fluid and water technology

motor driven metering pumps

PLUNGER ACTUATED TYPE

www.fwtsystems.it

motor driven dosing pumps plunger type

Welcome to FWT Dosing Systems

FWT (Fluid and Water Technology) is a company formed with specialised experts with over twenty years of experience in liquid handling dosing systems and measuring systems. *All the staff has been operating in these fields covering all key positions concerning technical and customer service, research and development, trading and production activities.*
FWT offers a wide range of accessories and sensors to guarantee a complete service.

PLUNGER TYPE METERING PUMP

⇛ **FWT Plunger "piston"** actuated motor driven metering pumps feature two series:
PS series: flow rates from 5 to 185 l/h with pressures up to 20 bar
PM series: flow rates from 33 to 1027 l/h with pressures up to 20 bar

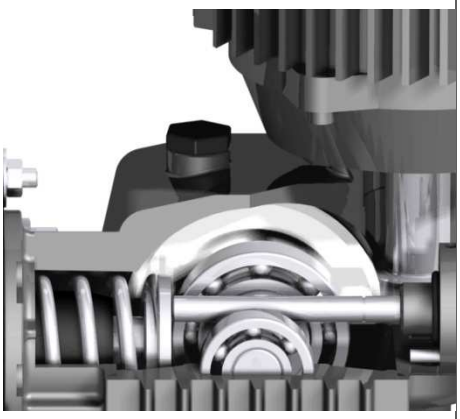
USEFUL information selecting of dosing pumps: Max flow rate, Max working pressure, chemical viscosity, specific gravity (S.G.), temperature, area classification, suspended solids in chemical.

Piston type metering pumps are suitable when:

- ✓ High pressure dosing is required;
- ✓ Low stroke pumps suitable for dosing high viscosity liquids;
- ✓ Pumped liquid DOES NOT contain suspended solids particles

• MAIN FEATURES •

⇛ **Gearbox** in cast aluminium protected with Epoxy paint. The gearbox mechanism is operated by an eccentric cam, which provides a positive displacement delivery stroke, whilst the suction stroke is **spring** assisted.
⇛ **Adjustable capacity** from 0-100% whilst in operation or at rest. Flow rate is adjusted by a micrometer screw to control stroke length (10:1 ratio).



⇛ **Maximum suction lift** 4 metres with water.
⇛ **Motor and gearbox** coupled by means of a **flexible motor coupling**, thus increasing transmission life.
⇛ **Strokes per minutes in five versions: 37, 60, 74, 100 or 103, 120**

Each pump is individually tested and all units are **CE certified**

MOTORS FEATURES

✓ Standard **MULTI FREQUENCE/VOLTAGE**: 230-400Vac 50Hz • 275-480Vac 60Hz / 3phase / ±10%
✓ Standard motors are vertical mounting "TEFC, B14 type, flanges IEC 60072, ~ 1400 rpm
✓ Conform with IP55 protection. Isolation class F, others available upon request.

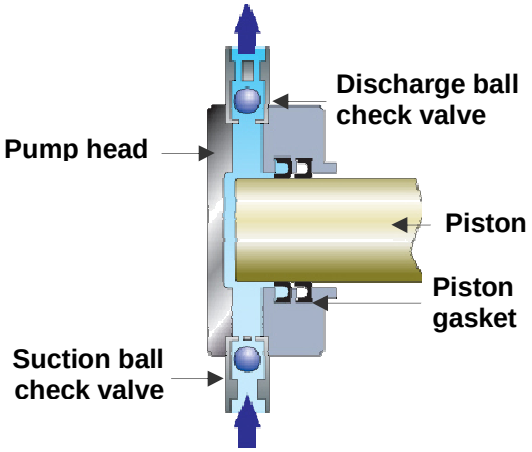
Other power supply upon request:

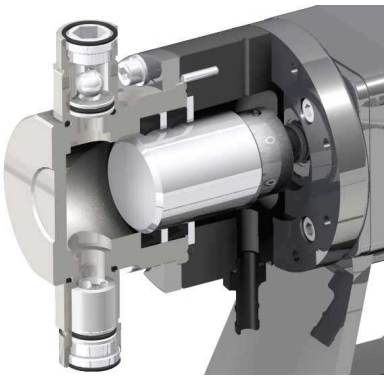
• 230 Vac 1 phase 50 Hz or 60 Hz (*) • 110 Vac 1 phase 50 Hz or 60 Hz (*)

(•) **NOTE**: at 60 Hz frequency, motor speed and thus stroke rates and flow rates increase by approx. 20%. 60 Hz are only available for pumps with 60 and 103 strokes per minute.

