

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

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

Shahriar Steel Mills Ltd., Konapara, Jatrabari, Dhaka

Date of Test: 9/1/2023

BRTC No.: 1102-80237/CE/22-23; Dt. 8/1/2023

Ref.: Letter; Dt. 8/1/2023

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BDS 150 6035 3:3046 (Mcircht Bonniermont) Montine Area of Gotto 31	-	-	•	1	•	1	•		,	J	1	1	SSRM B420 DWR	SSRM B420 DWR	SSRM B420 DWR			•	Identification	Frog Mark /	
(6 7 2	-	•	•				•	•					10	10	10	mm			dia,	Nominal	
	-				4		F	1//	5	- 1866	-	-	9.9	9.9	6.6	mm			dia.	Actual	
	-			*	( )		1000			1-000		-	0.604	0.603	0.607	kg/m	Length	Unit	Per	Mass	
										88888				0.605		kg/m	Length	Unit	Mass Per	Average	
												A CONTRACTOR OF THE PARTY OF TH	34.1	35.1	34.1	kN	The section of the se	Load	Proof	Yield or	
					188								431	4	431	MPa	$R_{ m eH}$	Strength	Proof	Yield or	
														436		MPa	Ren	Strength,	Yield	Average	
					1	1000	-	-5			-	-	47.3	47.3	47.3	K			Load	Tensile	
2			•					•	•		•	•	600	600	600	MPa	R <sub>m</sub>		Strength	Tensile	A cardinac
								•			•			600		MPa	R <sub>∃</sub>	Strength,	Tensile	Average	Ale Lecela
														1.38						R <sub>m</sub> /R <sub>eH</sub>	ed III ONG
			•	,	•	•		•	•	•	•	-	32	34	34	= 5d)	(G.length	(%)	Elongation	Total	Samples were received in UNSEALED COMMING.
ALTERNATION OF THE STATE OF THE								•			•			33			(%)	Elongation	Total	Average	GILIOII.
		•	•			•	•	•	•		•	•	Satisfactory	Satisfactory	Satisfactory		samples)	(Seperate	Test	Bend	
																			<u> </u>	Reb	

init langth	Nominal mass p	Nominal cross s	. Nominal bar dia., mm	BDS ISO 6935-2:
Domissible desiration of	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	Nominal cross sectional area, sq.mm	., mm	BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).
40	0.222	28.3	6	lomina
57	0.395	50.3	8	I Area
34	0.616	78.5	10	etc. (Ta
34	0.887	113	12	ble 2).
14	1.21	154	14	
44	1.58	201	16	
+	2.46	314	20	
1	2.98	380	22*	
	3.85	491	25	
	4.84	616	28	
Ž	6.31	804	32	
	9.87	1257	40	
	15.42	28.3   50.3   78.5   113   154   201   314   380   491   616   804   1257   1964	14 16 20 22* 25 28 32 40 50	
П	1111		1111	

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

\*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.

Steel	Yield S	Yield Strength, R, MPa	Du	Steel Yield Strength, R. MPa Ductiliy Properties	ties
Grade	.niM	Max.	Rm/Ra	Elongation	n, % (min.)
			min.	Total	At R <sub>m</sub>
B400C-R	400		1.15	7.1	
B400CWR	400		1.15	7.1	7
B500C-R	005		1.15	14	7
B500CWR	005		51.1	7.1	
B600C-R	000		1.15	01	
B450CWR	450	1.25 R <sub>eH</sub> (min.)	1.15		7.5
B400DWR	400	1.3 R eн (min.)	1.25	77	8
B420DWR	420	1.3 R eн (min.)	1.25	91	8
B500DWR	9005	1.3 R eH (min.)	1.25	£1	8

rsigned by:

Dept. of Civil Engg., BUET Prof. Dr. A. B. M. Badruzzaman, Test-in-Charge

ZAFgt3jE9



Dr. Munaz Ahmed Noor Test performed by:

Professor, Dept. of Civil Engg., BUET

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



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Testing & Consu

#### STRENGTH OF MATERIALS LABORATORY

TEST OF DEFORMED M.S. BARS [BDS ISO 6935-2:2016]

Sent by: Engr. Md. Masudul Karim, General Manager (GM Plant) Shahriar Steel Mills Ltd., Konapara, Jatrabari, Dhaka.

