



# High capacity HEAT PUMPS

**NEW OVi Technology and 65°C**

**OCHSNER**  
Kompetenz bei Wärmepumpen

# OCHSNER heat pumps

Technical competence with tradition

## OCHSNER heat pumps - 30 successful years

In 1978 Karl Ochsner founded the OCHSNER Heat Pump Company to become one of the first European industrial producers in this field. He is the president and shareholder of the corporation.

OCHSNER Heat Pumps have a major market share on the Austrian and German market. The products are sold in most European countries and also overseas like Australia. The company is known for its expertise and cutting-edge technology.

OCHSNER sells through its own subsidiaries in Germany, Austria and Poland and through dealers in other countries. About 8.000 units are produced per year at the works in Haag.

### TRADITION

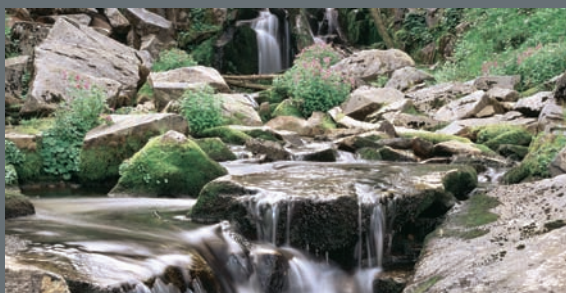
The first Ochsner parent company was established in 1872 in Silesia. At the beginning, reactors and pumps were produced. Between 1946 and 1992 the works in Linz focused on high-tech compressors and process-pumps. Among the known and reputable customers you can find names like DOW, Dupont, Bayer, Uhde Lurgi or the US-Navy and NASA.

From 1992 on Karl Ochsner and his team concentrated fully on developing and producing Heat Pumps. We have the vision, that working in the field of ambient heat can contribute to solving our problems of the future national and global energy supply. A challenge for our mission also in respect of reducing carbon dioxide emissions and the saving of resources.



## ADVANTAGE DUE TO TECHNOLOGY

All sorts of heat pumps are tested in our testing laboratory to simulate various operating conditions. The technical approvals are carried out according to international standards and quality guidelines. State of the art equipment and the knowledge of the scientific and engineering personnel enable further development and guarantee technological advantage.



Specialisation paired with decade-long, professional experience ensure maximum operating reliability and availability to the customer as required in industrial plant engineering and construction.

## TECHNICAL COMPETENCE

Thanks to our international research programs carried out in cooperation with reputable universities, the state of the art know-how of our engineers, as well as the fact that we are using only the worlds highest quality components and - last but not least - our experience with over 80.000 successfully installed units, OCHSNER is the number one in heat pumps.



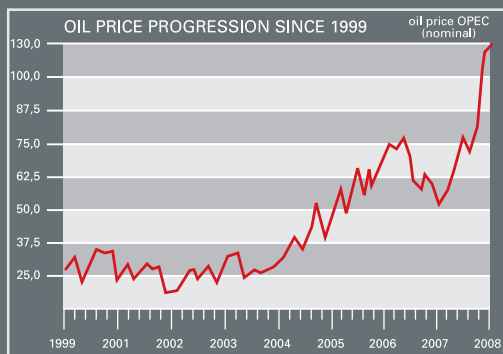
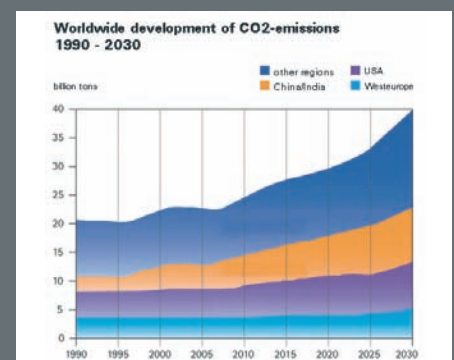
# OUR MISSION

To plan and implement energy efficiency

## OCHSNER heat pumps - your active contribution to environmental protection

### GREENHOUSE EARTH

The imminent climate change and the further negative consequences are caused by rapid global warming. The main reason for this is the CO<sub>2</sub>-output caused by humans. Only modern and environment-friendly heating and cooling systems are able to reduce the rapid increase in these CO<sub>2</sub>-emissions. The prevention of a climate crisis is our collective challenge.

