

Tarea 4 - Analisis Armónico

Presentado por:

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Profesor:

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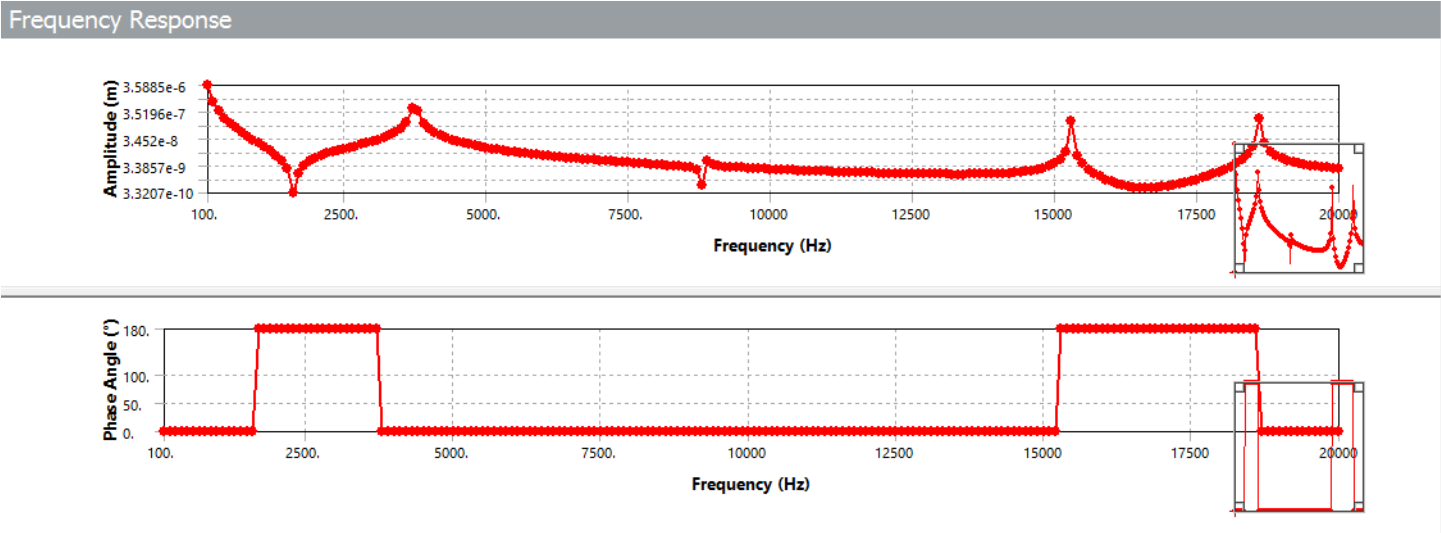
Domingo 16 de Febrero



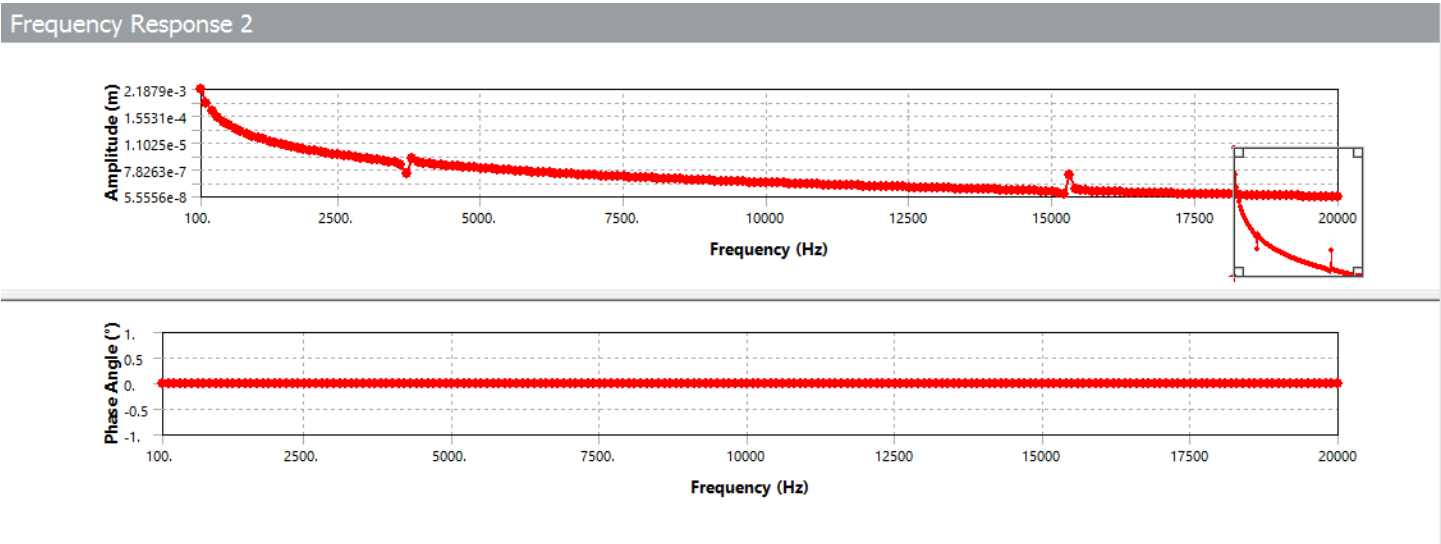
Universidad Nacional de Colombia
Facultad de Ingeniería
Departamento de Ingeniería Mecánica
2024
Aplicación métodos Finitos

