MILITARY ENGINEER SERVICES (MES)
MATERRIALS TESTING LABORATORY

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M E S
Material Testing Laboratory

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

Job No : 143/2025-2026(Steel).
Name of Client : GE (Army) Savar.
Ref.ltr.No : CEA/279 of 2024-2025/24/E-6 Dt.06 May'2026.
Project Name : Construction of Road.
Dt. of Sample Collection : 07 May'2026

Copy No : 01
Sample Specimen : Length 600mm , Dia 10mm
Sample Grade : 60
Frog Mark : RSM B-420 DWR.
Dt. Of Test : 07 May'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	0.394 10.00	0.1217 78.5398	0.415 0.617	0.415 0.617	12408.21 55.19	101926 703	105143 725	14371.45 63.93	118053 814	121977 841	1.16	13.5		12	
2	0.394 10.00	0.394 10.00	0.1217 78.5398	0.415 0.617		12899.02 57.38	105958 731		15034.39 66.88	123499 852		1.17	9.5			
3	0.394 10.00	0.394 10.00	0.1217 78.5398	0.415 0.617		13092.09 58.24	107544 742		15141.39 67.35	124378 858		1.16	12.5			

Observation on Specimen(if any):

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

Material Testing Laboratory Military Engineer Services (MES)

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