

## VARIMIX

### AIR OPERATED VARIABLE MIX AND DISPENSE SYSTEM



**PLEASE READ THIS MANUAL CAREFULLY BEFORE OPERATING, ADJUSTING OR SERVICING THIS EQUIPMENT**

It is the responsibility of the employer to place this information in the hands of the operator. Keep for future reference.

#### VARIMIX DATA

<b>Pump Type</b>	1/4" Non-metallic, Air Operated, double-diaphragm pump.
<b>Pump Materials</b>	Polypropylene, Santoprene.
<b>Varimix Materials</b>	Mild Steel, Polyurethane seals.
<b>Pump Weight</b>	4 kgs (Approx. 2 kgs each)
<b>System Weight</b>	25 kgs (60 lbs)
<b>Max. Air Inlet Pressure</b>	100 psig (6.9 bar)
<b>Min. Air Inlet Pressure</b>	20 psig (1.4 bar)
<b>Max. Outlet Pressure</b>	100 psig (6.9 bar)
<b>Max. Flow Rate</b>	6 gpm (27.3 lpm)
<b>Max. Suction Lift (Dry)</b>	10 ft (3050 mm)
<b>Max. Output per Cycle</b>	0.022 gallons (0.083 litres)
<b>Max. Particle Size</b>	Clean fluid only.
<b>Max. Temp. Limits</b>	35° - 150° F (2° - 66° C)
<b>Pump Dimensions</b>	190 x 145 x 140 mm.
<b>Varimix Dimensions</b>	600 x 600 x 300 mm.
<b>Storage Capacity</b>	Not applicable on this model.
<b>Noise Levels @ 70psi</b>	59.8 - 71.1db(A) * +

\* The pump sound pressure levels published here have been updated to an Equivalent Continuous Sound Level (L<sub>aeq</sub>) to meet the intent of ANSI S1.13-1971, CAGI-PNEUROPS5.1 using four microphones

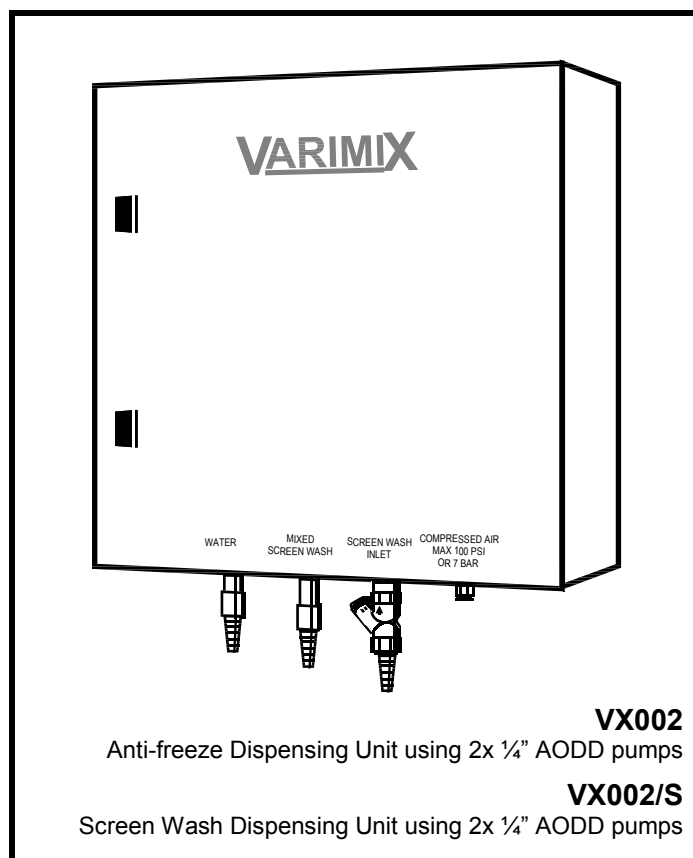
+ Levels stated are per pump. As quoted by ARO/Ingersoll-Rand, expect a level reduction due to Varimix outer casing.

