

Rpt. 17.

N<sup>o</sup> 3 LOWER HOLD INSTALLATION

No. 40738

# Report on Refrigerating Machinery and Appliances.

23 JAN 1956

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Refrigerating Machinery and Appliances of the M.V. "DONGEDYK" Tons (Gross 10942 Net 6553)

built at Rotterdam By whom built Wilton's Eng. & Slipway Yard No. When built 1929

Nederl-Amerik. Stoom Maatschappij Port belonging to Rotterdam Voyage

Refrigerating Machinery made by N.V. GRASSO MACHINEFABRIEK Machine Nos. 55184324 When made September 1955

Installation fitted by HERTEL & Co. When fitted December 1955 System of Refrigeration FREON 12

Method of cooling Cargo Chambers DIRECT EXPANSION & AIR Insulating Material used SLAB CORK

Number of Cargo Chambers insulated ONE Total refrigerated cargo capacity 27,320 cubic feet

## DESCRIPTION OF REFRIGERATING MACHINERY. Where placed ENGINE ROOM, STARBOARD SIDE

Refrigerating Units, No. of 2 No. of machines 2 Is each machine independent YES

Refrigeration or ice-melting capacity in tons per 24 hours Are all the units connected to all the refrigerated chambers YES

Compressors, driven direct or through VEE BELTING reduction gearing. Compressors, single or double acting SINGLE If multiple effect compression NO

Safety valves or safety discs fitted YES No. of cylinders to each unit 3 Diameter of cylinders 110 mm (4.33")

Diameter of piston rod Length of stroke 80 mm (3.1496") No. of revolutions per minute 960

motive Power supplied from 4 Diesel driven electric generators (State number of boilers, oil engines or electric generators supplying the motive power.)

Engines, high pressure, compound, or triple expansion, surface condensing. No. of cylinders Diameter

Length of stroke Working pressure Diameter of crank shaft journals and pins

Width and thickness of crank webs No. of sections in crank shaft Revolutions of engines per minute

Engines, type 2 or 4 stroke cycle Single or double acting B.H.P.

No. of cylinders Diameter Length of stroke Span of bearings as per Rule

Minimum pressure in cylinders Diameter of crank shaft journals and pins

Width and thickness of crank webs No. of sections in crank shaft Revolutions of engine per minute

Receivers: Have they been made under survey State No. of Report or Certificate

Each receiver, which can be isolated, fitted with a safety valve as per Rule

Are the internal surfaces of the receivers be examined and cleaned Is a drain fitted at the lowest part of each receiver

Number of Receivers Cubic capacity of each Internal diameter Thickness

Material Range of tensile strength Working pressure by Rules

Electric Motors, type ENCLOSED VENTILATED No. of 1 for each comp. Rated 26 H.P. Kilowatts 220 Volts

Revolutions per minute Diameter of motor shafts at bearings

Reduction Gearing Pitch circle diameter, pinion Main wheel Width of face

Distance between centres of pinion and wheel faces and the centre of the adjacent bearings, pinion Main wheel

Diameter of pinion shafts, diameter at bearings Main wheel shaft, diameter at bearings

Number of Condensers, No. of 2 Cast iron or steel casings STEEL Cylindrical or rectangular CYLINDRICAL Are safety valves fitted

Material of casings YES No. of coils in each SHELL & TUBE Material of TUBES AL-BRASS Can each coil be readily shut off or disconnected

Water Circulating Pumps, No. and size of pumps available 2 PER HR. how worked ELECTRIC MOTOR Gas Separators, No. of

Number of Evaporators, No. of Cast iron or steel casings Pressure or gravity type If pressure type, are safety

valves fitted No. of coils in each casing Material of coils Can each coil be readily shut off or disconnected

Direct Expansion or Brine Cooled Batteries, No. of 2 Are there two separate systems, so that one may be in use while the other is being

prepared of snow YES No. of coils in each battery ONE Material of coils STEEL Can each coil be readily shut off or

disconnected Total cooling surface of battery coils 200 sq metres Is a watertight tray fitted under each battery YES

Number of Circulating Fans, Total No. of 2 each of (85,000) cubic feet capacity, at 1800 revolutions per minute

How driven Electrically Where spare fans are supplied are these fitted in position ready for coupling up YES

Number of Circulating Pumps, No. and size of, including the additional pump how worked

Brine Cooling System, closed or open Are the pipes and tanks galvanised on the inside

No. of brine sections in each chamber

Can each section be readily shut off or disconnected Are the control valves situated in an easily accessible position



MADE AND PRINTED IN ENGLAND

Are thermometers fitted to the outflow and to each return brine pipe... Where the tanks are closed are they ventilated as per Rule...  
 Where the tanks are not closed is the compartment in which they are situated efficiently ventilated...  
 Are the number and capacity of the machines and the number of pumps and sea connections in accordance with Section 2, Clause 1 of the Rules...  
 Is the exhaust steam led to the main and auxiliary condensers...

