HAI DUONG SHIP REPAIRS CO.,LTD

Add: 1982/27/9/16A Huynh Tan Phat Str, Nha Be Dist, HCMC

Mobile: 0909179756

E-mail: haiduong@haiduongltd.com Website : haiduongltd.com

QUY TRÌNH DNV

Prepared by	Approved By	Approved By DNV
	LE THANH TRUNG	DNV
Name: NGUYEN CHINH QUOC	Name: LE THANH TRUNG	Name: [illegible] KINH QUYEN
Date	Date	Date: 2022-02-27

DNV

WELDING PROCEDURE QUALIFICATION RECORD

Ref:
0

According to rule/standard/code: **Rules for classification: Ships — DNV-RU-SHIP Pt.2 Ch.4 Sec.5**
Offshore standards — DNV-OS-C401: Ch.2 Sec.5

Manufacturer: **10738126 - HAI DUONG SHIP REPAIRS CO., LTD**

Manufacturer address: **Ho Chi Minh City, Vietnam**

Place welded: **Ho Chi Minh City, Vietnam**

Remarks/additional requirements:

General information

WPS No./Rev No:	**HD-2G-FCAW-H/0**		Date of test weld:		**2023-02-14**
Welding process(es)	**136**	Single/double side welding	**single**	Backing (e.g. gas):	**ceramic**
Welding position:	**2G**	Preheating temp:	**- °C**		

Material specification

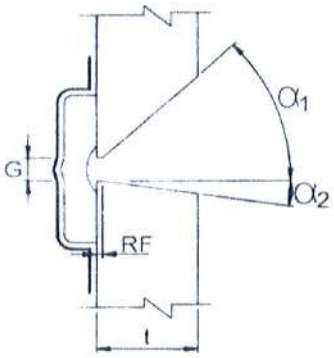
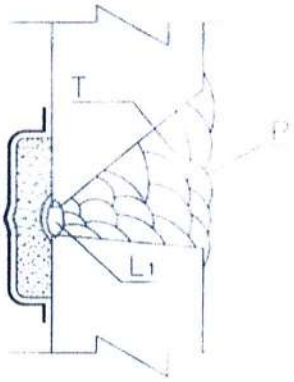
Base material 1:	**NV A36**	Base material 2:	**NV A36**
Delivery condition:	**TMC**	Delivery condition:	**TMC**
Heat No:	**ZQ373214298 / 229212-08**	Heat No:	**ZQ373214298 / 229212-08**
Material thickness:	**14 mm**	Material thickness:	**14 mm**
Outside diameter:	**- mm**	Outside diameter:	**- mm**
Additional information: (e.g. C%, C_{eq}, Pcm)		Additional information: (e.g. C%, C_{eq}, Pcm)	

Welding consumables

Filler metal			Gas	Flux		DNV grade
No.	Manufacturer	Brand name/ Designation		Manufacturer	Brand name/ Designation	
1	**Hyundai Welding Vina Co. LTD.**	**SF-71/C1**	**C1**	**-**	**-**	**II YMS(H10)**
2						
3						

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Joint preparation (sketch) and welding details

Joint design	Welding sequences
State rolling direction, if applicable	For multiple welding process qualification, the deposited weld metal thickness shall be recorded for each filler metal and process used.
 **Gap (G): 3 ~ 8mm** **Root face (RF): 0 ~ 2mm** Backing material: Ceramic α_1: 0-15^0 α_2: 30-40^0	 **L : First run** T : Filling runs P : Cap run

Run/ layer	Welding Process	Ø filler metal (mm)	Filler metal No.	Flow rate gas (l/min)	Current (A)	Voltage (V)	Type of current/ polarity	Travel speed (cm/min)	Inter-pass temp. (°C)	Heat input (kJ/cm)
Root	**136 - FCAW**	**1.2**	**1**	**24**	**210**	**30**	**DC+**	**18.8**	**170-200**	**3.36**
2					**220**	**30**		**38.6**	**170-200**	**1.71**
3					**215**	**30**		**37.5**	**170-200**	**1.72**
4					**220**	**30**		**41.5**	**170-200**	**1.59**
5					**220**	**30**		**45.0**	**170-200**	**1.47**
6					**220**	**30**		**43.5**	**170-200**	**1.52**
7					**215**	**30**		**44.3**	**170-200**	**1.46**
8					**220**	**30**		**45.0**	**170-200**	**1.47**

Further information

Name of welder/operator:	**Nguyen Xuan Hai**	Baking of electrodes:	-
PWHT (Temperature/Time):	**- °C/ - Hr(s)**	Heating/Cooling rate:	-

Other (e.g. max. bead width, weaving, groove preparation, gouging, grinding, welding direction forehand or backhand):
Groove angle: alpha1- 15deg. | alpha2- 30deg

DNV

Ref: **0**

TEST RESULTS

Non-destructive testing

Test Method	Results	Test report No.	Test Method	Results	Test report No.
Visual inspection:	**pass**	-	Radiographic test:	-	-
Ultrasonic test:	**pass**	**PTCS.UT.23.007**	Magnetic particle test:	**pass**	**PTCS.MT.23.007**
Dye penetrant test:	-				

Destructive testing

Tensile test		Test report No:	
Specified YS min:	**N/mm²**	Specified TS min:	**N/mm²**

No.	Dimension	Area (mm²)	Test load Fr (N)	YS (N/mm²)	Break load Fm (N)	TS (N/mm²)	Elongation (%)	R.A. (%)	Location/ Character of fracture

Bend test		Test report No:	
Specified degree:	°	Mandrel diameter:	**mm**

Type	Dimension (W x T)	Result	Type	Dimension (W x T)	Result

Notched bar impact test		Test report No:	
Test temperature:	**°C**	Minimum requirement:	**J**

Notch location	Result 1 (J)	Result 2 (J)	Result 3 (J)	Average (J)
Weld metal				
Fusion line				
Fusion line + 2 mm				
Fusion line + 5 mm				
Fusion line + 10 mm				
Weld metal (Root)				

Hardness tests HV 10	Test report No:	

Ref: **0**

Sketch

Points		1	2	3	4	5	6
WM	**A**						
WM	**B**						
HAZ	**A**						
HAZ	**B**						
BM	**A**						
BM	**B**						

Test Method	Results	Test report No.	Test Method	Results	Test report No.
Macro photo			Fracture Test		
Micro photo					

This is to certify:

That the statements in this record are correct and the welds were prepared, welded, heat treated and tested in accordance with the specified rule/code/standard and/or purchaser´s specification.

Survey station: **DNV Vung Tau Station**

Place: **Vung Tau, Vietnam** Date: **2023-02-24**

for **10738126 - HAI DUONG SHIP REPAIRS CO., LTD**

Le Thanh Trung
Technical Manager

for DNV

Nguyen Minh Quyen
Surveyor

DNV

WELDING PROCEDURE QUALIFICATION RECORD

Ref:
0

According to rule/standard/code: **Rules for classification: Ships — DNV-RU-SHIP Pt.2 Ch.4 Sec.5**
Offshore standards — DNV-OS-C401: Ch.2 Sec.5

Manufacturer: **10738126 - HAI DUONG SHIP REPAIRS CO., LTD**

Manufacturer address: **Ho Chi Minh City, Vietnam**

Place welded: **Ho Chi Minh City, Vietnam**

Remarks/additional requirements:

General information

WPS No./Rev No:	**HD-3G-FCAW-V/0**		Date of test weld:		**2023-02-14**
Welding process(es)	**136**	Single/double side welding	**single**	Backing (e.g. gas):	**ceramic**
Welding position:	**3G**	Preheating temp:	**- °C**		

Material specification

Base material 1:	**NV A36**	Base material 2:	**NV A36**
Delivery condition:	**TMC**	Delivery condition:	**TMC**
Heat No:	**ZQ373214298 / 229212-08**	Heat No:	**ZQ373214298 / 229212-08**
Material thickness:	**14 mm**	Material thickness:	**14 mm**
Outside diameter:	**- mm**	Outside diameter:	**- mm**
Additional information: (e.g. C%, C_{eq}, Pcm)		Additional information: (e.g. C%, C_{eq}, Pcm)	