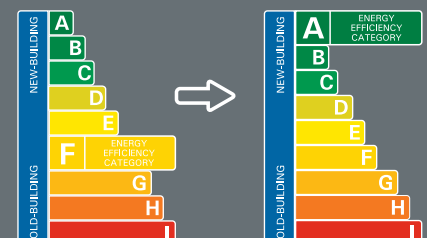


### SUPPLY GUARANTEE

The global thirst for oil and fossil energy sources increases and cannot be stopped in the long run. Growth of population and new emerging economies do not raise hopes for recovery. With OCHSNER heat pumps you become independent of non-renewable energy sources such as oil and gas and you reduce your energy demands to a minimum. OCHSNER heat pumps enable you to use environmental energy otherwise wasted to heat your home.

### FUTURE-PROOF PLANNING

According to EU-guidelines buildings above 1.000m<sup>2</sup> floor space require an energy pass. You can meet the requirements for primary energy efficiency economically with a heat pump, without having to accept compromises regarding the building fabric. Through minimizing operating costs for heating and cooling you get economic building services and you increase the value of your property considerably.



## OCHSNER heat pumps - energy efficient and environment-friendly

### ECONOMIC

- up to  $\frac{3}{4}$  cost saving compared to conventional heating and air-conditioning technology
- reduction of CO<sub>2</sub>-emission which enables the sale of certificates for emission rights
- no fixed capital for fuel storage
- low operating costs
- reasonable investment costs



### LOW MAINTENANCE COSTS

- no fuel expenses
- no ash disposal
- no burner service and flue gas test
- no fuel storage
- no particle filter required



### ENVIRONMENTALLY FRIENDLY

- no emissions at operating location
- possibility of using green-electricity which decreases CO<sub>2</sub>-emissions
- no pollution through micro particles
- CFC-free and fire-proof refrigerant
- no unpleasant odour
- healthy microclimate which is attractive to residents, tourists and colleagues



# THE LATEST DEVELOPMENT BY OCHSNER

High capacity heat pumps with  
a flow temperature up to 65°C

## CONTROL PANEL

Display indicates the status of every input and output, allows changes to operating parameters, displays graphically and acoustically all available alarms.

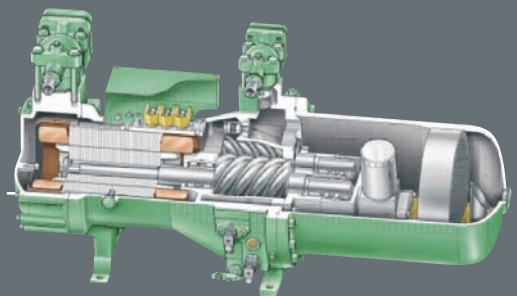
The controller was developed especially for heat pumps with high capacity compressors with economiser. The measured data are monitored and controlled continuously in real time.

- ▶ communication-capable controller for simple integration in building management systems. Compatible with all standard-protocols: LonWorks®, Modbus®, BACnet™, TCP/IP, SNMP, TREND and METASYS®
- ▶ constant control and recording of the activity state by internet or LAN with the Super-Visions-System OCHSNER.



