



# DOSING PUMPS



# FGM SERIES MECHANICAL DIAPHRAGM PUMPS

The FGM series pumps are mechanically actuated diaphragm dosing pumps for dispensing liquids. Easy to use and requiring minimal maintenance, the FGM series is built to high-quality standards.

The medium to be pumped is separated from the drive mechanism by a diaphragm, which protects the pump components from the potentially harmful effects of the liquid.

The design is safe, with no external moving parts and leak-free operation. A wide range of flow rates is available, up to 1000 liters per hour, with pressures up to 14 bar. Accuracy is  $\pm 2\%$  from 10% to 100% of the nominal flow rate. Standard features include micrometric manual adjustment, with 1 mm per turn and 0–100% adjustment possible during operation or while stationary. Optional electric actuator or onboard inverter available.

## OVERVIEW OF ADVANTAGES

- Leak-free
- Low and simple maintenance
- Long diaphragm service lives
- Linear control characteristics
- New innovative materials

## APPLICATIONS

- Water treatment
- Waste water treatment
- Beverage industry
- Food industry
- Pulp and paper industry
- Fertirrigation / Sewaging
- Desalination plants

## MOTORS

Standard high quality italian brand:

- 0,18kW - 0,37 kW - 0,55 kW 3Ph, 230/480V , 50/60 Hz
- 0,37 kW 1Ph, 230 V, 50 Hz

Optional: Eex-d, brushless, servoventilated, tropicalised. Name flange and coupling available.

## OPTIONAL FLOW ADJUSTMENT

Inverter on board with digital and analog inputs and outputs and Modbus communications for standards



## FEATURES

<b>MATERIALS</b>	The high quality of the materials guarantees reliable continuous operation. The optimum material is available for every requirement.
<b>PUMP BODY MATERIALS</b>	Fluimac introduces, for FGM series up to 250 L/h, a new material concept, specifically designed to replace aluminum without departing from its strength characteristics. The new "TECH" material is as strong and durable as aluminum but lighter. Aluminum pump body for high flow-rate up to 2000 L/h.
<b>PUMPS-HEAD MATERIALS</b>	PP reinforces, pure PVDF and SS316L as standard pump-head materials. PTFE, PVC, TITANIUM and other materials available on request.
<b>DIAPHRAGM MATERIALS</b>	PTFE coated.
<b>VALVE BALLS MATERIALS</b>	PYREX, PTFE, SS 316L, CERAMIC stand valve balls.
<b>VALVE SEALS MATERIALS</b>	FPM, EPDM, PTFE standard valve seals.
<b>DRIVE UNIT</b>	The drive unit in each pump consist of a orven motor make, coupled with a stroke gearing in a rodust case. The standard motors assembled on the pumps are 3Ph 0,18 kW, 0,37 kW and 0,55 kW power. It is possible to change the flow-rate by acting on the manual micrometric adjustment, or by connecting a special signal that varies the motor frequency.
<b>SPECIAL VERSION</b>	We provide the individual solution for special dosing needs: solutions for viscous products, delivery valve with spring load, double valves, pump-head in non-standard materials with a customizable internal measures, pumps assembled on tanks, and many other.
<b>ACCESSORIES</b>	All necessary accessories parts for the optimal installation of dosing pumps, such as pressure relief valves, backpressure valves, foot filter valves, pulsation dampeners, dosing tanks can be orderd from us.

# MATERIALS APPLICATIONS

## FGM WITH POLYPROPYLENE PUMP HEAD

Ideal for:

- Water and waste water treatment (sulfuric acid, aluminum polychloride, sodium hypochlorite)
- Fertirrigation
- Pulp and paper industry
- Acid or neutral chemical products

## FGM WITH PVDF PUMP HEAD

Ideal for:

- Water and waste water treatment (fluorides, chrome, sodium hypochlorite)
- Neutral chemical products
- Acid or strong acid chemical products

## FGM WITH SS 316L PUMP HEAD

Ideal for:

- Beverage industry
- Water and waste water treatment (peracetic acid, polyelectrolyte, nitric acid)
- Food industry
- Alkali or neutral chemical products

