COOLS IN SUMMER

They are suitable not only for heating and year-round heating of hot water or swimming pools but also for highly efficient cooling of the building in summer thanks to the option of reverse or passive cooling.

### € HEAT PUMPS AND SUBSIDIES

Heat pumps are recognised as **a renewable energy source**. Ask your local distributor if it is possible to obtain subsidies for them.

\*\*The depth of the vertical collector must be approximately 15-20 meters per 1 kW of building's heat loss. Land area for the horizontal collector is approximately 35-40 m<sup>2</sup> per 1 kW of a building's heat loss.

### MASTER THERM: A CZECH MANUFACTURING TRADITION SINCE 1994

Master Therm is a manufacturer of air-to-water, ground-to-water and water-to-water heat pumps for family and apartment houses and industrial buildings. All technical development and production of Master Therm heat pumps is carried out in the Czech Republic, EU.



More than two-thirds of Master Therm's production is exported abroad, especially to Western Europe. For example, Master Therm produced 170 AquaMaster Inverter heat pumps for a developer project in Cardiff, UK, where the pumps are connected to a system of 79 shared ground wells. Master Therm also carries out special projects such as heat recovery systems at the IT4Innovations supercomputer centre, the cooling and recovery of waste heat from particle accelerators at the Institute of Nuclear Physics of the Czech Academy of Sciences.



# AquaMaster

With an ON/OFF compressor

Silent and efficient ground-to-water heat pump. Convenient purchase price thanks to its ON/OFF compressor, extreme reliability.

### ON/OFF compressor

Due to the constant temperature of the source (ground or water), the AquaMaster heat pump achieves high efficiency values even with an ON/OFF compressor, i.e., without continuous power regulation.

### Colour on request

Grey RAL 9006 is standard.



### Electronically controlled expansion valve

Top-notch technology increases the pump's operating efficiency through precise control of the cooling circuit.

### Built-in electronic circulators

The Primary i.e., source leading from ground or water) and the secondary (i.e., heating) circuit is driven by an electronic circulation pump.

A<sup>+++</sup> energy efficiency



7-year warranty




online control

### Unique Master Therm software for pump control

- Custom application for controlling the cooling circuit and peripherals- Equithermal MaR (measurement and regulation)
- Advanced **temperature feedback control in the building** based on internal room temperature sensors
- Control via touchscreen terminal or **online application**
- Includes **remote service monitoring** and diagnostics
- Control of up to 6 heating circuits ,including the possibility of connecting a swimming pool or solar panel





Model	Performance at BOW35	Thermal loss of the object Q <sub>z</sub>	Seasonal energy efficiency of heating at a 35 °C low temperature operation		Seasonal energy efficiency of heating at a 55 °C medium temperature operation		Order number (according to heating circuit control)	
	kW	kW	SCOP	Class	SCOP	Class	Regulation STANDARD (µPC)	Regulation PLUS (pCO5)
 AquaMaster 22Z	7,8	up to 8	4.50	A++	3.17	A+	1AQ22Z-0	1AQ22Z-1
AquaMaster 26Z	10,1	up to 10	4.34	A++	3.11	A+	1AQ26Z-0	1AQ26Z-1
AquaMaster 30Z	11,4	up to 11	4.29	A++	3.10	A+	1AQ30Z-0	1AQ30Z-1
AquaMaster 37Z	14,1	up to 14	4.46	A++	3.16	A+	1AQ37Z-0	1AQ37Z-1
AquaMaster 45Z	17,2	up to 17	4.61	A++	3.19	A+	1AQ45Z-0	1AQ45Z-1
AquaMaster 60Z	23,1	up to 23	4.27	A++	3.14	A+	-	1AQ60Z-1
AquaMaster 75Z	28,2	up to 28	4.25	A++	3.11	A+	-	1AQ75Z-1
AquaMaster 90Z	33,2	up to 33	4.42	A++	3.10	A+	-	1AQ90Z-1

For installation diagrams, dimensions and detailed technical data for all models, please see the Technical Data section.

### Optional equipment

**7-year warranty on the complete pump** **107Z**  
Only in combination with 1OICON.

**Master Therm Online App** **1OICON**  
Online control and remote service access.

**Reversing cooling mode (22Z-90Z models)** **1AQZR**  
Reversing operation allowing the cooling of the building.

**Passive cooling module (22Z-37Z)** **1OPC**  
Exclusive for ground-to-water pumps. Direct heat extraction from the interior of the ground collector or borehole. Extremely economical summer cooling of the building without the need for compressor work. Contributes to collector regeneration after the heating season.

**External passive cooling module (45Z-90Z)** **1OPCEXT**  
Passive cooling for higher capacity models.

**Desuperheater for high efficiency hot water heating** **1ODESUP**  
An integrated device that extracts the heat of superheated vapours at the compressor outlet using a separate hydraulic circuit and increases the efficiency of hot water heating. It operates in both the heating and cooling modes of the building.

**Room unit for auxiliary heating circuit** **1OPAD**  
For reference rooms of other heating circuits (only for PLUS control).

**Room unit for auxiliary heating circuit with humidity sensor** **1OPADH**  
With a humidity sensor to eliminate the condensation of air humidity during cooling (only for PLUS control).

**Phase monitor** **1OSF**  
Protects 3-phase ON/OFF compressors against damage.

**Soft start for soft start of compressor**  
Reduces the starting current during compressor start-up.

**Expansion module for PLUS control** **1OEK**  
Increases the number of auxiliary heating circuits up to 6.

**Integrated electric meter 3x 65 A** **1OEM65AMID**  
For local measurement of energy consumption. MID certification.

**Electric boiler 4.5 kW/6,0 kW/7.5 kW** **1OEKOT**  
Built-in bivalent, or emergency, heat source.

**Water-to-water design**  
Different evaporator and electrical equipment.

**RAL colour** **1OCO**  
Individual colour for the panels of the internal pump unit.

<b>Designed for</b>	single-circuit heating systems	multiple-circuit heating systems
<b>Main heating circuit</b>	yes	yes
<b>Auxiliary heating circuit</b>	-	independently 2 incl. mixing
<b>Space temperature</b>	in 1 zone	in 2 zones
<b>Hot water treatment</b>	yes	yes
<b>Optionally</b>	-	up to 6 heating circuits

### BASIC FEATURES

- Ground-to-water heat pump (or water-to-water on request)
- **Independent of weather or outside temperature**
- Located inside the building, connected to a ground collector
- Supports connection to a power cascade without the need for a higher-level MaR system



- Zero external noise
- Indoor unit sound-attenuated to the level of a conventional refrigerator



- Used for heating and cooling the building, including hot water production
- Possibility of active and passive cooling or a combination of both



- Water heating temperatures up to 60 °C
- Integrated backup electric boiler on request



# AquaMaster Inverter

With frequency-controlled compressor

A quiet and efficient ground-to-water heat pump. The variable speed compressor (inverter) increases efficiency and savings in heating.

## Frequency controlled compressor

The variable speed compressor adapts its output to the immediate heat demand of the building, thereby increasing the efficiency of the pump. The heating system does not require the installation of a storage tank.

## Colour on request

Grey RAL 9006 as standard.



## Electronically controlled expansion valve

Improves the operational efficiency of the pump by more precisely regulating the operation of the cooling circuit.


## Built-in electronic circulator

The primary (i.e., source leading to the ground or water) and secondary (i.e., heating) circuit is driven by an electronic circulator.



**A<sup>+++</sup>** energy efficiency

 7-year warranty

 online control

The unique compact model AQ171 (height 830 mm, width and depth 530 mm) fits into kitchen cupboards. It is soundproofed so that it does not disturb the living room.

## Unique Master Therm software for pump control

- Custom application for controlling the cooling circuit and peripherals- Equithermal MaR (measurement and regulation)
- Advanced **temperature feedback control in the building** based on internal room temperature sensors
- Control via touchscreen terminal or **online application**
- Includes **remote service monitoring** and diagnostics
- Control of up to 6 heating circuits including the possibility of connecting a swimming pool or solar panel







Model	Performance at BOW35	Thermal loss of the object Q <sub>z</sub>	Seasonal energy efficiency of heating at a 35 °C low temperature operation		Seasonal energy efficiency of heating at a 55 °C medium temperature operation		Order number (according to heating circuit control)	
	kW	kW	SCOP	Class	SCOP	Class	Regulation STANDARD (µPC)	Regulation PLUS (pCO5)
<b>AquaMaster Inverter 17I</b>	1-5	up to 5	4.58	A+++	3.46	A++	1AQ17I-0	-
<b>AquaMaster Inverter 22I</b>	2-7	up to 7	4.72	A+++	3.58	A++	1AQ22I-0	1AQ22I-1
<b>AquaMaster Inverter 26I</b>	3-9	up to 9	4.94	A+++	3.81	A++	1AQ26I-0	1AQ26I-1
<b>AquaMaster Inverter 30I</b>	4-12	up to 12	4.92	A+++	3.82	A++	1AQ30I-0	1AQ30I-1
<b>AquaMaster Inverter 37I</b>	5-15	up to 15	5.10	A+++	3.97	A+++	1AQ37I-0	1AQ37I-1
<b>AquaMaster Inverter 45I</b>	7-22	up to 22	5.10	A+++	3.96	A+++	1AQ45I-0	1AQ45I-1
<b>AquaMaster Inverter 60I</b>	7-35	up to 35	5.06	A+++	3.99	A+++	-	1AQ60I-1
<b>AquaMaster Inverter 90I</b>	10-48	up to 48	4.90	A+++	3.96	A+++	-	1AQ90I-1



For installation diagrams, dimensions and detailed technical data for all models, please see the Technical Data section.

