

## **FLUORO TECH ENGG. WORKS.**

**CLIENT** : PI INDUSTRIES LTD. ✓

**P.O. NO** : 4500410477 **DATED:** 12.02.2021 ✓

**JOB TITLE** : DECANTER CS HALAR 500 LTR ✓  
Qty: 2 Nos. ✓

**TAG NO.** : OV10M2016, OV10M0612 ✓

**REF DRG NO** : FTE- 007 Rev.2 ✓

## ***INSPECTION DOSSIER***

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# FLUORO TECH ENGG. WORKS.

## INSPECTION REPORT

REPORT NO : 01-A

DATE : 22/06/2021

CLIENT : PI INDUSTRIES LTD.

REF DRG NO : FTE-007 Rev. 2

P.O. NO : 4500410477

INSPECTION AGENCY: FTEW

DATE : 12.02.2021

JOB TITLE : DECANTER CS HALAR LINED 500 LTR

Qty.: 1 of 2 Nos.

TAG No. : OV10M2016, OV10M0612

### FINAL DIMENSION REPORT

NOZZLES	NOZZLE SIZE	PROJECTION		ORIENTATION/ HORIZ. LOCATION		LOCATION	
		REQ.	ACT.	REQ.	ACT.	REQ.	ACT.
M1	200NB X 6 mm Thk CLASS 150# X SORF	150 mm	152 mm	0° on Shell	0° on Shell	280 mm from N4	260 mm from N4
N1	80/50NB X SCH.40 CLASS 150#X SORF	150/100 mm	152/101 mm	0° on Shell	0° on Shell	100 mm from LHS TL	120 mm from LHS TL
N2	50NB X SCH.40 CLASS150#X SORF	150 mm	151 mm	180° on RHS Dish End	180° on RHS Dish End	50 mm from R.H.S. T.L.	50 mm from R.H.S. T.L.
N3	50NB X SCH.40 CLASS150#X SORF	150 mm	151 mm	180° on RHS Dish end	180° on RHS Dish end	100 mm from Bottom corner of the shell	101 mm from Bottom corner of the shell
N4	50NB X SCH.40 CLASS150#X SORF	150 mm	151 mm	0° on Shell	0° on Shell	200 mm from N7	187 mm from N7
N5	217 X 30	PAD TYPE	90 mm	90° on Shell	105° on Shell	--	440 mm from BF
N6	80NB X SCH.40 CLASS150#X SORF	150 mm	154 mm	0° on LHS Dish end	0° on LHS Dish end	N6/N9 C-C600±1mm	N6/N9 C-C601mm
N7	80NB X SCH 40 CLASS 150# X SORF	150 mm	151 mm	0° on Shell	0° on Shell	150 mm from RHS TL	150 mm from RHS TL
N8	40NB X SCH 40 CLASS 150# X SORF	150 mm	153 mm	180° on Shell	180° on Shell	100 mm from LHS TL	100 mm from LHS TL
N9	80NB X SCH.40 CLASS150#X SORF	150 mm	153 mm	180° on LHS Dish end	180° on LHS Dish end	N6/N9 C-C600±1mm	N6/N9 C-C601mm
N10	80NB X SCH.40 CLASS150#X SORF	150 mm	154 mm	0° on RHS Dish end	0° on RHS Dish end	100 mm from Top corner of the shell	101 mm from Top corner of the shell

### OVERALL DIMENSIONS

	Required	Actual	Remarks
Shell I.D.	800	801	Acceptable
O.D.C.F.	2551	2555	Acceptable
T.L. to T.L.	1000	1001	Acceptable

Saddle supports with earthing boss provided as per drawing requirement



\* Refer IVR for Details  
Remarks





# FLUORO TECH ENGG. WORKS.

## INSPECTION REPORT

REPORT NO : 01-B

DATE : 22/06/2021

CLIENT : PI INDUSTRIES LTD.

REF DRG NO : FTE-007 Rev. 2

P.O. NO : 4500410477

INSPECTION AGENCY: FTEW

DATE : 12.02.2021

JOB TITLE : DECANTER CS HALAR LINED 500 LTR

Qty.: 2 of 2 Nos.

TAG No. : OV10M2016, OV10M0612

### FINAL DIMENSION REPORT

NOZZLES	NOZZLE SIZE	PROJECTION		ORIENTATION/ HORIZ. LOCATION		LOCATION	
		REQ.	ACT.	REQ.	ACT.	REQ.	ACT.
M1	200NB X 6 mm Thk CLASS 150# X SORF	150 mm	152 mm	0° on Shell	0° on Shell	280 mm from N4	*260 mm from N4
N1	80/50NB X SCH.40 CLASS 150# X SORF	150 mm	152 mm	0° on Shell	0° on Shell	100 mm from LHS TL	*120 mm from LHS TL
N2	50NB X SCH.40 CLASS150#X SORF	150 mm	151 mm	180° on RHS Dish End	180° on RHS Dish End	50 mm from R.H.S. T.L.	50 mm from R.H.S. T.L.
N3	50NB X SCH.40 CLASS150#X SORF	150 mm	151 mm	180° on RHS Dish end	180° on RHS Dish end	100 mm from Bottom corner of the shell	102 mm from Bottom corner of the shell
N4	50NB X SCH.40 CLASS150#X SORF	150 mm	151 mm	0° on Shell	0° on Shell	200 mm from N7	*187 mm from N7
N5	217 X 30	PAD TYPE	*90 mm	90° on Shell	*105° on Shell	--	*447 mm from BF
N6	80NB X SCH.40 CLASS150#X SORF	150 mm	152 mm	0° on LHS Dish end	0° on LHS Dish end	N6/N9 C-C600±1mm	N6/N9 C-C601mm
N7	80NB X SCH 40 CLASS 150# X SORF	150 mm	152 mm	0° on Shell	0° on Shell	150 mm from RHS TL	150 mm from RHS TL
N8	40NB X SCH 40 CLASS 150# X SORF	150 mm	150 mm	180° on Shell	180° on Shell	100 mm from LHS TL	100 mm from LHS TL
N9	80NB X SCH.40 CLASS150#X SORF	150 mm	152 mm	180° on LHS Dish end	180° on LHS Dish end	N6/N9 C-C600±1mm	N6/N9 C-C601mm
N10	80NB X SCH.40 CLASS150#X SORF	150 mm	150 mm	0° on RHS Dish end	0° on RHS Dish end	100 mm from Top corner of the shell	101 mm from Top corner of the shell

### OVERALL DIMENSIONS

	Required	Actual	Remarks
Shell I.D.	800	800	Acceptable
O.D.C.F.	2552	2552	Acceptable
T.L. to T.L.	1000	1002	Acceptable

Saddle supports with earthing boss provided as per drawing requirement

\*Refer IVR for  
Details Remark



# FLUORO TECH ENGG. WORKS.

## INSPECTION REPORT

REPORT NO : 03-A

DATE : 28/06/2021

CLIENT : PI INDUSTRIES LTD.

REF DRG NO : FTE-007 Rev. 2

P.O. NO : 4500410477

INSPECTION AGENCY: FTEW

DATE : 12.02.2021

JOB TITLE : DECANTER CS HALAR LINED 500 LTR

Qty.: 1 of 2 Nos.

TAG No. : OV10M2016, OV10M0612

### TEST REPORT

The MS antistatic + Halar dish end distill receiver 500 Ltr was coated with HALAR (ECTFE) on inside surface.

#### A) THICKNESS TESTING : THICKNESS ASSURED : 800 MICRON

READING NO.	1	2	3	4	5
IN MICRON	921	970	894	940	835
CONDUCTIVITY	10 <sup>5</sup>	10 <sup>6</sup>	10 <sup>7</sup>	10 <sup>5</sup>	10 <sup>6</sup>

(17 Ohms/sq)

Actual observed  
(Range)  
892 to 1640 microns  
10<sup>6</sup> to 10<sup>8</sup> Ohms/sq.



FTEW



INSPECTION AGENCY

# FLUORO TECH ENGG. WORKS.

## INSPECTION REPORT

REPORT NO : 03-B

DATE : 28/06/2021

CLIENT : PI INDUSTRIES LTD.

REF DRG NO : FTE-007 Rev. 2

P.O. NO : 4500410477

INSPECTION AGENCY: FTEW

DATE : 12.02.2021

JOB TITLE : DECANTER CS HALAR LINED 500 LTR

Qty.: 2 of 2 Nos.

TAG No. : OV10M0612, ~~OV10M0612~~

### TEST REPORT

The MS antistatic + Halar dish end distill receiver 500 Ltr was coated with HALAR (ECTFE) on inside surface.