> BRTC No.: 1102-80237/CE/22-23; Dt. 8/1/2023 Ref.: Letter; Dt. 8/1/2023

Date of Test: 9/1/2023

BDSIS		,		Ī,	Ī.	ļ.	Ţ.						3	2	_				No.	SI.
0 6935-2:																			7	
BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).		-	-	•	1		,		1	-	-		SSRM B420 DWR	SSRM B420 DWR	SSRM B420 DWR				Identification	Frog Mark /
ninal Area etc. (Tabl													,	الد	χ.	l l				
e 2).		•											12	12	12	mm			dia.	Nominal
	-	1	-	1	-	-				- 16	-		11.9	11.9	11.9	mm			dia.	Actual
			-	5							, (C)	-	0.876	0.878	0.876	kg/m	Length	Unit	Per	Mass
														0.877		kg/m	Length	Unit	Mass Per	Average
													52.4	52.4	51.4	kN		Load	Proof	Yield or
Convers													463	463	454	MPa	Ren	Strength	Proof	Yield or
Conversion factor: 1.0					•									460		MPa	Re	Strength,	Yield	Average
		,	-	-		-	-					1	70.7	70.7	70.7	KN			Load	Tensile
$MPa = 1.0 \text{ N/mm}^2 = 145 \text{ psi. Strengths are based on nominal area.}$	•	J	-	-						•	•	•	625	625	625	MPa	R		Strength	Tensile
psi. Strenath														625		MPa	R m	Strength,	Tensile	Average
is are base														1.36						R <sub>m</sub> /R <sub>eH</sub>
d on nominal							•	•		•	•	•	28	30	30	= 5d)	(G.length	(%)	Elongation	Total
area.											•			29			(%)	Elongation	Total	Average
			•	,				•					Satisfactory	Satisfactory	Satisfactory		samples)	(Seperate	Test	Bend
																				Re

	4	±	##	#4	±5	±5	±5	±5	16 15 15 15 15 14 14 14 14 14 14 14	ŧ	±8 ±8 ±6	±8	Permissible deviation, %	unit length
ITI	9.87 15.42	6.31	4.84	3.85	2.98	2.46	1.21   1.58   2.46   2.98   3.85   4.84   6.31	1.21	0.887	0.616	0.395	0.222 0	per Nominal, kg/m	Nominal mass per
THE	125	616 804 1257		491	380	314	154 201 314 380 491	154	28.3 50.3 78.5 113	78.5	50.3	28.3	cross sectional area, sq.mm	Nominal cross s
IIII	40	32 40	28	25	22*	16   20	16	7	12	10	89	6	a., mm	Nominal bar dia., mm
1111									ole 2).	tc. (Tal	ominal Area etc. (Table 2).	ominal	BDS ISO 6935-2:2016 Weight Requirements, No.	BDS ISO 6935-2:

Steel	Yield S	Yield Strength, R, MPa	D	<b>Ductiliy Properties</b>	ties
Grade	'uiW	Max.	Rm/Re	Elongation,	n, % (min.)
			min.	Total	At Rm
B400C-R	400		1.15	P.L	7
B400CWR	400		1.15	FE	7
B500C-R	005		1.15	7.	
B500CWR	500		1.15	7.	
B600C-R	009		1.15	0,	
B450CWR	450	1.25 R et (min.)	1.15		7.5
B400DWR	400	1.3 R et (min.)	1.25		8
B420DWR	420	1.3 R et (min.)	1.25	91	8
B500DWR	500	1.3 R et (min.)	1.25	21	8

rZnjJbGfW





Professor, Dept. of Civil Engg., BUET Dr. Munaz Ahmed Noor

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Dept. of Civil Engg., BUET

Prof. Dr. A. B. M. Badruzzaman, Test-in-Charge

Countersigned by:



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#### STRENGTH OF MATERIALS LABORATORY

TEST OF DEFORMED M.S. BARS [BDS ISO 6935-2:2016]

Sent by: Engr. Md. Masudul Karim, General Manager (GM Plant) Shahriar Steel Mills Ltd., Konapara, Jatrabari, Dhaka.

BRTC No.: 1102-80237/CE/22-23; Dt. 8/1/2023

Date of Test: 9/1/2023 Ref.: Letter, Dt. 8/1/2023

Samples were received in UNSEALED condition

BDS ISO 6935-2:2016 I Nominal bar dia., mm	,	1	,									-1	3	2	_				No.	S <u>i</u>	
Weight Requirements, Nominal	J	1	1	,	1	1	,	1	-1	,	1	J	SSRM B420 DWR	SSRM B420 DWR	SSRM B420 DWR				Identification	Frog Mark /	
able 2).		•	•	•	•			•	•			•	16	16	16	mm			dia.	Nominal	
16   20	_	1	-	1		- 1/	-	- //			-	-	16.0	16.0	16.0	mm			dia.	Actual	
22* 25		-					0.00						1.575	1.575	1.576	kg/m	Length	Unit	Per	Mass	
Area etc. (Table 2).  8   10   12   14   16   20   22*   25   28   32   40   50					•									1.575		kg/m	Length	Unit	Mass Per	Average	
50							6)						90.6	90.6	90.6	ΚN		Load	Proof	Yield or	
Convers						J-7.00							451	451	451	MPa	Ref	Strength	Proof	Yield or	
Conversion factor: 1.0														451		MPa	Re	Strength,	Yield	Average	
0 MPa = 1.0		0000-1000			-								133	133	133	Ŕ			Load	Tensile	
N/mm <sup>2</sup> = 145			•	•	•							•	660	660	099	MPa	Rm		Strength	Tensile	Contract of
5 psi. Streng														660		M₽a	R <sub>m</sub>	Strength,	Tensile	Average	.0.0
ths are base														1.46						R <sub>m</sub> /R <sub>eH</sub>	
$MPa = 1.0 \text{ N/mm}^2 = 145 \text{ psi. Strengths are based on nominal area.}$						•	•				-	-	25	26	26	= 5d)	(G.length	(%)	Elongation	Total	Campies store received in enters in the containent
area.								•			•			26			(%)	Elongation	Total	Average	
	-				•	•		•			•	•	Satisfactory	Satisfactory	Satisfactory		samples)	(Seperate	Test	Bend	
															Y					Ret	

_	BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).	r
Nominal bar dia mm	18	ı
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6 8 10 12 14 16 20 22* 25 28		6
4	111	K
4		É
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*33mm die Freie	unit length	Nominal mass per	Nominal cross sect	Nominal bar dia., m
the country is Bore to const	Permissible deviation, %	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	ional area, sq.mm	<b>m</b>
3	±8	0.222	28.3	6
	±8	0.395	50.3	8
	±6	0.616	78.5	10
	±6	0.887	113	12
	<b>±</b> 5	1.21	154	14
	±5	1.58	201	16
	±5	2.46	314	20
	±5	2.98	380	22
1	¥	3.85	491	25
1	¥	4.84	616	28
	H	6.31	804	32
	##	9.87	1257	40
	±4	15.42	1964	50
1				

.zzmm dia, par is not covered in bub to U 923-2:2016, its properties are derived tollowing the principle used for other par 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.

Steel	Yield S	Steel Yield Strength, R. M.Pa Ductiliy Properti	Du	Ductiliy Properties	ties
Grade	Min.	Max.	Rm/R.	Elongation,	n, % (min.)
			min.	Total	At R <sub>m</sub>
B400C-R	400		1.15	14	7
B400CWR	400		1.15	<b>F</b> t	7
B500C-R	005		1.15	71	7
B500CWR	500		1.15	76	
B600C-R	009		1.15	0.0	
B450CWR	450	) 1.25 R eн (min.)	1.15		7.5
B400DWR	400	1.3 R eн (min.)	1.25	77	8
B420DWR	420	1.3 R et (min.)	1.25	16	8
B500DWR	500	1.3 R ↔ (min.)	1.25	51	8

ersigned by:

Prof. Dr. A. B. M. Badruzzaman, Test-in-Charge

TeDDjTYF8



Dr. Munaz Ahmed Noor Test performed by:

Professor, Dept. of Civil Engg., BUET

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Bureau of Rese Testing & Consu