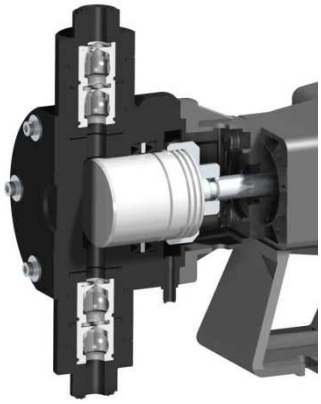
MOTORS CONFIGURATION • **0,18 kW** • **0,25 kW** • **0,37 kW** • **0,55 kW** • **0,75 kW**

PLUNGER PUMP HEAD SECTIONED VIEWS





AISI PUMP HEAD



PVC PUMP HEAD

PS series

PS series is a mechanical actuated plunger motor driven metering pumps with small gearbox designed to cover smaller flow rates with high quality performance and cost effective.

PS AA (AISI 316)

PS BA (PVC)

PS SA (PVDF)

LIQUID ENDS

WETTED PARTS	AA configuration	BA configuration	SA configuration
Pump head	**AISI 316L**	**PVC**	**PVDF**
Piston	**AISI 316L**	**CERAMIC**	**CERAMIC**
Piston gaskets	**NBR** *(on request FPM)*	**FPM** *(on request EPDM)*	**FPM** *(on request EPDM)*
Pump head connection	**AISI 316L**	**PVC**	**PVDF**
Ball check valve	**NBR** *(on request FPM)*	**FPM** *(on request EPDM)*	**FPM** *(on request EPDM)*
Valve o-rings	**NBR**	**FPM**	**FPM**
Valve seat	**PVDF**	**PVC**	**PVDF**

OTHER CONFIGURATIONS: *Configuration* ***AI–BI*** *(gaskets and seals EPDM)* • ***AP*** *(gaskets and seals FPM)*

PS technical characteristics

Pump Code*	Flow rate l/h		Pressure BAR AA (AISI)		Pressure BAR BA (PVC) SA (PVDF)		Power	Ø piston	Strokes per minute		Stroke length	Valves type AA AI AP	Valves type BA SA	Connections
	50Hz	*60Hz*	50Hz	60Hz	50Hz	60Hz			50Hz	*60Hz*				
PS 0005	**5**	*6*	**20**	*20*	**10**	*10*	**0,18 kW**	16 mm	**37**	*44*	**10mm**	A^2DV^5	P^4DV^5	1/2" $BSPm^1$
PS 0006	**6**	*7,2*	**20**	*20*	**10**	*10*		16 mm	**37**	*44*	**Stroke length 15 mm**	A^2DV^5	P^4DV^5	1/2" $BSPm^1$
PS 0010	**10**	*12*							**60**	*72*				
PS 0012	**12**	*14,4*							**74**	*88*				
PS 0017	**17**	*20,4*							**100**	*120*				
PS 0021	**21**	- - -				- - -			**120**	- - -				
PS 0022	**22**	*26,4*	**12**	*11*	**10**	*10*		30 mm	**37**	*44*		A^2DV^5	P^4DV^5	1/2" $BSPm^1$
PS 0036	**36**	*43,2*	**13,5**	*11*					**60**	*72*				
PS 0044	**44**	*52,8*	**12,5**	*10*					**74**	*88*				
PS 0060	**60**	*72*	**12**	*10*					**100**	*120*				
PS 0072	**72**	- - -	**10**	- - -		- - -			**120**	- - -				
PS 0057	**57**	*68,4*	**4**	*4*	**4**	*4*		48 mm	**37**	*44*		A^2S^3	P^4DV^5	3/4" $BSPm^1$
PS 0093	**93**	*111,6*	**4,5**	*4*	**4,5**	*4*			**60**	*72*				
PS 0114	**114**	*136,8*	**4**	*3*	**4**	*3*			**74**	*88*				
PS 0155	**155**	*186*	**4**	*3*	**4**	*3*			**100**	*120*				
PS 0185	**185**	- - -	**3,5**	- - -	**3,5**	- - -			**120**	- - -				

