



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

To,

Site Manager
Descon Engineering Limited.
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 **4844** (Dr. M Yousaf)

Dated: 25-03-2024

Reference of the request letter # MDHP-DEL-LABT-206

Dated: 11-03-2024

Tension Test Report (Page – 1/22)

Date of Test 03-04-2024

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	1130.0	24500	240.35	27300	267.81	198	>3.50	210016
2	15.24 (0.6")	1102.0	1125.0	24700	242.31	27500	269.78	199	>3.50	210020
3	15.24 (0.6")	1102.0	1135.0	25100	246.23	27700	271.74	199	>3.50	210023
4	15.24 (0.6")	1102.0	1136.0	24800	243.29	27500	269.78	199	>3.50	210013
5	15.24 (0.6")	1102.0	1128.0	24700	242.31	27500	269.78	199	>3.50	210021
6	15.24 (0.6")	1102.0	1130.0	24400	239.36	27600	270.76	198	>3.50	210024
7	15.24 (0.6")	1102.0	1133.0	25000	245.25	27400	268.79	199	>3.50	210027
8	15.24 (0.6")	1102.0	1138.0	24300	238.38	27100	265.85	199	>3.50	210031
9	15.24 (0.6")	1102.0	1128.0	24300	238.38	27400	268.79	199	>3.50	210033
10	15.24 (0.6")	1102.0	1127.0	24600	241.33	27400	268.79	198	>3.50	210022

Only ten 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

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2. Load versus percentage strain graphs are attached

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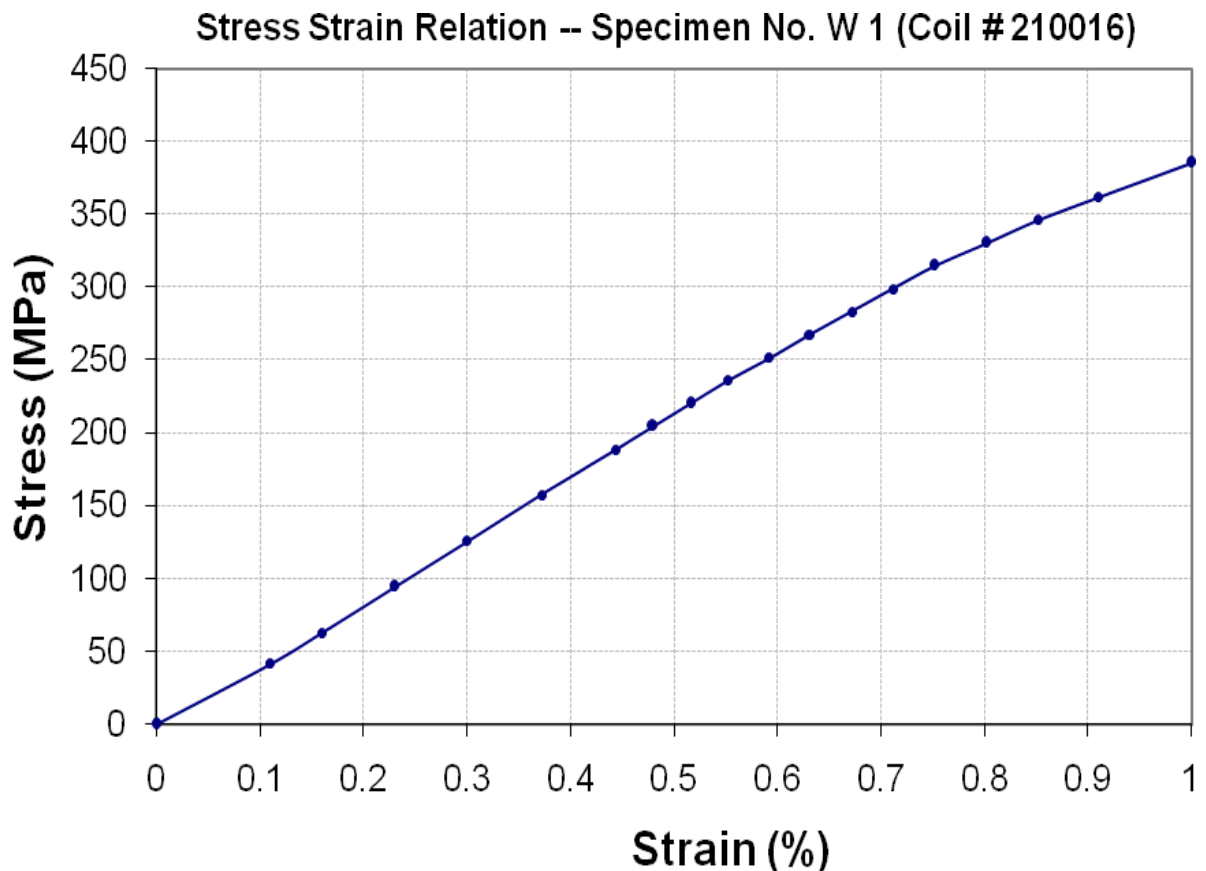
Reference # CED/TFL **4844** (Dr. M Yousaf)

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Graph (Page – 2/22)