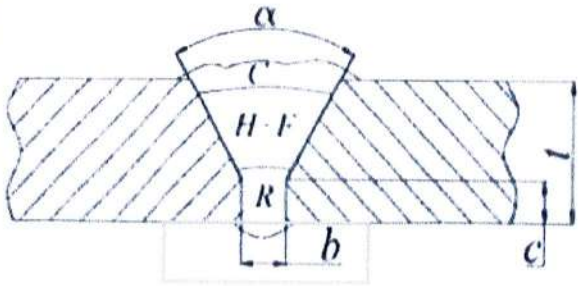
Welding consumables

Filler metal			Gas	Flux		DNV grade
No.	Manufacturer	Brand name/ Designation		Manufacturer	Brand name/ Designation	
1	**Hyundai Welding Vina Co. LTD.**	**SF-71/C1**	**C1**	**-**	**-**	**II YMS(H10)**
2						
3						

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Ref: **0**

Joint preparation (sketch) and welding details

Joint design	Welding sequences
State rolling direction, if applicable	For multiple welding process qualification, the deposited weld metal thickness shall be recorded for each filler metal and process used.
 Gap (G): 3 ~ 8mm Root face (RF): 0 ~ 2mm Backing material: Ceramic α: 40-45⁰	R: root H+F: Filling runs C: Cap run

Run/ layer	Welding Process	Ø filler metal (mm)	Filler metal No.	Flow rate gas (l/min)	Current (A)	Voltage (V)	Type of current/ polarity	Travel speed (cm/min)	Inter-pass temp. (°C)	Heat input (kJ/cm)
Root **2** **3** **4**	**136 - FCAW**	**1.2**	**1**	**24**	**230** **225** **225** **225**	**30** **30** **30** **30**	**DC+**	**16.6** **19.1** **17.1** **16.5**	**170-200** **170-200** **170-200** **170-200**	**4.17** **3.53** **3.95** **4.10**

Further information

Name of welder/operator:	**Nguyen Xuan Hai**	Baking of electrodes:	-
PWHT (Temperature/Time):	**- °C/ - Hr(s)**	Heating/Cooling rate:	-

Other (e.g. max. bead width, weaving, groove preparation, gouging, grinding, welding direction forehand or backhand):
Groove angle: alpha 45deg

DNV

Ref: **0**

TEST RESULTS

Non-destructive testing

Test Method	Results	Test report No.	Test Method	Results	Test report No.
Visual inspection:	**pass**	-	Radiographic test:	-	-
Ultrasonic test:	**pass**	**PTCS.UT.23.007**	Magnetic particle test:	**pass**	**PTCS.MT.23.007**
Dye penetrant test:	-				

Destructive testing

Tensile test		Test report No:	
Specified YS min:	**N/mm²**	Specified TS min:	**N/mm²**

No.	Dimension	Area (mm²)	Test load Fr (N)	YS (N/mm²)	Break load Fm (N)	TS (N/mm²)	Elongation (%)	R.A. (%)	Location/ Character of fracture

Bend test		Test report No:	
Specified degree:	°	Mandrel diameter:	**mm**

Type	Dimension (W x T)	Result	Type	Dimension (W x T)	Result

Notched bar impact test		Test report No:	
Test temperature:	**°C**	Minimum requirement:	**J**

Notch location	Result 1 (J)	Result 2 (J)	Result 3 (J)	Average (J)
Weld metal				
Fusion line				
Fusion line + 2 mm				
Fusion line + 5 mm				
Fusion line + 10 mm				
Weld metal (Root)				

Hardness tests HV 10	Test report No:	

Ref: **0**

Sketch

Points		1	2	3	4	5	6
WM	**A**						
WM	**B**						
HAZ	**A**						
HAZ	**B**						
BM	**A**						
BM	**B**						

Test Method	Results	Test report No.	Test Method	Results	Test report No.
Macro photo			Fracture Test		
Micro photo					

This is to certify:

That the statements in this record are correct and the welds were prepared, welded, heat treated and tested in accordance with the specified rule/code/standard and/or purchaser´s specification.

Survey station: **DNV Vung Tau Station**

Place: **Vung Tau, Vietnam** Date: **2023-02-24**

for **10738126 - HAI DUONG SHIP REPAIRS CO., LTD**

Le Thanh Trung
Technical Manager

DNV

Ngo Minh Quyen
Surveyor

ULTRASONIC TESTING REPORT

Report No. : PTCS.UT.23.007
Date : 16/2/2023
Page : 1 of 1

MNF./CLIENT	: HAI DUONG SHIP REPAIRS CO.,LTD	CODE or STANDARD	: DNVGL-CG-0051/Sec.6
PROJECT	: WELDING PROCEDURE SPECIFICATION	ACCEPTANCE CRITERIA	: DNVGL-CG-0051/Sec.6/Fig.9/Table 4
LOCATION	: SHIPMARIN SHIPYARD, HO CHI MINH CITY	NDT EXTENT	: As per NDT map
ITEM	: WELDER PERFORMANCE QUALIFICATION	PROCEDURE	: PTC.NDT.P02.DNVGL Rev. 4
MATERIAL	: C-S	PRODUCT TYPE	: WELDING
SKETCH	: See attached	PROCESS	: FCAW

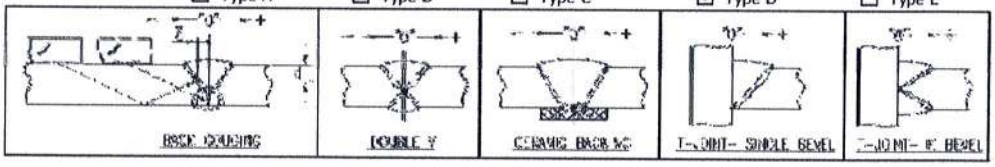
INSTRUMENTS		PROBE USED	☑ 0°	☐ 45°	☑ 60°	☑ 70°	EXAMINATION CONDITION	
MAKER	: GE USM35	MAKER	Trusonic		Trusonic	Trusonic	TECHNIQUE	: CONTACT
MODEL/SERIAL	: 5504a	MODEL	SMEB		1005-03	1005-05	SURFACE CONDITION	: AS WELD
CAL. DUE DATE	: 26.05.2023	FREQUENCY	4 Mhz		5 Mhz	5 Mhz	TEMPERATURE	: AMBIENT
CABLE	: Lemo 01- Lemo 00	SIZE (mm)	3.5x10		7x9	7x9	PWHT: ☐ Before PWHT ☐ After PWHT ☑ N/A	
CAL. BLOCK	: IIW V1	RANGE (mm)	50		100	125	COUPLANT	: CELLULOSE PASTE
REF. BLOCK	: DAC - Ø3 SDH	Ref (dB)	30		50	60	SCANNING LEVEL:	+6 dB
	S/N: 20112	Trans.Cor. (dB)			+ 4dB	+ 4dB	REPORTING LEVEL:	50% DAC
REJECT (%FSH)	: NONE	PROBE CHECK	: VISUAL, INDEX, ANGLE			☑	LAMINATION CHECK	☑ DONE

Type of joints: ☐ Type A ☐ Type B ☑ Type C ☑ Type D ☐ Type E

Scaning face:

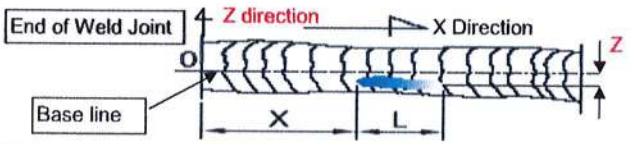
☑ Face A

☐ Face B



Legend to locate indication

X : *Distance from left side end to defects*
d : *Depth from surface on test side to defect*
Z : *Distance from basic line of "0" to defect*
L : *Indication length of defect*



No.	Weld I.D.	Joint Length (mm)	Insp'ted Length (mm)	Thk. (mm)	Indication(s) No	X (mm)	L (mm)	d (mm)	Z (mm)	Type	Amplitude height Ref.+ dB	Indication found by Angle	Judge-ment	Insp'td Date	Remarks
1	NGUYEN DINH QUY (2G)	450	450	14.0									Acc	16/2/2023	Not Found defect
2	NGUYEN DINH QUY (3G)	450	450	14.0									Acc	16/2/2023	Not Found defect
3	TRAN VAN CANG (2G)	450	450	14.0									Acc	16/2/2023	Not Found defect
4	TRAN VAN CANG (3G)	450	450	14.0									Acc	16/2/2023	Not Found defect
5	NGUYEN XUAN HAI (2G)	450	450	14.0									Acc	16/2/2023	Not Found defect
6	NGUYEN XUAN HAI (3G)	450	450	14.0									Acc	16/2/2023	Not Found defect
7	BUI TRUNG KHANH (2G)	450	450	14.0									Acc	16/2/2023	Not Found defect
8	BUI TRUNG KHANH (3G)	450	450	14.0									Acc	16/2/2023	Not Found defect

