POWERFUL PERFORMANCE

HIGH CAPACITY HEAT PUMPS FOR INDUSTRY, PROCESS HEATING, PROCESS TECHNOLOGY AND LARGE BUILDINGS

OCHSNER
ENERGIETECHNIK

OCHSNER has been in business for 150 years and has decades of experience of building machines for industrial applications.

The company was one of the first to specialise exclusively in the development and manufacture of heat pumps. Today, OCHSNER Energietechnik produces a wide range of heat pumps for large outputs and high temperatures across a variety of operational scenarios.

150
YEARS

“Climate protection is a corporate obligation. Using energy efficient OCHSNER heat pump technology helps companies to significantly reduce their ecological footprint.”

Marco Schäfer
CEO of OCHSNER Energietechnik

INVESTING IN THE FUTURE

PROTECT THE CLIMATE NOW

Saving primary energy and reducing emissions of pollutants and CO_2 are some of the key challenges of our time. The climate policy objectives needed to limit the global temperature increase can only be achieved by significantly cutting greenhouse gas emissions. Decision makers from industry, business and politics have an important contribution to make.

HEAT PUMPS LOWER GREENHOUSE GAS EMISSIONS

The use of environmental energy and waste heat by heat pumps deployed in a targeted manner plays a vital role. Heat pumps are suitable for a wide range of applications. They use heat extremely efficiently and with very low environmental impact.

ENERGY EFFICIENCY REDUCES COSTS

Making efficient use of energy plays an important part in reducing costs. Running costs for heating, cooling, process heat and many other areas can be cut permanently. In many cases, advanced heat pump technology from OCHSNER proves to be a worthwhile investment in a very short time.

WWF | CLIMATE GROUP Partner
WWF Austria And Companies For Effective Climate Action

HIGH TECH FOR CHALLENGING ASSIGNMENTS

AT THE TECHNOLOGICAL CUTTING EDGE

More than 40 years ago, OCHSNER became one of the first companies to specialise exclusively in the development and construction of heat pumps. The company is considered a technology leader in its industry. The top rankings that OCHSNER regularly achieves in independent heat pump tests underpin this reputation, as do the durability and reliability of the products. Manufacturing to “Made in Austria” quality takes place at the main plant in Austria using innovative processes and aspects of Industry 4.0. To secure its technological leadership, OCHSNER invests a very large proportion of its turnover in research and development.

IN-HOUSE TEST BENCH FOR LARGE APPLIANCES

OCHSNER operates its own test laboratory, which is certified by TÜV for applications up to 130°C. Here, full load tests can be carried out under field conditions in accordance with the European standard EN 14511 and the required operating points can be measured.

INNOVATIVE CONTROL TECHNOLOGY

The electronic MEGATRONIC controller of OCHSNER high capacity heat pumps is state of the art. It controls and monitors the heat pump and records all the relevant values in real time. Periphery control allows the control of circulation pumps and valves as well as buffer management, switching of heating, and passive cooling. Clear displays and logging of measured values provide the user with valuable information. Integration in building management systems is planned, as is an option for remote access by OCHSNER.

"OCHSNER's technology has proven itself in day to day use. The aim of saving 90 percent of fossil fuels was even achieved early on during trial operations."

Harald Erhart
Ortner Anlagen, installation engineers for the district hospital in Schwaz


WP3
IWP
OCHSNER

SUCCESS ASSURED IN EVERY PHASE OF THE PROJECT

High capacity heat pump customers can rely on comprehensive support from OCHSNER to ensure the success of their project. Skilled advisers are available at every stage of the design and development process as well as when the system is operational.

