

# Ultra-fast with ultrasound

## Compact volume flow and dosing meter for measuring highly dynamic processes in pipes

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The flow metering and dosing device Flowmax 400i is used in chemicals supply and in hook-up boxes for the validation of media, control and monitoring of formulas as well as for very dynamic processes with dosing times of less than one second including valve operation times. It is an excellent alternative to other flow metering technologies.

More and more businesses have to prove their profitability as profit centers. This also includes that they, e.g. in business parks, have to settle their accounts and pay for centrally provided media such as DI or ultrapure water or certain chemicals separately. Many of the metering devices available in the marketplace today are too big or too expensive in the respective precision category or not suitable for other reasons and therefore the volume flow is frequently not metered at all. For such applications the compact metering and dosing device Flowmax 400i is a good choice. The measuring tube is exclusively made of the high-performance plastic PFA, and the coupling nut of the sealless flare connection is made of either PVDF or PFA, which makes the device resistant to most of the commonly processed chemicals.

Flowmax 400i measures the volume flow of a process medium according to the phase difference procedure by using ultrasound. Metering is contactless and without movable parts, i.e. the metering device is wear-free and maintenance-free. When used as a flow meter for water or similar liquids, Flowmax does not need operation, parameterization or calibration, because the relevant values are pre-set by the manufacturer. The device can also be pre-configured and calibrated by the manufacturer for other viscosities and transit times or parameterization can be carried out on-site. With a variance of  $\pm 1\%$  of the measuring value Flowmax is a measuring device that is wonderfully suited for metering volume flows that require precise billing.

Apart from measuring the volume flow, Flowmax 400i can contribute in two ways to dosing. If it controls the entire dosing, the operating software is used to set a fixed dosing quantity during commissioning. Dosing is started as soon as the respective digital port receives a positive edge. Flowmax opens the dosing valve via the output configured for it and closes it again when the pre-set dosing amount is reached. However, if a dosing unit is responsible for the dosing control the Flowmax works merely as a volume flow meter. Thanks to its response time of 4 ms the flow meter



Flowmax 400i is made exclusively of high-performance plastics PFA (Perfluoroalkoxy) and PVDF (Polyvinylidene fluoride)

Dosing tasks are carried out by the Flowmax 400i stand-alone or in combination with a dosing control unit





Martin Deutscher, Managing Director of MIB Messtechnik und Industrieberatung

detects in particular also changes of the flow rate during closing and opening of the valves. This is a decisive factor for short term dosing concerning a reproducibility of 0.5 %. "The Flowmax-system is also perfectly suitable for hygienic processes," explains Martin Deutscher, Managing Director of MIB Messtechnik und Industrieberatung, and refers to numerous applications in beverage technology. But Deutscher also sees many possible applications in the chemical and pharmaceutical industry, when packaging strongly adhesive and non conductive

The high-speed response is especially significant for fast dosing processes of less than one second for the entire process.

products such as oils, creams, emulsion paints or adhesives;: "Wherever other metering systems fail, because the medium is not conductive enough for the MID, because dynamics are too high e.g. for the cover or—such as in the case of Coriolis—the device is too big and too expensive,

our systems are used." Thanks to the fast response times and the high dynamics of typically 1:100, Flowmax is suitable for processes, in which many reception or dosing points tap a reservoir or a circular pipeline simultaneously or in sequence and cause very strong dynamic reactions in the pipes. Due to the flow rate and flow volume changes the flow metering devices have to meet high requirements concerning precision and reproducibility. Flowmax has mastered the process-related strong fluctuations of the volume flows in the pipe at several thousand measuring locations. The settings that are pre-set at the factory as well as the easy connection of the metering device facilitate and accelerate installation and commissioning. The process connections can be created fast via sealless flare connections.