# STANDARD PUMP-HEAD MATERIALS

EXECUTION CODE	HEAD MATERIAL	VALVE MATERIAL	CAGE MATERIAL	SEAT VALVE MATERIAL	HOUSING MATERIAL	DIAPHRAGM MATERIAL	GVA/GVM* O-RING MATERIAL
B	PP **	PYREX	PP	PVC	PP **	PTFE	FPM
F	PVDF	PTFE	PVDF	PVDF	PVDF	PTFE	PTFE
A	SS 316L	SS 316L	PP	SS 316L	SS 316L	PTFE	FPM
B1	PP **	CERAMIC	PP	PVC	PP **	PTFE	FPM
B33	PP **	SS 316L	PP	SS 316L	PP **	PTFE	FPM
B2	PP **	PTFE	PP	PVC	PP **	PTFE	FPM
B7	PP **	SS 316L	PP	SS 316L	PP **	PTFE	SILICON
F5	PVDF	HASTELLOY C-276	PVDF	PVDF	PVDF	PTFE	PTFE
F1	PVDF	CERAMIC	PVDF	PVDF	PVDF	PTFE	PTFE
A331	SS 316L	SS 316L	PP	SS 316L	SS 316L	PTFE	PTFE
A3323	SS 316L	SS 316L	SS 316L	SS 316L	SS 316L	PTFE	FPM
A7	SS 316L	SS 316L	PP	SS 316L	SS 316L	PTFE	SILICON

STANDARD

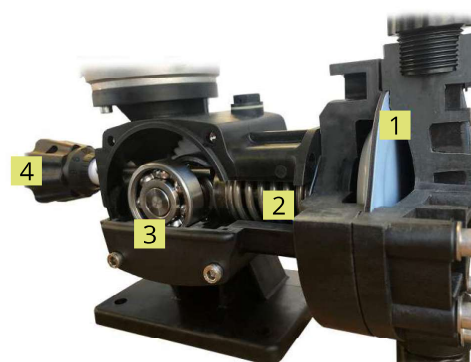
AVAILABLE EXECUTIONS

\*\* Reinforced polypropylene

GVA = Suction Valve Group



GVM = Discharge Valve



- 1 PTFE diaphragm
- 2 Return spring
- 3 Eccentric shaft
- 4 Adjustment knob

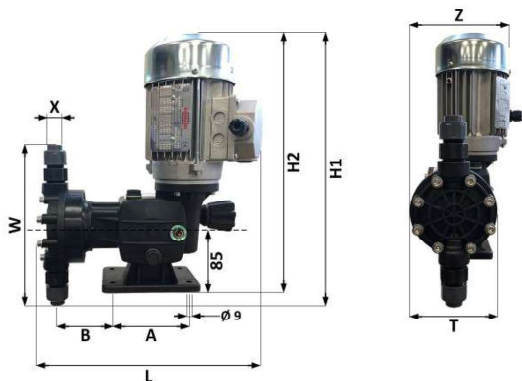
# 80mm DIAPHRAGM PUMP

TECHNOPOLYMER PUMP BODY

Max reachable pressure 16 bar

TYPE	FLOW-RATE AT 2 BAR (L/h)		FLOW-RATE AT MAX PRESSURE (L/h)		STROKE LENGTH mm	STROKES / min		MAX WORKING PRESSURE bar (psi)	STANDARD MOTOR kW	Ø VALVES
	50 hZ	60 hZ	50 hZ	60 hZ		50 hZ	60 hZ			
FGM4	5	6	4	4.8	2	34	41	14 (203)*	0,18	5
FGM9	11	13.4	9	10.8	2	71	85	14 (203)*	0,18	5
FGM14.5	18	21.8	14.5	17.4	2	106	127	14 (203)*	0,18	5
FGM19	23	27.6	19	22.8	2	126	152	10 (145)**	0,18	5
FGM22	26	-	22	-	2	150	-	10 (145)**	0,18	5
FGM7	9	10.8	7	8.4	3	34	41	14 (203)*	0,18	5
FGM18	20	24	18	21.6	3	71	85	14 (203)*	0,18	5
FGM26	31	37.2	26	31.2	3	106	127	14 (203)*	0,18	5
FGM34	39	46.8	34	40.8	3	126	152	10 (145)**	0,18	5
FGM39	45	-	39	-	3	150	-	10 (145)**	0,18	5
FGM11	13.5	16.2	11	13.2	4	34	41	14 (203)*	0,18	5
FGM27	30	36	27	32.4	4	71	85	14 (203)*	0,18	5
FGM41	46	55.2	41	49.2	4	106	127	14 (203)*	0,18	5
FGM49	54.5	65.4	49	58.8	4	126	152	10 (145)**	0,18	5
FGM54	62	-	54	-	4	150	-	10 (145)**	0,18	5

