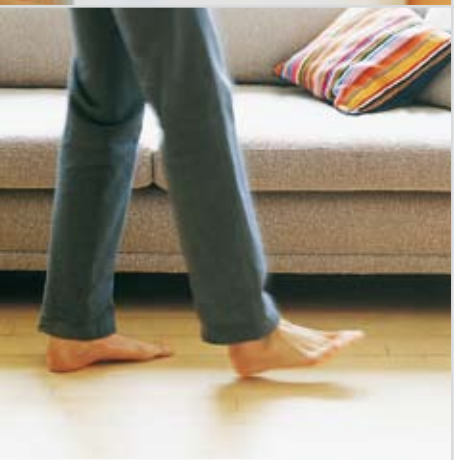


Comfort from Sweden

Air/water Heat pumps

NIBE

www.nibe.com

Air/water - Heat pumps

Installation of a NIBE air/water heat pump can lead to your energy consumption for heating being reduced by up to 50%, in comparison to conventional heating systems.

Areas of Use

You should choose a NIBE air/water heat pump if is not possible to drill in a ground probe or install a surface absorber on the property. This converts the energy of the outside air into heat and creates a comfortable temperature inside the house.

Although none of the air/water heat pumps that are available on the market can cover the heating requirements all year round, this type of heat pump does offer economic benefits. In bivalent operation it covers the majority of the heating requirements in a very economical manner, therefore the existing heating system only needs to cover the peak periods. In mono-energetic operation, i.e. air/water heat pump in combination with an immersion heater, the heat pump should cover heating by itself and the immersion heater is only activated during extreme peak periods.

Our product range

FIGHTER 2005 utilises the energy of the outside air. Therefore, neither a ground probe nor a surface collector is required.

In comparison to traditional air/water - heat pumps, FIGHTER 2005 with its two-stage ventilator achieve much greater economy.

FIGHTER 2005 is available in sizes 8 and 11 for single phase 230V and size 8, 10 and 14 for three phase 400V. We claim that the FIGHTER 2005 can transform an existing radiator system into an excellent, complete heating system.

NIBE

FIGHTER 2005

FIGHTER 2005

FIGHTER 2005 is a air/water heat pump which has been specifically developed for the climate of Northern Europe. Due to the fact that the heat pump utilises the energy of the outside air, neither a borehole nor an earth collector are required.

FIGHTER 2005 is equipped with automatic, two-stage capacity control for the ventilator. Furthermore, the FIGHTER 2005 has been fitted with an electronic control, which controls those functions that are necessary for heat pump operation.

FIGHTER 2005 has been specifically developed for operation with radiator heating systems and is therefore particularly suited for use with most heating systems. An advanced control system for optimal control of the heat pump has been incorporated. The FIGHTER 2005 is activated via a starting signal from another control, a return sensor or a thermostat.

FIGHTER 2005 can also be controlled by a specially developed control unit, the SMO 10. This activates the additional heating and monitors the switch between heating operation and hot water production.

FIGHTER 2005 can also heat up hot water at high outside temperatures effectively, just as it can deliver high performance to the heating system at low outside temperatures.

If the outside temperature sinks below the level of the set cut-off temperature, heating must be provided by an external additional heating.

FIGHTER 2005 is available in sizes 8 and 11 for single phase 230V and size 8, 10 and 14 for three phase 400V. The materials used in manufacture have been selected with regard to long service life and consideration of the best possible ruggedness for the weather conditions encountered in Northern Europe.

FIGHTER 2005 must be placed in the open on a solid base, ideally on a concrete foundation. It should not be positioned near walls which are sensitive to noise, such as close to bedrooms.

Defrosting, max./min. cut-off temperature, heat activation for both the compressor crank tub as well as the condensation tub are controlled and furthermore the motor protection and the over-pressure switch are monitored.

Additionally, the start amount and the length of the respective operation times can be read off.

Accessories (see page 7)

Control module SMO 10

SMO 10 is an intelligent control unit which together with a FIGHTER 2005 and an existing heating and service water circuit (VPA) forms a complete heat comfort system.

Hot water control VST 11

This accessory enables the FIGHTER 2005 to prioritise refilling of hot water in a system with gliding condensation. An accumulator tank, such as a NIBE-VPA, is required for this feature as well as a temperature controller.

