

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.: 1103-32516/CE/24-25; Dt. 30/9/2024

Ref.: Letter; Dt. 30/9/2024

Date of Test: 2/10/2024

Samples were received in UNSEALED condition.

SI. No.	Frog Mark / Identification	Bar Desig./ Nominal dia.	Actual bar dia.	Unit Weight kg/m	Average Unit Weight	Yield or Proof Load	Yield or Proof Strength	Average Yield or Proof Strength (YS) MPa	Tensile Load kN	Tensile Strength MPa	Average Tensile Strength (TS) MPa	TS/YS	Elongation (%) (G. length = 200 mm)	Average Elongation (%)	Bend Test (Seperate samples)
////1///	ELITE 60 EIS B420 DWR	16	16.1	1.589		97.5	485	477	127	630	625	111111111111111111111111111111111111111	18		Satisfactory
2	ELITE 60 EIS B420 DWR	16	16.0	1.579	1.587	88.6	441	(69000 psi)	119	595	(90500 psi)	1.31	17	17	Satisfactory
3	ELITE 60 EIS B420 DWR	16	16.1	1.592		101	505		130	645			16		Satisfactory
11/14/-11/04		((4)	/////4///	////// <u>-</u> /////	01841111111111			######################################	9///1-/////	-	-		100000-0000		
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ASTM A615M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

10 12 16 20 22 25 28 32 36 Bar desig Nominal dia., mm 113 201 314 380 491 616 804 1018 1257 1963 2827 Nominal area, sq.mm 50.3 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 80 Grade 60 Grade 75 [550] [420] [520] 90 000 [620] 100 000 [690] 105 000 [725] Tensile strength, min. psi [MPa] 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 25, 22 28, 32, 36, 40, 50, 60

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/mm² = 145 psi. Strengths are based on nominal area.



02 October 2024

Test performed by: Dr. M. Habibur Rahman

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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Bureau 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.: 1103-32516/CE/23-24; Dt. 30/9/2024

Ref.: Letter; Dt. 30/9/2024 Date of Test: 2/10/2024

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

Samples were received in UNSEALED condition.

SI. No.	Frog Mark / Identification	Nominal dia.	Actual dia.	Mass Per Unit Length kg/m	Average Mass Per Unit Length kg/m	Yield or Proof Load	Yield or Proof Strength R _{eH}	Average Yield Strength, R _{eH} MPa	Tensile Load	Tensile Strength R _m	Average Tensile Strength, R _m	R _m /R _{eH}	Total Elongation (%) (G.length = 5d)	Average Total Elongation (%)	Bend Test	Rebend Test (Seperate samples)
////1////	ELITE 60 EIS B420 DWR	16	16.1	1.589	11/1/19/10		-		1111-1111				-			Satisfactory
2	ELITE 60 EIS B420 DWR	////16	16.0	1.579	1.587		- :		11111111		-				<u> </u>	Satisfactory
3	ELITE 60 EIS B420 DWR	16	16.1	1.592 //				3 3 5 16 16 16 16 16 16 16 16 16 16 16 16 16	155712					1	<u> </u>	Satisfactory
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 BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).

 Nominal bar dia., mm
 6
 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
 201
 314
 380
 491
 616
 804
 1257
 1964

 Nominal mass per unit length
 Nominal, kg/m
 0.222
 0.395
 0.616
 0.887
 12.1
 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
 ±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/ReH	Elongation, % (min.)					
		()	min.	Total	At Rm				
B400C-R	400	V()))()()))()()()	1.15	14	7				
B400CWR	400	Y11111114-411111111	1.15	14	7				
B500C-R	500	71111111-411111111	1.15	14	7				
B500CWR	500	111111112-111111111	1.15	14	7				
B600C-R	600		1.15	10	7				
B450CWR	450	1.25 R et (min.)	1.15	11112	7.5				
B400DWR	400	1.3 R et (min.)	1.25	17	8				
B420DWR	420	1.3 R et (min.)	1.25	16	8				
B500DWR	500	1.3 Ret (min.)	1.25	13	8				

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge Dept. of Civil Engg., BUET, Dhaka-1000, Bangladesh Milwela 02

02 October 2024

Test performed by:
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