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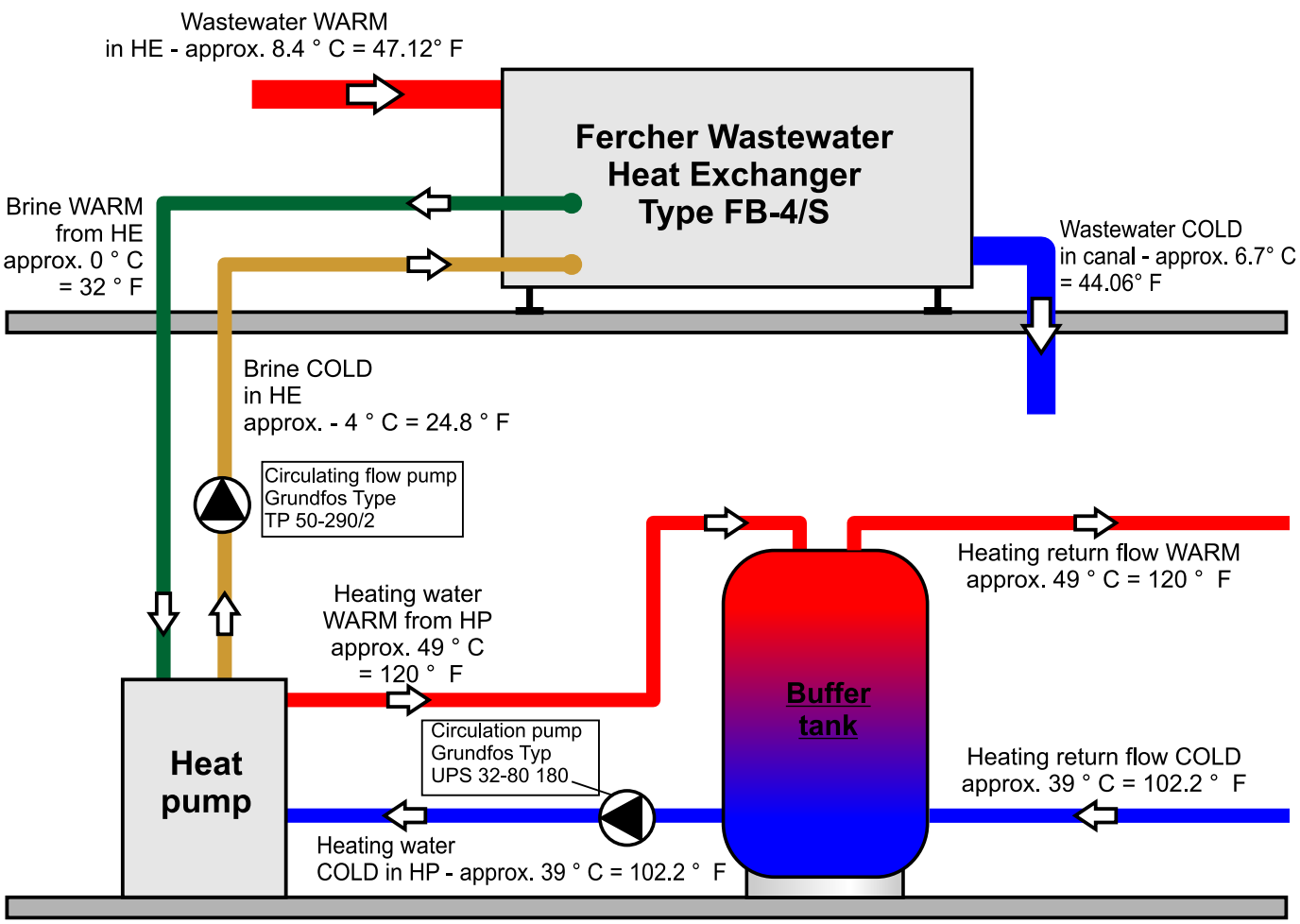
FERCHER*
Wastewater Heat Recovery
in a Sewage Treatment Plant

