

VARIAN DIFFUSION PUMPS

The basic use for a vacuum pump is to remove gas molecules from a sealed chamber or area which means to remove atmosphere. The molecules contained in earth's atmosphere are mostly nitrogen, carbon dioxide, oxygen, and common contaminants. The removal of the molecules continues until the level of required vacuum is achieved. Depending on the level of vacuum required you may need a series of various vacuum pumps to achieve this level. The pumps are momentum transfer or molecular pumps and are the most effective for achieving high vacuums. The most common configuration is to have one or two positive displacement pumps and a Diffusion/Molecular pump to achieve high vacuum.

The diffusion pump is the oldest and most reliable for creating a high vacuum. A diffusion pump cannot begin working in full atmosphere which is why you would use a positive displacement pump to get into low vacuum and then the diffusion pump can begin working to achieve higher vacuum levels. This is why you will see a number of vacuum pumps being used in series. There are basically two types of momentum transfer or molecular pumps:

- Diffusion (vapor jet)
- Turbo Molecular (high speed rotating blades)



HS-20



HS-35



VHS-6

Vacuum pumps are combined with chambers and operational procedures in a wide variety of vacuum systems and sometimes more than one pump will be used in series in a single application depending on the level of vacuum required. Vacuum pumps are used in a number of industrial and scientific processes as follows:

- Abar vacuum furnaces
- Heat treating
- Electron microscope
- Mass spectrometer
- Molecular beam welding
- Welding of advanced materials
- Composite Plastic molding
- Production of electric lights, vacuum tubes, and CRT's
- Semiconductor processing
- Medical processes requiring suction
- Industrial processes requiring suction
- Vacuum coating on glass, metal, and plastics for decoration, durability, and energy saving
- Hard coating engine components