\* With 0,37 kW motor power, up to 16 bar (232 psi) pressure  
 \*\*With 0,37kW motor power, up to 12 bar (174 psi) pressure



The motors installed on the pumps will be painted in black. the aluminium color is only illustrative.

## WETTED PARTS STANDARD EXECUTIONS

CONFIGURATION B1

CONFIGURATION F

CONFIGURATION A

## ACCESSORIES AVAILABLE FOR 80mm DIAPHRAGM PUMP

Safety valves, Safety valves on the pumphead, back pressure valves, relief valves, foot valves with filter, injection valve.

mm	T	Z	H1	H2	A	B	L	W
<b>PP</b>	112	149	373	340	110	83	300	240
<b>PVDF</b>	112	149	353	340	110	83	300	200
<b>SS 316L</b>	112	149	345	340	110	83	300	300

X - Connections	GAS	NPT
<b>PP pump-head</b>	1/4" F	3/8" F
<b>PVDF pump-head</b>	5/8" M	3/8" F
<b>SS 316L pump-head</b>	1/4" F	3/8" F

## STANDARD ELECTRICAL DATA - 3Ph

<b>Power Consumption</b>	Kw	0,18 - 0,37
<b>Voltage</b>	V	230 / 400V 50 Hz - 460 60Hz
<b>Frequency</b>	Hz	50 - 60
<b>Insulation class</b>	ISO	F
<b>Enclosure</b>	IP	55

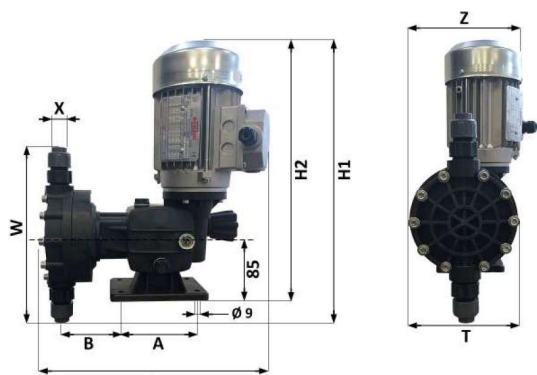
# 110mm DIAPHRAGM PUMP

TECHNOPOLYMER PUMP BODY

Max reachable pressure 10 bar

TYPE	FLOW-RATE AT 2 BAR (L/h)		FLOW-RATE AT MAX PRESSURE (L/h)		STROKE LENGTH mm	STROKES / min		MAX WORKING PRESSURE bar (psi)	STANDARD MOTOR kW	Ø VALVES
	50 hZ	60 hZ	50 hZ	60 hZ		50 hZ	60 hZ			
FGM14	18	22	14	16	2	34	41	8 (116)*	0,18	8.5
FGM30	38	45	30	36	2	71	85	8 (116)*	0,18	8.5
FGM40	60	72	40	48	2	106	127	8 (116)*	0,18	8.5
FGM51	66	79	50	60	2	126	152	8 (116)*	0,18	8.5
FGM65	80	-	65	-	2	150	-	8 (116)*	0,18	8.5
FGM35	42	50	35	42	4	34	41	8 (116)*	0,18	8.5
FGM75	87	150	75	90	4	71	85	8 (116)*	0,18	8.5
FGM105	120	144	105	126	4	106	127	8 (116)*	0,18	8.5
FGM133	154	184	133	159	4	126	152	8 (116)*	0,18	8.5
FGM150	170	-	150	-	4	150	-	8 (116)*	0,18	8.5
FGM50	65	78	50	60	6	34	41	8 (116)*	0,18	8.5
FGM110	126	152	110	132	6	71	85	8 (116)*	0,18	8.5
FGM170	200	240	170	204	6	106	127	8 (116)*	0,18	8.5
FGM207	230	276	207	248	6	126	152	8 (116)*	0,18	8.5
FGM250	275	-	250	-	6	150	-	8 (116)*	0,18	8.5

