M-TEC
ENERGY FOR FUTURE

GROUND SOURCE HEAT PUMPS

3 - 52 KW

www.mtec-systems.international

5 DECADES USE EXPERIENCE

M-TEC HEAT PUMPS

M-TEC, based in Austria, is a "green tech" company with a special focus on the development and production of highly efficient heat pumps.
As a specialist in intelligent control technology and for a sustainable Energy management, we develop cross-system solutions for heating, cooling, ventilation, water heating, photovoltaics and solar thermal energy.
More than five decades of experience with over 20.000 heat pumps, patents in the field of innovative complete heat pump systems and the constant further development of heat pump technology are important cornerstones of the corporate strategy.

DR. HANNES JAKOB, MBA
CEO-EXECUTIVE PARTNER

"M-TEC stands for honesty, trust and the highest quality for more than 5 decades. As managing director, I see it as my task not only to support you in your heat pump project, but also to inspire you with our cooperation."

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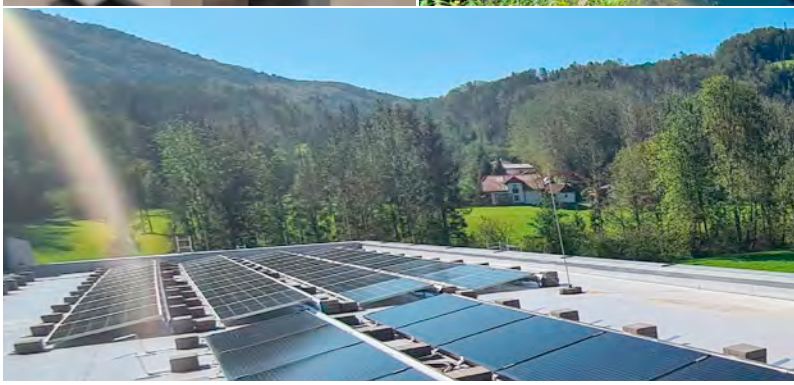

100 % SUSTAINABLE:

M-TEC International heat pumps are produced in Upper Austria with 100% renewable energy - 100% energy generated from our own photovoltaic system and our own hydropower plant.

Our mission is people's independence in the energy supply of their homes through Heat pump, photovoltaic, storage and E-mobility, controlled by our innovative Energy management system E-Smart.

HOW THE M-TEC HEAT PUMP WORKS

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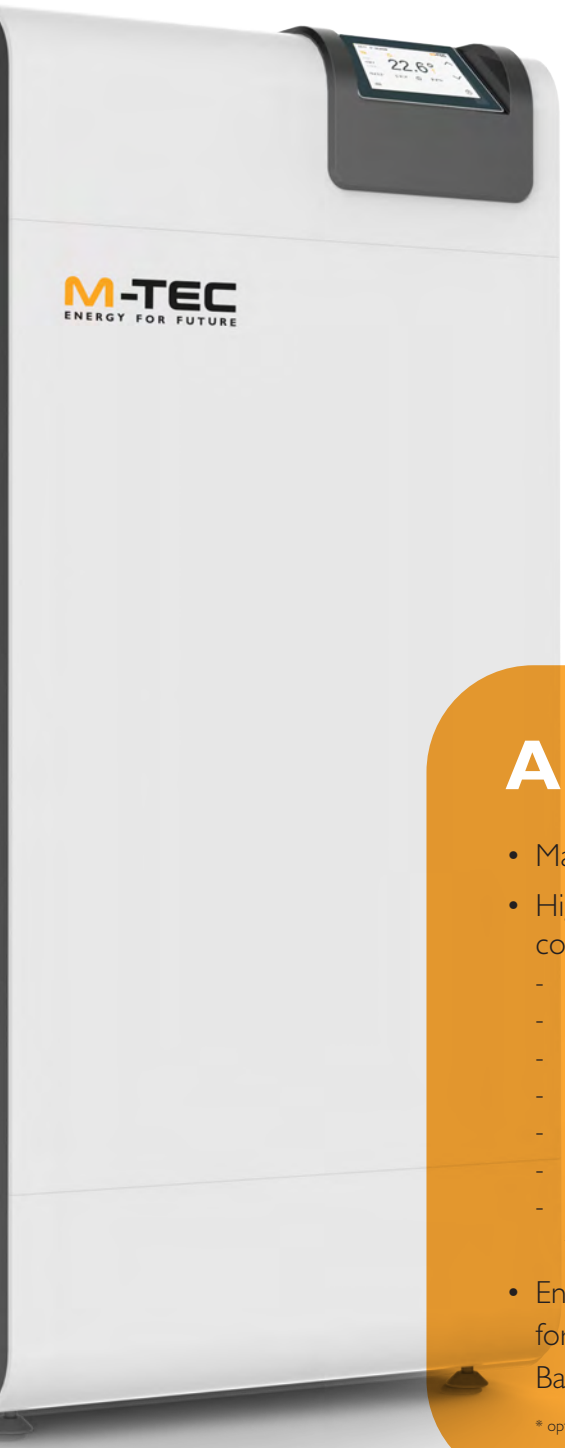
In principle, the heat pump works like a refrigerator: the same technique, only reversed utility. The heat pump receives energy from the heat source side (earth, water or air) at a low temperature and releases heat with a higher temperature on the heating side.

