

General description

The MINIDOS A series is the result of a consistent, ongoing development of proven technology and the use of modern plastics.

With metering rates of 3 l/h up to 39 l/h the MINIDOS leak-proof diaphragm metering pump has a wide range of application.

The MINIDOS A is available as single metering pump with the metering head mounted on the right-hand side.

Metering head

Standard materials for the metering heads are rigid PVC, PVDF and stainless steel.

Other materials are available upon request.

Valves

Priming and discharge valves are designed as double-ball valves. For metering chemicals with a viscosity higher than approx. 400 mPas spring-loaded single-ball valves are recommended.

Separation chamber

The diaphragm flange between metering head and gearbox is designed as separation chamber. In the case of diaphragm rupture resulting from wear the leakage is directed downwards by means of a drainage pipe.

Drive

A three-phase sectional motor provides the electrical drive. AC operation is also possible.

In the case of this sectional motor the conventional motor end plates are replaced by the pump base and the gearbox. This gives the MINIDOS A a compact form.

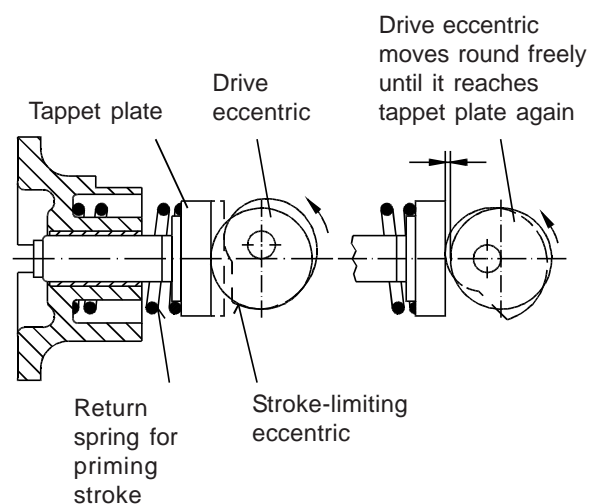
For metering pumps with variable-speed DC (ATG) or explosion-proof motors, see MB 1 04 05.

The gearing consists of a single-stage worm gear and the gearing components as well as the bearing are lifetime lubricated.

The discharge stroke is carried out by an eccentric actuating the diaphragm by means of a spring-loaded tappet. The suction stroke is effected by spring return. Stroke adjustment can be carried out either manually or electrically (ATE).



