



PRODUCT DATA SHEETS

HEAT PUMPS

 **Dimplex**



HIGH-TEMPERATURE BRINE-TO-WATER HEAT PUMP: UNIVERSAL DESIGN - MAX. FLOW TEMPERATURE 70 °C

HIGHER FLOW TEMPERATURES FOR HEATING AND DOMESTIC HOT WATER PREPARATION

Usually, when a heating system is modernised, a new, more efficient heat generator must be integrated into an existing heat distribution system. More often than not, the necessary flow temperatures are not known at all or only approximately. Dimplex high-temperature brine-to-water heat pumps always guarantee cosy heat: whether with the maximum flow temperature of 70 °C or with subsequently lowered flow temperatures after renovation measures have been carried out.

LOW-TEMPERATURE HEATING SYSTEMS AND DOMESTIC HOT WATER UP TO 60 °C

High-temperature brine-to-water heat pumps are also suitable for new buildings. Excellent COPs can be achieved in combination with underfloor heating. High-temperature heat pumps are the first choice for builders who want to rely on modern heat pump technology whilst not forgoing high hot water temperatures.



HIGH-TEMPERATURE HEAT PUMP

- ✓ Maximum flow temperature of 70 °C
- ✓ Hot water temperatures up to 60 °C with heat-pump-only operation
- ✓ High COPs through economiser
- ✓ Universal design for customisation of the distribution system
- ✓ Can be used for heating, domestic hot water and swimming pool water preparation

UNIVERSAL DESIGN FOR FLEXIBLE USE

Due to their universal design with integrated heat pump manager, the heat pumps can be adapted to numerous customer requirements: These heat pumps can be used as monovalent heat pump heating systems or in combination with other heat generators, if necessary, they can supply several heating circuits at different temperature levels and they can even be used for domestic hot water and swimming pool water preparation. The control panel is removable and can be installed at the optimal operating height using our wall mounting set.

DEVICE INFORMATION HIGH-TEMPERATURE BRINE-TO-WATER HEAT PUMPS:

Order reference		SIH 6TE	SIH 9TE	SIH 11TE
Design		universal	universal	universal
Connection voltage	V	400	400	400
Maximum flow temperature	°C	70	70	70
Heat output/COP according to EN 255 at B0/W35	1. Comp.	6,2 kW / 4,6	9,0 kW / 4,5	11,2 kW / 4,7
Width	mm	650	650	650
Height	mm	805	805	805
Depth	mm	775	775	775

GROUND OR WASTE HEAT AS HEAT SOURCE

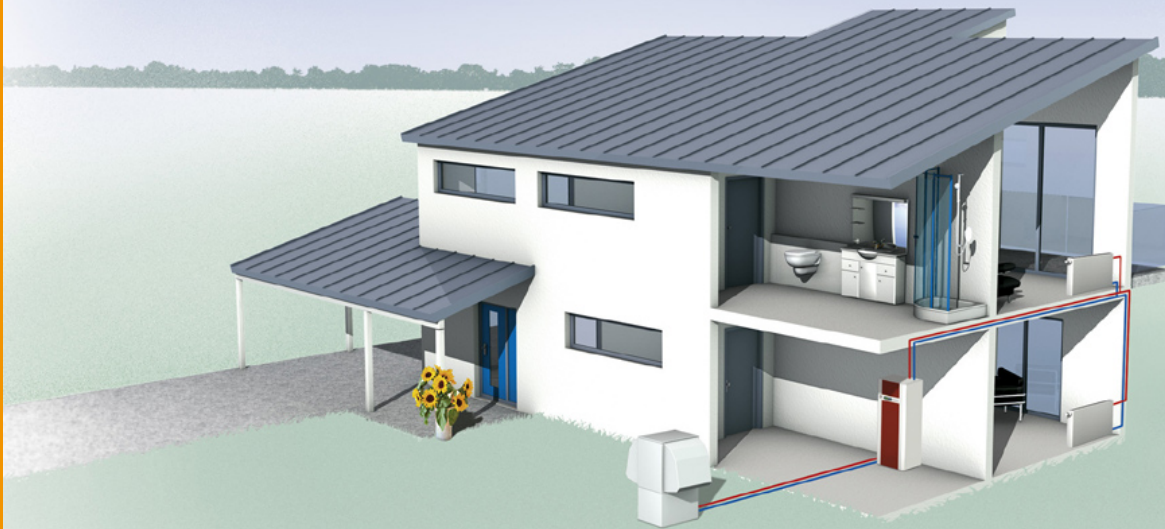
Dimplex brine-to-water heat pumps utilise the ground as their heat source, which stores enormous amounts of energy generated through precipitation and solar radiation. Two different systems are available for extracting energy from the ground on a permanent basis: ground heat collectors, which are installed close to the surface, and borehole heat exchangers, which are installed deep underground. Apart from using the ground as the heat source, the brine-to-water heat pump also offers the possibility to directly feed existing waste heat (e.g. from production processes) into the brine circuit. The high-temperature brine-to-water heat pump can raise this otherwise wasted energy to a considerably higher and thus usable temperature level.



