MILITARY ENGINEER SERVICES (MES)
MATERRIALS TESTING LABORATORY

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

M E S
Material Testing Laboratory

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

Job No : 137/2025-2026(Steel).
Name of Client : GE (Navy) North, Chattogram.
Ref.ltr.No : CEN/233 of 2024-2025/13/E-6 Dt.28 Apr'2026.
Project Name : Construction of Boundary wall (East side).
Dt. of Sample Collection : 30 Apr'2026

Copy No : 01
Sample Specimen : Length 600mm , Dia 10mm
Sample Grade : 60
Frog Mark : BAIZID B-420 DWR.
Dt. Of Test : 30 Apr'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	0.402 10.22	0.1217 78.5398	0.432 0.644		10956.72 48.74	90003 621		13582.90 60.42	111576 769		1.24	19.5			
2	0.394 10.00	0.402 10.22	0.1217 78.5398	0.432 0.644	0.432 0.644	10963.70 48.77	90061 621	89908 620	13389.83 59.56	109990 759	110582 763	1.22	22		20	
3	0.394 10.00	0.402 10.22	0.1217 78.5398	0.432 0.644		10914.85 48.55	89659 618		13413.09 59.66	110181 760		1.23	18			

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

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Report Prepared by :

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Project Name : Construction of Boundary wall (East side).
Dt. of Sample Collection: 30 Apr'2026

Copy No : 02
Sample Specimen : Length 600mm , Dia 12mm
Sample Grade : 60
Frog Mark : BAIZID B-420 DWR.
Dt. Of Test : 30 Apr'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	0.475 12.06	0.175 113.097	0.603 0.897		14778.52 65.74	84304 581		17937.38 79.79	102323 706		1.21	19.5			
2	0.472 12.00	0.475 12.06	0.175 113.097	0.603 0.897	0.603 0.897	15760.14 70.10	89903 620	86767 598	19025.99 84.63	108533 749	107640 742	1.21	16.5		18	
3	0.472 12.00	0.475 12.06	0.175 113.097	0.603 0.897		15092.54 67.13	86095 594		19644.74 87.38	112063 773		1.30	17.5			

Ovservation 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

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	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

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Project Name : Construction of Boundary wall (East side).
Dt. of Sample Collection: 30 Apr'2026

Copy No : 03
Sample Specimen : Length 600mm , Dia 16mm
Sample Grade : 60
Frog Mark : BAIZID B-420 DWR.
Dt. Of Test : 30 Apr'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 16.00	0.633 16.09	0.312 201.062	1.072 1.595		24734.27 110.02	79366 547		31873.09 141.78	102273 705		1.29	19			
2	0.630 16.00	0.633 16.09	0.312 201.062	1.072 1.595	1.072 1.595	24103.89 107.22	77344 533	77493 534	31340.42 139.41	100564 694	99626 687	1.30	19		20	
3	0.630 16.00	0.633 16.09	0.312 201.062	1.072 1.595		23613.08 105.04	75769 523		29930.79 133.14	96041 662		1.27	21.5			

Ovservation 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.

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Elongation in 8 in. [200 mm], min, %			
Bar Designation No.			
10, 12, 16, 20	9	7	7
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