

**SCHMIEDE UND BEARBEITUNG**

ANNAHEPREFZEUGNIS

### Inspection Test Certificate

**practically-possible if desired**

DIN 50349-2.1 8

Unsere Korn.-Nr. / Works-No. / N°Référence No.

181 965

17.10.83

Unsub. Name / Alias Name / Reference No. 101 505  
 Sender / Customer / Agent Delaval Turbine Inc., Oakland, California 94621 / USA  
 24765 248 of 248-83

Bestell Nr. / Order No. / No. de Commande 14365 2-42 of 9.09.83

Bestell Nr. / Order No. / Nos. de Commande 14365 8-42 of 9.09.83  
Erzeugnisform / Article / Objet: 1 crankshaft 8-throw test-no. 2698  
Cranked finish machined R3 86290

forged, finish machined, LS 8629

acc. to specification No. D 4774-4/81

**Werkstoff / Material / Matériau:**

Ch Ch 45 (ABS Grade 4 S)

Normbezeichnung / Standard / Désignation de la norme:

811 167 E

ABS

Chargen-Nr. / Cast-Nr. / No. de coulée:

Erhitzungsart / Melting Process / Mode de coulee:

electric steel vacuum degassed

Lieferzustand / Condition of delivery / Etat de livraison:

air-quenched + tempered, stress relieved

Prüfzustand / Test condition / Etat d'essai:

860°C 9 h/Luft - 605°C 12 h/Ofen

Prüfzustand / Test condition / état d'essai													
Standard Specification Präzisionsgrad	295		570	22	35								
Pressur- tester ? Tiefen- tester ? No. 40 Tiefenmesser	0.7% Brinell Rockwell 0.2% Brinell Rockwell	Brinell Rockwell	Longitudinal Tensile Strength/YS Elongation A to rupture A to rupture	Longitudinal Tensile Strength/YS Elongation A to rupture A to rupture	Longitudinal Tensile Strength/YS Elongation A to rupture A to rupture	Kerbschlagprüfung Impact Value Eichwerte			Kerbschlagprüfung Impact Value Eichwerte		Brinell Rockwell	Brinell Rockwell	Brinell Rockwell
	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell	Brinell Rockwell
2698	363		695	24,0	50,9						205-		1 top
"	335		695	23,0	49,8						210		1 bottom
Grade of purity acc. to ASTM E 45: majority ca. A2, majority ca. B1 and C1													
Charge Composition No. 40 Tiefenmesser	C %	Si %	Mn %	P %	S %	Cr %	Mo %	Ni %	V %				
811162	0,46	0,12	0,65	0,010	0,008	0,69							



8503280487 840920  
PDR ADOCK 05000322  
G PDR

**Beschreibung u. Auswertung:**

inspiration and control of dimension:

(insert at appropriate conclusion):

**Ergebnis der Prüfungen:**

Time remaining:

Reproduction des données :

**Works-Proctored:**

**What's new?**

Polymers of various:

**Herstellerzeichen:**

Manufacturer's e strategy:

Minuten des Feuerwerks!

1) Sprungprüfung nach DIN 5854  
Sprung von DIN 5854

$\frac{1}{2}$  in. diam.  $\frac{1}{2}$  in. diameter  $\frac{1}{2}$  in. radius  $\frac{1}{2}$  in. square  
 $\frac{1}{2}$  in. longitudinal  $\frac{1}{2}$  in. diam.  $\frac{1}{2}$  in. radius  $\frac{1}{2}$  in. square

KRUPP/STAHL/AG / 11

KRUPP STAHL

Aktiengesellschaft

## SCHMIEDE UND BEARBEITUNG

## ULTRASONIC-CERTIFICATE

about material testing

3.1 B

according to DIN 50049/

Certificate-No.

612/10/83

Krupp Stahl AG Schmelze u. Bearbeitung Postf. 101370 4630 Bochum

Delaval Turbine Inc.  
Oakland  
California 94621  
USA

Purchaser: Delaval Turbine inc. Oakland

14365-R-48 of 9.09.83

Order No.:

Manufacturer: Krupp Stahl AG  
Schmelze und Bearbeitung

Works-Order No.: 181 965

Form of Product:

forged

Material Marking:

Ck 45 (AB S Grade 4 S)

Heat treatment:

untreated

Material-No.:

Examination Specification:

ASTM A 503-75

Examiner stamps:

KRUPP



Item	Unit	Testing objekt	Dimensions (mm)	Sample-No.	Heat-No.	Markung
1	1	Crank shaft	710 x 630 x 6930	2698	811 167 E	
Testing-Set: USIP 11, Krautkrämer			Coupling medium: paste	Amount of inspection: radial 100 %		
Wave attenuation: no measured		Transferkorrection: ./.		Time of testing: 1. after forged	Contact surface 4 plane surfaces	
Adjustment: at componental parts				Finish: forged		
Direction of ultrasonic testing	Probe	MHz	Sensitivity	recording limit	allowable limit	
Radial	B2S-N ø 24 mm	2	1 RE + 30 dB	1 RE + 30 dB	—————	
Axial			no technically possible			

Notes:

Examination result: Readings, subject to registration, have not been observed.  
We hereby certify that the specified requirements are met.

