

NTH CERTIFICATES



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TEST CERTIFICATE

Test Certificate No. NTH/EP/ML/2020/00173
Code No. 1582798326876
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ANNEXURE-B

Test Result of 25 mm Dia HSDS(TMT)Bar Grade Fe-600
Plain Bar

Full test (Comparative bond strength test as per IS 1786)
Bond Stress, in N/mm² at 28 days

S. No	Test	Test Results		Requirements of CL 5 of IS 1786, 2008
		Plain Bar	ISD(TMT) bar	
a	Bond Stress at 0.025mm slip i. Bond Stress, in N/mm ² ii. Percentage increase against corresponding Plain Bar.	2.52	3.93	..
		..	69.4	Min. 40% increase against corresponding plain bar
		2.80	5.37	..
b	Bond Stress at 0.25mm slip i. Bond Stress, in N/mm ² ii. Percentage increase against corresponding Plain Bar.	..	91.8	Min. 30% increase against corresponding plain bar
		2.81	5.37	..
		..	91.8	..
c	Bond Stress at Ultimate failure i. Bond Stress, in N/mm ² ii. Percentage increase against corresponding Plain Bar.
	
	

Note: The Compressive Strength of Concrete used in this test was 25.6 N/mm² at 28 days.

Remarks: In respect of the test carried out, the sample meets the requirement of clause 5.7 of IS 1786: 2008 (Fourth Revision) for the Comparative bond strength of High Strength Deform Steel Bars of Nominal diameter 25 mm

Tested by
Ajay Kumar
S. O. (Chf)

Checked by
Debashish Saha
Scientist CRPT

Approved by
Rajesh Kumar
Scientist C(NDT)

ANNEXURE-A

Test certificate No. NTH/EP/ML/2020/00173
Code No. 1582798326876
Page 1
No. of pages 1

Sample Description: Stated as "TMT bar 25mm, Grade Fe-600 as per IS 1786"

Test Result:

Test Parameters	Test Result	Permissible limits
Chemical composition, % by mass	C-0.21 S-0.035 P-0.032 S+P-0.067 CE-0.22	As per IS 1786: 2008, Fe600

Tested by
Amrita Saha
SA (Chemical)

Checked by
Dr. A. B. Mondal
Scientist B (Chemical)

Approved by
Dr. S. N. Bandyopadhyay
Scientist C (Chemical)



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FORM NO. NTH/SJ/F/5



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FORM NO. NTH/SJ/F/5

ANNEXURE

Test certificate No. NTH/ER/ML/202400173
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SJ No.	Parameters	Clause No. of Specification	Result	Permissible limits
9.	Freedom from defects	4.3	Satisfactory	Bar shall be well and cleanly rolled and shall be sound and free from surface defects and jibs or rips or other detrimental to its subsequent processing and to its use.
10.	Deformation & Surface Characteristics	5.2	Found Satisfactory with 2 Nos. of longitudinal ribs parallel to longitudinal axis of bar and 2 Nos. of transverse ribs inclined in each row and are spaced along the length of bar at substantially uniform distance.	
11.	The mean projected rib area, mm ² /mm	5.2	4.41	4.25 Min.
12.	The mean projected rib area of transverse ribs slope, mm ² /mm	5.2	(i) 2.27 & (ii) 2.14	1.42 Min.
13.	Pull Out Test	5.7	As per -ANNEXURE - B	The bond strength of plain round bar of the same nominal size by 40% and 60% respectively.

Tested by
 Vinay Kumar
 SO (Mechanical)

Checked by
 Anup Verma
 Scientist B (Mechanical)

Approved by
 Rajesh Kumar
 Scientist C (NDT)

02/06/2020
 Rajesh Kumar

ANNEXURE

Test certificate No. NTH/ER/ML/202400173
 Code No. 1582798324876
 Page 1
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Sample Description: Stated as "TMT Bar 25mm, Grade Fe 600 as per IS 1786".
Observation: Quantity of Samples found as "5 Nos x 1m long 25mm dia deformed steel bar" and "3 Nos x 1m long 25mm dia plain round steel bar". Emboss mark observed on the deformed bar as "MAITHAN TMT".

SJ No.	Parameters	Clause No. Specification	Result	Permissible limits
1.	Mass per Meter, kg	6.2	2.66	3.85 - 4 % + Not Limited
2.	0.2 % Proof Stress / Yield Stress, N/mm ²	9.2	642.1	600 Min.
3.	Tensile Strength, N/mm ²	9.2	730.7	660 Min.
4.	TS/YB Ratio	9.2	1.13	1.06 Min.
5.	Elongation on Gauge Length of 6.85-A, %	9.2	21.9	10.0 Min.
6.	Bend Test (Mandrel Dia: 50)	9.3	Satisfactory	Shall be no rupture or crack visible to a person of normal or corrected vision on the bent portion.
7.	Re-bend Test (Mandrel Dia: 70)	9.4	Satisfactory	Shall be no rupture or crack visible to a person of normal or corrected vision on the re-bent portion.
8.	Chemical Composition	4.2	As per -ANNEXURE - A	As per Clause 4.2

Tested by
 Vinay Kumar
 SO (Mechanical)

Checked by
 Anup Verma
 Scientist B (Mechanical)

Approved by
 Rajesh Kumar
 Scientist C (NDT)

02/06/2020
 Rajesh Kumar



NTH CERTIFICATES

FORM NO. NTHSLR/FS

भारत सरकार
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National Test House (Eastern Region)
ब्लॉक - सी पी, सेक्टर - 5, साहू लैक सिटी, कोल्हाता - 750 091
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Test Certificate No. : NTN/EN/M/L/2020/0173
कोड नं. : 1582795326876
दिनांक : 02/06/2020

Test Name : As per "ANNEXURE".

Test Results : -

टिप्पणी :
Note

टिप्पणी :
Remarks

In respect of tests carried out, the sample meets the requirements of IS 1786-2008 for Fe 600 Grade.



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Test Certificate No. : NTN/EN/M/L/2020/0173
कोड नं. : 1582795326876
दिनांक : 02/06/2020

MAITHAN STEEL & POWER LIMITED.

9, A.J.C. Bose Road, Ideal Centre, 6th Floor, Kolkata-700017

आहूतक का संख्या नं. पर परीक्षण
Customer's Ref. No. : MAITHAN/NTH/05.02.2020-C
दिनांक नं. पर परीक्षण
Register No. & Date : 00173/NTH(ES)/M/L/03/03/2020

One sample stated as "TMT bar 25mm, Grade Fe 600 as per IS 1786".

Sample was observed as HSDS bar 25mm dia.

As per IS 1786:2008 for Grade Fe 600.

27/02/2020

From: 01/06/2020 To: 01/06/2020

As per IS 1786:2008, IS 1608 (Part-1):2018, IS 1999:2012, IS 228, IS 2776 (Part 1):1987.

NA

नमूना प्रक्रिया की गई प्रक्रियाएं हैं
Sampling Procedure where relevant

Checked By :
Umesh Kumar
SO Mechanical

Approved By :
Rajesh Kumar
Scientist-C (NDT)

Checked By :
Rajesh Kumar
Scientist-B (Mechanical)

Approved By :
Rajesh Kumar
Scientist-C (NDT)





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FORM NO. NTH/SL/F/5



TEST CERTIFICATE
ANNEXURE-B

Test Certificate No. NTH(ER)/M(L)/2020/00173 Code No. 1582798326876 Page 1 No. of Pages 1

Test Result of 25 mm. Dia HSDS (TMT) Bar, Grade Fe 600.

Full out test (Comparative bond Strength test as per cl 5)
Bond Stress, in N/mm^2 at 28 days

Sl. No	Test	Test Results		Requirements of CL 5 of IS 1786: 2008.
		Plain Bar	HSD(TMT) bar	
a	Bond Stress at 0.025mm slip			--
	i. Bond Stress, in $N/sq\ mm$	2.32	3.93	Min. 40% increase against corresponding plain bar
ii. Percentage increase against corresponding Plain Bar.	--	69.4		
b	Bond Stress at 0.25mm slip			--
	i. Bond Stress, in $N/sq\ mm$	2.80	5.37	Min. 80% increase against corresponding plain bar
ii. Percentage increase against corresponding Plain Bar.	--	91.8		
c	Bond Stress at Ultimate failure			--
	i. Bond Stress, in $N/sq\ mm$	2.81	5.37	--
ii. Percentage increase against corresponding Plain Bar.	--	91.8	--	

Note: The Compressive Strength of Concrete used in this test was $25.6 N/mm^2$ at 28 days.

Remarks: In respect of the test carried out, the sample meets the requirement of clause 5.7 of IS 1786 : 2008 (Forth Revision) for the Comparative bond strength of High Strength Deform Steel Bars of Nominal diameter 25 mm.

Tested by

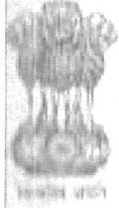
Ajeet Kumar
S. O. (Civil)

Checked by

Debasish Satkar
Scientist C(RPT)

Approved by

Rajesh Kumar
Scientist C(NDT)



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ANNEXURE - A

Test certificate No. NTH(ER)/M(LV)2020/00173	Code No. 1582798326876	Page 1	No. of pages 1
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Sample Description: Stated as "TMT bar 25mm. Grade Fe-600 as per IS 1786"

Test Result:

Test Parameters	Test Result	Permissible limits
Chemical composition, % by mass	C-0.21, S-0.035, P-0.032, S+P-0.067, CE-0.22	As per IS 1786 :2008. Fe600.

Tested by

Saha

Amrita Saha
SA (Chemical)

Checked by

Xesthmal

Dr A. B. Mondal
Scientist B (Chemical)

Approved by

S. N. Bandyopadhyay

Dr. S. N. Bandyopadhyay
Scientist C (Chemical)



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ANNEXURE

Test certificate No. Code No Page No. of pages
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Sl No.	Parameters	Clause No. of Specification	Result	Permissible limits
9.	Freedom from defects	4.3	Satisfactory	Bar shall be well and cleanly rolled and shall be sound and free from surface defects and pipe or other defects detrimental to its subsequent processing and to its use.
10.	Deformation & Surface Characteristics	5.2	Found Satisfactory with 2 Nos. of longitudinal ribs parallel to axis of bar and 2 rows of inclined transverse ribs.	Shall consist of two longitudinal ribs in the form of continuous helix in case of twisted bars and optional longitudinal ribs in case of untwisted bar. Transverse ribs shall be uniform in size and shape in each row and are spaced along the length of bar at substantially uniform distance.
11.	The mean projected rib area, mm ² /mm	5.2	4.41	4.25 Min.
12.	The mean projected rib area of transverse ribs alone, mm ² /mm	5.2	(i) 2.27 & (ii) 2.14	1.42 Min.
13.	Pull Out Test	5.7	As per "ANNEXURE - B"	The bond strength of calculated from load at measured slip of 0.025mm and 0.25mm for deformed bar shall exceed that of plain round bar of the same nominal size by 40% and 80% respectively.

Tested by

02/06/2020
Umesh Kumar
SO(Mechanical)

Checked by

02/06/2020
Angad Verma
Scientist B (Mechanical)

Approved by

02.06.2020
Rajesh Kumar
Scientist C (NDT)



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ANNEXURE

Test certificate No. Code No Page No. of pages
NTH(ER)/M(L)/2020/00173 1582798326876 1 2

Sample Description: Stated as "TMT Bar 25mm, Grade Fe 600 as per IS 1786".

Observation: Quantity of Sample found as "6 Nos x 1m long 25mm dia deformed steel bar and 3 Nos. x 1m long 25mm dia plain round steel bar", Emboss mark observed on the deformed bar as "MAITHAN TMT".

Test Result

Sl No.	Parameters	Clause No. of Specification	Result	Permissible limits
1.	Mass per Meter, kg	6.2	3.86	3.85 - 4 % + Not Limited
2.	0.2 % Proof Stress / Yield Stress, N/mm ²	9.2	642.1	600 Min.
3.	Tensile Strength, N/mm ²	9.2	730.7	660 Min.
4.	TS/YS Ratio	9.2	1.13	1.06 Min.
5.	Elongation on Gauge Length of 5.65 A, %	9.2	21.5	10.0 Min.
6.	Bend Test (Mandrel Dia: 60)	9.3	Satisfactory	Shall be no rupture or crack visible to a person of normal or corrected vision on the bent portion.
7.	Re-bend Test (Mandrel Dia: 70)	9.4	Satisfactory	Shall be no rupture or crack visible to a person of normal or corrected vision on the rebent portion.
8.	Chemical Composition	4.2	As per "ANNEXURE - A"	As per Clause 4.2

Tested by

Umesh Kumar
SO (Mechanical)
02/06/2020

Checked by

Angad Verma
Scientist B (Mechanical)
02/06/2020

Approved by

Rajesh Kumar
Scientist C (NDT)
02.06.2020



सत्यमेव जयते

भारत सरकार

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राष्ट्रीय परीक्षण शाला (पूर्वी क्षेत्र)

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Sl. No.

Test Name

Test Result

Limit

1

Test Results

As per "ANNEXURE".

-

टिप्पणी

Note

: In respect of tests carried out, the sample meets the requirements of IS 1786:2008 for Fe 600 Grade.

टिप्पणी

Remarks

Tested By

Umesh Kumar

SO Mechanical

Checked By

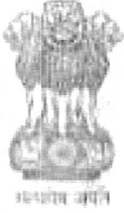
Angad Verma

Scientist- B (Mechanical)

Approved By

Rajesh Kumar

Scientist- C (NDT)



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02/06/2020

1582798326876

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पता

Address

MAITHAN STEEL & POWER LIMITED,

9, A.J.C. Bose Road, Ideal Centre, 6th Floor, Kolkata-700017

ग्राहक का संदर्भ सं एवं दिनांक
Customer's Ref. No.

MAITHAN/NTH/05.02.2020-C

Date: 05/02/2020

पंजीक सं एवं दिनांक
Register No & Date

00173/NTH(ER)/M(L)/03/03/2020

परीक्षण सामग्री का विवरण
Description of Test Item

One sample stated as "TMT bar 25mm, Grade Fe 600 as per IS 1786".

परीक्षण सामग्री का पहचान
Identification of Test Item

Sample was observed as HSDS bar 25mm dia.

नमूना का विनिर्देश (यदि हो)
Product Specification (if any)

As per IS 1786:2008 for Grade Fe 600.

नमूना प्राप्ति की तिथि
Date of Receipt of the Test Item

27/02/2020

कार्य सम्पादन की तिथि
Date(s) of Performance of Tests

From: 01/06/2020

To: 01/06/2020

व्यावृत्त प्रणाली का पहचान
Method(s) used for Test

As per IS 1786:2008, IS 1608 (Part-1):2018, IS 1599:2012, IS 228, IS 2770 (Part 1):1967.

NA

नमूना प्रक्रिया बही प्रासंगिक हो
Sampling Procedure where relevant

Tested By

Umesh Kumar

SO Mechanical

Checked By

Angad Verma

Scientist- B (Mechanical)

Approved By

Rajesh Kumar

Scientist- C (NDT)