Heat Recovery from Wastewater
in connection with a heat pump

*Fercher is Fernett's European Partner Company

Sewage treatment plant - Fercher Wastewater Heat Recovery
Technical schematic

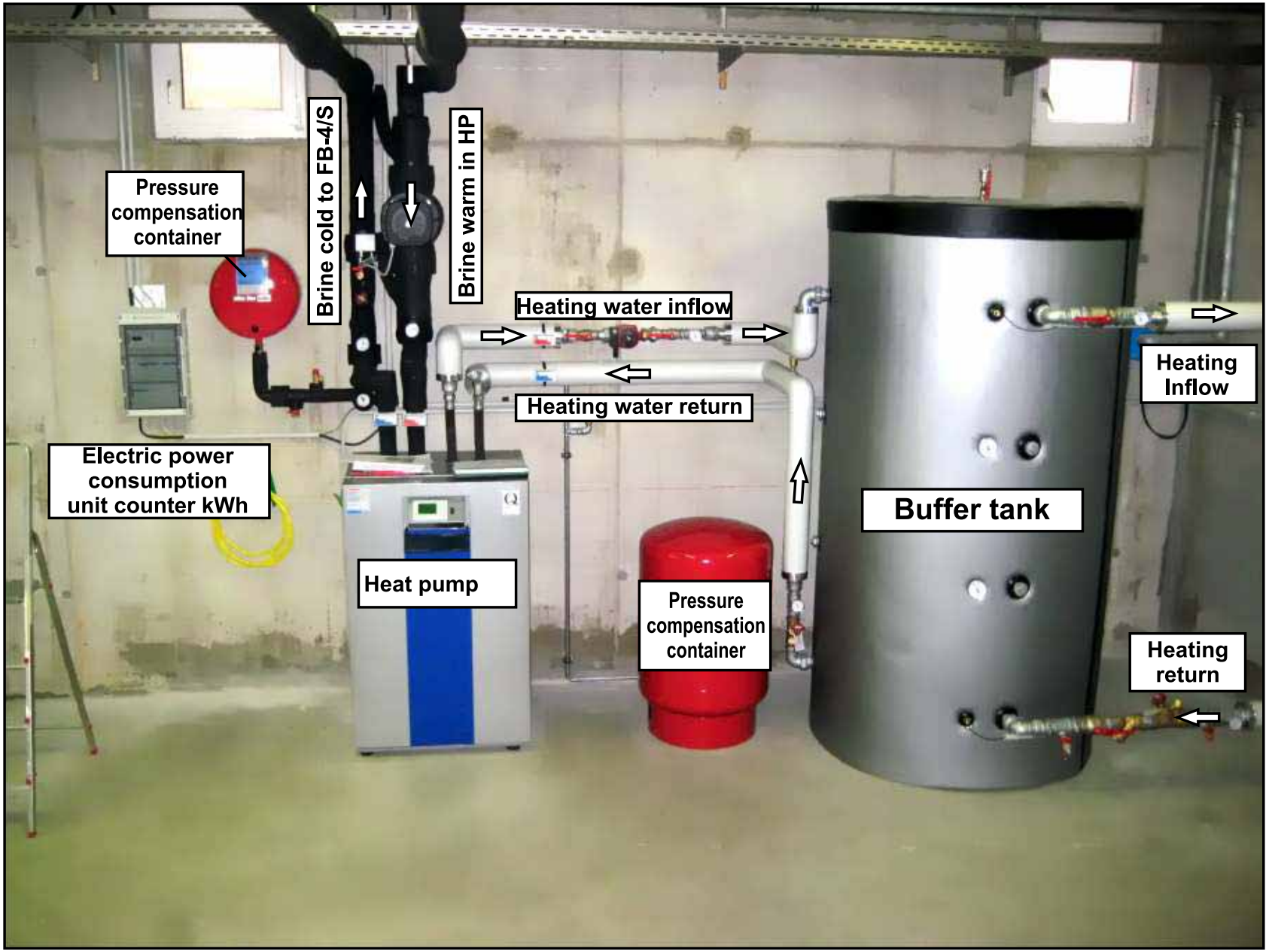


Description

Wastewater flows through the Fercher FB-4/S and warms up the brine flowing in the flat pressed pipes located within the heat exchanger. The Fercher Heat Exchanger works with a high degree of efficiency and virtually maintenance free.

