

## BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)

#### DEPARTMENT OF CIVIL ENGINEERING

Mobile: 01819557964; PABX: (8802) - 55167100, 55167228-57 Ext. 7226, Info: http://brtc.ce.buet.ac.bd/#/home, Report verification: http://verify.ce.buet.ac.bd

# Burerum Beseever Autority & Consultation

1 of 2

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#### STRENGTH OF MATERIALS LABORATORY

#### TEST OF DEFORMED M.S. BARS [ASTM A 615M-16]

Sent by: Md. Moniruzzaman, Deputy General Manager, Sales & Marketing

Elite Iron & Steel Ind. Ltd., Bade Kalmeswar, Board Bazar, Joydebpur, Gazipur.

Project: - - -

BRTC No.: 1103-28280/CE/24-25; Dt. 30/7/2024

Ref.: Letter; Dt. 30/7/2024 Date of Test: 31/7/2024

Samples were received in UNSEALED condition.

SI.	Frog Mark /	Bar	Actual	Unit	Average	Yield or	Yield or	Average	Tensile	Tensile	Average	TS/YS	Elongation	Average	Bend ⊃
No.	Identification	Desig./	bar	Weight	Unit	Proof	Proof	Yield or Proof	Load	Strength	Tensile		(%)	Elongation	Test 🗅
		Nominal	dia.		Weight	Load	Strength	Strength			Strength		I	(%)	(Seperate
	1	dia.						(YS)			(TS)		(G. length =		samples)
		mm	//mm///	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa		200 mm)	<u> </u>	
1	ELITE SUPER POWER EIS B500 DWR	16	16.0	1.570		108	535	530	135	675	650		15	100000000000000000000000000000000000000	Satisfactory
2	ELITE SUPER POWER EIS B500 DWR		15.8	1.546	1,535	111	550	(76500 psi)	134	670	(94000 psi)	1.23	15	15	Satisfactory Satisfactory
3	ELITE SUPER POWER EIS B500 DWR	16	15.5	1.489		99.8	497	55.57	122	610		300000000000000000000000000000000000000	14		Satisfactory
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ASTM A615M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

 Bar desig JNominal dia, mm
 8
 10
 12
 16
 20
 22
 25
 28
 32
 36
 40
 50
 60

 Nominal area, sq.mm
 50.3
 79
 113
 201
 314
 380
 491
 616
 804
 1018
 1257
 1963
 2827

 Nominal weight, kg/m
 0.395
 0.617
 0.888
 1.578
 2.466
 2.98
 3.853
 4.834
 6.313
 7.99
 9.865
 15.41
 22.2

Measured unit weight shall not be less than 94% of the nominal weight. 8mm bar size is not covered in ASTM A615M-16. Area and weight of 8mm and 22m dia. bars are derived based on principle follwed for other sizes in Table A1.1 Actual dia. and TS/YS ratio are provided for informative purpose only. These are not requirements of ASTM A615M-16. Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length.

ASTM A615M-16 Tensile Requirements for Common Steel Grades

	Grade 60 [420]	Grade 75 [520]	Grade 80 [550]
Tensile strength, min. psi [MPa]	90 000 [620]	100 000 [690]	105 000 [725]
Yield strength, min, psi [MPa]	60 000 [420]	75 000 [520]	80 000 [550]
Elongation in 8 in. [200 mm], min, % Bar Designation No.			
10, 12, 16, 20	9	7	7
25, 22	8	7	7
28, 32, 36, 40, 50, 60	7	6	6

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge Dept. of Civil Engg., BUET, Dhaka-1000, Bangladesh

Conversion factor: 1.0 MPa = 1.0 N/mm<sup>2</sup> = 145 psi. Strengths are based on nominal area.

03 August 2024

Test performed by: Dr. Munaz Ahmed Noor

Professor, Dept. of Civil Engg., BUET

Important Note: Samples as supplied to us have been tested. BRTC does not have any responsibility as to the representative character of the samples required to be tested. It is recommended that the samples are sent in a secure and sealed cover/packet/container under the signature of a competent authority. In order to avoid fradulent fabrication of test results, this report has been printed on a security paper. It is also recommended that the test results be collected by a duly authorized person.

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## Bure ou of Research Testing & Consultation

### STRENGTH OF MATERIALS LABORATORY

TEST OF DEFORMED M.S. BARS [BDS ISO 6935-2:2016]

Sent by: Md. Moniruzzaman, Deputy General Manager, Sales & Marketing

Elite Iron & Steel Ind. Ltd., Bade Kalmeswar, Board Bazar, Joydebpur, Gazipur.

Project: ---

BRTC No.: 1103-28280/CE/24-25; Dt. 30/7/2024

Ref.: Letter: Dt. 30/7/2024

Date of Test: 31/7/2024

Conversion factor: 1.0 MPa = 1.0 N/mm<sup>2</sup> = 145 psi. Strengths are based on nominal area.

Samples were received in UNSEALED condition.

SI.	Frog Mark /	Nominal	Actual	Mass	Average	Yield or	Yield or	Average	Tensile	Tensile	Average	R <sub>m</sub> /R <sub>eH</sub>	Total	Average	Bend	Rebend D
No.	Identification	dia.	dia.	Per	Mass Per	Proof	Proof	Yield	Load	Strength	Tensile		Elongation	Total	Test	rest
				Unit	Unit	Load	Strength	Strength,			Strength,		(%)	Elongation		(Seperate
				Length	Length	or Same Column	ReH	ReH		R <sub>m</sub>	R <sub>m</sub>		(G.length	(%)		samples)
11/1/4/1/4/1/	Victoria a presidenti di manta di Salamani	/// mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa		= 5d)	Land Marie II		
1	ELITE SUPER POWER EIS B500 DWR	16	16.0	1.570					-	-			-		7/19/11-19/99/	Satisfactory
2	ELITE SUPER POWER EIS B500 DWR	16	15.8	1.546	1.535				-	-	-	-	-	- 1	-	Satisfactory
3	ELITE SUPER POWER EIS B500 DWR	16	15.5	1.489//	(1)11/18888			83711111111	6//-///	//////-/////		100000000000000000000000000000000000000	701000 - 10000	110000000000000000000000000000000000000	000000	Satisfactory
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BDS ISO 6935-2:20	16 Weight Requirements, N	omina	Area	etc. (Ta	ble 2).									
Nominal bar dia., mm			8	10	12	14	16	20	22*	25	28	32	40	50
Nominal cross sectional area, sq.mm		28.3	50.3	78.5	113	154	4 201	314	380	491	616	804	1257	1964
Nominal mass per	Nominal, kg/m	0.222	0.395	0.616	0.887	1.21	1.58	2.46	2.98	3.85	4.84	6.31	9.87	15.42
unit length	Permissible deviation, %	±8	±8	±6	±6	±5	±5	±5	±5	±4	±4	±4	±4	±4

\*22mm dia. bar is not covered in BDS ISO 6935-2:2016. Its properties are derived following the principle used for other bar sizes. Actual diameter of bars are shown for informative purpose only. It is not a requirement of BDS ISO 6935-2:2016.

Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length.

BDS ISO 6935-2 Tensile Requirements for Common Steel Grades

Steel	Yield S	trength, ReH, MPa	Ductiliy Properties							
Grade	Min.	Max.	Rm /R eH	Elongation, % (min.)						
			min.	Total	At Rm					
B400C-R	400	\$\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	1.15	14	7					
B400CWR	400		1.15	14	7					
B500C-R	500		1.15	14	7					
B500CWR	500	7///////////////	1.15	14	7					
B600C-R	600	11111117	1.15	10	7					
B450CWR	450	1.25 R eH (min.)	1.15		7.5					
B400DWR	400	1.3 R et (min.)	1.25	17	8					
B420DWR	420	1.3 R eH (min.)	1.25	16	8					
B500DWR	500	1.3 R eH (min.)	1.25	13	8					

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge

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03 August 202

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