ANALISIS ARMONICO

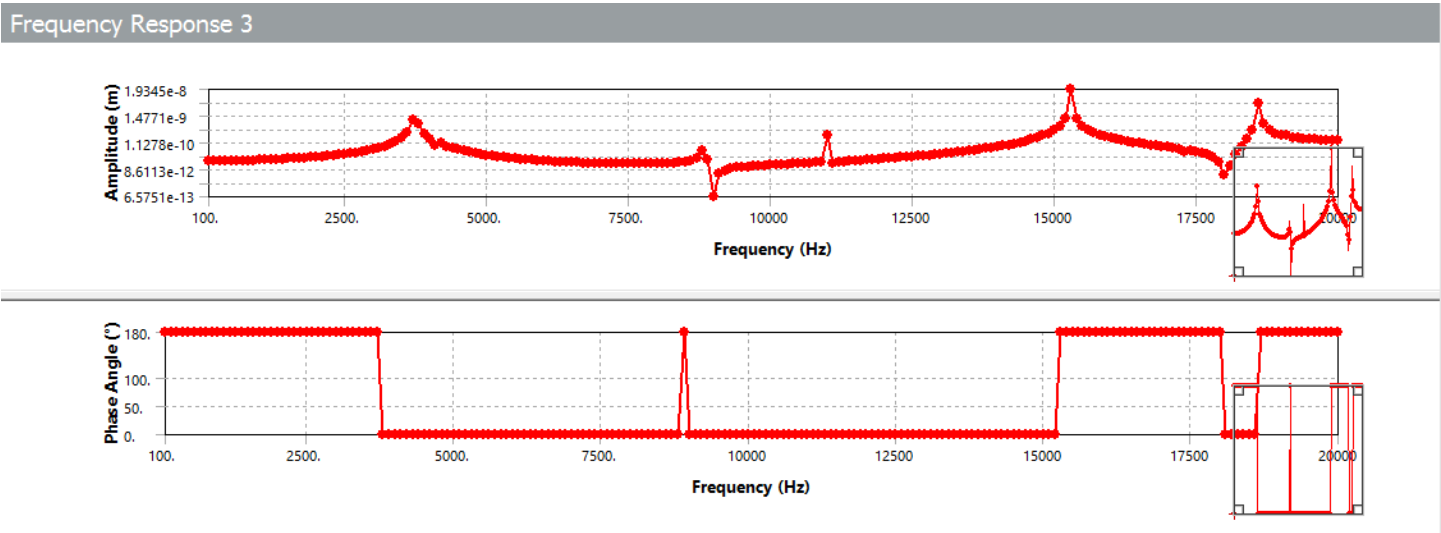
Eje x



Eje y



Eje z



12 frecuencias del sistema

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3	0.00000000000000			
4	0.2019617015660E-02			
5	0.4281312765025E-02			
6	0.6479328773875E-02			
7	3743.695435631			
8	4141.348203377			
9	8845.316402671			
10	11000.71927280			
11	12763.87291646			
12	15293.97055660			

ANALISIS MODAL

***** PARTICIPATION FACTOR CALCULATION ***** X DIRECTION

MODE	FREQUENCY	PERIOD	PARTIC.FACTOR	RATIO	EFFECTIVE MASS	CUMULATIVE MASS FRACTION	RATIO EFF.MASS TO TOTAL MASS
1	853.920	0.11711E-02	0.47972E-01	0.129639	0.230128E-02	0.805558E-02	0.498086E-02
2	2551.82	0.39188E-03	0.84684E-05	0.000023	0.717134E-10	0.805558E-02	0.155215E-09
3	3772.39	0.26508E-03	0.80376E-05	0.000022	0.646026E-10	0.805558E-02	0.139825E-09
4	4984.32	0.20063E-03	0.17834	0.481944	0.318049E-01	0.119388	0.688380E-01
5	11242.2	0.88951E-04	0.37004	1.000000	0.136931	0.598711	0.296371
6	12863.6	0.77739E-04	0.38539E-04	0.000104	0.148523E-08	0.598711	0.321461E-08
7	13670.9	0.73148E-04	-0.36730E-04	0.000099	0.134908E-08	0.598711	0.291994E-08
8	15128.8	0.66099E-04	0.33439	0.903658	0.111817	0.990125	0.242016
9	20842.5	0.47979E-04	0.25269E-05	0.000007	0.638497E-11	0.990125	0.138195E-10
10	24109.7	0.41477E-04	-0.53113E-01	0.143533	0.282102E-02	1.00000	0.610577E-02
sum					0.285676		0.618311

***** PARTICIPATION FACTOR CALCULATION ***** Y DIRECTION

MODE	FREQUENCY	PERIOD	PARTIC.FACTOR	RATIO	EFFECTIVE MASS	CUMULATIVE MASS FRACTION	RATIO EFF.MASS TO TOTAL MASS
1	853.920	0.11711E-02	0.45928	1.000000	0.210940	0.686795	0.456555
2	2551.82	0.39188E-03	0.31162E-05	0.000007	0.971067E-11	0.686795	0.210176E-10
3	3772.39	0.26508E-03	0.11091E-05	0.000002	0.122999E-11	0.686795	0.266218E-11
4	4984.32	0.20063E-03	-0.23573	0.513260	0.555691E-01	0.867721	0.120273
5	11242.2	0.88951E-04	0.12752	0.277658	0.162622E-01	0.920668	0.351976E-01
6	12863.6	0.77739E-04	0.82372E-05	0.000018	0.678508E-10	0.920668	0.146855E-09
7	13670.9	0.73148E-04	0.11550E-04	0.000025	0.133404E-09	0.920668	0.288738E-09
8	15128.8	0.66099E-04	-0.97308E-01	0.211871	0.946891E-02	0.951498	0.204944E-01
9	20842.5	0.47979E-04	-0.76408E-05	0.000017	0.583820E-10	0.951498	0.126361E-09
10	24109.7	0.41477E-04	-0.12205	0.265746	0.148968E-01	1.00000	0.322423E-01

