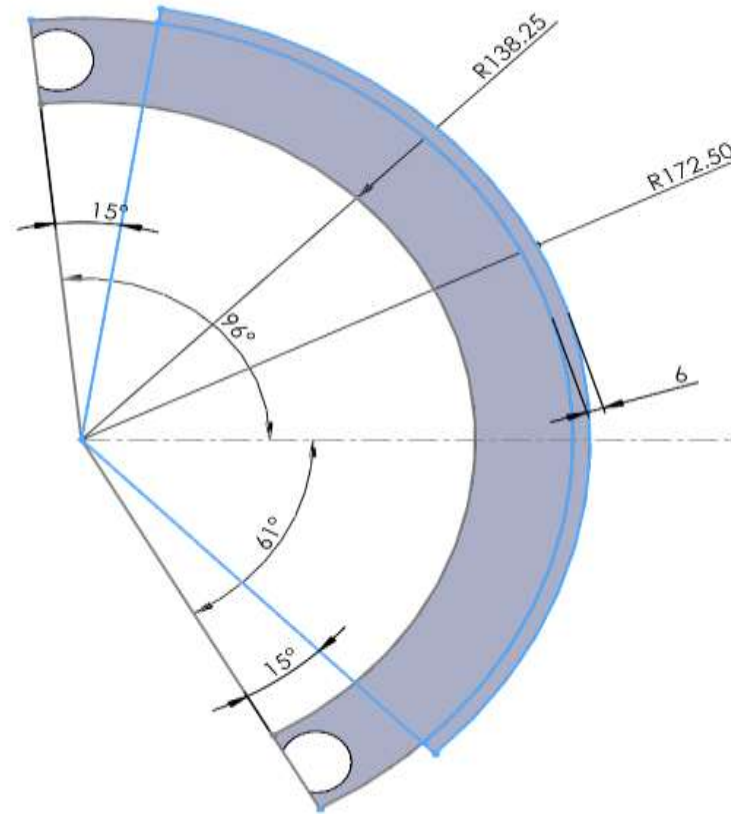


BRAKE PAD



Dimensions of brake pad



- Toolbox
- Analysis Systems
 - Component Systems
 - Custom Systems
 - Design Exploration
 - ACT

Project Schematic

A	
1	Static Structural
2	Engineering Data ✓
3	Geometry ✓
4	Model ✓
5	Setup ✓
6	Solution ✓
7	Results ✓

STRUCTURAL STEEL

B	
1	Static Structural
2	Engineering Data ✓
3	Geometry ✓
4	Model ✓
5	Setup ✓
6	Solution ✓
7	Results ✓

GRAY CAST IRON

C	
1	Static Structural
2	Engineering Data ✓
3	Geometry ✓
4	Model ✓
5	Setup ✓
6	Solution ✓
7	Results ✓

CAST IRON EN GJL 100

D	
1	Static Structural
2	Engineering Data ✓
3	Geometry ✓
4	Model ✓
5	Setup ✓
6	Solution ✓
7	Results ✓

CARBON STEEL 1020 ANNEALED

E	
1	Static Structural
2	Engineering Data ✓
3	Geometry ✓
4	Model ✓
5	Setup ✓
6	Solution ✓
7	Results ✓

INCONEL 718

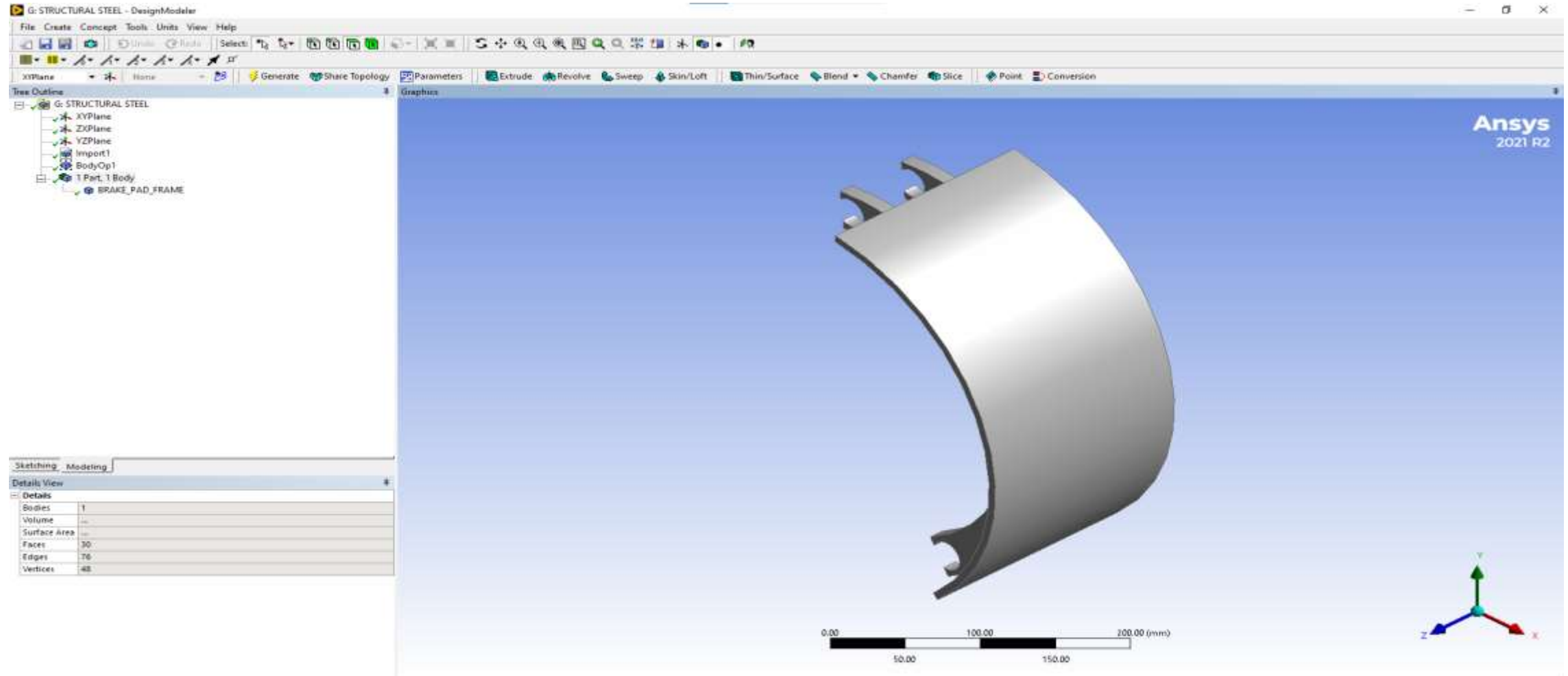
F	
1	Static Structural
2	Engineering Data ✓
3	Geometry ✓
4	Model ✓
5	Setup ✓
6	Solution ✓
7	Results ✓

SS 316 ANNEALED

	A	B	C	D	E
1	Contents of Engineering Data			Source	Description
2	Material				
3	Carbon steel, 1020, annealed		<input type="checkbox"/>	G	Carbon steel, AISI 1020, annealed Data compiled by the Granta Design team at ANSYS, incorporating various sources including JAHM and MagWeb. ANSYS Inc. provides no warranty for this data.
4	Cast iron, EN GJL 100		<input type="checkbox"/>	G	Cast iron, gray, flake graphite, EN GJL 100, BS EN 1561:1997 (record based on BS 1542:1990 BS grade 100) Data compiled by the Granta Design team at ANSYS, incorporating various sources including JAHM and MagWeb. ANSYS Inc. provides no warranty for this data.
5	Gray Cast Iron		<input type="checkbox"/>	G	
6	Inconel 625		<input type="checkbox"/>	A	Sample data representative of Inconel 625
7	Inconel 718		<input type="checkbox"/>	A	Sample data representative of Inconel 718
8	Stainless steel, 316, annealed		<input type="checkbox"/>	G	Stainless steel, austenitic, AISI 316, annealed, wrought Data compiled by the Granta Design team at ANSYS, incorporating various sources including JAHM and MagWeb. ANSYS Inc. provides no warranty for this data.
9	Structural Steel		<input type="checkbox"/>	G	Fatigue Data at zero mean stress comes from 1998 ASME BPV Code, Section 8, Div 2, Table 5-110.1
*	Click here to add a new material				

Importing model into ANSYS

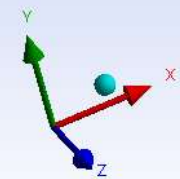
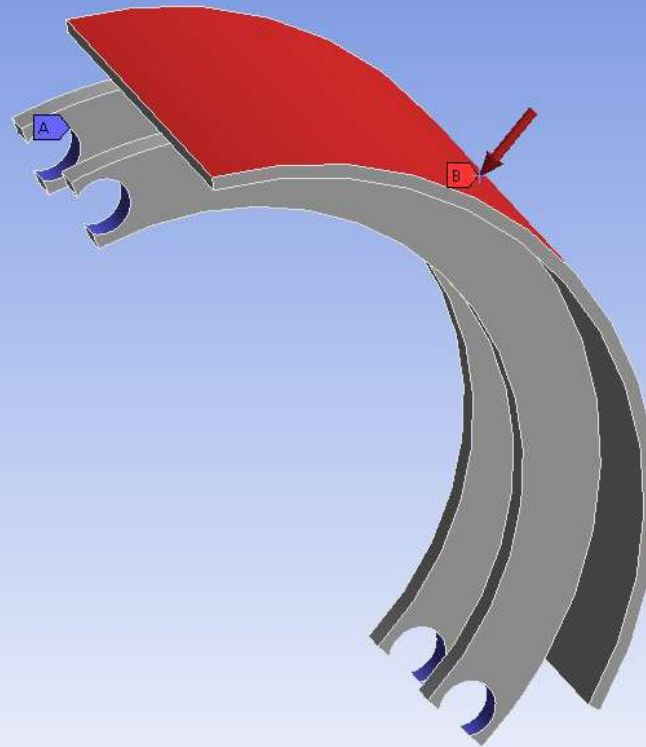
Ansys design modeler accepts the Solid Works file and it is made easy for importing the CAD model into the ANSYS system. The following image shows the imported model in ANSYS.



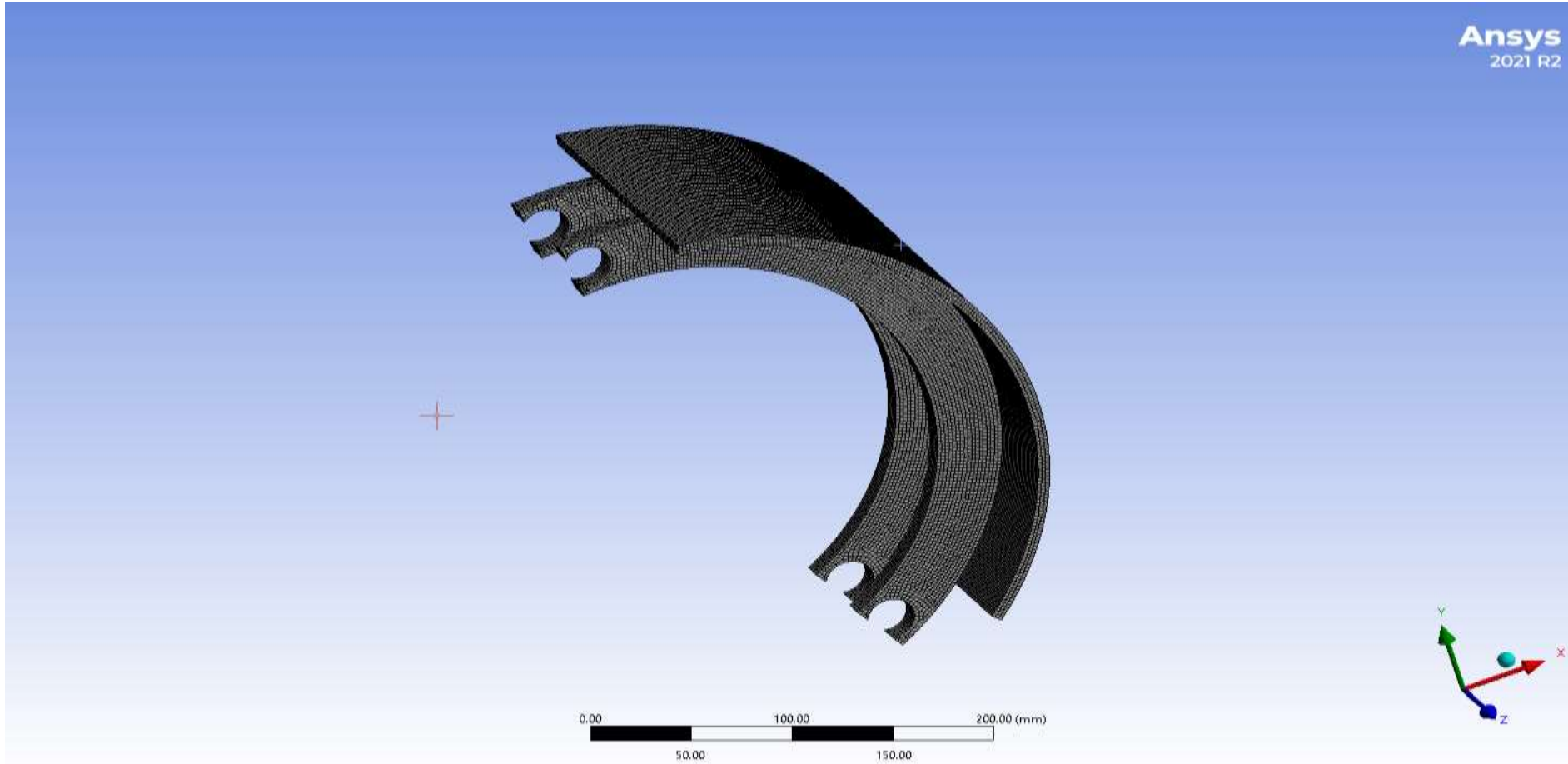
G: STRUCTURAL STEEL
Static Structural
Time: 1. s
03-11-2022 08:16 AM

