



Expert  
Solutions  
for Critical  
Applications

MECHANICAL  
7000Z Series  
Metering Pumps



Where Innovation Flows

[neptune1.com](http://neptune1.com)

MECHANICAL DIAPHRAGM  
METERING PUMP



## MECHANICAL SOLUTIONS

Neptune™ Chemical Pump Company is a premier manufacturer of chemical metering pumps, chemical feed systems and chemical injection accessories. Neptune mechanical diaphragm metering pumps are well-known for delivering the accuracy, precision and quality required for injecting chemicals into cooling towers, and in chemical process wastewater and water treatment applications. Major markets include power generation, oil and gas exploration, petrochemical, municipal and agriculture.

Neptune Chemical Pump Company located in North Wales, PA, USA, is a product brand of PSG®, a Dover company.



MUNICIPAL WATER TREATMENT



AGRICULTURE



POWER GEN



GAS ODORIZATION



INDUSTRIAL



CHEMICAL PROCESSING



MUNICIPAL WASTEWATER TREATMENT



CHEMICAL FEED



MINING



PROCESS



CHEMICAL INJECTION



FERTILIZATION



## CHOOSING THE RIGHT METERING PUMP

In order to select the proper metering pump for the application, first identify the required capacity in terms of flow rate and discharge pressure. To ensure expected performance, the metering pump should be sized so that the maximum flow rate is 85% - 90% of the pump's capacity, which leaves additional capacity, if needed. Also, in order to retain dosing accuracy, the minimum capacity should never be less than 20% of the pump's capacity.

The materials of construction should also be considered when selecting the proper metering pump. Specifically, material selection should take into consideration the metered chemical's levels of corrosion, erosion and solvent action. This is important because solvent-based chemicals may dissolve plastic-headed pumps, and the effects of erosion are a factor when handling abrasive slurries.

Neptune materials of construction:

MATERIAL	TEMPERATURE	PRESSURE
PVC	52°C (125°F)	Up to 12 bar (174 psi)
PVDF	65°C (149°F)	Up to 12 bar (174 psi)
316SS	65°C (149°F)	Up to 12 bar (174 psi)



## MECHANICALLY ACTUATED DIAPHRAGM METERING PUMP

### LIQUID-END FEATURES

- Large flow range: 2 L/h - 795 L/hr (0.5 gph - 210 gph)
- Liquid-End materials: PVC, PVDF, 316SS
- Excellent for handling volatile chemicals
- Suction lift: up to 2 m (6.5 ft.)
- Special valve seat to ensure leak-free operation while running or stopping
- Self-clean check valve structure

### FLOW RATE ADJUSTMENTS

Manual stroke adjustment knob to adjust stroke length

- Full 10% -100% flow rate adjustment while pump is running

### POWER-END FEATURES

- Adjustable eccentric structure, low pulse and smooth operation
- High strength worm and gear design, long life and high reliability
- Multiple motor options: IEC motor or NEMA motor<sup>1</sup>
- Motor Options: TEFC, explosion-proof and VFD<sup>2</sup>

### CERTIFICATIONS & ASSOCIATIONS



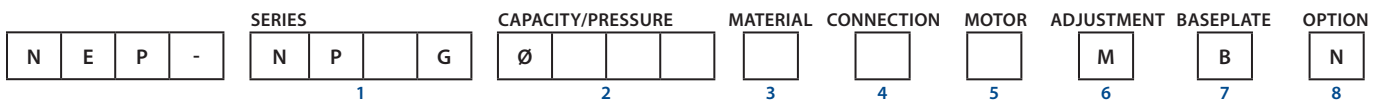
<sup>1</sup> NPAG IEC only

<sup>2</sup> NPBG and NPCG only



# 7000Z SERIES METERING PUMP CODES MECHANICALLY ACTUATED DIAPHRAGM PUMPS

CODE STRUCTURE:



Series:	CODE	DESCRIPTION	CAPACITY/PRESSURE	
1	Series		50 Hz	60 Hz
	NPAG	Neptune A Series	2-170 lph/12-3.5 bar 0.5-45 gph/174-51 psi	2.4-205 lph/12-3.5 bar 0.6-54 gph/174-51 psi
	NPBG	Neptune B Series	25-500 lph/10-5 bar 6.6-132 gph/145-73 psi	30-602 lph/10-5 bar 8-159 gph/145-73 psi
	NPCG	Neptune C Series	330-660 lph/10-5 bar 87-174 gph/145-73 psi	398-795 lph/10-5 bar 105-210 gph/145-73 psi

