HEATING SYSTEMS

GEYSIR AIR SERIES
Air source heat pump

YHAS 06 to 12

Johnson Controls

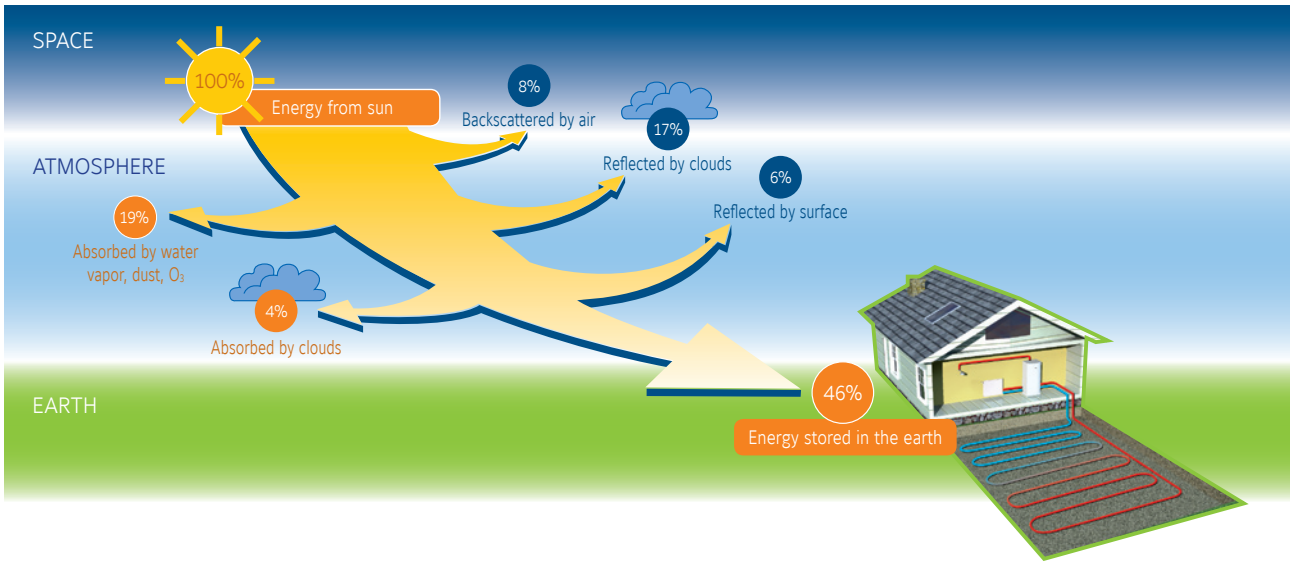
DID YOU KNOW THAT...

- Almost half of the sun's energy is stored in the earth? (Fig.1)
- A heat pump can be more than 4 times more efficient than a conventional gas boiler? (Fig.2)
- A heat pump requires 3 circuits to retrieve, store and transmit the free energy in the environment into hot sanitary water and heating for the home? (Fig.3)
- Heat pumps are classified depending on their environmental energy source? (Fig.4)

Learn more about heat pump technology...

HOW IS THE SUN'S ENERGY ABSORBED BY THE EARTH?

Fig. 1



WHY A HEAT PUMP IS MORE EFFICIENT?

Fig. 2

The earth is heated by the sun and stores a lot of energy. Heat pumps take advantage of this inexhaustible energy that can be stored in the air, in the rock, in the ground and in the water in such an efficient way that you can save up to 50% of your heating costs compared to a traditional gas boilers. That's why these systems are considered as a renewable energy source by governments.

HOW DOES A HEAT PUMP WORK?

