



Indian Oil Corporation Limited

**Panipat Hydrogen Generation Unit
Praxair India Private Limited**

Linde Plant-Project ID 2910A70M	Client Project ID NA	
Linde Plant-Project Code Panipat_HGU	Client Project Code NA	
Linde Document No. 0022MC5770-(RQSC-0001)-W-LX 9519.001 (EN)	Client Document No. NA	Client Rev. NA

Confidential

Comments:	Dpt.:	Date:
000	GCIEQ	4. Mar 2024
Name: Balvant Parmar		

**LIST OF WPS & PQR – STRUCTURAL STEEL
WELD BOOK**

<input checked="" type="checkbox"/> No further submission. Document accepted as final.
<input type="checkbox"/> Incorporate comments and resubmit the document.
<input checked="" type="checkbox"/> Document not accepted and rejected. <small>This review does not constitute of acceptance or approval of design details, calculations, analysis, test methods, or material developed or selected by the supplier and does not relieve supplier from full compliance with specifications and contractual obligations.</small>
Linde Linde Engineering Date: 5. Mar 2024 Dpt.: ENDM Name: Hardikumar Vyas

Comments:	Dpt.:	Date:
000	GCITS	4. Mar 2024
Name: Subir Das		

Vendor Name VISHAL ENTERPRISE	Vendor Project Number VE/2023-24/09
Vendor Document Number VE/LINDE/HGU/WELD-BOOK/01	Vendor Document Revision REV.1

IFR	02	01.03.2024	SHIVANG DIWAKAR	HARDIK PRAJAPATI	HARDIK PRAJAPATI	
IFR	01	03.02.2024	SHIVANG DIWAKAR	HARDIK PRAJAPATI	HARDIK PRAJAPATI	
Status	Issue	Date	Prepared	Reviewed	Approved	Remark

© Linde. The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization are prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design.

	VISHAL ENTERPRISE										
WELDING MAP FOR STEEL STRUCTURE											
CLIENT:- LINDE ENGINEERING INDIA PRIVATE LIMITED						PROJECT :- Panipat Hydrogen Generation Unit					
VE PROJECT NO. : VE/2023-24/09						LINDE PROJECT NO. : 2910A70M					
SR.NR.	WPS NO.	REV.NO.	SUPPORTING PQR	MATERIAL	PROCESS-1	PROCESS-2	THICKNESS RANGE	PWHT YES - NO	FILLER METAL	POSITION	REMARK
1	VEPL/WPS/005	00	VEPL/PQR/005	IS 2062 E350 GR.C or Equivalent	SMAW	NA	1) Groove : 3 mm - Unlimited 2) Fillet : Any	NO	E - 7018	ALL	Approved WPS
2	VEPL/WPS/006	00	VEPL/PQR/006	IS 2062 E350 GR.C or Equivalent	FCAW	NA	1) Groove : 3 mm - Unlimited 2) Fillet : Any	NO	E71T-1C	ALL	Approved WPS



VISHAL ENTERPRISE & VRISHAL ENGINEERING PVT.LTD. GROUP OF COMPANIES

WELDING PROCEDURE SPECIFICATION

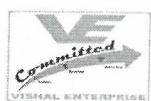
(As per AWS D1.1)

WELDING PROCEDURE SPEC. NO. : VEPL/WPS/005		REV NO. 00	DATE : 08.09.2022						
SUPPORTING PQR NO.: VEPL/PQR/005		REV NO. 00	DATE : 08.09.2022						
WELDING PROCESS: SMAW		TYPE: MANUAL							
JOINT DESIGN									
GROOVE DESIGN	AS PER FIGURE (For PQR : Single V)								
BACKING	NO FOR ROOT / YES FOR REST								
BACKING MATERIAL	BASE / WELD METAL								
ROOT SPACING	3 - 4 mm								
ROOT FACE	1-2 mm								
GROOVE ANGLE	AS PER FIGURE								
BASE METALS									
MATERIAL SPEC. & GROUP	IS2062 E350 Gr.C, or Equivalent (Group -II to II)								
TEST PLATE THICKNESS	25 mm								
QUALIFIED THICKNESS	3 mm to Unlimited								
FILLET	Any								
FILLER METALS		POSITION							
AWS SPECIFICATIONS	SMAW:SFA 5.1			2G,3G & 4G					
AWS CLASSIFICATION	E 7018			ALL					
POST WELD HEAT TREATMENT		PREHEAT/INTERPASS TEMPERATURE (As per table 5.8 of AWS D1.1)		PREHEAT METHOD					
NA		THICKNESS	≤ 38	>38 to 65					
		PREHEAT TEMPERATURE	10°C	65°C					
		PREHEAT SHALL BE CHECKED AT A DISTANCE OF 3" OR 3 TIMES THE THICKNESS WHICHEVER IS GREATER FROM THE WELD TOE AND THROUGH THE THICKNESS							
SHIELDING GAS		TECHNIQUE							
TYPE OF GAS	NA			STRING / WEAVING					
COMPOSITION	NA			MULTIPASS					
FLOW RATE (LPM)	NA			SINGLE					
GAS CUP SIZE	NA			NA					
ELECTRICAL CHARACTERISTICS		NUMBER OF ELECTRODE							
TRANSFER MODE(GMAW)	NA			CONTACT TUBE TO WORK DISTANCE					
SHORT CIRCUITING	NA			PEENING					
CURRENT	DC			INTERPASS CLEANING					
POLARITY	DCEP			TACK WELD TECHNIQUE					
OTHER	NA			TACK LENGTH					
PASS OR WELD LAYER	WELDING PROCESS	FILLER METALS		CURRENT		VOLTS (V)	ELECTRODE RUNOUT LENGTH MINIMUM (mm)	TRAVEL SPEED mm/min (Min.)	HEAT INPUT kJ / mm (Max.)
ROOT PASS		CLASS	DIA. mm	TYPE OF POLARITY	AMPS				
HOT PASS	SMAW	E 7018	2.5 / 3.15	DCEP	70-120	21-27	50	71-130	2.5
FILL UP	SMAW	E 7018	3.15 / 4.0	DCEP	90-170	22-28	50	71-130	2.5
CAPPING	SMAW	E 7018	3.15 / 4.0	DCEP	90-170	22-28	50	100-150	2.5

NOTE :

- 1) 50 mm OR 4 times the thickness whichever is less, with a min. throat size of 6mm - 2 Pass maximum
- 2) Pre-heating shall be strictly followed for tacking also
- 3) Weaving should not exceed 2.5 times of electrode

PREPARED BY	HARDIK PRAJAPATI	APPROVED BY
NAME		
SIGNATURE		
DATE	08.09.2022	REVIEWED / NOTED % WITNESSED
 		
VINAY DESHMUKH		



PROCEDURE QUALIFICATION RECORD (PQR)

Organization Name : VISHAL ENTERPRISE AND VRISHAL ENGINEERING PVT. LTD. GROUP OF COMPANIES

Procedure Qualification Record No : VEPL/PQR/005 Rev.0

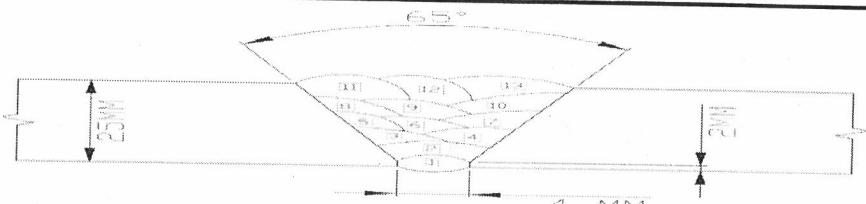
Date : 08.09.2022

PWPS No : VEPL/PWPS/005 REV.02

Welding Process (es) : SMAW

Types (Manual, Automatic, Semi Automatic) : MANUAL

Joints



Base Metals

		Preheat			
Material Spec.	IS 2062	Preheat Temp.	25°C		
Types of Grades, or UNS number	E350 GR.C	Interpass Temp.	222°C Max.		
Thickness of Test coupon	25 mm	Post Heating Temp.	NA		
Size of Test Coupo	500 mm X 300 mm	Post Weld Heat Treatment			
Others	None	Temperature	NA		
		Time	NA		

Filler Metals

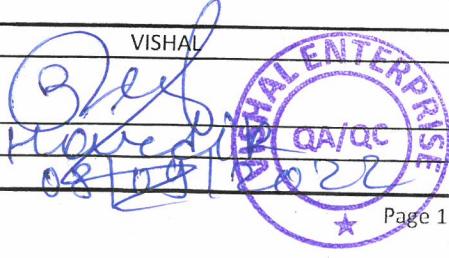
		GAS	Gas (es)	(Mixture)	Flow Rate
Welding Process	SMAW	Shielding	None	None	None
SFA Specification	SFA 5.1	Trailing	None	None	None
AWS classification	E 7018	Back / Purging	None	None	None
Filler Metal F No.	4	Others	None	None	None
Weld Metal Analysis A No.	1				
Size Of Consumable	2.5 / 3.15 / 4.00 mm				
Filler Metal Product form	Flux Covered				
With and without Filler metal	Without	Electrial Characteristics			
Supplemental Filler Metal	NA	Current :	SMAW		
Electrode flux classification	-	Polarity:	Direct		
Flux Type	-		DCEP		
Flux Trade name	-				
Weld Metal Thickness	28 mm	Amps :	As per Running Sheet		
Others	-	Tungsten electrode Size :	-		
		Heat Input	As per Running Sheet		

Position

		Technique			
Position for Groove	2G , 3G & 4G	Travel Speed	As per Running Sheet		
Weld Progression	Uphill	String or Weave bead	Weave		
Others	None	Method of cleaning	Wire Brusing / Buffing / Chipping		
		Oscillation	NA		
		Method of Back Gouging	NA		
		Multipass or Single pass	Multiple		
		Single or Multiple Electrodes	Single		

SIGN

VISHAL



NAME

REVIEWED / NOTED

DATE

%VITICLINT/TPIA

VINAY DESHMUKH

08/09/2022



PROCEDURE QUALIFICATION RECORD (PQR)

Organization Name : VISHAL ENTERPRISE AND VRISHAL ENGINEERING PVT. LTD. GROUP OF COMPANIES

Procedure Qualification Record No : VEPL/PQR/005 Rev.0

Date : 08.09.2022

PWPS No : VEPL/PWPS/005 REV.02

Welding Process (es) : SMAW

Types (Manual, Automatic, Semi Automatic) : MANUAL

Tensile test - AWS D1.1 2020 for 2G Position (TC No. E2821)

SR. No.	Width (mm)	Thickness (mm)	Area (mm ²)	Ultimate Total Load (N)	Ultimate Unit Stress (Mpa)	Broken From	Fracture
E2821ts1	20.20	24.82	501.36	288522	575.47	Parent	Ductile
E2821ts2	20.27	24.96	505.93	290730	574.63	Parent	Ductile

Tensile test - AWS D1.1 2020 for 3G Position (TC No. E2822)

SR. No.	Width (mm)	Thickness (mm)	Area (mm ²)	Ultimate Total Load (N)	Ultimate Unit Stress (Mpa)	Broken From	Fracture
E2822ts1	20.68	24.92	515.34	288438	559.69	Parent	Ductile
E2822ts2	20.08	24.81	498.18	283566	569.19	Parent	Ductile

Tensile test - AWS D1.1 2020 for 4G Position (TC No. E2823)

SR. No.	Width (mm)	Thickness (mm)	Area (mm ²)	Ultimate Total Load (N)	Ultimate Unit Stress (Mpa)	Broken From	Fracture
E2823ts1	20.23	25.06	506.96	290250	572.52	Parent	Ductile
E2823ts2	20.21	25.00	505.25	291858	577.65	Parent	Ductile

Bend test E2821be - AWS D1.1 2020 for 2G Position (TC No. E2821)

SR. No.	Sample Thickness (mm)	Mandrel Dia. (mm)	Angle of Bend (degree)	Observation
Side bend 1	10	38	180	Found Satisfactory
Side bend 2	10	38	180	Found Satisfactory
Side bend 3	10	38	180	Found Satisfactory
Side bend 4	10	38	180	Found Satisfactory

Bend test E2822be - AWS D1.1 2020 for 3G Position (TC No. E2822)

SR. No.	Sample Thickness (mm)	Mandrel Dia. (mm)	Angle of Bend (degree)	Observation
Side bend 1	10	38	180	Found Satisfactory
Side bend 2	10	38	180	Found Satisfactory
Side bend 3	10	38	180	Found Satisfactory
Side bend 4	10	38	180	Found Satisfactory

Bend test E2823be - AWS D1.1 2020 for 4G Position (TC No. E2823)

SR. No.	Sample Thickness (mm)	Mandrel Dia. (mm)	Angle of Bend (degree)	Observation
Side bend 1	10	38	180	Found Satisfactory
Side bend 2	10	38	180	Found Satisfactory
Side bend 3	10	38	180	Found Satisfactory
Side bend 4	10	38	180	Found Satisfactory

SIGN	VISHAL
NAME	HARSHIL QA/QC
DATE	08.09.2022





PROCEDURE QUALIFICATION RECORD (PQR)

Organization Name : VISHAL ENTERPRISE AND VRISHAL ENGINEERING PVT. LTD. GROUP OF COMPANIES

Procedure Qualification Record No : VEPL/PQR/005 Rev.0

Date : 08.09.2022

PWPS No : VEPL/PWPS/005 REV.02

Welding Process (es) : SMAW

Types (Manual, Automatic, Semi Automatic) : MANUAL

All Weld Tensile Test - AWS D1.1 2020

Identification	2G Position (TC No. E2821ts3)	3G Position (TC No. E2822ts3)	4G Position (TC No. E2823ts3)
SR.NO	E2821ts3	E2822ts3	E2823ts3
Width (mm)	12.55	12.50	12.51
Area (mm ²)	123.7	122.72	122.92
0.2% Proof Load (N)	63319	64747	63475
0.2% Proof Stress (Mpa)	511.87	527.60	516.39
Ultimate Load (N)	71040	74004	72162
Ultimate Tensile Strength (Mpa)	574.29	603.03	587.08
Guage Length (mm)	50.00	50.00	50.00
Final Guage Length (mm)	62.41	62.76	61.7
Elongation (%)	24.82	25.52	23.40
Sample Broken From	WGL	WGL	WGL

Macro-Etch

TC No.	Removal Location	Observation	Test Result	
			Accept	Reject
E2821ma	Cross Section of Weld	Complete Fusion and Free from Crack	X	-
E2822ma	Cross Section of Weld	Complete Fusion and Free from Crack	X	-
E2823ma	Cross Section of Weld	Complete Fusion and Free from Crack	X	-

Other Test

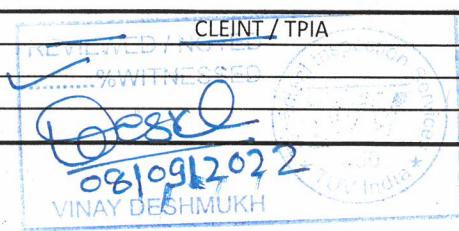
Type	Required By		Test Result		TC No.
	CODE	Test Method	Accept	Reject	
Hardness @ HV10	AWS D1.1	ASTM E92-17	X	-	E2821ha , E2822ha & E2823ha

