

	Welding	SARA SAE
	Validation Record	Date : 20/06/2020

DOC NO. SARA/QA/DOC/0611-1

Equipment:

SMAW Technique – Arc Welding Machines & Instruments

- A. Power Source
- B. Baking System
- C. Protective Equipment
- D. Material based consumables etc.

Qualification of Personnel: As per ASME Sec. IX attached

Method: SMAW

Material: AISI 4130 inlay to SS 316 Overlay

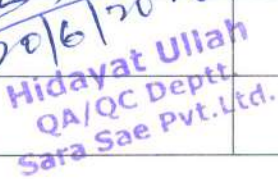
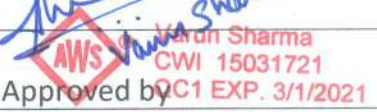
Qualified Parameter: As per Procedure Qualification Record – SARA/PQR/25-012 Dated-24.04.2018

Operating Parameter: AS per Approved Welding Procedure Specification WPS/25-012 Rev 05 Dated-24.04.2018

Process Acceptance Criteria: Mechanical Testing attached

Record: for Validation

- A. Welding procedure specification (as per ASME IX)- WPS/25-012 Rev 05 Dtd.-24.04.2018
- B. Procedure Qualification Record (as per ASME IX) – SARA/PQR/25-012 Dated-24.04.2018
- C. Welder Performance Qualification (as per ASME IX) – Attached
- D. Welder Continuity Record – Register available
- E. Calibration of Welding equipment – Record available

	
Reviewed by 	 

WELDING PROCEDURE SPECIFICATION (WPS) (Section IX, ASME Boiler and Pressure Vessel Code)

Company Name: M/S SARA SAE PVT. LTD.

Welding Procedure Specification No WPS/25-012 Rev.05

Supporting PQR No. SARA/PQR/25-012

Dated: 24.04.2018

Rev. 05

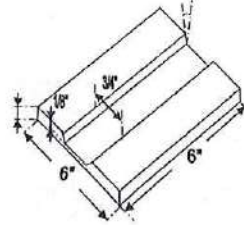
Welding Process (es), SMAW

Type(s) MANUAL.

JOINTS (QW -402)

Joint Design: Overlay
Backing : With
Backing Material: AISI 4130
Retainer: N.A

Details:



BASE METALS (QW -403)

P. No. -

Group No-

To P. NO. -

Group No. -

OR

Specification type and grade; AISI 4130 PLATE

To Specification type and grade SS316 overlay

Chem. Analysis and Mech. Prop. AISI 4130 - C-0.28-0.33, MN-0.4-0.6, P-0.025MAX, S-0.025MAX, Si-0.15-0.30, Cr. 0.8-1.10, Mo-0.15-0.25, Y.S.-75Ksi, T.S.-95Ksi, Elongation-17% min., Reduction of area-35%.

Chem. Analysis and Mech. Prop. SS 316 - C - 0.08 Max, Mn. 2 Max, Si 0.75 max, Cr 16-18 max, Ni 10-14 max, Mo 2 - 3, P 0.045 max, S 0.030.

Thickness Range: 13mm to unlimited

Base Metal:

Flat Surface

Unlimited

Fillet

N/A

FILLER METALS (QW-404):SMAW

Barrier Layer

Clad Layer

Spec. No. (SFA)

5.4

5.4

AWS No. (Class)

SS309 - MO 16

E - 316 - 16

F. No

5

5

A. No.

8

8

Size of Filler Metals

3.15, 4.00 mm

3.15, 4.00 mm

Shield Metal

Thickness Range:

Groove (Max.)

N/A

Fillet

N/A

Electrode - Flux (Class)

N/A

Flux Trade Name

N/A

Consumable insert

N/A

Other

POSITION (QW - 405)				POST WELD HEAT TREATMENT (QW-407)				
Position(s) of Groove : 1G				Temperature Range : N/A				
Welding Progression : N/A				Time Range : N/A				
Position(s) of Fillet : N/A				GAS (QW-408)				
				Percent Composition				
PREHEAT (QW- 406)				Gas (es)		(Mixture)		Flow Rate
Preheat Type: Heating Torch/Heating Elements								
Preheat Temp. Min. 100° C				Shielding		N. A.		
Interpass Temp. Max 250° C				GTAW		N. A.		
Preheat Maintenance 100 deg. C on both of weld edge.								
ELECTRICAL CHARACTERISTICS (QW-409)s								
Current AC or DC		DC	Polarity		DCEP			
Amps (Range)		100-160	Volts (Range)		20-34 Volt			
Tungsten Electrode Size and Type		N/A						
Mode of Metal Transfer for GMAW		N/A						
Electrode Wire feed speed range		N/A						
TECHNIQUE (QW-410)								
String or Weave Bead		STRING AND WEAVE BEAD						
Orifice or Gas Cup Size		N/A						
Initial and underpass cleaning		Wire Brushing & Grinding if required.						
Method of Back Gouging		N/A						
Oscillation		None						
Contact Tube to Work Distance		N/A						
Multiple or single Pass (perside)		Multiple						
Multiple Or Single electrodes		Single						
Travel speed (Range)		30mm to 60 mm per minute						
Peening		Not allowed						
Other		N/A						
Weld Layer(s)	Process	Filler metal		Current		Volts Range	Travel Speed Range (mm/min.)	Maximum Heat Input Joules/mm
		Class	Dia. (mm)	Type Polarity	Amp Range			
I st/ Balance	SMAW	SS309-MO 16	3.15 mm	DCEP	110-140	20-22	30-60mm/ minute	
Balance	SMAW	E-316-16	4.0 mm	DCEP	110-160	22-24	30-60mm/ minute	

Note: Electrodes shall be baked as per SES-26-606.

Reviewed By

M/s : 
 Vajun Sharma
 CWI 10031721
 QC1 EXP. 3/1/2021

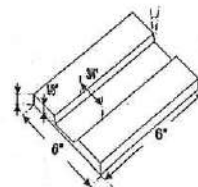
PROCEDURE QUALIFICATION RECORD (PQR)
(SECTION IX, ASME BOILER AND PRESSURE VESSEL CODE)

COMPANY NAME	: M/S SARA SAE PVT.LTD. Dehra Dun.
PROCEDURE QUALIFICATION RECORD (PQR) NO.	: SARA/PQR/25/012 Rev 05 Date. 24.04.2018
WELDING PROCEDURE SPECIFICATION (WPS) NO	: WPS/25/012 Rev. 5
WELDING PROCESS (ES)	: SMAW
TYPE	: MANUAL

JOINTS (QW -402)

Details:

Joint Design: Overlay
Backing : With
Backing Material (Type): AISI 4130 (Base Material)

**BASE METALS (QW 403)**

MATERIAL SPEC.:

AISI 4130

P. NO. : GROUP NO. --
TO P. NO. : GROUP NO. --
THICKNESS OF TEST COUPON: 12.5 mm
DIAMETER OF TEST COUPON: Plate
OTHER : -
THICKNESS PASS GREATER THAN 13MM: NO

POST WELD HEAT TREATMENT (QW -407)

TEMPERATURE : NIL
OTHER : NIL

GAS (QW - 408)

TYPE OF GAS OR GASES : N.A.
COMPOSITIONS OF GAS MIX. : N.A.
FLOW RATE : N.A.
BACKING : Nil

FILLER METALS (QW- 404)

SFA SPECIFICATION. : 5.4
AWS CLASSIFICATION: SS309MO-16 Barrier Layer & E 316 - 16 Clad Layer
FILLER METAL F- NO. : 5
A. NO. : 8
SIZE OF FILLER METAL: 3.15mm, 4.0mm
OTHER: :
Overlay Thickness. : 6 mm

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT: DC
POLARITY: DCEP
AMPS: 90 - 100A - Barrier Layer & 120-140A - Clad Layer
TUNGSTON ELECTRODE SIZE: N/A
VOLTS: 19-22V - Barrier Layer & 19-24V - Clad Layer
OTHER: -

POSITION (QW- 405)

