



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/01/37709

Dated: 17-01-2022

Date of Calibration: 20-01-2022

To
Manager Monitoring & Coordination
Shajar Roads Limited
Dualization of Sheikhpura - Gujranwala Road under PPP Mode

Subject: - CALIBRATION OF HYDRAULIC JACK (MARK: TFL/01/37709) (Page – 1/2)

Reference to your Letter No. MMC/SRL/SGRP/173, dated: 13/01/2022 on the subject cited above. One Hydraulic Jack (Jack No. 070, Pump No. (B-1) 691) as received by us has been calibrated. The results are tabulated as under:

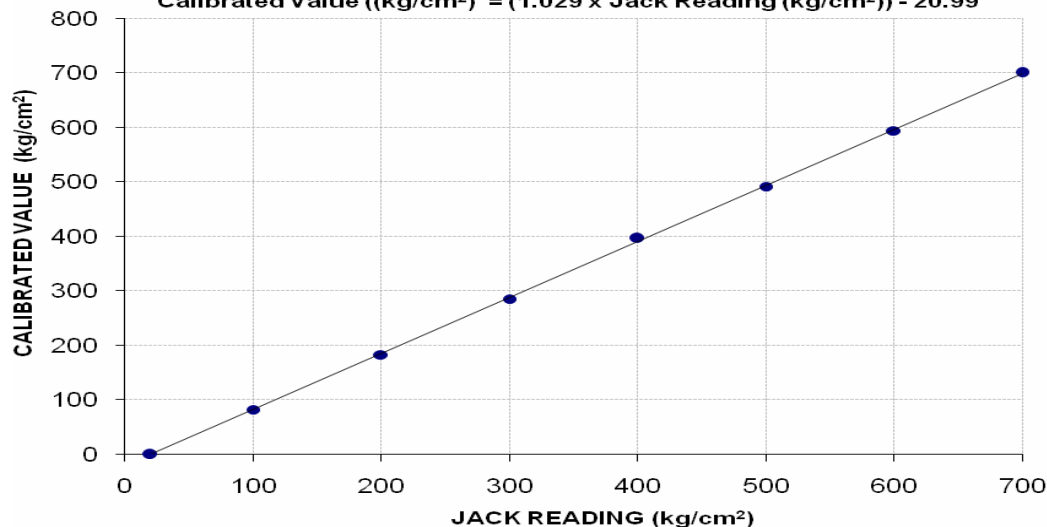
Total Range : Zero - 1000 (kg/cm²)
Calibrated Range : Zero - 700 (kg/cm²)

Hydraulic Jack Reading (kg/cm ²)	20	100	200	300	400	500	600	700
Calibrated Load (kg)	0	22000	49000	76200	106000	131400	158800	187200
Calibrated Pressure (kg/cm ²)	0	82.34	183.38	285.18	396.71	491.77	594.31	700.60

The Ram Area of Jack = 267.22 cm²

Calibration Curve For Jack No. 070

Calibrated Value ((kg/cm²) = (1.029 x Jack Reading (kg/cm²)) - 20.99



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Subject: - CALIBRATION OF HYDRAULIC JACK (MARK: TFL/01/37709) (Page – 2/2)

