



# FGM SERIES



MOTOR DRIVEN MECHANICAL DIAPHRAGM PUMPS

# FGM SERIES - MECHANICAL DIAPHRAGM PUMPS

The FG PUMPS FGM series are mechanically actuated diaphragm dosing pumps for dosing liquids. Easy to use with minimum maintenance, FGM series are built following high quality standard.

The medium to be pumped is separated from the drive by a diaphragm. This is thus protected from damaging influences of the medium

Safe, no external moving parts and leak free operations. Wide range of flowrate, up to 1000 liters for hour and pressure up to 14 bar. Accuracy +/- 2% from 10% to 100% of nominal flow.

Standard micrometric manual adjustment, 1 mm per turn. 0-100% of adjustment while running or steady.  
Electric actuator or inverter on board optional.

## OVERVIEW OF ADVANTAGES

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

## MOTORS

- Standard high quality italian brand,  
-) 0.18Kw - 0.37Kw - 0.55 Kw 3Ph, 230/480 V,  
50/60 Hz.
- -) 0.37Kw 1Ph, 230 V, 50 Hz  
Optional: Eex-d, brushless, servoventilated,  
tropicalised. Nema flange and coupling available.

## APPLICATIONS

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

## OPTIONAL FLOW ADJUSTMENTS

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



# FEATURES

## MATERIALS

The high quality of the materials guarantees reliable continuous operation. The optimum material is available for every requirement.

## PUMP BODY MATERIALS

FG PUMPS introduces, for his 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 flowrate up to 2000 L/h.

## PUMP-HEAD MATERIALS

PP reinforced, pure PVDF and S.S.316L as standard pump-head materials.

PTFE, PVC, TITANIUM, and others materials available on request.

## DIAPHRAGM MATERIALS

PTFE coated.

## VALVE BALLS MATERIALS

PYREX, PTFE, S.S.316L, CERAMIC standard valve balls.

## VALVE SEALS MATERIALS

FPM, EPDM, PTFE standard valve seals.

1 PTFE diaphragm

2 Return spring

3 Eccentric shaft

4 Adjustment knob

## DRIVE UNIT

The drive unit in each pump consist of a proven motor make, coupled with a stroke gearing in a robust case.

The standard motors assembled on the pumps are 3Ph 0.18 Kw, 0.37 Kw and 0.55 Kw power.

It's possible to change the flowrate by acting on the manual micrometric adjustment, or by connecting a special signal that varies the motor frequency.

## SPECIAL VERSION

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 others.

## ACCESSORIES

All necessary accessories parts for the optimal installation of dosing pumps, such as pressure relief valves, backpressure valves, foot filter valves, pulsation dampers, dosing tanks can be ordered from us.



# MATERIALS APPLICATIONS



## FGM WITH POLYPROPYLENE PUMP HEAD

Ideal for:

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

## FGM WITH PVDF PUMP HEAD

Ideal for:

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



## FGM WITH S.S.316L PUMP HEAD

Ideal for:

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



# PUMP-HEAD MATERIAL EXECUTIONS

## STANDARD PUMP-HEAD MATERIALS

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

STANDARD

EXECUTIONS AVAILABLE

\* GVA= Suction Valve Group  
GVM= Discharge Valve



\*\* Reinforced polypropylene

PP, PVDF and S.S.316L are the standard wet parts materials:

Green color follows Polypropylene

Pink color follows PVDF

Blue color follows S.S.316L

GVA/GVM EPDM o-rings available on request

Other special executions available in stock  
Please ask to us for more info or check the price list

Other pump-head materials available on request (PTFE, Titanium, PVC as example)

