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 : 138/2025-2026(Steel).
Name of Client : GE (Army) Jashore.
Ref.ltr.No : CEA/110 of 2025-2026/08/E-6 Dt.04 May'2026.
Project Name : Construction of 1 X SMBK and CH/DH with Recreation Room.
Dt. of Sample Collection : 05 May'2026

Copy No : 01
Sample Specimen : Length 600mm , Dia 10mm
Sample Grade : 60
Frog Mark : RSM B-420 DWR.
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 10.00	0.400 10.15	0.1217 78.5398	0.427 0.635	0.427 0.635	12280.28 54.63	100876 696	95080 656	15695.01 69.81	128926 889	124110 856	1.28	18.5		19	
2	0.394 10.00	0.400 10.15	0.1217 78.5398	0.427 0.635		11187.01 49.76	91895 634		15055.33 66.97	123671 853		1.35	19.5			
3	0.394 10.00	0.400 10.15	0.1217 78.5398	0.427 0.635		11256.79 50.07	92468 638		14576.15 64.84	119735 826		1.29	20			

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

Material Testing Laboratory Military Engineer Services (MES)

Report Prepared by :

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Job No : 138/2025-2026(Steel).
Name of Client : GE (Army) Jashore.
Ref.ltr.No : CEA/110 of 2025-2026/08/E-6 Dt.04 May'2026.
Project Name : Construction of 1 X SMBK and CH/DH with Recreation Room.
Dt. of Sample Collection: 05 May'2026

Copy No : 02
Sample Specimen : Length 600mm , Dia 12mm
Sample Grade : 60
Frog Mark : RSM B-420 DWR.
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 12.00	0.478 12.13	0.175 113.097	0.610 0.908		14976.24 66.62	85431 589		19828.50 88.20	113111 780		1.32	17.5			
2	0.472 12.00	0.478 12.13	0.175 113.097	0.610 0.908	0.610 0.908	15376.33 68.40	87714 605	86343 595	19963.42 88.80	113881 785	113584 783	1.30	17		18	
3	0.472 12.00	0.478 12.13	0.175 113.097	0.610 0.908		15055.33 66.97	85883 592		19942.48 88.71	113761 785		1.32	20.5			

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

Measured Unit weight shall not be less than 94% of the nominal weight . 8mm bar size is not covered in ASTM A615M-16.
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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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TEST RESULT FOR TENSILE STRENGTH OF PLAIN/DEFORMED/RIBBED COLD TWISTED M.S BARS

Job No : 138/2025-2026(Steel).
Name of Client : GE (Army) Jashore.
Ref.ltr.No : CEA/110 of 2025-2026/08/E-6 Dt.04 May'2026.
Project Name : Construction of 1 X SMBK and CH/DH with Recreation Room.
Dt. of Sample Collection: 05 May'2026

Copy No : 03
Sample Specimen : Length 600mm , Dia 16mm
Sample Grade : 60
Frog Mark : RSM B-420 DWR.
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	0.630 16.00	0.637 16.17	0.312 201.062	1.084 1.613		24576.09 109.32	78859 544		32624.43 145.12	104684 722		1.33	20.5			
2	0.630 16.00	0.637 16.17	0.312 201.062	1.084 1.613	1.084 1.613	23578.19 104.88	75657 522	76752 529	31754.46 141.25	101893 703	102880 710	1.35	25		24	
3	0.630 16.00	0.637 16.17	0.312 201.062	1.084 1.613		23603.78 104.99	75739 522		31807.96 141.49	102064 704		1.35	25.5			

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

Measured Unit weight shall not be less than 94% of the nominal weight . 8mm bar size is not covered in ASTM A615M-16.
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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

Job No : 138/2025-2026(Steel).
Name of Client : GE (Army) Jashore.
Ref.ltr.No : CEA/110 of 2025-2026/08/E-6 Dt.04 May'2026.
Project Name : Construction of 1 X SMBK and CH/DH with Recreation Room.
Dt. of Sample Collection: 05 May'2026

Copy No : 04
Sample Specimen : Length 600mm , Dia 20mm
Sample Grade : 60
Frog Mark : RSM B-420 DWR.
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	0.787 20.00	0.793 20.14	0.4869 314.1593	1.681 2.502		38176.85 169.82	78400 541		51891.59 230.82	106565 735		1.36	19.5			
2	0.787 20.00	0.793 20.14	0.4869 314.1593	1.681 2.502	1.681 2.502	38637.42 171.87	79346 547	78644 542	53045.34 235.96	108934 751	107414 741	1.37	22		22	
3	0.787 20.00	0.793 20.14	0.4869 314.1593	1.681 2.502		38072.18 169.35	78185 539		51977.66 231.21	106742 736		1.37	23.5			

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

Job No : 138/2025-2026(Steel).
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Ref.ltr.No : CEA/110 of 2025-2026/08/E-6 Dt.04 May'2026.
Project Name : Construction of 1 X SMBK and CH/DH with Recreation Room.
Dt. of Sample Collection: 05 May'2026

Copy No : 05
Sample Specimen : Length 600mm , Dia 25mm
Sample Grade : 60
Frog Mark : RSM B-420 DWR.
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	0.984 25.00	0.989 25.13	0.7609 490.8739	2.616 3.893		56750.83 252.44	74588 514		78590.67 349.59	103292 712		1.38	26			
2	0.984 25.00	0.989 25.13	0.7609 490.8739	2.616 3.893	2.616 3.893	56720.59 252.30	74548 514	75457 520	78762.80 350.35	103519 714	104069 718	1.39	20		23	
3	0.984 25.00	0.989 25.13	0.7609 490.8739	2.616 3.893		58765.24 261.40	77236 533		80191.03 356.71	105396 727		1.36	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.

Bar design/Nominal dia, mm	8	10	12	16	20	22	25	28	32	36	40	50	60
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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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