



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 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 **1060** (Dr. M Rizwan Riaz) Dated: 14-03-2022
Reference of the request letter # MDSYS-153 Dated: 13-03-2022

Tension Test Report (Page – 1/18)

Date of Test 17-03-2022
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	1128.0	24700	242.31	27400	268.79	199	>3.50	10282
2	15.24 (0.6")	1102.0	1132.0	24900	244.27	26800	262.91	198	>3.50	
3	15.24 (0.6")	1102.0	1126.0	25000	245.25	28100	275.66	199	>3.50	10306
4	15.24 (0.6")	1102.0	1126.0	24800	243.29	27500	269.78	199	>3.50	
5	15.24 (0.6")	1102.0	1131.0	24600	241.33	28100	275.66	199	>3.50	10315
6	15.24 (0.6")	1102.0	1134.0	25400	249.17	28100	275.66	199	>3.50	
7	15.24 (0.6")	1102.0	1132.0	24400	239.36	27800	272.7	198	>3.50	10323
8	15.24 (0.6")	1102.0	1134.0	24200	237.40	27500	269.8	199	>3.50	

Only Eight 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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Note:

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Tension Test Report (Page – 2/18)

Date of Test 17-03-2022
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	1129.0	24600	241.33	27300	267.81	199	>3.50	10336
2	15.24 (0.6")	1102.0	1131.0	24700	242.31	26900	263.89	199	>3.50	
3	15.24 (0.6")	1102.0	1134.0	24700	242.31	27200	266.83	199	>3.50	10346
4	15.24 (0.6")	1102.0	1132.0	24100	236.42	27100	265.85	199	>3.50	
5	15.24 (0.6")	1102.0	1132.0	24000	235.44	27200	266.83	198	>3.50	10349
6	15.24 (0.6")	1102.0	1132.0	24000	235.44	27100	265.85	199	>3.50	
7	15.24 (0.6")	1102.0	1130.0	24300	238.38	27300	267.8	199	>3.50	10352
8	15.24 (0.6")	1102.0	1130.0	24000	235.44	27200	266.8	199	>3.50	

Only Eight 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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Note:

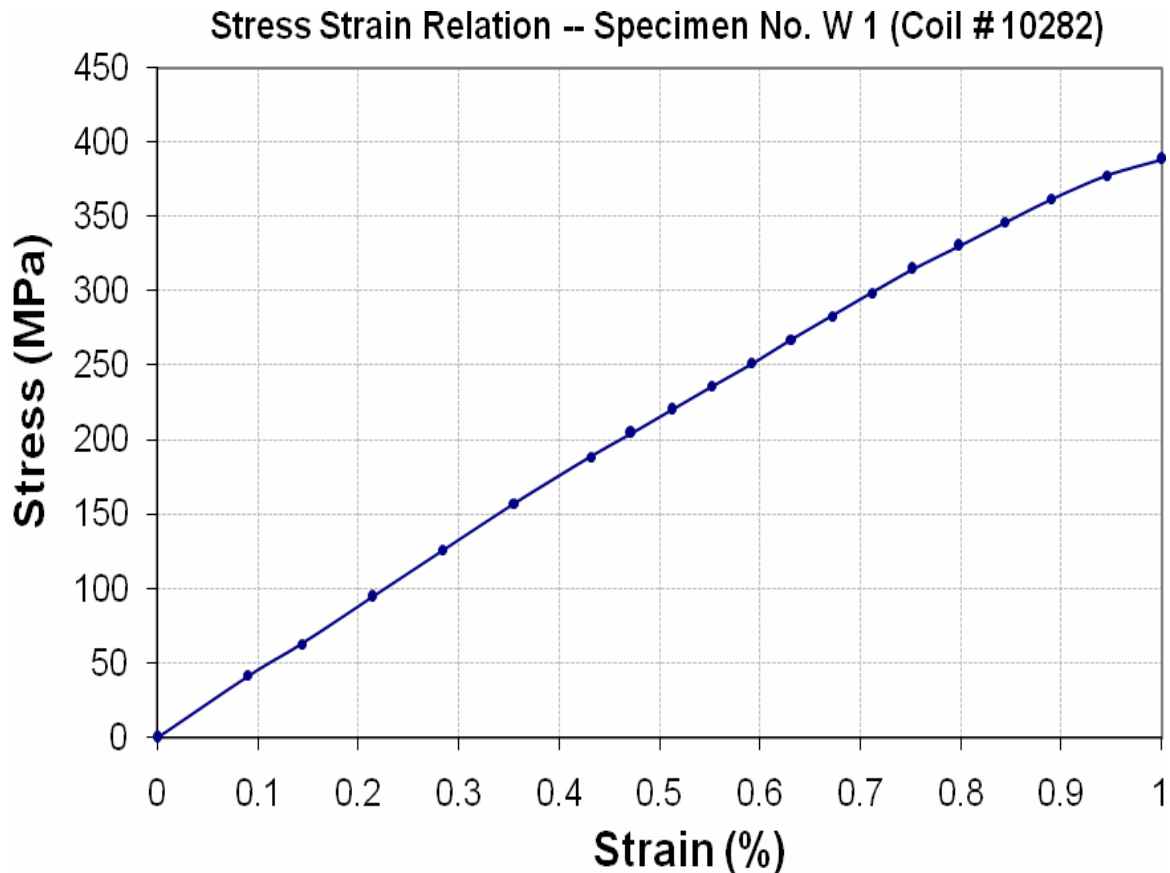
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Graph (Page – 3/18)



