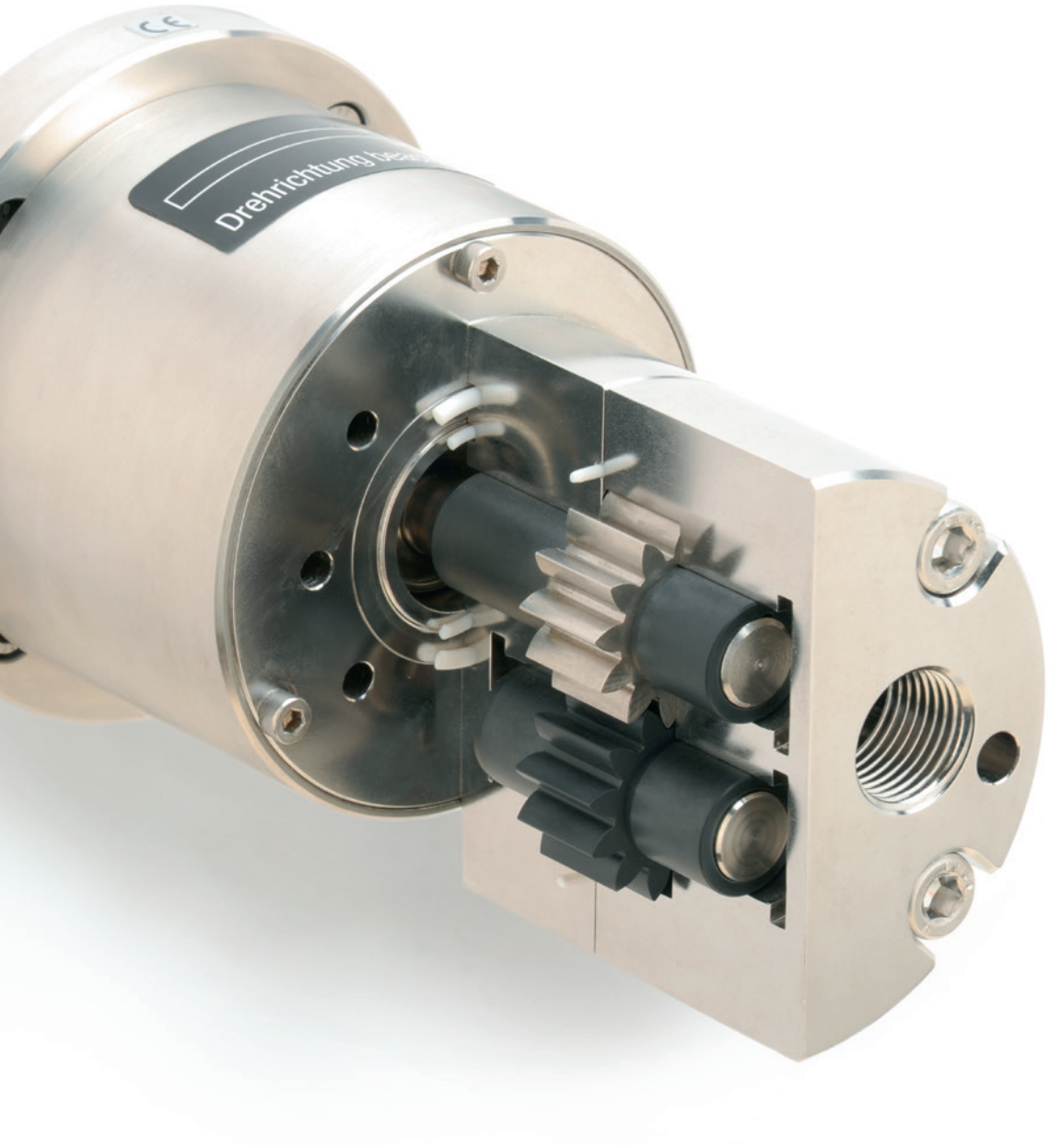
# Dosing and Process Pump

The Non-Pulsation Magnetic Drive Gear Pump




GATHER
INDUSTRIE

# The GATHER Products

## Magnetic drive pumps

The magnetic drive GATHER gear and turbine pumps are designed for both dosing and process pump service.
The unique characteristic of these hermetically sealed pumps is long service life and non-pulsation dosing, especially of non-lubricating liquid such as water, salt solutions and solvents but also of acid and caustic solutions.

