MasterTherm
HEAT PUMPS

member of Atrea group
Atrea®

CATALOGUE 2024

For residential buildings | 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

ISO 9001 BUREAU VERITAS Certification

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?

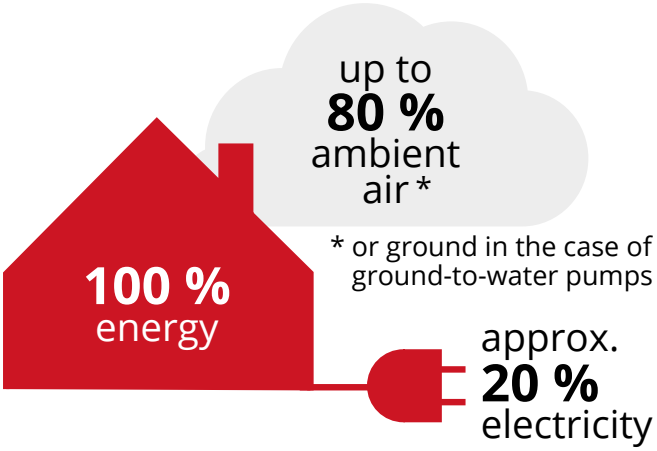
Compared to an electric or gas boiler, a heat pump is significantly more efficient because it also provides heat for your home from the surrounding environment: air, ground or water. The electric power of the heat pump only accounts for about 20-30% of the heat energy collected.

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.

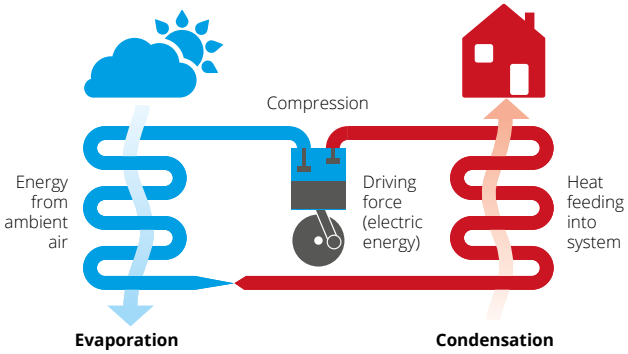
The seasonal SCOP is the ratio of the total amount of heat produced to the total electricity consumption of the heat pump for the entire heating season. Depending on the kind and type of pump, it can reach values of 3.5 to 5.5.



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.

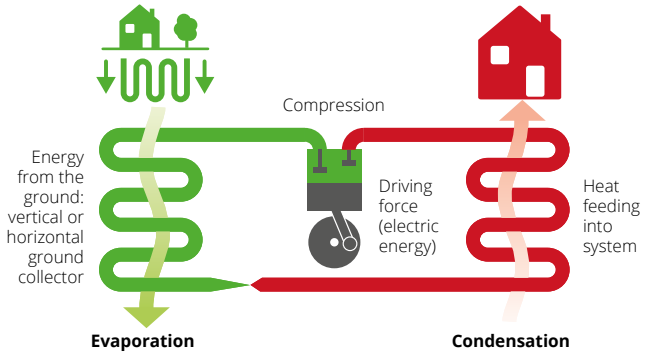
The heat pump can also cool thanks to the reverse mode. During the summer months, it can provide long-term cooling of the building and thus significantly increases comfort during summer.

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 con-ventional 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:

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 9001:2015 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.

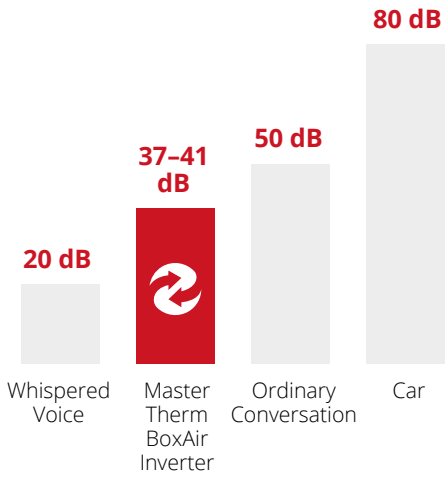
It supports communication within Smart Grids for efficient management of electricity production and consumption. Connection via Ethernet (cable) or Wi-Fi, automatic online updates.

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).

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

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.

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?

I'M PLANNING A HOUSE

I HAVE A HOUSE

I WANT HEATING

- with a renewable energy source?
- comfortably?
- and still save money?

I WANT A HEAT PUMP

WE CAN HELP:

To calculate the heat loss of the house	To assess the heating system	To select a suitable subsidy plan

I DEMAND A HEAT PUMP

Contact your local distributor or us on info@mastertherm.cz

PRICE OFFER

We will then forward the request to a business partner* in your region, who will work with us on preparing a

We are always available for every question, customer and business partner.

ORDER

If you like our offer, the business partner will create an

After a binding order, the heat pump will be put into production.

INSTALLATION

Once the pump is manufactured, it will be handed over to the business partner, who will take care of its transport to you and its

OPERATION

Then all that is left is to set the heat pump into

Installation will be handled either by our partner or directly by Master Therm's service technician. All systems and the installation itself will be checked before the installation.

AFTER THE INSTALLATION, OUR JOURNEY TOGETHER BEGINS, MARKED FOR MANY YEARS TO COME BY YOUR HOME THERMAL COMFORT AND LOWER ENERGY BILLS.

AFTER THE FIRST AND EVERY SUBSEQUENT SEASON, WE'LL COME TO YOUR HOME FOR A PREVENTIVE SERVICE INSPECTION TO KEEP YOUR HEAT PUMP IN TOP SHAPE.**

*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.

member of Atrea group

MasterTherm HEAT PUMPS

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.

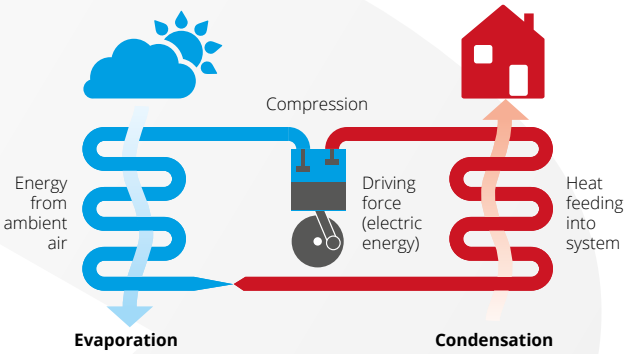
KEY FEATURES OF THE BoxAir Inverter SERIES

- 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
037

ISO 9001
BUREAU VERITAS
Certification

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

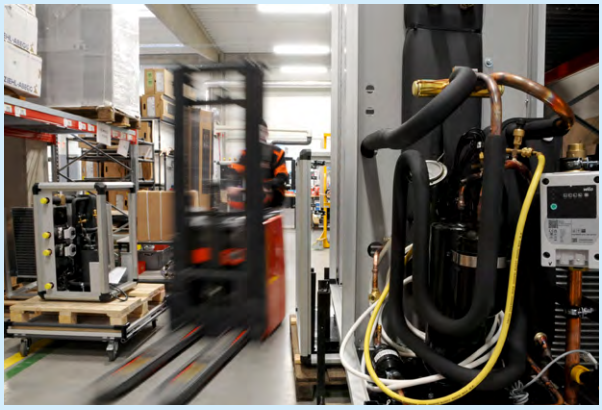
Air-to-water heat pumps are suitable not only for heating and heating hot water or swimming pools all year round, but also for cooling the building in the summer months thanks to the possibility of reverse operation.