Capacity/ Pressure:	CODE	SERIES	CAPACITY @ 50 HZ		CAPACITY @ 60 HZ		PRESSURE	
			LPH	GPH	LPH	GPH	BAR	PSI
2	0002	NPAG	2	0.5	2.4	0.6	12	174
	0005	NPAG	4	1.1	4.8	1.3	12	174
	0010	NPAG	8	2.1	9.6	2.5	12	174
	0025	NPAG	22	5.8	27	7	12	174
	0050	NPAG	44	12	53	14	10	145
	0090	NPAG	80	21	96	25	5	73
	0120	NPAG	120	32	145	38	3.5	51
	0170	NPAG	170	45	205	54	3.5	51
	0025	NPBG	25	6.6	30	8	10	145
	0050	NPBG	50	13	60	16	10	145
	0090	NPBG	85	22	102	27	7	102
	0120	NPBG	115	30	139	37	7	102
	0170	NPBG	170	45	205	54	7	102
	0240	NPBG	235	62	283	75	7	102
	0330	NPBG	315	83	380	100	10	145
	0400	NPBG	400	106	482	127	5	73
	0500	NPBG	500	132	602	159	5	73
	0330	NPCG	330	87	398	105	10	145
	0400	NPCG	415	110	500	132	10	145
	0500	NPCG	445	118	536	142	7	102
	0600	NPCG	550	145	663	175	7	102
	0700	NPCG	660	174	795	210	5	73



Material:  
3

CODE	DESCRIPTION	LE MATERIAL	CV BODY	CV SEAT	VALVE BALL	DIAPHRAGM/SEAL RING/SPRING
P	PVC LE	PVC	PVDF	PE	S-SiC	PTFE / VITON®
T	PVDF LE	PVDF	PVDF	PVDF	S-SiC	PTFE / PTFE
S	316SS LE	316SS	316SS	316SS	316SS	PTFE / VITON®

Connection:  
4

CODE	DESCRIPTION	NPAG0002-0050 & NPBG0025-0050			NPAG0090-0170 & NPBG0090-0500			NPCG0330-0400			NPCG0500-0700		
		PVC	PVDF	316L	PVC	PVDF	316L	PVC	PVDF	316L	PVC	PVDF	316L
F	NPT F	N/A		1/2" F	N/A		1/2" F	N/A		1/2" F	N/A		N/A
N	NPT M	3/8" M		N/A	1/2" M		N/A	1/2" M		N/A			1" M

Motor:  
5

CODE	DESCRIPTION	OPTION FOR:
1	IEC Standard Motor, .12 kW, 3 ph-50 Hz-380 Volt, IP55, F/TEFC	NPAG Series Only <sup>1</sup>
2	IEC Standard Motor for Variable Frequency Applications, .18 kW, 3 ph-50 Hz-380 Volt, IP55, F/TEFC	NPAG Series Only <sup>1</sup>
3	IEC Standard Motor, .12 kW, 3 ph-60 Hz-460 Volt, IP55, F/TEFC	NPAG Series Only <sup>1</sup>
7	IEC Motor Flange - Motor is Not Included (EXTRA) - Reference Price Page for Motor Selection	NPBG <sup>2</sup> or NPCG <sup>3</sup> Only
8	NEMA 56 C Motor Flange - Motor is Not Included (EXTRA) - Reference Price Page for Motor Selection	NPBG <sup>2</sup> or NPCG <sup>3</sup> Only

NOTE: NPBG and NPCG Motors are not Included (EXTRA) - Reference price page for motor selection

<sup>1</sup>Only motor options available for NPAG Series pump

<sup>2</sup>Series NPBG pumps require .25 kW (1/3 HP) minimum to meet capacity/pressure ratings

<sup>3</sup>Series NPCG pumps require .55 kW (1 HP) minimum to meet capacity/pressure ratings



