



MILITARY ENGINEER SERVICES (MES) MATERIALS TESTING LABORATORY

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



Page no: 651

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

Job No : 144/2025-2026(Steel).

Copy No : 01

Name of Client : AGE (Navy) Mongla.

Sample Specimen : Length 600mm , Dia 10mm

Ref.ltr.No : EinC/148 of 2025-2026/04/E-6 Dt.17 May'2026.

Sample Grade : 72.5

Project Name : Construction of 1 x Quarterdeck with parade ground.

Frog Mark : BSRM B-500 DWR.

Dt. of Sample Collection : 18 May'2026

Dt. Of Test : 18 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	0.391	0.1217	0.409	0.409	13359.59	109741	109710	16016.01	131562	131441	1.20	16			
	10.00	9.94	78.5398	0.609		59.43	757		71.24	907						
2	0.394	0.391	0.1217	0.409	0.609	13434.03	110353	757	16078.81	132078	906	1.20	17.5		17	
	10.00	9.94	78.5398	0.609		59.76	761		71.52	911						
3	0.394	0.391	0.1217	0.409	0.609	13273.53	109034	752	15909.01	130683	901	1.20	18.5			
	10.00	9.94	78.5398	0.609		59.04	752		70.77	901						

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.[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)

AHQ E in C 's Br

Wks Dte, Dhaka Cantt.





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: 652

Job No : 144/2025-2026(Steel).

Copy No : 02

Name of Client : AGE (Navy) Mongla.

Sample Specimen : Length 600mm , Dia 16mm

Ref.Itr.No : EinC/148 of 2025-2026/04/E-6 Dt.17 May'2026.

Sample Grade : 72.5

Project Name : Construction of 1 x Quarterdeck with parade ground.

Frog Mark : BSRM B-500 DWR.

Dt. of Sample Collection : 18 May'2026

Dt. Of Test : 18 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	0.630	0.627	0.312	1.050	1.050	27653.53	88734	88559	35159.89	112820	112962	1.27	20			
	16.00	15.92	201.062	1.563		123.01	612		156.40	778						
2	0.630	0.627	0.312	1.050	1.563	28053.62	90017	611	35329.69	113365	779	1.26	20.5		21	
	16.00	15.92	201.062	1.563		124.79	621		157.15	782						
3	0.630	0.627	0.312	1.050	1.563	27090.61	86927	611	35122.67	112700	777	1.30	21			
	16.00	15.92	201.062	1.563		120.50	599		156.23	777						

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 A615M-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 HOSEN
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)
AHQ E in C 's Br
Wks Dte, Dhaka Cantt.