## FGM MATERIAL COMPATIBILITY TABLE

COMMON CHEMICALS	WET PARTS EXECUTIONS				
	B	B33	B2	F	A
Acetic Acid	C	C	C	B	A
Activated Charcoal	C	B	C	C	A
Alcohol	B	B	B	B	A
Aluminum Chloride	B	C	A	A+	D
Alumin. Polych. (PAC) !	B	B	A	A+	B
Aluminum Sulphate	B	B	B	A+	D
Ammonia	A	B	B	B	A
Anionic Polymer !	C	B	C	C	A
Antiscalant	C	B	C	C	A
Biocide !	B	C	A	B	D
Calcium Hypochlorite	B	D	A	A+	D
Cationic Polymer !	B	A	A	C	A
Chlorine !	A	D	A	B+	D
Citric Acid	B	B	B	B	A
Coagulant	A	C	A	B	D
Copper Sulphate	B	C	B	A+	D
Detergent	A	B	B	C	A
Ferric Chloride !	A	D	A	A+	D
Ferric sulphate ≤ 10%	B	B	A	A+	D
Ferrous Sulphate	B	A	A	A+	D
Flocculant !	B	B	A	C	A
Fluoride	C	D	A	C	D
Hydrochloric Acid !	A	D	A+	A+	D
Hydrogen Peroxide	C	B	C	C	A
Lime	C	B	C	A+	A
Paint !	A	A	B	B	A
Polyelectrolyte !	C	B	C	C	A
Polymer !	A	B	C	C	A
Sodium Aluminum 52%	B	C	A	B	D
Sodium Chlorite	D	D	A	A+	D
Sodium Hydroxide	B	A	A	A+	A
Sodium Hypochlorite	B	D	A	A+	D

	B	B33	B2	F	A
Sodium Sulphite	B	C	A	A	D
Solvent	B	C	A	B	A
Sulfuric Acid 96-98% !	B	C	A	A+	C
Sulfuric Acid diluted	B	D	B	B	D
Sulfuric Dioxide	B	C	A	B	D
Trisodium Phosphate	B	C	C	C	A
Trisodium Sulfate	D	C	C	A+	D

### KEY LINE

A+	Excellent	C	Not Suggested
A	Very Good	D	Damages
B	Good	!	Low Strokes at Minute (34-71)

B1 execution is suggested as alternative at B/B2 execution for high concentration liquids

F1 execution is suggested as alternative at F execution for high concentration liquids

F5 execution is suggested as alternative at F execution in Sulfuric Acid 96-98% dosing

A3323 executions is suggested for very viscous products

A331 executions is suggested as alternative at A executions in Acetic Acid and Hydrogen Peroxide dosing, and for food industry.

B7/A7 executions are suggested for food application

This material compatibility table has been created according to our experience in the years.

The use indication may consider, over to the chemical compatibility of the used material with the product to be dosed, also the number of strokes per minute suggested for a given product.

The key line refers to the materials used by FG PUMPS in its wet parts. Therefore suitable materials can be found for products which in some cases would not be. (our PP for example).

This table should however be considered as a suggestion on the choice of the correct material / pump. FG Pumps not assumes never responsibility in the event of damage to persons and / or things, and / or situations created by the use of this table.

# TECHNICAL DATA and DIMENSIONS

## 80 mm DIAPHRAGM PUMP

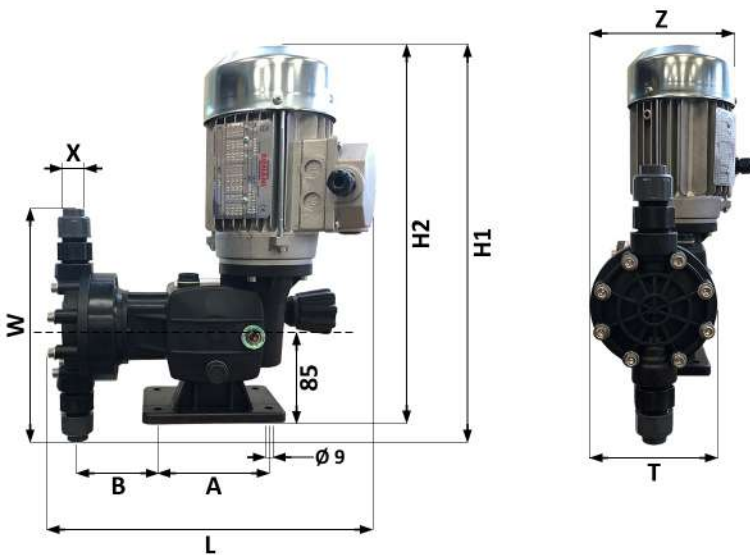
### TECHNOPOLYMER PUMP BODY

TYPE	FLOWRATE AT 2 BAR (l/h)		FLOWRATE 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

Max reachable pressure 16 bar

\* With 0.37 Kw motor power, up to 16 bar (232 psi) pressure.

\*\* With 0.37 Kw motor power, up to 12 bar (174 psi) pressure.