INTELLIGENT POWER CONTROL

The M-TEC International Power Inverter is a true innovation in the field of heat pump technology. The principle is very simple: The inverter adjusts the energy used to the actual needs of your home. The efficiency is thereby improved by approximately 20% and the life span of the compressor is prolonged due to significantly less switch-on cycles.

A geothermal heat pump uses solar energy stored in the ground. This solar energy is available at any time. Day or night, summer or winter, even unlimited, because it renews itself over and over again. Due to its relatively constant ground temperature, the earth is a particularly good heat accumulator. Starting at a depth of approx. 1m only very little temperature fluctuations occur, no matter how cold it is outside. We use either a flat collector (a large pipe system that is laid about 1m below ground) or a geothermal probe, via deep drilling into the ground (50 to 150 m)



TOP SYSTEM CONCEPT

The best heat pump is only as good as the designed system concept. M-TEC International is always optimally oriented to this development!
This results in heating systems with maximum efficiency, which is permanently tested and confirmed by independent authorized testing institutes such as the Austrian Institute of Technology in Austria.

ESmart TECHNOLOGY INSIDE

display model Premium

ADVANTAGES

- Maximum efficiency of heat pump systems
- High innovative power also in the field of control technology
  - Inverter technology
  - Latest overheating control
  - PV Self-consumption optimization
  - Advanced "Smart Grid" functionality
  - External systems can be integrated
  - LAN interface in each heat pump
  - Easy to use touch screen technology, tablets or smartphones
- Energy-Managementsystem **E-SMART*** for best integration of photovoltaics, Battery storage, e-mobility, ...

* optionally included in the E-Smart Premium package

CONNECT ALL THE DEVICES IN YOUR HOME EASILY AND EFFICIENTLY

Thanks to "Internet Inside", M-TEC heat pumps have been able to take advantage of current developments for years. The advantages of digital networking are obvious. Maintenance and fault diagnosis can be carried out quickly and easily via remote maintenance. Travel costs and time are eliminated. In addition, you can control your heating from anywhere: Whether smartphone or tablet - use the various options to manage your room temperatures..

SMART GRID

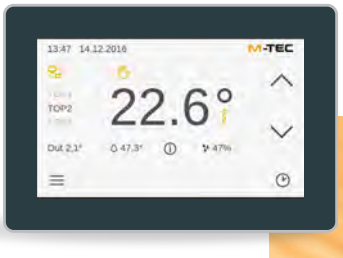
M-TEC International heat pumps are already "*Smart Grid Ready*" today.
With this function, you can use the cost savings of future electricity networks. In times where generally less power is consumed, electricity is also cheaper. Therefore the operating time of the heat pump should be shifted to this period. This is fully automated by M-TEC International's intelligent control system..

