

# MP7100 Series

## MECHANICALLY-ACTUATED METERING PUMPS



Where Innovation Flows

**Neptune™**



The Neptune MP7100 Series is a mechanically-actuated metering pump engineered from the ground up to be more robust and durable than similar mechanical metering pump designs. The MP7100 pump incorporates the ruggedness of a hydraulic metering pump, eliminates the need for intermediate fluid or hydraulic oil to actuate the diaphragm and reduces the potential for gearbox oil to contaminate the process. The result is a pump design that provides reliable and accurate dosing of a wide range of mild to aggressive chemicals, including those used in industrial and municipal water and wastewater treatment, chemical processing and agriculture.

The MP7100 finned gearbox dissipates the heat created during normal operation more readily than other designs. The straight-through flow design of the MP7100 liquid end and the elimination of the contour plate result in improved flow characteristics, making the pump well-suited for pumping difficult chemicals such as viscous fluids, shear-sensitive fluids and fluids with suspended solids.

### FEATURES AND BENEFITS

- Heavy-duty, corrosion-resistant, aluminum gearbox
- Gears operate in an oil bath for longer life
- Finned gearbox design dissipates heat more efficiently than other designs
- Rugged bronze gears are quiet-running and provide long service life
- Oversized check valves improve performance and minimize friction losses
- Short stroke length reduces diaphragm stress and promotes longer diaphragm life
- Superior performance when pumping chemicals such as sodium hypochlorite, which can off-gas
- Suction-lift exceeding 20' (6 m) on water-like chemicals

# MP7100 Series MECHANICALLY-ACTUATED METERING PUMPS



MP7130-3N5 MODEL



MP7150-2N3 MODEL

## FEATURES AND BENEFITS

- 10:1 turndown via micrometer-type knob with high-contrast, easy-to-read scale
- Repeatable metering accuracy is  $\pm 2\%$  of full scale (at constant hydraulic conditions)
- Rugged, PTFE-faced, pre-formed composite diaphragm with steel insert assures volumetric accuracy throughout the capacity range
- Pump capacity can be easily adjusted while pump is running
- Lockable micrometer knob prevents drift
- All models include standard NEMA 56C
- Max capacity up to 286 gph (1,041 L/h)
- Operating pressures up to 235 psi (16 bar)

## OPTIONS

- Automatic speed control with variable frequency or SCR drive
- IEC motor adapter