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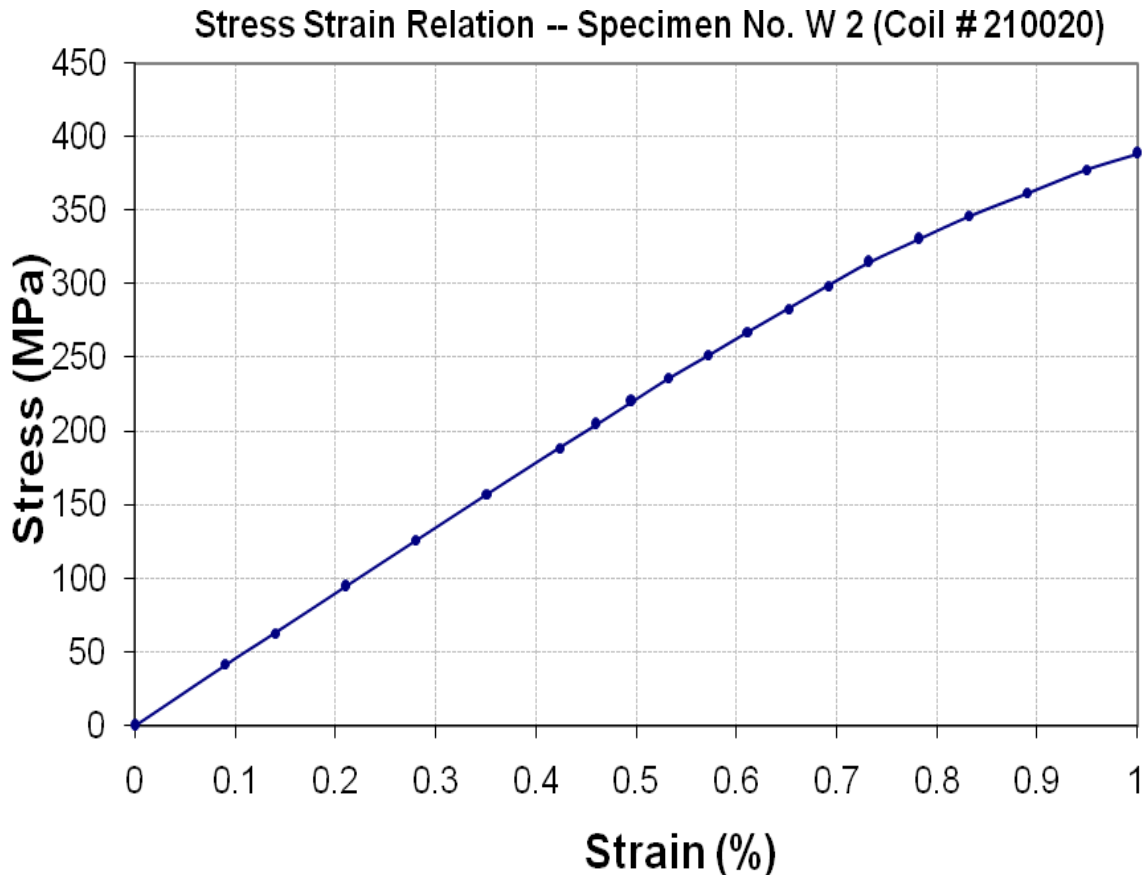
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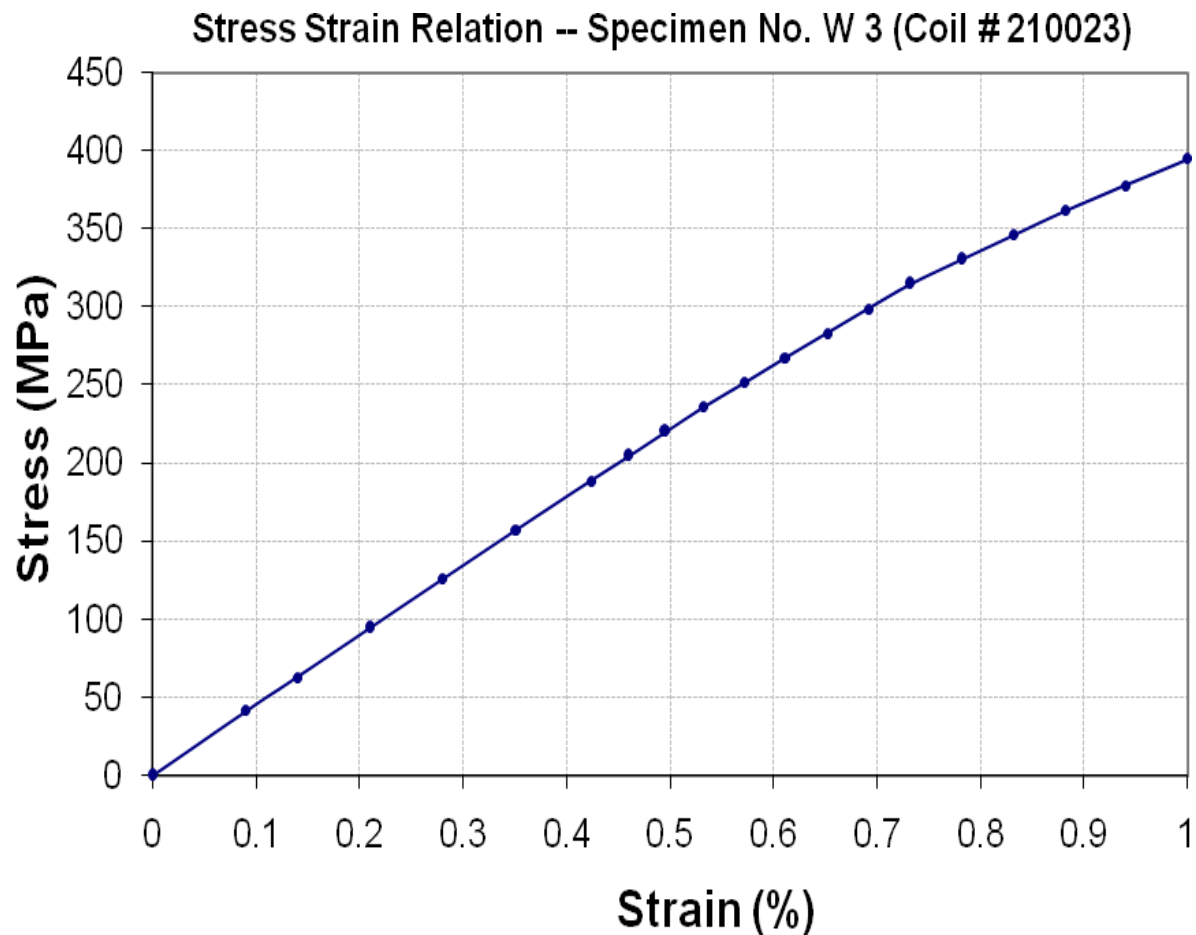
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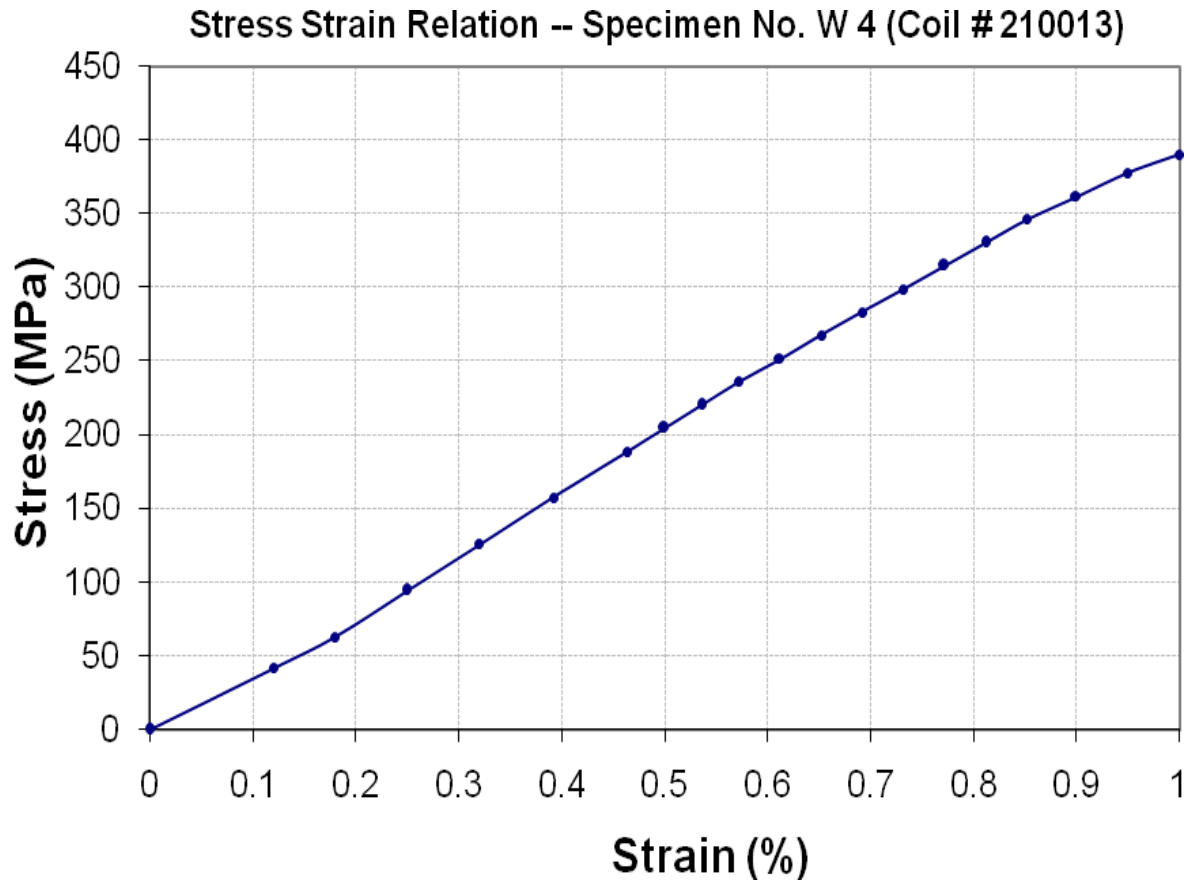
