STRUCTURAL ENGINEERING DIVISION

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

To,
M/S CSCEC Pakistan
Peshawar–Karachi Motorway (Sukkur–Multan Section) Project

Reference # CED/TFL **32848** (Dr. Waseem Abbas) Dated: 15-03-2019
Reference of the request letter # CSCEC/PKM/SEC 2/2019/03 Dated: 13-03-2019

Tension Test Report (Page – 1/2)

Date of Test 26-03-2019
Gauge length 2 inches
Description Metal Post (Pipe) and Base Plate Strip Tensile Test

Sr. No.	Designation	Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
	------	(mm)	(mm^2)	(kg)	(kg)	(MPa)	(Mpa)	(in)		
1	Metal Post (Pipe)	29.50x7.90	233.05	9900	11900	416.73	500.92	0.50	25.00	
2		29.50x7.90	233.05	9700	11600	408.31	488.29	0.50	25.00	
3	Base Plate	29.40x19.30	567.42	18300	26700	316.38	461.61	0.80	40.00	
4		29.40x19.30	567.42	18500	26800	319.84	463.34	0.80	40.00	
-	-	-	-	-	-	-	-	-	-	
-		-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-		-	-	-	-	-	-	-	-	
Only Four Samples for Tensile Test										
Bend Test										

I/C Testing Laboratoires
UET Lahore, Pakistan.

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Department of Civil Engineering
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Pakistan. Ph: 92-42-99029202

To,
M/S CSCEC Pakistan
Peshawar–Karachi Motorway (Sukkur–Multan Section) Project

Reference # CED/TFL **32848** (Dr. Waseem Abbas) Dated: 15-03-2019
Reference of the request letter # CSCEC/PKM/SEC 2/2019/03 Dated: 13-03-2019

Thickness Test Report (Page – 2/2)

Date of Test 26-03-2019
Gauge length -------
Description Metal Post (Pipe) and Base Plate Thickness Test

Sr. No.	Designation	Thickness	Remark
	-------	(mm)	
1	**Metal Post (Pipe)**	**7.90**	
2	**Base Plate**	**19.30**	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
-	-	-	
Only Two Samples for Test			

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STRUCTURAL ENGINEERING DIVISION

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

To,
Resident Engineer
RENARDET S.A ((M-4), Package-IIIB)
Construction of Faisalabad–Khanewal Motorway (M-4) Project, Package-III, Dinpur-Khanewal, Section 3B
Reference # CED/TFL **32866** (Dr. Waseem Abbas) Dated: 18-03-2019
Reference of the request letter # RE/M-4/3B/2019/420 Dated: 13-03-2019

Tension Test Report (Page – 1/3)

Date of Test 26-03-2019
Gauge length 2 inches
Description Vertical Post Strip Tensile Test

Sr. No.	Designation	Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
	------	(cm)	(cm^2)	(kg)	(kg)	(kg/cm^2)	(kg/cm^2)	(in)		
1	Vertical Post	2.60x0.60	1.56	6000	7800	3846.15	5000.00	0.60	30.00	S-1
2		2.60x0.61	1.59	6100	8000	3846.15	5044.14	0.60	30.00	
3	Vertical Post	2.60x0.61	1.59	6200	8400	3909.21	5296.34	0.60	30.00	S-2
4		2.60x0.61	1.59	6400	8400	4035.31	5296.34	0.60	30.00	
5	Vertical Post	2.60x0.61	1.59	6200	8000	3909.21	5044.14	0.60	30.00	S-3
6		2.60x0.61	1.59	6400	8300	4035.31	5233.29	0.60	30.00	
7	Vertical Post	2.60x0.61	1.59	6200	8100	3909.21	5107.19	0.60	30.00	S-4
8		2.61x0.61	1.59	6100	8400	3831.42	5276.05	0.60	30.00	
Only Eight Samples for Tensile Test										
Bend Test										

I/C Testing Laboratoires
UET Lahore, Pakistan.

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

To,
Resident Engineer
RENARDET S.A ((M-4), Package-IIIB)
Construction of Faisalabad–Khanewal Motorway (M-4) Project, Package-III, Dinpur-Khanewal, Section 3B
Reference # CED/TFL **32866** (Dr. Waseem Abbas) Dated: 18-03-2019
Reference of the request letter # RE/M-4/3B/2019/420 Dated: 13-03-2019

Tension Test Report (Page – 2/3)

Date of Test 26-03-2019
Gauge length 2 inches
Description Vertical Post Strip Tensile Test

Sr. No.	Designation	Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
	------	(cm)	(cm^2)	(kg)	(kg)	(kg/cm^2)	(kg/cm^2)	(in)		
1	Vertical Post	2.60x0.61	1.59	6100	8300	3846.15	5233.29	0.60	30.00	S-5
2		2.62x0.61	1.60	6300	8700	3941.93	5443.62	0.60	30.00	
3	Vertical Post	2.62x0.61	1.60	6200	8400	3879.36	5255.91	0.70	35.00	S-6
4		2.62x0.61	1.60	6400	8900	4004.51	5568.76	0.60	30.00	
5	Vertical Post	2.62x0.61	1.60	6600	8800	4129.65	5506.19	0.60	30.00	S-7
6		2.62x0.61	1.60	6400	8700	4004.51	5443.62	0.60	30.00	
7	Vertical Post	2.60x0.61	1.59	6300	8300	3972.26	5233.29	0.60	30.00	S-8
8		2.60x0.61	1.59	6200	8300	3909.21	5233.29	0.60	30.00	
Only Eight Samples for Tensile Test										
Bend Test										

I/C Testing Laboratoires
UET Lahore, Pakistan.