- $BSPm^1$ = GAS male connections
- A^2 = AISI 316 ball check (AA configuration)
- S^3 = single ball check
- P^4 = CERAMIC ball check (BA and SA configurations)
- **DV^5**= double ball checks

REMINDER: *motor standard power supply: 230/400Vac, 50Hz; 275/480Vac,60Hz • 3 phase; Class F, IP55,~1400 rpm*

MOTOR power code: **<u>001</u>** = 0,18kW ***NOTE** (add the three underlined digits after liquid ends configuration code)

Code configuration example: PS0114SA006 features PVDF liquid ends, 0.18 kW motor, max flow 114 l/h against max 4 bar working pressure, 74 strokes/min

USEFUL information when selecting dosing pumps: *Max flow rate, Max working pressure, chemical viscosity, temperature, area classification, suspended solids.*

motor driven dosing pumps plunger type "PM" series

PM AA (AISI 316)

PM BA (PVC)

PM SA (PVDF)

LIQUID ENDS

WETTED PARTS	AA configuration	BA configuration	SA configuration
Pump head	**AISI 316L**	**PVC**	**PVDF**
Piston	**AISI 316L**	**CERAMIC**	**CERAMIC**
Piston gaskets	**NBR** *(on request FPM)*	**FPM** *(on request EPDM)*	**FPM** *(on request EPDM)*
Pump head connection	**AISI 316L**	**PVC**	**PVDF**
Ball check valve	**NBR** *(on request FPM)*	**FPM** *(on request EPDM)*	**FPM** *(on request EPDM)*
Valve o-rings	**NBR**	**FPM**	**FPM**
Valve seat	**PVDF**	**PVC**	**PVDF**

OTHER CONFIGURATIONS: *Configuration* ***AI–BI*** *(gaskets and seals EPDM)* • ***AP*** *(gaskets and seals FPM)*

PM technical characteristics

Pump Code*	Flow rate l/h		Pressure BAR AA (AISI)		Pressure BAR BA (PVC) SA (PVDF)		Power	Ø piston	Strokes per minute		Stroke length	Valves type AA AI AP	Valves type BA SA	Connections
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz			50Hz	60Hz				
PM 0033	**33**	*39,6*	**20**	*20*	**10**	*10*	**0,25 kW**	30 mm	**37**	*44*	**Stroke length 20 mm**	A^2DV^5	P^4DV^5	1/2" $BSPm^1$
PM 0052	**52**	*62,4*							**60**	*72*				
PM 0066	**66**	*79,2*							**74**	*88*				
PM 0088	**88**	*105,6*	**20**	*18*					**103**	*122*				
PM 0103	**103**	- - -	**18**	- - -		- - -			**120**	- - -				
PM 0079	**79**	*94,8*	**12,5**	*11*	**10**	*10*		48 mm	**37**	*44*		A^2S^3	P^4DV^5	3/4" $BSPm^1$
PM 0128	**128**	*153,6*	**12**	*9,5*	**10**	*9,5*			**60**	*72*				
PM 0158	**158**	*189,6*	**11**	*9*	**10**	*9*			**74**	*88*				
PM 0220	**220**	*264*	**9**	*7,5*	**9**	*7,5*			**103**	*122*				
PM 0256	**256**	- - -	**7,5**	- - -	**7,5**	- - -			**120**	- - -				
PM 0156	**156**	*187,2*	**6**	*5*	**6**	*5*		67 mm	**37**	*44*		A^2S^3	P^4DV^5	1" $BSPm^1$
PM 0251	**251**	*301,2*	**6**	*5*	**6**	*5*			**60**	*72*				
PM 0312	**312**	*374,4*	**5,5**	*4*	**5,5**	*4*			**74**	*88*				
PM 0431	**431**	*517,2*	**4,5**	*3,5*	**4,5**	*3,5*			**103**	*122*				
PM 0503	**503**	- - -	**3,5**	- - -	**3,5**	- - -			**120**	- - -				