\* With 0,37 kW motor power, up to 10 bar (145 psi) pressure



The motors installed on the pumps will be painted in black, the aluminium color is only illustrative.

## WETTED PARTS STANDARD EXECUTIONS

CONFIGURATION B

CONFIGURATION F

CONFIGURATION A

## ACCESSORIES AVAILABLE FOR 110mm DIAPHRAGM PUMP

Safety valves, Safety valves on the pumphead, back pressure valves, relief valves, foot valves with filter, injection valve.

mm	T	Z	H1	H2	A	B	L	W
<b>PP</b>	138	163	386	340	110	88	312	260
<b>PVDF</b>	135	161	366	340	110	83	309	220
<b>SS 316L</b>	135	161	359	340	110	83	306	205

X - Connections	GAS	NPT
<b>PP pump-head</b>	3/8" F	1/2" F
<b>PVDF pump-head</b>	3/4" M	1/2" F
<b>SS 316L pump-head</b>	3/8" F	1/2" F

## STANDARD ELECTRICAL DATA - 3Ph

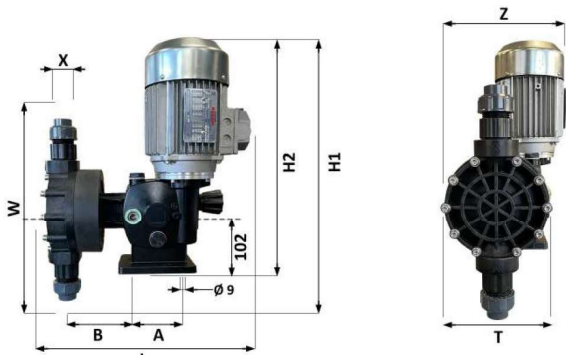
<b>Power Consumption</b>	Kw	0,18 - 0,37
<b>Voltage</b>	V	230 / 400V 50 Hz - 460 60Hz
<b>Frequency</b>	Hz	50 - 60
<b>Insulation class</b>	ISO	F
<b>Enclosure</b>	IP	55

# 140mm DIAPHRAGM PUMP

ALUMINUM PUMP BODY

Max reachable pressure 8 bar

TYPE	FLOW-RATE AT 2 BAR (L/h)		FLOW-RATE AT MAX PRESSURE (L/h)		STROKE LENGTH mm	STROKES / min		MAX WORKING PRESSURE bar (psi)	STANDARD MOTOR kW	Ø VALVES
	50 hZ	60 hZ	50 hZ	60 hZ		50 hZ	60 hZ			
FGM80	90	108	80	96	6	34	41	8 (116)	0,37	17
FGM162	180	216	162	194	6	34	41	8 (116)	0,37	17
FGM252	294	352	252	302	6	34	41	8 (116)	0,37	17
FGM305	348	417	305	366	6	34	41	8 (116)	0,37	17
FGM355	400	-	355	-	6	34	41	8 (116)	0,37	17



The motors installed on the pumps will be painted in black, the aluminium color is only illustrative.