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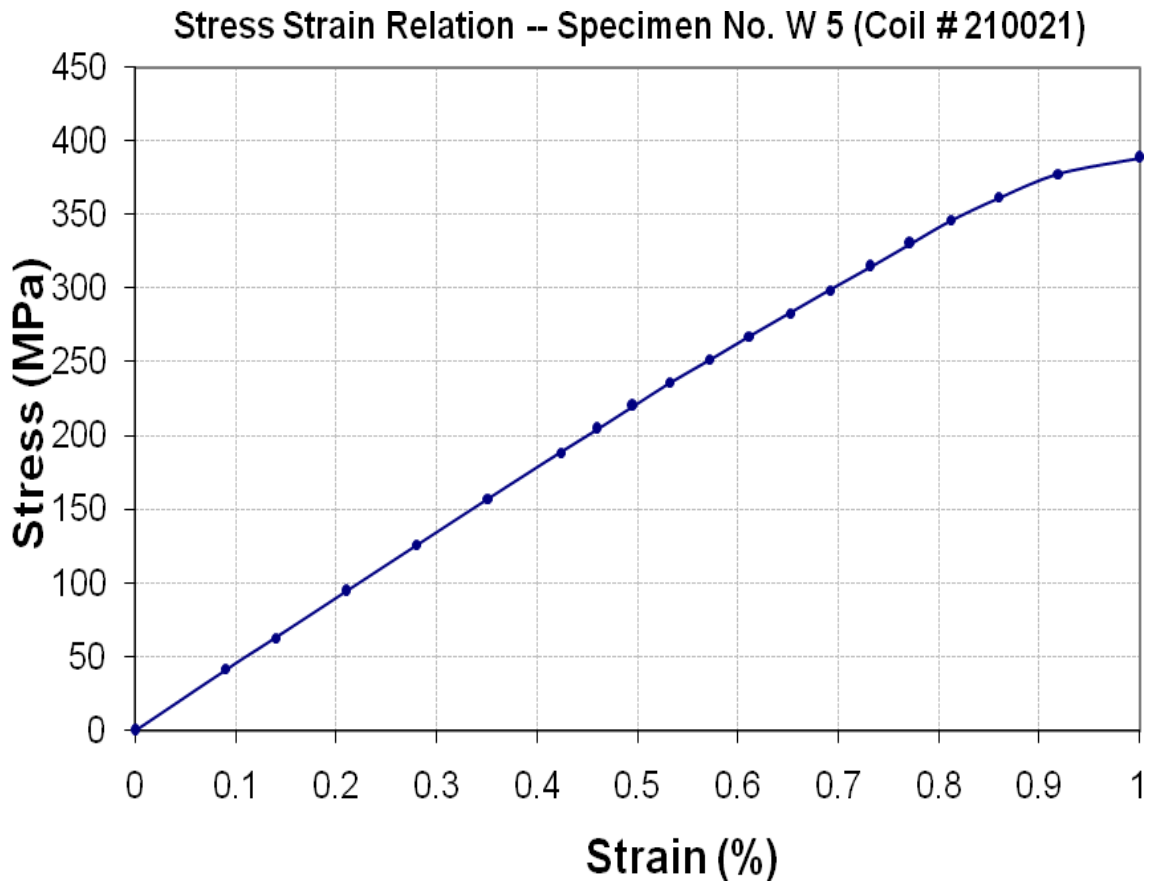
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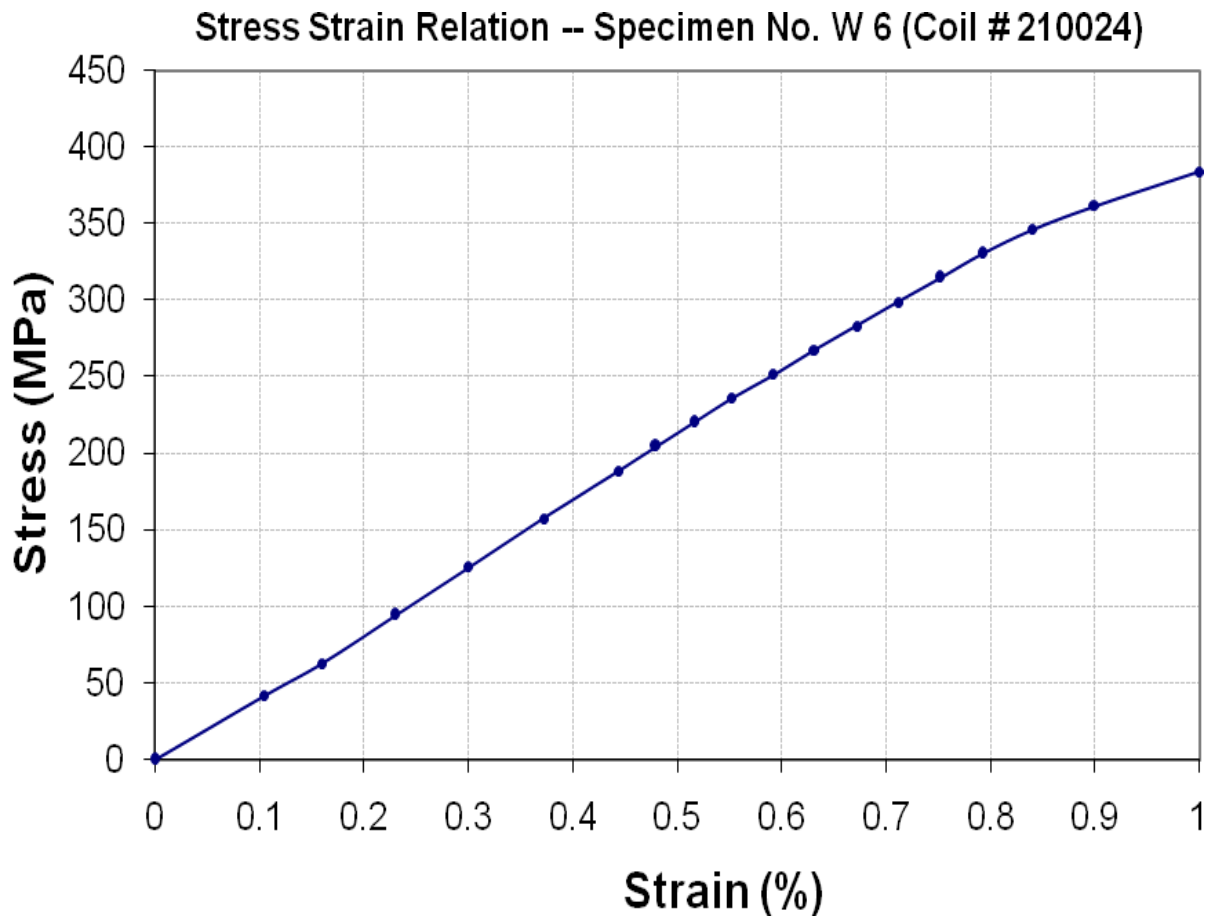
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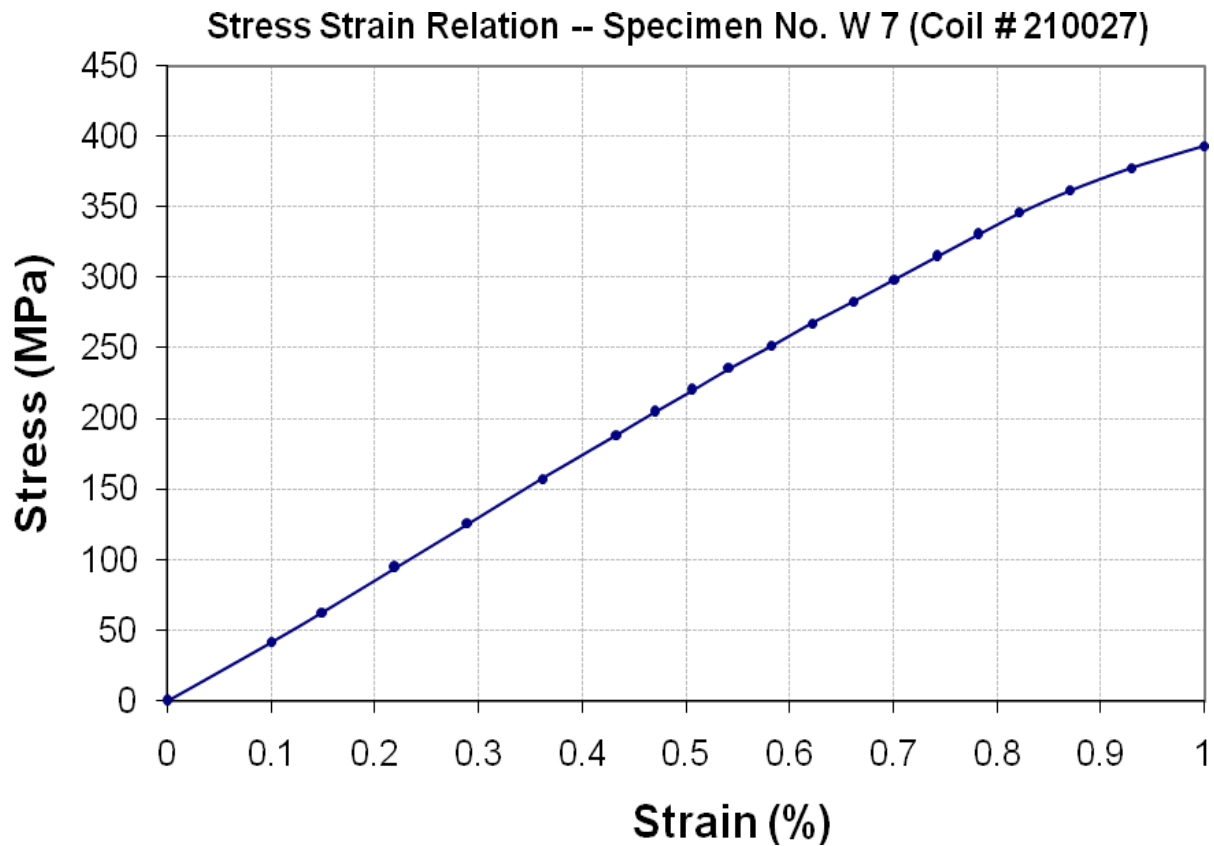
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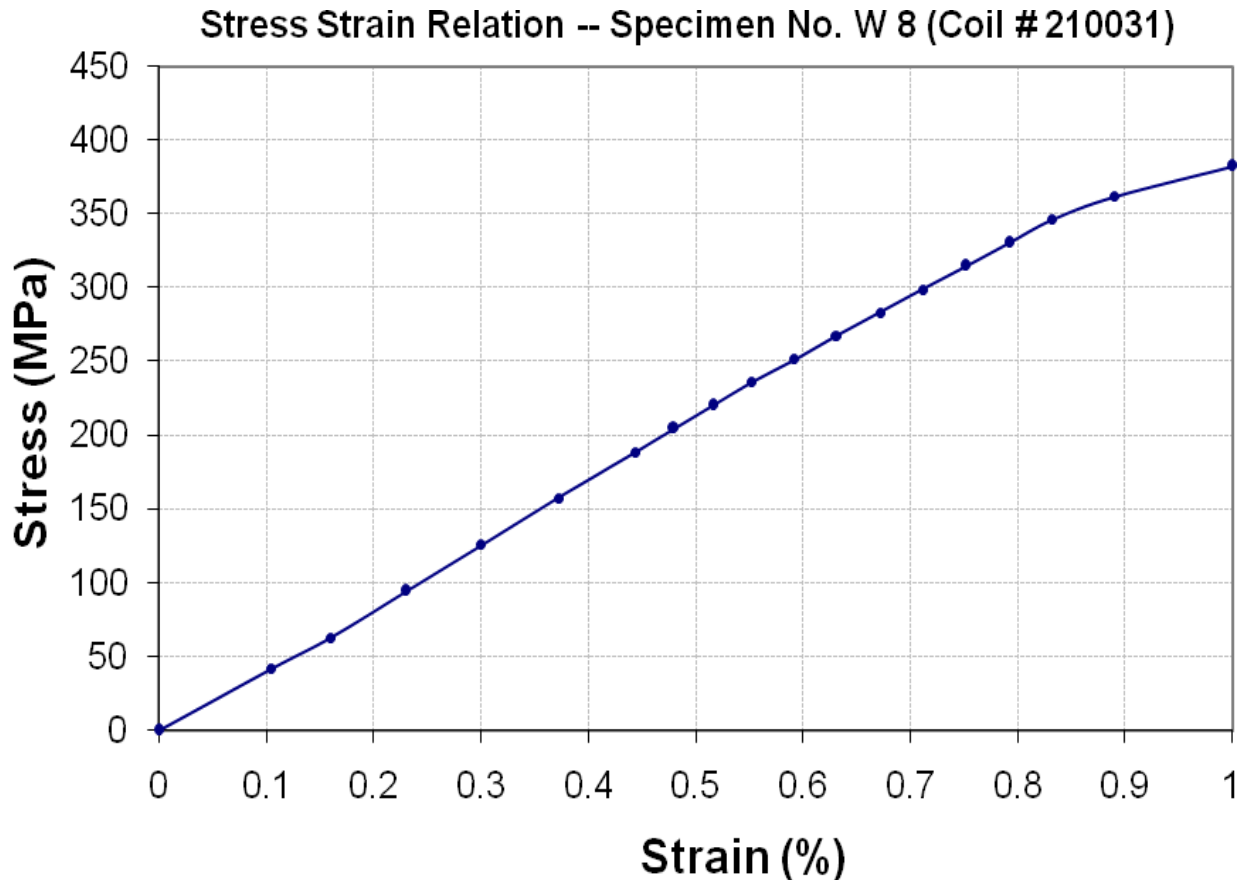
