



# Chem/Meter 400 Series

## *Performance Under Pressure*

### Principle of Operation:

- The 400 Series pumps from Chem/Meter are designed to accept a standard flange mounted motor. Through internal gear reduction and an eccentric drive, reciprocating motion is developed. In operation, the eccentric produces reciprocating travel of a hollow plunger which creates hydraulic displacement. In an opposing direction, a ported control rod is inserted in to the center of the plunger, thus hydraulic displacement is bypassed for a percentage of plunger travel until the point of cut off. Past that point, the diaphragm will be actuated hydraulically. By positioning the stroke control rod, the pump can be calibrated to regulate the output from 0 to 100% of maximum rated capacity.

When activated, the hydraulically balanced diaphragm is used to pump the process fluid. The diaphragm acts as a barrier permitting the process liquid to contact only materials specifically chosen for their corrosion resistance.

**Relief Valve** - An externally adjustable relief valve is provided in the hydraulic system to protect the pump against extensive pressure.

**Hydraulic Systems** - Repetitive accuracy is maintained by automatic bleed and replenishment on each pump bleed and stroke. The automatic replenishment eliminates the need for separate bleed valves and troublesome vacuum breakers. The bleed is positioned at the highest point

in the system to continuously purge air or vapor to maintain an incompressible transfer medium.

**Capacity Adjustment** - Rated output can be adjusted 0-100% manually by a micrometer type stroke adjustment and automatically by stroke adjustment or speed variation.

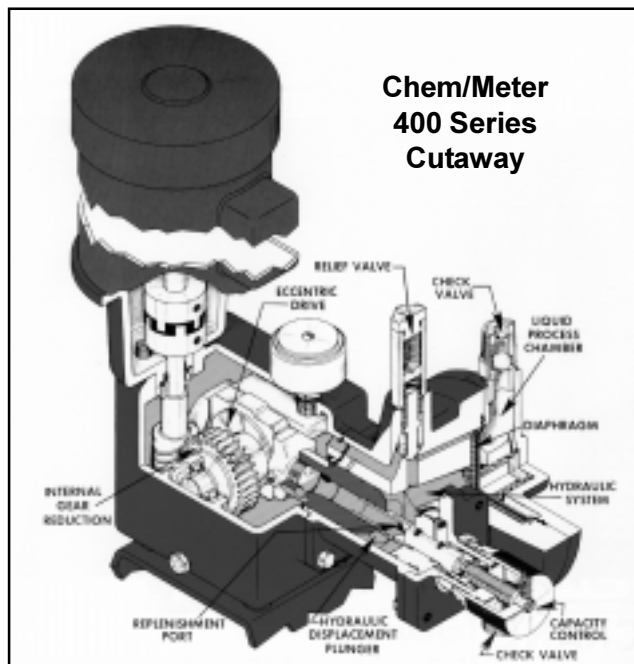
**Capacity Range** - The combination of five plunger sizes and five gear ratios as standard provide 25 selection ranges with maximum capacities of 2.8 to 158 GPH per pumphead.

**Materials of Construction** - The 400 Series is available with wetted parts in Stainless Steel, PVC and Alloy 20 with a PTFE diaphragm. Other materials of construction are available on request.

**Motors** - Standard drives are constant speed with horsepower ratings from 3/4 through 1 HP, Totally Enclosed or Explosion Proof enclosures in a Nema C flange mounting. Alternate variable speed type drives may also be adapted for remote or automatic control.

### Design Features:

- Simplex or Multiplex configuration.
- Built-in hydraulic relief valve - externally adjustable.
- Hydraulic actuated diaphragm.
- Simplified hydraulic-lubrication system.
- 0 to 100% capacity adjustment while stationary in operation.
- Continuously self-lubricating totally enclosed drive unit.
- Sealless, leakproof design.
- Modular construction for easy field conversion.
- Adaptable to automatic controls.
- Compact design.
- Accuracy within  $\pm 1\%$ .
- Nema-C flange motor mounting.
- No load hydraulic capacity control.
- Optional double or metal diaphragm liquid ends.
- Full diaphragm support without contour plates.
- Heavy duty industrial design.
- Interchangeable plunger sizes and materials.
- Optional remote liquid ends or check valves.





