

# Calibration Columns



Where Innovation Flows



Neptune Calibration Columns provide a fast, easy and economical means of checking the flow rate of your chemical metering pump.

The most accurate test of metering pump flow rate is to measure the drawdown rate on the suction side while leaving the discharge undisturbed in its normal steady-state operating condition. Pump flow rate verification on a periodic basis or after maintenance is important to system accuracy.

The Calibration Column can also be used to determine if check valves are worn or dirty.

It is recommended to size the Calibration Column for a minimum of 30 seconds with a scale that will produce an easily-readable differential within the test period.

## FEATURES AND BENEFITS

- Rugged PVC construction with slip-on top caps for top filling and easy cleaning
- Shielded glass models available for acids and strong chemicals
- Calibration scales protected from harsh chemicals by Mylar® lamination
- Max pressure up to 25 psi (1.7 bar)

# Installation Instructions

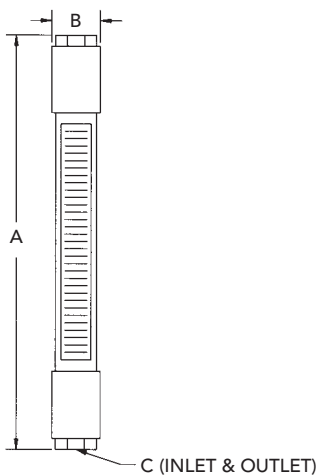
The recommended installation is shown below:

1. Install the Calibration Column in the suction line of the chemical feed pump. The column should be installed in a vertical position.
2. Two (2) ball valves are required and must be installed as shown in the adjacent drawing. Valves are not included.
3. The column should be installed so it will be filled regardless of the level of the tank. It is recommended that the top connection of the column be connected to a vent tube that is as high as the liquid level in the tank to prevent accidental spillage in the event of a valve malfunction or if the isolation valve is accidentally left open. Do not install any valve in this overflow line, as the test tube must be vented to atmosphere at all times.

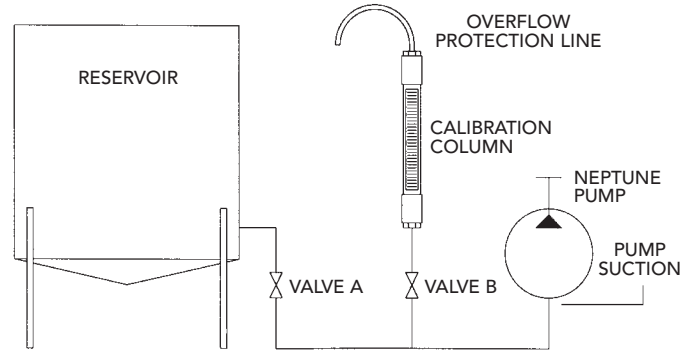
NOTE: When viewing pump performance on a calibration cylinder, each pump stroke should steadily draw the liquid down to a dead stop, cycle up and then draw down again. "Bouncing" in the column at the end of the suction stroke is an indication of dirt or clogging in the valves or possibly wear.

## CAUTION—IMPORTANT INSTALLATION NOTES:

- a. This unit must be vented to atmosphere when in use
- b. Never use this device on discharge side of pump
- c. This device is intended for verification of metering pump flow rate only
- d. Maximum Pressure = 25 psi (1.7 bar)  
Maximum Temperature = 140°F (60°C)
- e. Not suitable for all chemicals. Consult factory. Shielded glass models available for acids and strong chemicals
- f. Top cap is not glued to allow cleaning. Top cap must be glued when vent is piped back to tank.
- g. If the vent is not piped back to the tank a "U" tube should be installed on the top of the column to prevent accidental splash-up for operator protection. Remember, the head in a tall tank can cause the column to fill rapidly resulting in a squirt from the small vent connection on the top of the column.



# Recommended Installation



# Operating Instructions

A stopwatch or wristwatch with sweep second hand is required.

1. With the pump operating normally, Valve A is open and Valve B is closed. Open Valve B slightly so the column fills slowly with liquid.
2. When the liquid level reaches the zero division mark, close Valve A (any division mark may be used as a starting point; however, by filling to the zero mark, you may measure over a longer period of time, enabling you to get a better calibration). Do not fill above the zero division mark unless top cap is glued and vent is piped to tank.
3. Allow liquid level to drop for a period of at least 30 seconds and note the mark on the column to which the level has dropped. Re-open Valve A.
4. Each column has two scales. The left hand scale shows the volume of the column in ml. Dividing the volume pumped by the time to pump gives you the flow rate. The right hand scale is direct reading in gallons per hour for a one-minute test. If the test time is exactly one-minute, the drop in the column indicates the flow rate gallons per hour. Double the number on the right hand scale for a 30-second test.
5. When the gauge is not in use, Valve B must be closed.
6. Valve A must remain open at all times except when testing the pump rate.

# Specifications

MODEL	SIZE (ML)	CAPACITY		SCALE GRADUATION INCREMENTS (ML)	DIMENSIONS INCHES (MM)		
		GPH	L/H		A	B	C (FNPT)
CC 100	100	3	11.4	1	14 (355.6)	1-5/8 (41.3)	1/2
CC 250	250	7	26.5	2	15 (381)	2-1/4 (57.2)	1/2
CC 500	500	16	60.6	5	15-5/8 (396.9)	2-3/4 (69.9)	3/4
CC 1000	1,000	30	113.6	5	26-3/8 (669.9)	2-3/4 (69.9)	3/4
CC 4000	4,000	120	454.2	20	31-1/2(800.1)	5 (127)	2



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