

1. Main technical characteristics

- Flow Rate up to 2.300 l/h
- Pressure up to 10 bar
- Mechanically actuated PTFE diaphragm
- Flow rate adjustment from 0 to 100%
- Stroke Rate: 43 / 86 / 131 / 175 strokes/minute
- Stroke Length: 7 / 8 / 9 / 15 mm
- Diaphragm Diameter: 124 / 140 / 157 / 179 mm
- Motor: 0.55 / 0.75 / 1.1 kW
- Maximum temperature of pumped liquid: 40 °C
- Maximum ambient temperature: 55 °C
- Stroke adjustment with locking system
- Enclosure Protection Class: IP55
- Material of Pump Head:
 - **Hastelloy C2000**
 - **PVDF**

2. General features

- The Kosmo Series dosing pumps offer a high level of reliability with outstanding value for applications up to 10 Bar and flow rates up to 2.300 l/h.
- A range of dosing pumps that are compact, lightweight, robust and simple designed for low discharge pressures, durability and cost effectiveness, mainly used in water treatment and in the food industry in clean-in-place applications. Designed to provide reduced overall operating costs over time, the mechanically-actuated PTFE diaphragm increases diaphragm life by eliminating the stresses inherent in most pump designs.
- Kosmo models are multipurpose pumps and can handle all known reagents. They are recommended for continuous service and can run dry without any damage to the pump.
- Kosmo pumps incorporate a variable eccentric system minimizing pulsation and shock.
- Kosmo dosing pumps consists of durable, metallic housing designed to withstand tough environments and suitable for a large number of industrial uses other than water treatment, such as the injection of reagents at medium pressure.
- Kosmo pumps have an adjustment of flow rate while running or stopped from 0 to 100%, with a maximum temperature of pumped liquid up to 40 °C aimed at delivering exceptional performance across a wide range of flow and pressure environments.

Kosmo MM2 Series - Mechanical Diaphragm Pump



3. Codification

KOSMO - KEY TO MODEL NUMBER																								
Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10	Field 11	Field 12													
M	M2	F	124	D	21	C	4	0	0	0	0													
Field 1	model	Field 2	mechanism type	Field 3	stroke length	Field 4	diameter	Field 5	stroke/min	Field 6	pump head	Field 7	motor power	Field 8	motor type	Field 9	customization	Field 10	market	Field 11	stroke reg.	Field 12	optional	
Field 1	model	M	Mechanical Return DIAPHRAGM																					
Field 2	mechanism type	M1	M1 Mechanical return	MM1																				
		M2	M2 Mechanical return	MM2																				
Field 3	stroke length		Stroke length [mm]																					
		A	2	MM1																				
		C	4	MM1																				
		D	6.4	MM1																				
		E	7.4	MM1																				
		F	7	MM2																				
		G	8	MM2																				
		H	9	MM2																				
		I	15	MM2																				
Field 4	diameter		Diaphragm [mm]																					
		065	65	MM1																				
		096	96	MM1																				
		124	124	MM1 / MM2																				
		140	140	MM1 / MM2																				
		157	157	MM2																				
		179	179	MM2																				
Field 5	stroke/min		Strokes / minute																					
		A	24:1	58	MM1																			
		B	18:1	78	MM1																			
		C	12:1	116	MM1																			
		D	32:1	43	MM2																			
		E	32:2	86	MM2																			
		F	32:3	131	MM2																			
		G	32:4	175	MM2																			
Field 6	pump head		DIAPHRAGM - Standard Execution																					
		21 / 24	Hastelloy C2000	PTFE	Hastelloy C2000	Hastelloy C2000	FPM / EPDM																	
		41 / 44	PVDF	PTFE	CERAMIC	PVDF	FPM / EPDM																	
Field 7	motor power		kW	supply	phase	size																		
		0	Without motor																					
		A	0.25	230/400 Vac	3	71-B5/ MM1																		
		B	0.37	230/400 Vac	3	71-B5/ MM1																		
		C	0.55	230/400 Vac	3	80-B5/ MM2																		
		D	0.75	230/400 Vac	3	80-B5/ MM2																		
		E	1.10	230/400 Vac	3	90S-B5/ MM2																		
Using the 60 Hz 3phases motor the performances of the pumps will be as follows: Pressure: -20% Flow Rate: +20%																								
Field 8	motor type																							
		0	Without motor																					
		2	2/3																					
		4	4/3 230/400Vac, 50/60Hz, TEFC (Totally Enclosed Fan-Cooled)																					
		6	6/3																					
		3	2/1																					
		5	4/1 230Vac, 50Hz, TEFC (Totally Enclosed Fan-Cooled)																					
		7	6/1																					
Field 9	customization																							
		0	Standard (or without motor)																					
		I	Inverter																					
		S	Forced Ventilation																					
		X	Flame-Proof (Exd II B T4)																					
		V	Flame-Proof (Exd II B T4) + Forced Ventilation																					
Field 10	market																							
		0	Standard																					
		6	Asian market																					
		7	Brazilian market																					
		8	Chinese market																					
Field 11	stroke reg.																							
		0	Manual																					
		A																						
Field 12	optional																							
		0	Standard																					
		A																						