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

To,
Resident Engineer
RENARDET S.A ((M-4), Package-IIIB)
Construction of Faisalabad–Khanewal Motorway (M-4) Project, Package-III, Dinpur-Khanewal, Section 3B

Reference # CED/TFL **32866** (Dr. Waseem Abbas) Dated: 18-03-2019
Reference of the request letter # RE/M-4/3B/2019/420 Dated: 13-03-2019

Weight &Size Test Report (Page – 3/3)

Date of Test 26-03-2019
Gauge length -------
Description Vertical Post Weight and Size Test

Sr. No.	Designation	Weight	Length	Weight per Unit Length	Web Thickness (t_w)	Remark
	-------	(g)	(cm)	(kg/m)	(mm)	
1	Vertical Post	13500	100.60	13.42	6.20	S-1
2	Vertical Post	13450	99.70	13.49	6.15	S-2
3	Vertical Post	13400	99.90	13.41	6.20	S-3
4	Vertical Post	13550	100.0	13.55	6.20	S-4
5	Vertical Post	13220	99.20	13.33	6.20	S-5
6	Vertical Post	13150	99.20	13.26	6.20	S-6
7	Vertical Post	13400	100.0	13.40	6.20	S-7
8	Vertical Post	13450	99.00	13.59	6.15	S-8
Only Eight Samples for Test						

I/C Testing Laboratoires
UET Lahore, Pakistan.

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STRUCTURAL ENGINEERING DIVISION

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

To,
Resident Engineer
RENARDET S.A ((M-4), Package-IIIB)
Construction of Faisalabad–Khanewal Motorway (M-4) Project, Package-III, Dinpur-Khanewal, Section 3B
Reference # CED/TFL **32867** (Dr. Waseem Abbas) Dated: 18-03-2019
Reference of the request letter # RE/M-4/3B/2019/429 Dated: 16-03-2019

Tension Test Report (Page – 1/2)

Date of Test 26-03-2019
Gauge length 2 inches
Description Post Spacer Strip Tensile Test

Sr. No.	Designation	Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
	------	(cm)	(cm^2)	(kg)	(kg)	(kg/cm^2)	(kg/cm^2)	(in)		
1	Post Spacer	2.40x0.61	1.46	5200	7300	3551.91	4986.34	0.70	35.00	S-1
2		2.40x0.61	1.46	5200	7300	3551.91	4986.34	0.70	35.00	
3	Post Spacer	2.40x0.61	1.46	5400	8100	3688.52	5532.79	0.60	30.00	S-2
4		2.40x0.61	1.46	6000	8100	4098.36	5532.79	0.60	30.00	
-	-	-	-	-	-	-	-	-	-	-
-		-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-
-		-	-	-	-	-	-	-	-	
Only Four Samples for Tensile Test										
Bend Test										

I/C Testing Laboratoires
UET Lahore, Pakistan.

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

To,
Resident Engineer
RENARDET S.A ((M-4), Package-IIIB)
Construction of Faisalabad–Khanewal Motorway (M-4) Project, Package-III, Dinpur-Khanewal, Section 3B

Reference # CED/TFL **32867** (Dr. Waseem Abbas) Dated: 18-03-2019
Reference of the request letter # RE/M-4/3B/2019/429 Dated: 16-03-2019

Weight &Size Test Report (Page – 2/2)

Date of Test 26-03-2019
Gauge length -------
Description Post Spacer Weight and Size Test

Sr. No.	Designation	Weight	Length	Weight per Unit Length	Web Thickness (t_w)	Remark
	-------	(g)	(cm)	(kg/m)	(mm)	
1	**Post Spacer**	**4250**	**32.40**	**13.12**	**6.20**	**S-1**
2	**Post Spacer**	**4250**	**32.40**	**13.12**	**6.20**	**S-2**
-	**-**	**-**	**-**	**-**	**-**	**-**
-	**-**	**-**	**-**	**-**	**-**	**-**
-	**-**	**-**	**-**	**-**	**-**	**-**
-	**-**	**-**	**-**	**-**	**-**	**-**
-	**-**	**-**	**-**	**-**	**-**	**-**
-	**-**	**-**	**-**	**-**	**-**	**-**
Only Two Samples for Test						

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UET Lahore, Pakistan.

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STRUCTURAL ENGINEERING DIVISION

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

To,
Chief Resident Engineer (Civil)
Trimmu Panjnad Barrages Consultants
Trimmu and Panjnad Barrages Improvement Project (TPBIP)
(Kamran Steel)
Reference # CED/TFL **32883** (Dr. Waseem Abbas) Dated: 20-03-2019
Reference of the request letter # TPBC/CRE/TECH/36 Dated: 19-03-2019

Tension Test Report (Page -1/1)

Date of Test 26-03-2019
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight	Diameter/ Size		Area (in^2)		Yield load	Breaking Load	Yield Stress (psi)		Ultimate Stress (psi)		Elongation	% Elongation	Remarks
	(lbs/ft)	Nominal (#)	Actual (inch)	Nominal	Actual	(kg)	(kg)	Nominal	Actual	Nominal	Actual	(inch)		
1	5.153	11	1.389	1.56	1.515	43200	65000	61100	62870	91900	94600	1.50	18.8	
2	5.188	11	1.393	1.56	1.525	43800	64800	61900	63310	91600	93700	1.70	21.3	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
#11 Bar Bend Test Through 180º is Satisfactory														

Witness by Babar Pervez (M/s SWEG – RSL jv)

I/C Testing Laboratoires
UET Lahore, Pakistan.

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STRUCTURAL ENGINEERING DIVISION

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To,
Resident Engineer
SMEC International Pty Ltd
Peshawar-Karachi Motorway (PKM) Consultants Sukkur – Multan Section (392 km) (Section-6)

Reference # CED/TFL **32892** (Dr. Waseem Abbas) Dated: 20-03-2019
Reference of the request letter # 5065057/6/6/424 Dated: 20-03-2019

Tension Test Report (Page – 1/1)

Date of Test 26-03-2019
Gauge length 2 inches
Description Flesh Belt Support Cord Strip Tensile Test

Sr. No.	Designation	Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
	(mm)	(mm)	(mm^2)	(kg)	(kg)	(MPa)	(MPa)	(in)		
1	**Flesh Belt Support Cord Strip**	**10.00x3.30**	**33.00**	**1200**	**1800**	**356.73**	**535.09**	**0.60**	**30.00**	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
Only One Sample for Tensile Test										
Bend Test										

I/C Testing Laboratoires
UET Lahore, Pakistan.

