

# VARIABLE-FLOW CHEMICAL TRANSFER PUMP

## SPECIFICATIONS:

Flow:	120 milliliters to 2.2 liters per minute
Fluid Viscosity:	0 to 200 centipoises
Suction Lift:	3 meters wet, 10 centimeters dry
Acceptable Fluid Temperatures:	-40 to 93 °C
Acceptable Tubing:	All types
Tubing Size:	Inside diameter of 3.2 mm to 6.4 mm inside diameter (1/8 inch to 1/4 inch)
Wetted Parts:	Dupont Delrin, 304 Stainless Steel, Viton, Dupont Teflon
Motor:	12 Volt DC Variable
Adaptor:	U.L. 120 VAC, 60 Hz, 47 W
Duty cycle:	Intermittent
Size:	20.3 x 12 x 11.5 cm (8 x 4 3/4 x 4 1/2 inches)
Weight:	454 grams (1 pound)

**CAUTION:** Prior to use, a 'Chemical Resistance Chart' should be used to insure that wetted pump parts will not be affected by chemical being pumped.

## MAXIMUM FLOW RATES AT DIFFERENT HEAD PRESSURES

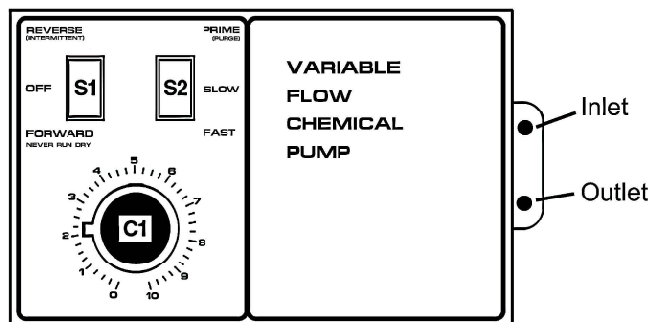
PSI	Ft H <sub>2</sub> O	ml/min	fluid oz/min
0	0	2,200	78
5	12	2100	75
10	23	1750	63
15	35	1250	45
20	46	350	13

## CONTROL PANEL

S1: Power/Direction switch: For selecting FORWARD, REVERSE, & power OFF

S2: Pump Speed switch: For selecting FAST, SLOW, and PRIME (PURGE)

C1: Variable Flow Control: For varying flow rate



**CAUTION:** During operation of the pump, the top panel or the black heat sink on the back of the pump may be very warm to the touch.

## OPERATION

1. Plug the power supply into an electrical outlet.
2. Remove red covers from the inlet and outlet barbed pump fittings.
3. NOTE: To insure instant pumping place some liquid into pump inlet or outlet fittings so it is wetted. (Prime pump by placing some liquid into the

barbed fitting. This can be done by squeezing a short piece of tubing filled with liquid, an eyedropper, a bulb filled with liquid, blowing into a short piece of tubing filled with liquid, or using a syringe.)

4. Slide one end of a piece of tubing (inside diameter 3.2 mm to 6.4 mm, 1/8 inch to 1/4 inch) over the barbed inlet pump fitting (inlet is fitting closest to the back of the pump). Most users select 6.4 mm (1/4") inside diameter tubing. Place the other end of the tubing into the vessel to be emptied.
5. Slide one piece of tubing over the barbed outlet pump fitting (outlet is fitting closest to the front of the pump). Place the other end of the tubing into the vessel to be filled.
6. Move Power/Direction switch (S1) to FORWARD to activate pumping.
7. Move the Pump Speed switch (S2) to Prime (Purge) to quickly fill the tubing with liquid.
8. Move the Pump Speed switch (S2) to SLOW or FAST.
9. Within each of the two speed ranges (SLOW and FAST), the flow rate can be varied for precise delivery by rotating the Variable Flow Control knob (C1). Selecting a higher reference number increases the flow rate of the pump.
10. Use REVERSE (S1) to empty the liquid in the tubing back to a vessel.

## TROUBLESHOOTING

1. If the pump sounds like it is pumping, but no liquid is moving, do the following. Prime the pump by placing some liquid into the barbed inlet fitting. This can be done by squeezing a short piece of tubing filled with liquid, an eyedropper, a bulb filled with liquid, blowing into a short piece of tubing filled with liquid, or using a syringe.
2. If the pump has been pumping at high speed for sometime, the regulator chip may overheat and shut the unit down. Turn the pump off and allow it to cool down.
3. If the pump makes no sound when turned on, make certain there is power to the outlet and the power supply is plugged in.

## ACCESSORIES

### Control Co.

#### Cat. No. 3280 Tight-Seal™ Hose/Tubing Clamp Assortment

Includes 5 each of 13 different sizes. Clamps have an inside diameter from 6.2 mm to 41 mm (0.246 to 1.61 inches). Clamps securely fasten tubing on connectors, pumps, glassware, and filtration units. Chemical-corrosion-resistant, rustproof, and nonconducting nylon is ideal for use in the wide temperature range of 0 to 90°C (32 to 194°F).

### Control Co.

#### Cat. No. 3285 Tight-Ties™, Cable Ties Assortment

Includes 400 ties with lengths from 4 to 14 inches. One-piece, self-locking, ties are made of chemical-corrosion-resistant, rustproof, and nonconducting nylon, ideal for use in the wide temperature range of -40 to 85°C (-40 to 185°F).

## WARRANTY, SERVICE, OR RECALIBRATION

Cat. No. 3388 Variable Flow Chemical Transfer Pump Instructions

92-3388-00

Rev. 2 061104

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