Adjustment:  
6

CODE	DESCRIPTION
M	Manual adjustment only

Baseplate:  
7

CODE	DESCRIPTION
B	Baseplate

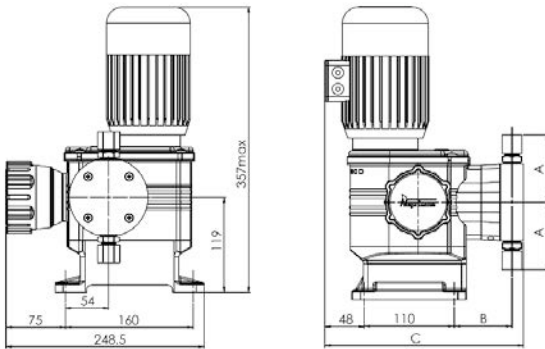
Options:  
8

CODE	DESCRIPTION
N	No other options available <sup>4</sup>

NOTE: <sup>4</sup>Contact factory for special requirements



NPAG PROFILE AND DIMENSIONS



MODEL	SIZE	LIQUID END	
		PVC/PVDF NPT MALE	316SS
NPAG0002 - NPAG0050	A	75 mm (2.95")	102 mm (4.02")
	B	90 mm (3.54")	90 mm (3.54")
	C	225 mm (8.86")	225 mm (8.86")
NPAG0090 - NPAG0170	A	146 mm (5.75")	131 mm (5.16")
	B	133 mm (5.24")	133 mm (5.24")
	C	268 mm (10.55")	268 mm (10.55")

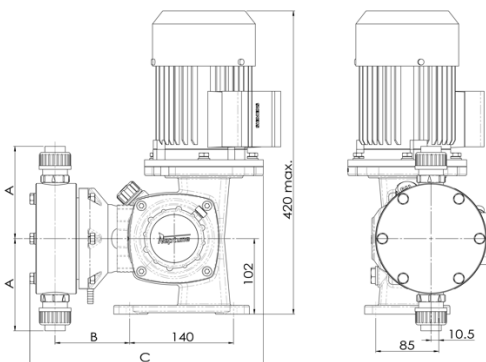
NEPTUNE 7000Z

PUMP WEIGHT & PACKAGING

PUMP MODEL CODE	EST. WEIGHT KG (LB)			PACKAGING (L x W x H) mm x mm x mm (inch x inch x inch)
	PVC	PVDF	316SS	
NPAG0002-NPAG0010	9.6 (27.3)	9.7 (27.6)	11.6 (31.5)	350 x 300 x 450 (13.78 x 11.81 x 17.72) Carton
NPAG0025-NPAG0050	9.6 (27.3)	9.7 (27.6)	11.6 (31.5)	
NPAG0090-NPAG0170	11.2 (24.7)	11.3 (24.9)	13.4 (29.5)	
NPBG0025-NPBG0050	30.3 (66.9)	30.5 (67.3)	31.9 (70.4)	500 x 380 x 500 (19.69 x 14.96 x 19.69) Carton
NPBG0090-NPBG0500	32.2 (70.9)	32.4 (71.4)	34.6 (76.2)	
NPCG0330-NPCG0400	52.6 (116.0)	52.6 (116.0)	56.3 (124.2)	600 x 400 x 620 (23.62 x 15.75 x 24.41) Carton
NPCG0500-NPCG0700	54.3 (119.8)	54.3 (119.8)	61.9 (136.5)	

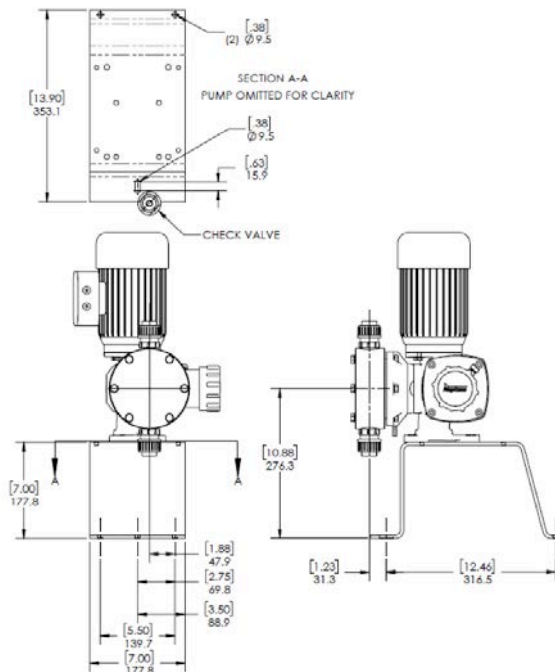
NOTE: Weights based on standard motors. For non-standard motors call factory or local representative.