### Optional equipment

**7-year warranty on the complete pump** **107Z**  
Only in combination with 1OICON.

**Master Therm Online App** **1OICON**  
Online control and remote service access.

**Reversing cooling mode (22Z-90Z models)** **1AQZR**  
Reversing operation allowing the cooling of the building.

**Passive cooling module (22Z-37Z)** **1OPC**  
Exclusive for ground-to-water pumps. Direct heat extraction from the interior of the ground collector or borehole. Extremely economical summer cooling of the building without the need for compressor work. Contributes to collector regeneration after the heating season.

**External passive cooling module (45Z-90Z)** **1OPCEXT**  
Passive cooling for higher capacity models.

**Desuperheater for high efficiency hot water heating** **1ODESUP**  
Integrated device that extracts the heat of superheated vapours at the compressor outlet using a separate hydraulic circuit and increases the efficiency of hot water heating. It operates in both heating and cooling modes for the building.

**Room unit for auxiliary heating circuit** **1OPAD**  
For reference rooms of other heating circuits (only for PLUS control).

**Room unit for auxiliary heating circuit with humidity sensor** **1OPADH**  
With humidity sensor to eliminate the condensation of air humidity during cooling (only for PLUS control).

**Expansion module for PLUS control** **1OEK**  
Increases the number of auxiliary heating circuits up to 6.

**Integrated electricity meter 1x 25 A** **1OEM25AMID**  
For local measurement of electricity consumption. MID certification.

**Integrated electric meter 3x 65 A** **1OEM65AMID**  
For local measurement of energy consumption. MID certification.


**Electric boiler 4.5 kW/6,0 kW/7.5 kW** **1OEKOT**  
Built-in bivalent, or emergency, heat source.


**Water-to-water design**  
Lower evaporator and different electrical equipment


**Colour according to RAL Sampler** **1OCO**  
Individual colour for the panels of the internal pump unit.


<b>Designed for</b>	single-circuit heating systems	multiple-circuit heating systems
<b>Main heating circuit</b>	yes	yes
<b>Auxiliary heating circuit</b>	-	independently 2 incl. mixing
<b>Space temperature</b>	in 1 zone	in 2 zones
<b>Hot water treatment</b>	yes	yes
<b>Optionally</b>	-	up to 6 heating circuits

### BASIC FEATURES

- Ground-to-water (or water-to-water) heat pump with frequency-controlled compressor
- **Independent of weather or air temperature**
- Continuous flow control through primary or secondary circuits 
- Located in the unit inside the building, connected to a ground borehole or collector
- Support for connection to a power cascade without the need for a third-party MaR system

- Zero external noise 
- Indoor unit sound-attenuated to the level of a conventional refrigerator

- Use for heating and cooling of the building, including hot water production 
- Possibility of active and passive cooling or a combination of both

- Water heating temperatures up to 64 °C 
- Integrated backup electric boiler on request

# AquaMaster Inverter Combi

## With integrated hot water tank

### BASIC FEATURES

- Ground-to-water heat pump with split design
- Includes integrated hot water tank with a volume of 170 litres to save space in the utility room. (AquaMaster and AquaMaster Inverter models work with an external tank.)



#### Includes 170l hot water tank

The Combi version differs from the AquaMaster Inverter by means of its integrated hot water tank.

**A<sup>+++</sup>** energy efficiency



7-year warranty



online control

Model	Performance at BOW35	Thermal loss of the object Q <sub>z</sub>	Seasonal energy efficiency of heating at a 35 °C low-temperature operation		Seasonal energy efficiency of heating at a 55 °C medium temperature operation		Order number (according to heating circuit control)	
			SCOP	Class	SCOP	Class	STANDARD Regulation	PLUS Regulation
<b>AquaMaster Inverter 171C</b>	1–5	up to 5	4.58	A+++	3.46	A++	1AQ171C-0	1AQ171C-0
<b>AquaMaster Inverter 221C</b>	2–7	up to 7	4.72	A+++	3.58	A++	1AQ221C-0	1AQ221C-1
<b>AquaMaster Inverter 261C</b>	3–9	up to 9	4.94	A+++	3.81	A++	1AQ261C-0	1AQ261C-1
<b>AquaMaster Inverter 301C</b>	4–12	up to 12	4.92	A+++	3.82	A++	1AQ301C-0	1AQ301C-1
<b>AquaMaster Inverter 371C</b>	5–15	up to 15	5.10	A+++	3.97	A+++	1AQ371C-0	1AQ371C-1

For installation diagrams, dimensions and detailed technical data for all models, please see the Technical Data section.

### Optional equipment

#### 7 years warranty on complete pump

Extended warranty from the date of delivery. Only in combination with 1OICON.

**1O7Z**

#### Room unit for the heating circuit **1OPAD**

Terminal with temperature sensor for placing additional heating circuits in the reference rooms (only for PLUS control).

#### Integrated electricity meter 3x 65 A

Integrated 3-phase electricity meter with identical functionality.

**1OEM65AMID**

#### Master Therm Online App

Connect the pump to a central server. Master Therm allows you to control the pump online from anywhere using the web or app. Includes remote service access.

**1OICON**

#### Room unit for auxiliary heating circuit with humidity sensor

Includes humidity sensor for elimination of air humidity condensation during cooling (only for PLUS control).

**1OPADH**

#### Electric boiler 4.5 kW/6,0 kW/7.5 kW

Integrated bivalent (supplementary) or emergency heat source.

**1OEKOT**

#### Passive cooling module

Exclusively for ground-to-water pumps. Direct heat extraction from the interior of the ground collector or borehole. Extremely economical summer cooling without compressor work. Contributes to the regeneration of the collector after the heating season.

**1OPC**

#### Expansion module for PLUS control **1OEK**

Increases the number of regulated auxiliary heating circuits up to 6 (from the basic 2).

#### Integrated electricity meter 1 x 25A

Integrated 1-phase electricity meter for local measurement of electricity consumption. MID certification.

**1OEM25AMID**

#### Water-to-water design

Adaptation for use on bottom or surface water. Evaporator more resistant to sediment (coax) and different electrical equipment.

#### Colour according to RAL Sampler

Individual colour for the panels of the pump indoor unit. RAL 9006 grey at no extra charge.

**1OCO**

# Technical data

Ground-to-Water



# AquaMaster



		Aqua-Master 22Z	Aqua-Master 26Z	Aqua-Master 30Z	Aqua-Master 37Z	Aqua-Master 45Z	Aqua-Master 60Z	Aqua-Master 75Z	Aqua-Master 90Z
Power range at B0W35 <sup>1</sup>	kW	7.8	10.1	11.4	14.1	17.2	23.1	28.2	33.2
	COP	4.5	4.4	4.4	4.3	4.4	4.2	4.1	4.3
Thermal loss of the object Q <sub>z</sub>	kW	up to 8	up to 10	up to 11	up to 14	up to 17	up to 23	up to 28	up to 33
Power W10W35	kW	10.4	13.3	14.9	18.4	22.5	31.2	37.7	45.0
	COP	5.39	5.7	5.5	5.4	5.5	5.4	5.2	5.4
Seasonal heating energy efficiency at 35 °C low-temperature operation	Power <sup>3</sup>	8	10	11	14	17	23	28	33
	SCOP	4.50	4.34	4.29	4.46	4.61	4.27	4.25	4.42
	η <sub>s</sub>	172	166	164	170	176	163	162	169
	Class	A++	A++	A++	A++	A++	A++	A++	A++
Seasonal heating energy efficiency at 55 °C mid-temperature operation	Power <sup>3</sup>	7	9	11	13	16	22	26	30
	SCOP	3.17	3.11	3.10	3.16	3.19	3.14	3.11	3.10
	η <sub>s</sub>	117	116	116	118	120	118	116	116
	Class	A+	A+	A+	A+	A+	A+	A+	A+
Approximate required length of the ground well (or the sum of the lengths of several wells)	m	120	150	165	210	255	345	420	495
Refrigerant		R410a	R407c	R407c	R407c	R407c	R407c	R407c	R407c
Electric circuit breaker <sup>2</sup>	3-phase	3x 9 A"C"	3x 13 A"C"	3x 13 A"C"	3x 16 A"C"	3x 16 A"C"	3x 25 A"C"	3x 25 A"C"	3x 32 A"C"
	1-phase	20 A"C"	25 A"C"	32 A"C"	32 A"C"	n/a	n/a	n/a	n/a
Compressor, supply voltage	3-phase	3x 400 V~	3x 400 V~	3x 400 V~	3x 400 V~	3x 400 V~	3x 400 V~	3x 400 V~	3x 400 V~
	1-phase	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~	n/a	n/a	n/a	n/a
Weight	kg	140	160	165	180	190	245	255	275
Mandatory leakage checks according to EP 517/2014		no	no	no	no	no	no	no	no
Maximum heating water temperature	°C	60	60	60	60	60	60	60	60
Heating capacity of integrated electric boiler (equipment upon request)	kW	4.5-7.5	4.5-7.5	4.5-7.5	4.5-7.5	4.5-7.5	4.5-7.5	4.5-7.5	4.5-7.5
Acoustic performance L <sub>w</sub>	dB(A)	48	48	48	49	49	51	51	51
Order number (according to heating circuit control)	STANDARD Regulation	1AQ22Z-0	1AQ26Z-0	1AQ30Z-0	1AQ37Z-0	1AQ45Z-0	-	-	-
	PLUS regulation	1AQ22Z-1	1AQ26Z-1	1AQ30Z-1	1AQ37Z-1	1AQ45Z-1	1AQ60Z-1	1AQ75Z-1	1AQ90Z-1

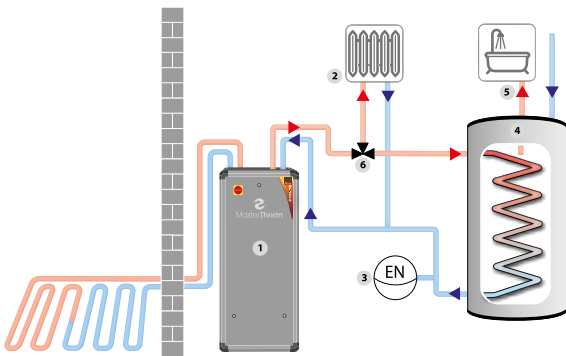
Heating circuit control	Designed for	Main heating circuit	Auxiliary heating circuit	Space temperature	Hot Water	Optional
STANDARD Regulation (μPC)	single circuit heating system	yes	-	in 1 zone	yes	-
PLUS Regulation (pCO5)	multi-circuit heating system	yes	independently 2 incl. mixing	in 2 zones	yes	up to 6 heating circuits

1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.

