ABB MEASUREMENT & ANALYTICS | APPLICATION NOTE

Solid matter content flow control with I/P converter in an enzyme production process

No valve blockage thanks to trouble-free control using the I/P converter. System shutdowns are avoided.

Contrac

Introduction

In a system for enzyme production, the measuring media contain cellulose particles which have a size of approx. 8 mm and can block the valve during quick regulation of the valve position. This effect appears when positioners are used.

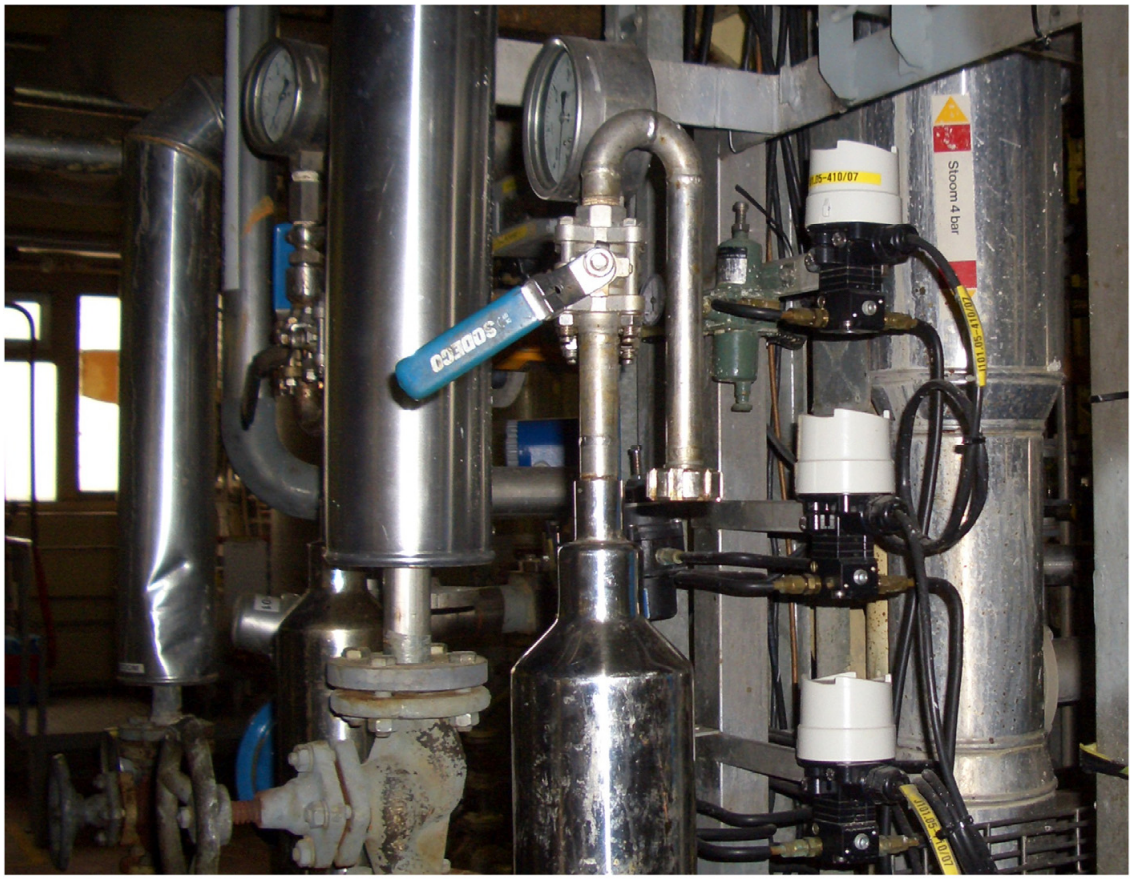
The solution

Thanks to the use of an I/P signal converter, the positioning of a small diaphragm valve with a stroke of 15 mm can be adjusted. Using a valve, the flow rate in a range from 50 to 2000 liter/h can be set with an accuracy of ±3 to 5 liter/h.
The used I/P signal converter TEIP11 PS ‘open loop’ provides quick control on the set point side, yet reacts slowly in terms of actual value, so short position deviations of the valve which can occur when cellulose particles pass through the valve are negligible. As a result, the valve will not become blocked even when the opening is small.

Benefit analysis

— 01 I/P converter in an enzyme production system

Thanks to the reduction of unplanned system downtimes, there are fewer production stoppages. Considerable cost-savings along with increased system availability are achieved as a result.



01

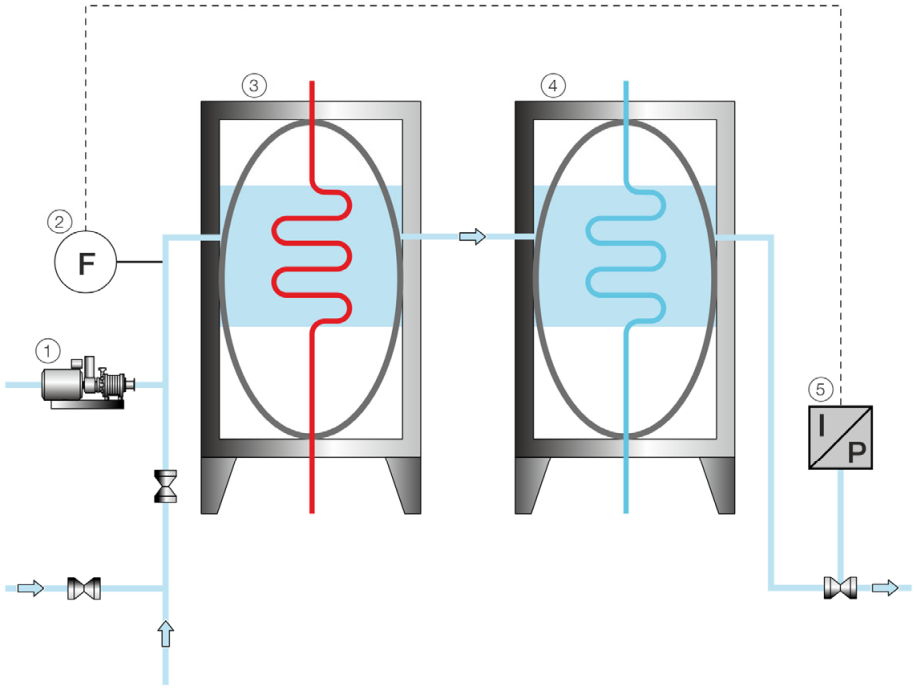
Product in use

— 02 I/P signal converter TEIP11-PS

— 03 Diagram of solid matter content flow control with I/P converter

02

Input signal:
4 to 20 mA,
Output signal:
0.2 to 1 bar (3 to 15 psi)
Robust field mount housing IP 65
High operational stability



1. Pump
2. Flowmeter
3. Heating
4. Cooling
5. I/P converter

03

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3KDE010026R3001

AN/FB108-EN Rev. B 11.2018