## THE POWERFUL HEART

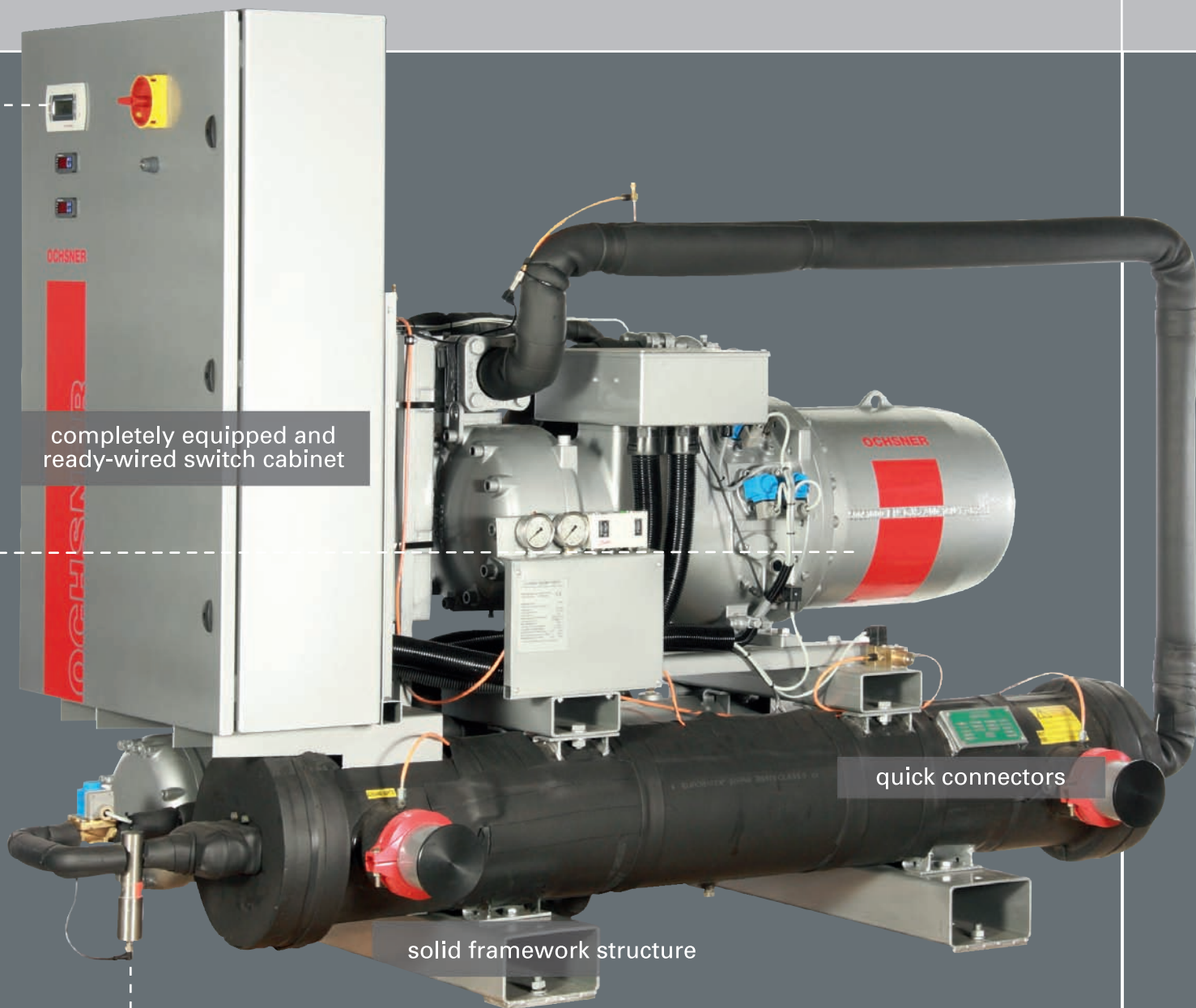
- state-of-the-art semi-hermetic compact screw compressor
- high-efficiency profile
- highest heating and cooling capacity, as well as coefficient of performance
- quiet run of compressor
- automatic part winding start



## ELECTRICAL CIRCUIT CONTROLLER (OPTION)

- in main refrigerant cycle and ECO-cycle
- highest COP immediately after start due to fast stabilisation of the refrigerant cycle
- precise control of superheating for maximum exploitation of the evaporator





completely equipped and  
ready-wired switch cabinet

quick connectors

solid framework structure

- ▶ OCHSNER quality provides lowest operating costs, longevity and maximum dependability! With vapour injection cooling we can provide **65°C flow temperature** and further increased COP.

