

Sprayer pumps

To be effective, pumps must deliver an adequate flow and pressure, and handle the desired chemical without rapid corrosion or wear.

Pumps generally fall into four types: 1. Roller Vane. 2. Diaphragm 3. Centrifugal 4. Piston.

The two most common pumps found in turf and landscape sprayers are roller vane pumps and diaphragm pumps. However, sprayers supplied with Piston and Centrifugal pumps are available.

■ Roller vane pumps produce moderate flows and pressures. The rollers are held in a slotted rotor revolving in a concentric care. As the rollers pass the pump inlet, the cavities between and under the rollers enlarge and draw in liquid. When nearing the outlet, the cavities contract – due to the concentric housing – and force the liquid out of the pump.

Roller vane pumps handle a variety of pesticides and have a low



purchase and maintenance cost. These pumps operate very efficiently, but as pressure increases, the volume (output) decreases.

For courses that use wettable powders regularly, a roller vane pump should not be selected as it is unsuitable for use with abrasive/corrosive materials i.e. iron and nitrates that rapidly cause wear to the pump housing, the slots in the rotor and the rollers. Though replacing the rollers is quite simple it may not restore the pump to a satisfactory working condition.

■ Diaphragm pumps have at least

one chamber sealed at one end by a membrane or diaphragm. The other end has an inlet and outlet valve. The diaphragm connects to a piston. As the piston moves, suction draws the liquid through the inlet valve by moving the diaphragm, which enlarges the chamber. The return of the piston forces the diaphragm inwards shrinking the chamber and propelling the liquid out.

Diaphragm pumps require little maintenance because there is minimal contact between the spray material and moving parts. Abrasive materials are less likely

to damage this type of pump, however the diaphragm will require periodic checks every two – three years for leaks. Most pumps have a diaphragm that is resistant to commonly used chemicals and provides a long service compared to other types of pump.

■ Piston pumps propel liquid by a piston moving in a cylinder and operate in a similar way to Diaphragm pumps but, due to the materials coming into contact with the cylinder bore, they are more susceptible to wear and damage. The intake stroke draws the liquid in through one valve and the output stroke forces the liquid out through another. Piston pumps require either an internal or external air chamber (surfae tanks to dampen pulsation in the liquid flow associated with each pump stroke. Without the gurge tank, the sprayer will “pulse” rather than spray a steady stream.

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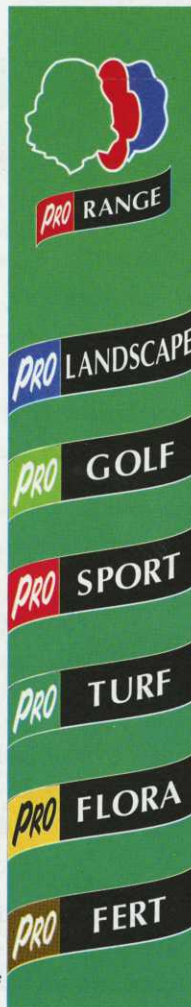


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