



## MATERIALS TESTING LABORATORY MILITARY ENGINEER SERVICES(MES)

Page no: 502

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

Job No : 196(D)/2025-2026 (Steel).

Copy No : 01

Name of Client : AGE (Army) Momenshahi.

Sample Specimen : Length 600mm , Dia 10mm

Ref.ltr.No : CEA/273 of 2022-2023/26/E-6 Dt.14 Dec'2025.

Sample Grade : 60

Project Name : Construction of 1 x 20 C/D Type Qtr.

Frog Mark : RSM B-420 DWR.

Dt. of Sample Collection : 15 Dec'2025

| 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 | 0.399 10.13 | 0.1217 78.5398  | 0.425 0.633        | 0.425 0.633                | 14869.01 66.14      | 122141 842              | 122457 845                  | 18403.73 81.86 | 151176 1043       | 150422 1037               | 1.24      | 18.5                       |    | 19                                 |    |
| 2         | 0.394 10.00 | 0.399 10.13 | 0.1217 78.5398  | 0.425 0.633        |                            | 14665.44 65.23      | 120468 831              |                             | 18137.70 80.68 | 148991 1028       |                           | 1.24      | 19.5                       |    |                                    |    |
| 3         | 0.394 10.00 | 0.399 10.13 | 0.1217 78.5398  | 0.425 0.633        |                            | 15188.25 67.56      | 124763 860              |                             | 18394.48 81.82 | 151100 1042       |                           | 1.21      | 19.5                       |    |                                    |    |

#### Cautions:

1. Samples as supplied to the laboratory have been tested.The laboratory authority does not bear any responsibility as to the representative charecture of the samples to be tested.
2. It is recommended that samples are Sent in asecuried and sealed cover/packet/container under signature of the competent authority.
3. In order to avoid fraudulent of the test results,it is recommended that all test reports should be collected by duly authorised person and not by contractor/supplier.

Ovservation on Specimen(if any):

1

| Minimum Standard Requirements (BDS/ISO 6935-2:1991(E)) |              |              |            | Minimum Standard Requirments(ASTM A615/A616M-96a) |              |              |              |              |              |                                           |             |          |             |
|--------------------------------------------------------|--------------|--------------|------------|---------------------------------------------------|--------------|--------------|--------------|--------------|--------------|-------------------------------------------|-------------|----------|-------------|
|                                                        |              |              |            | ASTM A 615 M                                      |              |              | ASTM A 615 M |              |              | ASTM A 615/A 615 M                        |             |          |             |
| Grade                                                  | Y/strength   | Ult.Str      | Elongation | Grade                                             | Y/strength   | Ult.Str      | Grade        | Y/strength   | Ult.Str      | Minimum Elongation in 8"(203.2 mm) GL (%) |             |          |             |
|                                                        | N/mm2 or Mpa | N/mm2 or Mpa | %          |                                                   | psi (kg/cm2) | psi (kg/cm2) |              | Mpa (kg/cm2) | Mpa (kg/cm2) | 10 mm                                     | 13,16,19 mm | 22,25 mm | 29,32,36 mm |
| 300                                                    | 300          | 330          | 16         | 40                                                | 40000(2810)  | 70000(4910)  | 300          | 300(3050)    | 500(5090)    | 11                                        | 12          | ..       | ..          |
| 400/400w                                               | 400          | 440          | 14         | 60                                                | 60000(4210)  | 90000(6310)  | 420          | 420(4275)    | 620(6295)    | 9                                         | 9           | 8        | 7           |
| 500/500w                                               | 500          | 550          | 14         | 75                                                | 75000(5255)  | 100000(7015) | 520          | 520(5275)    | 690(7010)    | ..                                        | 7           | 7        | 6           |

Laboratory Technician

Test Performed By

Vetted By



## MATERIALS TESTING LABORATORY MILITARY ENGINEER SERVICES(MES)

Page no: 503

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

Job No : 196(D)/2025-2026 (Steel).

Copy No : 02

Name of Client : AGE (Army) Momenshahi.

