

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

Pump Model	See model chart below.
Pump Type	Metallic Air Operated Double Diaphragm pump.
Pump Materials	Aluminium, Santoprene.
Varimix Materials	Fibreglass, Polypropylene.
Pump Weight	See specifications on page 4.
Varimix Weight	See model chart below.
System Weight	See specifications on page 4.
Max. Air Inlet Pressure	6.9 bar (100 psig)
Min. Air Inlet Pressure	1.4 bar (20 psig)
Max. Outlet Pressure	6.9 bar (100 psig)
Max. Flow Rate	See specifications on page 4.
Max. Suction Lift	See specifications on page 4.
Max. Output per Cycle	See specifications on page 4.
Max. Particle Size	See specifications on page 4.
Max. Temp. Limits	2° - 66° C (35° - 150° F)
Pump Dimensions	See specifications on page 4.
Varimix Dimensions	See specifications on page 4.
Storage Capacity	See model chart below.
Noise Levels @ 70psi	64.5 db(A) * +

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

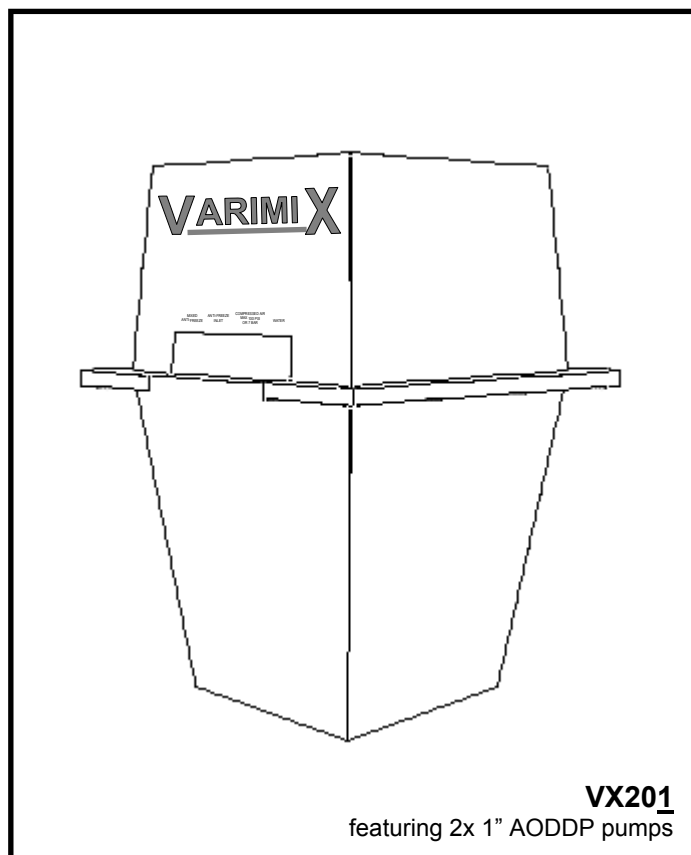
+ Levels stated are per pump. As quoted by ARO/Ingersoll-Rand, expect a level reduction due to outer Varimix Case

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 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 100psi, 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.



VX20 1

1 - 2 x 1" Metallic Ingersoll Rand diaphragm pumps

Self Service options*

Air Valve kit AP637-VX1
Fluid side service kit AP637AE-VX1

Quick Specification

Capacity 205 litres (45 gallons)
Dimensions 1270 x 660 x 660 mm (50 x 26 x 26 inches)
Max. weight 248 kgs (547 lbs)

*All work undertaken at users own risk. Any unauthorised repairs will invalidate any warranties.

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HEALTH & SAFETY PRECAUTIONS

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

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

OPERATING INSTRUCTIONS

PLEASE READ AND FOLLOW THESE STEPS TO ENSURE CORRECT SYSTEM OPERATION

1. Ensure Water supply valve is fully open. This can be left open, supply is controlled by demand.
2. Ensure Anti-freeze delivery valve is fully open. This can be left open, supply is controlled by demand.
3. Set wall-mounted Air Filter Regulator to 70psi
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 attuned to the specification supplied in the manufacturing stages; either in our workshop, or on site - should your needs change the system can easily be altered at any time. To re-calibrate the system, see instructions below. To book an Engineer please contact Air Pumping Ltd using the contact details on page 1. **Note:** Once a machine is calibrated it will not reset or detune itself.

INSTRUCTIONS FOR CALIBRATION

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

1. Open external water supply valve to Varimix cabinet and fill reservoir.
2. Ensure that ball valve (A) on Anti-freeze/water mixture discharge manifold is closed.
3. Set air pressure into cabinet to 60-70psi.
4. Set air pressure regulator (F) on Water pump to 45psi and set air pressure regulator (B) on Anti-freeze pump to 50psi.
5. Fully open ball valve (A).
6. Ensure there is an adequate supply of Anti-freeze into the Varimix cabinet.
7. Open filling point valves to purge any air from the pipe work. When system is empty of air, close valves on filling points.
8. Close ball valve (A).
9. Carefully disconnect the *mixture outlet* hose, and using ball valve (A) gently open enough to let some mixture out on to your test equipment.
10. Test sample from *point 9* (above), using a Hydrometer (this will show a % content of Anti-freeze). If the level is too high, increase pressure on Water pump Air Regulator (F) or reduce pressure on the Anti-freeze pump Air Regulator (B), until level is found.
11. Continue the testing process, balancing the Air Regulators (F & B) until required mixture is reached.
12. Reconnect product outlet hose to ball valve (A) when correct mixture is observed.
13. Opening one filling point, close valve (A).
14. Slowly open valve (A) again until pumps are just stroking, then rotate knurled nut (D) until control valve (situated behind manifold plate) begins to intermittently exhaust air. Lock off nut (D) by screwing the lower nut upwards, and close off the filling point.
15. Fully open valve (A). 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 (C) 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.
- Ensure float valve is free and operating correctly

