



MILITARY ENGINEER SERVICES (MES)

MATERIAL 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: 672

Job No : 151/2025-2026(Steel).
Name of Client : GE (Army) Sylhet.
Ref.ltr.No : EinC/78 of 2025-2026/26/E-6 Dt.23 Jun'2026.
Project Name : Construction of 1 x 16 'D' Type Officer's Qtr.
Dt. of Sample Collection : 24 Jun'2026

Copy No : 01
Sample Specimen : Length 600mm , Dia 10mm
Sample Grade : 60
Frog Mark : SAS B-420 DWR.
Dt. Of Test : 29 Jun'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	inch	sq.inch	lb/ft	lb/ft	lb	psi	psi	lb	psi	psi	(Fult/Fy)	8inch	5d	8inch	5d
	mm	mm	sq.mm	kg/m	kg/m	kn	Mpa	Mpa	kn	Mpa	Mpa					
1	0.394	0.409	0.1217	0.448		11170.72	91761		14538.93	119429		1.30	16.5			
	10.00	10.39	78.5398	0.666		49.69	633		64.67	824						
2	0.394	0.409	0.1217	0.448	0.448	11138.16	91494	91513	14499.39	119104	119505	1.30	22.5		19	
	10.00	10.39	78.5398	0.666	0.666	49.54	631	631	64.50	821	824					
3	0.394	0.409	0.1217	0.448		11112.57	91283		14606.39	119983		1.31	18			
	10.00	10.39	78.5398	0.666		49.43	630		64.97	827						

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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Page no: 673

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

Job No : 151/2025-2026(Steel).
Name of Client : GE (Army) Sylhet.
Ref.ltr.No : EinC/78 of 2025-2026/26/E-6 Dt.23 Jun'2026.
Project Name : Construction of 1 x 16 'D' Type Officer's Qtr.
Dt. of Sample Collection: 24 Jun'2026

Copy No : 02
Sample Specimen : Length 600mm , Dia 12mm
Sample Grade : 60
Frog Mark : SAS B-420 DWR.
Dt. Of Test : 29 Jun'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	0.485 12.31	0.175 113.097	0.628 0.934	0.628 0.934	17623.35 78.39	100532 693	100687 694	21117.17 93.93	120462 831	121316 837	1.20	18	19		
2	0.472 12.00	0.485 12.31	0.175 113.097	0.628 0.934		17704.76 78.75	100996 697		21289.30 94.70	121444 838		1.20	18.5			
3	0.472 12.00	0.485 12.31	0.175 113.097	0.628 0.934		17623.35 78.39	100532 693		21393.97 95.16	122041 842		1.21	21.5			

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

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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

Page no: 674

Job No : 151/2025-2026(Steel).
Name of Client : GE (Army) Sylhet.
Ref.ltr.No : EinC/78 of 2025-2026/26/E-6 Dt.23 Jun'2026.
Project Name : Construction of 1 x 16 'D' Type Officer's Qtr.
Dt. of Sample Collection: 24 Jun'2026

Copy No : 03
Sample Specimen : Length 600mm , Dia 16mm
Sample Grade : 60
Frog Mark : SAS B-420 DWR.
Dt. Of Test : 29 Jun'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	inch	sq.inch	lb/ft	lb/ft	lb	psi	psi	lb	psi	psi	(Fult/Fy)	8inch	5d	8inch	5d
1	0.630	0.635	0.312	1.077	1.077 1.603	26516.07	85084	85584 590	35550.67	114074	114517 790	1.34	18	18	18	18
2	0.630	0.635	0.312	1.077		26150.87	83912		35138.95	112753		1.34	19.5			
3	0.630	0.635	0.312	1.077		27348.81	87756		36376.44	116723		1.33	15			
	16.00	16.13	201.062	1.603		121.65	605		161.81	805						

Observation on Specimen(if any):

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

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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

Page no: 675

Job No : 151/2025-2026(Steel).

Name of Client : GE (Army) Sylhet.

Ref.ltr.No : EinC/78 of 2025-2026/26/E-6 Dt.23 Jun'2026.

Project Name : Construction of 1 x 16 'D' Type Officer's Qtr.

Dt. of Sample Collection: 24 Jun'2026

Copy No : 04

Sample Specimen : Length 600mm , Dia 20mm

Sample Grade : 60

Frog Mark : SAS B-420 DWR.

Dt. Of Test : 29 Jun'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	inch	sq.inch	lb/ft	lb/ft	lb	psi	psi	lb	psi	psi	(Fult/Fy)	8inch	5d	8inch	5d
1	0.787	0.804	0.4869	1.730		37420.86	76848		49565.48	101788		1.32	21.5			
	20.00	20.43	314.1593	2.574		166.46	530		220.48	702						
2	0.787	0.804	0.4869	1.730	1.730	36567.18	75095	74494	48904.87	100431	99744	1.34	19.5		23	
	20.00	20.43	314.1593	2.574	2.574	162.66	518	514	217.54	693	688					
3	0.787	0.804	0.4869	1.730		34836.56	71541		47239.37	97011		1.36	27.5			
	20.00	20.43	314.1593	2.574		154.96	493		210.13	669						

Observation on Specimen(if any):

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

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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
28, 32, 36, 40, 60	7	6	6

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Page no: 676

Job No : 151/2025-2026(Steel).

Name of Client : GE (Army) Sylhet.

Ref.ltr.No : EinC/78 of 2025-2026/26/E-6 Dt.23 Jun'2026.

Project Name : Construction of 1 x 16 'D' Type Officer's Qtr.

Dt. of Sample Collection: 24 Jun'2026

Copy No : 05

Sample Specimen : Length 600mm , Dia 25mm

Sample Grade : 60

Frog Mark : SAS B-420 DWR.

Dt. Of Test : 29 Jun'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	0.984	0.996	0.7609	2.649	2.649	50640.14	66557	67139	76350.63	100348	100924	1.51	26.5	28	28	28
2	0.984	0.996	0.7609	2.649		50777.38	66737		76427.39	100449		1.51	28.5			
3	0.984	0.996	0.7609	2.649		51831.11	68122		77588.12	101975		1.50	29.5			
	25.00	25.29	490.8739	3.942		225.26	459		339.62	692						
	25.00	25.29	490.8739	3.942		225.87	460		339.96	693						
	25.00	25.29	490.8739	3.942		230.56	470		345.13	703						

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

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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

28, 32, 36, 40, 60

7

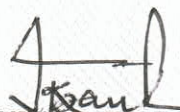
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6

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