2 Recommended value of electrical protection 3x 400 V, incl. auxiliary integrated electric boiler. The 22l, 26l and 30l units can also be connected to a mains supply of 1x 230 V with a fuse of 40 A "B" (22l) or 50 A "B" (26l, 30l).

3 Design output at an outdoor temperature of -10 °C according to EN 14 825.

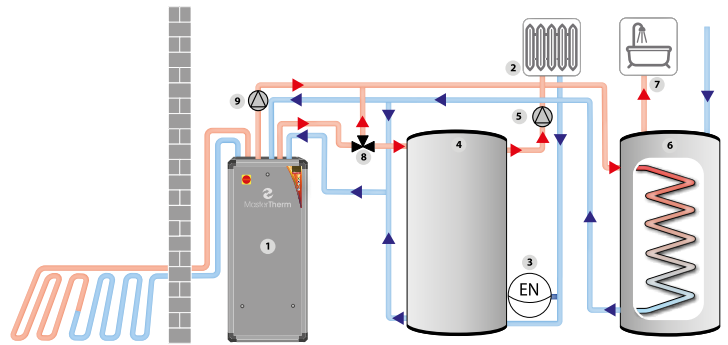




### DIRECT CONNECTION OF HEAT PUMP TO HEATING SYSTEM AND HW HEATING TRANSFER MODE

- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 indirect heating HW storage tank
- 5 HW outlet
- 6 3-way valve

The heat pump (1) is directly connected to the heating system. The heating water temperature varies depending on the outside temperature. The heating is interrupted, and the 3-way valve (6) is switched on when HW heating is required. By increasing the heating water outlet temperature from the heat pump, the HW storage tank (4) is heated. After heating is finished, the system returns to area heating mode. The scheme is particularly suitable for underfloor heating, exceptional also for systems with a sufficiently sizeable volume of heating water. The possibility of local control of the heating system (control of the heating water flow through the heating system) is limited.

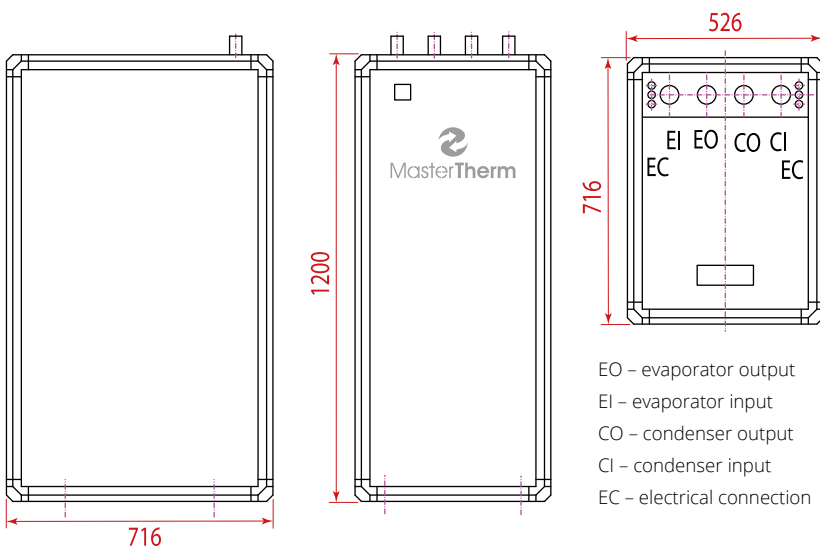


### CONNECTION WITH HEATING WATER ACCUMULATION TANK AND HW HEATING TRANSFER MODE

- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 storage tank
- 5 heating system
- 6 indirect HW heating storage tank
- 7 HW outlet
- 8 3-way valve
- 9 desuperheater

The heat pump (1) is connected to the heating system via the storage tank (4), which acts as both heat storage and thermohydraulic distributor. The temperature of the heating water varies depending on the outside temperature. The flow of heating water through the heating system is provided by a circulating pump (5). When the heating of HW heating is required, the heating is interrupted and the 3-way valve (8) is switched. By increasing the outlet temperature of the heating water from the heat pump, the HW storage tank is heated (6). After the heating is finished, the system returns to area mode. The desuperheater (optional) is a special heat exchanger that extracts high-temperature energy at the output of the running compressor. Using a separate hydraulic circuit (9), this energy is used for highly efficient HW heating.

### DIMENSIONS



# AquaMaster Inverter



		Aqua-Master Inverter 17I	Aqua-Master Inverter 22I	Aqua-Master Inverter 26I	Aqua-Master Inverter 30I	Aqua-Master Inverter 37I	Aqua-Master Inverter 45I	Aqua-Master Inverter 60I	Aqua-Master Inverter 90I
Power range at B0W35		1-5	2-7	3-9	4-12	5-15	7-22	7-35	10-48
Power range at B0W35 <sup>1</sup>	60 rps	2.95	4.4	7.6	7.9	10.5	14.0	20.2	31.3 <sup>3</sup>
	COP	4.3	4.5	4.5	4.6	4.7	4.6	4.7	4.6
Thermal loss of the object Q <sub>z</sub>		up to 5	up to 7	up to 9	up to 12	up to 15	up to 22	up to 35	up to 48
Power W10W35	60 rps	3.79	5.8	10.2	10.3	14.2	19.2	26.6	41.2 <sup>3</sup>
	COP	5.51	5.9	6.0	6.1	6.3	6.3	6.2	5.9
Seasonal heating energy efficiency at 35 °C low-temperature operation	Power <sup>4</sup>	5	7	9	11	15	21	33	44
	SCOP	4.58	4.72	4.94	4.92	5.10	5.10	5.06	4.90
	η <sub>s</sub>	175	181	190	189	196	196	195	188
	Class	A+++	A+++	A+++	A+++	A+++	A+++	A+++	A+++
Seasonal heating energy efficiency at 55 °C mid-temperature operation	Power <sup>4</sup>	4	6	8	11	14	19	33	42
	SCOP	3.46	3.58	3.81	3.82	3.97	3.96	3.99	3.96
	η <sub>s</sub>	130	135	144	145	151	151	151	150
	Class	A++	A++	A++	A++	A+++	A+++	A+++	A+++
Approximate required length of the ground well (or the sum of the lengths of several wells)		75	105	135	180	225	330	525	720
Refrigerant		R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a
Electric circuit breaker <sup>2</sup>	3-phase	1x 20 A"B"	1x 20 A"B"	1x 20 A"B"	1x 25 A"B"	3x 20 A"B"	3x 20 A"B"	3x 32 A"B"	3x 32 A"B"
	1-phase	20 A"B"	20 A"B"	20 A"B"	25 A"B"	32 A"B"	32 A"B"	n/a	n/a
Compressor, supply voltage	3-phase	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~	3x 400 V~	3x 400 V~	3x 400 V~	3x 400 V~
	1-phase	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~	n/a	n/a
Weight		60	160	160	160	165	170	180	200
Mandatory leakage checks according to EP 517/2014		no	no	no	no	no	no	no	no
Maximum heating water temperature		60	60	60	60	60	60	60	60
Heating capacity of integrated electric boiler (equipment upon request)	1-phase connection	-	3-4	3-4	6	-	-	-	-
	3-phase connection	-	4.5-6	4.5-6	4.5-6	7.5	7.5	7.5	7.5
Acoustic performance L <sub>w</sub>		49	48	48	48	48	48	55	60
Order number (according to heating circuit control)	STANDARD Regulation	1AQ17I-0	1AQ22I-0	1AQ26I-0	1AQ30I-0	1AQ37I-0	1AQ45I-0	-	-
	PLUS regulation	-	1AQ22I-1	1AQ26I-1	1AQ30I-1	1AQ37I-1	1AQ45I-1	1AQ60I-1	1AQ90I-1

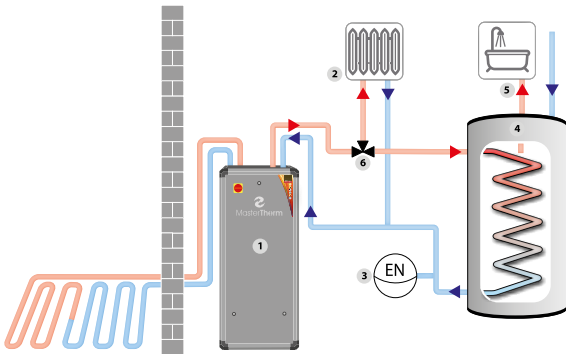
Heating circuit control	Designed for	Main heating circuit	Auxiliary heating circuit	Space temperature	Hot Water	Optional
STANDARD Regulation (μPC)	single circuit heating system	yes	-	in 1 zone	yes	-
PLUS Regulation (pCO5)	multi-circuit heating system	yes	independently 2 incl. mixing	in 2 zones	yes	up to 6 heating circuits

1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.

