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BOLDROCCHI

ESTABLISHED IN 1909

MECHANICAL VAPOR RECOMPRESSION

CUSTOM-ENGINEERED EQUIPMENT FOR PROCESS APPLICATIONS

THE PROCESS

Mechanical Vapor Recompression works by re-using the heat energy contained in the vapor that differently would be wasted.

In a typical falling film evaporation plant, feed liquid is distributed across many vertical tubes and as it flows down, it forms a thin descending layer. The tubes pass through a jacket of high temperature vapor that condenses on the surface of the tubes releasing latent heat and raising the temperature of the feed liquid. By that time, the liquid reaches the bottom of the tubes and most of the water has already been evaporated off, leaving a concentrated viscous liquid. The water that leaves the tubes as vapor now contains most of the energy that was initially fed in.

In **MVR** system, the vapor is fed through the Blower which raises its pressure and temperature so that it can be fed back into the system to evaporate more feed liquid. The system is a highly efficient and it is a cost-effective way of re-using heat energy. **Boldrocchi's Blower combine competitive cost with an outstanding record of accomplishment of long plant life and reliability.** It offer complete isolation of the process gas and a robust ability to handle corrosive gases. *These factors are identifying our Blowers as the first choice across the oil and petrochemical industries, chemicals manufacturing, food processing and many other activities where long-term, round-the-clock operation essential and unscheduled stoppages have expensive consequences.*

Applications

- ◆ Dairy industry
- ◆ Food processing
- ◆ Starch and sweeteners prodction
- ◆ Oil and Gas
- ◆ Pulp and paper industry
- ◆ Water recovery / Zero liquid discharge (ZLD)
- ◆ Utility water treatment
- ◆ Desalination and distillation
- ◆ Renewable fuel production
- ◆ Pharmaceuticals industry
- ◆ Chemical industry



MVR blowers for zero liquid discharge



MVR blower for tomato processing plant

KEY FEATURES

Performance MVR Blowers

- ◆ Speed ranges: **typically, 1.500 ÷ 8.000 rpm**
- ◆ System pressure: **0,1 ÷ 3,0 bar (a)**
- ◆ Pressure ratio: **within 1.2 ÷ 1.8 in standard applications**
- ◆ $\Delta T = 5 \div 11^\circ K$ for each stage of compression
- ◆ Flow Capacity: **within 5.000 ÷ 700.000 [m³/h]**
- ◆ Capacity: **within 100.000 kg/h under vacuum**

Construction Features

- ◆ Impellers and casings are fabricated from ductile alloy plate.
- ◆ Closed face impeller design with reinforced inlet geometry.
- ◆ Backward curved / full-length radial blades.
- ◆ Durable and reliable construction for tough operation.
- ◆ Gas tight casing design.
- ◆ Fabricated construction – all weldable materials can be used.

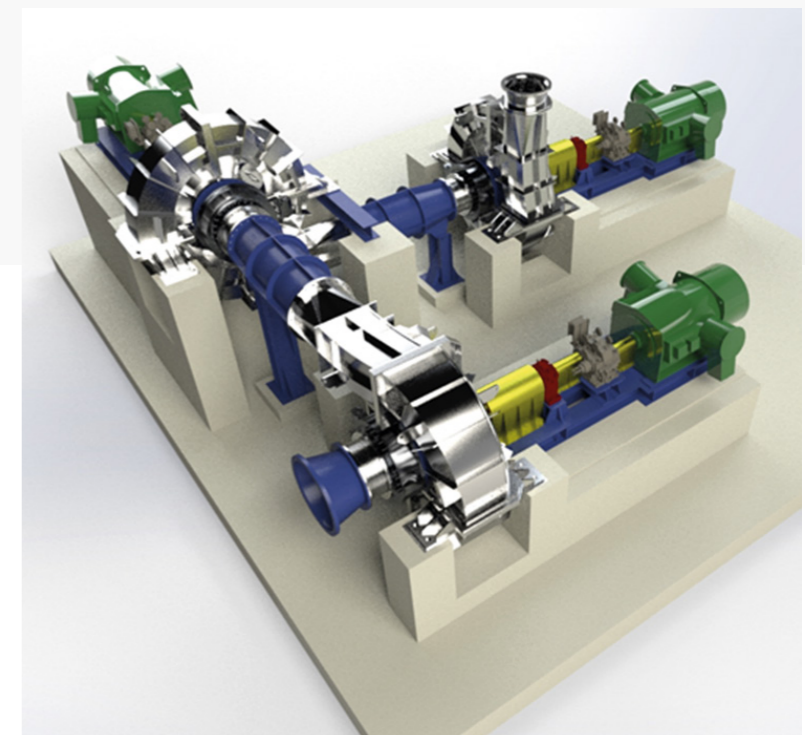
Advantages

- ◆ Long experience with high-pressure applications.
- ◆ Combined high efficiency.
- ◆ Oil free, non-pulsating operation.
- ◆ Efficiencies up to 90%.
- ◆ Turn down ratio > 25%.
- ◆ Low maintenance costs.
- ◆ No gears with high-speed motor & VSD.
- ◆ Less spare parts to consider.
- ◆ Customized solutions possible.

Multistage Application

Multiple MVR Blowers in line connected, compress the steam to the required higher-pressure level before coming back into the production process.

Performances - $\Delta T = 15 \div 36^\circ C$ (up to 4 stages)





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