TOTAL INSPECTED LENGTH: 8 Pcs

Legend:

ACC: Accepted — *CR: Crack* — *LOF: Lack of side-wall fusion* — *V: Volume Indication*
REJ: Rejected — *Po: Pore* — *LOP: Lack of penetration* — *P: Planar Indication*
RC: Re-checked — *SI: Slag inclusion* — *UC: Undercut* — *Sph: Spherical Indication*

PHATECO	SHIP OWNER	CLASS REGISTER
SNT-TC-1A UT Level II		
PHAM VAN TRUNG		
Name & dated signature	Name & dated signature	Name & dated signature

PHATECO
SOLIDARITY, COOPERATION & COSUCCESS

MAGNETIC PARTICLE EXAMINATION REPORT

Report No. : PTCS.MT.23.007
Date : 17-2-2023
Page : 1 of 3

CLIENT	: HAI DUONG SHIP REPAIRS CO.,LTD	CODE or STANDARD	: DNV Rules
PROJECT	: WELDING PROCEDURE SPECIFICATION	ACCEPTANCE CRITERIA	: IACS Rec.20/Table 3
LOCATION	: SHIPMARIN SHIPYARD, HO CHI MINH CITY	NDT EXTENT	: SEE ATTACHE PICTURES
ITEM	: WELDER PERFORMANCE QUALIFICATION	PROCEDURE:	: PTC.NDT.P03.DNVGL Rev. 4
MATERIAL	: C-S	PRODUCT TYPE	: WELDING
SKETCH	: SEE ATTACHMENT	PROCESS	: FCAW

Equipment Used	: MY2 YOKE		Serial	: NW 8656		Next Cal. Due	: 10 Nov 2023
Examination Method	☑ Continuous	☐ Residual					
Magnetizing Method	☐ Permanent Yoke	☑ Yoke			☐ Prod		
Current/Lifting Power	☑ AC	☐ DC			☑ Lifting power		4.5 KG
Magnetic Particle (Brand)	: NABAKEM SM-15		Contrast paint (Brand)	: NABAKEM MP-35			
Medium	☐ Dry	☑ Wet	☐ Fluorescent		☑ Visible Contrast		
State of Examination	☐ Prepared edge	☑ After Welding			☐ After PWHT		
	☐ Base Metal	☐ After Repair			☐ In-service		
Surface Condition	☐ Grinding	☐ Brushing	☑ As weld		☑ Other : As machining		
Surface Temperature	☑ Ambient < 52 °C						
Lighting Condition	☑ Day light > 1000 lux	☐ Artificial > 1000 lux			☐ Black Light		
Lighting Meter	: N/A	Serial	: -	Next Cal. Due	: -		
Yoke Distance	: Maximum 200 mm						
Examination sequences	☑ Two Perpendicular direction	☐ One Direction			☐ Other		
Demagnetization	☑ Yes ☐ No	Post Cleaning	☑ Yes ☐ No				

EXAMINATION RESULTS

No.	DESCRIPTION	FULL LENGTH (m)	INSP. LENGTH (m)	INDICATION			EVALUATION		DATE OF INSPECTION	REMARKS
				LOCATION (mm)	LENGTH	TYPE OF DEFECT FOUND	ACC.	REJ.		
1	NGUYEN DINH QUY (2G)	Attached pictures					√		17/2/2023	Not found defect
2	NGUYEN DINH QUY (3G)	Attached pictures					√		17/2/2023	Not found defect
3	TRAN VAN CANG (2G)	Attached pictures					√		17/2/2023	Not found defect
4	TRAN VAN CANG (3G)	Attached pictures					√		17/2/2023	Not found defect
5	NGUYEN XUAN HAI (2G)	Attached pictures					√		17/2/2023	Not found defect
6	NGUYEN XUAN HAI (3G)	Attached pictures					√		17/2/2023	Not found defect
7	BUI TRUNG KHANH (2G)	Attached pictures					√		17/2/2023	Not found defect
8	BUI TRUNG KHANH (3G)	Attached pictures					√		17/2/2023	Not found defect

TOTAL INSPECTED LENGTH: 8 Pcs

Legend: *ACC: Accepted* *CR: Crack* *UC: Undercut* *LOF: Lack of fusion* *SI: Slag inclusion*
REJ: Rejected *P: Pore/ Porosity* *OV: Overlap* *LOP: Lack of penetration*

PHATECO	SHIP OWNER	CLASS REGISTER
QUALITY VISA		
PHAM VAN TRUNG		
Name & signature	Name & signature	Name & signature

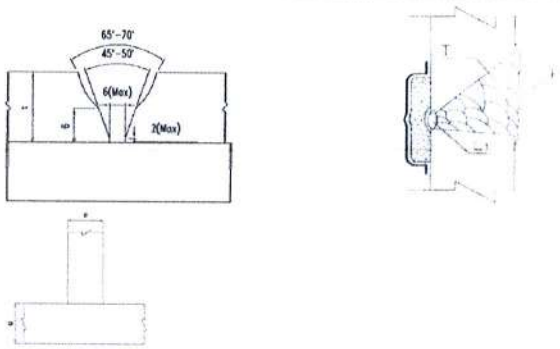
HAI DUONG SHIP REPAIRS CO., LTD

WELDING PROCEDURE SPECIFICATION (WPS)

WPS No.:	**HD-WPS-FCAW-AH36**	Date:	2022-02-27
Supporting PQR No.:	WPQR 2G FCAW A36 / WPQR 3G FCAW A36	Tested Date:	2022-02-14
Welding Process:	FCAW/136	Type:	
Applicable Code:	DNV Rule of Ship/ DNV OS C401	Weld Class	

JOINTS DESIGN	
Joint type	Butt joint with backing or back gouging Both side welding
Joint design	Butt weld and fillet
Backing	Ceramic or steel
Groove Angle	45°~50°
Shallow Angle	65°~70°
Thickness	7mm-28mm
Root Gap	Max 8-10 mm
Root Face	Max 2.0mm

JOINT SKETCH



BASE METALS		
Code Classification		Normal tensile steel NV A36
Specification Type and Grade		AH36 or equivalent and lower grade
Thickness Range	Groove	3mm to 24mm
	Fillet	Unlimited
Pipe Dia. Range		Dia. > 500mm.

WELDING CONSUMABLE	
Process	FCAW/136
Layer	Root, Hot, Fill & Cap
AWS Specification	A5.20
DNV Classification	II YMS (H10)
Brand name	SF-71/C1
Manufacturer	HYUNDAI or Any brands
Size of filler metals	1.2 mm
Gas	CO2.

WELDING POSITION	
Position(s) (butt joint)	1G, 2G, 3G, 4G
Position(s) (fillet joints)	All

ENVIRONMENT DATA	
Temp	Min 35°C (or Ambient Temperature)
Humidity	Max. 85%

POST WELD HEAT TREATMENT

☒ AW Only ☐ PWHT Only

☐ AW + PWHT Required if any

NOTES:

Preheat shall be carried out min 75 mm from both sides of the joint

ELECTRICAL CHARACTERISTICS / TECHNIQUE

Layer	Root	Hot	Fill	Cap
Sting or Weave Bead	String	Weave	Weave	Weave
Multi pass or Single pass	Multiple			
Current Polarity	DCEP			
Amps.	See table			
Volts	See table			
Interpass cleaning meth.	Brushing/ Grinding/ Chipping			
Electrode stickout (mm)	-	-	-	-
PREHEAT				
Preheat Temp, Min.	N/A			

Method	Heating torch
Max. Inter-pass Temperature	250°C
Method of Temp Checking	Pyrometer/ Tempilstick