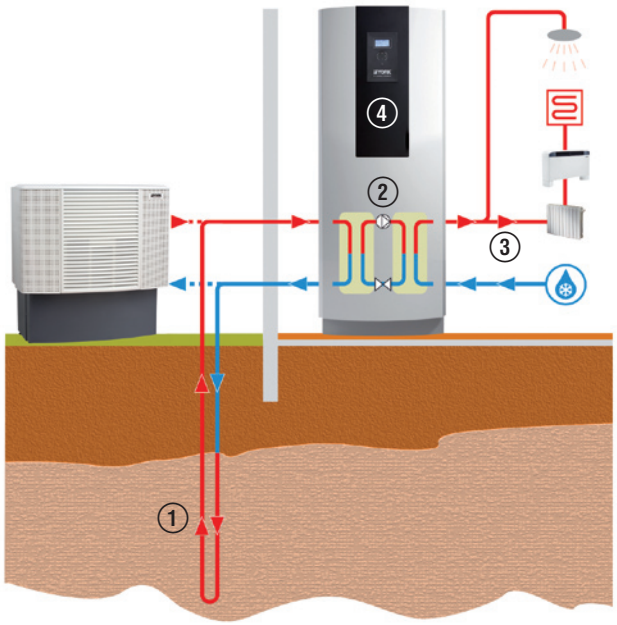
Fig. 3

A heat pump is an electrically powered system that uses mechanical compression technology to absorb the free energy from the environment to produce hot sanitary water and heating (cooling as an option).

It is composed of 3 circuits:

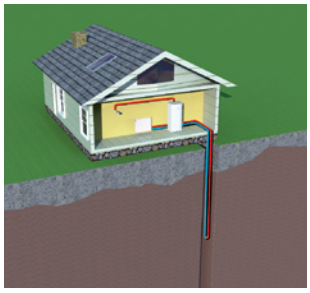
- Brine circuit ①: Collector loop responsible for the absorbtion and storage of the free energy from the air or ground.
- Refrigeration circuit ②: Incorporates all the necessary components (compressor, valves and heat exchangers) to convert the energy stored in the brine circuit into hot water. The hot water is stored in a water tank and it is available for further use.
- Tap/heating circuit ③: Brings the hot water stored in the tank to hot sanitary water or heating purposes.

Finally, a complex electronic control ④ manages the full system to make sure that the process always runs in the most efficient way.



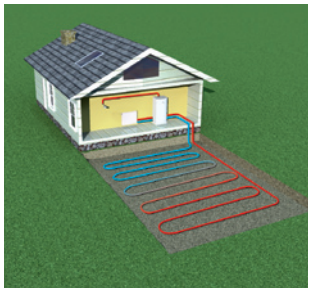
WHAT KIND OF HEAT PUMP INSTALLATIONS ARE AVAILABLE?

Fig. 4



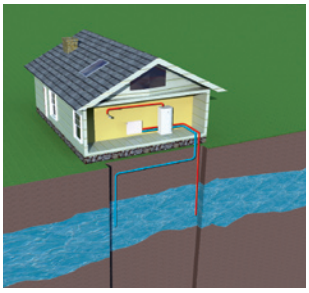
GSHP Bedrock source

By means of setting a pipe in a drilled bore hole, a bedrock heat pump absorbs the heat stored in the rock. The depth of the borehole depends on the heating demand but can be drilled down to 130m. These systems take advantage from the fact that at a certain depth (~15m) the temperature of the rock remains constant at any period of the year and therefore performance is almost unaffected by the outdoor temperature.



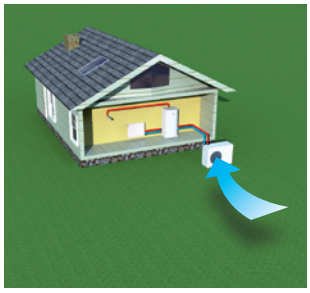
GSHP Ground source

A long hose is buried in loops in the ground around 1m depth and retrieves the energy in the same way as a bedrock heat pump. The surface buried is about 1.5 times the surface of the area to be heated and has no influence on the surrounding vegetation. It is suitable where rock shelf is deep, as there is no need for drilling (low investment costs).



WSHP Ground Water source

Retrieving energy from groundwater is the most efficient way since it retains the advantages as bedrock and ground heat pumps, but it requires less hose length for the same heating needs. However, the WSHP systems working with open loops require special equipment to stop particles in the pumped water from damaging components.



ASHP Air source

Unlike the previous systems, air source heat pumps absorb the heat in the surrounding air through an additional outdoor terminal. Not as efficient as the systems retrieving the energy from the ground, and with a performance more sensitive by outdoor temperatures, these kind of installations require much lower investment costs and they are still up to 3 times more efficient than current conventional gas boilers.

