

MS. "WIENIAWSKI"

12 APR 1962

Rpt. 17 (a)

Date of writing Report 27-3-62 Received London Aalborg Port 19581
Survey held at Aarhus No. of visits 8 First date 21-12-61 Last date 23-3-62

REFRIGERATED CARGO INSTALLATION REPORT ON REFRIGERATING MACHINERY

Machinery made by Messrs. A/S Thomas Ths. Sabroe & Co Machine Nos. 43256-57-58-59 When made 1962
Intended for Yard No. or Ship's Name 176
Built or building at Split, Yugoslavia By whom Brodogradiliste Split
OWNERS The Polish Ocean Line, Gdynia
Primary refrigerant Ammonia Medium for cooling chambers (brine, primary refrigerant, etc.) brine

PARTICULARS OF REFRIGERATING MACHINES OF EACH SIZE (Including machines (if any) for cooling liquid refrigerant)

RECIPROCATING TYPES

(1) No. of machines 4 No. of cylinders per machine 6 Single or double acting single Single or two-stage single
Diameter of cylinders 100 mm Vertical, horizontal or Vee Vee Diameter of piston rod if double acting
No. of cranks 2 Stroke 80 mm Speed of machines as fitted: Maximum R.P.M. 975 Minimum R.P.M. 975
Single speed, set speeds or variable speed single speed Clearance volume as percentage of swept volume 4
Swept volume of machine(s) at maximum R.P.M. 4 x 225000 cubic inches How driven (direct, V belt, gearing, etc.) direct
Prime Movers (steam engine, oil engine, electric motor, etc.) electric AC motors B.H.P. 55 Maximum R.P.M. 975
(2) No. of machines No. of cylinders per machine Single or double acting Single or two-stage
Diameter of cylinders Vertical, horizontal or Vee Diameter of piston rod if double acting
No. of cranks Stroke Speed of machines as fitted: Maximum R.P.M. Minimum R.P.M.
Single speed, set speeds or variable speed Clearance volume as percentage of swept volume
Swept volume of machine(s) at maximum R.P.M. How driven (direct, V belt, gearing, etc.)
Prime Movers (steam engine, oil engine, electric motor, etc.) B.H.P. Maximum R.P.M.

Material of compressor crankshafts speriodal graphite cast iron Have they been manufactured and tested in accordance with the Rules and/or Secretary's letters? yes
Tensile strength 81.0-81.6-79.7 kg/mm² Have other important steel forgings and castings been manufactured and tested in accordance with the Rules? no
Are safety devices fitted to compressors in accordance with the Rules? yes Are compressors arranged for multiple-effect compression? no

OTHER TYPES (e.g., Centrifugal, steam jet, etc.)

(3)

Where two machines only are provided, are all the working parts interchangeable? working parts of compressors interchangeable
Is provision to be made for liquid refrigerant sub-cooling? no If so, state method

PARTICULARS OF GAS CONDENSERS OF EACH TYPE AND SIZE

No. of shell-and-tube type 4 No. of shells in each 1 No. of tubes per shell 116 Material and thickness of tubes SM steel 33.8/25.7 mm
Cooling medium and No. of passes sea water, 4 passes No. of tubes each pass 29 Internal diameter of tubes 25.7 mm
Total No. of tubes per condenser 116 Total external surface of tubes in each condenser 30/sq. m.
No. of coil-in-casing type No. of casings No. of coils each casing Material, external diameter and thickness of coils
External surface of each coil Cooling medium and No. of passes
Total external surface of coils each condenser Can each coil be readily shut off or disconnected?
Other types

PARTICULARS OF EVAPORATORS (BRINE COOLERS) OF EACH TYPE AND SIZE.

No. of shell-and-tube type 2 No. of shells in each 2 No. of tubes per shell 155 Material and thickness of tubes SM steel 33.8/25.7 mm
No. of passes of brine 6 No. of tubes each pass 25 Internal diameter of tubes 25.7 mm
Total No. of tubes per evaporator 306 Total external surface of tubes in each evaporator 80 sq. m. - 40 in spec.
No. of coil-in-casing type No. of casings No. of coils each casing Material, external diameter and thickness of coils
External surface of each coil Total external surface of coils in each evaporator Can each coil be readily shut off or disconnected?
Other types

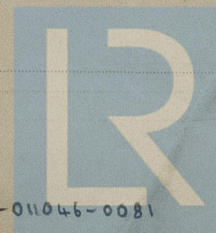
OTHER COMPONENTS, ETC.