Ansys
2021 R2

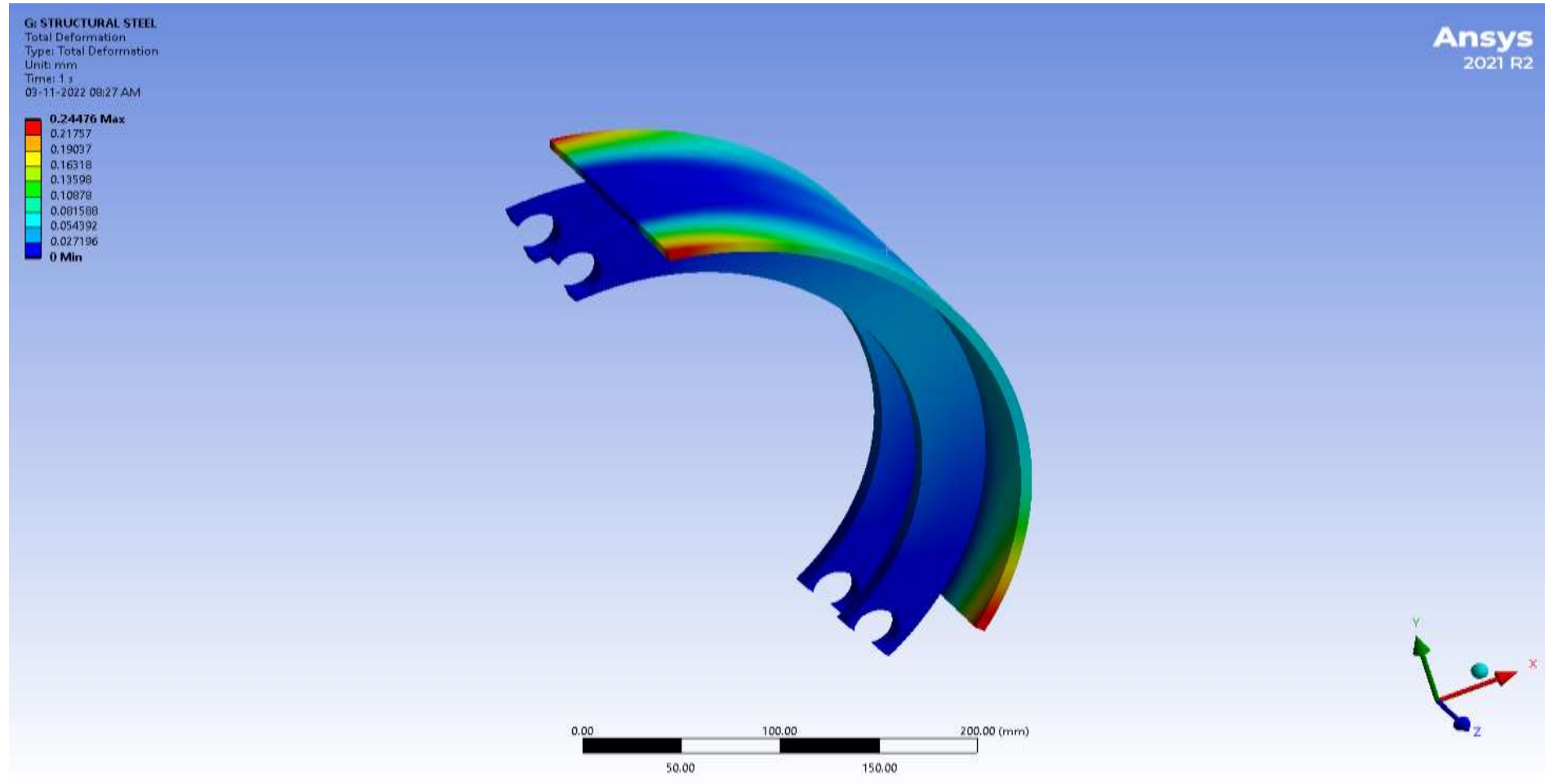
- A Fixed Support
- B Pressure: 1.5 MPa



Meshing – meshing is the process of dividing / splitting the model into number of divisions to obtain the result in desired location in the model. If the mesh size is less, more elements will be created, which results in accurate results. The following image is an example of meshed model.