Operator: Fitzke (Level II)

KRUPP STAHL AG  
SCHMIEDE UND BEARBEITUNG  
Qualitätswesen  
Zertifizierungs-Prüfung

17.10.83

Date

F. Knorr (Level III)  
Examination supervisor-Works expert

Form 55.398.0883-B-

KRUPP STAHL

Aktiengesellschaft

## SCHMIEDE UND BEARBEITUNG

## ULTRASONIC-CERTIFICATE

about material testing

according to DIN 50049/

3.1 B

Certificate-No.

613/10/83

Krupp Stahl AG Schmiede u. Bearbeitung Post 101370 4630 Bochum

Delaval Turbine Inc.  
Oakland  
California 94621  
USA

Purchaser: Delaval Turbine Inc. Oakland

Order No.: 14365-R-48 of 9.09.83

Manufacturer: Krupp Stahl AG  
Schmiede und Bearbeitung  
Works-Order No.: 181 965

Form of Product:  
forged

Material Marking:

Ck 45 (AB S Grade 4 S)

Heat treatment:

quenched + tempered

Material-No.:

Examination Specification:

ASTM A 503-75

Examiner stamps:

KRUPP



Item:	Unit	Testing objekt	Dimensions (mm)	Sample-No.	Heat-No.	Markung
1	1	Crank shaft	8-throw x 6029,325	2698	811 167 E	
Testing-Set: USIP 11, Krautkrämer			Coupling medium: oil	Amount of inspection: radial: 100 % / axial: as technically possible		
Wave attenuation: 2 dB/m		Transferkorrection: ./.		Time of testing: 2. after quenched before bore	Contact surface total surface	
Adjustment: at componental parts				Finish: rough-machined, milled		
Direction of ultrasonic testing	Probe	MHz	Sensitivity	recording limit		allowable limit
Radial	B4S-N ø 24 mm	4	1 RE + 36 dB	acc. to ASTM A 503, Point 9		acc. to ASTM A 503, Point 10
*) Axial	B4S-N ø 24 mm	4	1 RE + 36 dB	" "		" "

Notes:

\*) as for as technically possible

Examination result: Readings, subject to registration, have not been observed.  
We hereby certify that the specified requirements are met.

Operator: F. Knorr (Level II)

KRUPP STAHL AG  
SCHMIEDE UND BEARBEITUNG  
Qualitätswesen  
Zerstörungsfreie Prüfung

17.10.83

Date

F. Knorr (Level II)

Examination supervisor-Works expert

Form S5-398.083-B-

KRUPP STAHL  
Aktiengesellschaft

SCHMIEDE UND BEARBEITUNG

MAGNETIC-PARTICLE-CERTIFICATE

about material testing  
according to DIN 50049/3.1B

Certificate-No.:  
614/10/83

Krupp Stahl AG Schmelze u. Bearbeitung Post 101370 4630 Bochum 1

Purchaser: Delaval Turbine Inc. Oakland

Delaval Turbine Inc.  
Oakland  
California 94621  
USA

Order-No.: 14365-R-48 of 9.09.83

Manufacturer: Krupp Stahl AG  
Schmelze und Bearbeitung  
Works-Order-No.: 181 965

Form of Product: forged

Material Marking:  
Ck 45 (ABS Grade 4 S)

Heat Treatment: quenched + tempered

Material-No.

Examination Specification:

ASTM A 456-71

Examiner Stamps:

KRUPP



Item	Unit	Testing Object	Dimension (mm)	Sample-No.	Heat-No.	Markung
1	1	Crank shaft	8-throw x 6029,325	2698	181 965 E	

Testing Set:  
Made by Krupp Stahl AG / Miebach 4000

Testing device:  
Ferroflux concentrate, black  
suspend in oil, Messrs. Tiede

Magnetizing force:

2400 A/m

Magnetizing according to DIN 54130

SSW LKW LSW

Testing sample:

Berthold

Finish:

finish machined

Amount of inspection:

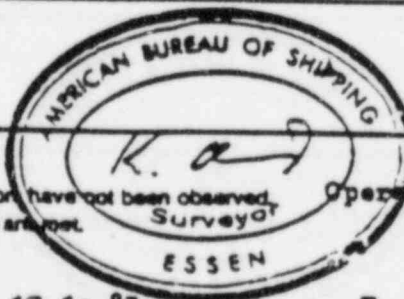
100 %

Notes:

Examination result: Readings, subject to registration, have not been observed.  
We hereby certify, that the specified requirements are met.

Operator: Filake (Level II)

KRUPP STAHL AG  
SCHMIEDE UND BEARBEITUNG  
Qualitätswesen  
Zerstörungsfreie Prüfung



17.10.83

Date

F. Knorr (Level II)

Examination supervisor-Works expert

NUCLEAR REGULATORY COMMISSION

Docket No. 50-322-OL Official Exh. No. C-38  
 in the matter of LILCO - Shoreham  
 Staff ✓ IDENTIFIED ✓  
 Applicant ✓ RECEIVED ✓  
 Intervenor \_\_\_\_\_ REJECTED \_\_\_\_\_  
 Gen'l's Off'r \_\_\_\_\_ DATE 9-20-84  
 Contractor \_\_\_\_\_ Witness Panel  
 Other \_\_\_\_\_  
 Reporter ACE