



MILITARY ENGINEER SERVICES (MES)

MATERIAL TESTING LABORATORY

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Page no: 668

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

Job No : 150/2025-2026(Steel).

Name of Client : AGE (Air) Air HQ (U).

Ref.ltr.No : CE Air/108 of 2025-2026/37/E-6 Dt.22 Jun'2026.

Project Name : Construction of Central Mosque.

Dt. of Sample Collection : 23 Jun'2026

Copy No : 01

Sample Specimen : Length 600mm , Dia 10mm

Sample Grade : 60

Frog Mark : Elite B-500 DWR.

Dt. Of Test : 23 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	0.395	0.1217	0.418		12273.30	100818		15674.07	128754		1.28	15.5			
	10.00	10.04	78.5398	0.621		54.59	695		69.72	888						
2	0.394	0.395	0.1217	0.418	0.418	12391.93	101793	102328	15550.79	127741	128594	1.25	15.5		16	
	10.00	10.04	78.5398	0.621	0.621	55.12	702	706	69.17	881	887					
3	0.394	0.395	0.1217	0.418		12705.96	104372		15739.20	129289		1.24	15.5			
	10.00	10.04	78.5398	0.621		56.52	720		70.01	892						

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

25, 22

28, 32, 36, 40, 60

9

8

7

7

7

6

7

7

6

Report Prepared by :

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

Page no: 669

Job No : 150/2025-2026(Steel).
Name of Client : AGE (Air) Air HQ (U).
Ref.ltr.No : CE Air/108 of 2025-2026/37/E-6 Dt.22 Jun'2026.
Project Name : Construction of Central Mosque.
Dt. of Sample Collection: 23 Jun'2026

Copy No : 02
Sample Specimen : Length 600mm , Dia 12mm
Sample Grade : 60
Frog Mark : Elite B-500 DWR.
Dt. Of Test : 23 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	0.471 11.97	0.175 113.097	0.594 0.884		16890.63 75.13	96352 664		21010.17 93.46	119852 827		1.24	17	
2	0.472 12.00	0.471 11.97	0.175 113.097	0.594 0.884	0.594 0.884	16592.88 73.81	94654 653	95865 661	20710.10 92.12	118140 815	119149	1.25	15	16
3	0.472 12.00	0.471 11.97	0.175 113.097	0.594 0.884		16932.50 75.32	96591 666		20940.38 93.15	119454 824		1.24	17	

Observation on Specimen(if any):

1.Diameter & Unit weight of 12 mm bar is less than the standard value but within tolerance limit according to MES Schedule of Rates-2016.

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

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

Job No : 150/2025-2026(Steel).

Copy No : 03

Name of Client : AGE (Air) Air HQ (U).

Sample Specimen : Length 600mm , Dia 16mm

Ref.ltr.No : CE Air/108 of 2025-2026/37/E-6 Dt.22 Jun'2026.

Sample Grade : 60

Project Name : Construction of Central Mosque.

Frog Mark : Elite B-500 DWR.

Dt. of Sample Collection: 23 Jun'2026

Dt. Of Test : 23 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	0.630 16.00	0.631 16.03	0.312 201.062	1.065 1.584		27632.60 122.92	88666 611		36930.06 164.27	118500 817		1.34	19			
2	0.630 16.00	0.631 16.03	0.312 201.062	1.065 1.584	1.065 1.584	27330.20 121.57	87696 605	86865 599	36674.18 163.13	117679 812	115464 796	1.34	21		19	
3	0.630 16.00	0.631 16.03	0.312 201.062	1.065 1.584		26250.89 116.77	84233 581		34348.07 152.79	110215 760		1.31	16.5			

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

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

Page no: 671

Job No : 150/2025-2026(Steel).

Name of Client : AGE (Air) Air HQ (U).

Ref.ltr.No : CE Air/108 of 2025-2026/37/E-6 Dt.22 Jun'2026.

Project Name : Construction of Central Mosque.

Dt. of Sample Collection: 23 Jun'2026

Copy No : 04

Sample Specimen : Length 600mm , Dia 20mm

Sample Grade : 60

Frog Mark : Elite B-500 DWR.

Dt. Of Test : 23 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	0.787 20.00	0.788 20.01	0.4869 314.1593	1.658 2.468		41777.67 185.84	85795 592		53450.08 237.76	109766 757		1.28	19.5			
2	0.787 20.00	0.788 20.01	0.4869 314.1593	1.658 2.468	1.658 2.468	41814.88 186.00	85871 592	85898 592	53364.02 237.37	109589 756	109546 755	1.28	20		19	
3	0.787 20.00	0.788 20.01	0.4869 314.1593	1.658 2.468		41891.65 186.34	86029 593		53215.15 236.71	109283 754		1.27	17.5			

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.

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: 672

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

Job No : 150/2025-2026(Steel).

Copy No : 05

Name of Client : AGE (Air) Air HQ (U).

Sample Specimen : Length 600mm , Dia 25mm

Ref.ltr.No : CE Air/108 of 2025-2026/37/E-6 Dt.22 Jun'2026.

Sample Grade : 60

Project Name : Construction of Central Mosque.

Frog Mark : Elite B-500 DWR.

Dt. of Sample Collection: 23 Jun'2026

Dt. Of Test : 23 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
1	0.984	0.981	0.7609	2.572		63873.38	83949		86104.00	113167		1.35	18.5	
	25.00	24.92	490.8739	3.828		284.12	579		383.01	780				
2	0.984	0.981	0.7609	2.572	2.572	56120.46	73760	81029	77032.18	101244	109885	1.37	25	21
	25.00	24.92	490.8739	3.828	3.828	249.64	509	559	342.65	698	758			
3	0.984	0.981	0.7609	2.572		64959.67	85377		87683.43	115243		1.35	20.5	
	25.00	24.92	490.8739	3.828		288.95	589		390.03	795				

Observation on Specimen(if any):

1.Diameter & Unit weight of 25 mm bar is less than the standard value but within tolerance limit according to MES Schedule of Rates-2016.

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

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