



# **POKER**

H E A T P U M P S

**THE WINNING  
HEAT PUMP...**





## MODULAR

Poker allows you to couple up to 4 units with a design studied to reduce clearance space to a minimum and therefore the overall encumbrance of the units.

## QUIET

Maximum silence levels thanks to the use of axial fans with EC low sound emission brushless motor.

## FLEXIBLE

POKER makes it possible to adapt the installation to the development requirements of the system. Power can be increased simply and economically in time.

## EFFICIENT

Poker guarantees the minimum energy consumption both with full and partial loads. The units reach class A nominal efficiency (COP>3,2) as part of the Eurovent certification program. Partial load efficiency is provided by the number of capacity steps which increases the more modules are installed thus ensuring continuous adaptation to the real thermal load trend.

## RELIABLE

The presence of an electric board on each module and the management logic implemented which allows the modules to operate in synergy one with the other guarantee non-stop service even if one of the units malfunctions.

Modularity then plays a decisive role in systems requiring total redundancy: this characteristic gives the systems not only a safer design but also provides matchless comfort quality and energy efficiency.

## ... and therefore WINNING

Poker enhances the system:

- elevated seasonal efficiency saves you more money by the year than that which can be achieved with machines with equal power but with a traditional design;
- it is an ideal combination of performance - reliability - price;
- it is always available on stock with quick delivery times due to its modular features.





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## ***...QUIET, FLEXIBLE, EFFICIENT***

Poker is the all-new line of Rhoss modular heat pumps which joins fundamental features such as quiet-running, flexibility and efficiency.

The units are capable of fitting different types of systems limiting noise problems and at the same time assuring unique performance in any architectonic context.

POKER consists in independent 34 kW thermal modules which can be connected one to another for an overall power of 137 kW. Each individual module is a reversible heat pump built for outdoor installation, equipped with scroll compressors in tandem configuration with vapour injection, hydrophilic coil and R410A refrigerant.





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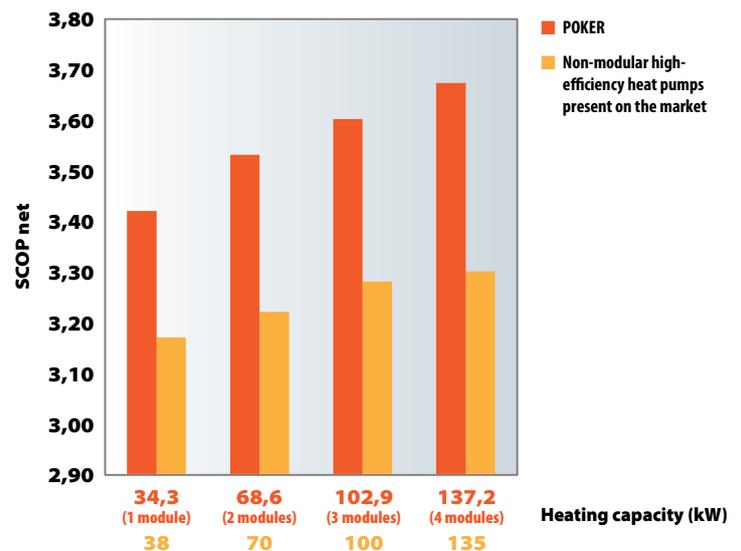
## YEAR ROUND EFFICIENCY!

The careful choice of components, the special refrigerant circuit configuration and the possibility of connecting up to 4 modules and of controlling them as if they were just one allows to achieve ideal performance both with full loads and partial loads. Thanks to the economiser, the low energy consumption fan, the capacity steps which increase the more modules are connected, the optimised management of the hydraulic pumps and the predictive AdaptiveFunctionPlus logic, exclusive Rhoos patent, the seasonal efficiency values are extremely high.