## Quick-Disconnect Couplings

The safe, robust and quickly disconnectable hose-tube joining method for almost all liquid and gaseous media.
With double or single shutoff function or unrestricted medium passage in sizes ranging between DN 4 and DN 125.

The original Hansen couplings and the flat-face, non-leakage couplings of GATHER's own DBG series are especially versatile.

## Filters and Valves

For dosing performance enhancement and gear pump protection GATHER offers tailored accessories:

High-grade overflow valves and filters of stainless steel and Hastelloy as well as simple non-return valves.

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# The Magnetic Drive GATHER Gear Pump

Magnetic drive gear pumps of GATHER Industrie are made of stainless steel, Hastelloy or Titanium and are highly versatile as dosing pumps, process pumps or for laboratory services. Distinctive mark of this hermetically sealed pump is long service life and non-pulsation dosing, especially of non-lubricating liquid such as water, salt solutions and solvents but also of acid and caustic solutions.

As low-maintenance process pumps they can be optimally integrated into existing equipment whereas highly precise and reproducible pumping results are attained when they are used as dosing pumps.

Incorporating the magnet drive and innovative materials GATHER Industrie has steadily developed these pumps that were originally employed for laboratory uses into unsurpassed acid or caustic solution pumps for pilot plant service (Miniplant) and process technology applications.

Pressure vessel code requirements are of course satisfied as the ATEX regulations are applicable to hazardous areas.

## Available standard materials

- Stainless steel
- Hastelloy
- Titanium
- PTFE (Teflon®)
- PEEK (carbon fiber reinforced)
- Carbon (pure and impregnated)
- Nickel alloy (W88)
- Cobalt alloy (Ultimet®)

## Advantages at a glance

- Long life and maintenance-free*
- Non-pulsation pumping of non-lubricating liquid
- Hermetically sealed
- CIP capability (e. g. using water)
- Easily integrated into processes

** aside from wear*

## NEW

- Plain bearings of PPP (Parmax®)
- Antifriction bearings of zirconium oxide

# Magnetic Drive Gear Pumps

## Non-Pulsation Pumping of Non-Lubricating Liquid Media

### General

With its magnetic drive gear pump GATHER plays an important part in the pumping and dosing technology sector. This is of course based on highest manufacturing precision, a multitude of available material combinations as well as the non-pulsation pumping capability of the gear pump.
Variable-speed pump drives are available meeting all conceivable application demands.

**NEW**

**Temperature range**
from –200 °C to +450 °C

- Differential pressure up to 15 bar
- System pressure from vacuum to 325 bar
- CIP & SIP capability
- Viscosities from 0.1 up to 2,000 mPa s (for specials up to 10,000 mPa s)

### Notes on Safety

Due to the gear pump's magnetic drive the entire pump can be of hermetically sealed design so that – selecting the appropriate type of material – a maximum amount of safety is achieved in applications where hazardous media are to be handled. In case of overloads, the magnetic drive causes the pump to disconnect.
The drives meet VDE regulations and can be furnished with any desired explosion-protection type of enclosure.

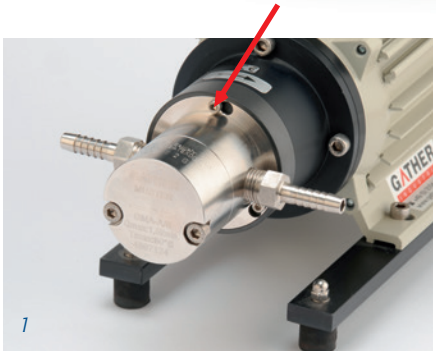
# Effortless Pump Head Replacement

## Pump Head Replacement

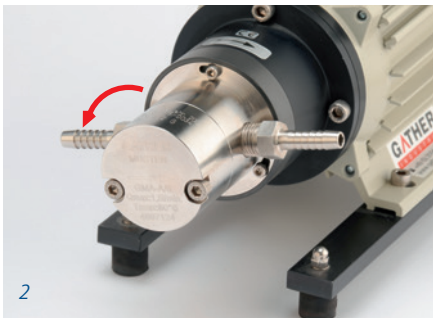
Replacing the pump head
for maintenance or replacement
purposes is very easy:

1. Loosen the three screws on
   the pump carrier (bracket)
2. Turn the pump head
3. Pull off the pump head

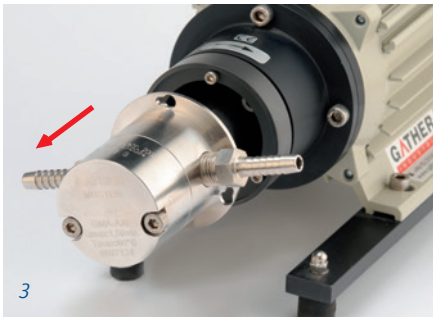
To re-attach the pump head
proceed in reverse order!



*Loosen screws* 1



*Turn pump head* 2



*Remove pump head* 3

### Attention

Be careful with the strong
samarium-cobalt magnets!
Please observe our mounting
instructions!

# DRIP Industrial Dosing Pump

## The Smallest of Product Series 1

### Advantages

- Long life
- Robust
- Low maintenance

### Technical Data

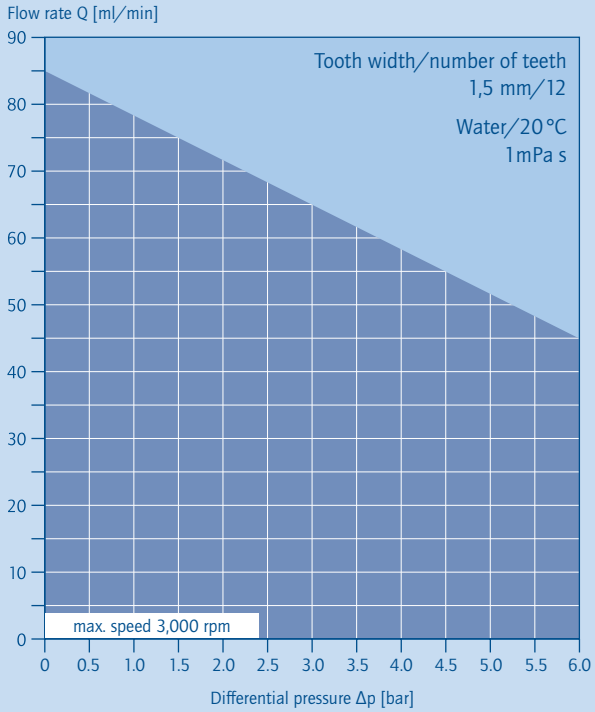
| | | |
|---|---|---|
| **Flow rate** | Q | = 0.02–5.00 l/h<br>= 0.33–83.33 ml/min |
| **Temperature range** | T | = –60 to +300 °C |
| **Differential pressure** | Δp | = up to 6.0 bar |
| **Viskosity** | η | = 0.3 to 1,000 mPa s |

### Materials

| | |
|---|---|
| **Pump body** | Stainless steel (1.4404, 1.4571)<br>Hastelloy (2.4819/C-276)<br>Titanium (3.7035/Grade 2) |

