MEMDOS SMART

Stepper motor-driven diaphragm dosing pumps

The Smart series

Reliable dosing of chemicals

The new generation of the stepper motor-driven diaphragm dosing pump MEMDOS SMART provides a wide range of attractive solutions for demanding dosing tasks. The new stepper motor technology permits high-accuracy dosing of even the smallest volumes. Asynchronous running with various speeds of the suction and pressure stroke enables homogeneous and pulse-reduced dosing. The further development of the Slow mode permits the transport of highly-viscous media at even greater levels of reliability and reproducibility. Available in three versions, the new generation of the MEMDOS SMART provides a range of different functionalities. Two sizes of the MEMDOS SMART series are available. Possible performance ranges from 2.6 l/h at 20 bar to 30.7 l/h at 6 bar in the first size and 58,5 l/h at 10 bar to 182 l/h at 4 bar in the second size.
Several different materials and connections are available for suction and discharge side, depending on the specific applications.

Accessory sets consisting of a hose, injection nozzle and suction line are available to enable optimal results and quick installation.

Wide range of applications

The MEMDOS SMART's drive is fully adjustable. The tooth-belt drive and the positively-driven diaphragm rod of the drive permit especially gentle and even dosing.
The range of inputs and outputs installed on the microprocessor-controlled MEMDOS SMART and the accessories from Lutz-Jesco available for it, means that the device is able to monitor and communicate with a complete system. The stroke frequency, number of strokes, runtime, batch and much more can be controlled via an optionally-available Ethernet interface.
The compact structure of the MEMDOS SMART means that it requires a small installation surface. This enables its problem-free integration in smaller compact dosing systems.

Furthermore, the new generation of smart pumps has a full colour 3.5 inch touch screen for easy and safe operation. In addition, alarms and operating states can be easily recognised even from a great distance, so that rapid intervention is possible. To increase the variety and to avoid assembly work, the pump has a removable foot that can also be used for wall mounting.
The new Smart pumps achieve even more flexibility with a display that can be turned to the left or right, which can be ordered ex works.

safety is our concern

Overview of functions

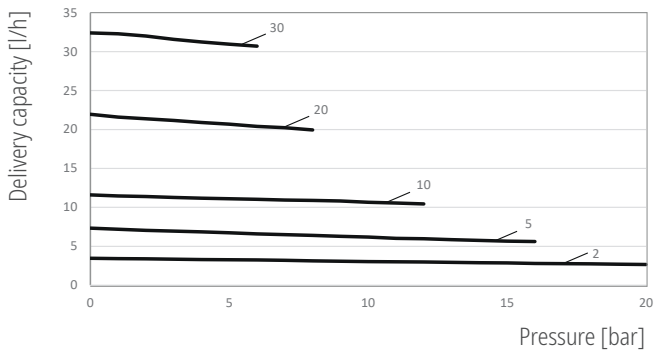
MEMDOS SMART	LDX	LAX	LPX
Graphic display with multi-language menu	•	•	•
Supply amount displayed in 7 various units	•	•	•
Pump foot for standard or wall mounting	•	•	•
Password protection and ranges adjustable	•	•	•
Alarm status shown in colour on the display	•	•	•
Calibration mode	•	•	•
Slow mode, 25 %, 50 %, 75 %	-	-	•
Diaphragm replacement programme	-	-	•
Venting function	-	-	•
Storage of messages	-	-	•
Software backup of four memory locations	-	-	•
Display removable (optional)	•	•	•
Rotated display position (optional)	•	•	•
On request available multiple pump control using one single display	•	•	•

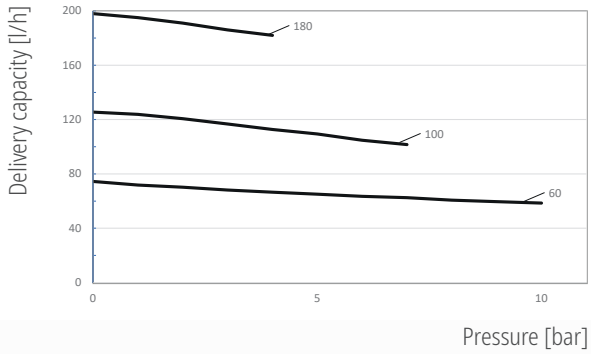
Operating modes	LDX	LAX	LPX
Manual control, 0 – 100 %	•	•	•
Pulse control, constant or dynamic	•	-	•
Analogue control 0/4 - 20 mA, scalable	-	•	•
Batch dosing, manual start, external start, interval or timer function	-	-	•
Network operation, Modbus RTU	-	-	•