### Winter efficiency

Winter efficiency values, net of auxiliary electric generators (SCOP net, according to standard EN 14825), for Poker heat pumps and non-modular high-efficiency heat pumps present on the market, considering:

- 4 office buildings with the following designed thermal loads:
  - Building considered for the analysis of the first machine/1 module: Pdesign= 34 kW
  - Building considered for the analysis of the second machine/2 modules: Pdesign= 70 kW
  - Building considered for the analysis of the third machine/3 modules: Pdesign= 100 kW
  - Building considered for the analysis of the fourth machine/4 modules: Pdesign= 127 kW
- "average" type of climate corresponding to a design temperature Tdesign= -10°C
- Tbivalent= -5°C
- T produced water = 45°C (applications at average temperature)

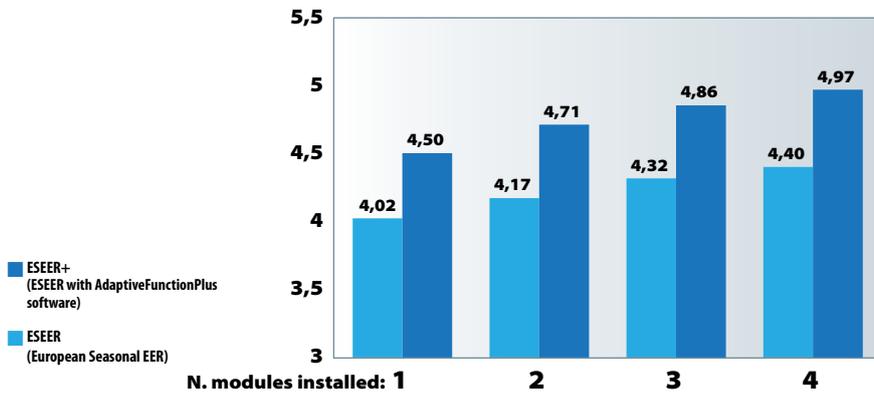


### Standard EN 14825 and calculation of SCOP

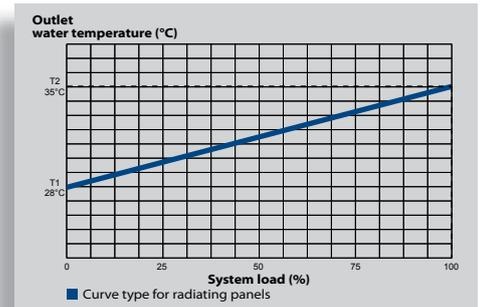
The standard EN 14825 indicates the test conditions and the calculation procedure used to determine the average seasonal performance of heat pumps by means of the SCOP index (Seasonal Coefficient of Performance) in order to compare energy performance between machines installed in the same building. The standard defines the SCOP index as the ratio between the overall energy demand of a building during the heating

period and the electric energy consumed during the same period, taking into account that, aside from the heat pump, the system can also have other auxiliary electric heating systems. This shows that the evaluation of the average seasonal performance of a heat pump cannot disregard its interaction with the building because different heat pumps, installed in the same building, definitely have different energy performances.

## Summer efficiency



**AdaptiveFunctionPlus: variation of the outlet water temperature depending on the system load**





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## **HEATING, COOLING AND DOMESTIC HOT WATER WITH JUST ONE PRODUCT**

Poker meets system requirements for all seasons of the year: thanks to the different setups available, heating, cooling and domestic hot water are always available!