Welder's Name :	ASWINI KUMAR	WELDER NO	S-AB13
Test Conducted By	GLOBAL METALLURGICAL SERVICES		
Test Witnessed By	TUV NORD		
Radiography Test Report No.	VE/ITR/RT/PQR/01		
Tensile & Bend test Report No.	E2821 , E2822 & E2823		
All Weld Tensile Test Report No.	E2821ts3 , E2822ts3 & E2823ts3		
Macro Examination Report No.	E2821ma , E2822ma & E2823ma		
Hardness Test Report No.	E2821ha , E2822ha & E2823ha		
Visual Examination Report No.	VE/ITR/PQR/WV/01		

We certify that the statements in this record are correct and that the test welds were prepared, welded, tested in accordance with the requirements of AWS D1.1:2020 and Project Specification

Organization: Vishal Enterprise
By Hardik Prajapati
Date : 08.09.2022

SIGN	VISHAL
NAME	Hardik Prajapati
DATE	08.09.2022





GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2821
Type of Test	Tensile Test/ Bend Test	ULR No.: TC836222000005287F
Instrument Utilised	GMS-TM-03	Date of Issue: 08.09.2022
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	Page: 1 of 1
Sample received on	01.09.2022	Location: At Laboratory
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk ✓	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-2G ✓	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

Tensile Test – E2821ts			Test Method – AWS D1.1: 2020									
Sr. No. / Location	Width (mm)	Thickness (mm)	Cross Section Area (mm ²)	Yield Load (N)	Yield Strength (MPa)	Ultimate Load (N)	Ultimate Tensile Strength (MPa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)
--	Req.	--	--	--	--	--	490 Min	--	--	--	--	--
--	U of M (±)	--	--	--	--	--	5.02	--	--	--	--	--
E2821ts1	Obs.	20.20	24.82	501.36	--	--	288522	575.47 ✓	--	--	--	--
E2821ts2	Obs.	20.27	24.96	505.93	--	--	290730	574.63 ✓	--	--	--	--

Sample Broken From – Parent (Ductile Fracture)

Bend Test – E2821be		Test Method – AWS D1.1: 2020			
Sr. No.	Side Bend 1	Side Bend 2	Side Bend 3	Side Bend 4	
Sample Thickness (mm)	10		10		10
Mandrel Dia. (mm)	38		38		38
Angle of bend (degree)	180		180		180
Observation	Found Satisfactory		Found Satisfactory		Found Satisfactory
			Found Satisfactory		Found Satisfactory

Remarks – The Offered Sample complying Requirement of AWS D1.1: 2020 based on Reported Results ± U.O.M Within Permissible Limits.

	 Reviewed & Authorized Signatory Amit Mehta MOKADARA	 TUV 450 Witnessed By W.D. Desai 08/09/2022
Tested By		

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2822 ULR No.: TC83622200005288F Date of Issue: 08.09.2022
Type of Test	Tensile Test/ Bend Test	Page: 1 of 1
Instrument Utilised	GMS-TM-03	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-3G	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

Tensile Test – E2822ts			Test Method – AWS D1.1: 2020										
Sr. No. / Location	Width (mm)	Thickness (mm)	Cross Section Area (mm ²)	Yield Load (N)	Yield Strength (MPa)	Ultimate Load (N)	Ultimate Tensile Strength (MPa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)	
--	Req.	--	--	--	--	--	490 Min	--	--	--	--	--	
--	U of M (\pm)	--	--	--	--	--	5.02	--	--	--	--	--	
E2822ts1	Obs.	20.68	24.92	515.34	--	--	288438	559.69	--	--	--	--	
E2822ts2	Obs.	20.08	24.81	498.18	--	--	283566	569.19	--	--	--	--	

Sample Broken From – Parent (Ductile Fracture)

Bend Test – E2822be	Test Method – AWS D1.1: 2020			
Sr. No.	Side Bend 1	Side Bend 2	Side Bend 3	Side Bend 4
Sample Thickness (mm)	10	10	10	10
Mandrel Dia. (mm)	38	38	38	38
Angle of bend (degree)	180	180	180	180
Observation	Found Satisfactory	Found Satisfactory	Found Satisfactory	Found Satisfactory

Remarks – The Offered Sample complying Requirement of AWS D1.1: 2020 based on Reported Results \pm U.O.M Within Permissible Limits.

	 Reviewed & Authorized Signatory Amit Meghani	 Witnessed By TUV 450 08/09/2022 (My Desir)
Tested By		

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2823 ULR No.: TC83622200005289F Date of Issue: 08.09.2022
Type of Test	Tensile Test/ Bend Test	Page: 1 of 1
Instrument Utilised	GMS-TM-03	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-4G	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

Tensile Test – E2823ts			Test Method – AWS D1.1: 2020											
Sr. No. / Location	Width (mm)	Thickness (mm)	Cross Section Area (mm ²)	Yield Load (N)	Yield Strength (MPa)	Ultimate Load (N)	Ultimate Tensile Strength (MPa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)		
--	Req.	--	--	--	--	--	490 Min	--	--	--	--	--	--	--
--	U of M (±)	--	--	--	--	--	5.02	--	--	--	--	--	--	--
E2823ts1	Obs.	20.23	25.06	506.96	--	--	290250	572.52	--	--	--	--	--	--
E2823ts2	Obs.	20.21	25.00	505.25	--	--	291858	577.65	--	--	--	--	--	--

Sample Broken From – Parent (Ductile Fracture)

Bend Test – E2823be	Test Method – AWS D1.1: 2020			
Sr. No.	Side Bend 1	Side Bend 2	Side Bend 3	Side Bend 4
Sample Thickness (mm)	10	10	10	10
Mandrel Dia. (mm)	38	38	38	38
Angle of bend (degree)	180	180	180	180
Observation	Found Satisfactory	Found Satisfactory	Found Satisfactory	Found Satisfactory

Remarks – The Offered Sample complying Requirement of AWS D1.1: 2020 based on Reported Results ± U.O.M Within Permissible Limits.

	 Reviewed & Authorized Signatory Amit Meghani	 Witnessed By (Vijay Desai)
Tested By		Form – 20 R. 03

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2821ts3
Type of Test	Tensile Test	ULR No.: TC83622200005299F
Instrument Utilised	GMS-TM-03	Date of Issue: 08.09.2022
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	Page: 1 of 1
Sample received on	01.09.2022	Location: At Laboratory
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-2G ✓	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

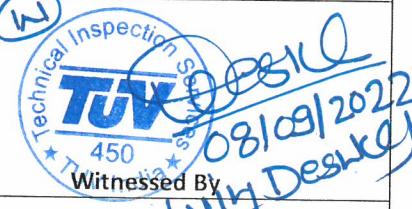
All Weld Tensile Test – E2821ts3			Test Method – AWS D1.1: 2020										
Sr. No. / Location	Width (mm)	Thickness (mm)	Cross Section Area (mm ²)	0.2% Proof Load (N)	0.2% Proof Stress (Mpa)	Ultimate Load (N)	Ultimate Tensile Strength (Mpa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)	
--	Req.	--	--	--	400 Min	--	490 Min	--	--	22 Min	--	--	
--	U of M (\pm)	--	--	--	3.80	--	5.02	--	--	0.69	--	--	
E2821ts3	Obs.	12.55	--	123.70	63319	511.87 ✓	71040	574.29 ✓	50.00	62.41	24.82 ✓	--	

Sample Broken From – WGL

Remarks – The Offered Sample complying Requirement of Client based on Reported Results \pm U.O.M Within Permissible Limits.

Tested By

Reviewed & Authorized Signatory
Amit Mehta



- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2822ts3 ULR No.: TC836222000005300F Date of Issue: 08.09.2022
Type of Test	Tensile Test	Page: 1 of 1
Instrument Utilised	GMS-TM-03	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk ✓	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-3G ✓	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

All Weld Tensile Test – E2822ts3			Test Method – AWS D1.1: 2020									
Sr. No. / Location	Width (mm)	Thickness (mm)	Cross Section Area (mm ²)	0.2% Proof Load (N)	0.2% Proof Stress (Mpa)	Ultimate Load (N)	Ultimate Tensile Strength (Mpa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)
--	Req.	--	--	--	400 Min	--	490 Min	--	--	22 Min	--	--
--	U of M (±)	--	--	--	3.80	--	5.02	--	--	0.69	--	--
E2822ts3	Obs.	12.50	--	122.72	64747	527.60 ✓	74004	603.03 ✓	50.00	62.76	25.52 ✓	--

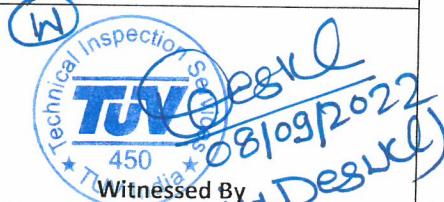
Sample Broken From – WGL



Remarks – The Offered Sample complying Requirement of Client based on Reported Results ± U.O.M Within Permissible Limits.

Tested By

Reviewed & Authorized Signatory
Amit Meghani



Witnessed By

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2823ts3
Type of Test	Tensile Test	ULR No.: TC836222000005301F
Instrument Utilised	GMS-TM-03	Date of Issue: 08.09.2022
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	Page: 1 of 1
Sample received on	01.09.2022	Location: At Laboratory
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-4G ✓	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

All Weld Tensile Test – E2823ts3			Test Method – AWS D1.1: 2020										
Sr. No. / Location	Width (mm)	Thickness (mm)	Cross Section Area (mm ²)	0.2% Proof Load (N)	0.2% Proof Stress (Mpa)	Ultimate Load (N)	Ultimate Tensile Strength (Mpa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)	
--	Req.	--	--	--	400 Min	--	490 Min	--	--	22 Min	--	--	
--	U of M (±)	--	--	--	3.80	--	5.02	--	--	0.69	--	--	
E2823ts3	Obs.	12.51	--	122.92	63475	516.39 ✓	72162	587.08 ✓	50.00	61.70	23.40 ✓	--	

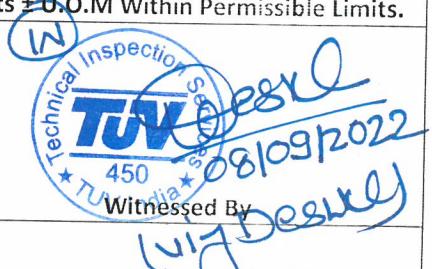
Sample Broken From – WGL



Remarks – The Offered Sample complying Requirement of Client based on Reported Results ± U.O.M Within Permissible Limits.

Tested By

Reviewed & Authorized Signatory
Amit Meghani



- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.E2821ma ULR : -- Date of Issue: 07.09.2022
Type of Test	Macro Examination by stereo Microscope	Page : 1 of 1
Test Method	AWS D1.1: 2020	Location : At Laboratory
Instrument Utilised	GMS-TM-18	
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by : Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on : 07.09.2022
Sample ID.	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-2G	

Results

Discipline – Mechanical Testing
Group – Ferrous and its alloy

Etchant : 10% Nital

Observation : Welding cross section Shows complete Fusion and free from cracks

Remark	--	Reviewed & Authorized Signatory Amit Meghani	Technical Inspection TUV 450 Witnessed By 07/09/2022
Tested By			

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

End of Test Report

Form – 20 R. 03

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.E2822ma ULR : --- Date of Issue: 07.09.2022
Type of Test	Macro Examination by stereo Microscope	Page : 1 of 1
Test Method	AWS D1.1: 2020	Location : At Laboratory
Instrument Utilised	GMS-TM-18	
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by : Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on : 07.09.2022
Sample ID.	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-3G	

Results

Discipline – Mechanical Testing
 Group – Ferrous and its alloy

Etchant : 10% Nital

Observation : Welding cross section Shows complete Fusion and free from cracks

Remark



Tested By

Reviewed & Authorized Signatory

 Amit Meghani

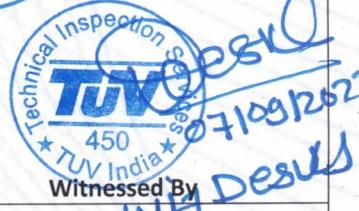
End of Test Report

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03



W





GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.E2823ma ULR : --- Date of Issue: 07.09.2022
Type of Test	Macro Examination by stereo Microscope	Page : 1 of 1
Test Method	AWS D1.1: 2020	Location : At Laboratory
Instrument Utilised	GMS-TM-18	
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by : Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on : 07.09.2022
Sample ID.	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-4G	

Results

Discipline – Mechanical Testing
Group – Ferrous and its alloy

Etchant : 10% Nital

Observation : Welding cross section Shows complete Fusion and free from cracks

Remark	--	
Tested By	 Reviewed & Authorized Signatory Amit Mehta	 Witnessed By

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

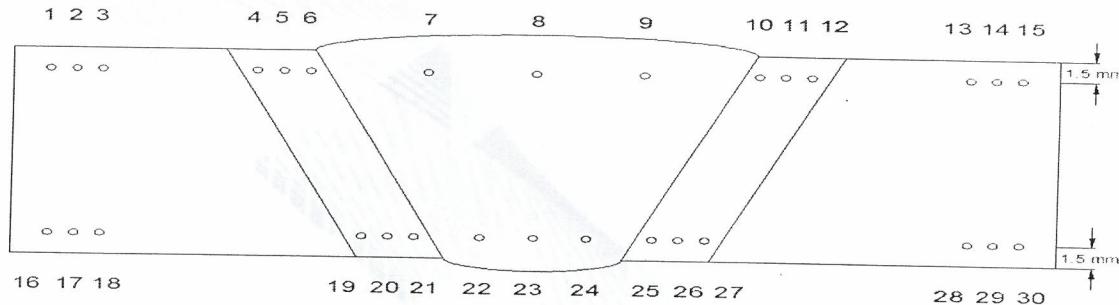
Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2821ha ULR No.: TC836222000005273F Date of Issue: 08.09.2022 Page: 1 of 1 Location: At Laboratory
Type of Test	Vickers Hardness Test	
Instrument Utilised	GMS-TM-05	
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-2G	

Results

Discipline – Mechanical Testing,

Group – Ferrous material & its Alloys



Vickers Hardness Test – E2821ha			Test Method – ASTM E92-17			Hardness Reading In HV at load 10 kgf			(±)Expanded Uncertainty: --		
SR No	Area (TOP)	Observation (HV10)	SR No	Area (BOTTOM)	Observation (HV10)	SR No	Area (TOP)	Observation (HV10)	SR No	Area (BOTTOM)	Observation (HV10)
1	PARENT	164	16	PARENT	166	21	PARENT	163	26	PARENT	161
2	PARENT	163	17	PARENT	163	22	PARENT	161	27	PARENT	161
3	PARENT	161	18	PARENT	162	23	PARENT	161	28	PARENT	161
4	HAZ	203	19	HAZ	209	24	HAZ	205	29	HAZ	207
5	HAZ	201	20	HAZ	209	25	HAZ	205	30	HAZ	207
6	HAZ	198	21	HAZ	205	26	HAZ	203			
7	Weld	180	22	Weld	183	27	HAZ	202			
8	Weld	179	23	Weld	179	28	PARENT	201			
9	Weld	177	24	Weld	178	29	PARENT	165			
10	HAZ	209	25	HAZ	205	30	PARENT	162			
11	HAZ	207	26	HAZ	202						
12	HAZ	205	27	HAZ	202						
13	PARENT	162	28	PARENT	165						
14	PARENT	160	29	PARENT	162						
15	PARENT	168	30	PARENT	166						

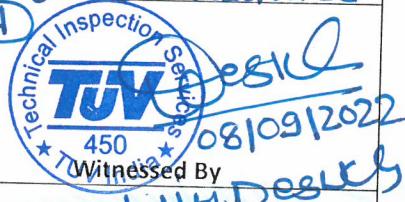
Remarks: observation.

Tested By

Reviewed & Authorized Signatory
Amit Meghani



Results to be evaluated



Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

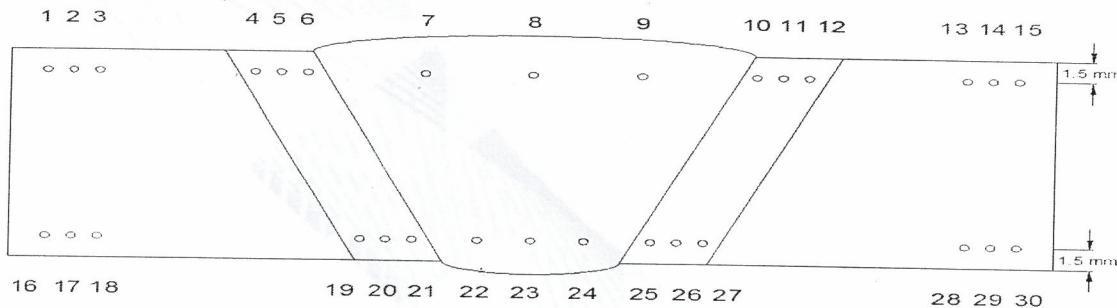
Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2822ha ULR No.: TC836222000005274F Date of Issue: 08.09.2022
Type of Test	Vickers Hardness Test	Page: 1 of 1
Instrument Utilised	GMS-TM-05	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005-3G	

Results

Discipline – Mechanical Testing,

Group – Ferrous material & its Alloys



Vickers Hardness Test – E2822ha			Test Method – ASTM E92-17			(±)Expanded Uncertainty: --		
Hardness Reading In HV at load 10 kgf								
SR No	Area (TOP)	Observation (HV10)	SR No	Area (BOTTOM)	Observation (HV10)	SR No	Area (TOP)	Observation (HV10)
1	PARENT	194	16	PARENT	193	28	PARENT	185
2	PARENT	189	17	PARENT	189	29	PARENT	194
3	PARENT	188	18	PARENT	190	30	PARENT	188
4	HAZ	203	19	HAZ	213			
5	HAZ	215	20	HAZ	205			
6	HAZ	209	21	HAZ	203			
7	Weld	188	22	Weld	181			
8	Weld	183	23	Weld	185			
9	Weld	181	24	Weld	190			
10	HAZ	215	25	HAZ	205			
11	HAZ	209	26	HAZ	210			
12	HAZ	207	27	HAZ	209			
13	PARENT	186	28	PARENT	185			
14	PARENT	189	29	PARENT	194			
15	PARENT	186	30	PARENT	188			

Remarks: observation.

Results to be evaluated

[Signature]

Tested By



Reviewed & Authorized
Amit Meghani



Witnessed By

Form – 20 R. 03

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full by the Laboratory.

Call : 7490934252 Email : globallab17@gmail.com Website : www.globallaboratory.in



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

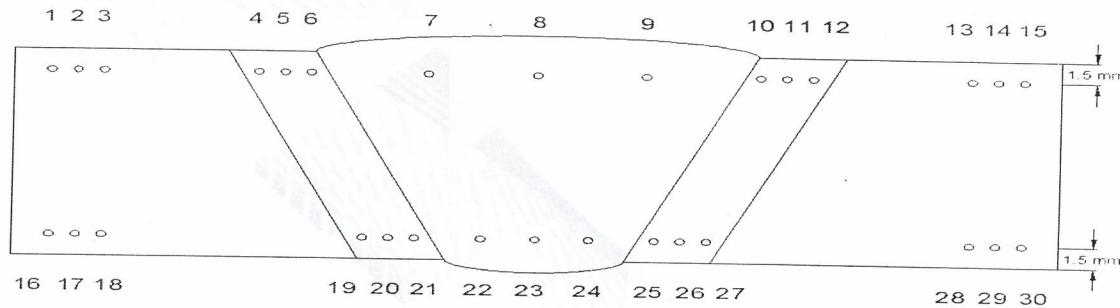
Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2823ha ULR No.: TC836222000005275F Date of Issue: 08.09.2022
Type of Test	Vickers Hardness Test	Page: 1 of 1
Instrument Utilised	GMS-TM-05	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/005- 4G	

Results

Discipline – Mechanical Testing,

Group – Ferrous material & its Alloys



Vickers Hardness Test – E2823ha		Test Method – ASTM E92-17	(±)Expanded Uncertainty: --	
Hardness Reading In HV at load 10 kgf				
SR No	Area (TOP)	Observation (HV10)	SR No	Area (BOTTOM)
1	PARENT	172	16	PARENT
2	PARENT	174	17	PARENT
3	PARENT	171	18	PARENT
4	HAZ	213	19	HAZ
5	HAZ	209	20	HAZ
6	HAZ	207	21	HAZ
7	Weld	180	22	Weld
8	Weld	178	23	Weld
9	Weld	182	24	Weld
10	HAZ	216	25	HAZ
11	HAZ	209	26	HAZ
12	HAZ	213	27	HAZ
13	PARENT	169	28	PARENT
14	PARENT	172	29	PARENT
15	PARENT	173	30	PARENT

Remarks: Observation.

Results to be evaluated

Tested By

Reviewed & Authorized Signatory
Amit Meghani
 GLOBAL METALLURGICAL SERVICES
VADODARA

Technical Inspection Service
TUV INDIA
08/09/2022
Witnessed By

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



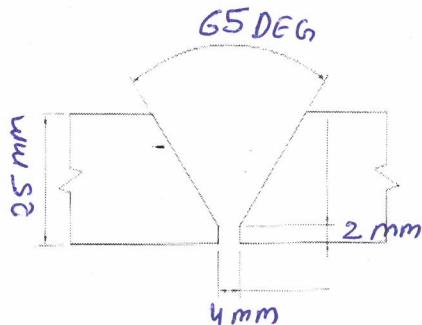
VE
VRISHAL
Committed
VISHAL ENTERPRISE

VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED
GROUP OF COMPANIES

PQR / WPQ TEST RUNNING SHEET

DATE: 29.08.2022

CLIENT : ITT ENGINEERING INDIA PVT LTD.
 PROJECT NAME : La Porte HyCO-4"
 WPS No. : VEPL/PWPS/005 REV.02
 TEST COUPON SIZE & THK : 500 mm X 300 mm X 25 mm
 MATERIAL SPEC/ GRADE : IS 2062 E350 GR. C
 MATERIAL HEAT NO. : F900998 (VE/ITT/STR/IMIR/002-7)
 WELDING POSITION : 3G
 PROGRESSION : UP-HILL
 TEST COUPON No. : VEPL/PQR/005 - 3G
 WELDER NAME : ASWINI KUMAR
 WELDER No. : S-AB13
 WELDING RECTIFIER NO : M121219104500



WELDING CONSUMABLES : E-7018 (Batch : 62202010(2.5 mm) , 62202006(3.15 mm))

Shielding Gas Flow:
L/min NA

BRAND : ADOR

Purging Gas Flow:
L/min NA

PRE-HEAT TEMPERATURE : 25° C

WELD LAYERS	PROCESS	FILLER METAL		CURRENT		VOLTS	INTER-PASS TEMP (MAX)	TRAVEL SPEED (mm/min.)	HEAT-INPUT Max. (kJ/mm)
		AWS CLASS	SIZE (mm)	TYPE POLARITY	AMPS				
ROOT	SMAW	E 7018	2.5	DCEP	80-82	23-26	80° C	75	1.7
HOT-PASS	SMAW	E 7018	3.15	DCEP	112-114	23-26	197° C	88.7	2
FILL-UP-1	SMAW	E 7018	3.15	DCEP	112-115	23-27	197° C	89	2.09
FILL-UP-2	SMAW	E 7018	3.15	DCEP	113-114	23-27	200° C	85	2.17
FILL-UP-3	SMAW	E 7018	3.15	DCEP	114-117	24-28	187° C	92.72	2.11
FILL-UP-4	SMAW	E 7018	3.15	DCEP	117-120	24-28	160° C	93.8	2.14
FILL-UP-5	SMAW	E 7018	3.15	DCEP	115-118	24-28	155° C	102	2.08
FILL-UP-6	SMAW	E 7018	3.15	DCEP	116-119	24-28	183° C	127.5	1.56
FILL-UP-7	SMAW	E 7018	3.15	DCEP	116-117	24-28	200° C	145.7	1.34
FILL-UP-8	SMAW	E 7018	3.15	DCEP	115-117	24-28	171° C	113	1.73
CAP-1	SMAW	E 7018	3.15	DCEP	114-116	24-28	150° C	113	1.72
CAP-2	SMAW	E 7018	3.15	DCEP	114-117	24-27	197.5° C	92.7	2.04
CAP-3	SMAW	E 7018	3.15	DCEP	114-117	24-27	180° C	102	1.85

NAME: <i>Yagya Valakya Bairagi</i>	NAME:
DATE: <i>29.08.22</i>	DATE:
VE/QA/FORMAT/52 REV.02	

REVIEWED / NOTED <i>Ravindra Prajapati</i>% WITNESSED <i>29.08.2022</i>	
RAVINDRA PRAJAPATI	



**VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED
GROUP OF COMPANIES**

PQR / WPQ TEST RUNNING SHEET

DATE : 29.08.2022

CLIENT : ITT ENGINEERING INDIA PVT LTD.

PROJECT NAME : La Porte HyCO-4"

WPS No. : VEPL/PWPS/005 REV.02

TEST COUPON SIZE & THK : 500 mm X 300 mm X 25 mm

MATERIAL SPEC / GRADE : IS 2062 E350 GR. C

MATERIAL HEAT NO. : F900998 (VE/ITT/STR/IMIR/002-7)

WELDING POSITION : 4G

PROGRESSION : UP-HILL

TEST COUPON No. : VEPL/PQR/005 - 4G

WELDER NAME : ASWINI KUMAR

WELDER No. : S-AB13

WELDING RECTIFIER NO : M121219104500

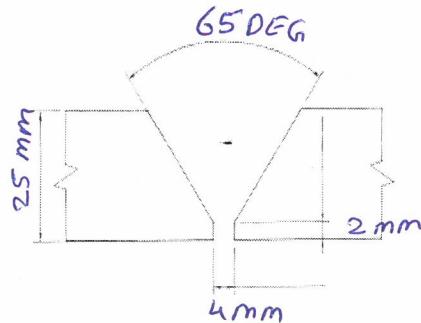
WELDING CONSUMABLES : E-7018 (Batch : 62202010(2.5 mm),
62202006(3.15 mm) & 62109010 (4 mm))

BRAND : ADOR

Shielding Gas Flow:
L/min NA

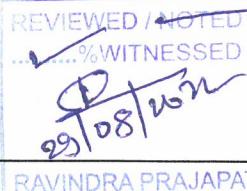
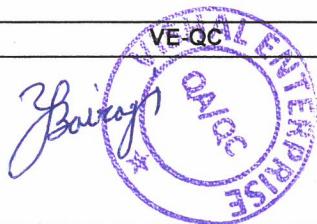
Purging Gas Flow:
L/min NA

PRE-HEAT TEMPERATURE : 25° C



WELD LAYERS	PROCESS	FILLER METAL		CURRENT		VOLTS	INTER-PASS TEMP (MAX)	TRAVEL SPEED (mm/min.)	HEAT-INPUT Max. (kJ/mm)
		AWS CLASS	SIZE (mm)	TYPE POLARIT Y	AMPS				
ROOT	SMAW	E 7018	2.5	DCEP	80-82	24-27	172°C	60	2.21
HOT-PASS	SMAW	E 7018	3.15	DCEP	114-115	24-26	160°C	76	2.36
FILL-UP-1	SMAW	E 7018	3.15	DCEP	113-114	24-28	165°C	85	2.25
FILL-UP-2	SMAW	E 7018	3.15	DCEP	116-117	26-28	172°C	89	2.2
FILL-UP-3	SMAW	E 7018	3.15	DCEP	115-117	24-27	170°C	90	2.1
FILL-UP-4	SMAW	E 7018	4	DCEP	151-155	23-27	180°C	101	2.48
FILL-UP-5	SMAW	E 7018	4	DCEP	144-149	24-28	201°C	108	2.3
FILL-UP-6	SMAW	E 7018	4	DCEP	148-152	24-28	222°C	104	2.45
FILL-UP-7	SMAW	E 7018	4	DCEP	140-150	23-27	193°C	98	2.47
FILL-UP-8	SMAW	E 7018	4	DCEP	151-158	23-27	211°C	111	2.3
CAP-1	SMAW	E 7018	3.15	DCEP	147-151	22-25	145°C	102	2.22
CAP-2	SMAW	E 7018	3.15	DCEP	148-152	23-25	162°C	93	2.45
CAP-3	SMAW	E 7018	3.15	DCEP	142-150	24-28	182°C	121	2.08

CLIENT QC/ TPI



NAME: Yagyavalkya Bairagi

NAME: RAVINDRA PRAJAPATI

DATE: 29.08.22

DATE:

VE/QA/FORMAT/52 REV.02

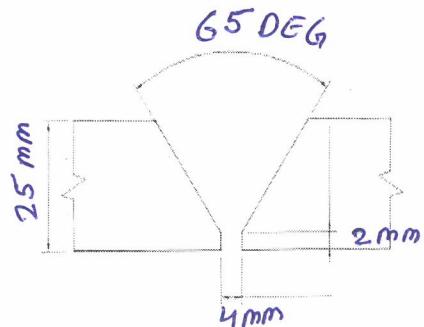


VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED
GROUP OF COMPANIES

PQR / WPQ TEST RUNNING SHEET

DATE : 29.08.2022

CLIENT : ITT ENGINEERING INDIA PVT LTD.
 PROJECT NAME : La Porte HyCO-4"
 WPS No. : VEPL/PWPS/005 REV.02
 TEST COUPON SIZE & THK : 500 mm X 300 mm X 25 mm
 MATERIAL SPEC / GRADE : IS 2062 E350 GR. C
 MATERIAL HEAT NO. : F900998 (VE/ITT/STR/IMIR/002-7)
 WELDING POSITION : 2G.
 PROGRESSION : UP-HILL
 TEST COUPON No. : VEPL/PQR/005 - 2G
 WELDER NAME : ASWINI KUMAR
 WELDER No. : S-AB13
 WELDING RECTIFIER NO. : M121219104500
 WELDING CONSUMABLES : E-7018 (Batch : 62202010(2.5 mm),
62202006(3.15 mm) & 62109010 (4 mm))



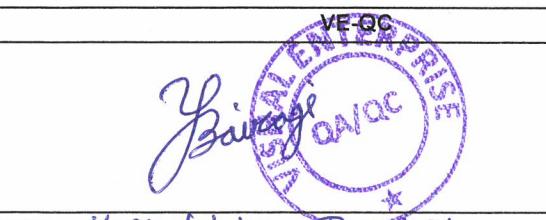
Shielding Gas Flow:
L/min NA

Purging Gas Flow:
L/min NA

BRAND : ADOR

PRE-HEAT TEMPERATURE : 25° C

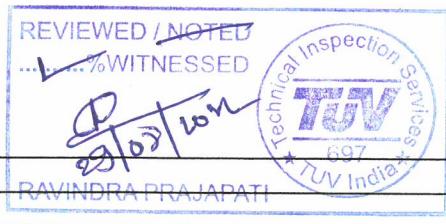
WELD LAYERS	PROCESS	FILLER METAL		CURRENT		VOLTS	INTER-PASS TEMP (MAX)	TRAVEL SPEED (mm/min.)	HEAT-INPUT Max. (kJ/mm)
		AWS CLASS	SIZE (mm)	TYPE POLARITY	AMPS				
ROOT	SMAW	E 7018	2.5	DCEP	86-91	24-27	195° C	59.5	2.47
HOT-PASS	SMAW	E 7018	3.15	DCEP	100-102	22-24	170° C	90.9	1.61
FILL-UP-1	SMAW	E 7018	4.00	DCEP	150-160	22-28	185° C	142.8	1.88
FILL-UP-2	SMAW	E 7018	4.00	DCEP	150-161	23-27	180° C	139.6	1.86
FILL-UP-3	SMAW	E 7018	4.00	DCEP	155-165	23-27	161° C	125	2.13
FILL-UP-4	SMAW	E 7018	4.00	DCEP	152-161	23-27	181° C	111	2.34
FILL-UP-5	SMAW	E 7018	4.00	DCEP	155-166	23-25	171° C	125	1.992
FILL-UP-6	SMAW	E 7018	4.00	DCEP	150-158	23-26	165° C	135	1.82
FILL-UP-7	SMAW	E 7018	4.00	DCEP	160-168	22-24	170° C	142	1.7
FILL-UP-8	SMAW	E 7018	4.00	DCEP	155-165	23-26	181° C	125	2.05
CAP-1	SMAW	E 7018	3.15	DCEP	115-129	23-26	190° C	100	2.01
CAP-2	SMAW	E 7018	3.15	DCEP	120-130	23-28	189° C	90.9	2.4
CAP-3	SMAW	E 7018	3.15	DCEP	125-129	23-27	195° C	100	2.08
CAP-4	SMAW	E 7018	3.15	DCEP	124-131	23-26	170° C	111	1.84
CAP-5	SMAW	E 7018	3.15	DCEP	122-130	23-27	185° C	125	1.68



NAME: Yagyavalkya Ba. Jagi
DATE: 29.08.22

VE/QA/FORMAT/52 REV.02

CLEINT QC/ TPI



NAME: RAVINDRA PRAJAPATI
DATE:



**VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED
GROUP OF COMPANIES**

WELD VISUAL INSPECTION REPORT (PQR)

CLIENT		ITT ENGINEERING INDIA PVT LTD.					Report No		VE/ITT/PQR/WV/01				
PROJECT		La Porte HyCO-4"					Date		29.08.2022				
WO NO													
SR NO	PQR TEST COUPON NO.		WELDER NO.	WELDER NAME	MATERIAL	TYPE OF WELD	WELDING PROCESS	WPS NO.	APPLICABLE CODE	SIZE (mm)	RESULT	REMARKS	
1	VEPL/PQR/005 - 2G		S-AB13	ASWINI KUMAR	IS 2062 E350 GR.C	CJP	SMAW	VEPL/PWPS/005	AWS D1.1	500 X 300 X 25	ACC		
2	VEPL/PQR/005 - 3G		S-AB13	ASWINI KUMAR	IS 2062 E350 GR.C	CJP	SMAW	VEPL/PWPS/005	AWS D1.1	500 X 300 X 25	ACC		
3	VEPL/PQR/005 - 4G		S-AB13	ASWINI KUMAR	IS 2062 E350 GR.C	CJP	SMAW	VEPL/PWPS/005	AWS D1.1	500 X 300 X 25	ACC		
QC CHECK SHEET <input checked="" type="checkbox"/> CHECKED <input checked="" type="checkbox"/> NOT APPLICABLE													
DOCUMENT VERIFICATION			MARKING VERIFICATION CHECK		WELD SURFACE DEFECT CHECK					VISUAL CHECK			
<input type="checkbox"/> APPROVED NDT DRG./TESTPLAN WITH LATEST REV. <input type="checkbox"/> QUALIFIED WELDER LIST <input type="checkbox"/> APPROVED WPS			<input type="checkbox"/> JOINT NO. <input checked="" type="checkbox"/> WELDER NO.		<input checked="" type="checkbox"/> SPATTER <input checked="" type="checkbox"/> REINFORCEMENT <input checked="" type="checkbox"/> UNDER CUT <input type="checkbox"/> LUMPS/HIGH SPOT					<input checked="" type="checkbox"/> POROSITY/PIN HOLES <input checked="" type="checkbox"/> SLAG <input checked="" type="checkbox"/> CRACK <input checked="" type="checkbox"/> BEAD APEARANCE/WEAVING <input checked="" type="checkbox"/> WELD SIZE <input checked="" type="checkbox"/> UNDER FILL			
										<input checked="" type="checkbox"/> ARC STRIKE <input checked="" type="checkbox"/> DISTORTION <input type="checkbox"/> CLEAT MARK <input type="checkbox"/> CORNER SEALING/ROUNDING <input checked="" type="checkbox"/> PHYSICAL CONDITION			
SIGNATURE		VE QC							<div style="border: 1px solid black; padding: 5px; display: inline-block;"> REVIEWED / NOTED % WITNESSED RAVINDRA PRAJAPATI 29.08.2022 </div> <div style="border: 1px solid black; padding: 5px; display: inline-block; margin-left: 10px;"> CLIENT QC / TPIA TUV 697 </div>				
NAME													
DATE													
VE/QA/FORMAT/28A REV.00													



VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED

GROUP OF COMPANIES

RADIOGRAPHY TEST REPORT

CLIENT: ITT ENGINEERING INDIA PVT LTD.				PO/WO NO.: -		REPORT NO:	VE/ITT/PQR/01			
PROJECT: La Porte HyCO-4"						RT. Date:	30.08.2022			
ITP No: -						Test Date:	29.08.2022			
Source :lr-192		Film : D7				Penetrometer :	1B			
Strength: 8 Ci	Density : 2 to 4			Sensitivity: 2%						
Procedure No : -				Acceptance Standard : AWS D1.1						
Sr. No	PQR TEST COUPON NO.	WELDER NO.	MATERIAL	Size (mm)	Thk. (mm)	Technique	Segment	Film Size	Observation	Result
1	VEPL/PQR/005 - 2G	S-AB13	IS 2062 E350 GR.C (CS)	500 X 300	25	SWSI	AB	15X4	NSD	ACC
							BC	15X4	NSD	ACC
2	VEPL/PQR/005 - 3G	S-AB13	IS 2062 E350 GR.C (CS)	500 X 300	25	SWSI	AB	15X4	NSD	ACC
							BC	15X4	NSD	ACC
3	VEPL/PQR/005 - 4G	S-AB13	IS 2062 E350 GR.C (CS)	500 X 300	25	SWSI	AB	15X4	NSD	ACC
							BC	15X4	NSD	ACC

LEGENDS:

BT-BURN THROUGH, CK-CRACK, CP-CLUSTER POROSITY, CR-CUT & REWELD, CS-CHECK SURFACE, EP-EXCESS PENETRATION, DP-DEPRESSION, LF-LACK OF FUSION, LM-LOOSE MATERIAL, LP-LACK OF PENETRATION, MM-MISMATCH, PO-POROSITY, SI-SLAG INCLUSION, TI-TUNGSTEN INCLUSION, UC-UNDERCUT, RS-RESHOOT, RT-RETAKE, MRS-MERGE & RESHOOT, SM-SCREEN MARK, PM-PROCESS MARK, NM-NAIL MARK, FM-FIM MARK, WM-WATER MARK, LD-LOW DENSITY, HD-HIGH DENSITY

Sign	VE QC (L-II/II) 30.08.2022	CLIENT-QC / TPI RT films
Name	HARSHIK PRAJAPTI	REVIEWED AND TESTED % WITNESSED
Date		30-08-2022 HARDIK PRAJAPTI



Anjar Works

MILL TEST CERTIFICATE

JSW Steel Limited

SURVEY NO - 659, VILLAGE - VARSAMEDI, TA - ANJAR (KUTCH) GUJARAT INDIA - 370110



CML-7945703

TEST CERTIFICATE NO. : JSW/PCMD/711880301
DATE : 20.07.2022

CUSTOMER

P. O. NO.

SPECIFICATION : EN 10025-2 : 2019 / IS 2062 : 2011

GRADE : S355J2+N / E350 C

UT STD. : ASTM A578 Level B

Impact Temp.(°C) : -20

Sr. No.	Plate / Coil No.	Heat No.	Thk (MM)	Width (MM)	Length (MM)	Weight (MT)	Mechanical Properties (Transverse Tensile)						Bend (Transverse)	CHARPY V-NOTCH IMPACT TEST (Joules)				Grain size (ASTME 112)	Z - Direction Test (Through Thickness)				Y Groove Crackability Test	NDTT	Remarks					
							1			2				Longitudinal						1										
							YS ^a (MPa)	UTS (MPa)	%EL	YS ^a (MPa)	UTS (MPa)	%EL	YS ^a (MPa)	UTS (MPa)	%EL	AVG	1		2	3	Avg									
							Min	355	490	22	---	355	490	22	---	22	S25-ZT, -25-NA	---	---	27	---	---	---	---	---	---	---			
							Max	---	630	---	---	---	630	---	---	---			---	---	---	---	---	---	---	---	---			
1	22GP1169A1	F900407	22.00	2500	12000	5.181	412	523	27	---	416	527	28	---	OK	93	77	104	91	---	---	---	---	---	---	---				
2	22GP1469A1	D900572	18.00	2500	12000	4.239	412	527	30	---	418	531	28	---	OK	68	74	77	73	---	---	---	---	---	---	---				
3	22GP2185A1	F900998	25.00	2500	12000	5.888	411	523	30	---	415	529	26	---	OK	74	85	71	77	---	---	---	---	---	---	---				
4	22GP2185A2	F900998	25.00	2500	12000	5.888	411	523	30	---	415	529	26	---	OK	74	85	71	77	---	---	---	---	---	---	---				
5	22GP2194A1	F900998	25.00	2500	12000	5.888	411	523	30	---	415	529	26	---	OK	74	85	71	77	---	---	---	---	---	---	---				
6	22GP2194A2	F900998	25.00	2500	12000	5.888	411	523	30	---	415	529	26	---	OK	74	85	71	77	---	---	---	---	---	---	---				

HEAT ANALYSIS	Heat No.	Chemical Composition (%)																		I				
		Specified Requirement		Min	---	---	---	---	---	---	---	---	---	0.020	---	---	---	0.0120	---	---	0.250	---	---	---
		Max	0.220	1.600	0.020	0.025	0.550	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.45
	F900407	0.165	1.330	0.003	0.015	0.265	0.023	0.009	0.008	0.015	0.001	0.023	0.001	0.037	0.0049	0.0001	0.0004	0.039	0.017	0.041	7.55	0.39	0.24	
	D900572	0.174	1.360	0.005	0.015	0.246	0.023	0.009	0.008	0.016	0.001	0.028	0.001	0.045	0.0038	0.0002	0.0003	0.045	0.017	0.041	11.84	0.41	0.25	
	F900998	0.173	1.360	0.002	0.015	0.270	0.022	0.009	0.008	0.013	0.001	0.024	0.001	0.035	0.0036	0.0004	0.0004	0.038	0.017	0.040	9.72	0.41	0.25	
	F900998	0.173	1.360	0.002	0.015	0.270	0.022	0.009	0.008	0.013	0.001	0.024	0.001	0.035	0.0036	0.0004	0.0004	0.038	0.017	0.040	9.72	0.41	0.25	
	F900998	0.173	1.360	0.002	0.015	0.270	0.022	0.009	0.008	0.013	0.001	0.024	0.001	0.035	0.0036	0.0004	0.0004	0.038	0.017	0.040	9.72	0.41	0.25	

PRODUCT ANALYSIS	Heat No.	Chemical Composition (%)																		I				
		Specified Requirement		Min	---	---	---	---	---	---	---	---	0.020	---	---	---	0.0120	---	---	0.250	---	---	---	
		Max	0.220	1.600	0.020	0.025	0.550	---	---	---	---	---	---	---	0.020	---	---	---	0.0120	---	---	0.250	---	---
	F900407	0.163	1.315	0.003	0.015	0.261	0.023	0.009	0.008	0.015	0.001	0.023	0.001	0.036	0.0048	0.0001	0.0004	0.039	0.017	0.041	7.50	0.39	0.24	
	D900572	0.171	1.346	0.005	0.015	0.242	0.023	0.009	0.008	0.016	0.001	0.028	0.001	0.044	0.0037	0.0002	0.0003	0.044	0.017	0.040	11.84	0.40	0.25	
	F900998	0.170	1.346	0.002	0.015	0.265	0.022	0.009	0.008	0.013	0.001	0.024	0.001	0.034	0.0035	0.0004	0.0004	0.037	0.017	0.039	9.72	0.40	0.25	
	F900998	0.170	1.346	0.002	0.015	0.265	0.022	0.009	0.008	0.013	0.001	0.024	0.001	0.034	0.0035	0.0004	0.0004	0.037	0.017	0.039	9.72	0.40	0.25	
	F900998	0.170	1.346	0.002	0.015	0.265	0.022	0.009	0.008	0.013	0.001	0.024	0.001	0.034	0.0035	0.0004	0.0004	0.037	0.017	0.039	9.72	0.40	0.25	

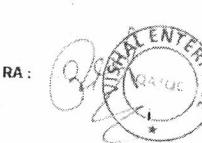
IT IS CERTIFIED THAT THE MATERIAL DESCRIBED ABOVE FULLY CONFIRM TO EN 10025-2:2019 & EQUIVALENT TO IS 2062-2011
CHEMICAL COMPOSITION & MECHANICAL PROPERTIES OF THE PRODUCT AS TESTED IN ACCORDANCE WITH THE SCHEME OF TESTING AND INSPECTION CONTAINED IN BIS CERTIFICATION MARKS LICENCE NO. CML-7945703 ARE AS INDICATED ABOVE
AGAINST EACH ORDER NO.
PLAESE REFER TO EN 10025-2:2019 & IS 2062:2011 FOR DETAILS OF SPECIFICATION REQUIREMENTS.

Note :

- 1) Test Certificate confirms to EN 10204:2004 Type 3.1
- 2) Process Route : SLAB (BOF-LHF-RH-CCM-Fully Killed(Al&Si Killed))-Hot Rolling.
- 3) Supply Condition : Normalized Rolled
- 4) Mechanical Properties are certified at Room Temperature unless specified.
- 5) Ultrasonic Test are satisfactory as per : ASTM A578 Level B
- 6) Dimensions are satisfactory as per EN10029:2010 Class A
- 7) Surface condition are satisfactory as per EN10163-2:2004,Class B,Subclass 1
- 8) Weight calculation for plates is as per Theoretical Calculation

Printed : 20.07.2022

Legend : YS : Yield Strength, UTS : Ultimate Tensile Strength, EL : % Elongation, RA : Reduction in Area, Thk : Thickness, NB : Not Applicable, NJ : Charpy Impact Test, Min : Minimum, Max : Maximum, NA : Not Applicable, S : Simulated Post-weld Heat Treatment Test,Sat : Satisfactory,WBBT-Weld bead bend test YS'=t≤16-35, 16< t≤40-345, 40< t≤63=335 ,CE**=0.47 for >30mm



RAVINDRA PRAJAPATI
Quality Assurance & Control Dept
RAVINDRA PRAJAPATI
TEV India * 697



AUTORISED SIGNATORY

Format No. : JSW/QAC/F/48 Rev.00

ADOR WELDING LIMITED

CREATING THE BEST WELDING EXPERIENCE

REGD. OFFICE: Ador House, 6, K. Dubhash Marg, Fort Mumbai - 400 001 | CIN: L70100MH1951PLC008647
 Tel: 1800 233 1071 | care@adorians.com | +91 20 40706000



SILVASSA PLANT

Survey No. 59/11/1, Silvassa-Khanvel Road,
 Masat, Silvassa - 396 230.
 U.T. of Dadra & Nagar Haveli, India
 Website : www.adorwelding.com

Test Certificate

Serial No. 3161154

SUPABASE X PLUS 3.15 x 450mm

AWS A/SFA 5.1 E7018 H4R

Date: 04 FEB 2022

Consumable	Batch No	Date of Manufacture
SMAW Electrode	62202006	FEB-2022

We certify that the supply made against this T.C. conforms to all requirements of ASME Section -II Part C-2021 in all respects.

CHEMICAL ANALYSIS : Tested in accordance with EN 10204, type 3.1

Elements	C%	Mn%	Si%	Cr%	Ni%	Mo%	Nb%	V%	W%	Cu%	Sn%	Fe%	S%	P%	Ti%	Zr%	Al%
Weld Metal	0.050	1.270	0.576	0.020	0.017	0.002	--	0.006	--	--	--	--	0.009	0.025	--	--	--

PHYSICAL PROPERTIES: All weld as welded condition.

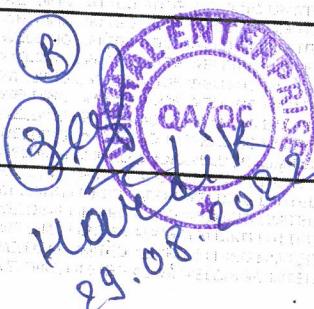
Ultimate Tensile strength MPa (N/mm ²)	Yield Strength at 0.2% Offset MPa (N/mm ²)	Elongation L= 4 x d %	Charpy V-Notch Impact Values at -30 °C Joules	Hardness Test 3 Layers Brinell / Rc/Hv	Ferrite in Weld Deposit %/FN	Radiography
558	472	26.5	54,62,66,60,58	170,175,175 BHN	--	Satisfactory

Remarks : H₂ content per 100 g of weld metal = 3.24 ml by mercury method
 Moisture content in the electrode coating = 0.15 %.

AWL-CONS-IMS-QCF-06/Rev.01

Officer (Q.A.)

S.P.Kamey



Harshad

29.08.2021

Ravindra Prajapati
Dept. Head (Q.A.)

REVIEWED / NOTED
✓ % WITNESSED

Ravindra Prajapati
29/08/2021



ADOR WELDING LIMITED

CREATING THE BEST WELDING EXPERIENCE

REGD. OFFICE: Ador House, 6, K. Dubhash Marg, Fort Mumbai - 400 001 | CIN: L70100MH1951PLC008647
 1800 233 1071 care@adorians.com +91 20 40706000



SILVASSA PLANT

Survey No. 59/11/1, Silvassa-Khanvel Road,
 Masat, Silvassa - 396 230.
 U.T. of Dadra & Nagar Haveli, India
 Website : www.adorwelding.com

TEST CERTIFICATE

Serial No. 3036807

SUPABASE-X-PLUS 4.00 x 450mm

AWS A/SFA 5.1 E7018

Date: 03 SEP 2021

Consumable	Batch No	Date of Manufacture
SMAW Electrode	62109010	SEP-2021

We certify that the supply made against this T.C. conforms to all requirements of ASME Section -II Part C-2019 in all respects

CHEMICAL ANALYSIS : Tested in accordance with EN 10204, type 3.1

Elements	C%	Mn%	Si%	Cr%	Ni%	Mo%	Nb%	V%	W%	Cu%	Sn%	Fe%	S%	P%	Ti%	Zr%	Al%
Weld Metal	0.040	1.170	0.550	0.030	0.013	0.001	--	0.005	--	--	--	--	0.010	0.020	--	--	--

PHYSICAL PROPERTIES: All weld as welded condition.

Ultimate Tensile strength MPa (N/mm ²)	Yield Strength at 0.2% Offset MPa (N/mm ²)	Elongation L= 4 x d %	Charpy V-Notch Impact Values at -30 °C Joules	Hardness Test 3 Layers Brinell /Rc/Hv	Ferrite in Weld Deposit %/FN	Radiography
564	462	26.6	52,62,58,60,54	180,185,180BHN	--	Satisfactory

Remarks : Hydrogen Content per 100 gms of weld metal = 3.21 ml by mercury method

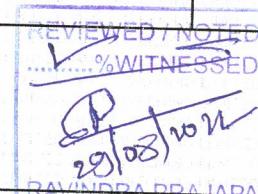
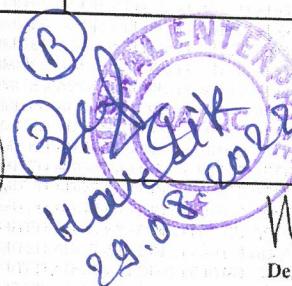
Moisture content in the electrode coating = 0.17 %.

Fillet weld tested and found satisfactory.

AWL-CONS-IMS-QCF-06/Rev.01

Officer (Q.A.)

S.P. Pemay



Dept. Head (Q.A.)

Test Certificate

Serial No. 3161273

SUPABASE X PLUS 2.50 x 350mm

AWS A/SFA 5.1 E7018 H4R

Date: 04 FEB 2022

Consumable	Batch No	Date of Manufacture
SMAW Electrode	62202010	FEB-2022

We certify that the supply made against this T.C. conforms to all requirements of ASME Section -II Part C-2021 in all respects.

CHEMICAL ANALYSIS : Tested in accordance with EN 10204, type 3.1

Elements	C%	Mn%	Si%	Cr%	Ni%	Mo%	Nb%	V%	W%	Cu%	Sn%	Fe%	S%	P%	Ti%	Zr%	Al%
Weld Metal	0.048	1.410	0.630	0.028	0.020	0.002	--	0.007	--	--	--	--	0.009	0.025	--	--	--

PHYSICAL PROPERTIES: All weld as welded condition.

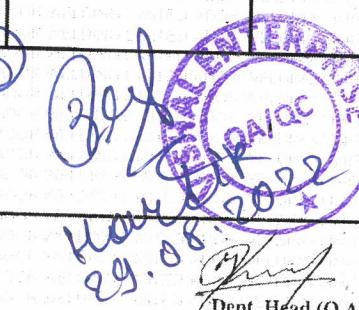
Ultimate Tensile strength MPa (N/mm ²)	Yield Strength at 0.2% Offset MPa (N/mm ²)	Elongation L= 4 x d %	Charpy V-Notch Impact Values at -30 °C Joules	Hardness Test 3 Layers Brinell /Rc/Hv	Ferrite in Weld Deposit %/FN	Radiography
554	468	26.5	52,58,66,60,56	175,175,180BHN	--	Satisfactory

Remarks : Hydrogen content per 100 g of weld metal = 3.26 ml by mercury method

Moisture content in the electrode coating = 0.15 %.

AWL-CONS-IMS-QCF-06/Rev.01

S.R. Panay
Officer (Q.A.)



Dept. Head (Q.A.)

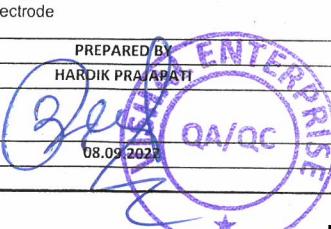


VISHAL ENTERPRISE & VRISHAL ENGINEERING PVT.LTD. GROUP OF COMPANIES

WELDING PROCEDURE SPECIFICATION

(As per AWS D1.1)

WELDING PROCEDURE SPEC. NO. : VEPL/WPS/006		REV NO. 00	DATE : 08.09.2022						
SUPPORTING PQR NO.: VEPL/PQR/006		REV NO. 00	DATE : 08.09.2022						
WELDING PROCESS: FCAW		TYPE: SEMI-AUTOMATIC							
JOINT DESIGN									
GROOVE DESIGN	AS PER FIGURE (For PQR : Single V)								
BACKING	NO FOR ROOT / YES FOR REST								
BACKING MATERIAL	BASE / WELD METAL								
ROOT SPACING	3 - 4 mm								
ROOT FACE	1-2 mm								
GROOVE ANGLE	AS PER FIGURE								
BASE METALS									
MATERIAL SPEC. & GROUP	IS2062 E350 Gr.C, or Equivalent (Group -II to II)								
TEST PLATE THICKNESS	25 mm								
QUALIFIED THICKNESS	3 mm to Unlimited								
FILLET	Any								
FILLER METALS									
AWS SPECIFICATIONS	SFA 5.20								
AWS CLASSIFICATION	E71T-1C								
POSITION									
TEST PLATE POSITION	2G,3G & 4G								
QUALIFIED POSITION FOR GROOVE	ALL								
VERTICAL PROGRESSION	UPHILL								
POST WELD HEAT TREATMENT									
PREHEAT/INTERPASS TEMPERATURE (As per table 5.8 of AWS D1.1)									
NA		THICKNESS	≤ 38	>38 to 65					
		PREHEAT TEMPERATURE	10°C	65°C					
PREHEAT SHALL BE CHECKED AT A DISTANCE OF 3" OR 3 TIMES THE THICKNESS WHICHEVER IS GREATER FROM THE WELD TOE AND THROUGH THE THICKNESS									
SHIELDING GAS									
TYPE OF GAS	CO2								
COMPOSITION	100%								
TECHNIQUE									
FLOW RATE (LPM)	10-20								
GAS CUP SIZE	NA								
ELECTRICAL CHARACTERISTICS									
TRANSFER MODE(GMAW)	NA								
SHORT CIRCUITING	NA								
CURRENT	DC								
POLARITY	DCEP								
OTHER	NA								
CONTACT TUBE TO WORK DISTANCE									
PEENING									
INTERPASS CLEANING									
TACK WELD TECHNIQUE									
TACK LENGTH									
REFER NOTE 1									
PASS OR WELD LAYER	WELDING PROCESS	FILLER METALS		CURRENT	VOLTS (V)	ELECTRODE RUNOUT LENGTH MINIMUM (mm)	TRAVEL SPEED mm/min (Min.)	HEAT INPUT kJ / mm (Max.)	
		CLASS	DIA. mm						TYPE OF POLARITY
ROOT PASS	FCAW	E71T-1C	1.20	DCEP	130-200	20-30	50	100-180	2.5
HOT PASS	FCAW	E71T-1C	1.20	DCEP	130-200	20-30	50	100-180	2.5
FILL UP	FCAW	E71T-1C	1.20	DCEP	130-220	20-30	50	120-180	2.5
CAPPING	FCAW	E71T-1C	1.20	DCEP	130-220	20-30	50	120-180	2.5
NOTE : 1) 50 mm OR 4 times the thickness whichever is less, with a min. throat size of 6mm - 2 Pass maximum 2) Pre-heating shall be strictly followed for tacking also 3) Weaving should not exceed 2.5 times of electrode									
PREPARED BY					REVIEWED / NOTED % WITNESSED				APPROVED BY
NAME									
SIGNATURE									
DATE	08.09.2022				08/09/2022				VINAY DESHMUKH





PROCEDURE QUALIFICATION RECORD (PQR)

Organization Name : VISHAL ENTERPRISE AND VRISHAL ENGINEERING PVT. LTD. GROUP OF COMPANIES

Procedure Qualification Record No : VEPL/PQR/006 Rev.0

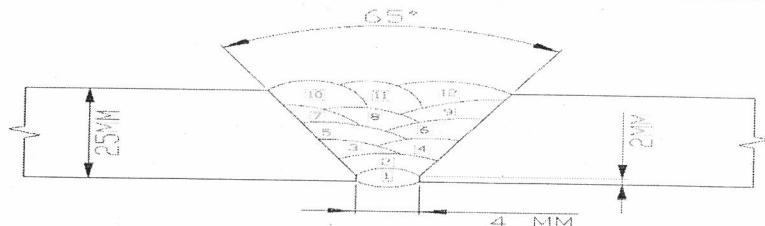
Date : 08.09.2022

PWPS No : VEPL/PWPS/006 REV.02

Welding Process (es) : FCAW

Types (Manual, Automatic, Semi Automatic) : SEMI AUTOMATIC

Joints



Base Metals

Material Spec.	IS 2062	Preheat		
Types of Grades, or UNS number	E350 GR.C	Preheat Temp.		25°C
Thickness of Test coupon	25 mm	Interpass Temp.		213°C Max.
Size of Test Coupo	500 mm X 300 mm	Post Heating Temp.		NA
Others	None	Post Weld Heat Treatment		
		Temperature	NA	
		Time	NA	

Filler Metals

Welding Process	FCAW	GAS		
SFA Specification	SFA 5.20	Shielding	CO ₂	100% 14-16 LPM
AWS classification	E71T-1C	Trailing	None	None
Filler Metal F No.	6	Back / Purging	None	None
Weld Metal Analysis A No.	1	Others	None	None
Size Of Consumable	1.2 mm			
Filler Metal Product form	Flux Cored			
With and without Filler metal	Without	Electrial Characteristics		
Supplemental Filler Metal	NA			FCAW
Electrode flux classification	-	Current :		Direct
Flux Type	-	Polarity:		DCEP
Flux Trade name	-			
Weld Metal Thickness	28 mm	Amps :	As per Running Sheet	
Others	-	Tungsten electrode Size :	-	
		Heat Input	As per Running Sheet	

Position

Position for Groove	2G , 3G & 4G	Technique	
Weld Progression	Uphill	Travel Speed	As per Running Sheet
Others	None	String or Weave bead	Weave
		Method of cleaning	Wire Brusing / Buffing / Chipping
		Oscillation	NA
		Method of Back Gouging	NA
		Multipass or Single pass	Multiple
		Single or Multiple Electrodes	Single

SIGN	VISHAL HARDIK PRAJAPATI 08.09.2022	CLEINT / TPIA REHEATED / NOTED % WITNESSED 08/09/2022 VINAY DESHMUKH
NAME		
DATE		



PROCEDURE QUALIFICATION RECORD (PQR)

Organization Name : VISHAL ENTERPRISE AND VRISHAL ENGINEERING PVT. LTD. GROUP OF COMPANIES

Procedure Qualification Record No : VEPL/PQR/006 Rev.0

Date : 08.09.2022

PWPS No : VEPL/PWPS/006 REV.02

Welding Process (es) : FCAW

Types (Manual, Automatic, Semi Automatic) : SEMI AUTOMATIC

Tensile test - AWS D1.1 2020 for 2G Position (TC No. E2824)

SR. No.	Width (mm)	Thickness (mm)	Area (mm ²)	Ultimate Total Load (N)	Ultimate Unit Stress (Mpa)	Broken From	Fracture
E2824ts1	20.12	25.05	504.00	286026	567.50	Parent	Ductile
E2824ts2	20.24	25.02	506.40	287586	567.40	Parent	Ductile

Tensile test - AWS D1.1 2020 for 3G Position (TC No. E2825)

SR. No.	Width (mm)	Thickness (mm)	Area (mm ²)	Ultimate Total Load (N)	Ultimate Unit Stress (Mpa)	Broken From	Fracture
E2825ts1	20.07	24.79	497.53	290538	583.95	Parent	Ductile
E2825ts2	20.11	24.83	499.23	294888	590.56	Parent	Ductile

Tensile test - AWS D1.1 2020 for 4G Position (TC No. E2826)

SR. No.	Width (mm)	Thickness (mm)	Area (mm ²)	Ultimate Total Load (N)	Ultimate Unit Stress (Mpa)	Broken From	Fracture
E2826ts1	20.10	24.36	489.63	289524	591.30	Parent	Ductile
E2826ts2	20.17	24.51	494.36	290736	588.09	Parent	Ductile

Bend test E2821be - AWS D1.1 2020 for 2G Position (TC No. E2824)

SR. No.	Sample Thickness (mm)	Mandrel Dia. (mm)	Angle of Bend (degree)	Observation
Side bend 1	10	38	180	Found Satisfactory
Side bend 2	10	38	180	Found Satisfactory
Side bend 3	10	38	180	Found Satisfactory
Side bend 4	10	38	180	Found Satisfactory

Bend test E2822be - AWS D1.1 2020 for 3G Position (TC No. E2825)

SR. No.	Sample Thickness (mm)	Mandrel Dia. (mm)	Angle of Bend (degree)	Observation
Side bend 1	10	38	180	Found Satisfactory
Side bend 2	10	38	180	Found Satisfactory
Side bend 3	10	38	180	Found Satisfactory
Side bend 4	10	38	180	Found Satisfactory

Bend test E2823be - AWS D1.1 2020 for 4G Position (TC No. E2826)

SR. No.	Sample Thickness (mm)	Mandrel Dia. (mm)	Angle of Bend (degree)	Observation
Side bend 1	10	38	180	Found Satisfactory
Side bend 2	10	38	180	Found Satisfactory
Side bend 3	10	38	180	Found Satisfactory
Side bend 4	10	38	180	Found Satisfactory

SIGN	VISHAL HARDIK PRAJAPATI 08.09.2022	CLEINT / TPIA
NAME		REVIEWED / NOTED % WITNESSED
DATE		VINAY DESHMUKH 08/09/2022 VINAY DESHMUKH



PROCEDURE QUALIFICATION RECORD (PQR)

Organization Name : VISHAL ENTERPRISE AND VRISHAL ENGINEERING PVT. LTD. GROUP OF COMPANIES

Procedure Qualification Record No : VEPL/PQR/006 Rev.0

Date : 08.09.2022

PWPS No : VEPL/PWPS/006 REV.02

Welding Process (es) : FCAW

Types (Manual, Automatic, Semi Automatic) : SEMI AUTOMATIC

All Weld Tensile Test - AWS D1.1 2020

Identification	2G Position (TC No. E2824ts3)	3G Position (TC No. E2825ts3)	4G Position (TC No. E2826ts3)
SR.NO	E2824ts3	E2825ts3	E2826ts3
Width (mm)	12.49	12.70	12.50
Area (mm ²)	122.52	126.68	122.72
0.2% Proof Load (N)	62365	67302	66027
0.2% Proof Stress (Mpa)	509.01	531.27	538.02
Ultimate Load (N)	70440	77880	71124
Ultimate Tensile Strength (Mpa)	574.92	614.77	579.57
Guage Length (mm)	50.00	50.00	50.00
Final Guage Length (mm)	62.90	64.5	62.70
Elongation (%)	25.8	29.00	25.40
Sample Broken From	WGL	WGL	WGL

Macro-Etch

TC No.	Removal Location	Observation	Test Result	
			Accept	Reject
E2824ma	Cross Section of Weld	Complete Fusion and Free from Crack	X	-
E2825ma	Cross Section of Weld	Complete Fusion and Free from Crack	X	-
E2826ma	Cross Section of Weld	Complete Fusion and Free from Crack	X	-

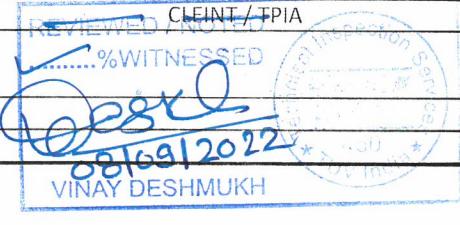
Other Test

Type	Required By		Test Result		TC No.
	CODE	Test Method	Accept	Reject	
Hardness @ HV10	AWS D1.1	ASTM E92-17	X	-	E2824ha , E2825ha & E2826ha

Welder's Name :	ASWINI KUMAR	WELDER NO	S-AB13
Test Conducted By			
GLOBAL METALLURGICAL SERVICES			
Test Witnessed By			
TUV NORD			
Radiography Test Report No.			
VE/ITT/RT/PQR/04			
Tensile & Bend test Report No.			
E2824 , E2825 & E2826			
All Weld Tensile Test Report No.			
E2824ts3 , E2825ts3 & E2826ts3			
Macro Examination Report No.			
E2824ma , E2825ma & E2826ma			
Hardness Test Report No.			
E2824ha , E2825ha & E2826ha			
Visual Examination Report No.			
VE/ITT/PQR/WV/02			

We certify that the statements in this record are correct and that the test welds were prepared, welded, tested in accordance with the requirements of AWS D1.1:2020 and Project Specification

Organization: Vishal Enterprise
By Hardik Prajapati
Date : 08.09.2022

SIGN	VISHAL 	REVIEWED / APPROVED % WITNESSED  VINAY DESHMUKH 08/09/2022
NAME	HARDIK PRAJAPATI	
DATE	08.09.2022	



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2824 ULR No.: TC83622200005290F Date of Issue: 08.09.2022
Type of Test	Tensile Test/ Bend Test	Page: 1 of 1
Instrument Utilised	GMS-TM-03	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk ✓	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C ✓	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006-2G ✓	

Results

Discipline – Mechanical Testing ✓

Group – Ferrous material & its Alloys

Tensile Test – E2824ts			Test Method – AWS D1.1: 2020											
Sr. No. / Location	Width (mm)	Thickness (mm)	Cross Section Area (mm ²)	Yield Load (N)	Yield Strength (MPa)	Ultimate Load (N)	Ultimate Tensile Strength (MPa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)		
--	Req.	--	--	--	--	--	490 Min	--	--	--	--	--		
--	U of M (±)	--	--	--	--	--	5.02	--	--	--	--	--		
E2824ts1	Obs.	20.12	25.05	504.00	--	--	286026	567.50 ✓	--	--	--	--		
E2824ts2	Obs.	20.24	25.02	506.40	--	--	287586	567.40 ✓	--	--	--	--		

Sample Broken From – Parent (Ductile Fracture)

Bend Test – E2824be	Test Method – AWS D1.1: 2020			
Sr. No.	Side Bend 1	Side Bend 2	Side Bend 3	Side Bend 4
Sample Thickness (mm)	10	10	10	10
Mandrel Dia. (mm)	38	38	38	38
Angle of bend (degree)	180	180	180	180
Observation	Found Satisfactory	Found Satisfactory	Found Satisfactory	Found Satisfactory

Remarks – The Offered Sample complying Requirement of AWS D1.1: 2020 based on Reported Results ± U.O.M Within Permissible Limits.

Tested By	Reviewed & Authorized Signatory Amit Meghani VADODARA	Technical Inspection Service TUV INDIA 08.09.2022 (NITI Desai)

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2825 ULR No.: TC83622200005291F Date of Issue: 08.09.2022
Type of Test	Tensile Test/ Bend Test	Page: 1 of 1
Instrument Utilised	GMS-TM-03	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk ✓	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006-3G ✓	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

Tensile Test – E2825ts			Test Method – AWS D1.1: 2020										
Sr. No. / Location	Width (mm)	Thickness (mm)	Cross Section Area (mm ²)	Yield Load (N)	Yield Strength (MPa)	Ultimate Load (N)	Ultimate Tensile Strength (MPa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)	
--	Req.	--	--	--	--	--	490 Min	--	--	--	--	--	
--	U of M (±)	--	--	--	--	--	5.02	--	--	--	--	--	
E2825ts1	Obs.	20.07	24.79	497.53	--	--	290538	583.95 ✓	--	--	--	--	
E2825ts2	Obs.	20.11	24.83	499.23	--	--	294888	590.56 ✓	--	--	--	--	

Sample Broken From – Parent (Ductile Fracture)

Bend Test – E2825be	Test Method – AWS D1.1: 2020			
Sr. No.	Side Bend 1	Side Bend 2	Side Bend 3	Side Bend 4
Sample Thickness (mm)	10	10	10	10
Mandrel Dia. (mm)	38	38	38	38
Angle of bend (degree)	180	180	180	180
Observation	Found Satisfactory	Found Satisfactory	Found Satisfactory	Found Satisfactory

Remarks – The Offered Sample complying Requirement of AWS D1.1: 2020 based on Reported Results ± U.O.M Within Permissible Limits.

Reviewed & Authorized Signatory Amit Meghani	Reviewed & Authorized Signatory Amit Meghani	Reviewed & Authorized Signatory Amit Meghani
Tested By		

A
 B
 C
 D
 E
 F

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2826
Type of Test	Tensile Test/ Bend Test	ULR No.: TC83622200005292F
Instrument Utilised	GMS-TM-03	Date of Issue: 08.09.2022
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	Page: 1 of 1
Sample received on	01.09.2022	Location: At Laboratory
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006-4G ✓	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

Tensile Test – E2826ts			Test Method – AWS D1.1: 2020										
Sr. No. / Location	Width (mm)	Thickness (mm)	Cross Section Area (mm ²)	Yield Load (N)	Yield Strength (MPa)	Ultimate Load (N)	Ultimate Tensile Strength (MPa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)	
--	Req.	--	--	--	--	--	490 Min	--	--	--	--	--	
--	U of M (±)	--	--	--	--	--	5.02	--	--	--	--	--	
E2826ts1	Obs.	20.10	24.36	489.63	--	--	289524	591.30 ✓	--	--	--	--	
E2826ts2	Obs.	20.17	24.51	494.36	--	--	290736	588.09 ✓	--	--	--	--	

Sample Broken From – Parent (Ductile Fracture)

Bend Test – E2826be	Test Method – AWS D1.1: 2020			
Sr. No.	Side Bend 1	Side Bend 2	Side Bend 3	Side Bend 4
Sample Thickness (mm)	10	10	10	10
Mandrel Dia. (mm)	38	38	38	38
Angle of bend (degree)	180	180	180	180
Observation	Found Satisfactory	Found Satisfactory	Found Satisfactory	Found Satisfactory

Remarks – The Offered Sample complying Requirement of AWS D1.1: 2020 based on Reported Results ± U.O.M Within Permissible Limits.

Tested By	Reviewed & Authorized Signatory Amit Meghani	Witnessed By TUV DESK 450 08/09/2022
-----------	---	---

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2824ts3 ULR No.: TC836222000005302F Date of Issue: 08.09.2022
Type of Test	Tensile Test	Page: 1 of 1
Instrument Utilised	GMS-TM-03	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006-2G	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

All Weld Tensile Test – E2824ts3			Test Method – AWS D1.1: 2020											
Sr. No. / Location	Gauge Dia. (mm)	Thickness (mm)	Cross Section Area (mm ²)	0.2% Proof Load (N)	0.2% Proof Stress (MPa)	Ultimate Load (N)	Ultimate Tensile Strength (MPa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)		
--	Req.	--	--	--	--	--	--	--	--	22 Min	--	--		
--	U of M (\pm)	--	--	--	--	--	--	--	--	0.34	--	--		
E2824ts3	Obs.	12.49	--	122.52	62365	509.01	70440	574.92	50.00	62.90	25.80 ✓	--		
Approx. conversion into ksi														
--	--	--	--	--	--	58 ksi Min	--	70 - 95 ksi	--	--	--	--	--	--
E2824ts3	--	--	--	--	--	73.82 ✓	--	83.38 ✓	--	--	--	--	--	--

Sample Broken From –W.G.L.



Remarks – The Offered Sample complying Requirement Client based on Reported Results ± U.O.M Within Permissible Limits.

Tested By

Reviewed & Authorized Signatory
Amit Meghani



- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2825ts3
Type of Test	Tensile Test	ULR No.: TC836222000005303F
Instrument Utilised	GMS-TM-03	Date of Issue: 08.09.2022
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	Page: 1 of 1
Sample received on	01.09.2022	Location: At Laboratory
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006-3G	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

All Weld Tensile Test – E2825ts3			Test Method – AWS D1.1: 2020											
Sr. No. / Location	Gauge Dia. (mm)	Thickness (mm)	Cross Section Area (mm ²)	0.2% Proof Load (N)	0.2% Proof Stress (MPa)	Ultimate Load (N)	Ultimate Tensile Strength (MPa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)		
--	Req.	--	--	--	--	--	--	--	--	22 Min	--	--		
--	U of M (\pm)	--	--	--	--	--	--	--	--	0.34	--	--		
E2825ts3	Obs.	12.70	--	126.68	67302	531.27	77880	614.77	50.00	64.50	29.00 ✓	--		
Approx. conversion into ksi														
--	--	--	--	--	--	58 ksi Min	--	70 - 95 ksi	--	--	--	--		
E2825ts3	--	--	--	--	--	77.05 ✓	--	89.15 ✓	--	--	--	--		
Sample Broken From –W.G.L.														



Remarks – The Offered Sample complying Requirement of Client based on Reported Results ± U.O.M Within Permissible Limits.