INTERNET INSIDE

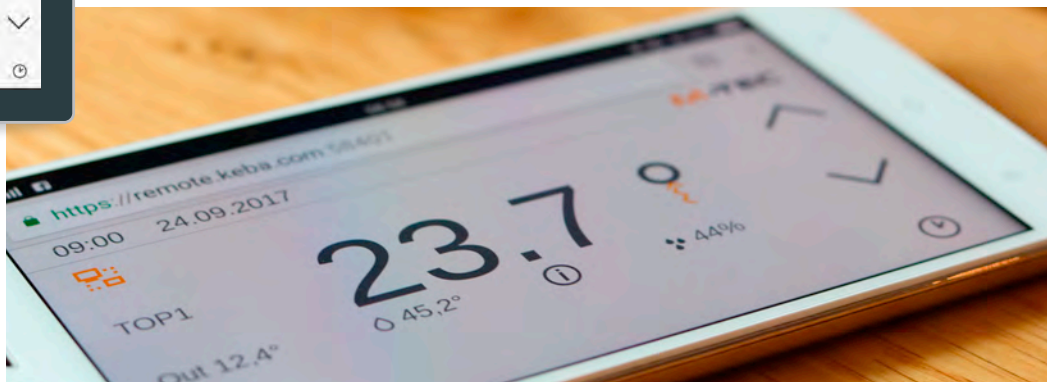
All M-TEC heat pumps are already equipped with the future technology of "*Internet Inside*". This allows you as a customer to control your heat pump from your mobile phone, tablet or PC. If the heat pump is no longer working optimally, the heat pump automatically signals the problem to your selected heat pump installer. Via "*Internet Inside*", these adjustments can be made to the control settings, without having to be on site. This saves your time and money.

INTEGRATION OF EXTERNAL SYSTEMS

The integration of a photovoltaic system, solar system or house management system are possible thanks to the intelligent control of the M-TEC heat pump.
Photovoltaic integration can use the self-generated electricity for space heating as well as hot water preparation, preferably for own consumption. Feeding your own PV electricity to the grid will only occur when the hot water storage tank is charged and the house is comfortably warm.



Whether touch operation, M-TEC control or control via smartphone - networked Technology makes your heat pump versatile to use.



THE PHOTOVOLTAIC GROUND SOURCE HEAT PUMP

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The outstanding feature of the M-TEC heat pump is its efficiency, which, thanks to its special direct evaporation technology, converts one kilowatt hour of electricity into five kilowatt hours of heating energy, often even more. This results in extraordinarily low operating costs compared to conventional heating systems.

Thanks to the sophisticated M-TEC International controller with Touch-Screen, self-generated electricity from the photovoltaic system can be used for heating and cooling of the house. The speed control of the heat pump adapts itself to the photovoltaic power independently. The free photovoltaic electricity can thus be used as best as possible to heat the house, hot water and swimming pool.

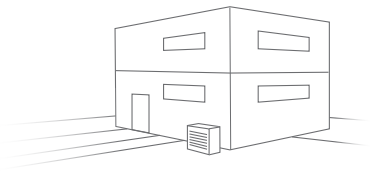
ESmart
TECHNOLOGY INSIDE

ADVANTAGES

- Maximum self-consumption of free photovoltaic power
- High degree of comfort
- Long-term security of supply at the lowest cost
- Low maintenance
- Ready for that with the **E-SMART** Energy management system of the future.

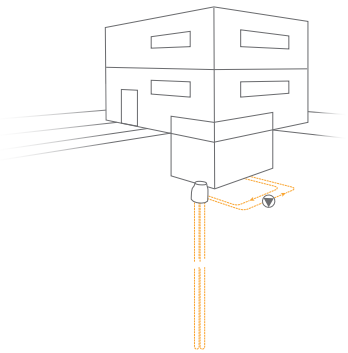
SOURCES OF ENERGY FOR THE M-TEC HEAT PUMPS

Wether earth, air or ground water – with the solutions from M-TEC you can use natural resources in an efficient and sustainable way. Our ground source heat pumps are ready to use for usual heat sources.