#### GENERAL DESCRIPTION

The Varimix VX unit is a high volume mix-on-demand system offering high product delivery at low air pressures, easy self-priming and the ability to pump various viscosity materials, ideal for mixing anti-freeze, screen wash solutions or diluting strong liquids.

As authorised distributors of ARO / Ingersoll-Rand, Air Pumping utilise two of the highly acclaimed ARO double diaphragm pumps per Varimix unit. With each pump running between 20 and 100 psi, the combination of the two units allows a precise mix at any rate.

The pumps utilise a pressure differential in the air chambers to alternatively create suction and positive fluid pressure in the fluid chambers. Pump cycling will begin as air pressure is applied and it will continue to pump and keep up with the demand. It will build and maintain line pressure and will stop cycling once the maximum line pressure is reached (or the dispensing device is shut off) and will then resume pumping as needed.



**VX002**

Anti-freeze Dispensing Unit using 2x 1/4" AODD pumps

**VX002/S**

Screen Wash Dispensing Unit using 2x 1/4" AODD pumps

#### AVAILABLE ACCESSORIES



##### Retractable Hose Reel

**P/N: APR300**

30' (10 m) length  
3/8" (10 mm) inner diameter  
Reinforced PVC construction  
Suitable upto 150 psi (10 bar)



##### Control Handle

**P/N: AP1936**

Non-drip nozzle  
Flexible hose attachment  
3/4" product inlet  
Suitable upto 600 psi (41 bar)

Please contact Air Pumping for further details on the full range of Varimix accessories

AIR PUMPING ENGINEERING SERVICES LIMITED  
P.O. BOX 239 • LONDON • E6 3SG • ENGLAND  
TEL: +44 (0) 20 8470 8721 • FAX: +44 (0) 20 8470 4617

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## HEALTH & SAFETY PRECAUTIONS

PLEASE READ AND FOLLOW THIS INFORMATION TO AVOID PERSONAL INJURY AND PROPERTY DAMAGE

**UNDER U.K. LAW IT IS PROHIBITED TO CONNECT ANY PUMP OR PUMPING SYSTEM RATED OVER 12 LITRES PER MINUTE (LPM) DIRECTLY INTO A MAINS WATER SUPPLY. A break tank or anti-backflow –type system *must* be employed between Varimix and supply.**

### **WARNING!**

Excessive Air Pressure can cause personal injury, pump damage or property damage.

**DO NOT** exceed the maximum inlet air pressure as stated.

Be sure material hoses and other components are able to withstand fluid pressures developed by this pump.

Check all hoses for damage or wear.

Be certain dispensing device is clean and in proper working condition.

### **WARNING!**

Hazardous Pressure can result in serious injury or property damage.

**DO NOT** service or clean pumps, hoses or dispensing valve while system is pressurised.

Disconnect air supply line and relieve pressure from the system by opening dispensing valve or device and/or carefully and slowly loosening and removing outlet hose or piping from pump.

Disconnect air line from the system when idle for long periods of time.

### **WARNING!**

Excessive air pressure can cause pump damage, personal injury or property damage.

A Filter capable of filtering out particles larger than 50 microns should be used on the air supply.

There is no lubrication required.

If lubricated air *is* present, make sure that it is compatible with the Nitrile “O” rings in the air motor section of the pump.

### **WARNING!**

Hazardous Materials can cause serious injury or property damage.

**DO NOT** attempt to return a pump to the factory or service centre that contains hazardous material. Safe handling practises must comply with local and national laws and safety code requirements.

### **CAUTION!**

Verify the chemical compatibility of the pumps wetted parts and the substance being pumped, flushed or re-circulated. Chemical compatibility may change with temperature and concentration of the chemicals within the substances being pumped.

### **CAUTION!**

Maximum temperatures are based on mechanical stress only. Certain chemicals will significantly reduce maximum safe operating temperature.

### **CAUTION!**

Be certain all operators of this equipment have been trained for safe working practices and understand the systems limitations.

Prevent unnecessary damage to the pumps.

**DO NOT** allow pumps to operate when out of material for long periods of time.

Use only specified replacement parts to assure compatible pressure rating and longest service life.