Functional diagram



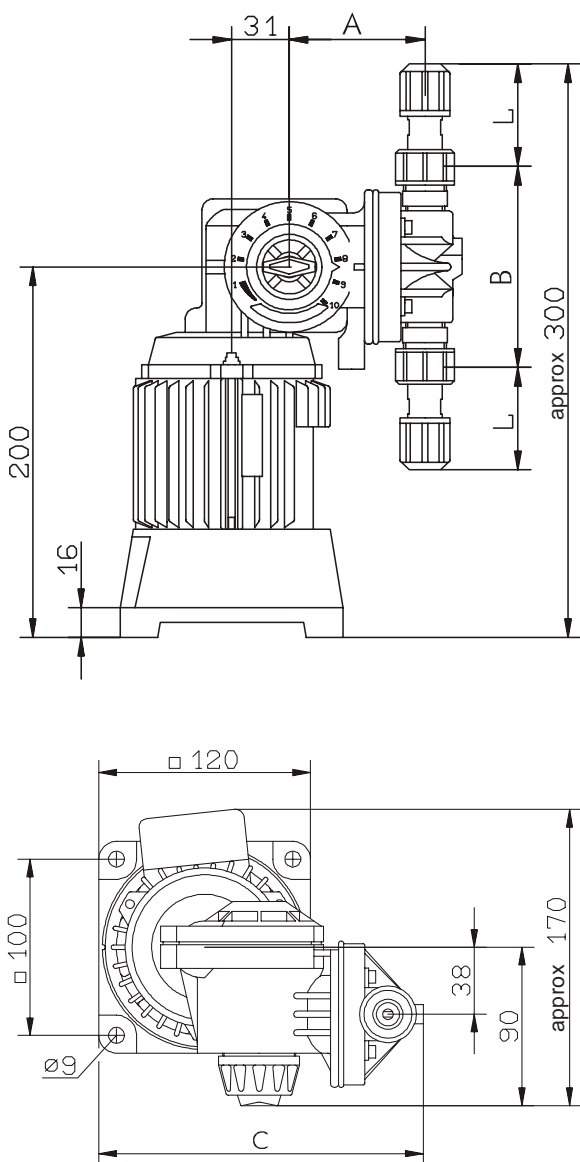
Optional accessories

Stroke counter

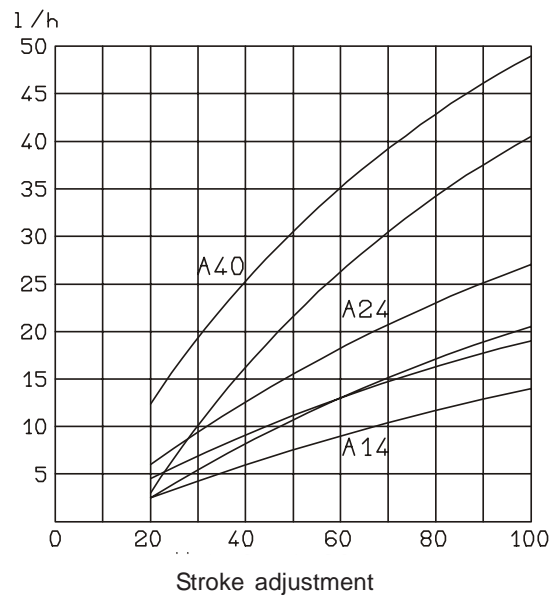
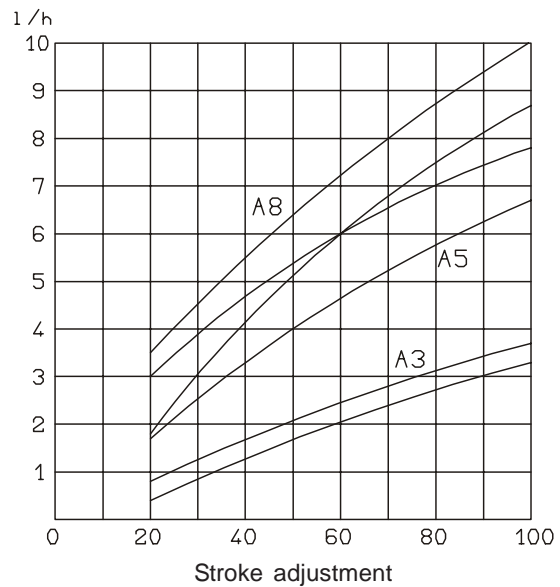
For batch processes the pump can be equipped with an inductive detector for the eccentric shaft which is available upon request.

ATE

Electrical, reversible actuator for remote stroke length adjustment by means of hand-held keypad or 3-point step controller.

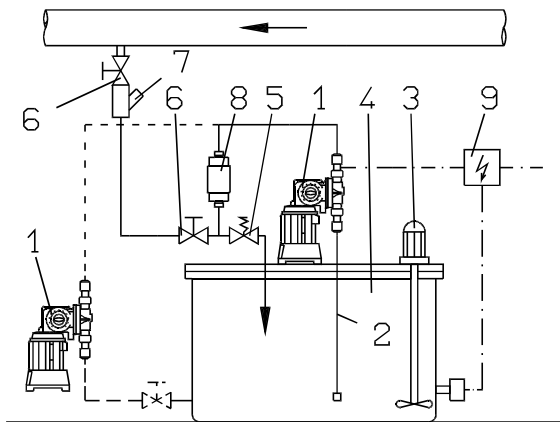


Performance curves



- A3 ... A24
Top curve shows capacity at zero pressure.
Bottom curve shows capacity against 10 bar.
- A40
Top curve shows capacity against 2 bar.
Bottom curve shows capacity against 5 bar.

| | A | B | C |
|---------|-----|-----|-----|
| A3...24 | 73 | 184 | 108 |
| A40 | 109 | 218 | 153 |

Installation example

Technical data

If an AC motor is used as electrical drive the indicated pressure cannot be exploited (MINIDOS A 24 - 5 bar).