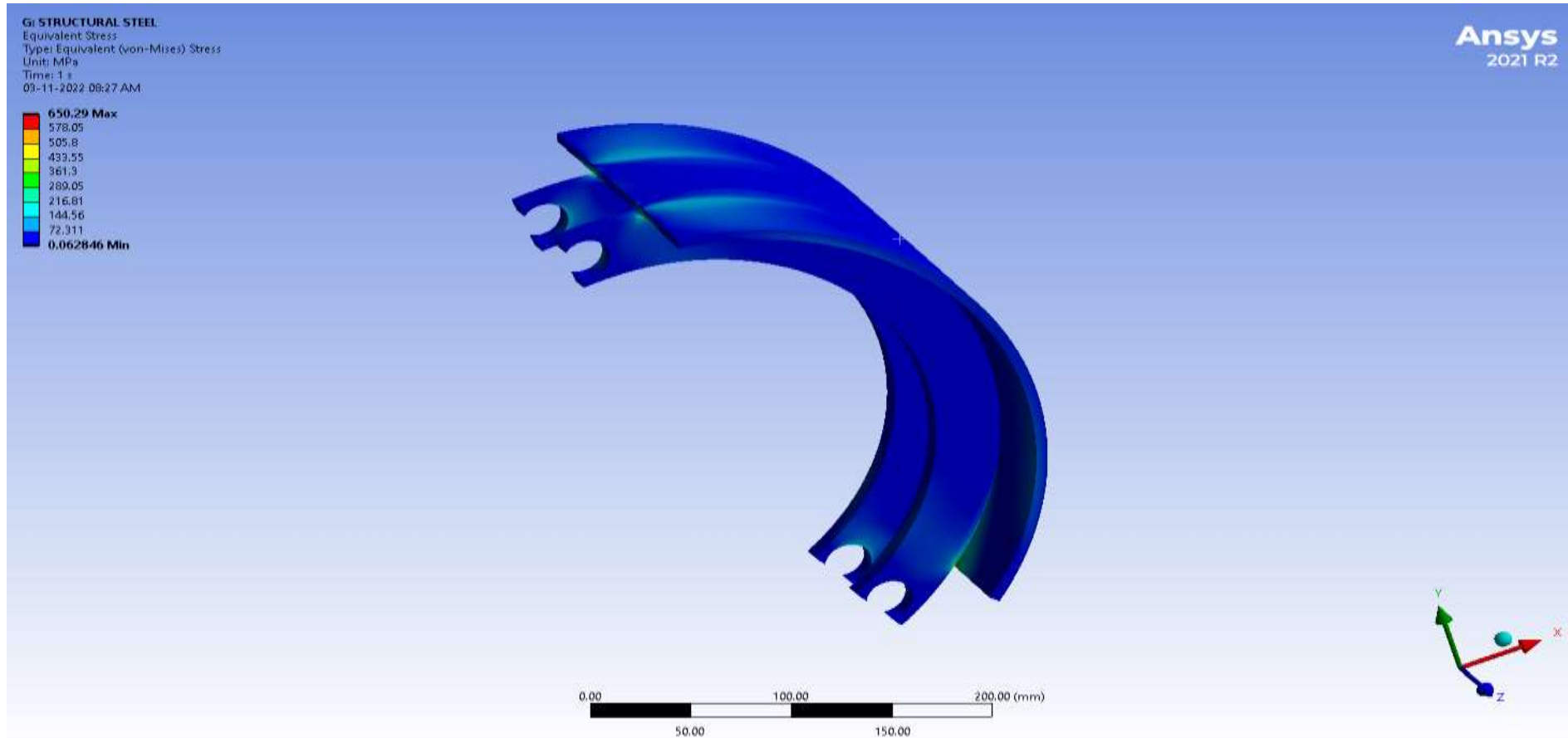


DEFORMATION - STRUCTURAL STEEL



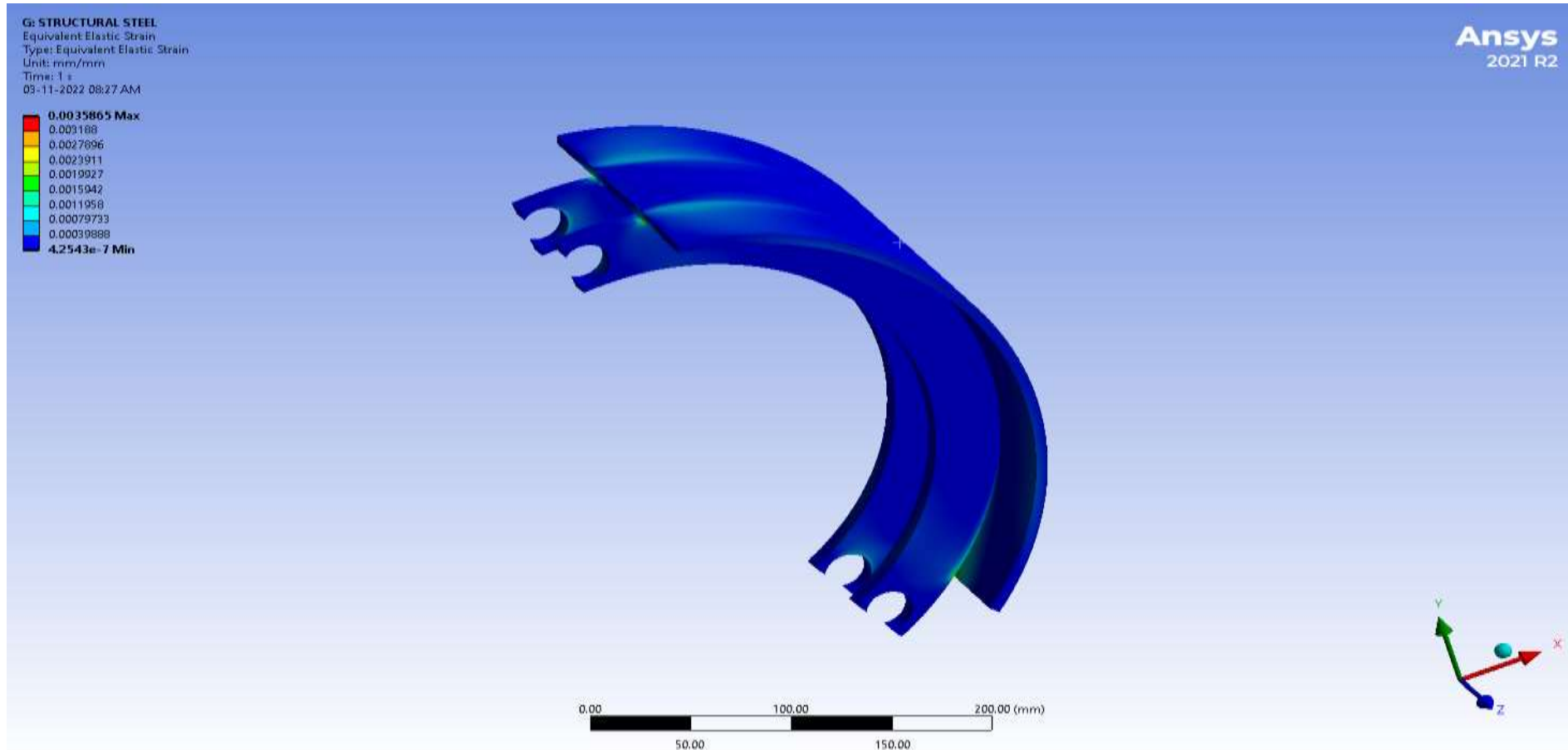
Total deformation is done for cross-sectional of work piece brake drum. Total Deformation of Structural Steel is calculated drum which is minimum of about 0 mm and maximum of 0.24476 mm around the circumference of the drum.