4. Specification

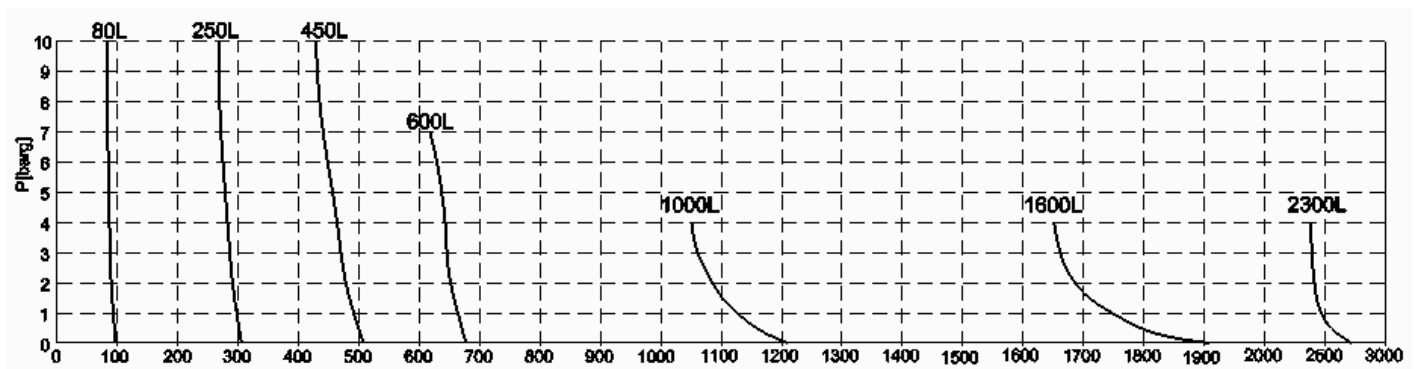
KOSMO MM2 Series - EQUIPPED WITH STANDARD MOTOR										
Model	Diameter (mm)	Stroke Length (mm)	Stroke Rate	Flow Rate [l/h]	Max Pressure (bar)	Connections		Motor kW/pole	Gross Weight (Kg)	Wooden Box L W H (mm)
						Hastelloy C2000	PVDF		Hastelloy/PVDF	Hastelloy / PVDF
MM2F124D**C40000	124	7	43	80	10	BSPf 3/4"	BSPf 3/4"	0.55/4	56	700 X 500 X 750
MM2F124F**C40000			131	250						
MM2G124G**C40000		8	450							
MM2G140G**C40000	140		175	600	7	BSPf 1"	BSPf 1"	60		
MM2H157G**C40000	157	9	1.000	4	BSPf 1 1/2"	BSPf 1 1/2"	0.75/4	68		
MM2I179F**D40000	179	15	131						1.600	
MM2I179G**E40000			175						2.300	

- 1) (**) Available wetted parts: Hastelloy C2000 (21/24) and PVDF (41/44) ;
- 2) In addition to the STD motor, it is also can be equipped with VSD motor (Variable Speed Drive) or Flame-Proof motor (Exd IIB T4);
- 3) Tested with water @ 20°C @ 50 Hz; Flow rate values with motor at 50Hz. Multiply by 1.2 for 60 Hz.

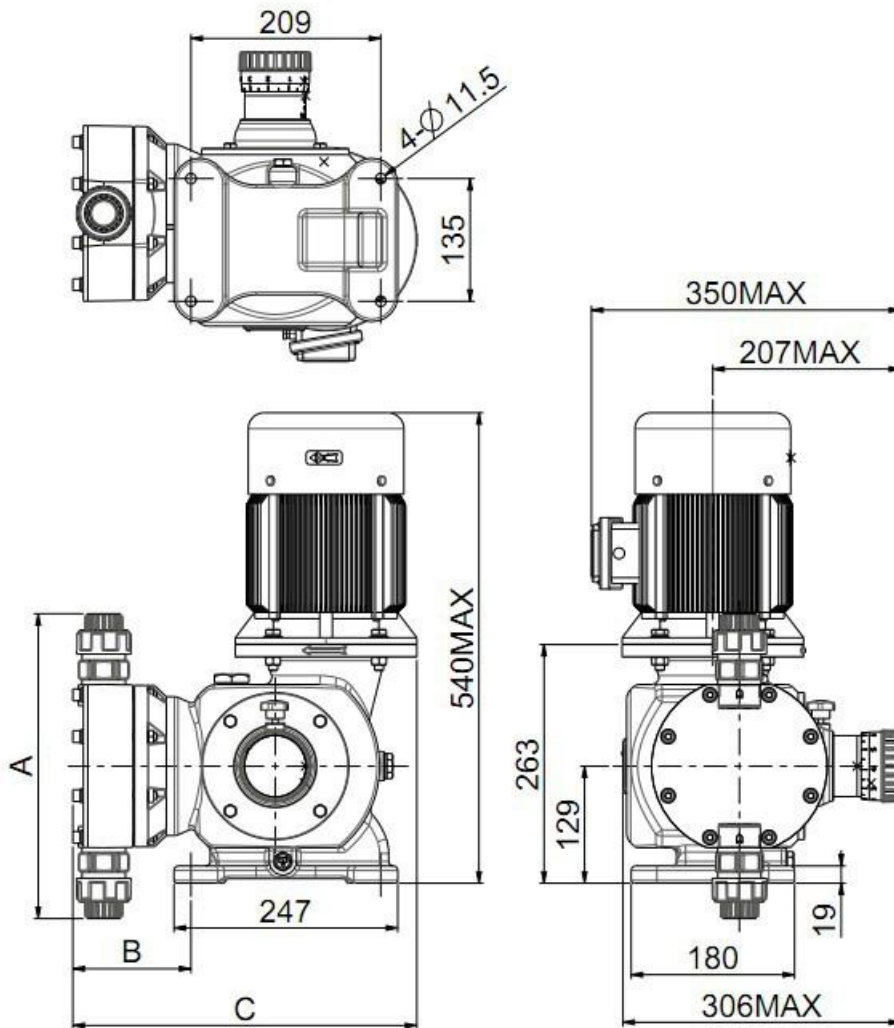
5. Liquid End Material

Material	Liquid End Body			
	21	41	24	44
Pump Head	Hastelloy	PVDF	Hastelloy	PVDF
Diaphragm	PTFE		PTFE	
Seal	FPM		EPDM	
Ball	Hastelloy	Ceramic	Hastelloy	Ceramic
Ball Seat	C2000	PTFE	C2000	PTFE

6. Performance curve P [barg] - Q [L/h]



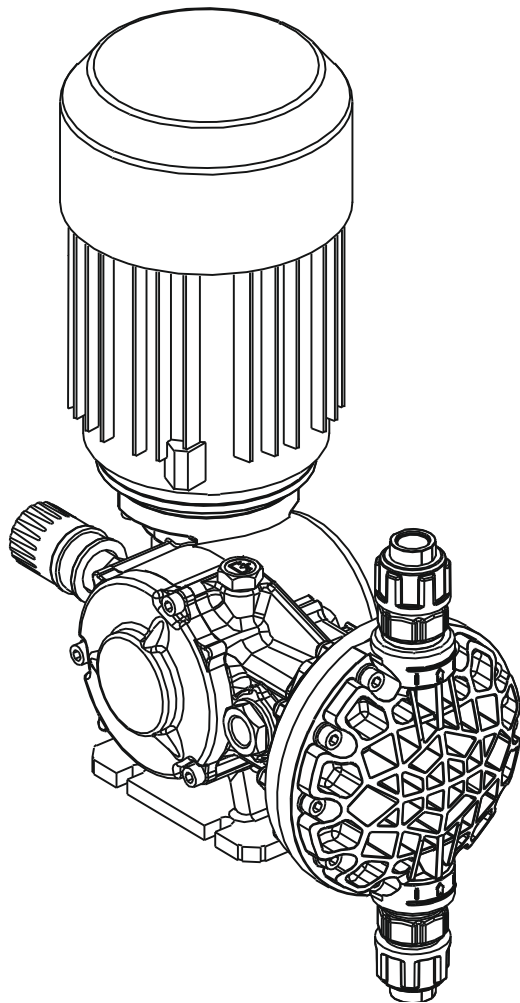
7. Installation Drawing



MM2 Pump Head Material	Diaphragm dia. 124mm				Diaphragm dia. 140mm				Diaphragm dia. 157mm				Diaphragm dia. 179mm			
	Connection	A	B	C	Connection	A	B	C	Connection	A	B	C	Connection	A	B	C
PVDF	BSPf 3/4"	293	123	372	BSPf 1"	316	129	377	BSPf 1"	334	130	379	BSPf 1 1/2"	424	148	395
Hastelloy C2000	BSPf 3/4"	216	108	357	BSPf 1"	251	130	378	BSPf 1"	295	132	381	BSPf 1 1/2"	382	160	407

8. Painting requirements

The anti-corrosion painting process for dosing pump applications requires an entire coating thickness of between 0.06mm and 0.20mm.



Technical characteristics

- Flow rates: from 5.5 to 500 l/h
- Max Pressure: up to 10 bar (145 psi)
16 bar in ENFORCED configuration
- Motor:
 - 0.18 kW - 3 ph (IP55)
 - 0.25 kW - 1 ph (IP55)
 - 0.37 kW - 3 ph or 1 ph(IP55)
 - 0.55 kW - 1 ph (IP55)
- Stroke rate: 58 – 78 – 116 strokes/minute
- Stroke length: 2 – 4 – 6 mm
- Diaphragm diameter: from 64 to 165 mm
- Pump head:
 - **Hastelloy C2000**
 - PP
 - PVC
 - PVDF
- Max. dosing temperature:
 - Hastelloy C2000 40° C
 - PP 40° C
 - PVC 40° C
 - PVDF 40° C
- Range of ambient temperature of use:
 - 5 ÷ 40° C

CPVC material selected

Seko mechanical diaphragm pump MS1 Series has a wide range product. MS1 Series performances cover s from 5.5 to 500 l/h with a back pressure up to 10 bar (in standard configuration, 16 bar for 064 and 094 models in “ENFORCED” configuration) having several configurations available for the pump head and power, in order to have the characteristics most suitable for processes where required.

MS1pumps have a spring return mechanism into an aluminum housing.

Each model has 3 values of stroke rate, which can be set manually or automatically using a linear actuator which accepts a signal 4 – 20 mA. Moreover they can be supplied with a 3 phases or 1 phase electric motor with protection class IP55.

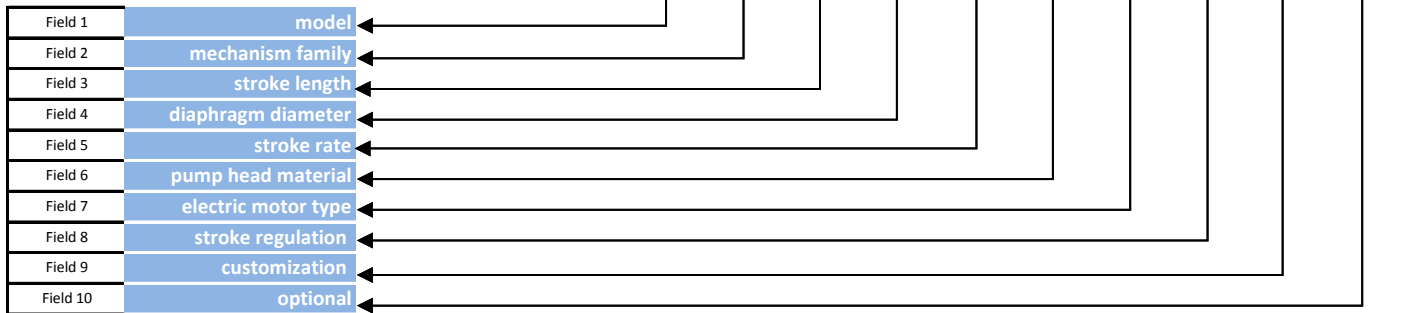
DOSING PUMP

SPRING SERIES – MS1 – Mechanical diaphragm pump



PUMP KEY CODE

Field 1	Field 2	Field 3	Field 4	Field 5	Field 6	Field 7	Field 8	Field 9	Field 10
M	S1	B	094	A	51	C4	0	0	0



