

 A JOYCON COMPANY	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 to AISI 4130

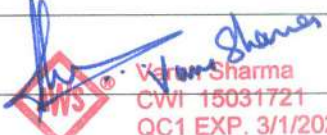
Qualified Parameter: As per Procedure Qualification Record – SARA/PQR/SWS-05 Dated-24.04.2018

Operating Parameter: AS per Approved Welding Procedure Specification WPS/SWS-05 Rev 06 Dtd.-24.04.2018

Process Acceptance Criteria: Mechanical Testing attached

Record: for Validation

- A. Welding procedure specification (as per ASME IX)- WPS/ SWS-05 Rev 06 Dtd.-24.04.2018
- B. Procedure Qualification Record (as per ASME IX) – SARA/PQR/SWS-05 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

 20/6/2020 Fayat Ullah QA/QC Deptt. Sara Sae Pvt. Ltd.	 Venu Sharma CVI 15031721 QC1 EXP. 3/1/2021
Reviewed by	Approved 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 SWS-05 Rev.06

Supporting PQR No. SARA/PQR/SWS-05

Dated: 24.04.2018

Rev. 06

Welding Process (es),

SMAW

Type(s)

MANUAL.

JOINTS (QW -402)

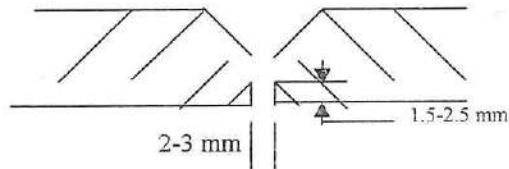
Details:

Joints Design: Groove (As per Sketch)

Backing : NO

Backing Material: N.A

Root Spacing: 2-3 mm

Groove Angle: 60 Deg. (± 5 Deg.)**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

AISI 4130 PLATE

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. 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%.

Thickness Range:

Base Metal:	Groove	16-70 mm	Fillet	All
Diameter	Groove	All	Fillet	All
Others:	Maximum Pass thickness ≤ 12.5			

FILLER METALS (QW-404)

SMAW

Spec. No. (SFA)	5.5	
AWS No. (Class)	E-10018D2	
F. No.	4	
A. No.	11	
Size of Filler Metals	3.15, 4.00 mm	

Weld Metal

Thickness Range:

Groove (Max.)	70mm	
Fillet:	ALL	
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 : 3G (All)				Temperature Range : 598 - 626 deg. C			
Welding Progression : Up-hill				Time Range : 1 Hour Per Inch but 1 hour minimum			
Position(s) of Fillet : All				GAS (QW-408)			
				Percent Composition			
				Gas (es)	(Mixture)	Flow Rate	
PREHEAT (QW-406)							
Preheat Type:				Heating Torch/Heating Elements			
Preheat Temp. Min.				150deg C			
Interpass Temp. Max				300 deg C			
Preheat Maintenance				150 deg. C on both side of weld edge			
				Shielding	N.A		
				GTAW	N A		
ELECTRICAL CHARACTERISTICS (QW-409)s							
Current AC or DC		DC	Polarity		Reverse.		
Amps (Range)		150-170	Volts (Range)		18-24 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				WEAVE BEAD (Max. 2 x Electrode Dia)			
Orifice or Gas Cup Size				N/A			
Initial and interpass cleaning (Brushing, Grinding, etc.,)				WIRE BRUSHING & GRINDING if required.			
Method of Back Gouging				Chipping/Grinding up to sound metal, if required.			
Oscillation				None			
Contact Tube to Work Distance				N/A			
Multiple or single Pass (per side)				- Multiple			
Multiple Or Single electrodes				- Single			
Travel speed (Range)				-130mm to 220 mm per minute.			
Peening				- N.A			
Other				-N/A			
Weld Layer(s)	Process	Filler metal		Current		Volts Range	Travel Speed Range (mm/min.)
		Class	Dia(mm)	Type Polarity	Amp Range		
Ist	SMAW	10018D2	3.15	DCEP	150-170	21-23	180-200mm/ minute
Balance	SMAW	10018D2	4.00	DCEP	170-190	22-24	160-180mm/ minute

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

Reviewed By



M/s



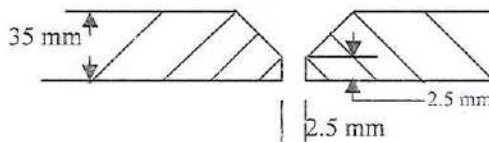
Varun Sharma
CWI 15031721
QC1 EXP. 3/1/2021

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/SWS-05 Rev 06 Date. 24.04.2018
 WELDING PROCEDURE SPECIFICATION (WPS) NO : SWS-05 Rev. 6
 WELDING PROCESS (ES) : SMAW
 TYPE : MANUAL

JOINTS (QW - 402)

JOINT DESIGN : Groove
 Groove Angle : 60Deg
 BACKING : NO
 BACKING MATERIAL (TYPE) : N.A.

DETAILS :

BACKING GAS: NIL

BASE METALS (QW 403)
MATERIAL SPEC.:AISI 4130 TO AISI4130

P. NO. : GROUP NO. --
 TO P. NO. : GROUP NO. --
 THICKNESS OF TEST COUPON: 35 mm
 DIAMETER OF TEST COUPON: Plate
 OTHER : -
 THICKNESS PASS GREATER THAN 13MM: NO

POST WELD HEAT TREATMENT (QW -407)

TEMPERATURE : 620°C TIME : 1 Hour 45 Minutes
 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. : 5.5
 AWS CLASSIFICATION: 10018D2
 FILLER METAL F- NO : 4
 A. NO. : 11
 SIZE OF FILLER METAL: 3.15mm, 4.0mm
 OTHER: :
 WELD METAL THK. : 35 mm

ELECTRICAL CHARACTERISTICS (QW-409)

CURRENT: DC
 POLARITY: REVERSE
 AMPS: 150 to 190Amps.
 TUNGSTUN ELECTRODE SIZE: N/A
 OTHER: -

POSITION (QW- 405)

POSITION OF GROOVE : 3G
 WELD PROGRESSION : UPHILL
 OTHER : --

TECHNIQUE (QW - 410)

