



Single stage
**steam jet
ejectors**



THE EJECTOR COMPANY

Versatile options
for any application

Maintenance free and durable

Körting steam jet ejectors

AN IDEAL SOLUTION FOR ANY APPLICATION

There's virtually no limit to where steam jet ejectors can be used.

They can be deployed to pump gas, steam and liquids. They can be used as a vacuum pump, steam compressor or ventilator.

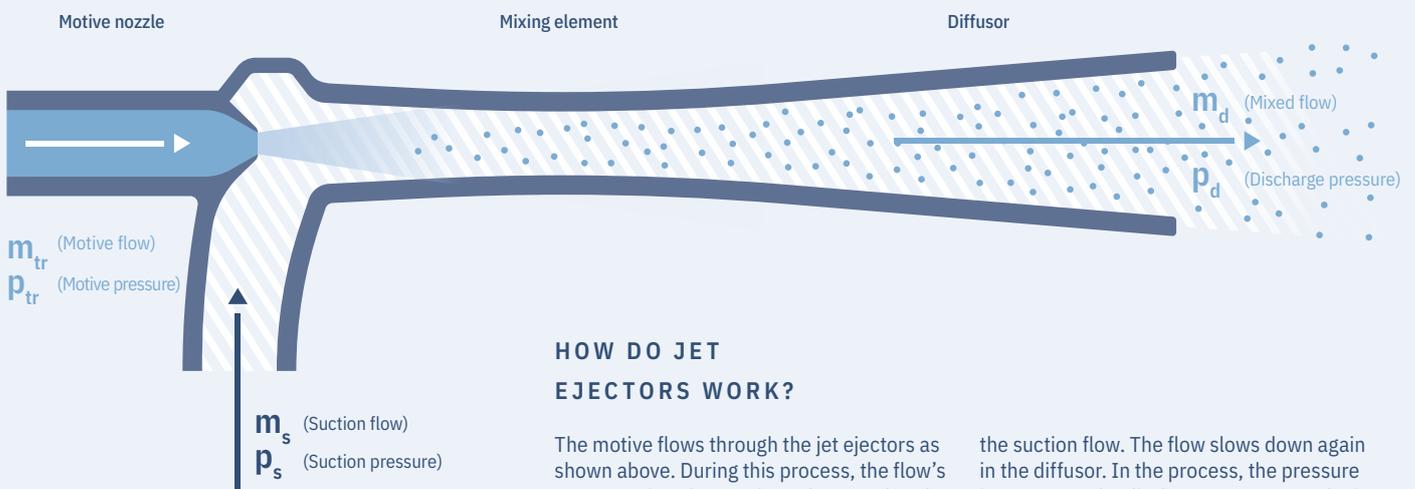
When it comes to designing and manufacturing steam jet ejectors, Körting Hannover GmbH is a global leader. Since it was founded by Ernst and Berthold Körting in 1871, it's been developing and producing vacuum technology products. An enhanced system with process-driven designs to reflect technological and efficiency considerations is developed for any application.

Dry, saturated or superheated steam is used to drive the ejectors.

Depending on their design, steam jet ejectors can be made in the following materials:

- Nodular cast iron / grey cast iron
- Carbon steel
- Stainless steel
- Special materials such as titanium, Hastelloy and graphite

DESIGN OF KÖRTING'S STEAM JET EJECTOR



HOW DO JET EJECTORS WORK?

The motive flows through the jet ejectors as shown above. During this process, the flow's cross-section changes in such a way that the pressure in the motive nozzle drops and the velocity increases. The area with the lowest static pressure is located behind the motive nozzle. This is where the suction medium comes into contact with the flowing suction medium and mixes with it. The kinetic energy of the motive flow is transferred to

the suction flow. The flow slows down again in the diffusor. In the process, the pressure increases to the discharge pressure at the jet ejector's outlet.



Find out more in this video about the benefits of Körting jet ejectors koerting.de/en/jet-ejectors.html

BENEFITS OF KÖRTING STEAM JET EJECTORS

- ✓ Maintenance free
- ✓ No moving parts
- ✓ Low investment costs
- ✓ A wide range of materials, even in corrosive environments
- ✓ Customised solution with energy optimisation
- ✓ Sizes as required
- ✓ High levels of availability, even after lengthy downtime
- ✓ No ignition sources of their own (ATEX applications)
- ✓ High-quality manufacture to worldwide design codes



You can find all our certificates at
koerting.de/en/certificates-and-licenses.html



For in-depth explanations about how the jet ejector's designed, used and how it works, as well as the different types and designations, go to koerting.de/en/jet-ejectors.html



STEAM JET VACUUM EJECTORS

Single stage steam jet ejectors are a simple solution for plant operators, both in terms of installation and operation. There are lots of different areas and ways they can be used.