Components of highest quality and a simple and compact design are the basis for dependability, as well as for economical and endurable service.

**UCHSNER**  
The Heat Pump Company

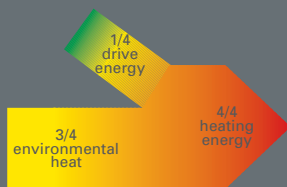
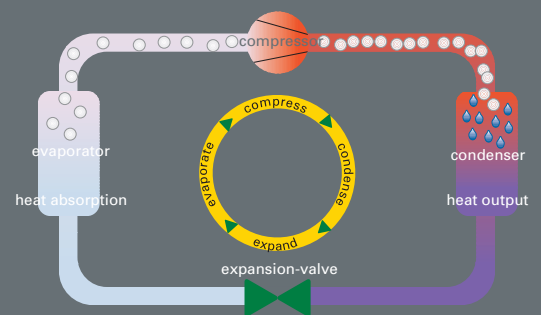
# OCHSNER heat pumps

## The principle of heat pumps

The Heat Pump transforms heat from a low temperature level into heat at a high temperature level. This is performed by an endless refrigerant cycle. The cooling liquid evaporates at a very low temperature and takes a substantial amount of energy from the ambience (air, water, ground) when changing from a liquid to a gas phase.

Vaporisation → Compression → Condensation → Expansion

The compressor compresses this refrigerant gas and thus brings it to a high temperature level. The hot gas is then condensed in a condenser where it transforms into a liquid state and gives up its heat to the heating system. Then the refrigerant/working fluid is expanded again when passing through an expansion valve so that the circular process can continue. The Heat Pump extracts stored solar heat from the environment – ground, water or air – and delivers it plus the driving power in the form of heat to the heating and hot water circuits.

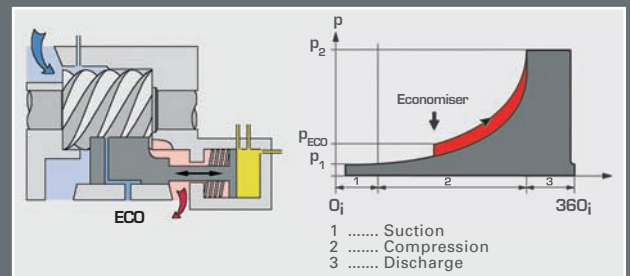
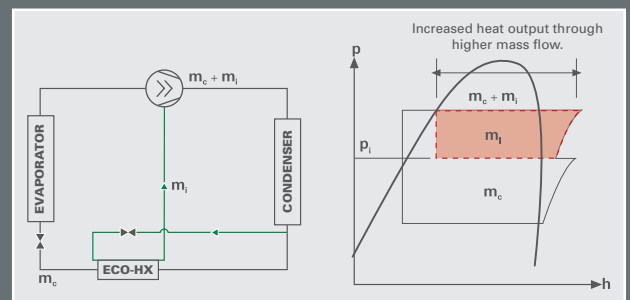


### ENERGY EFFICIENCY

1 kWh of electricity generates 4 kWh of heat – use the unlimited environmental heat for heating or cooling.

