

# **“Small” pump, big effects – Influence of self-regulating special centrifugal pumps on project planning, operating and maintenance of plants in the chemical industry**

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## **1. Problem:**

Pumps represent the heart of a process engineering facility. Without them, the process will stop. Standard processes use normal-priming pumps, which are often also designed to be product-lubricated. Numerous measures are taken to ensure their availability. In addition to the often redundant design and the strategic control of maintenance processes, boundary conditions are created through the design process and monitoring systems. These include pits and scaffolding as well as buffer containers for implementing min/max switching. A large number of control and safety elements are additionally installed around the pump. Control valves, frequency converters, dry-running protection signals, preliminary filters and sealing systems serve to ensure the functioning of the pump. Particularly with critical media and processes, and in hermetically sealed and submerged pumps, the degree of complexity and expense increases. Every component involved in such a system can represent a potential source of failure, and generates costs for planning, acquisition, programming, maintenance and documentation.

## **2. Solution:**

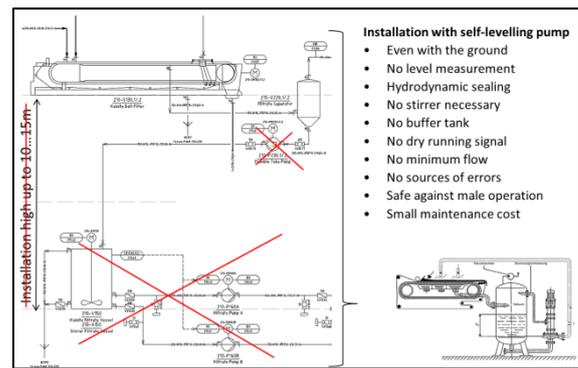
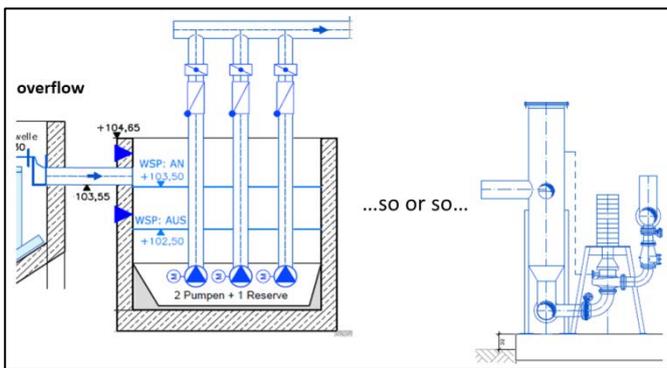
When a pump has no suction head requirements, no minimum volume flow rate, no control system, no monitoring, no storage tank and no filters, it stands to reason that these components do not need to be planned, manufactured and financed. If a pump is additionally designed to be capable of handling solids, dry-running and physically sealed, there is no need for monitoring signals. The total reduction in sources of failure is enormous. Where the use of a special centrifugal pump is considered at an early enough stage, during the first analysis phase of the project, significant cost savings can be achieved.

A standardised planning pathway reduces the added value that can be utilised. It is also necessary for the cost comparisons to be made between the different system variants, rather than between the individual components.

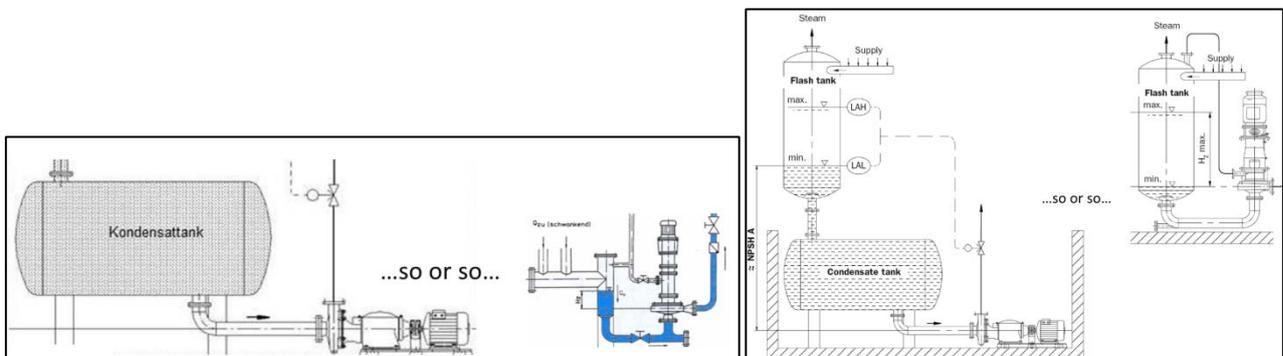
### 3. Presentation:

This presentation explains the basic technical differences between the pumps. In particular, it describes the self-regulating pump with magnetic drive, which compensates for virtually all the disadvantages associated with normal-priming pumps. It will be described how planning pathways that deviate from the standard approach will generate investment and operating cost savings. In addition to this, specific examples from the chemical industry will be presented (slop systems, condensate systems, zone 0 submerged pumps, tanker truck unloading).

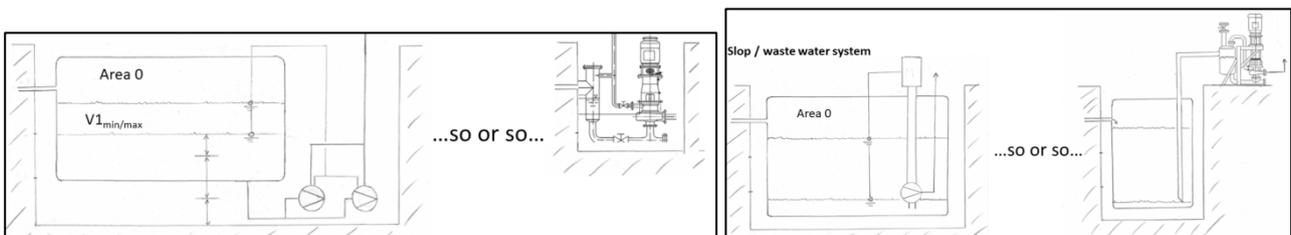
### 4. Installation Examples:



Separation processes - overflow or vacuum belt filters



Condensation system and power plants



Slop / waste water systems