



MACHINERY & PIPING. S. S. "ARMIDA"

SPECIFICATION



The properly and efficiently insulated spaces viz -

- No.1. Tween Decks for chilled or frozen meat.
- No.1. Lower Hold for frozen meat only.
- No.3. Tween Decks for chilled meat only
- No.4. Tween Decks for chilled meat only.

All as shown on your Blue Print dated March 13th 1913, to be fitted with Brine pipes & meat rails, and ~~the~~ <sup>the</sup> Machinery ex S.S. "~~PINEWOOD~~" <sup>"Oakwood"</sup> to be overhauled, re-arranged, and fitted on board, and the whole coupled up, charged, and tested, all as hereafter specified.

MACHINERY. The machine to be opened up, thoroughly overhauled, cleaned & adjusted, missing parts to be made good. These include

- Crankpin brasses
- Top halves of main bearing brasses
- Eccentric rod pins
- The lagging of steam cylinders
- Parts of barring gear, & hand railing round flywheel.
- Complete renewal of all lubricators, oil cups, drain cocks & taps on steam cylinder.
- Lubricating arrangements for compressors.
- Ammonia pumping-out connections, and valves.
- Ammonia gland connections.
- The renewal of the present ammonia cocks by replacing them with wheel valves.
- New ammonia pressure gauges with board, cocks & connections.
- The existing steam valves to be thoroughly cleaned, overhauled, & put in order, missing parts made good.
- New inlet water valves & outlet water connection complete.
- The coils to be taken out, sent to our Warrington Works, cleaned, re-clipped where necessary, tested by air pressure under water to 1000 lbs per square inch, painted with bitumastic paint. | Water pressure test 2000 lbs per square inch.

New coil end collars, glands, & partially new headers where these are missing, together with new ammonia valves.

The coils to be refitted in the machine, all fittings & mountings put into place, pipes & connections re-made as necessary, and the whole completed ready for going into place on the ship.

EVAPORATORS/



LABORATORY. The evaporators with their tanks to be sent to our Warrington works, the coils un-nested, clips & stays removed. Coils to be thoroughly scraped & cleaned, and tested to 1000 lbs. air pressure under water, re-nested & fitted with new clips. The tanks to be thoroughly cleaned, fitted with new studs, water glands, etc. also new bolts & joints, the coils to be fitted in them, & all jointed up ready for going into place on board the vessel. The tanks to be thoroughly painted with bitumastic paint inside & out. New headers with coil end glands & collars to be provided as necessary, & entirely new valves with counter flanges complete. Tested to 2000 lbs per square inch water pressure.

AMMONIA RESERVOIRS. The existing wrought steel reservoirs to be cleaned out, the existing regulating valves to be cleaned & used again. The inlet & oil valves to be renewed. The Ammonia connections generally all to be made good, and in part renewed as found necessary.

BRINE PUMPS. The one existing brine pump to be thoroughly cleaned & overhauled, & fitted with new steam & exhaust valves, & made ready for putting into place on the ship. *Taken for space* <sup>Two</sup> One entirely new pump, complete with steam & exhaust valves & pan, & interchangeable with the existing pump, to be provided. Entirely new brine valves & connecting pipes to be provided & fitted for connecting between the evaporators, brine pumps & headers. One new galvanized steel brine mixing tank with connections to the brine pumps & headers, for mixing & circulating the brine. A copper brine heating coil, portable, with shut off cocks complete, to be provided - all new.

BRINE DISTRIBUTION. Entirely new set of headers with valves, thermometer bends & thermometers complete to be provided, & so arranged & fitted with Patent Attenuator cocks & connections so that each chamber can be run independently & entirely controlled or shut off from the refrigerating engine room.

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TEMPERATOR VALVE. One of our Patent Attperator valves with fittings & connections complete to brine pumps & evaporators, so that the higher & lower **temperature** brine necessary for the carriage of chilled & frozen meat respectively, can be supplied to the brine pipes in the tween decks & lower hold. The temperatures can be simply & easily regulated by the attperator valve in the refrigerating machine room.

The spaces loaded with frozen meat will require to be supplied with brine about 10 to 12 degrees lower than for the spaces loaded with chilled meat.

BRINE PIPING. The whole of the Cold chambers to be fitted with brine piping  $1\frac{7}{8}$ " full external diameter, lapwelded soft wrought iron tube, hydraulically bent & electrically welded as far as practicable, into continuous grids. Piping to be No.7 I.W.G. in thickness & supported with hanger bolts bolted to the deck beams, & channel bars as usual. The channel bars also carry the meat rails, but additional bars are fitted in the tween decks where the rails are supplied.