AIR SOURCE

Air source heat pumps draw the energy to heat your home from the ambient air. These are mainly used when geothermal heat pumps are not possible or make economic sense.
The efficiency of an air heat pump depends largely on the ambient temperature (the higher the better).

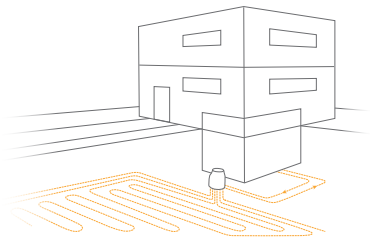


DEEP DRILLING GEOTHERMAL PROBE

In the case of geothermal probes, a frost-proof liquid, the brine, circulates through a plastic tube in a closed circuit.
A geothermal probe requires only a small area of land from your garden. Since, from a depth of 10 meters, the temperature of the soil is almost constant all year round, and is therefore independent of seasonal fluctuations, the geothermal probe is very effective especially in winter at low temperatures. In summer it is ideal for cooling. The necessary length of the probe and thus the depth of the bore depends on the heat demand of the building and the thermal conductivity of the soil.
With an average single-family new building it is about 120 meters.

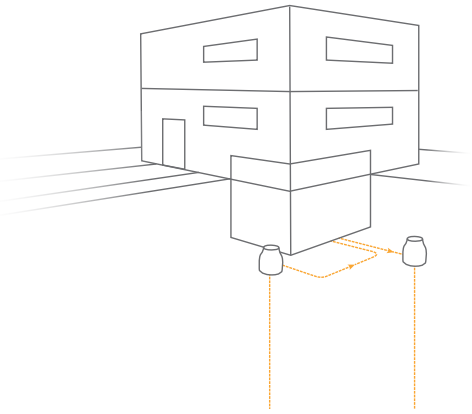
GROUND COLLECTOR BRINE

The ground of your property is a free and inexhaustible source of energy. Thanks to sun, rain and geothermal energy, your garden is always recharged like an energy storage, and is available year-round free of charge. Flat collectors operate with a horizontal pipe system in the ground, which is laid in a similar way as an UFH system in a snake-shape at a depth of approx. 1.3 m.
The required collector area depends on the heat demand of the building and the thermal conductivity of the soil. For an average single-family new building, it is about one and a half times the heated living space.



GROUNDWATER

If groundwater is available in a suitable depth and in sufficient quantity, you have an excellent heat source for a heat pump.
The temperature is constant between 7 and 12 °C. Due to the constant temperature of the ground water you can reach the highest levels of efficiency even at the lowest outside temperature
The two wells require only little space and are therefore ideal small grounds. With this system, not only heating is possible - y can also use the heat pump for cooling and therefore create a comfortable room climate in the summer. Cooling takes place via the "heating system". The heat extracted from the room is transferred to the ground water via the heat pump.