All measurements in mm

	T	Z	H1	H2	A	B	L	W
PP	112	149	373	340	110	83	300	240
PVDF	112	149	353	340	110	83	300	200
S.S. 316L	112	149	345	340	110	83	300	300
X - Connections	Gas	Npt						
PP pump-head	1/4" F	3/8" F						
Pvdf pump-head	5/8" M	3/8" F						
S.s. 316L pump-head	1/4" F	3/8" F						

### STANDARD ELECTRICAL DATA - 3ph

Power Consumption	Kw	0.18 - 0.37
Voltage	V	230/400V 50 Hz - 460V 60 Hz
Frequency	Hz	50 - 60
Insulation class	ISO	F
Enclosure	IP	55

### WETTED PARTS STANDARD EXECUTIONS

CONFIGURATION	BI
CONFIGURATION	F
CONFIGURATION	A

### ACCESSORIES AVAILABLE FOR 80 mm DIAPH. PUMP

Safety valves, Safety valves on the pumphead, backpressure valves, relief valves, foot valves with filter, injection valve.  
For other informations, see the *Accessories's* page

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

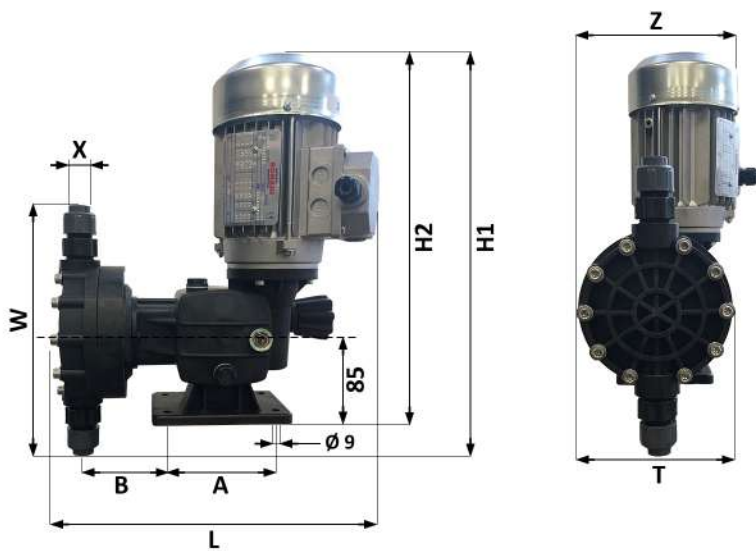
# 110 mm DIAPHRAGM PUMP

## TECHNOPOLYMER PUMP BODY

TYPE	FLOWRATE AT 2 BAR (l/h)		FLOWRATE 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	105	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

Max reachable pressure 10 bar

\* With 0.37 Kw motor power, up to 10 bar (145 psi) pressure.



All measurements in mm

	T	Z	H1	H2	A	B	L	W
PP	138	163	386	340	110	88	312	260
PVDF	135	161	366	340	110	83	309	220
S.S. 316L	135	161	359	340	110	83	306	205
X - Connections	Gas	Npt						
PP pump-head	3/8" F	1/2" F						
Pvdf pump-head	3/4" M	1/2" F						
S.s. 316L pump-head	3/8" F	1/2" F						

### STANDARD ELECTRICAL DATA - 3ph

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

### WETTED PARTS STANDARD EXECUTIONS

CONFIGURATION	B
CONFIGURATION	F
CONFIGURATION	A

### ACCESSORIES AVAILABLE FOR 110 mm DIAPH. PUMP

Safety valves, Safety valves on the pumphead, backpressure valves, relief valves, foot valves with filter. For other informations, see the *Accessories's* page

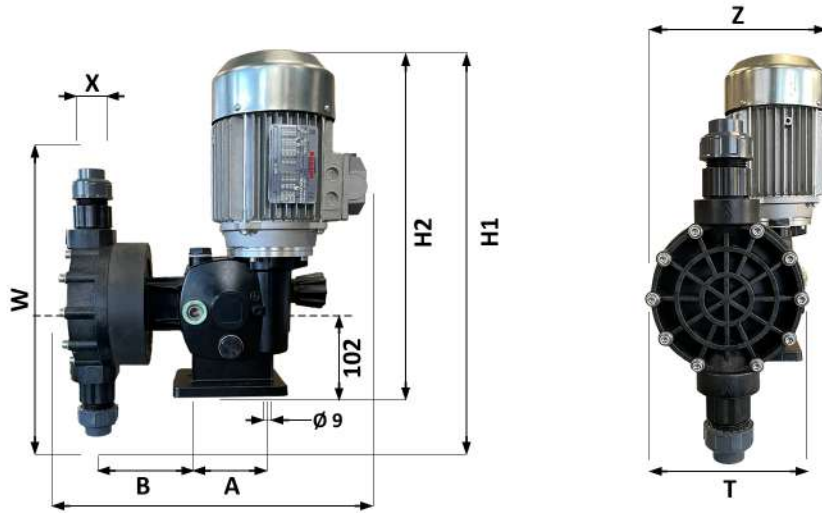
The motors installed on the pumps will be painted in black. In the pictures the aluminium color is only illustrative.