Inputs and outputs	LDX	LAX	LPX
Release input (external start/stop)	•	•	•
Level input with early warning and main alarm	•	•	•
Pulse input, increase and reduction	•	-	•
Analogue input 0/4 – 20 mA	-	•	•
Diaphragm rupture detection (optional)	-	-	•
Pulse output: Stroke feedback, alarm* or pulse forwarding*.	•	-	•*
Analogausgang 0/4 – 20 mA, scalable	-	•	•
Alarm relay output (1 and 2), adjustable	-	-	•

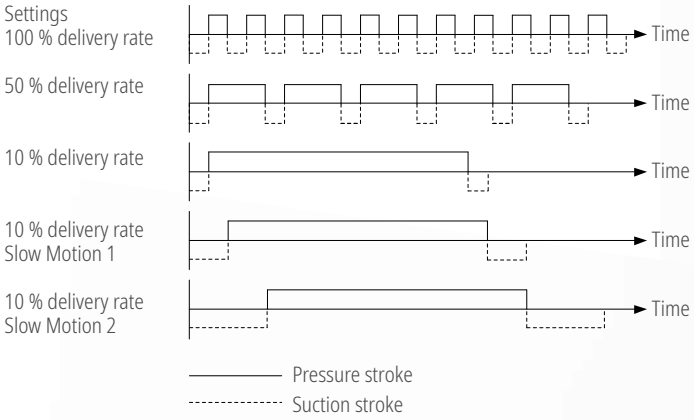
Delivery characteristic curves

These delivery capacities were determined on the manufacturer's test stands. They apply at 20 °C (68 °F) for water, at 100 % stroke frequency. The delivery capacity depends on the medium (density and viscosity) and temperature. Since these conditions differ at each location, the dosing pump should be calibrated.





Conveying characteristics



For low supply rates, for example, the dosing pump performs the suction stroke at the maximum speed and adjusts the speed of the pressure stroke to match the desired supply rate. This produces an almost constant supply stream, which enables low-pulsation, low stress dosing.

Technical data

MEMDOS SMART			2	5	10	20	30	60	100	180
Delivery capacity at max. backpressure		l/h	2.6	5.6	10.4	19.9	30.7	58.5	101.6	182
		ml/stroke	0.29	0.62	1.15	2.21	3.41	6.5	11.29	20.22
Maximum delivery pressure		bar	20 (16*)	16	12	8	6	10	7	4
Delivery capacity at average backpressure		l/h	3	6.4	11	20.9	31.6	65	112.7	191
		ml/stroke	0.33	0.71	1.22	2.32	3.51	7.22	12.52	21.22
Average delivery pressure		bar	10	8	6	4	3	5	4	2
Max. stroke frequency		rpm	150							
Suction lift for non-gassing media		mWS	3					5		
Maximum inflow pressure		mbar	800					500		
Diameter of diaphragm		mm	33	39		54		68	90	
Nominal valve width			DN3**/ DN4	DN4				DN6	DN10	
Voltage supply			100 – 250 V, 50/60 Hz							
Electrical cable		m	1.8 m (with mains plug)							
Power consumption		W	25					50	70	
Protection class			IP65 (with covering caps on the connections or connected signal lines)							
Insulation class			F							
Materials			PVC, PP, PVDF, 1.4571							
Weight	PVC, PP, PVDF	kg	4 approx.					8 approx.	9 approx.	
	Stainless steel (1.4571)	kg	5 approx.					10 approx.	14 approx.	
Approved ambient temperature	PVC	°C	5 – 40***							
	PP, PVDF, stainless steel (1.4571)	°C	5 – 45***							
Approved media temperature	PVC	°C	0 – 35							
	PP, PVDF	°C	0 – 60							
	Stainless steel (1.4571)	°C	0 – 80							
Relative humidity		%	max. 90							
Max. sound pressure level		dB(A)	51 – 56							
Viscosity limits		mPa·s	300****/1000*****							

* With a PVC design
** DN3 double ball valves only
*** Use of the dosing pump at ambient temperatures below 5 °C must be checked individually. In such cases, please contact the manufacturer.

**** For viscosities from ~ 300 mPa·s use spring-loaded valves.
***** If the viscosity is above 1000 mPa·s this must be checked individually.