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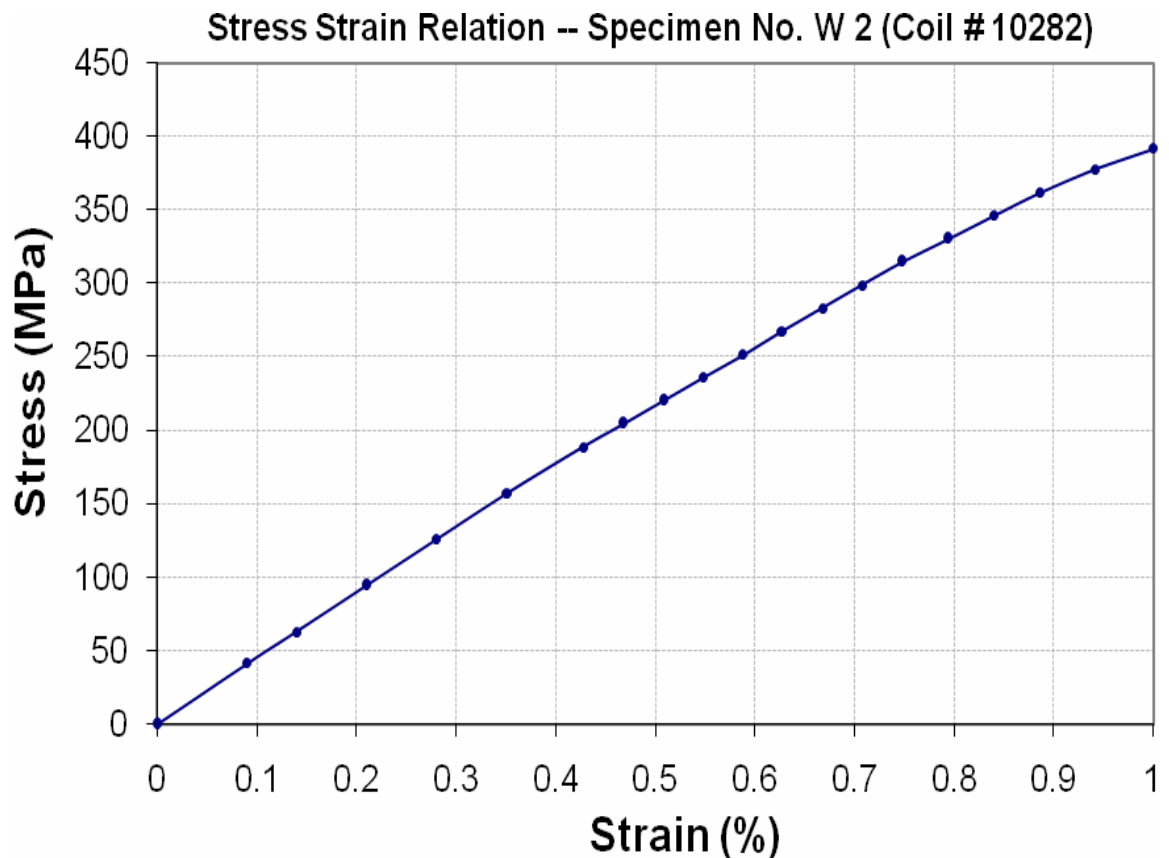
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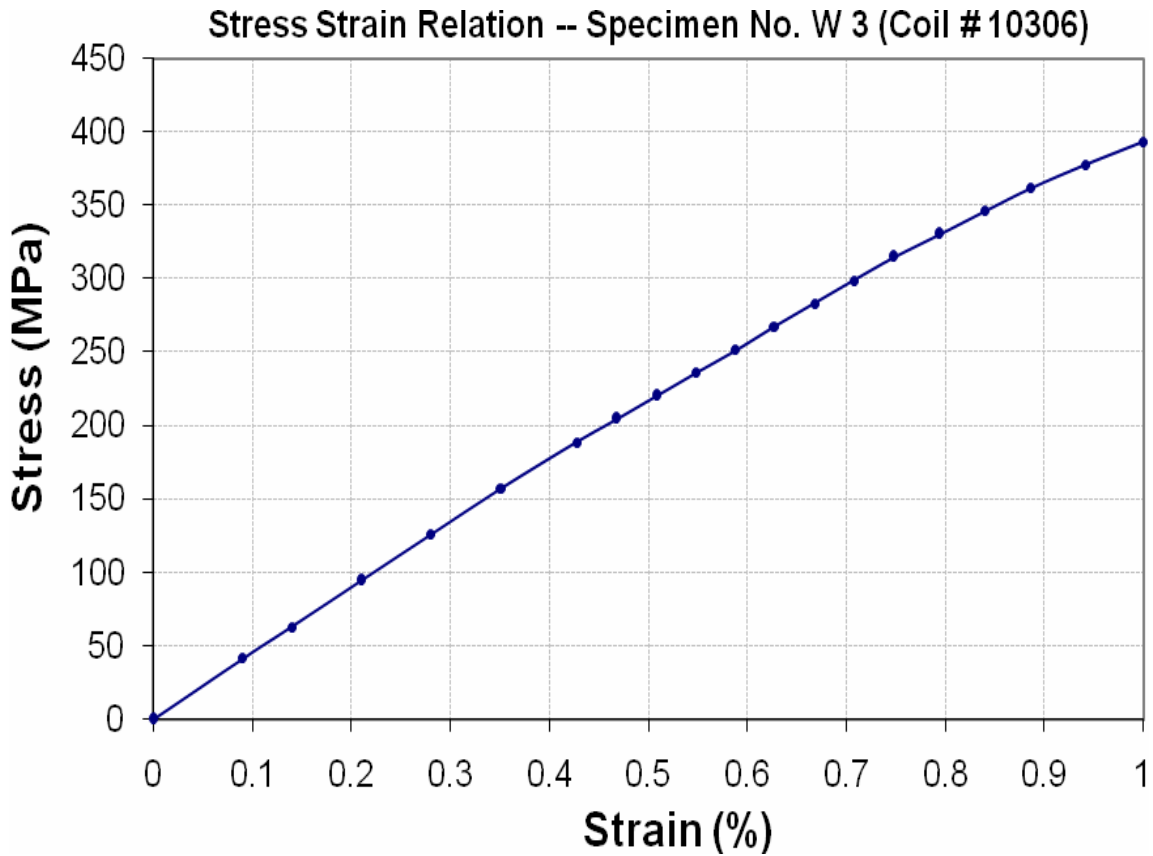
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Graph (Page – 5/18)