Components included in delivery

FIGHTER 2005

Heat transfer paste

Dirt filter R 25

Cable ties

Flex-hoses with packing

Aluminium tape

Adjustable feet with mounting

The built-in control is set up during installation and can then be used as a reference for future maintenance. Otherwise there is no need for the system operator to check the control under normal operating conditions.

FIGHTER 2005 is equipped with an electronic return temperature sensor, which limits the temperature of the return. Flow and return sensors are fitted during installation.

FIGHTER 2005 can be switched on and off by a signal from a different control unit or via a thermostat, for instance via an SMO 10 (accessory).

FIGHTER 2005 is suitable for a wide range of applications, because it allows alternative integrations.

Technical Data FIGHTER 2005

		Single Phase FIGHTER 2005-8	Single Phase FIGHTER 2005-11	FIGHTER 2005-8	FIGHTER 2005-10	FIGHTER 2005-14
Heat capacity/receptivity* at A2/W35 °C **	(kW)	6,9/1,9	9,3/2,6	6,3/1,8	8,3/2,3	11,9/3,5
Heat capacity/receptivity* at A7/W35 °C **	(kW)	7,5/1,9	10,6/2,6	7,9/1,8	10,5/2,4	13,8/3,7
Heat capacity/receptivity* at A-7/W45 °C **	(kW)	5,3/2,2	6,9/2,8	3,8/1,7	5,8/2,2	7,8/3,2
Heat capacity/receptivity* at A0/W45 °C **	(kW)	6,3/2,2	8,5/3,0	5,6/1,9	7,4/2,5	10,5/3,7
Heat capacity/receptivity* at A7/W45 °C **	(kW)	7,7/2,3	10,5/3,1	7,4/2,1	9,7/2,7	13,8/4,1
Heat capacity/receptivity* at A-7/W50 °C **	(kW)	5,1/2,3	6,9/3,1	3,5/1,7	5,2/2,2	7,2/3,2
Heat capacity/receptivity* at A2/W50 °C **	(kW)	6,8/2,5	9,1/3,3	5,9/2,1	7,4/2,6	10,9/3,9
Heat capacity/receptivity* at A7/W50 °C **	(kW)	7,5/2,4	10,4/3,4	7,0/2,2	9,3/2,8	13,3/4,3
Heat capacity/receptivity* at A15/W50 °C **	(kW)	9,4/2,5	12,6/3,5	9,9/2,0	11,7/3,1	16,3/4,7
Start current	(A)	24	33	24	33	26
Motor protection setting	(A)	15	21,5	15	21,5	11
Soft start relays		are standard				
Operating voltage		230V + N + PE 50 Hz		3x400V + N + PE 50 Hz		
Compressor		Scroll compressor		Piston compressor		
Nominal heating circuit flow	(l/s)	0,17	0,24	0,17	0,24	0,33
Internal pressure drop at nominal heating circuit flow	(kPa)	1,1	2,0	1,1	2,0	2,4
Air flow	(m3/h)	1320/1750	1320/1750	1320/1750	1320/1750	2250/3050
Nominal ventilator output	(W)	155/185	155/185	155/185	155/185	175/190
Protection class		IP 24				
Maximum exit temperature to the heating circuit	(°C)	58				
Refrigerant amount (R407C)	(kg)	2,1	2,1	2,1	2,1	2,4
Connection heat transfer fluid ext	Ø	DN 25				
External thread of heating circuit connection	Ø	DN 25				
Defrosting system		Hot gas defrosting				
High pressure switch interruption	(bar)	27				
Low pressure switch interruption	(bar)	0,5				
Differential gap for high pressure switch	(bar)	-7				
Differential gap for low pressure switch	(bar)	+1,0				
Height with adjustable feet	(mm)	1045				
Width	(mm)	1200				
Depth	(mm)	500				
Net weight	(kg)	150	160	150	160	160

* for compressor, ventilator and control. The relation between "heating capacity and receptivity" must be reduced by approx. 10% during defrosting.

** Outside air temperature/flow temperature

Water heaters for connection to heat pumps

VPA

VPA is a range of water heaters intended primarily to be connected to heat pumps. They are also suitable for use with other heat sources. VPA is manufactured in three sizes, 200/70, 300/200 and 450/300.

