



Specifications for pumps for UHV sputtering chamber

1. Magnetically levitated turbo molecular pump

- Inlet flange – DN200CF
- Pumping speed:
 - Nitrogen – at least 1000 l/s
 - Hydrogen – at least 800 l/s
- Desired compression ratio:
 - Nitrogen – at least 10^8
 - Hydrogen – at least 10^5
- Ultimate Pressure in chamber must be in the order of 10^{-10} torr
- Maximum continuous outlet pressure – 0.1 torr
- Maximum pump speed rating - at least 35000 rpm
- Maximum inlet flange temperature - 120°C
- Must be completely oil free
- Must be water cooled
- Must come with appropriate power cable with length at least 5 metres

2. Rotary vane pump (1 phase supply)

This pump will be used for backing the above turbo pump and for roughing the chamber.

- Minimum Displacement volume:
 - At 50Hz – at least $32\text{m}^3/\text{hr}$
 - At 60Hz – at least $38\text{m}^3/\text{hr}$
- Minimum speed:
 - At 50Hz – at least $27\text{m}^3/\text{hr}$
 - At 60Hz – at least $33\text{m}^3/\text{hr}$

- Ultimate vacuum while roughing:
 - Without gas ballast – at least till $1 \cdot 10^{-3}$ mbar
 - With Gas ballast – at least till $2 \cdot 10^{-2}$ mbar
- Inlet connections – NW25 flange
- Outlet connection - Nozzle 15 mm external \varnothing removable from 3/4 in BSP tapped hole
- Maximum allowed pressure at outlet – 0.5 bar
- Max inlet pressure for water vapour – 30 mbar
- Minimum water vapour pumping rate – 0.7 kg/hr
- Must be operational in the temperature range 15 to 40°C
- Nominal rotation speed:
 - At 50Hz – at least 1400rpm
 - At 60Hz – at least 1700rpm
- Must include power cable, mist filter and spare oil for at least 1 refill