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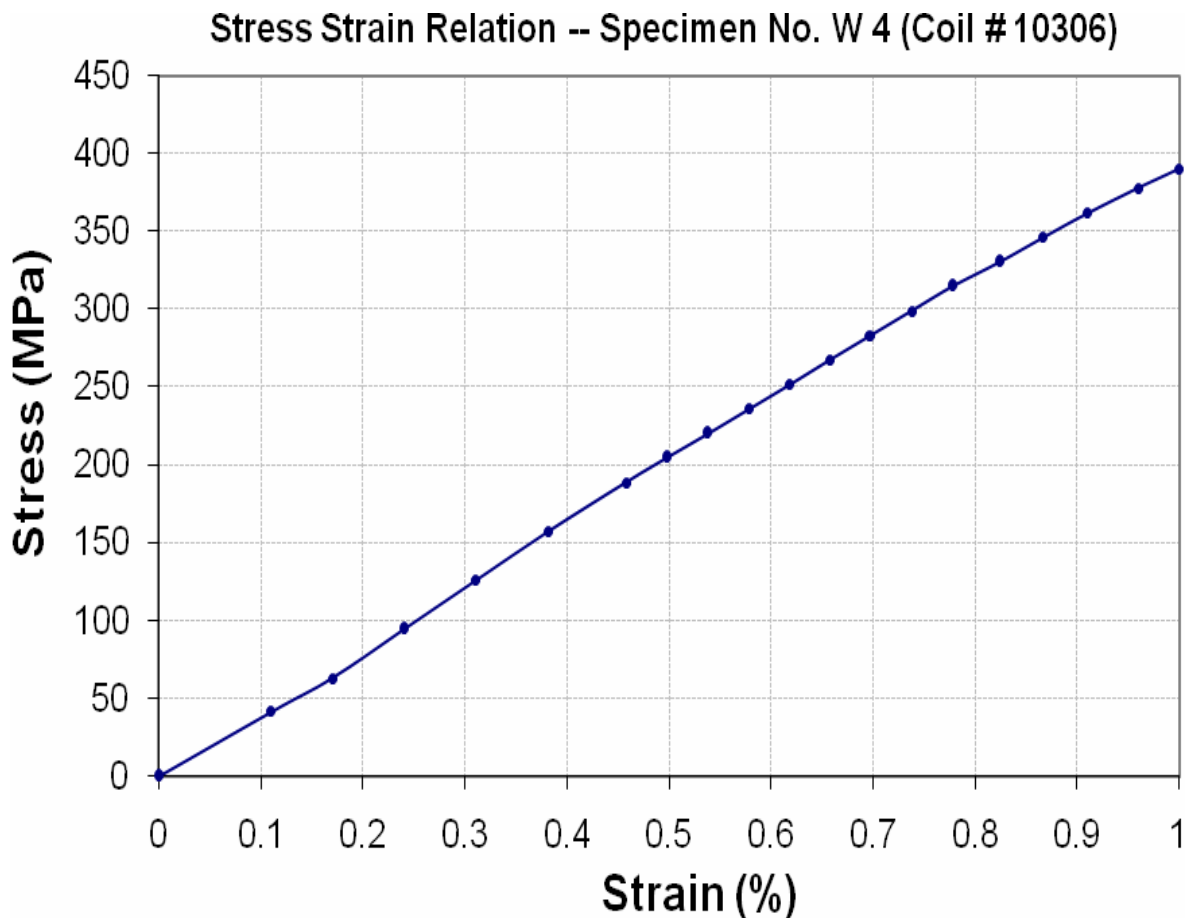
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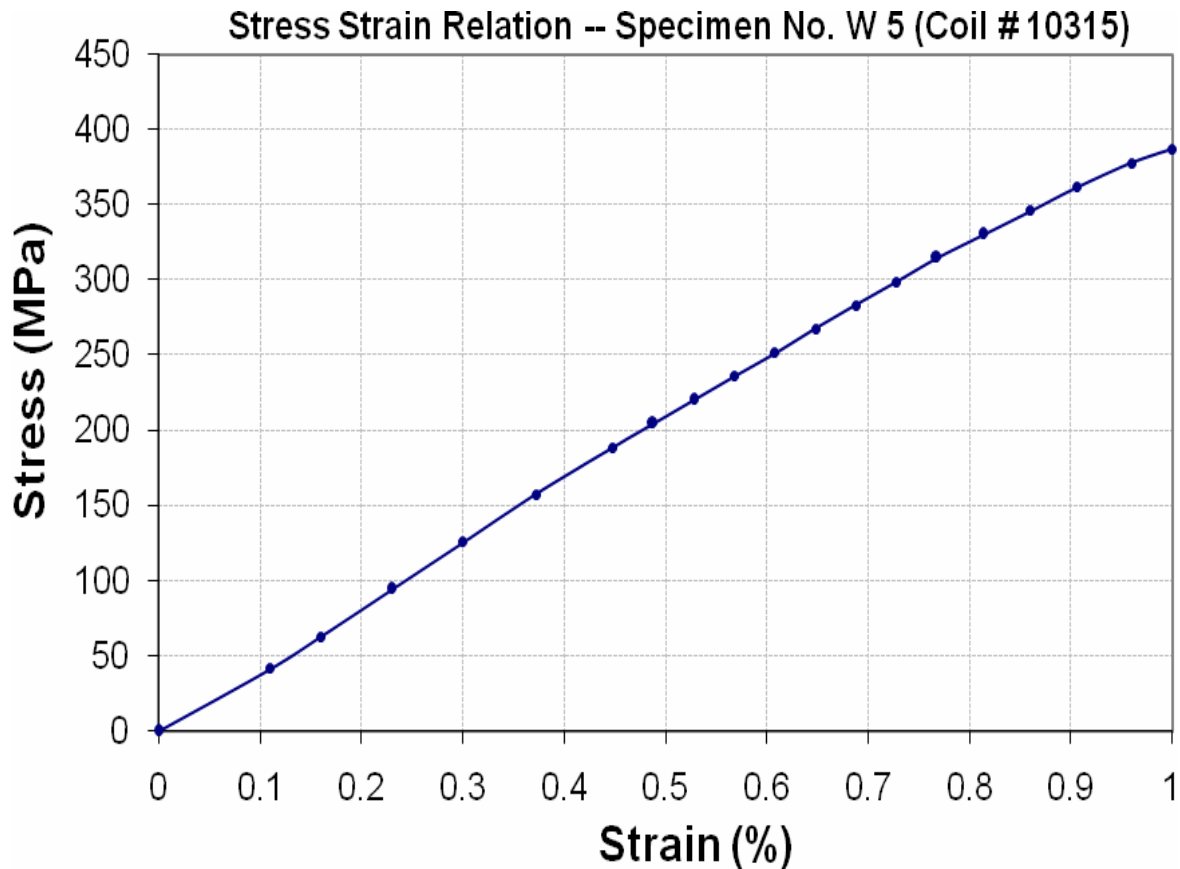
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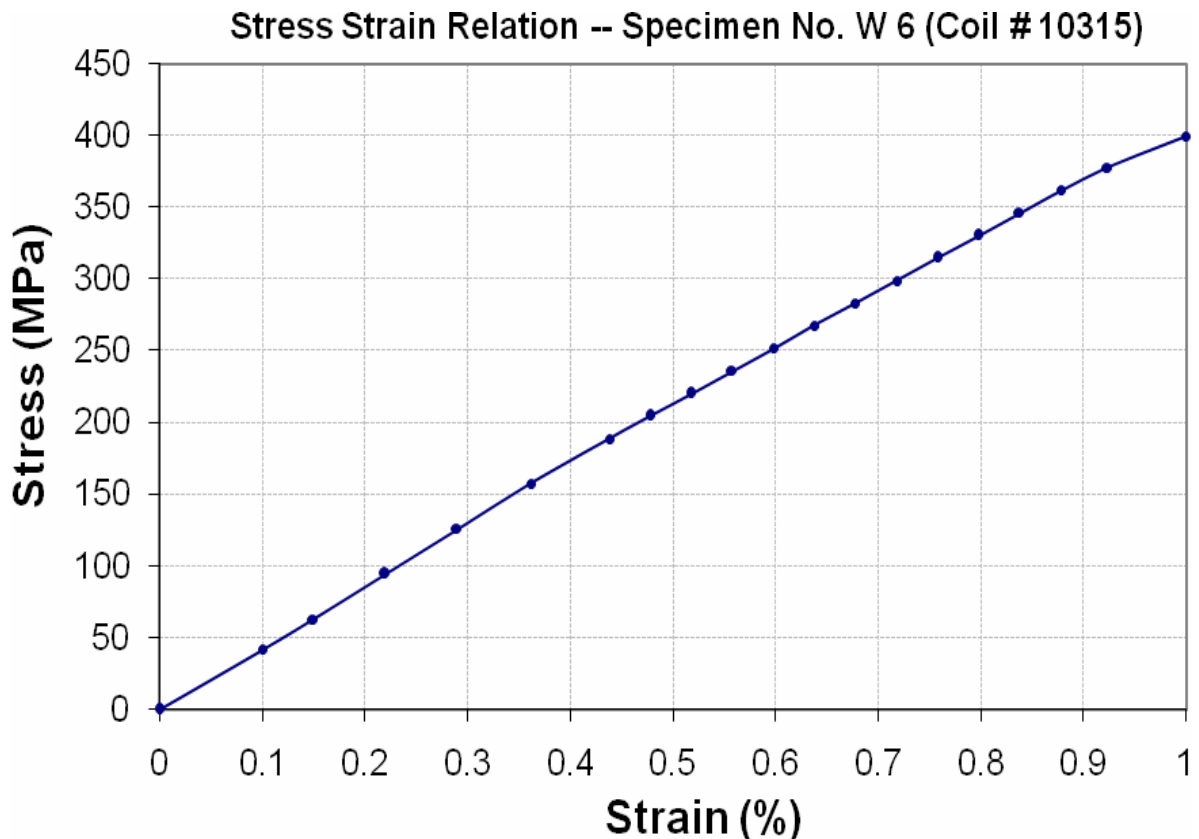
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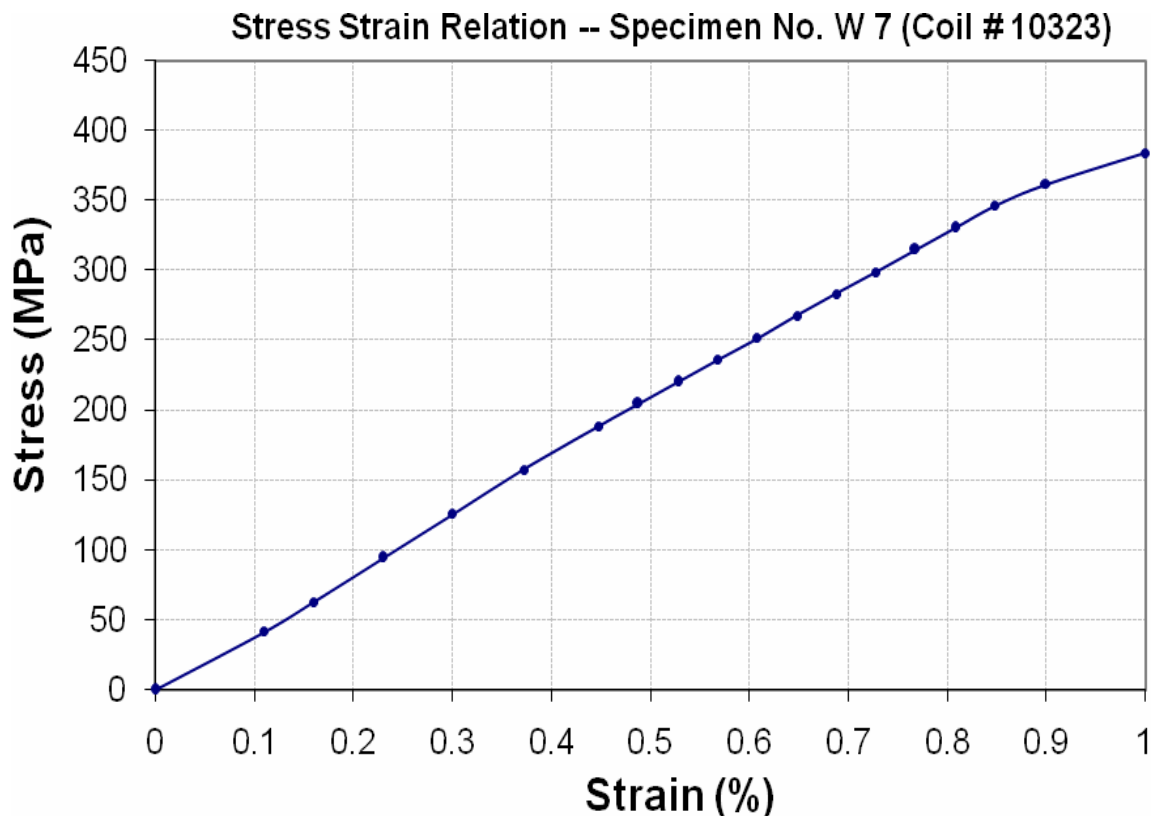
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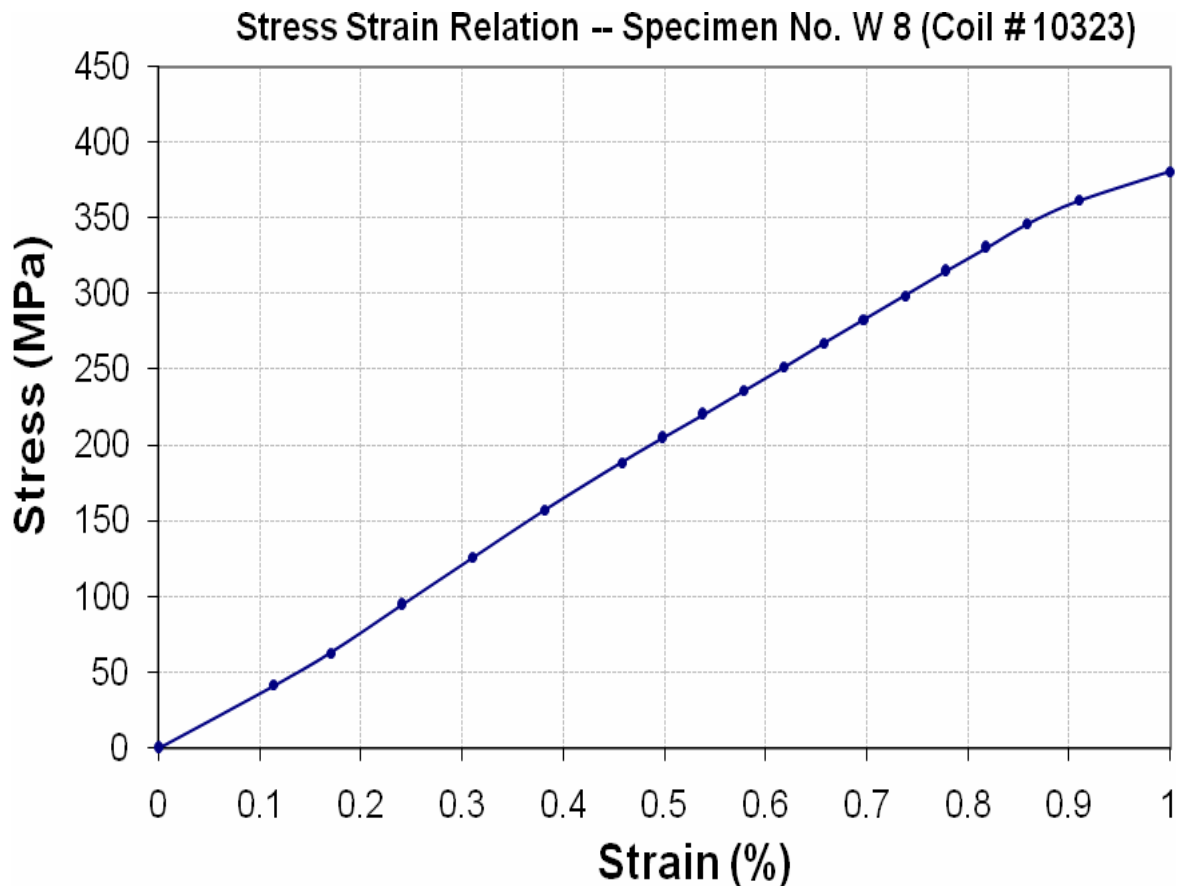
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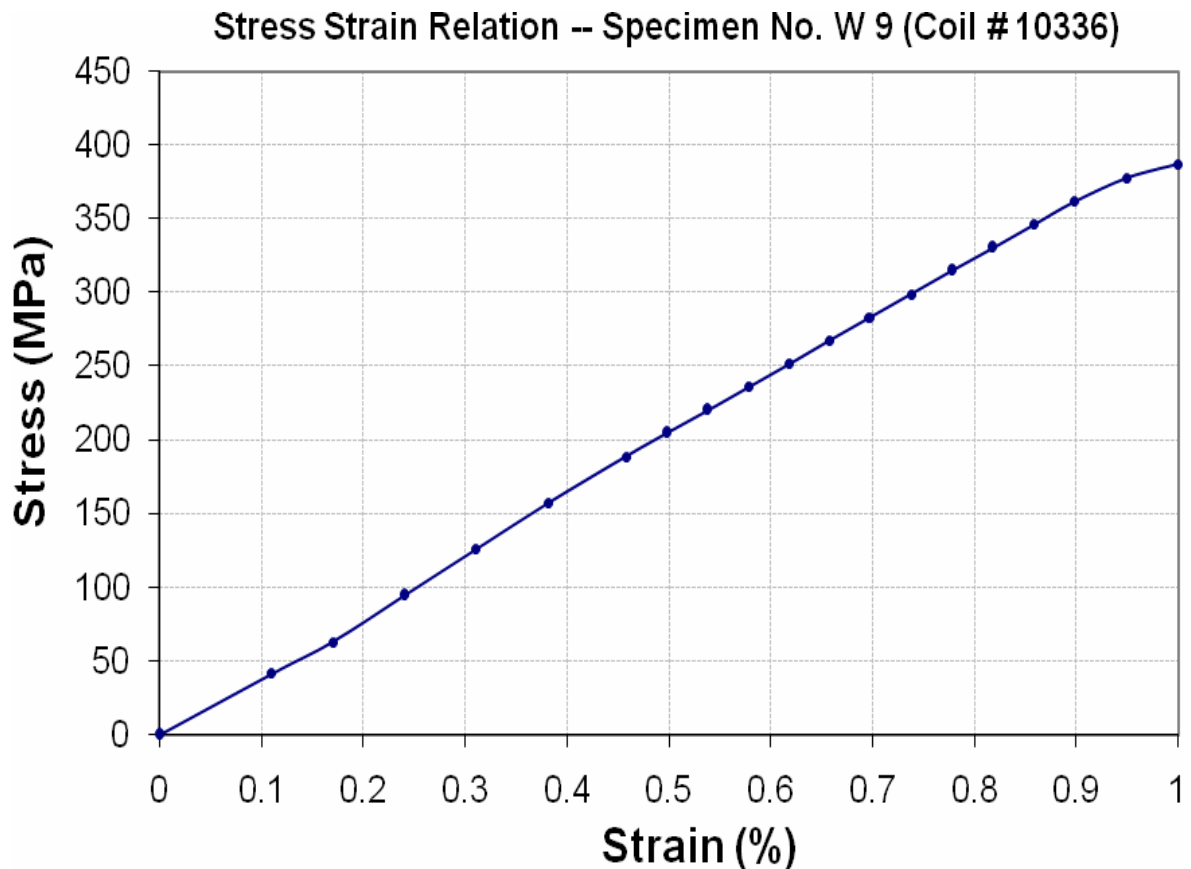
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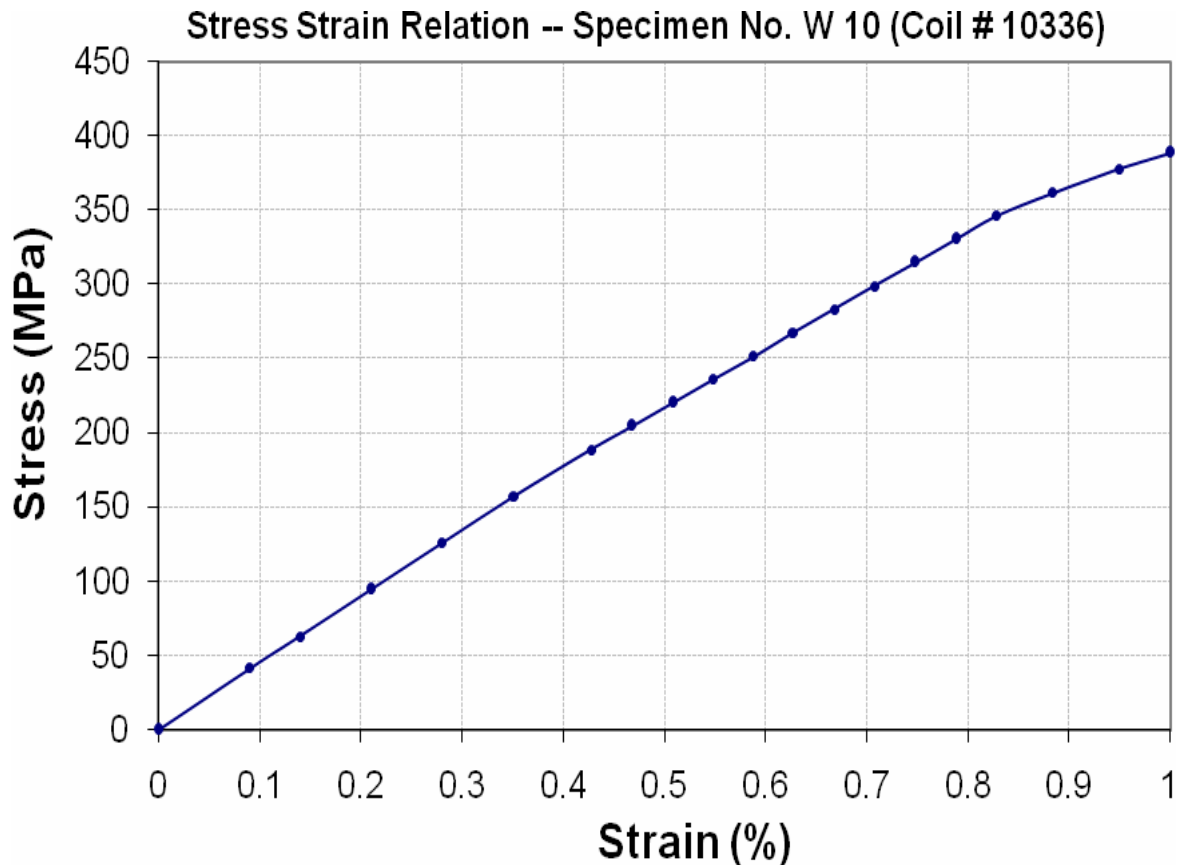
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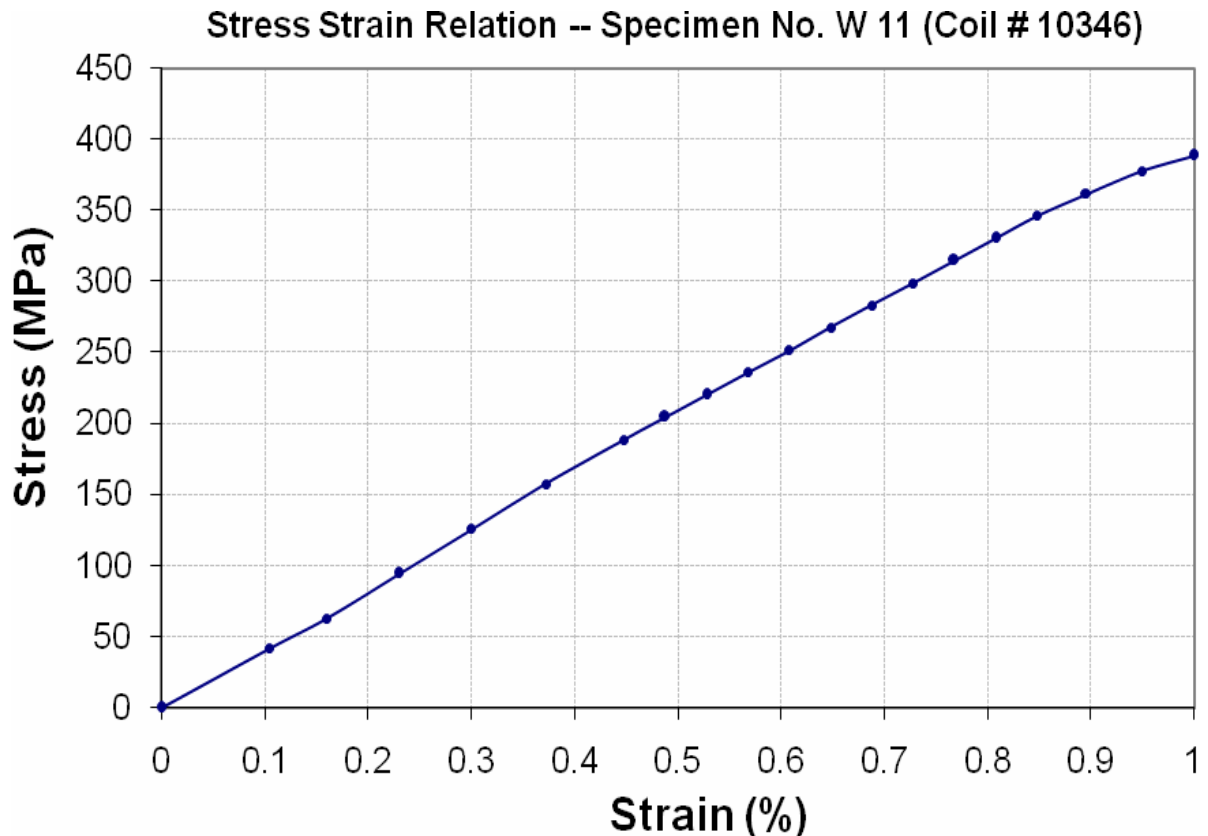
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Graph (Page – 13/18)