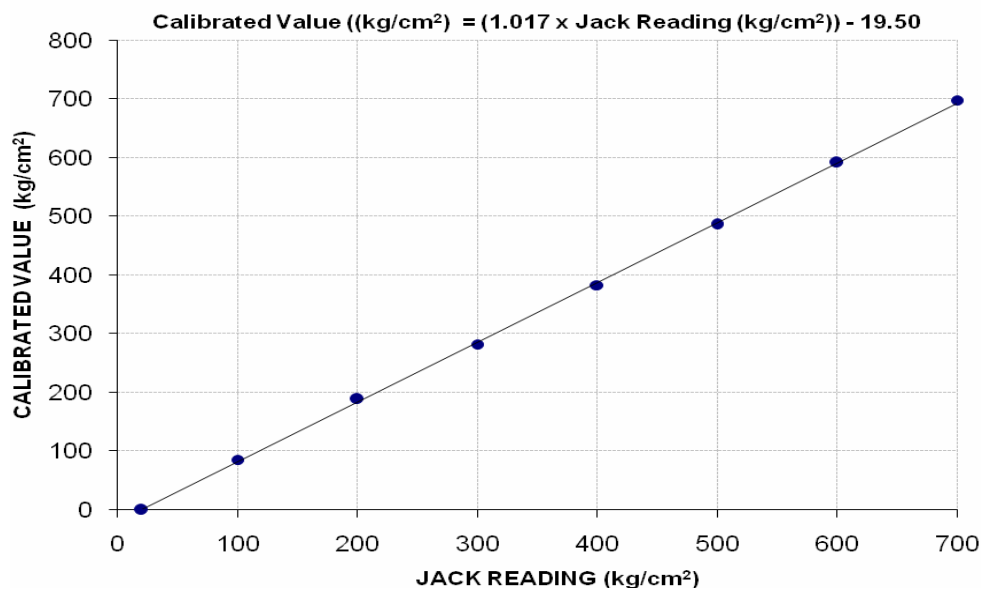
Reference to your Letter No. MMC/SRL/SGRP/173, dated: 13/01/2022 on the subject cited above. One Hydraulic Jack (Jack No. 074, Pump No. (B-1) 229) as received by us has been calibrated. The results are tabulated as under:

Total Range : Zero - 1000 (kg/cm²)
Calibrated Range : Zero - 700 (kg/cm²)

Hydraulic Jack Reading (kg/cm ²)	20	100	200	300	400	500	600	700
Calibrated Load (kg)	0	22800	50400	75400	102200	129800	158000	186400
Calibrated Pressure (kg/cm ²)	0	85.33	188.62	282.19	382.49	485.78	591.32	697.60

The Ram Area of Jack = 267.22 cm²

Calibration Curve For Jack No. 074



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To,
Resident Engineer
ACE – TES – Buner
F/S Design and Reconstruction of RCC Bridges. SH: Package-III Elai Bridge no S-10 at Buner

Reference # CED/TFL 37717 (Engr. Amina Rajput)
Reference of the request letter # ACE/KPHA/EBC/76

Dated: 18-01-2022
Dated: 17-01-2022

Tension Test Report (Page -1/4)

Date of Test 20-01-2022
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	789.0	17600	172.66	19400	190.31	199	>3.50	xx
2	12.70 (1/2")	775.0	788.0	17500	171.68	19400	190.31	198	>3.50	xx
3	12.70 (1/2")	775.0	789.0	17300	169.71	19400	190.31	198	>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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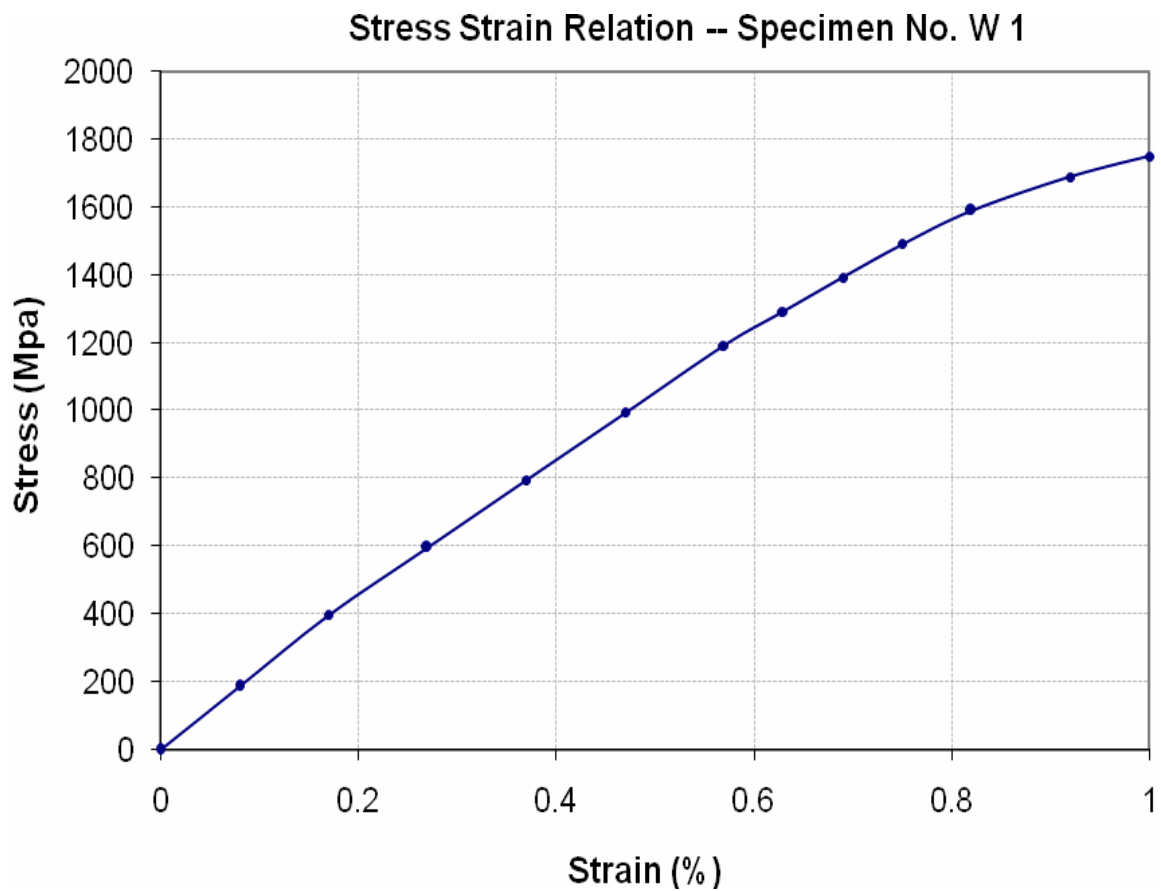
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Dated: 18-01-2022
Dated: 17-01-2022

Graph (Page – 2/4)



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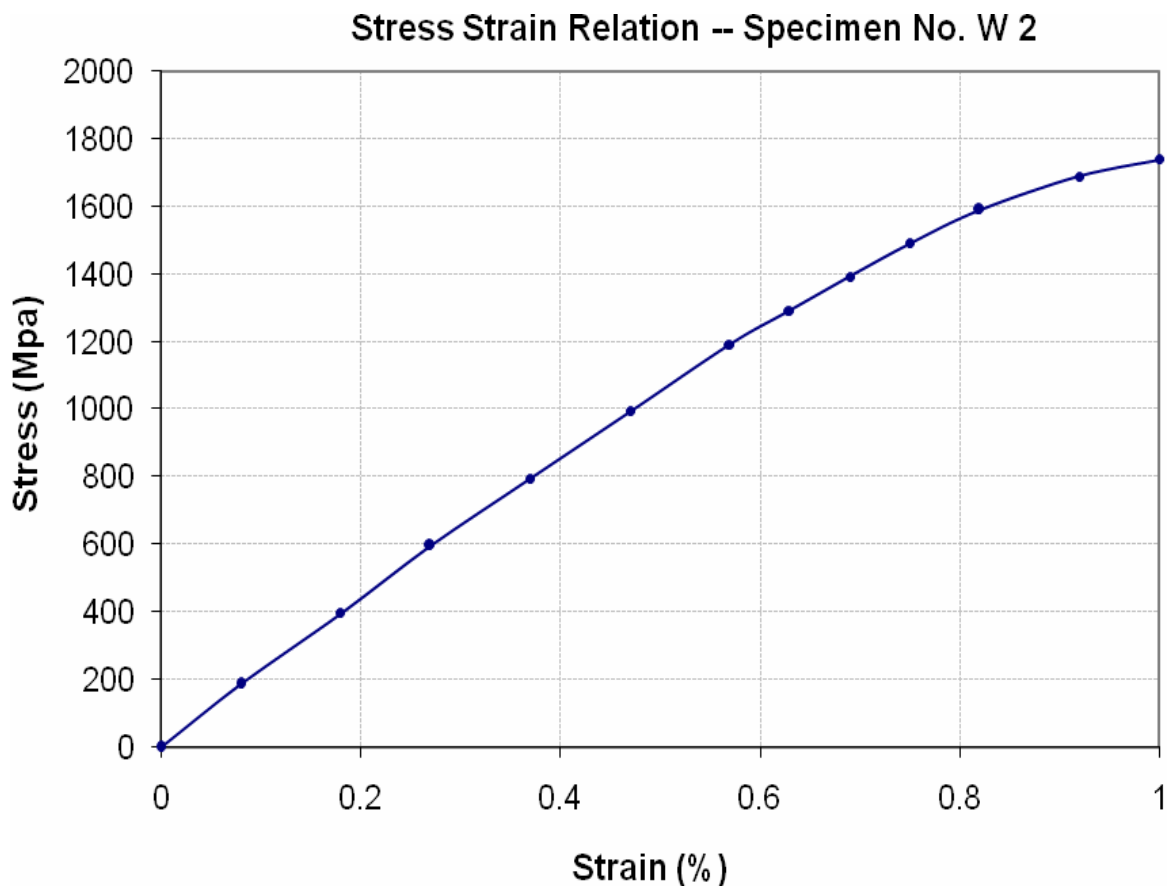
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Graph (Page – 2/4)