### **SET UP WITH HYDRONIC UNIT**

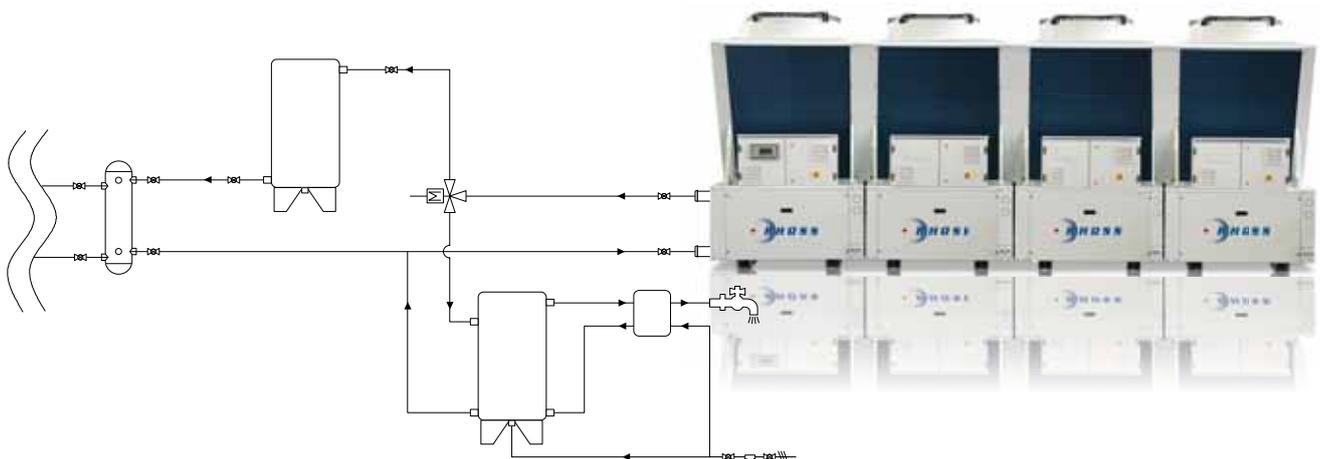
#### **Separate production of domestic hot water and hot/cold water for the system**

This configuration meets the heating and cooling requirements of the system without further complications from an installation point of view: the primary side pump is already included on each module.

If the production of domestic hot water is also required, a 3-way diverter valve can be installed downstream the group of machines. The 3-way valve deviates water flow from the system to the technical water storage tank for the system producing domestic hot water.

In this case, when DHW is requested, the modules installed will operate to provide it.

✓ **Hot water up to 60°C**

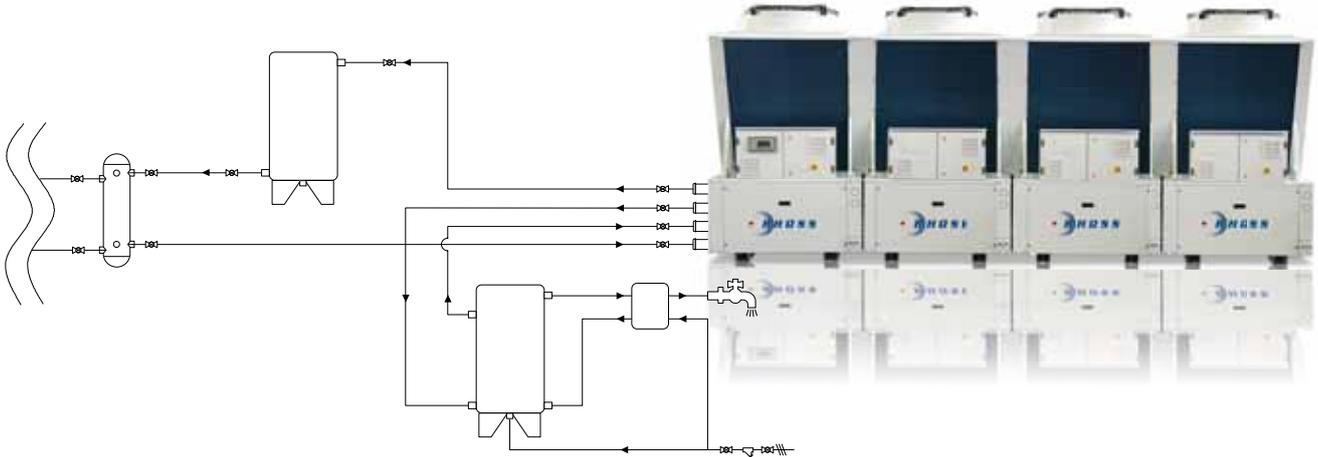


## SET UP WITH HYDRONIC UNIT AND 3-WAY DIVERTER VALVE

- ✓ **Hot water up to 60°C**
- ✓ **Internal 3-way diverter valve**

### Combined production of domestic hot water and hot/cold water for the system

In this configuration, hot or cold water for the system and domestic hot water can be produced together when several modules are installed. The 3-way diverter valve is installed on each module allowing step management of the units and therefore of the domestic hot water demand, favouring simultaneous production of domestic hot water (coupled to a storage tank) and hot or cold water for the system. Polyvalent operation guaranteeing comfort and reliability!