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Glen Dimplex Deutschland GmbH
Dimplex Division
 Am Goldenen Feld 18 - 95326 Kulmbach
 export@dimplex.de - www.dimplex.de/en

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Hydraulic Tower with Heat Pump Manager

For air-to-water heat pumps installed outdoors

Hydraulics – often underestimated but so important

The required heating water flow must be guaranteed in all operating conditions for trouble-free operation of the heat pump. Coupled with a sufficiently large heating water volume, this ensures the minimum runtimes of the compressor and enables energy-efficient heat generation. With air-to-water heat pumps the installation of a buffer tank connected in series guarantees the energy required for defrosting. Lowering the flow temperature by 1 °C increases the efficiency of the heat generation by a whole 2.5 %. Therefore, the temperature level generated by the heat pump should, if possible, be fed directly into the heating system. A mixer is only required if radiators and underfloor heating systems are used in combination. Heating and domestic hot water requests must be processed separately due to the great differences in temperature.

The simple and quick way to the perfect hydraulics

The HPK 200S hydraulic tower is simply connected to the air-to-water heat pump installed outdoors via one electric and two hydraulic connecting lines. The integrated components for an unmixed heating circuit ensure the required heating water flow and trouble-free operation. With the required safety units and the expansion vessel integrated into the casing, the heating flow and return flow can be directly connected to the top of the hydraulic tower. If, in addition to heating operation, domestic hot water preparation is also to be carried out via the heat pump, the hot water circulating pump can be mounted in the designated location and a hydraulic connection to the hot water cylinder next to it can be established.



HPK 200S hydraulic tower: Perfect hydraulics for high annual performance factors

HPK 200S hydraulic tower

- ✓ High degree of operational safety and fast installation
- ✓ Integrated buffer tank (200 l), expansion vessel (24 l) and switchable supplementary heating (2, 4, 6 kW)
- ✓ Integrated circulating pumps ensure the heating water flow and supply an unmixed heating circuit
- ✓ Heat pump manager with all components connected ready-for-use
- ✓ Can be expanded to include domestic hot water preparation and an additional mixed heating circuit

Energy saving hydraulics

The dual differential pressureless manifold enables the maximum variety of hydraulic options without compromising when it comes to efficiency. The hydraulic isolation is realised using two differential pressureless manifolds (bypass pipes) with a check valve each. The circulating pump in the generator circuit is only operated when the compressor is running to reduce the runtimes. The uniform flow through the buffer tank connected in series extends the runtimes of the compressor and ensures defrosting in all operating conditions.

HPK 200S hydraulic tower: Can be used for all air-to-water heat pumps with wall-mounted heat pump manager WPM 2006 plus

Hydraulic tower		HPK 200S
Part number		355980
Connection voltage regulation	V	230
Connection voltage supplementary heating	V	230 / 400
Width	mm	680
Height	mm	1660
Depth	mm	800
Weight	kg	187
Connection heating / hot water		1 1/4"
Expansion vessel	L	24

Due to the integrated heat pump manager, the hydraulic tower cannot be ordered separately. For each combinable heat pump there is a sales package consisting of the heat pump without a regulation system and the hydraulic tower.

Flexible expansion options

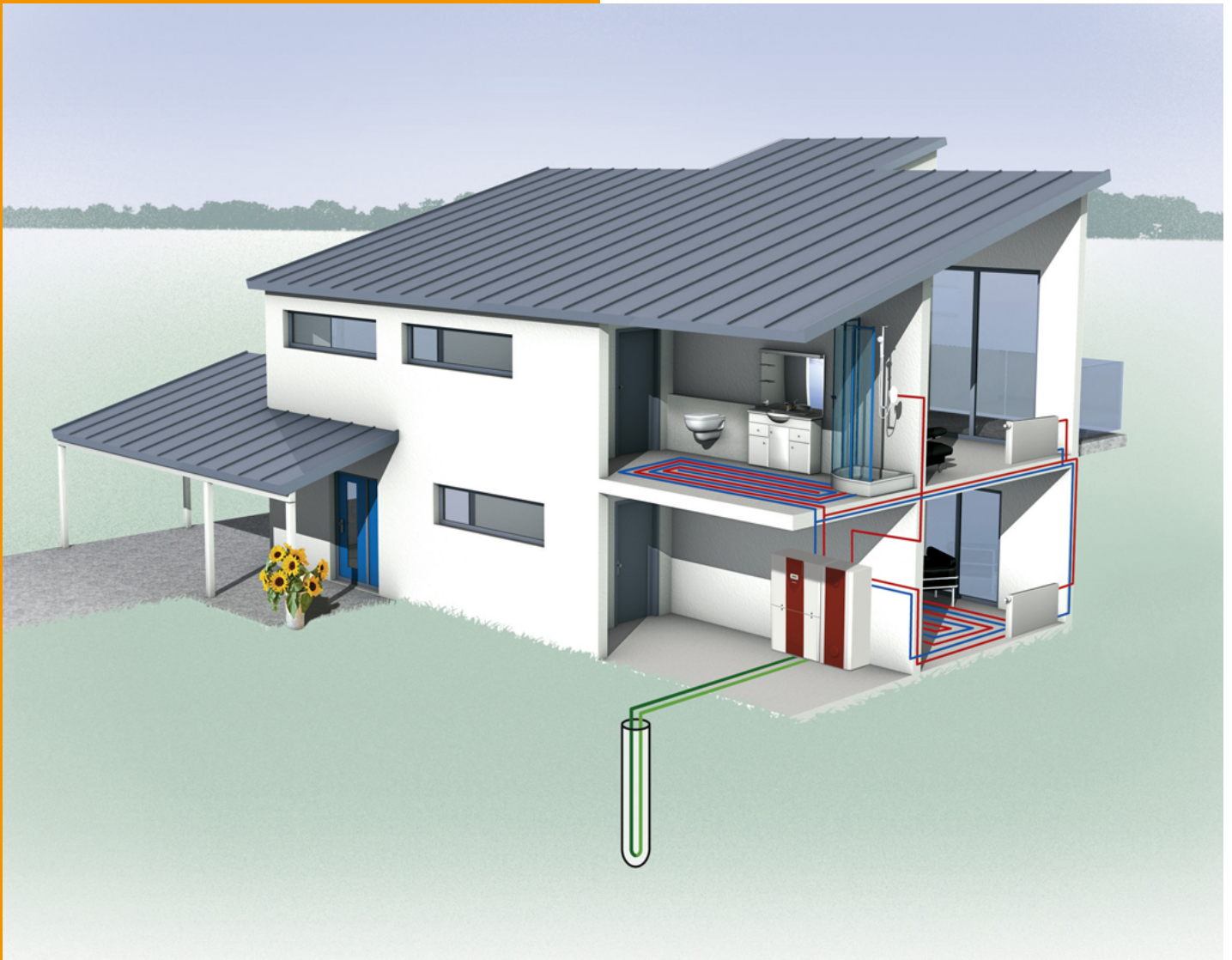
The hydraulic tower enables the quick and simple connection of an air-to-water heat pump installed outdoors to a heating system with an unmixed heating circuit. A 400 l hot water cylinder (special accessory WWSP 442E) in the same design is available for domestic hot water preparation. The hot water circulating pump and a mixer module (available as special accessory) can be installed and wired directly in the hydraulic tower. Hydraulic versions are available for combination with an existing boiler or the infeed of renewable energy (e.g. solar).