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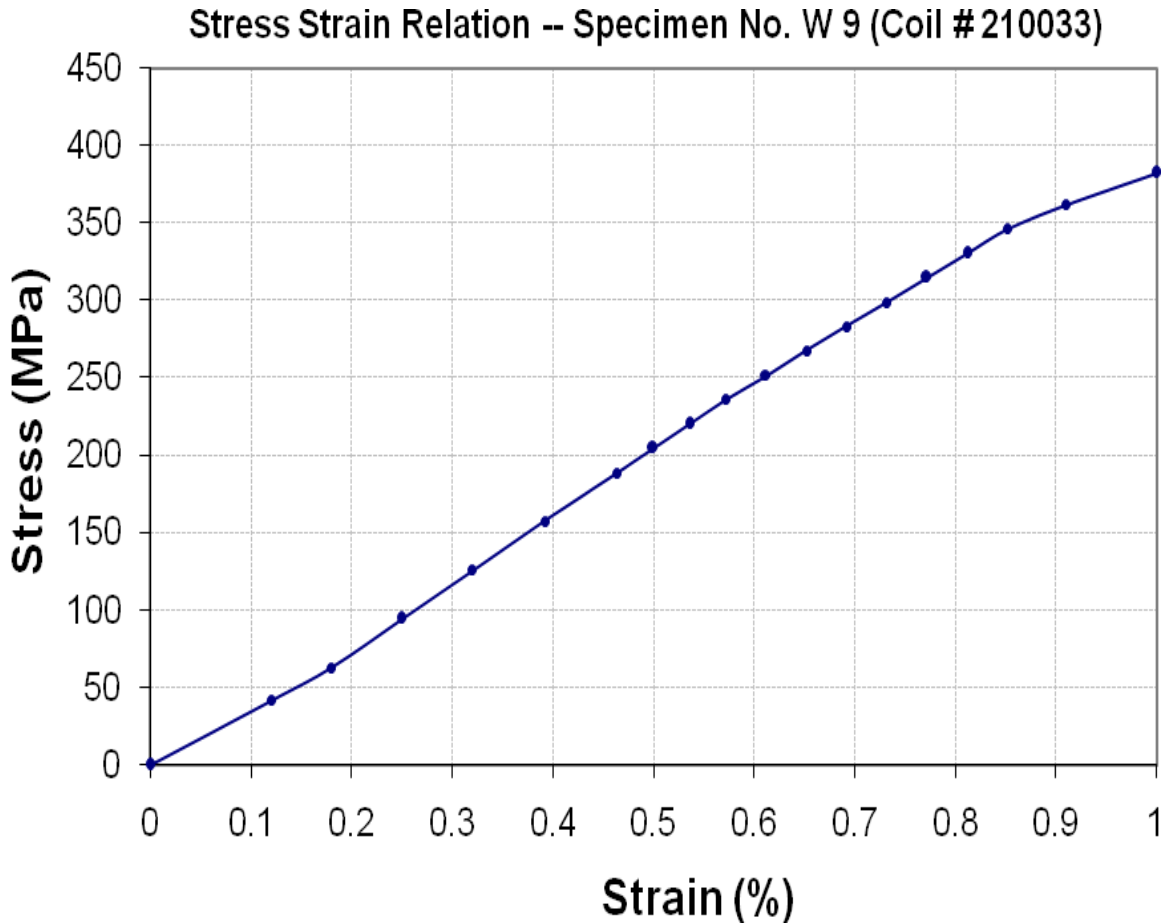
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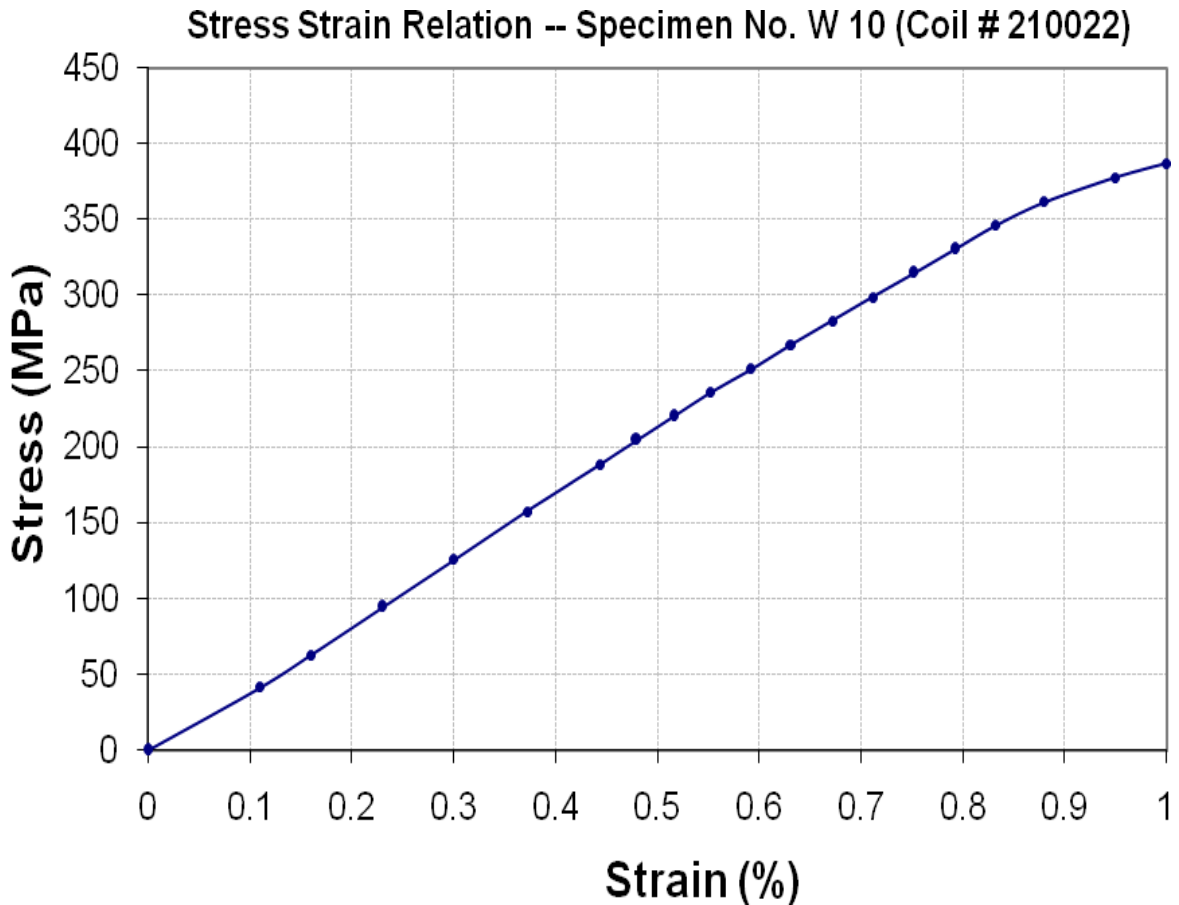
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Tension Test Report (Page – 12/22)

