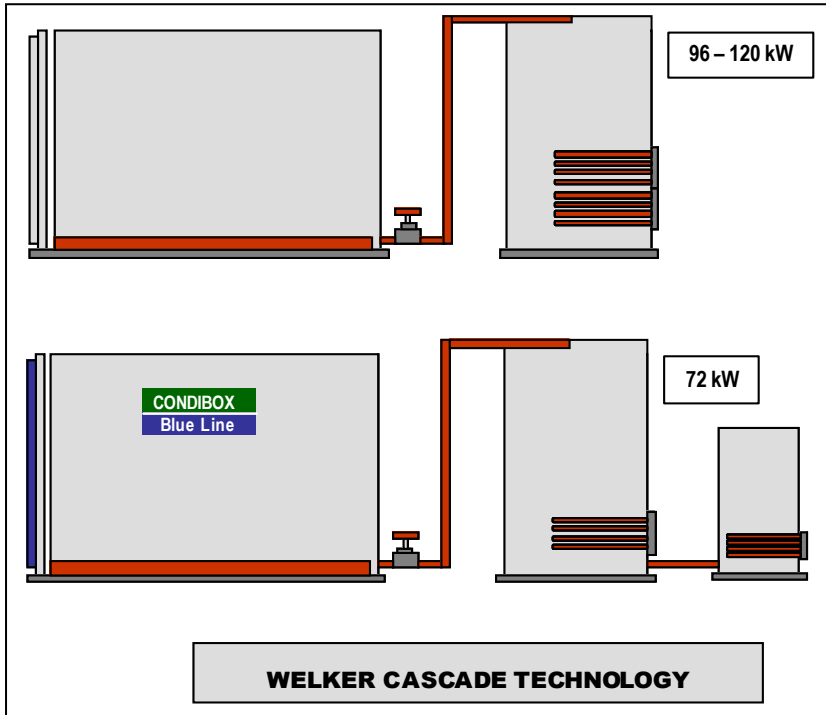


BLUE LINE – SAVING ENERGY AND WATER

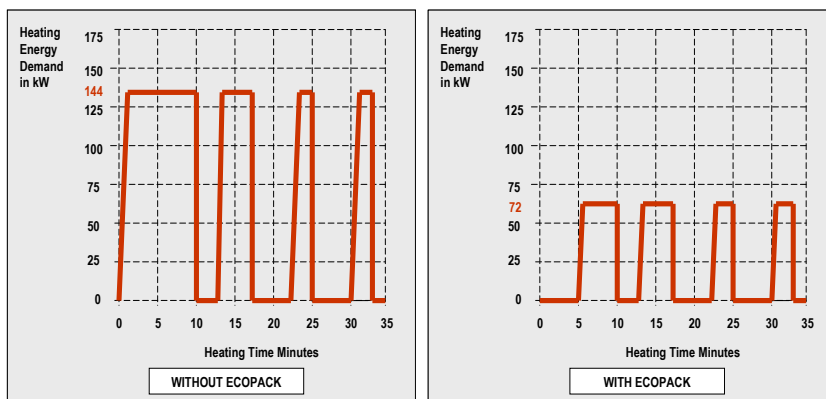


Every cycle demands full energy after the vacuum is formed and therefore, a sudden peak demand of energy which will be charged additionally to the regular energy consumption cost.

CASCADE TECHNOLOGY

The CASCADE divides the action executed by the main ECOHEATER, into 2 different steps: one step is there to heat up the cold water up to process temperature, the other is to heat up the machine and keep the process temperature. The PreHeater has much more time to heat up, and therefore, needs less heating capacity.

Therefore, the ECOHEATER receives hot water from the PreHeater and then, if further energy is needed, its own heating rods get into action. As the installed capacity is sufficient to heat up the water, the peak demand of the ECO thus will be significantly reduced.



SAVINGS:

With the CASCADE system, the installed energy can be reduced by up to 30%.

RECYCLING OF CONDENSATE

Normally, the condensed hot water inside the CONDIBOX goes into the drain, without using the energy. With **ECO- RECYCLING**, the condensate is pumped from the CONDIBOX into the heaters and its energy is re-used for next cycles to come.

ECO- RECYCLING is recommen-dable when clean water is used inside the autoclave and no dirt from outside is introduced into the process.

WELKER PRAHEATER

Specially designed smaller water heater working synchronized with the main heater. The capacity is determined by the production and need of heating energy. **The heater fulfills all technical norms (TÜV, ASME, etc.).**

BLUE LINE – SAVING ENERGY AND WATER

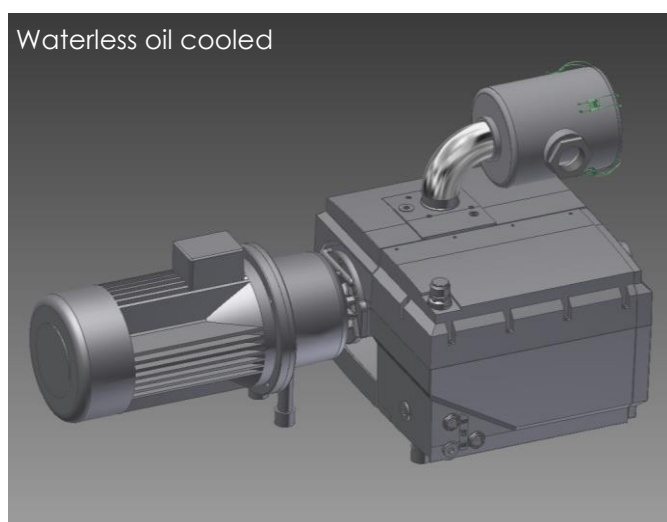
There are thousands of conditioning and heat-setting machines operating worldwide using water-based liquid ring pumps to reach vacuum. This

After intensive development work, WELKER can now offer two types of water-free pumps for generating high vacuums for demanding processes.

The safe and highly efficient WELKER WATERFREE pumps are available for all Welker machines and can also be retrofitted.



Waterless dry claw



Waterless oil cooled

SAVINGS:

With a 1.200 kg Machine, 28.800 kg/ 24 hs day, 1 x 15 kW vacuum Pump

1 vacuum cycle: 180 litres/ cycle/ hour, 4,32 cbm/ day
One year is 365 x 4,32 cbm = 1.576,80 cbm x USD 2,00 =
USD 3.153,60/ year

2 vacuum cycles: 400 litres/ cycle/ hour, 9,60 cbm/ day
One year is 365 x 9,60 cbm = 3.504 cbm x USD 2,00 =
USD 7.008,00/ year

3 vacuum cycles (finisher): 550 litres/ cycle/ hour, 13,2 cbm/ day
One year is 365 x 13,2 cbm = 4.818 cbm x USD 2,00 =
USD 9.636,00/ year

ADVANTAGES:

- SUPPORTS ENVIRONMENT
- SAVING WATER COST
- SAVING DRAIN WATER COST
- INSTALLATION COST
- CASCADE SYSTEM
- ENERGY RECYCLING
- WATERLESS OIL COOLER
- WATERLESS DRY CLAW

WATERLESS WITH DRY CLAWS

These special pumps were developed for high efficiency and absolutely dry operation. Two steel claws operating at high speed generate the suction action.

With a special WELKER software configuration, the system does all operational steps for a safe and water saving operation.

WATERLESS WITH OIL COOLER

In operation since many years, oil cooled vacuum pumps have been significantly improved in its cost and efficiency.

Working in a mineral oil bath, these pumps have a high lifetime and reach vacuum levels up to 98%, thus enabling vacuum conditioning at very high level.