



VACUUMIZER®

High-precision temperature control with vacuum steam

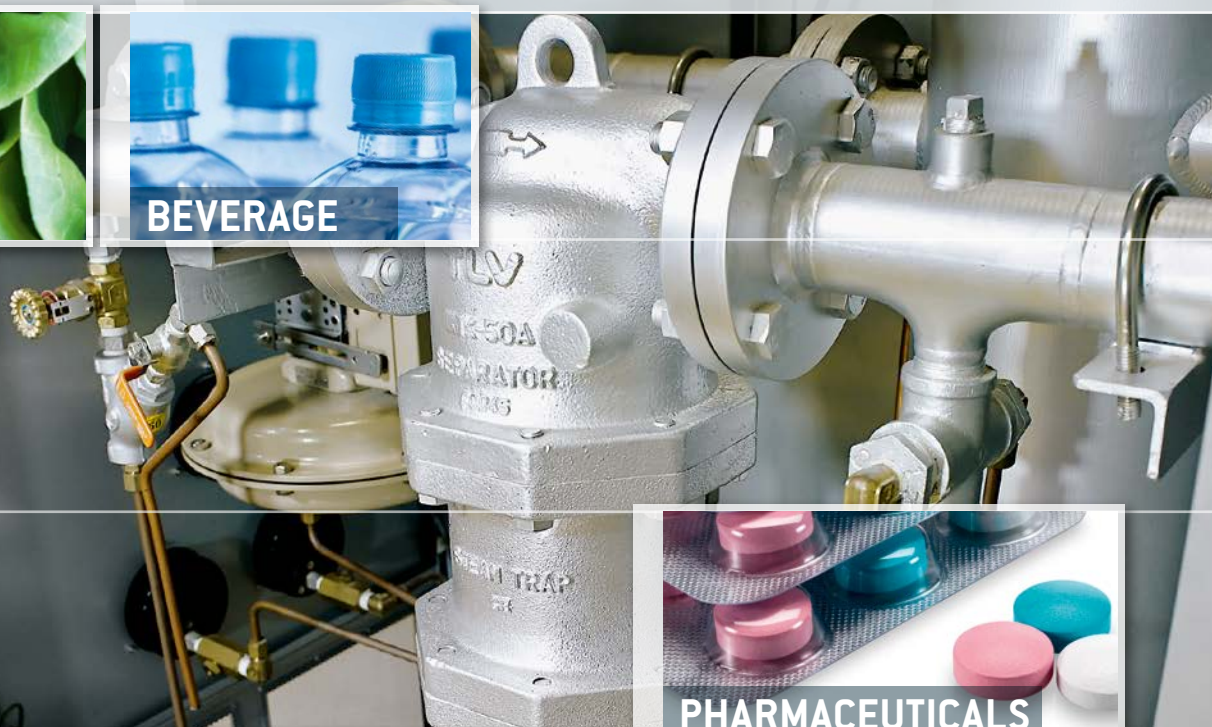
- > Effective heating with steam below 100°C
- > High-accuracy temperature control
- > Increased productivity



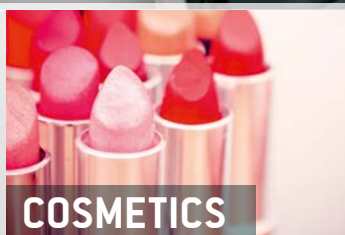
FOOD



BEVERAGE



PHARMACEUTICALS



COSMETICS



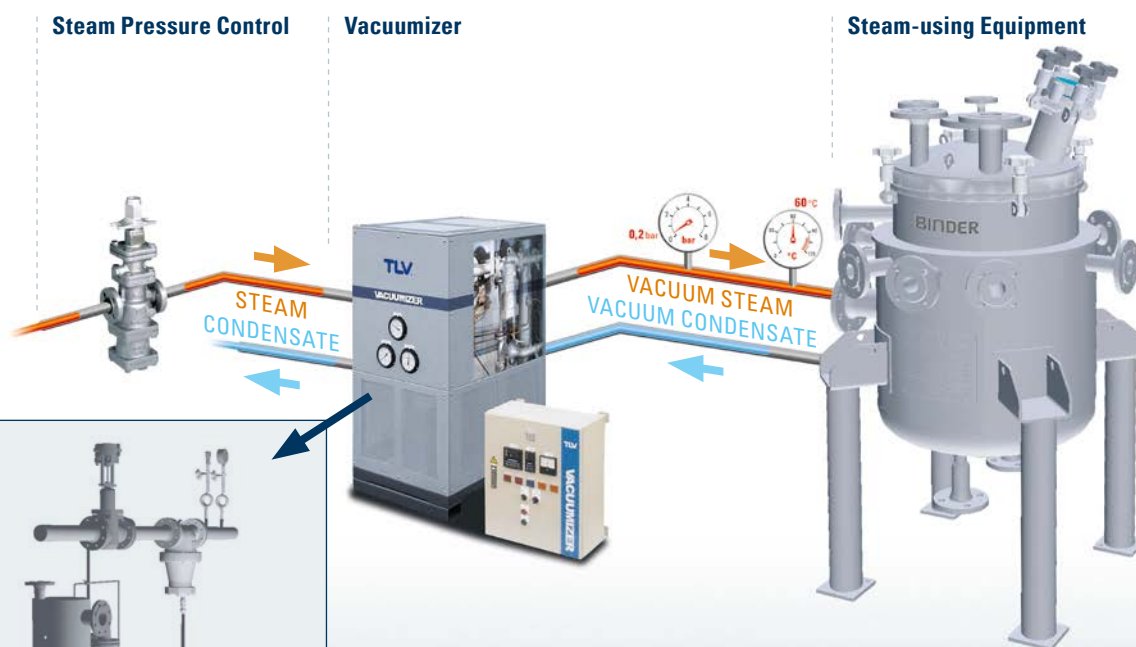
CHEMICAL

VACUUMIZER. USING VACUUM STEAM FOR HEATING WITHIN A TEMPERATURE RANGE OF 30 TO 100°C TO INCREASE PRODUCTIVITY AND PRODUCT QUALITY.

