



**INDIAN INSTITUTE OF TECHNOLOGY BOMBAY**  
**MATERIALS MANAGEMENT DIVISION**  
Powai, Mumbai 400076

**TECHNICAL SPECIFICATIONS**

**ACID PURIFICATION SYSTEMS**

- I. PTFE Sub-boiling acid distillation systems:** Compact, integrated PTFE sub-boiling acid distillation systems for purifying  $\text{HNO}_3$ ,  $\text{HCl}$  and  $\text{HF}$ . Made of high purity, chemically and biologically inert PFA material. To purify reagents grade acid to high purity acid for usage in critical trace element analysis by ICP-MS.
- II. Heating system and temperature control:** Infrared heating elements with 600 W power. Variable temperature settings. Thermocouple near infrared heating elements. Temperature controller to be kept at a distance of 2–3 meter with a power cord. Length of input power cord 2–3 meter. Power source 230 VAC, 50/60 Hz.
- III. Capacity and distillation rate:** Acid purification up to 1 litre at a time. Distillation rate of 40 ml per hour for each of  $\text{HNO}_3$ ,  $\text{HCl}$  and  $\text{HF}$  or better.
- IV. Cooling:** Air cooled, without the need of running water.
- V. Construction material:** All-PFA chamber with integrated heater, and a PFA collection bottle. Vents in the vessel and distillate transfer should be fitted with PTFE membranes to prevent airborne contamination. All wetted parts should be of high purity, molded PFA.
- VI. Safety and Design:** No bubbling, spitting or splashing. Pressure equalization tube to maintain uniform pressure throughout the system. Built-in waste drain for easy cleaning, without the use of a pump. Compact design with a footprint of 40 cm x 20 cm and height of 45 cm or equivalent volume to fit in a normal fumehood.
- VII. Number of Systems:** It is essential to quote three numbers of acid purification systems, one each dedicated separately for  $\text{HF}$ ,  $\text{HCl}$  and  $\text{HNO}_3$ . Three purification flasks (1 litre each), three re-condensation flasks (1 litre each), three collecting flasks (500 ml each), and three collection bottles. One polypropylene spill tray.
- VIII. Warranty:** One year from the date of successful installation/ commissioning of equipment