## 5.6 WATER BALLAST SYSTEM

The ballast pumps to be provided in the engine room and to supply sea water to IG cooling water service as follows.

No. Two(2) sets Type Vertical, single stage, centrifugal Prime mover Single speed electric motor Discharge rate 2,300 m3/hr Total head 30 m at S.G 1.025 Material Refer to Section 7 The ballast pumps are to have remote start/stop control, and suction and discharge pressure monitoring in the CCR integrated into the IAS, as well as local control.

The ballast system is to consist of a ring main with branches to each ballast tank.

All designated ballast tanks including peak tank which may be used for ballast water tanks to be capable of being filled or discharged by any ballast pump. Surge protection devices (vibration type level switch) to be fitted at ballast main lines (4 – fore & aft, P&S) for interlock of ballast pump start and concerned valve operation when ballast main lines are not suitably flooded.

## 5.7 BILGE SYSTEM

The bilge pumps to be provided in the engine room and to handle bilge water removal as follows.

No. Two (2) sets

• Type: Vertical, single stage, centrifugal

Prime mover: Single speed electric motor

• Discharge rate: 150 m<sup>3</sup>/hr

• Total head: 25 m at S.G 1.025

Material: Refer to Section 7

The bilge pumps are to have remote start/stop control, and suction and discharge pressure monitoring in the CCR integrated into the IAS, as well as local control.

The bilge system is to consist of a main bilge line with branches to each bilge well in the engine room, cargo holds, and other designated compartments.

All bilge wells to be capable of being emptied by any bilge pump.

Surge protection devices (vibration type level switch) to be fitted at bilge main lines (2 – fore & aft) for interlock of bilge pump start and concerned valve operation when bilge main lines are not suitably flooded.