The brine of the heat pump is being circulated through the Fercher Wastewater Heat Exchanger Type FB-4/S and the temperature is increased from -4°C = 24.8 ° F to 0°C = 32 °F.

The secondary circuit of the heat pump increases the temperature of the heating water in the buffer tank from approx. 39 °C = 102.2 ° F to approx. 49 °C= 120 ° F.



FERCHER FB-4/S shown with removed covers.
In the photo you can see the wastewater distribution basin (top right), the POLO-KAL wastewater distribution pipes (blue) and the slanted Fercher Absorber Plates.

The wastewater distribution basin in the heat exchanger evenly distributes the accumulating wastewater into the 4 POLO-KAL pipes, which distribute the wastewater to the respective absorber plates.

The wastewater is then evenly distributed to the respective Fercher Absorber Plate and drains off as a thin film on the absorber plate.

Output data

Wastewater:

Wastewater WARM IN: **8.4 ° C = 47.12° F**
Wastewater COLD OUT: **6.7 ° C = 44.06° F**
Difference: **1.7 K**
Estimated flow through: **3.22 L / s =~ 11,6 m³/h** (calculated via energy conservation from brine circuit)

Proportion through energy conservation:

$1.7 * M_{Wastewater} = 4 * M_{Brine}$ ---> $M_{Wastewater} / M_{Brine} = 2.35$

Brine circuit

Brine COLD IN: **- 4 ° C = 24.8 ° F**
Brine WARM OUT: **0 ° C = 32 ° F**
Difference: **4 K**
Estimated flow through: **1.37 L / s =~ 4.93 m³/h** (calculated via diagram heat pump)
Output heat pump: **33 kW** (= heating output heat pump, see diagram heat pump)

DIAGRAM
VIESMANN HEAT PUMP
TYPE NATURA WWH 134.1

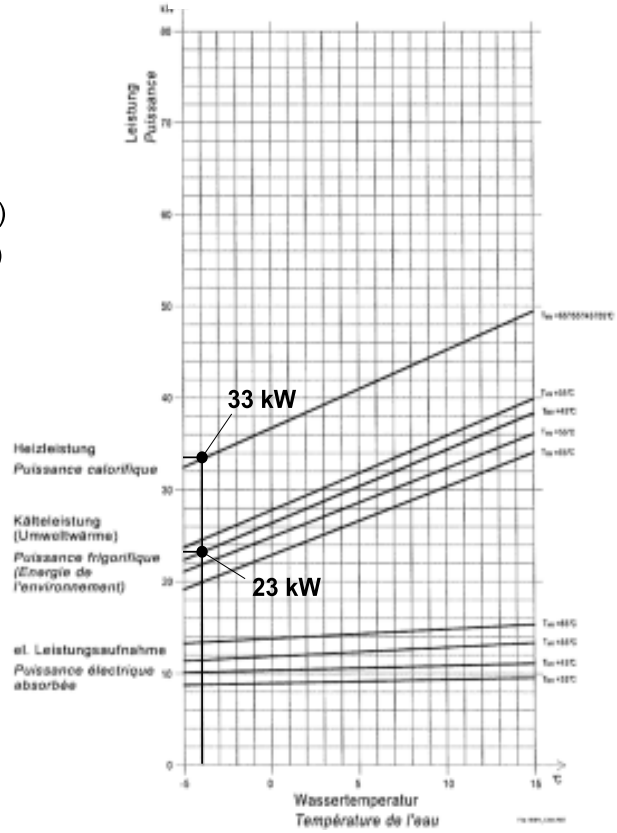


Photo: Display heat pump - momentary values

All values are approx. and partially estimates.