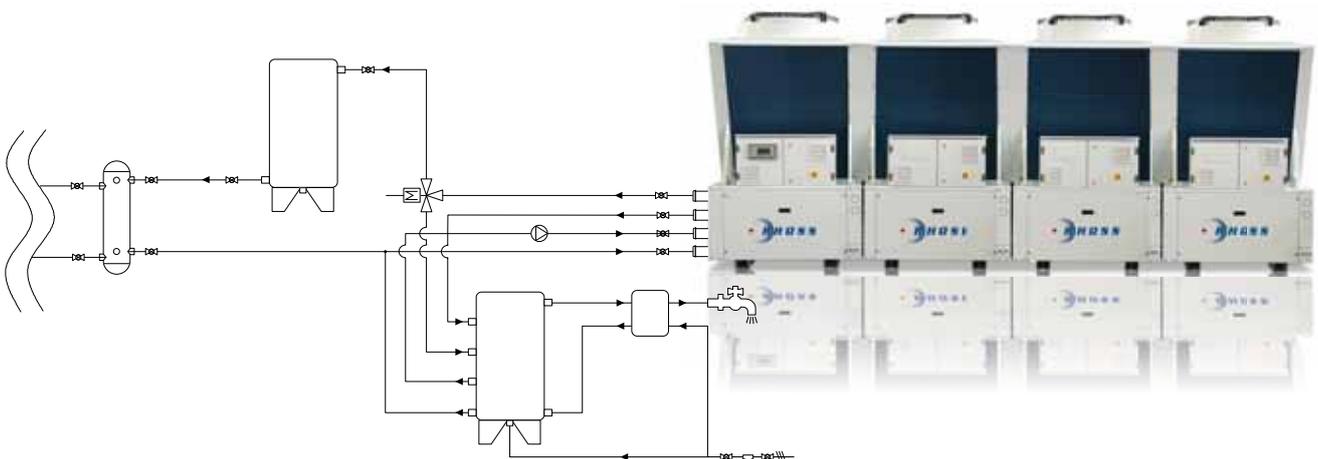


- ✓ **Hot water up to 60°C with main heat exchanger and up to 70°C with heat recovery**

## SET UP WITH HYDRONIC UNIT AND HEAT RECOVERY

### Dedicated production of domestic hot water with heat recovery unit + separate production of domestic hot water and hot/cold water for the system with main heat exchanger

The presence of the heat recovery in this configuration maintains the storage tank at a high heat level allowing non-stop DHW service, both in summer and winter mode, even when the units are on to meet system demands. This solution provides high-level thermal energy recovery which otherwise would be lost if there were no desuperheater. It is also possible to install a 3-way diverter valve downstream the group of machines capable of deviating the water flow providing the DHW storage tank with full power.





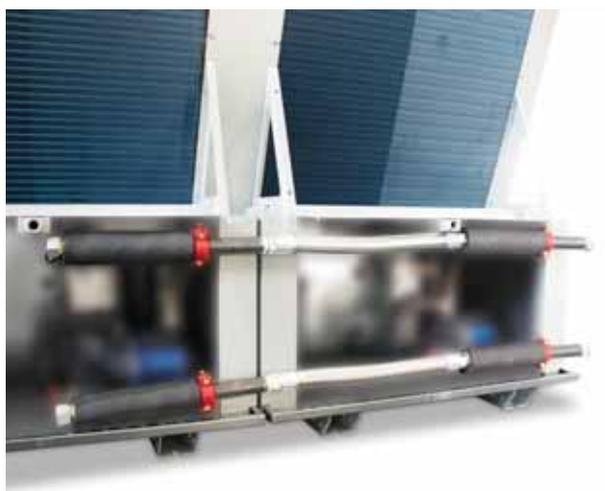
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## ***PLUG&PLAY INSTALLATION AND CARE FOR DETAILS***

The Poker units are easy to install and to connect one to another both hydraulically and electrically to quickly start up and tune the system.