WELDING PARAMETERS

Weld Layer	Process	Filler Metal		Welding Current		Volt	Travel Speed (cm/min)	Heat input (KJ/mm)	Other
		Class	Dia. (mm)	Type & Polarity	Amps (A)	V			
Root	FCAW	SF-71	1.2	DCEP	210 - 130	28-30	17 - 19	3.6 - 3.7	
Hot	FCAW	SF-71	1.2	DCEP	215 - 225	28-30	20 - 37	3.2 – 3.5	
3---10	FCAW	SF-71	1.2	DCEP	220 - 225	28-30	20 - 40	1.7 - 3.3	
Cap	FCAW	SF-71	1.2	DCEP	220 - 225	28-30	20 - 40	1.7 - 3.3	

Prepared by		**Approved By**	**Approved By DNV**
Name: NGUYEN CHINH QUOC		Name: LE THANH TRUNG	Name: NGUYEN KINH QUYEN
Date		Date	Date: 2022-02-27

THT MECHANICAL TESTING LABORATORY

42D, 30/4 street, 9 ward, Vung Tau city, BR - VT Province

Tel:(0254).3836389 Fax:(0254).3836389

TEST RESULTS REPORT

Client: **Hai Duong Ship Repair Service Co., Ltd** **Total pages: 3**

Add: 1982/27/9/16A Huynh Tan Phat, Group 1, Quarter 7, Nha Be Town, Nha Be District. Ho Chi Minh City

Report No:	**230151**	Date of receipt of test items:	20-02-2023
Name of sample:	HD05	Date of testing:	22-02-2023
Description:	Plate	Coupon name:	Welding procedure
Assess to:	DNV-RU-SHIP Pt.2 Ch.4	Welding process:	FCAW
Material:	AH36	Welding position:	3G

Coupon dimensions (mm): L400 x W300 x T14mm

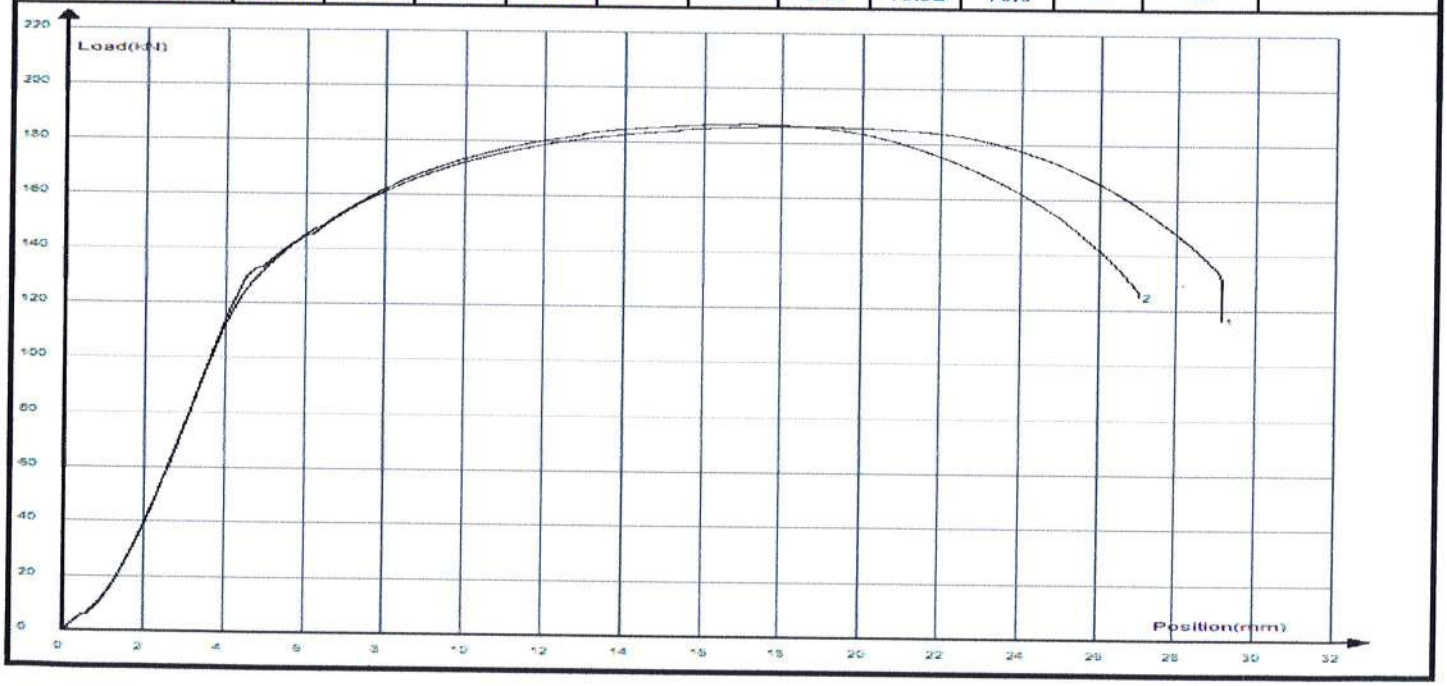
Enviromental condition: Temperature °C: 27 Humidity % RH: 55

Tests :	*Tensile test*	*Bend test*	*Charpy impact test*	*Hardness test*	*Macro etch test*	*Chemical analysis*
Test sample quantity :	2	4	9	1	1	--
Test method	DNV-RU-SHIP Pt.2 Ch.4					
Results						

Longitudinal Tensile Test Testing machines MTS CHT 4605 *Sign*

CERTIFICATE OF CALIBRATION No: KT3-1160BCO2/1

Specimens No:	Dim of specimen, mm		Load, kN		Yield strength		Tensile strength		Gauge length, mm		Elongation %	Location of failure
	W	T or D	Yield	Tensile	MPa	Ksi	MPa	Ksi	Initial	After		
230151 T1	25.00	14.00	--	185.92	--	--	531	77.02	70.0	--	--	Base Metal
230151 T2	25.00	13.84	--	186.72	--	--	540	78.32	70.0	--	--	



Laboratory Manager

Witnessed by Customers

Witnessed by third-party

Nguyen Cong Binh
LBH:03 (14-05-2019)

THT MECHANICAL TESTING LABORATORY
42D, 30/4 street, 9 ward, Vung Tau city, BR - VT Province
Tel:(0254).3836389 Fax:(0254).3836389

TEST RESULTS REPORT

Transverse - Charpy impact test Testing machines ZBC 2452-B *Sign*

CERTIFICATE OF CALIBRATION No: KT3-1160BCO2/3

Specimens No.:	V-Notch (Position)	Dim of specimen, *(mm)* Height of test piece	Width of test piece	Long of test piece	Test temperature *(°C)*	Impact energy, *J (Joule)*	Average, *J (Joule)*
230151 I1	Weld metal	10	10	55	+20 °C	**156**	157.7
230151 I2		10	10	55		**156**	
230151 I3		10	10	55		**161**	
230151 I4	Fusionline	10	10	55		**189**	196.0
230151 I5		10	10	55		**193**	
230151 I6		10	10	55		**206**	
230151 I7	Fusionline +2	10	10	55		**190**	194.0
230151 I8		10	10	55		**212**	
230151 I9		10	10	55		**180**	

Bend test wrap around jig Testing machines OKB-25M-Japan-5 *Sign*

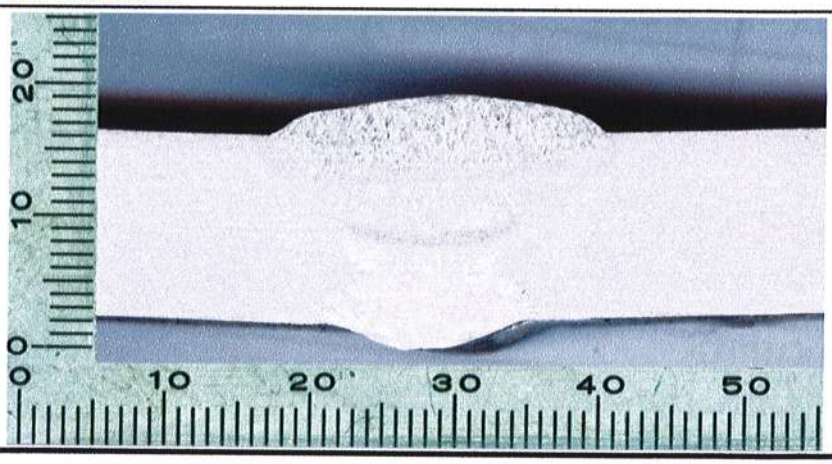
Specimens No:	Dim of specimen, mm a	b	Type of bend	Gap diameter two Plunger, mm	Plunger diameter, mm	Bend angle, degree	Results	Remarks
230151 B1	14.00	10.0	Side Bend	11.5	40.0	180	Accepted	No defected
230151 B2	14.00	10.0		11.5	40.0	180	Accepted	No defected
230151 B3	14.00	10.0		11.5	40.0	180	Accepted	No defected
230151 B4	14.00	10.0		11.5	40.0	180	Accepted	No defected