Date of Test 03-04-2024

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	1133.0	25000	245.25	27700	271.74	199	>3.50	210032
2	15.24 (0.6")	1102.0	1127.0	24600	241.33	27200	266.83	198	>3.50	210037
3	15.24 (0.6")	1102.0	1123.0	24400	239.36	27400	268.79	199	>3.50	210040
4	15.24 (0.6")	1102.0	1130.0	24300	238.38	27500	269.78	199	>3.50	210046
5	15.24 (0.6")	1102.0	1129.0	24900	244.27	27400	268.79	198	>3.50	210048
6	15.24 (0.6")	1102.0	1127.0	24200	237.40	27000	264.87	199	>3.50	210042
7	15.24 (0.6")	1102.0	1129.0	25000	245.25	27800	272.72	199	>3.50	210068
8	15.24 (0.6")	1102.0	1133.0	24400	239.36	27500	269.78	198	>3.50	210069
9	15.24 (0.6")	1102.0	1131.0	25000	245.25	27700	271.74	199	>3.50	210063
10	15.24 (0.6")	1102.0	1130.0	24700	242.31	27600	270.76	199	>3.50	210066
Only ten 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

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2. Load versus percentage strain graphs are attached

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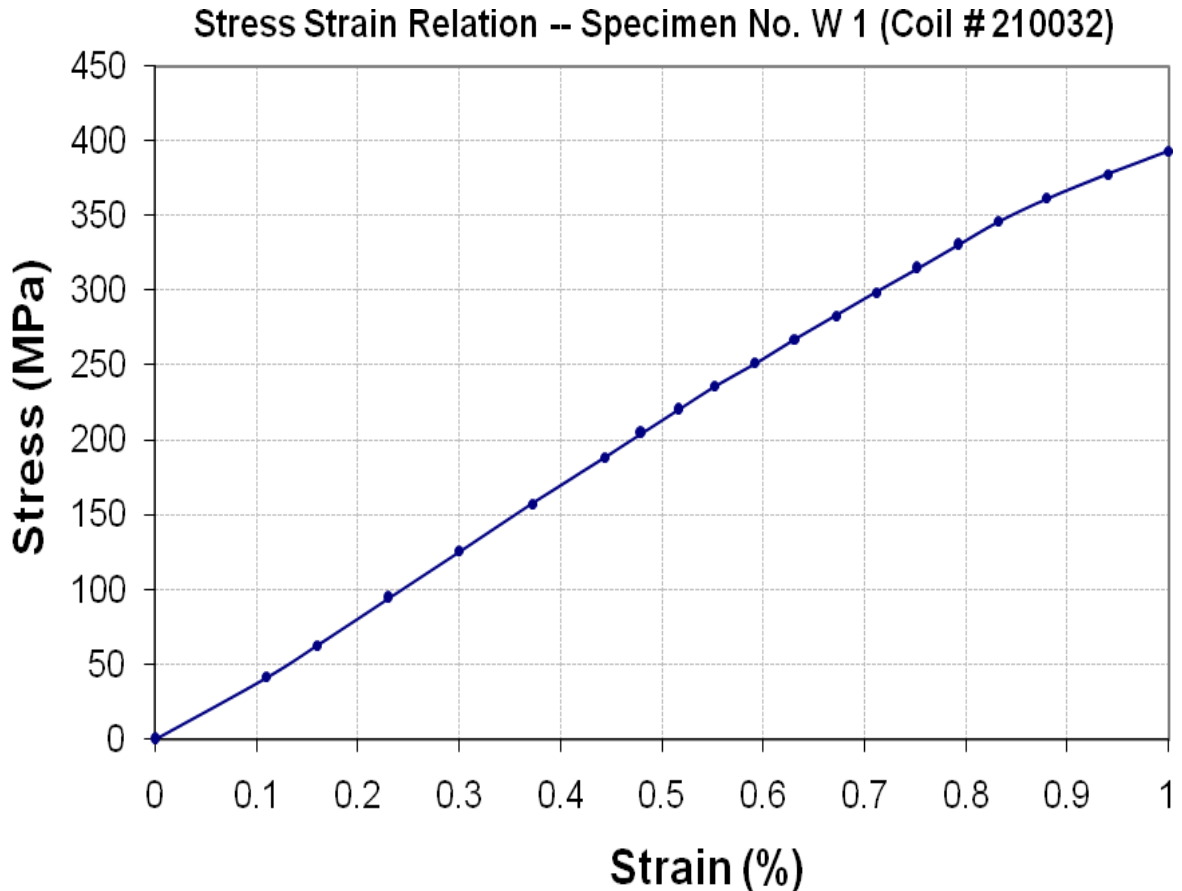
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Graph (Page – 13/22)



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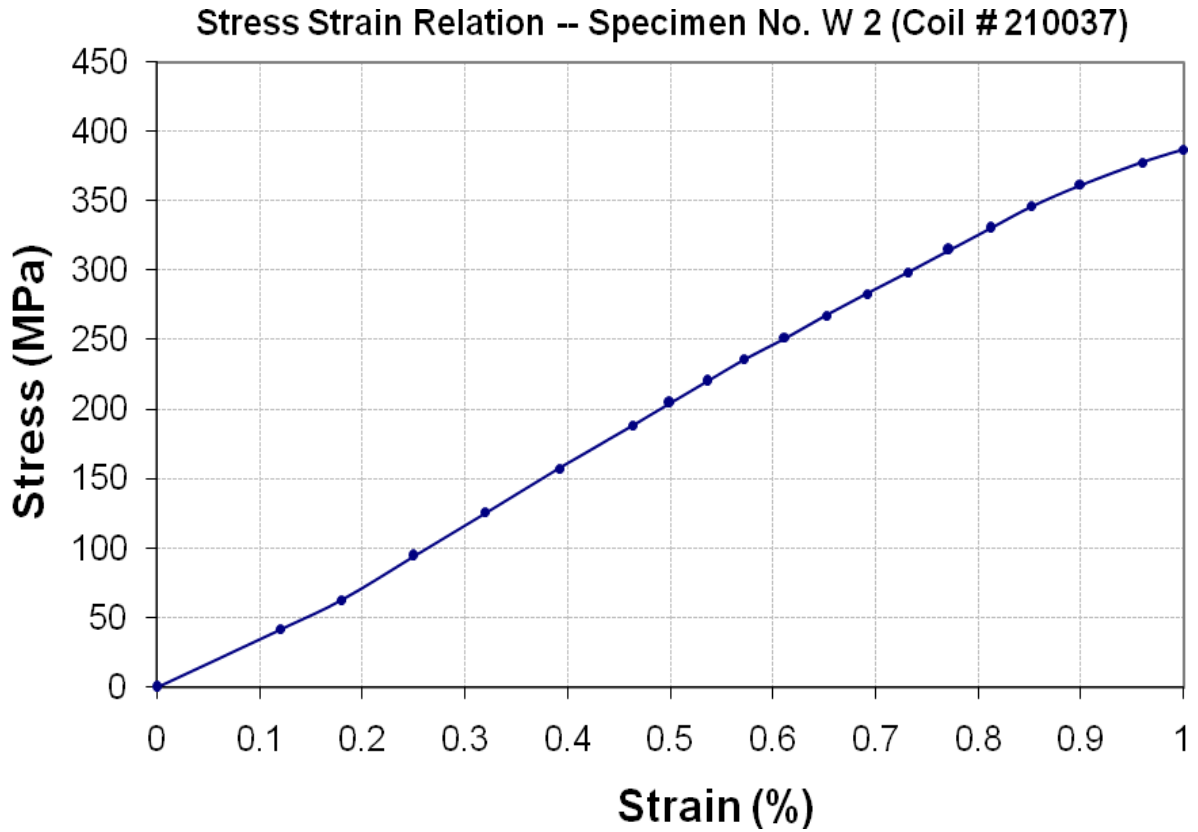
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Graph (Page – 14/22)



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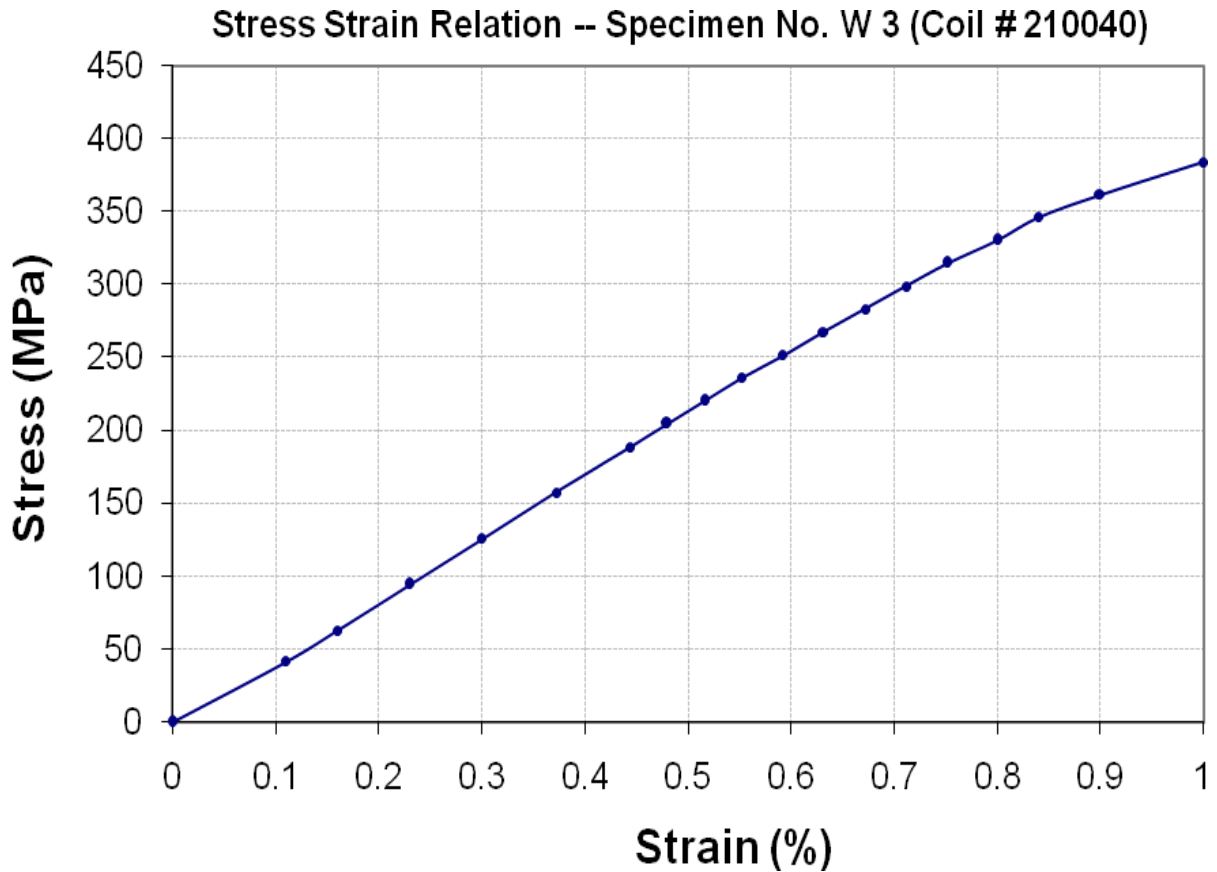
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Graph (Page – 15/22)



