



- AW/4646/B
1. Inlet
  2. HCMB oil filler-plug \*
  3. Inverter enclosure †
  4. HCMB pump-motor \*
  5. HCMB oil-level sight-glass \*
  6. Gas Module
  7. HCDP pump-motor
  8. HCDP oil filler-plug
  9. Levelling-foot
  10. Castor
  11. HCDP oil-level sight-glass
  12. HCDP pump
  13. Nitrogen pressure regulator
  14. Pump Display Module
  15. Emergency stop switch
  16. HCMB pump \*
  17. Outlet
  18. Check-valve
  19. Exhaust-pipe

\* iH600/iH1000 only  
 † iH1000 only

Figure 1-1 - The iH system (iH600/iH1000 shown, with side panels removed)

## 1.4 The HCDP gas system

The HCDP pump has a gas system which is suitable for use in harsh processes, such as ion implanters, PECVD (Plasma Enhanced Chemical Vapour Deposition), LPCVD nitride, LPCVD TEOS and Silicides. The gas system is also suitable for use in light or medium duty processes.

The gas system can be preset to operate in any one of the following four configurations: low gas; medium gas; medium gas and exhaust; high gas. As supplied, the gas system is preset for the high gas configuration. To change the gas system configuration, refer to Section 5.2.

The gas system has supply pipelines and components (such as valves), a Gas Module with a distribution manifold, gas purge controls and sensors, and pipelines which deliver purge nitrogen to the purge points on the HCDP pump.

The gas system provides the following purge flows to the HCDP pump:

- Shaft-seals purge: this purge flow is on whenever the HCDP pump is on.
- 2/3-interstage purge and 3/4-interstage purge: these purge flows are either both on or both off. The purge flows can be switched on or off by use of the Pump Display Module or by your own control equipment.
- Exhaust-purge: this purge flow is on whenever the HCDP pump is on and the gas system is either in the high gas configuration, or in the medium gas and exhaust configuration.
- Inlet-purge: this purge flow is only used in high gas configuration. The purge flow can be switched on or off by use of the Pump Display Module or by your own control equipment.

Refer to Figure 1-2 which shows a schematic diagram of the iH gas system.

The purge flow pressure is controlled by a pressure regulator (26). A mass flow transducer (25) measures the total flow of purge gas to the pump purge points. A check-valve (27) prevents the flow of process gases back into your nitrogen supply pipeline.

The 3/4-interstage purge and 2/3-interstage purge flows are switched on and off by the solenoid-valves (17 and 18). The inlet-purge, shaft-seals purge and exhaust-purge flows are switched on and off by the solenoid-valves (22, 19 and 24). The 2/3-interstage and 3/4-interstage purges solenoid-valve (21) operates in conjunction with the inlet-purge solenoid-valve (22), to provide reduced interstage purge flow when inlet-purge is switched on.

Variable restrictors (12 to 16 and 20) limit the purge flow rates.

A pressure transducer (23) monitors the pressure of the shaft-seals purge flow, and another pressure-transducer (9) monitors the pressure in the exhaust pipeline. The outputs of the pressure transducers are used to display the shaft-seals purge and exhaust pressures on the Pump Display Module.

A pressure relay (10) also monitors the pressure in the exhaust pipeline. The outputs of the pressure relay are connected directly into the emergency stop circuit of the iH system: see Section 1.10.4.

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