TLV Vacuumizer-Systems are used for low temperature heating in a variety of industrial processes. Heating sensitive compounds at temperatures below 100 °C is usually done by hot water systems, which are powered by steam. Direct heating with vacuum steam [< 1 bar abs./0 barg] is an innovative method which utilises the many advantages of steam heating systems.

HEATING TEMPERATURES
30 to 100 °C

APPLICATIONS
Chemical Processes
Distillation
Concentration
Drying
Heating
Sterilisation



THE VACUUM STEAM HEATING SYSTEM

Compact, but powerful: The TLV Vacuumizer combines high-efficiency vacuum creation, condensate recovery and accurate low pressure steam control. The result is a versatile solution for your steam heating needs which offers improved product quality and productivity.

System design by **TLV EURO ENGINEERING GmbH**



At our show room, a 100 litre reactor is heated with either hot water or vacuum steam with a temperature range between 30 and 100°C. For comparison of the heating systems, the temperature curves are monitored over time. The performance curves are demonstrating the superior performance of the Vacuumizer.

> **Saving space and energy**

Instead of a large buffer storage tank and circulation pump for the hot water supply, a compact steam system is used. The reduction of positive pressure steam into vacuum steam and condensate recovery are both accomplished in a single, compact unit.

> **Stable and even product heating**

In contrast to a hot water heating system, a steam heating system does not cause different temperatures in afflux and reflux, hence no temperature gradients are formed at the heating surface. The process control quality will increase.

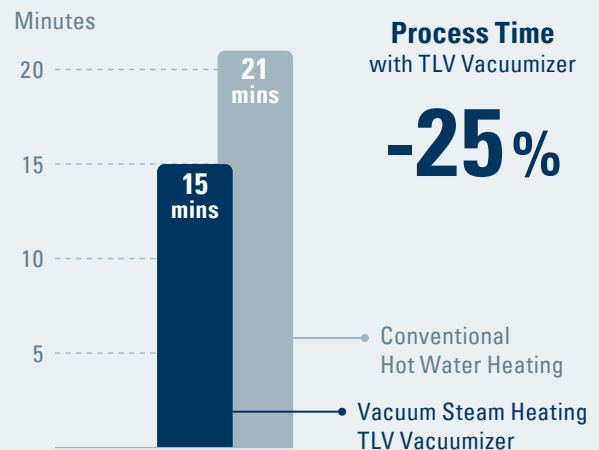
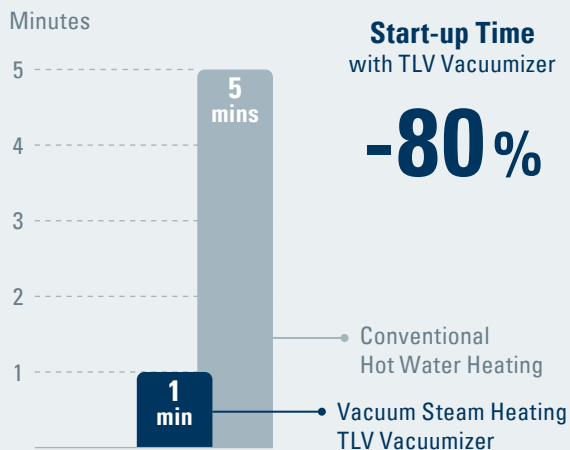
> **Significantly shorter heating periods**

Steam condensation leads to a larger energy transfer at the heating surface, compared to a liquid heating medium. For the same surface area, the heat output increases significantly, resulting in a reduction of the heating time by 25% or more, which is

especially advantageous for batch processes.

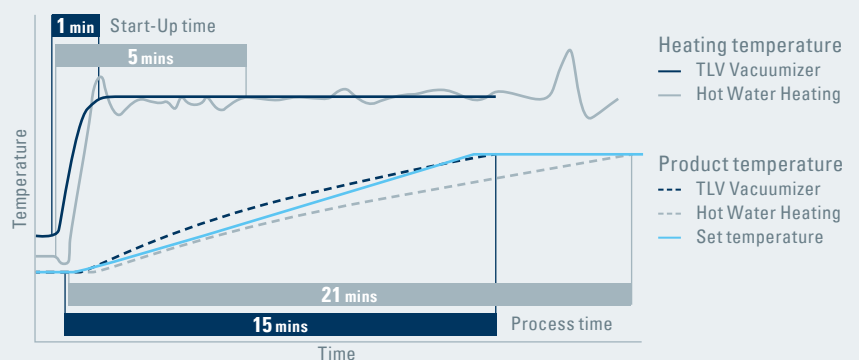
> **Precise temperature controlling**

Precise control of vacuum steam pressure enables an accuracy of $\pm 1^\circ\text{C}$ of the steam heating temperature avoiding product overheating or underheating.



INCREASE PRODUCTIVITY SIGNIFICANTLY

The vacuum steam heating system TLV Vacuumizer VM-H decreases the heating time by 25% on average. In addition, the start-up time to reach a stable heating temperature can be shortened by up to 80%. As a result, this process enables boosted productivity and yields a higher quality product.





Learn more about how you can optimise your processes with TLV system solutions.

We consult. Personally, with knowledge.

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