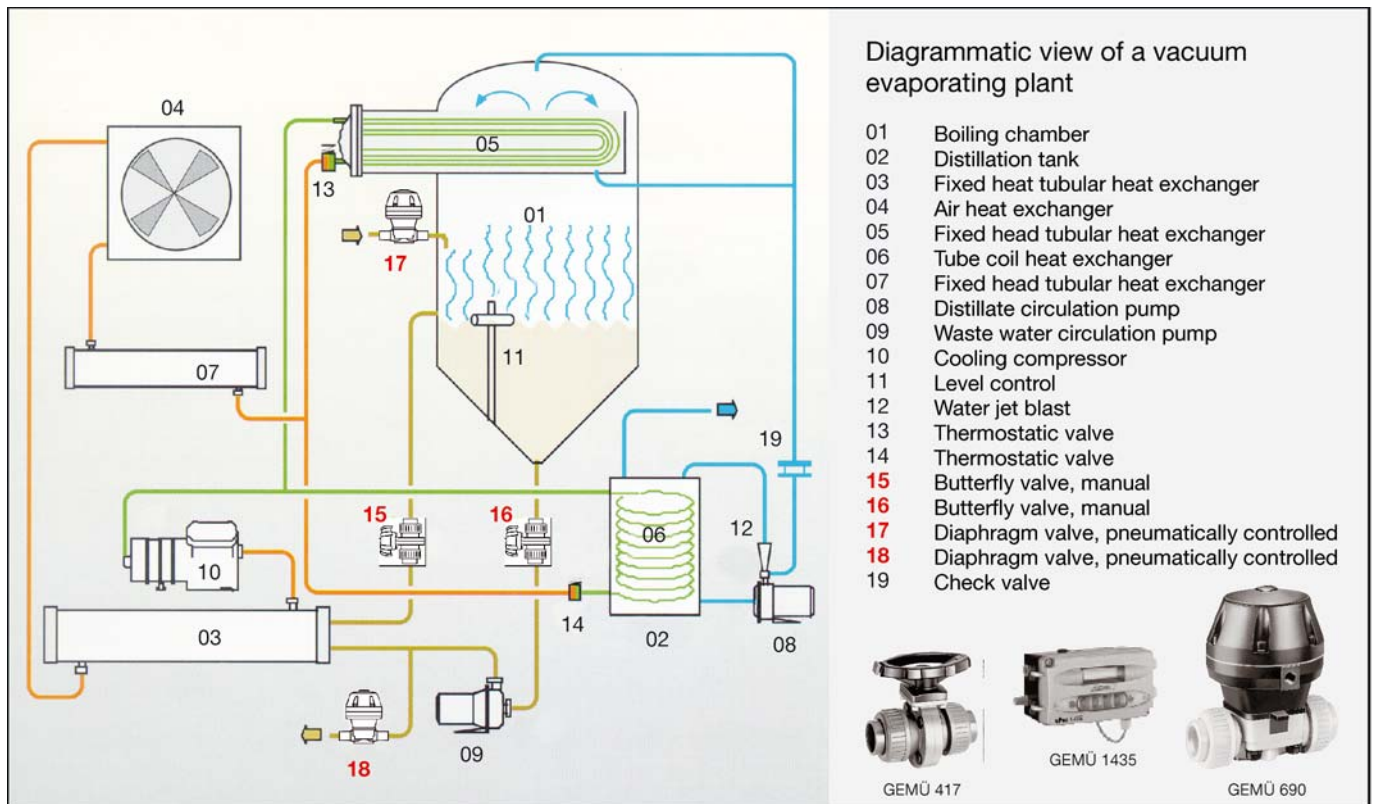


Vacuum Evaporator for Waste Water and Solvents



GEMÜ® Marketing-Services
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Application

Vacuum evaporators are used to reduce liquids containing foreign matter. This procedure is applied for separating waste water or polluted solutions. The actual waste to be disposed of is reduced to a minimum and the condensate can be carried back to the process. These applications can be found in the textile and graphic industries where wash waters containing ink, colouring pigments and/or photo polymers are treated and also in the chemical industry where used and upgraded chemicals are reduced. Using the vacuum evaporating procedure, lubricating and cooling emulsions in mechanical manufacturing, leakage water from garbage dumps as well as baths and rinsing water in electroplating shops can also be separated, reduced and reclaimed. The evaporation procedure can also be used for upgrading of waste water from ion exchangers and membrane filtration.

Plant Design

The above application example shows an electrically operated vacuum evaporator. The interaction of vacuum and heat pump enables the distillation of liquids at low temperatures. The process liquid evaporates at 35°C and a residual pressure of 6.5 kPa. Therefore only the equipment parts where heat is directly applied are made of

metal such as the distillation tank and the heat exchangers which are usually in stainless steel. All other parts are made of plastic (PVC-U, PP or PVDF) depending on the chemical properties of the working medium. The condensate is constantly kept at 20°C by the cooling circuit. The filling level of the distillation tank is controlled by a level sensor and a pneumatically operated diaphragm valve.

Solution

The medium supply as well as the reduced and mechanically highly polluted concentrate is controlled by plastic GEMÜ diaphragm valves type 690 and the GEMÜ 1435 positioner, the waste water circulation with manual GEMÜ 417 plastic butterfly valves. Ideally diaphragm valves which are insensitive to particulate media are used here. For position 19 (reflux avoidance) special valves are required.

GEMÜ® VALVES, ACTUATORS
AND CONTROL SYSTEMS

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