

Mobile: 01819557964; PABX: (8802) - 55167100, 55167228-57 Ext. 7226, Info: http://brtc.ce.buet.ac.bd/#/home, Report verification: http://verify.ce.buet.ac.bd

Testing & Consulta Bureau of Research

STRENGTH OF MATERIALS LABORATORY

Sent by: Engr. Md. Maksudul Karim, General Manager (Plant) TEST OF DEFORMED M.S. BARS [BDS ISO 6935-2:2016]

Shahriar Steel Mills Ltd., Konapara, Jatrabari, Dhaka.

Ref.: Letter; Dt. 12/3/2023 Date of Test: 13/3/2023

BRTC No.: 1102-85850/CE/22-23; Dt. 12/3/2023

Samples were received in UNSEALED condition.

| | | - | | | • | , | | - | - | - | 1 | သ | 2 | | | | | ₹. | SI. | |
|---|---|---|--------|---|---|----|------|---|---|---|---|---------------|---------------|---------------|-------|----------------|------------|----------------|----------------------------------|---|
| - | - | • | - | - | _ | 3 |) or | - | | 1 | 1 | SSRM B500 CWR | SSRM B500 CWR | SSRM B500 CWR | | | | Identification | Frog Mark I | |
| | 1 | 1 | | | • | | • | | • | | | 10 | 10 | 10 | mm | | | dia. | Nominal | |
| • | 1 | , | 1 | Т | | | | 1 | , | - | | 9.8 | 9.8 | 9.8 | mm | | | dia. | Actual | |
| - | 1 | - | - - | - | | • | | - | | | - | 0.588 | 0.590 | 0.587 | kg/m | Length | Unit | Per | Mass | |
| | | | | | | | | | | | | | 0.588 | | kg/m | Length | Unit | Mass Per | Average | |
| | | | • | | - | | | | | | | 44.2 | 44.2 | 42.2 | ΚN | | Load | Proof | - | |
| | | | | | | | | | | | | 560 | 560 | 535 | MPa | Ren | Strength | Proof | Yield or Yield or | |
| | | | | | | | | | | | | | 550 | | MPa | R € | Strength, | Yield | Average | |
| | | - | - | - | 1 | - | | | | | | 50.3 | 50.3 | 49.3 | KN | | | Load | Tensile | |
| - | • | • | • | | | | | - | • | | • | 635 | 635 | 625 | MPa | R _m | | Strength | Tensile | Campion |
| | • | | | | | | • | | | | | | 635 | | MPa | 7 0 | Strength, | Tensile | Average | 101010011 |
| | • | | | | | | | | | | | | 1.15 | | | | | | R _m /R _e H | 20.00 |
| | • | • | | | | • | | | • | | • | 24 | 24 | 24 | = 5d) | (G.length | (%) | Elongation | Total | Campica were received in Giveer into commission |
| | | | | • | | | - | | | • | | | 24 | | | (%) | Elongation | Total | Average | |
| | 1 | | • | | | | | • | • | | | Satisfactory | Satisfactory | Satisfactory | | samples) | (Seperate | Test | Bend | |
| | | | | | | Ī. | | | | | | Satista | Satisfa | Satisfa | | samp | (Sepe | Īes | Rebei | |

BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2) Nominal bar dia., mm 22mm dia, bar is not covered in BDS ISO 6935-2:2016. Its properties are derived following the principle used for other bar sizes dominal mass per Nominal, kg/m lominal cross sectional area, sq.mm Permissible deviation, % 1.21 | 1.58 2.46

Conversion factor: 1.0 MPa = 1.0 N/mm² = 145 psi. Strengths are based on nominal area.

Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length Actual diameter of bars are shown for informative purpose only. It is not a requirement of BDS ISO 6935-2:2016.