***** PARTICIPATION FACTOR CALCULATION ***** Z DIRECTION

MODE	FREQUENCY	PERIOD	PARTIC.FACTOR	RATIO	EFFECTIVE MASS	CUMULATIVE MASS FRACTION	RATIO EFF.MASS TO TOTAL MASS
1	853.920	0.11711E-02	-0.79506E-05	0.000021	0.632120E-10	0.211024E-09	0.136815E-09
2	2551.82	0.39188E-03	0.37763	1.000000	0.142605	0.476067	0.308652
3	3772.39	0.26508E-03	0.28350	0.750725	0.803707E-01	0.744372	0.173953
4	4984.32	0.20063E-03	-0.87679E-05	0.000023	0.768763E-10	0.744372	0.166390E-09
5	11242.2	0.88951E-04	0.13939E-04	0.000037	0.194294E-09	0.744372	0.420526E-09
6	12863.6	0.77739E-04	-0.12054	0.319197	0.145296E-01	0.792877	0.314476E-01
7	13670.9	0.73148E-04	-0.22406	0.593332	0.502031E-01	0.960473	0.108659
8	15128.8	0.66099E-04	-0.31730E-04	0.000084	0.100677E-08	0.960473	0.217903E-08
9	20842.5	0.47979E-04	-0.10881	0.288147	0.118403E-01	1.00000	0.256270E-01
10	24109.7	0.41477E-04	0.71527E-05	0.000019	0.511612E-10	1.00000	0.110733E-09
sum					0.299549		0.648339

Modo con mayor factor = Modo 5

Total Deformation

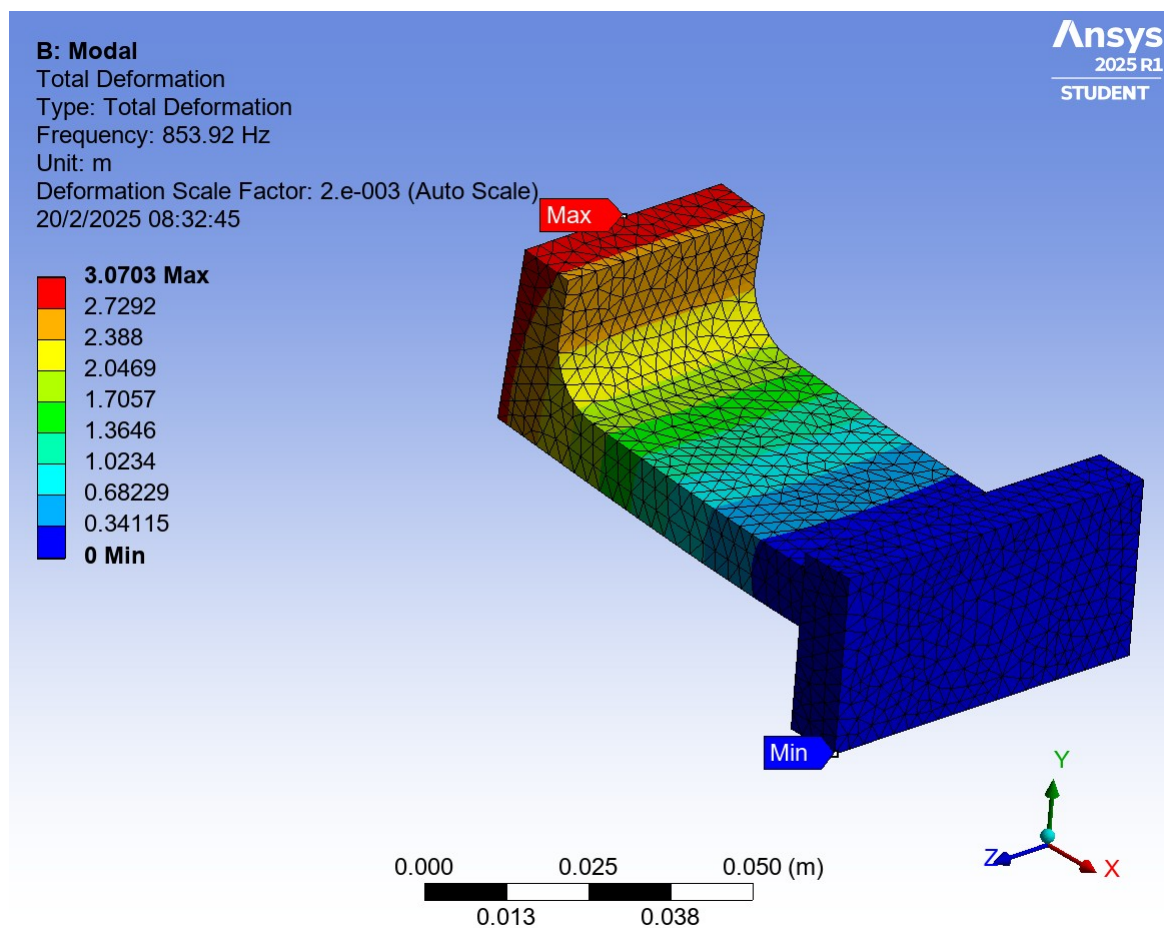
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Author: Miguel Angel Reales Gaitan

Prepared For: Tarea 4

Date: Thursday, February 20, 2025

Comments:



Total Deformation 2

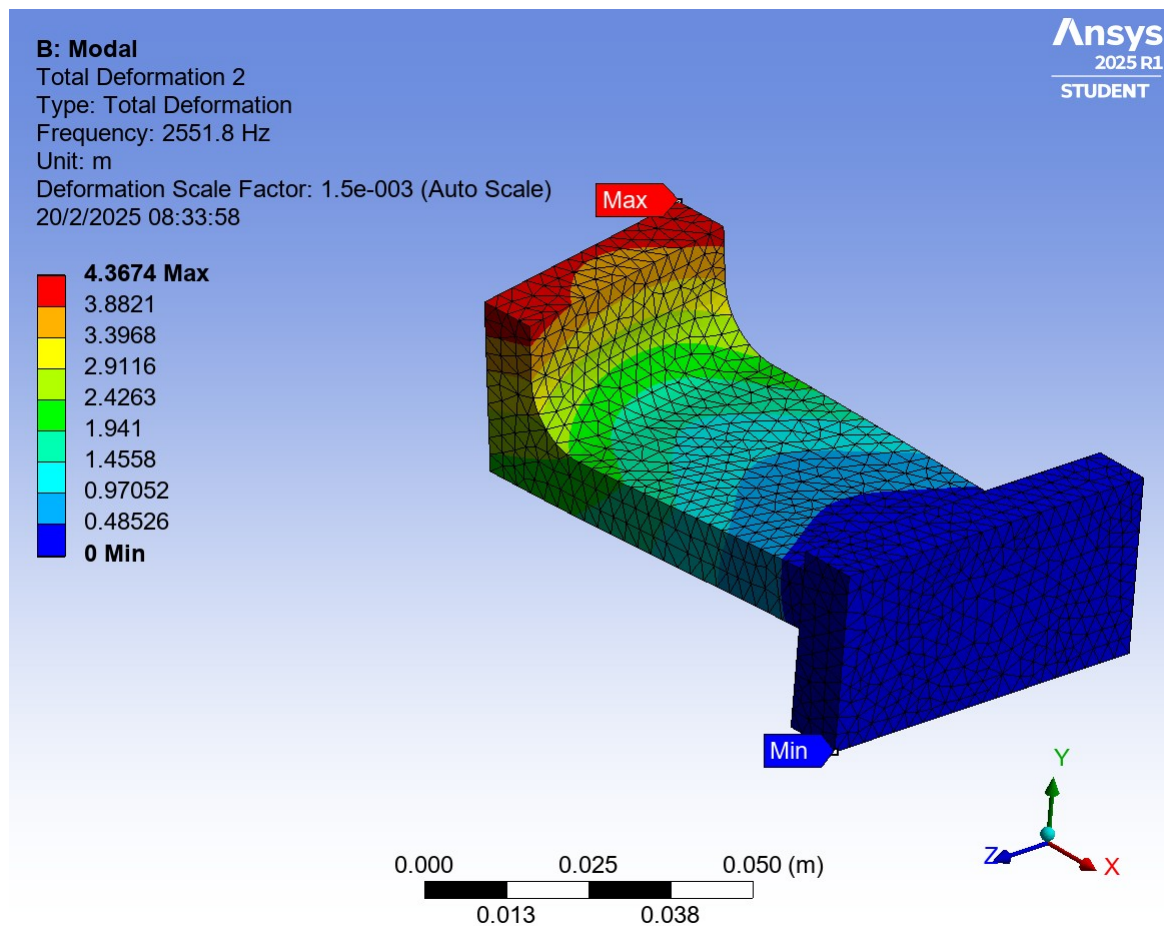
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Author: Miguel Angel Reales Gaitan

Prepared For: Tarea 4

Date: Thursday, February 20, 2025

Comments:



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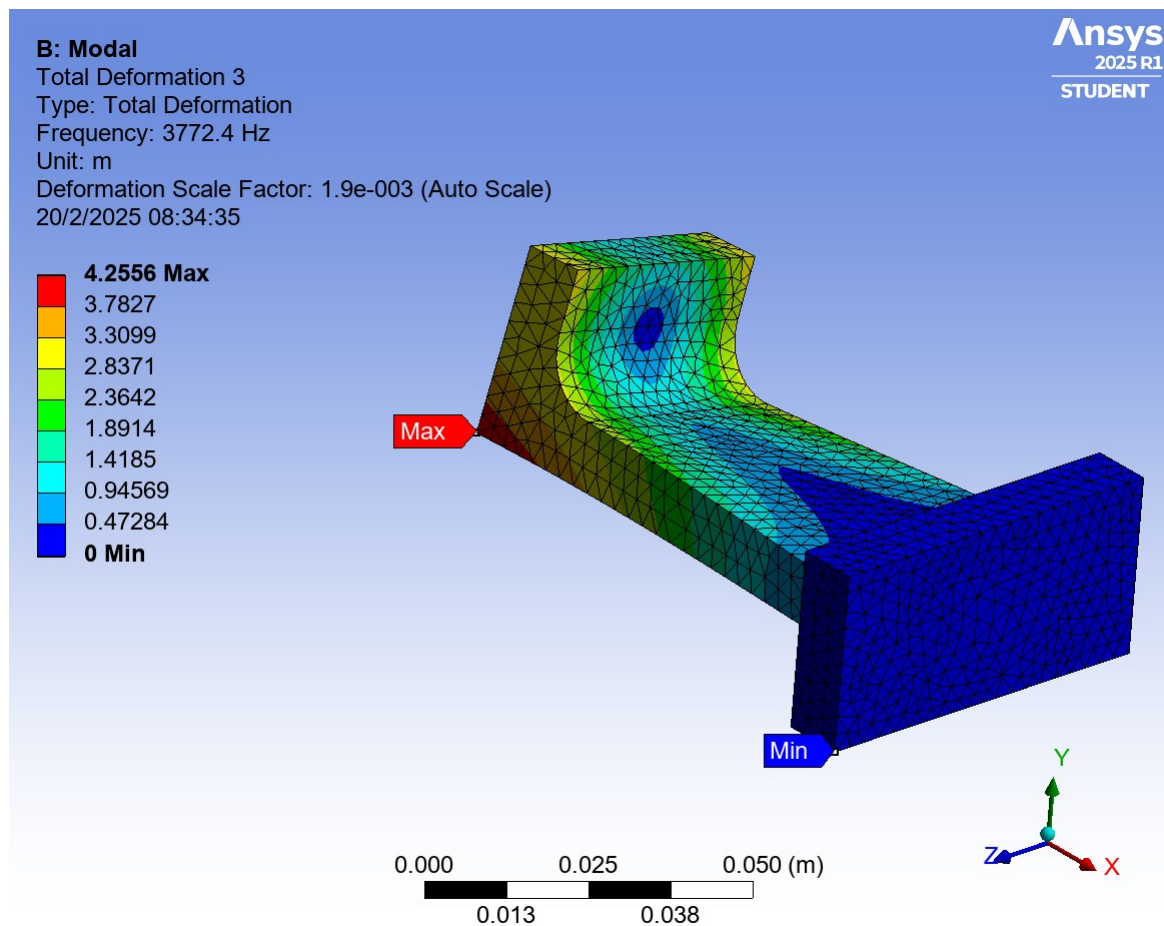
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Author: Miguel Angel Reales Gaitan