From the chemical, food and paper industries, the options are almost limitless.

If exhaust or live steam is already available, a cost-effective, end-to-end solution can be achieved throughout operation.

Used as start-up ejectors, they deliver absolute pressure of up to 70 mbar. For the short while they are usually operated in this case, the low investment costs have a particularly positive impact.

If lower vacuum ranges are required, we recommend a multistage system. Please contact us if you're interested.



For more detailed information and practical questionnaires to complete so that you can request a quote quickly, go to: koerting.de/en/steam-jet-vacuum-ejector.html



STEAM JET VENTILATORS

Steam jet ventilators are used to convey large quantities of gas and steam at low pressure increase. In lots of applications, they do a much better job than mechanical ventilators, as mechanical ones tend to be imbalanced due to solid matter deposits.

The areas they are primarily used are as follows:

- For conveying extremely hot or explosive gases and vapours
- As stack ventilators for start-up or peak operation in steam boiler systems
- As forced draft blowers for furnaces
- For injecting air into generators and retorts



For more detailed information and practical questionnaires to complete so that you can request a quote quickly, go to: koerting.de/en/steam-jet-ventilator.html



STEAM JET LIQUID EJECTORS

Steam jet liquid ejectors are used in the following cases: To convey, elevate or circulate liquids. The motive steam condenses in the liquid being conveyed and heats it.

They are primarily used in to convey the following liquids:

- Muddy and opaque liquids (also containing granular solid matter)
- Waste water from sewage tanks and cess pits
- Rinsing water and soapy water
- Oil residues from oil tanks
- Pulp
- Lye, ammonia water and milk of lime

A customised design also allows condensate residues at boiling point to be conveyed from a turbine into the turbine condenser downstream.

How they operate

The level of suction and discharge pressure that a steam jet liquid ejector can achieve depends on the water temperature, the motive steam pressure and the internal shape of the jet ejector concerned. A drop in performance must always be expected at water temperatures above 20°C.

However, the difference between the boiling point for the suction pressure in question and the actual suction flow temperature must not fall below approx. 30°C.

Depending on the nominal diameter of the jet ejector connection, liquid flows of 1 to 200 m³/h can be conveyed by our standard series. In addition to the temperature, the specific heat, specific weight, viscosity and boiling curve of the liquids conveyed also have an influence on pumping capacity. All jet

ejectors Körting manufactures, whether they're a standard series or a customised welded design, are adapted to process requirements. Therefore, each jet ejector Körting engineers is unique.

Standard nominal diameters: 20 to 150.



For more detailed information and practical questionnaires to complete so that you can request a quote quickly, go to: koerting.de/en/steam-jet-liquid-ejector.html



STEAM JET COMPRESSORS THERMOCOMPRESSORS

Steam jet compressors, also called thermocompressors, are jet ejectors that discharge vapours (produced when a liquid evaporates) and compress them to a higher pressure. This pressure increase taps into numerous opportunities for using the heat content of the vapours for other thermal processes. In addition to dry saturated live steam, exhaust steam (at lower pressure) is also used as a motive medium – depending on the system's temperature.

Steam jet compressors are used in the following areas:

- In evaporation and vacuum processes
- To concentrate acids, lyes, juices as well as organic and inorganic solutions
- For vacuum cooling and drying
- For degassing and venting

How they operate

When our steam jet compressors recover waste heat, the consumption of heating steam, e.g. in evaporation equipment, can be reduced from 1 kg per kg of water evaporation to 0.3 kg/kg or even more. The steam jet compressors can operate at any pressure range. Motive steam consumption depends on the compression ratio required and the steam pressure available. There's practically no limit to steam jet compressors' suction power.



For more detailed information and practical questionnaires to complete so that you can request a quote quickly, go to: koerting.de/en/steam-jet-compressor.html

CONTROLABLE STEAM JET COMPRESSORS THERMOCOMPRESSORS

In many cases, steam jet compressors have adjustable nozzle needles to adapt the motive steam flow to different conditions. There's a handwheel drive as well as pneumatic or electric actuators with a position feedback signal for these nozzle needles.

Compressors with this device can be included as an actuator in a control loop. This is common when heating drying cylinders in paper machines.

However, the nozzle needle adjustment can also set up a control chain through which the steam jet compressor's discharge pressure can be adapted to a different discharge pressure in the apparatus downstream (e.g. a condenser).

In simple applications, the adjustable nozzle needle is used to control the compressor remotely.



For more information on thermocompressors for the paper industry, go to koerting.de/en/pulp-and-paper.html

Actuator and positioner on a controllable steam jet compressor





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