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$^{++(+)}$ 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	kW	SCOP	Class	SCOP	Class	dB(A)	Regulation STANDARD (µPC)	Regulation PLUS (pCO5)
	**BoxAir 22I**	2–7	up to 5,5	4.38	A++	3.33	A++	37	1BA22I-01	1BA22I-11
	BoxAir 26I	3–9	up to 8,5	4.29	A++	3.24	A++	37	1BA26I-01	1BA26I-11
	**BoxAir 30I**	5–12	up to 10	4.75	A+++	3.61	A++	37	1BA30I-01	1BA30I-11
	BoxAir 37I	5–17	up to 13	4.49	A+++	3.51	A++	41	1BA37I-01	1BA37I-11
	BoxAir 45I	7–22	up to 16	4.46	A+++	3.48	A++	41	1BA45I-01	1BA45I-11

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

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.

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 **1O7Z**

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

Master Therm Online App **1OICON**

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 **1OCH**

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

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

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 **1OPADH**

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

Expansion module for PLUS control **1OEK**

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

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

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

RAL colour **1OCO**

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$^{++(+)}$ 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 inter-nal 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)	
	**BoxAir 22IS**	2–7	up to 5,5	4.38	A++	3.33	A++	34	1BA22IS-11
	BoxAir 26IS	3–9	up to 8,5	4.29	A++	3.24	A++	34	1BA26IS-11
	**BoxAir 37IS**	5–17	up to 13	4.49	A+++	3.51	A++	41	1BA37IS-11
	BoxAir 45IS	7–22	up to 16	4.46	A+++	3.48	A++	41	1BA45IS-11

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

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

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 pipework 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 — **1O7Z**
Extended warranty valid from the time the pump is delivered. Only in combination with 1OICON.

Master Therm Online App — **1OICON**
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 — **1OCH**
Reverse operation of the pump for long-term cooling of the interior in summer.

Desuperheater for high efficiency hot water heating — **1ODESUP**
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 — **1OPAD**
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 — **1OPADH**
Includes humidity sensor for eliminating condensation of air humidity during cooling (only for PLUS control).

PLUS control expansion module — **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 metering of electricity consumption. MID certification.

RAL colour — **1OCO**
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.

A$^{++(+)}$ energy efficiency | 7-year warranty | online control

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.)

Model	Perfor-mance at A7W35	Thermal loss of the object Q_z	Seasonal heating energy efficiency at 35°C low temperature operation		Seasonal heating energy efficiency at 55°C medium temperature operation		Sound pressure level L_p (5 m from the outdoor unit)	Ordering number
	kW	kW	SCOP	Class	SCOP	Class	dB(A)	PLUS Regulation
BoxAir 22ISC	2–7	up to 5,5	4,38	A++	3,33	A++	34	1BA22ISC-11
BoxAir 26ISC	3–9	up to 8,5	4,29	A++	3,24	A++	34	1BA26ISC-11
BoxAir 37ISC	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 1O7Z

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

Master Therm Online App 1OICON

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.

Reverse cooling mode 1OCH

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

Room unit for auxiliary heating circuit 1OPAD

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

Room unit for auxiliary heating circuit with humidity sensor 1OPADH

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

PLUS control expansion module 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. LCD panel, MID certification, data transfer to the heat pump controller.

Colour according to RAL 1OCO

Individual colour for the pump panels.

Bracket for hanging the outdoor unit on the wall

Suitable for more confined space conditions.

member of Atrea group

MasterTherm HEAT PUMPS

Technical data

Air-to-water

Czech product

A tradition since 1994

Exported into 30 countries worldwide

7-year warranty

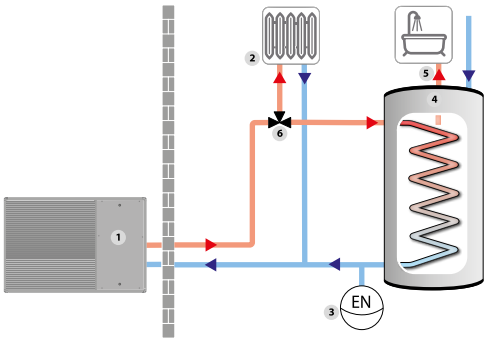
Online control

BoxAir Inverter

			BoxAir 22I	BoxAir 26I	BoxAir 30I	BoxAir 37I	BoxAir 45I
Power range at A7W35		kW	2–7	3–9	5–12	5–17	7–22
Thermal loss of the object Q_z		kW	up to 5.5	up to 8.5	up to 10	up to 13	up to 16
Power A7W35 [1]	60 rps	kW	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	kW	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	kW	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	kW	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 [3]	kW	5	7	8	11	13
	SCOP		4.38	4.29	4.75	4.49	4.46
	ηs	%	172	168	187	177	176
	Class		A++	A++	A+++	A+++	A+++
Seasonal heating energy efficiency at 55 °C medium temperature operation	Power [3]	kW	4	6	7	10	12
	SCOP		3.33	3.24	3.61	3.51	3.48
	ηs	%	130	126	141	137	136
	Class		A++	A++	A++	A++	A++
Refrigerant			R410a	R410a	R410a	R410a	R410a
Electric circuit breaker [2]	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		kg	115	120	155	165	165
Mandatory leakage 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	bivalence mode	kW	4.5	4.5	6	7.5	7.5
	backup mode(and at temperatures below -20 °C)	kW	4.5 + 4.5	4.5 + 4.5	6 + 6	7.5 + 7.5	7.5 + 7.5
Acoustic performance L_w		dB(A)	58	58	58	62	62
Sound pressure level L_p at a distance from the outdoor unit	1 m	dB(A)	49	49	49	53	53
	5 m	dB(A)	37	37	37	41	41
	10 m	dB(A)	31	31	31	35	35
Order number (according to heating circuit control)	STANDARD Regulation		1BA22I-01	1BA26I-01	1BA30I-01	1BA37I-01	1BA45I-01
	PLUS regulation		1BA22I-11	1BA26I-11	1BA30I-11	1BA37I-11	1BA45I-11

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

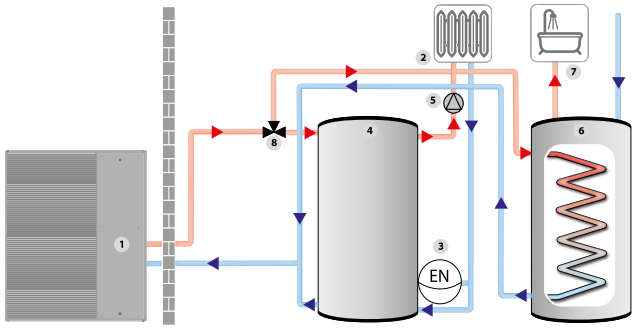
1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.
2 Recommended value of electrical protection 3x 400 V, incl. auxiliary integrated electric boiler. The 22I, 26I and 30I 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 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.

