



STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
 Director (Operations)
 NCL – AEL Joint Venture
 Transmission Scheme for Dispersal of Power from Neelum-Jhelum Hydropower Project;
 Construction of 500 K.V. Double Circuit Quad Bundle Transmission Line from Domeli to Dinga
 (65km) (City Steel UAE)
 Reference # CED/TFL **32762-763** (Dr. Usman Akmal) Dated: 05-03-2019
 Reference of the request letter # NCL-AEL/19/03/2948 Dated: 04-03-2019

Tension Test Report (Page -1/1)

Date of Test 07-03-2019
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	4.250	10	1.261	1.27	1.249	37000	57800	64300	65280	100400	102000	1.50	18.8	
2	4.273	10	1.265	1.27	1.256	37200	58200	64600	65280	101100	102200	1.50	18.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
#10 Bar Bend Test Through 180° is Satisfactory														

Witness by Sohaib Ali (Sub-Engineer NESPAK) & Shahroz Iqbal (City Steel UAE)

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UET Lahore, Pakistan.

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To,
Material Engineer
ACE (Pvt) Ltd
Haripur Bypass Road Project
Haripur

Reference # CED/TFL **32767** (Dr. Usman Akmal)
Reference of the request letter # RE/ACE/HBRP/LAB/36

Dated: 06-03-2019
Dated: 05-03-2019

Tension Test Report (Page – 1/4)

Date of Test 07-03-2019
Gauge length 640 mm
Description Steel Strand Tensile Test as per ASTM A-416-94a

Sr. No.	Nominal Diameter	Nominal Weight	Measured weight	Yield strength clause (6.3)		Breaking strength clause (6.2)		Young's Modulus of Elasticity "E"	% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)	GPa		
1	12.70 (1/2")	775.0	778.0	17800	174.62	18600	182.47	199	<3.50 Not ok	xx
2	12.70 (1/2")	775.0	778.0	18000	176.58	19800	194.24	199	>3.50	xx
3	12.70 (1/2")	775.0	778.0	18000	176.58	20200	198.16	199	>3.50	xx
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	

Only three samples for Test

Note:

1. Modulus of Elasticity is based on nominal steel area of the steel strand vide clause 13.3 of ASTM – A416a
2. Load versus percentage strain graphs are attached

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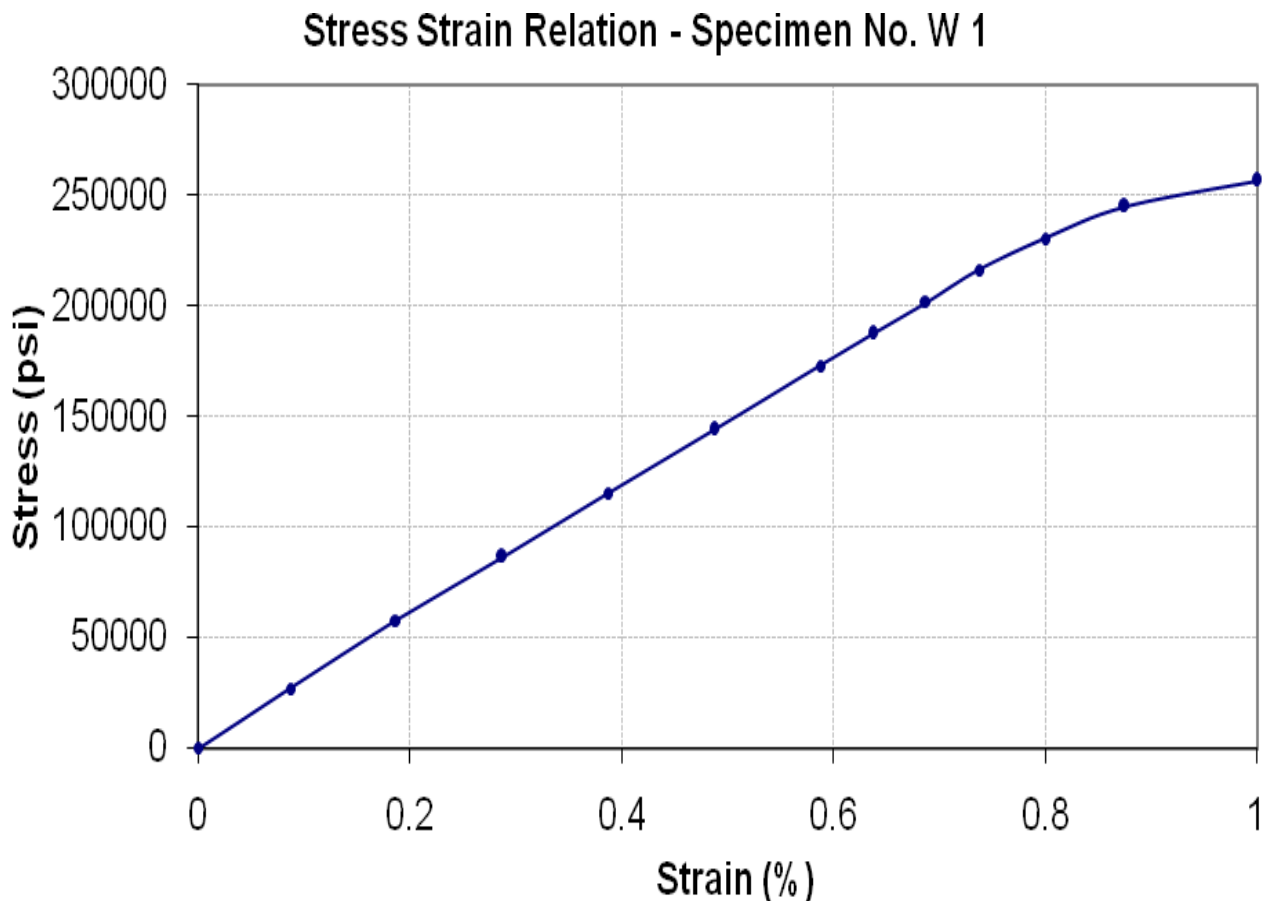
To,
Material Engineer
ACE (Pvt) Ltd
Haripur Bypass Road Project
Haripur

Reference # CED/TFL **32767** (Dr. Usman Akmal)
Reference of the request letter # RE/ACE/HBRP/LAB/36

Dated: 06-03-2019

Dated: 05-03-2019

Graph (Page – 2/4)



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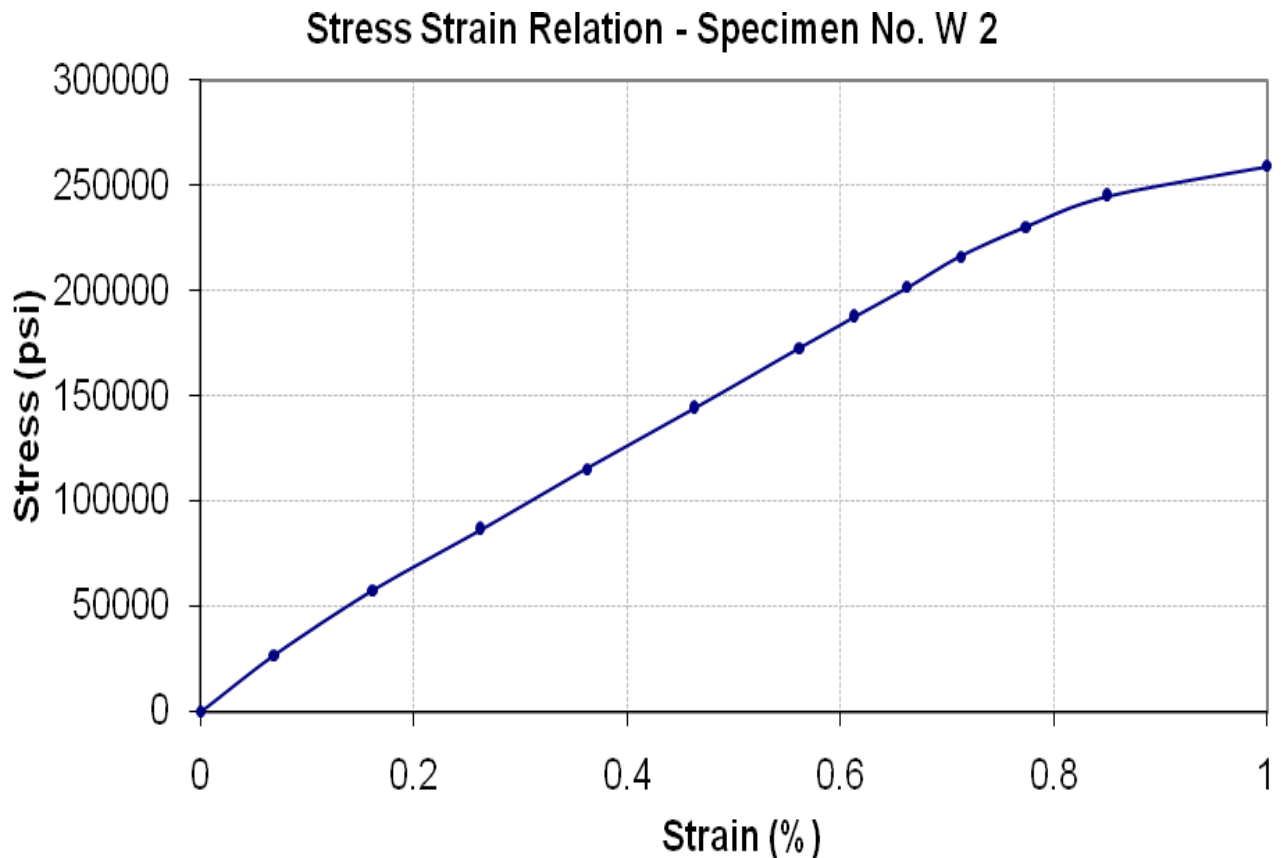
To,
Material Engineer
ACE (Pvt) Ltd
Haripur Bypass Road Project
Haripur

Reference # CED/TFL **32767** (Dr. Usman Akmal)
Reference of the request letter # RE/ACE/HBRP/LAB/36

Dated: 06-03-2019

Dated: 05-03-2019

Graph (Page – 3/4)



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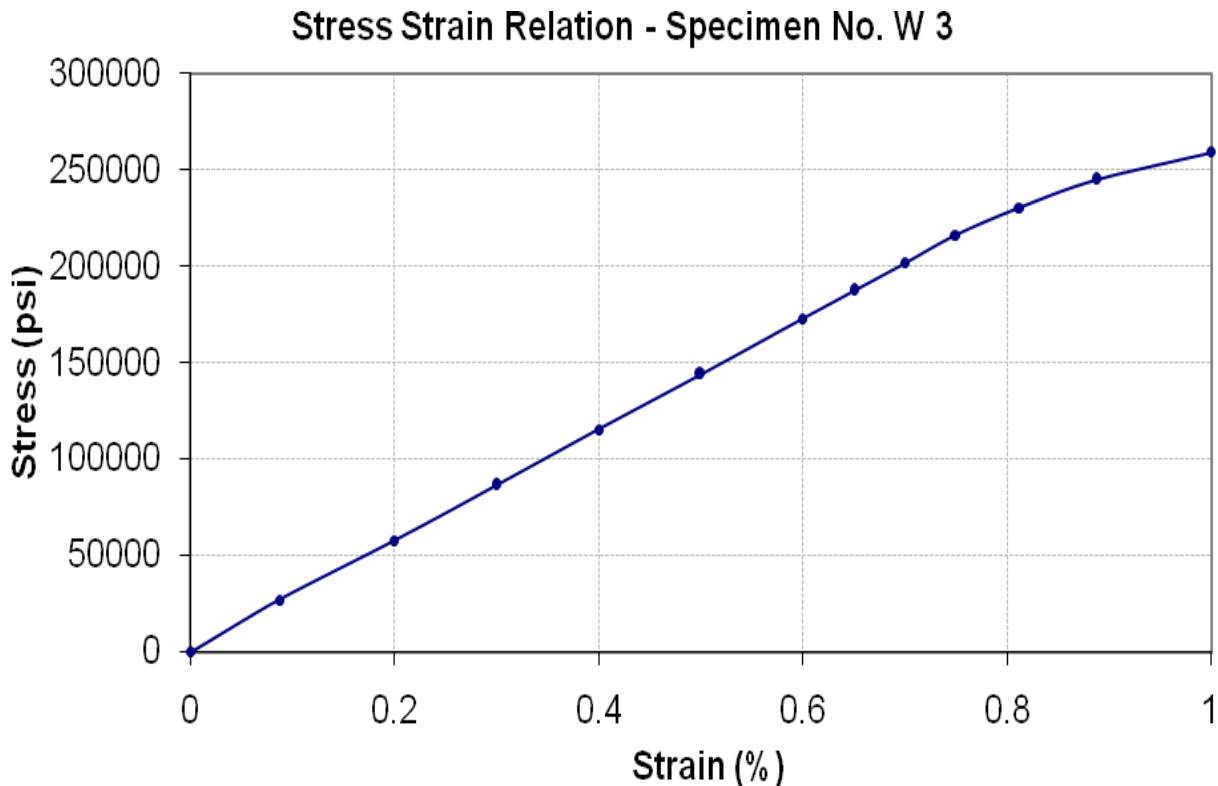
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Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Material Engineer
ACE (Pvt) Ltd
Haripur Bypass Road Project
Haripur

Reference # CED/TFL **32767** (Dr. Usman Akmal)
Reference of the request letter # RE/ACE/HBRP/LAB/36

Dated: 06-03-2019
Dated: 05-03-2019

Graph (Page – 4/4)



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Test Floor Laboratory
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To,
 Resident Engineer
 PEPAC
 Establishment of Workers Welfare Complex (Phase-I) Adjacent to Sundar Industrial Estate,
 District Kasur (Package-Q)

Reference # CED/TFL **32770** (Dr. Usman Akmal)
 Reference of the request letter # RE/PEPAC/WWC/Q-28

Dated: 06-03-2019
 Dated: 04-03-2019

Tension Test Report (Page -1/1)

Date of Test 07-03-2019
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (inch)		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.377	3/8	0.376	0.11	0.111	3500	4900	70200	69560	98200	97400	1.20	15.0	
2	0.377	3/8	0.376	0.11	0.111	3500	5000	70200	69630	100200	99500	1.20	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
3/8" Dia Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratories
UET Lahore, Pakistan.

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STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
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To,
 Resident Engineer
 RENARDET S.A ((M-4), Package-3A)
 Construction of Faisalabad-Khanewal Motorway (M-4) Project, Package-III A,

Reference # CED/TFL **32777** (Dr. Usman Akmal)
 Reference of the request letter # RE/M-4/3A/2019/309

Dated: 06-03-2019
 Dated: 22-02-2019

Tension Test Report (Page -1/1)

Date of Test 07-03-2019
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (mm)		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.430	10	10.19	0.11	0.126	4100	5850	82200	71560	117300	102100	1.10	13.8	
2	0.431	10	10.20	0.11	0.127	4100	5900	82200	71290	118300	102600	1.30	16.3	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
10mm Dia Bar Bend Test Through 180° is Satisfactory														

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To,
 Resident Engineer
 NESPAK
 Construction of Pakistan Kidney & Liver Institute & Research Center, Lahore Hospital PKLI,
 Package C-1, Phase-1 (Kamran Steel)

Reference # CED/TFL **32780** (Dr. Usman Akmal) Dated: 06-03-2019
 Reference of the request letter # 3836/13/9A/AA/C-1-MTR-221 Dated: 05-03-2019

Tension Test Report (Page -1/1)

Date of Test 07-03-2019
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.368	3	0.371	0.11	0.108	3500	4800	70200	71400	96200	98000	1.00	12.5	
2	0.365	3	0.370	0.11	0.107	3400	4600	68200	69870	92200	94600	1.20	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratoires
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Department of Civil Engineering
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To,
M/S Stylers International (Pvt) Ltd
20km Ferozpur Road, Lahore

Reference # CED/TFL **32783** (Dr. Usman Akmal)
Reference of the request letter # Nil

Dated: 06-03-2019
Dated: 06-03-2019

Tension Test Report (Page -1/1)

Date of Test 07-03-2019
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (mm)		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.411	10	9.96	0.11	0.121	4600	5700	92200	83900	114300	104000	0.90	11.3	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only one sample for tensile and one sample for bend test														
Bend Test														
10mm Dia Bar Bend Test Through 180° is Satisfactory														

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UET Lahore, Pakistan.

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To,
 Material Engineer
 Izhar Construction (pvt) Ltd
 CCBL Ware House & Allied Works Phase-2

Reference # CED/TFL **32784** (Dr. Ali Ahmed)
 Reference of the request letter # ICPL/CCBL/LAB/01

Dated: 07-03-2019
 Dated: 07-03-2019

Tension Test Report (Page -1/1)

Date of Test 07-03-2019
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal (#)	Actual (inch)	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.375	3	0.374	0.11	0.110	3600	4800	72200	72050	96200	96100	1.10	13.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only one sample for tensile and one sample for bend test														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratoires
UET Lahore, Pakistan.

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To,
 Jamea-Al-Muntazar (Trust)
 Model, Town, Lahore

Reference # CED/TFL **32786** (Dr.Usmal Akmal)
 Reference of the request letter # Nil

Dated: 07-03-2019
 Dated: 07-03-2019

Tension Test Report (Page -1/1)

Date of Test 07-03-2019
 Gauge length 8 inches
 Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight (lbs/ft)	Diameter/ Size (inch)		Area (in ²)		Yield load (kg)	Breaking Load (kg)	Yield Stress (psi)		Ultimate Stress (psi)		Elongation (inch)	% Elongation	Remarks
		Nominal	Actual	Nominal	Actual			Nominal	Actual	Nominal	Actual			
1	0.362	3/8	0.368	0.11	0.106	3000	4300	60200	62140	86200	89100	1.20	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only one sample for tensile and one sample for bend test														
Bend Test														
3/8" Dia Bar Bend Test Through 180° is Satisfactory														

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