Macro-photograph Testing machines MITUTOYO PJ 300 *Sign*

CERTIFICATE OF CALIBRATION No: KT3-1238BDD2

230151 M1

Magnification at 5X:
Full penetration and fusion weld, no defect was observed in weld metal



Laboratory Manager

Witnessed by Customers

Witnessed by third-party

Nguyen Cong Binh
LBH:03 (14-05-2019)

THT MECHANICAL TESTING LABORATORY

42D, 30/4 street, 9 ward, Vung Tau city, BR - VT Province

Tel:(0254).3836389 Fax:(0254).3836389

TEST RESULTS REPORT

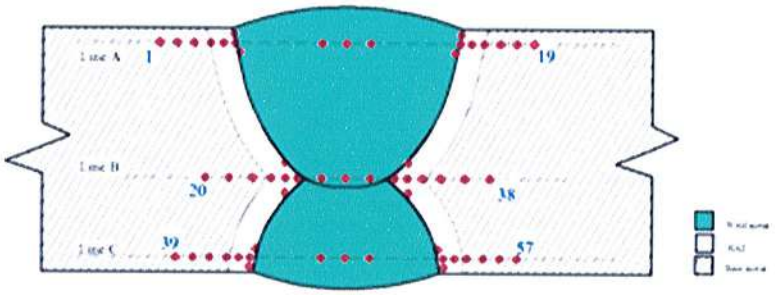
Vickers Hardness (HV 10) Testing machines MITUTOYO VICKER 112 *Sign*

CERTIFICATE OF CALIBRATION No: KT3-1160BCO2/2

230151 HN1 Min =157HV Max =191HV

Base Metal			Heat Affected Zone					Weld Metal			Heat Affected Zone					Base Metal		
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19
162	162	159	168	176	171	169	175	184	170	175	191	174	165	164	162	157	157	158
B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36	B37	B38
159	161	155	159	154	149	153	165	164	166	166	163	158	158	153	154	159	47	153
C39	C40	C41	C42	C43	C44	C45	C46	C47	C48	C49	C50	C51	C52	C53	C54	C55	C56	C57
164	162	161	161	164	160	157	172	164	168	169	169	163	157	162	162	168	161	160

Hardness Points: (See sketch below)



1 The test results are valid for the namely submitted sample(s) only.

2 Name of sample and client are reported as the client's request. This report is only issued as an original document.

3 The evaluation of the lab based on standard criteria.

Laboratory Manager

Witnessed by Customers

Witnessed by third-party

Nguyen Cong Binh
LBH:03 (14-05-2019)

THT MECHANICAL TESTING LABORATORY
42D, 30/4 street, 9 ward, Vung Tau city, BR - VT Province
Tel:(0254).3836389 Fax:(0254).3836389

TEST RESULTS REPORT

Client: **Hai Duong Ship Repair Service Co., Ltd** — **Total pages: 3**
Add: 1982/27/9/16A Huynh Tan Phat, Group 1, Quarter 7, Nha Be Town, Nha Be District. Ho Chi Minh City

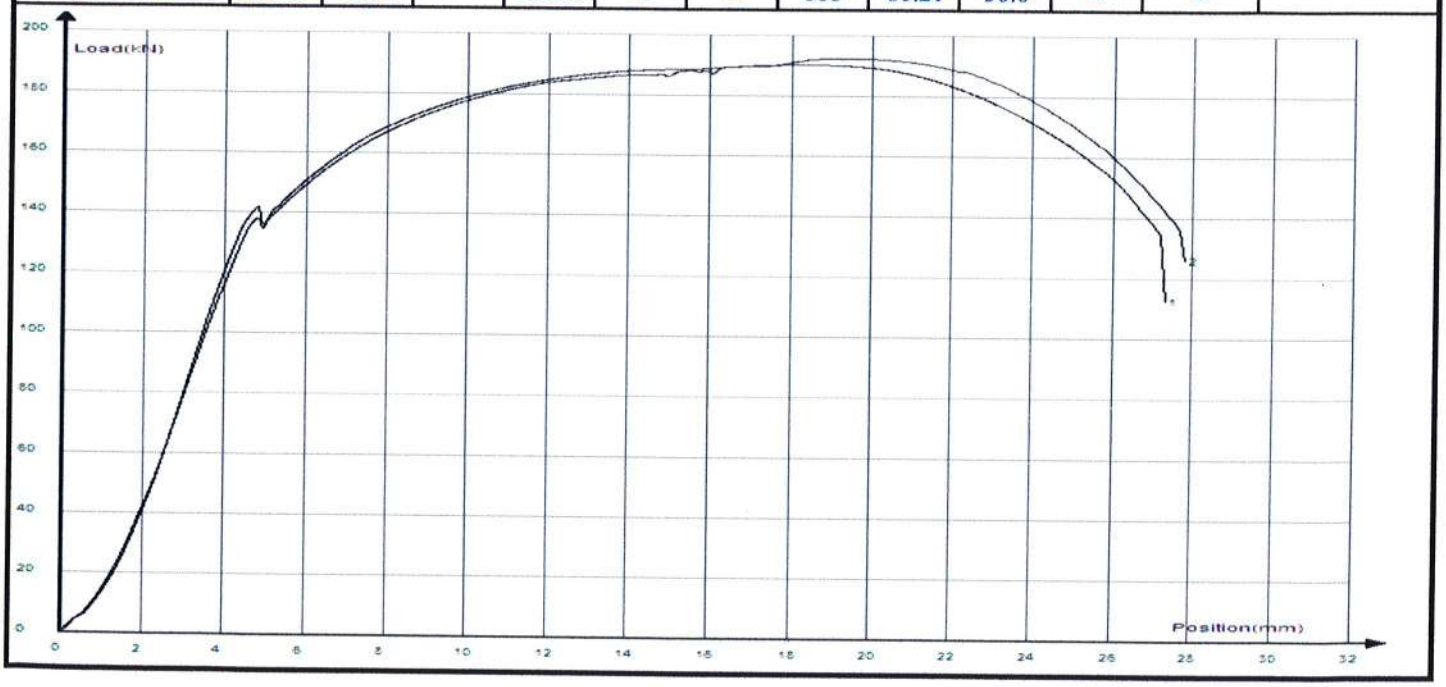
Report No:	**230150**	Date of receipt of test items:	20-02-2023
Name of sample:	HD04	Date of testing:	22-02-2023
Description:	Plate	Coupon name:	Welding procedure
Assess to:	DNV-RU-SHIP Pt.2 Ch.4	Welding process:	FCAW
Material:	AH36	Welding position:	2G

Coupon dimensions (mm): L400 x W300 x T14mm
Enviromental condition: Temperature °C: 27 Humidity % RH: 55

Tests :	*Tensile test*	*Bend test*	*Charpy impact test*	*Hardness test*	*Macro etch test*	*Chemical analysis*
Test sample quantity :	2	4	9	1	1	--
Test method	DNV-RU-SHIP Pt.2 Ch.4					
Results						

Longitudinal Tensile Test — Testing machines: MTS CHT 4605 — *Sign*
CERTIFICATE OF CALIBRATION No: KT3-1160BCO2/1

Specimens No:	Dim of specimen, mm		Load, kN		Yield strength		Tensile strength		Gauge length, mm		Elongation %	Location of failure
	W	T or D	Yield	Tensile	MPa	Ksi	MPa	Ksi	Initial	After		
230150 T1	25.00	14.15	--	190.20	--	--	538	78.03	50.0	--	--	Base Metal
230150 T2	25.00	13.92	--	192.38	--	--	553	80.21	50.0	--	--	



Laboratory Manager

Witnessed by Customers

Witnessed by third-party

Nguyen Cong Binh
LBH:03 (14-05-2019)

