

DEPARTMENT OF CIVIL ENGINEERING

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



STRENGTH OF MATERIALS LABORATORY

TEST OF DEFORMED M.S. BARS IBDS ISO 6935-2:20161

Sent by: Eng. Md. Maksudul Karim, General Manager (Plant)

Shahriar Steel Mills Limited, Konapara, Jatrabari, Dhaka.

Project ----

BRTC No.: 1103-29646/CE/24-25; Dt. 25/8/2024

Ref.: Letter; Dt. 25/8/2024

Date of Test: 27/8/2024

Samples were received in UNSEALED condition.

SI.	Frog Mark /	Nominal	Actual	Mass	Average	Yield or	Yield or	Average	Tensile	Tensile	Average	R _m /R _{eH}	Total	Average	Bend	Rebend
No.	Identification	dia.	dia.	Per Unit	Mass Per Unit	Proof Load	Proof Strength	Yield Strength,	Load	Strength	Tensile Strength,		Elongation (%)	Total Elongation	Test (Seperate	Test (Seperate
		144194194		Length	Length		ReH	ReH	-	R _m	R _m		(G.length	(%)	samples)	samples)
West of the	ation become the abbitation of the problem of the contract of	mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa	1	= 5d)	7/4/4/3/3/4/	de lle distribuishedis	Section of the second
14/11/20	SSRM B500 DWR	10	10.0	0.612	6/46/7m 30	43.1	545	(FEEE)	58.4	740	Seile at 11 in	Topicalistic	30	HilleHelish	Satisfactory	Satisfactory
2	SSRM B500 DWR	10	10.0	0.612	0.611	42.1	535	540	59.4	750	745	1.38	30	30	Satisfactory	Satisfactory
3	SSRM B500 DWR	10	9.9	0.610	11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	43.1	545		58.4	740		1 / / / / / / / / ·	30	Count Water	Satisfactory	Satisfactory
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 BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).

 Nominal bar dia, mm
 6
 8
 10
 12
 14
 16
 20
 22°
 25
 28
 32
 40
 50

 Nominal cross sectional area, sq.mm
 28.3
 50.3
 78.5
 113
 154
 201
 314
 380
 491
 616
 804
 1257
 1964

 Nominal mass per Nominal, kg/m unit length
 0.222
 0.395
 0.616
 0.887
 12.1
 1.58
 2.46
 2.98
 3.85
 4.84
 6.31
 9.87
 15.42

*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	trength, Ron, MPa	Du	ctiliy Prope	rties
Grade	Min.	Max.	Rm/RaH	Elongatio	n, % (min.)
Marie Haller			min.	Total	At Rm
B400C-R	400	STALL TO STALL	1.15	14	7
B400CWR	400	12.10.2411. * 15.15.1511	1.15	14	7
B500C-R	500	27/12/1 2- 17/12/1	1.15	14	7
B500CWR	500	Profit Partie	1.15	14	7
B600C-R	600	Section 19 11 11 11 11 11 11 11 11 11 11 11 11	1.15	10	7
B450CWR	450	1.25 R at (min.)	1.15	411 -111	7.5
B400DWR	400	1.3 R et (min.)	1.25	17	8
B420DWR	420	1.3 R at (min.)	1.25	16	8
B500DWR	500	1.3 R at (min.)	1.25	13	8

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge Dept. of Civil Engg., BUET, Dhaka-1000, Bangladesh



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

3ZbgCMrLH

28 August 2024

Test performed by:
Dr. Munaz Ahmed Noor

Professor, Dept. of Civil Engg., BUET



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 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 paper. It is also recommended that the test results be collected by a duly authorized person.



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Testing & Consultation

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Sent by: Eng. Md. Maksudul Karim, General Manager (Plant)

Shahriar Steel Mills Limited, Konapara, Jatrabari, Dhaka.

