



Reporting and Analysis of Thickness
Measurement Data-2.2.0




Saaga

Print-out date:
07.08.2025

Thickness Measurement Report

for

Saaga

Revision	
Author	skram
Date	07.08.2025
Notes	Color codes used in this document: <ul style="list-style-type: none">•  (RED) = Subject to Renewal•  (YELLOW) = Suspect•  (ORANGE) = Data to be checked - could be incomplete or inconsistent



Operator's signature
(img)



Saaga

Print-out date:
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Thickness Measurement Report - Survey General Data

Field	Symbol	Unit	Value	Remarks
Ship Identification				
Ship Name			Saaga	
RI Number				
Ship Builder				
IMO Number			8305822	
Ship Flag			Finland	
File Number				
Contract Date			L jaan 1 1983	
Ship Data				
Ship Length	L	[m]	25.000	
Service Notation			Ro-ro cargo ship	
Material Yield Strength at Deck	$R_{eH,DECK}$	[N/mm ²]	235.000	
Spacing of Longitudinals at Deck		[m]	0.000	
Material Yield Strength at Bottom	$R_{eH,BOTTOM}$	[N/mm ²]	235.000	
Spacing of Longitudinals at Bottom		[m]	0.000	
Reserve Thickness	$t_{RESERVE}$	[mm]	0.500	
Survey Info				
Survey Location			Turku, Finland	
Thickness Measurements Carried Out From - To			T juuli 8 2025 - K juuli 9 2025	
Operator's Name			M.Skrankov	
Operator's Company			Tehnomet Survey	
Surveyor's Name				
Notes				

Operator's signature image



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07.08.2025

RINA Approval till 16



RINA Services S.p.A.
Via Garibaldi, 12 - 16128 Genova
Tel. +39 010 53851
Fax +39 010 5351000

**CERTIFICATE OF APPROVAL
OF SERVICE SUPPLIER**

CERTIFICATE NO. SSU014023XF

This is to certify that

TEHNOMET SURVEY OÜ

KOPLI STR. 103
11712 TALLINN ESTONIA

*Has been approved in compliance with the
RINA "RULES FOR THE CERTIFICATION OF SERVICE SUPPLIERS"
for the supply of the following services to ships and other units classed by RINA:*

A - Thickness measurements on ships or mobile offshore units

Date of the audit: 17 Feb 2023
Issued in VIIMS1
on 27 Feb 2023

This Certificate is valid from the date of the audit until
16 Feb 2026

This certificate consists of this sheet plus an attachment.



This is an electronically signed document and does not require a handwritten signature.

Alexander YAKOVISHIN
RINA Services S.p.A.

This certificate consists of 2 pages.

Operator's signature image



Saaga

Print-out date:
07.08.2025

RINA Approval till 16

Certificate No. SSU014023XF

Page: 2/2



RINA Services S.p.A.
Via Corsica, 12 - 16128 Genova
Tel. +39 010 53661
Fax +39 010 5351000

**ATTACHMENT TO
CERTIFICATE NO. SSU014023XF**

VALIDITY CONDITIONS

General conditions for the approval

- a) The initial conditions verified by RINA at the time of the approval are to be maintained
- b) Any changes to the initial conditions are to be promptly communicated to RINA, which reserves the right to repeat the relevant assessment
- c) RINA personnel are to be allowed to witness during the performance of activities, upon their request
- d) The activities are to be carried out in compliance with the RINA Rules and/or other applicable rules
- e) RINA may revoke the approval at any moment in the case of modifications to requirements or conditions for the approval



This is an electronically signed document and does not require a handwritten signature.

Alexander YAKOVISHIN
RINA Services S.p.A.

This certificate consists of 2 pages.

