

connection, an additional block valve and a vent valve shall be placed adjacent to the instrument.

For ease of removal of alignment, pressure gauges shall be screwed into unions and not directly into valves or sockets.

Pressure piping to instrument shall be such that under no circumstances vapour locks or traps formed, and that piping is completely "full of liquid".

Pressure gauges on pump suction and discharge lines shall be easily visible from the relevant pump starter switch as well as from the suction and discharge valves, the gauges should preferably be installed close to the discharge valves.

When measuring pulsating pressure, suitable dampening methods shall be provided (dampening devices in the process connection etc.).

Where pressure gauges are installed on liquid measurement, allowance must be made for the static head in the instrument line.

Pressure transmitters shall be suitable for field mounting and be connected with the process via block and bleed valves.

Magnetic flow elements shall be mounted strictly according to the manufacturer's instruction. The flow meter must be oriented with the electrodes in a horizontal line. Precautions must be taken to ensure that the metering tube is filled at all times during measurement. The sensor should be mounted away from turbulence – generation components (e.g. valves, elbows, t-sections) whenever possible so that the upstream distance shall be min. (5 to 10) X pipe dia. and the downstream distance shall be min (2 to 5) X pipe dia.

In case of using a remote transmitter unit then the cable type and length shall be according to Vendor recommendations and specifications.

Magnetic flowmeters and their converter shall be protected against direct sun radiation.

Level gauges shall be installed with a shut-off valve in both the top and bottom process connections.

The float for the level switches shall be mounted in an external float chamber which shall be installed with a shut-off valve in both the top and bottom process connection.

All liquid level instruments shall be provided with drain valves and vent valves.

The ADWEA/ENGINEER reserves the right to direct the removal and replacement of any work which, in his opinion, does not present an orderly or reasonably neat workmanlike appearance, provided that such work can be properly installed in an orderly way by usual methods. Such removal and replacement shall be carried out solely at the CONTRACTOR's expense.



Client	ADWEA
Project:	STANDARD SPECIFICATIONS FOR WATER WORKS
Title:	SPECIFICATION FOR INSTRUMENTATION & CONTROL SYSTEMS INSTALLATIONS