## SELECTION CHART

MODEL	LIQUID END CONSTRUCTION	CAPACITY/PRESSURE/HORSEPOWER					STROKES PER MINUTE	STROKE LENGTH IN. (MM)	DIAPHRAGM DIAMETER IN. (MM)	SHIPPING WEIGHT LB. (KG)
		50 PSI (3.5 BAR)	75 PSI (5.3 BAR)	100 PSI (7 BAR)	150 PSI (11 BAR)	235 PSI (16 BAR)				
MP7100-2N3	316SS	9 GPH (34 L/h)	9 GPH (34 L/h)	9 GPH (34 L/h)	9 GPH (34 L/h)	9 GPH (34 L/h)	37	.197 (5)	3.9 (99)	90 (41)
MP7100-2N5	PVC	1/3 HP	1/3 HP	1/3 HP	1/3 HP	1/3 HP				90 (41)
MP7100-2N8	PVDF	1/3 HP	1/3 HP	1/3 HP	1/3 HP	1/2 HP				90 (41)
MP7130-2N3	316SS	15 GPH (57 L/h)	15 GPH (57 L/h)	15 GPH (57 L/h)	14 GPH (53 L/h)	14 GPH (53 L/h)	58	.197 (5)	3.9 (99)	90 (41)
MP7130-2N5	PVC	1/3 HP	1/3 HP	1/3 HP	1/3 HP	1/3 HP				90 (41)
MP7130-2N8	PVDF	1/3 HP	1/3 HP	1/3 HP	1/3 HP	1/2 HP				90 (41)
MP7120-2N3	316SS	19 GPH (72 L/h)	19 GPH (72 L/h)	18 GPH (68 GPH)	18 GPH (68 L/h)	17 GPH (64 L/h)	72	.197 (5)	3.9 (99)	90 (41)
MP7120-2N5	PVC	1/3 HP	1/3 HP	1/3 HP	1/3 HP	1/2 HP				90 (41)
MP7120-2N8	PVDF	1/3 HP	1/3 HP	1/3 HP	1/3 HP	1/2 HP				90 (41)
MP7150-2N3	316SS	30 GPH (114 L/h)	30 GPH (114 L/h)	29 GPH (110 L/h)	29 GPH (110 L/h)	27 GPH (102 L/h)	117	.197 (5)	3.9 (99)	90 (41)
MP7150-2N5	PVC	1/3 HP	1/3 HP	1/2 HP	1/2 HP	3/4 HP				90 (41)
MP7150-2N8	PVDF	1/3 HP	1/3 HP	1/2 HP	1/2 HP	3/4 HP				90 (41)
MP7180-2N3	316SS	47 GPH (178 L/h)	46 GPH (174 L/h)	44 GPH (167 L/h)	44 GPH (167 L/h)	41 GPH (155 L/h)	176	.197 (5)	3.9 (99)	90 (41)
MP7180-2N5	PVC	1/3 HP	1/3 HP	1/2 HP	1/2 HP	3/4 HP				90 (41)
MP7180-2N8	PVDF	1/3 HP	1/3 HP	1/2 HP	1/2 HP	3/4 HP				90 (41)
MP7130-3N3	316SS	44 GPH (167 L/h)	42 GPH (159 L/h)	42 GPH (159 L/h)	39 GPH (148 L/h)	N/A	58	.236 (6)	5.7 (145)	175 (79)
MP7130-3N5	PVC	1/2 HP	1/2 HP	1/2 HP	3/4 HP					150 (60)
MP7130-3N8	PVDF	1/2 HP	1/2 HP	1/2 HP	3/4 HP					150 (60)
MP7120-3N3	316SS	54 GPH (204 L/h)	53 GPH (201 L/h)	52 GPH (197 L/h)	49 GPH (185 L/h)	N/A	72	.236 (6)	5.7 (145)	175 (79)
MP7120-3N5	PVC	1/2 HP	1/2 HP	3/4 HP	1 HP					150 (60)
MP7120-3N8	PVDF	1/2 HP	1/2 HP	3/4 HP	1 HP					150 (60)
MP7150-3N3	316SS	84 GPH (318 L/h)	82 GPH (310 L/h)	80 GPH (303 L/h)	75 GPH (284 L/h)	N/A	117	.236 (6)	5.7 (145)	175 (79)
MP7150-3N5	PVC	3/4 HP	3/4 HP	3/4 HP	1 HP					150 (60)
MP7150-3N8	PVDF	3/4 HP	3/4 HP	3/4 HP	1 HP					150 (60)
MP7180-3N3	316SS	126 GPH (477 L/h)	123GPH (466 L/h)	120 GPH (454 L/h)	112 GPH (424 L/h)	N/A	176	.236 (6)	5.7 (145)	175 (79)
MP7180-3N5	PVC	1/2 HP	3/4 HP	3/4 HP	1 HP					150 (60)
MP7180-3N8	PVDF	1/2 HP	3/4 HP	3/4 HP	1 HP					150 (60)
MP7130-4N3	316SS	94 GPH (356 L/h)	92 GPH (348 L/h)	91 GPH (344 L/h)	N/A	N/A	58	.236 (6)	8.1 (205)	200 (91)
MP7130-4N5	PVC	1/2 HP	3/4 HP	1 HP						165 (75)
MP7130-4N8	PVDF	1/2 HP	3/4 HP	1 HP						165 (75)
MP7120-4N3	316SS	117 GPH (443 L/h)	115 GPH (435 L/h)	113 GPH (428 L/h)	N/A	N/A	72	.236 (6)	8.1 (205)	200 (91)
MP7120-4N5	PVC	3/4 HP	1 HP	1-1/2 HP						165 (75)
MP7120-4N8	PVDF	3/4 HP	1 HP	1-1/2 HP						165 (75)
MP7150-4N3	316SS	190 GPH (719 L/h)	186 GPH (704 L/h)	183 GPH (693 L/h)	N/A	N/A	117	.236 (6)	8.1 (205)	200 (91)
MP7150-4N5	PVC	3/4 HP	1 HP	1-1/2 HP*						165 (75)
MP7150-4N8	PVDF	3/4 HP	1 HP	1-1/2 HP*						165 (75)
MP7180-4N3	316SS	286 GPH (1,083 L/h)	280 GPH (1,060 L/h)	276 GPH (1,045 L/h)	N/A	N/A	176	.236 (6)	8.1 (205)	200 (91)
MP7180-4N5	PVC	1-1/2 HP	1-1/2 HP*	2 HP*						165 (75)
MP7180-4N8	PVDF	1-1/2 HP	1-1/2 HP*	2 HP*						165 (75)

