



# MILITARY ENGINEER SERVICES (MES)

## MATERIALS TESTING LABORATORY

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



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

Job No : 139/2025-2026(Steel).

Copy No : 01

Name of Client : GE (Navy) South, Chattogram.

Sample Specimen : Length 600mm , Dia 10mm

Ref.ltr.No : CEN/212 of 2024-2025/14/E-6 Dt.05 May'2026.

Sample Grade : 60

Project Name : Construction of Boundary wall with Concertina Razor Wire.

Frog Mark : Baizid B-420 DWR.

Dt. of Sample Collection : 07 May'2026

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	0.402	0.1217	0.432	0.432	10745.05	88264	90290	13413.09	110181	111219	1.25	22.5	21		
	10.00	10.21	78.5398	0.643		47.80	609		59.66	760						
2	0.394	0.402	0.1217	0.432	0.643	11187.01	91895	623	13240.96	108767	767	1.18	22			
	10.00	10.21	78.5398	0.643		49.76	634		58.90	750						
3	0.394	0.402	0.1217	0.432	0.643	11042.79	90710	626	13964.38	114709	791	1.26	19.5			
	10.00	10.21	78.5398	0.643		49.12	626		62.12	791						

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/mm<sup>2</sup>= 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 followed 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 HOSSEN

SAE B/R

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Wks Dte, Dhaka Cantt.

Test Performed by :

AHASAN HABIB

AE B/R

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

Job No : 139/2025-2026(Steel). Copy No : 02  
 Name of Client : GE (Navy) South, Chattogram. Sample Specimen : Length 600mm , Dia 12mm  
 Ref.Itr.No : CEN/212 of 2024-2025/14/E-6 Dt.05 May'2026. Sample Grade : 60  
 Project Name : Construction of Boundary wall with Concertina Razor Wire. Frog Mark : Baizid B-420 DWR.  
 Dt. of Sample Collection: 07 May'2026 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	0.472	0.477	0.175	0.609	0.609	13594.53	77550	78633	18276.99	104260	104955	1.34	21.5	/	21	/
	12.00	12.12	113.097	0.905		60.47	535		81.30	719						
2	0.472	0.477	0.175	0.609	0.905	13643.38	77828	542	18449.12	105242	724	1.35	22	/	21	/
	12.00	12.12	113.097	0.905		60.69	537		82.07	726						
3	0.472	0.477	0.175	0.609	0.905	14115.58	80522	542	18470.05	105362	727	1.31	19.5	/	21	/
	12.00	12.12	113.097	0.905		62.79	555		82.16	727						

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/mm<sup>2</sup>= 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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## TEST RESULT FOR TENSILE STRENGTH OF PLAIN/DEFORMED/RIBBED COLD TWISTED M.S BARS

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Job No : 139/2025-2026(Steel). Copy No : 03  
 Name of Client : GE (Navy) South, Chattogram. Sample Specimen : Length 600mm , Dia 16mm  
 Ref.ltr.No : CEN/212 of 2024-2025/14/E-6 Dt.05 May'2026. Sample Grade : 60  
 Project Name : Construction of Boundary wall with Concertina Razor Wire. Frog Mark : Baizid B-420 DWR.  
 Dt. of Sample Collection: 07 May'2026 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 (Fult/Fy)	Elongation% (gauge length)		Average Elongation% (gauge length)	
	inch mm	inch mm	sq.inch sq.mm	lb/ft kg/m	kg/m	lb kn	psi Mpa	psi Mpa	lb kn	psi Mpa	psi Mpa	(Fult/Fy)	8inch	5d	8inch	5d
1	0.630	0.637	0.312	1.085	1.085	24343.48	78112	78675	31510.22	101109	102395	1.29	20.5	18		
	16.00	16.18	201.062	1.614		108.28	539		140.16	697						
2	0.630	0.637	0.312	1.085	1.614	24617.96	78993	543	32108.03	103027	706	1.30	16.5			
	16.00	16.18	201.062	1.614		109.51	545		142.82	711						
3	0.630	0.637	0.312	1.085	1.614	24594.70	78919	544	32115.01	103049	711	1.31	16			
	16.00	16.18	201.062	1.614		109.40	544		142.85	711						

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/mm<sup>2</sup>= 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
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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
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