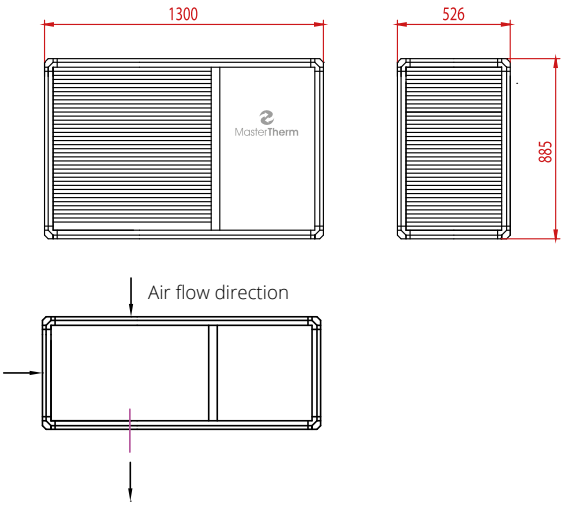


CONNECTION WITH HEATING WATER ACCUMULATION TANK AND HW HEATING TRANSFER MODE

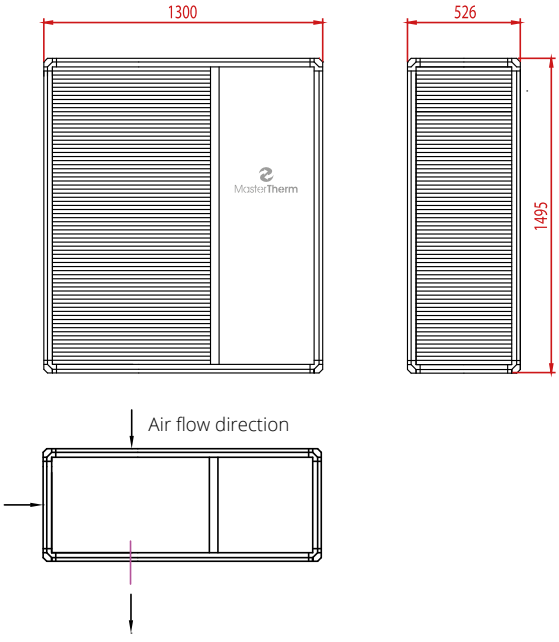
1 heat pump
2 heating system
3 expansion tank
4 storage tank
5 heating system PC
6 HW indirect heating storage tank
7 HW outlet
8 3-way valve

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

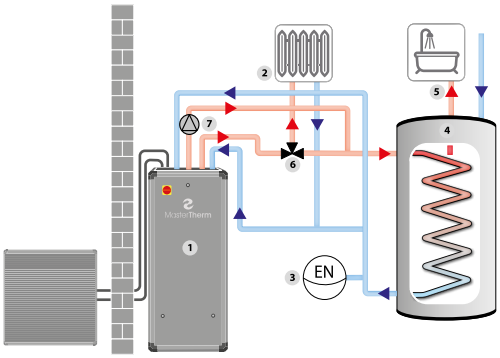


BoxAir Inverter Split

			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 [1]	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 [3]	kW	5	7	11	13
	SCOP		4.38	4.29	4.49	4.46
	ηs	%	172	168	177	176
	Class		A++	A++	A+++	A+++
Seasonal heating energy efficiency at 55 °C medium temperature operation	Power [3]	kW	4	6	10	12
	SCOP		3.33	3.24	3.51	3.48
	ηs	%	130	126	137	136
	Class		A++	A++	A++	A++
Refrigerant			R410a	R410a	R410a	R410a
Electric circuit breaker [2]	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

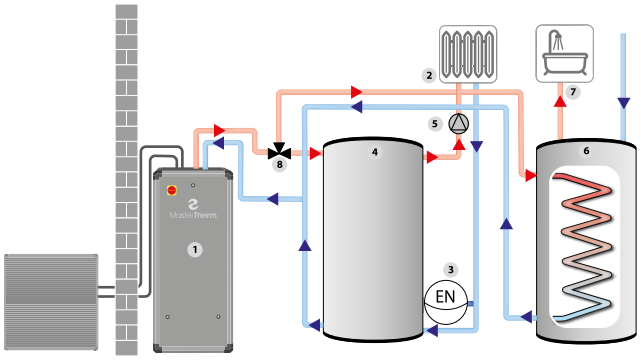
1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.
2 Recommended value of electrical protection 3x 400 V, incl. auxiliary integrated electric boiler. The 22I, 26I and 30I 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.

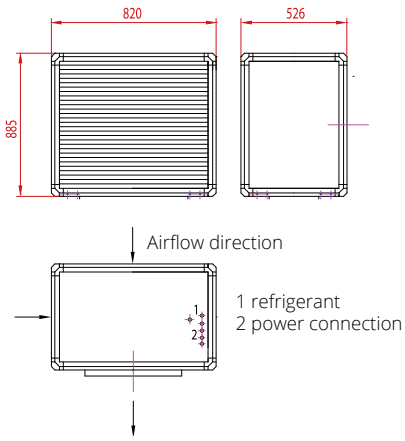


CONNECTION WITH HEATING WATER ACCUMULATION TANK AND HW HEATING TRANSFER MODE

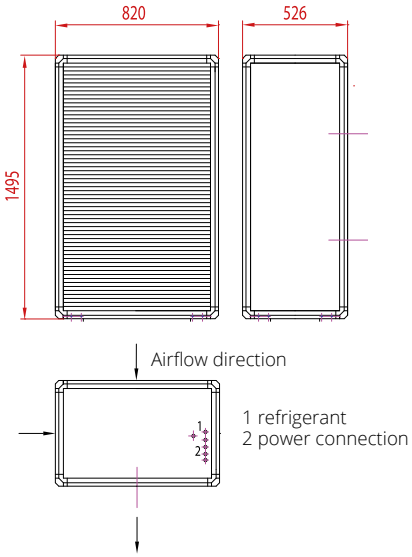
1 heat pump
2 heating system
3 expansion tank
4 accumulation tank
5 heating system
6 indirect heating of HW accumulation tank
7 HW outlet
8 3-way valve

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).

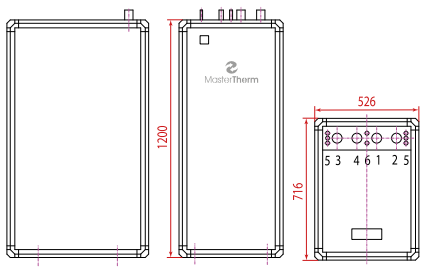
DIMENSIONS OF THE BA22IS AND BA26IS HEATING UNIT MODELS



DIMENSIONS OF THE BA37IS AND BA45IS HEATING UNIT MODELS



INHEATING UNIT



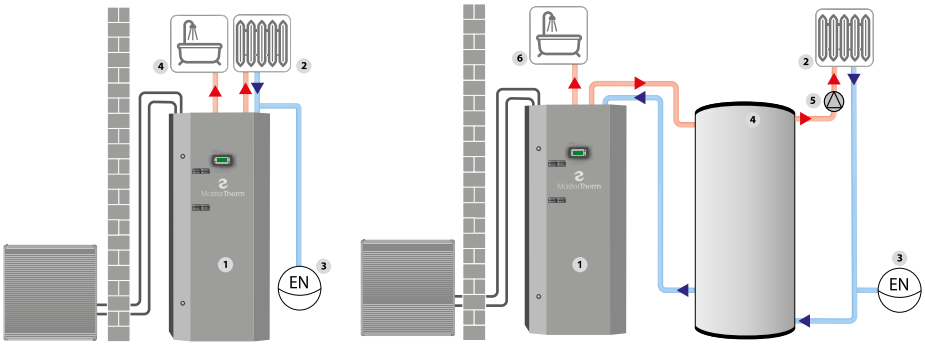
1 heating water outlet
2 heating water inlet
3 liquid
4 steam
5 electrical connection
6 desuperheater

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 [1]	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 [3]	kW	5	7	11
	SCOP		4.38	4.29	4.49
	ηs	%	172	168	177
	Class		A++	A++	A+++
Seasonal heating energy efficiency at 55 °C medium temperature operation	Power [3]	kW	4	6	10
	SCOP		3.33	3.24	3.51
	ηs	%	130	126	137
	Class		A++	A++	A+++
Refrigerant			R410a	R410a	R410a
Electric circuit breaker [2]	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

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.



