



CASE STUDY

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Flow control of soy oil for bag loading



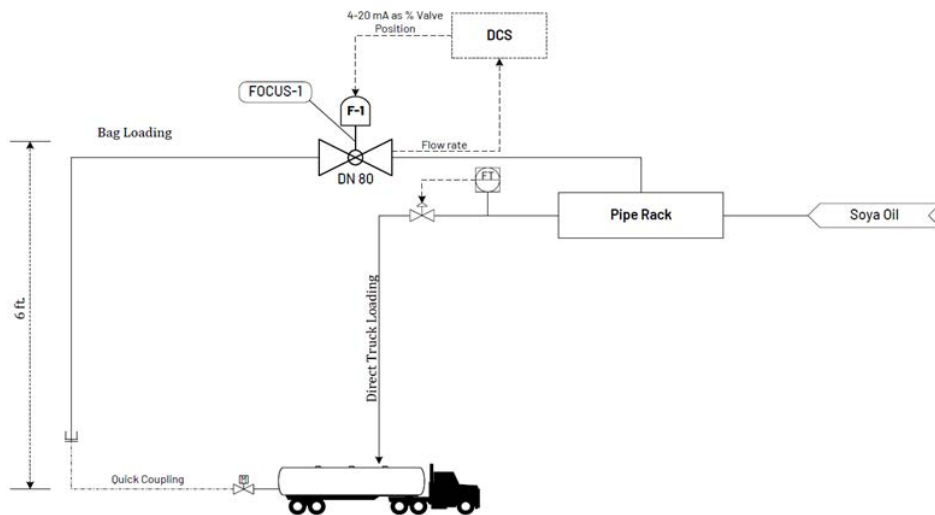
PROCESS OVERVIEW & REQUIREMENTS

In 2021 this Customer planned to have an extra truck filling line for Soya Oil distribution in special bags within dedicated tanks. These dedicated tanks have to be filled on the bottom. The Customer redesigned the truck loading with a quick coupling that can switch between truck and bag loading. On the bag loading line the Customer decided to install a FOCUS-1 device trough which they can measure and control the bag filling.

The requirement of this particular application is the percentage of fullness of the bag and the flowrate which belongs to it. The flowrate is required to increase gradually from 0% to 80% and tune down when the 80% is reached. Translated in numbers, the flowrate starts around 200 l/min and increases towards 1000 l/min until the 80% is reached. When the bag reaches a 80% filling, the flowrate tunes back towards 200 l/min until the bag is full.

The flowrate requirements are of importance to prevent the bag from tearing, over filling and to prevent extreme foaming. Next to this by measuring and controlling the flow accurately, the bags do not have to be filled multiple times to get the expected amount and thus an efficient filling process is managed.

APPLICATION SET-UP



IMPACT OF FOCUS-1

- Alarming notifications
- Ease of use
- Broad overview of data
- Less flanges
- Diagnostics
- Deep process data
- Multi-Parameter device
- Faster control
- Faster measurement
- Preventive analysis
- Reduction of OPEX

FOCUS-1 IN THE PROCESS

The in-built ultrasonic flow meter of FOCUS-1 measures the bag filling within 0.5% and sends the flow rate outlet signal from FOCUS-1 to DCS. The PID controllers in the DCS calculate the error based on difference in set-point value with measured flow value. This error value is used by the controller to send an input signal (in the form of 4-20 mA as % opening) for desired opening/closing of FOCUS-1 device actuator. FOCUS-1 uses an accurate globe control technique trough which the desired flow rate of soy oil is controlled based on the flow rate requirements. This leads to efficient flow control, results in smooth filling of the bag inside the tank and the Customer only needs to install and connect 1 device through which they can control and measure the whole bag filling process. This resulted in savings on flanges, piping, cables, welding and IO points.

COMMUNICATION

- PLC
- Analog output of device to control FOCUS-1 valve position
- Wi-Fi

CONTACT

info@fon-p.com
www.focus-on-process.com
@focus-on