| Minidos A... | 3 | 5 | 8 | 14 | 24 | 40 |
|----------------------------|------------|------|------|-----|------|-----|
| Max. pressure [bar] | 10 | | | | | 5 |
| Output at [l/h] | 3,2 | 6,4 | 8 | 14 | 24 | 39* |
| 10 bar (* 5 bar) [ml/str.] | 1,5 | | 2,6 | | 4,7* | |
| Stroke frequency [min-1] | 36 | 72 | 90 | 138 | | |
| Diaphragm ø [mm] | 38 | | 52 | | 64 | |
| Suction height [mbar] | 120 | | | | | |
| Motor output [kW] | 0,03 | 0,05 | 0,03 | | 0,05 | |
| max. temperature [°C] | 40 | | | | | |
| Weight [kg] | Plastic. | | | 4,4 | | 4,7 |
| Metering head | stainl.st. | | | 4,7 | | 7 |

Selection tables

In order to be able to offer the user a wide variety of pumps, we classified the metering pumps into functional groups. Thus each metering pump can be delivered according to the individual requirements of the customer.

The following functional groups are available:

- 1 Gearbox
 2 Motor
 3 Metering head
4 Valves
 5 Connections

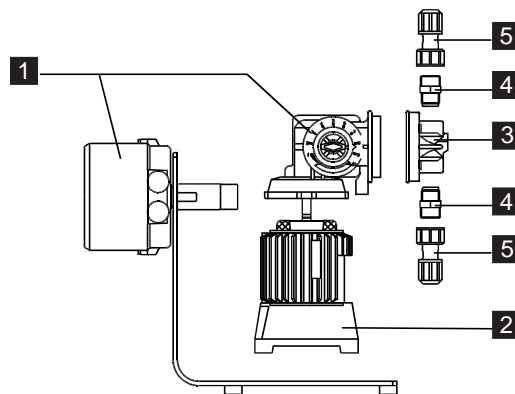
The numbers in the exploded view of the pump lead to the corresponding selection tables.

| 1 Gearbox | | | |
|------------------|---------------------|------------|--|
| Pump type | Capacity adjustment | | |
| | manual | ATE (230V) | |
| Diaphragm | EPDM/PTFE coated | | |
| A 3 | 29969 | 29973 | |
| A 5 | 29969 | 29973 | |
| A 8 | 29970 | 29974 | |
| A 14 | 29971 | 29975 | |
| A 24 | 29972 | 29976 | |
| A 40 | 35129 | - | |

| 2 Motor | | | | |
|----------------|--|-----------|-------------|----------|
| Pump type | Standard motor 230/400 V; 50 Hz; IP 55; ISO cl.F | | | |
| | Output [kW] | n [1/min] | Current [A] | Part No. |
| A 3 | 0,03 | 1420 | 0,23 / 0,40 | 23067 |
| A 5 | 0,05 | 2880 | 0,3 / 0,52 | 23097 |
| A 8 | 0,03 | 1420 | 0,23 / 0,40 | 23228 |
| A 14 | 0,03 | 1420 | 0,23 / 0,40 | 23228 |
| A 24 | 0,05 | 2880 | 0,3 / 0,52 | 23258 |
| A 40 | 0,05 | 2880 | 0,3 / 0,52 | 23258 |

Key

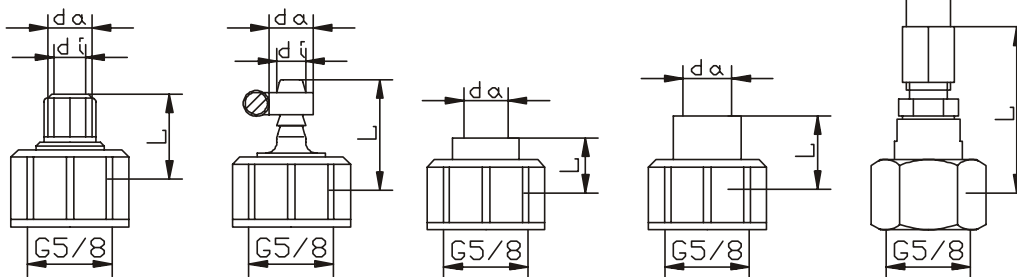
- 1 Minidos A MB 1 03 02
- 2 Priming line MB 1 22 01
- 3 Electrical mixer MB 1 36 03
- 4 Tank MB 1 20 01
- 5 Relief valve MB 1 25 01
- 6 Diaphragm stop valve MB 1 24 01
- 7 Injection point MB 1 23 01
- 8 Pulsation damper MB 1 27 01
- 9 Switch box