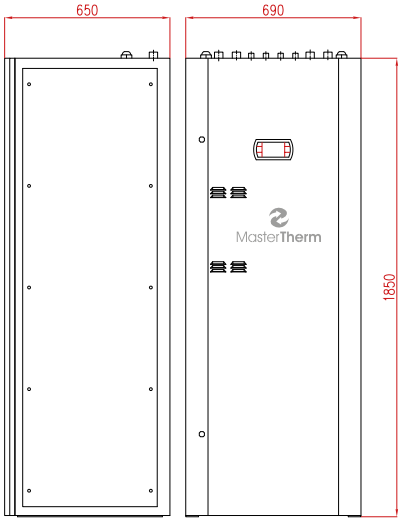
DIRECT HEATING PUMP CONNECTION INTO HEATING SYSTEM

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

member of Atrea group

MasterTherm HEAT PUMPS

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 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 SHW tank.

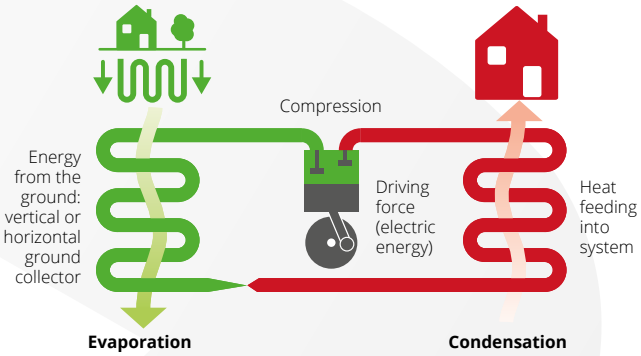
KEY FEATURES OF THE AquaMaster SERIES

- 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
037

ISO 9001
BUREAU VERITAS
Certification

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 thanthat 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 m² 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+(++) 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_z	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

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

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 — 1O7Z
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.

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$^{++(+)}$ energy efficiency | 7-year warranty | online control

The unique compact model AQ17I (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_z	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 Inverter 17I	1–5	up to 5	4.58	A+++	3.46	A++	1AQ17I-0	–
AquaMaster Inverter 22I	2–7	up to 7	4.72	A+++	3.58	A++	1AQ22I-0	1AQ22I-1
AquaMaster Inverter 26I	3–9	up to 9	4.94	A+++	3.81	A++	1AQ26I-0	1AQ26I-1
AquaMaster Inverter 30I	4–12	up to 12	4.92	A+++	3.82	A++	1AQ30I-0	1AQ30I-1
AquaMaster Inverter 37I	5–15	up to 15	5.10	A+++	3.97	A+++	1AQ37I-0	1AQ37I-1
AquaMaster Inverter 45I	7–22	up to 22	5.10	A+++	3.96	A+++	1AQ45I-0	1AQ45I-1
AquaMaster Inverter 60I	7–35	up to 35	5.06	A+++	3.99	A+++	–	1AQ60I-1
AquaMaster Inverter 90I	10–48	up to 48	4.90	A+++	3.96	A+++	–	1AQ90I-1

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

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 — 1O7Z
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.

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

Inverter with integrated SHW tank

Includes 170l hot water tank

The Combi version differs from the AquaMaster Inverter by means of its 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.)

A$^{++(+)}$ energy efficiency | 7-year warranty | online control

Model	Perfor-mance at BOW35	Thermal loss of the object Q_z	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	STANDARD Regulation	PLUS Regulation
AquaMaster Inverter 17IC	1–5	up to 5	4.58	A+++	3.46	A++	1AQ17IC-0	1AQ17IC-0
AquaMaster Inverter 22IC	2–7	up to 7	4.72	A+++	3.58	A++	1AQ22IC-0	1AQ22IC-1
AquaMaster Inverter 26IC	3–9	up to 9	4.94	A+++	3.81	A++	1AQ26IC-0	1AQ26IC-1
AquaMaster Inverter 30IC	4–12	up to 12	4.92	A+++	3.82	A++	1AQ30IC-0	1AQ30IC-1
AquaMaster Inverter 37IC	5–15	up to 15	5.10	A+++	3.97	A+++	1AQ37IC-0	1AQ37IC-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 1O7Z
Extended warranty from the date of delivery. Only in combination with 1OICON.

Master Therm Online App 1OICON
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.

Passive cooling module 1OPC
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.

Room unit for the heating circuit 1OPAD
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 1OPADH
Includes humidity sensor for elimination of air humidity condensation during cooling (only for PLUS control).

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 1OEM25AMID
Integrated 1-phase electricity meter for local measurement of electricity consumption. MID certification.

Integrated electricity meter 3x 65 A 1OEM65AMID
Integrated 3-phase electricity meter with identical functionality.

Electric boiler 4.5 kW/6,0 kW/7.5 kW 1OEKOT
Integrated bivalent (supplementary) or emergency heat source.

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 1OCO
Individual colour for the panels of the pump indoor unit. RAL 9006 grey at no extra charge.

member of Atrea group

MasterTherm HEAT PUMPS

Technical data

Ground-to-Water

Czech product

A tradition since 1994

Exported into 30 countries worldwide

7-year warranty

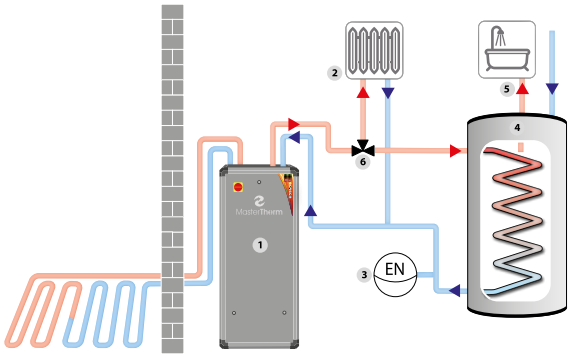
Online control

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 [1]		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_z		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		539	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 [3]	kW	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
	ηs	%	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 [3]	kW	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
	ηs	%	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 [2]	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_w		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

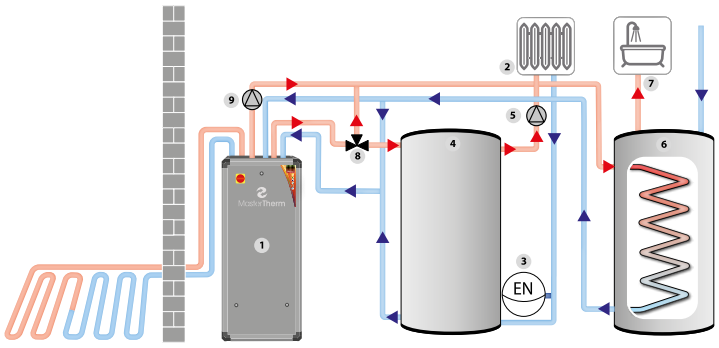
1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.
2 Recommended value of electrical protection 3x 400 V, incl. auxiliary integrated electric boiler. The 22I, 26I and 30I 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 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.

