

## General Description

Double diaphragm metering pumps of the MEMDOS GMR series can be supplied as single or duplex metering pumps. The pumps are used to meter large quantities at relatively low back pressures. They are frequently used in waste-water treatment to meter pH-regulating chemicals or flocculent. The metering pumps are available in three sizes as single metering pumps for 528 to 1,057 gph.

Different metering heads can be connected to the duplex metering pumps. The metering heads are then operating in a reciprocating mode and the quantity metered is set for both heads at the same time.

Standard designs consist of a single metering pump with a left-hand metering head arrangement and duplex metering pumps with two metering heads.

## Metering Head

The characteristic feature is the duplex diaphragm (7+8). The eccentric (5) guides the diaphragm (7) almost following the sine wave over the constant stroke. Since the large supporting disks always carry the whole surface of the diaphragm (7) in the maximum eccentric positions, a piston-like displacement effect is achieved. This results in a very high metering accuracy for diaphragm metering pumps independent of the back pressure. The front supporting disk for the suction stroke must not get into touch with the medium because of chemical resistance and possible abrasiveness. Therefore, a second diaphragm (8) is provided, which has a merely separating function and is therefore neutral in respect to forces. The medium side of the EPDM separating diaphragm (8) is coated with PTFE.

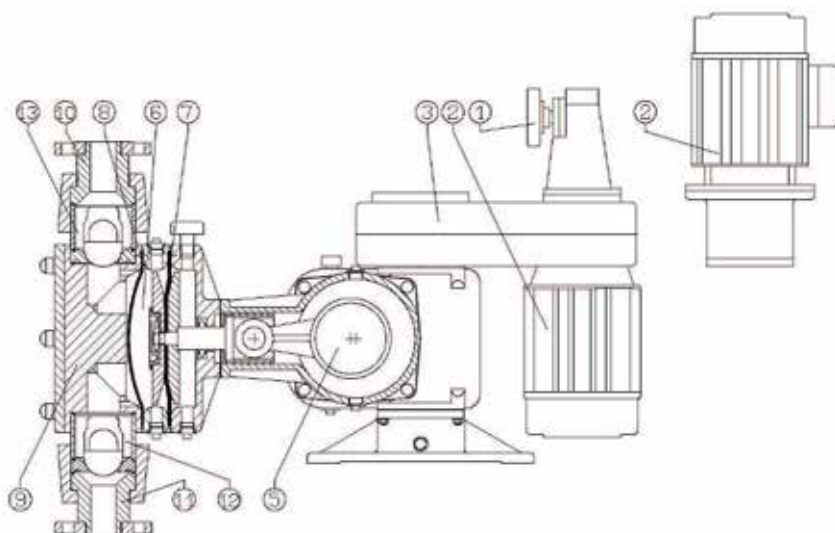


A precisely dimensioned glycerin filling (6) acts as hydraulic push rod and thus the distance between the two diaphragms remains constant. Also the rear diaphragm chamber is partly filled with glycerin for lubrication purposes. The suction (12) and discharge valves (13) are spring-loaded flat seat valves. The suction (11) and discharge connections (10) are available in plastic or stainless steel design.

## Drive

There are two possibilities to drive the eccentric (5):

1. By means of a variable speed belt drive (3) with three-phase motor (2). The control range is approximately 1:6. The drive may only be adjusted while the motor is rotating (2).
2. By means of a three phase AC motor (2). The speed of this motor can be controlled within a range of 1:10 via also available frequency inverters.



### Legend

- 1 Handwheel for speed adjustment
- 2 Three-phase AC motor
- 3 Belt gearbox
- 5 Eccentric
- 6 Glycerin filling
- 7 Rear diaphragm
- 8 Front diaphragm
- 9 Metering head
- 10 Discharge connection
- 11 Suction connection
- 12 Suction valve
- 13 Discharge valve

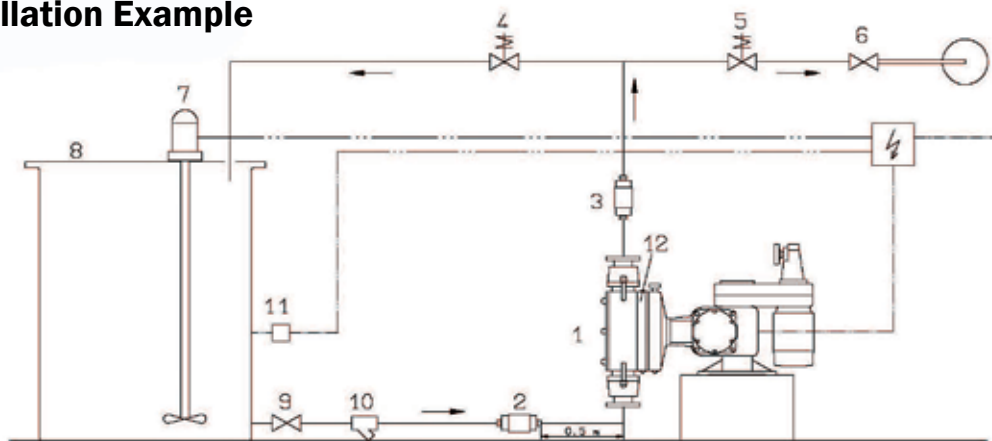
## Additional Components

Upon request, the MEMDOS GMR can be equipped with an inductive probe which samples the crankshaft to count the strokes. For diaphragm rupture detection, the front glycerin chamber can be monitored by means of a conductivity probe.

## Technical Data

MEMDOS GMR			2000	3000	4000
Max. pressure		psig	4	3	2
Stepless control drive	Delivery rate	gph	82 - 528	122 - 793	164 - 1057
	Stroke frequency	min <sup>-1</sup>	11 - 55	11 - 66	11 - 68
	Stroke volume	ml/stroke	680	750	980
Three phase motor drive at 2,850 min <sup>-1</sup>	Delivery rate	gph	423	634	845
	Stroke frequency	min <sup>-1</sup>	58		
	Stroke volume	ml/stroke	680	750	980
Engine power		kW	2.2		
Diaphragm diameter		in	8.346	9.921	
Stroke length		mm	23	26	32
Suction lift		ft H <sub>2</sub> O	4		
Max. supply pressure (Σ static and dynamic)		mbar	500		
Maximum ambient temperature		°F	104		
Max. temperature of the medium		°F	40		
Weight	Plastic dosing head	lb	320	364	
	Stainless steel dosing head	lb	342	430	

## Installation Example



### Legend

- |                                      |  |
|--------------------------------------|--|
| 1. Metering pump.....GMR MB 1 06 01  | 6. Injection nozzle .....MB 1 23 01    |
| 2. Pulsation dampener                | 7. Agitator.....MB 1 36 01             |
| f. suction pipe.....MB 1 27 01       | 8. PE tank.....MB 1 20 01              |
| 3. Pulsation dampener                | 9. Ball valve                          |
| f. discharge pipe.....MB 1 27 01     | 10. Dirt trap (filter).....MB 1 22 02  |
| 4. Relief valve .....MB 1 25 01      | 11. Dry run protection .....MB 4 10 00 |
| 5. Backpressure valve.....MB 1 25 01 | 12. Diaphragm failure                  |
|                                      | monitoring .....Part No. 41028906      |

Use shown fittings when required.