2 Recommended value of electrical protection 3x 400 V, incl. auxiliary integrated electric boiler. The 22I, 26I and 30I units can also be connected to a mains supply of 1x 230 V with a fuse of 40 A "B" (22I) or 50 A "B" (26I, 30I).

3 Data for 90I at 90 Hz.

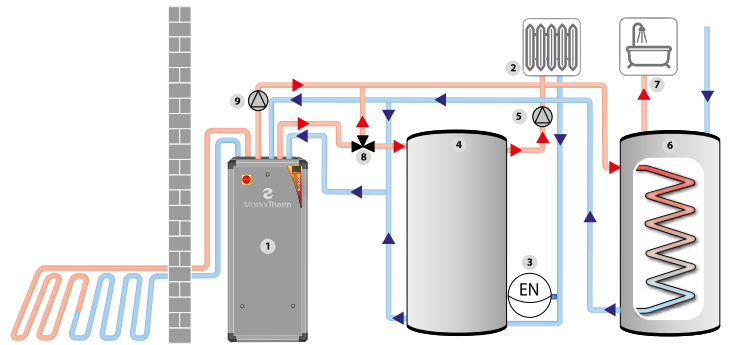
4 Design output at an outdoor temperature of -10 °C according to EN 14 825.



### DIRECT CONNECTION OF HEAT PUMP TO HEATING SYSTEM AND HW HEATING TRANSFER MODE

- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 indirect HW heating storage tank
- 5 HW outlet
- 6 3-way valve

The heat pump (1) is directly connected to the heating system. The heating water temperature varies depending on the outside temperature. The heating is interrupted, and the 3-way valve (6) is switched on when HW heating is required. By increasing the heating water outlet temperature from the heat pump, the HW storage tank (4) is heated. After HW heating is finished, the system returns to area heating mode. The scheme is particularly suitable for underfloor heating, exceptional also for systems with a sufficiently sizeable volume of heating water. The possibility for local control of the heating system (control of the heating water flow through the heating system) is limited.

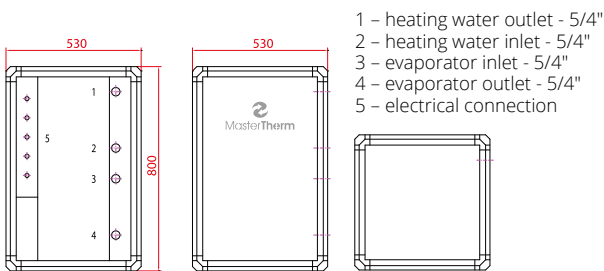


### CONNECTION WITH HEATING WATER ACCUMULATION TANK AND HW HEATING TRANSFER MODE

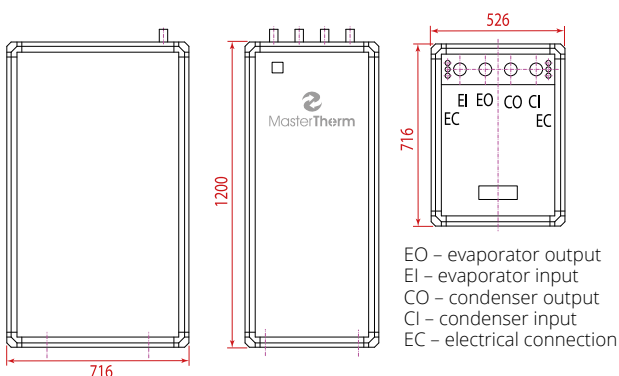
- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 storage tank
- 5 heating system
- 6 indirect heating HW storage tank
- 7 HW outlet
- 8 3-way valve
- 9 desuperheater

The heat pump (1) is connected to the heating system via the storage tank (4), which acts as both heat storage and thermohydraulic distributor. The temperature of the heating water varies depending on the outside temperature. The flow of heating water through the heating system is provided by a circulating pump (5). When HW heating HW is required, the heating is interrupted, and the 3-way valve (8) is switched on. By increasing the outlet temperature of the heating water from the heat pump, the HW storage tank is heated (6). After the heating is finished, the system returns to area heating mode. The desuperheater (optional) is a special heat exchanger that extracts high-temperature energy at the output of the running compressor. Using a separate hydraulic circuit (9), this energy is used for highly efficient HW heating.

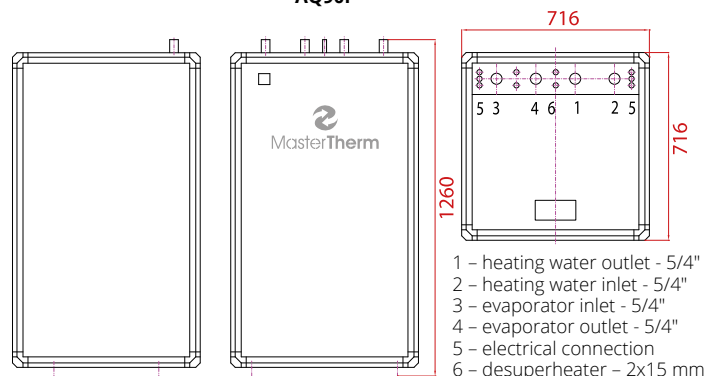
### DIMENSIONS AQ171



### AQ221 až AQ601



### AQ901



# AquaMaster Inverter Combi

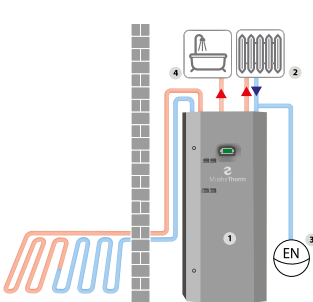


Power range at B0W35	60 rps	kW
Power range at B0W35 <sup>1</sup>	COP	
Thermal loss of the object Q <sub>z</sub>		kW
Power W10W35	COP	kW
Seasonal heating energy efficiency at 35 °C low-temperature operation	Power <sup>3</sup>	kW
	SCOP	
	η <sub>s</sub>	%
	Class	
Seasonal heating energy efficiency at 55 °C mid-temperature operation	Power <sup>3</sup>	kW
	SCOP	
	η <sub>s</sub>	%
	Class	
Refrigerant		
Electric circuit breaker <sup>2</sup>	3-phase	
	1-phase	
Compressor, supply voltage	3-phase	
	1-phase	
Weight		kg
Maximum heating water temperature		°C
Heating capacity of integrated electric boiler (equipment upon request)	1-phase connection	kW
	3-phase connection	kW
Akustický výkon L <sub>w</sub>		dB(A)
Order number (according to heating circuit control)	STANDARD Regulation	
	PLUS regulation	

AquaMaster Inverter 171C	AquaMaster Inverter 221C	AquaMaster Inverter 261C	AquaMaster Inverter 301C	AquaMaster Inverter 371C
1-5	2-7	3-9	4-12	5-15
2.95	4.4	7.6	7.9	10.5
4.3	4.5	4.5	4.6	4.7
up to 5	up to 7	up to 9	up to 12	up to 15
3.79	5.8	10.2	10.3	14.2
5.51	5.9	6.0	6.1	6.3
5	7	9	11	15
4.58	4.72	4.94	4.92	5.10
175	181	190	189	196
A+++	A+++	A+++	A+++	A+++
4	6	8	11	14
3.46	3.58	3.81	3.82	3.97
130	135	144	145	151
A++	A++	A++	A++	A+++
R410a	R410a	R410a	R410a	R410a
1x 20 A"B"	1x 20 A"B"	1x 20 A"B"	1x 25 A"B"	3x 20 A"B"
20 A"B"	20 A"B"	20 A"B"	20 A"B"	25 A"B"
1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~
1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~
270	270	270	275	280
60	60	60	60	60
3-4	3-4	3-4	3-4	-
4.5-6	4.5-6	4.5-6	4.5-6	4.5-6
48	48	48	48	48
1AQ171C-0	1AQ221C-0	1AQ261C-0	1AQ301C-0	1AQ371C-0
1AQ171C-1	1AQ221C-1	1AQ261C-1	1AQ301C-1	1AQ371C-1

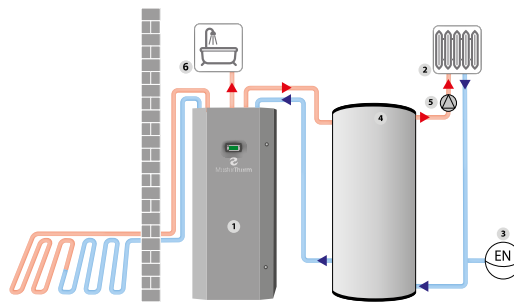
Heating circuit control	Designed for	Main heating circuit	Auxiliary heating circuit	Space temperature	Hot Water	Optional
STANDARD Regulation (μPC)	single circuit heating system	yes	-	in 1 zone	yes	-
PLUS Regulation (pCO5)	multi-circuit heating system	yes	independently 2 incl. mixing	in 2 zones	yes	up to 6 heating circuits

- 1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.
- 2 Recommended value of electrical protection 3x 400 V, incl. auxiliary integrated electric boiler. The 221, 261 and 301 units can also be connected to a mains supply of 1x 230 V with a fuse of 40 A "B" (221) or 50 A "B" (261, 301).
- 3 Design output at an outdoor temperature of -10 °C according to EN 14 825.