- $BSPm^1$ = GAS male connections
- A^2 = AISI 316 ball check (AA configuration)
- S^3 = single ball check
- P^4 = CERAMIC ball check (BA and SA configurations)
- **DV^5**= double ball checks

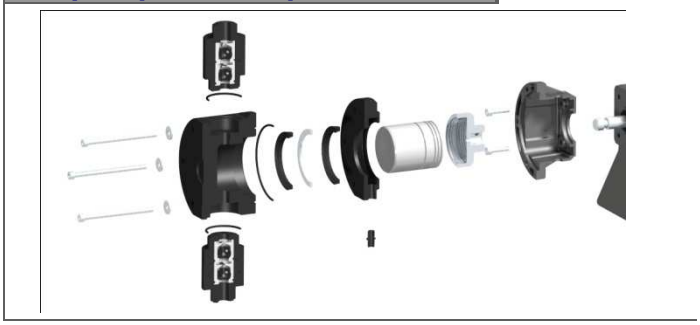
REMINDER: *motor standard power supply: 230/400Vac, 50Hz; 275/480Vac,60Hz • 3 phase; Class F, IP55,~1400 rpm*

MOTOR code: **<u>000</u>** = 0,25Kw • **<u>006</u>** = 0,37kW ***NOTE** (add the three underlined digits after liquid ends configuration code)

Code configuration example: PS0114SA006 features PVDF liquid ends, 0.18 kW motor, max flow 114 l/h against max 4 bar working pressure, 74 strokes/min	***USEFUL information when selecting dosing pumps:*** *Max flow rate, Max working pressure, chemical viscosity, temperature, area classification, suspended solids.*

motor driven dosing pumps plunger type "PM" series

PM pump head exploded view



PM gearbox

LIQUID ENDS

WETTED PARTS	AA configuration	BA configuration	SA configuration
Pump head	**AISI 316L**	**PVC**	**PVDF**
Piston	**AISI 316L**	**CERAMIC**	**CERAMIC**
Piston gaskets	**NBR** *(on request FPM)*	**FPM** *(on request EPDM)*	**FPM** *(on request EPDM)*
Pump head connection	**AISI 316L**	**PVC**	**PVDF**
Ball check valve	**NBR** *(on request FPM)*	**FPM** *(on request EPDM)*	**FPM** *(on request EPDM)*
Valve o-rings	**NBR**	**FPM**	**FPM**
Valve seat	**PVDF**	**PVC**	**PVDF**

OTHER CONFIGURATIONS: *Configuration* ***AI–BI*** *(gaskets and seals EPDM)* • ***AP*** *(gaskets and seals FPM)*

