



MILITARY ENGINEER SERVICES (MES)

MATERIALS TESTING LABORATORY

Mobile: 01769-012888, <http://mes.org.bd>



Page no: 617

TEST RESULT FOR TENSILE STRENGTH OF PLAIN/DEFORMED/RIBBED COLD TWISTED M.S BARS

Job No : 135/2025-2026(Steel).
 Name of Client : GE (Navy) North, Chattogram.
 Ref.Itr.No : CEN/43 of 2025-2026/12/E-6 Dt.28 Apr'2026.
 Project Name : Construction of Main Gate, 01 x Sentry post & 01 x Waiting Room.
 Dt. of Sample Collection : 30 Apr'2026

Copy No : 01
 Sample Specimen : Length 600mm , Dia 10mm
 Sample Grade : 72.5
 Frog Mark : BSRR B-500 DWR.
 Dt. Of Test : 30 Apr'2026

Sample No	Nominal Dia	Actual Dia	Area Under Test	Actual Unit Weight	Average Actual Unit Weight	Yield or Proof load	Yield or Proof Strength	Average Yield or Proof load	Ultimate load	Ultimate Strength	Average Ultimate Strength	Ratio	Elongation% (gauge length)		Average Elongation% (gauge length)	
	inch mm	inch mm	sq.inch sq.mm	lb/ft kg/m	lb/ft kg/m	lb kn	psi Mpa	psi Mpa	lb kn	psi Mpa	psi Mpa	(Fult/Fy)	8inch	5d	8inch	5d
1	0.394	0.392	0.1217	0.411	0.411	13138.61	107926	107429	15781.07	129633	130683	1.20	16			
	10.00	9.96	78.5398	0.612		58.44	744		70.20	894						
2	0.394	0.392	0.1217	0.411	0.612	12971.13	106550	741	15950.88	131027	901	1.23	13.5			14
	10.00	9.96	78.5398	0.612		57.70	735		70.95	904						
3	0.394	0.392	0.1217	0.411	0.612	13124.66	107812	741	15995.07	131390	906	1.22	13.5			
	10.00	9.96	78.5398	0.612		58.38	744		71.15	906						

Observation on Specimen(if any):

1. Diameter & Unit weight of 10 mm bar is less than the standard value but within tolerance limit according to MES Schedule of Rates-2016.

ASTM A61M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

Conveion factor: 1.0 Mpa = 1.0 N/mm²= 145 Psi. Strengths are based on nominal area.

Bar design/Nominal 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	615	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 & 22mm 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, 60	7	6	6

Report Prepared by :

MD. IKBAL HOSSSEN
 SAE B/R
 AHQ E in C 's Br
 Wks Dte, Dhaka Cantt.

Test Performed by :

AHASAN HABIB
 AE B/R
 Actg SO-III (Lab)
 AHQ E in C 's Br
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Project Name : Construction of Main Gate, 01 x Sentry post & 01 x Waiting Room.
Dt. of Sample Collection: 30 Apr'2026

Copy No : 02
Sample Specimen : Length 600mm , Dia 16mm
Sample Grade : 72.5
Frog Mark : BSRM B-500 DWR.
Dt. Of Test : 30 Apr'2026

Sample No	Nominal Dia	Actual Dia	Area Under Test	Actual Unit Weight	Average Actual Unit Weight	Yield or Proof load	Yield or Proof Strength	Average Yield or Proof load	Ultimate load	Ultimate Strength	Average Ultimate Strength	Ratio	Elongation% (gauge length)		Average Elongation% (gauge length)	
	inch mm	inch mm	sq.inch sq.mm	lb/ft kg/m	lb/ft kg/m	lb kn	psi Mpa	psi Mpa	lb kn	psi Mpa	psi Mpa	(Fult/Fy)	8inch	5d	8inch	5d
1	0.630	0.625	0.312	1.044	1.044	27865.21	89413	89254	35329.69	113365	113297	1.27	21.5			
	16.00	15.87	201.062	1.553		123.95	617		157.15	782						
2	0.630	0.625	0.312	1.044	1.553	27930.34	89622	616	35329.69	113365	781	1.26	22.5			22
	16.00	15.87	201.062	1.553		124.24	618		157.15	782						
3	0.630	0.625	0.312	1.044	1.553	27651.21	88726	612	35266.89	113163	780	1.28	21.5			
	16.00	15.87	201.062	1.553		123.00	612		156.87	780						

Observation on Specimen(if any):

1. Diameter & Unit weight of 16 mm bar is less than the standard value but within tolerance limit according to MES Schedule of Rates-2016.

ASTM A61M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

Conveion factor: 1.0 Mpa = 1.0 N/mm²= 145 Psi. Strengths are based on nominal area.

Bar design/Nominal 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	615	804	1018	1257	1963	2827
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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 & 22mm dia. Bars are derived based on principle followed for other sizes in Table A1.1

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

	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]

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Bar Designation No.

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