## DIRECT HEATING PUMP CONNECTION TO HEATING SYSTEM

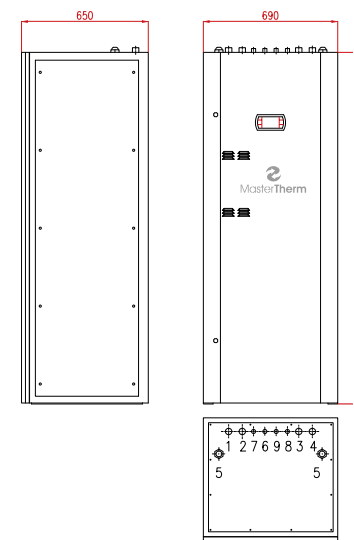
- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 HW outlet



## HEATING WATER ACCUMULATION CONNECTION

- 1 heat pump
- 2 heating system
- 3 expansion tank
- 4 accumulation tank
- 5 heating system outlet
- 6 HW outlet

## DIMENSIONS



# For large-scale and industrial facilities

Air-to-water / ground-to-water /  
water-to-water



Czech  
product



A tradition  
since 1994



Exported into  
30 countries  
worldwide



7-year  
warranty



Online  
control



# For large-scale and industrial facilities

Extension of the BoxAir, EasyMaster and AquaMaster heat pump series.

Designed for heating and cooling (reversible and passive) of large-scale facilities such as office buildings, schools, sports facilities, manufacturing and warehouse industrial halls and others. Also suitable for industrial cooling and waste heat recovery systems from industrial processes.

Air-to-water, ground-to-water and water-to-water systems, compact and split solutions. Easily connected in cascade, providing exceptional overall performance for large-scale buildings and industrial plants.

## AIR-TO-WATER



### BoxAir

Compact with ON/OFF compressor



### BoxAir Inverter

Compact with frequency-controlled compressor



### EasyMaster

Split with ON/OFF compressor



### BoxAir Inverter Split

Split with frequency-controlled compressor

## GROUND-TO-WATER / WATER-TO-WATER



### AquaMaster 150.2Z / 180.2Z

Two-compressor ON/OFF models



### AquaMaster 120Z

The most powerful one-compressor ON/OFF model

European certification mark  
The Heat Pump KEYMARK



037





## KEY FEATURES

- Air-to-water output up to 35 kW per compressor circuit in compact as well as split design
- Ground-to-water/water-to-water output of up to 64 kW
- MasterLAN power cascade control included
- Total cascade output of up to 1000 kW
- Modbus RTU communication protocol
- Online control and monitoring
- Option for object cooling or waste heat recovery



## MAIN BENEFITS

The **high-end components** used and **the unique control system employed offer highly efficient and extremely quiet operation**, the ability to control up to 6 independent heating/cooling circuits and extended service life. Additionally BoxAir Inverter and InverterSplit units are equipped with EVI (direct refrigerant injection into the compressor) technology, allowing for efficiency in extreme climate conditions and an outlet temperature of up to 64°C. The wide range of additional options also includes a bivalent source or a desuperheater for efficient hot water production.



## PROMPT RETURN ON INVESTMENT

An investment proven in practice: In the industrial facilities implemented so far, **the economic return is in the order of several years.**



## HEATING, COOLING AND RECOVERING

With a heat pump, a building or facility can be heated in winter, cooled in summer and efficiently powered with waste heat from industrial processes. The unique and **extremely energy-efficient passive cooling (for ground-to-water and water-to-water) design** can also be used.



## POWER CASCADE FOR HIGH PERFORMANCE

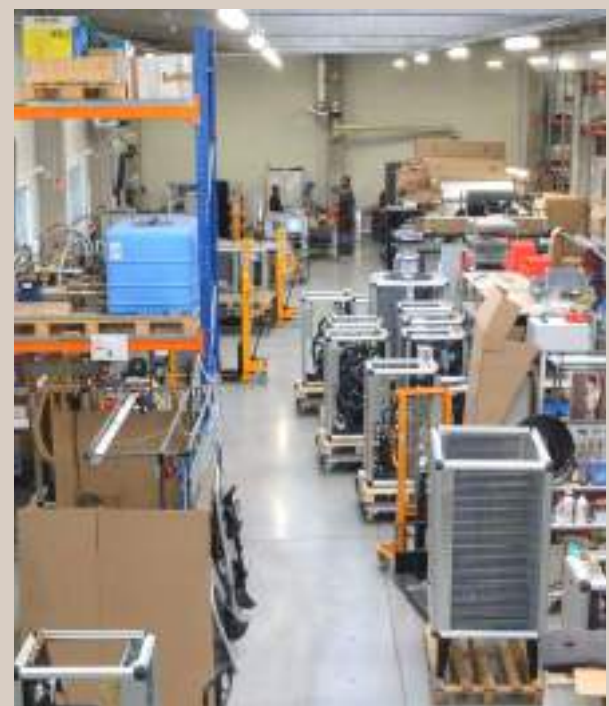
With the integrated MasterLAN software, **up to 16 heat pumps can be easily set up and connected to control power cascades of hundreds of kW.**

## MASTER THERM: A CZECH MANUFACTURING SINCE 1994

Master Therm is a manufacturer of air-to-water, ground-to-water and water-to-water heat pumps for single-family residences and apartment buildings as well as industrial facilities. All technical development and production of MasterTherm heat pumps is carried out in the Czech Republic.



More than two thirds of Master Therm's production is exported abroad, especially to Western Europe. Master Therm also carries out special projects such as heat recovery systems at the IT4Innovations supercomputer centre in Ostrava, cooling and recovery of waste heat from particle accelerators at the Institute of Nuclear Physics of the Czech Academy of Sciences and cooling and heat recovery of ČEZ Energo cogeneration units.



# Air-to-water

In compact or split design

Extremely efficient solution for the heating and cooling of office buildings, production or warehouse halls, schools, sports facilities and other large-scale buildings.



## BoxAir Inverter Split 60IS

Split design of air-to-water heat pump for large buildings with frequency-controlled compressor.

## BoxAir 75Z BoxAir Inverter 60I

Compact BoxAir 75Z with ON/OFF compressor with exceptional reliability.

Compact BoxAir Inverter 60I with continuously (frequency) controlled compressor to ensure the highest heating efficiency.



## EasyMaster 60Z/75Z

EasyMaster is a traditional MasterTherm model series for high performance with ON/OFF compressor in a split design.

**A<sup>+++</sup>** Energy efficiency

7-year warranty

online control

### Unique Master Therm software for pump control

- Custom application for control of the cooling circuit and peripherals
- Equithermal MaR (measurement and control)
- Advanced **temperature feedback control in the building** based on indoor room temperature sensors
- Control via touchscreen terminal or **online application**
- Includes remote service monitoring and diagnostics
- Control of up to 6 heating circuits incl. optional solar connection





Model	Design	Compressor	Performance at A7W35	Thermal loss of the object Q <sub>z</sub>	Seasonal energy efficiency of heating – low temperature operation at 35°C		Seasonal energy efficiency of heating – medium-temperature operation at 55°C		Acoustic pressure level L <sub>p</sub> (5 m from outdoor units)	Order number (according to heating circuit control)
			kW	kW	SCOP	Class	SCOP	Class		
<b>BoxAir 60I</b>	compact	inverter	10-35	do 28	4.50	A+++	3.45	A++	45	1BA-60I-1
<b>BoxAir 60IS</b>	split	inverter	10-35	do 28	4.50	A+++	3.45	A++	45	1BA60IS-1
<b>BoxAir 75Z</b>	compact	ON/OFF	30,8	do 31	3.61	A+	2.92	A+	48	1BA75Z-1
<b>EasyMaster 60Z</b>	split	ON/OFF	24,6	do 25	3.56	A+	2.86	A+	48	1EM60Z-1
<b>EasyMaster 75Z</b>	split	ON/OFF	30,8	do 31	3.61	A+	2.92	A+	48	1EM75Z-1

<b>Main heating circuit</b>	yes
<b>Auxiliary heating circuit</b>	independently 2 incl. mixing
<b>Space temperature</b>	in 2 zones
<b>Hot water (DHW)</b>	yes
<b>Optional</b>	up to 6 heating circuits

### Optional equipment

**7-year warranty on the complete pump** **107Z**

Extended warranty valid from commissioning of the pump. Only in combination with 1OICON.

**Master Therm Online App** **1OICON**

Connecting the pump to a central Master Therm server allows you to control the pump online from anywhere using the web or app. Remote service access included.

**Reverse cooling mode** **1OCH**

Reverse operation of the pump allowing for long term cooling of the building in summer.

**Room in unit for auxiliary heating circuit** **1OPAD**

Terminal with temperature sensor for placement in reference rooms of other heating circuits.

**Phase monitor (ON/OFF models)** **1OSFC**

Monitor protects 3-phase ON/OFF compressors against damage.

**Softstart for soft start of compressor (ON/OFF models)**

Reduces the starting current when starting the compressor.

**Room unit for auxiliary heating circuit with humidity sensor** **1OPAD**

Includes humidity sensor for eliminating condensation and humidity during cooling.

**Expansion control module PLUS** **1OEK**

Increases the number of regulated auxiliary heating circuits up to 6 (from the basic 2).

**Integrated electric meter 3x 65 A** **1OEM65AMID**

Integrated 3-phase electric meter for local measurement of electricity consumption. MID certification.

**RAL colour sampler** **1OCO**

Individual colour for pump panels (RAL 9006 in basic equipment).