BDS ISO 6935-2 Tensile Requirements for Common Steel Grades

| Steel | Yield S | Yield Strength, R.H, MPa. | Du | Ductilly Properties |
|---------|---------|-----------------------------|--------|----------------------------|
| Grade | Min. | Max. | Rm/Ret | Elongation |
| | | | min. | Total |
| B400C-R | 400 | | 1.15 | 14 |
| B400CWR | 400 | • | 1.15 | 14 |
| B500C-R | 500 | | 1.15 | 14 |
| B500CWR | 500 | | 1.15 | 14 |
| B600C-R | 009 | | 1.15 | 10 |
| B450CWR | 450 | 1.25 R _{aH} (min.) | 1.15 | |
| B400DWR | 400 | 1.3 R _{eH} (min.) | 1.25 | 17 |
| B420DWR | 420 | 1.3 R eH (min.) | 1.25 | 16 |
| R500DWR | 500 | 13 P.u (min) | 1 25 | 13 |

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge

Dept. of Civil Engg., BUET

9mEYCtm3H

Dr/Mohammad Neaz Murshed Test performed by:

16 March 2023

Associate Professor, Dept. of Civil Engg., I

samples are sent in a secure and sealed cover/packet/container under the signature of a competent authority. In order to avoid fradulent fabrication of test results, this report has been printed on a security packet. Important Note: Samples as supplied to us have been tested. BRTC does not have any responsibility as to the representative character of the samples required to be tested. It is recommended that the It is also recommended that the test results be collected by a duly authorized person.



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STRENGTH OF MATERIALS LABORATORY

Sent by: Engr. Md. Maksudul Karim, General Manager (Plant) TEST OF DEFORMED M.S. BARS [BDS ISO 6935-2:2016]

Shahriar Steel Mills Ltd., Konapara, Jatrabari, Dhaka.

Ref.: Letter; Dt. 12/3/2023

Date of Test: 13/3/2023

BRTC No.: 1102-85850/CE/22-23; Dt. 12/3/2023

Samples were received in UNSEALED condition.

| SI. Frog Mark / No. Nominal Identification Actual dia. Mass Average dia. Yield or Average dia. Yield or | Conversion factor: 10 MPa = 1.0 N/mm² = 145 psi. Strengths are based on nominal area. | rr 1.0 MPa = 1.0 N/mm² = 145 psi. Strengths are based on nominal area. | r.1.0 MPa = 1.0 N/mm ² = 145 psi. Strengths are based on nominal | rr 1.0 MPa = 1.0 N/mm² = 145 psi. Strengths are bas | r. 1.0 MPa = 1.0 N/mm ² = 145 psi. Strengt | r. 1.0 MPa = 1.0 N/mm ² = 145 | r.10 MPa = 1.0 | ion facto | Convers | | 38 | | 1 1 1 1 1 1 1 | | | |
|--|--|--|---|---|---|--|----------------|-----------|-----------------------------|----------|----------|--------|---------------|---------|----------------|-------------|
| Frog Mark / Nominal Identification Actual dia. Mass Per Identification Vield or Idia. Average dia. Vield or Idia. Per Idia. Mass Per Idia. Proof Idia. Unit Unit Unit Idia. Load Length Idia. Length Idia. Length Idia. Length Idia. Length Idia. | | • | • | • | - | | | | | | | | 1 | • | 1 | |
| Frog Mark / Nominal Identification Actual dia. Mass Per Proof Pr | | | - | | | - | | | | | | - | 1 | • | 1 1 | 1 1 |
| Frog Mark / Nominal dia. Actual dia. Mass dia. Average Priod Proof Proo | | | | | | 1 1 | 1 | | | | | | | • | - | |
| Frog Mark / Nominal Identification Actual Identification Mass Average Identification Yield or Proof Identification Yield or Proof Identification Per Identification Mass Per Identification Proof Identification | 670 20 Satisfactory | 670 20 - | 670 | 670 | 670 | | 75.7 | | 590 | 66.6 | 0.004 | 0.864 | 11.8 | 12 | SSRM B500 CWR | 3 |
| Frog Mark / Nominal Identification Actual Identification Mass Identification Actual Identification Mass Per Identification Yield or Proof Identification Proof Proof Identification Proof Proof Identification | 73.7 650 Satisfactory Satisfact | 650 665 1.15 22 21 21 21 21 21 21 21 21 21 21 21 21 | 650 665 1.15 | 650 670 665 | 650 670 | | 73.7 75.7 | 787 1 | 570 580 | 64.6 | V36.V | 0.859 | 11.8 | 12 | SSRM B500 CWR | 3 -3 |
| Frog Mark / Nominal Actual Mass Average Yield or Yield or Identification dia. Per Mass Per Proof Proof Unit Unit Load Strength | MPa | MPa MPa | MPa MPa | MPa | MPa | | Ê | MPa | MPa | ΚN | kg/m | kg/m | mm | mm | | |
| Frog Mark / Nominal Actual Mass Average Yield or Yield or Identification dia. Per Mass Per Proof Proof | R _m R _m (G.length (%) samples) | R _m (G.length (%) | R _m | | | 7 0 9 | | Strength, | Strength R _{eH} | Load | Length | Length | | | | |
| Frog Mark / Nominal Actual Mass Average Yield or Yield or | Elongation Total | Strength Tensile Elongation Total | Strength Tensile | Strength | Strength | | Load | Yield | | Proof | Mass Per | Per | dia. | dia, | Identification | No. |
| | Ф | Tensile Average R _m /R _{eH} Total | Tensile Average R_m/R_{eH} | Tensile Average | Tensile | | ensile | Average | ШШ | Yield or | Average | Mass | Actual | Nominal | Frog Mark / | SI. |

| *22mm dia. bar is no | unit length | Nominal mass per | Nominal cross section | Nominal bar dia., mm |
|---|---|------------------|--------------------------------|----------------------|
| n dia. bar is not covered in BDS ISO 6935-2:2016. Its properties are de | Permissible deviation, % | Nominal, kg/m | onal area, sq.mm | 3 |
| 5-2:201 | | 0.222 | 28.3 | 6 |
| 6. Its p | ±8 . | 0.395 | 50.3 | 8 |
| roperti | _±6 | 0.616 | 50.3 78.5 113 | 10 |
| es are | ±6 | 0.887 | 113 | 12 |
| derive | ±5 | 1.21 | 154 201 314 380 | 14 |
| d follo | ±5 | 1.58 | 201 | 16 |
| Wing | ±5 | 2.46 | 314 | 20 22* 25 |
| he pri | ±5 | 2.98 | 380 | 22* |
| nciple | # | 9 3.85 | 491 | |
| used | # | 4.84 | 616 | 28 |
| for ot | Ħ | 6.31 | 804 | 32 |
| her ba | 世 | 9.87 | 1257 | 40 |
| her bar sizes. | 15 16 15 15 15 15 14 14 14 14 | 15.42 | 1964 | 50 |

Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length Actual diameter of bars are shown for informative purpose only. It is not a requirement of BDS ISO 6935-2:2016.

BDS ISO 6935-2 Tensile Requirements for Common Steel Grades

| Steel | Yield S | Yield Strength, R.H, MPa | Du | Ductiliy Properties |
|---------|---------|----------------------------|--------|----------------------------|
| Grade | Min. | Max. | Rm/ReH | Elongation, % (min.) |
| | | | min. | Total |
| B400C-R | 400 | - | 1.15 | 14 |
| B400CWR | 400 | - | 1.15 | 14 |
| B500C-R | 500 | | 1.15 | 14 |
| B500CWR | 500 | • | 1.15 | 7.1 |
| B600C-R | 009 | | 1.15 | 0, |
| B450CWR | 450 | 1.25 R + (min.) | 1.15 | |
| B400DWR | 400 | 1.3 R _{ен} (min.) | 1.25 | 77 |
| B420DWR | 420 | 1.3 R eн (min.) | 1.25 | 16 |
| B500DWR | 500 | 1.3 R eH (min.) | 1.25 | 21 |

