Ali Raza Qureshi **Test Performed By:** Dr. /Engr. Nauman Khurram

Project Director (HVDC) NTDC Lahore

Client Reference: 1543-46/PD/HVDC/NTDC/LHR **Dated:** 19-07-2019

SOM Lab Ref: CED/SOM/1151(Page-1/4) **Dated:** 19-07-2019

Test: Tension Test & Bend Test **Test Specification:** ASTM-A 615

Sample Type: Deformed 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^2	mm^2	kN	kN	MPa	MPa	MPa	MPa	mm	mm	%	
1	2.186	20	18.81	314	278	100.20	152.50	319	361	485	549	42.5	200	21.3	
2	2.162	20	18.73	314	275	99.50	150.50	317	362	479	547	45.0	200	22.5	
3	1.055	12	13.08	113	134	45.00	65.20	398	335	576	486	40.0	200	20.0	
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BEND TEST:

20mm	Sample bend through 180 degrees Satisfactorily without any crack
12mm	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Six Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

Abdul Ghafar
Project Manager Liberty Builders, Lahore

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

Client Reference: **CONC - 20190719**
Dated: **19-07-2019**

SOM Lab Ref: **1142(Page-1/1)**
Dated: **1907-2019**

Test: **Tension Test & Bend Test** **Test Specification:** **ASTM-A-615**
Gauge Length: **8 inch** **Sample Type:** **Deformed Bar(Model 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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.639	8	0.994	0.79	0.776	27.95	35.88	78030	79440	100170	101980	1.30	8.0	16.3	
2	2.646	8	0.995	0.79	0.778	25.81	33.44	72060	73170	93340	94780	1.30	8.0	16.3	
3	2.709	8	1.007	0.79	0.796	27.49	35.47	76750	76170	99030	98290	1.40	8.0	17.5	
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BEND TEST:

# 8	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Four Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

Prof . Dr. Aman Ullah Khan **Test Performed By:** **Dr. /Engr.** **S. Asad Ali Gillani**

Acting Project Director, Air University, Multan Campus, 4-5th Floor, Khan Centre, Abdali Road, Multan

Client Reference: **MUX/AUMC/AB1/2018/97** **SOM Lab Ref:** **1143(P-1/1)**

Dated: **18-07-2019** **Dated:** **19-07-2019**

Test: **Tension Test & Bend Test** **Test Specification:** **ASTM-A-615**

Gauge Length: **8 inch** **Sample Type:** **Deformed Bar (Itteaq 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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.040	5	0.624	0.31	0.306	11.16	13.37	79410	80450	95150	96390	1.00	8.0	12.5	
2	1.031	5	0.621	0.31	0.303	11.39	13.61	81010	82880	96820	99050	1.00	8.0	12.5	
3	0.702	4	0.512	0.20	0.206	5.10	7.56	56210	54570	83410	80980	1.30	8.0	16.3	
4	0.705	4	0.513	0.20	0.207	5.12	7.70	56430	54520	84870	82000	1.50	8.0	18.8	
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BEND TEST:

# 6	Sample bend through 180 degrees Satisfactorily without any crack
# 4	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Six Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

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

Project Manager, State Grid, China Electric Power Eguipment and Technology Co. Ltd

Client Reference: **CET/HVDC/SPO(04)l4/SJ Steel/UET-19-711** **SOM Lab Ref:** **1145(Page-1/4)**

Dated: **19-07-2019** **Dated:** **19-07-2019**

Test: **Tension Test & Bend Test** **Test Specification:** **ASTM-A-615 Deformed Bar(Lot -4)**

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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	0.655	4	0.494	0.20	0.192	6.73	8.79	74190	77280	96900	100930	1.10	8.0	13.8	
2	0.669	4	0.501	0.20	0.197	5.86	7.85	64640	65620	86560	87870	1.00	8.0	12.5	
3	0.668	4	0.500	0.20	0.196	6.78	8.87	74750	76280	97800	99790	1.10	8.0	13.8	
4	0.655	4	0.494	0.20	0.192	5.91	7.90	65200	67920	87120	90750	1.10	8.0	13.8	
5	0.662	4	0.498	0.20	0.195	6.63	8.72	73070	74940	96110	98580	1.00	8.0	12.5	
6	0.661	4	0.497	0.20	0.194	6.98	10.01	77000	79380	110390	113800	0.80	8.0	10.0	
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BEND TEST:

# 4S.1,2)	Sample bend through 180 degrees Satisfactorily without any crack
# 4(S.3,4)	Sample bend through 180 degrees Satisfactorily without any crack
# 4(S. 5,6)	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Twelve Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

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

Project Manager, State Grid, China Electric Power Eguipment and Technology Co. Ltd

Client Reference: **CET/HVDC/SPO(04)l4/SJ Steel/UET-19-711** **SOM Lab Ref:** **1145(Page-2/4)**

Dated: **19-07-2019** **Dated:** **19-07-2019**

Test: **Tension Test & Bend Test** **Test Specification:** **ASTM-A-615 Deformed Bar(Lot -4)**

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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.016	5	0.617	0.31	0.299	9.23	12.18	65630	68050	86670	89850	1.30	8.0	16.3	
2	1.047	5	0.626	0.31	0.308	9.99	13.35	71070	71540	95000	95620	1.10	8.0	13.8	
3	1.054	5	0.628	0.31	0.310	10.30	13.25	73250	73250	94280	94280	0.90	8.0	11.3	
4	1.056	5	0.628	0.31	0.310	10.65	13.61	75790	75790	96820	96820	1.10	8.0	13.8	
5	1.056	5	0.628	0.31	0.310	10.14	13.10	72160	72160	93190	93190	1.00	8.0	12.5	
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BEND TEST:

# 5(S.1,2)	Sample bend through 180 degrees Satisfactorily without any crack
# 5(S.3,4)	Sample bend through 180 degrees Satisfactorily without any crack
# 5(S. 5)	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Ten Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

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

Project Manager, State Grid, China Electric Power Eguipment and Technology Co. Ltd

Client Reference: **CET/HVDC/SPO(04)I4/SJ Steel/UET-19-711** **SOM Lab Ref:** **1145(Page-3/4)**

Dated: **19-07-2019** **Dated:** **19-07-2019**

Test: **Tension Test & Bend Test** **Test Specification:** **ASTM-A-615 Deformed Bar(Lot - 4)**

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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.026	5	0.620	0.31	0.302	9.02	12.00	64180	65880	85360	87620	1.20	8.0	15.0	
2	1.051	5	0.627	0.31	0.309	10.27	13.76	73030	73270	97910	98220	1.20	8.0	15.0	
3	1.044	5	0.625	0.31	0.307	10.06	12.95	71580	72280	92100	93000	1.10	8.0	13.8	
4	1.046	5	0.625	0.31	0.307	10.21	13.15	72670	73380	93550	94470	1.00	8.0	12.5	
5	1.044	5	0.625	0.31	0.307	10.19	13.25	72520	73230	94280	95200	1.10	8.0	13.8	
6	1.061	5	0.630	0.31	0.312	10.72	13.66	76300	75810	97180	96560	1.10	8.0	13.8	
7	1.021	5	0.618	0.31	0.300	9.68	13.15	68900	71190	93550	96670	1.10	8.0	13.8	
8	1.052	5	0.627	0.31	0.309	10.52	13.86	74840	75090	98630	98950	1.00	8.0	12.5	
9	1.043	5	0.625	0.31	0.307	10.77	13.56	76660	77410	96460	97400	1.00	8.0	12.5	
10	1.046	5	0.625	0.31	0.307	9.53	12.51	67810	68470	88990	89860	1.40	8.0	17.5	

BEND TEST:

# 5(S.1,2)	Sample bend through 180 degrees Satisfactorily without any crack
# 5(S.3,4)	Sample bend through 180 degrees Satisfactorily without any crack
# 5(S.5,6)	Sample bend through 180 degrees Satisfactorily without any crack
# 5(S. 7,8,)	Sample bend through 180 degrees Satisfactorily without any crack
# 5(S.9,10)	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Twenty Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

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

Project Manager, State Grid, China Electric Power Eguipment and Technology Co. Ltd

Client Reference: **CET/HVDC/SPO(04)l4/SJ Steel/UET-19-711** **SOM Lab Ref:** **1145(Page-4/4)**

Dated: **19-07-2019** **Dated:** **19-07-2019**

Test: **Tension Test & Bend Test** **Test Specification:** **ASTM-A-615 Deformed Bar(Lot -4)**