STRESS - STRUCTURAL STEEL



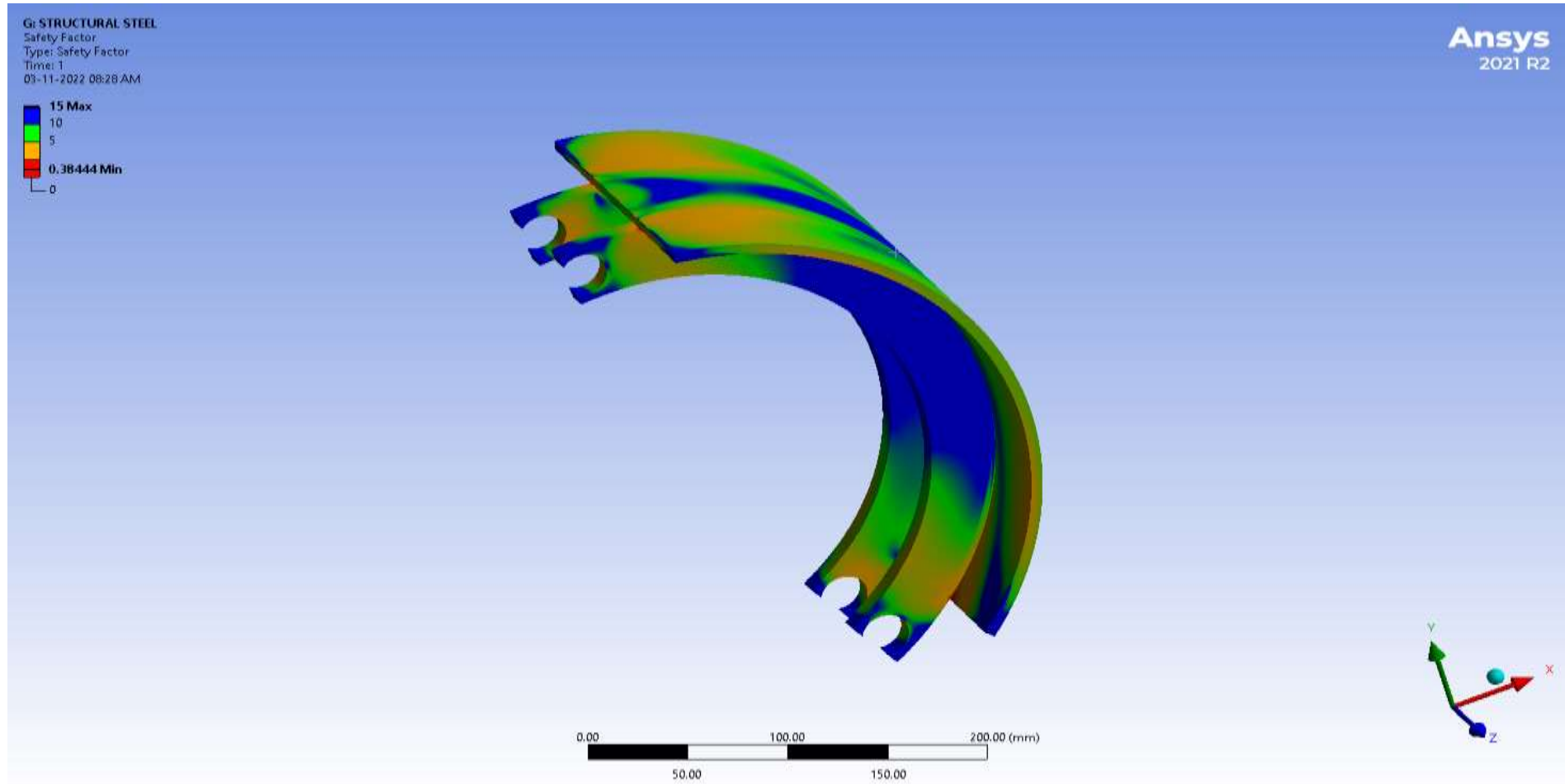
Equivalent stress is done for cross-sectional of work piece brake drum. Equivalent stress of Structural Steel is calculated drum which is minimum of about 0.0628 Mpa and maximum of 650.29 Mpa around the circumference of the drum.

STRAIN - STRUCTURAL STEEL



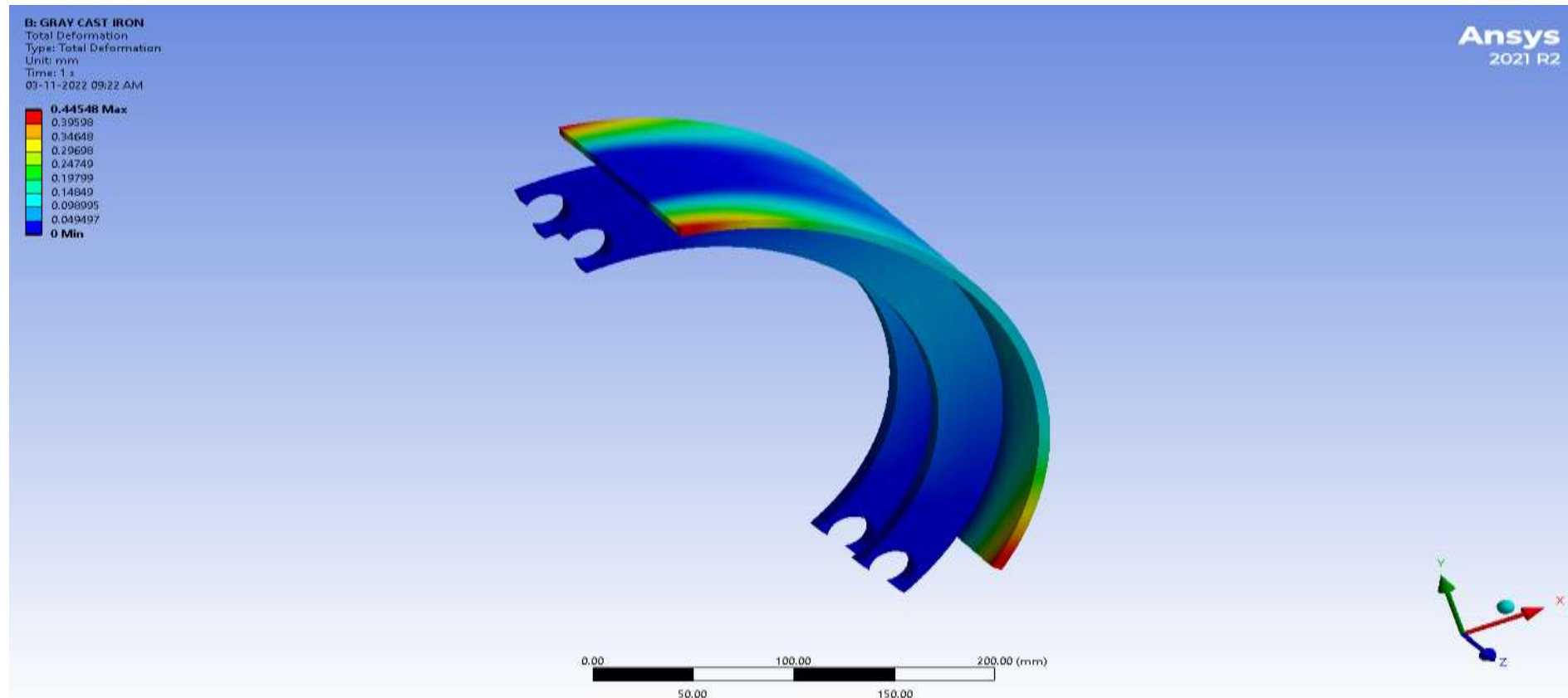
Equivalent strain is done for cross-sectional of work piece brake drum. Equivalent strain of Structural Steel is calculated drum which is minimum of about 4.2543×10^{-7} Mpa and maximum of 0.003586 Mpa around the circumference of the drum.

FOS - STRUCTURAL STEEL



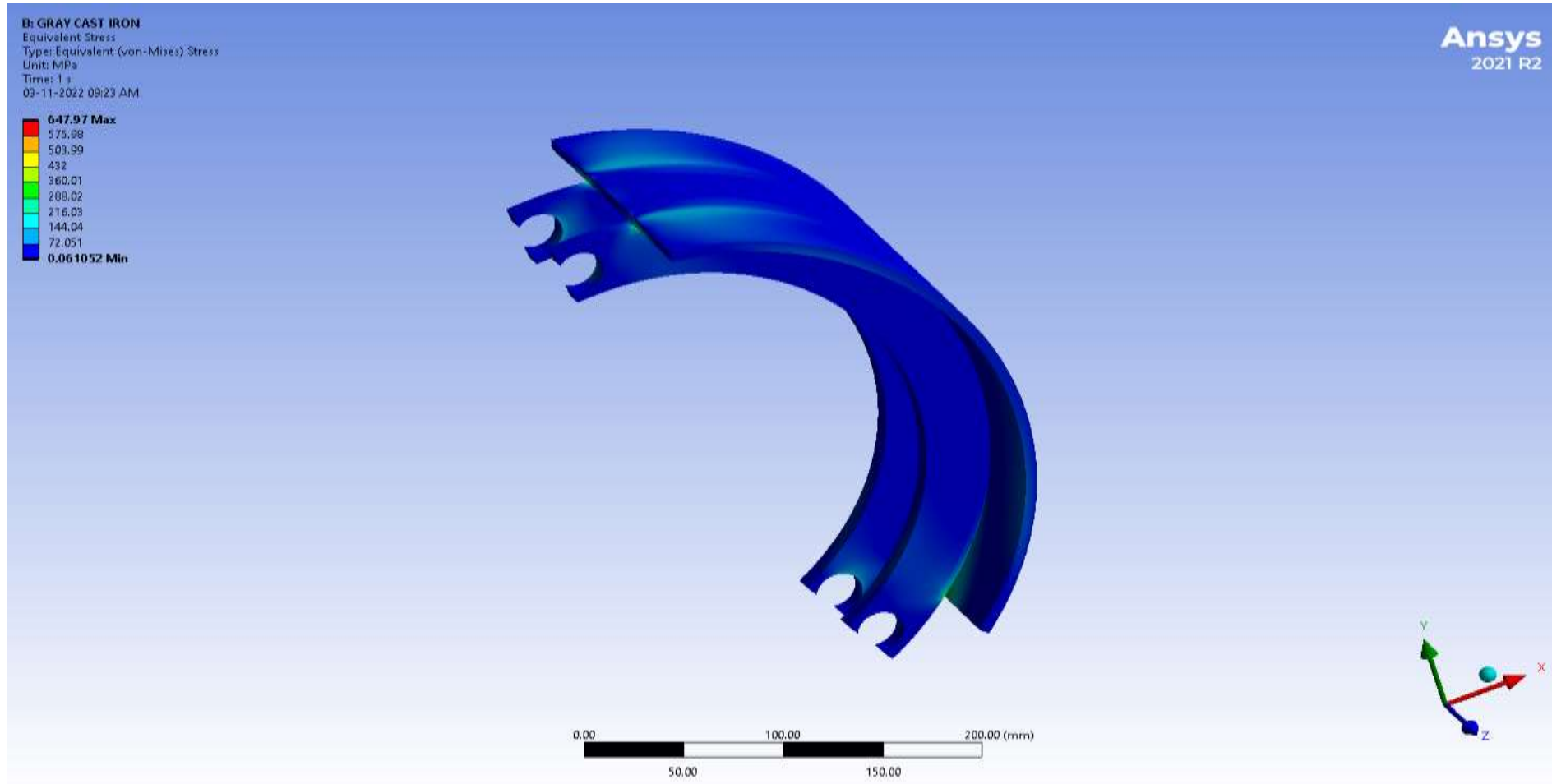
Safety factor is done for cross-sectional of work piece brake drum. safety factor of Structural Steel is calculated drum which is minimum of about 0 and maximum of 0.38 around the circumference of the drum.