Dept. of Civil Engg., BUET Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge Countersigned by:

LQLWYHrtx

16 March 2023

Dr/ Mohammad Neaz Murshed est performed by:

Associate Professor, Dept. of Civil Engg., B

samples are sent in a secure and sealed cover/packet/container under the signature of a competent authority. In order to avoid fradulent fabrication of test results, this report has been printed on a security pa Important Note: Samples as supplied to us have been tested. BRTC does not have any responsibility as to the representative character of the samples required to be tested. It is recommended that the It is also recommended that the test results be collected by a duly authorized person.



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Shahriar Steel Mills Ltd., Konapara, Jatrabari, Dhaka.

Ref.: Letter; Dt. 12/3/2023 Date of Test: 13/3/2023

BRTC No.: 1102-85850/CE/22-23; Dt. 12/3/2023

eived in UNSFAI FD condition

| | | - | - | | - | - | - | • | - | | | - | 3 | 2 | | | | | ĕ | SI. | |
|--|---|---|---|---|---|--------|--|-----|---|---|-------|---|---------------|---------------|---------------|-------|------------|------------|----------------|---------------------------------|--|
| | _ | ı | | 1 | - | | (2) (2) (3) (4) (4) (4) (4) (4) (4) (4) (4) (4) (4 | | | | - | • | SSRM B500 CWR | SSRM B500 CWR | SSRM B500 CWR | | | | Identification | Frog Mark / | |
| THE RESIDENCE OF THE PARTY OF T | - | • | - | • | • | • | • | • | • | | | , | 16 | 16 | 16 | mm | | | dia. | Nominal | |
| | - | - | - | - | | 1 | | | | | 1 | - | 15.7 | 15.7 | 15.9 | mm | | | dia. | Actual | |
| | | 1 | - | - | 1 | | - | -// | | - 1 | - | 1 | 1.521 | 1.529 | 1.552 | kg/m | Length | Unit | Per | Mass | |
| | | | | | | ****** | | | | 111111111111111111111111111111111111111 | | | | 1.534 | | kg/m | Length | Unit | Mass Per | Average | |
| | | | | | · | - | | | | 000000000000000000000000000000000000000 | | | 115 | 106 | 116 | kN | | Load | Proof | Yield or | |
| | • | • | | | | | | | | |)•/// | | 575 | 530 | 580 | MPa | Res | Strength | Proof | Yield or | |
| 111111111111111111111111111111111111111 | | | | | | | | | | | | | | 560 | | MPa | Ref | Strength, | Yield | Average | |
| 111111111111 | | | _ | | - | 1 | \(\frac{1}{2}\) | | | | | | 137 | 128 | 138 | Ž | | | Load | Tensile | |
| | | • | | | | • | | - | | • | • | • | 680 | 635 | 589 | MPa | 2 0 | | Strength | Tensile | Samples w |
| | | | | | | | | | | | • | | | 665 | | MPa | .20 3 | Strength, | Tensile | Average | ere receiv |
| | | | | | | | | • | | | • | | | 1.19 | | | | | | R _m /R _{eH} | ed in UNS |
| | | • | | • | • | • | | | | | • | • | 18 | 18 | 20 | = 5d) | (G.length | (%) | Elongation | Total | Samples were received in UNSEALED condition. |
| | | • | | | | | | • | | | • | | | 19 | | | (%) | Elongation | Total | Average | dition. |
| | | | , | | | • | | • | • | | | | Satisfactory | Satisfactory | Satisfactory | | samples) | (Seperate | Test | Bend | |
| | | | | | | | | | | | | | Satista | Satisfa | Satisfa | | samp | (Sepe | Teg | Rebe | |

BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).

| unit length | Nominal | Nominal | Nominal |
|--------------------------|--------------|-------------------|--------------|
| th . | mass per | cross sectio | bar dia., mm |
| Permissible deviation, % | Nominal,kg/m | ional area, sq.mm | |
| ±8 | 0.222 | 28.3 | 6 |
| ±8 | 0.395 | 50.3 | 8 |
| # | 0.616 | 78.5 | 10 |
| 9∓ | 0.887 | 113 | 12 |
| ±5 | 1.21 | 154 | 14 |
| ±5 | 1.58 | 154 201 314 | 16 |
| ŧ5 | 2.46 | 314 | 20 |
| ±5 | 2.98 3.85 | 380 | 22* |
| ‡ | 3.85 | 80 491 | 25 |
| # | 4.84 | 616 | 28 |
| 艾 | 6.31 | 804 | 32 |
| ¥ | 9.87 | 1257 | 40 |
| ¥ | 15.42 | 1964 | 50 |

*22mm dia. bar is not covered in BDS ISO 6935-2:2016. Its properties are derived following the principle used for other bar sizes. Actual diameter of bars are shown for informative purpose only. It is not a requirement of BDS ISO 6935-2:2016. Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length

BDS ISO 6935-2 Tensile Requirements for Common Steel Grades

| Steel | Yield S | Yield Strength, R.H, MPa | Duc | Ductiliy Properties | rties |
|---------|---------|-----------------------------|--------|----------------------------|------------|
| Grade | Min. | Max. | Rm/ReH | Elongation, % (min.) | ın, % (min |
| | | | min. | Total | At Rm |
| B400C-R | 400 | 1 | 1.15 | 14 | 7 |
| B400CWR | 400 | - | 1.15 | 14 | 7 |
| B500C-R | 005 | | 1.15 | 76 | 7 |
| B500CWR | 906 | | 1.15 | 7. | 7 |
| B600C-R | 600 | | 1.15 | 0, | |
| B450CWR | 450 | 1.25 R _{eH} (min.) | 1.15 | | 7.5 |
| B400DWR | 400 | 1.3 R _{eH} (min.) | 1.25 | 74 | 8 |
| B420DWR | 420 | 1.3 R _{ен} (min.) | 1.25 | 16 | 8 |
| B500DWR | 500 | 1.3 R _{эн} (min.) | 1.25 | 13 | 8 |

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge

Dept. of Civil Engg., BUET



Conversion factor: 1.0 MPa = 1.0 N/mm² = 145 psi. Strengths are based on nominal area

ON CIVIL

Test performed by: 16 March 2023

Associate Professor, Dept. of Civil Engg., Dr/, Mohammad Neaz Murshed

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| | | | _ | | | | _ | | | | | _ | | | | | | | |
|---|---|---|---|---|---|----------|----|---|-----|---|---|---------------|---------------|---------------|-------|----------------|------------|----------------|---------------------------------|
| | • | - | | | • | | , | • | • | | 1 | 3 | 2 | 1 | | | | ₹ | SI. |
| | - | • | | _ | | 55.5 | ı | | - | 1 | - | SSRM B500 CWR | SSRM B500 CWR | SSRM B500 CWR | | | | Identification | Frog Mark / |
| • | • | • | | • | • | | • | | • | | | 20 | 20 | 20 | mm | | | dia. | Nominal |
| 1 | • | - | | | | | | , | | - | - | 19.9 | 19.9 | 19.9 | mm | | | dia. | Actual |
| 1 | | - | | - | - | - | 1/ | - | - 1 | - | 1 | 2,450 | 2.437 | 2.439 | kg/m | Length | Unit | Per | Mass |
| | | | | | | | | | | | | | 2.442 | | kg/m | Length | Unit | Mass Per | Average |
| | | | | | - | | | | | | | 180 | 183 | 180 | kN | | Load | Proof | Yield or |
| | | | | | | | | | | | • | 575 | 580 | 575 | MPa | ReH | Strength | Proof | Yield or |
| | | | | | | | | | | | | | 575 | | MPa | 70 e± | Strength, | Yield | Average |
| | | | | - | - | | | | | | | 210 | 214 | 210 | KZ | | | Load | Tensile |
| | • | | • | | - | • | • | • | | | • | 6/0 | 685 | 670 | MPa | ₹ m | | Strength | Tensile |
| | 1 | | | | | | | | | | | | 6/5 |) | MPa | R _m | Strength, | Tensile | Average |
| | • | | | • | | | • | | | • | | | 7. | ì | | | | | R _m /R _{eH} |
| • | | • | | | • | | | • | • | 1 | • | 6 | 25 | 26 | = 5d) | (G.length | (%) | Elongation | Total |
| | • | | | | | | • | | | 1 | | | 6 | 3 | | (% | Elongation | lotal | Average |
| | • | | • | | | | • | | | | | Satistaciony | Satisfactory | Satisfactory | | samples) | (Seperate | lest | Bend |
| | | | | | | . | | | | | | Jalisia | - | - | 3 | samp | (Sepe | G | Kebe |