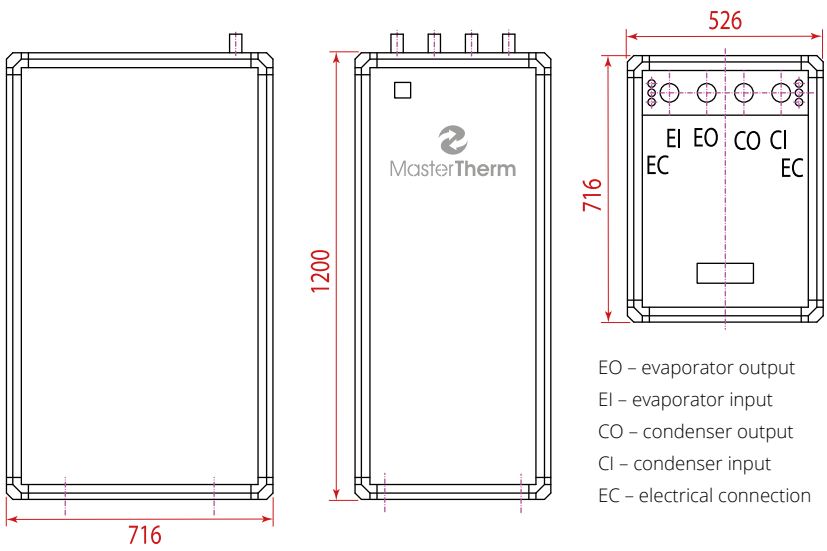


CONNECTION WITH HEATING WATER ACCUMULATION TANK AND HW HEATING TRANSFER MODE

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 HWheating 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



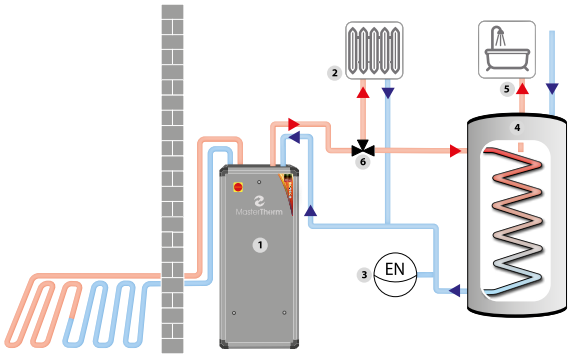
EO – evaporator output
EI – evaporator input
CO – condenser output
CI – condenser input
EC – electrical connection

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 [1]	60 rps	kW	2.95	4.4	7.6	7.9	10.5	14.0	20.2	31.3 [3]
	COP		4.3	4.5	4.5	4.6	4.7	4.6	4.7	4.6
Thermal loss of the object Q_z		kW	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	kW	3.79	5.8	10.2	10.3	14.2	19.2	26.6	41.2 [3]
	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 [4]	kW	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
	ηs	%	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 [4]	kW	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
	ηs	%	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)		m	75	105	135	180	225	330	525	720
Refrigerant			R410a	R410a	R410a	R410a	R410a	R410a	R410a	R410a
Electric circuit breaker [2]	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		kg	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		°C	60	60	60	60	60	60	60	60
Heating capacity of integrated electric boiler (equipment upon request)	1-phase connection	kW	–	3–4	3–4	6	–	–	–	–
	3-phase connection	kW	–	4.5–6	4.5–6	4.5–6	7.5	7.5	7.5	7.5
Acoustic performance L_w		dB(A)	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

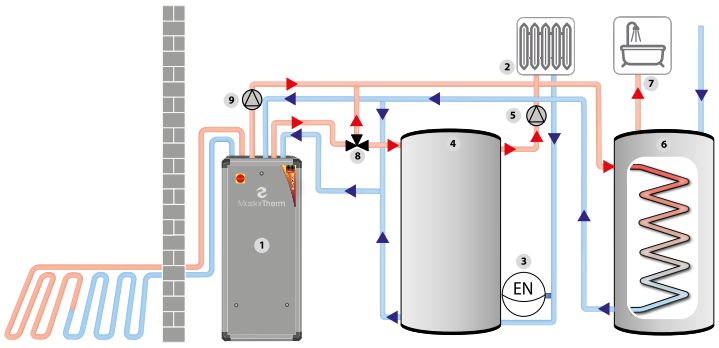
1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.
2 Recommended value of electrical protection 3x 400 V, incl. auxiliary integrated electric boiler. The 22I, 26I and 30I 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.



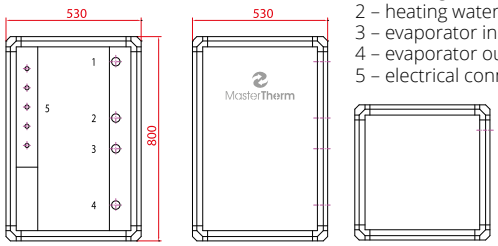
CONNECTION WITH HEATING WATER ACCUMULATION TANK AND HW HEATING TRANSFER MODE

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.

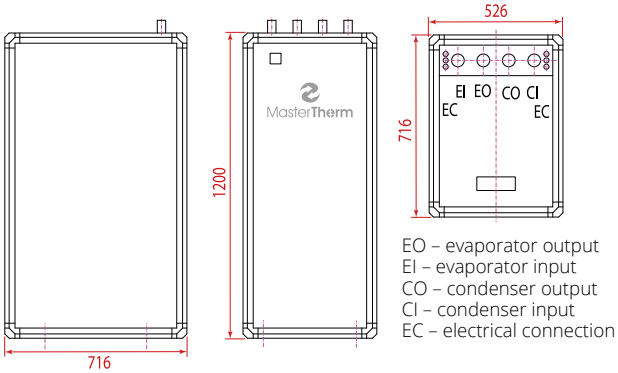
DIMENSIONS

AQ17I



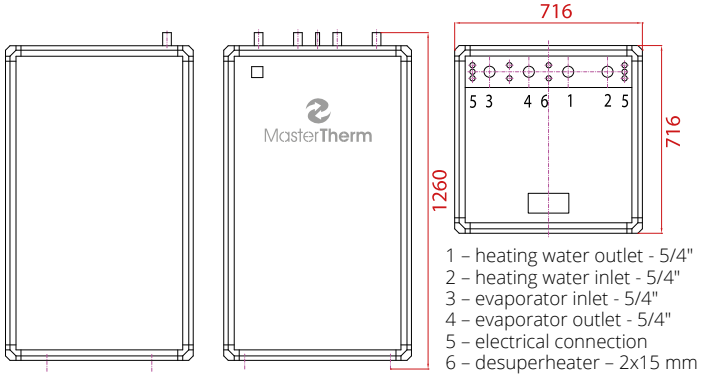
1 – heating water outlet - 5/4"
2 – heating water inlet - 5/4"
3 – evaporator inlet - 5/4"
4 – evaporator outlet - 5/4"
5 – electrical connection