Field 1	model	M	<i>Diaphragm</i>					
Field 2	mechanism family	S1	<i>Membrane</i>					
Field 3	stroke length	A	2 [mm]					
		B	4					
		C	6					
Field 4	diaphragm diameter	064	64 [mm]					
		094	94					
		108	108					
		138	138					
		165	165					
Field 5	stroke rate	A	58 [stroke/1']					
		B	78					
		C	116					
Field 6	pump head material		<i>head</i>	<i>diaphragm</i>	<i>valves</i>	<i>seat valves</i>	<i>O-Ring</i>	
		21	Hastelloy C2000	PTFE	Hastelloy C2000	Hastelloy C2000	FPM	on \varnothing 64
		31	PVC		CERAMIC	PTFE	FPM	on \varnothing 94 - 108
		51	PP		CERAMIC	PTFE	FPM	on \varnothing 94 - 108
		24	Hastelloy C2000	PTFE	Hastelloy C2000	Hastelloy C2000	EPDM	on \varnothing 64
		41	PVDF		CERAMIC	PTFE	FPM	on \varnothing 94 - 108
		52	PP		Hastelloy C2000	Hastelloy C2000	FPM	on \varnothing 94 - 108
		Field 7	electric motor type	A4	0,18 kW (4 poles - 3phases 230-400 Vac 50/60 Hz - size 63-B14)			
C4	0,37 kW (4 poles - 3phases 230-400 Vac 50/60 Hz - size 71-B14)							
H4	0,25 kW (4 poles - 1phase 230 Vac 50 Hz - size 71-B14)							
L4	0,55 kW (4 poles - 1phase 230 Vac 50 Hz - size 80-B14)							
AI	0,18 kW (4 poles - 3phases 230-400 Vac 50/60 Hz - size 63-B14 - with INVERTER)							
CI	0,37 kW (4 poles - 3phases 230-400 Vac 50/60 Hz - size 71-B14 - with INVERTER)							
S0	WITHOUT motor							
Field 8	stroke regulation	0	Manual with adjustment knob - STANDARD					
		L	Automatic Linear Actuator AKTUA series					
Field 9	customization	0	Standard					
		H	High Pressure					
Field 10	optional	0	Standard					
		2	(S0 - WITHOUT motor) + adapter kit					