THT MECHANICAL TESTING LABORATORY
42D, 30/4 street, 9 ward, Vung Tau city, BR - VT Province
Tel:(0254).3836389 Fax:(0254).3836389

TEST RESULTS REPORT

Transverse - Charpy impact test — Testing machines ZBC 2452-B — *Sign*

CERTIFICATE OF CALIBRATION — No: KT3-1160BCO2/3

Specimens No.:	V-Notch (Position)	Dim of specimen, *(mm)*			Test temperature *(°C)*	Impact energy, *J (Joule)*	Average, *J (Joule)*
		Height of test piece	Width of test piece	Long of test piece			
230150 I1	Weld metal	10	10	55	+20 °C	**172**	172.7
230150 I2		10	10	55		**171**	
230150 I3		10	10	55		**175**	
230150 I4	Fusionline	10	10	55		**182**	171.0
230150 I5		10	10	55		**167**	
230150 I6		10	10	55		**164**	
230150 I7	Fusionline +2	10	10	55		**176**	189.3
230150 I8		10	10	55		**201**	
230150 I9		10	10	55		**191**	

Bend test wrap around jig — Testing machines OKB-25M-Japan-5 — *Sign*

Specimens No:	Dim of specimen, mm		Type of bend	Gap diameter two Plunger, mm	Plunger diameter, mm	Bend angle, degree	Results	Remarks
	a	b						
230150 B1	14.00	10.0	Side Bend	11.5	40.0	180	Accepted	No defected
230150 B2	14.00	10.0		11.5	40.0	180	Accepted	No defected
230150 B3	14.00	10.0		11.5	40.0	180	Accepted	No defected
230150 B4	14.00	10.0		11.5	40.0	180	Accepted	No defected

Macro-photograph — Testing machines MITUTOYO PJ 300 — *Sign*

CERTIFICATE OF CALIBRATION — No: KT3-1238BDD2

230150 M1

Magnification at 5X:
Full penetration and fusion weld, no defect was observed in weld metal



Laboratory Manager

Witnessed by Customers

Witnessed by third-party

Nguyen Cong Binh
LBH:03 (14-05-2019)

THT MECHANICAL TESTING LABORATORY

42D, 30/4 street, 9 ward, Vung Tau city, BR - VT Province

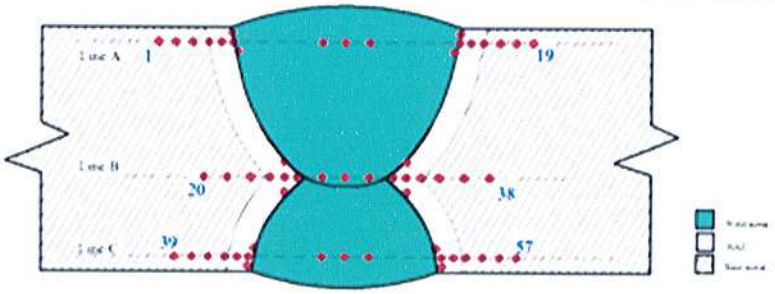
Tel:(0254).3836389 Fax:(0254).3836389

TEST RESULTS REPORT

Vickers Hardness (HV 10)	Testing machines	MITUTOYO VICKER 112	*Sign*
CERTIFICATE OF CALIBRATION		No: KT3-1160BCO2/2	
230150 HN1	Min =156HV	Max =238HV	

Base Metal			Heat Affected Zone					Weld Metal			Heat Affected Zone					Base Metal		
A1	A2	A3	A4	A5	A6	A7	A8	A9	A10	A11	A12	A13	A14	A15	A16	A17	A18	A19
164	169	168	180	191	185	176	193	203	203	214	238	231	224	201	181	165	166	162
B20	B21	B22	B23	B24	B25	B26	B27	B28	B29	B30	B31	B32	B33	B34	B35	B36	B37	B38
160	162	165	166	169	170	173	174	191	226	229	195	183	179	179	173	159	164	166
C39	C40	C41	C42	C43	C44	C45	C46	C47	C48	C49	C50	C51	C52	C53	C54	C55	C56	C57
161	163	159	161	170	173	168	175	190	186	186	185	172	176	176	170	163	156	158

Hardness Points: (See sketch below) →



1 The test results are valid for the namely submitted sample(s) only.

2 Name of sample and client are reported as the client's request. This report is only issued as an original document.

3 The evaluation of the lab based on standard criteria.

Laboratory Manager

Witnessed by Customers

Witnessed by third-party

Nguyen Cong Binh
LBH:03 (14-05-2019)

DNV

WELDER'S QUALIFICATION TEST CERTIFICATE

Certificate No:
WQT0003XTM
Revision No:

Photo (if required)

Designation:	**ISO 9606-1 136/136 P BW FM1 P t14 PC ss mb**		
Welder name:	**Nguyen, Xuan Hai**		
Employer:	**HAI DUONG SHIP REPAIRS CO., LTD**		
Date of birth:	**1991-06-15**	Place of birth:	**Hai Duong City, Vietnam**
Identification:	**301387955**	Method of ID:	**ID card**
Code/Testing std.:	**ISO 9606-1**		
WPS reference:	**HD-2G-FCAW-H**		

Product parameters

Test data	Details	Range of qualifications	Reference
Welding process	136	136	acc. to section 5.2
Product type	P	P, T	acc. to section 5.3
Joint type	BW	BW	acc. to section 5.4
Material	NV A36		
Material group	1.2		
Filler material brand name	SF-71/C1		
Filler material type	P	R, P, V, W, Y, Z	acc. to section 5.6
Shielding gas brand name/product name/composition	CO2		
Shielding gas	C1		
Test piece thickness	14mm	>= 3,0mm	acc. to section 5.7
Welding position	PC	PA, PC	acc. to section 5.8
Backing / gouging	ss mb	ss mb, bs	acc. to section 5.9
Filler material group	FM1	FM1, FM2	acc. to section 5.5
Type of current and polarity	DC+		
Additional fillet weld	No		
Root welding process	136	136	acc. to section 5.2

Testing

Type of test	Results	Type of test	Results	Type of test	Results
Visual test	passed	Radiographic / Ultrasonic	passed	Bend test	passed
Fracture test	passed	Macro	passed	Notched-tensile test	passed
Surface crack test	passed				

The chosen method of the extension of qualification in accordance with ISO 9606-1: A

Issued at **Vung Tau City** on **2023-02-23**

Date of welding: **2023-02-22**

for **DNV**

DNV - SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - 1864

This Certificate is valid until[1]: **2026-02-21**
DNV local unit: **Vung Tau Station**

Surveyor: **Kinh Quyen Ngo**

This document has been digitally signed and will therefore not have handwritten signatures

Kinh Quyen Ngo
Business Development Manager - Maritime

Confirmation of the validity by employer/welding supervisor according to above-mentioned standard, for the following intervals:

Date	Signature (stamp)	Date	Signature (stamp)
1 23/8/2023	KCS (Q.C)	2 23/4/2024	KCS (Q.C)
3		4	
5		6	

CÔNG TY TNHH DV SC TB HẢI DƯƠNG – CTY TNHH DV SC TB HAI DUONG – 1982/27/16A Huỳnh Tấn Phát Str, Nhà Bè Dist, HCMC – KCS (Q.C) – HAI DUONG SHIP REPAIRS CO.,LTD

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

[1] When confirmation of the validity by employer/welding supervisor according to the above-mentioned standard is duly given.