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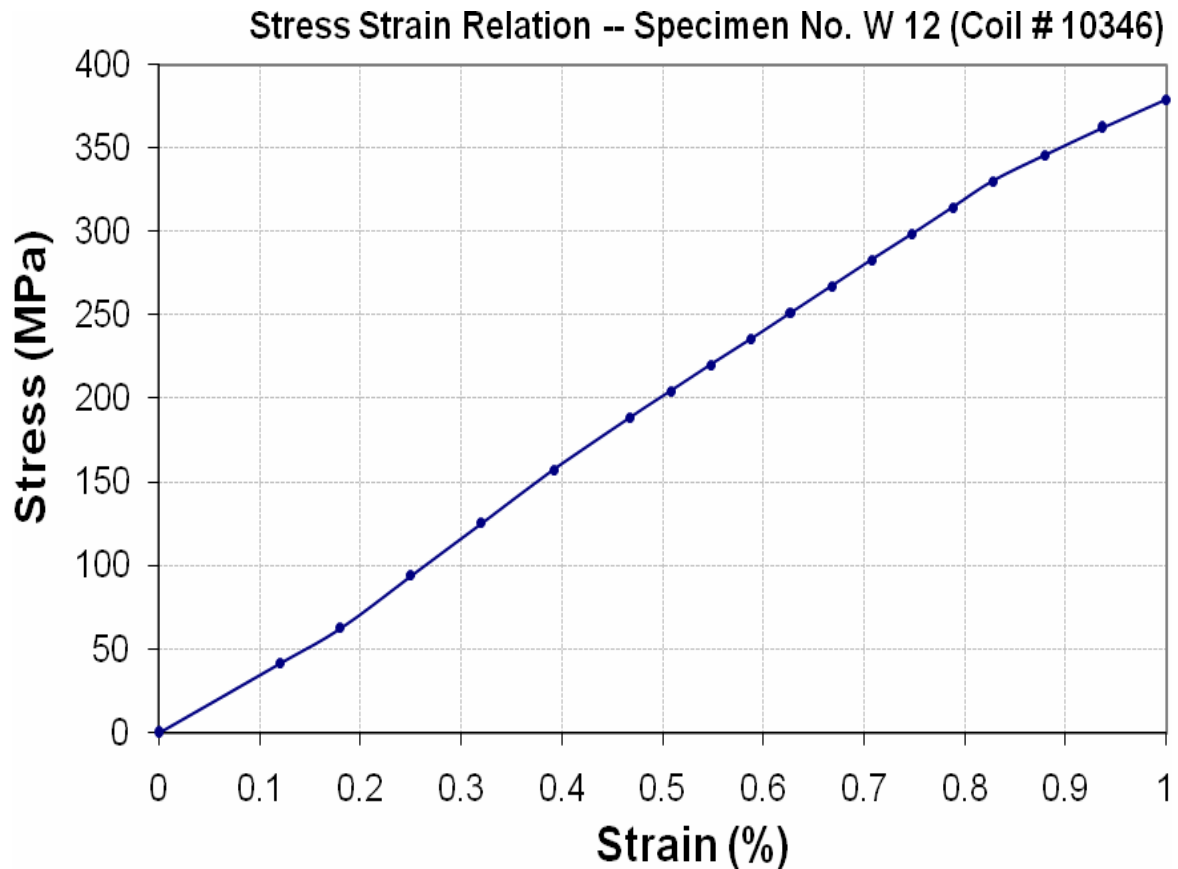
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Graph (Page – 14/18)