Operator's signature image



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UT (Lev

INTERNATIONAL CERTIFICATION SYSTEM

CERTIFICATION BODY OF PERSONS
SCIENTIFIC AND TECHNICAL CENTRE "SICH CERT" LLC
APPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF ISO/IEC 17024

CERTIFICATION OF CONFORMITY

№ 794.19

This certificate confirms that **Maksim Skramkov**
(name, surname)

according to requirements of certification system on ISO 9712 is certified as a specialist

according to the **Ultrasonic testing (UT)**
on **level II (second)**
(testing method, testing symbol, level of qualification)

and is entitled to control: **1 – castings (c) (ferrous and nonferrous materials), 2 – forgings (f) (all types of forgings: ferrous and non-ferrous materials), 3 – welds (w) (all types of welds, including soldering, for ferrous and non-ferrous materials), 4 – tubes and pipes (t) (seamless, welded, ferrous and non-ferrous materials, including flat products for the manufacturing of welded pipes), 5 – wrought and rolled products (wp) except forgings (e.g. plates, bar, rods)**
(production type)

In sectors: **7 – manufacturing (combining c, f, w, t and wp), 8 – pre-and in-service testing which includes manufacturing (combining c, f, w, t and wp), 11 – metalwork and metal production, 15 – pipelines, 17 – drilling equipment, 18 – load-lifting constructions and mechanisms, 19 – metalwares and building constructions, 20 – shipbuilding and shiprepair**

Certification is valid till **29.08.2026**

Given in according to decision about certification from **30.08.2021** № **794.19**

Scientific and Technical Centre "Sich Cert" LLC
(place of given)

Head of Certification
Body of Persons

A.Filonenko
(N.S.)





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Operator's signature image

	<p>Saaga</p>	<p>Print-out date: 07.08.2025</p>
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UT M

<p>INTERNATIONAL CERTIFICATION SYSTEM</p>  <p>CERTIFICATION BODY OF NDT PERSONS SCIENTIFIC AND TECHNICAL CENTRE "SICH CERT" LLC APPLIED IN ACCORDANCE WITH THE REQUIREMENTS OF ISO/IEC 17024</p>		<p>QUALIFICATION CERTIFICATE № 794.19 was given according with the results of certification according to ISO 9712 in accordance with certificate</p>																																																																																																																
<p>QUALIFICATION CERTIFICATE № 794.19 Staff certification system on nondestructive testing according to ISO 9712</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Level</th> <th colspan="3">UT</th> <th colspan="3">RT</th> <th colspan="3">PT</th> <th colspan="3">MT</th> <th colspan="3">ET</th> <th colspan="3">VT</th> <th colspan="3">LT</th> </tr> <tr> <th>month</th> <th>year</th> <th>sector</th> <th>month</th> <th>year</th> <th>sector</th> <th>month</th> <th>year</th> <th>sector</th> <th>month</th> <th>year</th> <th>sector</th> <th>month</th> <th>year</th> <th>sector</th> <th>month</th> <th>year</th> <th>sector</th> <th>month</th> <th>year</th> <th>sector</th> </tr> </thead> <tbody> <tr> <td>I</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> </tr> <tr> <td>II</td> <td>08</td> <td>2026</td> <td>1, 5, 7, 8, 11, 15, 17, 18, 19, 20</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> </tr> <tr> <td>III</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> <td>#</td> </tr> </tbody> </table>	Level	UT			RT			PT			MT			ET			VT			LT			month	year	sector	month	year	sector	month	year	sector	month	year	sector	month	year	sector	month	year	sector	month	year	sector	I	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	II	08	2026	1, 5, 7, 8, 11, 15, 17, 18, 19, 20	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	III	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#	#
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		<p>Name Maksim</p> <p>Surname Skramkov</p> <p>Personal signature </p>		<p>Sectors</p> <p>1 - castings (of ferrous and non-ferrous materials), 2 - forgings (of ferrous and non-ferrous materials), 3 - welds (of all types of metals, including welding for ferrous and non-ferrous materials), 4 - tubes and pipes (of ferrous, welded, ferrous and non-ferrous materials, including flat products for the manufacturing of welded pipes), 5 - wrought and rolled products (of ferrous materials, (e.g. plates, bar, rods), 6 - composite materials, 7 - manufacturing (combining 1, 2, 3, 4, 5 and 6), 8 - pipe and pressure testing which includes manufacturing according to 1, 2, 3, 4, 5 and 6, 9 - failure maintenance (combining 1, 2, 3, 4, 5 and 6), 10 - aerospace combining 1, 2, 3, 4, 5, 6 and 7, A - aerospace engineering industry, B - aerospace manufacturing industry, C - aerospace services (on exploitation) and maintenance industry, D - aerospace overhaul and modernization industry, 11 - mechanical and metal production, 12 - thermal engineering, 13 - industrial engineering, 14 - atomic energy, 15 - plastics, 16 - electricity and electronics, 17 - lifting equipment, 18 - load-lifting constructions and mechanisms, 19 - metal-wires and tubing constructions, 20 - shipbuilding and ship repair</p> <p>Reg. № 794.19 Date of given 30.08.2021 Signature Head CBP </p>																																																																																																														