Dimensions

MEMDOS SMART 2 – 30
All dimensions in mm

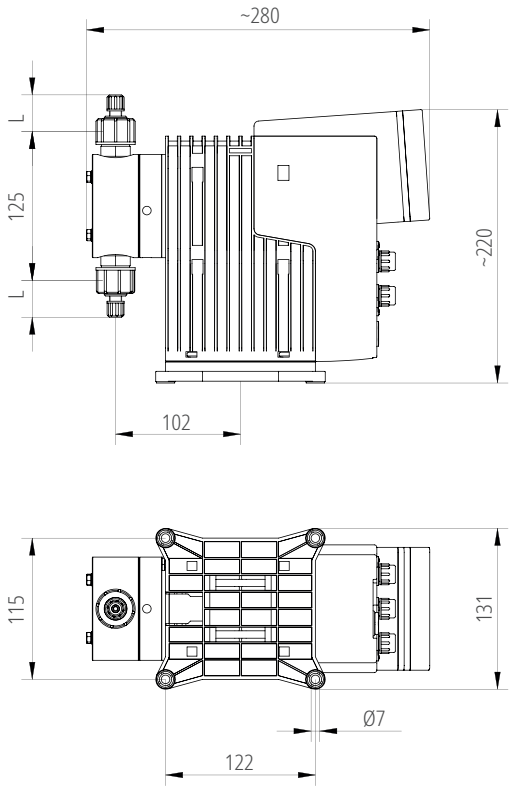


Figure: LPX 30
The dimension L depends on the type and size of the connection.

MEMDOS SMART 60 – 180
All dimensions in mm

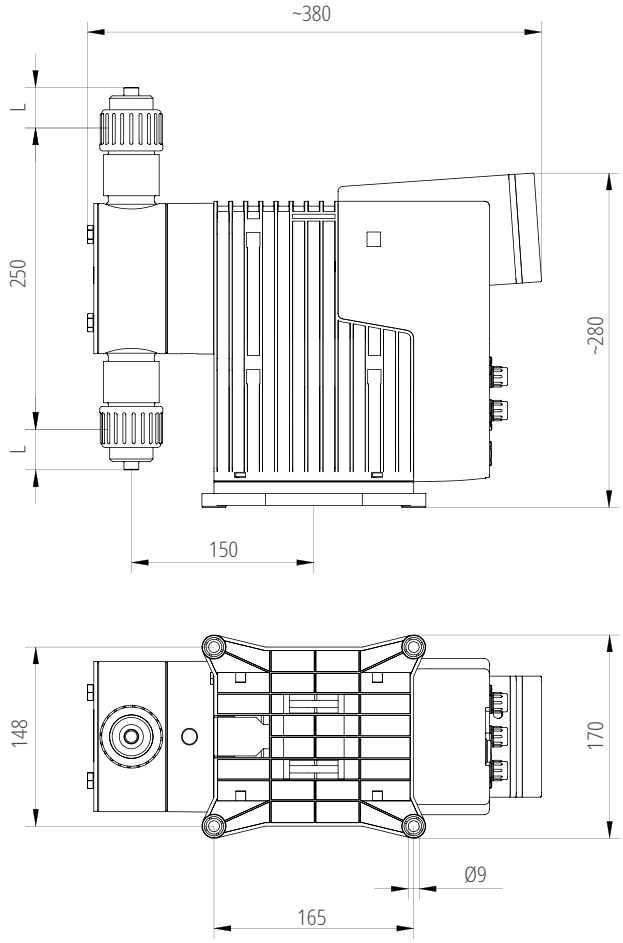


Figure: LPX 180
The dimension L depends on the type and size of the connection.

Accessories

- Suction lines

Type SL-2 with ceramic reinforcement piece, cable length 3,000 mm, tube length 2,500 mm. Level monitoring and pre-alarm with 2 switching points, switching distance approx. 50 mm. Switching function: Closer on rising level, electrical connection to dosing pump via plug connector M12x1.
Flexible suction line, SA model with foot valve and load part made from ceramic and 2500 mm tube length.

- Injection nozzles

To connect the dosing line to the dosing point.
Injection nozzle type R , spring loaded, opening pressure 0.1 bar.

- Suction and pressure tubes

Permissible operating pressure at 20 °C in accordance with DIN EN ISO 7751, chemical resistance and correct connection are assumed.

- Back-pressure and pressure relief valves

Back-pressure valves to be mounted in the dosing line.
Adjustable pressure 1 – 16 bar.
Pressure-relief valves to be mounted in the dosing line.
Settable pressure: plastic 1 – 16 bar, stainless steel 1 – 25 bar

- Various cables, plugs and adapters

Cable for: external release pulse output A coded, 0/4 – 20 mA and pulse input A coded, fault message B coded, level control A coded, Ethernet network connection A coded.
Terminal connection: for retrofitting existing suction lines or level monitors.
Adapter: when using older suction lines with a 3.5 mm jack plug; when using a suction line with M12x1 plug connector.

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