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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.663	8	0.998	0.79	0.783	22.40	31.09	62520	63080	86800	87570	1.00	8.0	12.5	
2	2.675	8	1.000	0.79	0.786	22.12	30.96	61760	62070	86430	86870	1.50	8.0	18.8	
3	2.638	8	0.993	0.79	0.775	22.38	32.26	62470	63680	90070	91810	1.50	8.0	18.8	
4	2.607	8	0.988	0.79	0.766	22.14	31.98	61810	63750	89270	92070	1.60	8.0	20.0	
5	2.638	8	0.993	0.79	0.775	25.74	35.32	71860	73250	98610	100520	1.50	8.0	18.8	
6	2.677	8	1.001	0.79	0.787	25.40	33.79	70920	71190	94340	94700	1.60	8.0	20.0	
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BEND TEST:

# 8(S.1,2)	Sample bend through 180 degrees Satisfactorily without any crack
# 8(S.3,4)	Sample bend through 180 degrees Satisfactorily without any crack
# 8(S.5,6)	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Twelve Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

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

Resident Engineer, W W C. (Phase-II) Adjacent to Sundar Ind. Estate, District Kasur (Package-A & B)

Client Reference: **RE/PEPAC/Sundar/AB-187** **SOM Lab Ref:** **1149(Page-1/2)**

Dated: **18-07-2019** **Dated:** **19-07-2019**

Test: **Tension Test & Bend Test** **Test Specification:** **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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.101	5	0.642	0.31	0.324	12.64	14.65	89930	86040	104210	99710	1.00	8.0	12.5	
2	1.065	5	0.631	0.31	0.313	12.00	14.17	85360	84540	100810	99840	0.90	8.0	11.3	
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BEND TEST:

# 5	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Three Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

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

Resident Engineer, W W C. (Phase-II) Adjacent to Sundar Ind. Estate, District Kasur (Package-A & B)

Client Reference: **RE/PEPAC/Sundar/AB-188** **SOM Lab Ref:** **1149(Page-2/2)**

Dated: **18-07-2019** **Dated:** **19-07-2019**

Test: **Tension Test & Bend Test** **Test Specification:** **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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.544	6	0.760	0.44	0.454	17.53	21.51	87880	85170	107810	104490	1.00	8.0	12.5	
2	1.532	6	0.757	0.44	0.450	18.14	21.71	90950	88930	108830	106410	1.30	8.0	16.3	
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BEND TEST:

# 6	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Three Samples Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

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

Project Manager, State Grid, China Electric Power Eguipment and Technology Co. Ltd

Client Reference: **CET/HVDC/SPO(04)I4/SJ Steel/UET-19-712** **SOM Lab Ref:** **1151(Page-1/3)**

Dated: **19-07-2019** **Dated:** **19-07-2019**

Test: **Tension Test & Bend Test** **Test Specification:** **ASTM-A-615 Deformed Bar(Lot -6)**

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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.580	8	0.982	0.79	0.758	24.23	34.27	67650	70500	95680	99720	1.50	8.0	18.8	
2	2.582	8	0.983	0.79	0.759	23.90	33.89	66740	69460	94620	98490	1.40	8.0	17.5	
3	1.025	5	0.619	0.31	0.301	9.40	13.32	66870	68870	94790	97620	1.30	8.0	16.3	
4	1.028	5	0.620	0.31	0.302	9.35	13.30	66500	68270	94640	97150	1.10	8.0	13.8	
5	1.024	5	0.619	0.31	0.301	9.33	13.25	66360	68340	94280	97100	1.30	8.0	16.3	
6	1.026	5	0.620	0.31	0.302	9.45	13.43	67230	69010	95510	98040	1.50	8.0	18.8	
7	1.021	5	0.618	0.31	0.300	9.48	13.43	67450	69700	95510	98700	1.30	8.0	16.3	
8	1.011	5	0.615	0.31	0.297	9.30	13.37	66140	69040	95150	99310	1.50	8.0	18.8	
9	1.013	5	0.616	0.31	0.298	9.43	13.51	67090	69790	96090	99960	1.40	8.0	17.5	
10	0.663	4	0.498	0.20	0.195	6.03	7.85	66550	68250	86560	88780	1.40	8.0	17.5	

BEND TEST:

# 8(S.1,2)	Sample bend through 180 degrees Satisfactorily without any crack
# 8(S.3,4)	Sample bend through 180 degrees Satisfactorily without any crack
# 8(S.5,6)	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Twenty Samples Received and Tested

# 5(S.7 ,8,9)	Sample bend through 180 degrees Satisfactorily without any crack
# 4(S.10)	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

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

Project Manager, State Grid, China Electric Power Equipment and Technology Co. Ltd

Client Reference: CET/HVDC/SPO(04)l4/SJ Steel/UET-19-712 — **SOM Lab Ref:** 1151(Page-1/3)

Dated: 19-07-2019 — **Dated:** 19-07-2019

Test: Tension Test & Bend Test — **Test Specification:** ASTM-A-615

Gauge Length: 8 inch — **Sample Type:** Deformed Bar(Lot -6)

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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.545	8	0.976	0.79	0.748	23.82	34.27	66510	70240	95680	101050	1.80	8.0	22.5	
2	2.581	8	0.982	0.79	0.758	24.69	34.68	68930	71840	96820	100900	1.50	8.0	18.8	
3	1.013	5	0.616	0.31	0.298	9.43	13.40	67090	69790	95370	99210	1.40	8.0	17.5	
4	1.014	5	0.616	0.31	0.298	9.40	13.46	66870	69560	95730	99580	1.30	8.0	16.3	
5	1.013	5	0.616	0.31	0.298	9.38	13.48	66720	69410	95880	99740	1.40	8.0	17.5	
6	1.016	5	0.617	0.31	0.299	9.40	13.43	66870	69330	95510	99030	1.30	8.0	16.3	
7	1.015	5	0.616	0.31	0.298	9.45	13.53	67230	69940	96240	100110	1.50	8.0	18.8	
8	1.014	5	0.616	0.31	0.298	9.40	13.43	66870	69560	95510	99360	1.20	8.0	15.0	
9	1.016	5	0.617	0.31	0.299	9.60	13.61	68320	70830	96820	100380	1.30	8.0	16.3	
10	0.665	4	0.498	0.20	0.195	6.22	8.21	68570	70330	90490	92810	1.40	8.0	17.5	

BEND TEST:

# 8(S.1,2)	Sample bend through 180 degrees Satisfactorily without any crack
# 8(S.3,4)	Sample bend through 180 degrees Satisfactorily without any crack

Note:-

Only Twenty Samples

# 8(S.5,6)	Sample bend through 180 degrees Satisfactorily without any crack	**Received and Tested**
# 5(S.7 ,8,9)	Sample bend through 180 degrees Satisfactorily without any crack	
# 4(S.10)	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		

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

Project Manager, State Grid, China Electric Power Equipment and Technology Co. Ltd

Client Reference: CET/HVDC/SPO(04)I4/SJ Steel/UET-19-712 **SOM Lab Ref:** 1151(Page-3/3)

Dated: 19-07-2019 **Dated:** 19-07-2019

Test: Tension Test & Bend Test **Test Specification:** ASTM-A-615 Deformed Bar(Lot -6)

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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	2.569	8	0.980	0.79	0.755	23.92	33.94	66790	69890	94770	99160	1.50	8.0	18.8	
2	2.560	8	0.979	0.79	0.752	24.06	33.86	67160	70560	94540	99320	1.40	8.0	17.5	
3	1.024	5	0.619	0.31	0.301	9.45	13.37	67230	69240	95150	97990	1.40	8.0	17.5	
4	1.013	5	0.616	0.31	0.298	9.48	13.44	67450	70160	95590	99430	1.60	8.0	20.0	
5	1.018	5	0.617	0.31	0.299	9.40	13.40	66870	69330	95370	98880	1.10	8.0	13.8	
6	1.016	5	0.617	0.31	0.299	9.65	13.61	68680	71210	96820	100380	1.20	8.0	15.0	
7	1.015	5	0.616	0.31	0.298	9.43	13.48	67090	69790	95880	99740	1.30	8.0	16.3	
8	1.018	5	0.617	0.31	0.299	9.45	13.45	67230	69700	95660	99180	1.20	8.0	15.0	
9	1.018	5	0.617	0.31	0.299	9.40	13.51	66870	69330	96090	99630	1.20	8.0	15.0	
10	0.659	4	0.497	0.20	0.194	6.27	8.10	69130	71270	89370	92130	1.00	8.0	12.5	

BEND TEST:

# 8(S.1,2)	Sample bend through 180 degrees Satisfactorily without any crack	**Note:-**

# 8(S.3,4)	Sample bend through 180 degrees Satisfactorily without any crack	**Only Twenty Samples Received and Tested**
# 8(S.5,6)	Sample bend through 180 degrees Satisfactorily without any crack	
# 5(S.7 ,8,9)	Sample bend through 180 degrees Satisfactorily without any crack	
# 4(S.10)	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		

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

Assistant Engineer/SDO(Civil) University of Okara

Client Reference: **UO/Engg. Cell/2019/411-** **SOM Lab Ref:** **1153(Page-1/1)**

Dated: **05-07-2019** **Dated:** **19-07-2019**

Test: **Tension Test & Bend Test** **Test Specification:** **ASTM-A-615 Deformed**

Gauge Length: **8 inch** **Sample Type:** **Bar**

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^2	in^2	Tons	Tons	psi	psi	psi	psi	in	in	%	
1	1.485	6	0.745	0.44	0.436	14.02	18.17	70260	70900	91050	91890	1.50	8.0	18.8	
2	1.475	6	0.743	0.44	0.433	14.02	18.04	70260	71390	90440	91900	1.30	8.0	16.3	
3	0.663	4	0.498	0.20	0.195	5.61	8.00	61830	63410	88240	90510	1.50	8.0	18.8	
4	0.659	4	0.497	0.20	0.194	5.35	7.39	59020	60840	81500	84020	1.30	8.0	16.3	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

BEND TEST:

# 6	Sample bend through 180 degrees Satisfactorily without any crack	**Note:-** **Only Six Samples Received and Tested**
# 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		

Test Performed by: Dr. S. Asad Ali Gillani

Abdul Rashid Abbasi
Lead Materials Engineer,
Sukkur – Multan Section
Sukkur – Multan Motorway, Section-I,
CSCEC Pakistan Peshawar – Karachi Motorway, Project

Client Reference: CSCEC/cl/sec-01/grating-01/2019 **Dated: 28-06-2019**
SOM Laboratory Reference: CED/SOM/1044(Page-1/1) **Dated: 19-07-2019**
Test Type: Hardness Test
Sample Type: Gutter Inlet Grating

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	Gutter Inlet Grating	HR – 82.0 – B

Note: Please always confirm the results on web www.uet-civil.edu.pk

Test Performed by: Dr Nauman Khurram

China State Construction Engineering Corporation
Peshawar – Karachi Motorway
(Sukkur – Multan Section)Project

Client Reference: CSCEC/PKM/SEC-2/2019/10 **Dated: 20-04-2019**
SOM Laboratory Reference: CED/SOM/696(Page-2/3) **Dated: 22-04-2019**
Test Type: Hardness Test
Sample Type: W – Beam

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	W – Beam (6)	HR – 78.5 – B

Note: Please always confirm the results on web www.uet-civil.edu.pk

Test Performed by: Dr Nauman Khurram

China State Construction Engineering Corporation
Peshawar – Karachi Motorway
(Sukkur – Multan Section)Project

Client Reference: CSCEC/PKM/SEC-2/2019/09 **Dated: 20-04-2019**

SOM Laboratory Reference: CED/SOM/696(Page-3/3) **Dated: 22-04-2019**

Test Type: Hardness Test

Sample Type: Nut, Bolt & Washer

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	Nut	HR – 76.0 – B
2	Nut	HR – 72.0 – B
3	Nut	HR – 85.0 – B
4	Bolt	HR – 78.0 – B
5	Bolt	HR – 83.0 – B
6	Bolt	HR – 78.0 – B
7	Washer	HR – 65.0 – B
8	Washer	HR – 72.0 – B
9	Washer	HR – 72.5 – B

Note: Please always confirm the results on web www.uet-civil.edu.pk

Test Performed By: Dr. S. Asad Ali Gillani

Hamid Ali
Resident Engineer,
NESPAK (Pvt) Ltd
M. Garh ~ D. G. Khan

Client Reference: 3949/HA/01/283 **Dated: 09-07-2019**
SOM Laboratory Reference: CED/SOM/1147(Page-1/1) **Dated: 19-07-2019**
Test: Flexural Test & Compressive Strength Tests
Sample Type: Cat Eyes
Test Specification: ASTM-D4280

Test Results

Sr. No.	Sample Type	Top Dimensions (mm)	Bottom Dimensions (mm)	Thickness (mm)	Inclination (Degree)	Flexural Load (Kg)	Compression Load (Kg)
1	Cat Eyes Plastic Type (3-M)	74.0 x 45.0	101. x 88.5	15.0	30.86^{o}	1244	14985

Note: Please always confirm the results of above report on web: www.uet-civil.edu.pk