POSITION OF GROOVE : 1G
WELD PROGRESSION : --
OTHER : --

TECHNIQUE (QW - 410)

TRAVEL SPEED : 30mm to 60 mm per minute.
STRING OR WEAVE BEAD : String & Weave
OSCILLATION : NIL
MULTIPASS OR SINGLE PASS (PER SIDE) : Multi-pass
SINGLE OF MULTIPLE ELECTRODES : Single
BACK CHIPPING METHOD : N/A
OTHER

PREHEAT (QW - 406)

PREHEAT TEMP : 110°C
INTERPASS TEMP: 235°C
Preheat Type: Heating Torch

Weld Layer(s)	Process	Filler metal		Current		Volts Range	Travel Speed Range (mm/min.)	Heat Input (J/mm)
		Class	Dia(mm)	Type Polarity	Amp Range			
Ist	SMAW	SS309 – MO 16	3.15	DCEP	110-140	20-22	30-60mm/minute	3818
Balance	SMAW	E – 316 - 16	4.00	DCEP	110--160	22-24	30-60mm/minute	3313

HEAT NO. A27

TENSILE TEST (QW – 150) AS PER QW 462.1 (a)

SAMPLE NO.	SPECIMAN SIZE WxT (mm)	AREA (mm ²)	ULTIMATE LOAD (KN)	UTS N/MM ²	REMARK
1	19 X 13 X 160	247	150.73	610.28	Broken outside weld/ductile
2	19 X 13 X 160	247	154.46	625.36	Broken outside weld/ductile

HARDNESS SURVEY SCALE: HRA,

TEST METHOD: ASTM E-18

OBSERVATION: AT WELD CROSS SECTION

AT WELD ZONE

Layer 1 : 59, 60, 61 (3 values) Layer – 2: 60, 60, 62

AT HEAT AFFECTED ZONE : 64, 66, 67

AT PARENT METAL : 62, 63, 62

CHARPY V NOTCH IMPACT TEST: - SIZE : 10 X 10 X 55MM CVN 2MM DEEP AT TEMP. (-) 60 DEG.
TEST STD: ASTM-A370, Transverse.

		(I)	(II)	(III)	AVG.	
A27	AT WELD METAL	46	40	76	54	
		35	32	30	32	
	AT HEAT AFFECTED ZONE	36	36	40	37	
		35	32	36	37	

GUIDED BEND TESTS (COLD) OVER MANDREL $\phi = 4t \times 180^\circ$ (FIGURE QW 462.2/466.2) OF ASME SEC IX

SB-1 SIDE BEND	SATISFACTORY
SB-2 SIDE BEND	SATISFACTORY
SB-3 SIDE BEND	SATISFACTORY
SB-4 SIDE BEND	SATISFACTORY

CHEMICAL COMPOSITION

C%	Si%	Mn%	P%	S%	Ni%	Cr%	Mo%
0.0466	0.647	1.30	0.0261	0.0122	11.21	18.23	2.155

RT Examination: Report Number – DNS/SSPL/PQR-2/18

Result - Satisfactory

Visual Inspection: Satisfactory.

WELDER NAME & IDENTIFICATION NO: SHIV PRASAD W-23

Welding Supervised by; Mr.- RAVI RAJ THAPA

MECHANICAL TEST BY:

Indiana Test Calibration & Certification Services

Report No. WT/2018/96860

WE CERTIFY THAT THE STATEMENT IN THIS RECORD ARE CORRECT AND THE TEST WELD WERE PREPARED, WELDED AND TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION IX OF THE ASME CODE.

DATE :24.04.2018

FOR: SARA SAE PVT LTD.
DEHRADUN



TEST WITNESSED BY

Varun Sharma
CWI 15031721
QC1 EXP. 3/1/2021

JIECO Quality Testing Services (P) Ltd.



INDIANA

TEST, CALIBRATION & CERTIFICATION SERVICES

5.10 QF-02



TEST REPORT

CUSTOMER: Sara Sae Pvt. Ltd. (Unit-II)
A/2, Sara Industrial Estate Ltd
Chakrate Road, Rampur, Selequi, Dehradun
(U.K)
CUST.REF. NO: Gate Pass No-238/Dated: 04.04.2018
WELDER CODE: W-23, Shiv Prasad, CMAW/G
SAMPLE DESC: S.No-2, Plate Size-180 x 180 x 13mm Heat No-A27, 4130-SS316

REPORT NO: WT/2018/96860
LSRF NO: 35518
SAMPLE NO(S): ONE

ISSUE DATE: 24.04.2018
RECPT DATE: 06.04.2018
PROTOCOL: ASME Sec. IX: 15/API6A
TEST DATE (S): 20.04.2018
PAGE NO(S): 01 OF 02

1. Material Specification (Plate)

Base Material -1	SS316	Base Material -2	SS316
Material Thickness	13 mm	Material Thickness	13 mm

a) Chemical Composition of Weld *ASTM E1086:2014 (Sample ID: WT-98763_1)

C (%)	Si (%)	Mn (%)	P (%)	S (%)	Ni (%)	Cr (%)	Mo (%)
0.0466	0.647	1.30	0.0261	0.0122	11.21	18.23	2.155

b) Tensile Test *ASME Sec. IX: 15

S.No	Sample ID	Dimension(mm) (w x t x l)	Observation	Specified Tensile Value MPa (min)	Observed Tensile Value MPa	Conformity to Standard
1	WT_98763_2	19 X 13 X 160	Specimen Broken outside from the Weld.	-----	610.281	-----
2	WT_98763_3	19 X 13 X 160	Specimen Broken outside from the Weld.	-----	625.365	-----

c) Bend Test * ASME Sec. IX: 15

Specified Degree of Bend 180° Over Mandrel Dia 4T 220 mm distance between Rollers

S.No	Type of Bend	Sample ID	Dimension(mm) (w x t x l)	Observation/Appearance of Convex Surface	Conformity to Standard*
1	Side	WT_98763_4	12.5 x 13 x 160	No Cracks seen in the weld during bending.	Yes
2	Side	WT_98763_4	12.5 x 13 x 200	No Cracks seen in the weld during bending.	Yes
3	Side	WT_98763_5	12.5 x 13 x 200	No Cracks seen in the weld during bending.	Yes
4	Side	WT_98763_5	12.5 x 13 x 200	No Cracks seen in the weld during bending.	Yes

Tested By
Pankaj Thakur
Analyst

Checked By
Pankaj Abrol
Sr. Analyst

Approved By
A.P. Singh
C.E.O



Note: 1. This report refers only to the tested sample and applicable parameters and results reported are valid at the time of test under the stated conditions of measurement. 2. Any complaint about the report should be communicated in writing within 10 days of issue of this report. 3. The sample will be destroyed after one month unless instructed otherwise. 4. Laboratory records are available to customers for verification of results. 5. This report is not to be reproduced wholly or in part and cannot be used as evidence in a court of law and shall not be used in advertising media without the written permission of Q.S. 6. The liability of our laboratory is limited to the reported amount. No liability will be accepted when the sample is taken back. 7. The sample description is not verified in all cases and is given "as described" by the customer the sample not drawn by us and analysis conducted on "as received basis" unless specified otherwise. 8. Endorsement of any product's quality is not implied in the testing performed only on the sample tested. 9. While "INDIANA" has made every best endeavor to provide accurate and reliable information, "INDIANA" is not responsible for any financial liability due to any act of omission or commission.

