mounting for maintenance purposes and shall be damp-proof and dust-proof with a minimum Ingress Protection (IP) rating to IP 54.

C. The motor starter shall be rated to carry full load current of its rated duty at its most severe load conditions and shall also meet service and site climatic conditions specified in this specification.

D. All starters shall be selected for Utilization category AC3 duty and be capable of at least 20 starts per hour at 100% full load torque.

E. The components of the starter shall have been type tested and ASTA certified to achieve Type 2 co-ordination in accordance with BS EN 60947.

F. The following methods (Clauses 3.15.01 and 3.15.02) shall be employed to start the motors installed in chambers and wet well for drain purposes, unless specified otherwise on relevant contract drawings:-

1.3.15.1 Direct on Line (DOL) Full Voltage Motor Starter

Single-phase motors up to 0.746kW (IHP) and 3phase motors up to 2.238kW (3HP).

The Direct on Line starters shall be designed to start and accelerate the motor to normal speed and provide protection to the motor and its associated control and power circuits against operating overloads and switching off the motor by disconnecting the supply to the motor from the mains. The reversing full voltage Direct on Line starter if to be used shall be designed in the similar manners.

1.3.15.2 Soft Starters

(A) 3.73 kW up to 37.3 kW with starting current up to 2xfull normal motor current.

(B) Above 37.3kW up to 111.9kW with current up to 1.5xfull normal motor current.

A. A solid state, microprocessor based, reduced voltage soft starter shall consist of six silicon controlled full wave rectifiers, two rectifiers per phase connected back to back in reverse configuration.

B. The soft starter shall be employed to reduce the voltage across the motor terminals during the starting process resulting in reduced torque from the motor. The voltages across the motor to be increased and decreased progressively in such a way that facilitate step less start and stop of a motor.