### EXCLUSIVE: OCHSNER SUPPLIES ECONOMISER TECHNOLOGY

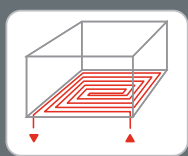
- ▶ improved cooling capacity and COP by subcooling circuit (two-stage refrigerant expansion)
- ▶ increased heating capacity through increased mass flow
- ▶ vapour injection cooling
- ▶ unique eco-channel integrated in the slide valve



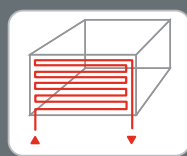
# OCHSNER heat pumps

## Applications

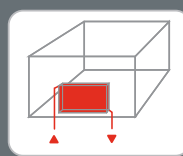
### Examples of heat distribution systems - heating and cooling



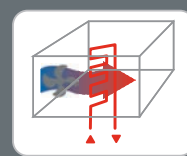
floor heating



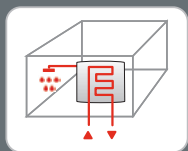
wall heating



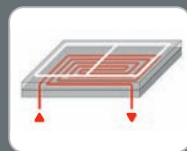
radiator



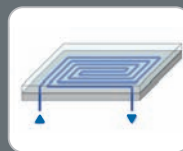
convector heater



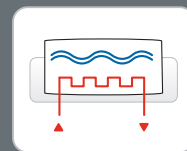
hot water



de-icing of  
roads and sportsfields



ice pavilions  
icing



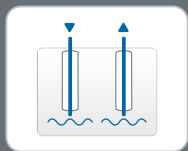
swimming pools

heat flow in  
heating process

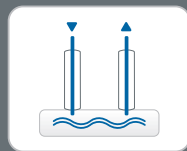


heat flow in  
cooling process

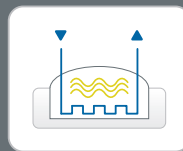
### Heat sources/heat sinks for environmental or waste heat



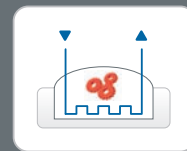
ground water



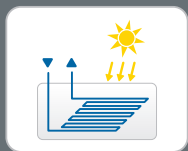
surface water



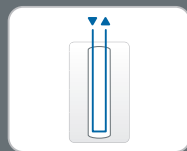
water/waste water



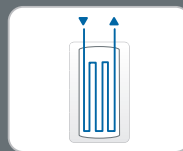
mechanical waste heat



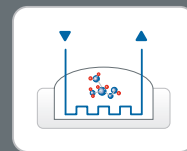
flat collectors



earth taps



energy pile



process heat

# OCHSNER

## Quality is dependability

### References

#### Experience counts

Examples for the manifold areas of application for OCHSNER high capacity heat pumps:

- schools
- apartment buildings
- waterworks
- hotels
- municipal offices
- kindergardens
- communal baths
- health resorts
- production halls
- factory buildings



Energie AG  
PowerTower Linz (A)  
Heating capacity:  
337,4 kW  
Heat source: water



Karl Ernst Osthaus  
Museum Center  
Hagen (D)  
Heating capacity:  
2 x 235,9 kW  
Heat source:  
brine



School building (A)  
Commissioning: 1989  
3000m earth taps  
Heat source:  
brine



Office building (A)  
Heating capacity:  
90 kW  
Heat source:  
cooling water



2 Apartment buildings  
and 1 school  
Slomniki (PL)  
Heating capacity:  
280 kW  
Heat source: water



Industrial building  
Siemens Munich (D)  
Heating capacity:  
140 kW  
Heat source: water



Church building (D)  
Heating capacity:  
2 x 113,7 kW  
Heat source: water



Factory building (PL)  
Heating capacity:  
233 kW  
Heat source: water



Spa hotel (SK)  
Heating capacity:  
419 kW  
Heat source: water



Carwash station (CZ)  
Heating capacity:  
140 kW  
Heat source: water



Waterworks  
Reckov (CZ)  
Heating capacity:  
111kW  
Heat source: water



School building  
Neveklov (CZ)  
Heating capacity:  
513 kW  
Heat source:  
brine