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STRUCTURAL ENGINEERING DIVISION

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To,
M/S Defence Housing Authority.
Lahore Cantt
(Const. of Community Club Ph-VIII (Ex Park View) (UEC)

Reference # CED/TFL **32903** (Dr. Ali Ahmed) Dated: 22-03-2019
Reference of the request letter # 408/241/E/Lab/491/1755 Dated: 21-03-2019

Tension Test Report (Page – 1/1)

Date of Test 26-03-2019
Gauge length 2 inches
Description Stainer Pipe & MS Blind Pipe Steel Strip Tensile and Bend Test

Sr. No.	Designation		Size of Strip	X Section Area	Yield load	Breaking Load	Yield Stress	Ultimate Stress	Elongation	% Elongation	Remarks
	(inch)		(mm)	(mm^2)	(kg)	(kg)	(MPa)	(MPa)	(in)		
1	Stainer Pipe	8	24.70x4.50	111.15	26.50	31.00	238.42	278.90	0.15	7.50	
2		8	24.80x4.50	111.60	26.70	31.00	239.25	277.78	0.20	10.00	
3	MS Blind Pipe	12	29.30x6.10	178.73	65.50	76.70	366.47	429.14	0.70	35.00	
4		12	29.30x6.10	178.73	65.80	76.90	368.15	430.26	0.70	35.00	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	

Only Four Samples for Tensile and Two Sample for Bend Test

Bend Test

Strip Taken from Stainer Pipe (8") Bend Test Through 180º is Satisfactory

Strip Taken from MS Blind Pipe (12**"**) Bend Test Through 180º is Satisfactory

I/C Testing Laboratoires
UET Lahore, Pakistan.

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STRUCTURAL ENGINEERING DIVISION

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

Ref: CED/TFL/03/32906 Dated: 22-03-2019

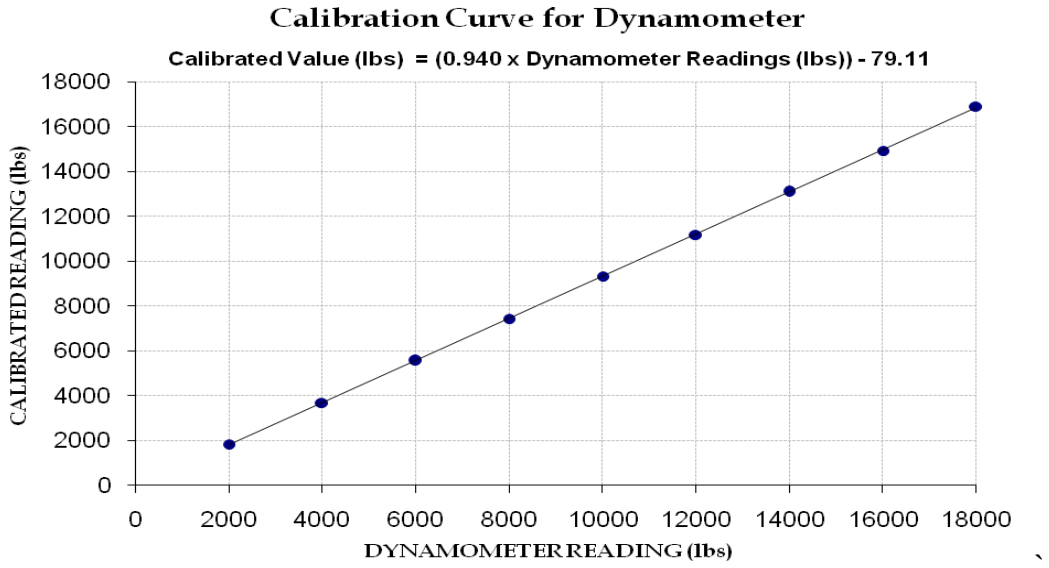
To,
M/S Unze Trading Pvt Ltd
Lahore
(PESCO PC Pole Plant Jehangira for Manufacturing & Providing of Pre-Stressed Cement Concrete Spun Hollow LT & HT Poles

Subject: **- CALIBRATION OF DYNAMOMETER (MARK: TFL/03/32906)**

Ref: Your letter No. UNZE/350/2019, dated: 22/03/2019 on the subject cited above. One Dynamometer as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 20000 (lbs)
Calibrated Range : Zero - 18000 (lbs)

Dynamometer Readings (lbs)		**2000**	**4000**	**6000**	**8000**	**10000**	**12000**	**14000**	**16000**	**18000**
Calibrated Readings	**(N)**	**8160**	**16350**	**24735**	**33060**	**41460**	**49710**	**58250**	**66400**	**75200**
	(lbs)	**1834**	**3675**	**5560**	**7432**	**9320**	**11175**	**13095**	**14927**	**16905**



I/C Testing Laboratoires
UET Lahore, Pakistan.

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

Ref: CED/TFL/03/32916 Dated: 25-03-19

To
M/S StrongForce Private Limited
Wafaqi Colony, Lahore
(Kohat Cement Project, Kohat)

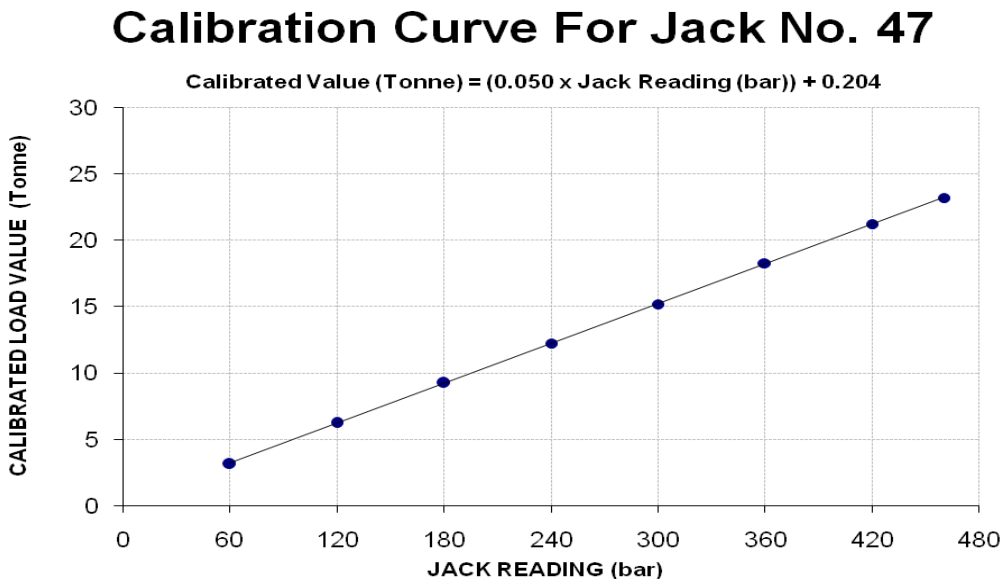
Subject: **- CALIBRATION OF HYDRAULIC JACK (MARK: TFL/03/32916)** (Page -1/4)

Reference to your Letter No. SF/19/03-11288, dated: 22/03/2019 on the subject cited above. One Hydraulic Jack (Jack No. 47, Gauge No. SF 47) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 1000 (bar)
Calibrated Range : Zero - 460 (bar)

Hydraulic Jack Reading (bar)		**60**	**120**	**180**	**240**	**300**	**360**	**420**	**460**
Calibrated Load	**(kg)**	**3150**	**6250**	**9250**	**12250**	**15200**	**18300**	**21250**	**23200**
	(Tonne)	**3.15**	**6.25**	**9.25**	**12.25**	**15.20**	**18.30**	**21.25**	**23.20**
Calibrated Pressure (bar)		**60.51**	**120.07**	**177.70**	**235.33**	**292.00**	**351.55**	**408.22**	**445.69**

The Ram Area of Jack = 51.05 cm^2



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UET Lahore, Pakistan.

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

Ref: CED/TFL/03/32916 Dated: 25-03-19

To
M/S StrongForce Private Limited
Wafaqi Colony, Lahore
(Kohat Cement Project, Kohat)

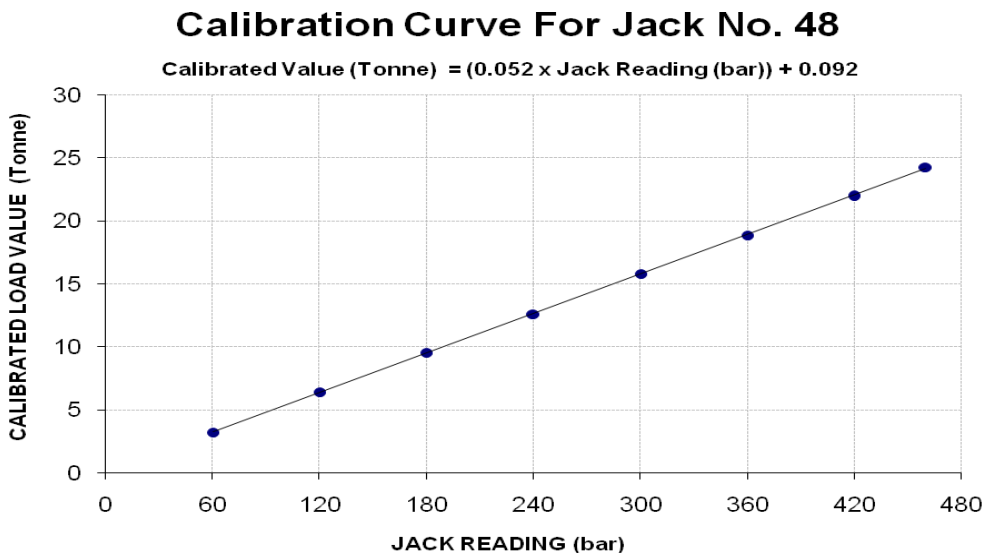
Subject: **- CALIBRATION OF HYDRAULIC JACK (MARK: TFL/03/32916)** (Page -2/4)

Reference to your Letter No. SF/19/03-11288, dated: 22/03/2019 on the subject cited above. One Hydraulic Jack (Jack No. 48, Gauge No. SF 48) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 1000 (bar)
Calibrated Range : Zero - 460 (bar)

Hydraulic Jack Reading (bar)		**60**	**120**	**180**	**240**	**300**	**360**	**420**	**460**
Calibrated Load	**(kg)**	**3200**	**6400**	**9550**	**12600**	**15800**	**18850**	**21950**	**24250**
	(Tonne)	**3.20**	**6.40**	**9.55**	**12.60**	**15.80**	**18.85**	**21.95**	**24.25**
Calibrated Pressure (bar)		**61.47**	**122.95**	**183.46**	**242.05**	**303.53**	**362.12**	**421.67**	**465.86**

The Ram Area of Jack = 51.05 cm^2



I/C Testing Laboratoires
UET Lahore, Pakistan.

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

Ref: CED/TFL/03/32916 Dated: 25-03-19

To
M/S StrongForce Private Limited
Wafaqi Colony, Lahore
(Kohat Cement Project, Kohat)