The piping to be arranged in eleven independent sections, each section having independent feed & return leads connected to the headers in the refrigerating machine room. The leads to be 1 1/2" bore pipe, and to be carried under the deck or along the ship's side as may be found most suitable.

The piping for the tween deck chambers to be specially arranged both as regards quantity & arrangement, for chilled beef, and to suit the meat rails overhead, the pipe grids also to be fitted round the sides & ends of the chambers, & hatch trunks. The pipes to be well secured in place, joints to be made with faced couplings, lock-nuts & grummets.

MEAT/

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MEAT

ins & galvanizing. The whole of the insulated tween deck chambers - but not the lower hold No.1 - to be fitted with 1 5/16" external diameter No.6 I.W.G. thick wrought iron tube meat rail, screwed & coupled to form continuous lengths. The rails to be pitched 11" centre to centre, & to be carried from end to end of each chamber, the pipes being set to clear the rails at the ends. The rails to be supported by the channel bars which also support the pipes, & each rail to be clipped with a "U" clip to each channel.

The channel supports to be fitted along every deck beam viz - 2 ft. apart, the rail being clipped to every channel.

MEAT HOOKS. 3000 galvanized steel Meat hooks, each about 6" long, & of the usual standard pattern for chilled beef, to be supplied & delivered on board the vessel. Hooks to be specially pointed.

GALVANIZING. The whole of the channels supporting the meat rails & the whole of the meat rails, meat rail clips & hooks to be galvanized.

DELIVERY & ERECTION.

The whole plant to be erected & fitted up on board the vessel in dock, quay berth, at Aberdeen, to be charged with ammonia & brine, & a test trial run & temperatures of the insulated chambers reduced in a satisfactory manner, to say, 10° Fahr. or -12 Centigrade.

WATER CIRCULATING PUMP.

One horizontal duplex brass fitted water circulating pump, of similar size & design to the one originally supplied with the machine. The pump to be fitted with steam valve, exhaust valve, & one sluice valve on the suction, & one on the delivery. Size of suction pipe 4", delivery pipe 3 1/2", size of pump 7" x 7 1/4" x 7"

SPARE GEAR.

We quote a separate price for the Spare Gear for the Plant to Lloyd's requirements. The following is the List.

1. half crankshaft interchangeable.

1. steam piston rod & nut do.

1. high pressure piston

1. set of H.P. rings

1. set of L.P. rings

1/



- 5 -

- ✓ 1. water pump bucket & rod
- ✓ 1. slide valve for H.P. cylinder
- ✓ 1. H.P. valve spindle & nuts
- ✓ 1. L.P. do. do.
- ✓ 1. eccentric sheave, strap & rod
- ✓ 1. brine pump complete
- ✓ 2. main bearing studs & nuts
- ✓ 2. Crankpin bolts & nuts
- ✓ 2. crosshead bolts & nuts
- 1. set of valves for water pump
- 1. set of valves for brine pump
- ✓ Sundry flanges & pipes
- ✓ 1. set of screwing apparatus
- ✓ 1. regulating valve complete
- ✓ 1. set of evaporator headers
- ✓ 1. set of condenser headers
- ✓ Sundry valves & cocks
- ✓ Sundry bolts & nuts
- ✓ Sundry jointing
- ✓ 2. Coupling bolts for crankshaft
- ✓ 1. ammonia pressure gauge
- ✓ 1. charging pipe
- ✓ 2. thermometers
- ✓ 1.  $\frac{1}{4}$ " ammonia valve





S.S. "Armeda"

Specification

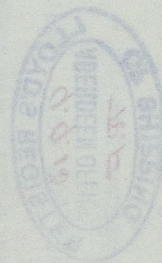
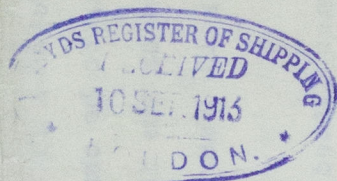
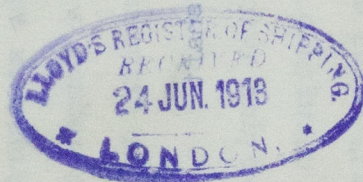
of:

Refrigerating Machinery

& Piping.

Named "Lyndiane"

Aln Ref No. 11268



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