| 3 Metering head | | | |
|------------------------|-------|-------|--------|
| Typ | PVC | PVDF | 1.4571 |
| A 3 | 23810 | 28119 | 23813 |
| A 5 | | | |
| A 8 | 23811 | 29178 | 23814 |
| A 14 | | | |
| A 24 | | | |
| A 40 | 23909 | - | 23911 |

| 4 Valves | | | | | | | |
|----------------------|-----------|--------------|-------|--------|-------|---------|--------|
| | | A 3 ... A 24 | | | A 40 | | |
| Housing material | | PVC | PVDF | 1.4571 | PVC | | 1.4571 |
| Sealing material | | Viton | PTFE | PTFE | Viton | Hypalon | AF |
| Double ball valves | Priming | 20890 | 28111 | 24029 | 18185 | 18187 | 26967 |
| | Discharge | 20891 | 28112 | 24030 | 18186 | 18188 | 26968 |
| Spring-loaded valves | Priming | 25087 | 29385 | 25089 | 25162 | 25161 | 28775 |
| | Discharge | 25088 | 29384 | 25090 | 27517 | 27516 | 28776 |

| 5 Connections | | | | | | | | | |
|----------------------|----|------|-------|-------|-------|----|----------|-------|--------|
| Type | DN | Abb. | D | di | da | L | Part No. | | |
| | | | | | | | PVC | PVDF | 1.4571 |
| | 4 | A | G 5/8 | 4 | 6 | 23 | 20975 | 29387 | – |
| | 4 | E | | – | 6 | 43 | – | – | 24959 |
| | 6 | A | | 6 | 8 | 30 | 25176 | – | – |
| | 6 | A | | 6 | 9 | 34 | 34925 | – | – |
| | 6 | A | | 6 | 12 | 51 | 19180 | 28124 | – |
| | 6 | B | | 6 | 12 | 30 | 23092 | – | 23093 |
| | 6 | C | | – | 10 | 15 | 23087 | – | – |
| | 8 | C | | – | 12 | 15 | 23089 | – | – |
| | 6 | D | | – | G 1/4 | 20 | 23088 | 29179 | 22999 |
| | 6 | E | | – | 10 | 46 | – | – | 23090 |
| | 8 | E | | – | 12 | 46 | – | – | 23091 |
| | | 6 | A | G 3/4 | 6 | 9 | 34 | 34926 | – |
| | | A | | 6 | 12 | 55 | 19175 | – | – |
| | | B | | 6 | 12 | 30 | 23342 | – | – |
| | | B1 | d20 | 6 | 12 | 29 | – | – | 23426 |
| | | C | G 3/4 | – | 10 | 15 | 25167 | – | – |
| | | C | | – | 12 | 15 | 27518 | – | – |
| | | C | | – | 16 | 17 | 25625 | – | – |
| | | D | | 6 | G1/4 | 20 | 25165 | – | – |
| | D1 | | 6 | G1/4 | 20 | – | – | 82105 | |



Ordering example

In a water purification plant a flocculation agent with a dilution similar to water is to be metered at a rate of 9 l/h. Priming and discharge side are to be connected using tubes. In this case the pressure and the chemical are such that standard materials (PVC), Teflon coated diaphragms and Viton gaskets can be used.

In this case the MINIDOS A8 would just be able to meter 9 l/h against 6 bar. However, line losses and the "loading" pressure at the injection fitting also have to be taken into account so that the A14 would be a better choice. It will meter the desired quantity at a stroke length setting of 60%.

The metering pump is made up of the following components:

- | | | |
|----------|--------------------------|----------------|
| 1 | Gearbox | Part No. 29971 |
| 2 | Drive motor | |
| | Three-phase supply 400 V | Part No. 23228 |
| 3 | Metering head PVC | Part No. 23811 |
| 4 | PVC double ball valves | |
| | Priming valve | Part No. 20890 |
| | Discharge valve | Part No. 20891 |
| 5 | Connections | |
| | Priming side | Part No. 19180 |
| | Discharge side | Part No. 19180 |