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DEPARTMENT OF CIVIL ENGINEERING
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To,
The General Manager (Sales & Marketing)
Maithan Steel & Power Limited
9, A J C Road, Ideal Centre, 6th Floor, Kolkatta-700 017

Sub: Tests on TMT bar samples for **Maithan Steel & Power Limited**

Ref: Your letter no. gb/test/002-21 dated 07.01.2021

1. Introduction:

Tests on physical & mechanical properties of reinforcement TMT steel bars have been carried out on request of the **General Manager (Sales & Marketing), Maithan Steel & Power Limited, 9, A J C Road, Ideal Centre, 6th Floor, Kolkatta-700 017.** Specifications and stipulations in IS: 1786-2008 and IS: 1608-2005 have been strictly followed for testing of the TMT steel bars.

2. Terms of reference:

The **General Manager (Sales & Marketing), Maithan Steel & Power Limited, 9, A J C Road, Ideal Centre, 6th Floor, Kolkatta-700 017,** vide letter no. gb/test/002-21 dated 07.01.2021, entrusted this work to the Civil Engineering Department, Indian Institute of Technology Guwahati and supplied 3 pieces of each sample of steel TMT bars on 07.01.2021. Supplied nominal sizes of steel bars have been 8, 10, 12, 16, 20 and 25 mm of **MAITHAN STEEL (as engraved)** 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 help of a 100 ton capacity universal testing machine. The test results are tabulated in Table 3.1.

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Table 3.1 Test Results of Physical and Mechanical properties of MAITHAN Brand TMT bar samples supplied to Civil Engineering Laboratory:

Sl. No.	Bar Dia. (mm)	Nominal Mass	Cross Sectional Area	Test Results				
				0.2 percent proof stress	Breaking Load	UTS	Percentage Elongation	Bend
		(kg/meter)	(mm^2)	N/mm^2	KN	N/mm^2	Percent	U on ϕ
01.	8	0.385	49.080	610.25	34.55	703.95	21.68	OK on 3 ϕ
		0.385	49.080	618.20	35.10	715.15	22.35	OK on 3 ϕ
		0.385	49.080	615.60	34.90	711.10	22.23	OK on 3 ϕ
02.	10	0.614	78.255	621.40	56.050	716.25	20.44	OK on 3 ϕ
		0.614	78.255	623.50	56.90	727.10	20.89	OK on 3 ϕ
		0.614	78.255	622.55	56.45	721.35	20.71	OK on 3 ϕ
03.	12	0.886	112.910	612.30	79.95	708.10	20.94	OK on 3 ϕ
		0.886	112.910	617.75	80.20	710.30	21.97	OK on 3 ϕ
		0.886	112.910	616.35	80.15	709.85	21.53	OK on 3 ϕ
04.	16	1.580	201.330	505.85	125.35	622.60	26.11	OK on 3 ϕ
		1.580	201.330	508.95	126.20	626.85	26.44	OK on 3 ϕ
		1.580	201.330	507.40	126.00	625.85	26.33	OK on 3 ϕ
05.	20	2.499	318.315	629.50	230.75	724.90	20.49	OK on 3 ϕ
		2.499	318.315	631.20	231.25	726.50	20.84	OK on 3 ϕ
		2.499	318.315	629.80	230.95	725.55	20.71	OK on 3 ϕ
06.	25	3.862	419.495	616.05	306.75	731.25	20.35	OK on 4 ϕ
		3.862	419.495	621.50	307.25	732.45	20.39	OK on 4 ϕ
		3.862	419.495	618.30	307.10	732.05	20.39	OK on 4 ϕ

(Dr. Arun Ch Borsaikia)

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(Dr. K. Darunkumar Singh)

1. IS 1786 : 2008, "High strength deformed steel bars and wires for concrete reinforcement-Specification," *Bureau of Indian Standards*, New Delhi 110002.

2. IS 1608: 2005, "Metallic materials-tensile testing at ambient temperature," *Bureau of Indian Standards*, New Delhi 110002.