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System Components

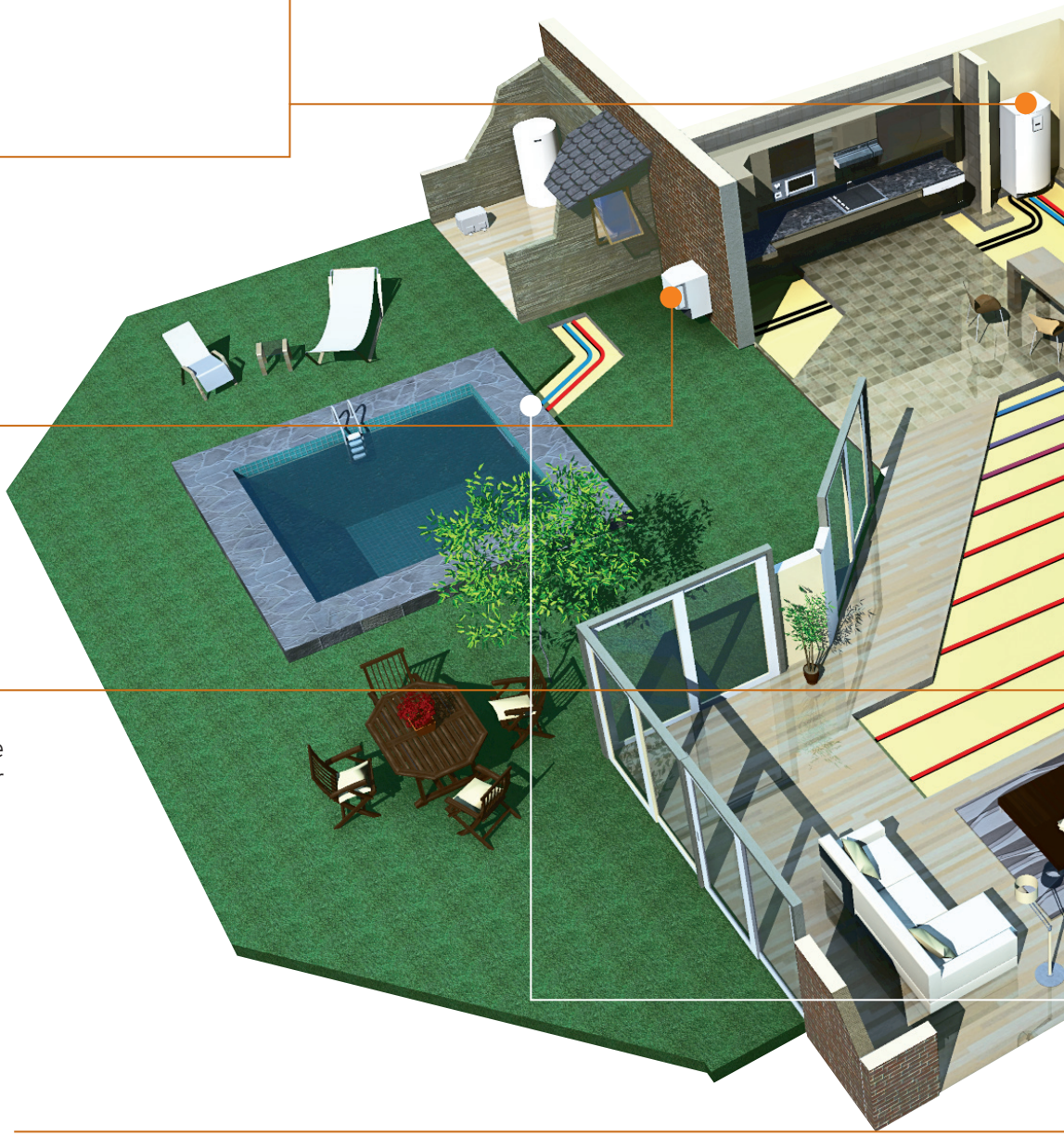
Heat pump
The "brain" of the system, controls all the components to supply heating & water as per user demand whilst optimizing the efficiency.