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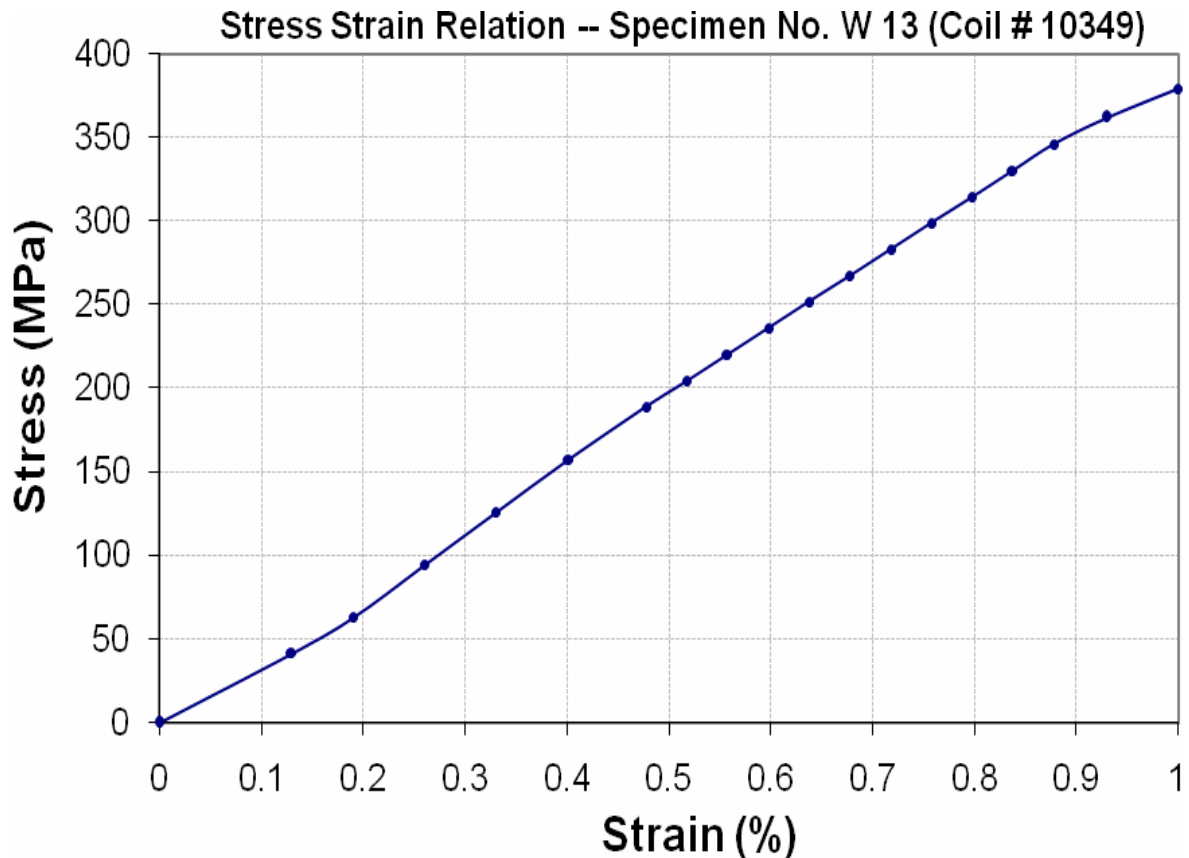
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Graph (Page – 15/18)



