

energy production applications

- heating and hot water production units
- ventilation systems
- heating distributors
- radiant ceiling panels
- air curtains on doors
- ceiling air heaters

Baelz-solutions for steam systems ensure energy savings up to 10–30% by:

- realizing the closed steam/condensate circuit without steam traps
- using the controllable steam nozzle ejector for compression of exhaust vapors and to replace control valves



Steam transfer station with condensate backup control Baelz-thermodynamic® as packaged station

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Energy-saving components and systems for chemical industry applications



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Baelz has solutions to save energy in the following sectors:



Food and
beverage



Automobile



Textile



Heat networks



Pharmaceutics



Aviation



Wood



Power stations



Paper



Tires



Buildings

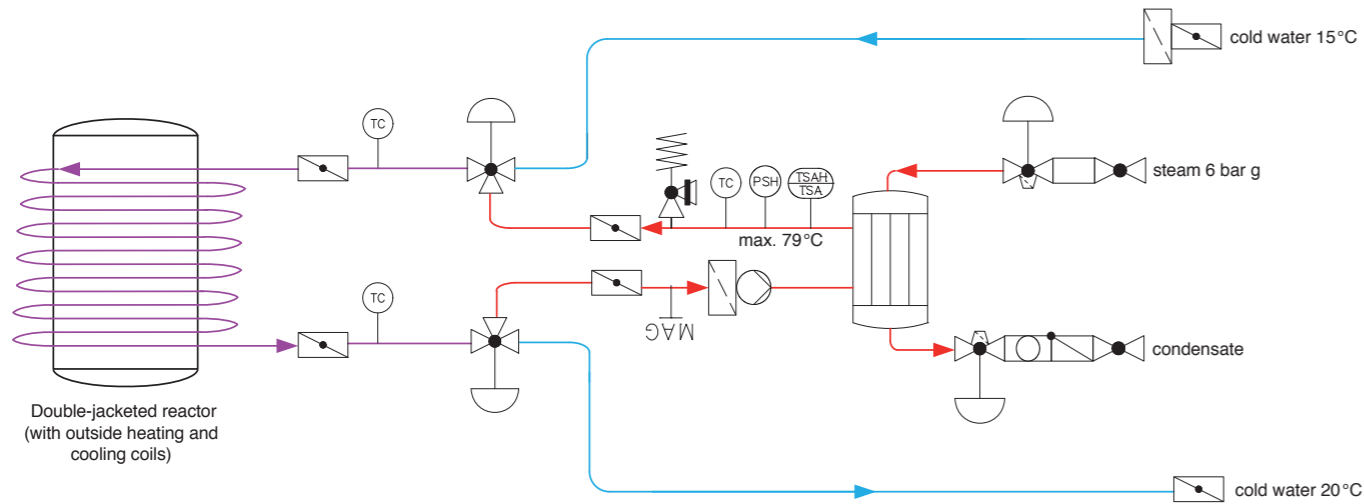
Optimization of chemical steam processes to improve production and energy efficiency



Temperature control of reactors

Intelligent steam transfer stations

Baelz-thermodynamic® with condensate backup control allow both: heating and cooling.



A steam transfer station with condensate backup control forms the basis of the system according to the patented baelz Luxese® technology as a compact station. A significant particularity of the design from above, which was realized for

a big chemical company, is that all electric components are explosion-proof. In addition, the secondary side is a functional expansion: it is possible to switch over to external cooling for the consumer side.

There are two types of operation:

- Heating**
 In heating mode, the diverting valves are used in their angle ways, the circulation pump is running. The heat exchanger is flowed on the secondary side. The steam valve is open, and the supply temperature is controlled by the condensate valve, depending on the load behaviour.
- Cooling**
 In cooling mode, the diverting valves are used in their straight ways, the circulation pump is off. The steam valve stays open, the station is self-controlled. The cooling water now flows through the reactor coils.

Advantages of the Luxese® technology:

- simplified layout of the industrial plant
- compact design
- sensitive control even for partial loads
- modular design enables a gradual expansion of the systems



Production of plastics

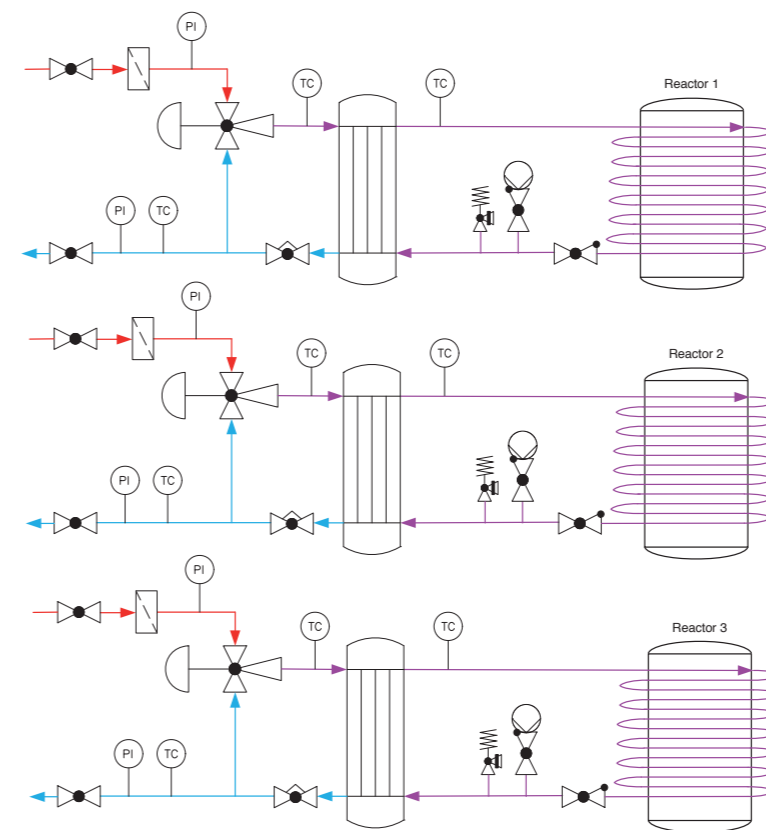
Steam ejectors enable to heat the reactor without heat losses.

Chemical companies like Bayer produce high-quality plastics for the construction, automotive and electronics industry. Among these plastics there are synthetic polymers like polycarbonates, such as makrolon which is used in many industrial applications.

For the high-pressure makrolon production, controllable steam nozzle ejectors (baelz 590 DN 50 PN 160) with pneumatic actuators have been used for years. The three double-jacketed reactors (see drawing), which are run by a U-tube heat exchanger, are heated up with saturated steam of 66 bar abs.

Remaining extant low pressure steam at the outlet of the heat exchanger is sucked by the steam ejector and returned to the heat exchanger as a mixture of motive steam and suction steam. The result is a very economic recirculation. The steam ejector achieves considerably higher mass flows through the tubes, thus leading to a significantly more uniform temperature distribution and a stable heat transfer.

With this technology, the reactor can run at 100 % capacity, which leads, using the example of makrolon, to a faster and excellent production. Since the installation of the steam ejectors in the year 2000, the system runs without any problems.



Advantages of the steam ejector technology:

- simplified layout of the industrial plant
- reduced operating, maintenance and wear costs
- uniform and stable temperature distribution
- shorter heating-up times
- improved product quality
- higher operational safety
- continuous production
- good partial load behaviour
- fast and stable control behaviour

