



**STRUCTURAL ENGINEERING DIVISION**  
**Test Floor Laboratory**  
**Department of Civil Engineering**  
**University of Engineering and Technology Lahore, 54890**  
**Pakistan. Ph: 92-42-99029202**

To,  
M/S Steel Complex (Pvt) Limited  
Lahore

Reference # CED/TFL **37642** (Dr. Qasim Khan)

Dated: 31-12-2021

Reference of the request letter # SCL/UET/Strength of material-Lab/DEC-2021/04

Dated: 22-12-2021

**Tension Test Report** (Page – 1/1)

Date of Test 03-01-2022

Gauge length 200 mm

Description Wire from Rail Conductor Tensile Test

| Sr. No. | Diameter / size | Area               | Initial Load at 0.1% Extension | Yield Load at 1% Extension | Ultimate Load | Yield Stress          | Ultimate Stress       | Elongation | % Elongation | Marks |
|---------|-----------------|--------------------|--------------------------------|----------------------------|---------------|-----------------------|-----------------------|------------|--------------|-------|
|         | (mm)            | (mm <sup>2</sup> ) | (kg)                           | (kg)                       | (kg)          | (kg/mm <sup>2</sup> ) | (kg/mm <sup>2</sup> ) | (mm)       |              |       |
| 1       | 2.40            | 4.52               | 96                             | 480                        | 680           | 106                   | 150                   | 13.00      | 6.50         |       |
| -       | -               | -                  | -                              | -                          |               | -                     |                       | -          | -            |       |
| -       | -               | -                  | -                              | -                          |               | -                     |                       | -          | -            |       |
| -       | -               | -                  | -                              | -                          |               | -                     |                       | -          | -            |       |
| -       | -               | -                  | -                              | -                          |               | -                     |                       | -          | -            |       |

**Only One Sample for Tensile Test**

Witness by Syed Ghulam Mustafa (Dy. Manager (Inspection) and Muhammad Abdullah (Deputy Director (Tech) GSO Circle LESCO.

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

Note:

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- 2- The above results pertain to sample /samples supplied to this laboratory.
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To,  
 Resident Engineer  
 ACE Limited (Jv) ACC  
 Construction of Lodhran – Multan Project Section (N-5) (North Bound 62 km)

Reference # CED/TFL **37645** (Dr. Qasim Khan)  
 Reference of the request letter # RE/ACE/LMP/131

Dated: 03-01-2022  
 Dated: 30-01-2022

**Tension Test Report** (Page -1/1)

Date of Test 03-01-2022  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>Size |        | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks     |
|--|--------------------|-------------------|--------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|-------------|
|  |                    | Nominal           | Actual | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |             |
| 1  | 4.027              | 32                | 31.18  | 0.12                       | 1.184  | 38200              | 52600                    | 701798                | 71130  | 966350                   | 98000  | 1.50                 | 18.8         | Union Steel |
| 2  | 4.058              | 32                | 31.30  | 0.12                       | 1.193  | 38300              | 52800                    | 703635                | 70770  | 970024                   | 97600  | 1.50                 | 18.8         |             |
| -  | -                  | -                 | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |             |
| -  | -                  | -                 | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |             |
| -  | -                  | -                 | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |             |
| -  | -                  | -                 | -      | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |             |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                   |        |                            |        |                    |                          |                       |        |                          |        |                      |              |             |
| Bend Test  |                    |                   |        |                            |        |                    |                          |                       |        |                          |        |                      |              |             |
| 32mm Dia Bar Bend Test Through 180° is Satisfactory                    |                    |                   |        |                            |        |                    |                          |                       |        |                          |        |                      |              |             |
|  |                    |                   |        |                            |        |                    |                          |                       |        |                          |        |                      |              |             |

**I/C Testing Laboratoires**  
**UET Lahore, Pakistan.**

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To,  
 Resident Engineer  
 Bahria Town Private Limited  
 Residence Ali Block Masjid Bahria Town Multan Road Lahore

Reference # CED/TFL 37647 (Dr. Qasim Khan)  
 Reference of the request letter # QA/QC-Steel-2458

Dated: 03-01-2022  
 Dated: 03-01-2022

**Tension Test Report** (Page -1/1)

Date of Test 03-01-2022  
 Gauge length 8 inches  
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>Size |                  | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks  |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|----------|
|  |                    | Nominal<br>(#)    | Actual<br>(inch) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |          |
| 1  | 0.374              | 3                 | 0.374            | 0.11                       | 0.110  | 3700               | 4900                     | 74200                 | 74250  | 98200                    | 98400  | 1.20                 | 15.0         | FF Steel |
| 2  | 0.373              | 3                 | 0.374            | 0.11                       | 0.110  | 3600               | 5000                     | 72200                 | 72360  | 100200                   | 100500 | 1.00                 | 12.5         |          |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |          |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |          |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |          |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |          |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |          |
| Bend Test  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |          |
| #3 Bar Bend Test Through 180° is Satisfactory                          |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |          |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |          |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |          |

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To,  
M/S AMS Engineering & Contractors  
Rahim Yar Khan

Reference # CED/TFL **37648** (Dr. Qasim Khan)  
Reference of the request letter # Nil

Dated: 03-01-2022  
Dated: 03-01-2022

**Tension Test Report** (Page -1/1)

Date of Test 03-01-2022  
Gauge length 8 inches  
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.   | Weight<br>(lbs/ft) | Diameter/<br>Size |                  | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|---|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|   |                    | Nominal<br>(#)    | Actual<br>(inch) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1   | 0.402              | 3                 | 0.388            | 0.11                       | 0.118  | 3800               | 5300                     | 76200                 | 70960  | 106200                   | 99000  | 1.40                 | 17.5         |         |
| -   | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -   | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only one sample for tensile and one sample for bend test</b> |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test   |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| #3 Bar Bend Test Through 180° is Satisfactory                         |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|   |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

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To,  
M/S Amanah Noor Residence  
Wapda Town, Lahore

Reference # CED/TFL **37649** (Dr. Asad Ali)  
Reference of the request letter # Nil

Dated: 03-01-2022  
Dated: 03-01-2022

**Tension Test Report** (Page -1/1)

Date of Test 03-01-2022  
Gauge length 8 inches  
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

| Sr. No.  | Weight<br>(lbs/ft) | Diameter/<br>Size |                  | Area<br>(in <sup>2</sup> ) |        | Yield load<br>(kg) | Breaking<br>Load<br>(kg) | Yield Stress<br>(psi) |        | Ultimate Stress<br>(psi) |        | Elongation<br>(inch) | % Elongation | Remarks |
|--|--------------------|-------------------|------------------|----------------------------|--------|--------------------|--------------------------|-----------------------|--------|--------------------------|--------|----------------------|--------------|---------|
|  |                    | Nominal<br>(#)    | Actual<br>(inch) | Nominal                    | Actual |                    |                          | Nominal               | Actual | Nominal                  | Actual |                      |              |         |
| 1  | 0.371              | 3                 | 0.372            | 0.11                       | 0.109  | 3770               | 5630                     | 75600                 | 76290  | 112900                   | 114000 | 0.90                 | 11.3         |         |
| 2  | 0.370              | 3                 | 0.372            | 0.11                       | 0.109  | 3690               | 5020                     | 74000                 | 74860  | 100600                   | 101900 | 1.10                 | 13.8         |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| -  | -                  | -                 | -                | -                          | -      | -                  | -                        | -                     | -      | -                        | -      | -                    | -            |         |
| <b>Note: only two samples for tensile and one sample for bend test</b> |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| Bend Test  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
| #3 Bar Bend Test Through 180° is Satisfactory                          |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |
|  |                    |                   |                  |                            |        |                    |                          |                       |        |                          |        |                      |              |         |

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