

GDM1

BACK PRESSURE COMPENSATED GAS-DOSE-MODULE

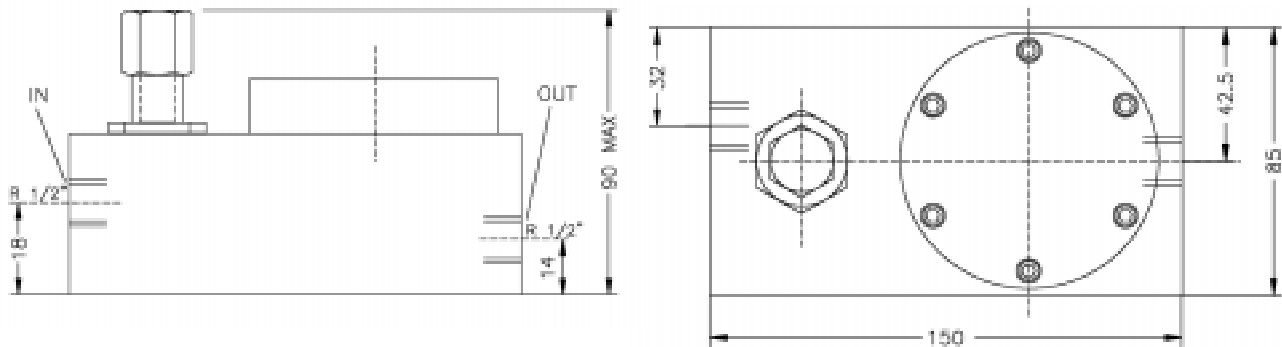
The comprehensive gas-dose module GDM1 is a dosing and control valve with pressure compensated output operating without auxiliary energy. Its purpose of design is to be used in the various fields of process engineering to ensure an exact and above all a reproducible and self-contained back pressure gas dosing. If the incoming pressure is constant, the GDM1 consequently provides a steady, reproducible gas flow (l/min i.N.) regardless of the back pressure. This turns out to be of great advantage for all applications with variable service pressure as for example, gas absorption of molten metal via porous plugs, gas absorption of baths with variable level via lances, injection into burner jets with altering jet cross section (erosion), etc.. The desired gas rate can be adjusted by a needle seat valve on the module. With the assistance of a self-generating closed loop control, the desired throughput within the controlling part of the gas dose module is kept constant regardless of the back pressure. A substantial simplification to conventional control systems is reached by the simple structure in connection with the self-contained back pressure and rapidness of the system. The resulting costs for exact and reliable gas dosing can be extremely minimised. By combination (parallel connection) of self-contained back pressure dose modules of the type GDM1, it is possible to construct in the simplest way an exact and inexpensive gas mixing unit.

- Exact gas dosing regardless of back pressure.
- Exact, reproducible gas mixing by parallel connection of modules.
- Short process reaction rate (recovery time)
- Mechanically robust and fail-safe-extremely long working life
- Enormous reduction in maintenance and operating costs.



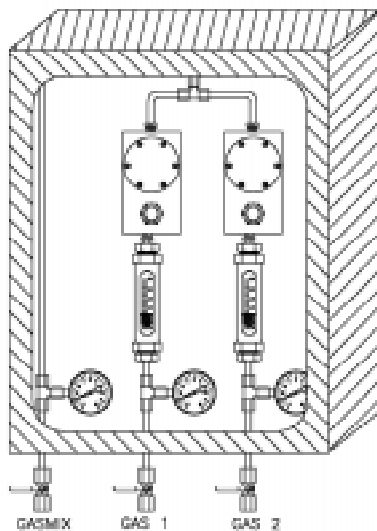
Gas dose module GDM1:
Dosing and control valve with
pressure compensated output.

GAS-DOSE-MODUL GDM1



TECHNICAL DATA

Accuracy (by steady input pressure)	±1,5% referring to nominal Value
Flow range	0,1 NI/min....5NI/min....250NI/min....2000 NI/min Flow rates by air (input pressure 10 bar) Range span approx 1-50
Gas suitability / application	The dosing modules can be used for air and gas dosing, against the median-contact materials that are chemically stable, e.g.: Nitrogen, Argon, Oxygen, Dry Chlorine and Compressed Air. Used materials: Controller and valve made of Aluminium (alternative: stainless steel) Seals Perbunan oder Viton Modules for other gases are possible on enquiry.
Input pressure	Possible insertion of 0,6 bar bis 25 bar (constant input pressure)
Loss of pressure in the Module	0,5 bar maximum, depending on the model
Installation instructions	Fitting position is variable
Medium Temperature	-5°C to 85°C



Scheme:
Gas mixing panel with
GDM1- modules

Depending on:

Flow / Input pressure

$$V_{1E} \cdot (P_{1N} + 0,7)^{0,5} = V_{2E} \cdot (P_{2N} + 0,7)^{0,5}$$

V_{1E} = Flow by gauging, by input-excess-pressure P_{1N} in bar

V_{2E} = new flow by new input-excess-pressure P_{2N} in bar

Flow / Type of gas

$$V_1 \cdot (\text{Density } 1)^{0,5} = V_2 \cdot (\text{Density } 2)^{0,5}$$

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