| Actual diame Actual diame | unit length | Nominal mas | Nominal cros | Nominal bar dia., mm | |
|--|--------------------------|---|-------------------------------------|---|--|
| Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length. Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length. | Permissible deviation, % | Nominal mass per Nominal, kg/m | Nominal cross sectional area, sq.mm | dia., mm | COC 100 acco minor to give may be a second to the second t |
| ative p | ±8 | 0.222 0.395 0.616 0.887 1.21 1.58 2.46 2.98 3.85 4.84 6.31 9.87 15.42 | 28.3 | 6 | Mark Cold did des |
| urpose plain b | # ±8 | 0.395 | 50.3 | 8 | |
| only. I | ょ | 0.616 | 78.5 | 10 | |
| t is not | # | 0.887 | 113 | 12 | |
| a requ | # | 1.21 | 154 | 14 1 16 20 22* 25 28 32 40 50 | |
| ireme ss per | #5 | 1.58 | 201 | 16 | |
| nt of E | #5 | 2.46 | 314 | 20 | |
| DS IS | ±5 | 2.98 | 380 | 22* | |
| 0 693 | # | 3.85 | 491 | 25 | |
| 2:201 | # | 4.84 | 616 | 28 | |
| ()() , | tor t | 6.31 | 804 | 32 | |
| | er b | 9.87 | 1257 | 8 | |
| | S # | 15.4 | 196 | 50 | 1 |

BDS ISO 6935-2 Tensile Requirements for Common Steel Grades

| Steel | Yield S | Yield Strength, R.H, MPa | Du | Ductiliy Properties | rties |
|---------|---------|--------------------------|--------|----------------------------|-------------|
| Grade | Min. | Max. | Rm/ReH | Elongation | n, % (min.) |
| | | | 3. | Total | At Rm |
| B400C-R | 400 | - | 1.15 | 7.1 | 7 |
| B400CWR | 400 | - | 1.15 | 7. | 7 |
| B500C-R | 500 | | 1.15 | 14 | |
| B500CWR | 500 | ÷ | 1.15 | 14 | 7 |
| B600C-R | 600 | | 1.15 | 10 | 7 |
| B450CWR | 450 | 1.25 R eH (min.) | 1.15 | | 7.5 |
| B400DWR | 400 | 1.3 R eH (min.) | 1.25 | 77 | 8 |
| B420DWR | 420 | 1.3 R eH (min.) | 1.25 | 16 | 8 |
| B500DWR | 500 | 1.3 R eH (min.) | 1.25 | 13 | 8 |

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge

Dept. of Civil Engg., BUET



Conversion factor: 1.0 MPa = 1.0 N/mm² = 145 psi. Strengths are based on nominal area

Testiperformed by: 76 Narch 2023

Dy. Mohammad Neaz Murshed

Associate Professor, Dept. of Civil Engg.,

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Shahriar Steel Mills Ltd., Konapara, Jatrabari, Dhaka

