Case study: Dairy process control with sensor technology **FOOD**

Hygienic sensor technology for efficiency and quality control in dairies

This dairy in India has specialized in a range of dairy products for over 50 years. In 2019, the company opened a completely rebuilt dairy plant to meet the growing demand for its products in the long term. At the new plant, more than 50,000 liters of milk are processed and packaged daily into such diverse end products as drinking milk, cheese, paneer, lassi, curd, yogurt, and flavoured milk. For the planning and implementation of the new dairy, the owners could rely on their partner Anderson-Negele, which was not only able to offer a very extensive range of sensors for a large part of the measurement technology, but also provided support in planning and implementation. They could, draw a positive feedback from their experience in realizing this greenfield project in co-operation with Anderson-Negele.

The application

With the construction of their completely new dairy plant, the owners of this dairy wanted to ensure the highest possible product quality combined with a maximum of efficiency in the production processes. In the planning stage they worked closely with Anderson-Negele applications consultants to define which sensor technology can give them the best possible accuracy and reliability in storage, pasteurization, batching, filling, and other process lines of the dairy products.

They installed the latest technology with the sensor range from Anderson-Negele. Various process sensors monitor the correct and accurate production processes so that there are no deviations from the quality level they want to guarantee to their customers.

Another important criterium that could be achieved for the production process as well as for the CIP cleaning plant, was an energy- and water-saving production in all process steps from raw milk delivery to final packaging of the various milk products.

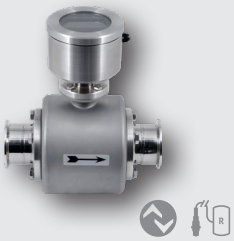
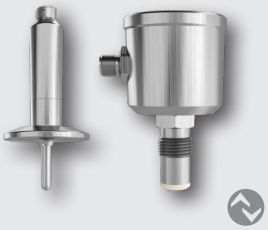
Application advantages

- One supplier for most of the sensor types: For this greenfield project Anderson-Negele as a partner could assist in planning and execution for most hygienic sensors required
- Mechanical robustness and durable reliability of the sensors in all process lines, silos, and CIP plants
- Highly efficient and accurate sensor technology for maximum reduction of resource, water and energy consumption, and product loss

Storage tank monitoring with L3 pressure sensor, NCS-11 level switch and TS temperature sensor

The CIP plant with sensor technology for conductivity measurement (ILM-4) and point level (NCS-11), ensuring a maximum recovery of the return of rinse water, acid, and lye. The multiple use of resources helps saving water, energy, and detergent cost. TS temperature sensors and FMQ flow sensors complete the sensor range.

Sensors used in this application

Level **L3**	**Flow** FMQ	**Temperature** **TS-Series**	**Point level** **NCS-11**
			
Advantages	**Advantages**	**Advantages**	**Advantages**
· Always precise due to significantly reduced temperature effect · Direct output of volume, levelor pressure · Integrated tank lin-earization and density compensation	· Compact, robust, low-cost all-arounder · Measuring range 30 l/h to 300,000 l/h (8 gal/hr to 169,000 gal/hr) · Measuring accuracy ±0.5 % ±2 mm/s · For process temperature up to 165 °C / 325 °F (Remote), CIP up to 130 °C / 266 °F (30 min.) · Many current process connections	· For vessels and pipes from DN25 · Flush design available · Accuracy < ±0,1 K · Extremely robust and permanently precise · Optional programming display	· Reliable point level control even with foamy or viscous media · Hygienic installation on top, below, or side · Very fast reaction time · Also for double-walled vessels

= IO-Link available

= Remote version available

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