

M SERIES

Mechanical diaphragm metering pump



M SERIES



Your trusted partner
in dosing pumps

Motor UNEL-MEC:

Motor UNEL-MEC standard 3 phase, 50/60Hz. Single phase and ATEX options available.

Permits standardization and quick std motor availability on site.

Aluminum anodized casing:

Improved corrosion resistance against aggressive fumes.

Extends pump life and lowers life-cycle cost.

Spring return mechanism with oversized bearing.

Extends pump life and lowers life-cycle cost.

Large number of pumphead locking screw (12 pcs in large models).

Reliable and effective sealing during operations.

3pcs threaded connector

(PP models), Metric or Inch standard:

BSP or NPT thread allows easy and simple connection to pipeline.

Reduces cost and time of installation and maintenance.

Models with flowrate

up to 50 l/h double valve standard, optional on request untill 155 l/h (Ø108mm):

Increased accuracy when operating at low flow.

Enhance application flexibility.



STURDIER

NEW DESIGN

ATEX



ALL models comply to ATEX (2014/34/CE) Group II, Category 3 (zone 2/22).

Injection molded PVDF pumphead:

PVDF pumphead:

Combination of PVDF pumphead, PTFE seats and PYREX check valves provides broad chemical compatibility.

Permits standardization on single pump for multiple liquids and applications.



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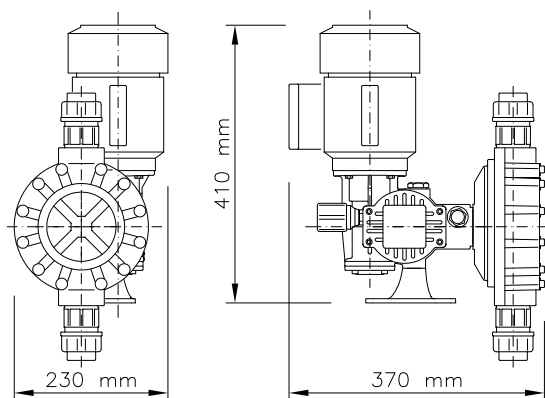
Technical data

Ø DIAPH./ STROKE	50 Hz			60 Hz			MAX PRESS. bar	CONNECTIONS						MOTOR kW			
	TYPE	STROKES / 1	MAX FLOW RATE l/h	TYPE	STROKES / 1	MAX FLOW RATE l/h		3ph	THREADED			FLANGED					
							A		P	S6	A	P	S6				
2 94	1M11	036	11	1M14	043	14	12	3/8" BSP f	3/8" BSP f	/ 	DN 15 1/2" ANSI	DN 15 1/2" ANSI	/ 	0,25 KW			
	1M23	070	23	1M28	084	28	12										
	1M31	095	31	1M36	114	36	12										
	1M50	155	50	1M45	138	45	12										
4 108	1M75	070	75	M 58	060	58	10	3/8" BSP f	3/8" BSP f	1/2" BSP f	DN 15 1/2" ANSI	DN 15 1/2" ANSI	DN 15 1/2" ANSI	0,25 KW			
	1M101	095	101	1M90	084	90	10										
	1M120	115	120	1M118	114	118	10										
	1M155	155	155	1M145	138	145	10										
6 138	1M131	050	132	1M158	060	158	8	3/4" BSP f	3/4" BSP f	3/4" BSP f	DN 20 3/4" ANSI	DN 20 3/4" ANSI	DN 20 3/4" ANSI	0,37 KW			
	1M201	070	197				7										
	1M261	095	260				1M236								084	236	7
	1M321	115	320				1M312								114	312	6
	1M421	155	420				1M384								138	384	6
6 165	1M521	115	520	-	-	-	5	1" BSP f	1" BSP f	1" BSP f	DN 25 1" ANSI	DN 25 1" ANSI	DN 25 1" ANSI	0,37 KW			
	1M660	155	660	1M620	138	620	3,5										
20 200	1M810	070	810	1M960	084	960	5*	1-1/2" BSP f	1-1/2" BSP f	1-1/2" BSP f	/ 	DN 40 1-1/2" ANSI	/ 	0,75 KW			
	1M1070	095	1070	1M1140	114	1140	5*										
20 200	1M1260	115	1260	1M1350	138	1350	5*	1-1/2" BSP f	1-1/2" BSP f	1-1/2" BSP f	/ 	DN 40 1-1/2" ANSI	/ 	0,75 KW			
	1M1500	155	1500	-	-	-	5*										

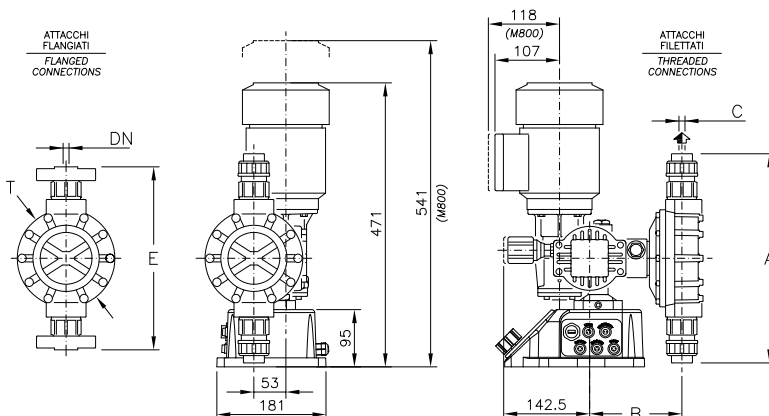
* with PRO MAXpress 2 BARG

Overall dimensions

SINGLE PUMP - Manual Adjustment



SINGLE PUMP - Kit Pro Actuator Adjustment

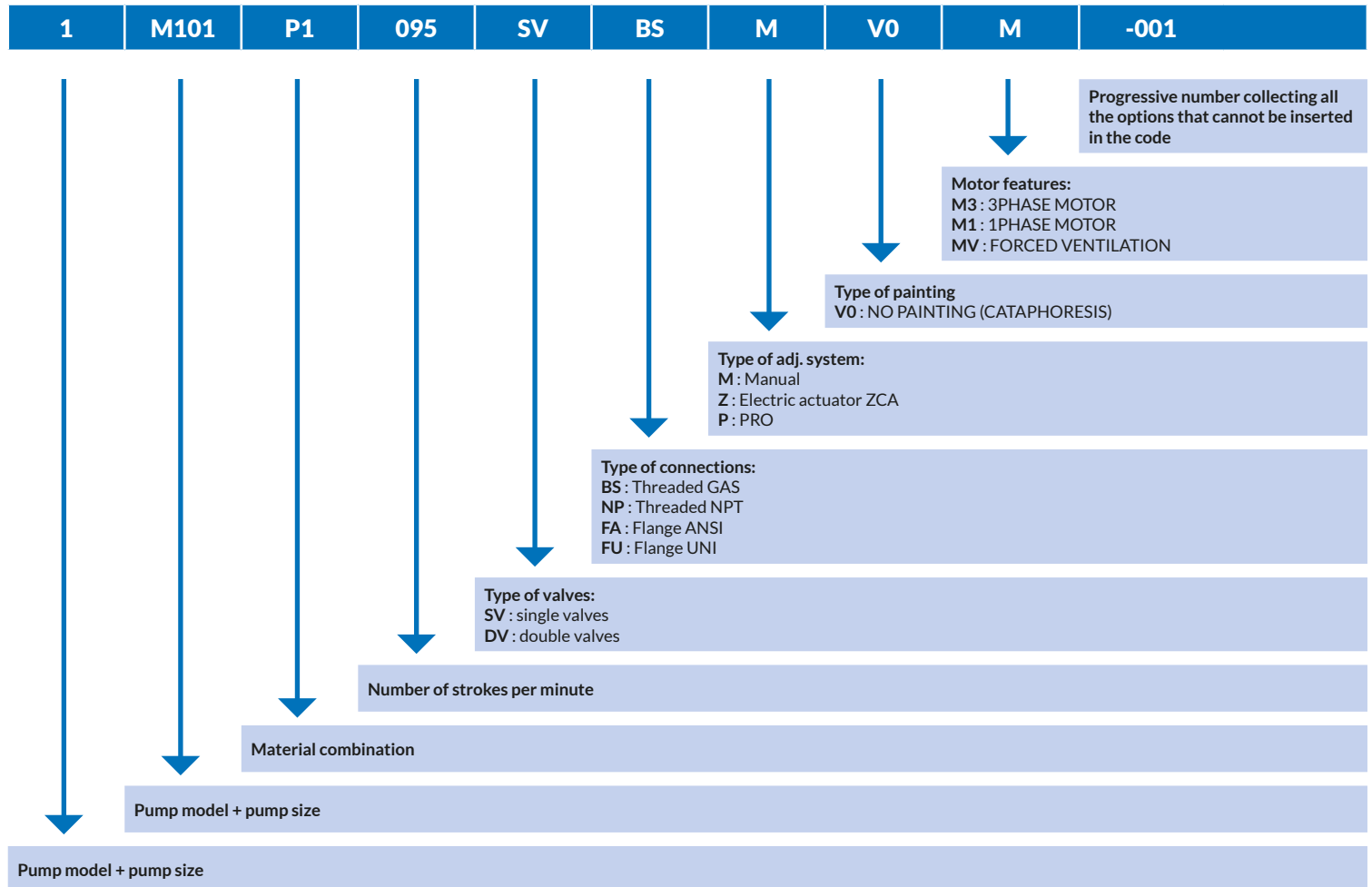


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BLACKLINE pumps: new codification



Material of construction

COMPONENTS	AA	AB	P1	P2	P3	S6
Pump Head	AISI-316L	AISI-316L	PP	PP	PP	PVDF
Diaphragm	PTFE	PTFE	PTFE	PTFE	PTFE	PTFE
Valve Guide	PP	AISI-316L	PP	PP	PP	PP
Valve Seat	AISI-316L	AISI-316L	PVC	AISI-316L	INCOLOY-825	PTFE
Valve (Ball)	AISI-316L	AISI-316L	PYREX	AISI-316L	HASTELLOY C-276	PYREX
Valve Housing	AISI-316L	AISI-316L	PP	PP	PP	PP
Valve Seal	FPM	FPM	FPM	FPM	FPM	PTFE
Flange	AISI-316L	AISI-316L	PVC	PVC	PVC	PVC

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► Sectional view

THREADED CONNECTIONS

PP PP



A AISI-316L



FLANGED CONNECTIONS

PP PP



A AISI-316L



FEATURES & BENEFITS

Valve & Seat material options: Ceramic, Stainless Steel, Incoloy-825, Hastelloy C-276.

Increased performance when handling high density and viscous liquids as well as highly abrasive and aggressive fluids while minimizing cost impact.

Extends pump life and lowers life-cycle cost.

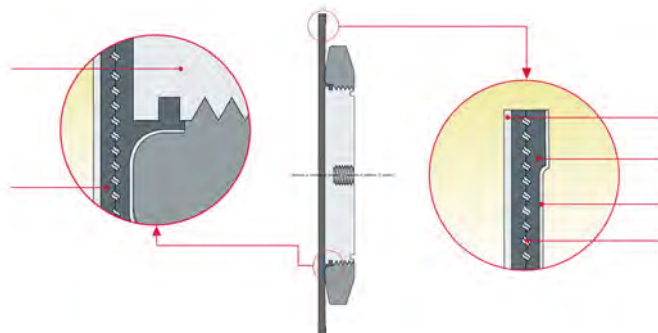
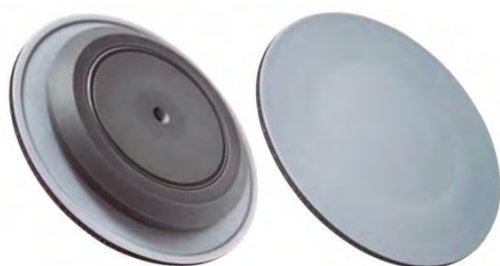
► Diaphragm Structure

OBL's mechanical diaphragm operates similar to a plunger by delivering the swept volume of the diaphragm whilst acting as a separating element between casing and liquid end. OBL's unique diaphragm design allows controlled volumetric displacement and ensures a linear proportional flowrate according to stroke length setting.

FEATURES & BENEFITS

PP diaphragm back-support ring: Protection against discharge overpressure.

Reduces downtime and cleanup, minimizing chemical exposure.



► Flowrate linearity

OBL mechanical diaphragm pumps operation reflects that of a plunger pump providing similar flowrate linearity. This peculiarity is highlighted in the diagram on the left. The progress of the flow lines is clearly linear and proportional to stroke length adjustment.

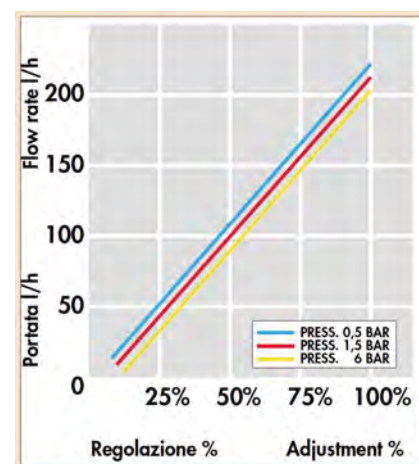
FEATURES & BENEFITS

Multiple layer PTFE diaphragm:

Flowrate is virtually unaffected by working pressure variations (1% less flow with every additional bar above 1,5 barg.)

- Protection against corrosive fumes entering the diaphragm chamber
- Reduced friction thanks to diaphragm supporting-ring
- Optimal leak-free seal thanks to stress-proof diaphragm

Extends pump life and lowers life-cycle cost.



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► Safe area

Kit PRO

Designed to suit the most critical applications with solid construction and a comprehensive control interface providing ease-of-process management" OBLs new flexible solution for remotely controlling your Blackline 2.0 metering pump.

High quality materials and enhanced user-friendly interface makes controlling your pump simple.

10 different operating modes to fit any type of dosing application: CONSTANT / BATCH / PAUSE-WORK / WEEKLY PROGRAM / ANALOG mA / ANALOG Volt / PPM PERCENTAGE / MLQ (millilitres per quintal) / PULSE.



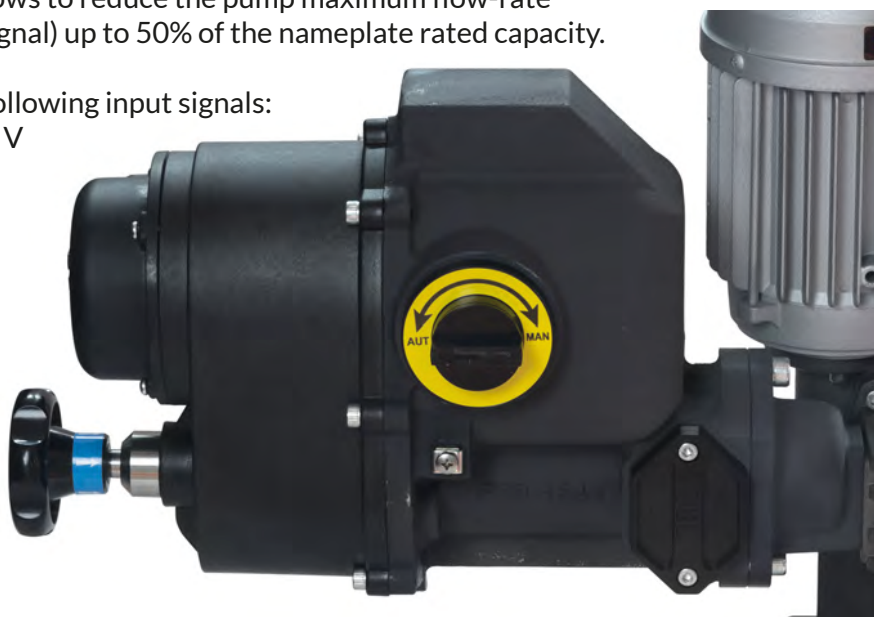
OBL Z type electric actuator, option available on all Blackline pump models M, R, XRN remotely controls the pumps flowrate via input signal.

ELECTRIC ACTUATOR CHARACTERISTICS

- IP 66 standard
- 115/230V – 1 – 50/60 Hz
- 4-20 mA feedback signal
- Manual emergency override
- Anticondensation heater (on demand)
- External automatic/manual selector (on demand)
- Flow-rate limiter (Q.max trimmer) allows to reduce the pump maximum flow-rate (corresponding to 20 mA command signal) up to 50% of the nameplate rated capacity.

The flowrate is adjusted according to following input signals:

- 4-20 mA, 0-20 mA, 20-4 mA and 0-10 V
- Pulses (0÷2 Hz - 0÷30 Hz)
- RS 485 communication protocol
- Profibus DP-V0



OBL DESIGN

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► Markets & Applications

OBL pumps are designed to cover the needs of your system and other applications listed below:

WATER TREATMENT Chemical Additivation



- Odors Control (Hydrogen peroxide, Potassium permanganate, Activated carbon).
- Ph control (dosing of acids and caustics).
- Flotation and Clarification (Aluminium Sulfate, PAC, Ferric Chloride).
- Disinfection (Chlorine, Sodium Hypochlorite).

COOLING TOWERS Water Quality Control



- Corrosion Inhibitors, Anti-scaling reagents, pH control (acids and caustics).
- ORP (Oxidation-Reduction Potential) Anti-fouling and biological growth control (Biocides)

BOILERS Water Quality Control



- Corrosion Inhibitors (Oxygen scavengers, etc) Anti-scaling reagents.
- Conductivity control (chemistry adjustment) pH control (acids and caustics).
- ORP (Oxidation-Reduction Potential) Anti-fouling and biological growth control (Biocides).

CHEMICAL



- Various Additive and Reactors (Chemical Reaction Process).
- Drum / Tote.
- Injection, Mixing and much more.

PULP AND PAPER



- Whitening and Bleaching process (Hydrogen Peroxide, Hypochlorite, Chlorine).
- Sizing (fillers, e.g. starch, polymers), Strengthening (Urea based chemicals, etc.), Pigmentation (dyes, pigments, etc).
- De-inking chemicals in recycling paper process (Sodium silicates, Sodium Hydroxide, Lime, Calcium Chloride, etc.).

MINING



- Ore Separation: Leaching process (cyanides, sulphuric acid, solvents, etc.).
- Flotation collectors (polymers, etc). Defoamers emulsifiers. Depressants and Dispersant chemicals (Iron sulfide).
- Dust control (Dosing of wetting chemicals)

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► M - Maintenance Video

Maintenance video to offer a proper step by step guidance procedures to bring your Mechanical Diaphragm pump back to as new state.



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