# 140 mm DIAPHRAGM PUMP

## ALUMINUM PUMP BODY

TYPE	FLOWRATE AT 2 BAR (l/h)		FLOWRATE AT MAX PRESSURE (l/h)		STROKE LENGTH mm	STROKES / min		MAX 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	71	85	8 (116)	0.37	17
FGM252	294	352	252	302	6	106	127	8 (116)	0.37	17
FGM305	348	417	305	366	6	126	152	8 (116)	0.37	17
FGM355	400	-	355	-	6	150	-	8 (116)	0.37	17

Max reachable pressure 8 bar



L

All measurements in mm

	T	Z	H1	H2	A	B	L	W
PP	195	230	480	385	95	126	355	395
PVDF	195	230	450	385	95	124	353	338
S.S. 316L	160	230	438	385	95	124	353	290
X - Connections	Gas	Npt						
PP pump-head	3/4" F	1" F						
Pvdf pump-head	1-1/4" M	1" F						
S.s. 316L pump-head	3/4" F	1" F						

### STANDARD ELECTRICAL DATA - 3ph

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

### ACCESSORIES AVAILABLE FOR 140 mm DIAPH. PUMP

Safety valves, Safety valves on the pumphead, backpressure valves, relief valves, foot valves with filter. For other informations, see the *Accessories's* page

### WETTED PARTS STANDARD EXECUTIONS

CONFIGURATION	B
CONFIGURATION	F
CONFIGURATION	A

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



# 170 mm DIAPHRAGM PUMP

## ALUMINIUM PUMP BODY

TYPE	FLOWRATE AT 2 BAR (l/h)		FLOWRATE AT MAX PRESSURE (l/h)		STROKE LENGTH mm	STROKES / min		MAX 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

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

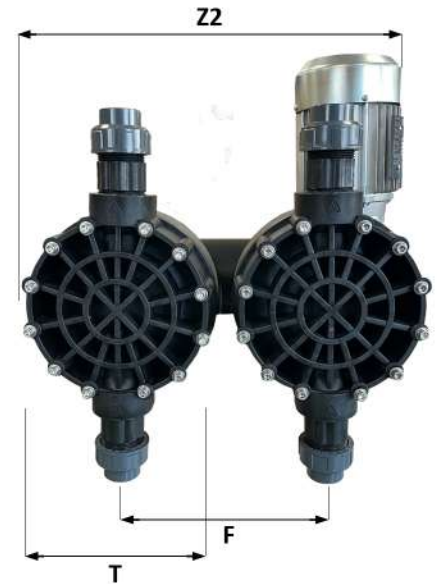
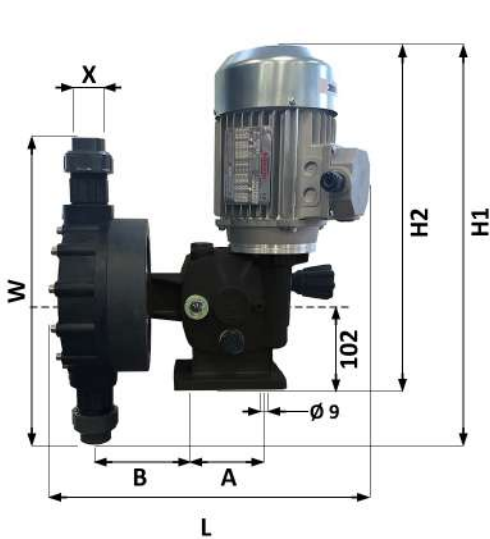
\* With 0.55 Kw motor power, 1 bar pressure more.