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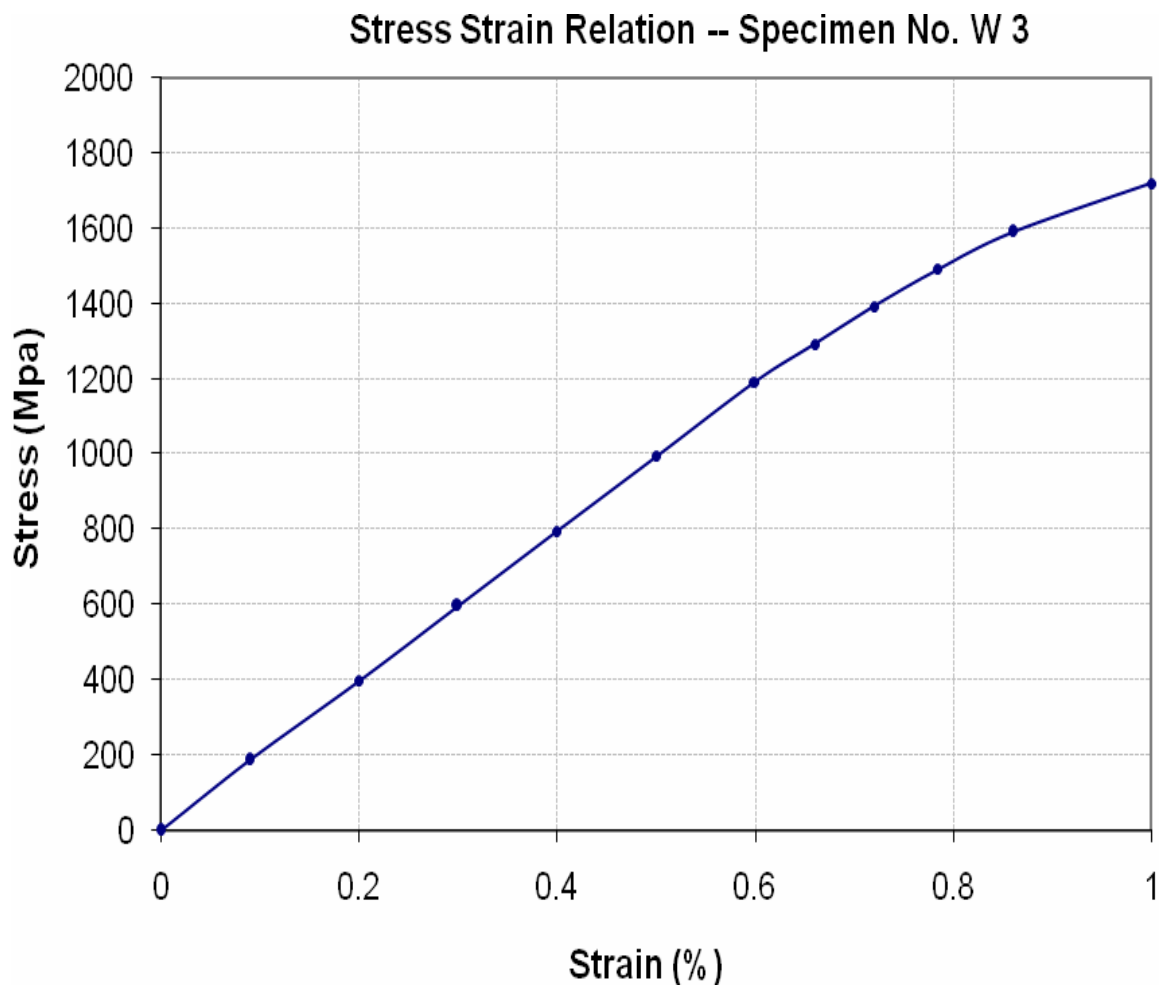
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Graph (Page – 4/4)