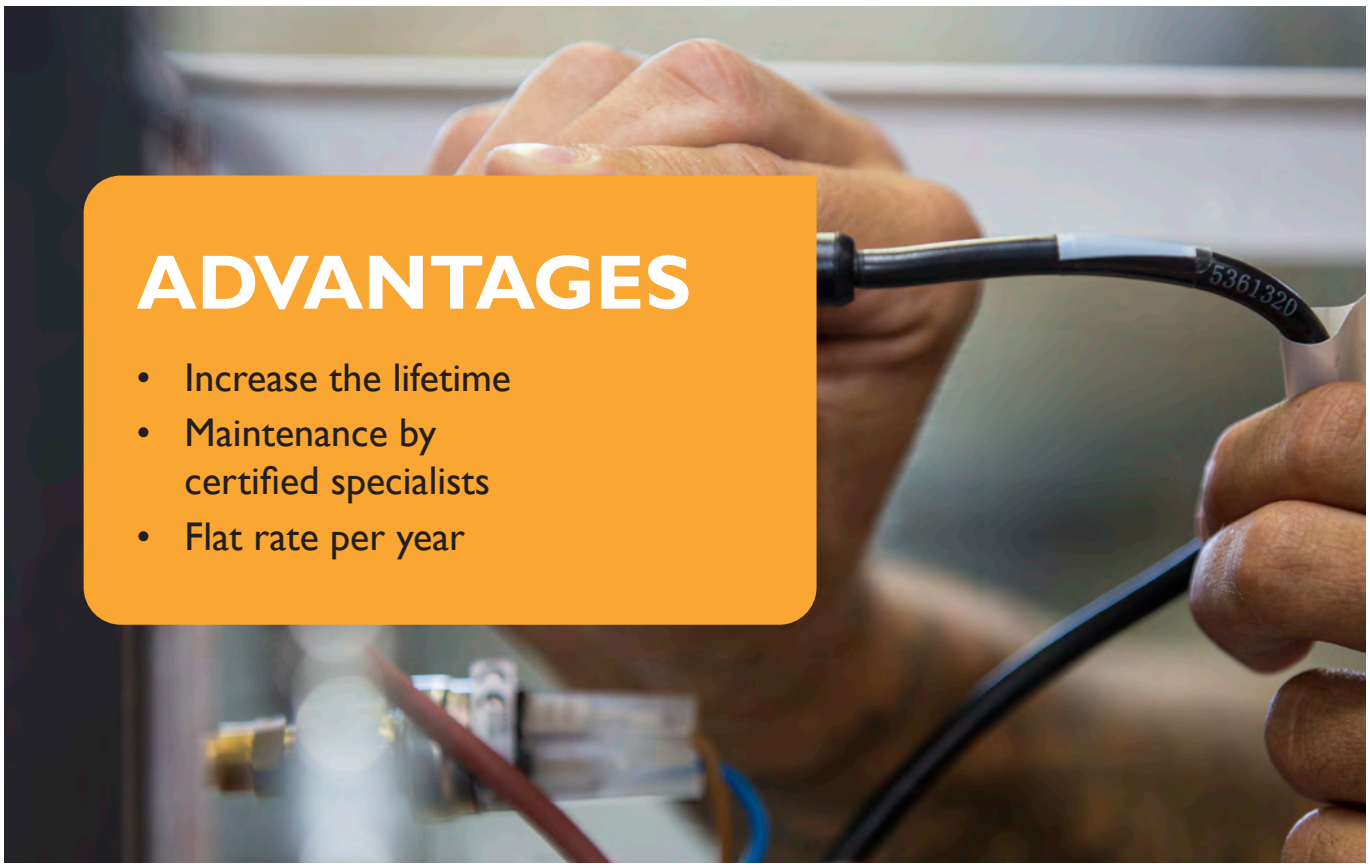
PHOTOVOLTAIC-THERMAL COLLECTORS (PVT)

Photovoltaic-thermal collectors (PVT) are PV-modules and solarthermal collectors combined in one housing.

One collector parts converts the sun exposure into electricity, during the other part is using the created heat as a heat source for the heat pump.

This heat source is mostly combined with other heat sources like ground- or air source.

A new source management system was developed for these systems, which always selects the best/warmest heat source and thus optimizes the annual efficiency of the system.

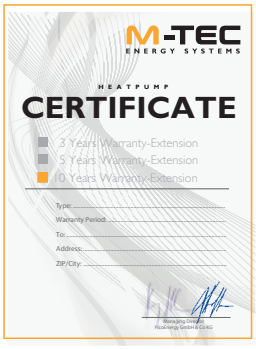


ADVANTAGES

- Increase the lifetime
- Maintenance by certified specialists
- Flat rate per year

INDIVIDUAL WARRANTY EXTENSIONS

Benefit from a specialist in geothermal energy with modern heat pump technology.
M-TEC International heat pumps are the product of over 40 years experience in heat pumps and a cooperation in the field of control technology with the global company KEBA. Due to the high quality requirements, it is easy for us to offer extended warranties in addition to the guarantees.



