



Heat pump for buildings and sanitary water heating

ground/water



COOLWEX “HPG” heat pump – a step towards comfort, convenience, easy use...

Coolwex heat pumps HPG enables rational heating in winter months and in special cases also good cooling effect in summer time. The free of charge heat is taken from ground surfaces or deeper ground layers.

Earth energy is the most frequently used energy source. COOLWEX ground/water heat pump transfers energy for heating from earth, where sun energy is accumulated.

All ground/water heating systems offer very wide range of heating and cooling, together with sanitary water heating.



COOLWEX “HPG” GROUND /WATER heat pump guarantees you one of the most economical and reliable heating methods.

Using heat energy accumulated in the ground by a horizontal ground collector and a vertical geothermal probe is quite similar. In both cases there is a closed pressurized system filled with an adequate mixture. We recommend installation of flow indicators on individual loops to achieve a better overview of hydraulic conditions in the system. During the laying of “HGC” we must above all pay attention to sufficient surface, adequate depth and the minimum distance between pipes, while with “VGP” we must pay attention to sufficient distance between individual probes and sufficient total depth.

All HPG models have a built-in state-of-the-art “Scroll Copeland” compressor, SWEP plate heat exchangers and Siemens regulations. All the other refrigerant and water components are also made by leading international companies such as Alco Controls, Emerson, FAR, Ziehl-Abegg and others. All models use environmental friendly refrigerant R407 C as medium.

All HPG models have a built-in heat source circulation pump and secondary pump, a 3-way switching valve and a two stage (2x3kW) electrical heater for additional heating if required.

All marked models are also available in EVI design – enabling heating up to 65°C. For larger buildings, models with more heating capacity are also available– HPG25 in mono design and HPGT 28, 38, 43, 52, 56, 64, 70 and 83kW in tandem design.



Ground/water heat pump



Room unit regulator



Panel regulator

There are two different ways to use ground energy with ground/water heat pumps.

COOLWEX heat pumps ground/water exploits earth energy through horizontal ground collectors or through vertical probes.

System choice depends on availability of useful earth surface, which is needed for optimal working of the heat pump.

Types of GROUND/WATER heat pumps

A

COOLWEX »HPG« – ground/water heat pump with horizontal earth collector

If you have enough useful earth's surface, we recommend the usage of horizontal earth collector.

Ratio between system investments and availability is the highest, therefore it represents one of the most rational heating sources.

COOLWEX heat pump with horizontal ground collector uses constant earth temperature not only for heating but also for cooling.

Polyethylene pipes are laid horizontal 0,8 to 1,2 m under the ground in minimal distance 0,7 m between two pipes. Inside pipes circulates mixture of water and glycol, which takes from the earth heat for evaporating the refrigerant.

Required area for horizontal ground collector is 1.5 to 2.0 times bigger than "neto" heating surface in the house. Size of required surface depends on heating demands, heat pump capacity and earth quality.

Amount of transferred energy on equal surface of collector, depends on earth moisture.



Ground/water system (horizontal ground collector)

COOLWEX »HPG« – ground/water heat pump with vertical geothermal probes

COOLWEX heat pump with vertical probe works constant and constantly achieves high COP. It's the perfect way for heating and cooling in cases you don't have the required size of earth surface, no groundwater or when the groundwater doesn't reach required conditions.

Polyethylene pipes which guarantee proper heat exchange are inserted into earth borings 100 m or maximal 150 m underground. Probe's depth depends on heat pump capacity and on structure and quality of earth stratum.

COOLWEX vertical probe is a double U-pipe. Through inlet pipe flows cooled mixture from heat pump and through second pipe flows warmed mixture from the earth.

Dependent on earth quality, we need approximately 15 to 20 m deep dual vertical probe, to transfer 1,0 kW of heating energy.

Total depth of vertical probe can be calculated with heat transfer coefficient from 40 to 60 W/m of the probe.



Ground/water system (vertical geothermal probes)

Ground/water heat pumps »HPG« (55 °C)

Model	HPG 06	HPG 08*	HPG 10*	HPG 12*	HPG 15*	HPG 18	HPG 22
Heating capacity (kW)	6,0 / 5,3	8,2 / 7,2	10,1 / 9,0	11,9 / 10,8	14,8 / 13,2	17,5 / 15,6	22,3 / 19,7
Electrical power (kW)	1,4 / 1,8	1,92 / 245	2,34 / 3,1	2,76 / 3,75	3,36 / 4,6	4,10 / 5,4	5,25 / 6,9
Cooling capacity (kW)	4,6 / 3,5	6,28 / 4,75	7,76 / 5,9	9,14 / 7,05	11,44 / 8,6	13,4 / 10,2	17,1 / 12,8
Heating number (COP)	4,3 / 3,0	4,3 / 3,0	4,3 / 2,9	4,3 / 2,9	4,4 / 2,9	4,3 / 2,9	4,2 / 2,9
Power supply (V / Hz)	380 / 50	380 / 50	380 / 50	380 / 50	380 / 50	380 / 50	380 / 50
Mixture flow – primary side (m³/h)	1,8	2,2	2,6	3,0	3,5	3,7	4,2
Water flow – secondary side (m³/h)	0,9	1,1	1,5	1,6	2,0	2,2	2,4
Total weight (kg)	86	103	120	129	140	161	161

Datas are given with accordance to standard EN 255 under conditions B0/W35/W55 (earth temperature is 0 °C; heating water outlet temperature is 35 and 55 °C).

Housing dimensions for all models in the upper table are WxDxH: 600x580x1135 mm.

Minimal inlet mixture temperature on primary side is -7 °C, maximal heating water outlet temperature is 55 °C and permitted flow deviation is -15%.



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Dealer: