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 : 347(D)/2025-2026(Steel).
Name of Client : GE (Army) Sylhet.
Ref.ltr.No : Work order-1/2025/Multipurpose Complex/10/E-6 Dt.04 May'2026.
Project Name : Construction of Multipurpose Complex.
Dt. of Sample Collection : : 10 May'2026

Copy No : 01
Sample Specimen : Length 600mm , Dia 10mm
Sample Grade : 60
Frog Mark : SAS B-500 DWR.
Dt. Of Test : 11 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	0.405 10.30	0.1217 78.5398	0.439 0.654		13124.66 58.38	107812 744		17402.37 77.41	142951 986		1.33	16.5			
2	0.394 10.00	0.405 10.30	0.1217 78.5398	0.439 0.654	0.439 0.654	12971.13 57.70	106550 735	107270 740	17509.37 77.89	143830 992	141492 976	1.35	15.5		16	
3	0.394 10.00	0.405 10.30	0.1217 78.5398	0.439 0.654		13080.46 58.18	107449 741		16762.69 74.56	137696 950		1.28	14.5			

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
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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Test Performed by :

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Countersigned by :

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Name of Client : GE (Army) Sylhet.
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Project Name : Construction of Multipurpose Complex.
Dt. of Sample Collection: : 10 May'2026

Copy No : 02
Sample Specimen : Length 600mm , Dia 12mm
Sample Grade : 60
Frog Mark : SAS B-500 DWR.
Dt. Of Test : 11 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	0.487 12.38	0.175 113.097	0.635 0.944		16999.95 75.62	96976 669		22964.10 102.15	130998 903		1.35	18			
2	0.472 12.00	0.487 12.38	0.175 113.097	0.635 0.944	0.635 0.944	18877.12 83.97	107684 743	101514 700	23485.15 104.47	133970 924	131073 904	1.24	20		19	
3	0.472 12.00	0.487 12.38	0.175 113.097	0.635 0.944		17509.37 77.89	99882 689		22482.59 100.01	128251 884		1.28	18.5			

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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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 : 347(D)/2025-2026(Steel).
Name of Client : GE (Army) Sylhet.
Ref.ltr.No : Work order-1/2025/Multipurpose Complex/10/E-6 Dt.04 May'2026.
Project Name : Construction of Multipurpose Complex.
Dt. of Sample Collection: : 10 May'2026

Copy No : 03
Sample Specimen : Length 600mm , Dia 16mm
Sample Grade : 60
Frog Mark : SAS B-500 DWR.
Dt. Of Test : 11 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	0.638 16.21	0.312 201.062	1.089 1.621		30568.15 135.97	98086 676		37911.67 168.64	121650 839		1.24	16.5			
2	0.630 16.00	0.638 16.21	0.312 201.062	1.089 1.621	1.089 1.621	30463.47 135.51	97750 674	95901 661	37986.11 168.97	121888 841	119174 822	1.25	18.5		19	
3	0.630 16.00	0.638 16.21	0.312 201.062	1.089 1.621		28630.50 127.35	91868 634		35522.76 158.01	113984 786		1.24	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

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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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Project Name : Construction of Multipurpose Complex.
Dt. of Sample Collection: : 10 May'2026

Copy No : 04
Sample Specimen : Length 600mm , Dia 20mm
Sample Grade : 60
Frog Mark : SAS B-500 DWR.
Dt. Of Test : 11 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	0.801 20.33	0.4869 314.1593	1.713 2.549		44140.99 196.35	90648 625		61026.22 271.46	125324 864		1.38	17.5			
2	0.787 20.00	0.801 20.33	0.4869 314.1593	1.713 2.549	1.713 2.549	44140.99 196.35	90648 625	89645 618	59681.73 265.48	122563 845	121862 840	1.35	18.5		18	
3	0.787 20.00	0.801 20.33	0.4869 314.1593	1.713 2.549		42675.55 189.83	87639 604		57313.75 254.94	117700 812		1.34	18			

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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Yield Strength, min, psi [Mpa]	60 000 [420]	75 000 [520]	80 000 [550]
Elongation in 8 in. [200 mm], min, %			
Bar Designation No.			
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28, 32, 36, 40, 60	7	6	6

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