**EXTRAS FOR EM60Z, EM75Z and BA60IS MODELS:**

**External electric boiler 7.5 + 7.5 kW** **1OETA1M15**

**External electric boiler 12 + 18 kW** **1OETA1M30**

**Desuperheater for high efficiency hot water heating** **1ODESUP**

*Wiring diagrams, dimensions and detailed technical data for all models can be found in the Technical Data section.*

### BASIC FEATURES

- Air-to-water system in compact or split design
- With frequency-controlled (BoxAir Inverter and Inverter Split) or ON/OFF compressor (BoxAir and EasyMaster)
- **Power up to 35 kW per compressor circuit**
- Easy installation and connection to building heating systems
- Power cascade control by means of MasterLAN in standard equipment
- **ModbusRTU communication protocol as standard**
- Built-in circulator with speed control



- Minimised noise due to ultra-quiet fans with smooth speed control



- Use for heating and cooling of the building incl. hot water production



- Heating water temperature up to 64 °C (BA60I and BA60IS, Other 55 °C)
- Outdoor temperature range from -20 °C to +40 °C
- Built-in electric boiler 7.5 + 7.5 kW (BA60I and BA75Z)





# Ground-to-water / water-to-water

Powerful One and  
Two compressor models

With one or two parallel ON/OFF compressors for extremely efficient heating and cooling of large-scale buildings. Also suitable for industrial cooling and waste heat recovery systems from industrial processes.



## AquaMaster 150.2Z / 180.2Z

Ground-to-water/water-to-water heat pump with two parallel ON/OFF compressors. Depending on the design, the output range is 57.7 or 64.4 kW.



## AquaMaster 120Z

The most powerful model of the single-compressor series AquaMaster with an output of 46.4 kW.



## AquaMaster & AquaMaster Inverter

For large buildings, heat pumps from the standard ground-to-water/water-to-water range with outputs up to 33 kW are also suitable.

A<sup>+++</sup> Energy efficiency

 7-year warranty

 online control

### Unique Master Therm software for pump control

- Custom application for control of the cooling circuit and peripherals
- Equithermal MaR (measurement and control)
- Advanced **temperature feedback control of the building** based on indoor room temperature sensors
- Control via touchscreen terminal or **online application**
- Includes **remote service monitoring** and diagnostics
- Control of up to 6 heating circuits incl. optional solar connection







Model	Perfor- mance at A7W35	Thermal loss of the object Q <sub>z</sub>	Perfor- mance at W10W35	Seasonal energy efficiency heating – low temperature operation at 35 °C		Seasonal energy efficiency heating – medium temperature operation at 55°C		Order number
	kW	kW	kW	SCOP	Class	SCOP	Class	Regulation PLUS
<b>AquaMaster 120Z</b>	46,4	do 46	60,8	4.97	A+++	3.35	A++	1AQ120Z-1
<b>AquaMaster 150.2Z</b>	57,7	do 58	79,3	4.38	A++	3.19	A+	1AQ150.2Z-1
<b>AquaMaster 180.2Z</b>	64,4	do 64	90,9	4.50	A++	3.35	A++	1AQ180.2Z-1

<b>Control of heating circuits</b>	Regulation PLUS
<b>Designed for</b>	multi-circuit heating systems
<b>Main heating circuit</b>	yes
<b>Auxiliary heating circuit</b>	independently 2 incl. mixing
<b>Space temperature</b>	in 2 zones
<b>Hot water (DHW)</b>	yes
<b>Optional</b>	up to 6 heating circuits

### Optional equipment

**7-year warranty on the complete pump** **107Z**

Extended warranty valid from commissioning. Only in combination with 10ICON.

**Master Therm Online application** **10ICON**

Online control and remote service access.

**Desuperheater for high-efficiency hot water heating** **10DESUP**

Integrated device which, by means of a separate hydraulic circuit, removes the heat of superheated vapours at the compressor inlet and increases the efficiency of hot water heating. Operates in both heating and cooling modes of the facility.

**Room unit for auxiliary heating circuit** **10PAD**

For reference rooms of other heating circuits (only for PLUS control).

**Room unit for auxiliary heating circuit with humidity sensor** **10PADH**

With humidity sensor to eliminate air humidity condensation during cooling (only for PLUS control).

**Phase monitor** **10SFC**

Protects 3-phase ON/OFF compressors against damage.

**Softstart for soft start of compressor**

Reduces the start-up current during compressor start-up.

**PLUS control expansion module** **10EK**

Reduces the number of reg. auxiliary heating circuits up to 6.

**Integrated electric meter 3x 65 A** **10EM65AMID**

For local measurement of energy consumption. MID certification.

**Electric boiler 4.5 kW/6,0 kW/7.5 kW** **10EKOT**

Built-in bivalent, or emergency, heat source.

**Water-to-water design**  
Different evaporator and electrical equipment.

**Colour according to RAL colour sampler** **10CO**

Individual colour for pump panels.  
Standard colour RAL 9006 silver.

*Wiring diagrams, Dimensions and detailed technical data for all models can be found in the Technical Data section.*

## BASIC FEATURES

- Ground-to-water heat pump (or water-to-water on request)
- Independent of weather or outdoor temperature
- Very quiet operation and zero noise
- **Power up to 64 kW**
- **Power cascade control MasterLAN in basic equipment**
- **ModbusRTU communication protocol in basic equipment**
- Built-in electronic circulators with speed control for primary and secondary circuits
- Built-in electrical switchgear with protection of all components
- Electronically controlled expansion valve



- Use for heating and cooling of the building including hot water production
- Reversible and extremely efficient passive cooling option
- Ready for industrial cooling and waste heat recovery



- Heating water temperature up to 60 °C
- Integrated electric boiler on request



# Randles Hotel

Killarney, Ireland



## Installation Specifications

**Type of heat pump:** air-to-water

**Used models:**

- 5x BoxAir Split 60IS for the hotel itself
- 2x BoxAir Split 60IS for the associated leisure centre with swimming pool

**Heating capacity:** 205 kW + preparation of 6000 litres of hot water

**Control system:** Master Therm

Complete reconstruction of the heating system of the hotel, which was previously heated by gas. Power cascade of 5 + 2 BoxAir Split 60IS heat pumps with a total output of 205 kW.

All data from the system is monitored and evaluated in order to manage energy consumption as efficiently as possible. Actual savings in heating costs with heat pumps have reached almost 70% compared to gas. The lifetime of the heat pump power cascade system is predicted to be at least 15-20 years.

With Master Therm heat pumps, Randles Hotel is leading the hospitality sector in terms of energy savings and long-term sustainability. The installation also includes photovoltaic panels on the roof of the hotel.

**More about the installation in the video**



# HVM Plasma

Prague,  
Czech Republic



## Installation Specifications

**Type of heat pump:** water-to-water

**Models used:**

- 12x AquaMaster 180.2Z

**Total output:** 1000 kW

**Control system:** Master Therm

**Annual energy savings compared to conventional solutions:** 940 MWh

The sophisticated cooling system of the thin film coating production technology through water-to-water heat pumps has resulted in a 50% reduction in cooling and heating costs.

It enables very high efficiency of industrial cold production and the recovery of process heat for whole building heating and hot water. Additionally the production of fresh cooling water for the air conditioning of the entire building and laboratories is ensured.

Cooling in a precisely defined temperature gradient helps to optimise the production process of thin film coating technology.

**The return on this investment was 4 years. The project was awarded the title of Green Building of the Year.**

More about the installation in the video





# F. D. Roosevelt Secondary School

Brno, Czech Republic



## Installation specifications

**Type of heat pump:** ground-to-water

**Ground collectors:** 30 vertical boreholes at a depth of 100 m

**Models used:**

- 4x AquaMaster 180.2Z
- 1x AquaMaster 75Z

**Heating capacity:** 360 kW

**Control system:** Master Therm



The Master Therm cascade of heat pumps was part of a complete renovation of what was originally an office building for the needs of a secondary school specialising in disabled youngsters, with a requirement for higher temperatures in the heated classrooms.

The Master Therm heat pumps comprehensively ensure the heating and hot water preparation for the building. Thanks to the passive cooling and reverse operations, the pumps also contribute to the efficient cooling of the building during the summer months.



# Tiba

## Headquarters

Liestal, Switzerland



### Installation Specifications

**Type of heat pump:** air-to-water

**Models used:**

- 2x BoxAir Split 60IS

**Heating capacity:** 46 kW + share of preparation 960 l hot water + cooling of 1000-l tank

**Control system:** Superior, the heating and cooling system includes a pellet boiler and rooftop photovoltaic panels in addition to the heat pumps

The production plant of the Swiss company Tiba with 175 years of history is heated by Master Therm heat pumps. It is part of a system that also includes a wood pellet boiler and photovoltaic panels.

The entire system provides heat (and, in summer, cooling) for a 6,700 m<sup>2</sup> building to be built in 2021. The system is also responsible for preparing 960 litres of hot water and cooling a 1000-litre cold-water tank.

**More about the installation in the video**





# ÚZSVM Building

Ostrava, Czech Republic



## Installation specifications

**Type of heat pump:** air-to-water

**Models used:**

- 4x EasyMaster 75Z

**Heating capacity:** 124 kW

**Control system:** Master Therm

The Office for State Representation in Property Affairs in Ostrava. Reconstruction of the boiler room from the original central heat supply to heating and hot water via air-to-water heat pumps.

The four EasyMaster 75Z heat pumps provide a total heating output of 124 kW at A7W35 conditions. The indoor units are located in the boiler room, the outdoor units on the flat roof.

The annual amount of energy obtained from the air is 162 MWh. The return on investment was about 5 years.



# Centre for Environmental Education

Kaprálův mlýn, Czech Republic



## Installation specifications

**Type of heat pump:** ground-to-water

**Ground collectors:** 11 horizontal ground loops of approx. 200 m in length

**Models used:**

- 2x AquaMaster 60Z

**Heating capacity:** 110 kW

**Control system:** Master Therm

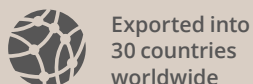
The reconstruction of the old mill, which served as a scout base, into a modern Environmental Education Centre Kaprálův mlýn. It serves the Scouting organisation, Junák, but is also used for the ecological education of young people.

