



MILITARY ENGINEER SERVICES (MES) MATERIALS 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: 649

Job No : 360(D)/2025-2026(Steel).

Copy No : 01

Name of Client : AGE (Navy) Kaptai.

Sample Specimen : Length 600mm , Dia 10mm

Ref.ltr.No : CEN/125 of 2024-2025/27/E-6 Dt.14 May'2026.

Sample Grade : 72.5

Project Name : Construction of 1 x Multipurpose Shed.

Frog Mark : BSRM B-500 DWR.

Dt. of Sample Collection : 19 May'2026

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	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	0.394	0.1217	0.416	0.416	12615.24	103627	103200	15739.20	129289	128327	1.25	16.5			16	
	10.00	10.02	78.5398	0.619		56.12	715		70.01	892							
2	0.394	0.394	0.1217	0.416	0.619	12387.28	101754	712	15432.16	126766	885	1.25	15.5			16	
	10.00	10.02	78.5398	0.619		55.10	702		68.65	874							
3	0.394	0.394	0.1217	0.416	0.619	12687.35	104219	712	15695.01	128926	889	1.24	15			16	
	10.00	10.02	78.5398	0.619		56.44	719		69.81	889							

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

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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Countersigned by :

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

Page no: 650

Job No : 360(D)/2025-2026(Steel).

Copy No : 02

Name of Client : AGE (Navy) Kaptai.

Sample Specimen : Length 600mm , Dia 12mm

Ref.ltr.No : CEN/125 of 2024-2025/27/E-6 Dt.14 May'2026.

Sample Grade : 72.5

Project Name : Construction of 1 x Multipurpose Shed.

Frog Mark : BSRM B-500 DWR.

Dt. of Sample Collection : 19 May'2026

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	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	0.469	0.175	0.589	0.589	17332.59	98873	97701	21298.60	121497	120020	1.23	16.5	18		
	12.00	11.92	113.097	0.876		77.10	682		94.74	838						
2	0.472	0.469	0.175	0.589	0.876	17083.69	97453	674	21010.17	119852	828	1.23	16.5			
	12.00	11.92	113.097	0.876		75.99	672		93.46	827						
3	0.472	0.469	0.175	0.589	0.876	16965.06	96777		20810.12	118711		1.23	19.5			
	12.00	11.92	113.097	0.876		75.46	667		92.57	819						

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
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