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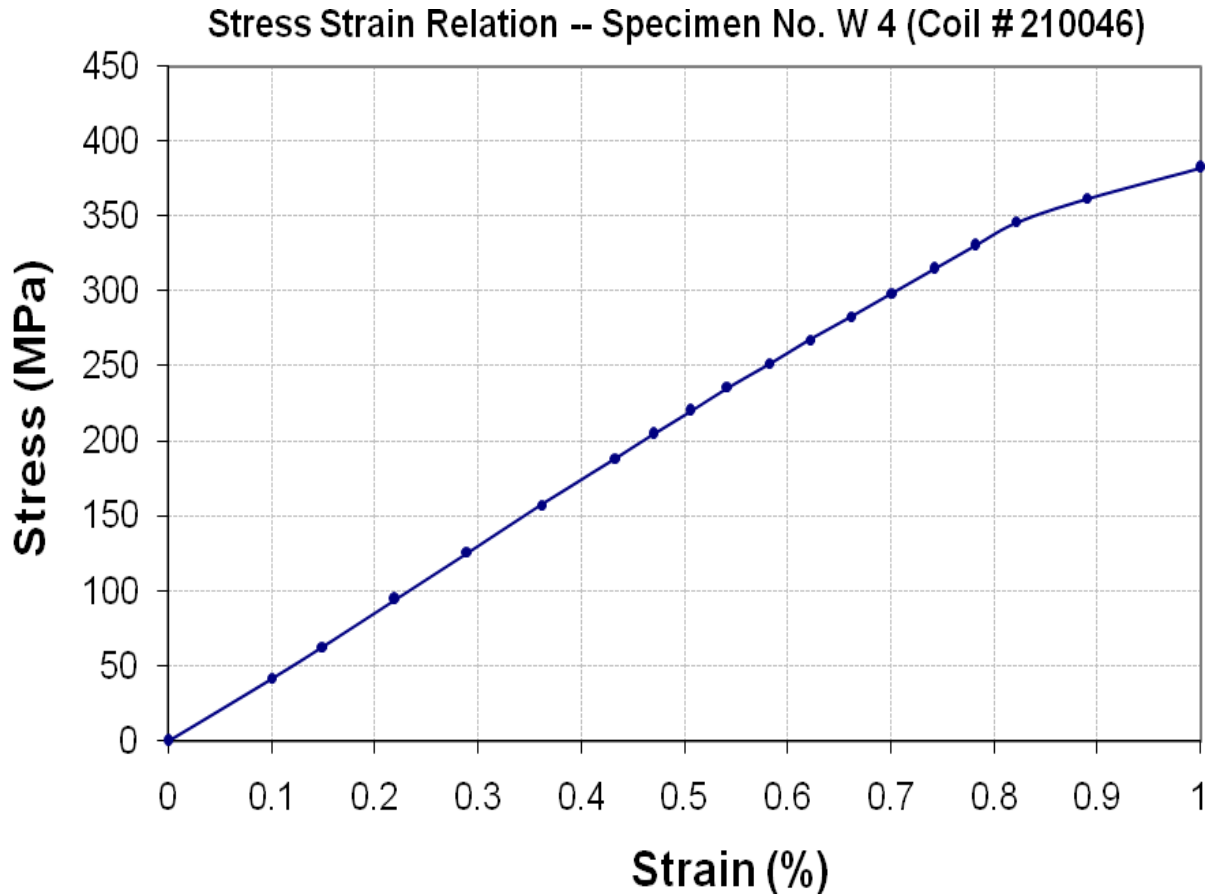
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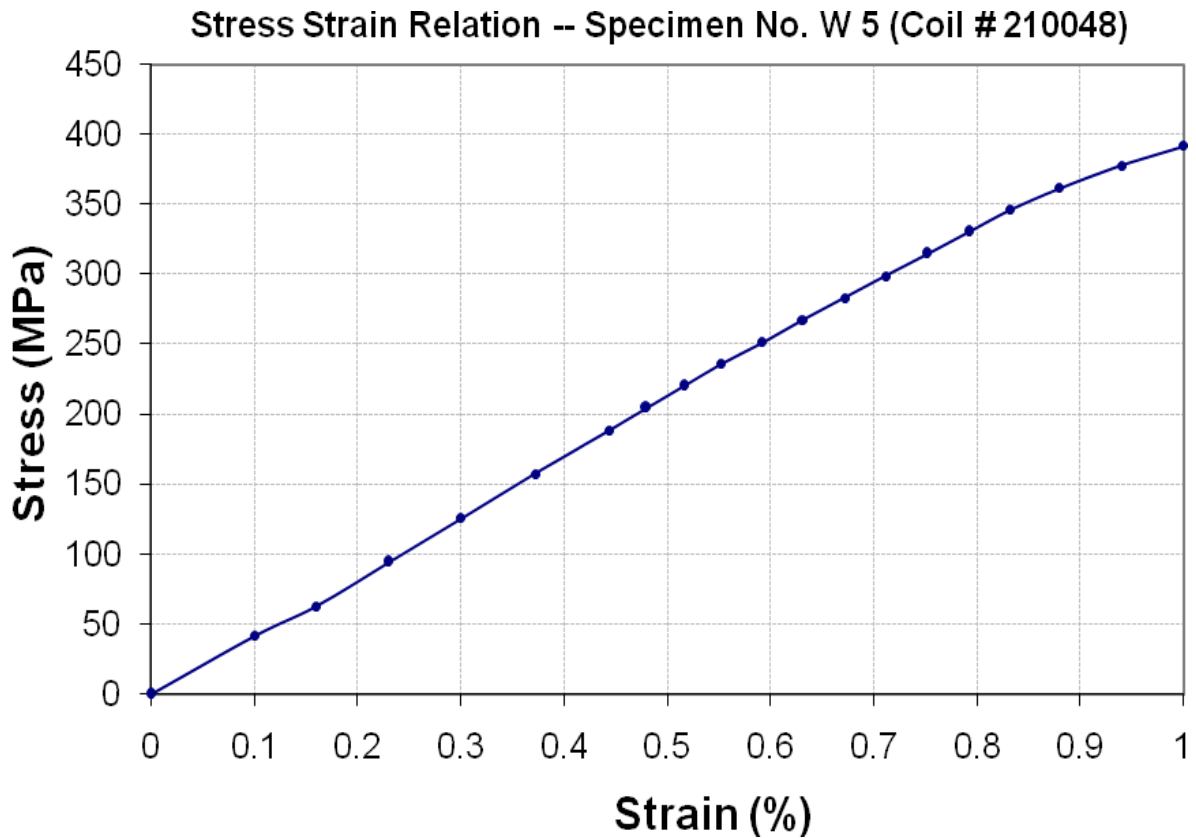
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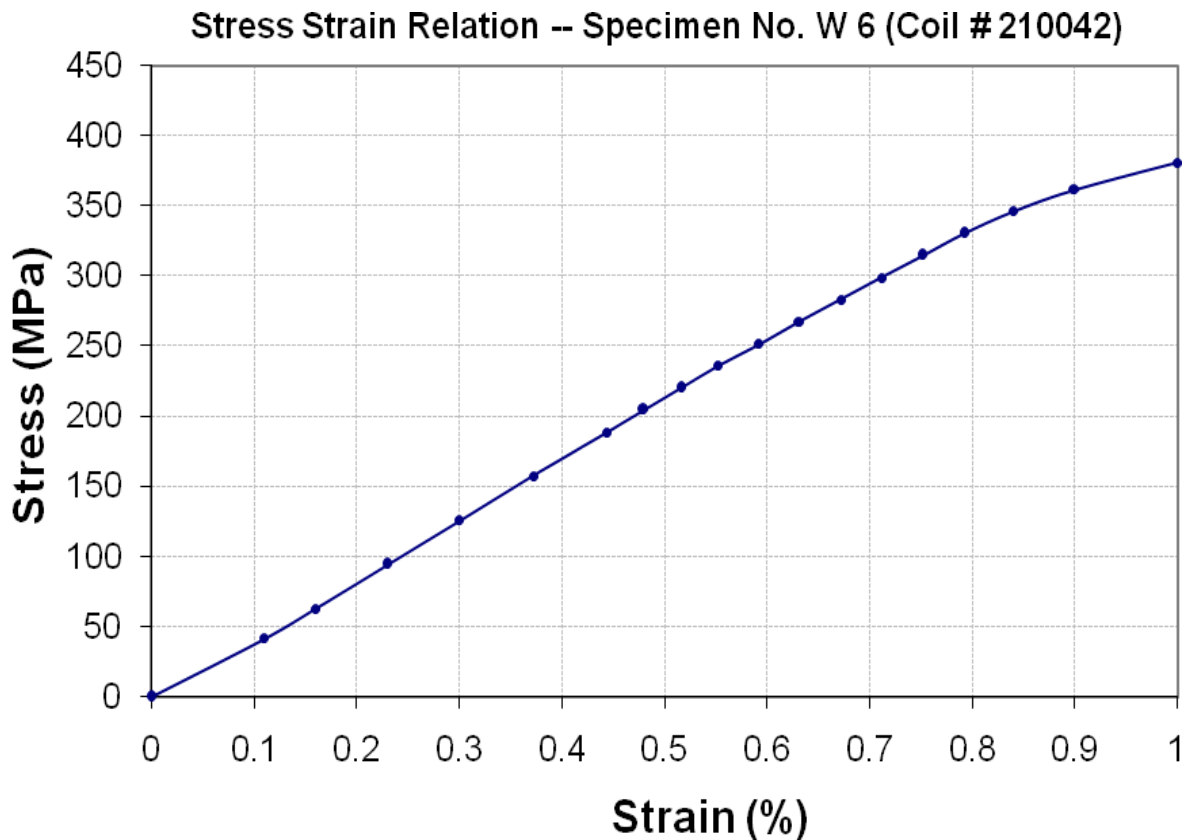
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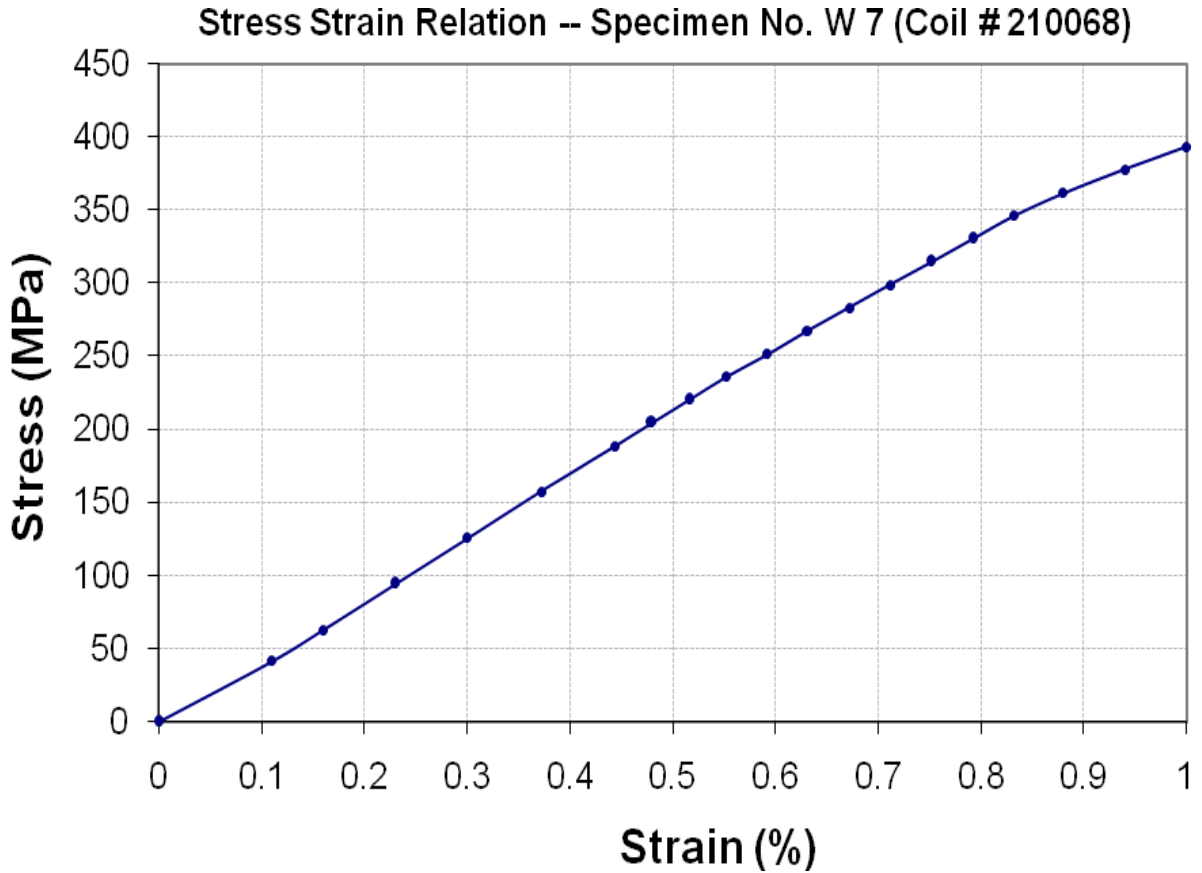
Reference # CED/TFL **4844** (Dr. M Yousaf)