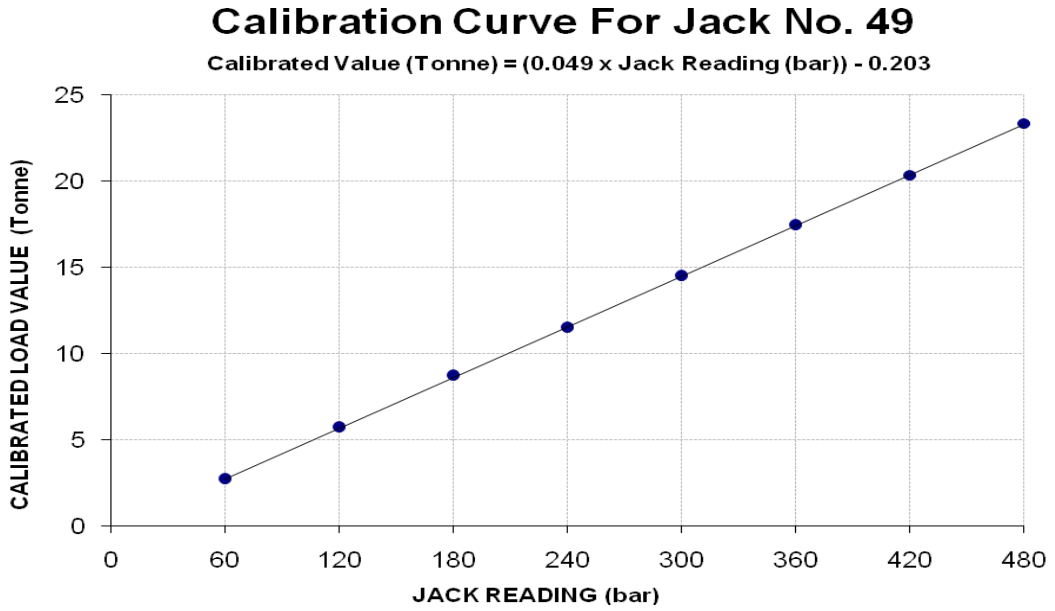
Subject: **- CALIBRATION OF HYDRAULIC JACK (MARK: TFL/03/32916)** (Page -3/4)

Reference to your Letter No. SF/19/03-11288, dated: 22/03/2019 on the subject cited above. One Hydraulic Jack (Jack No. 49, Gauge No. SF 49) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 1000 (bar)
Calibrated Range : Zero - 480 (bar)

Hydraulic Jack Reading (bar)		**60**	**120**	**180**	**240**	**300**	**360**	**420**	**480**
Calibrated Load	**(Kg)**	**2700**	**5700**	**8700**	**11500**	**14500**	**17450**	**20350**	**23350**
	(Tonne)	**2.70**	**5.70**	**8.70**	**11.50**	**14.50**	**17.45**	**20.35**	**23.35**
Calibrated Pressure (bar)		**56.34**	**118.94**	**181.53**	**239.96**	**302.56**	**364.11**	**424.62**	**487.22**

The Ram Area of Jack = 47.00 cm^2



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

Ref: CED/TFL/03/32916 Dated: 25-03-19

To
M/S StrongForce Private Limited
Wafaqi Colony, Lahore
(Kohat Cement Project, Kohat)

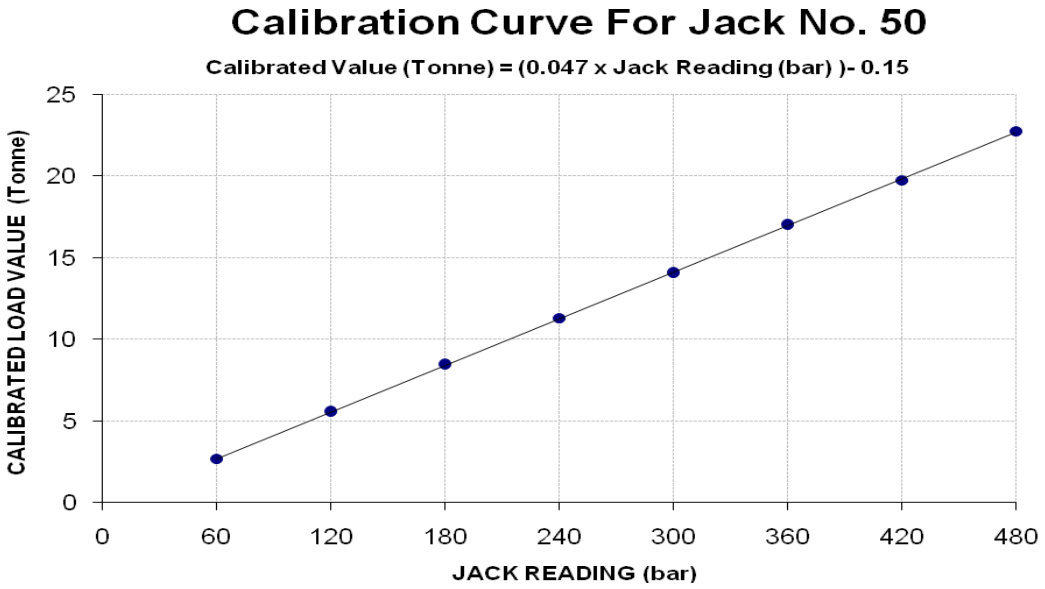
Subject: **- CALIBRATION OF HYDRAULIC JACK (MARK: TFL/03/32916)** (Page -4/4)

Reference to your Letter No. SF/19/03-11288, dated: 22/03/2019 on the subject cited above. One Hydraulic Jack (Jack No. 50, Gauge No. SF 50) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 1000 (bar)
Calibrated Range : Zero - 480 (bar)

Hydraulic Jack Reading (bar)		60	120	180	240	300	360	420	480
Calibrated Load	**(Kg)**	2700	5550	8450	11300	14050	17000	19750	22750
	(Tonne)	2.70	5.55	8.45	11.30	14.05	17.00	19.75	22.75
Calibrated Pressure (bar)		56.34	115.81	176.32	235.79	293.17	354.72	412.10	474.70

The Ram Area of Jack = 47.00 cm^2



I/C Testing Laboratoires
UET Lahore, Pakistan.

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STRUCTURAL ENGINEERING DIVISION

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

To,
Resident Engineer
REC-LOYA-TECHNIA
Layyah Taunsa Bridge

Reference # CED/TFL **32919** (Dr. Ali Ahmed) Dated: 25-03-2019
Reference of the request letter # REC-LOYA-TECHNIA/Coord/105 Dated: 25-03-2019

Tension Test Report (Page – 1/2)

Date of Test 26-03-2019
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	% Elongation	Remarks / Coil No.
	(mm)	(kg/km)	(kg/km)	(kg)	(kN)	(kg)	(kN)	E, GPa		
1	**15.24 (0.6")**	**1102.0**	**1096.0**	**25600**	**251.14**	**27800**	**272.72**	**199**	**>3.50**	**xx**
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
Only one sample 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

I/C Testing Laboratoires
UET Lahore, Pakistan.

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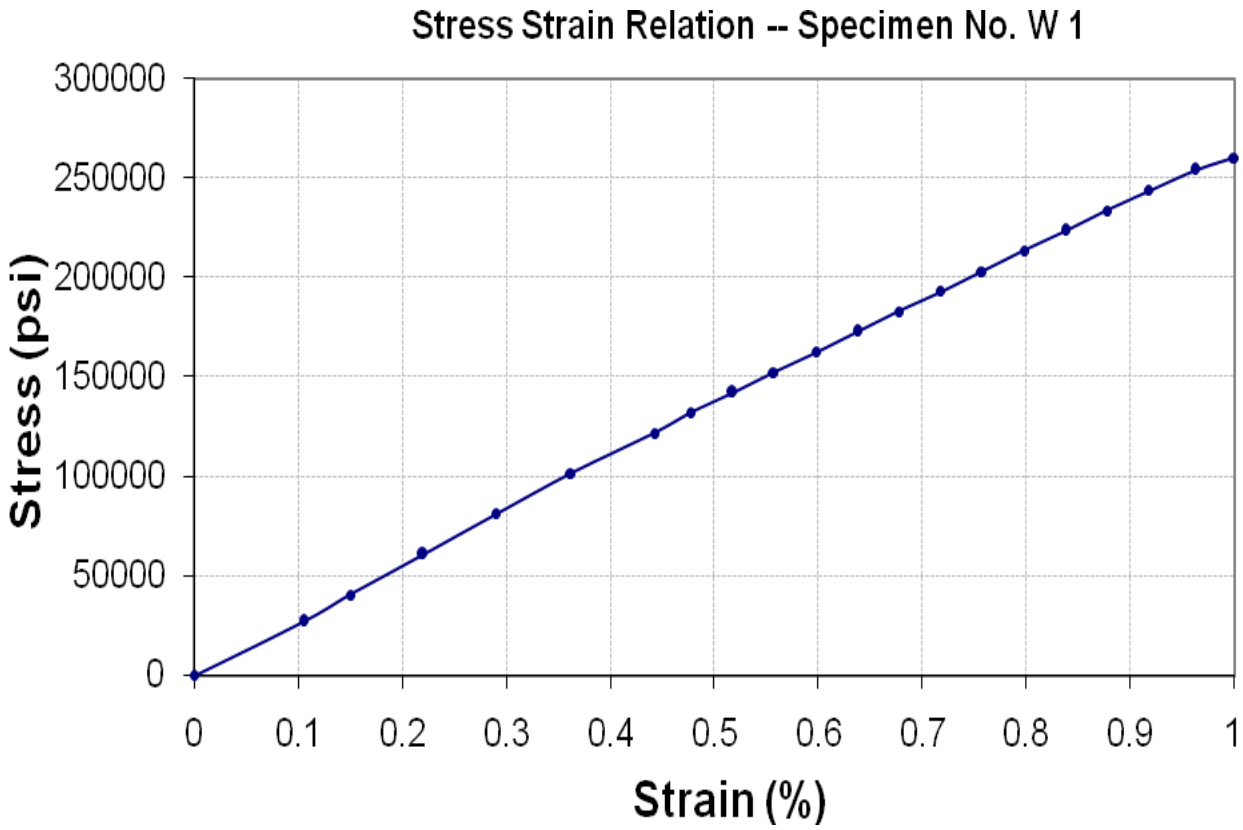
STRUCTURAL ENGINEERING DIVISION
Test Floor Laboratory
Department of Civil Engineering
University of Engineering and Technology Lahore, 54890
Pakistan. Ph: 92-42-99029202

To,
Resident Engineer
REC-LOYA-TECHNIA
Layyah Taunsa Bridge

Reference # CED/TFL **32919** (Dr. Ali Ahmed) Dated: 25-03-2019
Reference of the request letter # REC-LOYA-TECHNIA/Coord/105 Dated: 25-03-2019

Graph (Page – 2/2)



I/C Testing Laboratoires
UET Lahore, Pakistan.

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STRUCTURAL ENGINEERING DIVISION

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

To,
Resident Engineer
ACE (Pvt) Ltd
Establishment of Daanish School (Boys & Girls) at Mankera District Bhakkar m/s A.H. Construction (Package-2 & 4)

Reference # CED/TFL **32923** (Dr. Waseem Abbas) Dated: 25-03-2019
Reference of the request letter # ACE/RE-PDS/MNK/BHK/19/200 Dated: 20-03-2019

Tension Test Report (Page -1/1)

Date of Test 26-03-2019
Gauge length 8 inches
Description Deformed Steel Bar Tensile and Bend Test as per ASTM-A615

Sr. No.	Weight	Diameter/ Size (inch)		Area (in^2)		Yield load	Breaking Load	Yield Stress (psi)		Ultimate Stress (psi)		Elongation	% Elongation	Remarks
	(lbs/ft)	Nominal	Actual	Nominal	Actual	(kg)	(kg)	Nominal	Actual	Nominal	Actual	(inch)		
1	0.412	3/8	0.393	0.11	0.121	4100	5400	82200	74630	108200	98300	1.20	15.0	
2	0.419	3/8	0.396	0.11	0.123	4300	5500	86200	76870	110200	98400	1.00	12.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	

Note: only two samples for tensile and one sample for bend test

Bend Test

3/8" Dia Bar Bend Test Through 180º is Satisfactory

I/C Testing Laboratoires
UET Lahore, Pakistan.