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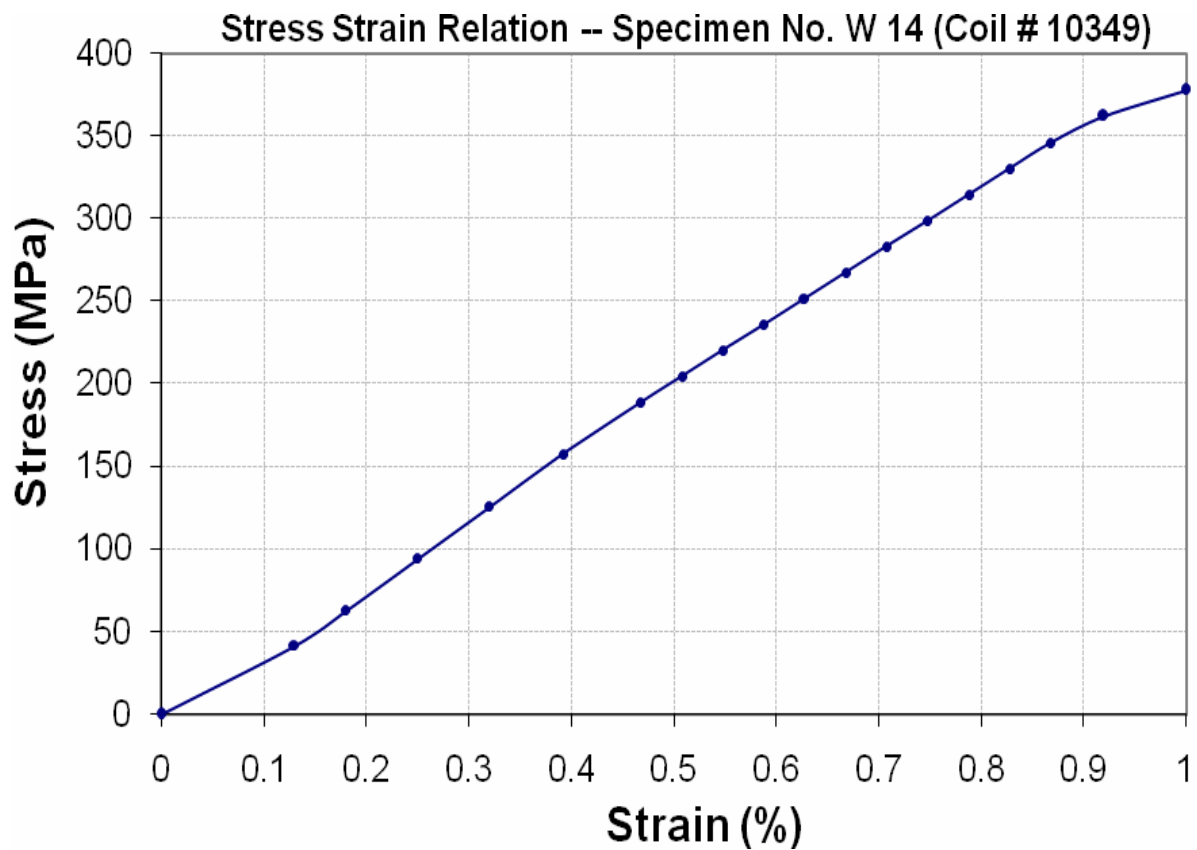
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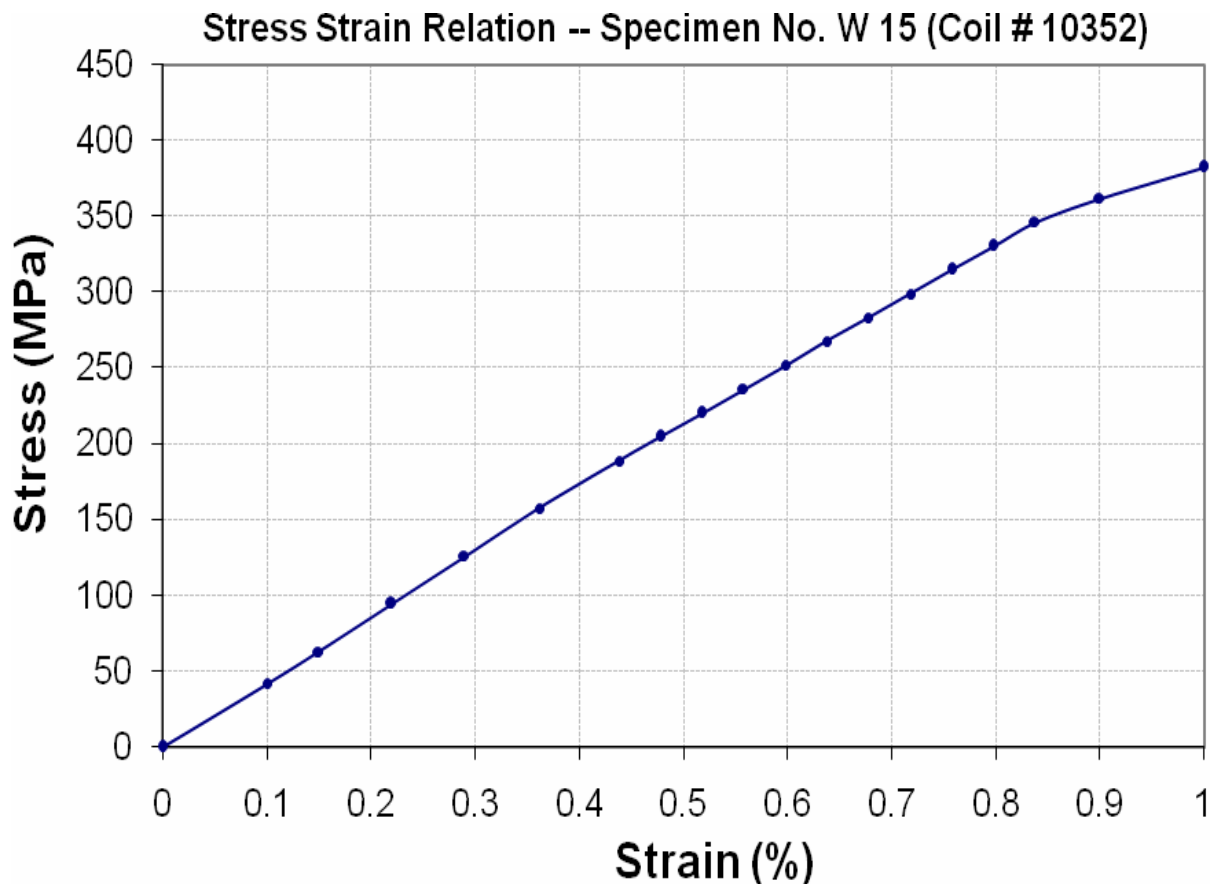
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Graph (Page – 17/18)



