



MILITARY ENGINEER SERVICES (MES)

MATERIAL TESTING LABORATORY

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



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

Page no: 677

Job No : 152/2025-2026(Steel).

Name of Client : GE (Army) Ghatail.

Ref.ltr.No : CEA/607 of 2021-2022/72/E-6 Dt.28 Jun'2026.

Project Name : Construction of Rcc Drain.

Dt. of Sample Collection : 28 Jun'2026

Copy No : 01

Sample Specimen : Length 600mm , Dia 10mm

Sample Grade : 60

Frog Mark : BSRM B-500 DWR.

Dt. Of Test : 29 Jun'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 10.00	0.393 9.97	0.1217 78.5398	0.412 0.613	0.412 0.613	12273.30 54.59	100818 695	101767 702	15269.33 67.92	125429 865	125665 867	1.24	15.5	17		
2	0.394 10.00	0.393 9.97	0.1217 78.5398	0.412 0.613		12505.91 55.63	102729 708		15376.33 68.40	126308 871		1.23	16.5			
3	0.394 10.00	0.393 9.97	0.1217 78.5398	0.412 0.613		12387.28 55.10	101754 702		15248.39 67.83	125257 864		1.23	17.5			

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 HOSSEN

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

Wks Dte, Dhaka Cantt.

Countersigned by :

MD ATIKUR RAHMAN

MAJOR

OIC (Lab)

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Ref.ltr.No : CEA/607 of 2021-2022/72/E-6 Dt.28 Jun'2026.

Project Name : Construction of Rcc Drain.

Dt. of Sample Collection: 28 Jun'2026

Copy No : 02

Sample Specimen : Length 600mm , Dia 12mm

Sample Grade : 60

Frog Mark : BSRM B-500 DWR.

Dt. Of Test : 29 Jun'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	0.472 12.00	0.469 11.90	0.175 113.097	0.587 0.873		17623.35 78.39	100532 693		21563.78 95.92	123010 848		1.22	18	
2	0.472 12.00	0.469 11.90	0.175 113.097	0.587 0.873	0.587 0.873	17579.15 78.20	100280 692	100005 690	21563.78 95.92	123010 848	122930 848	1.23	18	17
3	0.472 12.00	0.469 11.90	0.175 113.097	0.587 0.873		17390.74 77.36	99205 684		21521.91 95.73	122771 847		1.24	16	

Observation on Specimen(if any):

1.Diameter & Unit weight of 12 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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