Tested By

Reviewed & Authorized Signatory
Amit Meghani



Witnessed By

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2826ts3 ULR No.: TC83622200005304F Date of Issue: 08.09.2022
Type of Test	Tensile Test	Page: 1 of 1
Instrument Utilised	GMS-TM-03	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006-4G, Test Coupon Size – 500 mm X 300 mm	

Results

Discipline – Mechanical Testing

Group – Ferrous material & its Alloys

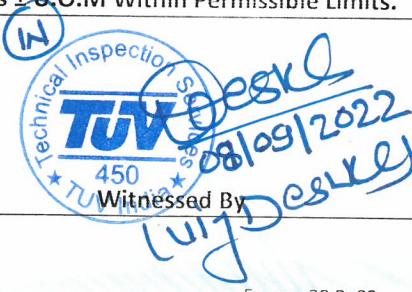
All Weld Tensile Test – E2826ts3			Test Method – AWS D1.1: 2020											
Sr. No. / Location	Gauge Dia. (mm)	Thickness (mm)	Cross Section Area (mm ²)	0.2% Proof Load (N)	0.2% Proof Stress (MPa)	Ultimate Load (N)	Ultimate Tensile Strength (MPa)	Gauge Length (mm)	Final Gauge Length (mm)	Elongation (%)	Reduction Dia. (mm)	Reduction of Area (%)		
--	Req.	--	--	--	--	--	--	--	--	22 Min	--	--		
--	U of M (\pm)	--	--	--	--	--	--	--	--	0.34	--	--		
E2826ts3	Obs.	12.50	--	122.72	66027	538.02	71124	579.57	50.00	62.70	25.40	--		
Approx. conversion into ksi														
--	--	--	--	--	58 ksi Min	--	70 - 95 ksi	--	--	--	--	--		
E2826ts3	--	--	--	--	78.03	--	84.05	--	--	--	--	--		
Sample Broken From –W.G.L.														



Remarks – The Offered Sample complying Requirement of Client based on Reported Results ± U.O.M Within Permissible Limits.

Tested By

Reviewed & Authorized Signatory
Amit Mehta



- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.E2824ma ULR : --- Date of Issue: 07.09.2022
Type of Test	Macro Examination by stereo Microscope	Page : 1 of 1
Test Method	AWS D1.1: 2020	Location : At Laboratory
Instrument Utilised	GMS-TM-18	
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by : Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on : 07.09.2022
Sample ID.	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006-2G	

Results

Discipline – Mechanical Testing
Group – Ferrous and its alloy

Etchant : 10% Nital

Observation : Welding cross section Shows complete Fusion and free from cracks

Remark	--	
Tested By	 Reviewed & Authorized Signatory Amit Mehta 	 Witnessed By

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.E2825ma ULR : --- Date of Issue: 07.09.2022
Type of Test	Macro Examination by stereo Microscope	Page : 1 of 1
Test Method	AWS D1.1: 2020	Location : At Laboratory
Instrument Utilised	GMS-TM-18	
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by : Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on : 07.09.2022
Sample ID.	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006-3G	

Results

Discipline – Mechanical Testing
Group – Ferrous and its alloy

Etchant : 10% Nital

Observation : Welding cross section Shows complete Fusion and free from cracks

Remark	--	
Tested By	 Reviewed & Authorized Signatory Amit Meghani	 Witnessed By

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report

Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.E2826ma ULR : --- Date of Issue: 08.09.2022
Type of Test	Macro Examination by stereo Microscope	Page : 1 of 1
Test Method	AWS D1.1: 2020	Location : At Laboratory
Instrument Utilised	GMS-TM-18	
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by : Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on : 08.09.2022
Sample ID.	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006-4G	

Results

Discipline – Mechanical Testing
 Group – Ferrous and its alloy

Etchant : 10% Nital

Observation : Welding cross section Shows complete Fusion and free from cracks



Remark	--	
Tested By	 Reviewed & Authorized Signatory Amit Meghani	 Technical Inspection Service TUV 450 TUV India 08/09/2022 (Vij Desai)

- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

Form – 20 R. 03

End of Test Report



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

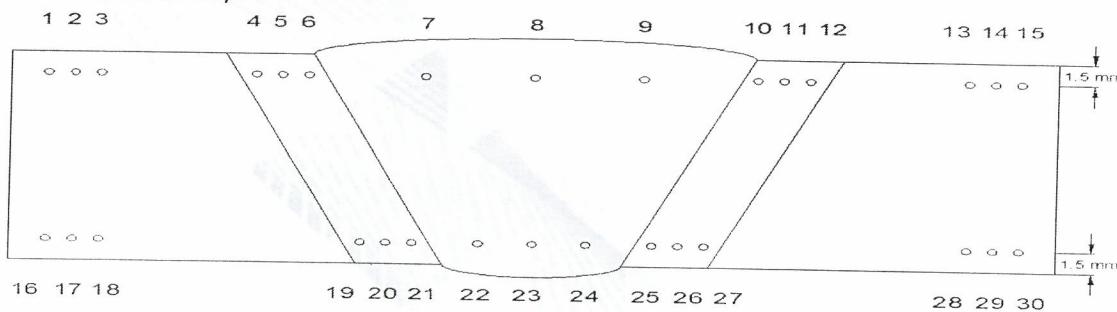
Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2824ha ULR No.: TC836222000005276F Date of Issue: 08.09.2022
Type of Test	Vickers Hardness Test	Page: 1 of 1
Instrument Utilised	GMS-TM-05	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006- 2G	

Results

Discipline – Mechanical Testing,

Group – Ferrous material & its Alloys



Vickers Hardness Test – E2824ha			Test Method – ASTM E92- 17			(±)Expanded Uncertainty: --		
Hardness Reading In HV at load 10 kgf								
SR No	Area (TOP)	Observation (HV10)	SR No	Area (BOTTOM)	Observation (HV10)	SR No	Area (TOP)	Observation (HV10)
1	PARENT	164	16	PARENT	163	28	PARENT	168
2	PARENT	161	17	PARENT	167	29	PARENT	166
3	PARENT	166	18	PARENT	164	30	PARENT	163
4	HAZ	205	19	HAZ	195			
5	HAZ	201	20	HAZ	203			
6	HAZ	202	21	HAZ	205			
7	Weld	178	22	Weld	180			
8	Weld	181	23	Weld	182			
9	Weld	177	24	Weld	181			
10	HAZ	201	25	HAZ	207			
11	HAZ	199	26	HAZ	205			
12	HAZ	203	27	HAZ	203			
13	PARENT	162	28	PARENT	168			
14	PARENT	160	29	PARENT	166			
15	PARENT	168						

Remarks: Observation.

Results to be evaluated

Tested By

Reviewed & Authorized Signatory
Amit Meghani



- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

End of Test Report

254/I, Industrial Lining, G.I.D.C., Makarpura, Vadodara - 390 010.

Call : 7490934252 Email : globallab17@gmail.com Website : www.globallaboratory.in



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



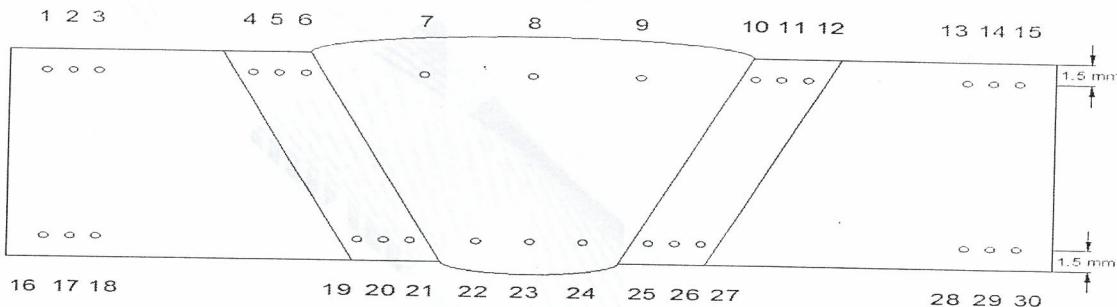
Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2825ha ULR No.: TC836222000005277F Date of Issue: 08.09.2022 Page: 1 of 1 Location: At Laboratory
Type of Test	Vickers Hardness Test	
Instrument Utilised	GMS-TM-05	
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006- 3G	

Results

Discipline – Mechanical Testing,

Group – Ferrous material & its Alloys



Vickers Hardness Test – E2825ha			Test Method – ASTM E92- 17			(±)Expanded Uncertainty: --		
Hardness Reading In HV at load 10 kgf								
SR No	Area (TOP)	Observation (HV10)	SR No	Area (BOTTOM)	Observation (HV10)	SR No	Area (TOP)	Observation (HV10)
1	PARENT	166	16	PARENT	161	16	PARENT	161
2	PARENT	163	17	PARENT	168	17	PARENT	168
3	PARENT	161	18	PARENT	166	18	PARENT	166
4	HAZ	195	19	HAZ	193	19	HAZ	193
5	HAZ	198	20	HAZ	199	20	HAZ	199
6	HAZ	199	21	HAZ	201	21	HAZ	201
7	Weld	192	22	Weld	194	22	Weld	194
8	Weld	189	23	Weld	193	23	Weld	193
9	Weld	187	24	Weld	189	24	Weld	189
10	HAZ	205	25	HAZ	202	25	HAZ	202
11	HAZ	194	26	HAZ	201	26	HAZ	201
12	HAZ	201	27	HAZ	198	27	HAZ	198
13	PARENT	168	28	PARENT	162	28	PARENT	162
14	PARENT	165	29	PARENT	163	29	PARENT	163
15	PARENT	163	30	PARENT	166	30	PARENT	166

Remarks: observation.

Results to be evaluated

Tested By

Reviewed & Authorized Signatory
Amit Meghani



- The Sample was not drawn by Laboratory.
- The above test reports relate only to sample submitted / tested.
- Test Reports Shall not be reproduced except in full, without written permission of laboratory.

254/I, Industrial Lining, G.I.D.C. Makarpura, Vadodara - 390 010.

Eric of Test Report

Call : 7490934252 Email : globalab17@gmail.com Website : www.globallaboratory.in



GLOBAL METALLURGICAL SERVICES

(NABL Accredited Laboratory as per ISO/IEC 17025 : 2017)

Chemical Analysis | Mechanical Testing | Metallurgical Testing | Corrosion Testing | Site Services



TC-8362

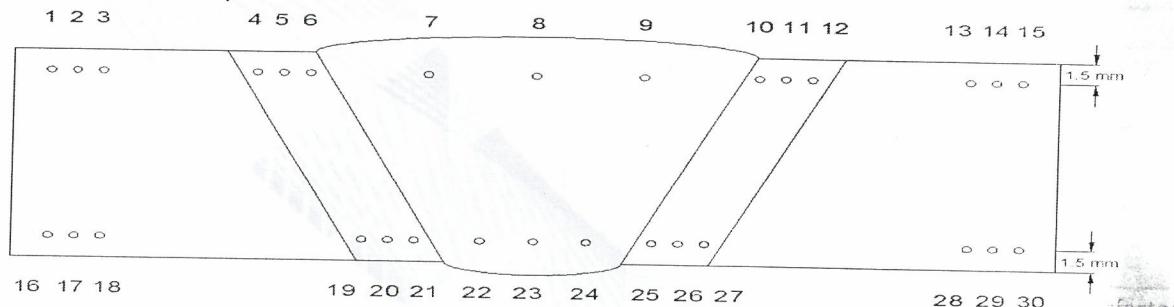
Test Report

Name & Add. Of Customer	VISHAL ENTERPRISE D-2/E, 397-398, DAHEJ G.I.D.C, JOLWA, BHARUCH – 392 130.	TC No.: E2826ha ULR No.: TC836222000005278F Date of Issue: 08.09.2022
Type of Test	Vickers Hardness Test	Page: 1 of 1
Instrument Utilised	GMS-TM-05	Location: At Laboratory
Customer Ref.	Delivery Challan and Packing List: VE/2154, Date: 31.08.2022	
Sample received on	01.09.2022	
Nature of sample	Welded Plate Sample	Condition of sample: Satisfactory
Sample Size(mm)	500 mm X 300 mm X 25 mm Thk	Sample Drawn by: Party, Stamped by "TUV INDIA"
Specification	IS 2062 GRADE E350 QUALITY C.	Test Completed on: 07.09.2022 ✓
Sample ID	Project Name: EN202775 LA PORTE HYCO4, Client Name: ITT Engineering India Pvt. Ltd., Identification – VEPL/PQR/006- 4G	

Results

Discipline – Mechanical Testing,

Group – Ferrous material & its Alloys



Vickers Hardness Test – E2826ha			Test Method – ASTM E92- 17			(±)Expanded Uncertainty: --		
			Hardness Reading In HV at load 10 kgf					
SR No	Area (TOP)	Observation (HV10)	SR No	Area (BOTTOM)	Observation (HV10)			
1	PARENT	174	16	PARENT	173			
2	PARENT	173	17	PARENT	178			
3	PARENT	176	18	PARENT	176			
4	HAZ	202	19	HAZ	205			
5	HAZ	209	20	HAZ	202			
6	HAZ	213	21	HAZ	207			
7	Weld	170	22	Weld	182			
8	Weld	173	23	Weld	180			
9	Weld	178	24	Weld	178			
10	HAZ	206	25	HAZ	202			
11	HAZ	212	26	HAZ	202			
12	HAZ	212	27	HAZ	201			
13	PARENT	170	28	PARENT	173			
14	PARENT	179	29	PARENT	169			
15	PARENT	177	30	PARENT	171			

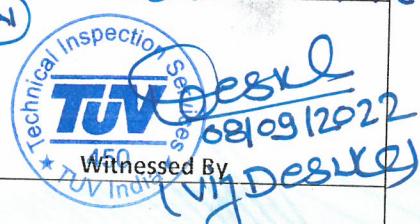
Remarks: Observation.

Tested By

Reviewed & Authorized Signatory
Amit Meghani



Results to be evaluated



Form – 20 R. 03

End of Test Report



**VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED
GROUP OF COMPANIES**

PQR / WPQ TEST RUNNING SHEET

DATE : 30.08.2022

CLIENT : ITT ENGINEERING INDIA PVT LTD.

