

# ExVel<sup>®</sup> Turbo Fans

For Mechanical Vapor Compression (MVC)



**We understand the unique process, mechanical, and aerodynamic performance requirements of vapor compression applications, which differ from most any other fan or compressor application.**

We specifically design and fabricate our turbo-fans for each and every project and the unique requirements of the application. Our unique combination of impeller, bearing, and rotordynamic technologies exceed any other manufacturer's capabilities in terms of strength, rigidity, and load capability. Our fan rotor system is constructed to resist the demanding loads imparted in vapor compression applications due to process carryover, condensate / water spray, fouling, disrupted vapor flow, and temperature / chemistry challenges.

We understand the unique demands of typical vapor compression duct systems which differ from most any other industry, and we therefore rate the fan to deliver the differential pressure and saturated temperature rise at the process planes you define. This is unique compared to conventional fan rating methods.

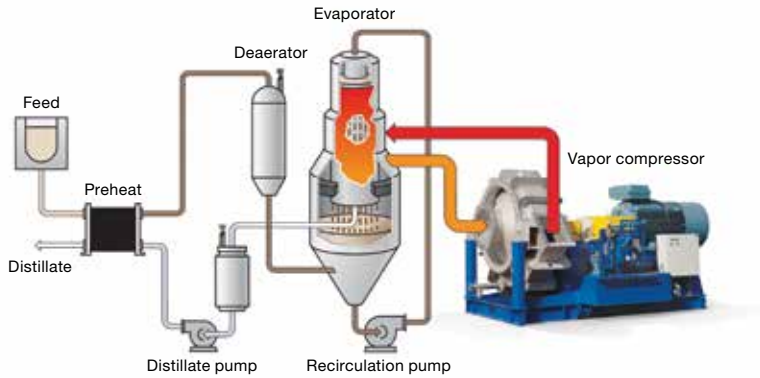
We will design most fans to operate direct coupled to the main driver, and eliminate the need for any gears, which reduces the amount of equipment and instrumentation, noise, and maintenance.

We manufacture from a variety of materials to meet specific process conditions, including high strength quench and tempered steels, Stainless and Duplex Stainless Steel Alloys, and Nickel Alloys. All component and interface connections and running clearance areas are machined to ensure the best operational integrity.

Our standard lubrication systems designed for sleeve bearings include dual, 100% oil pumps designed for simultaneous operation to ensure constant lubrication at all times and in the event of any type of plant system or equipment failure.

Besides in-process NDE and quality checks, and regardless of how large any unit may be, every fan is run tested at the factory before shipment to ensure the highest operational quality and reliability from the very start.





**For further information contact**

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**Key features**

**Low speeds**

Our fans will typically operate at around 3600rpm or less in vapor compression applications.

Low speed operation means lower stress in the rotor, less sensitivity to fouling or carryover, and more reliable service.

**Exceptional impeller design**

Full length radial blades with reinforced inlet geometry.

Intermediate radial blades for added rigidity.

Closed face impeller; flange fabricated from heavy plate.

Hydraulic taper fit to the shaft.

Shaft is completely isolated from the process.

**Infinite life, hydrodynamic bearings**

Sleeve type with no mechanical contact to the shaft.

Independent pillow block housings, fully split for the simplest access possible.

Excellent damping properties for smooth operation.

Unsurpassed radial and thrust load capabilities.

No rolling elements means quieter operation.

Suitable for API 670 vibration detection packages.

**Few parts – low maintenance**

Only three rotating parts: impeller, shaft, coupling.

No gears.

Fewer spare parts to consider.

Less PM, and more return on investment.

**200%, redundant pump lubrication system**

One 100% electric motor driven pump.

One 100% fan shaft driven pump.

Dual 100% oil filters with 3-way transfer.

Level, temperature, pressure, and Flow monitoring devices.

**Combined high efficiency and controllability**

Operating efficiencies up to 80%+.

Controllability to less than 50% flow.

Guide vanes and variable speed options.

**API (American Petroleum Institute) options**

API 673 – Centrifugal fans.

API 671 – Special purpose couplings.

API 614 – General and special purpose lubrication systems.

API 541 – Induction motors – 500 horsepower.

**Processes**

MVR

ZLD

SAGD

Distillation

Crystallization

Concentration

**Industries served**

Agri-food

Dairy

Desalination

Ethanol

Mining

Oil and gas

Petrochemical

Pharmaceutical

Pulp and paper

Utility

**Short lead time: 30 to 40 wks. typical**

**Oil free, non-pulsating flow**

**Performance range for vapor compression**

Steam performance based on saturated, atmospheric conditions, 0.0373 lb/ft<sup>3</sup>.

