





# BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET)

## DEPARTMENT OF CIVIL ENGINEERING

### STRENGTH OF MATERIALS LABORATORY

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#### TEST OF DEFORMED M.S. BARS IBDS ISO 6935-2:2016I

Sent by: Md. Moniruzzaman, Deputy General Manager

Project: ELITE IRON & STEEL IND. LTD., Bade Kalmeswar, Board Bazar, Joydebpur, Gazipur.

BRTC No.: 1103-12956ICE/23-24; Dt. 31/3/2024

Ref.: Letter: Dt. 31/1/2024

Date of Test: 31/1/2024

#### Samples were received in UNSEALED condition.

Sl. No.	Frog Mark / Identification	Nominal dia.	Actual dia.	Mass Per Unit Length	Average Mass Per Unit Length	Yield or Proof Load	Yield or Proof Strength	Average Yield Strength	Tensile Load	Tensile Strength	Average Tensile Strength	R <sub>m</sub> /R <sub>eh</sub>	Total Elongation (%)	Average Total Elongation (%)	Bend Test	Rebend Test (Separate samples)
1	ELITE 60 EIS B420 DWR	16	16.0	1.575	1.579	-	-	-	-	-	-	-	-	-	-	-
2	ELITE 60 EIS B420 DWR	16	15.9	1.559	-	-	-	-	-	-	-	-	-	-	-	-
3	ELITE 60 EIS B420 DWR	16	16.1	1.602	-	-	-	-	-	-	-	-	-	-	-	-

BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).

Conversion factor: 1.0 MPa = 14.0 N/mm<sup>2</sup> = 145 psi. Strengths are based on nominal area.

Nominal bar dia., mm	Nominal cross sectional area, sq.mm	Nominal mass per unit length	Permissible deviation, %	
			±8	±6
5	28.3	0.222	±8	±6
8	50.3	0.395	±8	±6
10	78.5	0.616	±8	±6
12	113	0.887	±8	±6
14	154	1.21	±8	±6
16	201	1.58	±8	±6
20	314	2.46	±8	±6
22	380	2.98	±8	±6
25	491	3.85	±8	±6
28	616	4.84	±8	±6
32	804	6.31	±8	±6
40	1257	9.87	±8	±6
50	1964	15.42	±8	±6

\*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 Grade	Yield Strength, R <sub>eh</sub> , MPa		Ductility Properties	
	Min.	Max.	R <sub>m</sub> /R <sub>eh</sub> min.	Elongation, % (min.) Total At R <sub>m</sub>
B400C-R	400	460	1.15	14
B400CWR	400	460	1.15	14
B500C-R	500	560	1.15	14
B500CWR	500	560	1.15	14
B600C-R	600	660	1.15	10
B450CWR	450	510	1.15	7.5
B400DWR	400	460	1.25	17
B420DWR	420	480	1.25	16
B500DWR	500	560	1.25	13

Countersigned by:

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

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

Test performed by:

Dr. Md. Mazzur Rahman

Professor, Dept. of Civil Engg., BUET

17 February 2024



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 the samples are sent in a secure and sealed cover/pack/container under the signature of a competent authority. In order to avoid fraudulent fabrication of test results, this report has been printed on a paper that is also recommended that the test results be collected by a duly authorized person.