

Proposal to supply and install saltwater ice plants

Seawater flake-ice complete unit with the capacity to produce 25 tons ice per day shall be supplied. The seawater flake ice shall have the following: include an evaporator (Ice drum) ice blade, reducer, water pump, water tank compressor (Hanbell/Bitzer), low pressure gauge, high/low pressure control, high pressure gauge, oil pressure gauge, water –cool condenser liquid supply pipe, condenser pump (vertical type), cut-off valve (Danfoss),filter (ALCO/D&F),liquid sight glass (ALCO), solenoid valve (Danfoss),expansion valve (DANFOSS) suction pipe, accumulator, liquid receiver, refrigeration lubricant, electrical control system. An ice store with polyurethane panels capacity of minimum 50 ton and refrigeration system of ice storage with Bitzer/HANBEL SCREW compressor unit to be supplied.

Technical description and specification of the plant

1. Designed condition:

Ambient Temperature: +36 °C

Refrigerant:

Refrigerant system: Direct expansion For Ice store

Seawater temperature: +30 °C

Main current : 400 Volts, 50 Hz, 3 phases

Pilot current : 230 Volt, 50 Hz, 1 phase

Requirement:

- Flake Ice maker x 1 set
- Capacity: 25 tons/24hr.
- Make up water : seawater 30 °C

2. Refrigeration Equipment:

1. Set Screw / Compressor for flake ice maker with screw compressor accessories
2. Shell and tube condenser (cupronickel)
3. Liquid receiver
4. Economizer
5. Pre-chiller
6. 1 set flake ice machine 25tons/24hr (the machine shall be manufactured to use for seawater.)
7. Control panel for refrigeration unit.
8. Ice store cooling system.

3. Ice Machine:

Flake ice thickness 1.6 to 2 mm

Capacity 25 tons/24hours

Product water: Sea water 30 degree Celsius

Desired water temperature may be reduced with pre-chiller arrangement.

4. Ice store:

Walls and ceiling prefabricated insulation panel
(minimum requirement: SS304 inside panel(1.2mm), Outside panel (0.8mm)
Floor under insulation on top reinforced concrete floor
Storage Capacity minimum 50 tons
Room temperature: -10~-15 degree Celsius
The ice store cooling system shall be independent from the ice making system.

5. Operational requirement:

All energy used on the ice plant comes from the plants own diesel generator.
Cummins diesel generator approx. 250KVA with direct injection air cooled conforming to ISO 3046 /BS 5514 shall be included

- Alternator: Stanford brushless AC alternator.
- Separately excited, self-regulated
- Class 'H' insulation
- Automatic voltage regulator

6. The plant comprises with the following items:

1. Ice plant building
2. Ice store 50 tons.
3. Flake ice machine capable of producing sea water flake ice 25 metric tons/24hours.
Compressor Condenser Receiver and all other necessary equipment.
4. Sea water intake to supply sea water to condenser.
5. Sea water supply and filtering system for ice production.

7. Ice plant building:

Steel structure self-supporting with frame Column beam and trusses roof purlin prefabricated for bolt assembling on site, heat resistance metal sheet for roof and siding. All equipment shall be housed in the same building. (Concept drawing attached)

8. Plant performance:

The unit in operation shall be able to produce 25 metric tons sea water flake Ice with thickness of approx. 1.8 mm based on sea water temperature +30.0 degree Celsius.

9. Duration: The Ice plant should be handed over to the Ministry within 5 months of signing the agreement and after the completion of the construction.

10. Duty: The duty of importing the equipment's will only be exempted from its original price after providing the invoice based on the specifications as provided by the ministry.

The equipment's and machinery which are to be included in the Ice Plant:-

- The Machinery and Equipment's required for the production of Ice
- Cold Storage (Storage of Ice)

- Machinery Room (eg:- generator set)
- Spare Parts Room
- Office
- Boundary wall
- Concept drawings to be attached with the proposal
- Should provide with quotation, parameters, diagram and drawing of all machiners and equipment's of ice plant.

11.Land Area of the Ice Plants

A) K. Gaafaru: 3000 sft foot with a boundary wall height of 3 foot with a gate 4 ft

- Ice Plant and Cold Storage (Storage of Ice)
- Machinery room (eg:- generator set) 240 sft
- Spare Parts Room/Godown: 60 sft
- Veranda: 192 sft
- Office: 120 sft
- Toilet: 30 sft
- Toilet: 30 sft

