



राष्ट्रीय प्रौद्योगिकी संस्थान अगरतला

National Institute of Technology Agartala

Agartala - 799 055 (Tripura)

F. NITA/II(20-ME)/ 2011/Testing

Date:18-08-2022

Job No-10/2022

To

Mr. Gavin Francis Lewis
GM- Sales and Marketing,
Shakambari Ispat and Power Limited

Ref no: : SIPL/SB/MKT/21-22/78 dated 08-06-2022

Sub: Test Report of TMT Bar as per IS:1786-1985

1. Introduction

Tests on Physical properties of reinforcement steel bars have been carried out on request of From Mr. Gavin Francis Lewis ,GM- Sales and Marketing, Shakambari Ispat and Power Limited

Specifications and stipulations in IS:1786-2008 have been strictly followed for testing of TMT bars.

2. Terms of reference

Mr. Gavin Francis Lewis on 08-06-2022 entrusted this work to the Mechanical Engineering Department of NIT Agartala and supplied 18 pieces of TMT bars of 1m length . Supplied nominal sizes have been 8,10,12,16,20 and 25mm dia HYSD TMT Bar of ELEGANT brand.

3. Test Results

The tests on various physical and Mechanical properties have been carried out as per the stipulations and clauses of the relevant IS codes. The tests on mechanical properties have been carried out on supplied samples with the help of 60 Ton capacity Universal testing Machine. The test results are tabulated in table 3.1.

Table 3.1 physical test Results of HYSD TMT bar of Elegant brand Sample supplied to Mechanical Engineering Department:

Sl No	Bar Dia	Nominal Mass	Test Results			
			Yield Stress	Ultimate Stress	Percentage Elongation	Bend
	mm	(kg/m)	N/mm ²	N/mm ²	Percent	
01	8	0.398	540	660	21	OK
02	10	0.618	520	670	22	OK
03	12	0.885	526	660	20	OK
04	16	1.58	531	670	24	OK
05	20	2.47	535	675	22	OK
06	25	3.86	520	676	22	OK

[Handwritten Signature]
18/8/2022



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4. Test Results

Chemical have been carried out as per the stipulations and clauses of the relevant IS codes. Chemical properties have been evaluated by Optical Emission spectrometer. The test results are tabulated in table4.1

Table4.1 Chemical Properties of Steel bar

The Spectrometric analysis was carried out through Optical emission spectrometer and Chemical compositions were evaluated as below

Sl No	Particulars	Contents in %						Maximum Limits for Fe500D
		8 mm	10 mm	12 mm	16 mm	20m m	25 mm	
1	Carbon	0.17	0.16	0.15	0.16	0.14	0.16	0.25 for Fe500D and 0.30 for Fe500
2	Sulphur	0.017	0.027	0.022	0.017	0.019	0.016	0.040 for Fe500D and 0.055 for Fe500
3	Phosphorous	0.028	0.023	0.021	0.020	0.020	0.025	0.040 for Fe500D and 0.055 for Fe500
4	Sulphur and Phosphorus	0.045	0.050	0.043	0.037	0.039	0.041	0.075 for Fe500D and 0.105 for Fe500

N:B: Permissible variation from the specified limits for Carbon, Sulphur, phosphorous and (Sulphur +phosphorus) is 0.02,0.005,0.005 and 0.010 respectively.

Dr. Pankaj Kumar Das
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ME Dept

Dr. Pritam Das
Associate Professor and Head
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1. Dean (R&C) for kind information
2. Registrar, NIT Agartala for kind Information