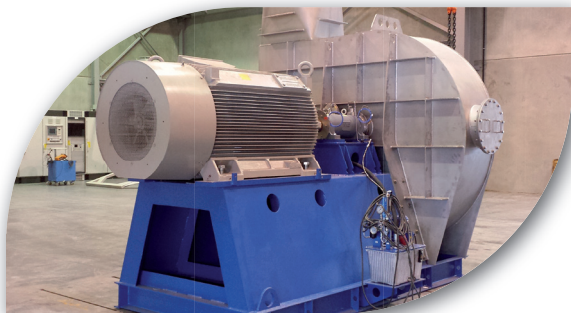
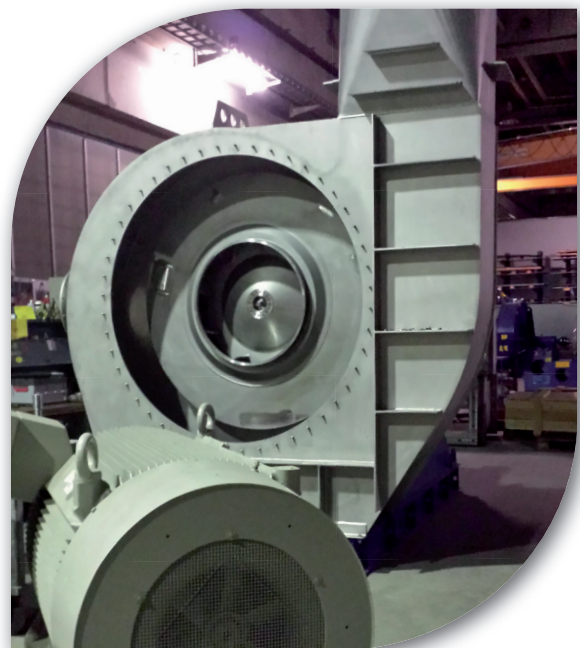


| **What is** ,*Mechanical Vapor Recompression*“?

The Mechanical vapor recompression is a thermal separation process, which consists of evaporation and condensation. The goal is to reduce energy consumption in the evaporation of liquids, first introduced in the development of multi-stage systems, than the use of thermal vapor recompressors and resulting in using mechanical vapor compression. Due to the mechanical vapor recompression the primary energy consumption will be reduced, which results also in reducing the operational costs and thus the environmental impact. The higher investment costs for a version with mechanical vapor recompression will be charged off after a short period of operation.



In mechanical vapor compression the generated vapor (saturated steam) from the evaporator will be boost by using a MVR-Fan to a higher pressure level and fed back as heating steam to the evaporator again. Thus the fan operates as a heat pump.

Field of application of different fan types

Regarding traditional MVR systems, a conventional radial fan with oil unit and variable speed motor is used. These units could handle volume flows up to 400,000 m³/h and saturated steam temperature increases about 6.5°C. For applications which require a higher temperature difference, two or three centrifugal fans will be connected in series.

For small and laboratory equipment we use a belt-driven solution that is also equipped with a variable speed motor. Thus, the optimum fan speed can be set for each operating point. Performance limits for this type of fan are a flow rate of 15,000 m³/h and a saturated steam temperature rise of about 5 °C.

Advantages of using a centrifugal fan

- Low investment and operating costs
- Simple rugged construction
- Use of standard materials and components
- Insensitive against droplets
- Simple start-up and shut-down within the plant operation
- Inexpensive spare parts

Requirements for MVR Centrifugal Fan

- High impeller tip speed (up to 270 m/s)
- Impeller geometry with high numeral pressure and high efficiency
- Pressure – resistant casing design (aprox. 0,1 to 1,5 bar abs.)
- Welded design made out of stainless steel
- Reliable fan bearing design
- Speed - control range down to approximately 50% of rated speed