Address : D-151, Phase VII, Industrial Area, Mohali (Near Chandigarh) - 160 055 Punjab (India)
Tel.: +91-172-4668151, 5097151 Fax : +91-172-2236518 Email : indianaindia@gmail.com

website : www.indianaindia.com



INDIANA

TEST, CALIBRATION & CERTIFICATION SERVICES



TEST REPORT

CUSTOMER: Sara Sae Pvt. Ltd. (Unit-II)
A/2, Sara Industrial Estate Ltd
Chakrate Road, Rampur, Selequi, Dehradun
(U.K)
CUST.REF. NO: Gate Pass No-238/Dated: 04.04.2018
WELDER CODE: W-23, Shiv Prasad, CMAW/G
SAMPLE DESC: S.No-2, M.S. Plate Size-180 x 180 x 13mm Heat No-A27, 4130-SS316

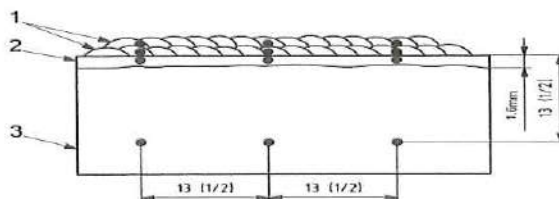
REPORT NO: WT/2018/96860
LSRF NO: 35518
SAMPLE NO(S): ONE
Heat No-A27, 4130-SS316

ISSUE DATE: 24.04.2018
RECPT DATE: 06.04.2018
PROTOCOL: ASME Sec. IX: 15/API6A
TEST DATE (S): 20.04.2018
PAGE NO(S): 02 OF 02

d) Hardness Test *ASTM E18

S.No	Sample ID	Rockwell Hardness (HRA)			Conformity to Standard*
		Parent Metal	HAZ	Weld Metal	
1	WT_98763_6	Layer-1	62.0,63.0,62.0	64.0,66.0,67.0	-----
		Layer-2	-----	59.0,60.0,61.0	
				60.0,60.0,62.0	

Hardness Diagram for 13mm Plate:



e) Charpy Impact Test at Temp. (-60 C°) (ASTM A370-2017)

S.No	Sample ID	Dimension(mm)/ CVN(mm)	Zone	Specified Value	Observation value (Joule)		Conformity to Standard*
					Set-1	Set-2	
1	WT_98763_7	10X10X55/2.0	Weld	27 Avg.(Min)	46, 40, 76 Avg-54	35,32,30 Avg-32	-----
1	WT_98763_8	10X10X55/2.0	HAZ	30 Avg.(Min)	36,36,40 Avg-37	35,32,36 Avg-37	-----

*See relevant standard for detailed reference and correlate the results before any conclusion.

Tested By
Pankaj Thakur
Analyst

Checked By
Pankaj Abrol
Sr. Analyst

Approved By
A.P. Singh
C.E.O



Note: 1. This report refers only to the tested sample and applicable parameter and result reported is valid at the time of and under the stated condition of measurement. 2. Any complaint about the report should be communicated in writing within 7 days of issue of this report. 3. The sample will be destroyed after one month unless instructed otherwise. 4. Laboratory standards are traceable to national/international standards. 5. This report is not to be reproduced wholly or in part and cannot be used as evidence in a court of law and shall not be used in advertising media without the written permission of CEO. 6. The liability of our laboratory is limited to the invoiced amount. No liability will be accepted after the sample is taken back. 7. The sample description is not verified in all cases and is given "as described" by the customer the sample not draw by us and analysis conducted on "As received basis" unless specified otherwise. 8. Endorsement of any product is neither intended nor implied as the testing pertains only to the sample tested. 9. While "INDIANA" has made their best endeavors to provide accurate and reliable information, "INDIANA" is not responsible for any financial liability due to any act of omission or error made.

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Tel.: +91-172-4668151, 5097151 Fax : +91-172-2236518 Email : indianaindia@gmail.com

website : www.indianaindia.com

SUPERON**Superon Schweisstechnik (I) Ltd**191-D, Sector- IV, Phase- II, IMT Manesar Gurgaon,
Haryana- 122050**OERLIKON****TEST CERTIFICATE**
AS PER EN 10204 TYPE:3.1

Brand Name: SUPRANOX RS 316L

Size (mm): 4.00X350

Standard-No./
Classifications: AWS A5.4 : E 316L-16

IS 814 : --

Batch No: M 39781

Date of Mfg: 24-01-18

Report No: SUP 2018/443

Date of Issue: 06-02-18

All Weld Metal Chemical Analysis (%)

Element	C	Si	Mn	S	P	Cr	Ni	Mo	Cu	Bi	V	N
Spec.	0.04 Max.	1.00 Max.	0.60- 2.5	0.03 Max.	0.04 Max.	17.0- 20.0	11.0- 14.0	2.0- 3.0	0.75 Max.	-	-	-
Result	0.023	0.51	1.21	0.015	0.024	18.53	12.08	2.60	0.11	-	-	0.068

Mechanical Properties of All Weld Metal

	Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation (%)	Charpy Impact Avg. value(Joules) Temp. At ---- (°C)	Hardness (As welded)	Ferrite(FN) as per WRC- 1992
Spec:	-	490 Min.	30 Min.	-	-	-
Result	-	593	39.72	-	-	6-7

Diffusible Hydrogen:- (ml/100gm of weld metal)	-	Coating Moisture(%):-	-
Radiography:-	Satisfactory	Fillet weld Test:- (H,V&OH)	Satisfactory
Bend Test:-	-	PWHT:-	-

Intergranular Corrosion Test as per ASTM A 262:2008 Practice E :Acceptable

TEST CONDUCTED AS PER : AWS-SFA: A5.4:E 316L-16

We certify that the statement in this test report are correct and that the test welds were prepared welded and tested
in accordance with the requirement conforming to ASME BPVC.II.C Latest Edition 2015, in all respects.

Manager Quality Assurance

Admn. Office : 15-16, Old Sewa Nagar Market, P.O. Lodhi Road, New Delhi-110003, India.
Tel. : +91-11-24647199 / 24647252. Fax : +91-11-24633847 / 24623826. E-mail : sales@superonindia.comverified as
per ASME II.C
(Signature)



Superon Schweisstechnik (I) Ltd
A-125, Okhla Industrial Area Phase-II, New Delhi-110020



2745-TC



TEST CERTIFICATE
AS PER EN 10204 TYPE : 3.1

Brand Name: SUPER OPTIMAL 309MoL

Report No: SUP/920
Date of issue: 31.10.17

Size (mm): 3.15 X 350

Standard-No./
Classifications: AWS A 5.4
E 309LMo-16

Batch No: DL-24597

Date of Mfg: - 30.10.17

All Weld Metal Chemical Analysis (%)

Element	C	Si	Mn	S	P	Cr	Ni	Mo	Cu	Nb	N
Spec.	0.04 Max	1.00 Max	0.50- 2.50	0.03 max	0.04 max	22.0- 25.0	12.0- 14.0	2.0- 3.0	0.75 max	---	---
Result	0.024 ✓	0.92 ✓	0.90 ✓	0.008 ✓	0.026 ✓	22.50 ✓	12.73 ✓	2.32 ✓	0.035 ✓	0.026 ✓	0.077 ✓

Mechanical Properties of All Weld Metal

	Yield Strength (N/mm ²)	Tensile Strength (N/mm ²)	Elongation (%)	Charpy Impact value(Joules) Temp. At RT	Hardness (HB) (HRC)	Ferrite (FN)
Spec:	---	520 min	30 min	not specified	---	---
Result	---	598.00 ✓	37.00 ✓	60,64,66	---	18-20

Diffusible Hydrogen:- (ml/100gm of weld metal)	---	Coating Moisture(%):-	---
Radiography:-	Satisfactory	Fillet weld Test:-	Satisfactory
IGC Test as per ASTM A 262 Practice "E"	---Acceptable	PWHT:-	---

TEST CONDUCTED AS PER : AWS/SFA : A 5.4 : E 309LMo-16

We certify that the statement in this test report are correct and that the test welds were prepared welded and tested in Accordance with the requirement conforming to ASME Sec. II Part C Edition 2015, in all respects.

OK As per
AWS/SFA: A-5.4
10 Nov 2017

Manager Quality Assurance

Admn. Office : 15-16, Old Sewa Nagar Market, P.O. Lodhi Road, New Delhi-110003, India.
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Mega Steels Pvt. Ltd.

Plot No. : BN-10 to BN-34, CN-104 to CN-111, Massuri Gulawati Rd., UPSIDC Industrial Area,
Haridwar, UP (India) Ph: +91-9560898820 to 22 Fax: +91-9560898823 E-mail: info@megasteels.in

www.megasteels.in

ISO CERTIFIED CO. 9001-2008

INSPECTION CERTIFICATE 3.1

Customer :- SARA SAE PVT LTD.