In-parallel hydraulic connections between several modules are facilitated by flexible connection pipes thus allowing to quickly connect one unit to the other thus reducing installation time.



Modules connected in parallel are covered by damping panels included in the supply.

## **New SIM logic (Shared Information Management)**

1. SERIAL CONNECTION OF UNITS
2. SHARED INFORMATION MANAGEMENT
3. DYNAMIC MASTER UNIT
4. PARALLEL MANAGEMENT
5. OUTLET WATER TEMPERATURE CONTROL
6. SMART DEFROST FUNCTION (dynamic defrosting)
7. "ENERGY SAVING" PUMP MANAGEMENT
8. DOMESTIC HOT WATER PRODUCTION MANAGEMENT
9. SUPPLEMENTARY OR AUXILIARY SOURCE MANAGEMENT



When several modules are installed, the p-lan network can be installed easily using quick connecting telephone wires (included in supply).



The keyboard with backlit LCD display allows you to view and modify the work parameters of the individual machine or group of machines.



Signal concentrator facilitates the electrical I/O connection for remote control of group of machines.



Thanks to their compact size, each individual module can easily be handled and transported on a freight elevator.



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## PERFORMANCE AND APPLICATIONS

The large operational range of Poker heat pumps allows them to work all year round with excellent performance and non-stop service, guaranteeing the production of hot water with outside temperatures from  $-20^{\circ}\text{C}$  to  $40^{\circ}\text{C}$ .