DOSING PUMP

SPRING SERIES – MS1 – Mechanical diaphragm pump

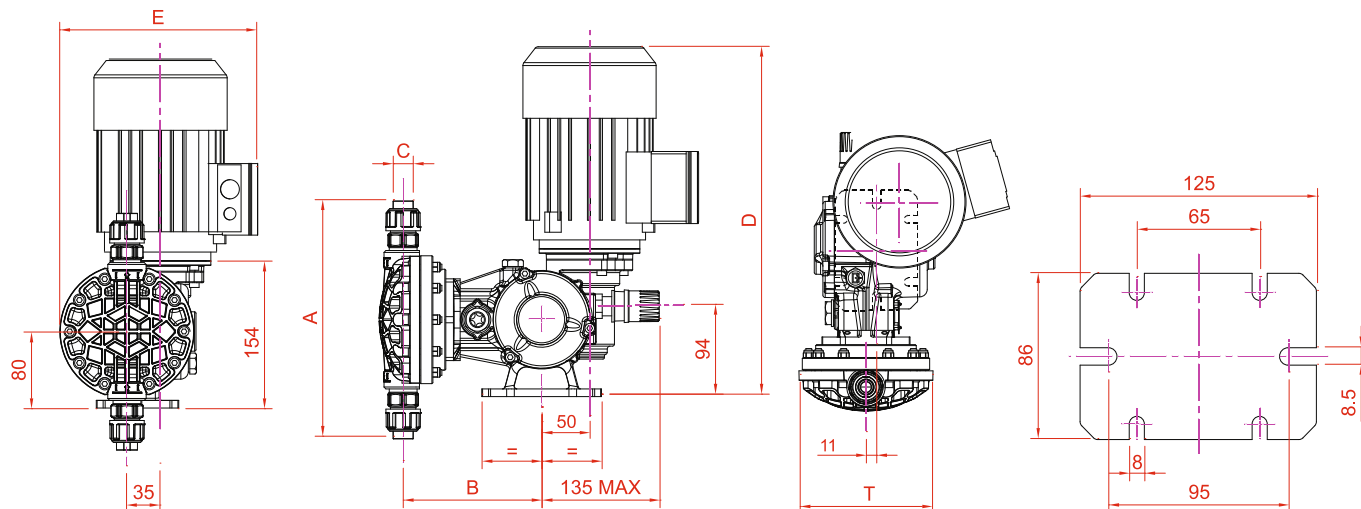


HYDRAULIC CHARACTERISTICS

Pump Model	Diaphragm Diameter [mm]	Stroke/min	Flow rate		Max back pressure				Suction/Discharge Connection		Electric Motor 50 Hz 3 phases [kW]
					bar		p.s.i.				
			l/h	gl/h	Hastelloy C2000	PP/PVC	Hastelloy C2000	PP/PVC	Hastelloy C2000	PP/PVC	
M S 1 A 0 6 4 A	64	58	5.5	1.45	16	10*	232	145*	1/4" G F	1/4" G F	0,18 (A4)
M S 1 A 0 6 4 B		78	8	2.12							
M S 1 A 0 6 4 C		116	11	2.91							
M S 1 A 0 9 4 A	94	58	20	5.59	16	10*	232	145*	3/8" G F	1/4" G F	0,18 (A4)
M S 1 A 0 9 4 B		78	26	6.88							
M S 1 A 0 9 4 C		116	40	10.58							
M S 1 B 1 0 8 A	108	58	60	15.87	10	10	145	145	3/8" G F	3/8" G F	0,18 (A4)
M S 1 B 1 0 8 B		78	80	21.16							
M S 1 B 1 0 8 C		116	120	31.75							
M S 1 C 1 3 8 A	138	58	155	41	7	7	101	101	3/4" G F	3/4" G F	0,37 (C4)
M S 1 C 1 3 8 B		78	220	58.2							
M S 1 C 1 3 8 C		116	310	82					1" G F	1" G F	
M S 1 C 1 6 5 A	165	58	230	60.85	5	5	72.5	72.5	1" G F	1" G F	0,37 (C4)
M S 1 C 1 6 5 B		78	330	87.30							
M S 1 C 1 6 5 C		116	500	132.3							

* Available with special reinforced pump head for use with pressure up to 16 bar - 14" Field (Optional) in the Key Code identified by "H"

DIMENSIONS



Materiale testata Liquid end material	Diámetro membrana Diaphragm diameter	A[mm]	B[mm]	C (BSP)	T[mm]	Three phase motor				Single phase motor			
						Motore 4P Motor 4P [kW]	Gr. motore Motor Size	D [mm]	E [mm]	Motore 4P Motor 4P [kW]	Gr. motore Motor Size	D [mm]	E [mm]
AISI 316 (21)	65	192	144	1/4" f	98	0.18	63 B14	333	240	0.25	71 B14	371	343
	94	172	146	3/8" f	118	0.25	71 B14	371	250	0.37	71 B14	371	346
	108	213	148	3/8" f	138	0.37	71 B14	371	265	0.55	80 B14	396	379
	138	261	158	3/4" f - 1" f	168	0.37	71 B14	371	265	0.55	80 B14	396	394
	165	297	165	1" f	188	0.37	71 B14	371	265	0.55	80 B14	396	414
PP (51) PVC (31) PVDF (41)	65	239	149	1/4" f	98	0.18	63 B14	333	240	0.25	71 B14	371	348
	94	242	144	3/8" f	124	0.25	71 B14	371	250	0.37	71 B14	371	351
	108	250	147	3/8" f	142	0.37	71 B14	371	265	0.55	80 B14	396	385
	138	347	159	3/4" f - 1" f	166	0.37	71 B14	371	265	0.55	80 B14	396	406
PP (51)	165	375	172	1" f	195	0.37	71 B14	371	265	0.55	80 B14	396	416
PVC (31), PVDF (41)	165	375	172	1" f	195	0.37	71 B14	371	265	0.55	80 B14	396	414

DOSING PUMP

SPRING SERIES – MS1 – Mechanical diaphragm pump