Dated: 25-03-2024

Reference of the request letter # MDHP-DEL-LABT-206

Dated: 11-03-2024

Graph (Page – 19/22)



I/C Testing Laboratories
UET Lahore, Pakistan.

Note:

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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,

Site Manager
Descon Engineering Limited.
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.

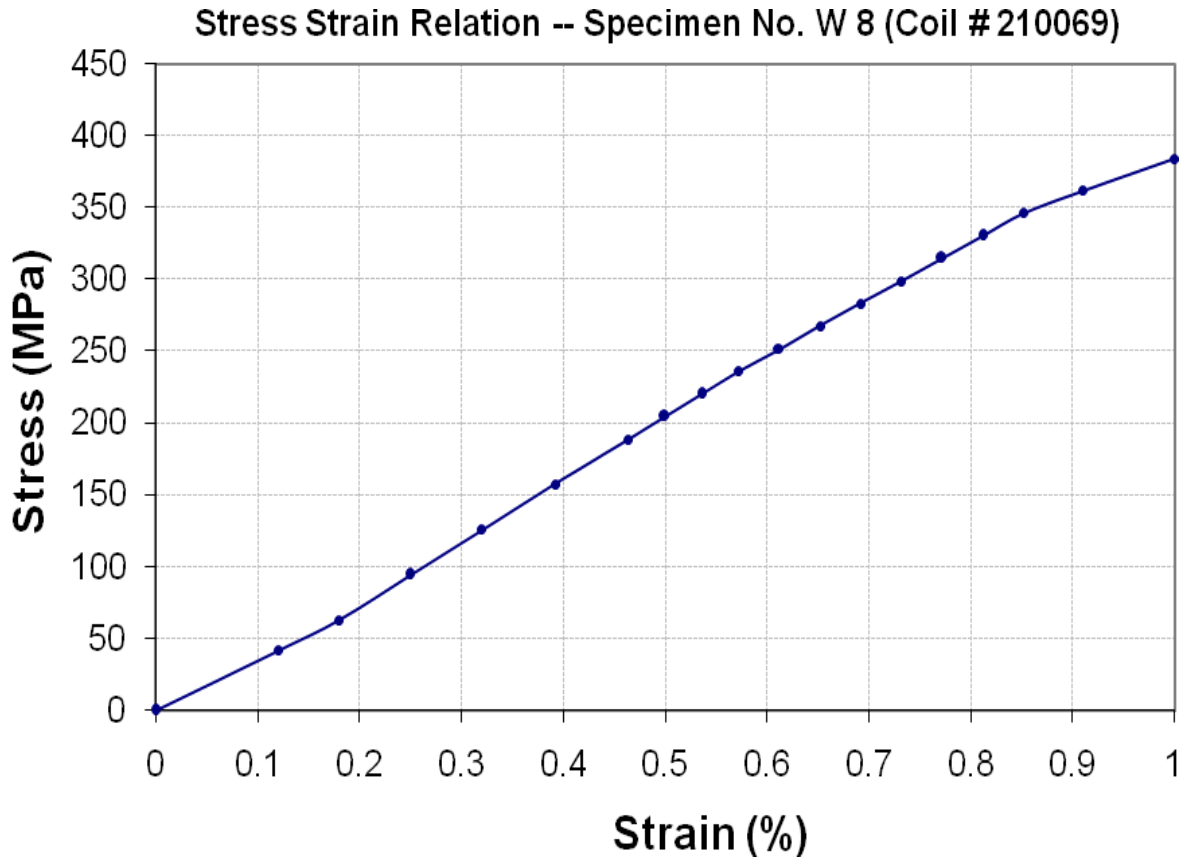
Reference # CED/TFL **4844** (Dr. M Yousaf)

Dated: 25-03-2024

Reference of the request letter # MDHP-DEL-LABT-206

Dated: 11-03-2024

Graph (Page – 20/22)



I/C Testing Laboratories
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,

Site Manager
Descon Engineering Limited.
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.