Heat pumps heat the building and also contribute to the preparation of hot water in a 1,500-litre storage tank. This is heated by three heat pump-connected heat exchangers, solar panels and a solid fuel boiler.



# Technical Specifications

For large-scale and industrial facilities



# Air-to-water



		BoxAir 60I	BoxAir 60IS	BoxAir 75Z	EasyMaster 60Z	EasyMaster 75Z	
Design		Compact	Split	Compact	Split	Split	
Compressor		Inverter	Inverter	ON/OFF	ON/OFF	ON/OFF	
Power range at A7W35	kW	10–35	10–35	30,8	24,6	30,8	
Object heat loss $Q_z$	kW	up to 28	up to 28	up to 31	up to 25	up to 31	
Power A7W35 <sup>1</sup>	kW	22.3 (60 rpm)	22.3 (60 rpm)	30.8	24.6	30.8	
	COP	4.84	4.84	4.0	4.1	4.0	
Power A2W35	kW	15.7 (60 rpm)	15.7 (60 rpm)	23.2	18.8	23.2	
	COP	3.6	3.6	3.2	3.2	3.2	
Power A-7W35	kW	18.0 (90 rpm)	18.0 (90 rpm)	18.5	15.0	18.5	
	COP	2.68	2.68	2.6	2.7	2.6	
Power A-15W35	kW	20.6 (120 rpm)	20.6 (120 rpm)	-	-	-	
	COP	2.3	2.3	-	-	-	
Seasonal energy efficiency heating – low-temperature operation at 35 °C	Power <sup>3</sup>	kW	23	23	31	25	31
	SCOP		4.50	4.50	3.61	3.56	3.61
	$\eta_s$	%	177	177	141	140	141
	Class		A+++	A+++	A+	A+	A+
Seasonal energy efficiency heating – medium-temperature operation at 55 °C	Power <sup>3</sup>	kW	22	22	30	24	30
	SCOP		3.45	3.45	2.92	2.86	2.92
	$\eta_s$	%	135	135	114	111	114
	Class		A++	A++	A+	A+	A+
Refrigerant		R410a	R410a	R407	R407	R407	
Electric circuit breaker <sup>2</sup>		40 A"B"	25 A"B"	40 A"B"	25 A"B"	25 A"B"	
Compressor	Connection	3x 400 V	3x 400 V	3x 400 V	3x 400 V	3x 400 V	
Weight		kg	275	200 + 80	275	200 + 80	200 + 80
Mandatory leakage checks according to EP 517/2014			yes	yes	yes	yes	yes
Maximum heating water temperature		°C	64	64	55	55	55
Heating capacity of the integrated electroboiler	bivalence regime	kW	7.5	-/on request 7.5 or 12	7.5	-/on request 7.5 or 12	-/on request 7.5 or 12
	Backup power supply mode (and at temperatures below -20 °C)	kW	7.5 + 7.5	-/on request 7.5 + 7.5 or 12 + 18	7.5 + 7.5	-/on request 7.5 + 7.5 or 12 + 18	-/on request 7.5 + 7.5 or 12 + 18
Acoustic performance $L_w$		dB(A)	66	66	69	69	69
Sound pressure level $L_p$ at distance from outdoor unit	of 1 m	dB(A)	57	57	60	60	60
	of 5 m	dB(A)	45	45	48	48	48
	of 10 m	dB(A)	39	39	42	42	42
Order number(according to heating circuit control) PLUS Regulation	Regulation PLUS		1BA60I-1	1BA60IS-1	1BA75Z-1	1EM60Z-1	1EM75Z-1

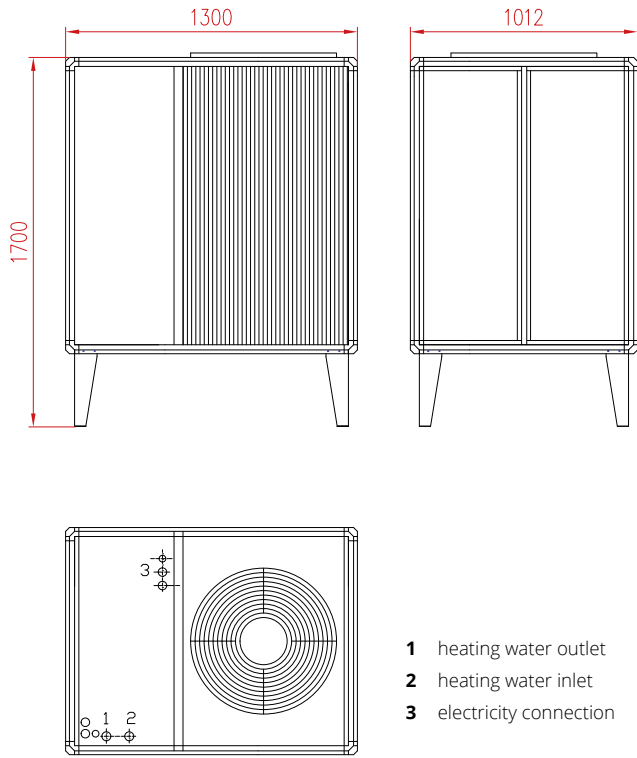
Heating circuit control	Designed for	Main heating circuit	Auxiliary heating circuit	Space temperature	Heating Water	Optional
PLUS Regulation	multi-circuit heating systems	yes	independently 2 incl. mixing	in 2 zones	yes	up to 6 heating circuits

1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.

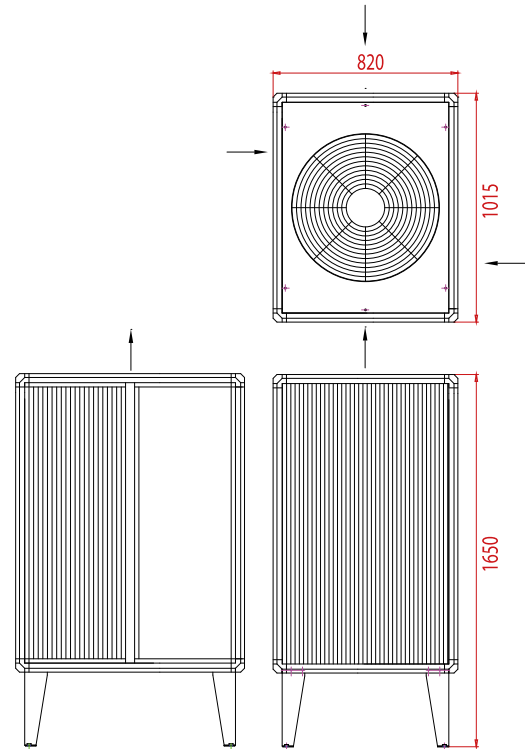
2 Recommended electrical protection value 3x 400 V, incl. auxiliary integrated electric boiler.

3 Design output at outdoor temperature of -10 °C according to EN 14 825.

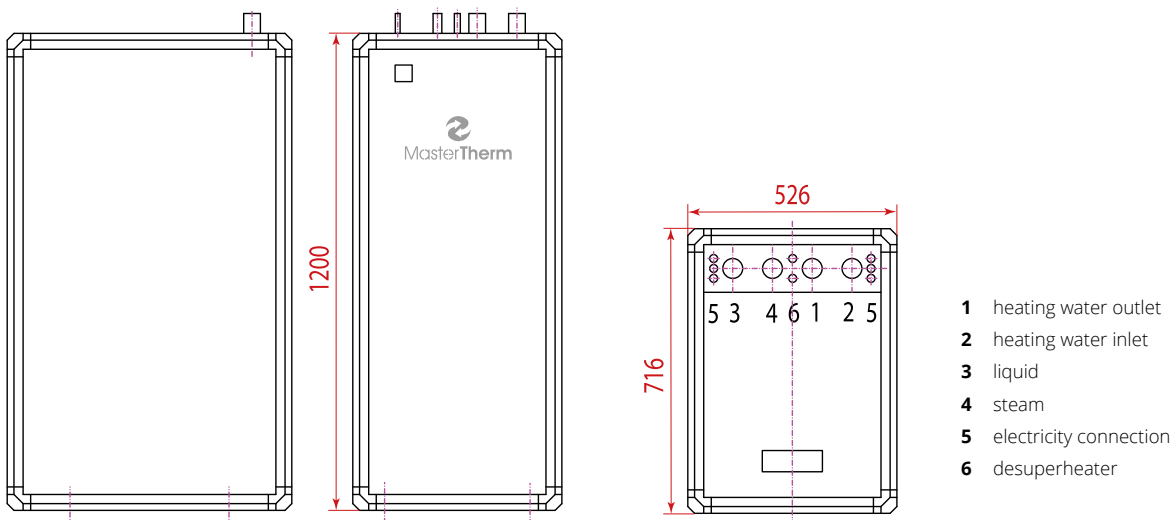
### DIMENSIONS OF MODELS BA60I AND BA75Z