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To,
M/S Defence Housing Authority.
Lahore Cantt
(Construction of Mosque at Sector - G, DHA Phase-V) – (M/s Waha Enterprises)

Reference # CED/TFL **37732** (Dr. Waseem Abbass)
Reference of the request letter # 408/241/E/Lab/17/12

Dated: 20-01-2022
Dated: 16-01-2022

Tension Test Report (Page -1/1)

Date of Test 20-01-2022
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	0.384	3	0.379	0.11	0.113	4130	5120	82800	80550	102600	99900	1.20	15.0	Agha Steel
2	0.379	3	0.377	0.11	0.111	4030	5120	80800	79710	102600	101300	1.10	13.8	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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 Laboratories
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To,
M/S China Gezhouba Group Company Limited
Pakistan
Construction of Mohmand Dam Hydropower Project – Contract No. ICB MDHP-01, Construction of Civil Works Including Design, Supply and Installation of Electrical and Mechanical Works and Hydraulic Steel Structures.
Reference # CED/TFL **37734 (Dr. Safeer Abbass)** Dated: 20-01-2022
Reference of the request letter # MDSYS-143 Dated: 19-01-2022

Tension Test Report (Page – 1/4)

Date of Test 20-01-2022
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	1137	25200	247.21	27600	270.76	199	>3.50	9903-2
2	15.24 (0.6")	1102.0	1131	25500	250.16	27300	267.81	199	>3.50	9860-2
3	15.24 (0.6")	1102.0	1128	24900	244.27	26600	260.95	198	>3.50	10652-39-1
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	

Only three samples for Test

Witness by Jacobo Marcano (RE. Laboratory & Investigation)

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
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Note:

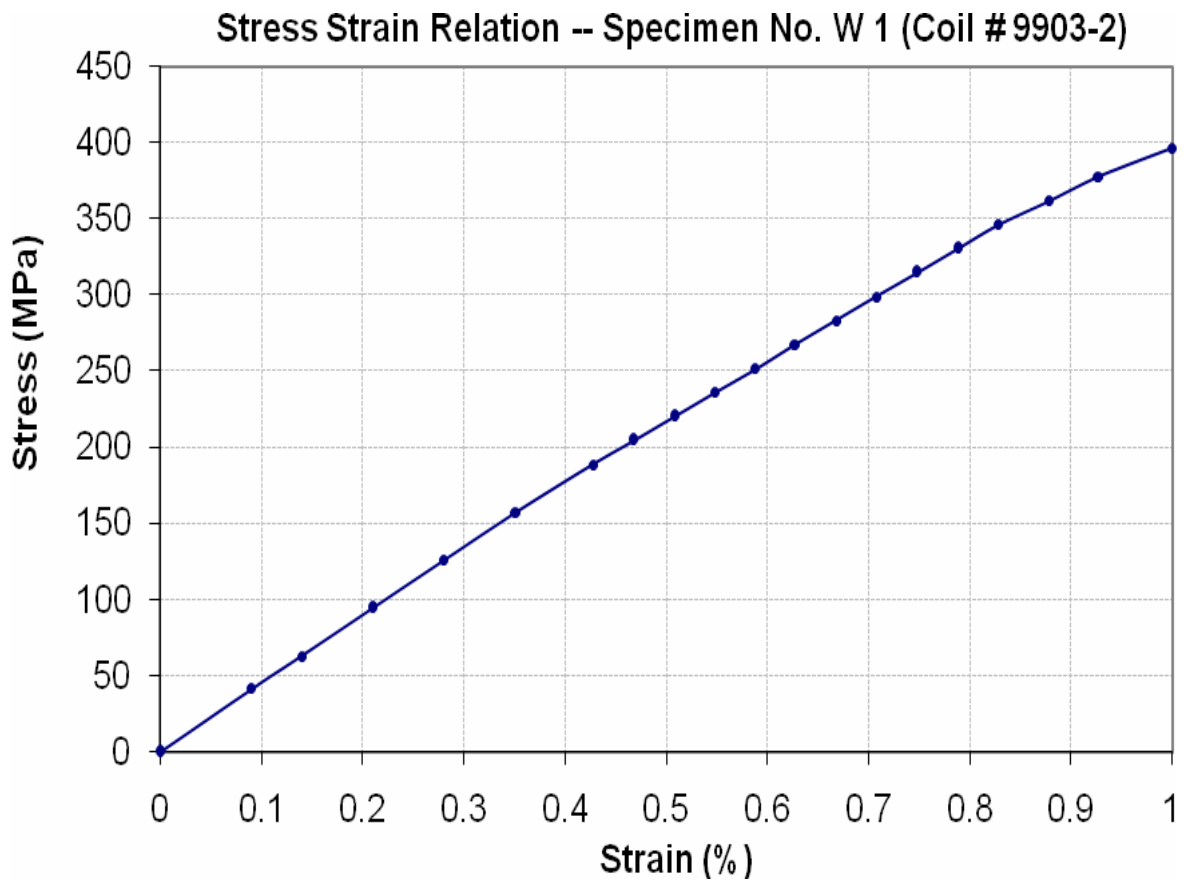
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Graph (Page – 2/4)