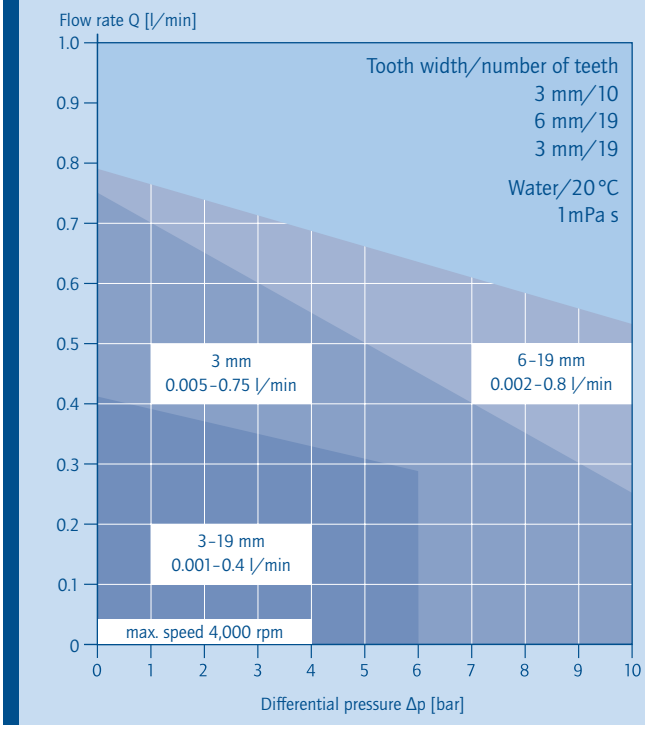
**ATEX certificate can be obtained**
**Pump head compatible with all drive units of series 1 with X-magnet system**