# 170 mm DUPLEX DIAPHRAGM PUMP

## ALUMINIUM PUMP BODY

TYPE	FLOWRATE AT 2 BAR (l/h)		FLOWRATE AT MAX PRESSURE (l/h)		STROKE LENGTH mm	STROKES / min		MAX PRESSURE bar (psi)	STANDARD MOTOR kw	Ø VALVES
	50 hz	60 hz	50 hz	60 hz		50 Hz	60 Hz			
FGM400	430	516	400	480	9	34	41	5 (72)	0.55*	17
FGM900	1000	1200	900	1080	9	71	85	5 (72)	0.55*	17
FGM1400	1500	1800	1400	1680	9	106	127	4 (58)	0.55*	17
FGM1600	1690	2028	1600	1920	9	126	152	4 (58)	0.55*	17
FGM2000	2040	--	2000	--	9	150	--	3 (43)	0.55*	17

\* With 0.75 Kw motor power, 1 bar pressure more.



### STANDARD ELECTRICAL DATA - 3ph

Power Consumption	Kw	0.55 - 0.75
Voltage	V	230/400V 50 Hz - 460V 60 Hz
Frequency	Hz	50 - 60
Insulation class	ISO	F
Enclosure	IP	55

All measurements in mm

	T	Z/Z2	H1	H2	A	B	L	W	F
PP	195	230 550	480	385	95	126	355	350	310
PVDF	195	230 550	450	385	95	124	353	338	310
S.S. 316L	195	230 550	438	385	95	124	353	310	310
X - Connections	Gas	Npt							
PP pump-head	1" F	1" F							
Pvdf pump-head	1-1/2" M	1" F							
S.s. 316L pump-head	1" F	1" F							

### ACCESSORIES AVAILABLE FOR 170 mm DUPLEX DIAPH. PUMP

Safety valves, Safety valves on the pumphead, backpressure valves, relief valves, foot valves with filter. For other informations, see the *Accessories's* page

### WETTED PARTS STANDARD EXECUTIONS

CONFIGURATION	B
CONFIGURATION	F
CONFIGURATION	A

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

# FGMV SERIES - MECHANICAL DIAPHRAGM PUMPS PREFITTED FOR MIXER INSTALLATION

The FG PUMPS FGMV series are mechanically actuated diaphragm dosing pumps. Easy to use with minimum maintenance, FGMV series are built following high quality standard.

The medium to be pumped is separated from the drive by a diaphragm. This is thus protected from damaging influences of the medium.

Safe and leak free operations, FGMV pumps have an output shaft to connect a stirrer. Accuracy +/- 2% from 10% to 100% of nominal flow. Standard micrometric manual adjustment, 1 mm per turn. 0-100% of adjustment while running or steady.

Possibility to stop the flow, keeping the stirrer in operation. The pump can be installed on a tank thanks to the lower coupling flange.



## FGMV SERIES APPLICATIONS

The FGMV dosing pump is suitable for those applications where there is the need to mix water and powder to create a product to be dosed.

Installed on a tank, by acting on the stroke length, it can first mix and then aspirate the product into the tank.

The FGMV pump is used in the beverage industry (wine, beer, fruit juices) for diatomaceous earth dosing, or for polyelectrolyte dosing with a maximum viscosity of 1800-2000 cps.



## STANDARD PUMP-HEAD MATERIALS

EXECUTION CODE	HEAD MATERIAL	VALVE MATERIAL	CAGE MATERIAL	SEAT VALVE MATERIAL	HOUSING MATERIAL	DIAPHRAGM MATERIAL	GVA/GVM* O-RINGS MATERIAL
B7	PP**	S.S.316L	PP	S.S.316L	PP**	PTFE	SILICON
A7	S.S.316L	S.S.316L	PP	S.S.316L	S.S.316L	PTFE	SILICON

