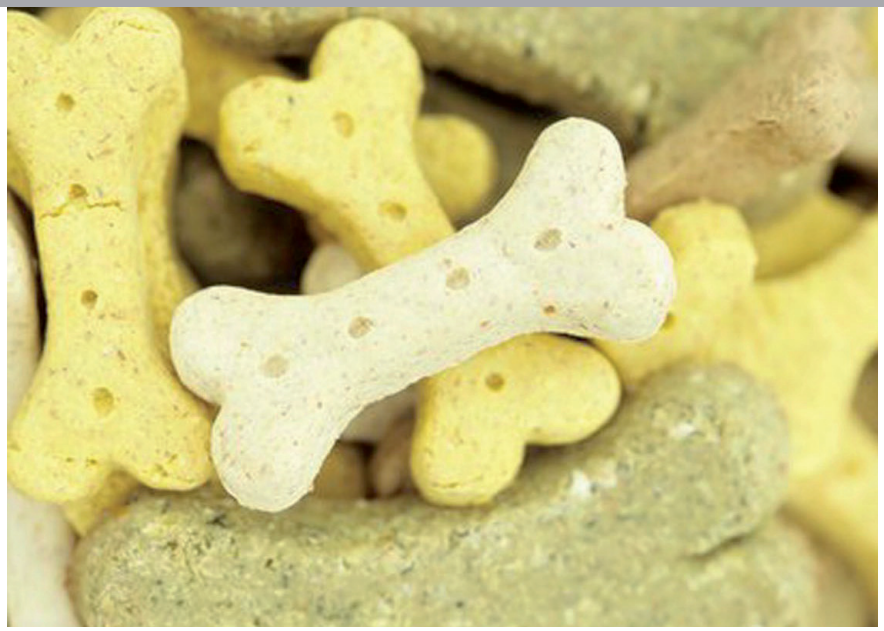
labom
MEASUREMENT TECHNOLOGY

Level measuring in the food industry

Application:

Pressure measuring for level monitoring in pet food production

Digital pressure transmitter PASCAL Ci1010 with inline diaphragm seal DF1130



LABOM‘s pressure transmitter PASCAL Ci1010 with an inline diaphragm seal contributes to the adherence to strict production requirements

Improved production hygiene increases the quality of pet food

Pressure measuring with no dead zones for the strict specifications of pet food production

For the wellbeing of our pets, feeding with healthy pet food is essential. The recipes for industrially produced pet food are continuously monitored and improved in conformity with the latest physiological nutritional knowledge. In this challenging production field with high demands for hygiene, LABOM‘s pressure transmitter PASCAL Ci1010 with inline diaphragm seal DF1130 has been tried and tested. A food-compatible housing design and precise, pressure measuring without ‚hard-to-clean‘ dead zones for level monitoring help to minimize the risk of contamination. Furthermore, the rapid and easy parameterization of the device helps to save working time and costs.

Task:

- food-compatible, housing design that is free of dead zones
- smooth and easily cleaned surfaces

Solution:

LABOM‘s pressure transmitter PASCAL Ci1010 in combination with inline diaphragm seals DF1130/DF1180

A surface roughness of Ra > 0.8 µm encourages bacterial contamination through sticking particles.

With a surface roughness of Ra < 0.8 µm, the particles are removed by the flow, which facilitates cleaning.

Your benefit:

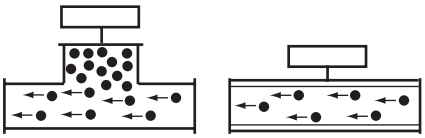
LABOM‘s pressure transmitter PASCAL Ci1010 is ideal for the food, pharmaceutical and biotechnology industries. The smooth, stainless steel housing with virtually no dead zones conforms to protection rating IP 67 for extreme climatic conditions and is designed for rough operating situations.

The housing can be continuously rotated with respect to the connection pipe by +/– 170°, which ensures optimum positioning for installation, operation and readability. A text-orientated and menu-controlled graphics display allows rapid and easy parameterization.

It is not necessary to dismantle the pressure transmitter for the selection of the measuring range or the adjustment. The transmitter works using the HART protocol, which allows communication with a Windows-PC.

The inline diaphragm seal with stainless steel for all parts in contact with media also has a food-compatible housing. The avoidance of dead zones prevents any medium from adhering which would lead to contamination and cleaning costs.

Example of an application 1:
At a pet food manufacturer viscous additions (e.g. caramel) are moved with a pump from a conical container. The level in the container must be monitored. This task is carried out by a pressure sensor integrated between the container and the pump. The lower the value for the pressure the lower the level in the container.



Dead zones with conventional flat diaphragm seal (left) versus inline (right)

Solution:
LABOM‘s pressure transmitter PASCAL Ci1010 and inline diaphragm seal DF1130 with a nominal width DN 40 can, on account of the reduced temperature error, be deployed even for small levels. The output signal of 4...20 mA, which is linear as standard, can, via parameterized function charts, be matched to any container geometry.

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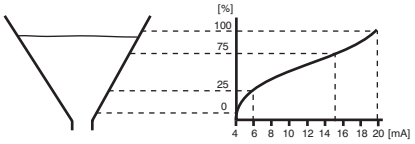
Example of an application 2:
For the delivery of meat mixtures as the basis of the pet food production, the delivering Silo vehicle is connected to the production building via a pipe. An eccentric screw pump transfers the meat mixture from the tank truck into a container. If the flow of material is interrupted while the pump is running, „dry running“ can lead to overheating and in consequence of that to expensive material damage to the pump. This is prevented by a pressure sensor integrated between the pump and the container. An unusually high pressure value indicates jamming of the pipe. A very low pressure value indicates that the tank truck has been emptied.



Function chart with 4 points

Solution:
LABOM‘s pressure transmitter PASCAL Ci1010 in combination with inline diaphragm seal DF1180 with the nominal width DN 125. The system works with food-grade oil FD1 in conformity with FDA approval class USDA-H1.

EQUIPMENT DESCRIPTION

Pressure transmitter PASCAL Ci1010

- Microprocessor control
- Text-oriented user interface via graphic display
- Parameterization: selectable
- Nominal range: 1000 mbar
- Measuring range adjustment: turndown 20:1
- Output signal: 4...20 mA, 2-wire circuitry, HART protocol (optional)
- Housing: stainless steel, IP 67
- Explosion protection: II 1/2G EEx ia/ib IIC T4/T5/T6
- Process connection: reduced volume for connection of the diaphragm seal (welded)
- EMC according to NAMUR recommendation 21 and the applicable EC directives

Inline diaphragm seals DF1130 and DF1180

- On both sides round thread according to DIN 11851 for pipes according to DIN 11850
- Nominal width: DN40 (DF1130) and DN125 (DF1180)
- Material of parts in contact with medium: Diaphragm made of stainless steel material number 1.4435, main body made of stainless steel material number 1.4404
- Surface roughness Ra < 0.8 μm
- System filling: Food-grade oil FD1 in conformity with FDA class USDA-H1
- Application temperature: +10...+140 °C, standard