

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



1 of 2

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.: 1103-29188/CE/24-25; Dt. 18/8/2024

Ref.: Letter; Dt. 18/8/2024 Date of Test: 19/8/2024

Conversion factor: 1.0 MPa = 1.0 N/mm² = 145 psi. Strengths are based on nominal area.

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
1		Nominal	dia.		Weight	Load	Strength	Strength			Strength			(%)	(Seperate
		dia.						(YS)			(TS)		(G. length =		samples)
THE HEALTH CO.		mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa		200 mm)	-	
1/1//	ELITE 60 EIS B420 DWR	25	24.6	3.718		207	421	437	275	560	575		17		Satisfactory
2	ELITE 60 EIS B420 DWR	25	24.6	3.735	3.721	223	454	(63500 psi)	290	590	(83500 psi)	1.32	18	18	Satisfactory
3	ELITE 60 EIS B420 DWR	25	24.5	3.711		214	436		282	575			18		Satisfactory
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ASTM A615M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

As in Asism-16 Weight Requirements and Nominal Area of Dats (120 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 Grade 75 Grade 80

[420] [520] [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 Ant

20 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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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.: 1103-29188/CE/23-24; Dt. 18/8/2024

Ref.: Letter: Dt. 18/8/2024 Date of Test: 19/8/2024

Samples were received in UNSEALED condition.

SI. No.	Frog Mark I Identification	Nominal dia.	Actual dia.	Mass Per Unit Length	Average Mass Per Unit Length kg/m	Yield or Proof Load	Yield or Proof Strength ReH MPa	Average Yield Strength, Ret	Load Str	Strength R _m	Tensile Strength, R _m	K _m /K _{eH}	Elongation (%) (G.length = 5d)	Average Total Elongation (%)	Test	Test (Seperate samples)
				kg/m						MPa	MPa					
1/1////////////////////////////////////	ELITE 60 EIS B420 DWR	25	24.6	3.718		911-11			11/4	-			-		7//2/4-19///	Satisfactory
2	ELITE 60 EIS B420 DWR	25	24.6	3.735	3.721	1111-1122	•	- 1			-	-	-	- 1	-	Satisfactory
3	ELITE 60 EIS B420 DWR	25	24.5	3.711	1000 1862 2370	11/1/2000				- 111			-		-	Satisfactory
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BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2). 6 8 10 12 14 16 20 22* 25 28 32 40 50 Nominal bar dia., mm 28.3 50.3 78.5 113 154 201 314 380 491 616 804 1257 1964 Nominal cross sectional area, sq.mm 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 Nominal mass per Nominal, kg/m Permissible deviation, % ±8 ±8 ±6 ±6 ±5 ±5 ±5 ±4 ±4 ±4 ±4

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

RDS ISO 6935-2 Tensile Requirements for Common Steel Grades

Steel	Yield S	trength, R.H, MPa	Ductiliy Properties						
Grade	Min.	Max.	RmIReH	Elongation, % (mi					
			min.	Total	At Rm				
B400C-R	400	A () () () () () () () () ()	1.15	14	7				
B400CWR	400		1.15	14	7				
B500C-R	500		1.15	14	7				
B500CWR	500	(1.15	14	7				
B600C-R	600	(1)((())())(())	1.15	10	7				
B450CWR	450	1.25 ReH (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	13 Ray (min.)	1.25	13	8				

Countersigned by:

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

Dept. of Civil Engg., BUET, Dhaka-1000, Bangladesh

20 August 2024

Test performed by: Dr. Munaz Ahmed Noor

Professor, Dept. of Civil Engg., BUET



^{*22}mm 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.