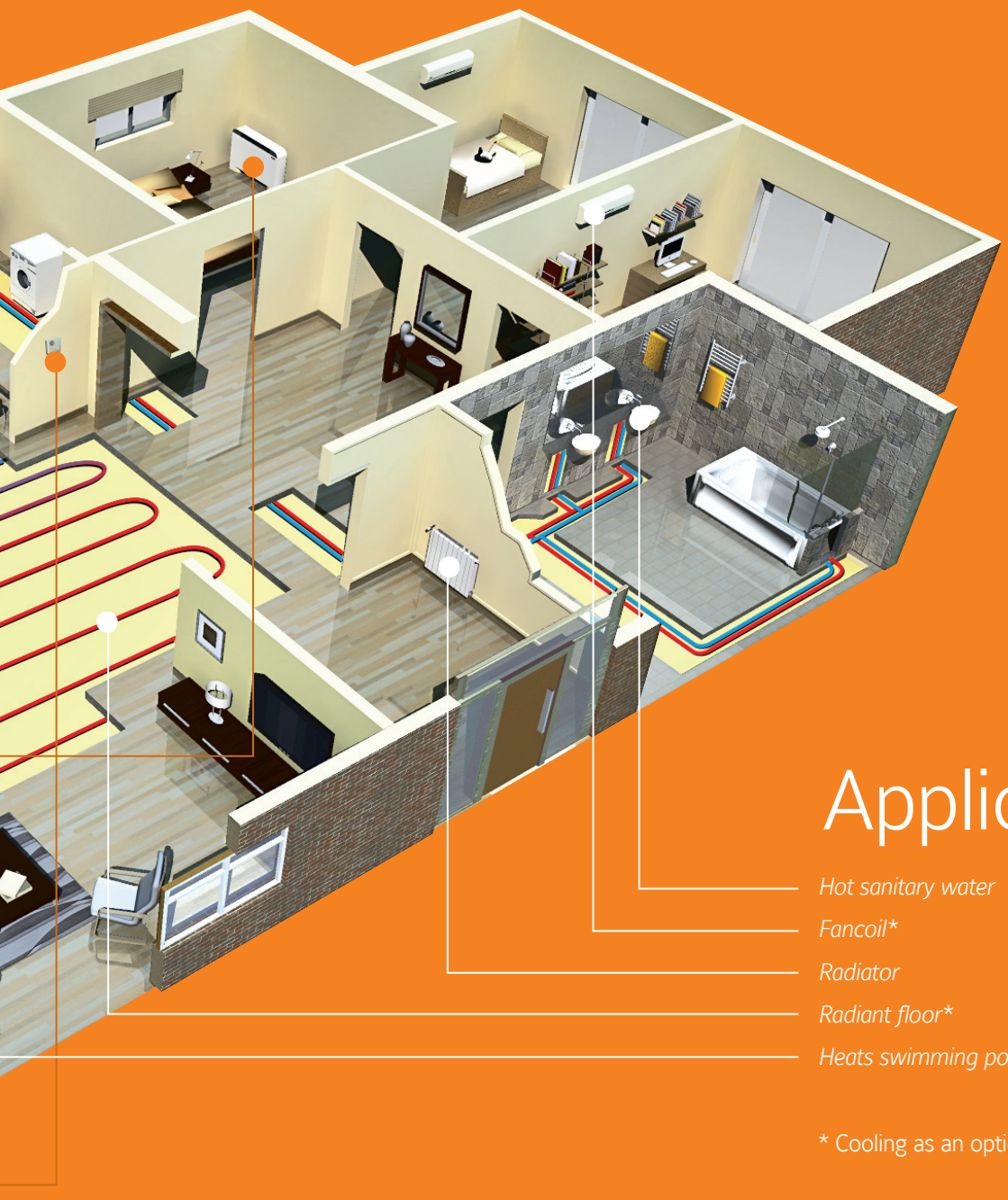
Water tank
Can be either integrated in the heat pump or aside, stores the hot sanitary water for heating systems or sanitary water purposes.

Outdoor unit
Absorbs, stores and transmits the heat available in the air to the heat pump for further use (for ASHP only).

Indoor unit
Responsible for the supply of heat to the room, can be radiant floor, fan coil unit or radiator.

Room temperature control
Allows the user to set the parameters of comfort, it also measures room temperature and sends the information to the heat pump.