DNV

WELDER'S QUALIFICATION TEST CERTIFICATE

Certificate No:
WQT0003XTR
Revision No:

Photo (if required)

Designation:	**ISO 9606-1 136/136 P BW FM1 P t14 PC ss mb**		
Welder name:	**Tran, Van Cang**		
Employer:	**HAI DUONG SHIP REPAIRS CO., LTD**		
Date of birth:	**1979-07-22**	Place of birth:	**Vinh Long Province, Vietnam**
Identification:	**331643468**	Method of ID:	**ID card**
Code/Testing std.:	**ISO 9606-1**		
WPS reference:	**HD-2G-FCAW-H**		

Product parameters

Test data	Details	Range of qualifications	Reference
Welding process	136	136	acc. to section 5.2
Product type	P	P, T	acc. to section 5.3
Joint type	BW	BW	acc. to section 5.4
Material	NV A36		
Material group	1.2		
Filler material brand name	SF-71/C1		
Filler material type	P	R, P, V, W, Y, Z	acc. to section 5.6
Shielding gas brand name/product name/composition	CO2		
Shielding gas	C1		
Test piece thickness	14mm	>= 3,0mm	acc. to section 5.7
Welding position	PC	PA, PC	acc. to section 5.8
Backing / gouging	ss mb	ss mb, bs	acc. to section 5.9
Filler material group	FM1	FM1, FM2	acc. to section 5.5
Type of current and polarity	DC+		
Additional fillet weld	No		
Root welding process	136	136	acc. to section 5.2

Testing

Type of test	Results	Type of test	Results	Type of test	Results
Visual test	passed	Radiographic / Ultrasonic	passed	Bend test	passed
Fracture test	passed	Macro	passed	Notched-tensile test	passed
Surface crack test	passed				

The chosen method of the extension of qualification in accordance with ISO 9606-1: A

Issued at **Vung Tau City** on **2023-02-23**

Date of welding: **2023-02-22**

for **DNV**

DNV - SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - 1864

This Certificate is valid until[1]: **2026-02-21**
DNV local unit: **Vung Tau Station**

Surveyor: **Kinh Quyen Ngo**

This document has been digitally signed and will therefore not have handwritten signatures

Kinh Quyen Ngo
Business Development Manager - Maritime

Confirmation of the validity by employer/welding supervisor according to above-mentioned standard for the following 6 months

Date	Signature (stamp)	Date	Signature (stamp)
23/8/2024		23/4/2024	
3		4	
5		6	

CÔNG TY TNHH DV SC TB HẢI DƯƠNG
1982/27/16A Huỳnh Tấn Phát Str. Nhà Bè Dist. HCMC
KCS (Q.C)
HAI DUONG SHIP REPAIRS CO., LTD

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[1] When confirmation of the validity by employer/welding supervisor according to the above-mentioned standard is duly given.

DNV

WELDER'S QUALIFICATION TEST CERTIFICATE

Certificate No:
WQT0003XTS
Revision No:

Photo (if required)

Designation:	**ISO 9606-1 136/136 P BW FM1 P t14 PC ss mb**		
Welder name:	**Bui, Trung Khanh**		
Employer:	**HAI DUONG SHIP REPAIRS CO., LTD**		
Date of birth:	**1978-11-02**	Place of birth:	**Thai Binh City, Vietnam**
Identification:	**034078003155**	Method of ID:	**ID card**
Code/Testing std.:	**ISO 9606-1**		
WPS reference:	**HD-2G-FCAW-H**		

Product parameters

Test data	Details	Range of qualifications	Reference
Welding process	136	136	acc. to section 5.2
Product type	P	P, T	acc. to section 5.3
Joint type	BW	BW	acc. to section 5.4
Material	NV A36		
Material group	1.2		
Filler material brand name	SF-71/C1		
Filler material type	P	R, P, V, W, Y, Z	acc. to section 5.6
Shielding gas brand name/product name/composition	CO2		
Shielding gas	C1		
Test piece thickness	14mm	>= 3,0mm	acc. to section 5.7
Welding position	PC	PA, PC	acc. to section 5.8
Backing / gouging	ss mb	ss mb, bs	acc. to section 5.9
Filler material group	FM1	FM1, FM2	acc. to section 5.5
Type of current and polarity	DC+		
Additional fillet weld	No		
Root welding process	136	136	acc. to section 5.2

Testing

Type of test	Results	Type of test	Results	Type of test	Results
Visual test	passed	Radiographic / Ultrasonic	passed	Bend test	passed
Fracture test	passed	Macro	passed	Notched-tensile test	passed
Surface crack test	passed				

The chosen method of the extension of qualification in accordance with ISO 9606-1: A

Issued at **Vung Tau City** on **2023-02-23**

Date of welding: **2023-02-22**

for **DNV**

This Certificate is valid until[1]: **2026-02-21**
DNV local unit: **Vung Tau Station**

Surveyor: **Kinh Quyen Ngo**

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Kinh Quyen Ngo
Business Development Manager Maritime

Confirmation of the validity by employer/welding supervisor according to above-mentioned standard, for the following 6 months.			
Date	**Signature (stamp)**	**Date**	**Signature (stamp)**
23/12/2023		23/14/2024	
3		4	
5		6	

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[1] When confirmation of the validity by employer/welding supervisor according to the above-mentioned standard is duly given.

DNV

WELDER'S QUALIFICATION TEST CERTIFICATE

Certificate No:
WQT0003XTT
Revision No:

Photo (if required)

Designation:	**ISO 9606-1 136/136 P BW FM1 P t14 PF ss mb**		
Welder name:	**Bui, Trung Khanh**		
Employer:	**HAI DUONG SHIP REPAIRS CO., LTD**		
Date of birth:	**1978-11-02**	Place of birth:	**Thai Binh City, Vietnam**
Identification:	**034078003155**	Method of ID:	**ID card**
Code/Testing std.:	**ISO 9606-1**		
WPS reference:	**HD-3G-FCAW-V**		

Product parameters

Test data	Details	Range of qualifications	Reference
Welding process	136	136	acc. to section 5.2
Product type	P	P, T	acc. to section 5.3
Joint type	BW	BW	acc. to section 5.4
Material	NV A36		
Material group	1.2		
Filler material brand name	SF-71/C1		
Filler material type	P	R, P, V, W, Y, Z	acc. to section 5.6
Shielding gas brand name/product name/composition	CO2		
Shielding gas	C1		
Test piece thickness	14mm	>= 3,0mm	acc. to section 5.7
Welding position	PF	PA, PF	acc. to section 5.8
Backing / gouging	ss mb	ss mb, bs	acc. to section 5.9
Filler material group	FM1	FM1, FM2	acc. to section 5.5
Type of current and polarity	DC+		
Additional fillet weld	No		
Root welding process	136	136	acc. to section 5.2

Testing

Type of test	Results	Type of test	Results	Type of test	Results
Visual test	passed	Radiographic / Ultrasonic	passed	Bend test	passed
Fracture test	passed	Macro	passed	Notched-tensile test	passed
Surface crack test	passed				

The chosen method of the extension of qualification in accordance with ISO 9606-1: A

Issued at **Vung Tau City** on **2023-02-23**

Date of welding: **2023-02-22**

for **DNV**

SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - DNV 1864

This Certificate is valid until[1]: **2026-02-21**
DNV local unit: **Vung Tau Station**

Surveyor: **Kinh Quyen Ngo**

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Kinh Quyen Ngo
Business Development Manager - Maritime

Confirmation of the validity by employer/welding supervisor according to above-mentioned standard, for the following 6 months.

Date	Signature (stamp)	Date	Signature (stamp)
23/8/2023		23/14/2024	
3		4	
5		6	

CÔNG TY TNHH DV SC TB HẢI DƯƠNG
CTY TNHH DV SC TB HẢI DƯƠNG
1982/27/16A Huỳnh Tấn Phát Str, Nhà Bè Dist, HCMC
KCS (Q.C)
HẢI DƯƠNG SHIP REPAIRS CO.,LTD

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DNV

WELDER'S QUALIFICATION TEST CERTIFICATE

Certificate No:
WQT0003XTU
Revision No:

Photo (if required)

Designation:	**ISO 9606-1 136/136 P BW FM1 P t14 PF ss mb**		
Welder name:	**Nguyen, Xuan Hai**		
Employer:	**HAI DUONG SHIP REPAIRS CO., LTD**		
Date of birth:	**1991-06-15**	Place of birth:	**Hai Duong City, Vietnam**
Identification:	**301387955**	Method of ID:	**ID card**
Code/Testing std.:	**ISO 9606-1**		
WPS reference:	**HD-3G-FCAW-V**		

Product parameters

Test data	Details	Range of qualifications	Reference
Welding process	136	136	acc. to section 5.2
Product type	P	P, T	acc. to section 5.3
Joint type	BW	BW	acc. to section 5.4
Material	NV A36		
Material group	1.2		
Filler material brand name	SF-71/C1		
Filler material type	P	R, P, V, W, Y, Z	acc. to section 5.6
Shielding gas brand name/product name/composition	CO2		
Shielding gas	C1		
Test piece thickness	14mm	>= 3,0mm	acc. to section 5.7
Welding position	PF	PA, PF	acc. to section 5.8
Backing / gouging	ss mb	ss mb, bs	acc. to section 5.9
Filler material group	FM1	FM1, FM2	acc. to section 5.5
Type of current and polarity	DC+		
Additional fillet weld	No		
Root welding process	136	136	acc. to section 5.2