PM technical characteristics

Pump Code*	Flow rate l/h		Pressure BAR AA (AISI)		Pressure BAR BA (PVC) SA (PVDF)		Power	Ø piston	Strokes per minute		Stroke length	Valves type AA AI AP	Valves type BA SA	Connections
	50Hz	60Hz	50Hz	60Hz	50Hz	60Hz			50Hz	60Hz				
PM 0079	79	94,8	16	13,5			0,37 kW	48 mm	37	44	20 mm	A^2S^3	P^4DV^5	3/4" $BSPm^1$
PM 0128	128	153,6	18	14,5					60	72				
PM 0158	158	189,6	16,5	13	10	10			74	88				
PM 0220	220	264	16	13					103	122				
PM 0256	256	- - -	13	- - -		- - -			120	- - -				
PM 0156	156	187,2	7,5	6	7,5	6		67 mm	37	44		A^2S^3	P^4DV^5	1" $BSPm^1$
PM 0251	251	301,2	9	7,5	9	7,5			60	72				
PM 0312	312	374,4	8	6	8	6			74	88				
PM 0431	431	517,2	7	5,5	7	5,5			103	122				
PM 0503	503	- - -	6	- - -	6	- - -			120	- - -				
PM 0251	251	301,2	11	9,5	10	9,5	0,55 kW	67 mm	60	72		A^2S^3	P^4DV^5	1" $BSPm^1$
PM 0431	431	517,2	9	8	9	8			99	119				
PM 0504	504	- - -	8	- - -	8	- - -			120	- - -				
PM 0513	513	615,6	5,5	4,5	5,5	4,5		95 mm	60	72		A^2S^3	P^4S^3	1 1/2"$BSPm^1$
PM 0838	838	1005	4	3	4	3			99	119				
PM 1027	1027	- - -	3	- - -	3	- - -			120	- - -				
PM 0251	251	301,2	19	17,5			0,75 kW	67 mm	60	72		A^2S^3	P^4DV^5	1" $BSPm^1$
PM 0431	431	517,2	16,5	14,5	10	10			99	119				
PM 0504	504	- - -	14,5	- - -		- - -			120	- - -				
PM 0513	513	615,6	12	10	10	10		95 mm	60	72		A^2S^3	P^4S^3	1 1/2"$BSPm^1$
PM 0838	838	1005	8	6,5	8	6,5			99	119				
PM 1027	1027	- - -	6,5	- - -	6,5	- - -			120	- - -				

- $BSPm^1$ = GAS male connections
- A^2 = AISI 316 ball check (AA configuration)
- S^3 = single ball check
- P^4 = CERAMIC ball check (BA and SA configurations)
- **DV^5**= double ball checks

MOTOR: MULTI FREQUENCY/VOLTAGE 230/400Vac,3 phase,50Hz•275-480V/3 phase 60 Hz • Class F, IP 55, ~1400 rpm

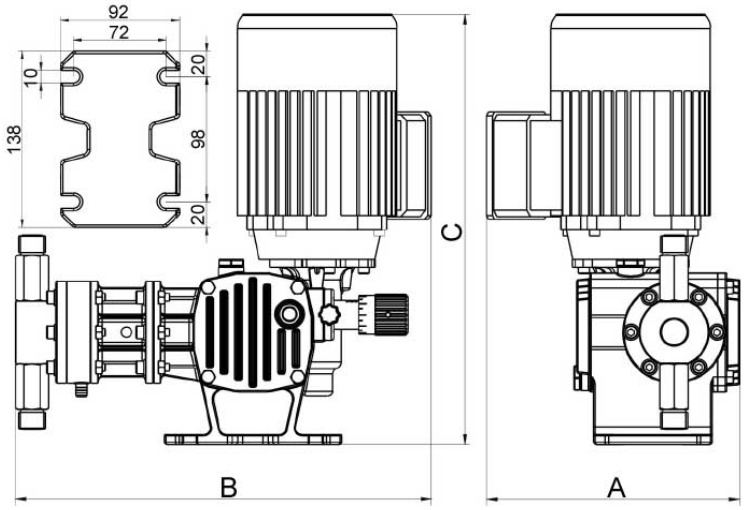
MOTOR code: **006** = 0,37Kw • **007** = 0,55kW • **009** = 0,75kW

***NOTE** (add the three underlined digits after liquid ends configuration code, example: PM1027 AA 009)

Code configuration example: PM0838SA009 features PVDF liquid ends, 0.75 kW motor, max flow 838 l/h against max 8 bar working pressure, 99 strokes/min

USEFUL information when selecting dosing pumps: *Max flow rate, Max working pressure, chemical viscosity, temperature, area classification, suspended solids.*