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Glen Dimplex Deutschland GmbH
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 Am Goldenen Feld 18 - 95326 Kulmbach
 export@dimplex.de - www.dimplex.de/en

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REVERSIBLE BRINE-TO-WATER HEAT PUMP:

Optimised for cooling operation with waste heat recovery

Increased cooling requirements in buildings

Nowadays, in many buildings the cooling requirements are higher than the heating requirements. The reasons for the increased cooling requirements and the lower heat consumption are obvious. The heat consumption is lower in buildings which are thermally insulated to a high standard, while the cooling requirements increase due to higher solar energy gains, the rising demands for more comfort and convenience and larger internal heat loads. Cooling requirements are increasing especially in commercial buildings such as doctor's practices and offices due to the waste heat from electrical devices and the lighting. Therefore, apart from heating, the efficient cooling of buildings must increasingly be taken into consideration.

The Solution: the reversible heat pump from Dimplex - for heating and cooling

The reversible brine-to-water heat pump from Dimplex is an energy-efficient heating and cooling device. The integrated regulation enables heating in winter and cooling in summer with fan convectors and panel heating. In cooling operation, an integrated additional heat exchanger uses the waste heat directly as free energy for domestic hot water and swimming pool water preparation. Especially high coefficients of performance can be achieved when the waste heat from cooling operation can be used permanently (e.g. for the preheating of a production process). Then, up to 10 times the consumed energy is given off as usable heat output or cooling capacity by the heat pump.



Reversible brine-to-water heat pump

- ✓ Max. flow temperature in heating operation 55 °C
- ✓ Min. flow temperature in cooling operation 8 °C
- ✓ Can be used for heating, cooling, domestic hot water and swimming pool water preparation
- ✓ Domestic hot water temperatures up to 60 °C with simultaneous heating or cooling request
- ✓ Heating and cooling with two compressors to permit flexible adaptation of the performance

Heat pump manager with heating and cooling regulation

The integrated regulation enables permanent heating or cooling operation with parallel domestic hot water or swimming pool water preparation. In cooling operation, the waste heat is transferred to a heat consumer via an additional heat exchanger or discharged via the borehole heat exchanger. The cooling capacity generated can be utilised for dew-point-controlled silent cooling (e.g. cooled ceiling) as well as for dynamic cooling (e.g. fan convectors).

DEVICE INFORMATION REVERSIBLE BRINE-TO-WATER HEAT PUMP

Order reference		SI 30TER+	SI 75TER+
Design		reversible	reversible
Connection voltage	V	400	400
Maximum flow temperature heating	°C	55	55
Minimum flow temperature cooling	°C	7	7
Heat output/COP according to EN 255 at B0/W35	1. Comp.	15,4 kW / 4,2	34,0 kW / 3,9
	2. Comp.	28,5 kW / 3,9	66,4 kW / 3,6
Cooling output/COP at B20/W10 according to EN 14511		39,4 kW / 5,1	75,5 kW / 4,5
Width	mm	1000	1350
Height	mm	1660	1890
Depth	mm	775	750
Weight	kg	385	658

Active or passive cooling

In Germany, deeper ground layers have constant temperature levels of approx. 10 °C all year round, which can be directly utilised for cooling using a heat exchanger. The heat pump compressor is not required – it remains passive. In this case, a Dimplex brine-to-water heat pump is used with an additional passive cooling controller (special accessory) to enable the cooling operating mode. Active cooling with a reversible brine-to-water heat pump is generally used when passive cooling is no longer possible with a higher cooling load and the higher brine temperatures this involves.



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Compact Brine-to-Water Heat Pump

with high flow temperatures for domestic hot water preparation

Optimal utilisation of the living space in new buildings

The high level of thermal insulation in new buildings makes the use of heat pumps even more efficient. Due to the low heat outputs, heat pumps are the clear winner in investment and operating cost comparisons with other heating systems. And the trend is towards compact heat pumps with integrated domestic hot water preparation for optimal utilisation of the living space. This demand for compact dimensions coupled with a high degree of comfort when it comes to domestic hot water preparation, however, is a challenge for the heat pump technology used.