 Operator's signature image



Saaga

Print-out date:
07.08.2025

DM4DL-00KKK8-18



KALIBREERIMISTUNNISTUS
Calibration Certificate
No.4-10/24u

Klient
Customer TEHNOMET SYRVEY OÜ.

Address
Address Kopli 103, 11712, Tallinn.

Mõõtevahend
Measuring instrument ultrasonic thickness gauges transducer DA 451-5 MHz, No. 59167.

Tüüp
Type DM4 DL.

Number
Serial number 00KKK8.

Kalibreeritud
Date of calibration 18.10.2024.

Järgmine kalibreerimine
Valid till 18.10.2025.

Lehti 2
Number of pages

Yurii Kargu
Yurii Kargu
Mõõtmiste eest vastutav isik:
The person responsible for
the measurements

Yurii Kargu
Yurii Kargu
Kalibreeris:
Calibrated by

Kopli 103, 11712, Tallinn, Eesti
tel +372 6 102 835
fax +372 6 102404
E-mail: elme.tks@blat.ee

Kalibreerimistunnistust ei tohi peajundada osaliselt välja erivatud selle väljaandja kirjaliku loal. Kalibreerimistulemused kehtivad ainult selle mõõtevahendi kohta.
This Calibration protocol may only be reproduced in full, except with the prior written permission by the issuing Laboratory

The integrated management system has
been certified by LRQA against
international standards ISO 9001:2015,
ISO 14001:2015 and ISO 45001:2018
(certificate of Approval No 10289472)

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DM4DL-00KKK8-18

KALIBREERIMISTUNNIJUSTUS nr Calibration Certificate No 4-10/24u	Kuupäev Date 18.10.2024	Leht Page 2(2)
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1. Kalibreerimisvahendid. *Calibration equipment.* Measure length KMT 176M-1, No.131
2. Jälgitavus. *Traceability.*
Working standards ELME TKS are calibrated in laboratory METROSERT.
3. Kalibreerimisjuhend, -metoodika, - meetod. *Calibration instruction or, -method*
EN 15317-2013, method comparison

Tulemused. Results.

Tabel 1

The table

Block Serial No.	Block Thickness (mm)	Measured Thickness (mm)	Acceptance Limits \pm mm	Result (Pass/ Fail)
3-N131-40X3	3.018	3.0	0.04	Pass
25-N131-40X3	25.011	25.0	0.26	Pass
50-N131-40X3	50.001	49.7	0.51	Pass
75-N131-40X3	74.998	75.0	0.76	Pass
100-N131-40X3	100.004	100.3	1.01	Pass


Velocity of Sound 5920 m/s.