Sample Specimen : Length 600mm , Dia 12mm

Ref.ltr.No : CEA/273 of 2022-2023/26/E-6 Dt.14 Dec'2025.

Sample Grade : 60

Project Name : Construction of 1 x 20 C/D Type Qtr.

Frog Mark : RSM B-420 DWR.

Dt. of Sample Collection: 15 Dec'2025

| 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 | 0.476 12.10 | 0.175 113.097   | 0.606 0.902        | 0.606 0.902                | 18711.40 83.23      | 106739 736              | 106136 732                  | 23821.47 105.96 | 135889 937        | 133245 919                | 1.27      | 19.5                       |    | 17                                 |    |
| 2         | 0.472 12.00 | 0.476 12.10 | 0.175 113.097   | 0.606 0.902        |                            | 18394.48 81.82      | 104931 724              |                             | 22977.11 102.21 | 131072 904        |                           | 1.25      | 16.5                       |    |                                    |    |
| 3         | 0.472 12.00 | 0.476 12.10 | 0.175 113.097   | 0.606 0.902        |                            | 18711.40 83.23      | 106739 736              |                             | 23275.53 103.53 | 132774 916        |                           | 1.24      | 15                         |    |                                    |    |

#### Cautions:

1. Samples as supplied to the laboratory have been tested.The laboratory authority does not bear any responsibility as to the representative charecture of the samples to be tested.
2. It is recommended that samples are Sent in asecuried and sealed cover/packet/container under signature of the competent authority.
3. In order to avoid fraudulent of the test results,it is recommended that all test reports should be collected by duly authorised person and not by contractor/supplier.

#### Ovservation on Specimen(if any):

1

| Minimum Standard Requirements (BDS/ISO 6935-2:1991(E)) |              |              |            | Minimum Standard Requirements(ASTM A615/A616M-96a) |              |              |              |              |              |                                           |             |          |             |
|--------------------------------------------------------|--------------|--------------|------------|----------------------------------------------------|--------------|--------------|--------------|--------------|--------------|-------------------------------------------|-------------|----------|-------------|
|                                                        |              |              |            | ASTM A 615 M                                       |              |              | ASTM A 615 M |              |              | ASTM A 615/A 615 M                        |             |          |             |
| Grade                                                  | Y/strength   | Ult.Str      | Elongation | Grade                                              | Y/strength   | Ult.Str      | Grade        | Y/strength   | Ult.Str      | Minimum Elongation in 8"(203.2 mm) GL (%) |             |          |             |
|                                                        | N/mm2 or Mpa | N/mm2 or Mpa | %          |                                                    | psi (kg/cm2) | psi (kg/cm2) |              | Mpa (kg/cm2) | Mpa (kg/cm2) | 10 mm                                     | 13,16,19 mm | 22,25 mm | 29,32,36 mm |
| 300                                                    | 300          | 330          | 16         | 40                                                 | 40000(2810)  | 70000(4910)  | 300          | 300(3050)    | 500(5090)    | 11                                        | 12          | ..       | ..          |
| 400/400w                                               | 400          | 440          | 14         | 60                                                 | 60000(4210)  | 90000(6310)  | 420          | 420(4275)    | 620(6295)    | 9                                         | 9           | 8        | 7           |
| 500/500w                                               | 500          | 550          | 14         | 75                                                 | 75000(5255)  | 100000(7015) | 520          | 520(5275)    | 690(7010)    | ..                                        | 7           | 7        | 6           |

Laboratory Technician

Test Performed By

Vetted By



## MATERIALS TESTING LABORATORY MILITARY ENGINEER SERVICES(MES)

Page no: 504

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

Job No : 196(D)/2025-2026 (Steel). Copy No : 03  
Name of Client : AGE (Army) Momenshahi. Sample Specimen : Length 600mm , Dia 16mm  
Ref.ltr.No : CEA/273 of 2022-2023/26/E-6 Dt.14 Dec'2025. Sample Grade : 60  
Project Name : Construction of 1 x 20 C/D Type Qtr. Frog Mark : RSM B-420 DWR.  
Dt. of Sample Collection: 15 Dec'2025

| 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<br>mm     | inch<br>mm     | sq.inch<br>sq.mm | lb/ft<br>kg/m      | lb/ft<br>kg/m              | lb<br>kn            | psi<br>Mpa              | psi<br>Mpa                  | lb<br>kn           | psi<br>Mpa        | psi<br>Mpa                | (Fult/Fy) | 8inch                      | 5d | 8inch                              | 5d |
| 1         | 0.630<br>16.00 | 0.636<br>16.15 | 0.312<br>201.062 | 1.081<br>1.608     | 1.081<br>1.608             | 29160.55<br>129.71  | 93569<br>645            | 89885<br>620                | 36456.68<br>162.17 | 116981<br>807     | 115140<br>794             | 1.25      | 18                         |    | 20                                 |    |
| 2         | 0.630<br>16.00 | 0.636<br>16.15 | 0.312<br>201.062 | 1.081<br>1.608     |                            | 27187.31<br>120.93  | 87238<br>602            |                             | 35267.65<br>156.88 | 113166<br>780     |                           | 1.30      | 21                         |    |                                    |    |
| 3         | 0.630<br>16.00 | 0.636<br>16.15 | 0.312<br>201.062 | 1.081<br>1.608     |                            | 27689.29<br>123.17  | 88848<br>613            |                             | 35924.62<br>159.80 | 115274<br>795     |                           | 1.30      | 20                         |    |                                    |    |

#### Cautions:

1. Samples as supplied to the laboratory have been tested.The laboratory authority does not bear any responsibility as to the representative charecture of the samples to be tested.
2. It is recommended that samples are Sent in asecuried and sealed cover/packet/container under signature of the competent authority.
3. In order to avoid fraudulent of the test results,it is recommended that all test reports should be collected by duly authorised person and not by contractor/supplier.

Ovservation on Specimen(if any):

| Minimum Standard Requirements (BDS/ISO 6935-2:1991(E) |                               |                            |                 | Minimum Standard Requirments(ASTM A615/A616M-96a) |                               |                            |              |                               |                            |                                           |                |             |                |
|-------------------------------------------------------|-------------------------------|----------------------------|-----------------|---------------------------------------------------|-------------------------------|----------------------------|--------------|-------------------------------|----------------------------|-------------------------------------------|----------------|-------------|----------------|
| Grade                                                 | Y/strength<br>N/mm2 or<br>Mpa | Ult.Str<br>N/mm2 or<br>Mpa | Elongation<br>% | ASTM A 615 M                                      |                               |                            | ASTM A 615 M |                               |                            | ASTM A 615/A 615 M                        |                |             |                |
|                                                       |                               |                            |                 | Grade                                             | Y/strength<br>psi<br>(kg/cm2) | Ult.Str<br>psi<br>(kg/cm2) | Grade        | Y/strength<br>Mpa<br>(kg/cm2) | Ult.Str<br>Mpa<br>(kg/cm2) | Minimum Elongation in 8"(203.2 mm) GL (%) |                |             |                |
|                                                       |                               |                            |                 |                                                   |                               |                            |              |                               |                            | 10<br>mm                                  | 13,16,19<br>mm | 22,25<br>mm | 29,32,36<br>mm |
| 300                                                   | 300                           | 330                        | 16              | 40                                                | 40000(2810)                   | 70000(4910)                | 300          | 300(3050)                     | 500(5090)                  | 11                                        | 12             | ..          | ..             |
| 400/400w                                              | 400                           | 440                        | 14              | 60                                                | 60000(4210)                   | 90000(6310)                | 420          | 420(4275)                     | 620(6295)                  | 9                                         | 9              | 8           | 7              |
| 500/500w                                              | 500                           | 550                        | 14              | 75                                                | 75000(5255)                   | 100000(7015)               | 520          | 520(5275)                     | 690(7010)                  | ..                                        | 7              | 7           | 6              |

Laboratory Technician

Test Performed By

Vetted By



## MATERIALS TESTING LABORATORY MILITARY ENGINEER SERVICES(MES)

Page no: 505

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

Job No : 196(D)/2025-2026 (Steel).  
Name of Client : AGE (Army) Momenshahi.  
Ref.ltr.No : CEA/273 of 2022-2023/26/E-6 Dt.14 Dec'2025.  
Project Name : Construction of 1 x 20 C/D Type Qtr.  
Dt. of Sample Collection: 15 Dec'2025

Copy No : 04  
Sample Specimen : Length 600mm , Dia 20mm  
Sample Grade : 60  
Frog Mark : RSM B-420 DWR.

| 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<br>20.00 | 0.792<br>20.12 | 0.4869<br>314.1593 | 1.678<br>2.497     | 1.678<br>2.497             | 38335.08<br>170.52  | 78725<br>543            | 77633<br>535                | 52649.75<br>234.20 | 108122<br>746     | 107207<br>739             | 1.37      | 19.5                       |    | 22                                 |    |
| 2         | 0.787<br>20.00 | 0.792<br>20.12 | 0.4869<br>314.1593 | 1.678<br>2.497     |                            | 38154.64<br>169.72  | 78355<br>540            |                             | 52564.15<br>233.82 | 107946<br>744     |                           | 1.38      | 21                         |    |                                    |    |
| 3         | 0.787<br>20.00 | 0.792<br>20.12 | 0.4869<br>314.1593 | 1.678<br>2.497     |                            | 36919.34<br>164.22  | 75818<br>523            |                             | 51398.25<br>228.63 | 105552<br>728     |                           | 1.39      | 24.5                       |    |                                    |    |

#### Cautions:

1. Samples as supplied to the laboratory have been tested.The laboratory authority does not bear any responsibility as to the representative charecture of the samples to be tested.
2. It is recommended that samples are Sent in asecuried and sealed cover/packet/container under signature of the competent authority.
3. In order to avoid fraudulent of the test results,it is recommended that all test reports should be collected by duly authorised person and not by contractor/supplier.

#### Ovservation on Specimen(if any):

1

| Minimum Standard Requirements (BDS/ISO 6935-2:1991(E)) |              |              |            | Minimum Standard Requirments(ASTM A615/A616M-96a) |              |              |              |              |              |                                           |             |          |             |
|--------------------------------------------------------|--------------|--------------|------------|---------------------------------------------------|--------------|--------------|--------------|--------------|--------------|-------------------------------------------|-------------|----------|-------------|
|                                                        |              |              |            | ASTM A 615 M                                      |              |              | ASTM A 615 M |              |              | ASTM A 615/A 615 M                        |             |          |             |
| Grade                                                  | Y/strength   | Ult.Str      | Elongation | Grade                                             | Y/strength   | Ult.Str      | Grade        | Y/strength   | Ult.Str      | Minimum Elongation in 8"(203.2 mm) GL (%) |             |          |             |
|                                                        | N/mm2 or Mpa | N/mm2 or Mpa | %          |                                                   | psi (kg/cm2) | psi (kg/cm2) |              | Mpa (kg/cm2) | Mpa (kg/cm2) | 10 mm                                     | 13,16,19 mm | 22,25 mm | 29,32,36 mm |
| 300                                                    | 300          | 330          | 16         | 40                                                | 40000(2810)  | 70000(4910)  | 300          | 300(3050)    | 500(5090)    | 11                                        | 12          | ..       | ..          |
| 400/400w                                               | 400          | 440          | 14         | 60                                                | 60000(4210)  | 90000(6310)  | 420          | 420(4275)    | 620(6295)    | 9                                         | 9           | 8        | 7           |
| 500/500w                                               | 500          | 550          | 14         | 75                                                | 75000(5255)  | 100000(7015) | 520          | 520(5275)    | 690(7010)    | ..                                        | 7           | 7        | 6           |

