

QW-484A WELDER PERFORMANCE QUALIFICATIONS (WPQ)
(QW-301, SECTION IX, ASME Boiler and Pressure Code)



Company Name: Varsha Engineering Solution
 WPQ No.: VES/WPQ/01
 Welder's Name: Mushan Kumar Identification No.: W1
 Welding Process: SMAW Type: MANUAL

Test Description

Identification of WPS followed: VES/WPS/01 Test Coupon Production weld
 Specification of base metal(s): IS 1239 to IS 1239 Thickness: 3.91 MM

Testing Conditions and Qualification Limits

Welding Variables (QW-350)	Actual Values		Range Qualified	
	Manual	SMAW	Manual	SMAW
Type (ie; manual, semi-auto) used	Manual	SMAW	Manual	SMAW
Backing (metal, weld metal, double-welded etc.)	No (Without)	No (Without)	(With or Without)	(With or Without)
() Plate (<input checked="" type="checkbox"/>) Pipe (enter diameter if pipe or tube)	Pipe to Pipe	Pipe to Pipe	Plate or Pipe	Plate or Pipe
Welding Process:	60.3 mm (2") OD	60.3 mm (2") OD	1" to Unlimited	1" to Unlimited
Base metal P No. to P No. (QW-403)	IS 1239 to IS 1239	IS 1239 to IS 1239	IS 1239 to IS 1239	IS 1239 to IS 1239
Filler metal , Spec. No. (SFA) (info. only)	5.1	5.1	5.1	5.1
Filler metal , AWS No. (Class) (info. Only)	E6013	E6013	E6013	E6013
Filler metal F-Number(s)	2	2	2	2
Consumable Insert (SMAW or PAW)	NA	NA	NA	NA
Filler type (solid/ metal or flux cored/powder) (QW-404.23)	Flux Cored	Flux Cored	Flux Cored	Flux Cored
Weld deposit thickness for each process	3.91 m Thk.	3.91 m Thk.	1.5 to 7.82 mm	1.5 to 7.82 mm
Welding position (1G, 2G, 6G, 3F, etc.)	6G	6G	6G & all Fillet	6G & all Fillet
Vertical progression (uphill or downhill)	Uphill	Uphill	Uphill or Downhill	Uphill or Downhill
Type of fuel gas (OFW)	NA	NA	NA	NA
Inert gas backing (SMAW, PAW, GMAW)	NA	NA	NA	NA
Transfer mode (spray/ globular or pulse to short circuit-GMAW)	NA	NA	NA	NA
SMAW current type/ polarity (AC, DCEP, DCEN)	DCEN	DCEN	DCEN	DCEN

RESULT

Visual Examination of Completed Weld (QW-302.4) **SATISFACTORY**
 Bend Test; Transverse root and face [QW-462.3(a)]; Longitudinal root and face [QW-462.3(b)]; Side [QW-462.2];
 Pipe bend specimen, corrosion-resistant overlay [QW-462.5(c)]; Plate bend specimen, corrosion-resistant overlay [QW-462.5(d)];
 Macro test for fusion [QW-462.5(b)]; Macro test for fusion [QW-462.5(e)]

Type	Result	Type	Result	Type	Result
RB1	SATISFACTORY	FB1	SATISFACTORY		
RB2	SATISFACTORY	FB2	SATISFACTORY		

Alternative radiographic examination result (QW-191) NDT/RT/2022/VES/150; Dtd.: 07.09.2022
 Fillet weld - fracture test (QW-180) - Length and percent of defects -
 Macro examination (QW-184) - Fillet size (in.) - Concavity/convexity (in.) -
 Other tests -
 Film or specimens evaluated by A. N. Oza - GLIS (I) Pvt. Ltd. Company GLIS (I) Pvt. Ltd - TPI
 Mechanical tests conducted by Industrial Metal Lab Lab Test no. IML/M/VES/2022/104, Dtd.: 12.09.2022
 Welding supervised by A. N. Oza

We certify that the statements in this record are correct and that the test coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Boiler and Pressure Vessel Code.

Manufacturer : Varsha Engineering Solution

Date: 12.09.2022


Prepared By : Girish Nile

Certified by: A. N. OZA (G.L.I.S.(I) Pvt.Ltd)

INDUSTRIAL METAL TEST LAB

Testing & Inspection Co.