The compact heat pump that does not require a heating element

The high-temperature brine-to-water heat pump with hot water cylinder meets the high demands of the technicians and customers. The heat pump contains all components required for direct connection of the heating and brine circuits. With monovalent systems the heat pump fully meets the heating requirements of the building. The heat pump is installed on a separately delivered 200 l hot water cylinder. The heat pump heats the hot water cylinder to max. 60 °C without the use of supplementary electric heating systems. With a desired tapping temperature of 45 °C and fully heated cylinder, approximately 300 litres of hot water can be removed



Compact brine-to-water heat pumps with built-under hot water tank

Compact brine-to-water heat pumps with domestic hot water preparation

- ✓ Compact design for direct connection of the heating and brine circuits
- ✓ Sound-insulated refrigerating circuit with economiser for high coefficients of performance
- ✓ Hot water temperatures up to 60 °C with heat-pump-only operation
- ✓ Wired ready for use for an unmixed heating circuit
- ✓ Heat pump and hot water cylinder can be transported separately

Heat pump manager – the intelligent regulation

The heat pump manager monitors the operation of the heat pump and offers all the functions of a modern heating regulation system, such as a remote diagnostics system and timer programs for heating and domestic hot water preparation. Furthermore, this is an energy-optimised way of meeting all heating and domestic hot water requirements. The display integrated into the design screen shows the current operating status as text message. Dynamic menus hide any settings not required for safe and easy operation. The removable control panel can be removed from the heat pump and installed in any position desired by the customer (special accessory).

Order reference		SIKH 9ME	SIKH 6TE	SIKH 9TE
Design		Compact	Compact	Compact
Connection voltage	V	230	400	400
Maximum flow temperature	°C	70	70	70
Heat output according to EN 255 at B0/W35	kW	9,4	6,4	9,4
COP according to EN 225 at B0/W35	-	4,4	4,7	4,7
COP according to EN 14511 at B0/W35	-	4,2	4,5	4,5
COP according to EN 14511 at B0/W45	-	3,4	3,5	3,5
Width	mm	652	652	652
Height	mm	1115	1115	1115
Depth	mm	688	688	688

Heat pump operation without buffer tank

To ensure the minimum runtime of a brine-to-water heat pump, Dimplex recommends a buffer tank connected in series with a volume of 10 % of the heating water flow of the heat pump per hour. In heat pump heating systems, the underfloor heating system can perform the tasks of the buffer tank connected in series as long as several heating circuits are operated so that they cannot be shut-off. For well-insulated buildings in open-plan design, heat pump regulation should not be based on the external temperature but on the temperature of a reference room. Room temperature regulation of the reference room is in turn carried out via an adjustment of the system temperature with the flow temperatures actually required.



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Medium-Temperature Air-to-Water Heat Pumps

Compact design for simple installation

Tapping the air as heat source

Dimplex air-to-water heat pumps are available for indoor and outdoor installation. While for outdoor installation the air circuit is already installed in the heat pump, it must be configured for indoor installation. Installation can be in a corner against two external walls or as wall installation against one external wall. The air circuit components must be selected such that a sufficiently large air volume flow is moved by the heat pump fan. Buffer and hot water cylinder must be connected to the heating distribution system such that operational safety can be guaranteed in all system conditions.

Compact design with high operational safety

The LIKI 14TE air-to-water heat pump makes installation easy, quick and safe. The integrated air circuit with 90° air deflection enables direct corner installation without air ducts or wall installation with air ducts on the air outlet side. Since the expansion vessel with safety module, the buffer tank and the supplementary heating are integrated, installation time on site is reduced to a minimum. A dual differential pressureless manifold with integrated circulating pump ensures minimum heating water flow and high operational safety. The additional circulating pump required for the distribution system can be directly mounted to the heat pump via an elbow union.



Medium-temperature compact air-to-water heat pump

- ✓ Flow temperature of up to 65 °C
- ✓ Integrated heat pump manager with removable control panel
- ✓ High COPs due to high-performance evaporator
- ✓ Sound-optimised through low-noise ventilator and encapsulated compressor housing
- ✓ Hot water temperatures up to 60 °C with heat-pump-only operation

Energy saving hydraulics

The dual differential pressureless manifold enables the maximum variety of hydraulic options without compromising when it comes to efficiency. The hydraulic isolation is realised using two differential pressureless manifolds (bypass pipes) with a check valve each. The circulating pump in the generator circuit is only operated when the compressor is running to reduce the runtimes. The uniform flow through the buffer tank connected in series extends the runtimes of the compressor and ensures defrosting in all operating conditions.

Order reference		LIKI 14TE
Design		Compact
Connection voltage	V	400
Maximum flow temperature	°C	65
Heat output / coefficient of performance in accordance with EN 14511 at A2/W35:	kW / -	9,9 / 3,4
Heat output / coefficient of performance in accordance with EN 14511 at A2/W55:	kW / -	8,8 / 2,1
Heat output / coefficient of performance in accordance with EN 14511 at A7/W35:	kW / -	11,7 / 3,9
Weight	kg	270
Width	mm	965
Height	mm	2100
Depth	mm	785

Higher flow temperatures for heating and/or domestic hot water preparation

The LIKI 14TE medium-temperature air-to-water heat pump enables maximum flow temperatures of 65 °C, which are available for heating or hot water preparation all year round. In combination with an underfloor heating system, an excellent annual performance factor can be achieved with low flow temperatures. Higher flow temperatures are only required for domestic hot water requirements. More often than not, the necessary system temperatures are not known at all or only approximately during the modernisation of a heating system. The medium-temperature air-to-water heat pump from Dimplex ensures cosy heat; whether with the maximum flow temperature of 65 °C or with subsequently lowered flow temperatures e.g. after a completed modernisation.



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Air-to-Water Heat Pump for High Heat Outputs

Using the air as a heat source

High heat consumption at low external temperatures

During the last couple of years heat pumps have become the standard heat generator in detached and semi-detached houses. Heat pumps for heating purposes using the air or ground as a heat source are most often installed. For the heating of larger residential and industrial buildings, planners and architects prefer the utilisation of ground heat. The high investment costs for the tapping of this heat source, however, scare off many customers. Furthermore, the required space for the installation of borehole heat exchangers is often not available in cramped residential areas.

The air as a heat source with high coefficients of performance

When it comes to development costs and efficiency, outside air is often underestimated as a potential energy source. Air-to-water heat pumps have the lowest investment costs as the costs for tapping the heat source are minimal. Year after year, installed systems have proven that even in the coldest areas in Germany, for example, the outside air can be an attractive source of heat, whose costs are amortised. The LA 40AS Dimplex air-to-water heat pump can supply a building with a heat consumption of up to approximately 40 kW. Several heat pumps are operated in parallel for buildings with higher heating loads.



Low-temperature air-to-water heat pump

- ✓ Flow temperature of up to 58 °C
- ✓ High COPs due to high-performance evaporator
- ✓ Horizontal air circuit for low minimum wall clearances
- ✓ Sound-optimised through low-speed axial-flow fan and encapsulated compressor housing
- ✓ Output reduction when operating at partial load due to two compressors

The heat pump manager has everything under control

The heat pump manager monitors the operation of the heat pump and offers all the functions of a modern heating regulation system, such as a remote diagnostics system and timer programs for heating and domestic hot water preparation. Furthermore, it meets all heating requirements when it comes to optimized heating, domestic hot water preparation and swimming pool water preparation. When combining a heat pump with an existing boiler, the heat pump manager regulates the boiler according to need and ensures that no excessive temperatures can enter the heating system. The “bivalent-renewable” operating mode is available for optimal integration of renewable energies.