\*\* Reinforced polypropylene, suitable for food applications

\* GVA= Suction Valve Group  
GVM= Discharge Valve

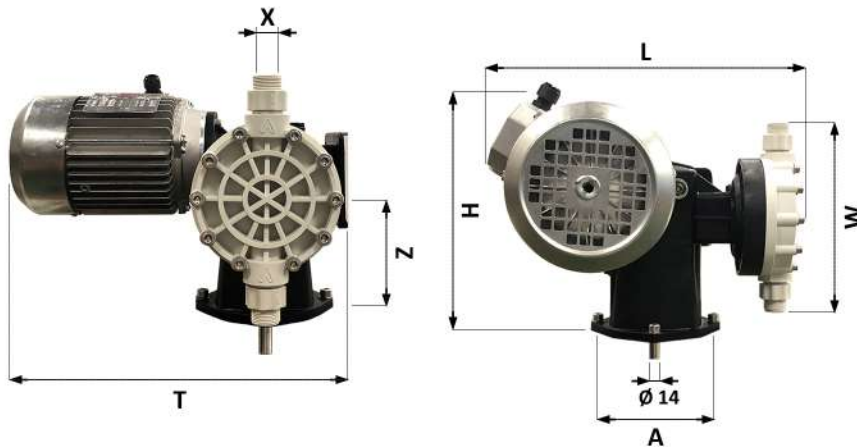


GVA

GVM

# TECHNICAL FEATURES

## FGMV DIMENSIONS



All measurements in mm

DIAPHRAGM Ø 110 mm	T	Z	A	W	L	H
PP	365	147	138	222	310	270
S.S. 316L	365	147	138	205	310	270
X - Connections	Gas	Npt				
PP pump-head	3/4" M	1/2" F				
S.s. 316L pump-head	3/4" M	1/2" F				

All measurements in mm

DIAPHRAGM Ø 140 mm	T	Z	A	W	L	H
PP	380	147	138	300	336	270
S.S. 316L	380	147	138	290	330	270
X - Connections	Gas	Npt				
PP pump-head	1-1/4" M	1" F				
S.s. 316L pump-head	3/4" F	1" F				

## TECHNICAL DATA

### TECHNOPOLYMER PUMP BODY

TYPE	FLOWRATE AT 2 BAR (l/h)		FLOWRATE AT MAX PRESSURE (l/h)		STROKE LENGTH mm	STROKES / min		MAX PRESSURE bar (psi)	STANDARD MOTOR kw	Ø VALVES	Ø DIAPHRAGM mm
	50 hZ	60 hZ	50 hZ	60 hZ		50 Hz	60 Hz				
FGMW75	87	105	75	90	4	71	85	6 (87)	0.37	11	110
FGMW105	120	144	105	126	4	106	127	6 (87)	0.37	11	110
FGMW110	126	152	110	132	6	71	85	6 (87)	0.37	11	110
FGMW170	200	240	170	204	6	106	127	6 (87)	0.37	11	110
FGMW162	180	216	140	168	6	71	85	5 (72)	0.55	17	140
FGMW252	294	352	300	360	6	106	127	5 (72)	0.55	17	140

### STANDARD ELECTRICAL DATA - 3ph

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

### WETTED PARTS STANDARD EXECUTIONS

CONFIGURATION	B7
CONFIGURATION	A7

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

# FGM ULTRA - PREMIUM PUMP CONTROL



The FGM ULTRA pump is the real answer to all the requests of a precise and always perfect dosage.

The FGM ULTRA is indicated in all those applications where a precise and repeatable dosage over time is needed. Mainly in water treatment, where there is the need to dose with remote control, but above all in production lines (for example in paper mills), where repeatability is necessary for the correct development of the final product.

With FGM ULTRA the final dosage will always have the same features at any variation of motor frequency (therefore input signals) combined with any working pressure.

Thanks to the special high performances motor integrated with an high quality inverter, the performances will be always the same from 100% to 0% of frequency of the motor or rpm.

But the advantages do not end here, in fact compared to many competitors, the Ultra FGM can work below 20-25% of the frequency without overheating or without loss of torque power.

At the minimum motor's rpm, even the maximum pressures, the engine will always provide 100% of the torque.

IP55 for the motor, IP66 for the drive, ULTRA has analog-digital input, analog-digital output, output relay, ModBus communication.

ULTRA is suitable for all pump types and with 80 and 110 mm diaphragm size will be foreseen the aluminum pump body use.

## DRIVE SPECIFICATIONS

### ELECTRICAL DATA - 3ph

Supply Frequency	48 - 62 Hz
Supply Voltage	200 / 480 V $\pm$ 5%
Enclosure	IP 66

## CONTROL SPECIFICATIONS

### CONTROL METHOD

Sensorless AC Vector Control	
Frequency range	up to 400 Hz
Resolution on output frequency	83 $\mu$ s

### ANALOG INPUT

Programm. Analog Voltage Input	2
Voltage Level	0-10 VDC
Input Resistance Rin	240 Kohm
Max Voltage	24 VDC
Max Current	20 mA
Programm. Analog Current Inputs	2
Current Range	0/4:20 mA
Input Resistance Rin	180 ohm

### ANALOG OUTPUT

Programm. Analog Voltage Output	2
Voltage Level	0-10 VDC
Max Current	10 mA
External Resistance	>10 Kohm
Programm. Analog Current Inputs	2
Current Range	20 mA
Max Current	20 mA
Max voltage	24 VDC
External Resistance	> 1 Kohm