DEFORMATION - GRAY CAST IRON



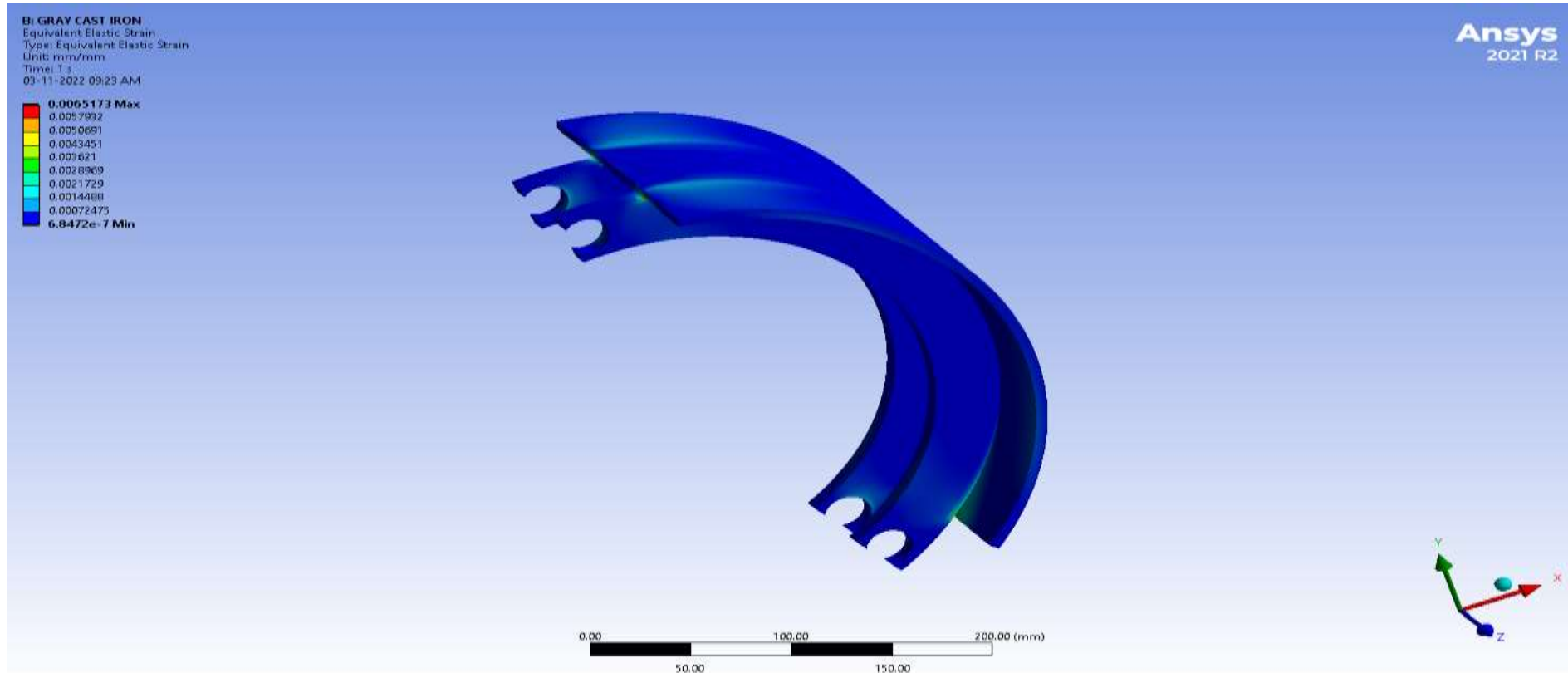
Total deformation is done for cross-sectional of work piece brake drum. Total Deformation of Gary Cast Iron is calculated drum which is minimum of about 0 mm and maximum of 0.4458 mm around the circumference of the drum.

