



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: 662

Job No : 03/2026-2027(Steel).

Name of Client : GE (Air) Tejgaon.

Ref.ltr.No : CE Air/177 of 2025-2026/08/E-6 Dt.01 Jul'2026.

Project Name : Construction of BOQ.

Dt. of Sample Collection : 02 Jul'2026

Copy No : 01

Sample Specimen : Length 600mm , Dia 10mm

Sample Grade : 60

Frog Mark : Elite B-420 DWR.

Dt. Of Test : 05 Jul'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	0.389 9.89	0.1217 78.5398	0.405 0.603		10877.63 48.39	89354 616		14934.37 66.43	122677 846		1.37	18			
2	0.394 10.00	0.389 9.89	0.1217 78.5398	0.405 0.603	0.405 0.603	10661.31 47.42	87577 604	88048 607	14636.63 65.11	120232 829	121085 835	1.37	16.5		17	
3	0.394 10.00	0.389 9.89	0.1217 78.5398	0.405 0.603		10617.11 47.23	87214 601		14650.58 65.17	120346 830		1.38	16.5			

Observation on Specimen(if any):

1.Diameter & Unit weight of 10 mm bar is less than the standard value but within tolerance limit according to MES Schedule of Rates-2016.

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

25, 22

28, 32, 36, 40, 60

9

8

7

7

7

6

7

7

6

Report Prepared by :

MD IKBAL HOSSEN

SAE B/R

AHQ E in C 's Br

Wks Dte, Dhaka Cantt.

Test Performed by :

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

Page no: 663

Job No : 03/2026-2027(Steel).

Name of Client : GE (Air) Tejgaon.

Ref.ltr.No : CE Air/177 of 2025-2026/08/E-6 Dt.01 Jul'2026.

Project Name : Construction of BOQ.

Dt. of Sample Collection: : 02 Jul'2026

Copy No : 02

Sample Specimen : Length 600mm , Dia 12mm

Sample Grade : 60

Frog Mark : Elite B-420 DWR.

Dt. Of Test : 05 Jul'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
	mm	mm	sq.mm	kg/m	kg/m	kn	Mpa	Mpa	kn	Mpa	Mpa			
1	0.472	0.480	0.175	0.615		15290.26	87223		20412.36	116442		1.33	17.5	
	12.00	12.19	113.097	0.916		68.01	602		90.80	803				
2	0.472	0.480	0.175	0.615	0.615	13901.58	79301	83981	18953.88	108122	113288	1.36	23	19
	12.00	12.19	113.097	0.916	0.916	61.84	547	579	84.31	746	781			
3	0.472	0.480	0.175	0.615		14973.91	85418		20212.31	115300		1.35	17	
	12.00	12.19	113.097	0.916		66.61	589		89.91	795				

Observation on Specimen(if any):

ASTM A615M-16 Weight Requirements and Nominal Area of bars (Table A1.1)

Convein 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 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

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AHQ E in C 's Br

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Test Performed by :

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AE B/R

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Countersigned by :

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

Page no: 664

Job No : 03/2026-2027(Steel).

Copy No : 03

Name of Client : GE (Air) Tejgaon.

Sample Specimen : Length 600mm , Dia 16mm

Ref.ltr.No : CE Air/177 of 2025-2026/08/E-6 Dt.01 Jul'2026.

Sample Grade : 60

Project Name : Construction of BOQ.

Frog Mark : Elite B-420 DWR.

Dt. of Sample Collection: : 02 Jul'2026

Dt. Of Test : 05 Jul'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		lb kn	psi Mpa	psi Mpa	lb kn	psi Mpa	psi Mpa		8inch	5d	8inch	5d
1	0.630 16.00	0.634 16.11	0.312 201.062	1.075 1.600		22850.12 101.64	73321 506		33152.45 147.47	106378 734		1.45	22.5			
2	0.630 16.00	0.634 16.11	0.312 201.062	1.075 1.600	1.075 1.600	22438.40 99.81	71999 497	72709 501	33024.52 146.90	105968 731	106403 734	1.47	23.5		23	
3	0.630 16.00	0.634 16.11	0.312 201.062	1.075 1.600		22689.62 100.93	72806 502		33303.65 148.14	106864 737		1.47	24			

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

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Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length.

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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

Report Prepared by :

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

Page no: 665

Job No : 03/2026-2027(Steel).

Name of Client : GE (Air) Tejgaon.

Ref.ltr.No : CE Air/177 of 2025-2026/08/E-6 Dt.01 Jul'2026.

Project Name : Construction of BOQ.

Dt. of Sample Collection: : 02 Jul'2026

Copy No : 04

Sample Specimen : Length 600mm , Dia 20mm

Sample Grade : 60

Frog Mark : Elite B-420 DWR.

Dt. Of Test : 05 Jul'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	0.790	0.4869	1.667	1.667 2.481	33987.53	69797	68598 473	46001.88	94470	96018 662	1.35	28		28	
2	20.00	20.06	314.1593	2.481		151.18	481		204.63	652		1.50	29			
3	0.787	0.790	0.4869	1.667		32194.10	66114		48134.92	98850		1.36	28			
	20.00	20.06	314.1593	2.481		143.21	456		214.11	682						
	0.787	0.790	0.4869	1.667		34029.40	69883		46129.82	94733						
	20.00	20.06	314.1593	2.481		151.37	482		205.19	653						

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

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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

25, 22

28, 32, 36, 40, 60

9

8

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Test Performed by :

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

Page no: 666

Job No : 03/2026-2027(Steel).

Name of Client : GE (Air) Tejgaon.

Ref.ltr.No : CE Air/177 of 2025-2026/08/E-6 Dt.01 Jul'2026.

Project Name : Construction of BOQ.

Dt. of Sample Collection: : 02 Jul'2026

Copy No : 05

Sample Specimen : Length 600mm , Dia 25mm

Sample Grade : 60

Frog Mark : Elite B-420 DWR.

Dt. Of Test : 05 Jul'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	0.988	0.7609	2.608	2.608 3.880	51624.09	67850	68814 475	71270.40	93671	95905 661	1.38	25	1	25	1
2	25.00	25.09	490.8739	3.880		229.63	468		317.03	646		1.42	24			
3	0.984	0.988	0.7609	2.608		53643.15	70504		76178.49	100122		1.38	25.5			
	25.00	25.09	490.8739	3.880		238.62	486		338.86	690						
						51805.52	68088		71461.14	93922						
						230.44	470		317.87	648						

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
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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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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

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25, 22

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28, 32, 36, 40, 60

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Report Prepared by :

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