Testing

Type of test	Results	Type of test	Results	Type of test	Results
Visual test	passed	Radiographic / Ultrasonic	passed	Bend test	passed
Fracture test	passed	Macro	passed	Notched-tensile test	passed
Surface crack test	passed				

The chosen method of the extension of qualification in accordance with ISO 9606-1: A

Issued at **Vung Tau City** on **2023-02-23**

Date of welding: **2023-02-22**

for **DNV**

SAFEGUARDING LIFE, PROPERTY AND THE ENVIRONMENT - DNV 1864

This Certificate is valid until[1]: **2026-02-21**
DNV local unit: **Vung Tau Station**

Surveyor: **Kinh Quyen Ngo**

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Kinh Quyen Ngo
Business Development Manager - Maritime

Confirmation of the validity by employer/welding supervisor according to above-mentioned standard for the following periods:

Date	Signature (stamp) ★	Date	Signature (stamp) ★
23/8/2023		23/4/2024	
3		4	
5		6	

CÔNG TY TNHH DV SC TB HẢI DƯƠNG
CTY TNHH DV SC TB HAI DUONG
1982/27/16A Huynh Tan Phat Str, Nha Be Dist, HCMC
K C S
(Q.C)
HẢI DƯƠNG SHIP REPAIRS CO.,LTD

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DNV

WELDER'S QUALIFICATION TEST CERTIFICATE

Certificate No:
WQT0003XTV
Revision No:

Photo (if required)

Designation:	**ISO 9606-1 136/136 P BW FM1 P t14 PF ss mb**		
Welder name:	**Nguyen, Dinh Quy**		
Employer:	**HAI DUONG SHIP REPAIRS CO., LTD**		
Date of birth:	**1993-01-05**	Place of birth:	**Daklak Province, Vietnam**
Identification:	**066093021682**	Method of ID:	**ID card**
Code/Testing std.:	**ISO 9606-1**		
WPS reference:	**HD-3G-FCAW-V**		

Product parameters

Test data	Details	Range of qualifications	Reference
Welding process	136	136	acc. to section 5.2
Product type	P	P, T	acc. to section 5.3
Joint type	BW	BW	acc. to section 5.4
Material	NV A36		
Material group	1.2		
Filler material brand name	SF-71/C1		
Filler material type	P	R, P, V, W, Y, Z	acc. to section 5.6
Shielding gas brand name/product name/composition	CO2		
Shielding gas	C1		
Test piece thickness	14mm	>= 3,0mm	acc. to section 5.7
Welding position	PF	PA, PF	acc. to section 5.8
Backing / gouging	ss mb	ss mb, bs	acc. to section 5.9
Filler material group	FM1	FM1, FM2	acc. to section 5.5
Type of current and polarity	DC+		
Additional fillet weld	No		
Root welding process	136	136	acc. to section 5.2

Testing

Type of test	Results	Type of test	Results	Type of test	Results
Visual test	passed	Radiographic / Ultrasonic	passed	Bend test	passed
Fracture test	passed	Macro	passed	Notched-tensile test	passed
Surface crack test	passed				

The chosen method of the extension of qualification in accordance with ISO 9606-1: A

Issued at **Vung Tau City** on **2023-02-23**

Date of welding: **2023-02-22**

for **DNV**

This Certificate is valid until[1]: **2026-02-21**
DNV local unit: **Vung Tau Station**

Surveyor: **Kinh Quyen Ngo**

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Kinh Quyen Ngo

Business Development Manager - Maritime

Confirmation of the validity by employer/welding supervisor according to above-mentioned standard, for the following 6 months:

Date	Signature (stamp)	Date	Signature (stamp)
23/8/2024		23/4/2024	
3		4	
5		6	

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WELDER'S QUALIFICATION TEST CERTIFICATE

Certificate No:
WQT0003XTW
Revision No:

Photo (if required)

Designation:	**ISO 9606-1 136/136 P BW FM1 P t14 PF ss mb**		
Welder name:	**Tran, Van Cang**		
Employer:	**HAI DUONG SHIP REPAIRS CO., LTD**		
Date of birth:	**1979-07-22**	Place of birth:	**Vinh Long Province, Vietnam**
Identification:	**331643468**	Method of ID:	**ID card**
Code/Testing std.:	**ISO 9606-1**		
WPS reference:	**HD-3G-FCAW-V**		

Product parameters

Test data	Details	Range of qualifications	Reference
Welding process	136	136	acc. to section 5.2
Product type	P	P, T	acc. to section 5.3
Joint type	BW	BW	acc. to section 5.4
Material	NV A36		
Material group	1.2		
Filler material brand name	SF-71/C1		
Filler material type	P	R, P, V, W, Y, Z	acc. to section 5.6
Shielding gas brand name/product name/composition	CO2		
Shielding gas	C1		
Test piece thickness	14mm	>= 3,0mm	acc. to section 5.7
Welding position	PF	PA, PF	acc. to section 5.8
Backing / gouging	ss mb	ss mb, bs	acc. to section 5.9
Filler material group	FM1	FM1, FM2	acc. to section 5.5
Type of current and polarity	DC+		
Additional fillet weld	No		
Root welding process	136	136	acc. to section 5.2

Testing

Type of test	Results	Type of test	Results	Type of test	Results
Visual test	passed	Radiographic / Ultrasonic	passed	Bend test	passed
Fracture test	passed	Macro	passed	Notched-tensile test	passed
Surface crack test	passed				

The chosen method of the extension of qualification in accordance with ISO 9606-1: A

Issued at **Vung Tau City** on **2023-02-23**

Date of welding: **2023-02-22**

for **DNV**

This Certificate is valid until[1]: **2026-02-21**
DNV local unit: **Vung Tau Station**

Surveyor: **Kinh Quyen Ngo**

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Business Development Manager - Maritime

Confirmation of the validity by employer/welding supervisor according to above-mentioned standard, for the following 6 months.

Date	Signature (stamp)	Date	Signature (stamp)
23/8/2024		23/11/2024	
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WELDER'S QUALIFICATION TEST CERTIFICATE

Certificate No:
WQT0003XTJ
Revision No:

Photo (if required)

Designation:	**ISO 9606-1 136/136 P BW FM1 P t14 PC ss mb**		
Welder name:	**Nguyen, Dinh Quy**		
Employer:	**HAI DUONG SHIP REPAIRS CO., LTD**		
Date of birth:	**1993-01-05**	Place of birth:	**Daklak Province, Vietnam**
Identification:	**066093021682**	Method of ID:	**ID card**
Code/Testing std.:	**ISO 9606-1**		
WPS reference:	**HD-2G-FCAW-H**		

Product parameters

Test data	Details	Range of qualifications	Reference
Welding process	136	136	acc. to section 5.2
Product type	P	P, T	acc. to section 5.3
Joint type	BW	BW	acc. to section 5.4
Material	NV A36		
Material group	1.2		
Filler material brand name	SF-71/C1		
Filler material type	P	R, P, V, W, Y, Z	acc. to section 5.6
Shielding gas brand name/product name/composition	CO2		
Shielding gas	C1		
Test piece thickness	14mm	>= 3,0mm	acc. to section 5.7
Welding position	PC	PA, PC	acc. to section 5.8
Backing / gouging	ss mb	ss mb, bs	acc. to section 5.9
Filler material group	FM1	FM1, FM2	acc. to section 5.5
Type of current and polarity	DC+		
Additional fillet weld	No		
Root welding process	136	136	acc. to section 5.2

Testing

Type of test	Results	Type of test	Results	Type of test	Results
Visual test	passed	Radiographic / Ultrasonic	passed	Bend test	passed
Fracture test	passed	Macro	passed	Notched-tensile test	passed
Surface crack test	passed				

The chosen method of the extension of qualification in accordance with ISO 9606-1: A

Issued at **Vung Tau City** on **2023-02-23**

Date of welding: **2023-02-22**

for **DNV**

This Certificate is valid until[1]: **2026-02-21**
DNV local unit: **Vung Tau Station**

Surveyor: **Kinh Quyen Ngo**

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Business Development Manager - Maritime

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