



# SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH

(A unit of Shriram Scientific and Industrial Research Foundation)

An ISO - 9001:2008 Certified Institute

## TEST CERTIFICATE

000371767

### Issued To:

Client Code : S0595  
SHYAM SEL & POWER LTD  
S.S CHAMBER, 5 C.R AVENUE

KOLKATA  
WEST BENGAL-700072

Date 22/06/2015

Job No. 1505-1-171-3015

Booking No. RG1516/1/1847

Booking Date 27/05/2015

Customer Ref No.

Customer Ref Date 25/05/2015



### Sample Description :

ONE SAMPLE DESCRIBED AS TMT BARS 8 MM, Make: - SEL THERMAX 500+ WAS RECEIVED.

The sampling was not carried out by SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH.

The sample particulars provided in the Test Certificate are based on the declaration by the party.

### TEST RESULTS

(As Per IS: 1786-2008 with amendment No. 2)

S.No. Tests	Observation	Requirement Grade FE-500	Conformity	Protocol Adopted
A. Chemical Tests(% by wt.)				
1. Carbon	0.14	0.30 Max.	Yes	IS: 228 Part(1)
2. Sulfur	0.010	0.055 Max.	Yes	IS: 228 Part(9)
3. Phosphours	0.035	0.055 Max.	Yes	IS: 228 Part(3)
4. Sulfur + Phosphorus	0.045	0.105 Max.	Yes	IS: 1786-2008
B. Physical Tests				
1. TS/YS ratio <sup>1</sup>	1.12	$\geq 1.08$ but TS	Yes	IS: 1786-2008
Tensile Strength, N/mm <sup>2</sup>	748	not less than 545.0	Yes	IS: 1608-2005
2. Yield Stress, N/mm <sup>2</sup>	665	500 Min.	Yes	IS: 1608-2005
3. Elongation (%) (Gauge Length 5.65 Sq Root Area)	25.6	12.0 Min.	Yes	IS: 1608-2005
4. Bend Test	Satisfactory	To satisfy the test	Yes	IS: 1599-2012
5. Rebend Test	Satisfactory	To satisfy the test	Yes	IS: 1786-2008
6. Mass per metre run (Kg)	0.378	Not less than 0.363	Yes	IS: 1786-2008
7. Deformation & Surface Characterstics				
a. Mean ribs area in mm <sup>2</sup> /mm length	1.32	0.96 Min.	Yes	IS: 1786-2008
b. Mean projected area of transvers ribs in mm <sup>2</sup> /mm length	1.32	0.32 Min.	Yes	IS: 1786-2008

Remarks: The sample conforms to IS: 1786-2008 Amendment No. 2 for Grade FE 500 w.r.t. above tests.

Note:- TS/YS ratio refers to ratio of tensile strength to the yield stress of the test piece.

\*\*\*\*\*

DOR: 27/05/2015

DOC: 22/06/2015

GC-01(Rev-04)

Page 1 of 1

AUTHORISED SIGNATORY  
(EMPLOYEE CODE: 5065)

19, University Road, Delhi - 110007.

E-Mail: [sridhi@vsnl.com](mailto:sridhi@vsnl.com) Website: <http://www.shriraminstitute.org>

Ph: 91-11-27667267, 27667983, 27667860

Fax: 91-11-27667676, 27667207

P.T.O.



# SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH

(A unit of Shriram Scientific and Industrial Research Foundation)

An ISO - 9001:2008 Certified Institute

## TEST CERTIFICATE

000371768

### Issued To:

Client Code : S0595  
SHYAM SEL & POWER LTD  
S.S CHAMBER, 5 C.R AVENUE

Date 22/06/2015

Job No. 1505-1-171-3016

Booking No. RG1516/1/1847

Booking Date 27/05/2015

Customer Ref No. -

Customer Ref Date 25/05/2015

KOLKATA  
WEST BENGAL-700072

### Sample Description :

ONE SAMPLE DESCRIBED AS TMT BARS 12 MM, Make: - SEL THERMAX 500+ WAS RECEIVED.

The sampling was not carried out by SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH.

The sample particulars provided in the Test Certificate are based on the declaration by the party.

### TEST RESULTS

(As Per IS: 1786-2008 with amendment No. 2)

S.No. Tests	Observation	Requirement Grade FE-500	Conformity	Protocol Adopted
A. Chemical Tests(% by wt.)				
1. Carbon	0.15	0.30 Max.	Yes	IS: 228 Part(1)
2. Sulfur	0.014	0.055 Max.	Yes	IS: 228 Part(9)
3. Phosphours	0.038	0.055 Max.	Yes	IS: 228 Part(3)
4. Sulfur + Phosphorus	0.052	0.105 Max.	Yes	IS: 1786-2008
B. Physical Tests				
1. TS/YS ratio <sup>1</sup>	1.17	$\geq 1.08$ but TS	Yes	IS: 1786-2008
Tensile Strength, N/mm <sup>2</sup>	646	not less than 545.0	Yes	IS: 1608-2005
2. Yield Stress, N/mm <sup>2</sup>	553	500 Min.	Yes	IS: 1608-2005
3. Elongation (%) (Gauge Length 5.65 Sq Root Area)	22.0	12.0 Min.	Yes	IS: 1608-2005
4. Bend Test	Satisfactory	To satisfy the test	Yes	IS: 1599-2012
5. Rebend Test	Satisfactory	To satisfy the test	Yes	IS: 1786-2008
6. Mass per metre run (Kg)	0.851	Not less than 0.835	Yes	IS: 1786-2008
7. Deformation & Surface Characterstics				
a. Mean ribs area in mm <sup>2</sup> /mm length	2.35	1.80 Min.	Yes	IS: 1786-2008
b. Mean projected area of transvers ribs in mm <sup>2</sup> /mm length	2.35	0.60 Min.	Yes	IS: 1786-2008

Remarks: The sample conforms to IS: 1786-2008 Amendment No. 2 for Grade FE 500 w.r.t. above tests.

Note:- TS/YS ratio refers to ratio of tensile strength to the yield stress of the test piece.

\*\*\*\*\*

DOR: 27/05/2015

DOC: 22/06/2015

GC-01(Rev-04)

Page 1 of 1

AUTHORISED SIGNATORY  
(EMPLOYEE CODE: 5065)

19, University Road, Delhi - 110007.

E-Mail: [sridhi@vsnl.com](mailto:sridhi@vsnl.com) Website: <http://www.shriraminstitute.org>

Ph: 91-11-27667267, 27667983, 27667860

Fax: 91-11-27667676, 27667207

P.T.O.



# SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH

(A unit of Shriram Scientific and Industrial Research Foundation)

An ISO - 9001:2008 Certified Institute

## TEST CERTIFICATE

000371769

### Issued To:

Client Code : S0595  
SHYAM SEL & POWER LTD  
S.S CHAMBER, 5 C.R AVENUE

Date 22/06/2015

Job No. 1505-1-171-3017

Booking No. RG1516/1/1847

Booking Date 27/05/2015

Customer Ref No. -

Customer Ref Date 25/05/2015

KOLKATA

WEST BENGAL-700072

### Sample Description :

ONE SAMPLE DESCRIBED AS TMT BARS 20 MM, Make: - SEL THERMAX 500+ WAS RECEIVED.

The sampling was not carried out by SHRIRAM INSTITUTE FOR INDUSTRIAL RESEARCH.

The sample particulars provided in the Test Certificate are based on the declaration by the party.

### TEST RESULTS

(As Per IS: 1786-2008 with amendment No. 2)

S.No. Tests	Observation	Requirement Grade FE-500	Conformity	Protocol Adopted
A. Chemical Tests(% by wt.)				
1. Carbon	0.14	0.30 Max.	Yes	IS: 228 Part(1)
2. Sulfur	0.015	0.055 Max.	Yes	IS: 228 Part(9)
3. Phosphours	0.030	0.055 Max.	Yes	IS: 228 Part(3)
4. Sulfur + Phosphorus	0.045	0.105 Max.	Yes	IS: 1786-2008
B. Physical Tests				
1. TS/YS ratio <sup>1</sup>	1.22	$\geq 1.08$ but TS	Yes	IS: 1786-2008
Tensile Strength, N/mm <sup>2</sup>	692	not less than 545.0	Yes	IS: 1608-2005
2. Yield Stress, N/mm <sup>2</sup>	566	500 Min.	Yes	IS: 1608-2005
3. Elongation (%) (Gauge Length 5.65 Sq Root Area)	20.8	12.0 Min.	Yes	IS: 1608-2005
4. Bend Test	Satisfactory	To satisfy the test	Yes	IS: 1599-2012
5. Rebend Test	Satisfactory	To satisfy the test	Yes	IS: 1786-2008
6. Mass per metre run (Kg)	2.496	Not less than 2.371	Yes	IS: 1786-2008
7. Deformation & Surface Characterstics				
a. Mean ribs area in mm <sup>2</sup> /mm length	4.15	3.40 Min.	Yes	IS: 1786-2008
b. Mean projected area of transvers ribs in mm <sup>2</sup> /mm length	4.15	1.13 Min.	Yes	IS: 1786-2008

Remarks: The sample conforms to IS: 1786-2008 Amendment No. 2 for Grade FE 500 w.r.t. above tests.

Note:- TS/YS ratio refers to ratio of tensile strength to the yield stress of the test piece.

\*\*\*\*\*

DOR: 27/05/2015

DOC: 22/06/2015

GC-01(Rev-04)

Page 1 of 1

AUTHORISED SIGNATORY  
(EMPLOYEE CODE: 5065)

19, University Road, Delhi - 110007.

E-Mail: [sridhi@vsnl.com](mailto:sridhi@vsnl.com) Website: <http://www.shriraminstitute.org>

Ph: 91-11-27667267, 27667983, 27667860

Fax: 91-11-27667676, 27667207

P.T.O.