AQ22I až AQ60I



EO – evaporator output
EI – evaporator input
CO – condenser output
CI – condenser input
EC – electrical connection

AQ90I



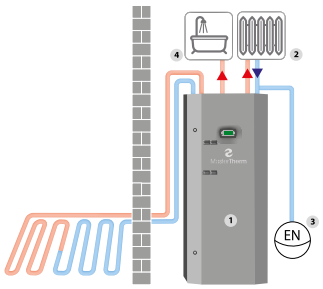
1 – heating water outlet - 5/4"
2 – heating water inlet - 5/4"
3 – evaporator inlet - 5/4"
4 – evaporator outlet - 5/4"
5 – electrical connection
6 – desuperheater – 2x15 mm

AquaMaster Inverter Combi

			AquaMaster Inverter 17IC	AquaMaster Inverter 22IC	AquaMaster Inverter 26IC	AquaMaster Inverter 30IC	AquaMaster Inverter 37IC
Power range at B0W35			1–5	2–7	3–9	4–12	5–15
Power range at B0W35 [1]	60 rps	kW	2.95	4.4	7.6	7.9	10.5
	COP		4.3	4.5	4.5	4.6	4.7
Thermal loss of the object Q_z		kW	up to 5	up to 7	up to 9	up to 12	up to 15
Power W10W35		kW	3.79	5.8	10.2	10.3	14.2
	COP		5.51	5.9	6.0	6.1	6.3
Seasonal heating energy efficiency at 35 °C low-temperature operation	Power [3]	kW	5	7	9	11	15
	SCOP		4.58	4.72	4.94	4.92	5.10
	ηs	%	175	181	190	189	196
	Class		A+++	A+++	A+++	A+++	A+++
Seasonal heating energy efficiency at 55 °C mid-temperature operation	Power [3]	kW	4	6	8	11	14
	SCOP		3.46	3.58	3.81	3.82	3.97
	ηs	%	130	135	144	145	151
	Class		A++	A++	A++	A++	A+++
Refrigerant			R410a	R410a	R410a	R410a	R410a
Electric circuit breaker [2]	3-phase		1x 20 A"B"	1x 20 A"B"	1x 20 A"B"	1x 25 A"B"	3x 20 A"B"
	1-phase		20 A"B"	20 A"B"	20 A"B"	20 A"B"	25 A"B"
Compressor, supply voltage	3-phase		1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~
	1-phase		1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~	1x 230 V~
Weight		kg	270	270	270	275	280
Maximum heating water temperature		°C	60	60	60	60	60
Heating capacity of integrated electric boiler (equipment upon request)	1-phase connection	kW	3–4	3–4	3–4	3–4	–
	3-phase connection	kW	4.5–6	4.5–6	4.5–6	4.5–6	4.5–6
Akustický výkon L_w		dB(A)	48	48	48	48	48
Order number (according to heating circuit control)	STANDARD Regulation		1AQ17IC-0	1AQ22IC-0	1AQ26IC-0	1AQ30IC-0	1AQ37IC-0
	PLUS regulation		1AQ17IC-1	1AQ22IC-1	1AQ26IC-1	1AQ30IC-1	1AQ37IC-1

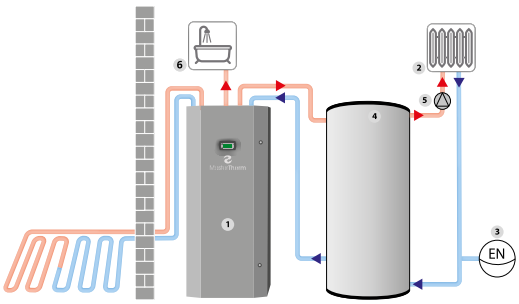
Heating circuit control	Designed for	Main heating circuit	Auxiliary heating circuit	Space temperature	Hot Water	Optional
STANDARD Regulation (µPC)	single circuit heating system	yes	-	in 1 zone	yes	-
PLUS Regulation (pCO5)	multi-circuit heating system	yes	independently 2 incl. mixing	in 2 zones	yes	up 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 Design output at an outdoor temperature of -10 °C according to EN 14 825.



DIRECT HEATING PUMP CONNECTION TO HEATING SYSTEM

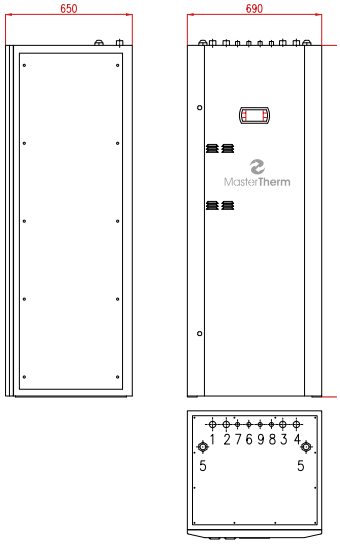
1 heat pump
2 heating system
3 expansion tank
4 HW outlet



HEATING WATER ACCUMULATION CONNECTION

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

DIMENSIONS



member of Atrea group

MasterTherm HEAT PUMPS

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

ISO 9001
BUREAU VERITAS
Certification

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.

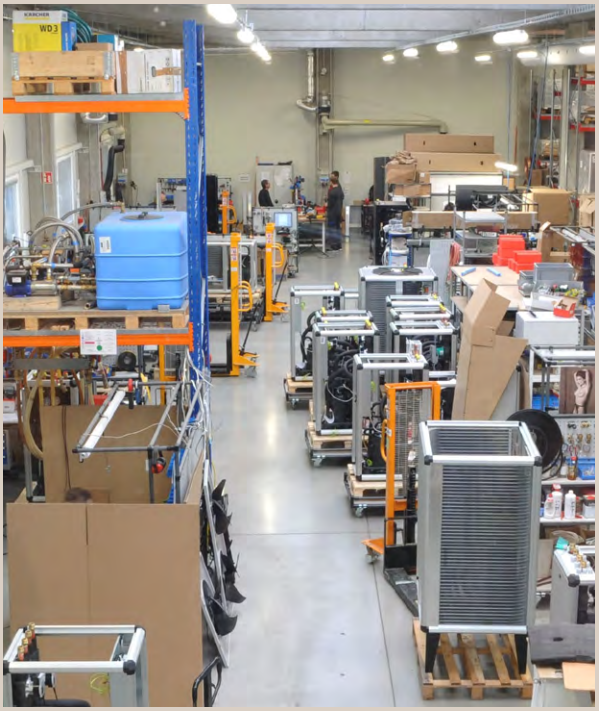
POWER CASCASCADE FOR HIGH PERFORMANCE

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+(++) 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_z	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_p (5 m from outdoor units)	Order number (according to heating circuit control)
			kW	kW	SCOP	Class	SCOP	Class	dB(A)	Regulation PLUS
BoxAir 60I	compact	inverter	10-35	do 28	4.50	A+++	3.45	A++	45	1BA-60I-1
BoxAir 60IS	split	inverter	10-35	do 28	4.50	A+++	3.45	A++	45	1BA60IS-1
BoxAir 75Z	compact	ON/OFF	30,8	do 31	3.61	A+	2.92	A+	48	1BA75Z-1
EasyMaster 60Z	split	ON/OFF	24,6	do 25	3.56	A+	2.86	A+	48	1EM60Z-1
EasyMaster 75Z	split	ON/OFF	30,8	do 31	3.61	A+	2.92	A+	48	1EM75Z-1

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

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

Optional equipment

7-year warranty on the complete pump **1O7Z**
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**

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+(++) 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	Performance at A7W35	Thermal loss of the object Q_z	Performance 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
AquaMaster 120Z	46,4	do 46	60,8	4.97	A+++	3.35	A++	1AQ120Z-1
AquaMaster 150.2Z	57,7	do 58	79,3	4.38	A++	3.19	A+	1AQ150.2Z-1
AquaMaster 180.2Z	64,4	do 64	90,9	4.50	A++	3.35	A++	1AQ180.2Z-1

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

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

Optional equipment

7-year warranty on the complete pump **1O7Z**
Extended warranty valid from commissioning. Only in combination with 1OICON.