**HYDRAULIC AND OTHER TESTS.**

DESCRIPTION.	Date of Test.	Working Pressure.	Hydraulic Test Pressure.	Air Test Pressure.	Stamped.	REMARKS.
Engine Cylinders (if tested) ...						
Gas Compressors ...	20-9-55		350 PSI	200 PSI	LLOYDS TEST ROTT 20-9-55	
Separators ...	21-7-55			350 PSI	LLOYDS TEST GRD 2519 S.P.M. 21-7-55	
Multiple Effect Receivers ...						
Condenser Coils SHELL & TUBE ...	28-9-55		350 PSI	350 PSI	LLOYDS TEST GRD 2519 S.P.M. 28-9-55	
AIR COOLERS & LIQUID Evaporator Coils RECEIVERS ...	7-10-55		350 PSI	200 PSI	LLOYDS TEST ROTT 7-10-55 200 AVH 850	
PIPES, DRIERS & ALL FITTINGS Condenser Headers and Connections ...	11-11-55		500 PSI	250 PSI	LLOYDS TEST ROTT 11-11-55 250 PGR 500	
Condenser Casings ...						
Evaporator Casings ...						
Condenser, Evaporator and Air Cooler Coils after erection in place	16-12-55		150 PSI			
Brine Piping after erection in place...						

Have important steel castings and forgings been tested in accordance with the Rules...  
**Cooling Test.** Has the refrigerating machinery been examined under full working conditions, and found satisfactory. YES  
 Dates of test 27<sup>TH</sup> to 30<sup>TH</sup> December 1955 Density of Brine by hydrometer  
**Temperatures** (when the cargo chambers are cooled down to the required test temperatures) of delivery and return air at direct expansion or brine cooled  
 batteries 2.5°F & 5°F, outflow and return brine &  
 atmosphere 46°F cooling water inlet and discharge 45.5 & 49°F gas in condensers 50°F and evaporators -15°F  
 the average temperature of the refrigerated chambers 5°F and the rise of temperature in these chambers upon the expiration of 6 hours  
 time after the machinery and cooling appliances have been shut off 4°F

**SPARE GEAR.**

Are the working parts of the machines, pumps and motors respectively, interchangeable. YES  
 Has the spare gear required by the Rules been supplied. YES  
 Additional Spare Gear Supplied:—

The foregoing is a correct description of the Refrigerating Machinery.

GRASSO & MASCHINENFABRIK N.V.  
 SHERTORENBOSCH  
 Manufacturer.

**DESCRIPTION OF INSULATION.**

	IN LOWER HOLD CHAMBERS.					IN 'TWEEN DECK CHAMBERS.				
	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto.	Inner Lining.	Air Space.	Outer Lining.	Non-conducting Material.	Thickness of ditto.	Inner Lining.
Frame No. (Fore Peak) A										
Frame No. F										
Frame No. A										
Frame No. F										
Frame No. A										
Frame No. F										
Frame No. 123 (Bunker Room) A			CORK	1 1/2"	CEMENT					
Frame No. 97 (Engine Room) A			CORK	1 1/2"	CEMENT					
Frame No. A (Engine Room) F										
Frame No. A										
Frame No. F										
Frame No. A										
Frame No. F										
Frame No. A										
Frame No. F										
Frame No. A										
Frame No. F										
Frame No. A										
Frame No. F										
Sides ...			CORK	11"	CEMENT					
Overheading ...			CORK	11" x 13"	CEMENT					
Floors of Chambers ...	1"	WOOD	CORK	13"	WOOD	ORIGINAL FITTING				
Trunk Hatchways ...										
Thrust Recess, Sides and Top ...										
Tunnel Sides and Top ...										
Tunnel Recess, Front and Top ...										

Frames or Reverse Frames, Face SIDE GROUNDS 2" CORK OVER  
 Bulkhead Stiffeners, Top and Face 2" CORK  
 Ribband on Top of Decks NONE FITTED  
 Side Stringers, Top and Face  
 Web Frames, Sides and Face  
 Brackets, Top and Face  
 Insulated Hatches, Main 9 1/2" PLUGS Bilge 14" PLUGS Manhole 9 1/2" PLUGS  
 Hatchway Coamings, Main Bilge  
 Hold Pillars 1" FELT 1 1/2" T.R.G. WOOD  
 Masts Ventilators  
 Are insulated plugs fitted to provide easy access to bilge suction roses YES tank, air, and sounding pipes. NO heels of pillars. YES  
 and manhole doors of tanks. YES Are insulated plugs fitted to ventilators. cargo ports. and side lights.  
 Is the insulation of the lower hold floor and tunnel top in way of the hatchways protected. YES if so, how T.R.G. WOOD DOUBLE 2 1/2"  
**Oil Storage Tanks,** where adjacent to the insulated chambers, state what provision has been made for ventilating the air space between the insulation and the bulkhead plating  
 and for draining the tank top  
**Fireproof Insulation.** Is the insulation and woodwork fireproof in way of bunkers or any surfaces exposed to excessive heat. Where  
**Cooling Pipes** pass through watertight bulkheads or deck plating, are the fittings and packing of the stuffing boxes both watertight and fireproof. YES  
**Cargo Battens,** Dimensions and spacing, sides. 2x2 15" PICE floors. GRATINGS 4x2" tunnel top.  
 fixed or portable. FLOOR YAKI TABS Are screens fitted over the brine grids at chamber sides. hinged or permanently fixed.  
**Thermometer Tubes,** No. and position in each chamber. 4 off Port & Starboard forward and after  
 diameter. are they fitted in accordance with Section 3, Clause 8.  
**Protection of Pipes.** Are all pipes, including air and sounding pipes, which pass through or into insulated chambers, well insulated. YES  
**Draining Arrangements.** What provision is made for draining the inside of the chambers. SCUPPERS. BANTRAP FITTING  
 Where sluices, scupper pipes, and drain pipes are fitted are means provided for blanking them off. YES  
 What provision is made for draining the refrigerating machinery room.  
 brine return room. fan room. water circulating pump room.  
 Are all air spaces behind insulation arranged to drain to the bilges, bilge wells, or gutterways of the respective chambers. YES