### **WARNING!**

Hazards or unsafe practises which could result in severe personal injury, death or substantial property damage

### **CAUTION!**

Hazards or unsafe practises which could result in minor personal injury, product or property damage

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## OPERATING INSTRUCTIONS

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### PLEASE READ AND FOLLOW THESE STEPS TO ENSURE CORRECT SYSTEM OPERATION

1. Ensure Water supply valve (E) is fully open. This can be left open, supply is controlled by demand.
2. Ensure Anti-freeze delivery valve (D) is fully open. This can be left open, supply is controlled by demand.
3. Set side mounted Air Filter Regulator (F) to 70 psi.
4. To start dispensing, open the Varimix discharge valve (A) situated on the Varimix system or use the remote dispensing gun.

Each Varimix system is set up as per customers specification as supplied in the manufacturing stages and can easily be altered at any time. Please note: Once a machine is calibrated, it *will not* 'loose' its settings. Please refer to our contact options to schedule an Engineer to re-calibrate or follow the instructions below.

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## INSTRUCTIONS FOR CALIBRATION

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PLEASE READ AND FOLLOW THESE STEPS EXACTLY. IF YOU ARE UNSURE OF ANYTHING CONTACT AIR PUMPING (X) REFER TO ASSOCIATED DEVICES SHOWN OVERLEAF (PAGE 4) NB: FIGURES ARE FOR 50/50 MIX.

1. Ensure external water supply valve is open from header tank to Varimix cabinet, and an adequate supply is available.
2. Ensure that ball valve (A) on Anti-freeze/water mixture discharge manifold is closed.
3. Open brass gate valve on Water pump (E) and Anti-freeze pump (D).
4. Set air pressure in cabinet to 60-70 psi using the internal Air Filter Regulator (F).
5. Screw knurled adjusting knob (H) clockwise approximately half a turn.
6. Set air pressure regulator (B) on Water pump to 45 psi and set air pressure regulator (C) on Anti-freeze pump to 50 psi. Fully open ball valve (A).
7. Ensure there is an adequate supply of Anti-freeze into the Varimix cabinet.
8. Open filling point valves to purge any air from the pipe work. When system is empty of air, close valves on filling points.
9. Open valve at Filling point furthest from the Varimix and run until anti-freeze is apparent in the mixture. Close the valve.
10. Open valve at filling point nearest to Varimix and draw off 2-3 gallons of mixture.
11. Test sample from 11, using a Hydrometer (this will show a % content of Anti-freeze). If the level is too high, increase pressure on Water pump Air Regulator (B) or reduce pressure on the Anti-freeze pump Air Regulator (C) (Leave brass gate valves (D & E) fully open) until level is found.
12. Continue the testing process, balancing the Air Regulators (B & C) until required mixture is reached.
13. Leaving one discharge point open, close valve (A).
14. Slowly open valve (A) again until pumps are just stroking, then unscrew knurled nut (H) anti-clockwise until control valve unit (unit below knob-H) gives an audible click. Lock off nut (H), fully open valve (A) and close the discharge point. Your Varimix system is now re-calibrated and ready to use again.

## TROUBLESHOOTING

### VARIMIX IS DISPENSING WATER ONLY

- Ensure there is an adequate supply of Anti-freeze.
- Check "Y" leg filter on front of cabinet for any waxy build up. Clean.

### VARIMIX IS DISPENSING ANTI-FREEZE ONLY

- Check water supply into machine and ensure all valves are open.

### SYSTEM DOES NOT FUNCTION

- Check air supply and ensure valves are open into the Varimix
- Ensure there is an adequate pressure in the compressed air delivery system
- Check water supply into the Varimix
- Check for kinks in supply hoses.
- Check dispensing valves for any build ups

Should any of these measures fail to get your Varimix system operational again or you are experiencing any other problems please do not hesitate to contact your local Air Pumping service outlet for more details.

## TECHNICAL DRAWINGS

DIMENSIONS SHOWN ARE FOR GUIDANCE ONLY AND ARE DISPLAYED IN MILLIMETRES AND (INCHES)

NOTE : NYLON TUBING REMOVED FOR CLARITY