TEST OF DEFORMED M.S. BARS IBDS ISO 6935-2:2016

BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET) DEPARTMENT OF CIVIL ENGINEERING

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| | | | | | | | | | _ | _ | | | | | | | | | | | 411111 |
|---|---|---|---|---|----|---|-----------|-----|---|--------|---|---|---------------|---------------|---------------|-------|-----------|------------|----------------|---------------------------------|--|
| BDS ISO 6935-2:2016 | - | • | | - | • | • | | | | - | | - | 3 | 2 | | | | | No. | SI. | CONTRACTOR OF THE PARTY OF THE |
| Weight Requirements, No | 1 | 1 | - | - | 1 | - | Section 1 | - | 1 | | F | | SSRM B500 CWR | SSRM B500 CWR | SSRM B500 CWR | | | | Identification | Frog Mark / | |
| minal Area etc. (Table 2). 6 8 10 12 14 16 20 22* 25 28 32 40 50 | | • | 1 | • | • | • | • | 1 | • | - | • | | 25 | 25 | 25 | mm | | | dia. | Nominal | THE PROPERTY OF THE PARTY OF TH |
| 16 20 | - | • | 1 | • | 1 | 1 | | | | , | | | 24.7 | 24.5 | 24.5 | mm | | | dia. | Actual | 111111111111111111111111111111111111111 |
| 22* 25 | - | 1 | 1 | - | T. | | | 1/2 | - | - 1994 | | | 3.762 | 3.713 | 3.711 | kg/m | Length | Unit | Per | Mass | 111111111111111111111111111111111111111 |
| 28 32 40 | | • | | | | | | | | | | | | 3.729 | | kg/m | Length | Unit | Mass Per | Average | 1111111111111111 |
| 50 | | | | | 1 | - | | | | | | | 273 | 267 | 268 | kN | | Load | Proof | Yield or | |
| Convers | | • | | | | | | | | | | | 555 | 545 | 545 | MPa | Ref | Strength | Proof | Yield or | |
| ion factor; 1.0 | | | | | | | | | | | | | | 550 | | MPa | R 완 | Strength, | Yield | Average | |
| MPa = 1.0 | | | - | | - | 1 | | | | | | | 326 | 318 | 618 | kΝ | | | Load | Tensile | |
| N/mm² = 148 | | - | | | - | | | | - | | - | • | 665 | 645 | 050 | MPa | R | | Strength | Tensile | |
| psi. Streng | | • | | | • | | | | | | • | | | 655 | | MPa | ,20 3 | Strength, | Tensile | Average | |
| ths are base | | • | | | | | | • | | | | | | 1.19 | | | | | | R _m /R _{eH} | |
| Conversion factor: 1.0 MPa = 1.0 N/mm² = 145 psi. Strengths are based on nominal area. | | | | • | | | | | | • | • | • | 25 | 24 | 24 | = 5d) | (G.length | (%) | Elongation | Total | |
| l area. | | | | | | | | • | | | | | | 24 | | | (%) | Elongation | Total | Average | |
| | , | • | | | • | | | | • | | • | • | Satisfactory | Satisfactory | Satisfactory | | samples) | (Seperate | Test | Bend | |
| | | | | | | | | | | | | | Satisfac | Satisfac | Satisfac | | sampl | (Seper | Tes | Reber | |