Sounding Pipes, No. and position in each chamber situated below the load water line..... 2 - Paired starboard centre fore  
 Diameter..... 2" Are all sounding pipes in way of insulated chambers fitted in accordance with Section 3, Clause 11..... YES  
 Are all wood linings tongued and grooved..... YES Are cement facings reinforced with expanded steel lattice..... YES  
 How is the expanded metal secured in place..... WITH GALVANIZED STAPLES  
 How are the cork slabs secured to the steel structure of the vessel..... SECURED BY WOOD GROUNDS  
 Air Trunkways in Chambers. Are the arrangements satisfactory and in accordance with the approved plans..... YES  
 Are they permanently fixed or collapsible, or portable..... FIXED  
 Where air trunkways pass through watertight bulkheads, are they fitted with watertight doors..... Are the door frames efficiently insulated.....  
 Are insulated plugs supplied for the doorways..... Where are the doors worked from.....  
 Cooling Pipes in Chambers, diameter..... Minimum thickness..... Are they galvanised externally.....  
 How are they arranged in the chambers.....  
 Thawing Off, what provision is made for removing the snow from the cooling pipes in the chambers..... COOLER BATTERIES HOT GAS FROM COMPRESSOR  
 BY PASSING CONDENSER  
 The foregoing is a correct description of the Insulation and Appliances. Dok- en Werf- Maatschappij Wilton-Fijenoord N.V.

*T. Tuilwijk*

Plans. Are approved Plans or Specifications forwarded herewith for the Refrigerating Machinery *24/9/552* and Insulation *24/9/552*  
 (If not, state date of approval)  
 Is the Refrigerating Machinery and Appliances duplicate of a previous case... No If so, state name of vessel...  
 If the survey is not complete, state what arrangements have been made for its completion and what remains to be done.

General Remarks (State quality of workmanship, opinions as to class, &c.) The Refrigerated Cargo Installation of No 3 lower hold has been fitted in accordance with the approved plans and Secretary's letters, and to the Surveyors' satisfaction, and is in my opinion eligible to be classed \* LLOYDS R.M.C. 12, 55 (No 3 LOWER HOLD PLANT) To maintain temperature 25°F, with sea temperature 86°F maximum.

*Dichlorodifluoromethane*

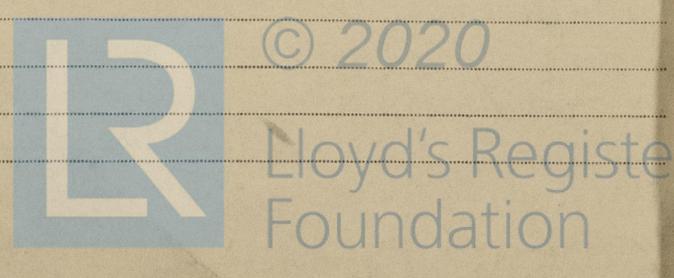
PARTICULARS TO BE ENTERED IN REGISTER BOOK.

REFRIGERATING MACHINES.						System of (1) Refrigerating (2) Insulating the Chambers.	Ice melting capacity per 24 hours.	Is Refrigerating Machinery Electrically Driven?	INSULATED CARGO CHAMBERS.	
No. of Units.	No. of Compressors.	System.	Makers.	Date of Construction.	No.				Capacity. Cubic ft.	
2	2-3 cyl. S.A. 110 mm 80 mm 960 RPM	FREON 12	N.V. GRASSO MACHINE-FABRIEK	12, 55	DIRECT EXPANSION AND AIR. (2) SLAB CORK	Tons.	YES	ONE	27,32	

Fee Construction *12.42* (Fee applied for, *17/1 19.56*)  
 Travelling Expenses *50.-* (Received by me, *19.-*)

*Fred. G. Buisson*  
 Surveyor to Lloyd's Register.

Committee's Minute  
 No. 3 Lower Hold Plant: - + Lloyds R.M.C. 12, 55  
 Assigned to maintain temp. 25°F with sea temp. 86°F maximum.



CERTIFICATE WRITTEN.

Certificate to be sent to

*Beent*  
*Write Bot.*