



# MATERIAL TESTING LABORATORY

## MILITARY ENGINEER SERVICES (MES)

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

Job No : 256/18-19(Steel).  
 Name of Client : GE (Air) Kurmitola.  
 Ref Itr No : 6409/32/E-6.Dt 14 Mar 2019.  
 Project Name : CE(Air)/82 of 2017-2018.  
 Date of Collection : Thursday, 28 March, 2019

Copy No. : 03  
 Sample Specimen : Length 600 mm Dia 16mm  
 Sample Grade : 60  
 Frog Mark : Baizid 400 +.

| 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 Strength | Ultimate Load      | Ultimate Strength | Average Ultimate Strength | 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                | 8inch                       | 5d** | 8inch                               | 5d** |
| 1         | 0.63<br>16  | 0.622<br>15.801 | 0.3116<br>201.0619 | 1.034<br>1.54      | 1.034<br>1.54              | 19670.88<br>87.5    | 63119<br>435            | 63297<br>436                    | 26581.53<br>118.24 | 85294<br>588      | 85611<br>590              | 23.5                        |      | 21                                  |      |
| 2         | 0.63<br>16  | 0.622<br>15.801 | 0.3116<br>201.0619 | 1.034<br>1.54      |                            | 20165.46<br>89.7    | 64706<br>446            |                                 | 27094.1<br>120.52  | 86939<br>599      |                           | 17.5                        |      |                                     |      |
| 3         | 0.63<br>16  | 0.622<br>15.801 | 0.3116<br>201.0619 | 1.034<br>1.54      |                            | 19342.65<br>86.04   | 62066<br>428            |                                 | 26365.72<br>117.28 | 84601<br>583      |                           | 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 character of the samples to be tested.
2. It is recommended that the samples are sent in a secure and sealed cover/packet/container under signature of the competent authority.
3. In order to avoid fraudulent fabrication of the test results, it is recommended that all test reports should be collected by duly authorized person and not by the contractor/supplier.

#### **Observation 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 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/mm2 or<br>Mpa | N/mm2 or<br>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 (%) |                |             |                |
|  |                 |                 |            |   |                               |                            |              |                               |                            | 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              |

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No signature is required

Note : [1 Mpa = 145 Psi, 1 kg/cm2 = 14.223 psi]      Laboratory Technician

Test Performed By

Vetted By