Order reference		LA 40AS
Connection voltage	V	400
Maximum flow temperature	°C	58
Heat output / coefficient of performance in accordance with EN 14511 at A2/W35:	1. Comp.	16,8 kW / 3,9
	2. Comp.	30,0 kW / 3,8
Heat output / coefficient of performance in accordance with EN 14511 at A7/W35:	1. Comp.	20,0 kW / 4,6
	2. Comp.	35,7 kW / 4,4
Heat output / coefficient of performance in accordance with EN 14511 at A7/W55:	1. Comp.	17,6 kW / 2,7
	2. Comp.	33,1 kW / 2,7
Required minimum heating water flow:	m³/h	4,0
Device connection for heating:	inch	1 1/2
Weight	kg	585
Width	mm	1735
Height	mm	2100
Depth	mm	890 (750)

On its own or in combination with other heat generators – the heat pump manager makes it possible

Air-to-water heat pumps installed outdoors are universally applicable. Normally they are combined with a second heat generator, which supplements the heat pump at extremely low external temperatures. Air-to-water heat pumps should be dimensioned to cover over 95 % of the annual heat output by heat pump operation alone. The remaining amount can easily be provided by a supplementary electric heating system or by combining the heat pump with an existing boiler. The heat pump manager switches the additional heat generators on and off according to need, thus minimising operating costs.



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Heat Pump Module

for utilisation of waste heat

Simultaneous cooling and heating requirements

All year round server rooms, cooling systems or production processes generate waste heat, which is often simply released into the atmosphere without being utilised. At the same time separate heat generators are operated for domestic hot water preparation or heating, since a combination of both systems is seen as too complex or unprofitable. With the oil and gas prices permanently increasing, however, the demand for simple but effective systems for waste heat recovery is also increasing.

The simple way to waste heat recovery

The LI 2M heat pump module enables the use of waste heat from unpolluted air. In the simplest case the plug-in device draws the warm air directly via the integrated radial fan and cools it down. The refrigerating circuit “pumps” the recovered heat to a usable temperature level and transfers the heat via a heat exchanger. The externally connected heating water circuit transfers the prepared waste heat to the heating system or a hot water cylinder with integrated heat exchanger. The highest efficiency is reached when the heat pump module is operated at a low temperature level to, e.g., heat a preheating stage for domestic hot water preparation.



LI 2M heat pump module

Heat pump module

- ✓ Heat output 1.5 kW at A15/W45
- ✓ Min. temperature of the air (heat source): 0 °C
- ✓ Max. temperature of the air (heat source): +40 °C
- ✓ Max. flow temperature 70 °C
- ✓ Exhaust and outgoing air stubs (DN 160) for optional connection of a duct system (max. 10 m)

Regulation of the heating water outlet temperature

The max. permissible heating water inlet temperature is set via the temperature controller that can be set at the casing. If this temperature is exceeded, the compressor is switched off. When the compressor is running, the heat output leads to an increase of the heating water outlet temperature, which depends on the heating water inlet temperature and the volume flow. When heating a hot water cylinder, the heating water outlet temperature is higher than the current cylinder temperature. It can be approximately 20 °C during loading and up to 70 °C at the end.

Heat pump module

Order reference		LI 2M
Connection voltage	V	230
Maximum flow temperature	°C	70
Heat output / COP at A20 / W45	kW / -	1,7 / 2,5
Heat output / COP at A35/ W45	kW / -	2,3 / 3,0
COP (t) EN 255 at A20/45 °C (heating up 300l cylinder)		3,7
Heating water flow rate	m³/h	0,25
Air flow	m³/h	450
Width	mm	450
Height	mm	725
Depth	mm	550

Waste heat recovery in industry and business

When dimensioning systems for heat recovery, it must be considered that the waste heat should be available on a permanent basis and that the heat consumer can dissipate the heat output generated by the heat pump. A high number of hours per year of full-potential operation with short amortisation times can be achieved when peak demands are not taken into consideration during system dimensioning. Apart from the heat pump module, air-to-water heat pumps with a heat output of up to 50 kW can also be used for the use of the air as a heat source. When waste heat is recovered from cooling water, brine-to-water heat pumps with a heat output of approximately 150 kW can be used.



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Glen Dimplex Deutschland GmbH
Dimplex Division
 Am Goldenen Feld 18 - 95326 Kulmbach
 export@dimplex.de - www.dimplex.de/en



Kotlarnica d.o.o.
 Jugoslovenska 2/13
 11250 Beograd
 Srbija
 www.kotlarnica.rs

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