The water heater is made up of a hot water tank, encased by a double jacket of sheet steel. The hot water tank is fitted with copper or enamel corrosion protection on the inside. See table.

The water heaters are designed and approved to meet current pressure vessel standards.

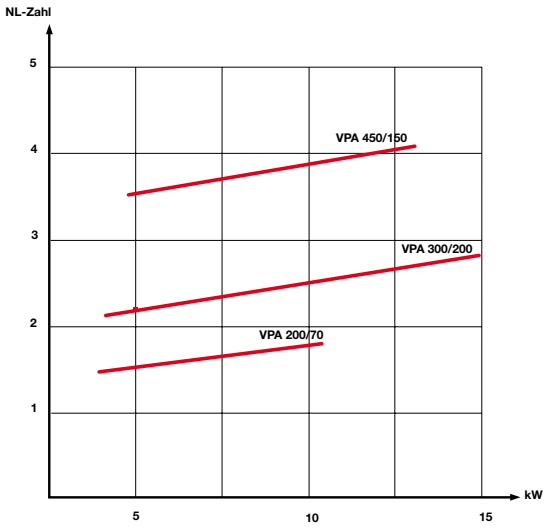
Due to the polyurethane foam insulation the water heater provides excellent thermal insulation.

If necessary VPA enables the use of an immersion heater for sensor controlled hot water heating.

The cold water supply line must be fitted with safety equipment in accordance with current standards.

If the water heaters are heated to more than 65 °C, a mixing valve must be fitted. The highest permitted temperature is 100 °C.

Rated power specifications for the VPA accumulator



Technical Data – VPA

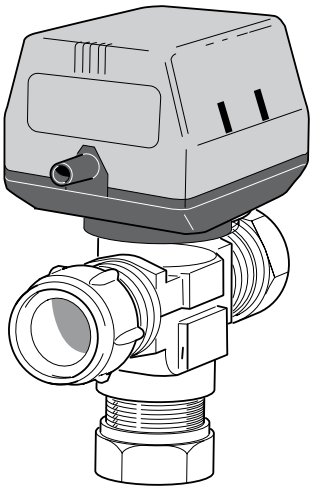
Size		200/70*	300/200**	450/300*
Hot water tank capacity	litres	205	285	444
Double-jacket tank volume	litres	66	194	285
Net weight	kg	150	180	285
Height **	mm	1540	1725	2000
Width x Depth/Diameter	mm	600 x 610	Ø 725	Ø 800
Heat exchange (55/45 – 10/45 °C)	kW	8.2	10.0	14.5
Heat content at 50 °C	kWh	9.0	12.5	19.1
Corresponding hot water amount (40 °C)	litres	260	360	560
Maximum cartridge heater length	mm	540	580	750
Max. pressure in the double jacket	MPa	0,25	0,3	0,25
Max. pressure in hot water tank	MPa	1	1	1

* Copper
** Copper or enamel
*** Without upper connection pipe

SMO 10

SMO 10 The SMO 10 has been constructed as a control unit so that it can also control not only the automatic mixing mechanism, load monitoring, circulation pumps and sensors, but also compressors and additional electronic equipment in heating and service water systems. Together with a FIGHTER 2005 an existing heating and service water system is converted into a complete and economical heat comfort unit.

VST 11



VST 11 This aftermarket equipment enables the FIGHTER 2005 air/water heat pump to prioritise refilling of service water in a system with gliding condensation. An accumulator tank, such as a NIBE-VPA, is required for this feature as well as a temperature controller. When a hot water temperature sensor is connected, the control system for the refilling function is automatically activated. If required the heat pump will prioritise refilling hot water. This refilling will be performed for a maximum of 20 minutes, after which heat for heating will be produced, before it is permissible to switch back to hot water refilling.

Comfort from Sweden

NIBE Heating, with its Head Office in Markaryd, Sweden, is one of Europe's leading companies in the domestic heating field. Products such as water heaters, heat pumps and several types of boiler are the basis of NIBE's current product range.

NIBE Heating is one of three business areas of NIBE Industrier AB, a company listed on the Swedish Stock Exchange.

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Subject to measurement and design modifications

GKB GB 0623-2 FIGHTER Outside air heat pumps 639205