Heat pump unit

Applications

Hot sanitary water

*Fancoil**

Radiator

*Radiant floor**

Heats swimming pools

* Cooling as an option

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GEYSIR AIR SERIES
Air source heat pump

YHAS 06 to 12

A complete range from 5.9 kW to 11.3 kW

When comfort and economy come together

For those for whom the ground source installation is not an option, the GEYSIR AIR Series, by retrieving the energy from the air, combines the heat pump technology and low installation costs but still keeps efficiencies up to 3 times greater than a conventional gas boiler.

Features

- User friendly control and monitoring system
- Low noise level
- Easy installation
- Intelligent defrosting
- Anti corrosion coated condenser fins
- Heat recovery for exhaust air as option

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GEYSIR AIR SERIES

YHAS 06 to 12

Technical features

Set reference			YHAS			
Models		**Sizes**	**06 G1MA - 06 G1TA**	**08 G1MA - 08 G1TA**	**10 G1MA - 10 G1TA**	**12 G1MA - 12 G1TA**
Heating capacity (*)		kW	5.9	8.0	9.9	11.3
COP (*)			3.9	4.1	4.2	4.9
Power supply		V/ph/Hz	230 / 1 / 50 - 400 / 3 / 50			
Rated power compressor	G1TA	kW	2.0	2.3	3.6	4.4
	G1MA	kW	3.3	4.2	5.4	5.7
Number of compressors			1			
Type of compressors			Scroll			
Starting current	G1TA	A	14	25	29	32
	G1MA	A	58	56	97	108
Max leaving water temperature		°C	65°C			
Number of heating circuits			2			
Working range brine circuit		°C	-20°C / +20°C			
Working range heating circuit		°C	+20°C / +55°C			
Type of refrigerant			R404A			
Quantity of refrigerant		kg	0.95	1.45	1.50	1.60
Auxiliary heating	G1TA	kW	3 / 6 / 9 / 12 / 15 (3 ph)			
	G1MA	kW	1.5 / 3 / 4.5 (1 ph)			
External available pressure (heating)		kPa	44	41	38	52
Nominal flow (heating circuit)		l/h	360	720	720	1 080
Sound pressure at 1m (Indoor / Outdor)		dB(A)	31 / 51	33 / 51	33 / 61	34 / 61
Dimensions Indoor / Outdoor (W x H x D)		mm	596 x 1 754 x 690 / 1 145 x 1 175 x 612			
Net weight Indoor / Outdoor		kg	260 / 80			
Hot sanitary water tank		l	included (180 l)			
Water connections	Service water and heating		22 Cu			
	Brine		28 Cu			

(*) Tested as per EN 14.511 7/35°C excluding circulation pumps and outdoor unit *G1MA: Single phase / G1TA: Three phases*

Options / Accessories

Models	Codes	06 G1MA - 06 G1TA	08 G1MA - 08 G1TA	10 G1MA - 10 G1TA	12 G1MA - 12 G1TA
3 Way Valve 20 24V	YHACC3803	•	•	•	•
3 Way Valve 25 230V	YHACC3801	•	•	•	
3 Way Valve 32 230V	YHACC3802				•
Pump Set complete	YHACC1870	•	•	•	•
	YHACC1871	•	•	•	•
Plate heat exchanger for ground water	YHACC1977	•			
	YHACC1978		•		
	YHACC1979			•	
	YHACC1983				•
	YHACC1984				
Heat Recovery System	YHACC5122	•	•	•	•
Flowguard UR32CTNR 12/80	YHACC3809	•	•	•	•
Electronic Flowguard zz7009	YHACC6002	•	•	•	•
Filter for Filling Device Brine DN25	YHACC1865	•	•	•	
Filter for Filling Device Brine DN32	YHACC1866				•
Room Sensor Controller 901150	YHACC2698	•	•	•	•
Filter 1" 5064084L	YHACC3776	•	•	•	
Filter 1-1/4" 5064085L	YHACC3777	•	•	•	
Filter 1-1/2" 5064086L	YHACC3778				•
Flexible hose 22L600mm	YHACC6015	•	•	•	
Flexible hose 25L600mm	YHACC6000	•	•	•	
Flexible hose 32L600mm	YHACC6001				•
Rubber hose 2x28L600mm	YHACC6012	•	•	•	•
Pool control, complete with 3 Way Valve	YHACC3754	•	•	•	•
Expansion card for cooling/shunt/pool	YHACC6009	•	•	•	•

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