Material steel

4. Keskkonna parameetrid mõõtmiste ajal. *Environmental conditions*
Temperatuur Temperature: 20,5 °C
Õhu niiskus Air humidity 55 %

Kalibreeris. Calibrated by ..*Jurii Kargu*
 Allkiri signature

Operator's signature image

	<p>Saaga</p>	<p>Print-out date: 07.08.2025</p>
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Thickness Measurement Report - Worksheet Contents

TM1-G - All Deck Plating, All Bottom Shell Plating or Side Shell Plating	
Ship's name and RINA number	Saaga, RI:
LIST OF TABLES IN WORKSHEET	
Table	Description
A	
B	
C	
3 table(s) in worksheet	
Operator	M.Skramkov RINA Surveyor



Operator's signature image



Saaga

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Thickness Measurement Report - TM1

THICKNESS MEASUREMENT OF ALL DECK PLATING / ALL BOTTOM SHELL PLATING / ALL SIDE PLATING																		
Ship's name and RINA number		Saaga, RI:											Sheet	1	of	3		
STRAKE POSITION	A (Deck Bottom, Side. To be used accordingly before putting strake position)																	
PLATE POSITION	Frames N° or letter Ordnate	Original thickn. [mm]	Rule thickn.* [mm]	FORWARD READINGS						AFT READINGS						Mean diminution		Maximum allowable dimin. [mm]
				Gauged thickness		Diminution		Gauged thickness		Diminution		P	S					
				P	S	P	S	P	S	P	S	P	S					
		[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[mm]	[%]	[mm]	[mm]	[mm]	[%]	[mm]	[%]	[mm]	[mm]	[mm]
3rd fwd	A11	10.00	10.00	9.80	9.30	0.20	2.00	0.70	7.00	10.00	10.00	0.00	0.00	0.00	0.00	0.10	0.35	2.00
2nd fwd	A10	10.00	10.00	9.90	9.50	0.10	1.00	0.50	5.00	10.00	10.00	0.00	0.00	0.00	0.00	0.05	0.25	2.00
1st fwd	A9.1	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
1st fwd	A9	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
Amidship	A8.1	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	7.50	0.00	0.00	0.50	6.25	0.00	0.25	1.60
Amidship	A8	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
1st aft	A7.1	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
1st aft	A7	10.00	10.00	10.00	9.50	0.00	0.00	0.50	5.00	9.80	10.00	0.20	2.00	0.00	0.00	0.10	0.25	2.00
2nd aft	A6.1	10.00	10.00	10.00	10.00	0.00	0.00	0.00	0.00	10.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
2nd aft	A6	10.00	10.00	10.00	10.00	0.00	0.00	0.00	0.00	10.00	10.00	0.00	0.00	0.00	0.00	0.00	0.00	2.00
3rd aft	A5.1	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
3rd aft	A5	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
4th aft	A4	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
5th aft	A3	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
6th aft	A2	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
7th aft	A1	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60
Operator	M.Skrankov										RINA Surveyor							

* Rule thickness t_{RULE} is used for calculations. If not available, it is assumed equal to original thickness t_{AB} .* If $t_{RULE} = t_{AB}$, only fill t_{AB} .

Operator's signature image



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Thickness Measurement Report - TM1