## WETTED PARTS STANDARD EXECUTIONS

- CONFIGURATION B
- CONFIGURATION F
- CONFIGURATION A

## ACCESSORIES AVAILABLE FOR 140mm DIAPHRAGM PUMP

Safety valves, Safety valves on the pumphead, back pressure valves, relief valves, foot valves with filter, injection valve.

mm	T	Z	H1	H2	A	B	L	W
<b>PP</b>	195	230	480	385	95	126	355	395
<b>PVDF</b>	195	230	450	385	95	124	353	338
<b>SS 316L</b>	160	230	438	385	95	124	353	290

X - Connections	GAS	NPT
<b>PP pump-head</b>	3/4"F	1"F
<b>PVDF pump-head</b>	1"1/4M	1"F
<b>SS 316L pump-head</b>	3/4"F	1"F

## STANDARD ELECTRICAL DATA - 3Ph

<b>Power Consumption</b>	Kw	0,37
<b>Voltage</b>	V	230 / 400V 50 Hz - 460 60Hz
<b>Frequency</b>	Hz	50 - 60
<b>Insulation class</b>	ISO	F
<b>Enclosure</b>	IP	55

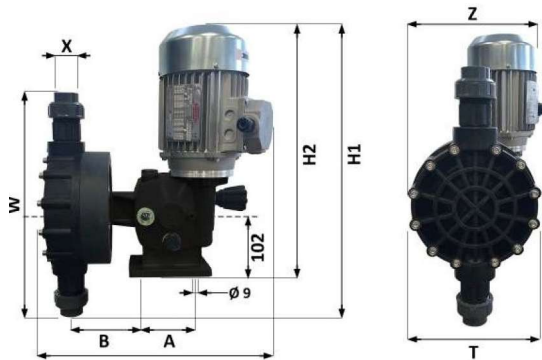
# 170mm DIAPHRAGM PUMP

## ALUMINUM PUMP BODY

Max reachable pressure 8 bar  
 For FGM700 and FGM800, max reachable pressure 5 bar  
 For FGM1000, max reachable pressure 4 bar

TYPE	FLOW-RATE AT 2 BAR (L/h)		FLOW-RATE AT MAX PRESSURE (L/h)		STROKE LENGTH mm	STROKES / min		MAX WORKING PRESSURE bar (psi)	STANDARD MOTOR kW	Ø VALVES
	50 hZ	60 hZ	50 hZ	60 hZ		50 hZ	60 hZ			
FGM140	170	204	140	168	6	34	41	5 (72)	0,37	17
FGM300	320	384	300	360	6	71	85	5 (72)	0,37	17
FGM430	490	588	430	516	6	106	127	5 (72)	0,37	17
FGM505	530	636	505	606	6	126	152	5 (72)	0,37	17
FGM670	700	-	670	-	6	150	-	5 (72)	0,37	17
FGM200	215	258	200	240	9	34	41	5 (72)	0,37	17
FGM450	505	606	450	540	9	71	85	5 (72)	0,37	17
FGM700	765	918	700	840	9	106	127	4 (58)*	0,37	17
FGM800	845	1014	800	960	9	126	152	4 (58)*	0,37	17
FGM1000	1020	-	1000	-	9	150	-	3 (43)*	0,37	17

\* With 0,55 kW motor power, 1 bar pressure pressure



The motors installed on the pumps will be painted in black, the aluminium color is only illustrative.

### WETTED PARTS STANDARD EXECUTIONS

CONFIGURATION B

CONFIGURATION F

CONFIGURATION A

### ACCESSORIES AVAILABLE FOR 170mm DIAPHRAGM PUMP

Safety valves, Safety valves on the pumphead, back pressure valves, relief valves, foot valves with filter, injection valve.

mm	T	Z	H1	H2	A	B	L	W
<b>PP</b>	195	230	480	385	95	126	355	350
<b>PVDF</b>	195	230	450	385	95	124	353	338
<b>SS 316L</b>	195	230	438	385	95	124	353	310

X - Connections	GAS	NPT
<b>PP pump-head</b>	1" F	1" F
<b>PVDF pump-head</b>	1" 1/2 M	1" F
<b>SS 316L pump-head</b>	1" F	1" F

### STANDARD ELECTRICAL DATA - 3Ph

<b>Power Consumption</b>	Kw	0,55 - 0,75
<b>Voltage</b>	V	230 / 400V 50 Hz - 460 60Hz
<b>Frequency</b>	Hz	50 - 60
<b>Insulation class</b>	ISO	F
<b>Enclosure</b>	IP	55