PROJECT NAME : La Porte HyCO-4"

WPS No. : VEPL/PWPS/006 REV.02

TEST COUPON SIZE & THK : 500 mm X 300 mm X 25 mm

MATERIAL SPEC/ GRADE : IS 2062 E350 GR. C

MATERIAL HEAT NO. : F900998 (VE/ITT/STR/IMIR/002-7)

WELDING POSITION : 2G

PROGRESSION : UP-HILL

TEST COUPON No. : VEPL/PQR/006 - 2G

WELDER NAME : ASWINI KUMAR

WELDER No. : S-AB13

WELDING RECTIFIER NO : M121219104500

WELDING CONSUMABLES : E-71T-1C

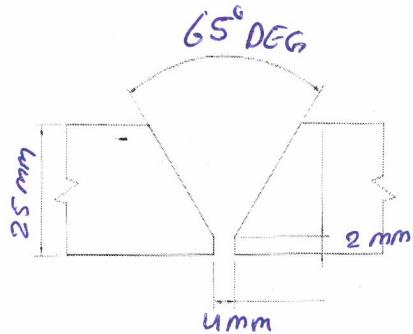
(Batch : 6220651115 , Size : 1.2 mm)

BRAND : ADOR

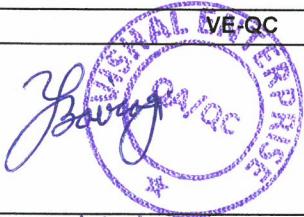
Shielding Gas Flow:
L/min 14

Purging Gas Flow:
L/min NA

PRE-HEAT TEMPERATURE : 25° C



WELD LAYERS	PROCESS	FILLER METAL		CURRENT		VOLTS	INTER-PASS TEMP (MAX)	TRAVEL SPEED (mm/min.)	HEAT-INPUT Max. (kJ/mm)
		AWS CLASS	SIZE (mm)	TYPE POLARITY	AMPS				
ROOT	FCAW	E71T-1C	1.2	DCEP	130-136	23-24	125°C	136.24	1.43
HOT-PASS	FCAW	E71T-1C	1.2	DCEP	139-143	24-25	155°C	113.2	1.89
FILL-UP-1	FCAW	E71T-1C	1.2	DCEP	129-144	22-26	142°C	135.21	1.66
FILL-UP-2	FCAW	E71T-1C	1.2	DCEP	135-149	23-25	187°C	114.52	1.95
FILL-UP-3	FCAW	E71T-1C	1.2	DCEP	147-155	23-26	110°C	120.23	2.01
FILL-UP-4	FCAW	E71T-1C	1.2	DCEP	141-151	22-25	134°C	132.29	1.71
FILL-UP-5	FCAW	E71T-1C	1.2	DCEP	168-175	22-25	179°C	134.13	1.95
FILL-UP-6	FCAW	E71T-1C	1.2	DCEP	160-181	21-24	193°C	126.66	2.05
FILL-UP-7	FCAW	E71T-1C	1.2	DCEP	146-153	22-24	209°C	156.25	1.41
CAP-1	FCAW	E71T-1C	1.2	DCEP	123-147	23-25	123°C	149.63	1.47
CAP-2	FCAW	E71T-1C	1.2	DCEP	132-139	23-25	142°C	155.55	1.34
CAP-3	FCAW	E71T-1C	1.2	DCEP	130-146	24-26	167°C	149.62	1.52



CLEINT QC/ TPI



NAME: Yaya Valayka Bairagi

DATE: 30.08.22

NAME: HARDIK PRAJAPTI

DATE: 30-08-2022

VE/QA/FORMAT/52 REV.02



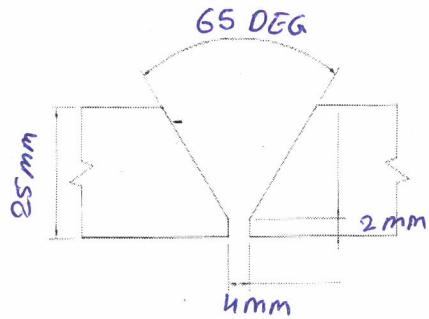
VE
VRISHAL
Committed
VISHAL ENTERPRISE

VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED
GROUP OF COMPANIES

PQR / WPQ TEST RUNNING SHEET

DATE : 30.08.2022

CLIENT : ITT ENGINEERING INDIA PVT LTD.
 PROJECT NAME : La Porte HyCO-4"
 WPS No. : VEPL/PWPS/006 REV.02
 TEST COUPON SIZE & THK : 500 mm X 300 mm X 25 mm
 MATERIAL SPEC/ GRADE : IS 2062 E350 GR. C
 MATERIAL HEAT NO. : F900998 (VE/ITI/STR/IMIR/002-7)
 WELDING POSITION : 3G
 PROGRESSION : UP-HILL
 TEST COUPON No. : VEPL/PQR/006 - 3G
 WELDER NAME : ASWINI KUMAR
 WELDER No. : S-AB13
 WELDING RECTIFIER NO : M121219104500
 WELDING CONSUMABLES : E-71T-1C
 (Batch : 6220651115 , Size : 1.2 mm)



Shielding Gas Flow:
L/min 14

Purging Gas Flow:
L/min NA

BRAND : ADOR

PRE-HEAT TEMPERATURE : 25° C

WELD LAYERS	PROCESS	FILLER METAL		CURRENT		VOLTS	INTER-PASS TEMP (MAX)	TRAVEL SPEED (mm/min.)	HEAT-INPUT Max. (kJ/mm)
		AWS CLASS	SIZE (mm)	TYPE POLARITY	AMPS				
ROOT	FCAW	E71T-1C	1.2	DCEP	120-139	21-24	122°C	83.34	2.2
HOT-PASS	FCAW	E71T-1C	1.2	DCEP	151-169	21-24	151.56°C	147.85	1.7
FILL-UP-1	FCAW	E71T-1C	1.2	DCEP	155-164	22-24	192°C	103.09	2.27
FILL-UP-2	FCAW	E71T-1C	1.2	DCEP	171-181	23-25	124°C	136.24	1.72
FILL-UP-3	FCAW	E71T-1C	1.2	DCEP	175-186	22-24	133°C	127.2	2.1
FILL-UP-4	FCAW	E71T-1C	1.2	DCEP	168-173	21-25	142°C	110.2	2.35
FILL-UP-5	FCAW	E71T-1C	1.2	DCEP	168-174	21-25	182°C	135.12	1.93
FILL-UP-6	FCAW	E71T-1C	1.2	DCEP	175-181	21-25	110°	141.29	1.92
FILL-UP-7	FCAW	E71T-1C	1.2	DCEP	171-182	22-24	149°C	145.11	1.8
CAP-1	FCAW	E71T-1C	1.2	DCEP	155-162	21-23	103°C	102.63	2.17
CAP-2	FCAW	E71T-1C	1.2	DCEP	159-167	22-25	138°C	118.21	2.11
CAP-3	FCAW	E71T-1C	1.2	DCEP	153-161	21-24	168°C	112.37	2.06

		CLEINT QC/ TPI	
NAME: Yagyavalkya Baijagi DATE: 30.08.22		REVIEWED / NOTED %WITNESSED +assigned 30.08.2022 HARDIK PRAJAPTI	
<small>VE/QA/FORMAT/52 REV.02</small>			



**VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED
GROUP OF COMPANIES**

PQR / WPQ TEST RUNNING SHEET

DATE : 30.08.2022

CLIENT : ITT ENGINEERING INDIA PVT LTD.

PROJECT NAME : La Porte HyCO-4"

WPS No. : VEPL/PWPS/006 REV.02

TEST COUPON SIZE & THK : 500 mm X 300 mm X 25 mm

MATERIAL SPEC/GRADE : IS 2062 E350 GR. C

MATERIAL HEAT NO. : F90

WELDING POSITI

PROGRESSION :-

TEST COUPON N

WELDER NAME : ASWIN

WELDER NO. : S-AB13

WELDING CONSUMABLES : E-71T-1C
(Batch : 6220651115 Size : 1.2 mm)

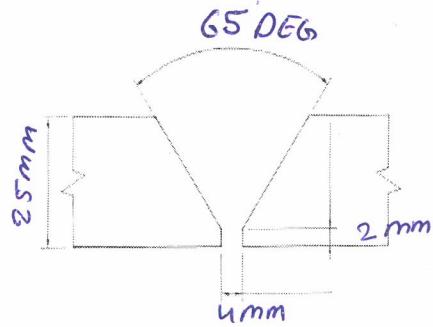
BRAND : ADOR

L/min

L/min

Purging Gas Flow:
L/min NA

PRE-HEAT TEMPERATURE : 25° C



CLEINT QC/ TPI

NAME: YagyaValakya Bairagi
DATE: 30.08.22
VE/QA/FORMAT/52 REV.02

NAME: _____
DATE: _____





VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED
GROUP OF COMPANIES
WELD VISUAL INSPECTION REPORT (PQR)

CLIENT		ITT ENGINEERING INDIA PVT LTD.					Report No		VE/ITT/PQR/WV/02				
PROJECT		La Porte HyCO-4"					Date		30.08.2022				
WO NO													
SR NO	PQR TEST COUPON NO.		WELDER NO.	WELDER NAME	MATERIAL	TYPE OF WELD	WELDING PROCESS	WPS NO.	APPLICABLE CODE	SIZE (mm)	RESULT	REMARKS	
1	VEPL/PQR/006 - 2G		S-AB13	ASWINI KUMAR	IS 2062 E350 GR.C	CJP	FCAW	VEPL/PWPS/006	AWS D1.1	500 X 300 X 25	ACC		
2	VEPL/PQR/006 - 3G		S-AB13	ASWINI KUMAR	IS 2062 E350 GR.C	CJP	FCAW	VEPL/PWPS/006	AWS D1.1	500 X 300 X 25	ACC		
3	VEPL/PQR/006 - 4G		S-AB13	ASWINI KUMAR	IS 2062 E350 GR.C	CJP	FCAW	VEPL/PWPS/006	AWS D1.1	475 X 300 X 25	ACC		
QC CHECK SHEET													
		CHECKED		X NOT APPLICABLE									
DOCUMENT VERIFICATION		MARKING VERIFICATION CHECK		WELD SURFACE DEFECT CHECK						VISUAL CHECK			
<input type="checkbox"/> APPROVED NDT DRG./TESTPLAN WITH LATEST REV. <input type="checkbox"/> QUALIFIED WELDER LIST <input type="checkbox"/> APPROVED WPS		<input type="checkbox"/> JOINT NO. <input checked="" type="checkbox"/> WELDER NO.		<input checked="" type="checkbox"/> SPATTER <input checked="" type="checkbox"/> REINFORCEMENT <input checked="" type="checkbox"/> UNDER CUT <input type="checkbox"/> LUMPS/HIGH SPOT				<input checked="" type="checkbox"/> POROSITY/PIN HOLES <input checked="" type="checkbox"/> BEAD APPEARANCE/WEAVING		<input checked="" type="checkbox"/> SLAG <input checked="" type="checkbox"/> CRACK <input checked="" type="checkbox"/> WELD SIZE <input checked="" type="checkbox"/> UNDER FILL		<input checked="" type="checkbox"/> ARC STRIKE <input checked="" type="checkbox"/> DISTORTION <input type="checkbox"/> CLEAT MARK <input type="checkbox"/> CORNER SEALING/ROUNDING <input checked="" type="checkbox"/> PHYSICAL CONDITION	
				VE QC						CLIENT QC / TPIA			
SIGNATURE													
NAME		Yogjalakya Baira											
DATE		30-08-22											
VE/QA FORMAT/28A REV.00													



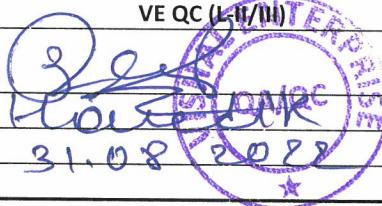
VISHAL ENTERPRISE & VRISHAL ENGINEERING PRIVATE LIMITED GROUP OF COMPANIES

RADIOGRAPHY TEST REPORT

CLIENT: ITT ENGINEERING INDIA PVT LTD.				PO/WO NO.: -			REPORT NO:	VE/ITT/RT/PQR/04		
PROJECT: La Porte HyCO-4"							RT. Date:	31.08.2022		
ITP No: -							Test Date:	30.08.2022		
Source :lr-192		Film : D7				Penetrameter : 1B				
Strength: 8 Ci	Density : 2 to 4	Sensitivity: 2%								
Procedure No : -				Acceptance Standard : AWS D1.1						
Sr. No	PQR TEST COUPON NO.	WELDER NO.	MATERIAL	Size (mm)	Thk. (mm)	Technique	Segment	Film Size	Observation	Result
1	VEPL/PQR/006 - 2G	S-AB13	IS 2062 E350 GR.C (CS)	500 X 300	25	SWSI	AB	15X4	NSD	ACC
							BC	15X4	POR	ACC
2	VEPL/PQR/006 - 3G	S-AB13	IS 2062 E350 GR.C (CS)	500 X 300	25	SWSI	AB	15X4	NSD	ACC
							BC	15X4	NSD	ACC
3	VEPL/PQR/006 - 4G	S-AB13	IS 2062 E350 GR.C (CS)	475 X 300	25	SWSI	AB	15X4	POR	ACC
							BC	15X4	NSD	ACC

LEGENDS:

BT-BURN THROUGH, CK-CRACK, CP-CLUSTER POROSITY, CR-CUT & REWELD, CS-CHECK SURFACE, EP-EXCESS PENETRATION, DP-DEPERESSION, LF-LACK OF FUSION, LM-LOOSE MATERIAL, LP-LACK OF PENETRATION, MM-MISMATCH, PO-POROSITY, SI-SLAG INCLUSION, TI-TUNGSTEN INCLUSION, UC-UNDERCUT, RS-RESHOOT, RT-RETAKE, MRS-MERGE & RESHOOT, SM-SCREEN MARK, PM-PROCESS MARK, NM-NAIL MARK, FM-FIM MARK, WM-WATER MARK, LD-LOW DENSITY, HD-HIGH DENSITY

Sign	VE QC (I-II/III) 	CLIENT-QC / TPI  RAVINDRA PRAJAPATI
Name	REVIEWED / NOTED % WITNESSED	
Date	31.08.2022	
VE/QA/FORMAT/07 REV.2		

TEST CERTIFICATE

Serial No. 3284284

AUTOMIG FC 71T-1 1.20mm (15 Kg Spool)
AWS A/SFA 5.20 E71T-1C

Date: 29 JUN 2022

Consumable	Batch No	Date of Manufacture
Wire	6220651115	JUN-2022

We certify that the supply made against this T.C. conforms to all requirements of ASME Section -II Part C-2021 in all respects.
CHEMICAL ANALYSIS : Tested in accordance with EN 10204, type 3.1

Elements	C%	Mn %	Si%	Cr%	Ni%	Mo%	Nb%	V%	W%	Cu%	Sn%	Fe%	S%	P%	Ti%	Zr%	Al%
Weld Metal	0.085	1.440	0.310	0.023	0.008	0.003	0.012	0.016	--	0.007	--	--	0.006	0.012	--	--	--

PHYSICAL PROPERTIES: All weld as welded condition, Shielding gas: CO2 : 100%

Ultimate Tensile strength MPa (N/mm ²)	Yield Strength at 0.2% Offset MPa (N/mm ²)	Elongation L= 4 x d %	Charpy V-Notch Impact Values at -20 °C Joules	Hardness Test 3 Layers Brinell /Rc/Hv	Ferrite in Weld Deposit %/FN	Radiography
550	487	25.6	54,52,46,50,48	160,160,165 BHIN	--	Satisfactory

Remarks : Fillet weld tested and found satisfactory.

AWL-CONS-IMS-QCF-06/Rev.01

S&Prajapti
Officer (Q.A.)



B
Q.A.
HARDIK
09.08.2022
Dept. Head (Q.A.)