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

Desuperheater for high-efficiency hot water heating **1ODESUP**
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 **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 air humidity condensation during cooling (only for PLUS control).

Phase monitor **1OSFC**
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 **1OEK**
Reduces the number of reg. 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.

Colour according to RAL colour sampler **1OCO**
Individual colour for pump panels.
Standard colour RAL 9006 silver.

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^2 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

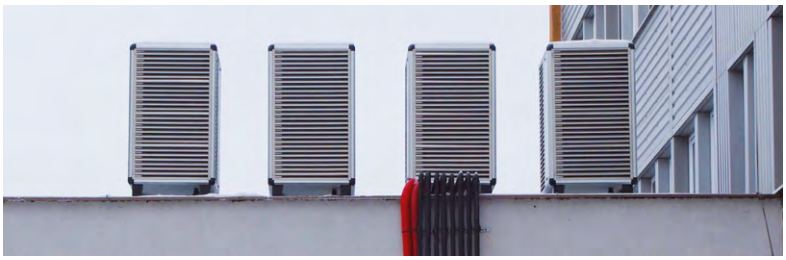
Heating capacity: 124 kW

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:

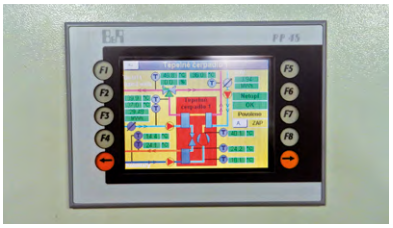
- 2x AquaMaster 60Z

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.



member of Atrea group

MasterTherm HEAT PUMPS

Technical Specifications

For large-scale and industrial facilities

Czech product

A tradition since 1994

Exported into 30 countries worldwide

7-year warranty

Online control

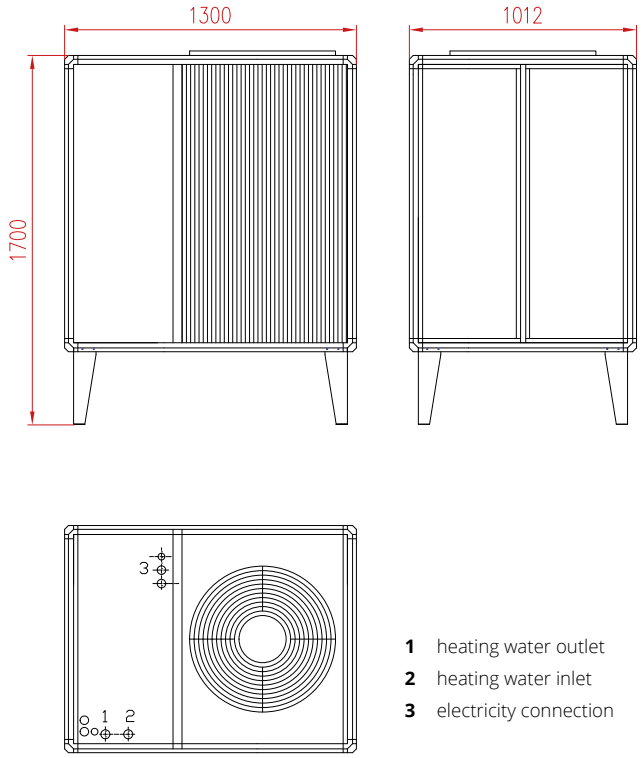
Air-to-water

			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 [1]		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 [3]	kW	23	23	31	25	31
	SCOP		4.50	4.50	3.61	3.56	3.61
	ηs	%	177	177	141	140	141
	Class		A+++	A+++	A+	A+	A+
Seasonal energy efficiency heating – medium-temperature operation at 55 °C	Power [3]	kW	22	22	30	24	30
	SCOP		3.45	3.45	2.92	2.86	2.92
	ηs	%	135	135	114	111	114
	Class		A++	A++	A+	A+	A+
Refrigerant			R410a	R410a	R407	R407	R407
Electric circuit breaker [2]			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 request7.5 + 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

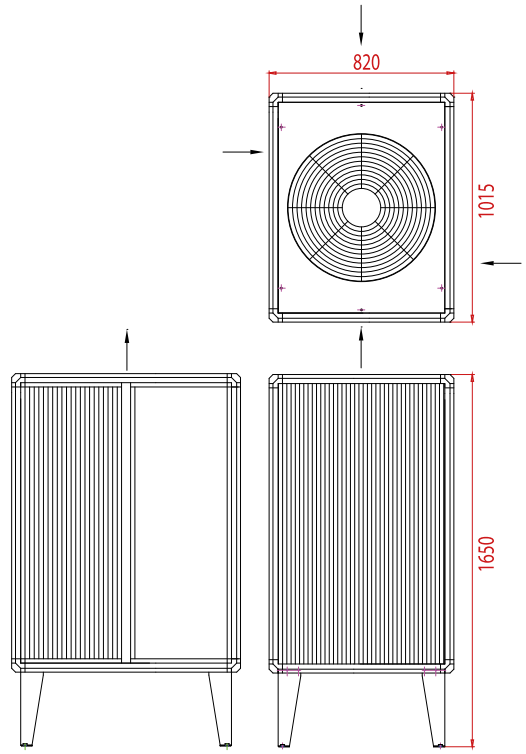
1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.
2 Recommended electrical protection value 3x 400 V, incl. auxiliary integrated electric boiler.
3 Design output at outdoor temperature of -10 °C according to EN 14 825.