TRAVEL SPEED : 170mm to 200 mm per minute.
 STRING OR WEAWE BEAD : Weave
 OSCILLATION : NIL
 MULTIPASS OR SINGLE PASS (PER SIDE) : Multi-pass
 SINGLE OF MULTIPLE ELECTRODES : Single
 BACK CHIPPING METHOD : Grinding
 OTHER :

PREHEAT (QW - 406)

PREHEAT TEMP : 165°C
 INTERPASS TEMP: 270°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			
Root Pass	SMAW	10018D2	3.15	DCEP	150-170	21-23	180-200mm/minute	1320
Balance Pass	SMAW	10018D2	4.00	DCEP	170--190	22-24	160-180mm/minute	1478

HEAT NO. MG 737

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
TT1	19.00X 35.00Thk	665	427.3	642.58	BROKEN OUTSIDE WELD /DUCTILE
TT1	19.00X 35.00Thk	665	438.0	658.74	BROKEN OUTSIDE WELD /DUCTILE

HARDNESS SURVEY SCALE: HRA,

TEST METHOD: ASTM E-18

OBSERVATION: AT WELD CROSS SECTION

AT WELD ZONE : 59, 60, 60, 60, 61, 62

AT HEAT AFFECTED ZONE : 64, 65, 65

AT PARENT METAL : 61, 62, 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.	
MG 737	AT WELD METAL	36	40	46	41	
		35	33	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 & SB-2 SIDE BEND

SATISFACTORY

SB-3 & SB-4 SIDE BEND

SATISFACTORY

SB-5 & SB-6 SIDE BEND

SATISFACTORY

SB-7 & SB-8 SIDE BEND

SATISFACTORY

CHEMICAL COMPOSITION OF WELD (ASTM - E415)

C%	Si%	Mn%	P%	S%	Cu%	Ni%	Cr%	Mo%
0.0892	0.4544	1.618	0.0175	0.0088	0.0436	0.5812	0.1350	0.2651

RT Examination: Report Number - 2018/RT/0151

Result - Satisfactory

Visual Inspection: Satisfactory.

WELDER NAME & IDENTIFICATION NO:

VAIBHAV W-25

Welding Supervised by: **Mr.- RAVI RAJ THAPA**

MECHANICAL TEST BY:

Indiana Test Calibration & Certification Services Report No. WT/2018/96859

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.

[illegible]



INDIANA

TEST, CALIBRATION & CERTIFICATION SERVICES
TEST REPORT

TC-5982

CUSTOMER: Sara Sae Pvt. Ltd. (Unit-II)
A/2, Sara Industrial Estate Ltd
Chakrate Road, Rampur, Selegui, Dehradun
(U.K)

CUST.REF. NO: Gate Pass No-238/Dated: 04.04.2018

WELDER CODE: W-25, Vaibhav Saini

SAMPLE DESC: S.No-1, M.S. Plate Size-300 x 300 x 35mm, Heat No-MG737, 4130-4130

REPORT NO: WT/2018/96859

LSRF NO: 35518

SAMPLE NO(S): ONE

ISSUE DATE: 24.04.2018

RECPT DATE: 06.04.2018

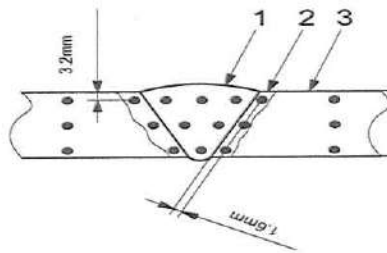
PROTOCOL: ASME Sec. IX: 15/API6A

TEST DATE (S): 20.04.2018

PAGE NO(S): 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_98762_8	Layer-1	61.0,62.0,62.0	64.0,65.0,65.0	-----
		Layer-2	-----	60.0,61.0,62.0	


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_98762_9	10X10X55/2.0	Weld	27 Avg.(Min)	36,40,46 Avg-41	35,32,30 Avg-32	---
1	WT_98763_10	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 drawn 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



INDIANA

TEST, CALIBRATION & CERTIFICATION SERVICES


TC-5982

TEST REPORT

CUSTOMER: Sara Sae Pvt. Ltd. (Unit-II)
A/2, Sara Industrial Estate Ltd
Chakrate Road, Rampur, Selegui, Dehradun
(U.K)
CUST.REF. NO: Gate Pass No-238/Dated: 04.04.2018
WELDER CODE: W-25, Vaibhav Saini
SAMPLE DESC: S.No-1, M.S. Plate Size-300 x 300 x 35mm, Heat No-MG737, 4130-4130

REPORT NO: WT/2018/96859
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	M.S 4130	Base Material -2	M.S 4130
Material Thickness	35 mm	Material Thickness	35 mm

a) Chemical Composition of Weld *ASTM E415:2014 (Sample ID: WT-98762_1)

C (%)	Si (%)	Mn (%)	P (%)	S (%)	Cu (%)	Ni (%)	Cr (%)	Mo (%)
0.0892	0.4544	1.6181	0.0175	0.0088	0.0436	0.5812	0.1350	0.2651

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_98762_2	19 X 35 X 300	Specimen Broken outside from the Weld.	---	642.585	---
2	WT_98762_3	19 X 35 X 300	Specimen Broken outside from the Weld.	---	658.748	---

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_98762_4	22 x 19 x 300	No Cracks seen in the weld during bending.	Yes
2	Side	WT_98762_4	22 x 19 x 300	No Cracks seen in the weld during bending.	Yes
3	Side	WT_98762_5	22 x 19 x 300	No Cracks seen in the weld during bending.	Yes
4	Side	WT_98762_5	22 x 19 x 300	No Cracks seen in the weld during bending.	Yes
5	Side	WT_98762_6	22 x 19 x 300	No Cracks seen in the weld during bending.	Yes
6	Side	WT_98762_6	22 x 19 x 300	No Cracks seen in the weld during bending.	Yes
7	Side	WT_98762_7	22 x 19 x 300	No Cracks seen in the weld during bending.	Yes
8	Side	WT_98762_7	22 x 19 x 300	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 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 drawn 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

ADOR WELDING LIMITED

REGD. OFFICE : Ador House, 6, k. Dubhash Marg, Fort, Mumbai-400 001



SILVASSA PLANT
Survey No. 59/11/1, Silvassa-Khar
Masat, Silvassa-396 230.
U.T. of Dadra & Nagar Haveli.
Phone : 0260 2632287
Telefax : 0260 2632776
Website : www.adorwelding.com

TEST CERTIFICATE

Serial No. 1496064

TENALLOY-75 D2 3.20 x 450 mm

AWS A / SFA 5.5: E 10018-D2

Date: 29 MAY 2015

TESTED IN ACCORDANCE WITH BSEN 10204, TYPE 3.1

Consumable	Batch No	Date of Manufacture
SMAW Electrode	61505092	MAY - 2015

We certify that the supply made against this T.C. conforms to all requirements of ASME Section-II Part C-2013 in all respects.

CHEMICAL ANALYSIS :

Elements	C%	Mn%	Si%	Cr%	Ni%	Mo%	Nb%	V%	W%	Cu%	Sn%	Fe%	S%	P%	Ti%	Zr%	Al
Weld Metal	0.068	1.720	0.360	0.020	0.510	0.360	--	0.002	--	0.020	--	--	0.012	0.014	--	--	--

PHYSICAL PROPERTIES: PWHT 620 DegC/1Hr

Ultimate Tensile strength	Yield Strength at 0.2% Offset	Elongation L= 4 x d	Charpy V-Notch Impact Values at -50 °C	Hardness Test 3 Layers	Ferrite in Weld Deposit	Radiography
MPa (N/mm ²)	MPa (N/mm ²)	%	Joules	Brinell /Hv	%/FN	
722	662	23.2	66.3	160-170 BHN	--	SATISFACTOR

Remarks : DIFFUSIBLE H₂: 3.24 ML MAX/100GM OF WELD METAL
FILLET WELD TEST: SATISFACTORY, MOISTURE IN COATING:0.12 %
FILLET WELD TEST - SATISFACTORY

INSP 4018/REV.03

Officer (Q.A.)



Dept. Head (Q.A.)

MRV No 7566

ADO WELDING LIMITED

REGD. OFFICE : Ador House, 6, k. Dubhash Marg, Fort, Mumbai-400 001



SILVASSA PLANT
Survey No. 59/11/1, Silvassa-Kh
Masat, Silvassa-396 230.
U.T. of Dadra & Nagar Haveli.
Phone : 0260 2632287
Telefax : 0260 2632776
Website : www.adorwelding.com

TEST CERTIFICATE

Serial No. 1496071

TENALLOY-75 D2 4.00 x 450MM

AWS A / SFA 5.5: E 10018-D2

Date: 26 MAY 2015

TESTED IN ACCORDANCE WITH BSEN 10204, TYPE 3.1

Consumable	Batch No	Date of Manufacture
SMAW Electrode	61505062	MAY-2015

We certify that the supply made against this T.C. conforms to all requirements of ASME Section -II Part C-2013 in all respects.

CHEMICAL ANALYSIS :

Elements	C%	Mn%	Si%	Cr%	Ni%	Mo%	Nb%	V%	W%	Cu%	Sn%	Fe%	S%	P%	Ti%	Zr%
Weld Metal	0.065	1.650	0.350	0.050	0.520	0.320	--	0.004	--	0.011	--	--	0.011	0.022	--	--

PHYSICAL PROPERTIES: ATER PWHT 620 Deg C FOR ONE HOUR.

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 -50 °C Joules	Hardness Test 3 Layers Brinell /Re/Hv	Ferrite in Weld Deposit %/FN	Radiography
721	659	22.7	69.3	160-170 BHN	--	SATISFACTO

Remarks : H2 CONTENT PER 100 GMS OF WELD METAL= 3.05 ML IN ACCORDANCE WITH ISO 3690 BY MERCURY METHOD.
MOISTURE CONTENT IN THE ELECTRODE COATING = 0.12 %.
FILLET WELD TEST - SATISFACTORY



NEERA FORGINGS

(A Unit of Neera Chemicals & Fertilizers Pvt. Ltd.)

AN ISO 9001:2008 COMPANY

Office & works: 8th KM Stone Meerut Road Opp. Mahan Dham Shiv Mahal, Meerut - 201 001
Ghaziabad - 0120-2675113 Fax no: 0120-2675123 E-mail: neeraforgings@gmail.com

TEST CERTIFICATE

Customer Name: Sara Industrial Estate Ltd.

Report No: NEFA/2016/001

Date: 17.11.2016

P.O. No: 617
Date: 27 OCT

Work Order NO. Inspection Agency
NF

Order Status: PIC

Item no	Item Code	Drawing No. STD	Qty.	U. No.
01.		Ø 330 MM	03 NOS	
02.		Ø 420 MM	02 NOS	

Material Specification

AISI 4130

CHEMICAL COMPOSITION IN %

Group No.	Heat No.	C %	Mn %	Si %	S %	P %	Cr %	Ni %	Mo %	Al %	Fe %
01	0101	0.28	0.50	0.20	0.021	0.021	0.89	0.58	0.17		
		✓	✓	✓	✓	✓	✓	✓	✓		

Melting Practice: Induction Furnace
Reduction Ratio: 4:1
SIZE: 6"

RE MARKS:

Punching Status:

INVOICE NO. - NF

Dtd.:

With regards
For NEERA FORGINGS

(A Unit of Neera Chemicals & Fertilizers Pvt. Ltd.)

In-Charge (Q.A. & C.)

Qualify in 4130 as per
per 26-604



#12892



Sample Results

Sample Result Name Type Measure Date Time Recalculation Date Time Origin Method Name Method Version Operator Name Check Type

12892(HNO-MG-737)
DIA-330MM &
420MM

Grade Status Grade Verification Name Grade Verification Similarity Correction Type Type Corr Sample Name Grade Search Name Grade Search Similarity Type Status

Outlier Removal

Sample Name Grade
12892(HNO-MG-737)
DIA-330MM &
420MM

	C	Si	Mn	P	S	Cr	Mo	Ni
	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc
	%	%	%	%	%	%	%	%
1	0.31	0.22	0.56	0.015	0.014	1.01	0.17	0.044
2	0.31	0.24	0.56	0.015	0.017	1.01	0.17	0.054
3	0.34	0.24	0.56	0.013	0.015	0.99	0.17	0.048
Rep	0.32	0.23	0.56	0.014	0.015	1.00	0.17	0.049
Mean	0.32	0.23	0.56	0.014	0.015	1.00	0.17	0.049
	Al ✓	Co ✓	Cu ✓	Nb ✓	Ti ✓	V ✓	W ✓	Pb ✓
	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc
	%	%	%	%	%	%	%	%
1	0.013	0.004	0.057	0.018	0.010	0.039	0.040	0.010
2	0.017	0.005	0.058	0.016	0.010	0.036	0.052	0.010
3	0.018	0.006	0.058	0.010	0.010	0.036	0.042	0.010
Rep	0.016	0.005	0.058	0.015	0.010	0.037	0.045	0.010
Mean	0.016	0.005	0.058	0.015	0.010	0.037	0.045	0.010
	Sn	As	Zr	Ca	Ce	B ✓	Zn	La
	Conc	Conc	Conc	Conc	Conc	Conc	Conc	Conc
	%	%	%	%	%	%	%	%
1	0.019	0.005	0.003	0.0007	0.020	0.005	0.032	0.002
2	0.017	0.005	0.003	0.001	0.020	0.006	0.032	0.002
3	0.021	0.005	0.003	0.005	0.021	0.005	0.032	0.002
Rep	0.019	0.005	0.003	0.002	0.020	0.005	0.032	0.002
Mean	0.019	0.005	0.003	0.002	0.020	0.005	0.032	0.002
	Fe							
	Type Conc							
	%							

Qualify in 4130 as per
SES 26-604, Rev-5
Repeal 2/21/16

11/21/2016

Sample Results



DELHI NDT SERVICES



Certification & Inspection
An ISO Certified Company

510, Group-1, Hastals, Uttam Nagar, New Delhi-110059 (India)

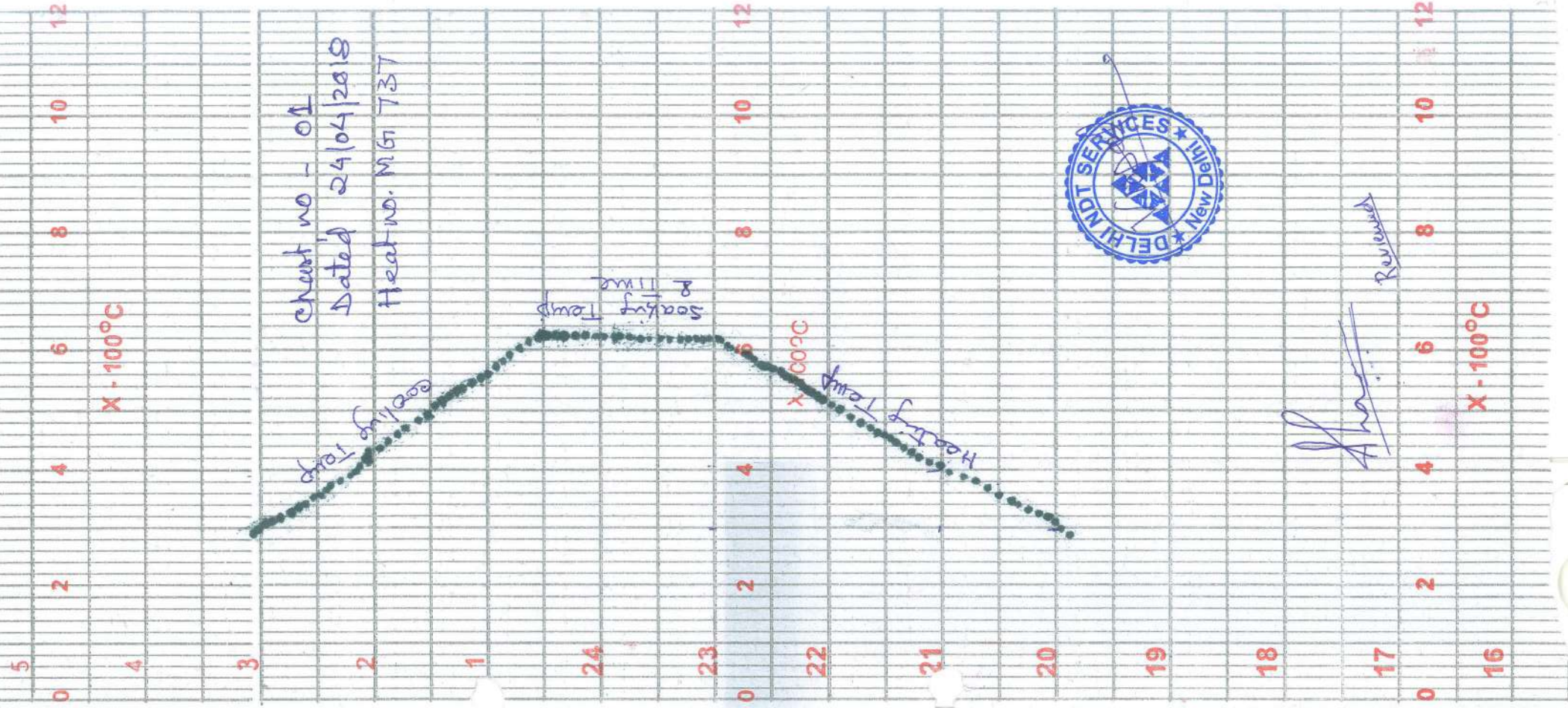
Phone : 011-25376098, Mobile : 9811466220, 9971933512, E-mail : delhindt@yahoo.com, delhindt@gmail.com

POST WELD HEAT TREATMENT (PWHT) JOB CARD

Client	Sara Sae (P) Ltd., Unit-II, Chota Rampur Selaqui, Dehradun		
Site	Workshop of Delhi NDT Services, New Delhi		
NDE Cleared on	24.04.2018	NDT Report No.	DNS/SSPL/PQR-1/18
Chart No.	01	Date	24.04.2018
Job Identification No.	Vaibhav Saini	Material	AISI 4130+AISI 4130
Heat No.	MG 737	Welder No.	W - 25
Size	300 mm	Thickness	35 mm
Recorder Make	Recol	Recorder Serial No.	2K3A359
Recorder Type	K	Chart speed	20 mm / Hour
Calibration Date	20.02.2018	Calibration upto	19.08.2018
Date of Start	24.04.2018	Completion Date	24.04.2018
Starting Time	01:00 PM	Completion Time	8:00 PM
No. of Thermocouple	01	Thermocouple Placement	At center of plate
Heating Band	6 x T	Insulation Band	12 x T
Type of Heating	Electrical Resistance	Date of Heating	24.04.2018
		Required	Actual
Rate of Heating		100° C / Hour	100° C / Hour
Soaking Temperature		620° C	620° C
Soaking Time		90 Minutes	90 Minutes
Rate of Cooling		100° C / Hour	100° C / Hour
Least Count		± 20° C	± 20° C
Result	Acceptable		
			
Name:	Name:	Name:	Name: Virpal
Client	TPI	Contractor	Operator

Spl. in :

- | | | | |
|--|---|--|--|
| ☐ Ind. Radiography (X-Ray, Gamma Ray) | ☐ Ultrasonic Testing | ☐ Dye Penetrant Testing | ☐ Stress Relieving |
| ☐ Magnetic Particle Testing | ☐ Metallography | ☐ Thick. Measurement | ☐ Visual Inspection |
| ☐ Third Party Inspection | ☐ Weld Inspection | ☐ Trainings | ☐ RLA |



[Signature]
Reviewed



LEETRON SYSTEMS

355 NEW VARDHMAN MARKET, WEST ENCLAVE, PITAMPURA, DELHI - 110034

Pin : (01) 27323432, Fax : 27010337
Call : 9810515849, 9810507249
E-mail : leetron@hotmail.com

CALIBRATION CERTIFICATE : TEMPRATURE RECORDER

DATE	JOB No.	CERTIFICATE No.	VALIDITY
20.02.2018	LC-103	LC-103	19.08.2018

- 1 Indenter (Name & Address) : Delhi NDT Services.
510, Group-1, Hastal
Uttam Nagar,
New Delhi-110059
- 2 Description and identification of instrument : Make : Recoil
Model No. : 6 Points
Sl. No. : 2K3A359
Type : K'
Range : 0 - 1200° C
L.C. : 1° C
Zero Err : Nil
- 3 Standard (s) used associated uncertainty : As per ERTL certificate
- 4 Traceability of standard (s) used : Universal calibrator ERTL (N) cal.
Certificate No. ERTL (N) /90(4)-
2K4/A6816
- 5 Principal / Methodology calibration : The temp. recorder has been of
calibrated by standard method
Used at LEETRON System, Delhi.
- 6 Environmental condition : Temperature : 25° C
Relative Humidity : 55%

7 Result	Unit	C
Standard Reading	Observed Reading	Deviation Reading
200	200	0
400	401	1
600	602	2
800	798	2
1200	1198	2

Expanded uncertainty of measurement

$\pm 2^{\circ} \text{C}$

For LEETRON SYSTEMS

Quality Cont. Mgr

Calibrated by



Approved by

THE INSTRUMENTATION POINT FOR EVERY APPLICATION

MICRO PROCESSOR-CONTROLLER TECHNOLOGY, COMPTUERISED INSTRUMENTATION

FLOT. NO. 77, SECTOR-9, IMT MANESAR, GURGAON - 122 050 PH : 2322608, FAX : 5083813



CALIBRATION CERTIFICATE

219, Acharya Commercial Centre, Near Basant Cinema, Dr.C.Gidwani Road, Chembur (E), Mumbai - 400 074.INDIA

Test Report No. : RS / TC / B 461

Date : 13.01.17

Tested for M/s. : **M/s DELHI NDT SERVICES**

Nomenclature : **Temperature Sensor**

Test Sample tag / Serial No.* : 1. 398

2. XX

Test Sample Type* : "K" (CR/AL) LENGTH* : 22SWG DIA / GAUGE* : 300 MM

Date of Test / Calibration : 13.01.17 AMBIENT : 28

Calibration Standards

- Standard 'R' / 'S' / 'RTD' temperature sensor type traceable to national standards, REP. No. TL/215/742.1.1
- Standard Digital Temperature calibrator traceable to national standards, REP. No. CC/ECL/1379/15-16
- The Calibration is done by comparison technique

Reference Standard Reading in Degree °C	Test Sample - 1		Test Sample - 2	
	Deg °C	Deviation in °C	Deg °C	Deviation in °C
202	204	2	XX	XX
500	502	2	XX	XX
803	806	3	XX	XX
1102	1107	5	XX	XX

NEXT RECOMMENDED CALIBRATION DUE ON

12.07.18

REMARKS

ACCURACY AS PER I S : 2054 - 1962

A SAMPLE OF 300MM IS USED FOR CALIBRATION FROM A 100MTR BUNDLE

- ♦ A Calibration tag indicating Report No., Sr. No., Date of Calibration & Due date is affixed on Test Sample.
- ♦ The Standards used for calibration were calibrated by using reference standards traceable to National / International Standards.
- ♦ The calibration results reported in this certificate are valid at the time of and the stated condition of measurement.
- ♦ The above mentioned item is calibrated as per operating procedure.
- ♦ This certificate should not be reproduced except in full without the prior permission from the chief executive of Premier Instrument, Mumbai.

Tested by



For **PREMIER INSTRUMENTS**

(Rajendran / N. Sivakumar)

* As Specified by Customer.



Form No. 52 Rev 3

**WELDER / WELDING OPERATOR**

Cert. No : 19-J-122

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.: **SWS-05 Rev. 6** Weld Type: **BUTT**
Identification of PQR Followed.: **SARA/PQR/SWS - 05**
Specification of Base Metal(s): **AISI 4130** Thickness: **35mm**

**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)	Without	With or Without
Test Specimen (Plate or Pipe)	Plate	Plate
Base metal P-number to P-number (QW-403)	P1 to P1	P1 Through P15F, P 34 & P41 Through P 49
Filler metal or electrode classification (info only) (QW-404)	E-10018D2	Similar F No. & SFA
Filler metal or electrode specification(s) (SFA) (info only) (QW-404)	5.5	5.5
Filler metal F-Number(s) (QW-404.15)	4	F No. 4 Without Backing
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	35mm	Maximum to be welded
Position Qualified (QW-405)	3G	
Groove : Plate & Pipe > 24 in.(610mm) Dia.		1G, 3G
Pipe ≤ 24 in.(610mm) Dia.		1G
Fillet : Plate & Pipe		1G, 2G, 3G
Vertical Progression (Uphill or Downhill)	Uphill	Uphill
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-6/19	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. 3/1/2021



[illegible]

	WELDER / WELDING OPERATOR QUALIFICATION TEST RECORD	Cert. No : 20-J-25 Date : 22-07-2020
Company Name: SARA SAE Pvt. Ltd.		
Name : Shiv Prasad Date of Birth : N.A Identification of WPS Followed.: SWS-05 Rev. 6 Identification of PQR Followed.: SARA/PQR/SWS - 05 Specification of Base Metal(s): AISI 4130	Identification No : W-23 Joint Type : Single 'V' Weld Type: BUTT Thickness: 38mm	
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)	Without	With or Without
Test Specimen (Plate or Pipe)	Plate	Plate
Base metal P-number to P-number (QW-403)	AISI 4130 to AISI 4130	AISI 4130 to AISI 4130
Filler metal or electrode classification (info only) (QW-404)	E-10018D2	Similar F No. & SFA
Filler metal or electrode specification(s) (SFA) (info only) (QW-404)	5.5	5.5
Filler metal F-Number(s) (QW-404.15)	4	F No. 4 Without Backing
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	38mm	Maximum to be welded
Position Qualified (QW-405)	3G	1G, 3G
Groove : Plate & Pipe > 24 in.(610mm) Dia.		1G
Pipe ≤ 24 in.(610mm) Dia.		1G, 2G, 3G
Fillet : Plate & Pipe		Uphill
Vertical Progression (Uphill or Downhill)	Uphill	Uphill
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]	RNDTES/SSD/07/2020/01	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.		Contractor: SARA SAE Pvt. Ltd.
Name: Varun Sharma Signature:  Date: 22.07.2020	 Varun Sharma CWI 15031721 QC1 EXP. 3/1/2021	Name: Saurav Kumar Signature:  Date: 27-07-2020
		

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

E-Mail : rudra_ndtes@yahoo.in

Customer	M/s Sara SAE Private Limited, Dehradun	Report No.	RNDTES/SSD/07/2020/01
Description	300X300X38 MM SAMPLE PLATE	Date	22.07.2020
Radiation Source	Iridium-192	Screen Thickness	Front:0.004”Back 0.006”
Source Strength	10 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	21.07.2020
Material Thickness	38 mm	Evaluation Standard	ASME-Sec-V
Customer Procedure No	SES-26-703 Rev. 4	Acceptance Standard	ASME-Sec VIII Div.1
Heat NO	MG-737	Welder Name	SHIV PRASAD
Welder ID	W-23	Date Of Welding	15.07.2020
WPS NO	SWS-05 Rev-06	Specification	API 6A /API 16A
Material	AISI 4130+AISI 4130	Welding Process	SMAW 3G

[illegible]

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.

External Inspector BHEL/IBR/NTPC/LRIS/EIL	 27/9/2020 Customer	 NDT Agency RUDRA N.D.T ENGINEERING SERVICE
--	---	--

Saurav Kumar
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

POST WELD HEAT – TREATMENT REPORT

REPORT NO : RNDTES/SSD/2020/01	DATE : 20.07.2020
CLIENT NAME : SARA SAE Pvt. Ltd. Dehradun	
HEAT NO : MG 737	
SITE : GHAZIABAD	
Drg. No : N/A	
1. PROCESS : PRE-HEATING/P.W.H.T/NORMALISING//ANNEALING/TEMPERING/HARDINGS	
2. JOB DETAIL :	DIA : N/A LENGTH : 300X300 MM THICKNESS 38mm WEIGHT :
3. WELDER NAME : SHIV PRASAD	WELDER NO : W23
4. CODE OF CONSTRUCTION : N/A	
5. METRIAL OF CONSTRUCTION : AISI 4130+AISI4130	
6. JOINTS NOS : N/A	
7. JOB STARTED AT : 8.00 AM JOB COMPLETED AT : 4.30 PM	
8. THERMOCOUPLE PLACEMENT : At Center of Plate (01 NO)	
PROCESS SPECIFICATION : SES 26-616 Rev-2 & SWS-05 Rev-06	
HEATING FROM AMBIENT TO 300 °C : UNRESTRICTED	
HEATING FROM 300 °C TO 620 °C : 150 °C/HOUR	
SOAKING PERIOD : 1 HOUR	
SOAKING TEMPERATURE : 620° C CERAMIC BLANKET DENSITY: 96/128	
RATE OF COOLING TO 300 °C : 150 °C/HOUR	
300 °C TO AMBIENT : TO COOL IN STILL AIR	
CERAMIC BLANKET DENSITY THIK : 25mm OF 1200°C	
CERAMIC BLANKET LAYER: 02 LAYER	
TEMP RECORDER NO : TR03	
RECORDER MAKE : SYNEX	RECORDER S.NO. : 2K21D8451
CALIBRATION DATE : 11/02/2020	CALIBRATION DUE DATE: 10/02/2021
THERMOCOUPLE TYPE : K-TYPE	IDENTIFICATION NO. : THW-03
CALIBRATION DATE : 11/02/2021	CALIBRATION DUE DATE: 10/02/2021
HEATING BAND: 6 X T	
INSULATION BAND : 12 X T	
TYPE OF HEATING : ELECTRICAL RESISTANCE	
DATE OF HEATING : 20/07/2020	
CHART SPEED : 20 MM /HR	
RESULT : Acceptable	

External Inspector	 27/7/2020 CLIENT	 NDT Agency
--------------------	--	---

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

ASIATIC

CALIBRATION SERVICES

(CALIBRATION POINT FOR INDUSTRIAL INSTRUMENTS)

D-248, VIKAS MARG, LAXMI NAGAR, DELHI -110 092

Phones : 011-46514286 Mob.: 9910779624

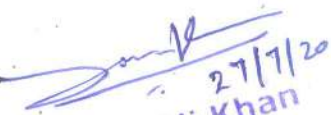
E-mail : asiatic_engineers@yahoo.co.in

CALIBRATION CERTIFICATE

Type : **Thermocouple Wire**
Tested for : RUDRA NDT ENGINEERING SERVICE 493, Vill+Post-Sadarapur
Police Station, Kavi Nagar, Ghaziabad-201002
Calibrated on : 11/02/2020
Calibration due : 10/02/2021
Certificate No. : ACS/CAL/9628/002/2K21
Mark No : THW-03
Ambient : 25°C
Humidity : 60 %
Range : 0-1200°C
Length : 1Meter

The results of Comparison is as follows: - Reference Junction at Ambient Temp.

Instruments Reads	Applied Input (mv)	Actual Input (mv)	Error (%)
100°C	3.3	3.5	0.4
200°C	6.7	6.9	0.6
300°C	11.4	11.6	0.4
400°C	15.0	15.1	0.2
500°C	19.8	19.8	0.0
600°C	23.7	23.7	0.0
700°C	28.3	28.3	0.0
800°C	32.0	32.0	0.0
900°C	36.6	36.6	0.0
1000°C	40.4	40.4	0.0
1100°C	44.3	44.4	0.2
1200°C	48.1	48.3	0.4


27/1/20
Ehteram Ali Khan
QA/QC Deptt.
Sara Sae Pvt.Ltd.

The Thermocouple has been compared with the Master Thermocouple Traceable to S.No. ACL-2 National Standards through ERTL (NORTH), New Delhi vide their Certificate No. ERTL (N) /90 (4) - (2020-21)/R1241 DT: 11/02/2020 with Master Furnace.

Standard Followed: The Thermocouple is calibrated as per National Standards.

Calibrated by. MD.TARIK

Lab Incharge.

ASIATIC CALIBRATION SERVICES

(CALIBRATION POINT FOR INDUSTRIAL INSTRUMENTS)

D-248, VIKAS MARG, LAXMI NAGAR, DELHI -110 092

Phones : 011-46514286 Mob.: 9910779624

E-mail : asiatic_engineers@yahoo.co.in

CALIBRATION CERTIFICATE

Party : M/S. RUDRA NDT ENGINEERING SERVICE 493, VBI+Post-Sadarapur
Police Station, Kavi Nagar, Ghaziabad-201002

Instrument : Temp Recorder Certificate No: ACS/CAL/930/JUL/2K21

Make : SYNEX Calibrated On : 11/02/2020

Range : 0 TO 1200°C Next Calibration Due : 10/02/2021

Humidity : 55 % Serial No. : 2K21D8451

Mark No. : TR-01 Sensing Element : CR-AL

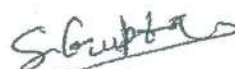
Instruments Reads	Applied Input (mv)	Actual Input (mv)	Error (%)
100°C	3.3	3.5	0.4
200°C	6.7	6.9	0.6
300°C	11.4	11.6	0.4
400°C	15.0	15.1	0.2
500°C	19.8	19.8	0.0
600°C	23.7	23.7	0.0
700°C	28.3	28.3	0.0
800°C	32.0	32.0	0.0
900°C	36.6	36.6	0.0
1000°C	40.4	40.4	0.0
1100°C	44.3	44.4	0.2
1200°C	48.1	48.3	0.4

These Readings are taken with Standard Universal Digital Calibrator SL.No.8752
Traceable to National Standards through M/S.ERTL (N), New Delhi vide their
Test Report No. ERTL (N) /90 (4) – (2020-21)/R1241 DT: 11/02/2020

Instrument is found within the prescribed accuracy Limit ($\pm 1\%$).

Standard: Instrument is calibrated as per IS 2057 – 1962.

Calibrated by: MD.TARIK


Lab Incharge.


27/7/2020
Ehtram Ali Khan
QA/QC Deptt.
Sara Sae Pvt.Ltd.

QW- 484A
WELDER PERFORMANCE QUALIFICATIONS RECORD (WPQ)

Welder's name Mr. SHIV PRASAD

Identification No. W-23



Test Description

Identification of WPS followed SWS 05 Rev 06 Test coupon ☒ Production weld ☐
Specification of base metal(s): AISI4130 TO AISI4130 Thickness 38 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 (2G,6G,3F etc.) _____

Actual Values

SMAW
Manual
without
Plate 38mm
5.5
E10018 D2
4
N.A
N.A
Solid

Range Qualified

SMAW
Manual
with & without
5.5
E10018D2
4
N.A
N.A
Solid

38mm with nine layer
3G

Maximum to be weld
1G, 3G (For plate) & (for pipe over 610 mm OD)
1G (For 73mm O.D pipe and over but less than 610mm OD)
1F, 2F & 3F (For plate and pipe)

Vertical progression (uphill or downhill) _____
Type of fuel gas (OFW) _____
Inert gas backing (GTAW, PAW, GMAW) _____
Transfer mode (spray/globular or pulse to short circuit-GMAW) _____
GTAW current type/polarity (AC, DCEP, DCEN) _____

UPHILL
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/06/2021/04 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.

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

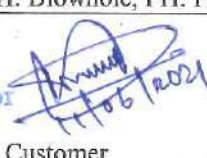
RADIOGRAPHIC EXAMINATION REPORT

Customer	M/s Sara SAE Private Limited. Dehradun	Report No.	RNDTES/SSD/06/2021/04
Description	300X300X38 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/IB-11	Density	2.0-3.0
Shooting Technique	S.W.S.I	Date of Test	10.06.2021
Material Thickness	38 mm (2 MM RF)	Evaluation Standard	ASME-Sec-V
SFD	16 Inch	Exposer Time	9 min.20 sec
Customer Procedure	SES-26-703 Rev. 5	Acceptance Standard	API 16A (SES-26-703 REV- 5)
Heat NO	MG-737	Welder Name	SHIV PRASAD
Welder ID	W-23	Date Of Welding	08.06.2021
WPS NO	SWS-05 Rev-06	Specification	API 16A & ASME SEC-IX
Material	AISI 4130+AISI 4130	Welding Process	SMAW 3G
UG	0.5 mm	No. of film/cassette	Single
Source Size	2.5 X 0.9 MM	IQI Position	FILM SIDE
SOD	14.5 INCH	Placement Diagram	Refer Annexure 'A'

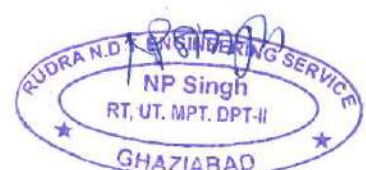
S.No.	Job Description	Portion Radiographed	Film Size	Observation	Remarks
01	SHIV PRASAD-W23-WQT	A-B	04X15	NSD	Acceptable

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) CSWIP 3.1 Welding Inspector (ID No.-22866) External Inspector BHEL/IBR/NTPC/IRIS/EIL	 Customer	NDT Agency RUDRA N.D.T ENGINEERING SERVICE
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Saurav Kumar
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Sara Sae Pvt.Ltd.



RUDRA N.D.T. ENGINEERING SERVICE

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RADIOGRAPHIC EXAMINATION REPORT

ANNEXURE-A

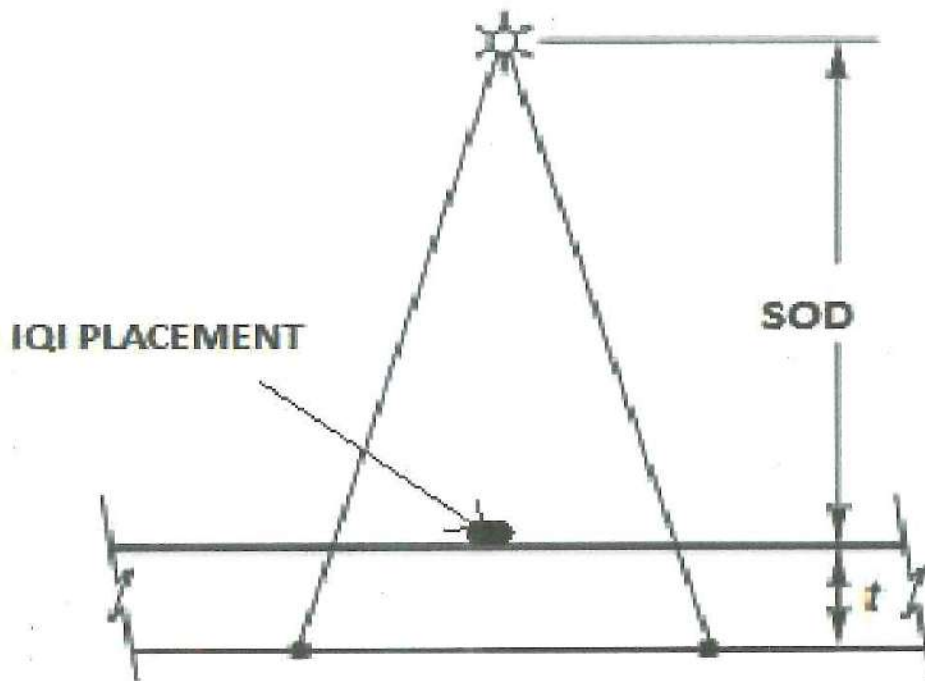


PLATE SIZE : 300 X 300 X 38 MM

WPS NO. SWS-05 REV-06

Rahul Sharma
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POST WELD HEAT – TREATMENT REPORT

REPORT NO : RNDTES/SSD/06/2021/02	DATE : 12.06.2021
CLIENT NAME : SARA SAE Pvt. Ltd. Dehradun	
HEAT NO : MG 737	
SITE : GHAZIABAD	
Drg. No : N/A	
1. PROCESS : PRE-HEATING/P.W.H.T/NORMALLISING//ANNEALING/TEMPERING/HARDINGS	
2. JOB DETAIL :	DIA : N/A LENGTH : 300X300 MM THICKNESS 38mm WEIGHT :
3. WELDER NAME : SHIV PRASAD	WELDER NO : W23
4. CODE OF CONSTRUCTION : N/A	
5. METRIAL OF CONSTRUCTION : AISI 4130+AISI4130	
6. JOINTS NOS : N/A	
7. JOB STARTED AT : 8.00 AM JOB COMPLETED AT : 4.30 PM	
8. THERMOCOUPLE PLACEMENT : At Center of Plate (01 NO)	
PROCESS SPECIFICATION : SES.26-616 Rev-2 & SWS-05 Rev-06	
HEATING FROM AMBIENT TO 300 °C : UNRESTRICTED	
HEATING FROM 300 °C TO 620 °C : 150 °C/HOUR	
SOAKING PERIOD : 1 HOUR	
SOAKING TEMPERATURE : 620° C CERAMIC BLANKET DENSITY: 96/128	
RATE OF COOLING TO 300 °C : 150 °C/HOUR	
300 °C TO AMBIENT : TO COOL IN STILL AIR	
CERAMIC BLANKET DENSITY THIK : 25mm OF 1200°C	
CERAMIC BLANKET LAYER: 02 LAYER	
TEMP RECORDER NO : TR03	
RECORDER MAKE : SYNEX	RECORDER S.NO. : 2K2ID8451
CALIBRATION DATE : 11.02.2021	CALIBRATION DUE DATE: 10.02.2022
THERMOCOUPLE TYPE : K TYPE	IDENTIFICATION NO. : THW-03
CALIBRATION DATE : 11.02.2021	CALIBRATION DUE DATE: 10.02.2022
HEATING BAND: 6 X T	
INSULATION BAND : 12 X T	
TYPE OF HEATING : ELECTRICAL RESISTANCE	
DATE OF HEATING : 12/06/2021	
CHART SPEED : 20 MM /HR	
RESULT : Acceptable	

RAHUL SHARMA

ASNT LEVEL-III UT, RT, MT

(ID No.-216723)

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(ID No.-216723)

Saurabh Kumar
CLIENT
Engr.-QA/QC Deptt.
Sara SAE Pvt. Ltd.

NDT Agency
N.D.T ENGINEERING SERVICE