DESIGN AND SIZING

Every OCHSNER high capacity heat pump is designed and sized to meet the specific requirements of the project. Customers obtain the optimum solution for their application and achieve excellent performance. The modular system makes it possible to adjust all parameters individually. For example:

- Performance figures such as heating output, COP, required temperature
- Type of heat source, available heat quantity, source temperature
- Various refrigerants with a low or medium global warming potential (GWP)
- Custom adjustment of dimensions to the requirements at the installation site

FACTORY ACCEPTANCE

As part of quality assurance, every OCHSNER high capacity heat pump goes through an approval process at the factory. This ensures that the system meets all agreed parameters upon delivery. It also reduces the time and effort spent on commissioning, with the heat pump being brought up to full operation more quickly. OCHSNER invites all customers to come to the factory for the acceptance procedure. This includes:

- Testing all agreed performance figures
- Producing test reports in accordance with EN 14511 and other standards following consultation with the customer

DELIVERY AND COMMISSIONING

Following factory acceptance, the system is delivered directly to the customer's installation site. OCHSNER Customer Service ensures that it runs perfectly from the start:

- Commissioning by Customer Service personnel trained in-house
- Operational optimisation to suit the actual operating conditions on-site as effectively as possible

INTERNATIONAL CUSTOMER SUPPORT

The in-house OCHSNER Customer Service team provides support across Germany, Austria and Switzerland to ensure that systems run smoothly and meet high customer expectations in terms of service life.

- OCHSNER recommends maintenance contracts to cover legally required and manufacturer-specific maintenance tasks and service intervals for reliable operation, long term.
- OCHSNER provides custom options for remote maintenance and monitoring.
- OCHSNER Customer Service responds to emergencies with rapid on-site visits.

BROAD APPLICATION RANGE

The OCHSNER Energietechnik product range includes heat pumps with high capacities in the range **from 25 kW to 1.5 MW**. Screw and recovery scroll compressors are used. The various series are suitable for applications involving medium, high and highest temperatures.

FULFILLING A RANGE OF TASKS EFFICIENTLY

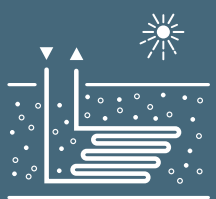
OCHSNER Energietechnik offers customised solutions for building technology, energy technology and process technology. The high capacity heat pumps can be used for a variety of applications in these areas, for example:

- **Heating**
- **Cooling**
- **Hot water, including hygienically sensitive areas**
- **Process heat**
- **Use of waste heat from a wide variety of sources**
- **Raising temperature levels in many different processes and circuits**

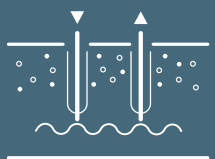
MAKING SENSIBLE USE OF A WIDE RANGE OF HEAT SOURCES

Heat pumps for high capacities can use a wide range of heat sources. In addition to air, the ground or groundwater, waste heat is also an option. In many processes and applications, heat can be used that would otherwise be wasted. Waste heat is generated in many areas, for example:

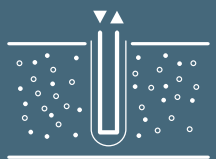
- **Waste heat from processes in industry**
- **Waste heat from data centres**
- **Waste heat from the hotel industry, restaurants, leisure facilities**
- **Waste heat from sewage systems**
- **Heat in district and local heating networks to raise the temperature level**



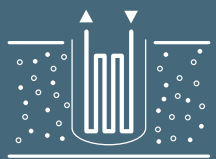
HORIZONTAL COLLECTOR



GROUNDWATER



GEOTHERMAL PROBES



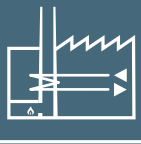
ENERGY PILES

OUTDOOR AIR

WASTE WATER

COOLING NETWORK

SERVER ROOMS



FLUE GAS

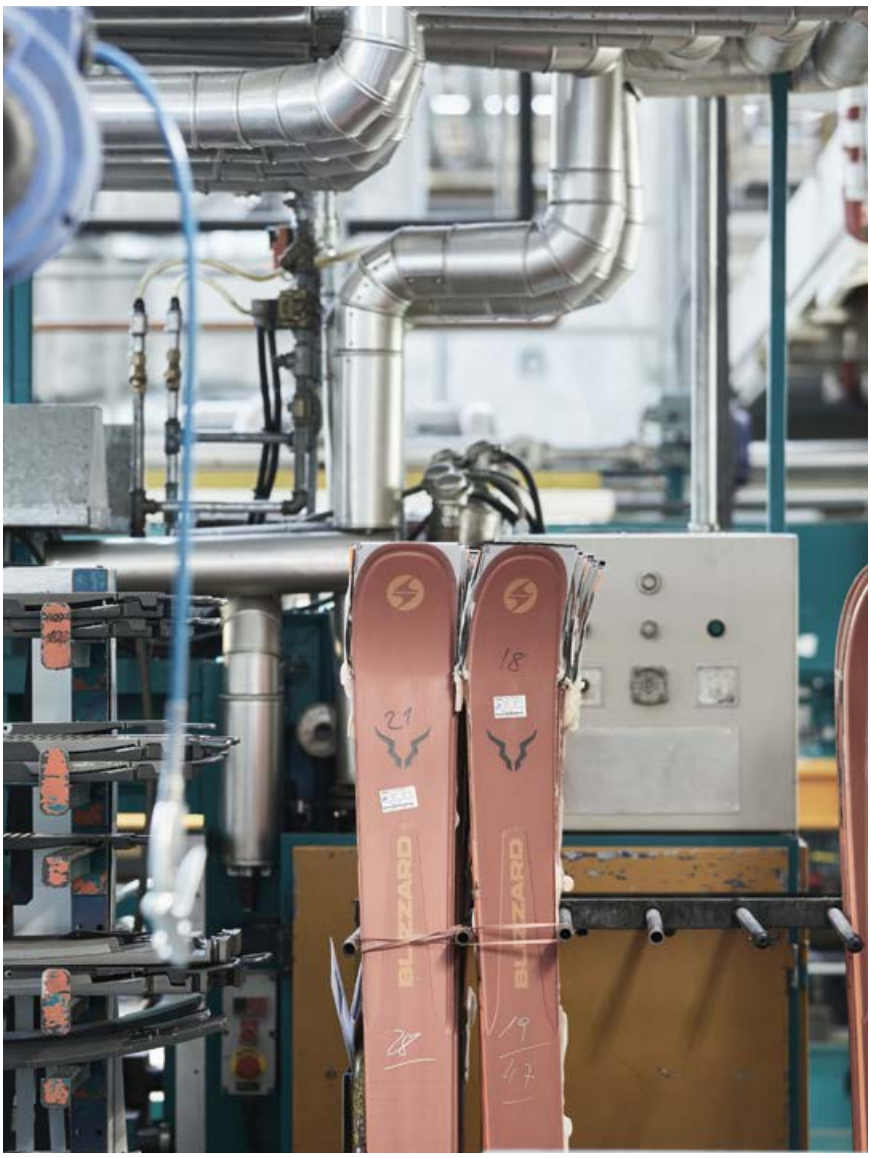
BLIZZARD, A SKI MANUFACTURER IN MITTERSILL

WASTE HEAT

At the Ski Excellence Center in Mittersill in the Tyrol region, the Tecnica Group produces some of the best and top selling ski models in the world. The heat available following the pressing process at 140°C is efficiently recovered for energy using an OCHSNER high temperature heat pump.

During the pressing process, each ski is heated to 140°C for approx. 12 minutes and is then cooled back down to 20 to 22°C. The coolant used for this in the press reaches a temperature of approx. 28°C. Before being discharged into a surface channel, it must be cooled further to 18°C.

The OCHSNER high temperature heat pump performs this task. At the same time, it uses the energy to heat a buffer tank with flow temperatures up to 77°C. This provides heat for heating and processes. As a result, the Ski Excellence Center in Mittersill has seen a significant reduction in its need for biomass and district heating.



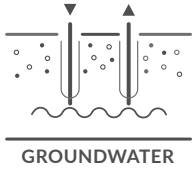
©Blizzard

The OCHSNER high temperature heat pump repurposes waste heat from coolant used in the press to manufacture skis in order to generate heat for heating and processes.

SYSTEM USED

IWWHS 110 ER2C3 high temperature heat pump

DISTRICT HOSPITAL SCHWAZ



The district hospital in Schwaz is the first hospital in Austria to produce heat for heating and hot water in controlled operation solely using heat pumps. In future, fossil fuels will only be utilised to cover peak loads and in an emergency. As well as reducing CO_2 emissions by 90%, the procurement of external energy is set to fall by 50%. For systematically pursuing these goals, the project received a special award as part of the Tiroler Sanierungspreis 2021, a regional prize which recognises outstanding refurbishments.

© hitthaler

By saying goodbye to fossil fuels, the district hospital in Schwaz is aiming to implement the state of Tyrol's energy strategy, according to Franz Hauser, chair of the municipal association. OCHSNER medium and high temperature heat pumps play a key role, having largely replaced the existing gas boilers.

The tailored energy concept consists of two OCHSNER systems for heating and cooling. These use well water as the heat source and for passive cooling. In addition, two OCHSNER high temperature heat pumps produce hot water temperatures up to 80°C, ensuring a high level of hygienic safety in clinical areas. The flow from the heating heat pumps serves as the heat source here.

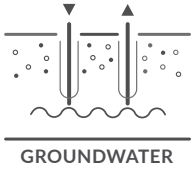
SYSTEMS USED

2x IWWSV 650 ER7A
medium temperature inverter heat pumps

1x IWWHC 60 P2d
compact high temperature heat pump

1x IWWHC 30 P2d
compact high temperature heat pump

IKEA STORE INNSBRUCK



Alongside enlarging the sales areas, IKEA Innsbruck has ensured that the sales and storage areas are served by renewable energy to a greater extent. Heating and cooling have been switched to OCHSNER high capacity heat pumps. Using heat pumps contributes to the corporate objective of making IKEA climate positive in the coming years.

IKEA Innsbruck is the third store in the Swedish furniture chain to choose heat pumps from OCHSNER Energietechnik. Other projects are at the planning stage. The OCHSNER systems provide heating energy of 2x 499 kW and a cooling capacity of 385 kW for the space heating, door air curtain system, cooling and hot water supply. In Innsbruck, groundwater is used as the heat source energy for the heat pumps.

Even before enlarging the sales areas, the aim was to meet 100 percent of the building's power requirements from renewable energy sources. A photovoltaic system on the large roof areas provides self-generated electricity to operate the heat pumps and for the Tyrolean power grid.