Select the next larger motor hp for VFD or SCR applications.

\*3-Phase Motors

## MATERIALS OF CONSTRUCTION

MATERIAL CODE	PUMP HEAD	CHECK VALVE BODY	CHECK VALVE BODY	VALVE O-RINGS	DIAPHRAGM
N3	316SS	316SS	316SS	NONE	PTFE
N5	PVC*	PVC*	Ceramic	FKM	PTFE
N8	PVDF*	PVDF*	Ceramic	FKM	PTFE

\* PVC Heads are suitable for temperatures to 125°F (50°C)

\*\* PVDF Heads are suitable for temperatures to 200°F (93°C)

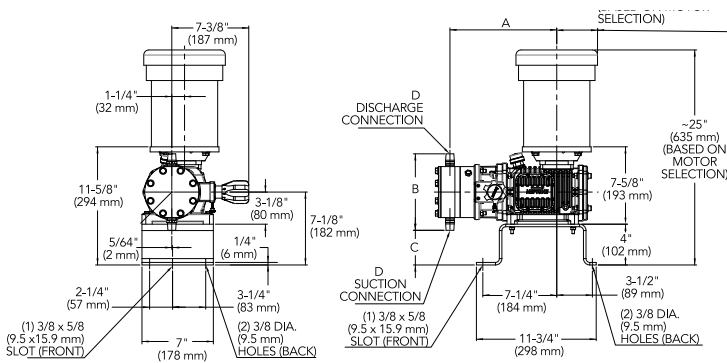
Valve O-ring is used on the -3NX & -4NX plastic pump heads only

Valve O-ring is not used on the -2NX pump heads

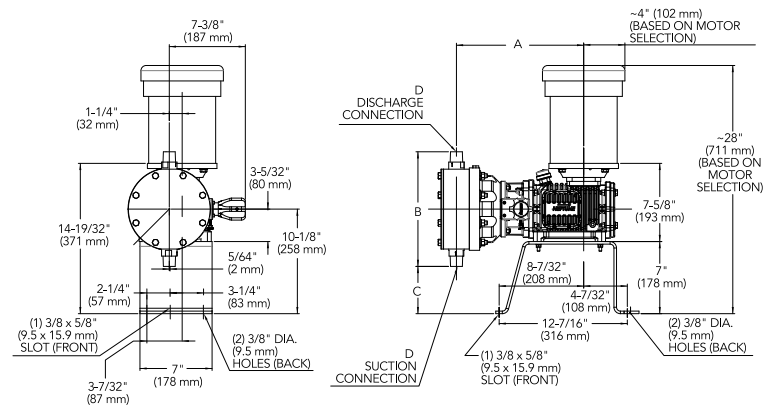
## DIMENSIONS

MODEL	DIMENSIONS INCHES (MM)						D MNPT
	A		B		C		
HEAD	PVC PVDF	316SS	PVC PVDF	316SS	PVC PVDF	316SS	
MP71XX-2NX	10-1/2 (266.7)	10 (254.0)	7-1/2 (190.5)	7-1/2 (190.5)	4-3/8 (111.1)	4-3/8 (111.1)	1/2
MP71XX-3NX	12-3/8 (314.3)	12-3/8 (314.3)	11-1/8 (282.6)	11-3/4 (298.5)	4-9/16 (115.9)	4-1/4 (108.0)	1
MP71XX-4NX	12-5/8 (320.7)	12-1/2 (317.5)	13-3/8 (339.7)	13-7/8 (352.4)	3-5/16 (84.1)	3-7/32 (87.3)	1-1/2

## MP71XX-2NX MODELS



## MP71XX-3NX, MP71XX-4NX MODELS



## SPARE PARTS KIT

The MP7100 Series Spare Parts Kit contains the liquid-end parts most susceptible to wear during a year of normal use. To keep the pump in good working order, Neptune recommends having a kit readily available.

PUMP HEAD SIZE	NEPTUNE PUMP MODEL	PUMP HEAD MATERIAL	SPARE PARTS KIT NO.
2NX	MP7100 / MP7130 / MP7120 / MP7150 / MP7180	316SS	005178
	MP7100 / MP7130 / MP7120 / MP7150 / MP7180	PVC	005179
	MP7100 / MP7130 / MP7120 / MP7150 / MP7180	PVDF	005180
3NX	MP7130 / MP7120 / MP7150 / MP7180	316SS	005181
	MP7130 / MP7120 / MP7150 / MP7180	PVC	005182
	MP7130 / MP7120 / MP7150 / MP7180	PVDF	005183
4NX	MP7130 / MP7120 / MP7150 / MP7180	316SS	005184
	MP7130 / MP7120 / MP7150 / MP7180	PVC	005185
	MP7130 / MP7120 / MP7150 / MP7180	PVDF	005186

# Recommendations

## RECOMMENDED PIPE DIAMETER AND LENGTH

	PUMP MODELS		
	MP71XX-2NX	MP71XX-3NX	MP71XX-4NX
SUCTION PIPE DIAMETER	3/4" (19.1 mm)	1-1/2" (38.1 mm)	2" (50.8 mm)
MAXIMUM LIFT	20' (6 m)	20' (6 m)	16' (4.9 m)
DISCHARGE PIPE DIAMETER	1/2" (12.7 mm)	1" (25.4 mm)	1-1/2" (38.1 mm)
MINIMUM ORIFICE AT INJECTION POINT	1/2" (12.7 mm)	1" (25.4 mm)	1-1/2" (38.1 mm)

## PULSATION DAMPENERS

A pulsation dampener installed in the discharge of the MP7100 Series pump will smooth the pulsating flow typical of a reciprocating pump. A properly-sized pulsation dampener can improve pump performance and reduce stress to the piping system and accessories. A pulsation dampener is required if the discharge pipe is more than 10' (3 m) long and the discharge pressure is more than 25 psi (1.8 bar).

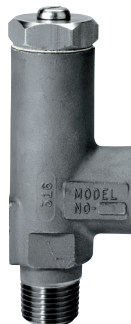
Available in PVC, polypropylene, 316SS and C-20 bodies with FKM, EPDM or PTFE bladders.



## PRESSURE RELIEF VALVES

An external relief valve is always required to protect the MP7100 Series pump from damage caused by over-pressurization of the discharge line during operation. Neptune offers adjustable relief valves in various sizes and materials of construction to meet any application requirement.

Available in PVC, PVDF, 316SS and C-20 standard.



## BACK PRESSURE VALVES

An adjustable back pressure valve provides anti-syphon protection in pump installations where the suction pressure is higher than the discharge pressure. The spring-loaded valve generates a constant back pressure that also assures accurate metering when the MP7100 Series pump is injecting chemical into low discharge pressure. Neptune offers back pressure valves in various sizes and materials of construction to meet any application requirement.



Available in PVC, PVDF, 316SS and C-20 standard.

## LEAK DETECTION

The MP7100 Series pump can be supplied with an optional diaphragm leak detector which senses the early stages of diaphragm failure. The system consists of an electro-optic sensor mounted in the pump head behind the process diaphragm and a relay installed in a NEMA 4X enclosure. The leak detector can be wired to provide remote indication of diaphragm failure, shut down the pump and/or sound an alarm.

## USE ONLY FULL PORT VALVES IN SUCTION AND DISCHARGE LINES.

For more information on these additional solutions, visit us at [psgdoover.com/neptune](http://psgdoover.com/neptune)



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