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### Technical Data:

Accuracy: +/- 1%

NPSHr: 1 psia

Weight:

### Chem/Meter Controls

Output of the Chem/Meter can be controlled manually or automatically by adjusting the stroke or by changing the rate of stroking speed. Various controls are offered to suit your particular needs.

### Optional Features Available

**Remote Head** - Extreme conditions, liquefied gases, radioactive fluids; hazardous products and sterile liquids present problems for conventional metering pumps. The alternative solution is the use of a remote head pumping assembly.

**Double Diaphragm** - Use of the double diaphragm provides a process diaphragm to isolate the fluid pumped, an intermediate chamber containing liquid compatible with the liquid pumped (non-contaminating) and a transfer diaphragm to isolate the hazardous fluid. Automatic indication of intermediate contamination is possible with sensitive rupture detectors or visual sight indicators.

### Options and Accessories:

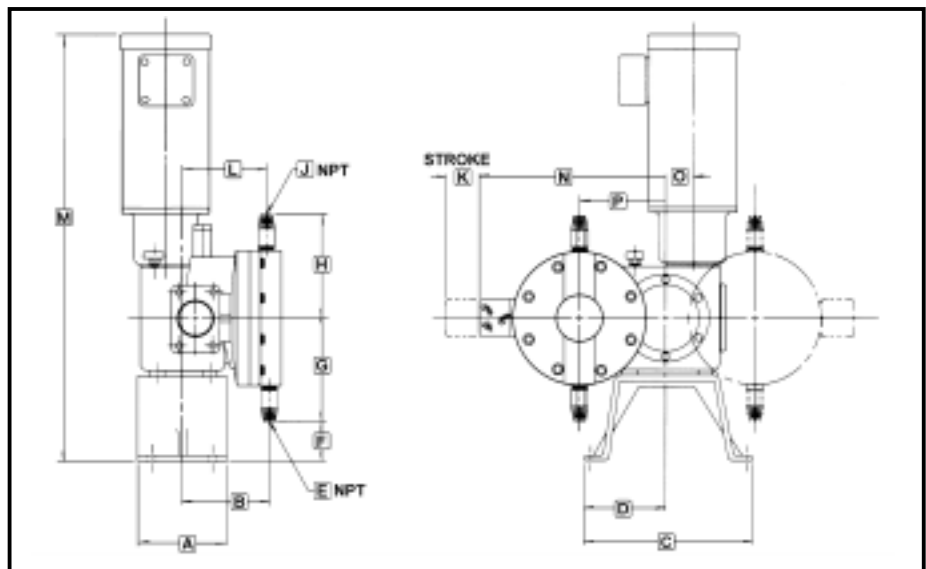
- Alternate Diaphragm Materials
- Back Pressure Valves
- Chemical Feed Systems
- Diaphragm Status Indication
- High Vacuum Liquid Ends
- Liquid End Jacketing
- Piping Manifolds
- Pulsation Dampeners
- Relief Valves
- Spare Parts Kits
- Stroke Counter
- Stroke Frequency Controller
- Stroke Length Controller
- Special Valve Designs
- Special Liquid End Design
- Special Materials of Construction

Size	Simplex	Duplex
1, 2 & 3	135	155
4 & 5	150	175

Stroke length is adjustable from 0 to 100% even while the pump is operating. Adjustment can be performed with manual, electric or pneumatic controls. Variable speed motors, for special systems, are also available to control pump output by varying the stroke speed.

### Performance Table

Model Number	Rated Flow (GPH) @ SPM					Max. Operating Pressure (psig)
	43	58	87	116	175	
401	2.8	3.7	5.6	7.5	11.2	1,500
402	4.3	5.7	8.6	11.5	17.2	1,000
403	7.2	9.6	14.4	19.2	28.8	650
404	25.8	34.2	51.5	68.0	103	200
405	38.9	52.5	79.2	105	158	130



Size	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
1, 2 & 3	5 1/2	4 3/16	12	6	1/2 NPT	2	3 1/8	2 13/16	3/8 NPT	1	5 15/16	26 1/4	11 7/16	2 1/16	6
4 & 5	5 1/2	4 3/16	12	6	1 NPT	2	6 1/2	5 1/4	1 NPT	1	5 15/16	26 1/4	11 7/16	2 1/16	6



Chem/Meter

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