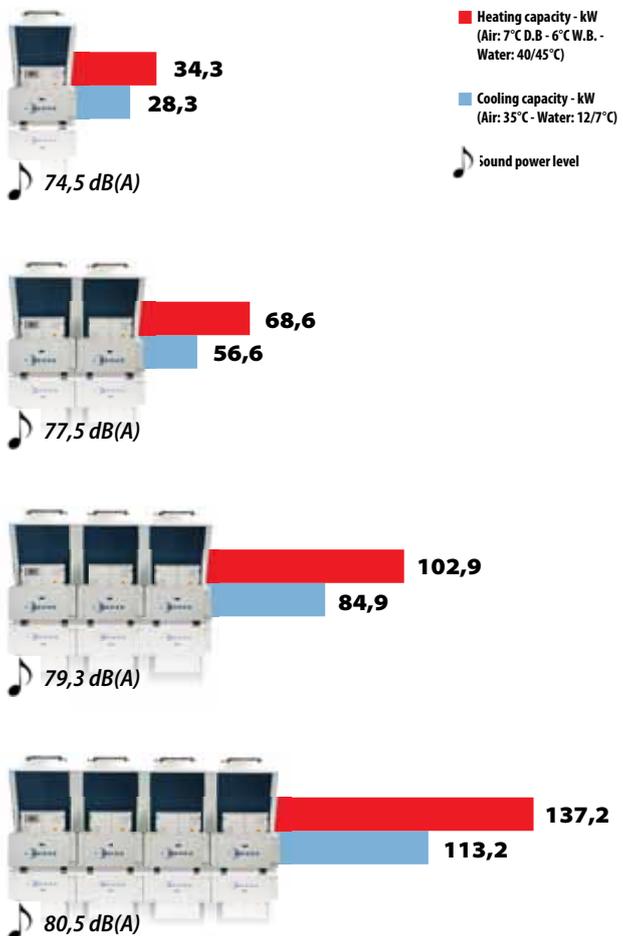
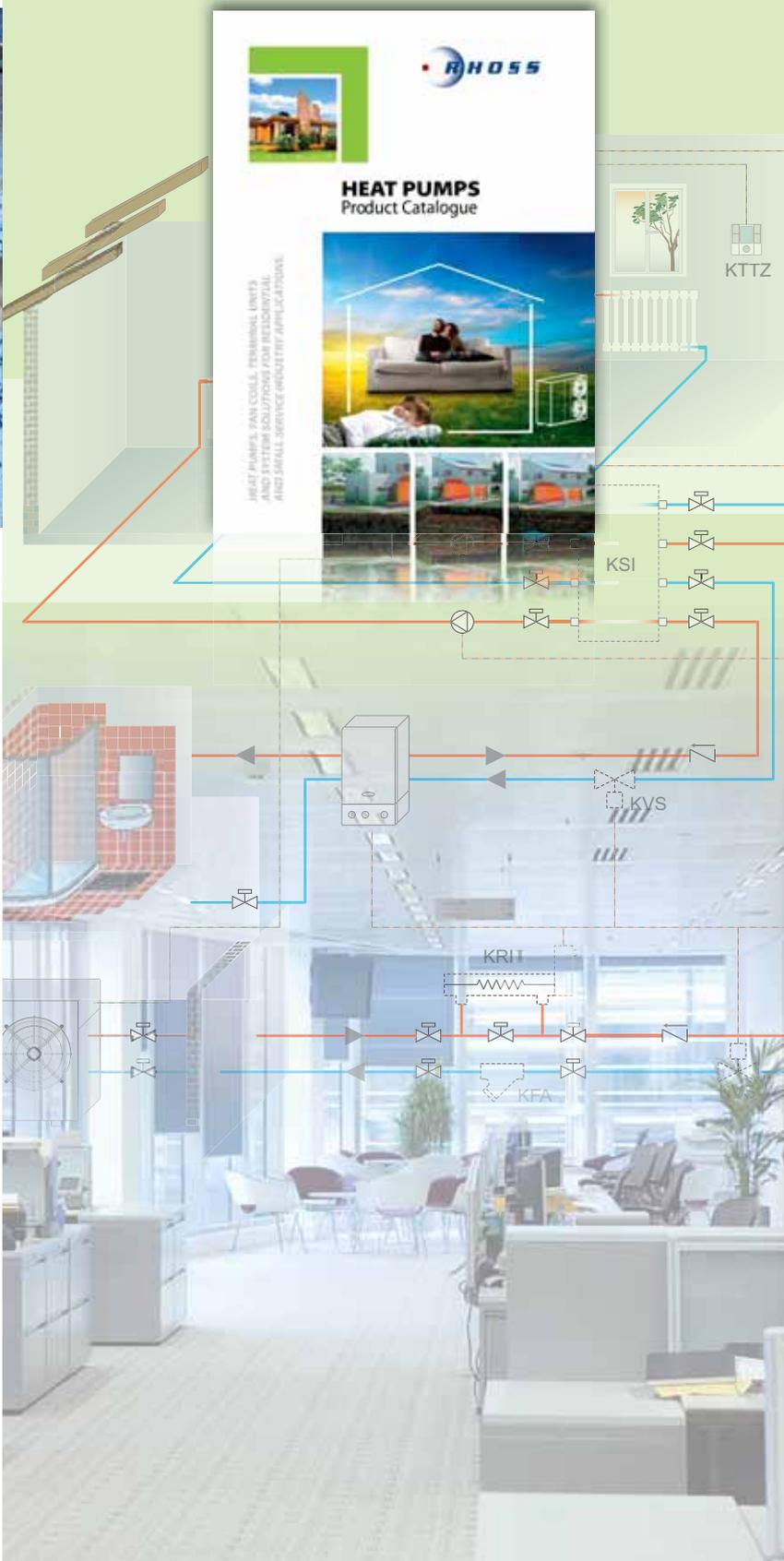
MODEL	THAETY 234 H.T.	
<b>Fan coil systems</b>		
① Heating capacity	kW	34,3
① COP net		3,43
① Total absorbed power (*)	kW	10,4
② Cooling capacity	kW	28,3
② EER net		2,93
● ESEER		4,02
⊕ ESEER+		4,50
② Total absorbed power (*)	kW	10,3
① Heating capacity with desuperheater	kW	28,3
⊕ Desuperheater heating capacity	kW	6
① Available head pressure of pump	kPa	113
<b>Radiant systems</b>		
④ Heating capacity	kW	34,4
④ COP net [EN 14511:2004]		4,18
④ Total absorbed power (*)	kW	8,60
⑤ Cooling capacity	kW	38,8
⑤ EER net [EN 14511:2004]		3,85
⑤ Total absorbed power (*)	kW	10,56
④ Available head pressure of pump	kPa	114
⑥ Sound power level	dB(A)	74,5
⑦ Sound pressure	dB(A)	42,8
Compressors/circuits	n.	2/1
Electric power supply	V-ph-Hz	400-3-50
Dimensions L x H x D	mm	1.297 x 2.152 x 1.224
<b>Operating range (heating and domestic hot water)</b>		
Min outside air temperature / Hot water produced		<b><math>-20^{\circ}\text{C} / 40^{\circ}\text{C}</math></b>
Outside air temperature / Hot water produced		<b><math>-10^{\circ}\text{C} / 50^{\circ}\text{C}</math></b>
Max produced water temperature / Outside air temperature		<b><math>60^{\circ}\text{C} / &gt;0^{\circ}\text{C}</math></b>
Max produced water temperature with desuperheater		<b><math>70^{\circ}\text{C}</math></b>