### Series 1 – DRIP

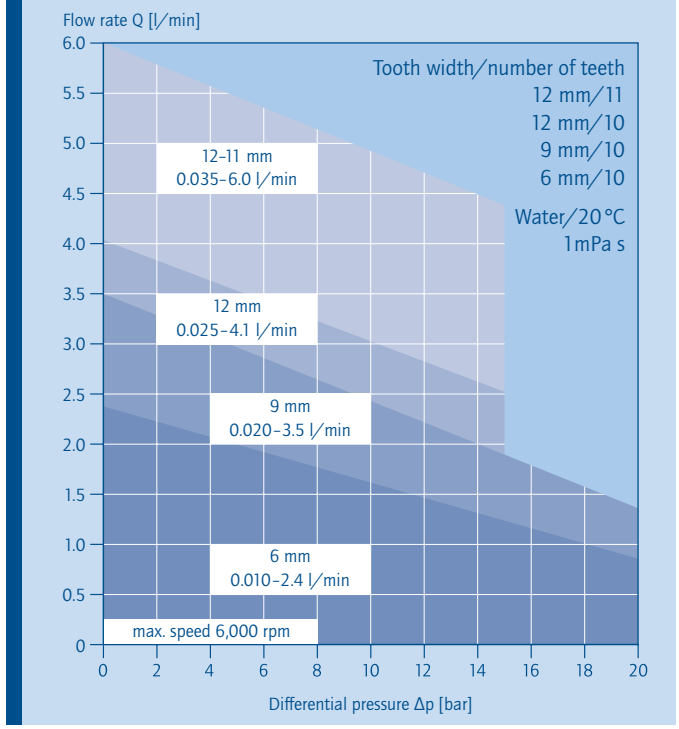


# Pumping Characteristics

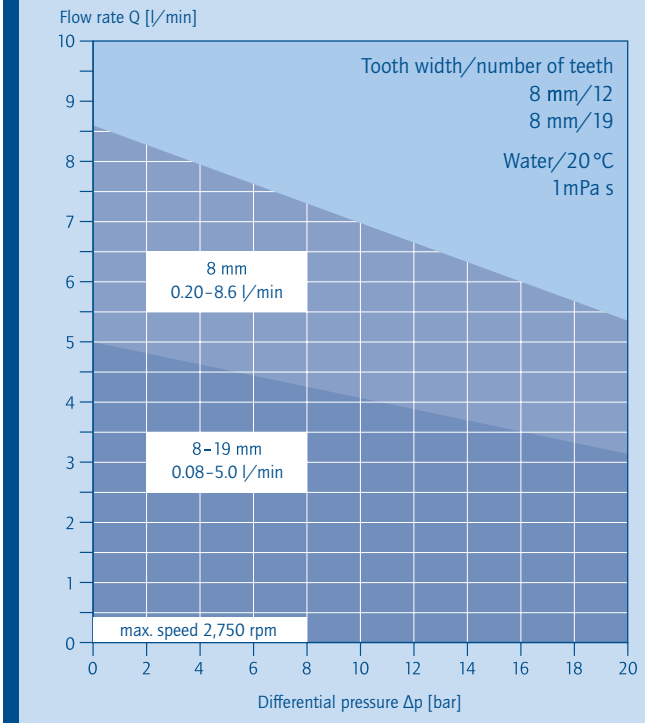
## Series 1



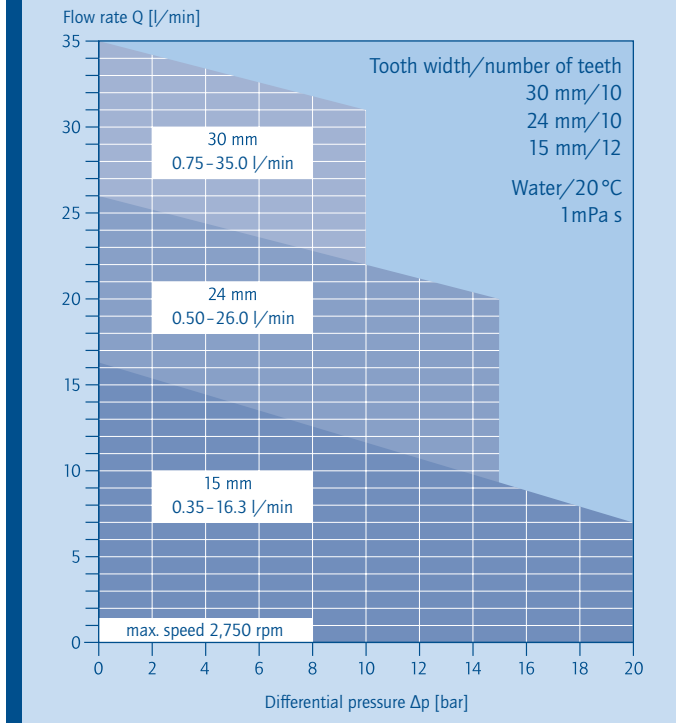

## Series 1




## Series 2




## Series 2



# Drives and Speed Control

## Examples – Series 1

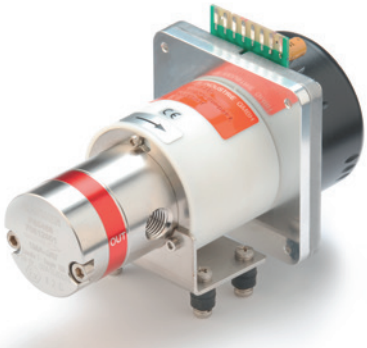
Three-phase motor (IP 55, flame-proof enclosure) for hazardous areas, controlled via frequency converter,
n = 200–6,000 rpm,
external control capability,
1 x 230 V, 50/60 Hz

*Three-phase motor for ex-proof areas*

Speed control for laboratory service,
n = 200–5,000 rpm,
4-digit indication,
external control capability (RS232 etc.)