Project: ----

BRTC No.: 1103-29646/CE/24-25; Dt. 25/8/2024

Ref.: Letter; Dt. 25/8/2024 Date of Test: 27/8/2024

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SI.	Frog Mark /	Nominal	Actual	Mass	Average	Yield or	Yield or	Average	Tensile	Tensile	Average	R _m /R _{eH}	Total	Average	Bend	Rebend
No.	Identification	dia.	dia.	Per	Mass Per	Proof	Proof	Yield	Load	Strength	Tensile		Elongation	Total	Test	Test
			97.00003	Unit	Unit	Load	Strength	Strength,		1. 11. 11	Strength,		(%)	Elongation	(Seperate	(Seperate
		19.77.17.18	11/19/01/9	Length	Length		ReH	ReH	113. 123	R _m	R _m		(G.length	(%)	samples)	samples)
Michigan Indian		,,, mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa		= 5d)			
	SSRM B500 DWR	12	12.2	0.919	9.705.7970.	66.5	590		83.8	740		11.11.11.11.11	25		Satisfactory	Satisfactory
2	SSRM B500 DWR	12	12.2	0.922	0.900	66.5	590	565	83.8	740	725	1.28	25	24	Satisfactory	Satisfactory
3	SSRM B500 DWR	12	11.8	0.860	Hadigirida (III)	59.4	525		77.7	685	1. 1000	Shill Billi	23		Satisfactory	Satisfactory
41.241	суун үчүлөндө жир айыншигийн	$_{1}(\langle i \rangle / t) \bullet i \rangle m_{i} $	H(0)	72/// / 9////	Color Salar	1911/1-1913:	6.00.5-6-5		J. 19. 6 1/2.	18711 - 1777	of the same	a Galleria		2011/11/11/11		Hallind - mark
His of the care		$A_{ij}(ij) = A_{ij}(ij)$	High-illin		9667 - 34066	////\$p=\/celpa	talori-core		: 1/1/ Terliber	5/14/12/11/11/11	7 10 - 11	• 11 110				
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BDS ISO 6935-2:20	16 Weight Requirements, N	lomina	Area	etc. (Ta	ble 2).	History	110011	11/11/11	distrib	231111	11.110	1150	23111	HIII.
Nominal bar dia., n	realização de la latera de latera de la latera de latera de la latera de latera de la latera de latera de la latera de la	6	8	10	12	14	16	20	22*	25	28	32	40	50
Nominal cross sec	tional area, sq.mm	28.3	50.3	78.5	113	154	201	314	380	491	616	804	1257	1964
Nominal mass per	Nominal, kg/m	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
unit length	Permissible deviation. %	±8	±8	±6	±6	±5	±5	±5	±5	±4	±4	±4	±4	±4

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Steel	Yield S	trength, Ross, MPa	Du	ctilly Prope	rties
Grade	Min.	Max.	R.IR at	Elongatio	n, % (min.)
	Think I	Marie Sant	min.	Total	At Rm
B400C-R	400	13 July 1 18 11 11 11 11 11 11 11 11 11 11 11 11	1.15	14	7
B400CWR	400	14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.15	14	7
B500C-R	500	Land Mark	1.15	14	7
B500CWR	500	100 and 100 an	1.15	14	7
B600C-R	600	· · · · · · · · · · · · · · · · · · ·	1.15	10	7
B450CWR	450	1.25 R at (min.)	1.15	10.10.12	7.5
B400DWR	400	1.3 R at (min.)	1.25	17	8
B420DWR	420	1.3 R at (min.)	1.25	16	8
B500DWR	500	1.3 R + (min.)	1.25	13	8

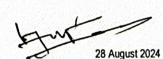
Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge Dept. of Civil Engg., BUET, Dhaka-1000, Bangladesh



4fhKNEj6S

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SI.	Frog Mark /	Nominal	Actual	Mass	Average	Yield or	Yield or	Average	Tensile	Tensile	Average	R _m /R _{eH}	Total	Average	Bend	Rebend
No.	Identification	dia.	dia.	Per	Mass Per	Proof	Proof	Yield	Load	Strength	Tensile	1. 1. 11. 11. 11.	Elongation	Total	Test	Test
				Unit	Unit	Load	Strength	Strength,			Strength,			Elongation	(Seperate	(Seperate
			9919572	Length	Length	100	ReH	ReH		R _m	R _m		(G.length	(%)	samples)	samples)
944 (51) H .Y		mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa		= 5d)			
1	SSRM B500 DWR	16/	16.0	1.578	W. 7662.7	120	595		148	735	1 1411	Alle miles	20	WE 18.11	Satisfactory	Satisfactory
2	SSRM B500 DWR	16	16.0	1.576	1.575	118	585	590	147	730	735	1.25	20	20	Satisfactory	Satisfactory
3	SSRM B500 DWR	16	16.0	1.572	and file of the	120	595		148	735		2,346,347	19		Satisfactory	Satisfactory
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 BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).

 Nominal bar dia, mm
 6
 8
 10
 12
 14
 16
 20
 22*
 25
 28
 32
 40
 50

 Nominal cross sectional area, sq.mm
 28.3
 50.3
 78.5
 113
 154
 201
 314
 380
 491
 616
 804
 1257
 1964

 Nominal mass per Nominal, kg/m
 0.222
 0.395
 0.616
 0.887
 12.1
 1.58
 2.46
 2.98
 3.85
 4.84
 6.31
 9.87
 15.42

 unit length
 Permissible deviation, %
 ±8
 ±8
 ±6
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 ±5
 ±5
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 ±5
 ±4
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Steel	Yield S	trength, Ray, MPa	Du	ctiliy Prope	rties
Grade	Min.	Max.	Rm IR oH	Elongatio	n, % (min.)
grandfilligh		mile of the little	min.		At Rm
B400C-R	400	Maint.	1.15	14	7
B400CWR	400	TOTAL CONTRACT	1.15	14	7
B500C-R	500	11/2017 - 27/1/11	1.15	14	7
B500CWR	500	Cuttin Think	1.15	14	7
B600C-R	600	10 - 10 - 10 - 10 - 10 - 10 - 10 - 10 -	1.15	10	7
B450CWR	450	1.25 R at (min.)	1.15	111.	7.5
B400DWR	400	1.3 R at (min.)	1.25	17	8
B420DWR	420	1.3 R at (min.)	1.25	16	8
B500DWR	500	1.3 R et (min.)	1.25	13	8

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge Dept. of Civil Engg., BUET, Dhaka-1000, Bangladesh

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

JfH65gSRD

28 August 2024

Test performed by:
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2 (ii) of 5 Testing & Consultation

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No.	Identification	dia.	dia.	Per Unit Length	Mass Per Unit Length	Proof Load	Proof Strength R _{eH}	Yield Strength, R •H	Load	Strength R _m	Tensile Strength, R _m		Elongation (%) (G.length	Total Elongation (%)	Test (Seperate samples)	Test (Seperate samples)
Aprillar V		/// mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa		= 5d)			
dare 1 more tr	SSRM B500 DWR	20	20.0	2.455	http://dej.og.	178	570		232	740	different file	2000000	23	402/02/02	Satisfactory	Satisfactory
2	SSRM B500 DWR	20	20.0	2.468	2.459	181	575	570	235	745	740	1.30	22	23	Satisfactory	Satisfactory
3	SSRM B500 DWR	20	20.0	2.455		177	565		233	740			23		Satisfactory	Satisfactory
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mbrant h	andani melekara atau kelangan dan	na adientalina	April Make	7 7/3-7/7/		11111111	1000		3.22.49///	84411. - 255		3500 January	th had a tomal	747H. W.W. W. W. W.	landa en land.	7.15 7.14 - 4 91.44

BDS ISO 6935-2:20	16 Weight Requirements, N	omina	Area	etc. (Ta	ble 2).	4 150	Y WILL	1 1/22	li mi	g delt i	1	183	de	2110
Nominal bar dia., m	nn vertebreede netrosphin	6	8	10	12	14	16	20	22°	25	28	32	40	50
Nominal cross sec	tional area, sq.mm	28.3	50.3	78.5	113	154	201	314	380	491	616	804	1257	1964
Nominal mass per	Nominal, kg/m	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
unit length	Permissible deviation, %	±8	±8	±6	±6	±5	±5	±5	±5	±4	±4	±4	±4	±4

*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	trength, R att, MPa	Du	Ductiliy Properties					
Grade	Min.	Max.	Rm /R at	Elongatio	n, % (min.)				
11/1/2011/11			min.	Total	At Rm				
B4COC-R	400	all title in the plant	1.15	14	7				
B400CWR	400	111111111111111111111111111111111111111	1.15	14	7				
B500C-R	500	17:22.24 - 15:24.24	1.15	14	7				
B500CWR	500	1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	1.15	14	7				
B600C-R	600	11. [11.]	1.15	10	7				
B450CWR	450	1.25 R at (min.)	1.15	11.00	7.5				
B400DWR	400	1.3 R at (min.)	1.25	17	8				
B420DWR	420	1.3 R at (min.)	1.25	16	8				
B500DWR	500	1.3 R et (min.)	1.25	13	8				

Countersigned by:

Prof. Dr. Hasib Mohammed Ahsan, Test-in-Charge Dept. of Civil Engg., BUET, Dhaka-1000, Bangladesh



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

28 August 2024

Test performed by: Dr. Munaz Ahmed Noor

Professor, Dept. of Civil Engg., BUET



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 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 paper. It is also recommended that the test results be collected by a duly authorized person.



DEPARTMENT OF CIVIL ENGINEERING

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

1 (ii) of 5
B T C
Bureau of Research,
Testing & Consultation

STRENGTH OF MATERIALS LABORATORY

TEST OF DEFORMED M.S. BARS IBDS ISO 6935-2:20161

Sent by: Eng. Md. Maksudul Karim, General Manager (Plant)

Shahriar Steel Mills Limited, Konapara, Jatrabari, Dhaka.

Project ----

BRTC No.: 1103-29646/CE/24-25: Dt. 25/8/2024

Ref.: Letter; Dt. 25/8/2024

Date of Test: 27/8/2024

Samples were received in UNSEALED condition.

										p			LALLD COII			
SI.	Frog Mark /	Nominal	Actual	Mass	Average	Yield or	Yield or	Average	Tensile	Tensile	Average	R _m /R _{eH}	Total	Average	Bend	Rebend
No.	Identification	dia.	dia.	Per	Mass Per	Proof	Proof	Yield	Load	Strength	Tensile		Elongation	Total	Test	Test
			87.25	Unit	Unit	Load	Strength	Strength,			Strength,	A	(%)	Elongation	(Seperate	(Seperate
				Length	Length	E	R _{eH}	ReH		R _m	R _m	i v	(G.length	(%)	samples)	samples)
		mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa		= 5d)			
100 1 00	SSRM B500 DWR	25	25.2	3.912		273	555		353	720		Y 97.15-8.	23	Pri Karyang	Satisfactory	Satisfactory
2	SSRM B500 DWR	25	25.2	3.917	3.912	271	550	555	353	720	720	1.30	24	24	Satisfactory	Satisfactory
3	SSRM B500 DWR	25	25.2	3.907	1 8 ° Illi	270	550		352	715	11/11/15		24	Sales III	Satisfactory	Satisfactory
	t (ne rigoristinis s) (no programma)	THE FULL	111012-111	1/1 6.7 - 1 1/1	75.0	1/1/1//-			1.6.	T. 3/1.• //. /			190 P. (1907)		The Mary Control	
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		10,11,4,1007.	17/17		- 0	-		13.6		19114 41119	W (* 17		94/15 <u>3</u> 45/195	() () () () () () () ()	h,961/11 - 61/10/11	
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 BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).

 Nominal bar dia, mm
 6
 8
 10
 12
 14
 16
 20
 22*
 25
 28
 32
 40
 50

 Nominal cross sectional area, sq.mm
 28.3
 50.3
 78.5
 113
 154
 201
 314
 380
 491
 616
 804
 1257
 1964

 Nominal mass per Nominal, kg/m unit length
 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

*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	trength, R et, MPa	Du	ctiliy Prope	rties
Grade	Min.	Max.	Rm IR at	Elongatio	n, % (min.)
	4.00	The Court Hilliam	min.	Total	At Rm
B400C-R	400	100000000000000000000000000000000000000	1.15	14	7
B400CWR	400	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1.15	14	7
B500C-R	500	2010 1100 1111111	1.15	14	7
B500CWR	500	150 10111 - 150, 191	1.15	14	7
B600C-R	600	18. 20. Ale (16. 201)	1.15	10	7
B450CWR	450	1.25 R at (min.)	1.15	77.	7.5
B400DWR	400	1.3 R et (min.)	1.25	17	8
B420DWR	420	1.3 R at (min.)	1.25	16	8
B500DWP	500	13 P (min)	1 25	12	

Countersigned by:

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

Dept. of Civil Engg., BUET, Dhaka-1000, Bangladesh



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

f7MeXLZaS



28 August 2024

Test performed by: Dr. Munaz Ahmed Noor

Professor, Dept. of Civil Engg., BUET