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

To,
Resident Engineer –II
Zeeruk International (Pvt) Ltd
Lahore – Sialkot Motorway
(Steel Complex)

Reference # CED/TFL **32924** (Dr. Ali Ahmad) Dated: 25-03-2019
Reference of the request letter # LSM/RE-II/St/19/119 Dated: 22-03-2019

Tension Test Report (Page – 1/4)

Date of Test 26-03-2019
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**	**776.0**	**19000**	**186.39**	**19800**	**194.24**	**198**	**>3.50**	**165**
2	**12.70 (1/2")**	**775.0**	**781.0**	**17000**	**166.77**	**20000**	**196.20**	**199**	**>3.50**	**169**
3	**12.70 (1/2")**	**775.0**	**779.0**	**18700**	**183.45**	**19600**	**192.28**	**199**	**>3.50**	**171**
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
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

I/C Testing Laboratoires
UET Lahore, Pakistan.

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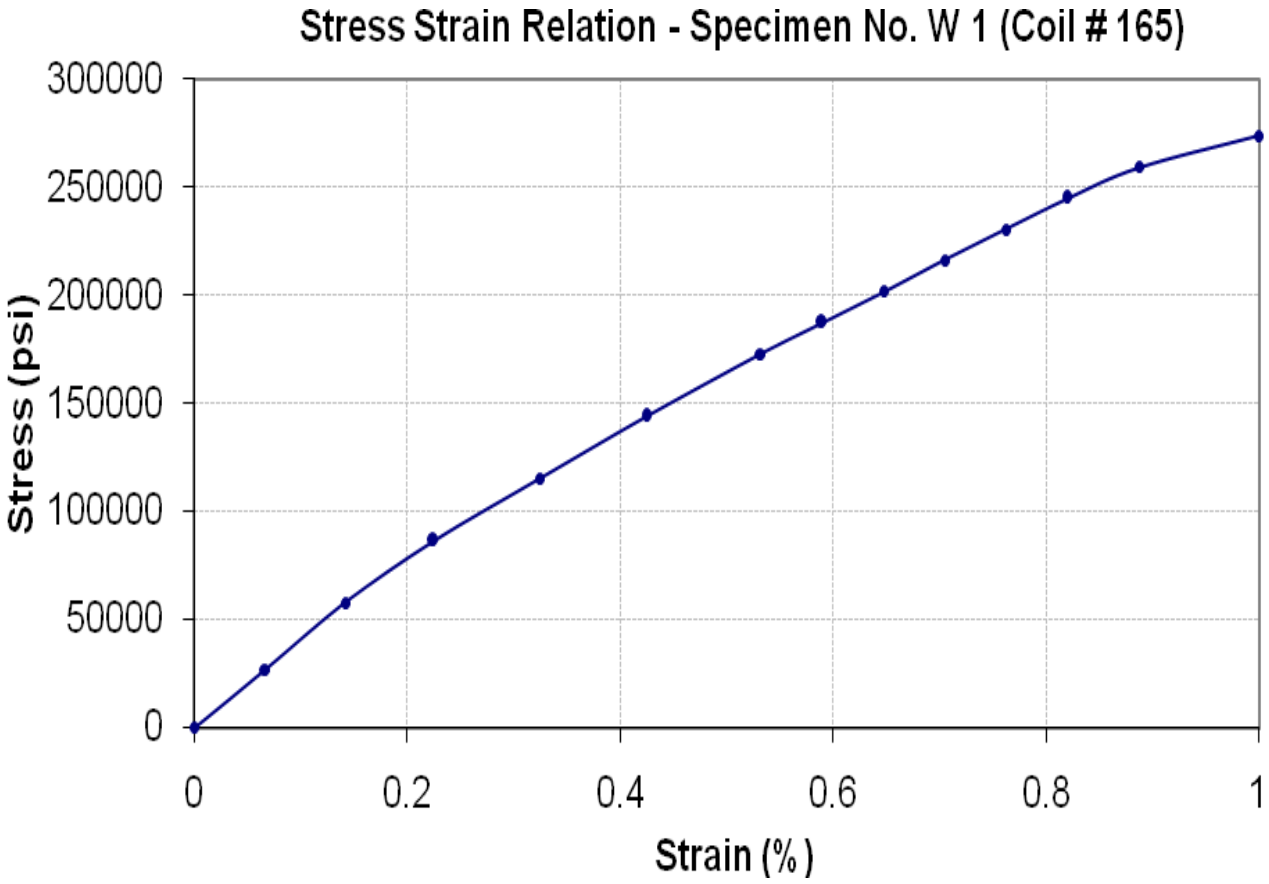
To,
Resident Engineer –II
Zeeruk International (Pvt) Ltd
Lahore – Sialkot Motorway
(Steel Complex)

Reference # CED/TFL **32924** (Dr. Ali Ahmad) Dated: 25-03-2019
Reference of the request letter # LSM/RE-II/St/19/119 Dated: 22-03-2019

Graph (Page – 2/4)



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To,
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Zeeruk International (Pvt) Ltd
Lahore – Sialkot Motorway
(Steel Complex)