It can be chosen between

3 years, 5 years or
10 years Warranty-Extension

on all materials. *

* Prices according to valid M-TEC International price list and valid warranty conditions

TECHNICAL DATA - COMPARISON

	Direct Expansion/Water			Brine/Water				Water/Water			
Models		WPD 412	WPD 618		WPS 412	WPS 618	WPS1036	WPS1052	WPS-W 412	WPS-W 618	WPS-W1036	WPS-W1052
Power Range [kW]		3-13 kW	5-20 kW		3-11 kW	4-16 kW	10-36 kW	10-52 kW	3-12 kW	5-19 kW	13-49 kW	13-70 kW
Energy Class VL35 °C		A+++	A+++		A+++	A+++	A+++	A+++	A+++	A+++	A+++	A+++
Energy Class VL55 °C		A+++	A+++		A+++	A+++	A+++	A+++	A+++	A+++	A+++	A+++
Max. Flow temperature		up to 62 °C			bis zu 62 °C				bis zu 62 °C			
SCOP 35 °C	Climate: average	5,81	6,03	Climate: average	5,29	5,51	5,21	5,42	Climate: average	6,71	6,63	7,21	7,35
η s 35 °C [%]		231	240		206	217	205	214		265	262	285	291
SCOP 55 °C		4,23	4,11		3,96	4,28	3,91	4,01		5,01	4,96	4,72	4,83
η s 55 °C [%]		168	163		155	168	153	157		197	195	185	190
Performance Data acc EN14511													
Heating output [kW]	E4/W35 at 54 % Heating Output	6,88	10,70	B0/W35 at 54 % Heating Output	5,78	8,94	17,9	25,9	W10/W35 at 54 % Heating Output	6,6	11,52	23,8	34,9
Power Consumption [kW]		1,3	1,91		1,22	1,89	3,7	5,2		1,03	1,86	3,7	5,3
Coeff. of Performance [COP]		5,31	5,6		4,74	4,72	4,9	5,0		6,42	6,21	6,51	6,6
Heating output [kW]	E4/W35 - 5K at 100 % Heating Output	12,76	19,60	B0/W35 - 5K at 100 % Heating Output	10,64	15,76	36,0	51,4	W10/W35 - 5K at 100 % Heating Output	12,21	19,05	48,7	69,7
Power Consumption [kW]		2,76	4,2		2,41	3,61	8,2	11,8		2,12	3,4	8,6	12,6
Coeff. of Performance[COP]		4,62	4,66		4,42	4,36	4,4	4,34		5,75	5,61	5,65	5,53
Heating output [kW]	E4/W55 - 8K at 100 % Heating Output	10,05	16,42	B0/W55 - 8K at 100 % Heating Output	8,99	14,26	33,4	47,7	W10/W55 - 8K at 100 % Heating Output	11,52	18,15	44,3	63,2
Power Consumption çkW]		3,22	5,15		3,05	4,95	11,5	16,4		3,22	5,16	11,90	17,2
Coeff. of Performance [COP]		3,12	3,19		2,95	2,88	2,9	2,9		3,58	3,52	3,72	3,68
Min Power Output [kW]	E4/W35	3,3	5,1	B0/W35	2,8	4,4	10,5	10,5	W10/W35	2,8	5,2	13,2	13,2
Min Power Output [kW]	E4/W55	4,1	6,2	B0/W55	3,5	5,2	14,5	14,5	W10/W55	3,5	6,3	18,8	18,8

Compressor-related power deviations of up to 10% are possible. All Rights Reserved. Typesetting and printing errors reserved. *

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THE E-SMART GENERATION

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More and more companies are recognizing the opportunities of an independent energy cycle. This smart Combination opens up considerable savings potential

- Own power supply
- sustainable production of heat and cooling
- Kcost reduction through electromobility

With M-TEC Energy Systems you use a complete system for the production and management of energy.

Please request our current brochures without obligation

Brochure **E-SMART** SOLUTIONS FOR THE ENERGY TRANSITION

Brochure AIR SOURCE HEAT PUMPS 2-17 KW

Brochure GROUND SOURCE HEAT PUMPS 2-6,5 KW

Brochure AIR SOURCE HEAT PUMPS 3-52 KW

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