



## MATERIALS TESTING LABORATORY MILITARY ENGINEER SERVICES(MES)

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

Job No : 93/2024-2025 (Steel).

Copy No : 01

Name of Client : GE (Army) Rangpur.

Sample Specimen : Length 600mm , Dia 10mm

Ref.ltr.No : EinC/112 of 2024-2025/08/E-6 Dt.14 May'2025.

Sample Grade : 60

Project Name : Construction of 1 x Gate with Sentry Box.

Frog Mark : BSRM B-500 DWR.

Dt. of Sample Collection : 17 May'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<br>10.00 | 0.398<br>10.11 | 0.1217<br>78.5398 | 0.424<br>0.630     | 0.424<br>0.630             | 15081.84<br>67.09   | 123889<br>854           | 122768<br>847               | 17968.83<br>79.93 | 147604<br>1018    | 146970<br>1014            | 1.19      | 17.5                       |    | 16                                 |    |
| 2         | 0.394<br>10.00 | 0.398<br>10.11 | 0.1217<br>78.5398 | 0.424<br>0.630     |                            | 14832.00<br>65.98   | 121836<br>840           |                             | 17799.96<br>79.18 | 146217<br>1008    |                           | 1.20      | 16.5                       |    |                                    |    |
| 3         | 0.394<br>10.00 | 0.398<br>10.11 | 0.1217<br>78.5398 | 0.424<br>0.630     |                            | 14922.22<br>66.38   | 122578<br>845           |                             | 17906.37<br>79.65 | 147091<br>1014    |                           | 1.20      | 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):

| Minimum Standard Requirements (BDS/ISO 6935-2:1991(E)) |              |              |            | Minimum Standard Requirments(ASTM A615/A616M-96a) |                               |                            |              |                               |                            |                                           |             |          |             |
|--------------------------------------------------------|--------------|--------------|------------|---------------------------------------------------|-------------------------------|----------------------------|--------------|-------------------------------|----------------------------|-------------------------------------------|-------------|----------|-------------|
| Grade                                                  | Y/strength   | Ult.Str      | Elongation | ASTM A 615 M                                      |                               |                            | ASTM A 615 M |                               |                            | ASTM A 615/A 615 M                        |             |          |             |
|                                                        | N/mm2 or Mpa | N/mm2 or Mpa | %          | 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 (%) |             |          |             |
| 300                                                    | 300          | 330          | 16         | 40                                                | 40000(2810)                   | 70000(4910)                | 300          | 300(3050)                     | 500(5090)                  | 10 mm                                     | 13,16,19 mm | 22,25 mm | 29,32,36 mm |
| 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           |

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## MATERIALS TESTING LABORATORY MILITARY ENGINEER SERVICES(MES)

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

Job No : 93/2024-2025 (Steel).

Copy No : 02

Name of Client : GE (Army) Rangpur.

Sample Specimen : Length 600mm , Dia 12mm

Ref.ltr.No : EinC/112 of 2024-2025/08/E-6 Dt.14 May'2025.

Sample Grade : 60

Project Name : Construction of 1 x Gate with Sentry Box.

Frog Mark : BSRM B-500 DWR.

Dt. of Sample Collection: 17 May'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<br>12.00 | 0.468<br>11.89 | 0.175<br>113.097 | 0.586<br>0.872     | 0.586<br>0.872             | 19826.41<br>88.19   | 113099<br>780           | 114010<br>786               | 23678.04<br>105.32 | 135071<br>932     | 135717<br>936             | 1.19      | 15                         |    | 15                                 |    |
| 2         | 0.472<br>12.00 | 0.468<br>11.89 | 0.175<br>113.097 | 0.586<br>0.872     |                            | 19921.25<br>88.61   | 113640<br>784           |                             | 23784.45<br>105.80 | 135678<br>936     |                           | 1.19      | 15.5                       |    |                                    |    |
| 3         | 0.472<br>12.00 | 0.468<br>11.89 | 0.175<br>113.097 | 0.586<br>0.872     |                            | 20210.41<br>89.90   | 115290<br>795           |                             | 23911.68<br>106.36 | 136403<br>941     |                           | 1.18      | 15.55                      |    |                                    |    |

#### Cautions:

1. Samples as supplied to the laboratory have been tested. The laboratory authority does not bear any responsibility as to the representative character of the samples to be tested.
2. It is recommended that samples are sent in a secured 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.

#### 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.

| Minimum Standard Requirements (BDS/ISO 6935-2:1991(E)) |                          |                          |            | Minimum Standard Requirements (ASTM A615/A616M-96a) |                                            |                                         |              |                                            |                                         |                                           |             |          |             |
|--------------------------------------------------------|--------------------------|--------------------------|------------|-----------------------------------------------------|--------------------------------------------|-----------------------------------------|--------------|--------------------------------------------|-----------------------------------------|-------------------------------------------|-------------|----------|-------------|
| Grade                                                  | Y/strength               | Ult.Str                  | Elongation | ASTM A 615 M                                        |                                            |                                         | ASTM A 615 M |                                            |                                         | ASTM A 615/A 615 M                        |             |          |             |
|                                                        | N/mm <sup>2</sup> or Mpa | N/mm <sup>2</sup> or Mpa | %          | Grade                                               | Y/strength<br>psi<br>(kg/cm <sup>2</sup> ) | Ult.Str<br>psi<br>(kg/cm <sup>2</sup> ) | Grade        | Y/strength<br>Mpa<br>(kg/cm <sup>2</sup> ) | Ult.Str<br>Mpa<br>(kg/cm <sup>2</sup> ) | Minimum Elongation in 8"(203.2 mm) GL (%) |             |          |             |
| 300                                                    | 300                      | 330                      | 16         | 40                                                  | 40000(2810)                                | 70000(4910)                             | 300          | 300(3050)                                  | 500(5090)                               | 10 mm                                     | 13,16,19 mm | 22,25 mm | 29,32,36 mm |
| 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           |

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## MATERIALS TESTING LABORATORY MILITARY ENGINEER SERVICES(MES)

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

Job No : 93/2024-2025 (Steel).

Copy No : 03

Name of Client : GE (Army) Rangpur.

Sample Specimen : Length 600mm , Dia 16mm

Ref.ltr.No : EinC/112 of 2024-2025/08/E-6 Dt.14 May'2025.

Sample Grade : 60

Project Name : Construction of 1 x Gate with Sentry Box.

Frog Mark : BSRM B-500 DWR.

Dt. of Sample Collection: 17 May'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         | 0.630<br>16.00 | 0.626<br>15.91 | 0.312<br>201.062 | 1.048<br>1.560     | 1.048<br>1.560             | 30016.47<br>133.52  | 96316<br>664            | 96331<br>664                | 37347.30<br>166.13 | 119839<br>826     | 119846<br>827             | 1.24      | 18                         |    | 19                                 |    |
| 2         | 0.630<br>16.00 | 0.626<br>15.91 | 0.312<br>201.062 | 1.048<br>1.560     |                            | 30136.76<br>134.05  | 96702<br>667            |                             | 37453.71<br>166.60 | 120180<br>829     |                           | 1.24      | 20.5                       |    |                                    |    |
| 3         | 0.630<br>16.00 | 0.626<br>15.91 | 0.312<br>201.062 | 1.048<br>1.560     |                            | 29910.06<br>133.05  | 95974<br>662            |                             | 37247.83<br>165.69 | 119519<br>824     |                           | 1.25      | 19.5                       |    |                                    |    |

#### Cautions:

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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. 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   | 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) |                                           |    |    |    |
| 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  |

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## MATERIALS TESTING LABORATORY MILITARY ENGINEER SERVICES(MES)

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

Job No : 93/2024-2025 (Steel).

Copy No : 04

Name of Client : GE (Army) Rangpur.

Sample Specimen : Length 600mm , Dia 20mm

Ref.ltr.No : EinC/112 of 2024-2025/08/E-6 Dt.14 May'2025.

Sample Grade : 60

Project Name : Construction of 1 x Gate with Sentry Box.

Frog Mark : BSRM B-500 DWR.

Dt. of Sample Collection: 17 May'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         | 0.787<br>20.00 | 0.785<br>19.95 | 0.4869<br>314.1593 | 1.649<br>2.454     | 1.649<br>2.454             | 44425.98<br>197.62  | 91234<br>629            | 91357<br>630                | 55749.56<br>247.99 | 114488<br>790     | 114502<br>790             | 1.25      | 23                         |    | 22                                 |    |
| 2         | 0.787<br>20.00 | 0.785<br>19.95 | 0.4869<br>314.1593 | 1.649<br>2.454     |                            | 44631.87<br>198.53  | 91656<br>632            |                             | 55876.79<br>248.55 | 114749<br>791     |                           | 1.25      | 21                         |    |                                    |    |
| 3         | 0.787<br>20.00 | 0.785<br>19.95 | 0.4869<br>314.1593 | 1.649<br>2.454     |                            | 44400.54<br>197.50  | 91181<br>629            |                             | 55643.15<br>247.51 | 114269<br>788     |                           | 1.25      | 21.5                       |    |                                    |    |

#### Cautions:

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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. Diameter & Unit weight of 20 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) |                               |                            |              |                               |                            |                                           |             |          |             |
|--------------------------------------------------------|--------------|--------------|------------|---------------------------------------------------|-------------------------------|----------------------------|--------------|-------------------------------|----------------------------|-------------------------------------------|-------------|----------|-------------|
| Grade                                                  | Y/strength   | Ult.Str      | Elongation | ASTM A 615 M                                      |                               |                            | ASTM A 615 M |                               |                            | ASTM A 615/A 615 M                        |             |          |             |
|                                                        | N/mm2 or Mpa | N/mm2 or Mpa | %          | 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 (%) |             |          |             |
| 300                                                    | 300          | 330          | 16         | 40                                                | 40000(2810)                   | 70000(4910)                | 300          | 300(3050)                     | 500(5090)                  | 10 mm                                     | 13,16,19 mm | 22,25 mm | 29,32,36 mm |
| 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           |

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