DIVN III A-1 SARA INDUSTRIAL ESTATE LTD,
CHAKRATA ROAD RAMPUR SELAQUI,
DEHRADUN (UTTARAKHAND)

Test Certificate No.

5194

Date of Issue :

05.07.2017

P.O. No. & Date :

738-30.04.2017

Invoice no.

MSPL-05

Material Details AS CAST INGOT Net Weight 7965-KG Melting Process Electric Induction Furnace

Shape

CHEMICAL ANALYSIS IN %

Standard Specification	Grade	C	Si	Mn	P	S	Cr	Mo	Ni	Al	Size	Pcs	Wt.	Colour Code
SAE-4130		0.28-0.33	0.15-0.30	0.40-0.60	0.025MAX	0.025MAX	0.80-1.10	0.15-0.25						
ELEMENTS	Grade	C	Si	Mn	P	S	Cr	Mo	Ni	Al	Size	Pcs	Wt.	Colour Code
A-27	SAE-4130	0.310	0.24	0.50	0.021	0.018	0.93	0.18	0.12	0.027	11X13	6	7965	WHITE/YELLOW

MECHANICAL PROPERTIES

Test Method: EN 10002-1

Test Method: BS EN 10045-1

Specified Values	Proof Strength N/mm ² /Mpa 0.2%(Rp0.2)	Tensile Strength N/mm ² /Mpa (Rm) 1%(Rp1.0)	Elongation after Fracture A %	Reduction of Area %	Hardness (BHN)	Charpy (V) Impact Test (2mm) at 20 °C (Joules)
Results					200-220	I II III Avg.

INCLUSION RATING ASTM E 45

Grain Size
E 112

JOMINY HARDENABILITY: IS-3848

A	B	C	D	DIST (mm/Inch)	J	J	J	J	J
Thin									
Thick									

Remarks :

- PMI test 100% satisfactory.
- Material is free from radio-active contamination.
- Metal is fully killed with si & al.

For MEGA STEELS PVT. LTD.

For MEGA STEELS PVT. LTD.

We hereby certify that above material described herein has been manufactured and tested with satisfactory results in accordance with the Specification requirement / Customer requirements

QC Lab Incharge

Q.C.HEAD

* Qualify in 4130 as per
pes 26-8004

Rev-5
Deepak 24/7/17

#14034
Sample Results

Sample Result Name	Type	Measure Date Time	Recalculation Date Time	Origin	Method Name	Method Version	Operator Name	Check Type
14034 (HNO-A-27)	Unknown	Tuesday, August 22, 2017	3:09:29 PM	Measured	Fe-10-MO		sara sae	None
DIA-180MM								
Check Status	Grade Verification Name	Grade Verification Similarity	Correction Type	Type Corr Sample Name	Grade Search Name	Grade Search Similarity	Type	Status
Not Used		0	None			0	None	Not Used
Outlier Removal								

Sample Name
14034 (HNO-A-27)
DIA-180MM

Grade

	C Conc %	Si Conc %	Mn Conc %	P Conc %	S Conc %	Cr Conc %	Mo Conc %	Ni Conc %
2	0.31	0.22	0.52	0.013	0.022	1.00	0.19	0.10
3	0.31	0.22	0.51	0.013	0.023	0.99	0.18	0.097
4	0.32	0.25	0.52	0.013	0.024	1.00	0.19	0.11
Rep	0.31	0.23	0.52	0.013	0.023	1.00	0.19	0.10
Mean	0.31	0.23	0.52	0.013	0.023	1.00	0.19	0.10
	Al Conc %	Co Conc %	Cu Conc %	Nb Conc %	Ti Conc %	V Conc %	W Conc %	Pb Conc %
2	0.023	0.004	0.041	0.013	0.001	0.030	0.11	<0.010
3	0.023	0.002	0.036	0.013	0.001	0.032	0.086	<0.010
4	0.022	0.003	0.042	0.017	<0.0010	0.035	0.099	<0.010
Rep	0.023	0.003	0.040	0.014	0.001	0.032	0.098	<0.008
Mean	0.023	0.003	0.040	0.014	<0.0010	0.032	0.098	<0.008
	Sn Conc %	As Conc %	Zr Conc %	Ca Conc %	Ce Conc %	B Conc %	Zn Conc %	La Conc %
2	0.003	<0.005	0.004	<0.0005	0.037	0.002	0.018	0.006
3	0.004	<0.005	0.004	0.0006	0.036	0.003	0.015	0.006
4	0.003	<0.005	0.004	0.0007	0.039	0.003	0.018	0.006
Rep	0.003	<0.005	0.004	0.0006	0.037	0.003	0.017	0.006
Mean	0.003	<-0.002	0.004	0.0006	0.037	0.003	0.017	0.006
	Fe Type Conc %							

2
3
4OK As per SES 26-604 Rev 5
M/audini
23/8/1A

Sample Results

8/22/2017



WELDER / WELDING OPERATOR

Cert. No : 19-J-123

QUALIFICATION TEST RECORD

Date : 05-08-2019

Company Name: SARA SAE Pvt. Ltd.

Name : Shiv Prasad Identification No : W-23
Date of Birth : N.A Joint Type : Single 'V'
Identification of WPS Followed.: WPS/25-012 Rev. 5 Weld Type: BUTT
Identification of PQR Followed.: SARA/PQR/25-012
Specification of Base Metal(s): AISI 4130 Thickness: 13 mm



Testing Variables and Qualification Limits

Welding Variables	Actual Values	Range Qualified
Welding Process(es) (QW-401)	SMAW	SMAW
Type (ie: manual, semi-auto, auto) used (QW-410.25)	Manual	Manual
Backing (with/without) (QW-402)	With	With
Test Specimen (Plate or Pipe)	Plate	Plate
Base metal P-number to P-number (QW-403)	N.A	N.A
Filler metal or electrode classification (info only) (QW-404)	SS309-MO 16 & SS316 - 16	Similar F No. & SFA
Filler metal or electrode specification(s) (SFA) (info only) (QW-404)	5.4	5.4
Filler metal F-Number(s) (QW-404.15)	5	5
Consumable Inert (GTAW or PAW) (QW-404.22)	Nil	Nil
Filler Type (Solid, Flux cored etc.) (GTAW or PAW) (QW-404.23)	Solid	Solid
Deposit thickness for SMAW Process	13 MM	Maximum to be welded
Position Qualified (QW-405)	1 G	
Groove : Plate & Pipe > 24 in. (610mm) Dia.		1G, 1G
Pipe ≤ 24 in. (610mm) Dia.		1G
Fillet : Plate & Pipe		1F
Vertical Progression (Uphill or Downhill)	Flat	Flat
Inert Gas Backing (GTAW, PAW, GMAW) (QW-408)	NA	NA
Mode of metal transfer (spray/globular or pulse or short) (GMAW) (QW-409.2)	NA	NA
Current / Polarity (AC, DCEP, DCEN) (QW-409.4)	DCEP	DCEP
Others		

RESULTS

Test Conducted	Test Detail (Type, Report No, etc.)	Results
Visual Inspection (QW-302.4)	[X]	Accepted
Radiography (QW-191)	[X] DNS/SSPL/WQT-3/19	Accepted
Bend	[]	
Fillet Fracture (QW-180)	[]	
Macro examination (QW-462.5(b))	[]	
Macro examination (QW-462.5(b))	[]	

Test witnessed by: VARUN SHARMA

We certify that the statements in this record are correct and that the coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code 2017 Edition.
For . Co.

JIECO Quality Testing Services (P) Ltd.

Contractor: SARA SAE Pvt. Ltd.

Name: Varun Sharma

Name:

Signature: 

Signature:

Date: 06.08.2019

Date:

Varun Sharma
CWI 15031721
QC1 EXP. 3/1/20



[illegible]



WELDER / WELDING OPERATOR

Cert. No : 18-J-25

QUALIFICATION TEST RECORD

Date : 24-04-2018

Company Name: SARA SAE Pvt. Ltd.

Name : Shiv Prasad Identification No : W-23
Date of Birth : N.A Joint Type : Single 'V'
Identification of WPS Followed.: WPS/25-012 Rev. 5 Weld Type: BUTT
Identification of PQR Followed.: SARA/PQR/25-012
Specification of Base Metal(s): AISI 4130 Thickness: 13 mm



Testing Variables and Qualification Limits

Welding Variables	Actual Values	Range Qualified
Welding Process(es) (QW-401)	SMAW	SMAW
Type (ie: manual, semi-auto, auto) used (QW-410.25)	Manual	Manual
Backing(with/without) (QW-402)	With	With
Test Specimen (Plate or Pipe)	Plate	Plate
Base metal P-number to P-number (QW-403)	N.A	N.A
Filler metal or electrode classification (info only) (QW-404)	SS309-MO 16 & SS316 - 16	Similar F No. & SFA
Filler metal or electrode specification(s) (SFA) (info only) (QW-404)	5.4	5.4
Filler metal F-Number(s) (QW-404.15)	5	5
Consumable Inert(GTAW or PAW) (QW-404.22)	Nil	Nil
Filler Type (Solid, Flux cored etc.)(GTAW or PAW) (QW-404.23)	Solid	Solid
Deposit thickness for SMAW Process	13 MM	Maximum to be welded
Position Qualified (QW-405)	1 G	
Groove : Plate & Pipe > 24 in.(610mm) Dia.		1G, 1G
Pipe ≤ 24 in.(610mm) Dia.		1G
Fillet : Plate & Pipe		1F
Vertical Progression (Uphill or Downhill)	Flat	Flat
Inert Gas Backing(GTAW, PAW, GMAW) (QW-408)	NA	NA
Mode of metal transfer (spray/globular or pulse or short) (GMAW) (QW-409.2)	NA	NA
Current / Polarity (AC, DCEP, DCEN) (QW-409.4)	DCEP	DCEP
Others		

RESULTS

Test Conducted	Test Detail (Type, Report No. etc.)	Results
Visual Inspection (QW-302.4)	[X]	Accepted
Radiography (QW-191)	[X] DNS/SSPL/PQR-2/18	Accepted
Bend	[]	
Fillet Fracture (QW-180)	[]	
Macro examination (QW-462.5(b))	[]	
Macro examination (QW-462.5(b))	[]	

Test witnessed by: VARUN SHARMA

We certify that the statements in this record are correct and that the coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code 2017 Edition.
For . Co.

JIECO Quality Testing Services (P) Ltd.

Contractor: SARA SAE Pvt. Ltd.

Name: Varun Sharma

Name:

Signature:

Signature:

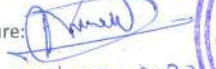
Date: 25.04.2018

Date:

Varun Sharma
CWI 15031721
QC1 EXP. 3/1/2021



[illegible]

	WELDER / WELDING OPERATOR QUALIFICATION TEST RECORD	Cert. No : 20-J-27 Date : 22-07-2020
Company Name: SARA SAE Pvt. Ltd.		
Name : Dheeraj Pal Identification No : W-04 Date of Birth : N.A Joint Type : Single 'V' Identification of WPS Followed.: WPS/25-012 Rev. 5 Weld Type: BUTT Identification of PQR Followed.: SARA/PQR/25-012 Specification of Base Metal(s): AISI 4130 Thickness: 13 mm		
Testing Variables and Qualification Limits		
Welding Variables	Actual Values	Range Qualified
Welding Process(es) (QW-401)	SMAW	SMAW
Type (ie: manual, semi-auto, auto) used (QW-410.25)	Manual	Manual
Backing(with/without) (QW-402)	With	With
Test Specimen (Plate or Pipe)	Plate	Plate
Base metal P-number to P-number (QW-403)	4130	4130
Filler metal or electrode classification (info only) (QW-404)	SS309-MO 16 & SS316 - 16	Similar F No. & SFA
Filler metal or electrode specification(s) (SFA) (info only) (QW-404)	5.4	5.4
Filler metal F-Number(s) (QW-404.15)	5	5
Consumable Inert(GTAW or PAW) (QW-404.22)	Nil	Nil
Filler Type (Solid, Flux cored etc.)(GTAW or PAW) (QW-404.23)	Solid	Solid
Deposit thickness for SMAW Process	13 MM	Maximum to be welded
Position Qualified (QW-405)	1 G	1G, 1G
Groove : Plate & Pipe > 24 in.(610mm) Dia. Pipe ≤ 24 in.(610mm) Dia. Fillet : Plate & Pipe	Flat	1G 1F
Vertical Progression (Uphill or Downhill)	Flat	Flat
Inert Gas Backing(GTAW, PAW, GMAW) (QW-408)	NA	NA
Mode of metal transfer (spray/globular or pulse or short) (GMAW) (QW-409.2)	NA	NA
Current / Polarity (AC, DCEP, DCEN) (QW-409.4)	DCEP	DCEP
Others		
RESULTS		
Test Conducted	Test Detail (Type, Report No, etc.)	Results
Visual Inspection (QW-302.4) [X]	RNDTES/SSD/07/2020/03	Accepted
Radiography (QW-191) [X]		Accepted
Bend []		
Fillet Fracture (QW-180) []		
Macro examination (QW-462.5(b)) []		
Macro examination (QW-462.5(b)) []		
Test witnessed by: VARUN SHARMA		
We certify that the statements in this record are correct and that the coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code 2019 Edition. For, Co.		
JIECO Quality Testing Services (P) Ltd.		
Name: Varun Sharma Signature:   Date: 22.07.2020		Contractor: SARA SAE Pvt. Ltd. Name:  Signature:  Date: 27-07-2020
		

Telefax No.: 0120-2766402
Mobile No.: 9910138497

NONDESTRUCTIVE TESTING (X-RAY, γ -RAY RADIO GRAPHY, UT, UT THICKNESS, MPT, DPT, SR, DYNAMIC BALANCING, HARDNESS TESTING) AND THIRD PARTY INSPECTION

RADIOGRAPHIC EXAMINATION REPORT

LEGEND-→ C: Crack, LP: Lack of Penetration, LF: Lack of Fusion, MP: Minor Porosity, MS: Minor Slag, SP: Surface porosity, UC: Under Cut, SD: Surface Depression, BH: Blowhole, PH: Pinhole, NSD: No Significant Defect, FM: Film Mark.


Saurav Kumar
QC Deptt.
Sara Sap Pvt.Ltd

NDT Agency
RUDRA N.D.T ENGINEERING SERVICE

**WELDER / WELDING OPERATOR**

Cert. No : 20-J-26

QUALIFICATION TEST RECORD

Date : 22-07-2020

Company Name: SARA SAE Pvt. Ltd.

