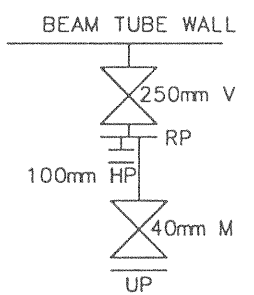
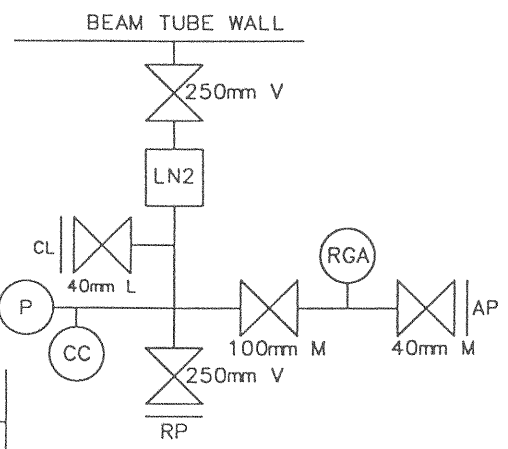


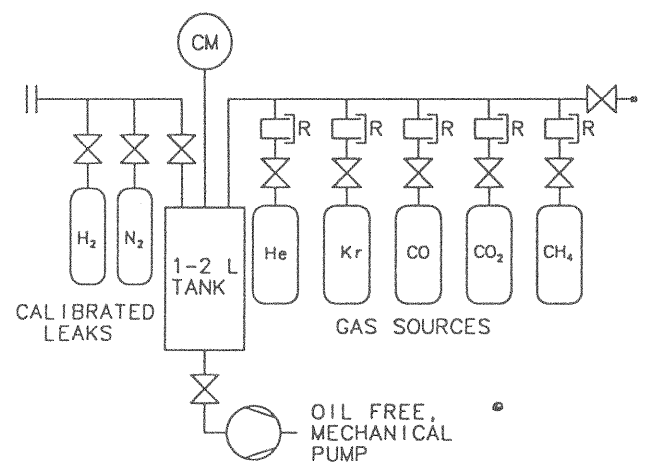
# PUMP PORT HARDWARE

TYPE B: FOR PORTS DURING  
BAKE & LEAK CHECK  
9 UNITS REQUIRED, PLUS SPARES

TYPE H: FOR PORTS DURING HOLD  
(AFTER ACCEPTANCE,  
BEFORE OPERATION)  
36 UNITS REQUIRED PER SITE,  
PLUS SPARES



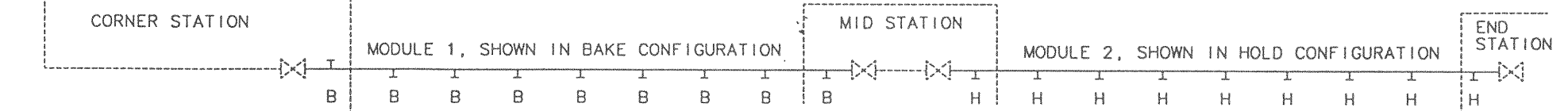
## PORTABLE CALIBRATION MODULE



### LEGEND FOR PUMP PORT HARDWARE:

- AP: BLANKED PORT FOR AUXILIARY TURBO PUMP
- CC: COLD CATHODE GAUGE
- CL: BLANKED PORT FOR CALIBRATED LEAKS
- CM: CAPACITANCE MANOMETER GAUGE (ABSOLUTE)
- G: BOURDON GAUGE
- HP: BLANKED PORT FOR RGA HEAD INSTALLATION
- LN2: LIQUID NITROGEN TRAP, 4 M<sup>2</sup> COLD SURFACE
- L: VARIABLE LEAK VALVE
- M: METAL SEALED VALVE
- P: PIRANI GAUGE
- R: REGULATOR WITH DUAL GAGES
- RGA: THE FOLLOWING SYSTEM OR ITS EQUIVALENT: BALZERS QMG 421-1 (MASS RANGE 1-100, CONSISTING OF QMS 421-1, QUADSTAR 421, QMA 125 WITH GRID ION SOURCE 110V AND SEM 90 DEG OFF AXIS/FARADAY) PLUS IC 421 ION COUNTER, CP 400 ION COUNTER PREAMPLIFIER, AND QAM ANALYSIS MATRIX SOFTWARE
- RP: BLANKED PORT FOR ROOTS AND TURBO PUMPS
- TP: BLANKED PORT FOR TURBO PUMP
- UP: BLANKED PORT FOR UTILITY PURPOSES
- V: VITON SEALED VALVE

NOTE THAT PUMP PORTS  
AT MODULE ENDS AT THE  
CORNER STATION ARE  
POSITIONED ON THE  
INBOARD SIDE OF THE  
ANGLE BETWEEN THE  
BEAM TUBE ARMS.



PLAN VIEW OF ARM AT HANFORD SITE, SHOWING TYPES OF HARDWARE AT EACH PUMP PORT