NPBG PROFILE AND DIMENSIONS

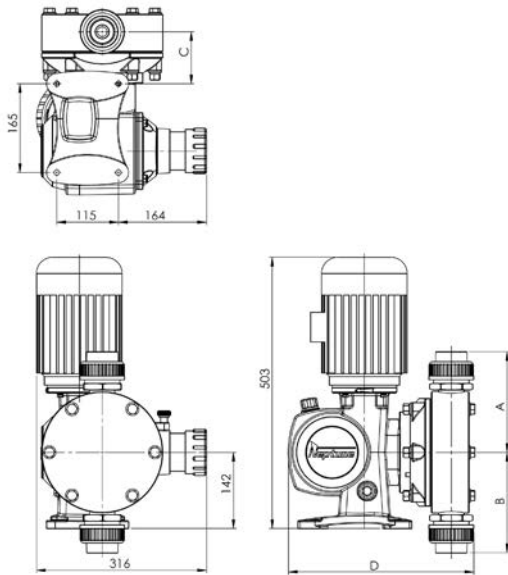


MODEL	SIZE	LIQUID END	
		PVC/PVDF NPT MALE	316SS
NPBG0025 - NPBG0050	A	75 mm (2.95")	102 mm (4.02")
	B	54 mm (2.13")	54 mm (2.13")
	C	216 mm (8.50")	216 mm (8.50")
NPBG0090 - NPBG0500	A	146 mm (5.75")	131 mm (5.16")
	B	98 mm (3.86")	98 mm (3.86")
	C	315 mm (12.40")	310 mm (12.20")

NPBG PUMP MOUNTED ON BASEPLATE

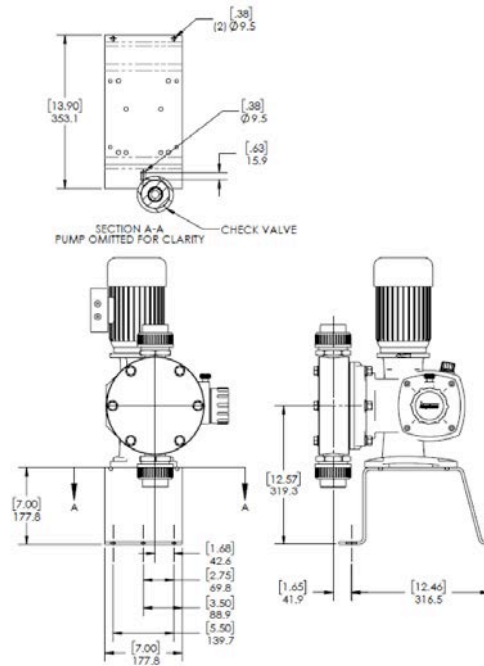


## NPCG PROFILE AND DIMENSIONS



MODEL	SIZE	LIQUID END	
		PVC/PVDF NPT MALE	316SS
NPCG0330 - NPCG0400	A	125 mm (4.92")	130 mm (5.12")
	B	125 mm (4.92")	130 mm (5.12")
	C	56 mm (2.20")	56 mm (2.20")
	D	290 mm (11.42")	290 mm (11.42")
NPCG0500 - NPCG0700	A	143 mm (5.63")	170 mm (6.69")
	B	143 mm (5.63")	170 mm (6.69")
	C	75 mm (2.95")	79 mm (3.11")
	D	327 mm (12.87")	324 mm (12.76")

## NPCG PUMP MOUNTED ON BASEPLATE



## ACCESSORIES

### RELIEF VALVES

An external relief valve is always required to protect NPAG, NPBG and NPCG Series pump models 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 Alloy 20 standard.

[Request Bulletin RV](#)

### BACK PRESSURE VALVES

An adjustable back pressure valve provides anti-siphon 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 ensures accurate metering when NPAG, NPBG and NPCG Series pump models are 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 Alloy 20 standard.

[Request Bulletin BP](#)

### PULSATION DAMPENERS

A pulsation dampener installed in the discharge of NPAG, NPBG and NPCG Series pump models 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 ft. (3 m) long and the discharge pressure is more than 25 psi (1.75 bar).

Available in PVC, 316SS and Alloy 20.

[Request Bulletin PD](#)



← Relief Valve



316SS ▲  
Back Pressure Valve

PVC ▶  
Back Pressure Valve



316SS ▲  
Pulsation Dampener

PVC ▶  
Pulsation Dampener

## Where Innovation Flows



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