## MOTOR SPECIFICATIONS

### PERFORMANCE DATA

Rated Power	1.1 KW
Rated Speed	1500 rpm
Rated Torque	7.0 Nm
Efficiency	83%
Enclosure	IP 55

### DIGITAL INPUTS

Programmable Digital Inputs	2
Voltage Level	0-24 VDC
Input resistance Rin	10 Kohm

### DIGITAL OUTPUTS

Programmable Digital Outputs	2
Voltage Level	0-24 VDC
Max Current	10 Kohm

### RELAY OUTPUT

Programmable Relay Outputs	2 (n.o. n.c com)
Max Terminal Load	250 Vac %A, 30 Vdc 5A (NO) 250 Vac %A, 30 Vdc 3A (NC)

### BUS COMMUNICATION

RS485	For cascade mode
RS485	Serial communication

# FGM ULTRA - PERFORMANCES

Compared to the performance with the standard motors, with ULTRA the performance will increase, due to the 1500 rpm

TYPE 80 mm	FLOWRATE AT 2 BAR (l/h)	FLOWRATE AT MAX PRESSURE (l/h)
FGM4	5,5	4,5
FGM9	12	9,8
FGM14,5	19,5	14,5
FGM19	25	20,5
FGM22	28	24
FGM7	10	7,5
FGM18	22	19,5
FGM26	33	28
FGM34	42	37
FGM39	49	42
FGM11	14,5	12
FGM27	32,5	29
FGM41	50	44,5
FGM49	59	53
FGM54	67	58

TYPE 110 mm	FLOWRATE AT 2 BAR (l/h)	FLOWRATE AT MAX PRESSURE (l/h)
FGM14	19,5	15
FGM30	41	32
FGM40	65	43
FGM51	71	54
FGM65	87	70
FGM35	45	38
FGM75	94	81
FGM105	130	114
FGM133	167	144
FGM150	184	163
FGM50	70	54
FGM110	137	119
FGM170	217	184
FGM207	250	225
FGM250	299	271

TYPE 140 mm	FLOWRATE AT 2 BAR (l/h)	FLOWRATE AT MAX PRESSURE (l/h)
FGM80	98	87
FGM162	196	176
FGM252	320	273
FGM305	378	331
FGM355	435	386

TYPE 170 mm	FLOWRATE AT 2 BAR (l/h)	FLOWRATE AT MAX PRESSURE (l/h)
FGM140	184	152
FGM300	347	326
FGM430	532	467
FGM505	576	548
FGM670	760	728
FGM200	233	217
FGM450	548	489
FGM700	831	760
FGM800	918	869
FGM1000	1108	1086

TYPE Duplex	FLOWRATE AT 2 BAR (l/h)	FLOWRATE AT MAX PRESSURE (l/h)
FGM400	467	434
FGM900	1097	978
FGM1400	1630	1521
FGM1600	1836	1739
FGM2000	2217	2173



# ACCESSORIES

A large wide of accessories can be supplied by FG PUMPS:

FOOT VALVES, BACKPRESSURE VALVES, RELIEF VALVES, SAFETY VALVES, CALIBRATIONS POTS, FLOW METERS, MIXERS, TANKS.

Thanks to its important partnerships with other big companies, FG PUMPS can supply mixer, tanks and other items don't present in our production line, at very competitive prices.

Below the accessories directly from our production:

## BACKPRESSURE VALVES

Code - Material	Max Pressure	Connections female
BVV (pvc)	1.5 bar	3/8" - 1/2" - 3/4" - 1"
BVA (s.s.316l)	1.5 bar	3/8" - 1/2" - 1"



## RELIEF VALVES

Code - Material	Max Pressure	Connections female
LVV (pvc)	8	3/8" - 1/2" - 3/4" - 1"
LVA (s.s.316l)	10*	3/8" - 1/2" - 1"

\* 10 bar for 3/8" and 1/2" / Max 5 bar for 1"



## FOOT VALVES WITH FILTER

Code - Material	Capacity	Connections
FVF.*B (pp)	up to 700 liters/h	1/4" f - 3/8" f - 3/4" f - 1" f
FVF.*A (s.s.316l)	up to 700 liters/h	1/4" f - 3/8" f - 1/2" f - 3/4" f - 1" f
FVF.*F (pvdf)	up to 700 liters/h	5/8" m - 3/4" m - 1-1/2" m

\* Indicate the number of the connections: FVF38B for example



## INJECTION VALVE

Code - Material	Capacity	Connections
INJV.*F	up to FGM27	1/4" f - 3/4" m

\* Indicate the number of the connections: INJV14F for example



## SAFETY VALVE FOR PUMP-HEAD

FG PUMPS provides the solution to save the pump-head and the pump from a possible block of the delivery.