#### STRENGTH OF MATERIALS LABORATORY

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

Shahriar Steel Mills Ltd., Konapara, Jatrabari, Dhaka

Ref.: Letter; Dt. 8/1/2023 BRTC No.: 1102-80237/CE/22-23; Dt. 8/1/2023

Date of Test: 9/1/2023

Samples were received in UNSEALED condition

Z) m	F			F	_	_	_	_													
BDS ISO 6935-2:2016 Nominal bar dia., mm	-	-					,	,					3	22	-				No.	š	
BDS ISO 6935-2:2016 Weight Requirements, Nominal Area etc. (Table 2).  Nominal bar dia., mm	1	1	1	1				1	r	-1	1	1	SSRM B420 DWR	SSRM B420 DWR	SSRM B420 DWR				Identification	Frog Mark /	
14	-		-			•		•				•	20	20	20	mm			dia.	Nominal	
16   20   22*	-	-			( <del>-</del> (()))		411		600	- 174	-	-	20.0	20.0	20.0	mm			dia.	Actual	
25				4		(-) (-) (-) (-) (-) (-) (-) (-) (-) (-)	IIII la lala			111111111111111111111111111111111111111			2.457	2.455	2.456	kg/m	Length	Unit	Per	Mass	
28 32 40 50										03/03/03/03				2.456		kg/m	Length	Unit	Mass Per	Average	
50							5))						151	151	147	kN	and Charles and Control of the Contr	Load	Proof	Yield or	
Convers				18 18 18 18 18 18 18 18 18 18 18 18 18 1									482	482	469	MPa	ReH	Strength	Proof	Yield or	
Conversion factor: 1.0					-									478		MPa	Res	Strength,	Yield	Average	
							111111111111111111111111111111111111111						206	206	205	×			Load	Tensile	
$N/mm^2 = 145$		•	-				•		•		•	•	660	660	650	MPa	<b>2</b> 0 3		Strength	Tensile	
psi. Strength														655		MPa	æ	Strength,	Tensile	Average	
ns are base		,												1.37						R <sub>m</sub> /R <sub>eH</sub>	
$MPa = 1.0 \text{ N/mm}^2 = 145 \text{ psi. Strengths are based on nominal area.}$	-	-			-	•					•		21	22	22	= 5d)	(G.length	(%)	Elongation	Total	
area.								•			•			23			(%)	Elongation	Total	Average	
								•	•		•		Satisfactory	Satisfactory	Satisfactory		samples)	(Seperate	Test	Bend	
																				Rel	

=	Z	z	z
nit length	ominal mass per	ominal cross sectional area,	ominal bar dia., mm
Permissible deviation, %	Nominal, kg/m	ional area, sq.mm	<b>a</b>
±8	0.222	28.3	6
±8	0.395	50.3	8
±6	0.616	78.5	10
_±6	0.887	113	12
±5	1.21	154	14
±5	1.58	201	16
±5	2.46	314	20
±5 ±4 ±4 ±4 ±4 ±4	2.46   2.98   3.85	113   154   201   314   380   491	22*
±4	3.85	491	25
±4	4.84 6.31	616	28
₽Ŧ.	6.31	616 804 1257	32 40 50
±4	9.87	1257	40
±4	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.

Steel	Yield S	Yield Strength, R, MPa	Du	<b>Ductilly Properties</b>	Steel Yield Strength, Ray, MPa Ductilly Properties
Grade	Min.	Max.	Rm/Re	Elongatio	Elongation, % (min.)
			min.	Total	At R <sub>m</sub>
B400C-R	400		1.15	71	7
B400CWR	400		1.15	KI	
B500C-R	500		1.15	71	7
B500CWR	500		1.15	14	
B600C-R	600		1.15	10	7
B450CWR	450	1.25 R et (min.)	1.15		7.5
B400DWR	400	1.3 R et (min.)	1.25	17	8
B420DWR	420	1.3 R eн (min.)	1.25	16	8
B500DWR	500	1.3 R e (min.)	1.25	13	8

Prof. Dr. A. B. M. Badruzzaman, Test-in-Charge

Dept. of Civil Engg., BUET

DB4bKPTG9



Dr. Munaz Ahmed Noor

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