

ROOTS, 615 RGS Description:

The Roots RGS high vacuum booster pumps are intended especially for use in the first stage of a vacuum pumping system, in combination with a suitable fore-pump or roughing pump, to produce vacuum conditions in the micron range. It is NOT suitable for duty as a normal pressure blower.

Two double lobe impellers are mounted on parallel shafts, and rotate in opposite directions within a cylinder closed at the ends by headplates. The impellers are positioned one above the other, while the cylinder has inlet and discharge piping connections located on opposite vertical sides. Rotation of the impellers draws air into one side of the cylinder, then traps a definite quantity between one impeller and the cylinder. Further rotation pushes this trapped volume around the cylinder and out the discharge opening against the pressure existing there. During one complete drive shaft rotation, two such volumes are trapped by each impeller and discharged in an almost continuous flow. A Roots booster is therefore a positive displacement type unit, whose pumping capacity is determined by physical dimensions, operating speed and pressure conditions.

Accurate machining of the cylinder, impellers and gears allows normal operation at necessary speeds without internal contacts. Operating clearances are only a few thousandths of an inch, in order to provide effective sealing of the blower inlet area from the discharge so that back-leakage is held to a minimum. Absence of moving contacts also eliminates the need for internal lubrication, thus the possibility of oil back-streaming.