



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: 663

Job No : 149/2025-2026(Steel).
Name of Client : GE (Navy) South Chattogram.
Ref.ltr.No : CEN/250 of 2025-2026/11/E-6 Dt.21 Jun'2026.
Project Name : Construction of Multipurpose Building.
Dt. of Sample Collection : 21 Jun'2026

Copy No : 01
Sample Specimen : Length 600mm , Dia 10mm
Sample Grade : 60
Frog Mark : GPH B-420 DWR.
Dt. Of Test : 22 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	0.394 10.00	0.394 10.00	0.1217 78.5398	0.414 0.616	0.414 0.616	11128.85 49.50	91417 630	90946 627	13838.77 61.56	113678 784	113334 782	1.24	22.5		21	
2	0.394 10.00	0.394 10.00	0.1217 78.5398	0.414 0.616		11021.85 49.03	90538 624		13775.97 61.28	113162 780		1.25	19.5			
3	0.394 10.00	0.394 10.00	0.1217 78.5398	0.414 0.616		11063.72 49.21	90882 627		13775.97 61.28	113162 780		1.25	20			

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

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

Report Prepared by :

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Page no: 664

Job No : 149/2025-2026(Steel).

Copy No : 02

Name of Client : GE (Navy) South Chattogram.

Sample Specimen : Length 600mm , Dia 12mm

Ref.ltr.No : CEN/250 of 2025-2026/11/E-6 Dt.21 Jun'2026.

Sample Grade : 60

Project Name : Construction of Multipurpose Building.

Frog Mark : GPH B-420 DWR.

Dt. of Sample Collection: 21 Jun'2026

Dt. Of Test : 22 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	0.473 12.02	0.175 113.097	0.599 0.891	0.599 0.891	14820.39 65.92	84542 583	84458 582	19844.78 88.27	113204 781	113049 780	1.34	20.5		20	
2	0.472 12.00	0.473 12.02	0.175 113.097	0.599 0.891		14839.00 66.01	84649 584		19814.55 88.14	113031 780		1.34	19			
3	0.472 12.00	0.473 12.02	0.175 113.097	0.599 0.891		14757.58 65.64	84184 581		19793.61 88.05	112912 779		1.34	19.5			

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

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

Page no: 665

Job No : 149/2025-2026(Steel).

Copy No : 03

Name of Client : GE (Navy) South Chattogram.

Sample Specimen : Length 600mm , Dia 16mm

Ref.ltr.No : CEN/250 of 2025-2026/11/E-6 Dt.21 Jun'2026.

Sample Grade : 60

Project Name : Construction of Multipurpose Building.

Frog Mark : GPH B-420 DWR.

Dt. of Sample Collection: 21 Jun'2026

Dt. Of Test : 22 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	0.630	0.631	0.312	1.065		23701.47	76052		30826.35	98914		1.30	25.5			
	16.00	16.04	201.062	1.585		105.43	524		137.12	682						
2	0.630	0.631	0.312	1.065	1.065	23808.47	76396	75988	30870.54	99056	98895	1.30	25		25	
	16.00	16.04	201.062	1.585	1.585	105.90	527	524	137.32	683	682					
3	0.630	0.631	0.312	1.065		23533.99	75515		30763.54	98713		1.31	25.5			
	16.00	16.04	201.062	1.585		104.68	521		136.84	681						

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

Page no: 666

Job No : 149/2025-2026(Steel).

Name of Client : GE (Navy) South Chattogram.

Ref.ltr.No : CEN/250 of 2025-2026/11/E-6 Dt.21 Jun'2026.

Project Name : Construction of Multipurpose Building.

Dt. of Sample Collection: 21 Jun'2026

Copy No : 04

Sample Specimen : Length 600mm , Dia 20mm

Sample Grade : 60

Frog Mark : GPH B-420 DWR.

Dt. Of Test : 22 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	0.789	0.4869	1.663	1.663	36125.22	74187	74170	48604.80	99815	99793	1.35	25		26	
2	20.00	20.03	314.1593	2.475		160.69	512		216.20	688		1.35	25.5			
3	0.787	0.789	0.4869	1.663		35869.35	73662		48572.23	99748		1.34	26.5			
	20.00	20.03	314.1593	2.475		159.55	508	512	216.06	688	688					
	0.787	0.789	0.4869	1.663		36355.51	74660		48604.80	99815						
	20.00	20.03	314.1593	2.475		161.72	515		216.20	688						

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

Page no: 667

Job No : 149/2025-2026(Steel).

Copy No : 05

Name of Client : GE (Navy) South Chattogram.

Sample Specimen : Length 600mm , Dia 25mm

Ref.ltr.No : CEN/250 of 2025-2026/11/E-6 Dt.21 Jun'2026.

Sample Grade : 60

Project Name : Construction of Multipurpose Building.

Frog Mark : GPH B-420 DWR.

Dt. of Sample Collection: 21 Jun'2026

Dt. Of Test : 22 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 25.00	0.990 25.14	0.7609 490.8739	2.618 3.896		54366.57 241.83	71454 493		73980.32 329.08	97233 671		1.36	29.5			
2	0.984 25.00	0.990 25.14	0.7609 490.8739	2.618 3.896	2.618 3.896	54006.02 240.23	70981 490	70894 489	73745.38 328.03	96924 668	97056 669	1.37	25.5		28	
3	0.984 25.00	0.990 25.14	0.7609 490.8739	2.618 3.896		53447.76 237.75	70247 484		73810.52 328.32	97010 669		1.38	27.5			

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
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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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