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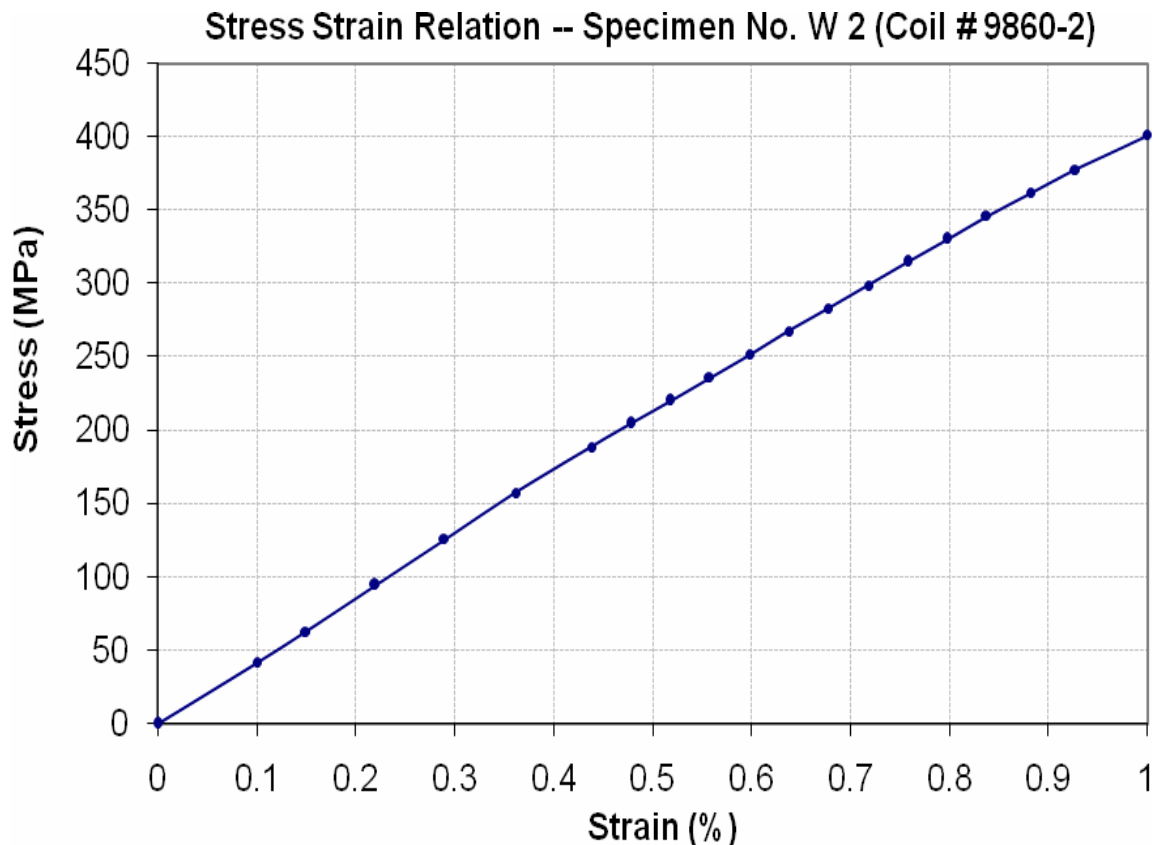
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Graph (Page – 3/4)