### DIMENSIONS OF THE EXTERNAL UNIT OF MODELS BA60IS, EM60Z, AND EM75Z



### BA60IS, EM60Z AND EM75Z INDOOR UNIT DIMENSIONS



# Ground-to-water / water-to-water



			AquaMaster 120Z	AquaMaster 150.2Z	AquaMaster 180.2Z
Power B0W35 <sup>1</sup>		kW	46.4	57.7	64.4
	COP		4.58	4.2	4.1
Plant heat loss Q <sub>z</sub>		kW	up to 46	up to 58	up to 64
Power W10W35		kW	60.8	79.3	90.9
	COP		5.80	5.6	5.5
Seasonal energy efficiency heating – low temperature operation at 35 °C	Power <sup>3</sup>	kW	46	57	64
	SCOP		4.97	4.38	4.5
	η <sub>s</sub>	%	191	167	172
	Class		A+++	A++	A++
Seasonal energy efficiency heating – medium-temperature operation at 55 °C	Power <sup>3</sup>	kW	37.62	52	61
	SCOP		3.35	3.19	3.35
	η <sub>s</sub>	%	126	119	126
	Class		A++	A+	A++
Approximate required length of the ground well (or the sum of the lengths of several wells)		m	690	870	960
Refrigerant			R407c	R407c	R407c
Electric circuit breaker <sup>2</sup>			3x 32 A"C"	3x 50 A"C"	3x 64 A"C"
Compressor	Connection		3x 400 V	3x 400 V	3x 400 V
Weight		kg	250	420	420
Mandatory leakage checks according to EP 517/2014			yes	yes	yes
Maximum heating water temperature		°C	60	60	60
Heating capacity of integrated electric boiler (optional equipment)		kW	on request 4.5–7.5	on request 4.5–7.5	on request 4.5–7.5
Acoustic performance L <sub>w</sub>		dB(A)	60	60	60
Order number (according to heating circuit control)	PLUS Regulation		1AQ120Z-1	1AQ150.2Z-1	1AQ180.2Z-1

Heating circuit control	Designed for	Main heating circuit	Auxiliary heating circuit	Space temperature	Heating Water	Optional
PLUS Regulation	multi-circuit heating systems	yes	independently 2 incl. mixing	in 2 zones	yes	up to 6 heating circuits

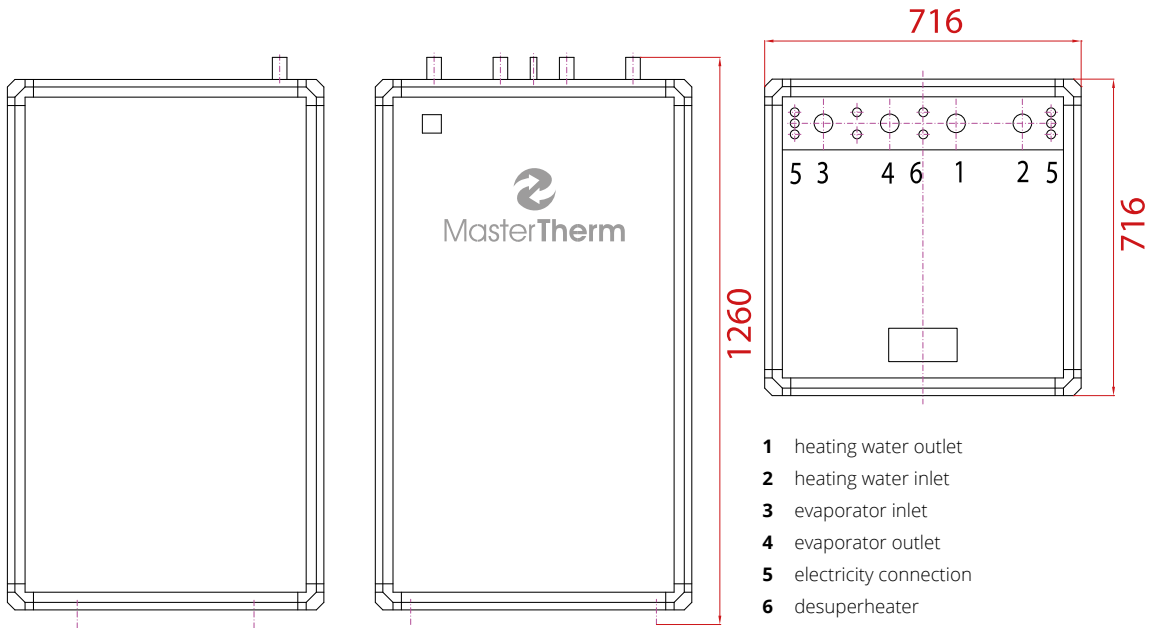
1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.

2 Recommended electrical protection value 3x 400 V, incl. auxiliary integrated electric boiler.

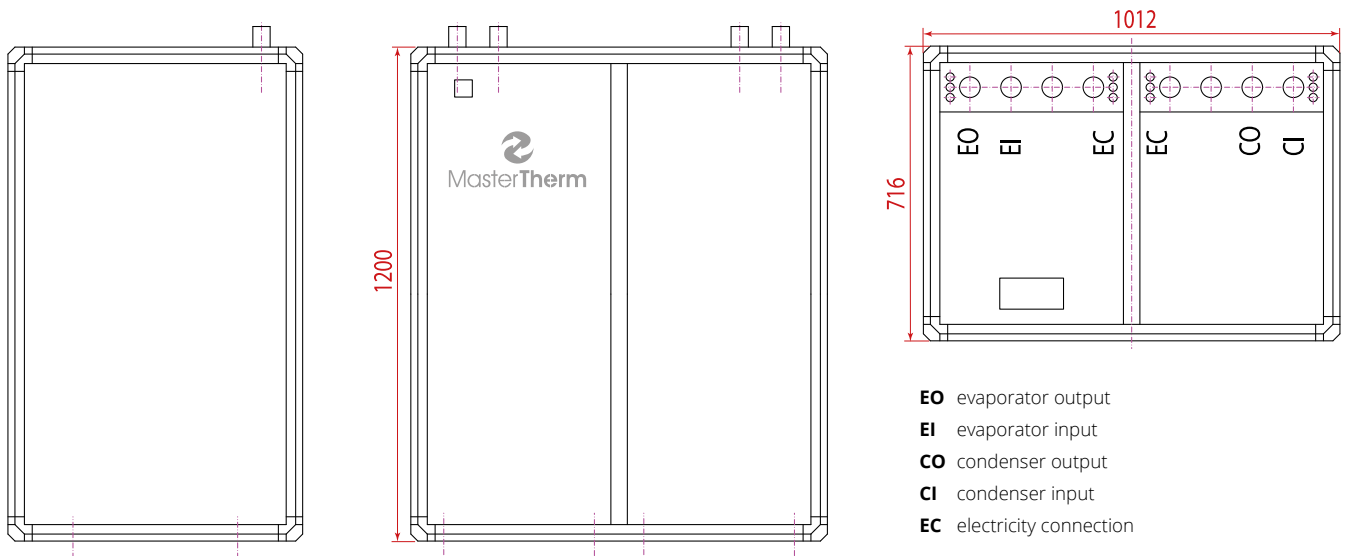
3 Design output at outdoor temperature of -10 °C according to EN 14 825.



### AQ120Z DIMENSIONS



### AQ150.2Z AND AQ1802.Z DIMENSIONS



# Ground-to-water / water-to-water



## From the standard AquaMaster AquaMaster Inverter series

		AquaMaster 60Z	AquaMaster 75Z	AquaMaster 90Z	AquaMaster Inverter 60I	AquaMaster Inverter 90I
Power range B0W35		-	-	-	7-35	10-48
Power B0W35 <sup>1</sup>	kW	23.1	28.2	33.2	20.2 (60 rpm)	31.3 (90 rpm)
	COP	4.2	4.1	4.3	4.7	4.6
Object heat loss Q <sub>z</sub>	kW	up to 23	up to 28	up to 33	up to 35	up to 48
Power W10W35	kW	31.2	37.7	45.0	26.6 (60 rpm)	41.2 (90 rpm)
	COP	5.4	5.2	5.4	6.2	5.9
Seasonal energy efficiency heating – low temperature operation at 35 °C	Power <sup>3</sup>	23	28	33	33	44
	SCOP	4.27	4.25	4.42	5.02	4.87
	η <sub>s</sub>	163	162	169	193	187
	Class	A++	A++	A++	A+++	A+++
Seasonal energy efficiency heating – medium-temperature operation at 55 °C	Power <sup>3</sup>	22	26	30	33	42
	SCOP	3.14	3.11	3.10	3.97	3.87
	η <sub>s</sub>	118	116	116	151	150
	Class	A+	A+	A+	A+++	A+++
Approximate required length of the ground well (or the sum of the lengths of several wells)	m	345	420	495	525	720
Refrigerant		R407c	R407c	R407c	R410a	R410a
Electric circuit breaker <sup>2</sup>		3x 25 A"C"	3x 25 A"C"	3x 32 A"C"	3x 32 A"B"	3x 40 A"B"
Compressor	Connection	3x 400 V	3x 400 V	3x 400 V	3x 400 V	3x 400 V
Weight	kg	245	255	275	180	200
Mandatory leak checks according to EP 517/2014		no	no	no	no	no
Maximum heating water temperature	°C	60	60	60	60	60
Heating capacity of integrated electric boiler (optional equipment)	kW	4.5-7.5	4.5-7.5	4.5-7.5	7.5	7.5
Acoustic performance L <sub>w</sub>	dB(A)	51	51	51	55	60
Order number (according to heating circuit control) PLUS Regulation	Regulace PLUS	1AQ60Z-1	1AQ75Z-1	1AQ90Z-1	1AQ60I-1	1AQ90I-1

Heating circuit control	Designed for	Main heating circuit	Auxiliary heating circuit	Space temperature	Heating Water	Optional
PLUS Regulation	multi-circuit heating systems	yes	independently 2 incl. mixing	in 2 zones	yes	up to 6 heating circuits

1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.

2 Recommended electrical protection value 3x 400 V, incl. auxiliary integrated electric boiler.

3 Design output at outdoor temperature of -10 °C according to EN 14 825.







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