

Transparency for Maintenance

Peristaltic Pumps, Perfectly Aligned with the Analysis System

During analysis condensate collects which requires reliable discharge. When operating the analysis system in low pressure mode, peristaltic pumps are the first choice. An innovative peristaltic pump development by Bühler Technologies is further extremely durable and easy to maintain, and a twin head version significantly reduces investment costs. The motor styles used and pending international explosion protection certificates predestine the series for worldwide use.

“This version is a true innovation in gas analysis technology. And when pump prices for Atex applications can certainly reach the four digit range, it means great cost benefits for the customer.”

In emissions measurement or gas analysis for process control the gasses are first dried before being fed into the analyser. Here, gas coolers are used to adjust the discharged process gas to the desired dew point. This produces condensate which is typically discharged via peristaltic pump.

With the international market gaining importance, the Ratingen analysis technologist specialist now decided to develop a new peristaltic pump itself. This makes Bühler as a full range supplier in analysis technology the first supplier to develop condensate discharge pumps themselves.

The result is a product range offering numerous benefits for all users, including in non-explosive areas: for one through many design details to make maintenance significantly easier, on the other hand through the option to now also use the CPdouble version with double head in addition to the single head pump CPsingle. The benefits are obvious straight away. A CPdouble condensate pump allows for condensate to be removed from two gas paths, significantly reducing investments for many users.

Polycarbonate housing for easy detection of hose damage

At first glance it's easy to see analysis technology experts were involved in developing the pumps in the new CP line. Dr. Claus-Peter Jellen, product manager at Bühler Technologies, points out the transparent cover, allowing the condensate discharge hose to always be visible. Dr. Jellen explains: "This hose is a wear item. It is always tumbled to remove the condensate whilst ensuring the connection to the gas chamber is tight. Maintenance personnel should replace it at least once per year. Shorter intervals may be necessary, for example when strained by aggressive mediums in the condensate." A view of the hose and rotor ensures maintenance personnel does not need to open the housing as a precaution to inspect the hose condition.



The transparent housing allows maintenance personnel to quickly determine if the CP condensate pump is working properly.

But when the time comes, meaning the hose does need to be replaced as a matter of routine or unscheduled, the maintenance personnel will benefit from the helpful new details of the pump design. Now he only needs to slightly loosen the knurled screw to remove the transparent housing. He can then remove the old hose in just a few steps and install the new one in the rotor. The concept of tool-free maintenance is in line with Bühler's philosophy, which the company pursues as best possible throughout its product line.

Precise installation without tools

But eliminating tools is not the only convenience for maintenance personnel the CP series has to offer. It's also little details such as the knurled screw, which remains connected to the pump head, and consequently won't be lost, as well as little arrows on the housing indicating the condensate inlet and outlet. This virtually eliminates any errors when installing the new hose.

Other technical details ensure a particularly long life for the peristaltic pump. The shaft is leads out of the motor compartment through the rotor at the front via a second shaft. This additional stabilisation ensures particularly smooth, material-friendly operation. "The long shaft is further required for a two-line condensate pump style," Dr. Jellen explains: "They allow the installation of a second rotor to implement two condensate discharges with a single pump." This version is a true innovation in gas analysis technology. And when pump prices for Atex applications can certainly reach the four digit range, it means great cost benefits for the customer.

Established motor styles for international markets

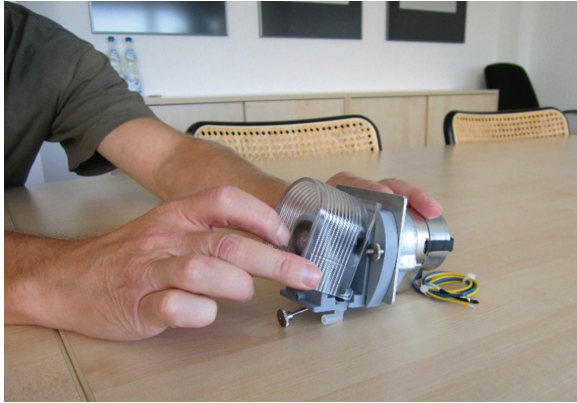
The motor also provides benefits. First put to the acid test by Bühler engineers, it is particularly smooth and reliable. The standard used is a version which can be operated on 115 V AC as well as 230 V AC according to the country where it is used. A 24 V DC version is also available, which will help users with the approval process in several countries and regions, e.g. the USA.

The CP series offers a condensate flow rate of up to 0.3 L/h. The polyamide (PA) pump head and the transparent polycarbonate (PC) housing also withstand a corrosive atmosphere as found at many chemical company. Two non-corrosive PVDF hose connection styles – angled or straight – allow the customer to select the option best for his installation situation and preferences. Along with a metal clamp, both ensure reliable sealing.

Three hose materials for maximum chemical stability

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Loosen bottom knurled screw, remove housing: Changing the hose when necessary is that easy, all without tools.

“This series covers about 95 percent of applications”, Dr. Jellen states. Expanding the hose materials which may be used also contributes to this. The standard Norprene hose features good chemical resistance to many substances with high mechanical resilience. The company now also offers alternative standard hoses made from Fluran and Marpenne for removing condensate containing certain solvents or oil residue which for example may occur in engine test benches. Marpenne is particularly the material of choice when oxidants are present. If the condensate

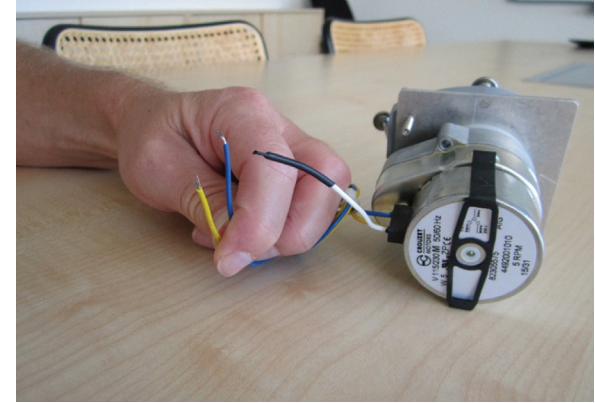


A second front bearing not only ensures very smooth operation. It also allows the double head version for removing condensate from two sample gas paths with one pump.

contains oils or petrols, using a Fluran hose may be necessary, although its mechanical properties are not as good as the other hose materials.

Prospect: Ex-protection certificate pending for the international market

With this new development Bühler Technologies of course paid attention to compatibility with previous models. So customers



One motor, three cables: Engineers relied on tried and tested components whilst allowing for 115 or 230 V AC motor use. A 24 V DC special model is also available.

may also use the CPsingle and CPdouble pumps along with existing gas conditioning systems by Bühler and directly benefit from the advantages. Use in explosive areas on the international market is also not far off. According to Dr. Jellen the necessary approvals are intensely being worked. FM and UL certificates are expected to be issued mid 2016, allowing users in North America to already start planning for use.

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