

Multi-stage steam jet vacuum pumps

in metal construction with liquid ring vacuum pumps (hybrid system)

DESIGN AND MODE OF OPERATION

Steam jet liquid ring vacuum pumps are especially suited if the permissible height of the installation is limited, i.e. if a barometric installation is not possible. Thanks to the combination of steam jet pumps and a liquid ring vacuum pump the steam and water consumption values are low. Compared to a steam jet vacuum pump only, the operating costs are lower.

The hybrid system is delivered as compact unit in a steel frame.

TWO-STAGE PUMP FOR A NOMINAL SUCTION PRESSURE OF 1 mbar (FIG. 1)

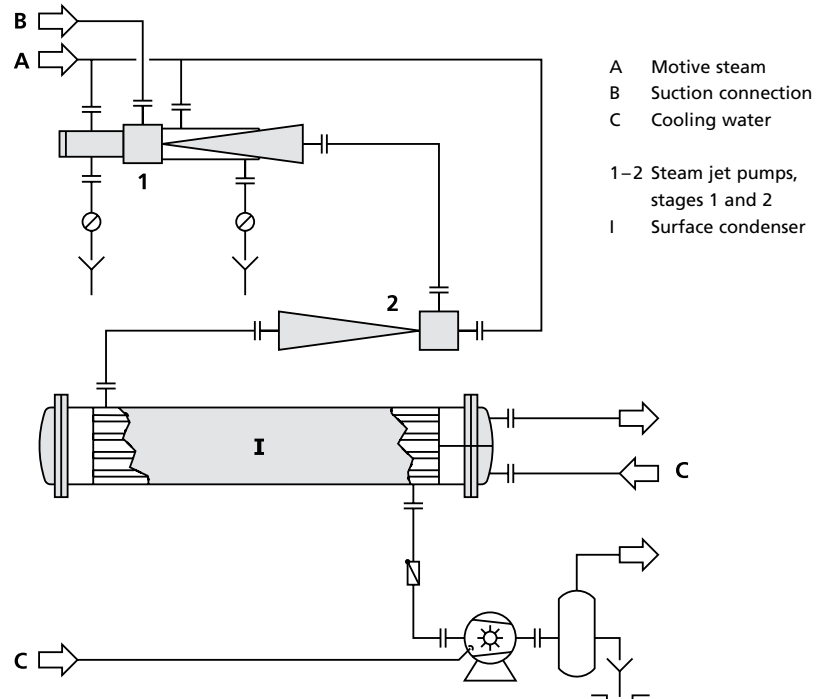
The 2nd stage is connected to the vacuum plant and extracts the vapours and gases or air and compresses it to approx. 13 mbar. The 2nd stage conveys it and compresses to approx. 90 mbar. The motive steam condenses in the surface condenser. The liquid ring vacuum pump extracts all non-condensables and the occurring condensate from the surface condenser and conveys it to atmospheric pressure.

See also "Planning a steam jet vacuum pump", 7 | gdp 3.



Suction capacity: 4.5 kg/h of air/benzyl alcohol from 2 mbar

FIG. 1



2-stage steam jet liquid ring vacuum pump



Fig. 2

3-stage steam jet liquid ring vacuum pump

Suction capacity: 0.3 kg/h of air from 0.05 mbar (5725 m³/h) + 0.5 kg/h of air from 1 mbar (480 m³/h)

Special features:

- High vacuum, 0.05 mbar
- Re-cooling of the operating liquid of the liquid ring vacuum pump



Fig. 3

2-stage vacuum pump with product steam generator

Motive agent: methylene chloride

suction capacity: 120 kg/h from 4 mbar, corresponding to 7000 m³/h



Fig. 4

2-stage steam jet liquid ring vacuum pump with surface condensation for a distillation column in a refinery

Suction flow: 6198 kg/h (689,337 m³/h)

Suction pressure abs.: 8 mbar

Discharge pressure abs.: 1500 mbar

Liquid ring pumps with closed operating liquid circuit