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GEA Diessel units in the dairy industry

Complete equipment for milk reception and processing



As a result of many years of experience in the development and application of different metering techniques and in plant construction, GEA Diessel has become an expert in the manufacture of complete self-contained units. Such units may be complete metering devices for volumetric or mass flow measurement, or measuring sections with regulating devices for proportional regulation by volume or by mass, in each case completely installed on a base frame. All components are connected and tested at the factory before delivery and installation.

GEA Diessel units essentially include:

- de-aeration system
- volumetric or mass flow meter
- product pumps
- control valves
- inspection glasses and nonreturn valves
- analysis systems
- process computer
- printer.

Sampling unit



If required for the particular application, the units can be manufactured as systems suitable for weights and measures approval. The advantages of such complete units are:

- they are functionally inspected and tested before delivery
- all inlet and outlet ports are clearly determined in advance
- they require only a short installation time. The surrounding pipework can be installed in advance to fit exactly
- commissioning time is reduced
- costs are minimised and can be reliably calculated.

Mobile units on milk collection tankers

GEA Diessel builds mobile metering equipment for the metering of conductive liquids (conductivity > 50 μ S), especially for the metering of milk that is collected by

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During the last few years it has become more and more obvious that completely prefabricated and pre-tested units are preferable to plants constructed on site. The unit structure allows the construction of a technically perfect plant and guarantees the optimum use of the metering and analysis technology employed.

The proper functioning of the unit under various operating conditions can be tested at the manufacturer's, and appropriate settings made. Long commissioning and testing times and unpleasant surprises during commissioning are things of the past.

tanker under weight and measure approved conditions. Such equipment typically has a measuring accuracy of ± 0.5 per cent. Even in the accuracy category required by weights and measures authorities, product throughputs of up to 60,000 l/h and more are achieved.

Features of the mobile units:

- compact design
- highly accurate metering and repeatability
- weights and measures approval for the entire unit
- simple to operate
- kind of the product during conveyance
- high degree of flexibility for customised applications.

Mobile units on tankers

Sampling unit

Such units offer complete solutions, covering everything from the sampling itself to the identification of the sampling bottle with automatic bottle transport.

Double sampling, taking overall and individual samples.



Stationary reception equipment with sample turntable

Stationary milk reception

The stationary metering unit is intended for the emptying of tankers. A weights and

measures approved unit is available for the reception of milk which is to be paid for through a verifiable accounting procedure. Particular features of this unit are the design of the air separator and the arrangement of the centrifugal pump: the pump is positioned downstream of the air separator, which enhances the separation performance and contributes to accurate measurement.

Features of the reception unit:

- metering, display, monitoring and recording of volume, temperature, date/time, driver number and sample bottle number
- unit has weights and measures approval
- control of the pump and of sampling
- print-out showing all relevant data
- data transfer to computer

Units for blending yoghurt and fruit

With continuous blending units, liquids can be blended continuously inline in the desired proportions, even if they are of different viscosities. No mixing tanks are required. The products are blended directly in the pipe by means of a suitable mixer. For the regulation/conveyance of the blended products, frequency-regulated rotary piston pumps are used. These self-priming rotary piston pumps work with low flow speeds, and therefore are kind to the product, do not create froth, and can be used to convey both liquids and viscous media. The GEA Diessel unit for blending products of different viscosities also accommodates the fruit container. There is thus only a short priming distance before the viscous fruit mixture reaches the rotary piston pump.

Features:

- kind of the product
- products with viscosities of up to 1,000,000 cP can be processed
- homogeneously blended product, no mixing tanks required
- high accuracy through the use of precision metering technology
- digital regulation
- product container stands on the unit.



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Bottle filling machines meet highest safety requirements

The manufacturer of cup and bottle filling machines Ampack Ammann, located at Königsbrunn near Augsburg, Germany, has been equipping all its machines with safety components from Jokab Safety since the beginning of 2004, thereby generally reaching the highest safety category 4 according to the standard EN 954-1.

Up to 72 Eden E non-contact door-monitoring sensors give information on the state of each single door via the built-in LED on the site or centrally in the control unit, thus allowing a rapid localisation of any malfunction. Three Pluto B20 safety PLCs are charged to control and monitor all safety circuits. They replace a great number of safety relays and safety modules and offer a much better overview and considerable cost savings for material, wiring, maintenance and stock keeping.

Ampack Ammann, a specialist for filling and sealing sensitive food in cups or bottles made of plastic, has introduced at interpack

2005 a paper bottle for aseptic products. At the moment, the company is developing a high-speed machine capable of filling 50,000 small bottles per hour.

Two years ago, Ampack Ammann decided to upgrade all their filling machines to the highest safety category 4 according to EN 954-1. The objective was to monitor safely and reliably the more than 72 doors on the machine and its housing. A decisive role for the co-operation with Jokab Safety was played by the optimum features of the Eden E door-monitoring sensors for harsh environments.

The series Eden E non-contact safety switches used at Ampack on all doors and hatches of the filling machines work with dynamic signals and has a sensing distance from zero to twelve mm. They correspond to the highest safety category 4 and consist of two complementary parts, called Adam E and Eva E. In the closed position of a door or hatch, the two sensors are exactly face to face (see figure 3), where the large tolerance for distance and misalignment between Adam and Eva ensures a very easy and uncritical mounting. Moreover, recent tests have proven that Eden E can operate in



Figure 1: Bottle filling machine FA 10 with a filling capacity of up to 12,000 one-litre bph (photo: Ampack Ammann)