



# MILITARY ENGINEER SERVICES (MES) MATERIALS TESTING LABORATORY

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Page no: 646

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

Job No : 357(D)/2025-2026(Steel).

Name of Client : AGE (Navy) Kaptai.

Ref.ltr.No : CEN/76 of 2025-2026/12/E-6 Dt.14 May'2026.

Project Name : Construction of Surface Drain & Sewerage.

Dt. of Sample Collection: : 19 May'2026

Copy No : 01

Sample Specimen : Length 600mm , Dia 12mm

Sample Grade : 72.5

Frog Mark : BSRM B-500 DWR.

Dt. Of Test : 19 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 (Fult/Fy)	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		8inch	5d	8inch	5d
1	0.472	0.470	0.175	0.590	0.590	17658.24	100731	99041	21393.97	122041	121152	1.21	16.5			
	12.00	11.93	113.097	0.878		78.55	695		95.16	842						
2	0.472	0.470	0.175	0.590	0.878	17381.44	99152	683	21352.10	121802	836	1.23	17.5		17	
	12.00	11.93	113.097	0.878		77.32	684		94.98	840						
3	0.472	0.470	0.175	0.590	0.878	17046.48	97241	671	20968.30	119613	825	1.23	16.5			
	12.00	11.93	113.097	0.878		75.83	671		93.27	825						

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
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 :

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