Laboratory Technician

Test Performed By

Vetted By



## MATERIALS TESTING LABORATORY MILITARY ENGINEER SERVICES(MES)

Page no: 506

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

Job No : 196(D)/2025-2026 (Steel). Copy No : 05  
Name of Client : AGE (Army) Momenshahi. Sample Specimen : Length 600mm , Dia 25mm  
Ref.ltr.No : CEA/273 of 2022-2023/26/E-6 Dt.14 Dec'2025. Sample Grade : 60  
Project Name : Construction of 1 x 20 C/D Type Qtr. Frog Mark : RSM B-420 DWR.  
Dt. of Sample Collection: 15 Dec'2025

| 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<br>25.00 | 0.989<br>25.11 | 0.7609<br>490.8739 | 2.613<br>3.888     | 2.613<br>3.888             | 64732.09<br>287.94  | 85078<br>587            | 86512<br>597                | 86676.00<br>385.55 | 113919<br>786     | 114338<br>789             | 1.34      | 23.5                       |    | 22                                 |    |
| 2         | 0.984<br>25.00 | 0.989<br>25.11 | 0.7609<br>490.8739 | 2.613<br>3.888     |                            | 66129.32<br>294.16  | 86914<br>599            |                             | 87062.32<br>387.27 | 114427<br>789     |                           | 1.32      | 21.5                       |    |                                    |    |
| 3         | 0.984<br>25.00 | 0.989<br>25.11 | 0.7609<br>490.8739 | 2.613<br>3.888     |                            | 66608.17<br>296.29  | 87544<br>604            |                             | 87245.07<br>388.08 | 114667<br>791     |                           | 1.31      | 21.5                       |    |                                    |    |

#### Cautions:

1. Samples as supplied to the laboratory have been tested.The laboratory authority does not bear any responsibility as to the representative charecture of the samples to be tested.
2. It is recommended that samples are Sent in asecured and sealed cover/packet/container under signature of the competent authority.
3. In order to avoid fraudulent of the test results,it is recommended that all test reports should be collected by duly authorised person and not by contractor/supplier.

Ovservation on Specimen(if any):

| Minimum Standard Requirements (BDS/ISO 6935-2:1991(E)) |                               |                            |                 | Minimum Standard Requirments(ASTM A615/A616M-96a) |                               |                            |              |                               |                            |                                           |                |             |                |
|--------------------------------------------------------|-------------------------------|----------------------------|-----------------|---------------------------------------------------|-------------------------------|----------------------------|--------------|-------------------------------|----------------------------|-------------------------------------------|----------------|-------------|----------------|
|                                                        |                               |                            |                 | ASTM A 615 M                                      |                               |                            | ASTM A 615 M |                               |                            | ASTM A 615/A 615 M                        |                |             |                |
| Grade                                                  | Y/strength<br>N/mm2 or<br>Mpa | Ult.Str<br>N/mm2 or<br>Mpa | Elongation<br>% | Grade                                             | Y/strength<br>psi<br>(kg/cm2) | Ult.Str<br>psi<br>(kg/cm2) | Grade        | Y/strength<br>Mpa<br>(kg/cm2) | Ult.Str<br>Mpa<br>(kg/cm2) | Minimum Elongation in 8"(203.2 mm) GL (%) |                |             |                |
|                                                        |                               |                            |                 |                                                   |                               |                            |              |                               |                            | 10<br>mm                                  | 13,16,19<br>mm | 22,25<br>mm | 29,32,36<br>mm |
| 300                                                    | 300                           | 330                        | 16              | 40                                                | 40000(2810)                   | 70000(4910)                | 300          | 300(3050)                     | 500(5090)                  | 11                                        | 12             | ..          | ..             |
| 400/400w                                               | 400                           | 440                        | 14              | 60                                                | 60000(4210)                   | 90000(6310)                | 420          | 420(4275)                     | 620(6295)                  | 9                                         | 9              | 8           | 7              |
| 500/500w                                               | 500                           | 550                        | 14              | 75                                                | 75000(5255)                   | 100000(7015)               | 520          | 520(5275)                     | 690(7010)                  | ..                                        | 7              | 7           | 6              |

Laboratory Technician

Test Performed By

Vetted By