The SVH, consisting of the support on which to install the BVV safety valve, saves the pump from any obstruction that could cause it to break.

The SVH must be installed between the head and the GVM discharge valve, and in case of closure upstream of the delivery valve, the support conveys the liquid dosed by the pump through the safety valve, safeguarding the integrity of the pump.

Code - Material	Max Pressure	Connections** female
SVH12G10 (pvc)*	10 bar	3/8" - 1/2"
SVH1G8 (pvc)	8 bar	3/4" - 1"

\*\*In the code, after SVH is indicated the connection (12 is 1/2") and the set safety pressure

\*\* In reference to the output of the safety valve



Tanks, mixers, flow meters, and more other accessories are available for all your needs.

For more informations, please contact us at [info@fgpumps.com](mailto:info@fgpumps.com).

The commercial team will be glad to answer to all your questions.

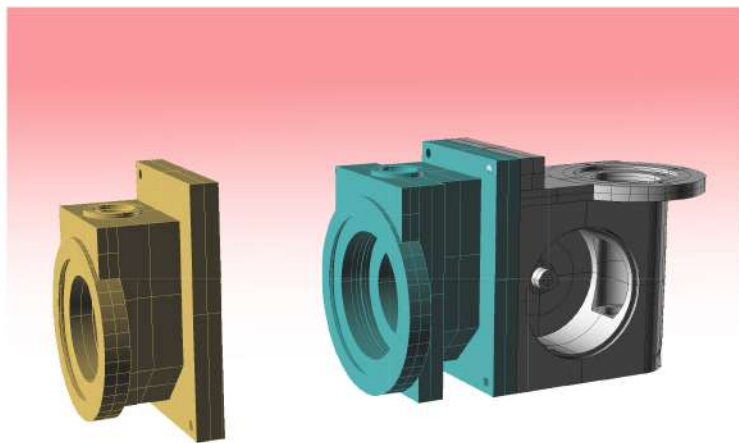


# NOTES



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## OUR PROJECTS, OUR NEXT PRODUCTS



FGHS Hydraulic Diaphragm Spring Return with internal Security Valve



# FG PUMPS IN THE WORLD



In addition to the headquarters that develops the European commercial network, FG PUMPS has a very widespread distribution-resale network.

North and South America, north Africa, Europe, western and central Asia, far East; FG PUMPS can meet all your needs thanks to its dosing pumps present all over the world.

But above all, FG PUMPS is always looking for new partners with whom to grow and face the daily challenges together.

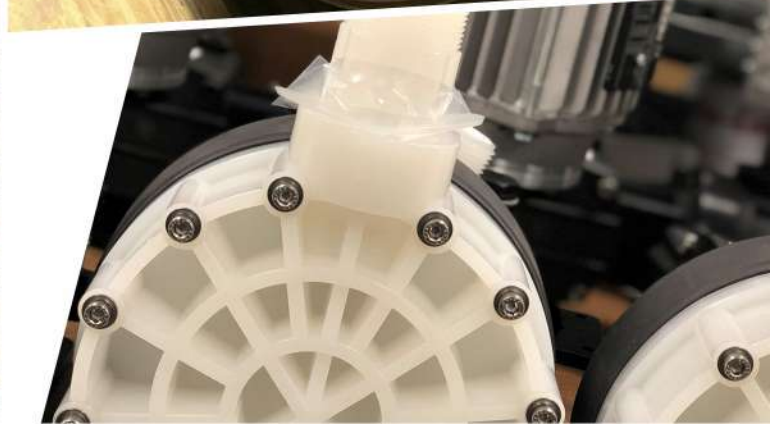
If interested, do not hesitate to contact us via the following contacts:

✉ e-mail: [info@fgpumps.com](mailto:info@fgpumps.com)

in LinkedIn: FG Pumps

S Skype: FG Pumps







# FG PUMPS

METERING PUMPS FOR  
CHEMICALS



**FG PUMPS**

Via B. Buozzi 23/27

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