*Laboratory motor*

Brushless DC motor (IP 00) of compact design, ideal for integration into miniature units,
n = 350–3,500 rpm,
external control capability,
0–10 V, supply voltage 24 V, favorable price/performance ratio



*DC motor*

## Examples – Series 2

Constant-speed three-phase motor (IP 55, increased safety) for hazardous areas, constant speed rates available on request,
n = 2,750 rpm,
n = 1,350 rpm,
n = 900 rpm,
3 x 230/400 V, 50 Hz

*Three-phase drive for hazardous areas*

Three-phase motor (IP55) for industrial applications and laboratory service, controlled via built-on frequency converter,
n = 10–3,000 rpm,
external control capability,
1 x 230 V, 50 Hz

*Three-phase servo motor for industrial and laboratory applications*

Aside from the above described drives, we offer mechanical positioning gears, helical geared motors, servomotors and other special-design motors tailored to individual pump application needs.

### Danger Classes

ATEX: zones 1, 2 and 22
Temperature classes T1...T6 or 100 K below the glowing temperature of dust (zone 22).

# Special Designs

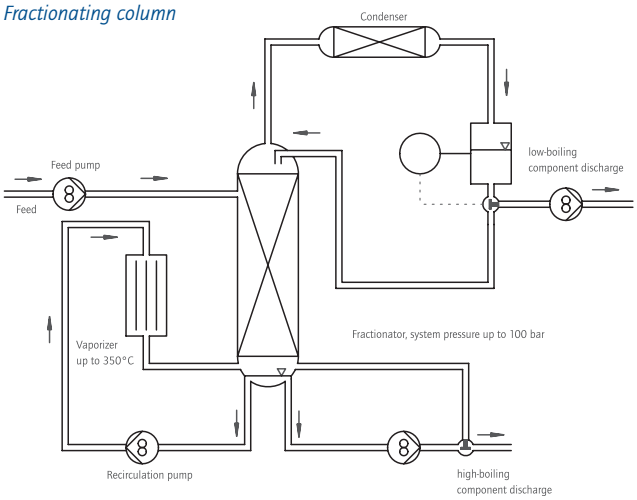
## Application in High-Temperature or Sterile Areas (SIP)

The design and materials used for this pump type in particular in the magnet pot and seals area enables the stainless steel pump to operate at system pressures of up to 300 bar and +300 °C. Heat transfer to the drive unit is inhibited through the use of special connecting elements. GATHER gear pumps can be cleaned in mounted condition, i. e. have CIP capability. Supplementing the unit by a steam bypass (see photo) enables the pump to be sterilized in built-in condition (SIP capability).

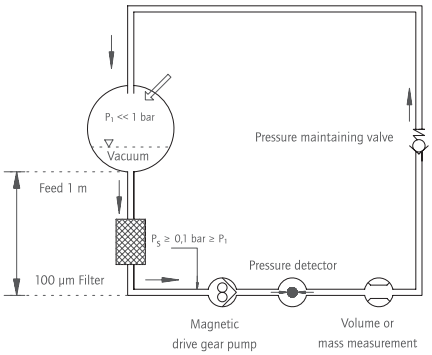
*Pump with SIP capability*

## Recommended Application Examples

*Fractionating column*




*Recirculation under vacuum*



*Heat-traced pump*

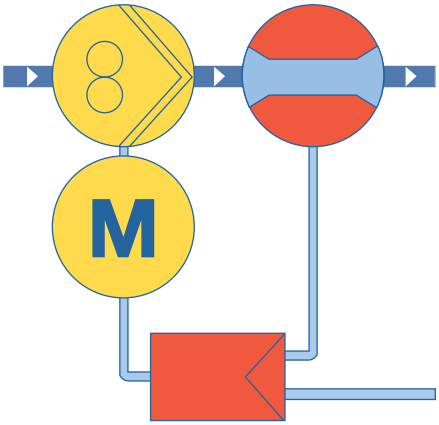
***Heat tracing system specification***

- *Heater connections G1/4*
- *Body stainless steel 1.4571*
- *Heating shell pressure up to 20 bar*
- *Heating/cooling medium: Brine, steam, thermal oil etc.*
- *Heating temperature up to +400 °C*

## Heat Tracing for Pump Head of Series 1 and 2

Via this heat tracing system, the heating medium is passed through the interior of the pump head and thus causes the head to be uniformly heated. The tracing system can be easily mounted onto the pump head.