No. of oil separators 4 No. of filters 1 No. of liquid receivers 2 No. of driers No. of brine heaters 1 electric
Other pressure vessels, give particulars
Particulars of air cooler coils and cooling grids: Plain coils, external diameter Thickness Material
Extended surface coils, internal diameter 36.9 mm Thickness 3, 25 mm Material SM steel
Pitch of fins or plates 20 mm Dimensions of fins or plates 25 x 1,0 mm Total extended surface per foot of pipe 2.06 sq. ft.
Air cooler coil sections 26 Length of pipe and No. of coils of each size 2 410 m² coolers each in 6 sections
2 190 m² coolers each in 4 sections. Can each be readily shut off or disconnected? yes
Cooling grid sections, total No. and length of pipe of each size section

Primary refrigerant piping, internal diameter and thickness of each size

Material How manufactured

Have all components of the refrigerating plant been constructed strictly in accordance with the Rules and approved plans?
Has the spare gear required by the Rules been supplied? Where additional spare gear has been supplied a list is to be attached to the Report.
The foregoing is a correct description of the refrigerating machinery.



PRESSURE TESTS AT WORKS						
DESCRIPTION	Working Pressure	Hydraulic Pressure kg/cm ²	Date of Test	Air Test Pressure kg/cm ²	Date of Test	Stamped
Compressor cylinders covers	NH ₃	42 ✓	12-1-62	21 ✓	12-1-62	
Compressor crankcases	"	21 ✓	12-1-62	10.5 ✓	12-1-62	All parts
Oil separators, oil rectifiers	"	35 ✓	12-1-62	17.5 ✓	12-1-62	stamped
Filters						Lloyds test
Driers						ABG H/A
Strainers						pressures
Stop valves and connections						MN and date.
Liquid receivers	"	35 ✓	8-1-62	17.5 ✓	8-1-62	
Condenser shells or coils	"	35 ✓	20/2-9/3-62	17.5 ✓	20/2-9/3-62	
Evaporator (brine cooler) shells or coils	"	35 ✓	31/1-6/2-62	17.5 ✓	31/1-6/2-62	
Condenser headers and connections						
Condenser coil casings or water ends						
Evaporator headers and connections						
Evaporator coil casings or brine ends						
Air cooler coil assemblies	brine	7 ✓	6/3-14/3-19/3-23/3-62.			
Chamber grid sections						
Float regulators						
Brine heaters						
Primary refrigerant piping						
Other pressure parts						

PLANS: Drawing No. and date of approval of each plan concerned.

Compressors, crankshaft.	104242 - 6-10-54	Crankcases	111439-119003, 16/8-20/12-60	Cylinders	gen. app.	8-7-54
Filters		Separators	117309, 3-4-59	Liquid receivers	121070, 17-9-59	
Evaporators	121213 17-9-59	Strainers		Float regulators		
Condensers	121063 17-9-59	Driers		Brine heaters		
Air coolers	121830-121894-121895-896-897, 5-1-60.					
Other pressure parts						

The welding of pressure vessels has been made in accordance with the Society's Class 2 requirements.

This installation is in my opinion suitable for the notation + Lloyds RMC with date to maintain 10° F in all chambers with sea temp. 86° F max. when the remaining requirements for refrigerated cargo installations have been complied with.

No. of units 4
Total B.H.P. of all compressor prime movers 220
Makers A/S Thomas Ths. Sabroe & Co., Aarhus.

Prime Movers electric AC motors
Refrigerant ammonia
Date of construction 1962

4 - each 6 cyl. SA SS compressors 100 x 80 x 975 RPM
4 - S & T condensers
2 - each in two sections S & T evaporators.

£ Kr.: 970,00

Fee applied for.

Travelling expenses £ " : 85, 00

Received by me,

Date of Committee

Minute

THURSDAY 20 SEP 1962

Surveyor to Lloyd's Register

Entered in Aalborg Rough Fee Book

Lloyd's Register