Name : Shiv Prasad Identification No : W-23
Date of Birth : N.A Joint Type : Single 'V'
Identification of WPS Followed.: WPS/25-012 Rev. 5 Weld Type: BUTT
Identification of PQR Followed.: SARA/PQR/25-012
Specification of Base Metal(s): AISI 4130 Thickness: 13 mm

**Testing Variables and Qualification Limits**

Welding Variables	Actual Values	Range Qualified
Welding Process(es) (QW-401)	<u>SMAW</u>	<u>SMAW</u>
Type (ie: manual, semi-auto, auto) used (QW-410.25)	<u>Manual</u>	<u>Manual</u>
Backing(with/without) (QW-402)	<u>With</u>	<u>With</u>
Test Specimen (Plate or Pipe)	<u>Plate</u>	<u>Plate</u>
Base metal P-number to P-number (QW-403)	<u>4130</u>	<u>4130</u>
Filler metal or electrode classification (info only) (QW-404)	<u>SS309-MO 16 & SS316 - 16</u>	<u>Similar F No. & SFA</u>
Filler metal or electrode specification(s) (SFA) (info only) (QW-404)	<u>5.4</u>	<u>5.4</u>
Filler metal F-Number(s) (QW-404.15)	<u>5</u>	<u>5</u>
Consumable Inert(GTAW or PAW) (QW-404.22)	<u>Nil</u>	<u>Nil</u>
Filler Type (Solid, Flux cored etc.)(GTAW or PAW) (QW-404.23)	<u>Solid</u>	<u>Solid</u>
Deposit thickness for SMAW Process	<u>13 MM</u>	<u>Maximum to be welded</u>
Position Qualified (QW-405)	<u>1 G</u>	
Groove : Plate & Pipe > 24 in.(610mm) Dia.		<u>1G, 1G</u>
Pipe ≤ 24 in.(610mm) Dia.		<u>1G</u>
Fillet : Plate & Pipe		<u>1F</u>
Vertical Progression (Uphill or Downhill)	<u>Flat</u>	<u>Flat</u>
Inert Gas Backing(GTAW, PAW, GMAW) (QW-408)	<u>NA</u>	<u>NA</u>
Mode of metal transfer (spray/globular or pulse or short) (GMAW) (QW-409.2)	<u>NA</u>	<u>NA</u>
Current / Polarity (AC, DCEP, DCEN) (QW-409.4)	<u>DCEP</u>	<u>DCEP</u>
Others		

RESULTS

Test Conducted	Test Detail (Type, Report No, etc.)	Results
Visual Inspection (QW-302.4)	☒	<u>Accepted</u>
Radiography (QW-191)	☒	<u>Accepted</u>
Bend	☐	
Fillet Fracture (QW-180)	☐	
Macro examination (QW-462.5(b))	☐	
Macro examination (QW-462.5(b))	☐	

Test witnessed by: VARUN SHARMA

We certify that the statements in this record are correct and that the coupons were prepared, welded, and tested in accordance with the requirements of Section IX of the ASME Code 2019 Edition.
For, Co.

JIECO Quality Testing Services (P) Ltd.

Contractor: SARA SAE Pvt. Ltd.

Name: Varun SharmaName: Saurav

Signature:

Signature:

Date: 22.07.2020Date: 27-07-2020

Varun Sharma
CWI 15031721
QC1 EXP. 31/2021



QW- 484A
WELDER PERFORMANCE QUALIFICATIONS RECORD (WPQ)

Welder's name Mr. DHEERAJ PAL

Identification No. W-04



Test Description

Identification of WPS followed WPS/25-012 Rev 05 Test coupon ☒ Production weld ☐
Specification of base metal(s): AS14130 TO SS316 INLAY Thickness 13 mm

Testing Variables and Qualification Limits

Welding Variables (QW-350)

	Actual Values	Range Qualified
Welding Process (es)	<u>SMAW</u>	<u>SMAW</u>
Type (i.e. manual, semi-automatic)	<u>Manual</u>	<u>Manual</u>
Backing (with/without)	<u>without</u>	<u>with</u>
Plate/Pipe (enter diameter if pipe or tube)	<u>Plate 13mm</u>	
Base metal P-Number to P-Number.	<u>N.A.</u>	<u>N.A.</u>
Filler metal or electrode specification(s) (SFA) (info. Only)	<u>5.4</u>	<u>5.4</u>
Filler metal or electrode classification(s) (info. Only)	<u>SS309 MO-16 & SS316- 16</u>	<u>Similar F No. & SFA</u>
Filler metal F-Number(s)	<u>5</u>	<u>5</u>
Consumable insert (GTAW or PAW)	<u>N.A.</u>	<u>N.A.</u>
Filler metal product form	<u>N.A.</u>	<u>N.A.</u>
(solid/metal or flux cored/powder) (GTAW or PAW)	<u>Solid</u>	<u>Solid</u>
Deposit thickness for each process		
Process 1:3 layers minimum Yes No	<u>13 MM</u>	<u>Maximum to be weld</u>
Position qualified,	<u>1G</u>	
Groove: Plate & pipe ≥ 24in. (610mm) Dia		<u>1G, 1G</u>
Pipe: ≤ 24 in. (610mm dia)		<u>1G</u>
Fillet: Plate & Pipe		<u>1F</u>
Vertical progression (uphill or downhill)	<u>FLAT</u>	<u>FLAT</u>
Type of fuel gas (OFW)	<u>N.A.</u>	<u>N.A.</u>
Inert gas backing (GTAW, PAW, GMAW)	<u>N.A.</u>	<u>N.A.</u>
Transfer mode (spray/globular or pulse to short circuit-GMAW)	<u>N.A.</u>	<u>N.A.</u>
GTAW current type/polarity (AC, DCEP, DCEN)	<u>DCEP</u>	<u>DCEP</u>

RESULTS

Visual Examination of Completed Weld (QW-302.4) No defect was observed- Satisfactory
Transverse face and root bends [QW-462.3(a)] ☐ Longitudinal bends [QW-462.3(b)] Side bend [QW-462.2] ☐
Pipe bend specimen, corrosion-resistant overlay [QW-462.5(c)] ☐
Plate bend specimen, corrosion-resistant overlay [QW-462.5(d)] ☐

Pipe specimen Macro test for fusion [QW-462.5 (B)] ☐ Plate specimen Macro test for fusion [QW-462.5 (E)] ☐

Type of Test	Figure No.	Result

Alternative Volumetric Examination results (QW-191) RT ☒ OR UT (Check one) ☐
Fillet weld- fracture test (QW-181.2) N/A Length and percent of defects
☐ Fillet welds in plate QW-462.4 (b) Fillet welds in plate QW-462.4 (c) ☐
Macro examination (QW-184) N/A Fillet size (in.) Concavity/convexity (in.)
Other tests N/A

Film or specimens evaluated by _____ Company _____
Tested by M/s. RUDRA N.D.T. ENG. SERVICE Laboratory test no. RNDTES/SSD/06/2021/06 Date – 11.06.2021

Welding supervised by Mr. SAURAV KUMAR

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

Certified by RAHUL SHARMA

Manufacturer or Contractor

Date: 11.06.2021

M/s. SARA SAE PVT.LTD

RAHUL SHARMA
ASNT LEVEL-III UT, RT, MT
(ID No.-216723)
CSWIP 3.1 Welding Inspector
(ID No.-83866)

Saurav Kumar
Engr.-QA/QC Deptt.
Sara Sae Pvt.Ltd.

QW- 484A
WELDER PERFORMANCE QUALIFICATIONS RECORD (WPQ)

Welder's name Mr. DHEERAJ PAL

Identification No. W-04



Test Description

Identification of WPS followed WPS/25-012 Rev 05 Test coupon ☒ Production weld ☐
Specification of base metal(s): AS14130 TO SS316 INLAY Thickness 13 mm

Testing Variables and Qualification Limits

Welding Variables (QW-350)

Welding Process (es)
Type (i.e. manual, semi-automatic)
Backing (with/without)
Plate/Pipe (enter diameter if pipe or tube)
Base metal P-Number to P-Number.
Filler metal or electrode specification(s) (SFA) (info. Only)
Filler metal or electrode classification(s) (info. Only)
Filler metal F-Number(s)
Consumable insert (GTAW or PAW)
Filler metal product form
(solid/metal or flux cored/powder) (GTAW or PAW)
Deposit thickness for each process
Process 1:3 layers minimum Yes No
Position qualified,
Groove: Plate & pipe ≥ 24in. (610mm) Dia
Pipe: ≤ 24 in. (610mm dia)
Fillet: Plate & Pipe

Actual Values

SMAW
Manual
without
Plate 13mm
N.A.
5.4
SS309 MO-16 & SS316- 16
5
N.A
N.A
Solid

13 MM
1G

FLAT
N.A
N.A
N.A
DCEP

Range Qualified

SMAW
Manual
with

N.A.
5.4
Similar F No. & SFA
5
N.A
N.A
Solid

Maximum to be weld

1G, 1G
1G
1F

FLAT
N.A
N.A
N.A
DCEP

RESULTS

Visual Examination of Completed Weld (QW-302.4) No defect was observed- Satisfactory
Transverse face and root bends [QW-462.3(a)] ☐ Longitudinal bends [QW-462.3(b)] Side bend [QW-462.2] ☐
Pipe bend specimen, corrosion-resistant overlay [QW-462.5(c)] ☐
Plate bend specimen, corrosion-resistant overlay [QW-462.5(d)] ☐