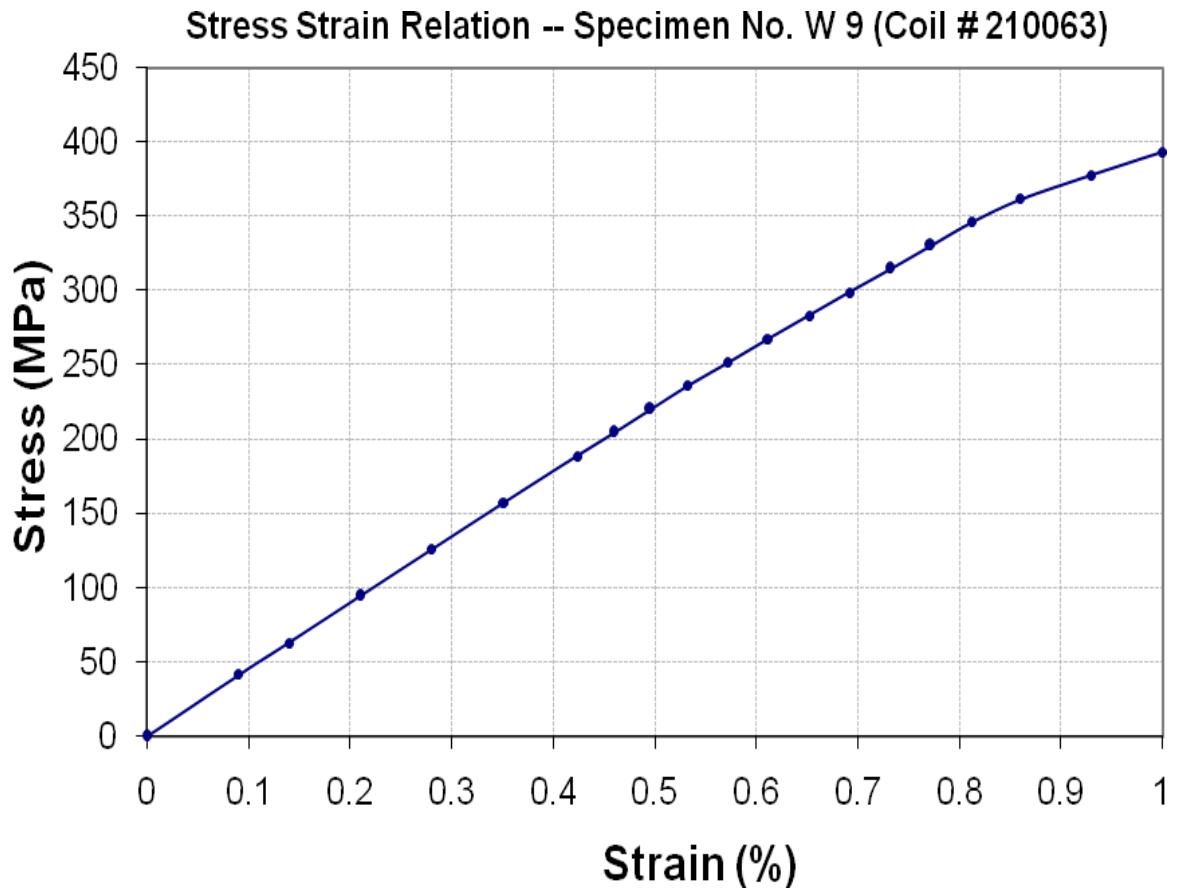
Reference # CED/TFL **4844** (Dr. M Yousaf)

Dated: 25-03-2024

Reference of the request letter # MDHP-DEL-LABT-206

Dated: 11-03-2024

Graph (Page – 21/22)



I/C Testing Laboratories
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,

Site Manager
Descon Engineering Limited.
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.

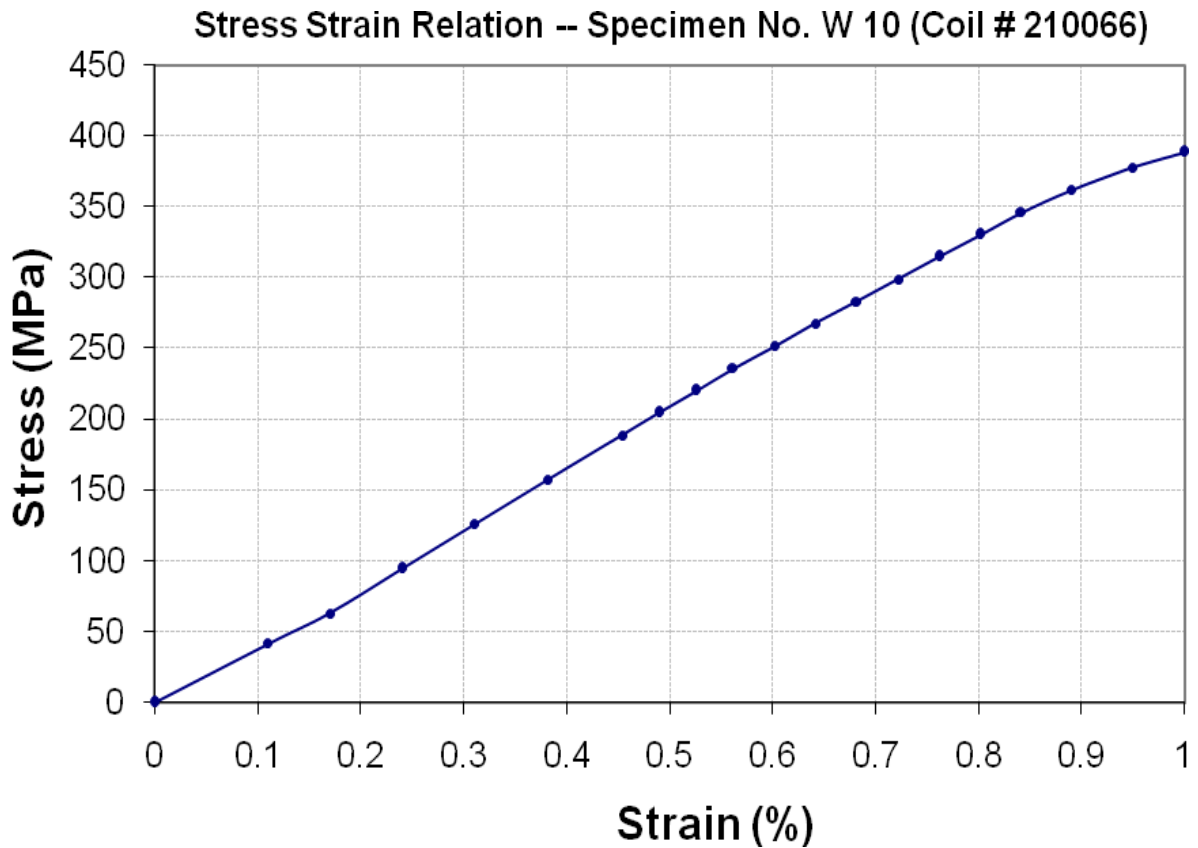
Reference # CED/TFL **4844** (Dr. M Yousaf)

Dated: 25-03-2024

Reference of the request letter # MDHP-DEL-LABT-206

Dated: 11-03-2024

Graph (Page – 22/22)



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,
Chief Ordnance Officer
Ammunition Depot
Pattoki

Reference # CED/TFL **4900** (Dr. Ali Ahmed)
Reference of the request letter # 0204 / Plg

Dated: 02-04-2024
Dated: 02-03-2024

Tension Test Report (Page -1/1)

Date of Test 03-04-2024
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	0.379	3/8	0.376	0.11	0.111	2760	3670	55400	54670	73600	72700	1.40	17.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only one sample for tensile test														
Bend Test														

I/C Testing Laboratories
UET Lahore, Pakistan.

Note:

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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,

The Project Manager,
 HIGH-Q Constructions.
 Construction of HIGH-Q Mall at 3-A, GulbergII, Lahore.

Reference # CED/TFL **4901** (Dr. Ali Ahmed)
 Reference of the request letter # QC/HQ/CIVIL/200

Dated: 02-04-2024
 Dated: 02-04-2024

Tension Test Report (Page -1/1)

Date of Test 03-04-2024
 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	0.408	10	9.92	0.12	0.120	4030	5270	74038	74100	96819	96900	1.20	15.0	
2	0.409	10	9.94	0.12	0.120	4150	5300	76242	76100	97370	97200	1.20	15.0	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only two samples for tensile and one sample for bend test														
Bend Test														
10mm Bar Bend Test Through 180° is Satisfactory														

I/C Testing Laboratoires
UET Lahore, Pakistan.

Note:

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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
Engineering Consultancy Services Punjab (Pvt) Ltd.
Rehabilitation of Dual Carriageway Sahianwala Khurrianwala Road from Chak No.
163/RB Balangan to Sadaqat Mill Chowk, (length taken from 3.70 to 9.30 km) Length
5.60km.

Reference # CED/TFL **4902** (Dr. Ali Ahmed)

Dated: 02-04-2024

Reference of the request letter # ECSP/ADP FSD (022-23)/240

Dated: 27-02-2024

Tension Test Report (Page -1/1)

Date of Test 03-04-2024

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	0.396	3	0.385	0.11	0.116	4150	5320	83200	78660	106600	100900	1.10	13.8	
2	0.394	3	0.384	0.11	0.116	4100	5300	82200	77940	106200	100800	1.00	12.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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:

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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
NESPAK – Turk Pak Jv
MCH Bahawalnagar
Establishment of 200 Bedded Mother and Child Hospital & Nursing College at District
Bahawalnagar.

Reference # CED/TFL **4903** (Dr. Waseem Abbass)

Dated: 03-04-2024

Reference of the request letter # 4460/13/MA/04/359

Dated: 29-03-2024

Tension Test Report (Page -1/1)

Date of Test 03-04-2024

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	0.370	3	0.372	0.11	0.109	3540	5150	71000	71740	103200	104400	1.00	12.5	SJ Steel
2	0.371	3	0.373	0.11	0.109	3590	5200	72000	72600	104200	105200	1.00	12.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Note: only one samples for tensile and one sample for bend test														
Bend Test														
#3 Bar Bend Test Through 180° is Satisfactory														

Witness by Ameer Hamza (NESPAK) and Asim Nazeer (PM IDAP)

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,

Chief Engineer
Zaitoon
New Lahore City
Construction of House by Tameer Construction (Pvt) Ltd.

Reference # CED/TFL **4904** (Dr. Waseem Abbass)
Reference of the request letter # NLC/CE/0170

Dated: 03-04-2024
Dated: 03-04-2024

Tension Test Report (Page -1/1)

Date of Test 03-04-2024
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	0.359	3	0.366	0.11	0.105	3620	4640	72600	75690	93000	97100	1.20	15.0	FF Steel
2	0.372	3	0.373	0.11	0.109	3790	4890	76000	76450	98000	98700	1.00	12.5	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	-	-	-	-	-	
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.

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Department of Civil Engineering
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