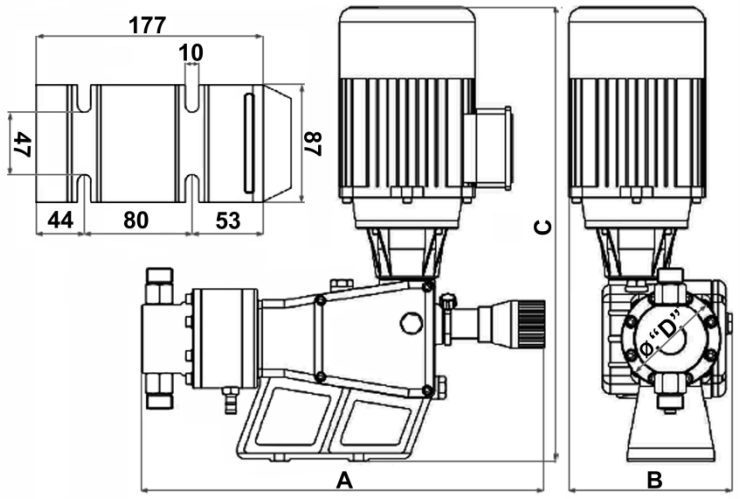
overall dimensions



overall dimensions PS series

mm		
A	**B**	**C**
113÷198	455 ÷465÷490	337÷421
NET WEIGHT*		
AISI	**PVC**	
9÷11 kg	12÷16 Kg	

***Approximate weight**
Packing weight ca 2 kg



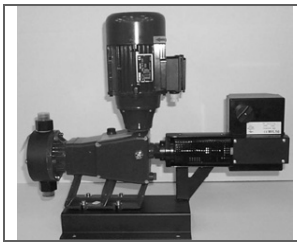
overall dimensions PM series

mm		
A	**B**	**C**
113÷198	455 ÷465÷490	337÷421
NET WEIGHT*		
AISI	**PVC**	
9÷11 kg	12÷16 Kg	

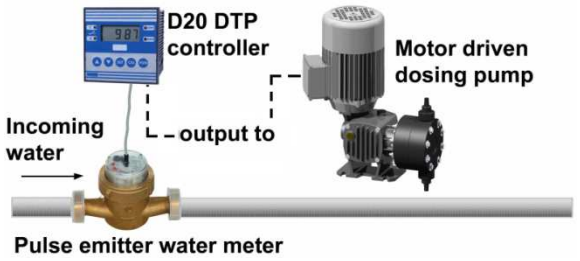
***Approximate weight**
Packing weight ca 2 kg

PUMP ADJUSTMENT REMOTE CONTROL

INVERTER to control pump flow rate via remote control from external input signal 4÷20 mA:
Available two versions: for wall or panel mounting IP20 or IP65 with keyboard controls.



SERVOMOTOR
4÷20mA or 0÷10Vdc for flow automatic control via stroke length control
(read note below*)



D20 DTP controller with timer to manage external contacts (eg. water meter) synchronising the activation time of output relay: recommended for proportional dosing (dividing mode) with motor driven dosing pumps.

MOTOR EXTRA CONFIGURATIONS

SINGLE PHASE motor | **LEVEL SWITCH** | **TROPICALIZED motor**

Explosion proof motor ATEX EEX (D) zone 1/21 IIBT4 (only 3 phase)

SERVO-VENTILATED motor - recommended to use with inverter

Pump supplied WITHOUT motor (ask for motor flanges details)

FWT mechanical actuated diaphragm motor metering pump

FWT includes also another range of motor driven metering pumps
"DIAPHRAGM" featuring two series:
"DS" series: flow rates from 7 to 116 l/h with pressures up to 16 bar
"DM" series: flow rates from 49 to 490 l/h with pressures up to 13 bar

motor dosing pumps accessories

FWT offers also a wide range of accessories and sensors to guarantee a complete service such as:

AIR RELIEF / BACK-PRESSURE VALVES

INSTALLATION KITS

SAFETY PRESSURE VALVES

PULSATION DAMPNERS

INJECTION VALVES

FOOT VALVES / FILTERS

other FWT products

SOLENOID DRIVEN DOSING PUMPS

CONTROLLERS, PROBES AND SENSORS

PERISTALTICS

PULSE WATER METERS

DOSING TANKS

MIXERS

fluid and water technology

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