#### A) THICKNESS TESTING : THICKNESS ASSURED : 800 MICRON

READING NO.	1	2	3	4	5
IN MICRON	981	880	884	840	935
CONDUCTIVITY	10 <sup>5</sup>	10 <sup>6</sup>	10 <sup>7</sup>	10 <sup>5</sup>	10 <sup>6</sup>

(In Ohms/sq)

Actual Observed  
(Range) :  
809 to 1470 microns  
10<sup>6</sup> to 10<sup>9</sup> Ohms/sq.



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INSPECTION AGENCY



# FLUORO TECH ENGG. WORKS.

## INSPECTION REPORT

CLIENT : PI INDUSTRIES LTD.

REF DRG NO : FTE-007 Rev.2

P.O. NO : 4500410477

INSPECTION AGENCY: FTEW

DATE : 12.02.2021

JOB TITLE : DECANTER CS HALAR LINED 500 LTR

Qty.: 2 Nos.

### MATERIAL HEAT CHART

SR.NO.	DESC & SIZE OF MATL. PROCURED	MATL. GRADE	MAT. ID No. / Heat No. / Cast No.	LAB T.C. NO. / MTC NO.	MATL. USED	REMARKS
<b>PLATE</b>						
1	6 mm ✓	IS 2062 Gr. A	FT-139 ✓	K6042 ✓	✓ IS 2062 E250 Gr. A	ACCEPTABLE
2	8 mm ✓	IS 2062 Gr. A	FT-140 ✓	K6043 ✓	✓ IS 2062 E250 Gr. A	ACCEPTABLE
3	12 mm ✓	IS 2062 Gr. A	FT-150 ✓	L2568 ✓	✓ IS 2062 E250 Gr. A	ACCEPTABLE
4	5 mm ✓	IS 2062 Gr. A	FT-138 ✓	K6041 ✓	✓ IS 2062 E250 Gr. A	ACCEPTABLE
<b>BODY FLANGE</b>						
5	32 mm THK (machine to required size)	IS 2062 Gr. A	FT-144 ✓	K7339 ✓	✓ IS 2062 E250 Gr. A	ACCEPTABLE
<b>FLANGE 40NB X 150 # SORF (N8)</b>						
6 ✓	40 NB X 150# SORF	IS 2062 Gr. A	A40 ✓	✓ ASA/3369/21	* SA 105	ACCEPTABLE
<b>FLANGE 50NB X 150 # SORF(N1/N2/N3/N4)</b>						
7 ✓	50 NB X 150# SORF	IS 2062 Gr. A	A50 ✓	✓ ASA/3369/21	* SA 105	ACCEPTABLE
<b>FLANGE 80NB X 150 # SORF(N1/N6/N7/N9/N10)</b>						
8 ✓	80 NB X 150# SORF	IS 2062 Gr. A	A80 ✓	✓ ASA/3369/21	* SA 105	ACCEPTABLE
<b>* FLANGE 200NB X 150 # SORF and BLRF (M1)</b>						
9	200 NB X SCH 40	IS 2062 Gr. A	A200	ASA/3401/21	* SA 105	ACCEPTABLE
10	200 NB X SCH 40 BLRF	IS 2062 Gr. A	A200B	ASA/3725/21	* SA 105	ACCEPTABLE
<b>PIPE 40NB X SCH 40 (N8)</b>						
11	40 NB X SCH.40	SA 106 Gr. B	MA1617	MSL-6/IBR/1429/81/2020	SA 106 Gr. B	ACCEPTABLE
<b>PIPE 50NB X SCH 40 (N1/N2/N3/N4)</b>						
12	50 NB X SCH.40	SA 106 Gr. B	2022611	JSL/Q/B21/TX2002012954-2	SA 106 Gr. B	ACCEPTABLE
<b>PIPE 80NB X SCH 40 (N1/N6/N7/N9/N10)</b>						
13	80 NB X SCH.40	SA 106 Gr. B	2021106	JSL/Q/L20/TX2002008032/B-7	SA 106 Gr. B	ACCEPTABLE

\* For Details Refer IVR





# INO ANALYTICAL LABORATORIES

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Tel : 0251 - 2422624 • Email : customercare@inoanalytical.in • Website : www.inoanalytical.in

## Test Report

ULR - TC559121000004932F

Page 1 of 2

Issued To : M/s FLUORO TECH ENGINEERING WORKS  
Plot No. 89, Survey No 66, Walliv Phata, Satali,  
Vasai (E), Thane

Report No. : K6042

Job No. : J22931

Date : 17-03-2021

Customer's Ref No : FEW/10/20-21 DTD-11/03/2021

Sample Received on: 13-03-2021

Specification : IS 2062 : 2011 E 250 A <20

Date of Completion: 16-03-2021

Sample Description PLATE

Material Dimension 6 MM THK ✓

Id No FT-139 ✓

Discipline: Chemical, Group: Metals and Alloys

### CHEMICAL ANALYSIS

Test Method : IS 8811:1998 (RA-2018)

	Result	Required Value	Conformity
% Carbon (C)	0.147	0.2300 max.	Yes
% Manganese (Mn)	0.462	1.5000 max.	Yes
% Silicon (Si)	0.186	0.4000 max.	Yes
% Sulphur (S)	0.013	0.0450 max.	Yes
% Phosphorus (P)	0.015	0.0450 max.	Yes
% Chromium (Cr)	0.017		
% Nickel (Ni)	0.010		
% Molybdenum (Mo)	0.005		
% Copper (Cu)	0.012		
% Vanadium (V)	0.005		
% Carbon Equivalent	0.23	0.4200 max.	Yes

Remark: Sample material conforms to IS 2062 : 2011 E 250 A w.r.t. above results. ✓



For INO Analytical Laboratories

VO

Checked By

Authorized Signatory  
Sachin Upadhyay  
HOD (MECH)

Authorized Signatory  
Urmila Pichad  
Sr. Analyst (CHEM)

Authorized Signatory  
Karuna Naik  
HOD (CHEM)

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Issue No.: 00

Revision No.: 02





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## Test Report

Page 2 of 2

ULR - TC559121000004932F

Issued To : M/s FLUORO TECH ENGINEERING WORKS  
Plot No. 89, Survey No 66, Walliv Phata, Sativali,  
Vasai (E), Thane

Report No. : K6042

Job No. : J22931

Date : 17-03-2021

Customer's Ref No : FEW/10/20-21 DTD-11/03/2021

Sample Received on: 13-03-2021

Specification : IS 2062 : 2011 E 250 A <20

Date of Completion: 16-03-2021

Sample Description PLATE

Material Dimension 6 MM THK

Id No FT-139

Discipline: Mechanical, Group: Mechanical Properties of Metals

Bend Test Report (At 180 Deg)

Test Method : IS 1599:2012 (Ra 2017)

	Bend 1	Bend 2	Conformity
Thickness (mm)	6.00	6.00	
Formar Diameter 2xT (mm)	12.00	12.00	
Observation	No Cracks	No Cracks	
Remark	Passes the test	Passes the test	

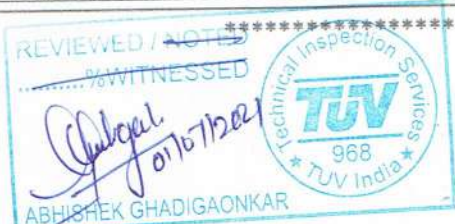
Tensile Test Report

Test Method : IS 1608-1:2018

	T1	T2	Required Value	Conformity
Width (mm)	20.10	19.95		
Thickness. (mm)	5.95	6.00		
Area (mm <sup>2</sup> )	119.60	119.70		
Gauge Length (mm)	62.00	62.00		
Yield Load (kN)	35.34	38.76		
Ultimate Load (kN)	51.18	52.22		
Final Gauge Length (mm)	80.70	81.00		
Yield Stress (MPa)	295.50	323.81	250.00 min.	Yes
U.T.S (MPa)	427.94	436.26	410.00 min.	Yes
Elongation (%)	30.16	30.65	23.00 min.	Yes
Fracture	WGL	WGL		
Remark	Satisfactory	Satisfactory		

Remark: Sample material conforms to IS 2062 : 2011 E 250 A w.r.t. above results.

\*\*\*\*\* Report Ends \*\*\*\*\*



For INO Analytical Laboratories

VO

Checked By

Authorized Signatory  
Sachin Upadhyay  
HOD (MECH)

Authorized Signatory  
Urmila Pichad  
Sr.Analyst(CHEM)

Authorized Signatory  
Karuna Naik  
HOD (CHEM)

- Notes :
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## Test Report

ULR - TC559121000004933F

Page 1 of 2

Issued To : M/s FLUORO TECH ENGINEERING WORKS  
Plot No. 89, Survey No 66, Walliv Phata, Sativali,  
Vasai (E), Thane

Report No. : K6043

Job No. : J22931

Date : 17-03-2021

Customer's Ref No : FEW/10/20-21 DTD-11/03/2021

Sample Received on: 13-03-2021

Specification : IS 2062 : 2011 E 250 A <20

Date of Completion: 16-03-2021

Sample Description PLATE  
Material Dimension 8 MM THK  
Id No FT-140

Discipline: Chemical, Group: Metals and Alloys

CHEMICAL ANALYSIS

Test Method : IS 8811:1998 (RA-2018)

	Result	Required Value	Conformity
% Carbon (C)	0.161	0.2300 max.	Yes
% Manganese (Mn)	0.790	1.5000 max.	Yes
% Silicon (Si)	0.101	0.4000 max.	Yes
% Sulphur (S)	0.020	0.0450 max.	Yes
% Phosphorus (P)	0.017	0.0450 max.	Yes
% Chromium (Cr)	0.022		
% Nickel (Ni)	0.012		
% Molybdenum (Mo)	0.005		
% Copper (Cu)	0.014		
% Vanadium (V)	0.005		
% Carbon Equivalent	0.30	0.4200 max.	Yes

Remark: Sample material conforms to IS 2062 : 2011 E 250 A w.r.t. above results.



For INO Analytical Laboratories

VO

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HOD (MECH)

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## Test Report

Page 2 of 2

ULR - TC559121000004933F

Issued To : M/s FLUORO TECH ENGINEERING WORKS  
Plot No. 89, Survey No 66, Walliv Phata, Sativali,  
Vasai (E), Thane

Report No. : K6043

Job No. : J22931

Date : 17-03-2021

Customer's Ref No : FEW/10/20-21 DTD-11/03/2021

Sample Received on: 13-03-2021

Specification : IS 2062 : 2011 E 250 A <20

Date of Completion: 16-03-2021

Sample Description : PLATE  
Material Dimension : 8 MM THK  
Id No : FT-140

Discipline: Mechanical, Group: Mechanical Properties of Metals

Bend Test Report (At 180 Deg)

Test Method : IS 1599:2012 (Ra 2017)

	Bend 1	Bend 2	Conformity
Thickness (mm)	8.00	8.00	
Formar Diameter 2xT (mm)	16.00	16.00	
Observation	No Cracks	No Cracks	
Remark	Passes the test	Passes the test	

Tensile Test Report

Test Method : IS 1608-1:2018

	T1	T2	Required Value	Conformity
Width (mm)	20.05	20.05		
Thickness. (mm)	8.05	8.05		
Area (mm <sup>2</sup> )	161.40	161.40		
Gauge Length (mm)	72.00	72.00		
Yield Load (kN)	42.58	42.44		
Ultimate Load (kN)	67.66	67.72		
Final Gauge Length (mm)	95.00	95.30		
Yield Stress (MPa)	263.81	262.95	250.00 min.	Yes
U.T.S (MPa)	419.20	419.57	410.00 min.	Yes
Elongation (%)	31.94	32.36	23.00 min.	Yes
Fracture	WGL	WGL		
Remark	Satisfactory	Satisfactory		

Remark: Sample material conforms to IS 2062 : 2011 E 250 A w.r.t. above results.



Report Ends



For INO Analytical Laboratories

VO

Checked By

Authorized Signatory  
Sachin Upadhyay  
HOD (MECH)

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Urmila Pichad  
Sr.Analyst(CHEM)

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## Test Report

Page 1 of 2

ULR - TC559121000010087F

Issued To : M/s FLUORO TECH ENGINEERING WORKS  
Plot No. 89, Survey No 66, Walliv Phata, Sativali,  
Vasai (E), Thane

Report No. : L2568

Job No. : J24883

Date : 28-06-2021

Sample Received on: 23-06-2021

Customer's Ref No : FEW/02/21-22 DTD-22/06/2021  
DTD-22/06/2021

Date of Completion: 26-06-2021

Specification : IS 2062 : 2011 E 250 A <20

Sample Description PLATE

Material Dimension 12 MM THK

Id No FT-150

Discipline: Chemical, Group: Metals and Alloys

Test Method : IS 8811:1998 (RA-2018)

### CHEMICAL ANALYSIS

	Result	Required Value	Conformity
% Carbon (C)	0.165	0.2300 max.	Yes
% Manganese (Mn)	1.09	1.5000 max.	Yes
% Silicon (Si)	0.184	0.4000 max.	Yes
% Sulphur (S)	0.014	0.0450 max.	Yes
% Phosphorus (P)	0.021	0.0450 max.	Yes
% Chromium (Cr)	0.023		
% Nickel (Ni)	0.010		
% Molybdenum (Mo)	0.005		
% Copper (Cu)	0.013		
% Vanadium (V)	0.005		
% Carbon Equivalent	0.35	0.4200 max.	Yes

Remark: Sample material conforms to IS 2062 : 2011 E 250 A w.r.t. above results.



For INO Analytical Laboratories

SH

Checked By

Authorized Signatory  
Sachin Upadhyay  
HOD (MECH)

Authorized Signatory  
Urmila Pichad  
Sr.Analyst(CHEM)

Authorized Signatory  
Karuna Naik  
HOD (CHEM)

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Format No. DOC/IAL/TRF/02

Issue No.: 00

Revision No.: 02



# INO ANALYTICAL LABORATORIES

Accredited by NABL as per ISO/IEC 17025:2017 for Chemical & Mechanical Testing

Gala No. 1, Near Uma Ashish Tower, Opp. Techno Petrol Pump, Kalyan Shil Road, Gholavali, Dombivli (East) 421 203.  
Tel : 0251 - 2422624 • Email : customercare@inoanalytical.in • Website : www.inoanalytical.in

## Test Report

Page 2 of 2

ULR - TC559121000010087F

Issued To : M/s FLUORO TECH ENGINEERING WORKS  
Plot No. 89, Survey No 66, Walliv Phata, Sativali,  
Vasai (E), Thane

Report No. : L2568

Job No. : J24883

Date : 28-06-2021

Sample Received on: 23-06-2021

Customer's Ref No : FEW/02/21-22 DTD-22/06/2021  
DTD-22/06/2021

Date of Completion: 26-06-2021

Specification : IS 2062 : 2011 E 250 A <20

Sample Description PLATE

Material Dimension 12 MM THK

Id No FT-150

Discipline: Mechanical, Group: Mechanical Properties of Metals

Bend Test Report (180 Deg)

Test Method : IS 1599:2012 (Ra 2017)

	Result	Conformity
Thickness (mm)	12.00	
Formar Diameter 2xT (mm)	24.00	
Observation	No Cracks	
Remark	Satisfactory	

Tensile Test Report

Test Method : IS 1608-1:2018

	Result	Required Value	Conformity
Width (mm)	19.90		
Thickness. (mm)	11.57		
Area (mm <sup>2</sup> )	230.24		
Gauge Length (mm)	86.00		
Yield Load (kN)	76.42		
Ultimate Load (kN)	113.38		
Final Gauge Length (mm)	114.60		
Yield Stress (MPa)	331.91	250.00 min.	Yes
U.T.S (MPa)	492.44	410.00 min.	Yes
Elongation (%)	33.26	23.00 min.	Yes
Fracture	WGL		
Remark	Satisfactory		

Remark: The result of tensile test meets the corresponding requirements of the Grade IS 2062 : 2011 E 250 A

\*\*\*\*\* Report Ends \*\*\*\*\*



SH

Checked By

Authorized Signatory  
Sachin Upadhyay  
HOD (MECH)



Authorized Signatory  
Urmila Pichad  
Sr.Analyst(CHEM)

For INO Analytical Laboratories

Authorized Signatory  
Karuna Naik  
HOD (CHEM)

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Format No. DOC/IAL/TRF/02

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## Test Report

ULR - TC559121000004931F

Page 1 of 2

Issued To. : M/s FLUORO TECH ENGINEERING WORKS  
Plot No. 89, Survey No 66, Walliv Phata, Sativali,  
Vasai (E), Thane

Report No. : K6041

Job No. : J22931

Date : 17-03-2021

Customer's Ref No : FEW/10/20-21 DTD-11/03/2021

Sample Received on: 13-03-2021

Specification : IS 2062 : 2011 E 250 A <20

Date of Completion: 16-03-2021

Sample Description : PLATE

Material Dimension : 5 MM THK

Id No : FT-138

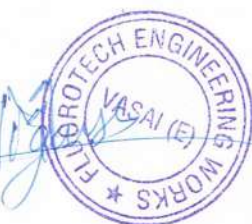
Discipline: Chemical, Group: Metals and Alloys

CHEMICAL ANALYSIS

Test Method : IS 8811:1998 (RA-2018)

	Result	Required Value	Conformity
% Carbon (C)	0.177	0.2300 max.	Yes
% Manganese (Mn)	0.849	1.5000 max.	Yes
% Silicon (Si)	0.184	0.4000 max.	Yes
% Sulphur (S)	0.011	0.0450 max.	Yes
% Phosphorus (P)	0.017	0.0450 max.	Yes
% Chromium (Cr)	0.027		
% Nickel (Ni)	0.021		
% Molybdenum (Mo)	0.005		
% Copper (Cu)	0.023		
% Vanadium (V)	0.005		
% Carbon Equivalent	0.33	0.4200 max.	Yes

Remark: Sample material conforms to IS 2062 : 2011 E 250 A w.r.t. above results.



