

- a. Pumps shall be tested with their individual drive to determine head, capacity, efficiency, balance and vibration.
- b. Valves shall be tested and certified as being leak-proof against a differential pressure equal to the design pressure. Leakage allowance rate shall be in accordance with relevant standards approved by the Engineer.
- c. Cables shall be type tested and shall subject of factory tests prior to delivery according to VDE 0250, VDE 0271, and VDE 027.
- d. Panels shall be tested in accordance with VDE 0660 for insulation resistance, general mechanical and operational reliability, simulated operational sequence, primary or secondary injection tests, over-potential (flash tests).
- e. Loading test certificates for all lifting gears and crane beams, girders, hoists, etc. shall be provided.

1.4.4 Field Tests

- A. The plant installed shall be operated by the Contractor in presence of the manufacturers' authorised technical representative and under the supervision of the Engineer through the entire range and sequence of operation in order to demonstrate its compliance with the requirements specified and/or implied in the Contract.
- B. Any short-comings, defects and or malfunctions of the plant or any part of thereof, that may become apparent during such tests, shall immediately be made good by the Contractor to the satisfaction of the Engineer.
- C. Three months before the expected date of PAC the Contractor shall submit to the Engineer, for the Engineer's approval, a detailed programme and organisation chart for said operation and maintenance, manpower schedule and curriculum vitae of the key personal.
- D. Latest two months before start of field tests the Contractor shall submit for the Engineer's approval all required test procedures including a complete set of inspection, testing & commissioning record form sheets for each type and kind of inspection and test to be conducted in the field.
- E. These form sheets shall show in detail the proposed inspection and test procedure, their execution and recording.
- F. Besides visual inspection the following components and systems are subject of field inspection and testing: