

THE LIVERPOOL REFRIGERATION CO. LTD.

S.S. "OUSEL".

July 13th. 1934.

BRITISH & CONTINENTAL S.S.CO.

YOUR REF.....

OUR REF. E/5504.JA.

SPECIFICATION

OF

STEAM DRIVEN CO₂ REFRIGERATING PLANT.

DUTY. To cool a full cargo of wet cured Bacon loaded at 50° Fahr., down to 40° Fahr., and at the same time maintain the insulated spaces having a total capacity of 9700 cubic feet at 40° Fahr.

COMPRESSOR. One vertical, enclosed CO₂ Gas Compressor having two single acting cylinders. The Compressor would be of our latest design having the crankcase and cylinders made from solid steel forgings machined all over.

The suction and delivery valves are of the flat ring plate type made easily removable and at the same time prevented from coming adrift while the machine is working.

The compressor is fitted with forced lubrication throughout by means of a valveless oil pump which circulates oil to all bearings and through the oil sealed rotary gland at the flywheel end of the machine.

The whole of the internal working parts of the Compressor are easily accessible and the crankshaft is arranged for easy removal from the crankcase.

The compressor complete with CO₂ valves, pressure gauges and fittings is mounted on a substantial baseplate and provided with flywheel coupling for direct connecting to an independent, vertical, enclosed, single cylinder, double acting Steam Engine, the whole forming a self-contained and compact unit.

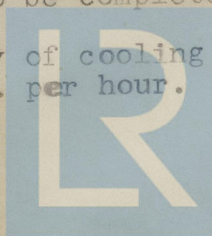
One outfit of spanners and tools would be provided.

For the duty specified the compressor would require to run 500 rpm. and at this speed would absorb about 11 BHP. at the shaft.

CO₂ CONDENSER. One independent CO₂ Condenser consisting of a nest of 1" outside dia. solid drawn copper coils complete with supports fitted in suitably designed cast iron casing.

The condenser to be complete with all necessary valves and fittings.

Maximum quantity of cooling water required for the condenser would be 2000 galls. per hour.



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CO2 EVAPORATOR.

consisting of a nest of 1" bore heavy gauge solid drawn steel coils fitted in mild steel shell.

The evaporator would be complete with all necessary valves and fittings.

BRINE PUMPS.

Two independent, steam driven, duplex brine circulating pumps (one being spare). The pump ends to be of cast iron brass fitted and the pump to be complete with steam and exhaust stop valves.

AIR COOLER.

One brine pipe air cooling battery made from $1\frac{1}{2}$ " nom. bore solid drawn steel tubing. The air cooler to be complete with the necessary supports, inlet and outlet brine headers, brine control valve for each section, thermometer bends and brass cased thermometers.

The cooler grids to be painted with anti-corrosive paint.

COOLER FAN.

One cased type Fan capable of moving 7650 cu.ft of air per minute against $1\frac{1}{2}$ " static watergauge. The fan to be direct driven by a $3\frac{1}{2}$ BHP. electric motor provided with suitable marine type starter.

SUNDRIES.

We include the CO2 regulating, charging and stop valves, also CO2 connecting pipes and couplers to make a complete working unit.

DELIVERY & ERECTION. The whole of the Plant described above to be delivered F.O.R. BIRKENHEAD, erected on board the vessel at a suitable quay berth, charged with CO2 gas and calcium chloride for brine and temperature test run to Purchaser's satisfaction.

SPARE GEAR - CO2 COMPRESSOR.

1. Crankshaft.
1. Piston and trunk complete with rings.
1. Main bearing.
1. Conn. rod large end bearing.
1. " " small " "
1. Ball thrust bearing.
2. Large end bearing bolts & nuts.
1. Discharge valve assembly.
1. Suction valve assembly.
1. Head safety spring.
2. Sets gland packing.
1. Oil level glass.
1. Oil pump plunger and cylinder.
1. Ball valve and spring.
1. Gland bush.

SPARE GEAR Contd.

1. Set joint rings.
3. Safety discs.
1. CO2 gauge.
1. Connecting rod.
1. CO2 stop valve spindle and head.
1. CO2 regulating ditto.
3. Lengths tubing and couplings.
1. Set screwing gear.

STEAM ENGINE.

1. Crankshaft.
1. Steam piston & rod & rings.
1. Eccentric sheave, strap & rod.
1. Pair M.B. brasses.
1. Set conn. rod brasses.
1. Set crosshead brasses.
2. Main bearing studs and nuts.
2. Conn. rod bolts & nuts.
2. Crosshead bolts & nuts.
1. Steam piston valve, rod & nuts.
1. Set governor springs.
1. Set valves & springs for the Brine Pump.
1. Fan motor complete & spare parts for control gear.

EXCLUSIONS.

Cutting and drilling of holes in ship's structure.
 Machinery seatings whether of wood or steel.
 All insulation work.
 Tray under air cooler coils.
 Steam, exhaust, drain and water piping.
 Electric wiring for fan motor.
 Water and power for charging and testing.

Purchasers to lift bulk materials on board, bolt down to place as necessary and provide any lighting and power required during the carrying out of the work.

We do not include any water circulating pump for the condenser, having assumed that the supply can be taken from one or other of the ship's service pumps. Two independent means to be provided for circulating water through the condenser, arrangements to Surveyor's satisfaction.

All equipment to be of first class material and workmanship and carried out to the satisfaction of Owner's representative and to comply with Lloyd's requirements for Refrigerating Machinery and appliances.

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