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Introduction

This solenoid metering pump Beta b is equipped with all adjustment and activation functions for modern water treatment and the dosing of chemicals. It has pulse step-up and pulse step-down compared with the preceding model. This enables it to adapt more precisely to external signal generators. The result is the simpler and more precise adjustment of chemical consumption to the actual need. It also has a 10 percent increase in efficiency and energy efficiency over the preceding model. The Beta b can be simply adjusted during operation.

The Beta Pump consists of two main components: the pump drive unit and the liquid end.
Units offer maximum backpressure up to 363 psig (17.5 bar). Capacity range for the Beta/4 is 0.19 to 5 gph (0.74 to 19 l/h).

Feed rate is determined by stroke length and stroking rate: stroke length can be varied from 0 to 100% with an adjustment ratio of 10:1/ The stroke length set manually by the adjustment knob on the front of the pump.

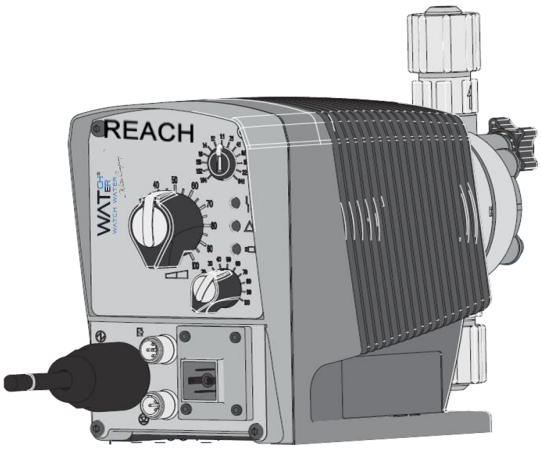
Stroke rate can be adjusted in 10% increments between 10 and 100% via the multifunction switch. This switch is also used to select voltage-free On/Off external pulse contact, pump stop, or test (for priming).

Capacity range
2.8 l/h, 4 bar

The virtually wear-free solenoid drive guarantees an exceptionally long service life even under maximum load.

Ideal for basic chemical feed applications

- Capacity range 2.8 l/h, 4 bar
- External contact input for pulse control with a range of 1:64-64:1
- Continuous stroke length adjustment from 0-100% (recommended 30-100%)
- Supplied in PVDF
- Auto-degassing liquid end in Acrylic/PVC
- 10-setting stroke frequently adjustment from 10-100%
- External control via voltage-free contacts
- Connector for two-stage level switch
- 12-24V DC, 24 V AC low voltage version
- LED's for operation status



Benefits

- Optional external control via 0/4 – 20 mA and potential free contacts with pulse step-up and step-down of 32:1 to 1:32
- Simple adjustment of metering capacity via stroke rate and stroke length
- Adaptation to existing signal transducers by external control via potential-free contacts with pulse step-up and step-down
- Suitable for use with almost all liquid chemicals thanks to the available material combinations: PP, PVDF, clear acrylic, PTFE and stainless steel
- Self-bleeding dosing head design in clear acrylic/PVC and PP
- Virtually wear-free solenoid drive: economical and overload-proof

Field of application

- Metering liquid media in water treatment and chemical processes

Specifications (Cont.)	
Maximum stroke length	0.05'' (1.25 mm)
Materials of construction Housing Diaphragm	 Fiberglass reinforced PPE PTFE-faced EPDM with plastic core
Liquid end options	PVDF
Enclosure rating	IP 65
Motor insulation class	F
Power supply	100-230 VAC, 1 phase, 50/60 Hz, +/- 10%< 12-24 VDC or 24VDC (x/-10%)
Check valves	Double ball
Metering repeatability	When used according to operating instructions, +- 2% under constant conditions and at minimum 30% stroke length
Power cord	6 ft (2 m)
Relay cable (optional)	6 ft (2 m)
Relay load Fault relay only (options 1&3)	Contact load: 250VAC, 2 A, 50/60 Hz Operating life: > 200,000 switch functions
Fault and pacing relay (options 4&5)	Contact load: 250VAC, 2 A, 50/60 Hz Operating life: > 200,000 switch functions
Ambient temperature range	14°F (-10°C) to 113°F (45°C)
Max. fluid operating temperatures	Material: PVDF Constant: 149°F (65°C) Short Time: 212°F (100°C)
Average power drain at maximum stroking rate (Watts) / current drain at pump stroke (Amps)	17W / 0.7 A or 15 A (peak current for approx. 1 µs)
Service factor	1.15
Warranty	2 years on drive, 1 year on liquid end (extended warranties available
Valve threads	Metric thread for PVT. ½'' MNPT connections are available
Max. solids size in fluid	Pumps with ¼'' valves: 15µ - Pumps with ½'' valves: 50µ
Controlling contact (pulse)	With voltage free contact, or with semiconductor sink logic control (NPN(, not source logic (PNP). With a residual voltage of <700 mV, the contact load is approximately 0.5 mA at + 5VDC. Pump ignores contacts exceeding maximum input rate
Necessary contact duration	20µs
Recommend Viscosity	max. 200 cPs for standard liquid end max. 500 cPs for valve with springs max. 50 cPs for auto-degassing metering pumps max. 3000 cPs for high viscosity

Specifications

Drive Unit

The pump housing is constructed of fiberglass-reinforced PPE plastic to protect against corrosion, dust and water.

The solenoid drive unit houses a short-stroke solenoid with a maximum stroke length of 0.05'' (1.25 mm). It is equipped with a noise suppressing mechanism for quiet operation and the armature is the only moving part.

Operating on pulse action, each pulse generates a magnetic field in the solenoid coli. This magnetic field moves the armature, which in turn moves the diaphragm. The diaphragm pushes into the dosing head and cavity forces chemical out of the discharge valve. When the magnetic field is de-energized, a spring returns the armature and diaphragm to their original position. This return movement draws chemical into the dosing head cavity through the suction valve.

In the event of a diaphragm rupture, the liquid end has a weep hole on the bottom of the backplate to direct chemical out of the pump and away from the solenoid.

An optional diaphragm failure detector can be used to stop the pump and indicate a fault.

The stroke-length adjusting mechanism is connected directly to the solenoid. Adjustment results in an accurate self-looking stroke-length setting

Diaphragm

The diaphragm is constructed of fabric-reinforced EPDM elastomer with a plastic core and PTFE-facing. It is chemically resistant to virtually all process fluids and can be used over a wide temperature rage. The Beta pump is designed with a convex diaphragm. The curved shape provides precise metering and alleviates stress placed on the diaphragm by reducing liquid end dead volume.

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Shipping weight PV	
kg	2.9

Technical Data

Pump type	Delivery rate at max. back pressure			Delivery rate at medium back pressure			Connection size o Ø x i Ø Suction	Suction lift	Priming lift	Maximum priming pressure on suction side
Beta® b	bar	l/h	ml/ stroke	bar	l/h	ml/ stroke	mm	mWS	mWS	bar
BT4b 0402	4	2.8	0.26	2.0	3.6	0.36	6x4	6.0	2.5	5.5
Beta b Metering pumps with self-bleeding dosing head SEK										
BT4b 0402	4	2.1	0.19	2.0	2.5	0.23	6x4	6.0	2.5	0.5

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