| 50.3 | 50.3 78.5 | 50.3 78.5 | 50.3 78.5 113 154 201 | 50.3 78.5 113 154 201 | 50.3 78.5 113 154 201 314 380 | 50.3 78.5 113 154 201 314 380 491 | 50.3 78.5 113 154 201 314 380 491 | 50.3 78.5 113 154 201 314 380 491 | 50.3 78.5 113 154 201 314 380 491 |
|---------------|---------------------------|----------------------------------|--|--|--|---|---|---|--|
| 0.395 | 0.395 0.616 | 0.395 0.616 | 0.395 0.616 0.887 1.21 1.58 | 0.395 0.616 0.887 1.21 1.58 | 0.395 0.616 0.887 1.21 1.58 2.46 2.98 | 0 3951 0 616 0 887 121 1 58 2 46 2 98 3 85 | 0.395 0.616 0.887 1.21 1.58 2.46 2.98 3.85 | 0 205 0 646 0 887 4 24 4 58 2 46 2 28 3 3 5 | 0 205 0 645 0 667 4 74 4 56 2 46 2 00 2 05 |
| 50.3 | 50.3 78.5 | 50.3 78.5 | 50.3 78.5 113 154 201 | 50.3 78.5 113 154 201 | 50.3 78.5 113 154 201 314 380 | 50.3 78.5 113 154 201 314 380 491 | 50.3 78.5 113 154 201 314 380 491 | 50.3 78.5 113 154 201 314 380 491 | 50.3 78.5 113 154 201 314 380 491 |
| 78.5 0.616 | 78.5 113 . 0.616 0.887 | 78.5 113 154 0.616 0.887 1.21 | 113 154 201 0.887 1.21 1.58 | 113 154 201 0.887 1.21 1.58 | 113 154 201 314 380 0.887 1.21 1.58 2.46 2.98 | 113 154 201 314 380 491 0.887 1.21 1.58 2.46 2.98 3.85 | 113 154 201 314 380 491 | 113 154 201 314 380 491 616 804 631 632 633 | 113 154 201 314 380 491 616 804 1257 |
| | 113 0.887 | 113 , 154 0.887 1.21 | 113 154 201 0.887 1.21 1.58 | 113 154 201 0.887 1.21 1.58 | 113 154 201 314 380 0.887 1.21 1.58 2.46 2.98 | 113 154 201 314 380 491 0.887 1.21 1.58 2.46 2.98 3.85 | 113 154 201 314 380 491 | 113 154 201 314 380 491 616 804 631 632 633 | 113 154 201 314 380 491 616 804 1257 |

"22mm dia. bar is not covered in BDS ISO 6935-2:2016. Its properties are derived following the principle used for other bar sizes Actual diameter of bars are shown for informative purpose only. It is not a requirement of BDS ISO 6935-2:2016. Actual diameter is the diameter of a perfectly round plain bar having same mass per unit length

BDS ISO 6935-2 Tensile Requirements for Common Steel Grades

| Steel | Yield S | Yield Strength, Ran, MPa | Du | Ductilly Properties |
|---------|---------|----------------------------|--------|----------------------------|
| Grade | Min. | Max. | Rm/ReH | Elongation, % (min. |
| | | | min. | Total |
| B400C-R | 400 | | 1.15 | 71 |
| B400CWR | 400 | | 1.15 | 71 |
| B500C-R | 005 | | 1.15 | 71 |
| B500CWR | 005 | | 1.15 | 71 |
| B600C-R | 009 | | 1.15 | 00 |
| B450CWR | 450 | 1.25 R eн (min.) | 1.15 | |
| B400DWR | 400 | 1.3 R eH (min.) | 1.25 | 24 |
| B420DWR | 420 | 1.3 R ⋅ (min.) | 1.25 | 96 |
| B500DWR | 500 | 1.3 R _{eH} (min.) | 1.25 | 13 |

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge

Dept. of Civil Engg., BUET



restiperformed by: 16 March 2023

Associate Professor, Dept. of Civil Engg., B Dr/ Mohammad Neaz Murshed

samples are sent in a secure and sealed cover/packet/container under the signature of a competent authority. In order to avoid fradulent fabrication of test results, this report has been printed on a security pa Important Note: Samples as supplied to us have been tested. BRTC does not have any responsibility as to the representative character of the samples required to be tested. It is recommended that the It is also recommended that the test results be collected by a duly authorized person.