# MATERIALS TESTING LABORATORY
# MILITARY ENGINEER SERVICES(MES)

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

Job No : 61/2024-2025 (Steel).
Name of Client : GE (Army) BBS.
Ref.ltr.No : CEA/253 of 2022-2023/80/E-6 Dt.06 Mar'2025.
Project Name : Construction of protection work for protecting river erosion.
Dt. of Sample Collection : 06 Mar'2025

Copy No : 01
Sample Specimen : Length 600mm , Dia 10mm
Sample Grade : 60
Frog Mark : GPH B-500 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<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 | 0.394<br>10.00 | 0.389<br>9.87 | 0.1217<br>78.5398 | 0.404<br>0.600 | | 15383.30<br>68.43 | 126365<br>871 | | 18113.68<br>80.57 | 148794<br>1026 | | 1.18 | 13 | | | |
| 2 | 0.394<br>10.00 | 0.389<br>9.87 | 0.1217<br>78.5398 | 0.404<br>0.600 | 0.404<br>0.600 | 15078.65<br>67.07 | 123863<br>854 | 125531<br>866 | 18177.82<br>80.86 | 149320<br>1030 | 149377<br>1030 | 1.21 | 13.5 | | 14 | |
| 3 | 0.394<br>10.00 | 0.389<br>9.87 | 0.1217<br>78.5398 | 0.404<br>0.600 | | 15383.30<br>68.43 | 126365<br>871 | | 18262.57<br>81.24 | 150017<br>1035 | | 1.19 | 14.5 | | | |

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/supplyer.

Ovservation 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.

| 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)

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

Job No : 61/2024-2025 (Steel).
Name of Client : GE (Army) BBS.
Ref.ltr.No : CEA/253 of 2022-2023/80/E-6 Dt.06 Mar'2025.
Project Name : Construction of protection work for protecting river erosion.
Dt. of Sample Collection: 06 Mar'2025

Copy No : 02
Sample Specimen : Length 600mm , Dia 12mm
Sample Grade : 60
Frog Mark : GPH B-500 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<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 | 0.472<br>12.00 | 0.468<br>11.88 | 0.175<br>113.097 | 0.585<br>0.871 | | 18901.65<br>84.08 | 107824<br>744 | | 22905.60<br>101.89 | 130664<br>901 | | 1.21 | 16 | | | |
| 2 | 0.472<br>12.00 | 0.468<br>11.88 | 0.175<br>113.097 | 0.585<br>0.871 | 0.585<br>0.871 | 19011.59<br>84.57 | 108451<br>748 | 107306<br>740 | 23157.56<br>103.01 | 132102<br>911 | 131026<br>904 | 1.22 | 18.5 | | 17 | |
| 3 | 0.472<br>12.00 | 0.468<br>11.88 | 0.175<br>113.097 | 0.585<br>0.871 | | 18519.12<br>82.38 | 105642<br>729 | | 22843.75<br>101.61 | 130311<br>899 | | 1.23 | 17.5 | | | |

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/supplyer.

Ovservation 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.

| 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)

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

Job No : 61/2024-2025 (Steel).
Name of Client : GE (Army) BBS.
Ref.ltr.No : CEA/253 of 2022-2023/80/E-6 Dt.06 Mar'2025.
Project Name : Construction of protection work for protecting river erosion.
Dt. of Sample Collection: 06 Mar'2025

Copy No : 03
Sample Specimen : Length 600mm , Dia 16mm
Sample Grade : 60
Frog Mark : GPH B-500 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<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 | 0.621<br>15.78 | 0.312<br>201.062 | 1.032<br>1.536 | | 29197.84<br>129.88 | 93689<br>646 | | 37008.75<br>164.62 | 118752<br>819 | | 1.27 | 20 | | | |
| 2 | 0.630<br>16.00 | 0.621<br>15.78 | 0.312<br>201.062 | 1.032<br>1.536 | 1.032<br>1.536 | 29424.61<br>130.89 | 94417<br>651 | 93931<br>648 | 37934.15<br>168.74 | 121722<br>839 | 120619<br>832 | 1.29 | 19.5 | | 19 | |
| 3 | 0.630<br>16.00 | 0.621<br>15.78 | 0.312<br>201.062 | 1.032<br>1.536 | | 29197.84<br>129.88 | 93689<br>646 | | 37828.78<br>168.27 | 121384<br>837 | | 1.30 | 18.5 | | | |

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/supplyer.

Ovservation on Specimen(if any):

1. Diameter & Unit weight of 16 mm bar is less than the standard value but within tolerance limit according to MES Schedule of Rates-2016.

| 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 Mpa | Ult.Str<br>N/mm2 or Mpa | Elongation<br>% | Grade | Y/strength<br>psi (kg/cm2) | Ult.Str<br>psi (kg/cm2) | Grade | Y/strength<br>Mpa (kg/cm2) | Ult.Str<br>Mpa (kg/cm2) | Minimum Elongation in 8"(203.2 mm) GL (%) | | | | |
| | | | | | | | | | | 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