Approved by Govt. of India-NABL as per
ISO/IEC 17025 : 2005 in the field of
Chemical & Mechanical Testing of Metals & Welds



A/55, Nand Jyot Industrial Estate, KA Road,
Mumbai-400072, Maharashtra, India.
Email: industriallab113@gmail.com
website : www.industriallab.com



Name of The Customer		M/s. Varsha Engineering Solution			Test Report No.	IML/M/VES/2022/104	
					Date of Receipt	09.09.2022	
					Date of Test	12.09.2022	
Test Performed At		INDUSTRIAL METAL TEST LAB			Page No.	01 of 01	
Material Specification		IS 1239 to 1239					
Material Description		Welded Pipe Size: 2" Dia. (60.3 mm OD) X 3.91 mm Thk. (Sch.40)					
Welder Name		Mushan Kumar					
Welding Process		SMAW					
Electrode Used		E6013					
Sample Identification		WPS No.: VES/WPS/01					
Sample Condition		Test Piece					
Test Method		ASME Sec. IX : 2017					
Sample Drawn By		M/s. Varsha Engineering Solution					
Customer's Reference No.		VES/WPS/PQR/01					
Tensile Test Results							
Sr. No	Sample ID	Width (mm)	Thickness (mm)	Area (mm ²)	Peak Load (kN)	Tensile Strength (MPa)	Fracture Location & Nature
Acceptance Criteria					Minimum	330	
					Maximum	-	
1	T1	19.00	3.91	74.29	35.19	473.62	Parent Metal
2	T2	19.02	3.91	74.37	43.00	470.29	Parent Metal
Bend Test							
Sr. No	Sample ID	Type	Thickness (mm)	Mandril Dia. (mm)	Observation	Remarks	
Acceptance Criteria					Max. Crack Length of 3 mm		
1	RB1	Root	3.91	15.64	No cracks observed	Satisfactory	
2	RB2	Root	3.91	15.64	No cracks observed	Satisfactory	
3	FB1	Face	3.91	15.64	No cracks observed	Satisfactory	
4	FB2	Face	3.91	15.64	No cracks observed	Satisfactory	
Remarks: As per ASME Sec. IX - 2017 the above sample meet the requirements of Procedure Qualification test.							
Tested By		For, Industrial Metal Test Lab			Witnessed By		
		 Authorized Signatory					

Notes: Samples has not been drawn by Industrial Metal Test Lab. Client has provided sample.
Results are depends on given sample based only. The report is not fall under NABL accreditation.
Results valid and applicable for given sample only.
Industrial Metal Test Lab does not accept any liabilities with respect to product and results.

INDUSTRIAL METAL TEST LAB

Testing & Inspection Co.

Approved by Govt. of India-NABL as per

ISO/IEC 17025 : 2005 in the field of

Chemical & Mechanical Testing of Metals & Welds



A/55, Nand Jyot Industrial Estate, KA Road,

Mumbai-400072, Maharashtra, India.

Email: industriallab113@gmail.com

website : www.industriallab.com



Name of The Customer	M/s. Varsha Engineering Solution	Test Report No.	IML/C/VES/2022/105
		Date of Receipt	09.09.2022
		Date of Test	12.09.2022
Test Performed At	Industrial Metal Test Lab	Page No.	01 of 01
Material Specification	IS 1239 to 1239		
Material Description	Welded Pipe Size: 2" Dia. (60.3 mm OD) X 3.91 mm Thk. (Sch.40)		
Welder Name	Mushan Kumar		
Welding Process	SMAW		
Electrode Used	E6013		
Sample Identification	WPS No.: VES/WPS/01		
Sample Condition	Test Piece		
Test Method	ASME Sec. IX : 2017		
Sample Drawn By	M/s. Varsha Engineering Solution		
Customer's Reference No.	VES/WPS/PQR/01		
Chemical Test Results			
	Element Details	Required	Observed
	% Carbon	0.16 max	0.026
	% Manganese	0.41 Max	0.036
	% Silicon	0.008 Max	0.006
	% Phosphorus	0.035 Max	0.004
Result: Above Results are Meeting with Chemical Requirement as per IS 1239 Specification.			
Tested By	For, Industrial Metal Test Lab		Witnessed By
	Authorized Signatory		

Notes: Samples has not been drawn by Industrial Metal Test Lab. Client has provided sample.
Results are depends on given sample based only. The report is not fall under NABL accreditation.
Results valid and applicable for given sample only.
Industrial Metal Test Lab does not accept any liabilities with respect to product and results.