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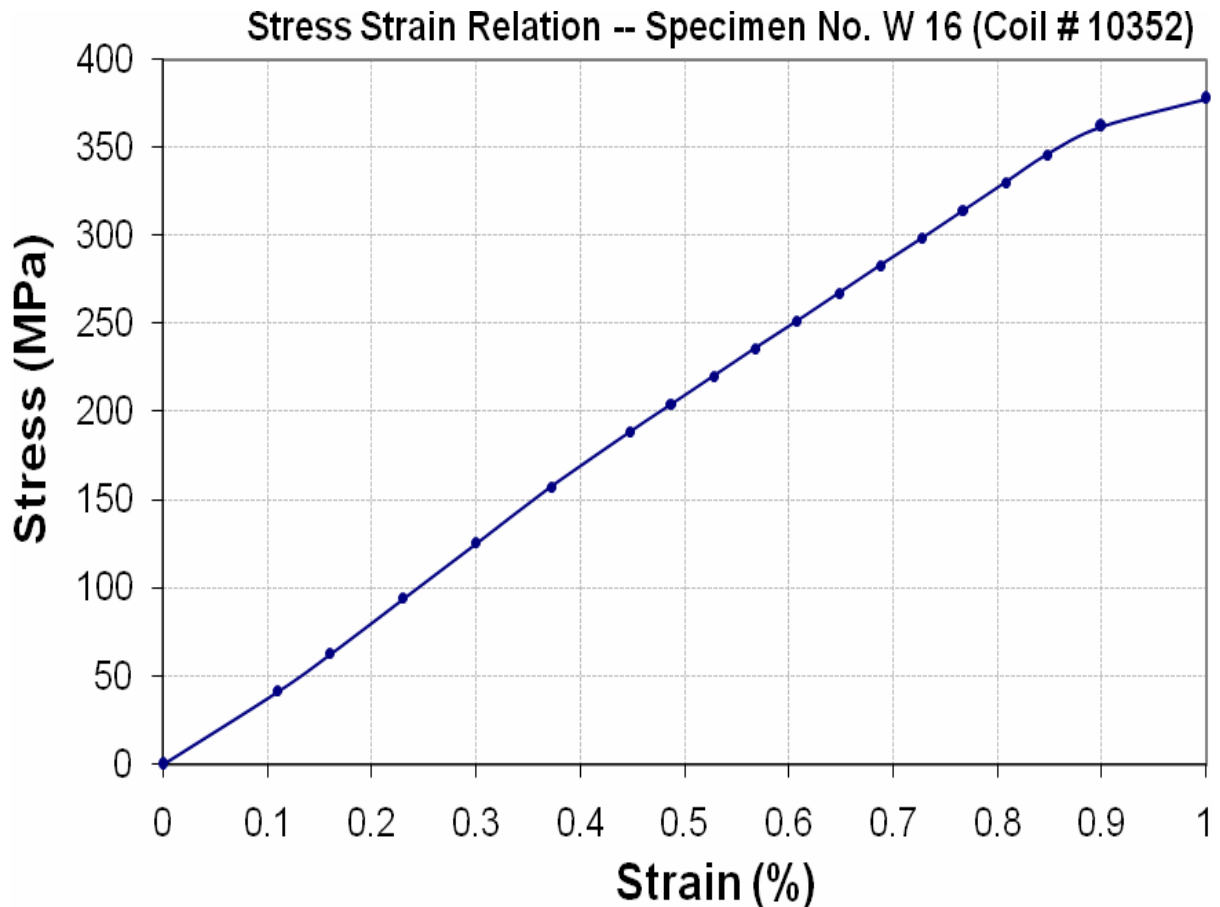
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To,
 Resident Engineer
 Sitara Heights Private Limited, Lahore
 "Sitara 3-Jays Tower" Firdous Market Lahore

Reference # CED/TFL **1073** (Dr. M Rizwan Riaz)
 Reference of the request letter # SHPL/3JAYS/LHR/05

Dated: 16-03-2022
 Dated: 16-03-2022

Tension Test Report (Page -1/1)

Date of Test 17-03-2022
 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	0.385	3	0.380	0.11	0.113	3410	4860	68400	66420	97400	94700	1.20	15.0	
2	0.378	3	0.376	0.11	0.111	3360	4740	67400	66630	95000	94000	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
UET Lahore, Pakistan.

Note:

- 1- You can See your reports On Internet in the following web site
http://www.uet.edu.pk/faculties/facultiesinfo/civil/index.html?RID=testing_reports
- 2- The above results pertain to sample /samples supplied to this laboratory.
- 3- Sealed sample / Unsealed sample / Marked sample/Signed Samples