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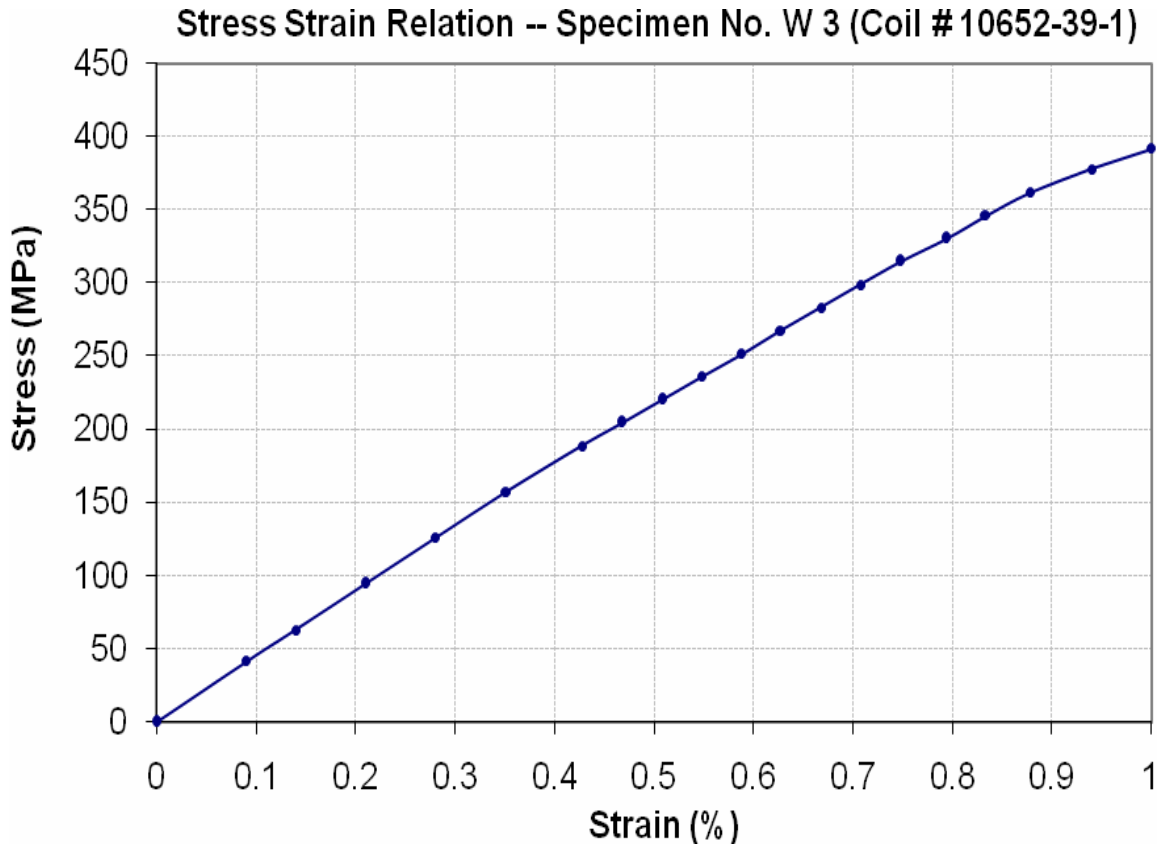
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