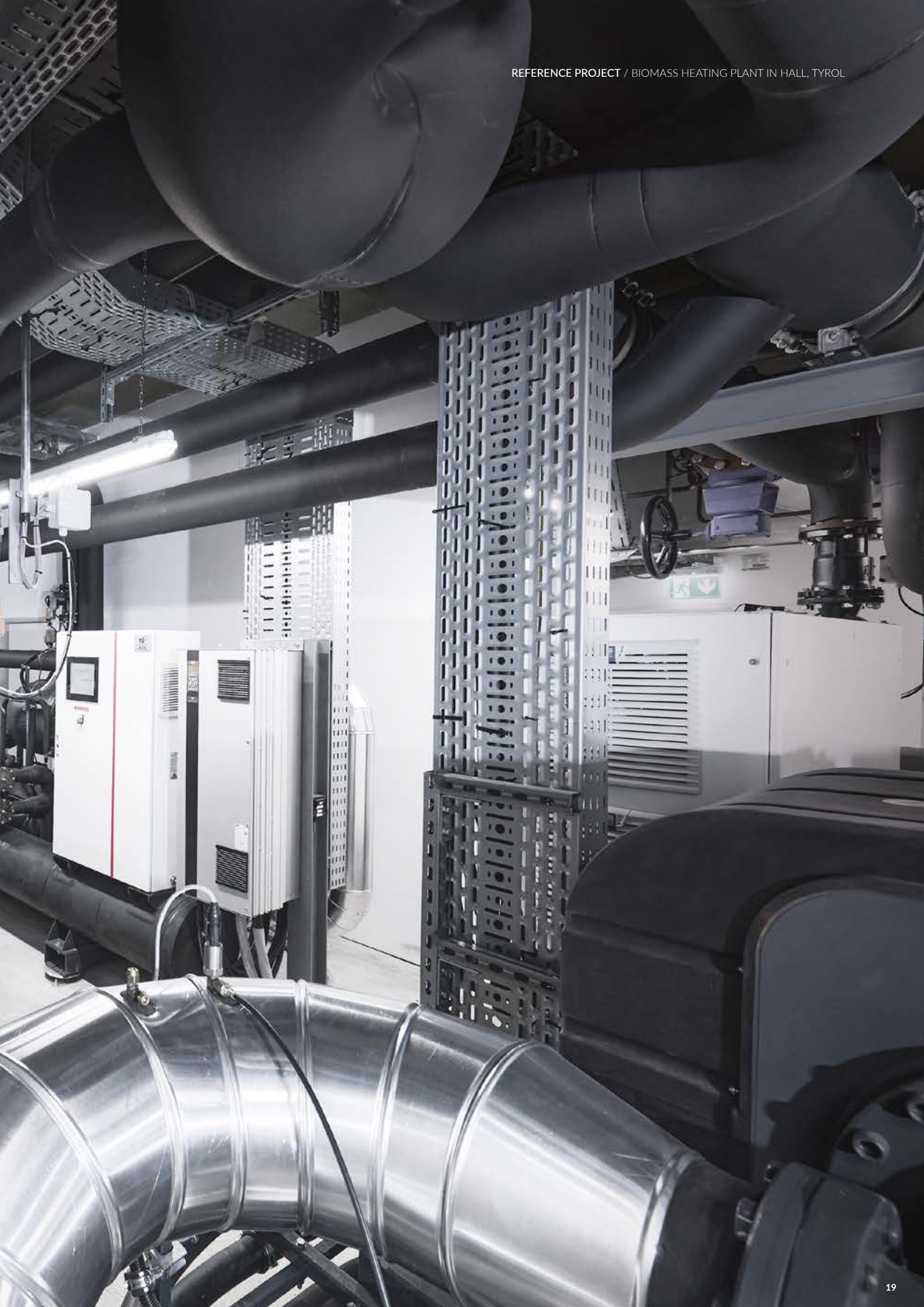
SYSTEMS USED

2x IWWS 520 ER2
medium temperature heat pumps

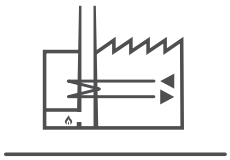
1x OWWP 83 plus
heating heat pump

HEAT RECOVERY IN HEATING PLANTS

Despite installing economisers, there is typically still unused latent heat in flue gas. This can be recovered with process heat pumps. Additional condensation heat is also released in the process. The main benefits for operators are greater efficiency and a reduction in fuel/biomass consumption.



BIOMASS HEATING PLANT IN HALL, TYROL

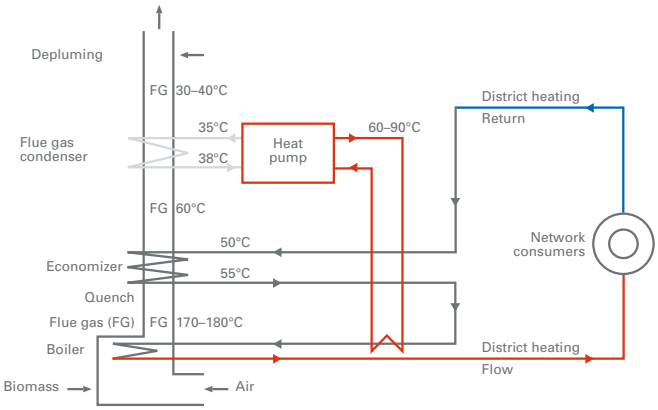


The heating plant in Hall generates heat and electricity from biomass. The thermal energy is transferred to Hall AG's customers via the district heating pipeline system and is available for heating domestic hot water and for space heating. By using OCHSNER high capacity heat pumps it was possible to increase the heating output from 13 MW to 18.5 MW while keeping biomass consumption the same.