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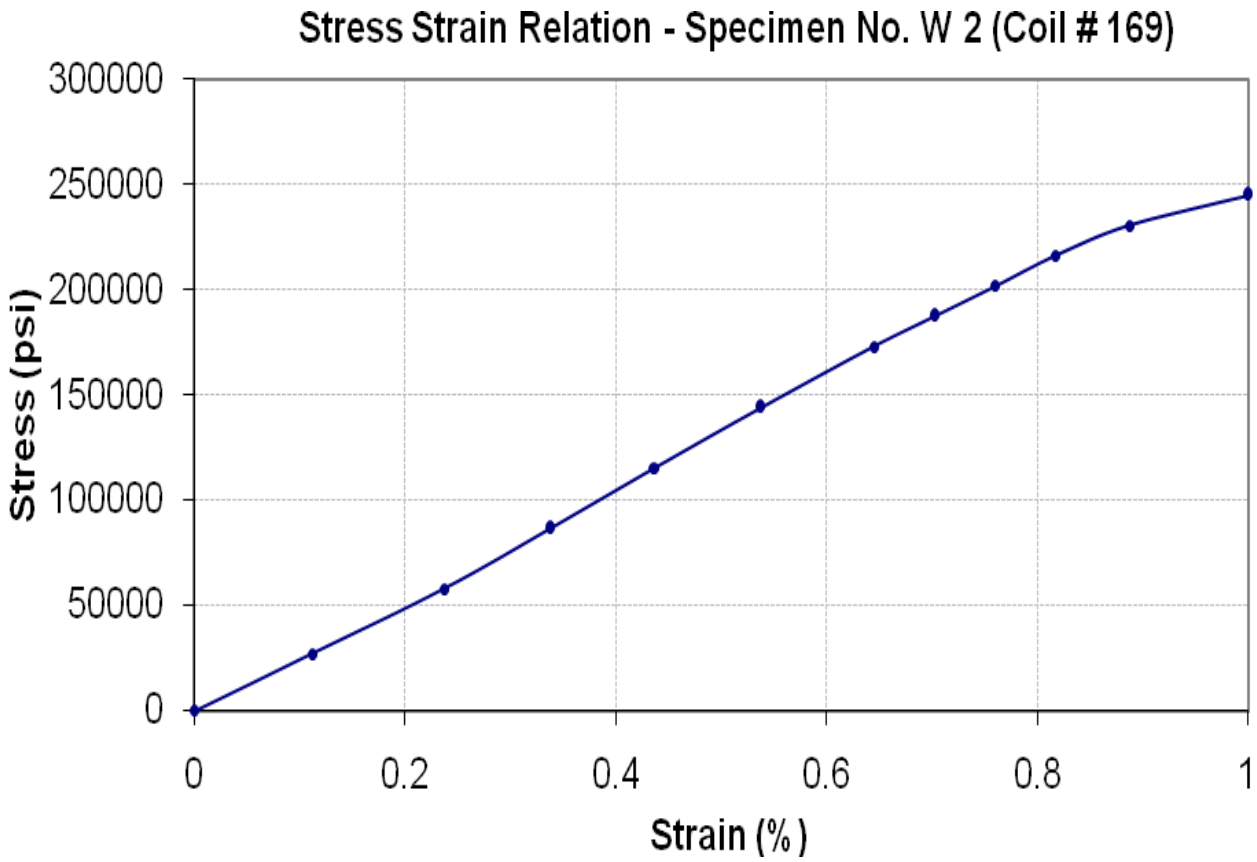
Graph (Page – 3/4)



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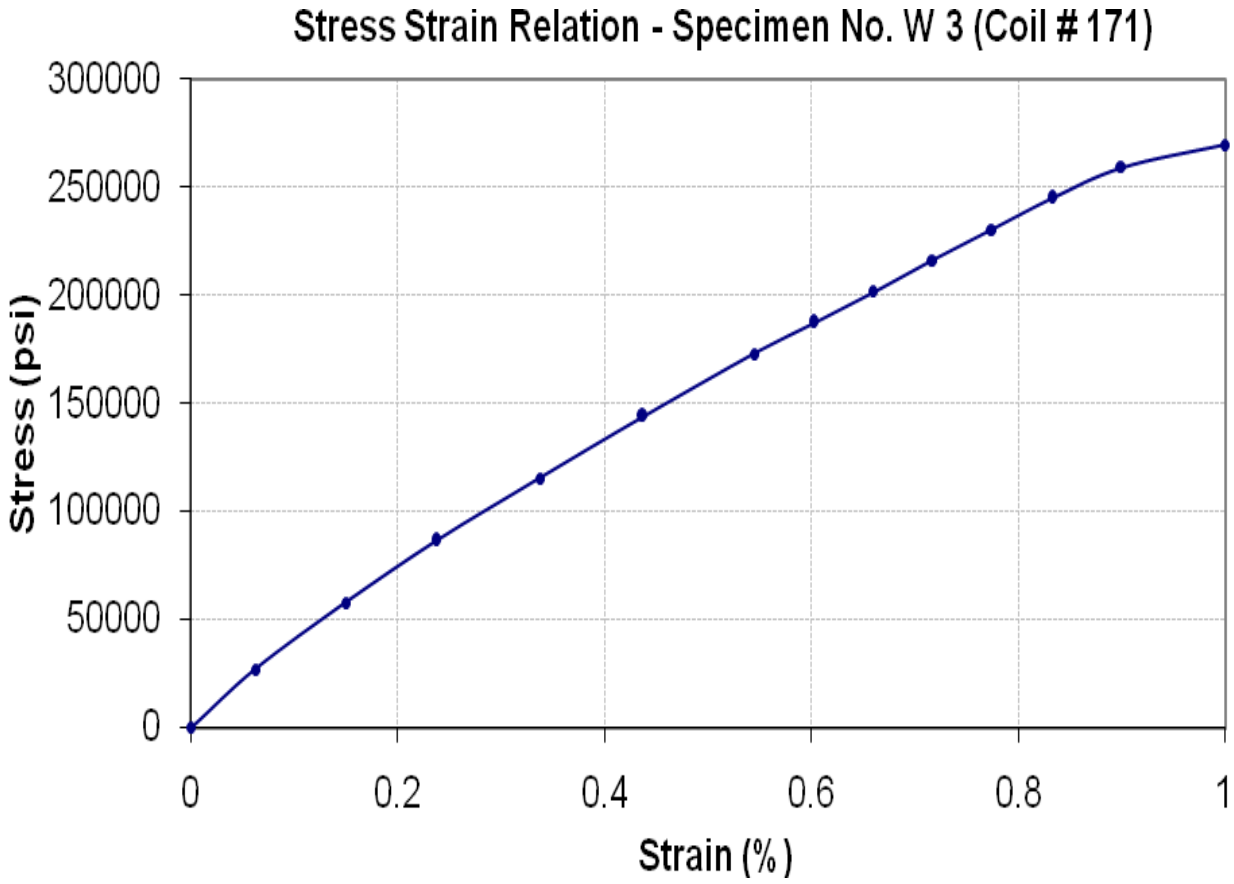
Graph (Page – 4/4)



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