### Data in the following conditions:

- ① Air:  $7^{\circ}\text{C}$  D.B -  $6^{\circ}\text{C}$  W.B. - Water:  $40/45^{\circ}\text{C}$ .
- ② Air:  $35^{\circ}\text{C}$  D.B - Water:  $12/7^{\circ}\text{C}$ .
- ③ Air:  $35^{\circ}\text{C}$  D.B - Water:  $12/7^{\circ}\text{C}$ .  
Desuperheater water  $50/60^{\circ}\text{C}$ .
- ④ Air:  $7^{\circ}\text{C}$  D.B -  $6^{\circ}\text{C}$  W.B.  
Water:  $30/35^{\circ}\text{C}$ .
- ⑤ Air:  $35^{\circ}\text{C}$  - Water:  $23/18^{\circ}\text{C}$ .
- ⑥ Sound power level in dB(A) on the basis of the measurements made in compliance with the UNI EN-ISO 3744 and Eurovent 8/1 Standards.
- ⑦ 10 m from the unit in free field ( $Q = 2$ ).
- ESEER (European Seasonal EER)  
Average European seasonal efficiency.
- ⊕ ESEER with Adaptive Function Plus software.
- (\*) Power absorbed by compressors, fans, pump.



- ✓ Poker extends the offer of Rhoss heat pumps and integrated system for the residential and service sector providing solutions for heating, cooling and domestic hot water production.
- ✓ A wide selection of heating system solutions for existing buildings, buildings being renovated or newly constructed, where the heat pump can be used individually or combined to auxiliary generators such as the boiler or electric heaters.





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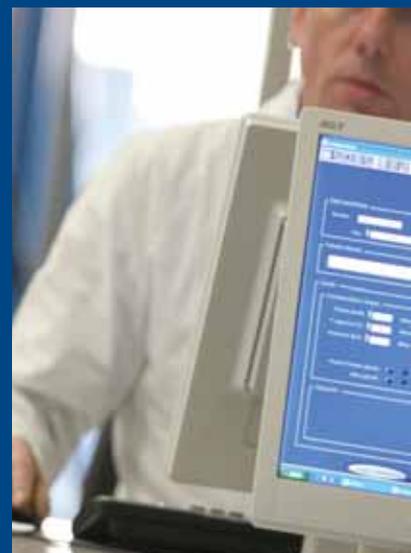


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