INDOTECH

INSPECTION SERVICE

ISO 9001: 2008





Chamundanagar Society,
Nr. Anand Flat, Bapunagar,
Ahmedabad-380024

Email : indotech@gmail.com

Radiography, UT, MT, PT, Strees Reliving, Thickness Measurement
(A Quality of Non-Destructive Testing Concern)

Works : B/10, Suryam Plaza Estate, B/h. Bhagyoday Hotel, Kathwada-Singarva Road,Ahmedabad.

RADIOGRAPHY INSPECTION REPORT

Report No. NDT/RT/2022/VES/150		Page... 1 of 1		Date : 07.09.2022		
Client	M/s. Leak Proof Engineering (I) Pvt. Ltd.	RT Date	07.09.2022			
		Technique	DWDI			
Source	Ir-192, 20 Ci	Material	IS 1239 to 1239			
Density	2.0 to 4.0	Film	D-7			
Exposure time	13 Min.	PLACEMENT OF IQI	Source Side			
Processing time	5 Min 20 Deg.	IQI	ASTM-1A-5			
SFD	60 mm	JOB	GTAW Welded Pipe			
Source size	2 mm X 3 mm	Test Piece Size	60.3 mm (2") OD X 3.91 mm Thk.			
Sensitivity	2%, ASTM T-276	Procedure Followed :	ASME SEC.V, ARTICLE 2			
Part Identification No:	For WPQ No.: VES/WPQ/01	Acceptance Standard :	ASME Sec. IX, 2015			
Sr. No.	Job Description	Thickness	Film Size	Posit ion	Observation	Remark
Test Piece – VES/WPQ/01						
1	Pipe RT - 01	3.91 mm	3" X 15"	AB	NSD	ACCEPTED
Film Size Summary: 3" X 15" – 01 No.						
Density of each film is measured and confirm between 2.0 to 4.0 (NSD-NO SIGNIFICANT DEFECT, A-GAS POROISITY, B-SAND INCLUSION, CA/CB/CC-SHRINKAGE CATEGORY, SD-SURFACE DEPRESSION)						
FOR, CLIENT / TPI			FOR, INDOTECH INSPECTION SERVICES.			
 			 			
			ASNT Level – II (RT, UT, MPT, LPT)			

QW-482 WELDING PROCEDURE SPECIFICATION (WPS)
 (See QW-200.1, Section IX, ASME Boiler and Pressure Vessel Code)

Company Name : Varsha Engineerig Solution By : Girish Nile

WPS No. : VES/WPS/01 Date: 05.09.2022 Rev No.: 0 Supporting PQR No.(s) : VES/PQR/01

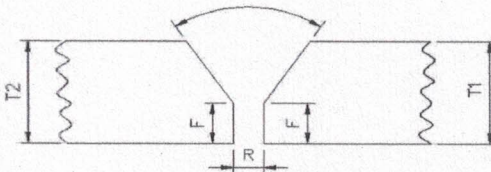
Welding Process(es) : GTAW Type(s) : MANUAL Service : _____
 Types (Manual, Automatic, Semi-Auto)

JOINTS (QW-402) :

Joint Design : Single 'V' Groove weld or as per Drawing
 Backing : (Yes) _____ (No) ✓
 Backing Material (Type) : NA

Typical Setup

R - Root Gap = 1.5 to 3 mm
 F - Root Face = 1.5 to 3 mm
 Retainer = Nil
 T1 & T2 - 2" (60.3 mm OD), 3.91 mm Thk. (Sch.40)
 Included angle 70° to 80°



BASE METALS (QW-403)

P-No. _____ Group No. _____ to P-No. _____ Group No. _____
 OR

Specification type and grade IS 1239
 to Specification type and grade IS 1239

Base metal properties



BM Thickness Range: Groove : 1" to 7.82 mm Fillet : All
 Pipe Dia Range : Groove : _____ Fillet : All
 Other _____

FILLER METALS (QW-404)

	<u>SMAW</u>		
Spec. No. (SFA)	<u>5.1</u>		
AWS No. (Class)	<u>E6013</u>		
Filler Metal F-No.	<u>2</u>		
Weld Metal Analysis A-No.	<u>1</u>		
Size of Filler Metals	<u>2.5 mm, 3.15 mm</u>		
Filler Metal product form	<u>NA</u>		
Deposit of Weld Metal	<u>-</u>		
Thickness Range Groove:	<u>1" to Unlimited Dia & 1.5 to 7.82 mm</u>		
Thickness Range Fillet:	<u>ALL</u>		
Electrode-Flux (Class)			
Flux Trade Name	<u>N/A</u>		
Consumable Insert	<u>N/A</u>		
Other			

Manufacturer : Varsha Engineerig Solution

Prepared By : Girish Nile



 Reviewed By
A. N. Oza (GLIS/PL)

QW-482

WPS NO. VES/WPS/01

Rev. 0

POSITION (QW-405) Position(s) of Groove <u>6G</u> Welding Progression: <u>Any</u> Position(s) of Fillet <u>Any</u>	POSTWELD HEAT TREATMENT (QW-407) None Temperature Range <u>N/A</u> Time Range <u>N/A</u>																
PREHEAT (QW-406) Preheat Temp. Min. <u>Atm (Min 30°C)</u> Interpass Temp. Max. <u>150°C Max.</u> Preheat Maintenance <u>N/A</u> (Continuous or special heating where applicable should recorded)	GAS (QW-408) - for GTAW only Percent Composition <table border="1" style="width:100%; border-collapse: collapse;"> <thead> <tr> <th></th> <th>Gas(es)</th> <th>(Mixture)</th> <th>Flow Rate</th> </tr> </thead> <tbody> <tr> <td>Shielding</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Trailing</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> <tr> <td>Backing</td> <td>N/A</td> <td>N/A</td> <td>N/A</td> </tr> </tbody> </table> * Single Gas 99.99 Purity min.		Gas(es)	(Mixture)	Flow Rate	Shielding	N/A	N/A	N/A	Trailing	N/A	N/A	N/A	Backing	N/A	N/A	N/A
	Gas(es)	(Mixture)	Flow Rate														
Shielding	N/A	N/A	N/A														
Trailing	N/A	N/A	N/A														
Backing	N/A	N/A	N/A														

ELECTRICAL CHARACTERISTICS (QW-409)		
Process(es):	<u>SMAW</u>	
Current AC or DC:	<u>DC</u>	
Polarity:	<u>EN</u>	
Amp Range:	<u>70 - 100</u>	
Volt Range:	<u>20 - 25</u>	
Tungsten Electrode Size & Type :	<u>Dia 3mm, 2T % Thoriated</u>	
Other:	<u>WELD SURFACE SHALL BE FREE FROM SCALE, RUST, OIL & GREASE</u>	


TECHNIQUE (QW-410)		
String or Weave Bead :	<u>String</u>	
Orifice or Gas Cup Size:	<u>N/A</u>	
Initial and Interpass Cleaning (Brushing, Grinding, etc):	<u>Wire Brushing & Grinding</u>	
Method of Back Gouging	<u>N/A</u>	
Oscillation	<u>-</u>	
Contact Tube to Work Distance	<u>DCEN</u>	
Multiple or Single Pass (per side)	<u>Multiple</u>	
Multiple or Single Electrodes	<u>Multiple Electrode</u>	
Travel Speed (Range)	<u>Refer Table</u>	
Peening	<u>N/A</u>	
Other		

Weld Layer(s)	Process	Filler Metal		Current		Voltage Range	Travel Speed Range mm/min	Other (e.g., Remarks, Comments, Hot Wire Addition, Technique, Torch Angle Etc.)
		Class	Dia	Type Polarity	Amp. Range			
Root	SMAW	E6013	2.5	DCEN	80 - 140	20 - 25	70 - 100	
Hot Pass	SMAW	E6013	3.15	DCEN	80 - 140	20 - 25	70 - 100	

Manufacturer : Varsha Engineering Solution

Date : 05.09.2022

Prepared By : Girish Nille

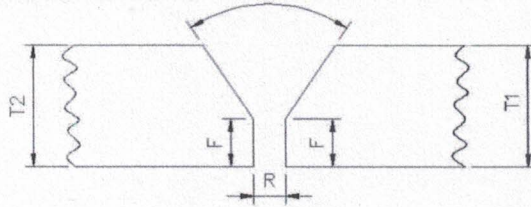

 Reviewed By
A. N. Oza (GLIS IPL)

QW-483 PROCEDURE QUALIFICATION RECORDS (PQR)
(See QW-200.2, Section IX, ASME Boiler and Pressure Vessel Code)

Company Name: Varsha Engineering Solution By: Girish Nile
PQR No. VES/PQR/01 Date: 12.09.2022 WPS No. VES/WPS/01 Rev No.: 0
Welding Process(es) SMAW Type(s) MANUAL Service: _____
Types (Manual, Automatic, Semi-Auto)

JOINTS (QW-402) Single 'V' Groove Pipe to Pipe weld
Backing (Yes) — (No) X
Backing Material (Type) NA

R - Root Gap = 1.5 to 3 mm
F - Root Face = 2 mm
Retainer = Nil
T1 & T2 - 2" (60.3 mm OD), 3.91 mm Thk. (Sch.40)
Included 'V' groove angle 70°



BASE METAL (QW-403)
Material Type: Pipe to Pipe
Material Spec. IS 1239 to IS 1239
Type or Grade - to -
P. No. - to P-No. -
Thickness of Test Coupon 3.91 mm
Diameter of Test Coupon 60.3 mm NB
Other --

POSTWELD HEAT TREATMENT (QW-407)
Temperature N/A
Time N/A
Other _____

FILLER METAL (QW-404)
DFA Specification SMAW
AWS Classification W6013
SFA Specification 5.1
Filler Metal F-No. 2
Weld Metal Analysis A-No. 1
Size of Filler Metal 2.5 mm, 3.15 mm
Weld Metal Thickness 6.91 mm
Others TC No.: - -
BRAND: - -

GAS (QW-408)

	Percent Composite		
	Gas(es)	(Mixture)	Flow Rate
Shielding	N/A	N/A	N/A
Trailing	N/A	N/A	N/A
Backing	N/A	N/A	N/A

Other _____
* Single Gas 99.99 Purity min. for GTAW only

POSITION (QW-405)
Position of Groove 6G
Weld Progression (Uphill, Downhill) Uphill or Downhill
Other _____

ELECTRICAL CHARACTERISTICS (QW-409)

Process (es):	<u>GTAW</u>
Current:	<u>DC</u>
Polarity:	<u>EN</u>
Amps.:	<u>100 - 180</u>
Volts:	<u>18 - 28</u>
Tungsten Electrode Size:	<u>Dia 3mm, 2T % Thoriated</u>
Heat Input (KJ/mm)	<u>-</u>

PREHEAT (QW-406)
Preheat Temp. 16°C min
Interpass Temp. Min. - Max. 175 °C
Other N/A

TECHNIQUE (QW-410) GTAW
Travel Speed(mm/min): 50 - 140
String or Weave Bead: String
Oscillation: 3 times Diameter of Electrode
Multipass or Single Multiple Pass
Pass (per side): Multiple Pass
Single or Multiple Multiple electrode
Electrodes: _____
Other: _____

Manufacturer : Varsha Engineering Solution

Prepared By : Girish Nile

Witness By
A. N. Oza (GLIS/PL)

QW-483

PQR NO. VES/PQR/01

Specimen No.	Width (MM)	Speciman Thk(mm)	Area mm2	Ultimate Total Load KN	Ultimate Unit Stress Mpa (N/MM ²)	Location of Fracture
T1	19.00	3.91	74.29	35.19	473.62	Parent Metal
T2	19.02	3.91	74.37	43.00	470.29	Parent Metal

TC NO.: Industrial Metal Lab Certificate No.: IML/M/VES/2022/104, Dtd.: 12.09.2022

Guided-Bend Tests (QW-160)

QW-462.3 (a)

Type and Figure No.	Result
Face Bend -1	Satisfactory
Face Bend -2	Satisfactory
Root Bend -1	Satisfactory
Root Bend -2	Satisfactory

TC NO.: Industrial Metal Lab Certificate No.: IML/M/VES/2022/104, Dtd.: 12.09.2022

Other Tests - NA

Welder's Name Mushan Kumar

Clock No. -

Welder ID WD-01

Test conducted by : Industrial Metal Lab

MTC NO.: Industrial Metal Lab Certificate No.: IML/M/VES/2022/104, Dtd.: 12.09.2022

Chemical TC NO.: Industrial Metal Lab Certificate No.: IML/C/VES/2022/105, Dtd.: 12.09.2022

Other Test :


RADIOGRAPHIC TEST : Found Satisfactory; Report No.: NDT/RT/2022/VES/150; Dtd.: 07.09.2022

We certify that the statements in this record are correct and that the test welds were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code.

Manufacturer : Varsha Engineering Solution

Date : 12.09.2022

Prepared By : Girish Nile


A. N. Oza (GLISIP/L)
Certified by.: GLIS(I)PVT.LTD

