Questionnaire for

steam jet chilling plants (refrigeration plants) for process water cooling

Körting HANNOVER AG — THE EJECTOR COMPANY

company: * | contact: *
address: | phone:
fax:
e-mail: *

quotation: until: | budget: until: | phone call: | visit:

In order to design a steam jet chilling plant individual technical data are required. Please fill in the basic data (if available). Though there are many different designs and applications, the questionnaire is limited to basic data. Further details of your special application we can discuss individually. Please contact us.

Performance data

water to be cooled (warm) in (= chilled water inlet)	°C	
water to be cooled (cold) out (= chilled water outlet)	°C	
water flow to be cooled down (chilled water)	m^3/h	
required chilling capacity	kW	

* For an unambiguous design it is obligatory to fill in 3 of these 4 fields.

partial load ☐ no ☐ yes → ☐ %

kind of water to be cooled (chilled water) ☐ closed process ☐ exposed to atmosphere ☐ soilings/further components →

Available media

motive steam pressure/temperature * ☐ bar (abs) * ☐ °C

cooling water supply temperature * ☐ °C normal * ☐ °C max. * ☐ °C min.

cooling water return temperature max. * ☐ °C

kind of available cooling water ☐ closed process ☐ exposed to atmosphere ☐ well water ☐ river water ☐ soilings/further components →

max. available cooling water * ☐ m^3/h

Condensation

* ☐ direct condensation (chilled water and cooling water are allowed to mix/mixing condensers)
☐ indirect condensation (chilled water and cooling water are not allowed to mix/surface condensers)

Type of construction

☐ bridge design
☐ tower design
☐ other →

Type of installation

☐ barometric (in a height of approx. 11 m)
☐ semi-barometric → height ☐ m
☐ non-barometric (ground floor)

max. construction area (l x w x h) ☐ m | installation site

Constructional requirements

steam side ☐ bar (abs) / °C | chilled water side ☐ bar (abs) / °C | cooling water side ☐ bar (abs) / °C

material and required corrosion allowance (mm) | vessel * ☐ | ejectors * ☐ | condenser tubes * ☐

corrosive components to be considered ☐ | design code AD 2000 →

* mandatory field

send

Requirements

Increased requirements demand high performance.
As with all technical processes the following applies:

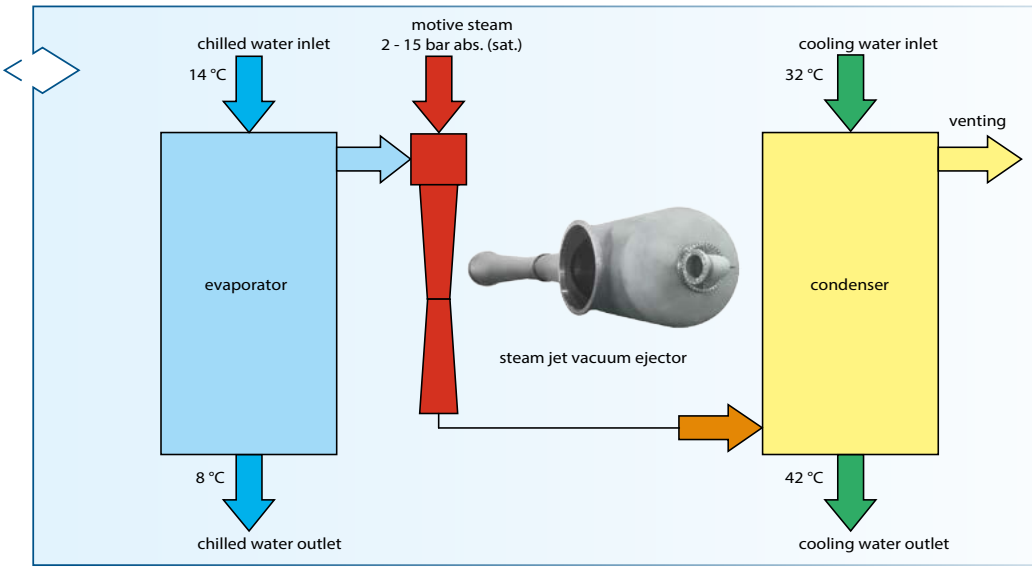
Sometimes less is more – the optimum design saves costs!

Alongside the plant size and the actual cooling performance Körting considers the following for **individual design in order to reach high energy efficiency:**

- The lower the required chilled water temperature has to be, the more motive steam is needed.
- The required motive steam flow decreases with an increasing motive steam pressure.
- Multi-stage steam jet chilling plants reduce operational costs and the demand for steam/cooling water considerably. This means that higher investment costs pay off quickly.
- The higher the cooling water temperature at the condenser inlet, the more motive steam is required.
- The more cooling water is available, which means, the less the cooling water heats up, the lower the required motive steam flow.
- In contrast to the countercurrent operation a cocurrent operation requires slightly more motive steam at a similar cooling water flow. However, it permits the space-saving 1-tower design.

What else has to be taken into account:

- How long runs the plant? During the whole year or during a certain season only?
- Are there any variations regarding the cooling water inlet temperature (why, when and how strong)?
- Are refrigerants and cooling fluids allowed to mix?
- Are there any requirements regarding corrosion?
- Which build up concept is the most favourable one?
- Shall the build up be horizontal or vertical?
- Does a steel construction already exist? Which load can it bear? Is a steel construction required at all?



Schematic diagram: steam jet chilling plant

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