

In-line Analysis Technology



the Laboratory in the Production Process

Analysis devices from GEA Diessel provide you with important process data details immediately, without any taking or processing of samples, and thus without waiting times.

GEA Diessel has specialised for many years in the hygienic metering of liquids in the food and beverages industry. The analytical devices of the present generation, which make use of ultrasound, are a further step in this direction.

It is not only since ISO 9000 that quality control has been an important issue.

DI-CHECK - the economical introduction to analysis technology

GEA Diessel offers a comprehensive range of process devices. This gives small and medium-sized breweries the useful opportunity to keep a constant check on their products during the production process.

- Thanks to its optimum cost-benefit ratio, DI-CHECK affords businesses an economical introduction to analytical metering technology, in order, for example, to monitor or even control the entire brewing process.
- Precise phase switching and the carefully controlled dosing of first and last runnings enable even smaller breweries to operate more economically.
- The measuring head is made completely of stainless steel. Thanks to the VARINLINE® housing that is well-known in the brewing industry, the measuring device can be installed directly into practically any production pipe.
- With DI-CHECK, there is no need for any additional instrumentation involving thin analysis pipes or sampling pumps.
- On the basis of this type of device, GEA Diessel also offers suitable ways of extending it to perform more complex applications.

The technical advantages of analysis technology can be summarised as follows:

- A favourable cost-benefit ratio
- A totally hygienic measuring head for all customary pipe diameters
- No need for any additional instruments
- A good economic impact through the reduction of product losses
- Straightforward scaling up of the equipment to meet enhanced requirements



In-line analysis allows uninterrupted monitoring of the product from the start of the manufacturing process right up to the point of bottling, thereby fulfilling EU Regulation 178/2002.

In-line technology dispenses with bypass pipes, thereby providing for the quality and consistency of the product. It eliminates any threat to quality from bacteriological problems such as might arise in connection with metering in a bypass pipe. This is an important step towards ensuring compliance with the hygiene regulations in relation to HACCP hazard analysis. The fact that the data is available immediately, without any waiting for the results of laboratory investigations, gives the production manager a high measure of security and flexibility.

Any disruptions in product input as a result of leaks, operator error etc. are identified in a moment, allowing losses or rejected batches to be kept to a minimum.

The result is a high degree of reliability in compliance with ISO 9000 and with the manufacturer's product liability obligations. Embarrassing recall actions and the resulting damage to the company's image are a thing of the past. The product documentation which is so important to the manufacturer can be compiled easily, quickly and accurately using in-line analysis devices.

GEA Diessel in-line analysis devices are robust, made entirely from stainless steel and unrestrictedly CIP/SIP-compatible.

Being installed in VARINLINE® housings, the analysis devices can be fitted in piping extremely easily.

DI-LIQUI - accurate and reliable

At various points within the process of beverage manufacture it is useful to be able to optimise ingredients of the most varied kinds.

Used in conjunction with a blending control unit, DI-LIQUI enables you to save production costs without compromising quality.

The VARINLINE® housing allows the transmitter to be installed easily in pipes of various diameters. The display indicates the concentration of the product to be measured at any time. Up to three transmitters can be connected to a single control unit; this saves costs without detracting from the advantages of flexible and comprehensive recipe management with a multiplicity of different limit values.

The calibration parameters even allow the physical properties of a variety of different ingredients, e.g. ° Brix, % OG, ° Plato, alcohol by volume etc., to be measured or calculated in various beverages with a single measuring device. Our widely ranging experience with products of the most varied compositions makes it possible for us to maintain precision reliably over a broad range of temperatures.

The electronics can easily be combined with the control systems used in the metering devices and in other GEA Diessel measuring devices (CS3-BUS).

DI-LIQUI fulfils the most ambitious requirements in respect of reliability, precision, reproducibility, operating convenience, hygiene, ease of maintenance and digital communications, while at the same time affording an outstanding cost/benefit ratio.

DI-WAVE, DI-LAB - the process laboratory

- The combinations of DI-CHECK and density measurement with CO₂ measurement round off beer analysis with the DI-WAVE device.
- The DI-LAB variety of device allows all quality-relevant parameters such as turbidity, colour, conductivity etc. to be fully recorded.
- All data is documented in terms of both time and quantity, and can easily be visualised at the PC.
- The combination of analysis technology with volumetric measurement has been realised in numerous applications, e.g. the officially registered delivery of beer into containers or tanker lorries.

Examples of applications

Brewing

- Determination of the original gravity of beer, filtrate, unfiltered beer, boiled and lautered wort, cold wort, first and last runnings
- Determination of the alcohol content of beer and non-alcoholic beer

- Measurement of the extract content of beer
- Regulation of the first and last running and deaerated liquor components in order to optimise original gravity
- Monitoring to avoid filling and labelling errors
- Distinguishing between brewing liquor, first runnings, beer types and type changes, last runnings and water at filtration
- Complete logging of batches
- Accounting for extract quantities

Soft drink manufacture

- Determination of the sugar content
- Monitoring of the concentration of carbonated drinks, fruit juices, fruit drinks, fruit-juice concentrates, low-calorie products, glucose and other beverages
- Determination of the solid matter content of fruit concentrates

Dairies

- Determination of the dry matter content in the manufacture of dried milk and other concentrates
- Measurement of total concentration of milk, yoghurt, condensed milk, evaporated milk

Various industries

- Determination of the alcohol content of wine
- Determination of the concentrations of acids, bases and saline solutions
- Product monitoring/product identification
- Identification of transitions between phases, including control of wastewater