DIMENSIONS OF MODELS BA60I AND BA75Z

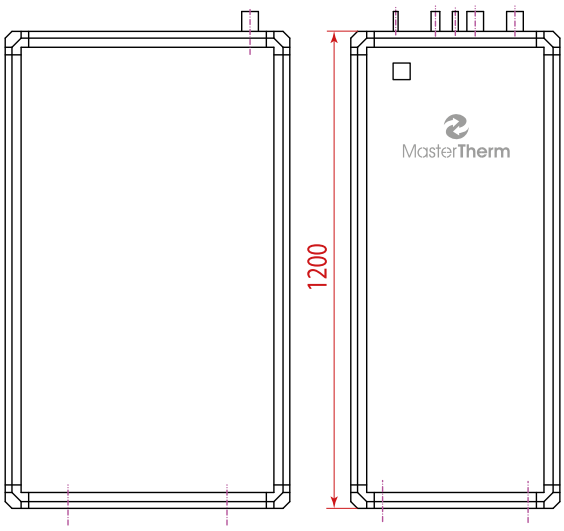


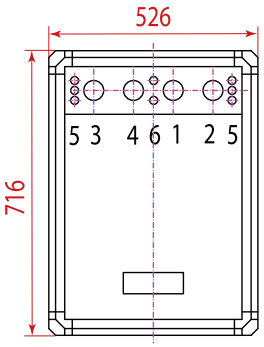
1 heating water outlet
2 heating water inlet
3 electricity connection

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



BA60IS, EM60Z AND EM75Z INDOOR UNIT DIMENSIONS





1 heating water outlet
2 heating water inlet
3 liquid
4 steam
5 electricity connection
6 desuperheater

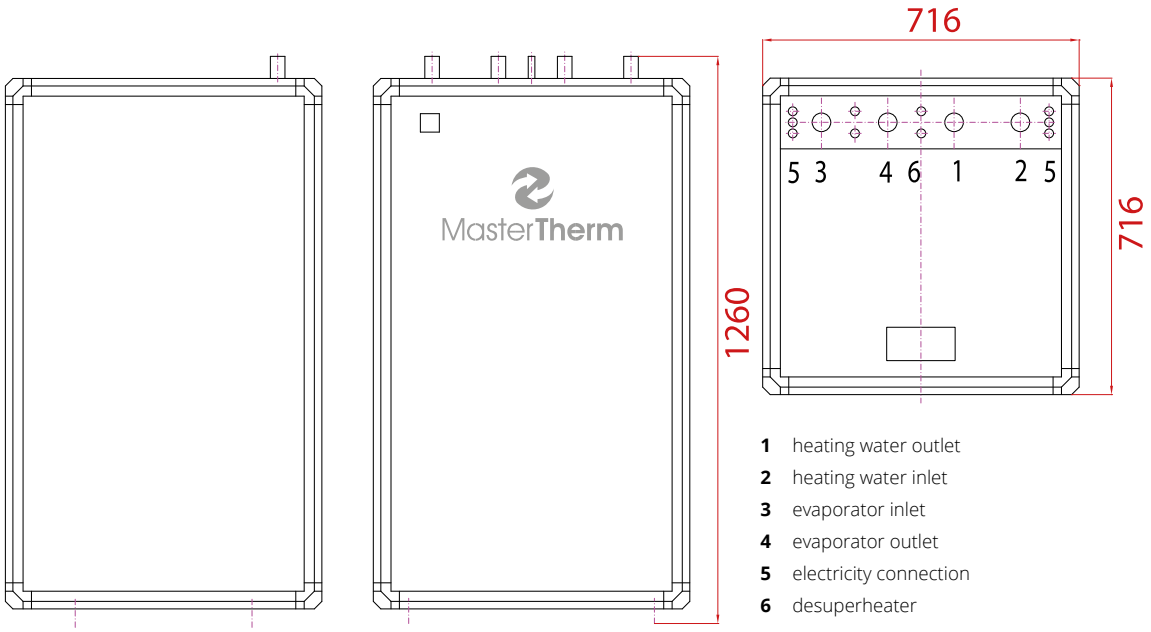
Ground-to-water / water-to-water

			AquaMaster 120Z	AquaMaster 150.2Z	AquaMaster 180.2Z
Power B0W35 [1]		kW	46.4	57.7	64.4
	COP		4.58	4.2	4.1
Plant heat loss Q_z		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 [3]	kW	46	57	64
	SCOP		4.97	4.38	4.5
	ηs	%	191	167	172
	Class		A+++	A++	A++
Seasonal energy efficiency heating – medium-temperature operation at 55 °C	Power [3]	kW	37.62	52	61
	SCOP		3.35	3.19	3.35
	ηs	%	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 [2]			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 request4.5–7.5	on request 4.5–7.5	on request 4.5–7.5
Acoustic performance L_w		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

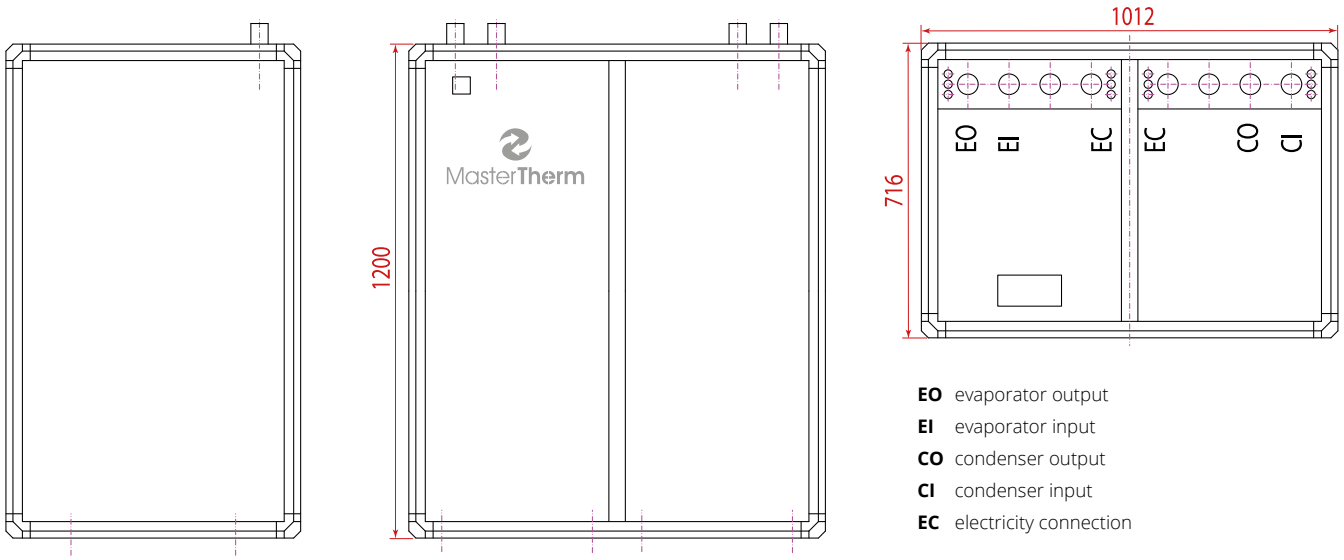
1 Performance data according to EN 14 511, in accordance with EHPA requirements for the award of the Q quality mark. A7W35 60 Hz - air 7 °C, water 35 °C, compressor frequency 60 Hz.
2 Recommended electrical protection value 3x 400 V, incl. auxiliary integrated electric boiler.
3 Design output at outdoor temperature of -10 °C according to EN 14 825.

AQ120Z DIMENSIONS



1 heating water outlet
2 heating water inlet
3 evaporator inlet
4 evaporator outlet
5 electricity connection
6 desuperheater

AQ150.2Z AND AQ1802.Z DIMENSIONS



EO evaporator output
EI evaporator input
CO condenser output
CI condenser input
EC electricity connection

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 [1]		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_z		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 [3]	kW	23	28	33	33	44
	SCOP		4.27	4.25	4.42	5.02	4.87
	ηs	%	163	162	169	193	187
	Class		A++	A++	A++	A+++	A+++
Seasonal energy efficiency heating – medium-temperature operation at 55 °C	Power [3]	kW	22	26	30	33	42
	SCOP		3.14	3.11	3.10	3.97	3.87
	ηs	%	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 [2]			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_w		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.


MasterTherm

MasterTherm HEAT PUMPS

member of Atrea group

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