THICKNESS MEASUREMENT OF ALL DECK PLATING / ALL BOTTOM SHELL PLATING / ALL SIDE PLATING																				
Ship's name and RINA number											Saaga, RI:				Sheet	2	of	3		
STRAKE POSITION	B (Deck Bottom, Side. To be used accordingly before putting strake position)																			
PLATE POSITION	Frames N° or letter Ordnate	Original thickn. [mm]	Rule thickn.* [mm]	FORWARD READINGS						AFT READINGS						Mean diminution		Maximum allowable dimin. [mm]		
				Gauged thickness		Diminution				Gauged thickness		Diminution				P	S			
				P	S	P	S	P	S	P	S	P	S	P	S					
2nd fwd	B10	8.00	8.00	7.80	7.70	0.20	2.50	0.30	3.75	7.80	7.90	0.20	2.50	0.10	1.25	0.20	0.20	1.60		
1st fwd	B9	8.00	8.00	7.50	7.90	0.50	6.25	0.10	1.25	7.80	7.60	0.20	2.50	0.40	5.00	0.35	0.25	1.60		
Amidship	B8	8.00	8.00	7.70	7.80	0.30	3.75	0.20	2.50	7.80	7.90	0.20	2.50	0.10	1.25	0.25	0.15	1.60		
1st aft	B7	8.00	8.00	7.60	7.80	0.40	5.00	0.20	2.50	7.80	7.60	0.20	2.50	0.40	5.00	0.30	0.30	1.60		
2nd aft	B6	8.00	8.00	7.80	7.90	0.20	2.50	0.10	1.25	7.80	7.80	0.20	2.50	0.20	2.50	0.20	0.15	1.60		
3rd aft	B5	8.00	8.00	7.80	7.80	0.20	2.50	0.20	2.50	7.80	7.70	0.20	2.50	0.30	3.75	0.20	0.25	1.60		
4th aft	B4.1	8.00	8.00		7.70			0.30	3.75		7.80			0.20	2.50	0.00	0.25	1.60		
5th aft	B4	8.00	8.00	7.90	7.60	0.10	1.25	0.40	5.00	7.80	7.70	0.20	2.50	0.30	3.75	0.15	0.35	1.60		
6th aft	B3	8.00	8.00	7.80	7.70	0.20	2.50	0.30	3.75	7.90	7.80	0.10	1.25	0.20	2.50	0.15	0.25	1.60		
7th aft	B2	8.00	8.00	7.80	7.60	0.20	2.50	0.40	5.00	7.70	7.50	0.30	3.75	0.50	6.25	0.25	0.45	1.60		
8th aft	B1	8.00	8.00	8.00	8.00	0.00	0.00	0.00	0.00	8.00	8.00	0.00	0.00	0.00	0.00	0.00	0.00	1.60		
Operator	M.Skrankov										RINA Surveyor									

* Rule thickness t_{RULE} is used for calculations. If not available, it is assumed equal to original thickness t_{AB} .* If $t_{RULE} = t_{AB}$, only fill t_{AB} .

Operator's signature image



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THICKNESS MEASUREMENT OF ALL DECK PLATING / ALL BOTTOM SHELL PLATING / ALL SIDE PLATING																		
Ship's name and RINA number		Saaga, RI:											Sheet	3	of	3		
STRAKE POSITION	C (Deck Bottom, Side. To be used accordingly before putting strake position)																	
PLATE POSITION	Frames N° or letter	Original thickn. [mm]	Rule thickn. [mm]	FORWARD READINGS						AFT READINGS						Mean diminution		Maximum allowable dimin. [mm]
				Gauged thickness		Diminution		Gauged thickness		Diminution		P	S					
				P	S	P	S	P	S	P	S	P	S					
Ordinate		[mm]	[mm]	[mm]	[mm]	[mm]	[%]	[mm]	[%]	[mm]	[mm]	[mm]	[%]	[mm]	[%]	[mm]	[mm]	[mm]
7th aft	C1	8.00	8.00	7.90	7.80	0.10	1.25	0.20	2.50	7.90	7.90	0.10	1.25	0.10	1.25	0.10	0.15	1.60
8th aft	C2	8.00	8.00	7.90	7.80	0.10	1.25	0.20	2.50	7.80	7.80	0.20	2.50	0.20	2.50	0.15	0.20	1.60
Operator	M.Skrankov									RINA Surveyor								

* Rule thickness t_{RULE} is used for calculations. If not available, it is assumed equal to original thickness t_{AB} .

* If $t_{RULE} = t_{AB}$, only fill t_{AB} .

Operator's signature image