# PERFORMANCE TABLE

Technical data – range with screw compressor

type/capacity class			1	2	3	4	5	6	7	8	
Water – Water	R134a max. 65°C	operating point W10 / W35	heating capacity kW	110.7	167.9	209.6	270.8	337.4	461.1	519.8	663.6
			cooling capacity kW	90.2	136.8	171.5	223.3	278.3	381.6	428.6	545.1
			power input kW	20.5	31.1	38.1	47.5	59.1	79.5	91.2	118.5
			coefficient o. performance COP	5.4	5.4	5.5	5.7	5.7	5.8	5.7	5.6
	R134a max. 65°C	operating point W10 / W50	heating capacity kW	105.3	159.1	205.2	268.8	328.7	444	498.4	637.6
			cooling capacity kW	78.3	118.3	153.9	201.6	246.6	333	373.8	478.2
			power input kW	27	40.8	51.3	67.2	82.1	111	124.6	159.4
			coefficient o. performance COP	3.9	3.9	4	4	4	4	4	4
	R134a max. 65°C	operating point W10 / W60	heating capacity kW	101.7	153.1	196.5	265	327	440	487.3	617.2
			cooling capacity kW	67.8	101.2	131	179.6	224.8	302.5	330.1	418.1
			power input kW	33.9	51.9	65.5	85.4	102.2	137.5	157.2	199.1
			coefficient o. performance COP	3	2.95	3	3.1	3.2	3.2	3.1	3.1

type/capacity class			1	2	3	4	5	6	7	8	
Brine – Water	R134a max. 65°C	operating point S0 / W35	heating capacity kW	79.5	120.5	150.8	198.2	252	331.1	376.7	488
			cooling capacity kW	60.1	91.1	114.9	152.1	193.4	254.1	289.1	377.1
			power input kW	19.4	29.4	35.9	46.1	58.6	77	87.6	110.9
			coefficient o. performance COP	4.1	4.1	4.2	4.3	4.3	4.3	4.3	4.4
		operating point S0 / W50	heating capacity kW	74.4	118.1	147.8	194.2	247	324.5	369.2	478.2
			cooling capacity kW	49.6	78.7	100.1	131.6	167.3	219.8	250.1	323.9
			power input kW	24.8	39.4	47.7	62.2	79.7	104.7	119.1	154.3
			coefficient o. performance COP	3	3	3.1	3.1	3.1	3.1	3.1	3.1
		operating point S0 / W60	heating capacity kW	73.6	116.9	146.3	192.2	244.5	321.3	365.5	473.4
			cooling capacity kW	41.6	66.1	82.7	112.1	146.7	192.8	219.3	284
			power input kW	32	50.8	63.6	80.1	97.8	128.5	146.2	189.4
			coefficient o. performance COP	2.3	2.3	2.3	2.4	2.5	2.5	2.5	2.5

## Overview – features and accessoires

Controls	standard	OVi Technology	Safety / comfort	standard	insulated evaporator
	standard	two stage capacity control 75/100%		standard	motor protection
	standard	limited starting current		standard	oil level control
	standard	thermostatic expansion valve		standard	vibration damper
	option	controller (extra charge)		access	soundproof hood
	option	stepless capacity control 25-100%, only available in combination with electronic circuit		access	Super-Visions-System OCHSNER + RS 485 serial interface
Packing	standard	wooden box	Safety / comfort	access	RS485 serielle Schnittstelle
	option	seaworthy packing			

W651 Pe 06/2008

Ihr Fachbetrieb

**OCHSNER**  
Wärmepumpen GmbH (Works)  
Ochsner-Straße 1  
A-3350 Haag  
Tel. +43 (0)5 042458  
Fax +43 (0)5 04245-25  
E-mail: gwp@ochsner.at

**OCHSNER**  
Wärmepumpen GmbH  
Elxlebenerweg 10  
D-99310 Arnstadt  
E-mail: gwp@ochsner.de