

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

Bureau of Research, Testing & Consultation

5 (i) of 5

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. No.	Frog Mark / Identification	Nominal dia.	Actual dia.	Mass Per Unit Length kg/m	Average Mass Per Unit Length kg/m	Yield or Proof Load	Yield or Proof Strength R eH MPa	Average Yield Strength, R eH MPa	Tensile Load kN	Tensile Strength R _m MPa	Average Tensile Strength, R _m	R _m /R _{eH}	Total Elongation (%) (G.length = 5d)	Average Total Elongation (%)	Bend Test (Seperate samples)	Rebend Test
1/1/1/1	SSRM B420 DWR	10	10.0	0.613	775355 778	36.1	457		50.7	640	L. Jakob	Manatilla.	32	Julialida (1997)	Satisfactory	hipitian chains.
2	SSRM B420 DWR	10	9.9	0.610	0.611	36.6	463	457	50.7	640	640	1.40	32	33	Satisfactory	1,
3	SSRM B420 DWR	10///10	9.9	0.610	1111	35.7	452		50.2	635		100	34	24 6 11 11 12 pm	Satisfactory	
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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, RoH, MPa	Du	ctilly Proper	rties
Grade	Min.	Max.	RmIRaH	Elongatio	n, % (min.)
			min.	Total	At Rm
B400C-R	400		1.15	14	7
B400CWR	400	allinis 🕶 in info	1.15	14	7
B500C-R	500	111111 - 111111	1.15	14	7
B500CWR	500	110,000	1.15	14	7
B600C-R	600		1.15	10	7
B450CWR	450	1.25 R et (min.)	1.15	11111	7.5
B400DWR	400	1.3 R at (min.)	1.25	17	8
B420DWR	420	1.3 R at (min.)	1.25	16	8
BEANDWD	500	1 2 D (min)	4.25	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.

PJZ8DP3dP

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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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
47, 24				Unit	Unit	Load	Strength	Strength,			Strength,		(%)	Elongation	(Seperate	
			196111111111111111111111111111111111111	Length	Length	6//2-16	ReH	ReH	the File	R _m	R _m		(G.length	(%)	samples)	
Go. Ham		mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa		= 5d)			
1 1	SSRM B420 DWR	12	11.9	0.868	VIV. 177557-15	55.1	487		72.3	640	111.1.1.1.1.1.	and distributed	27		Satisfactory	Fraide (Liber)
2	SSRM B420 DWR	12	11.8	0.860	0.862	52.9	468	474	71.4	630	635	1.34	30	29	Satisfactory	
3	SSRM B420 DWR	12	11.8	0.859	(446/4) - VIII	52.9	468	EEFF	71.8	635			30	de Childelphi	Satisfactory	
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BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).
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 Nominal bar dia., mm Nominal cross sectional area, sq.mm Nominal mass per Nominal, kg/m

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Steel	Yield S	trength, Res, MPa						
Grade	Min.	Max.	Rm IR ett	Elongatio	n, % (min.)			
11.41.11.41			min.	Total	At Rm			
B400C-R	400		1.15	14	7			
B400CWR	400	14/1/11/12 - 17/07/19	1.15	14	7			
B500C-R	500	talical distant	1.15	14	7			
B500CWR	500	triania - reinia	1.15	14	7			
B600C-R	600	willing Princips	1.15	10	7			
B450CWR	450	1.25 R et (min.)	1.15	11.11.	7.5			
B400DWR	400	1.3 R at (min.)	1.25	17	8			
B420DWR	420	1.3 R et (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



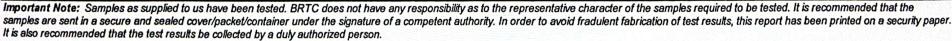
Conversion factor: 1.0 MPa = 1.0 N/mm² = 145 psi. Strengths are based on nominal area.



28 August 2024

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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
				Length	Length	16	ReH	ReH		R _m	R _m		(G.length	(%)	samples)	
6.40.7 096		mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa	11. 11. 11. 15.	= 5d)	411/11/2/11/11		The first day of
1	SSRM B420 DWR	16	16.1	1.588	13 1 X THE A	92.6	460		132	655	hillibedie	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	19	HERE WELL	Satisfactory	•
2	SSRM B420 DWR	16	16.0	1.583	1.585	92.6	460	462	132	655	660	1.43	19	19	Satisfactory	15. 11 11 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
3	SSRM B420 DWR	16	16.0	1.583	1	93.5	465		133	660			19		Satisfactory	Hammad.
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BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).

6 8 10 12 14 16 20 22 25 28 32 40 50 28.3 50.3 78.5 113 154 201 314 380 491 616 804 1257 1964 Nominal bar dia, mm Nominal cross sectional area, sq.mm 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 Nominal mass per [Nominal, kg/m Permissible deviation, % ±8 ±8 ±6 ±6 ±5 ±5 ±5 ±5 ±4 ±4 ±4 ±4 ±4

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Grade	Min.	Max.	RalRat	Elongatio	n, % (min.)
	A Marile		min.	Total	At Rm
B400C-R	400	1. 4. 11 11 - 10 1 10 10 10 10 10 10 10 10 10 10 10 1	1.15	14	7
B400CWR	400	Mary In a little	1.15	14	7
B500C-R	500	Programme III To II To	1.15	14	7
B500CWR	500		1.15	14	7
B600C-R	600	2 1 71 - 174	1.15	10	7
B450CWR	450	1.25 R at (min.)	1.15	1	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 at (min.)	1.25	13	8

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No.	Identification	dia.	dia.	Per	Mass Per	Proof	Proof	Yield	Load	Strength	Tensile	1797 16	Elongation	Total	Test	Test
Hallen III				Unit	Unit	Load	Strength	Strength,			Strength,	medi.	(%)	Elongation	(Seperate	
				Length	Length		ReH	R _{eH}		R _m	R _m		(G.length	(%)	samples)	
This think		mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa	1.000	= 5d)			
411: 1 .114: 11-	SSRM B420 DWR	20	19.9	2.450	1009111176	154	489		214	680			24	To the first the time	Satisfactory	herrite (grant)
2	SSRM B420 DWR	20	20.0	2.457	2.458	153	486	485	213	680	680	1.40	24	24	Satisfactory	totti ope •d i list
3	SSRM B420 DWR	20	20.0	2.466	Thursday (II)	151	480		212	675		144, 400	24		Satisfactory	
and s till and	eat (Aestro) der Jejli-Hünen Hüller (Anthony)	ta tumalinism	touis (Alarini	Willians	119/11/11/2018	Williams.	3.2. 3.5.3		1.0	18. N. W.	11.1	10 / 11 / 11	$p(H(i)) \bullet p(A) = 0$			wa grap - matet
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BDS ISO 6935-2:20	16 Weight Requirements, N	omina	Area (etc. (Ta	ble 2).							411	136111	111111
Nominal bar dia., n	m en	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, %													

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Grade	Min.	Max.	Rm IR et	Elongatio	n, % (min.)
		April 1 Salah da	min.	Total	At Rm
B400C-R	400	10,770,000,103130	1.15	14	7
B400CWR	400		1.15	14	7
B500C-R	500	-	1.15	14	7
B500CWR	500	Carrie Maria	1.15	14	111700
B600C-R	600	Andread .	1.15	10	7
B450CWR	450	1.25 R at (min.)	1.15		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.

fgjmdbfrS

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.



BANGLADESH UNIVERSITY OF ENGINEERING AND TECHNOLOGY (BUET) 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 /R eH	Total	Average	Bend	Rebend
No.	Identification	dia.	dia.	Per	Mass Per	Proof	Proof	Yield	Load	Strength	Tensile		Elongation	Total	Test	Test
The Party			10000000	Unit	Unit	Load	Strength	Strength,			Strength,		(%)	Elongation	(Seperate	
1			VI. / 8.05.20	Length	Length		ReH	ReH		R _m	R _m		(G.length	(%)	samples)	
		mm	mm	kg/m	kg/m	kN	MPa	MPa	kN	MPa	MPa		= 5d)	Marie Marie		
11	SSRM B420 DWR	25	24.8	3.795		246	500		326	665	da spilati	William)	18	idell before	Satisfactory	Par Ture Car
2	SSRM B420 DWR	25	24.8	3.797	3.798	241	492	495	325	660	665	1.34	18	18	Satisfactory	an and a
3	SSRM B420 DWR	25	24.8	3.801	9.919 S & 111	241	492		325	660	11 11 11 11 11	thinking the	18		Satisfactory	
- 11	en an <mark>atanakan ini kalamen</mark> a	9.0 6000 5 344	7/////=[/7,//	4///// = 7////		MANAK I			A. P. 258	3. [813][1]	VARAL W		al and Land		da anta-min ny	•
	Desar Delahiri English Richell	501. -1 5046-314376	11/3/4/5/6	(fm/3 1 /14/7)	//: // - ///////	111/16 . Gad	S. Jantinie	-	1/11-1/11	111111-1416		100		Legal Services		•
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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
 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
 ±5
 ±5
 ±5
 ±5
 ±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, RaH, MPa	Du	ctiliy Prope	rties
Grade	Min.	Max.	RmIRel	Elongatio	n, % (min.)
		1.27.20.00	min.	Total	At Rm
B400C-R	400		1.15	14	7
B400CWR	400	20000-0000	1.15	14	7
B500C-R	500	din ti di 🕶 la ti uni	1.15	14	7
B500CWR	500	12 12 - 12 L	1.15	14	7
B600C-R	600	12 20 12 a 20 10 10 10 10 10 10 10 10 10 10 10 10 10	1.15	10	7
B450CWR	450	1.25 R a (min.)	1.15		7.5
B400DWR	400	1.3 R at (min.)	1.25	17	8
B420DWR	420	1.3 R at (min.)	1.25	16	8
BSMOWP	500	13 P (min)	1 25	13	

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.

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28 August 2024

bv:

Test performed by:
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