SYSTEMS USED

2x IWWSV 985 ER6a
medium temperature inverter heat pumps

2 Stück IWWS 900 R6a
medium temperature heat pumps



Simplified schematic diagram showing heat recovery from flue gas using high temperature heat pumps.

The power plant operated by regional energy supplier Hall AG has been recovering heat from flue gas for a long time. To boost energy efficiency, Hall AG worked with Haim Technologies GmbH on enhancing the design and engineering of the whole process. Multistage desuperheating and flue gas condensation were added to the flue gas system.
To increase performance, four OCHSNER medium temperature systems have been deployed. All heat pumps have frequency control for infinitely variable matching of the output because there are no buffer tanks.

The two companies were awarded the prestigious Energy Globe Award Austria 2021 and the Energy Globe Award Tirol 2021 for this successful project.

HEAT PUMPS FOR EVERY APPLICATION RANGE

82° HIGH TEMPERATURE SERIES IWWHC P2d

with scroll compressors

APPLICATION RANGES

- Heat recovery in hotels, food-processing and pharmaceutical industries, energy supply, data centres
- Hygienically critical hot water applications in hospitals, retirement homes
- Booster solution in combination with low temperature heating
- Heat source: water

DESIGN

- Compact, space saving design
- High source temperatures between +10°C and +42°C

OUTPUT RANGE

- Heating output from 30 kW to 130 kW, cascadeable as desired

82°

HIGH TEMPERATURE SERIES ALBATROS

with screw compressors

APPLICATION RANGES

- Heating
- Large buildings, local and district heating networks
- Max. flow temperature +82 °C
- Heat source: air up to -20°C outdoor temperature

DESIGN

- Compact design
- 2-stage compressor technology, low GWP refrigerant
- Solid shell and tube heat exchanger as condenser
- Speed controlled fans

OUTPUT RANGE

- Heating output of 460 kW at A10/W45 and 412 kW at A2/W82

75° MEDIUM TEMPERATURE SERIES
with screw compressors

APPLICATION RANGES
- Heating and cooling
- Large buildings such as office buildings, hospitals, production halls
- Heat source: geothermal energy, groundwater, waste heat from waste water, refrigeration systems, data centres, etc.

DESIGN
- Wear-resistant, highly efficient compact screw compressors
- Output control in stages, infinitely variable or inverter control
- Solid shell and tube heat exchangers as evaporator and condenser for maximum service life and operational reliability

OUTPUT RANGE
- Heating output from 110 kW to 1.1 MW

92° HIGH TEMPERATURE SERIES
with screw compressors

APPLICATION RANGES
- Process technology
- District heating networks
- Heat source: water

DESIGN
- Screw compressors specially designed for high temperatures for heavy-duty continuous use
- High performance cooling system with internal circuit
- High temperature lift possible through two-stage refrigerant circuit

OUTPUT RANGE
- Heating output from 350 kW to 850 kW

95° HIGH TEMPERATURE SERIES
with screw compressors

APPLICATION RANGES
- Process technology
- District heating networks
- Heat source: water from process heat or heat recovery

DESIGN
- Screw compressors specially designed for high temperatures for heavy-duty continuous use
- High performance cooling system with internal circuit
- One-stage refrigerant circuit
- High efficiency due to low temperature rise

OUTPUT RANGE
- Heating output from 60 kW to 550 kW

130° ULTRA-HIGH TEMPERATURE SERIES
with screw compressors

APPLICATION RANGES
- Process technology
- District heating networks
- Steam generation
- Heat source: water from process heat or heat recovery