Prepared For: Tarea 4

Date: Thursday, February 20, 2025

Comments:



Total Deformation 4

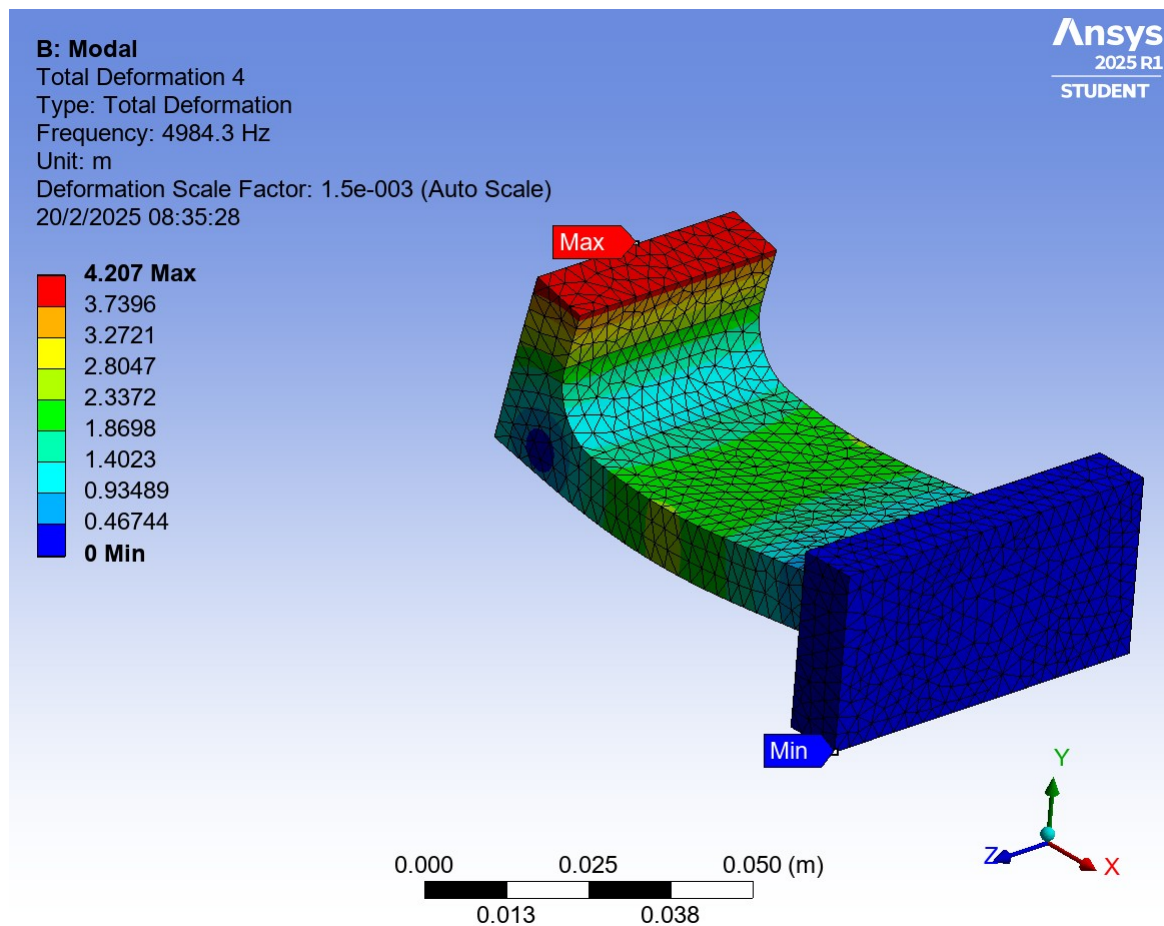
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Comments:



Total Deformation 5

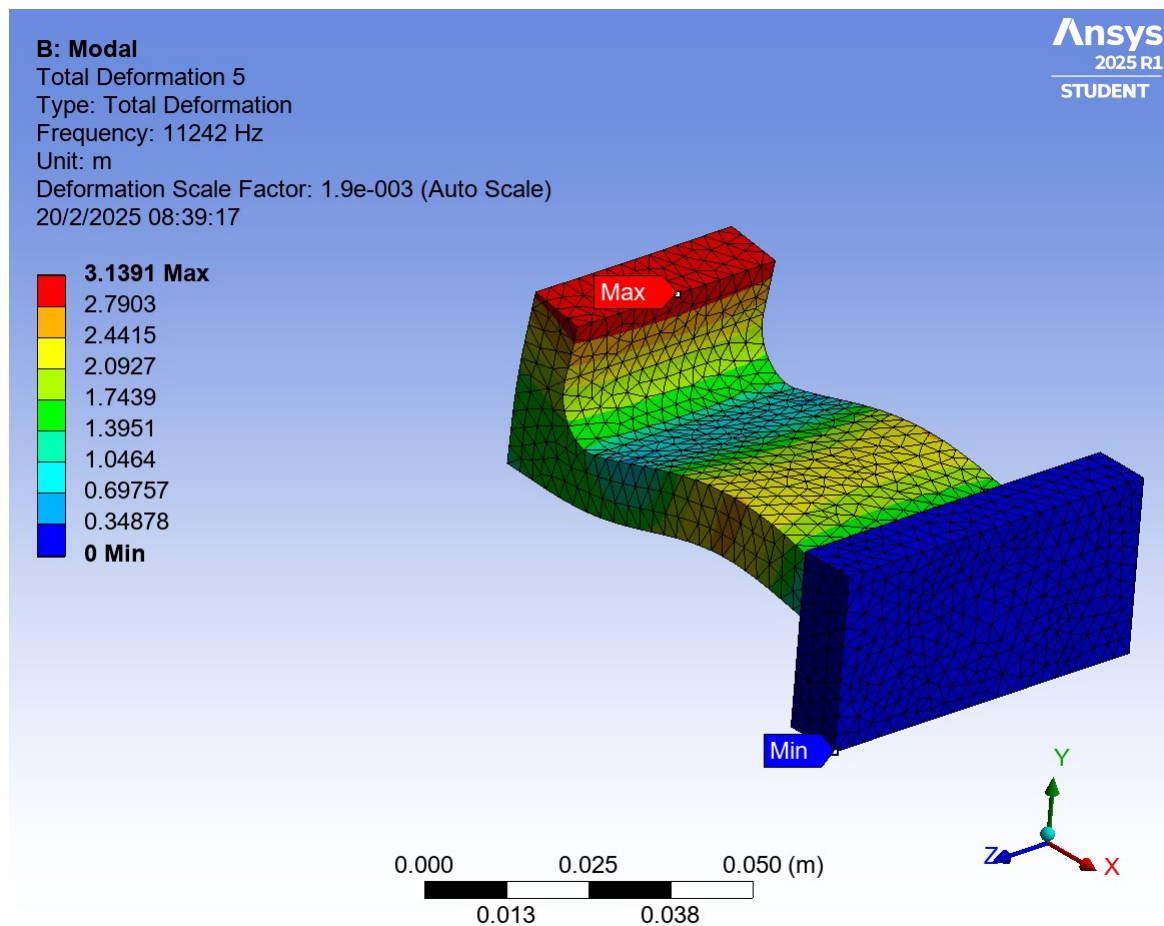
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Comments:



Total Deformation 6

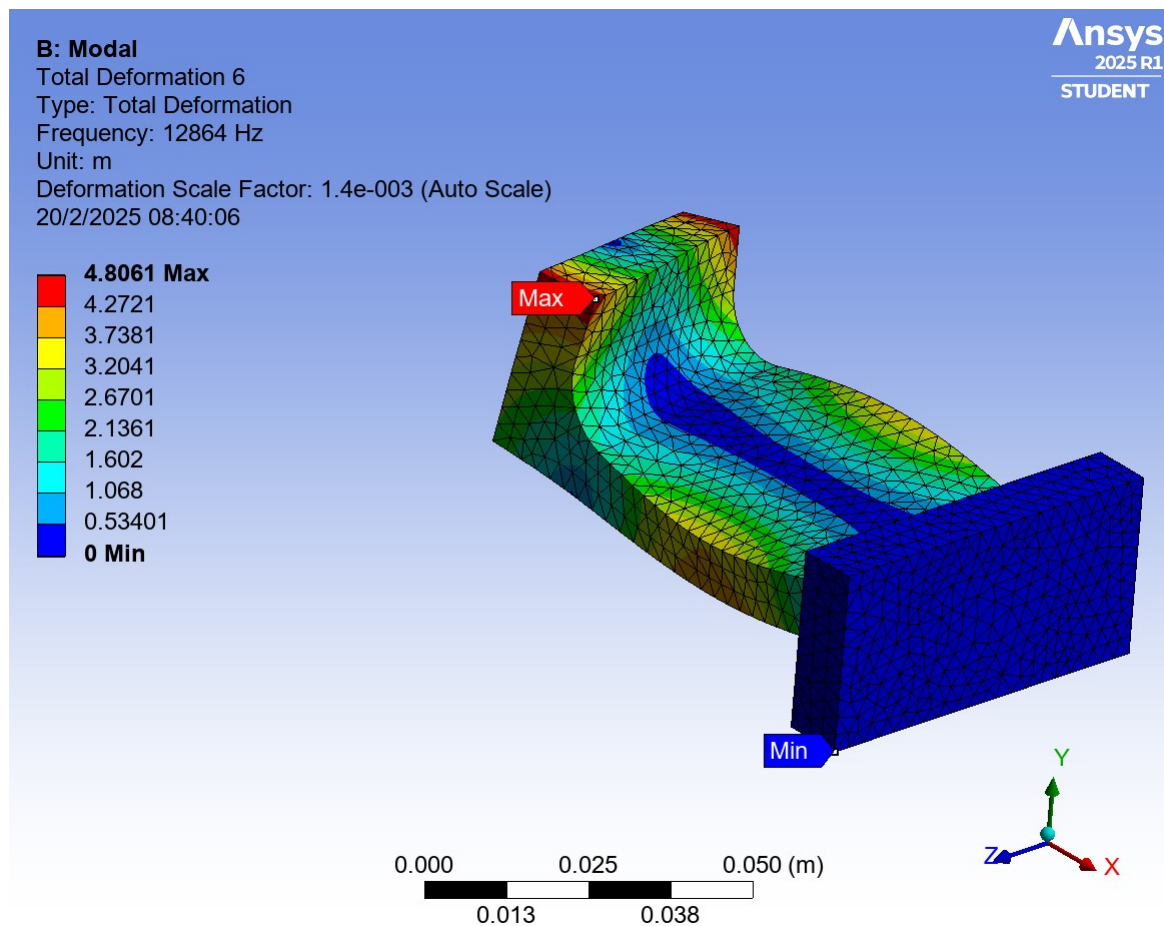
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Author: Miguel Angel Reales Gaitan

