



TC-6072

Laboratory :
327, R. N. Guha Road, Nager Bazar, Kolkata - 700 028
Tel : + 91 33 4005 6324 / 76040 88810
E-mail : insurveylab@yahoo.com

Office :
21 & 26D, Park Lane, Kolkata - 700 016
Tel : + 91 33 4072 1183 / 76040 88809
E-mail : insurvey1980@gmail.com
: ho@insurveyindia.co.in

ULR - TC 6072 22 0 00000501F

TEST CERTIFICATE NO. TC - 162689/2022/CHEM/
METALS & ALLOYS **DATE** 06.05.2022 **PAGE** 1 OF 2

Ref. No. : HGRV/AP-1/IE/2021-2022/122 dt.29.04.20222
Issued To : M/s. H.G. Raipur Visakhapatnam AP-1 Private Limited
NH-130 RV AP-01 Package, Aluru-Jakkuva Project
Base Camp Office, Kondakenguva Village
Kotasirlam Road Via Bhusayavalasa
(Near Kotasirlam) Ramabhadrapuram Mandal
Vizianagaram District, Andhra Pradesh
PIN: 535579

SEAL/MARK THUS

Samples from SIPL, Purulia
jointly collected with IE
representative & HGIEL.

Copy To : X

Sample Received On : 04.05.2022
Sample Tested On : 05.05.2022

Description of Sample(s) : 1 no. each cut Pc. of dia 8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm & 32 mm Ø TMT Sample
[Source of Material: Shakambhari Group (Elegant TMT)]

Test Method: ASTM:E-415/2015

Product Specification(s)/ Test Items : IS:1786/Fe-500D
Chemical Analysis

Subject: Development of Six Lane Aluru-Jakkuva section of NH-130-CD Road from Km 365+033 to Km 396+800 under Raipur-Visakhapatnam Economics Corridor in the state of Andhra Pradesh, India under Bharatmala Pariyojana on Hybrid Annuity Mode (AP 01) & Location/Chain age: ELEGANT TMT Manufacturing Unit @Asansol [AS DECLARED]

This is to Certify that the above sample(s) has/have been tested with the following results ::

TMT SAMPLES	Carbon (C) %	Sulphur (S) %	Phosphorous (P) %	Sulphur (S) % + Phosphorous (P) %
8 mm Ø	0.20 (zero point two zero)	0.031 (zero point zero three one)	0.028 (zero point zero two eight)	0.058 (zero point zero five eight)
Requirements as per IS:1786/2008/Amtd.No.1/Nov.2012/Gr.Fe-500D	0.25 max.	0.040 max.	0.040 max.	0.075 max.

Environmental Condition : R.T. - 24.9°C & R.H. - 49%
Estimated Uncertainty (if applicable) : Not applicable

Sanat Saah
SANAT SAHA
Authorized Signatory

The results reported in this Test Certificate are based on observations and measurements under the stated environmental conditions. Any reproduction or Xerox copy in part or full is not valid unless attested, Results pertain to the sample(s) only. SAMPLE/S IS / ARE NOT DRAWN BY US. Liability for return of the sample ceases after a month, unless otherwise stated by agreement with the client.

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TEST CERTIFICATE NO. TC - 162689/2022/CHEM/
METALS & ALLOYS DATE 06.05.2022 PAGE 2 OF 2

TMT SAMPLES	Carbon (C) %	Sulphur (S) %	Phosphorous (P) %	Sulphur (S) % + Phosphorous (P) %
10 mm Ø	0.20 (zero point two zero)	0.027 (zero point zero two seven)	0.024 (zero point zero two four)	0.051 (zero point zero five one)
12 mm Ø	0.16 (zero point one six)	0.031 (zero point zero three one)	0.040 (zero point zero four zero)	0.071 (zero point zero seven one)
16 mm Ø	0.17 (zero point one seven)	0.026 (zero point zero two six)	0.025 (zero point zero two five)	0.051 (zero point zero five one)
20 mm Ø	0.18 (zero point one eight)	0.040 (zero point zero four zero)	0.032 (zero point zero three two)	0.071 (zero point zero seven one)
25 mm Ø	0.16 (zero point one six)	0.036 (zero point zero three six)	0.032 (zero point zero three two)	0.068 (zero point zero six eight)
32 mm Ø	0.22 (zero point two two)	0.016 (zero point zero one six)	0.019 (zero point zero one nine)	0.035 (zero point zero three five)
Requirements as per IS:1786/2008/Amdt.No.1/Nov.2012/Gr.Fe-500D	0.25 max.	0.040 max.	0.040 max.	0.075 max.

Remark: All the samples conform to IS:1786/2008/Amdt.No.1/Nov.2012/Gr.Fe-500D in respect to the above test results.

This certificate refers to TC - 162689/2022/MECH/METALS

For Inspection Survey & Surveillance (I) Pvt. Ltd.

SANAT SAHA

Authorized Signatory

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TC-6072

TEST CERTIFICATE NO. TC - 162689/2022/MECH/METALS DATE 06.05.2022 PAGE 1 OF 3

Ref. No. : HGRV/AP-1/IE/2021-2022/122 dt.29.04.20222

SEAL/MARK THUS

Issued To : M/s. H.G. Raipur Visakhapatnam AP-1 Private Limited
NH-130 RV AP-01 Package, Aluru-Jakkuva Project
Base Camp Office, Kondakenguva Village
Kotasirlam Road Via Bhusayavalasa
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Vizianagaram District, Andhra Pradesh
PIN: 535579

Samples from SIPL, Purulia
jointly collected with IE
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Sample Received On : 04.05.2022

Sample Tested On : 05.05.2022

Description of Sample(s) : 1 no. each cut Pc. of dia 8 mm, 10 mm, 12 mm, 16 mm, 20 mm, 25 mm & 32 mm \varnothing TMT Sample
[Source of Material: Shakambhari Group (Elegant TMT)]

Test Method: IS:1786/08/Amndt.
No.-1/Nov.-2012, IS:1608/Pt.1/
2018 & IS:1599/2012/RA-2015

Product Specification(s)/ : IS:1786/Fe-500D
Test Items Mechanical Test

Subject: Development of Six Lane Aluru-Jakkuva section of NH-130-CD Road from Km 365+033 to Km 396+800 under Raipur-Visakhapatnam Economics Corridor in the state of Andhra Pradesh, India under Bharatmala Pariyojana on Hybrid Annuity Mode (AP 01) & Location/Chain age: ELEGANT TMT Manufacturing Unit @Asansol [AS DECLARED]

This is to Certify

that the above sample(s) has/have been tested with the following results ::

TMT SAMPLES	0.2% Proof Stress, N/mm ²	Ultimate Tensile Strength, N/mm ²	%Elongation on 5.65 $\sqrt{S_0}$ GL	%Total Elongation at maximum force on 5.65 $\sqrt{S_0}$ GL	Bend Test at 180° Upto 20 \varnothing = 3 \varnothing Over 20 \varnothing = 4 \varnothing	Rebend Test at 135°/157 $\frac{1}{2}$ ° Upto 10 \varnothing = 4 \varnothing Over 10 \varnothing = 6 \varnothing	Mass per Meter Run, kg
8 mm \varnothing	550.8 (five hundred fifty point eight)	630.9 (six hundred thirty point nine)	18.3 (eighteen point three)	6.4 (six point four)	Satisfactory	Satisfactory	0.408 (zero point four zero eight)
Requirements as per IS:1786/2008 /Amdt.No.1/ Nov.2012/ Gr. Fe-500D	500.0 min.	TS/YS Ratio \geq 1.10 but TS not less than 565.0	16.0 min.	5 min.	To pass the test	To pass the test	0.395 [tolerance: (\pm)7%] for 8 mm \varnothing [for Batch]

Environmental Condition : At 25°C Temperature
Estimated Uncertainty (if applicable) : Not applicable

R. R. Das
RAJENDRA RAM DAS
Authorized Signatory

INSURVEY/QF-7.8/02/01, Rev. 00, Rev. Date : NIL

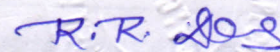
For Inspection Survey & Surveillance (I) Pvt. Ltd.

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TEST CERTIFICATE NO. TC - 162689/2022/MECH/METALS DATE 06.05.2022 PAGE 2 OF 3

TMT SAMPLES	0.2% Proof Stress, N/mm ²	Ultimate Tensile Strength, N/mm ²	%Elongation on 5.65√S ₀ GL	%Total Elongation at maximum force on 5.65√S ₀ GL	Bend Test at 180° Upto 20 ∅ = 3∅ Over 20 ∅ = 4∅	Rebend Test at 135°/157 ¹ / ₂ ° Upto 10 ∅ = 4∅ Over 10 ∅ = 6∅	Mass per Meter Run, kg
10 mm ∅	517.0 (five hundred seventeen point zero)	615.3 (six hundred fifteen point three)	23.7 (twenty three point seven)	7.6 (seven point six)	Satisfactory	Satisfactory	0.589 (zero point five eight nine)
12 mm ∅	546.4 (five hundred forty six point four)	632.7 (six hundred thirty two point seven)	22.4 (twenty two point four)	10.4 (ten point four)	Satisfactory	Satisfactory	0.843 (zero point eight four three)
16 mm ∅	560.5 (five hundred sixty point five)	656.6 (six hundred fifty six point six)	22.9 (twenty two point nine)	6.4 (six point four)	Satisfactory	Satisfactory	1.55 (one point five five)
Requirements as per IS:1786/2008/ Amdt.No.1/ Nov.2012/ Gr. Fe-500D	500.0 min.	TS/YS Ratio ≥ 1.10 but TS not less than 565.0	16.0 min.	5 min.	To pass the test	To pass the test	0.617 [tolerance: (±)7% for 10 mm ∅ [for Batch] 0.888 [tolerance: (±)5%] for 12 mm ∅ [for Batch] 1.58 [Tolerance: (±)5%] for 16 mm ∅ [for Batch]


RAJENDRA RAM DAS
Authorized Signatory

For Inspection Survey & Surveillance (I) Pvt. Ltd.

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TMT SAMPLES	0.2% Proof Stress, N/mm ²	Ultimate Tensile Strength, N/mm ²	%Elongation on 5.65√S ₀ GL	%Total Elongation at maximum force on 5.65√S ₀ GL	Bend Test at 180° Upto 20 ∅ = 3∅ Over 20 ∅ = 4∅	Rebend Test at 135°/157½° Upto 10 ∅ = 4∅ Over 10 ∅ = 6∅	Mass per Meter Run, kg
20 mm ∅	560.7 (five hundred sixty point seven)	643.3 (six hundred forty three point three)	20.5 (twenty point five)	8.7 (eight point seven)	Satisfactory	Satisfactory	2.45 (two point four five)
25 mm ∅	558.5 (five hundred fifty eight point five)	692.1 (six hundred ninety two point one)	17.0 (seventeen point zero)	6.7 (six point seven)	Satisfactory	Satisfactory	3.94 (three point nine four)
32 mm ∅	515.6 (five hundred fifteen point six)	665.9 (six hundred sixty five point nine)	21.2 (twenty one point two)	7.9 (seven point nine)	Satisfactory	Satisfactory	6.35 (six hundred thirty five)
Requirements as per IS:1786/2008/ Amdt.No.1/ Nov.2012/ Gr. Fe-500D	500.0 min.	TS/YS Ratio ≥ 1.10 but TS not less than 565.0	16.0 min.	5 min.	To pass the test	To pass the test	2.47 [tolerance: (±)3% for 20 mm ∅ [for Batch] 3.85 [tolerance: (±)3% for 25 mm ∅ [for Batch] 6.31 [tolerance: (±)3% for 32 mm ∅ [for Batch]

Remark: All the samples conform to IS:1786/2008/ Amdt.No.1/Nov.2012/Gr.Fe-500D in respect to the above test results.

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