For INO Analytical Laboratories

VO

Checked By

Authorized Signatory  
Sachin Upadhyay  
HOD (MECH)

Authorized Signatory  
Urmila Pichad  
Sr.Analyst(CHEM)

Authorized Signatory  
Karuna Naik  
HOD (CHEM)

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Format No. DOC/IAL/TRF/02

Issue No.: 00

Revision No.: 02





Certificate Nos.  
TC - 5591

# INO ANALYTICAL LABORATORIES

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## Test Report

Page 2 of 2

ULR - TC559121000004931F

Issued To : M/s FLURO TECH ENGINEERING WORKS  
Plot No. 89, Survey No 66, Walliv Phata, Sativali,  
Vasai (E), Thane

Report No. : K6041

Job No. : J22931

Date : 17-03-2021

Sample Received on: 13-03-2021

Date of Completion: 16-03-2021

Customer's Ref No : FEW/10/20-21 DTD-11/03/2021  
Specification : IS 2062 : 2011 E 250 A <20  
Sample Description : PLATE  
Material Dimension : 5 MM THK  
Id No : FT-138

Discipline: Mechanical, Group: Mechanical Properties of Metals

Test Method : IS 1599:2012 (Ra 2017)

### Bend Test Report (At 180 Deg)

Conformity

	Bend 1	Bend 2
Thickness (mm)	5.00	5.00
Formar Diameter 2xT (mm)	10.00	10.00
Observation	No Cracks	No Cracks
Remark	Passes the test	Passes the test

### Tensile Test Report

Test Method : IS 1608-1:2018

	T1	T2	Required Value	Conformity
Width (mm)	20.10	20.00		
Thickness (mm)	5.13	5.06		
Area (mm <sup>2</sup> )	103.11	101.20		
Gauge Length (mm)	57.00	57.00		
Yield Load (kN)	31.92	30.26		
Ultimate Load (kN)	46.46	46.42		
Final Gauge Length (mm)	77.00	77.20		
Yield Stress (MPa)	309.56	299.01	250.00 min.	Yes
U.T.S (MPa)	450.57	458.70	410.00 min.	Yes
Elongation (%)	35.09	35.44	23.00 min.	Yes
Fracture	WGL	WGL		
Remark	Satisfactory	Satisfactory		

Remark: Sample material conforms to IS 2062 : 2011 E 250 A w.r.t. above results.

\*\*\*\*\* Report Ends \*\*\*\*\*

REVIEWED / NOTED

WITNESSED

ABHISHEK GHADIGAONKAR



For INO Analytical Laboratories

VO

Checked By

Authorized Signatory  
Sachin Upadhyay  
HOD (MECH)

Authorized Signatory  
Urmila Pichad  
Sr.Analyst(CHEM)

Authorized Signatory  
Karuna Naik  
HOD (CHEM)

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Format No. DOC/IAL/TRF/02

Issue No.: 00

Revision No.: 02



# INO ANALYTICAL LABORATORIES

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## Test Report

ULR - TC559121000006047F

Page 1 of 2

Issued To : M/s FLUORO TECH ENGINEERING WORKS  
Plot No. 89, Survey No 66, Walliv Phata, Satali,  
Vasai (E), Thane

Report No. : K7339

Job No. : J23363

Date : 06-04-2021

Customer's Ref No : FEW/01/21-22 DTD-01/04/2021

Sample Received on: 02-04-2021

Specification : IS 2062 : 2011 E 250 A 20-40

Date of Completion: 05-04-2021

Sample Description : PATTA  
Material Dimension : 32 MM THK X 65 MM  
Id No : FT-144

Discipline: Chemical, Group: Metals and Alloys

### CHEMICAL ANALYSIS

Test Method : IS 8811:1998 (RA-2018)

	Result	Required Value	Conformity
% Carbon (C)	0.148	0.2300 max.	Yes
% Manganese (Mn)	0.601	1.5000 max.	Yes
% Silicon (Si)	0.193	0.4000 max.	Yes
% Sulphur (S)	0.034	0.0450 max.	Yes
% Phosphorus (P)	0.038	0.0450 max.	Yes
% Chromium (Cr)	0.238		
% Nickel (Ni)	0.123		
% Molybdenum (Mo)	0.039		
% Copper (Cu)	0.010		
% Vanadium (V)	0.006		
% Carbon Equivalent	0.31	0.4200 max.	Yes

Remark: Sample material conforms to IS 2062 : 2011 E 250 A w.r.t. above results.

Discipline: Mechanical, Group: Mechanical Properties of Metals

### Bend Test Report (180 Deg)

Test Method : IS 1599:2012 (Ra 2017)

	Result	Conformity
Thickness (mm)	25.00 (Machined)	
Formar Diameter 2xD (mm)	50.00	
Observation	No Cracks	
Remark	Satisfactory	



For INO Analytical Laboratories

SH      Checked By      Authorized Signatory  
Sachin Upadhyay  
HOD (MECH)

Authorized Signatory  
Urmila Pichad  
Sr.Analyst(CHEM)

Authorized Signatory  
Karuna Naik  
HOD (CHEM)

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Format No. DOC/IAL/TRF/02

Issue No.: 00

Revision No.: 02





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## Test Report

ULR - TC559121000006047F

Page 2 of 2

Issued To : M/s FLUORO TECH ENGINEERING WORKS  
Plot No. 89, Survey No 66, Walliv Phata, Sativali,  
Vasai (E), Thane

Report No. : K7339

Job No. : J23363

Date : 06-04-2021

Customer's Ref No : FEW/01/21-22 DTD-01/04/2021

Sample Received on: 02-04-2021

Specification : IS 2062 : 2011 E 250 A 20-40

Date of Completion: 05-04-2021

Sample Description : PATTA

Material Dimension : 32 MM THK X 65 MM

Id No : FT-144

### Tensile Test Report

Test Method : IS 1608-1:2018

	Result	Required Value	Conformity
Gauge Dia. (mm)	10.02		
Area (mm <sup>2</sup> )	78.85		
Gauge Length (mm)	50.00		
Yield Load (kN)	22.92		
Ultimate Load (kN)	40.04		
Final Gauge Length (mm)	64.70		
Final Dia. (mm)	6.40		
Final Area (mm <sup>2</sup> )	32.169		
Yield Stress (MPa)	290.66	240.00 min.	Yes
U.T.S (MPa)	507.77	410.00 min.	Yes
Elongation (%)	29.40	23.00 min.	Yes
Reduction (%)	59.20		
Fracture	WGL		
Remark	Satisfactory		

Remark: The result of tensile test meets the corresponding requirements of the Grade IS 2062 : 2011 E 250 A

\*\*\*\*\* Report Ends\*\*\*\*\*



For INO Analytical Laboratories

SH

Checked By

Authorized Signatory  
Sachin Upadhyay  
HOD (MECH)

Authorized Signatory  
Urmila Pichad  
Sr.Analyst(CHEM)

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Format No. DOC/IAL/TRF/02

Issue No.: 00

Revision No.: 02





# AMRAT STEEL & ALLOYS



Manufacturers & Suppliers of :  
S.S. Pipe Fitting, Carbon Steel, Nipple, Coupling, Flanges, Tee, Reducer, Elbow, etc.

47/49, Shri Prabhuram Mandir Marg, 4th Kumbharwada, MUMBAI - 400 004.

## Test Certificate

Cert. No. ASA/3369/21 Date 15.03.2021

Sub : M. S. FLANGE

Party : M/S. ARAVALI METAL INDUSTRIES

Specification : SA 105 *edition 8*

P. O. No. VERBAL

### CHEMICAL ANALYSIS %

Size of	Heat No.	C%	Mn%	S%	P%	Si%	Cr%	Mo%	Ni%	V%	Cu%
FLANGE 25NB 150#SORF	A25	0.020	0.78	0.014	0.018	0.17	0.003	0.06	0.011	-	-
✓ FLANGE 40NB 150#SORF	A40	0.024	0.70	0.017	0.015	0.21	0.002	0.05	0.008	-	-
✓ FLANGE 50NB 150#SORF	A50	0.019	0.82	0.018	0.020	0.18	0.004	0.08	0.010	-	-
✓ FLANGE 80NB 150#SORF	A80	0.025	0.76	0.015	0.014	0.15	0.002	0.10	0.008	-	-
		✓	✓	✓	✓	✓	✓	✓	✓		

*Not Recorded in TC*

### PHYSICAL ANALYSIS

Description	Heat No.	Yield Stress Kg./mm <sup>2</sup>	U. T. S. Kg./mm <sup>2</sup>	Reduction Area%	Elongation %	Hardness HB Max
FLANGE 25NB 150#SORF	A25	30.90	52.80	51.50	37.60	90-97
FLANGE 40NB 150#SORF	A40	31.90	53.40	52.60	33.80	105-112
FLANGE 50NB 150#SORF	A50	32.10	54.10	50.80	30.40	80-89
FLANGE 80NB 150#SORF	A80	30.80	51.90	51.90	29.10	85-92
		✓	✓	✓	✓	✓

HEAT TREATMENT - NORMALIZED AT 910 DEGREE, SOAKING FOR 1.50 HOUR COOLING IN STILL AIR

### SUPPLY DETAILS

Item No.	Description	Heat No.	Batch No.	Qty.
1	FLANGE 25NB 150#SORF	A25	AS696	25 NOS.
2 ✓	FLANGE 40NB 150#SORF	✓ A40	AS743	25 NOS. ✓
3 ✓	FLANGE 50NB 150#SORF	✓ A50	AS782	30 NOS. ✓
4 ✓	FLANGE 80NB 150#SORF	✓ A80	AS1058	30 NOS. ✓

*\* Vendor to Provide Product Labtest Report for Verification*

#### REMARKS :

1) THE ABOVE FLANGES CONFORM TO THE SPECIFICATION SA 105. *edition 8*

2) VISUAL AND DIMENSION CHECKED AND FOUND IN ORDER

3) WE CERTIFY THAT THE ITEM CONFORM STRICTLY TO *with comments*

DIMENSION STANDARD OF B16.5

For AMRAT STEEL & ALLOYS

Production / Executive Manager

*edition 8*

REVIEWED / NOTED  
WITNESSED

*Abhishek Ghoshgaonkar*  
01/07/2021  
ABHISHEK GHOSHGAONKAR





# AMRAT STEEL & ALLOYS



Manufacturers & Suppliers of :  
S.S. Pipe Fitting, Carbon Steel, Nipple, Coupling, Flanges, Tee, Reducer, Elbow, etc.

47/49, Shri Prabhuram Mandir Marg, 4th Kumbharwada, MUMBAI - 400 004.

## Test Certificate

Cert. No. ASA/3401/21 Date 15.03.2021

Sub : M. S. FLANGE

Party : M/S. ARAVALI METAL INDUSTRIES

Specification : SA 105 *Edition ?*

P. O. No. VERBAL

### CHEMICAL ANALYSIS %

Size of	Heat No.	C%	Mn%	S%	P%	Si%	Cr%	Mo%	Ni%	V%	& Ccyl.
FLANGE 100NB 150#SORF	A100	0.022	0.76	0.012	0.020	0.16	0.002	0.04	0.010	-	not
FLANGE 150NB 150#SORF	A150	0.023	0.74	0.015	0.018	0.19	0.002	0.05	0.009	-	Record
FLANGE 200NB 150#SORF	A200	0.020	0.81	0.016	0.021	0.22	0.003	0.09	0.008	-	In TC
FLANGE 300NB 150#SORF	A300	0.021	0.79	0.014	0.019	0.20	0.002	0.08	0.010	-	

### PHYSICAL ANALYSIS

Description	Heat No.	Yield Stress Kg./mm <sup>2</sup>	U. T. S. Kg./mm <sup>2</sup>	Reduction Area%	Elongation %	Hardness HB Max
FLANGE 100NB 150#SORF	A100	32.80	51.40	50.10	30.40	79-84
FLANGE 150NB 150#SORF	A150	30.20	54.60	54.20	29.10	95-103
FLANGE 200NB 150#SORF	A200	33.10	56.30	51.50	37.40	83-90
FLANGE 300NB 150#SORF	A300	31.00	52.70	55.60	33.20	109-115

HEAT TREATMENT - NORMALIZED AT 910 DEGREE, SOAKING FOR 1.50 HOUR COOLING IN STILL AIR

### SUPPLY DETAILS

Item No.	Description	Heat No.	Batch No.	Qty.
1	FLANGE 100NB 150#SORF	A100	AS1153	20 NOS.
2	FLANGE 150NB 150#SORF	A150	AS1169	20 NOS.
3	FLANGE 200NB 150#SORF	A200	AS1210	20 NOS.
4	FLANGE 300NB 150#SORF	A300	AS1505	20 NOS.



#### REMARKS:

- 1) THE ABOVE FLANGES CONFORM TO THE SPECIFICATION SA 105 *Edition ?*
- 2) VISUAL AND DIMENSION CHECKED AND FOUND IN ORDER
- 3) WE CERTIFY THAT THE ITEM CONFORM STRICTLY TO DIMENSION STANDARD OF B16.5 *Edition ?*

For AMRAT STEEL & ALLOYS

Production / Executive Manager

REVIEWED / NOTED  
%WITNESSED

*with comments*  
ABHISHEK CHADIGAONKAR







# AMRAT STEEL & ALLOYS



Manufacturers & Suppliers of :  
S.S. Pipe Fitting, Carbon Steel, Nipple, Coupling, Flanges, Tee, Reducer, Elbow, etc.

47/49, Shri Prabhuram Mandir Marg, 4th Kumbharwada, MUMBAI - 400 004.

## Test Certificate

Cert. No. ASA/3725/21 Date 15.03.2021

Sub : M. S. FLANGE

Party : M/S. ARAVALI METAL INDUSTRIES

Specification : SA 105 Edition 8

P. O. No. VERBAL

### CHEMICAL ANALYSIS %

Size of	Heat No.	C%	Mn%	S%	P%	Si%	Cr%	Mo%	Ni%	V%
FLANGE 40NB 150#BLRF	A40B	0.020	0.80	0.011	0.018	0.18	0.003	0.05	0.011	-
FLANGE 80NB 150#BLRF	A80B	0.021	0.78	0.012	0.020	0.20	0.002	0.06	0.010	-
FLANGE 200NB 150#BLRF	A200B	0.024	0.75	0.015	0.021	0.21	0.003	0.09	0.009	-
FLANGE 300NB 150#BLRF	A300B	0.022	0.74	0.013	0.019	0.20	0.003	0.07	0.010	-

### PHYSICAL ANALYSIS

Description	Heat No.	Yield Stress Kg./mm <sup>2</sup>	U. T. S. Kg./mm <sup>2</sup>	Reduction Area%	Elongation %	Hardness HRB
FLANGE 40NB 150#BLRF	A40B	35.10	56.90	51.10	37.40	80.10
FLANGE 80NB 150#BLRF	A80B	31.00	52.70	55.60	33.20	79.10
FLANGE 200NB 150#BLRF	A200B	32.80	51.50	50.40	30.40	81.70
FLANGE 300NB 150#BLRF	A300B	33.60	54.60	54.20	29.10	83.40

HEAT TREATMENT - NORMALIZED AT 910 DEGREE, SOAKING FOR 1.50 HOUR COOLING IN STILL AIR

### SUPPLY DETAILS

Item No.	Description	Heat No.	Batch No.	Qty.
1	FLANGE 40NB 150#BLRF	A100	AS1619	10 NOS.
2	FLANGE 80NB 150#BLRF	A150	AS1629	10 NOS.
3	FLANGE 200NB 150#BLRF	A200	AS1752	10 NOS.
4	FLANGE 300NB 150#BLRF	A300	AS1788	10 NOS.



\* Vendor to provide product lab test Report for Verification  
For AMRAT STEEL & ALLOYS

#### REMARKS :

- 1) THE ABOVE FLANGES CONFORM TO THE SPECIFICATION SA 105 Edition 8 with comments.
- 2) VISUAL AND DIMENSION CHECKED AND FOUND IN ORDER
- 3) WE CERTIFY THAT THE ITEM CONFORM STRICTLY TO THE DIMENSION STANDARD OF B16.5 Edition 8

B. R. Chaudhary

Production / Executive Manager







# MAHARASHTRA SEAMLESS LIMITED

"WELL KNOWN PIPE & TUBE MAKER"

[CERTIFICATE OF MANUFACTURE AND TEST FOR PIPES] REGULATION 4(e)

349730

FORM III A

EN : 10204: 3.1

Customer's Name & Address : SHAH METAL & TUBES,  
PLOT NO. 1118, ROAD NO. 12, STEEL WAREHOUSE  
COMPLEX, KALAMBOLI, TAL- PANVEL,  
DIST-RAIGAD, MAHARASHTRA, 410218, INDIA.

Name of Part : PIPES

Makers Name : MAHARASHTRA SEAMLESS LIMITED  
& address: D-114, MIDC Area, MSL Nagar, Vile- Bhagad, Varchiwadi,  
Mangaon, Dist. Raigad, Maharashtra - 402308

Customer Order No. : Email - 7.12.2020  
Test Certificate No. : MSL-6 / IBR / 1429 / 81 / 2020  
Date : 23.02.2021  
Works Order No. : 20210002159  
Process Of Manufacture : HOT FINISH SEAMLESS  
Main Dimension : 48.30 MM O.D. 3.68 MM THK ✓  
Plain / Bevel End : SQUARE CUT  
Specifications & Grade : ASME SA 106 Gr.B (2019) ✓

## RAW MATERIAL

Process Of Manufacture : BF/EA/EO/AL/RF/VD/CCM/Rolling  
Fully Killed/Rimmed/ Semi-Killed : Fully Killed & Fine Grained.

Tolerances : As per Specification

Design Pressure : N.A Kg/cm<sup>2</sup>

Design Temperature : N.A °C

Drawing No. : N.A.

Sl. No	Length Range (Mtrs)	Makers T.C. No. & Date	Heat No.		RM Dia (mm)	No of Pipes	Total Meters	Hydrostatic Test (PSI)	Date of Hydro	Date of Manufacture	Bend Test	Flattening Test	Flaring Test	Drift Test	Crushing Test	Flange Test	Heat Treatment	Non-Destructive Test
			Maker	MSL														
1	5.0 - 7.0	035354/14.01.2021	3022573	MA1617	162	5	28.50	2500	19.02.2021	FEB 2021	OK	NA	NA	NA	NA	NA	NA	NA

## Mechanical Properties (At Room temperature)

G.L = 50 MM

G.W = 19.05 MM

## Chemical Composition (%)

(Ladle/Product 1/Product 2)

TEST	Y. St. (MPA)	U.T.S. (MPA)	El%	Hardness (HRB)	Name of the Steel Maker & Inspecting Authority	Heat No.	C	Mn	P	S	Si	Cr	Mo	Ni	V	Al	Cu	Ti	CE
(Max)							0.300	1.060	0.035	0.035		0.400	0.150	0.400	0.080		0.400		
(Min)	240	415	30				0.290			0.100									
1	394.11	487.39	36.6	74-76	Jindal Steel & Power Ltd., Chattisgarh Well Known Steel Maker	MA1617	0.130	0.680	0.013	0.008	0.200	0.009	0.002	0.004	0.002	0.036	0.006	0.0020	0.247
	386.36	490.22	36.7	74-76			0.140	0.690	0.014	0.008	0.210	0.008	0.002	0.004	0.002	0.035	0.004	0.0022	0.257
	390.51	481.56	36.8	74-76			0.130	0.670	0.013	0.007	0.200	0.009	0.003	0.005	0.002	0.034	0.005	0.0020	0.245
	375.00	492.49	37.0	74-76															
	388.50	491.64	37.2	74-76															
	392.62	488.18	36.8	74-76															

This is to certify that we have sold following material to M/s.

Size Pieces - 01 Invoice No.

VIKRAM &amp; COMPANY

WE CERTIFY HAVING SOLD 04 NOS TO M/S. VIDE OUR BILL NO. P.O. NO.

## Properties at Elevated Temperature (Et = 0.2% proof stress at temperature)

METAL TEMP. (°C)	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600
(m2)															
(N/mm2)															
Sr (N/mm2)															
MAWP															

Certified that particulars entered herein are correct. The PIPES has been designed and constructed to comply with the Indian Boiler Regulations for a maximum working pressure maximum temperature. & satisfactorily withstood hydro test pressure mention above in the presence of our responsible representative whose signature is appended here under.

The PIPES have been Manufactured & Tested at our works as per specification ASME SA 106 Gr.B

## REMARKS:-

1 Mail Confirms to API 5L GR.B PSL-1 / ASTM A53 GR.B (EDN. 2019) / ASME / ASTM A106 B (EDN. 2019) / SA106 B (EDN. 2019) / NACE MR 0175 / MR 0103 (%S & HARDNESS CONTROLLED) 48.30 X 3.68 HFS HEAT NO. 2500 PSI + B.NO. —

## Identification marks

Place : MANGAON

Date : 23 FEB 2021



MSL API SPEC 5L GR.B PSL-1 / ASME / ASTM SA106 GR.B / ASTM A53 GR.B / NACE MR 0175 /

MR 0103 (%S &amp; HARDNESS CONTROLLED) 48.30 X 3.68 HFS HEAT NO. 2500 PSI + B.NO. —



Makers &amp; Representative RAVI TYAGI

(Name &amp; Signature) Engineer

We have satisfied ourselves that the PIPES have been constructed in accordance with Indian Boiler Regulations, 1950

The tests conducted on the samples taken from the finished PIPES have been witnessed by us and the particulars entered herein are correct

Warning: Modification or unauthorized use of this certification is strictly prohibited. Violation calls for criminal prosecution

For authenticity verification, contact us at : mslic@mahaseam.com

Name &amp; Signature of

Inspecting Authority/ Well known Pipe Maker

SHASHIKANT SHELKE

(Name &amp; Signature)

Vile Bhagad Mangaon

Maharashtra Seamless Ltd.

SHASHIKANT SHELKE

Sr. Engineer

Rev. 03, Date 15.12.2017









## FORM III-A

## CERTIFICATE OF MANUFACTURE AND TEST FOR PIPE REGULATION

## CUSTOMER NAME &amp; ADDRESS:

TMARU METAL INDUSTRIES  
Shop No. 1, Jayant Vili (Khemraj Bhawan)  
7th Khemaji Road Mumbai - 400004

TC NO. : JSL/Q/L20/TX2002008032/B-7

DATE : 10-Dec-20

INV NO. : TX2002008032

DATE : 10-Dec-20

SO. NO. : 4011041657-30

DATE : 20-Nov-20

PO. NO. : 1569/11/2020

DATE : 3-Nov-20

QTY. NO. : 8 MTRS : 30.035

1. Name of the Part : PIPE  
2. a Make Name : JINDAL SAW LTD.  
2b. Address : Works : A / 59-60, Malegaon MIDC, Sinnar  
Dist : Nashik, 422 113, Maharashtra, (INDIA)  
3a. Code of manufacture/Specification : ASTM A 106 GR. B  
3b. Drawing no. :  
3c. Design Pressure : Kg/cm<sup>2</sup>  
3d. Design Temperature : °C

Raw Material:  
4. Heat No. : 2021106  
5. Process of manufacture : EAF - LF - VD - CC  
6. Fully Killed/Remelted : Fully Killed  
7. Chemical composition : Satisfactory  
8. Name of the Steel Maker : JSPL RAIGARH  
9a. Size of Pipe (Outside Dia) : 162 MM  
9b. Test Plate No. & Date : JS3/0000035123 Dated 23.11.2020  
9c. Name of Inspecting Authority : Well known Steel Maker  
Identification mark of Inspecting Authority / Well known pipe maker : JSL

9. Main Dimensions  
OD x WT x LENGTH : 88.9 MM X 5.49 MM X 6 - 7 MTR  
10. Tolerances : As per IBR & ASTM A 106 GR. B  
11. Mode of manufacture : Hot Finished Seamless Pipes  
12. Ends : Bevel Ends  
13. Bend Test : N.A.  
14. Bend test on weld : N.A.  
15. Flaring test : N.A.  
16. Flattening test : Satisfactory  
17. Tensile Strength : Satisfactory  
18. Elongation percentage : Satisfactory  
19. Crushing Test : N.A.  
20. Heat Treatment : N.A.  
21. Flange test : N.A.  
22. Bulging test and drifting test (for cold drawn pipes) : N.A.  
23. Hydraulic test : Satisfactory  
24. Non-destructive test : Satisfactory (ECT AS PER ASTM E 309)

## CHEMICAL COMPOSITION (%)

ELEMENT	MILL	Product 1	Product 2	STD		Sr. Reqd.	Y. S (MPa)	U. T. S. (MPa)	% E	Hardness
				MIN.	MAX.					
C	0.1500	0.1450	0.1520		0.2500		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
Mn	0.1600	0.1580	0.1570	0.1000			245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
P	0.0060	0.0063	0.0060		0.0100		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
S	0.0140	0.0140	0.0160		0.0340		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
Fe	0.7500	0.7510	0.7500	0.2900	1.0600		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
Si	0.0060	0.0060	0.0059		0.4000		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
Al	0.0130	0.0110	0.0150		0.1500		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
Ni	0.0020	0.0021	0.0016		0.4000		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
Cr	0.0050	0.0053	0.0049		0.4000		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
Mo	0.0050	0.0052	0.0053		0.4000		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
Co	0.0280	0.0290	0.0280		0.4000		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
Cu	0.0012	0.0010	0.0009		0.4000		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
As	0.0020	0.0022	0.0020		0.4000		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
Se	0.2791	0.2770	0.2815		0.4000		245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.
O <sub>2</sub> ppm	19.0000						245 MPa Min.	415 MPa Min.	21.5% Min.	200 BHN Max.

This is to certify that **OB** Nos. **has been sold to M/s. TMARU METAL INDUSTRIES**

Authorized Signatory

Critical Temp. °C	250	275	300	325	350	375	400	425	450	475	500	525	550	575	600
Reqd. (N/mm <sup>2</sup> )															
Et															
Se															
Sr															
MAWP	158.39			158.39	147.05	140.94	119.33	101.08	84.15	51.08	42.42	29.40	14.59		

Where : Yield at temperature (0.2% proof stress) at 10,000 hours at various working metal temperatures.

S<sub>1</sub> : Average stress to produce an elongation of 1% (creep) at 10,000 hours at various working metal temperatures.S<sub>2</sub> : Average and lowest stress to produce an elongation of 1% at the various working metal temperatures.P : Maximum Allowable Working Pressure in Kg./cm<sup>2</sup>S<sub>3</sub> : Yield strength at 20 °C (Room temperature) as given above 26

Certificate that the particulars entered herein are correct. The particulars of fabricated component are shown in drawing No. : N.A.

The Pipe has been designed and constructed to comply with Indian Boiler Regulations for a maximum working pressure of \_\_\_\_\_ Kg./cm<sup>2</sup> and maximum temperature of \_\_\_\_\_ °C and satisfactory results of a water test of 17.24 MPa on the 3-Dec-2020 in the presence of our responsible representative whose signature is appended hereunder.

Remarks : Certificate according to DIN 50049 : 3.1 / EN 10204 3.1

\*\*Material conforms to EACH SPECIFICATION &amp; GRADE INDIVIDUALLY AS PER ASTM A 106 GR B-19a / A 53 GR B-18 / ASME SA 106 / SA 53 GR B (ASME SEC II PART A EDITION 2019) / API 5L GR B OR L245 PSL1 46th EDITION / NACE MR 0175 / NACE MR 0103

Marking on Pipes : JSL API SPEC 5L MM OD X MM WT (SCH SIZE) OR L245 PSL1 / ASME SA 106 GR B / ASTM A 106 GR B / ASTM A 53 GR B / ASME SA 53 GR B / NACE MR 0175 / NACE MR 0103 SMLS HPS MTR LENGTH Kg/MTR HYDRO Mpa HEAT NO.

This is to certify that we have sold Following  
Material to M/s. \_\_\_\_\_

Maker's Representative  
(Name & Signature)  
KIRAN KUMAR

Size \_\_\_\_\_ Pieces - 01 Invoice No. \_\_\_\_\_  
**VIKRAM & COMPANY**



Maker  
(Name & Signature)  
S. S. TILK

Declaration : We have satisfied ourselves that the pipes have been constructed in accordance with Indian Boiler Regulations, 1950.

The tests conducted on the samples taken from the finished pipes have been witnessed by us and the particulars entered herein are correct.

REVIEWED / NOTED  
% WITNESSED  
Place / Date : Nashik / 2-Dec-2020



Inspecting Authority / Well Known Pipe Maker  
(Name & Signature)  
S. S. TILK

**SOLVAY SPECIALITIES  
INDIA PRIVATE LIMITED****Solvay Speciality Polymers  
Quality Control Certificate**

Customer		Certificate recipient	
DKSH INDIA PVT LTD GALA NO. A,B,C&D, HARIHAR COMPOUND, BUILDING NO.E11, SURVEY NO.89/18, DAPODE VILLAGE, MANKOLI ROAD BHIWANDI 421302 Maharashtra		DKSH INDIA PVT LTD GALA NO. A,B,C&D, HARIHAR COMPOUND, BUILDING NO.E11, SURVEY NO.89/18, DAPODE VILLAGE, MANKOLI ROAD BHIWANDI 421302	
Transport		Order	5343081 000010
Delivery note	72852485 000010	Customer ref.	7350010081
Shipping date	19.04.2021		
Packaging	12 drum		

**HALAR 6614**

Batch number 19N6199	/ Quantity	300.000 kg		
Characteristics	Units	Value	Specification	Method
Loss on Drying (LOD)	%	0.06	0.00 - 0.25	HA505-OR
Melt Flow Rate @ 2.16 kg	g/10min	12	9 - 15	ASTM D1238
Melt Point (DSC 2nd melt)	°C	221	220 - 227	HA553-OR
Production date	-	07.12.2019		

Melt Flow Rate result is for the uncompounded base resin.

**Supplier :**

REGISTERED OFFICE AND FACTORY  
SOLVAY SPECIALITIES INDIA PVT. LTD.  
PLOT NO 3526-27, GIDC, PANOLI-394116, DIST. BHARUCH, GUJARAT (INDIA)  
TEL +91-2646-272575, 272576, FAX +91-2646-272141  
VAT TIN : 24211300501 DATED 09.05.2008, CST TIN : 24711300501 DATED 12.05.2008  
Composite Identity Number : 117413003 00945877046794

**Approved by**

Grish Grover, Specifications  
Solvay Speciality Polymers Ltd  
4500 McGinnis Ferry Road  
Alpharetta, GA 30005-3914  
Phone: +1 (770) 772-9716



Issued at NAVI MUMBAI on 20.04.2021 at 12:53



**SOLVAY SPECIALITIES  
INDIA PRIVATE LIMITED****Solvay Speciality Polymers  
Quality Control Certificate****Customer**

DKSH INDIA PVT LTD  
GALA NO. A,B,C&D, HARIHAR COMPOUND,  
BUILDING NO.E11, SURVEY NO.89/18,  
DAPODE VILLAGE, MANKOLI ROAD  
BHIWANDI  
421302  
Maharashtra

**Certificate recipient**

DKSH INDIA PVT LTD  
GALA NO. A,B,C&D, HARIHAR COMPOUND,  
BUILDING NO.E11, SURVEY NO.89/18,  
DAPODE VILLAGE, MANKOLI ROAD  
BHIWANDI  
421302

**Transport**

**Delivery note** 72852479 000010  
**Shipping date** 19.04.2021  
**Packaging** 60 drum

**Order** 5515409 000010  
**Customer ref.** 7350011705

**HALAR 6014**

**Batch number** 2136120 ✓ **/ Quantity** 1,225.000 kg

Characteristics	Units	Value	Specification	Method
Loss on Drying (LOD)	%	0.06	≤ 0.25	HA505-OR
Melt Flow Rate @ 2.16 kg	g/10min	13	9 - 15	ASTM D1238
Melt Point (DSC 2nd melt)	°C	223	220 - 227	ASTM D 3418
Production date	-	05.03.2021		

**Batch number** 2136121 **/ Quantity** 200.000 kg

Characteristics	Units	Value	Specification	Method
Loss on Drying (LOD)	%	0.09	≤ 0.25	HA505-OR
Melt Flow Rate @ 2.16 kg	g/10min	13	9 - 15	ASTM D1238
Melt Point (DSC 2nd melt)	°C	223	220 - 227	ASTM D 3418
Production date	-	05.03.2021		

**Batch number** 2136122 **/ Quantity** 75.000 kg

Characteristics	Units	Value	Specification	Method
Loss on Drying (LOD)	%	0.05	≤ 0.25	HA505-OR
Melt Flow Rate @ 2.16 kg	g/10min	14	9 - 15	ASTM D1238
Melt Point (DSC 2nd melt)	°C	223	220 - 227	ASTM D 3418
Production date	-	11.03.2021		

**Supplier :**

REGISTERED OFFICE AND FACTORY  
SOLVAY SPECIALITIES INDIA PVT. LTD.  
PLOT NO 3626-27, GIDC, PANOLI-394116, DIST. BHARUCH, GUJARAT (INDIA)  
TEL +91-2646-272575, 272576, FAX +91-2646-272141  
VAT TIN : 24211300501 DATED 09.05.2006, CST TIN : 24711300501 DATED 12.05.2006  
Corporate Identity Number : U74130GJ2005PTC092544

**Approved by**

Grish Grover, Specifications  
Solvay Speciality Polymers LLC  
4500 McGinnis Ferry Road  
Alpharetta, GA 30005-5914  
Phone: +1 (770)772-8716

Issued at NAVI MUMBAI on 20.04.2021 at 12:40

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# Kinetic Polymers

(AN ISO 9001 - 2008 Certified Company)

D-13/2, Phase-1, Road No. 3, IDA., Jeedimetla, Hyderabad - 055. INDIA  
Phones : 7207078344, 7207008277, Telefax : 040-23093957  
Email : kineticpolymers@gmail.com / Website : www.kineticpolymers.com



## Calibration Certificate

Company Name : FLUORO TECH ENGINEERING WORKS  
Product : SURFACE RESISTIVITY METER  
Model No : SRM-100V  
Serial No : 190515  
Measurement Range :  $10^3 - 10^{12}$  Ohms/Square  
Result : Pass  
Calibration Date : 22.07.2020  
Next Calibration Due On : 21.07.2021  
Result : Pass  
Test Conditions :  
Temperature :  $25^{\circ}\text{C}$   
Relative Humidity : 51%  
New / Old : Old  
Signature :

The above instrument is calibrated using test and measuring equipment with valid traceability to National standards.

### Equipment used for calibration:

1. KP / Combo Testing Zig , Model No : CC - 01 , S.No : 070201

Traceability : Trucal, Secunderabad, Wide their Calibration Certificate No. TC / 20-21 / 201 02,  
Date: 27.05.2020, Due Date : 27.05.2021

S.No	Nomenclature	Make & Model	SLNo	Traceable to	Validity
1.	Digital Precision Multimeter	Fluor / 8846A	19997027	Transcal	06 May 2021



REVIEWED / NOTED  
.....%WITNESSED

ABHISHEK GHADIGAONKAR



★ ANTI-STATIC (ESD PRODUCTS) ★ CONDUCTIVE PRODUCTS ★ ESD SAFE CLEAN ROOM PRODUCTS  
★ EMI/RF SHIELDING MATERIAL ★ VCI CORROSIVE FILM ★ MASTER BATCHES ★ U.V. FILMS



Fluoro Tech Engineering Works  
1st Floor, Survey No. 66, Plot No. 89,  
Valiv Phata, Sativali Road  
Opp. Jay Equipment Pvt. Ltd, Vasai(E)  
Dist. Palghar 401 208, Maharashtra, India

Ref No. DCTG/00365

## TEST & CALIBRATION CERTIFICATE

Instrument Sr. No.: QU-390

This is to certify that our above Digital Coating Thickness Gauge Model Micronstat FD/ND working satisfactory within below range.

Our Standard calibration foils are measured on the digital micrometer model DIGIMATIC SrNo-19100089/DI/1 having a range of 0 TO 25MM with an accuracy of  $\pm 1$  MICRON traceable to NPL ( New Delhi ) standards through Calibration Device SrNo-M10 Grade"0" 1566 of M/s Sacardande Engineers-Mumbai. Probe-FD SrNo -2149. Probe-ND SrNo -1412.

Probe	Unit	Standard Reading	Observed Reading
Probe FD	microns	25 $\pm$ 1	24
	microns	111 $\pm$ 2	110
calibration point	microns	250 $\pm$ 2	250
	mm	1.04 $\pm$ 0.02	1.04
Probe -ND	microns	25 $\pm$ 1	25
	microns	111 $\pm$ 2	112
calibration point	microns	250 $\pm$ 2	250
	mm	1.04 $\pm$ 0.02	1.04

REST OF THE SPECIFICATIONS ARE AS PER CATALOGUE.

For PULSECHO SYSTEMS (BOMBAY) PVT. LTD.

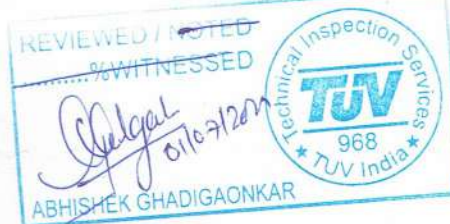
Authorised Signatory

Calibration Date: October 17, 2020

Calibration Due Date: October 16, 2021

### PULSECHO SYSTEMS (BOMBAY) PVT. LTD.

107/110, Nirmal Industrial Estate, Near Sion Fort, Sion(East), Mumbai 400022, Maharashtra, India  
Phone: +91-22-24071055, +91-22-24092087  
E-mail: sales@pulsecho.com  
Weekly Off: All Sundays and 2nd and 4th Saturdays.





## Calibration Certificate

<b>Client's Name &amp; Address :</b> M/s : FLUOROTECH ENGINEERING WORKS Plot No. 89, Survey No. 66, Waliv Phata Sativali Road Vasai (E).	<b>Certificate No</b> : 44349 - MT-02 <b>Condition Receipt</b> : Good <b>Calibration Date</b> : 02/06/2021 <b>Rec. Due Date</b> : 01/06/2022
---	---

### Detail Of UUC

<b>Nomenclature</b> : Measuring Tape <b>Make</b> : Freemans <b>Idnt. No.</b> : MT-02 <b>Range</b> : 0 to 15 Mtr	<b>Department</b> : --- <b>Resolution</b> : 1 mm <b>Accuracy</b> : --- <b>Location</b> : ---
--	---

Environment Condition: Temperature :- 21.7 °C RH :- 49.7 %RH Calibration Done at :- Lab

### Observations

All readings are in mm


Sr.No.	Spot Value	Observed Value	Error
1	0	0.00	0.00
2	100	100.00	0.00
3	200	199.99	0.01
4	400	399.99	0.01
5	800	799.98	0.02
6	Subsequent Reading upto 1 Mtr		0.01
7	Subsequent Reading upto 15 Mtr		-0.02

UUC : Unit Under Calibration

Calibration is carried out as per LH/SOP - 014

The Standard Instrument is used for calibration bears traceability to the National standard as follows.

I.D. / Sr. Number	Certificate No.	Calibration Date	Validity
LH/DVC-01 / 0460004	LH/M-ET/120 - 052	06/09/2020	05/09/2021

  
Calibrated By  
Miss. Mitali Duble

  
Approved By  
Mr. Mahesh Kulaye

### LIABILITY CLAUSE

1. This certificate relates to the particular Item submitted for calibration.
2. The result reported in this certificate are valid at the time of calibration & under the stipulated conditions of measurement
3. This Calibration certificate can not be used as evidence in the court of law and can not be used in part of full in any media without prior permission
4. All the values have been rounded off as per IS-2:2000
5. Calibration certificate shall not be reproduced except in full with out written permission of the technical manager of the laboratory.

-----END OF REPORT-----





## Calibration Certificate

<b>Client's Name &amp; Address :</b> M/s : FLUOROTECH ENGINEERING WORKS Plot No. 89, Survey No. 66, Waliv Phata Sativali Road Vasai (E).	<b>Certificate No</b> : 44349 - MT-01 <b>Condition Receipt</b> : Good <b>Calibration Date</b> : 02/06/2021 <b>Rec. Due Date</b> : 01/06/2022
---	---

### Detail Of UUC

<b>Nomenclature</b> : Measuring Tape <b>Make</b> : Freemans <b>Idnt. No.</b> : MT-01 <b>Range</b> : 0 to 5 Mtr	<b>Department</b> : --- <b>Resolution</b> : 1 mm <b>Accuracy</b> : --- <b>Location</b> : ---
---	---

Environment Condition: Temperature :- 21.7 °C RH :- 49.7 %RH Calibration Done at :- Lab

### Observations

All readings are in mm

Sr.No.	Spot Value	Observed Value	Error
1	0	0.00	0.00
2	100	100.01	-0.01
3	200	200.01	-0.01
4	400	400.02	-0.02
5	800	800.02	-0.02
6	Subsequent Reading upto 1 Mtr		0.02
7	Subsequent Reading upto 5 Mtr		-0.02

UUC : Unit Under Calibration

Calibration is carried out as per LH/SOP - 014

The Standard Instrument is used for calibration bears traceability to the National standard as follows.

I.D. / Sr. Number	Certificate No.	Calibration Date	Validity
LH/DVC-01 / 0460004	LH/M-ET/120 - 052	06/09/2020	05/09/2021

  
Calibrated By  
Miss. Mitali Duble

  
Approved By  
Mr. Mahesh Kulaye

### LIABILITY CLAUSE

- 1 This certificate relates to the particular Item submitted for calibration.
- 2 The result reported in this certificate are valid at the time of calibration & under the stipulated conditions of measurement.
- 3 This Calibration certificate can not be used as evidence in the court of law and can not be used in part of full in any media without prior permission.
- 4 All the values have been rounded off as per IS:2-2000
- 5 Calibration certificate shall not be reproduced except in full with out written permission of the technical manager of the laboratory.

-----END OF REPORT-----