

LLOYD'S REGISTER OF SHIPPING

Works No. 1/48.983
Order No. S 900 845 739 027

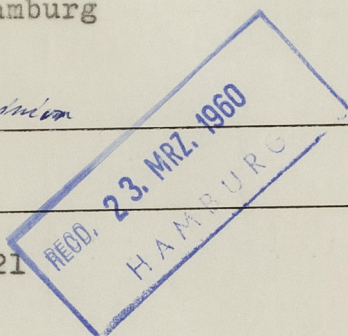
SHIP OR ENGINE FORGINGS OR CASTINGS

I have to report that the Forgings or Castings, as herein described, manufactured by Messrs. Klöckner Werke AG., of Osnabrück Georgsmarienwerke being constructed by Messrs. Howaldtswerke AG., *for the Engines No. being built by of Hamburg for the Ship No. being built by of

have been inspected by me as set forth below and found to be, so far as can be seen, sound and free from defects. These have been despatched to Hamburg

Indian Navigator

AP and LP 1st pinion



ITEM	Two pinions I HP	
Identification No.	LLOYD'S HNO GS 11.3.60 588	621
Surveyor's Initials.	G. S.	
Materials.	E. - Steel, EN 25	
Charge No.	33 484	35 260
How made.	Examined finished forged	
Heat treated.	yes	
Drawing No.	Port	
Dimensions.	Date 11.3.1960	
Weight.	420 kg	318 kg
Progress on Insp.	rough machined	
Yield kg per sq. mm	long tang. 75.1 80.7	long tang. 79.0 75.1
Ult. kg per sq. mm	88.0 92.9	88.0 85.4
Elong. % on 4 V A	24.4 18.0	22.7 22.0
on 5 x d	19.6 14.6	17.6 17.8
Reduc. of Area %	65.3 45.2	64.0 42.2
Cold Bend.	180° satisfactory	
Brinell.	HB = 262 - 275 HB = 259-270	
DVM Imp. test mkg/cm ²	15.3 17.6; 7.4, 7.3 17.6, 15.9; 5.7	
Izod ft. lbs.	99.0; 38.3 38.3 37.6; 105.4; 21.0 26.8	
Final date.	11.3.1960	

Date of approval of chemical analysis, physical properties and heat treatment in the case of special steels for reduction gearing forgings Sulphur prints were carried out with satisfactory results. The manufacturers state that super sonic tests have been carried out. Works Cert. are attached.

Analyses as stated by the manufacturers:-

Charge No.	C%	Si%	Mn%	P%	S%	Cr%	Mo%	Ni%
33 484	0.31	0.31	0.61	0.010	0.006	0.73	0.48	2.32
35 260	0.27	0.22	0.52	0.018	0.014	0.70	0.46	2.54

Fee: Signature Date 15.3.1960
Expenses: Received at
Delete where not applicable
G. Stockfleth

002770-002783-0192

PORT HANNOVER, GEORGEST. 40 COPY
No. 601
LLOYD'S REGISTER OF SHIPPING
SHIP OR ENGINE FORGINGS OR CASTINGS

I have to report that the Forgings or Castings, as herein described, manufactured by Messrs. K. Schöner Werke AG., of Ganshagen, being constructed by Messrs. Howaldtwerke AG., for the Engines No. of Hamburg being built by for the Ship No.

have been inspected by me as set forth below and found to be, so far as can be seen, sound and free from defects. These have been despatched to Hamburg

RECD. 23. MAR. 1960
HAMBURG

Examined finished machined

Port *Hamburg*

Date *4.11.60* and marked

for identification

(Marks) *HND 123 + 885*

11.3.60

Ham 3311 RMA

(Sureyor's initials)

Identification No. 588

Surveyor's Initials. G. S.

Materials Charge No. 32 560

Heat treated Drawing No.

Dimensions

Weight

Progress on Insp.

Yield per sq. 79.0 75.1

Ult. per sq. 88.0 85.4

Elong. % on 5 x 9 52.7 52.0

Reduc. of Area % 17.6 17.8

Cold Bend. 64.0 42.2

Brinell

Imp. test mks/cm 15.3 17.6

Final date. 11.3.1960

This Certificate is issued upon the terms of the Rules and Regulations of the Society and is valid for the purpose of the Rules and Regulations of the Society and is not to be taken as a recommendation or endorsement of the Society or as a guarantee of the quality of the material or workmanship of the Forgings or Castings.

Date of approval of chemical analysis, physical properties and heat treatment in the case of special steels for reduction gearing forgings and castings were carried out with satisfactory results. The manufacturer state that super sonic tests have been carried out. Works Cert. are attached. Analyses as stated by the manufacturer:-

Port	Machine No.	Report on
15.3.1960	15.3.1960	15.3.1960

Received at
Lloyd's Register
Foundation
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