SYSTEM DOES NOT FUNCTION

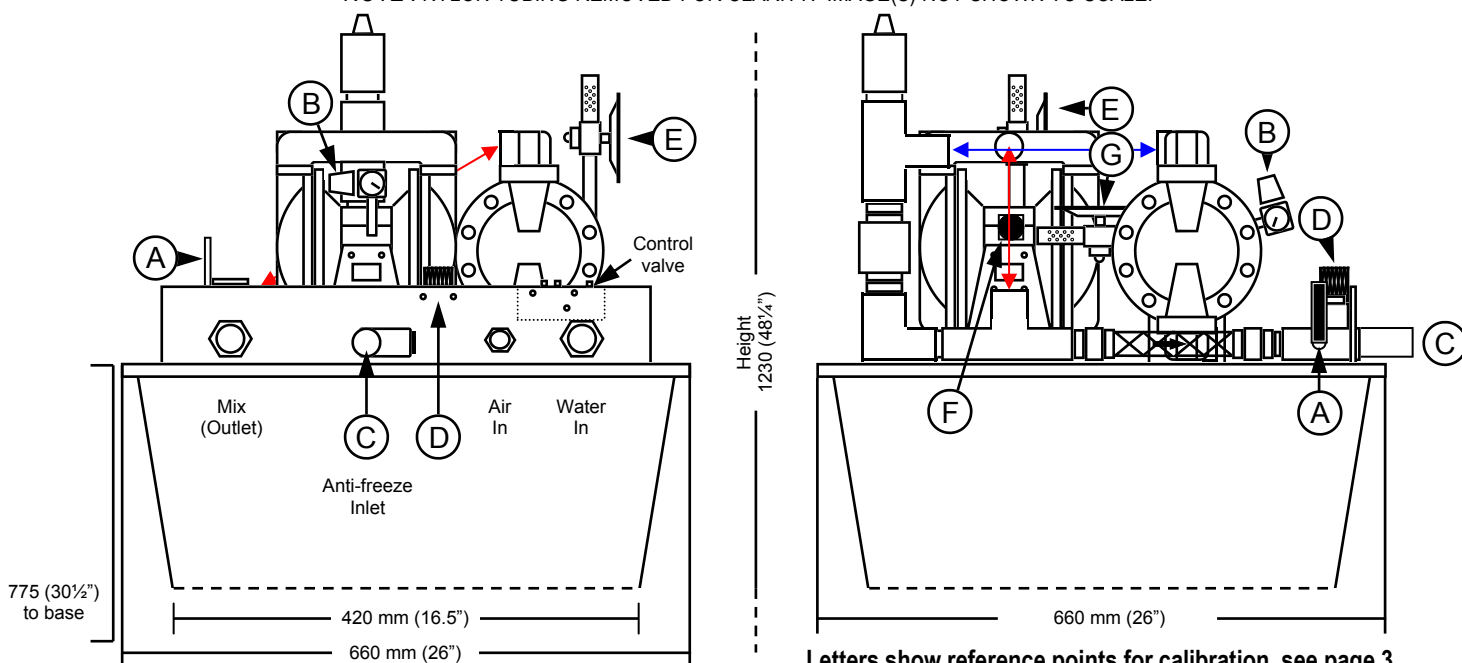
- Check air supply and ensure valves are open into the Varimix
- Ensure there is an adequate pressure in the compressed air delivery system
- Check water supply into the Varimix
- Check for any kinks in any hoses.
- Check dispensing valves for any build ups

Should any of these measures fail to get your Varimix system pumping again or you experience any other problems please contact Air Pumping.

TECHNICAL DRAWINGS

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

NOTE : NYLON TUBING REMOVED FOR CLARITY. IMAGE(S) NOT SHOWN TO SCALE.



SPECIFICATIONS

VARIMIX VX201

Pump Models	2 x 1" APA100/AE		
Pump Materials	Aluminium, Polypropylene, Santoprene.		
Varimix Materials	Fibreglass, Polypropylene.		
System Weight (Dry)	45.60 kgs (100.5 lbs)	Unit Capacity	Approx. 205 litres (45 gallons)
System Weight (Full)	255.0 kgs (562.2 lbs)	Max. Flow Rate	133 LPM (35 US GPM)
Max. Suction Lift	5.8 metres (19 ft) (dry)	Dimensions	1270 x 660 x 660 mm 50 x 26 x 26 inches
Max. Output per Cycle	0.6 litres (0.16 gallons)	Footprint	420 x 420 mm (16.5 x 16.5 inches)
Max. Particle Size	3.2 mm diameter (1/8")		
Max. Temp. Limits	2° - 66° C (35° - 150° F)		
Pump Dimensions	318 x 217.5 x 203 mm 12 1/2 x 8 3/4 x 8 inches		
Noise Levels @ 70psi	64.5 db(A) * + ^		

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

+ Levels quoted per pump as originally published by ARO/Ingersoll-Rand Corp. Rev. ©1999.

^ Figure is a guideline. Expect a slight variation due to exact pump operating conditions and outer casings.

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