Prepared For: Tarea 4

Date Thursday, February 20, 2025

Comments:



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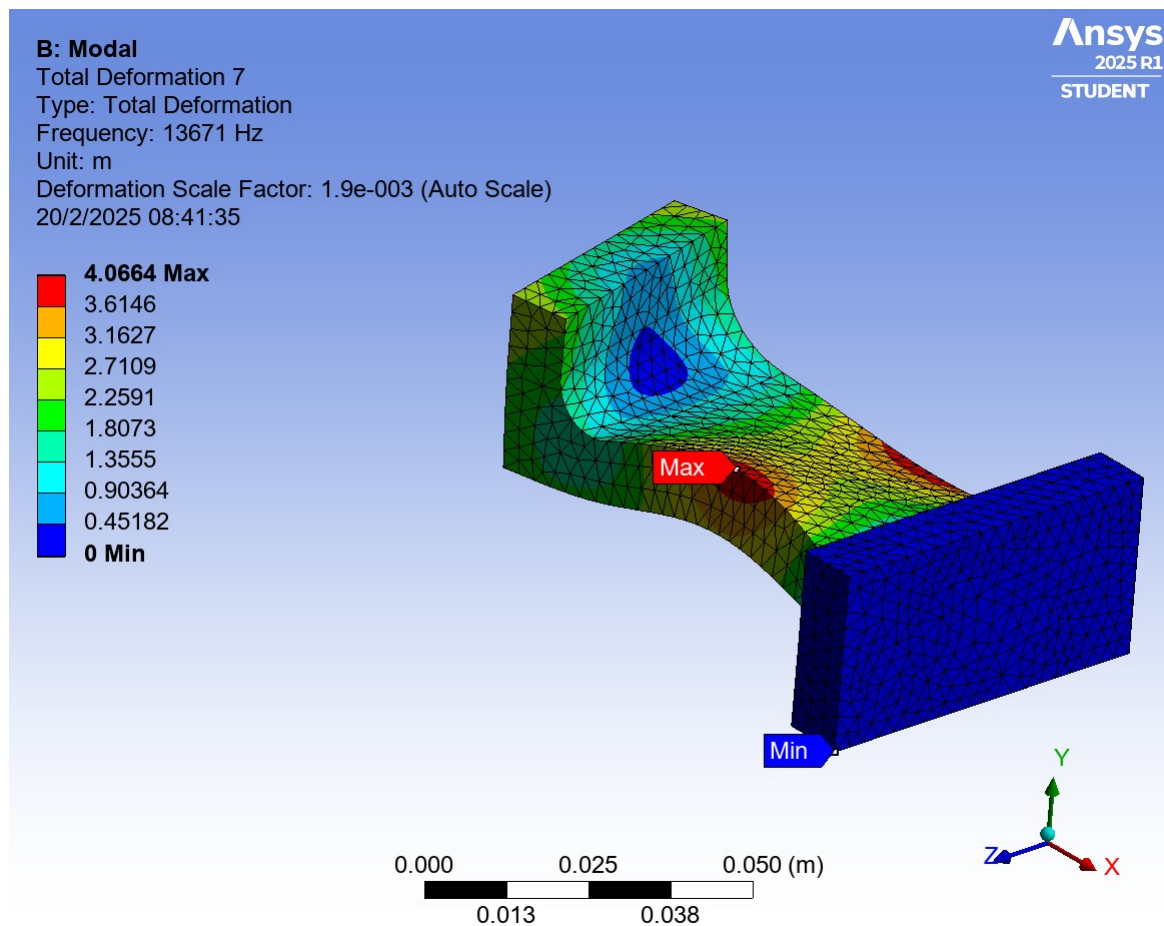
Subject:

Author: Miguel Angel Reales Gaitan

Prepared For: Tarea 4

Date Thursday, February 20, 2025

Comments:



Total Deformation 8

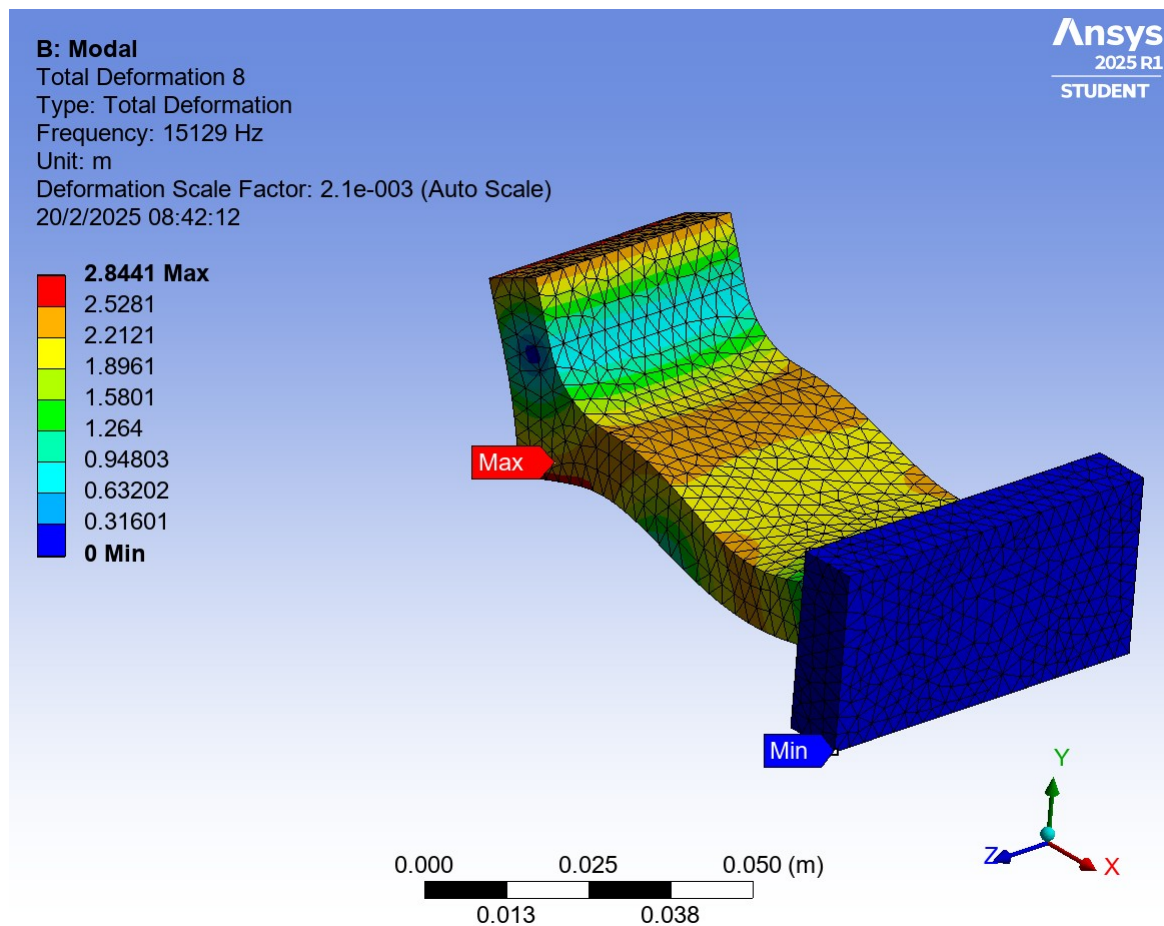
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Prepared For: Tarea 4

Date Thursday, February 20, 2025

Comments:



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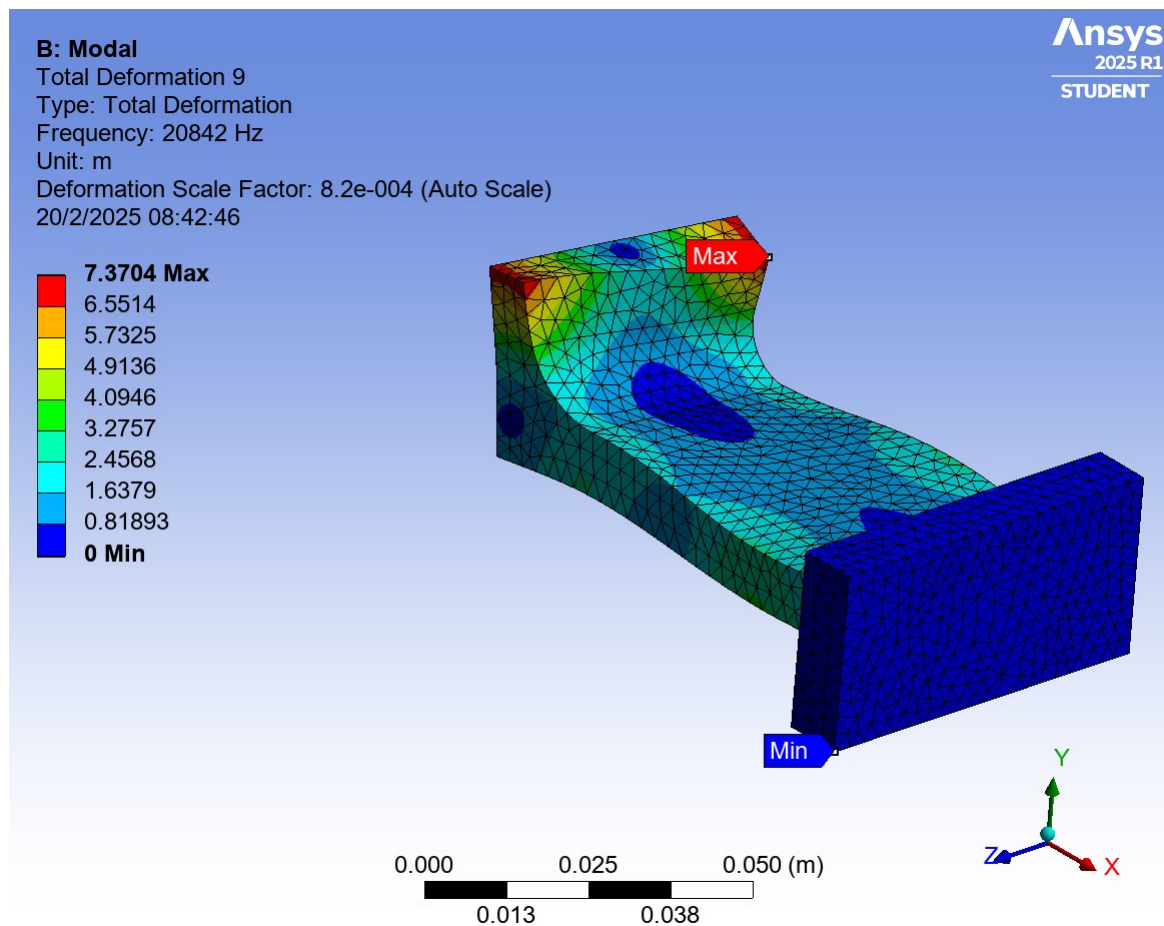
Subject:

Author: Miguel Angel Reales Gaitan

Prepared For: Tarea 4

Date: Thursday, February 20, 2025

Comments:



Total Deformation 10

Subject:

Author: Miguel Angel Reales Gaitan

Prepared For: Tarea 4

Date: Thursday, February 20, 2025

Comments:

