

Sun Mengxion

Test Performed By:

Dr. /Engr.

S. Asad Ali Gillani

Authorized representative of CGGC-DESCON JV, Mohmand Dam Hydropower Project Mngement in Pakistan

Client Reference: CDJV-MDHP-LAB-Lot-01-024

Dated: 04-12-2020

SOM Lab Ref: CED/SOM/3372(Page-1/1)

Dated: 04-12-2020

Test: Tension and Bend Test

Test Specification: ASTM-A 615

Sample Type: Deformed Steel Bar

Gauge Length: 200 mm

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	kg/m	mm	mm	mm <sup>2</sup>	mm <sup>2</sup>	kN	kN	MPa	MPa	MPa	MPa	mm	mm	%	
1	2.218	19	18.98	284	283	152.00	194.50	536	538	686	688	30.0	200	15.0	
2	2.216	19	18.96	284	282	146.70	189.70	517	520	669	672	30.0	200	15.0	
3	2.233	19	19.03	284	284	151.00	192.00	533	531	677	676	30.0	200	15.0	
4	2.219	19	18.97	284	283	148.70	190.00	524	527	670	673	27.5	200	13.8	
5	0.992	13	12.68	133	126	61.70	93.20	465	489	702	738	30.0	200	15.0	
6	0.992	13	12.68	133	126	61.00	93.00	460	483	701	737	27.5	200	13.8	
7	0.988	13	12.66	133	126	61.20	92.70	461	487	698	737	27.5	200	13.8	
8	0.988	13	12.66	133	126	60.50	92.70	456	481	698	737	30.0	200	15.0	
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

**BEND TEST:**

19mm	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-  Only Twelve Samples Received and Tested</b>
19mm	Sample bend through 180 degrees Satisfactorily without any crack	
13mm	Sample bend through 180 degrees Satisfactorily without any crack	
13mm	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

**Project Manager**  
Nazir & Sons Trust Building Construction Project, Lahore

**Test Performed By:** Dr. /Engr. S. Asad Ali Gillani

**Client Reference:** NST/MT/UET/004

**SOM Lab Ref:** 3370(Page-1/1)

**Dated:** 04-12-2020

**Dated:** 04-12-2020

**Test:** Tension Test & Bend Test

**Test Specification:**

ASTM-A-615

**Gauge Length:** 8 inch

**Sample Type:**

Deformed(Kamran & Batala Premium Steel)

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.651	8	0.996	0.79	0.779	27.73	36.46	77410	78500	101800	103230	1.40	8.0	17.5	Kamran
2	2.643	8	0.995	0.79	0.777	26.37	34.91	73620	74850	97470	99100	1.10	8.0	13.8	Kamran
3	1.453	6	0.737	0.44	0.427	13.00	18.71	65150	67130	93760	96610	1.30	8.0	16.3	Kamran
4	1.461	6	0.739	0.44	0.429	13.83	19.59	69340	71120	98210	100720	1.10	8.0	13.8	Kamran
5	1.516	6	0.754	0.44	0.446	13.99	20.15	70100	69160	101020	99660	1.10	8.0	13.8	Batala
6	0.673	4	0.502	0.20	0.198	6.93	9.38	76440	77210	103420	104460	1.00	8.0	12.5	Batala
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**BEND TEST:**

Sr. No. 1	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-  Only Eight Samples Received and Tested</b>
Sr. No 3	Sample bend through 180 degrees Satisfactorily without any crack	

**Note:** Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Asif Nadeem Khawar

Test Performed By:

Dr. /Engr.

S. Asad Ali  
Gillani

Resident Engineer, Metroplan-Asian JV, Site Office Talagang Road Mianwali

Client Reference: Metroplan Asian JV-Nexus-MMCH-RE-550

SOM Lab

Ref: 3375(Page-1/1)

Dated: 06-11-2020

Dated: 04-12-2020

Test: Tension Test & Bend Test

Test Specification:

ASTM-A-615

Deformed Bar (SJ Steel)

Gauge Length: 8 inch

Sample Type:

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.619	8	0.990	0.79	0.770	25.91	36.24	72340	74220	101170	103800	1.20	8.0	15.0	
2	2.614	8	0.989	0.79	0.768	24.94	35.19	69640	71630	98240	101050	1.00	8.0	12.5	
3	2.640	8	0.994	0.79	0.776	25.35	35.60	70780	72050	99380	101170	1.10	8.0	13.8	
4	2.623	8	0.991	0.79	0.771	23.98	36.16	66940	68580	100940	103430	1.20	8.0	15.0	
5	1.485	6	0.745	0.44	0.436	13.83	19.59	69340	69970	98210	99110	1.20	8.0	15.0	
6	1.472	6	0.743	0.44	0.433	13.15	18.93	65910	66980	94880	96420	1.20	8.0	15.0	
7	0.665	4	0.498	0.20	0.195	5.98	9.07	65990	67680	100050	102610	1.00	8.0	12.5	
8	0.664	4	0.498	0.20	0.195	5.91	9.09	65200	66870	100270	102840	1.20	8.0	15.0	
9	0.672	4	0.501	0.20	0.197	6.03	9.17	66550	67560	101170	102710	1.10	8.0	13.8	
10	0.669	4	0.501	0.20	0.197	5.93	9.07	65420	66420	100050	101570	1.00	8.0	12.5	

**BEND TEST:**

# 8	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:- Only Fifteen Samples Received and Tested</b>
# 8	Sample bend through 180 degrees Satisfactorily without any crack	
# 6	Sample bend through 180 degrees Satisfactorily without any crack	
# 4	Sample bend through 180 degrees Satisfactorily without any crack	
# 4	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Asif Nadeem Khawar

Test Performed By:

Dr. /Engr.

S. Asad Ali  
Gillani

Resident Engineer, Metroplan-Asian JV, Site Office Talagang Road Mianwali

Client Reference: Metroplan Asian JV-Nexus-MMCH-RE-561

SOM Lab

Ref: 3375(Page-1/2)

Dated: 11-11-2020

Dated: 04-12-2020

Test: Tension Test & Bend Test

Test Specification:

ASTM-A-615

Deformed Bar (SJ

Gauge Length: 8 inch

Sample Type:

Steel)

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.631	8	0.992	0.79	0.773	25.61	35.80	71490	73060	99950	102140	1.30	8.0	16.3	
2	2.639	8	0.994	0.79	0.776	25.76	36.14	71920	73210	100880	102700	1.40	8.0	17.5	
3	2.637	8	0.993	0.79	0.775	25.56	35.93	71350	72730	100320	102260	1.30	8.0	16.3	
4	2.618	8	0.990	0.79	0.769	25.25	35.14	70490	72420	98100	100770	1.10	8.0	13.8	
5	2.647	8	0.995	0.79	0.778	25.76	36.14	71920	73020	100880	102440	1.30	8.0	16.3	
6	2.614	8	0.989	0.79	0.768	26.37	36.41	73620	75730	101650	104560	1.20	8.0	15.0	
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**BEND TEST:**

# 6	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-  Only Nine Samples Received and Tested</b>
# 8	Sample bend through 180 degrees Satisfactorily without any crack	
# 8	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Asif Nadeem Khawar

Test Performed By:

Dr. /Engr.

S. Asad Ali  
Gillani

Resident Engineer, Metroplan-Asian JV, Site Office Talagang Road Mianwali

Client Reference: Metroplan Asian JV-Nexus-MMCH-RE-561

SOM Lab

Ref: 3375(Page-2/2)

Dated: 11-11-2020

Dated: 04-12-2020

Test: Tension Test & Bend Test

Test Specification:

ASTM-A-615

Deformed Bar (SJ Steel)

Gauge Length: 8 inch

Sample Type:

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.495	6	0.748	0.44	0.439	13.73	19.29	68830	68980	96670	96890	1.00	8.0	12.5	
2	1.495	6	0.748	0.44	0.439	13.78	19.67	69080	69240	98610	98840	1.20	8.0	15.0	
3	1.491	6	0.747	0.44	0.438	13.93	19.78	69850	70170	99130	99580	1.20	8.0	15.0	
4	1.502	6	0.749	0.44	0.441	13.56	19.57	67960	67800	98100	97880	1.20	8.0	15.0	
5	0.659	4	0.497	0.20	0.194	5.81	8.92	64080	66060	98360	101400	1.10	8.0	13.8	
6	0.668	4	0.500	0.20	0.196	5.98	9.07	65990	67330	100050	102090	1.00	8.0	12.5	
7	0.668	4	0.500	0.20	0.196	6.14	9.28	67670	69050	102290	104380	1.10	8.0	13.8	
8	0.664	4	0.498	0.20	0.195	5.93	8.99	65420	67100	99150	101690	1.10	8.0	13.8	
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**BEND TEST:**

# 6	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  <b>Only Twelve Samples Received and Tested</b>
# 6	Sample bend through 180 degrees Satisfactorily without any crack	
# 4	Sample bend through 180 degrees Satisfactorily without any crack	
# 4	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Babar Hassan  
S. E. WASO (Pakistan Atomic Energy Commission)

Test Performed By: Dr. /Engr.

S. Asad Ali  
Gillani

Client Reference: nil

Dated: 03-12-2020

Test: Tension Test & Bend Test

Test Specification:

SOM Lab

Ref: 3376(Page-1/1)

Dated: 04-12-2020

ASTM-A-615

Deformed

Bar

Gauge Length: 8 inch

Sample Type:

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	lb/ft	#	in	in <sup>2</sup>	in <sup>2</sup>	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.535	6	0.758	0.44	0.451	16.79	19.98	84160	82100	100150	97700	1.20	8.0	15.0	
2	1.518	6	0.754	0.44	0.446	16.51	19.83	82780	81660	99380	98040	1.10	8.0	13.8	
3	1.008	5	0.614	0.31	0.296	9.73	12.54	69260	72540	89200	93420	1.20	8.0	15.0	
4	1.015	5	0.616	0.31	0.298	9.91	12.69	70490	73330	90290	93930	1.30	8.0	16.3	
5	0.657	4	0.496	0.20	0.193	6.27	8.89	69130	71640	98020	101580	1.10	8.0	13.8	
6	0.657	4	0.496	0.20	0.193	6.29	8.92	69360	71870	98360	101930	1.10	8.0	13.8	
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**BEND TEST:**

# 6	Sample bend through 180 degrees Satisfactorily without any crack	<b>Note:-</b>  <b>Only Nine Samples Received and Tested</b>
# 5	Sample bend through 180 degrees Satisfactorily without any crack	
# 4	Sample bend through 180 degrees Satisfactorily without any crack	

Note: Please always confirm the results of above report on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Test Performed by: Dr.S. Asad ali Gillani

Manager Engineering

M/S Ali Zaman (Pvt) Ltd.

31-B, Zafar Ali Road, Gulberg 5, Lahore

Client Reference No.: azl/460-2020

Dated: 03-12-2020

SOM Lab Ref: CED/SOM/3371(Page 1/1)

Dated: 04-12-2020

Test Type: Hardness Test

Sample Type: Mild Steel(MS) Sheet

Hardness Test Details:

Machine used: Avery Rockwell Hardness Testing Machine

(Minor Load: 10 Kgf Major Load: 90.0 kgf Scale: B)

Hardness Test Results

Sample No.	Sample Type	Hardness
1	MS Sheet (3.25mm)	HR – 34.33– B
2	MS Sheet (3mm)	HR – 68.33 – B
3	MS Sheet (2mm)	HR – 47.33 – B

Note: Please always confirm the results on web [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)

Test Performed By: Dr. Syed Asad Ali Gillani

Engr. Yousaf Zaman  
Resident Engineer,  
M-3, IC Industrial City, Faisalabad

Client Reference: CRE/M3IC/FIC-039/Lab/698

Dated: 13-10-2020

SOM Laboratory Reference: CED/SOM/3378-79(Page-1/1) Dated: 04-12-2020

Test: Stiffness Test & Tensile Test & Compressive Test

Sample Type: GRP Pipe 450mm Diameter ( Fiber Craft, Industry)

**Stiffness Test (Parallel Plate Loading Test as per ASTM-D-2412)**

(GRP Pipe 450mm)

Total Length = 304 mm, External Diameter = 461 mm, Wall Thickness = 6.5 mm

Percentage Reduction in Diameter of Sample	Compression Load, P (kN)	Stiffness (Corrected)			Remarks
		Pipe Stiffness (kN/m <sup>2</sup> )	Stiffness Factor (N-m)	Specific Tangential initial Stiffness (N/m <sup>2</sup> )	
5%	2.2	339	592	6589	No Crack Observed
10%	4.0	332	580	6452	No Crack Observed
15%	5.25	312	546	6070	No Crack Observed
20%	6.05	290	506	5632	No Crack Observed

**Tensile Test**

Sample Type	Size of Sample (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
GRP Pipe (450mm)	12.5 x 6.1	1.5	28.852

Note: Please always confirm the results of above report on web: [www.uet-civil.edu.pk](http://www.uet-civil.edu.pk)