Pipe specimen Macro test for fusion [QW-462.5 (B)] ☐ Plate specimen Macro test for fusion [QW-462.5 (E)] ☐

Type of Test	Figure No.	Result

Alternative Volumetric Examination results (QW-191) RT ☒ OR UT (Check one) ☐
Fillet weld- fracture test (QW-181.2) N/A Length and percent of defects
☐ Fillet welds in plate QW-462.4 (b) Fillet welds in plate QW-462.4 (c) ☐
Macro examination (QW-184) N/A Fillet size (in.) Concavity/convexity (in.)
Other tests N/A

Film or specimens evaluated by _____ Company _____
Tested by M/s. RUDRA N.D.T. ENG. SERVICE Laboratory test no. RNDTES/SSD/06/2021/06 Date – 11.06.2021
Welding supervised by Mr. SAURAV KUMAR

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

Certified by RAHUL SHARMA

Manufacturer or Contractor

Date: 11.06.2021

RAHUL SHARMA
ASNT LEVEL-III UT, RT, MT
(ID No.-216723)
CSWIP 3.1 Welding Inspector
(ID No.-83866)

M/s. SARA SAE PVT.LTD

Saurav Kumar
Engr.-QA/QC Deptt.
Sara Sae Pvt.Ltd.

RUDRA N.D.T. ENGINEERING SERVICE

Telefax No.: 0120-2766402
Mobile No.: 9910138497

493, Vill. + Post - Sadarpur Police Station, Kavi Nagar, Ghaziabad - 201 002

NONDESTRUCTIVE TESTING (X-RAY, γ -RAY RADIO GRAPHY, UT, UT THICKNESS, MPT, DPT, SR, DYNAMIC BALANCING, HARDNESS TESTING) AND THIRD PARTY INSPECTION

E-Mail : rudra_ndtes@yahoo.in

RADIOGRAPHIC EXAMINATION REPORT

Customer	M/s Sara SAE Private Limited. Dehradun	Report No.	RNDTES/SSD/06/2021/06
Description	150X150X13 MM SAMPLE PLATE	Date	11.06.2021
Radiation Source	Iridium-192	Screen Thickness	Front:0.004"Back 0.006"
Source Strength	20 Curie	Radiography Film	Laser D-7
Intensifying Screen	Lead	Sensitivity	2 %
Penetrameter	ASTM/6ISO12	Density	2.0-3.0
Shooting Technique	S.W.S.I	Date of Test	10.06.2021
Material Thickness	13 mm	Evaluation Standard	ASME-Sec-V
SFD	16 Inch	Exposer Time	2 min.20 sec
Customer Procedure No	SES-26-703 Rev. 5	Acceptance Standard	API 6A (SES-26-703 REV- 5)
Heat NO	A-27	Welder Name	DHEERAJ PAL
Welder ID	W-04	Date Of Welding	08.06.2021
WPS NO	WPS/25-012 Rev-05	Specification	API 6A & ASME SEC-IX
Material	AISI 4130+SS 316	Welding Process	SMAW 1G
UG	0.3 mm	No. of film/cassette	Single
Source Size	2.5 X 0.9 MM	IQI Position	FILM SIDE
SOD	15.5 INCH	Placement Diagram	Refer Annexure 'A'

S.No.	Job Description	Portion Radiographed	Film Size	Observation	Remarks
01	DHEERAJ PAL-W04-WQT	A-B	04X09	NSD	Acceptable

No. of Films	01	No. of Elliptical Shots	Nil
Film Area Claimed (Ir-192)		Square inches	
Runing Inches		Square inches	

LEGEND-→ C: Crack, LP: Lack of Penetration, LF: Lack of Fusion, MP: Minor Porosity, MS: Minor Slag, SP: Surface porosity, UC: Under Cut, SD: Surface Depression, BH: Blowhole, PH: Pinhole, NSD: No Significant Defect, FM: Film Mark.

 RAHUL SHARMA ASNT LEVEL-III UT, RT, MT (ID No.-216723) ASNT 3.1 Welding Inspector (ID No.-82866) External Inspector BHEL/IBR/NTPC/ERIS/EL	 Customer	NDT Agency RUDRA N.D.T ENGINEERING SERVICE
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Saurav Kumar
Engr.-QA/QC Deptt.
Sara Sae Pvt.Ltd.



RUDRA N.D.T. ENGINEERING SERVICE

Telefax No.: 0120-2766402
Mobile No.: 9910138497

493, Vill. + Post - Sadarpur Police Station, Kavi Nagar, Ghaziabad - 201 002

NONDESTRUCTIVE TESTING (X-RAY, γ -RAY RADIO GRAPHY, UT, UT THICKNESS, MPT, DPT, SR, DYNAMIC BALANCING, HARDNESS TESTING) AND THIRD PARTY INSPECTION

E-Mail : rudra_ndtes@yahoo.in

RADIOGRAPHIC EXAMINATION REPORT

ANNEXURE-A

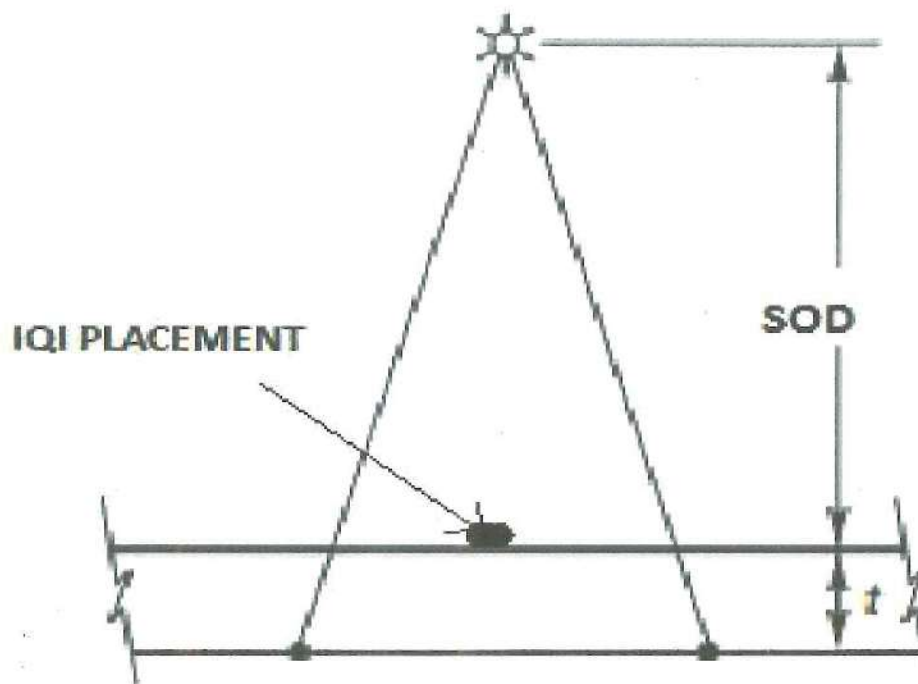


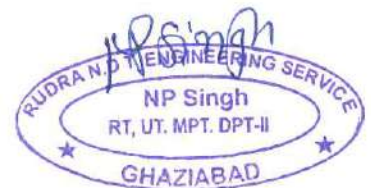
PLATE SIZE: 150 X 150 X 13 MM

WPS NO. WPS/25-012 REV. 05

RT REPORT NO. RNDTES/SSD/06/2021/06

Rahul Sharma
RAHUL SHARMA
ASNT LEVEL-III UT, RT, MT
(ID No.-216723)
CSWIP 3.1 Welding Inspector
(ID No.-83866)

Saurav Kumar
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QW- 484A
WELDER PERFORMANCE QUALIFICATIONS RECORD (WPQ)

Welder's name Mr. SHIV PRASAD

Identification No. W-23



Test Description

Identification of WPS followed WPS/25-012 Rev 05 Test coupon ☒ Production weld ☐
Specification of base metal(s): AISI4130 TO SS316 INLAY Thickness 13 mm

Testing Variables and Qualification Limits

Welding Variables (QW-350)

Welding Process (es)
Type (i.e. manual, semi-automatic)
Backing (with/without)
Plate/Pipe (enter diameter if pipe or tube)
Base metal P-Number to P-Number.
Filler metal or electrode specification(s) (SFA) (info. Only)
Filler metal or electrode classification(s) (info. Only)
Filler metal F-Number(s)
Consumable insert (GTAW or PAW)
Filler metal product form
(solid/metal or flux cored/powder) (GTAW or PAW)
Deposit thickness for each process
Process 1:3 layers minimum Yes No
Position qualified,
Groove: Plate & pipe ≥ 24in. (610mm) Dia
Pipe: ≤ 24 In. (610mm dia)
Fillet: Plate & Pipe

Actual Values

SMAW
Manual
without
Plate 13mm
N.A.
5.4
SS309 MO-16 & SS316- 16
5
N.A.
N.A.
Solid
13 MM
1G
FLAT
N.A.
N.A.
N.A.
N.A.
DCEP

Range Qualified

SMAW
Manual
with
N.A.
5.4
Similar F No. & SFA
5
N.A.
N.A.
Solid
Maximum to be weld
1G, 1G
1G
1F
FLAT
N.A.
N.A.
N.A.
DCEP

RESULTS

Visual Examination of Completed Weld (QW-302.4) No defect was observed- Satisfactory
Transverse face and root bends [QW-462.3(a)] ☐ Longitudinal bends [QW-462.3(b)] Side bend [QW-462.2] ☐
Pipe bend specimen, corrosion-resistant overlay [QW-462.5(c)] ☐
Plate bend specimen, corrosion-resistant overlay [QW-462.5(d)] ☐
Pipe specimen Macro test for fusion [QW-462.5 (B)] ☐ Plate specimen Macro test for fusion [QW-462.5 (E)] ☐

Type of Test	Figure No.	Result

Alternative Volumetric Examination results (QW-191) RT ☒ OR UT (Check one) ☐

Fillet weld- fracture test (QW-181.2) N/A Length and percent of defects

☐ Fillet welds in plate QW-462.4 (b) Fillet welds in plate QW-462.4 (c) ☐

Macro examination (QW-184) N/A Fillet size (in.) Concavity/convexity (in.)

Other tests N/A

Film or specimens evaluated by _____ Company _____

Tested by M/s. RUDRA N.D.T. ENG. SERVICE Laboratory test no. RNDTES/SSD/06/2021/05 Date - 11.06.2021

Welding supervised by Mr. SAURAV KUMAR

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

Certified by RAHUL SHARMA

Manufacturer or Contractor

Date: 11.06.2021

RAHUL SHARMA

M/s. SARA SAE PVT.LTD

ASNT LEVEL-III UT, RT, MT

(ID No.-216723)

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(A)

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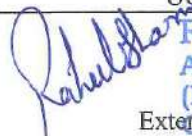
RADIOGRAPHIC EXAMINATION REPORT

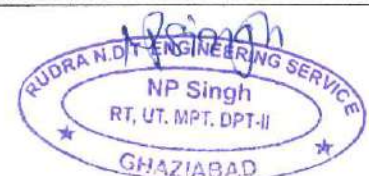
Customer	M/s Sara SAE Private Limited. Dehradun	Report No.	RNDTES/SSD/06/2021/05
Description	150X150X13 MM SAMPLE PLATE	Date	11.06.2021
Radiation Source	Iridium-192	Screen Thickness	Front:0.004"Back 0.006"
Source Strength	20 Curie	Radiography Film	Laser D-7
Intensifying Screen	Lead	Sensitivity	2 %
Penetrameter	ASTM/6ISO12	Density	2.0-3.0
Shooting Technique	S.W.S.I	Date of Test	10.06.2021
Material Thickness	13 mm	Evaluation Standard	ASME-Sec-V
SFD	16 Inch	Exposer Time	2 min.20 sec
Customer Procedure No	SES-26-703 Rev. 5	Acceptance Standard	API 6A (SES-26-703 REV- 5)
Heat NO	A-27	Welder Name	SHIV PRASAD
Welder ID	W-23	Date Of Welding	08.06.2021
WPS NO	WPS/25-012 Rev-05	Specification	API 6A & ASME SEC-IX
Material	AISI 4130+SS 316	Welding Process	SMAW 1G
UG	0.3 mm	No. of film/cassette	Single
Source Size	2.5 X 0.9 MM	IQI Position	FILM SIDE
SOD	15.5 INCH	Placement Diagram	Refer Annexure 'A'

S.No.	Job Description	Portion Radiographed	Film Size	Observation	Remarks
01	SHIV PRASAD-W23-WQT	A-B	04X09	NSD	Acceptable

No. of Films	01	No. of Elliptical Shots	Nil
Film Area Claimed (Ir-192)		Square inches	
Runing Inches		Square inches	

LEGEND-→ C: Crack, LP: Lack of Penetration, LF: Lack of Fusion, MP: Minor Porosity, MS: Minor Slag, SP: Surface porosity, UC: Under Cut, SD: Surface Depression, BH: Blowhole, PH: Pinhole, NSD: No Significant Defect, FM: Film Mark.

 RAHUL SHARMA ASNT LEVEL-III UT, RT, MT (ID No.-216723) External Inspector BHEL/IBR/NTPC/LRIS/ETC	 Customer Saurav Kumar Engr.-QA/QC Deptt. Sara Sae Pvt.Ltd.	NDT Agency RUDRA N.D.T ENGINEERING SERVICE
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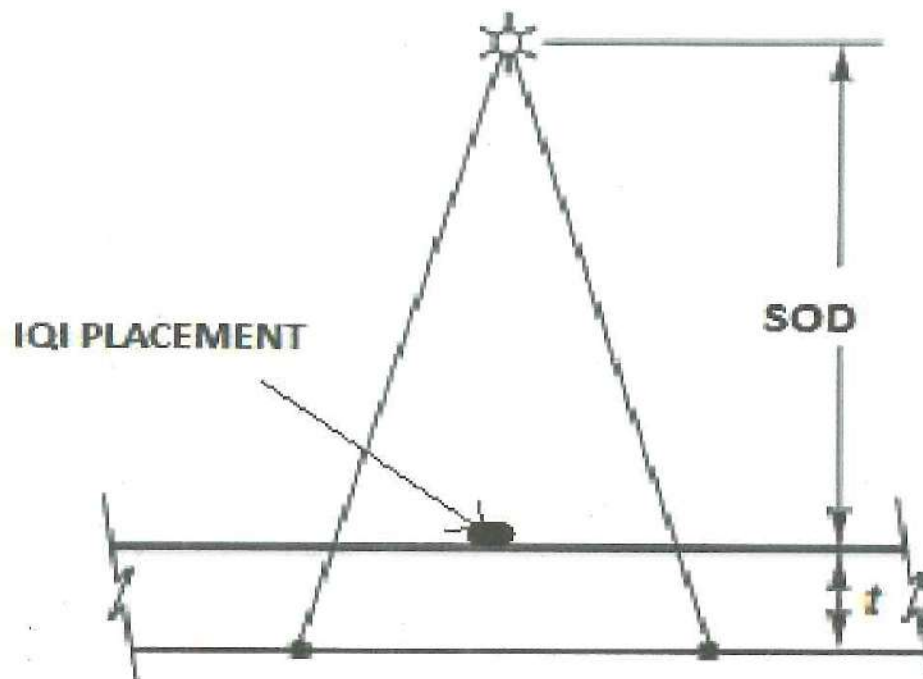
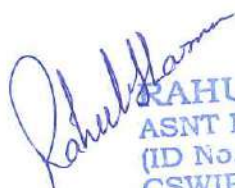


PLATE SIZE: 150 X 150 X 13 MM

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