Since 1978, the Homann location in the German city of Bottrop has been producing premium convenience food. Gourmet salads of the Homann and Nadler brand are popular and well-known far beyond the region. Both traditional brands belong to the Theo Müller Group. Two years ago, in close collaboration with Baumer they elaborated on new concepts for process optimization in the manufacture of mayonnaise, salad creams and dressings.

Level detection in storage, mixing and buffer tanks
Precise and reproducible switching operations are a must, even in apparently simple tasks like level detection. In storage tanks, conventional capacitive level switches, commonly known as “micro wave switches” provide only limited reliability. They require medium-specific configuration. Outside the thresholds, the low dielectric constant of some media like edible oil ($\text{DK} \, \varepsilon_r < 10$) may cause measuring errors if a film of lye has remained on the sensing tip after cleaning. To Homann, this was one consideration for choosing CleverLevel, the configurable universal level controller. Operating on frequency sweep technology, it reliably detects the level of any media as a one-sensor solution for both oil and water.

Depending on recipes and dielectric properties of ingredients in mixing tanks, Homann previously deployed product combinations of capacitive limit switches and vibrating forks. Depending on the
The FlexProgram software allows for configuration of stepless trigger thresholds or windows, for example to suppress or detect foam and adhesion.

media, response times ranged from very slow to highly sensitive which resulted in impaired process efficiency. Homann replaced their conventional solution with CleverLevel which has an extremely fast response time. Baumer helped Homann determine the optimum configuration which is conveniently changed and visualized via FDT/DTM-based FlexProgram software.

Once the mayonnaise, salad cream or dressing is fully emulsified and dispersed, it is pumped into buffer tanks until being added to the salad in a later production step. Here, medium-specific viscosity and adhesion play an important role. Conventional solutions using vibrating forks and capacitive limit switches were prone to measuring errors caused by adhering media. CleverLevel is maintenance-free and not affected by media adhesion. Unpredictable downtime for system ventilation and pump changing now are things of the past.

According to Frank Piatkowski, application and process engineer at Homann, “CleverLevel is the one-sensor solution for different media and applications. Since deploying CleverLevel, we have been experiencing a significant reduction in technical malfunctions”.

Measuring hydrostatic pressure in tanks of vinegar, edible oil and glucose.

Homann’s Bottrop location uses a large outdoor vinegar tank. For consistent level monitoring they were looking for a precise and reliable yet easy, convenient and outdoor-capable solution.

Homann decided on Baumer’s CombiPress pressure transmitter. Thanks to 0.1% (MEW) accuracy and active temperature compensation, it solidly provides unambiguous measured results, independent of media and ambient temperature. Easy configuration via the large touchscreen eliminates the need for an additional operating unit. The robust housing with high IP67 rating reliably endures harsh outdoor conditions.

Capable of detecting medium-specific density and filling levels, Homann also installed CombiPress in glucose containers and horizontal tanks of edible oil. Here CombiPress excels with its integrated linearization function. Baumer also offers matching adaptors for optimum process connection.

Piatkowski is content: “Whether indoor or outdoor, the Baumer sensors contribute towards hassle-free automation and once installed, they are neither ‘susceptible nor perceptible.”

Even severe adhesion by viscous media like mayonnaise will not impair the CleverLevel precision in the measured results.
Conductivity measurement in CIP processes

Every cycle in dressing or mayonnaise production requires CIP (Cleaning in Place). The reproducible process precisely defines detergent dosing under consideration of pressure and temperature. At the Homann CIP installations in Bottrop, dosing needed to be improved - and Baumer’s new CombiLyz conductivity sensor was the solution. Thanks to fast response time it ensures precise measured results at a maximum deviation of < 1%. The measuring connection of the inductive sensing element provides a 6.6 mm wide channel which even will tolerate fabric or solid-containing media. Homann successfully optimized detergent dosing and cut down on raw material costs.

“The innovative Baumer products will again be part of our considerations when investing into new and state-of-the-art CIP installations,” Piatkowski says. “Baumer tackles our requirements in terms of optimization or specialized products as incentives for new developments and ensures expert implementation”.

At Baumer, hygienic designs and stringent mandatory product certifications are a matter of course. All Baumer process sensors deployed at Homann’s comply with the high EHEDG standards and are certified by the European Hygienic Equipment Design Group. Furthermore, compliance to EN 1935/2004 and EN 10/2011 for food-safe products will reduce the total Hazard Analysis and Critical Control Points (HACCP).