Vacuum news

Manufacturers and others

Manufacturers and others are invited to submit information for inclusion in this feature, addressed to the Vacuum News Editor, *Vacuum*, Pergamon Press, Headington Hill Hall, Oxford, OX3 OBW.

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Technical and industrial developments

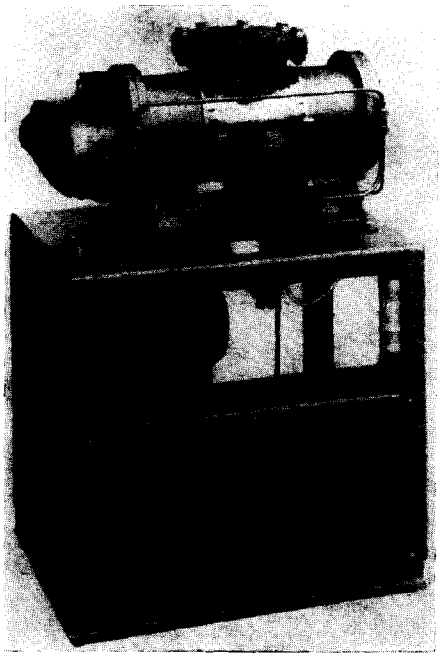
Extended range of turbo-molecular pumps

Balzers High Vacuum Limited of Berkhamsted, Hertfordshire, have extended the range of their Pfeiffer high vacuum pumps to cover suction rates from 250 m^3 per hour to 15,000 m^3 per hour at pressures between 10^{-2} torr and 10^{-9} torr. Among the advantages claimed for these pumps are an extremely low power consumption and elimination of oil contamination at the high vacuum side by virtue of the physical principle of operation. The pumps will operate for approximately 30,000 hours before bearings need replacing. Existing applications of the various models of turbomolecular pumps include particle accelerators both in Europe and in the United States; space simulators; mass spectrometers; and electron microscopes. Industrial applications occur where the absence of hydrocarbon contamination is essential, such as steel plants using spectrometers for continuous quality control, in X-ray tube, TV-tube and electron-tube production, as well as in the production of semi-conductors and thin films.

Balzers High Vacuum Ltd UK
Northbridge Road, Berkhamsted, Hertfordshire.

Turbo-molecular pumpsets

The turbo-molecular pumpsets provide packaged pumping units ready for operation. They comprise the turbo molecular pump, their respective backing pumps, connections, ancillary gear and controls.



Turbo-molecular pumpsets.

The pumpsets are fitted with 2-stage backing pumps. On the large sets from TVS 2000 upwards the backing pumps are in the form of pump combinations. The characteristic of the backing pumps is the high capacity in the presence of water vapour, which tends to determine the ultimate vacuum. Hence it is possible with these pumpsets to obtain ultimate pressures below 1.10^{-9} torr.

The sets TVS 900, TVS 2000, TVS 5000 and TVS 15000 carry the ultra high vacuum flange above, whilst sets TVS 900 S, TVS 2000 S and TVS 5000 S have these flanges fitted at the side.

General construction. The pumps are arranged on a sturdy frame, ensuring the minimum connecting pipe lengths and compactness of the unit. The set TVS 15000 is not mounted on a common frame, but delivered in several parts.

In order to avoid vibration from pump (8) to be transferred to the TVP (1), the TVP is mounted on resilient pads; in addition the line to the backing pump carries a bellows (7). This line also carries an autopneumatic valve (6) which automatically seals the pump in the event of power failure. When the backing pump is re-started, the valve will re-open after a time delay, to ensure that the intermediate pressure is maintained.

The venting system is fitted to the manifold (5). Small flanges are fitted for mounting of a Theva measuring head and automatic flooding.

The Pumps TVS 2000 to TVS 15000 are also fitted with diaphragm pressure switch (4). This shuts off the pumpset if the intermediate pressure should exceed a preset limit. This prevents for example the overloading of the torque converter coupling at higher pressures. The pumpset TVS 900 does not require the pressure switch. The torque converter is so designed in this case that the turbo molecular pump can also operate at atmospheric pressure.

Venting System This comprises a manually-operated valve (2) and a P_2O_5 trap. When the TVP is vented air will stream into the drying trap which considerably reduces its moisture content. This means that the subsequent pumpdown time is considerably shortened.

The electrical control equipment is built into a closed cubicle. Fuses are easily accessible and the front panel contains the push-