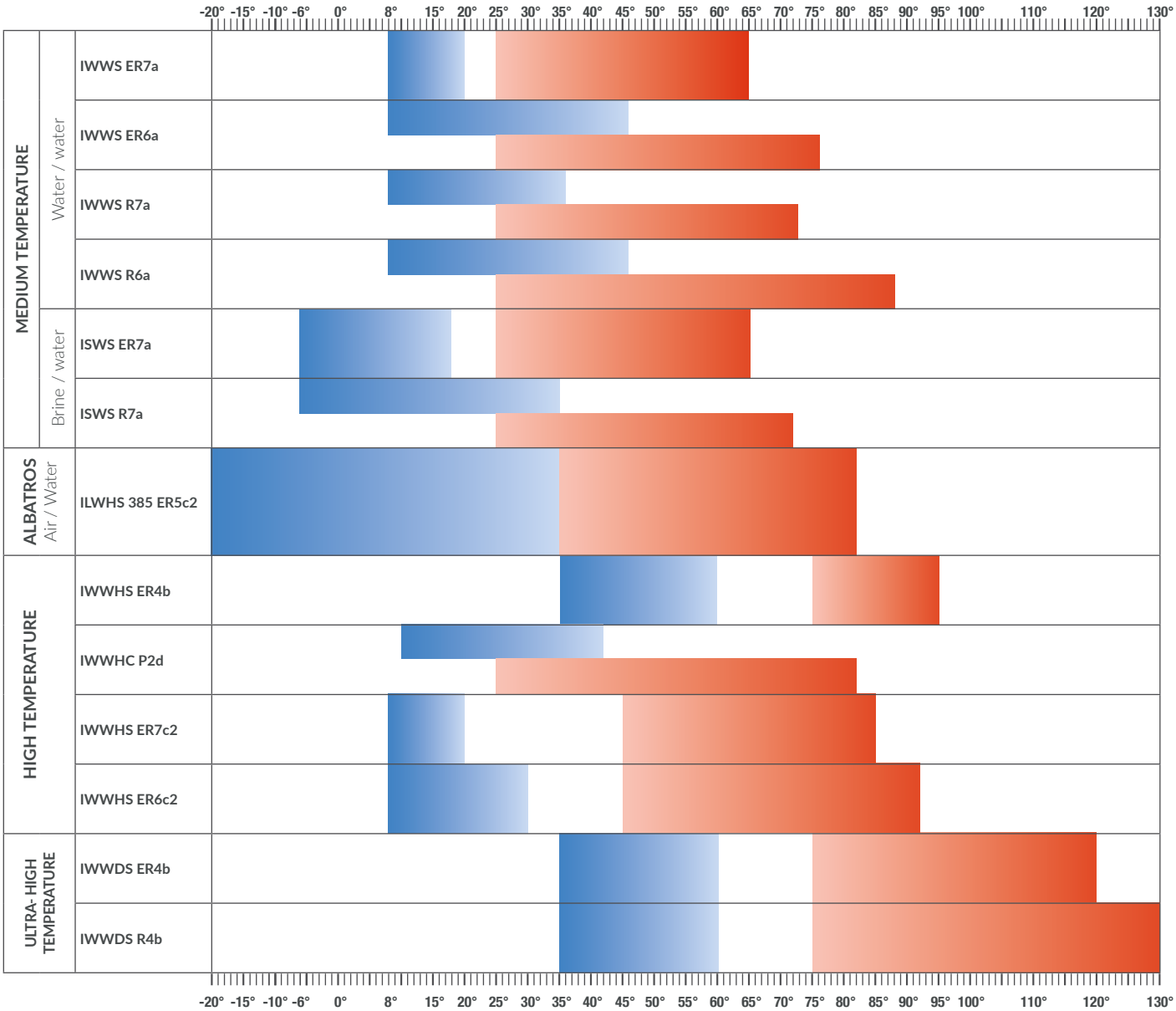
DESIGN
- Screw compressors specially designed for the highest temperatures for heavy-duty continuous use
- External high performance cooling system
- One-stage refrigerant circuit

OUTPUT RANGE
- Heating output from 50 kW to 450 kW


OCHSNER

INDUSTRIAL HEAT PUMP SERIES

The optimal function and economic efficiency of heat pumps depend on how they are integrated into an overall concept. OCHSNER offers comprehensive services for this, from project planning and support with system design to implementation, commissioning and maintenance.



Evaporator inlet temperature
Condenser outlet temperature [1)]

[1)] The maximum condenser outlet temperatures are the switch-off values.

OCHSNER
ENERGIETECHNIK

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ET10e P 06/2024

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