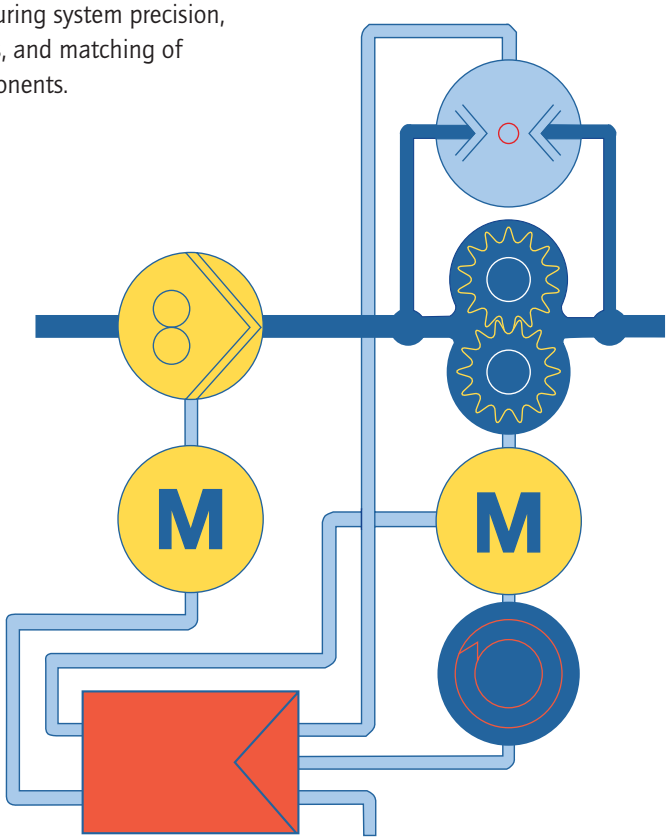
# Dosing Technology




*We supply complete control loops with functional guarantee to customer specifications.*

## D410

To achieve maximum metering accuracy we recommend that the pump be operated in a control loop. The control variable acting on the metering gear pump may be the flow rate or, for example, a temperature, pressure, pH value or another process variable.
The metering accuracy of the system is greatly influenced by the measuring system precision, overall system dynamics, and matching of individual system components.



## Examples of Measuring Systems

- Active gearwheel meter
- Coriolis
- Balance
- Magnetically inductive(MID)
- Gearwheel or oval wheel meter
- ph measurement
- Pressure measurement
- Temperature measurement

## Media from A to Z

Acetic acid
Acetone
Ammonia
Benzine
Caustic solution
Caustic potash solution
Cell cultures
Chlorobenzene
Chloroform
Chromic acid
Color jet ink
Citric acid
Diesel fuel
Distilled water
Ethanol
Ethylbenzene
Fatty acid
Formaldehyde
Formic acid
Glue
Hexane
Hydrazine
Hydrochloric acid
Hydrogen carbons
Hydrogen cyanide
Hydrogen fluoride
Hydrogen peroxide
Iron (II, III) chloride solution
Isocyanate
Kerosine
Solvents
Methanol
Methyl chloride
Methylene chloride
Mercury
Nitric acid
Nutrient solution
Oleum
Paint material
Paraffin
Phosgene
Phosphoric acid
Propanol
Protein solution
Refrigerants
Resins
Saline solution
Silicone oil
Sodium sulfate
Stearic acid
Sulfuric acid
Tetrahob (Concentrated yeast)
Toluene
Trichlorethylene
Varnish
Water, fully demineralized water
Xylene

GATHER INDUSTRIE

## Quality – Made in Germany

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inhouse and in the field


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