STRESS - GRAY CAST IRON



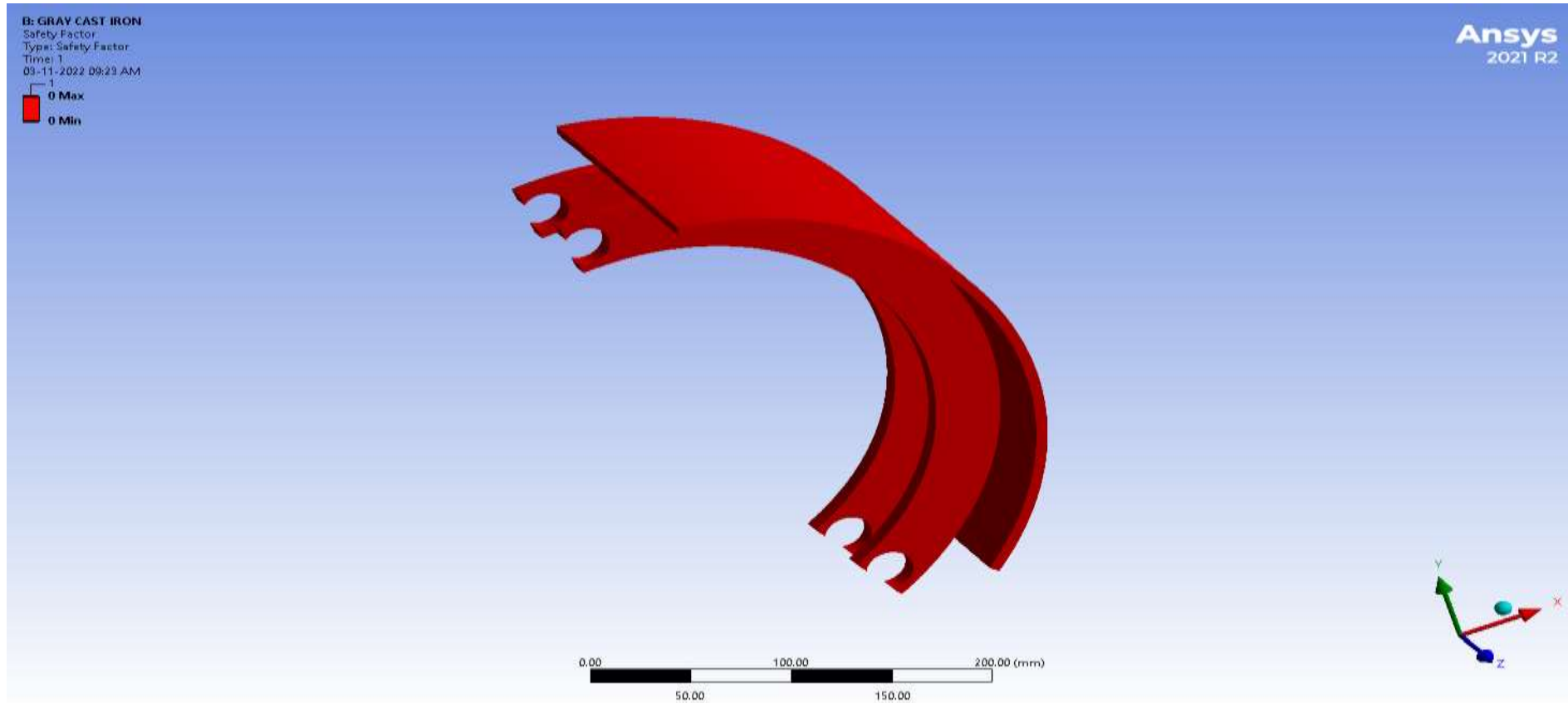
Equivalent stress is done for cross-sectional of work piece brake drum. Equivalent stress of Gary Cast Iron is calculated drum which is minimum of about 0.061 Mpa and maximum of 647.97Mpa around the circumference of the drum.

STRAIN - GRAY CAST IRON



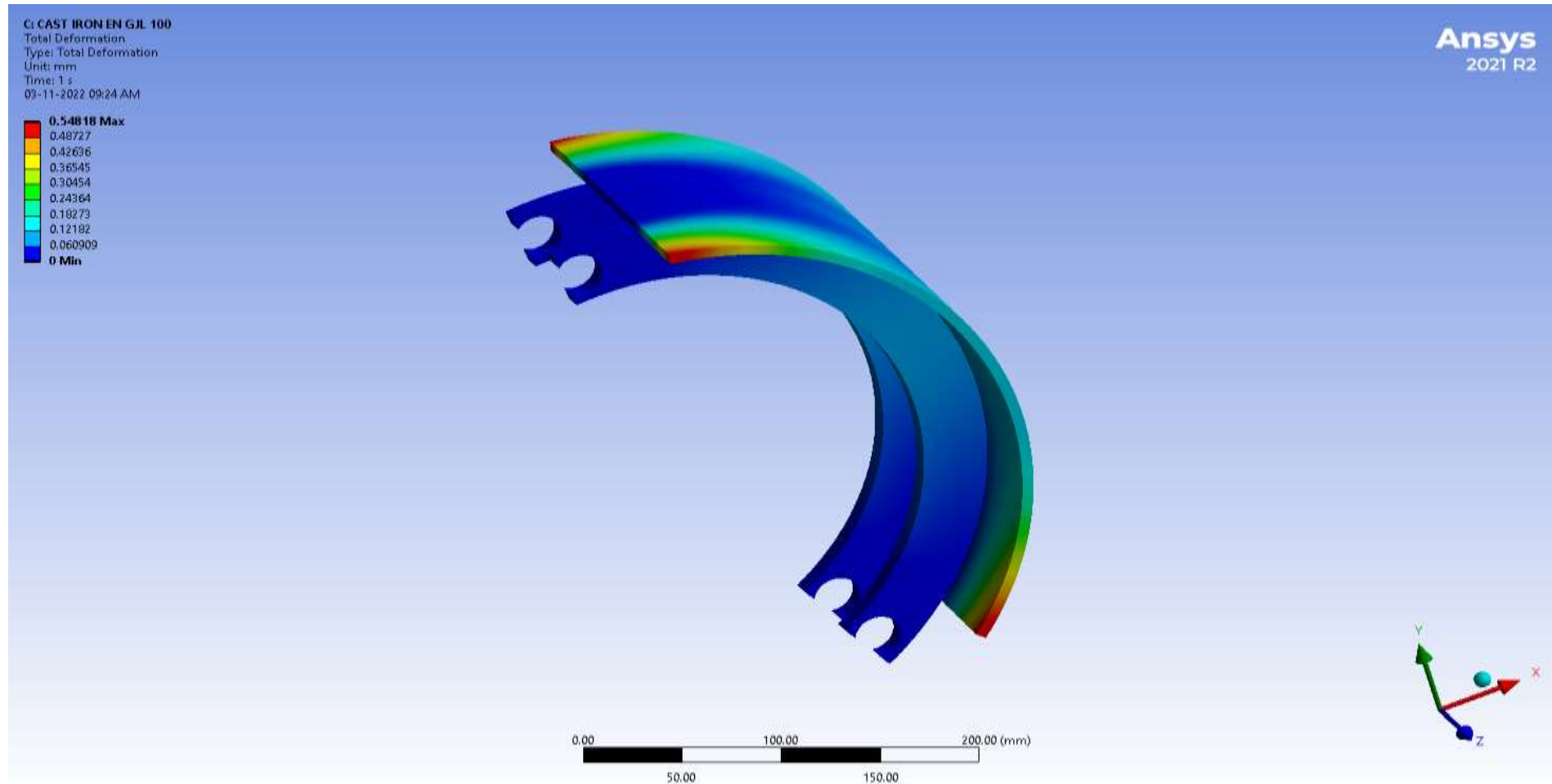
Equivalent strain is done for cross-sectional of work piece brake drum. Equivalent strain of Gary Cast Iron is calculated drum which is minimum of about 6.8×10^{-7} Mpa and maximum of 0.00651 Mpa around the circumference of the drum.

FOS - GRAY CAST IRON



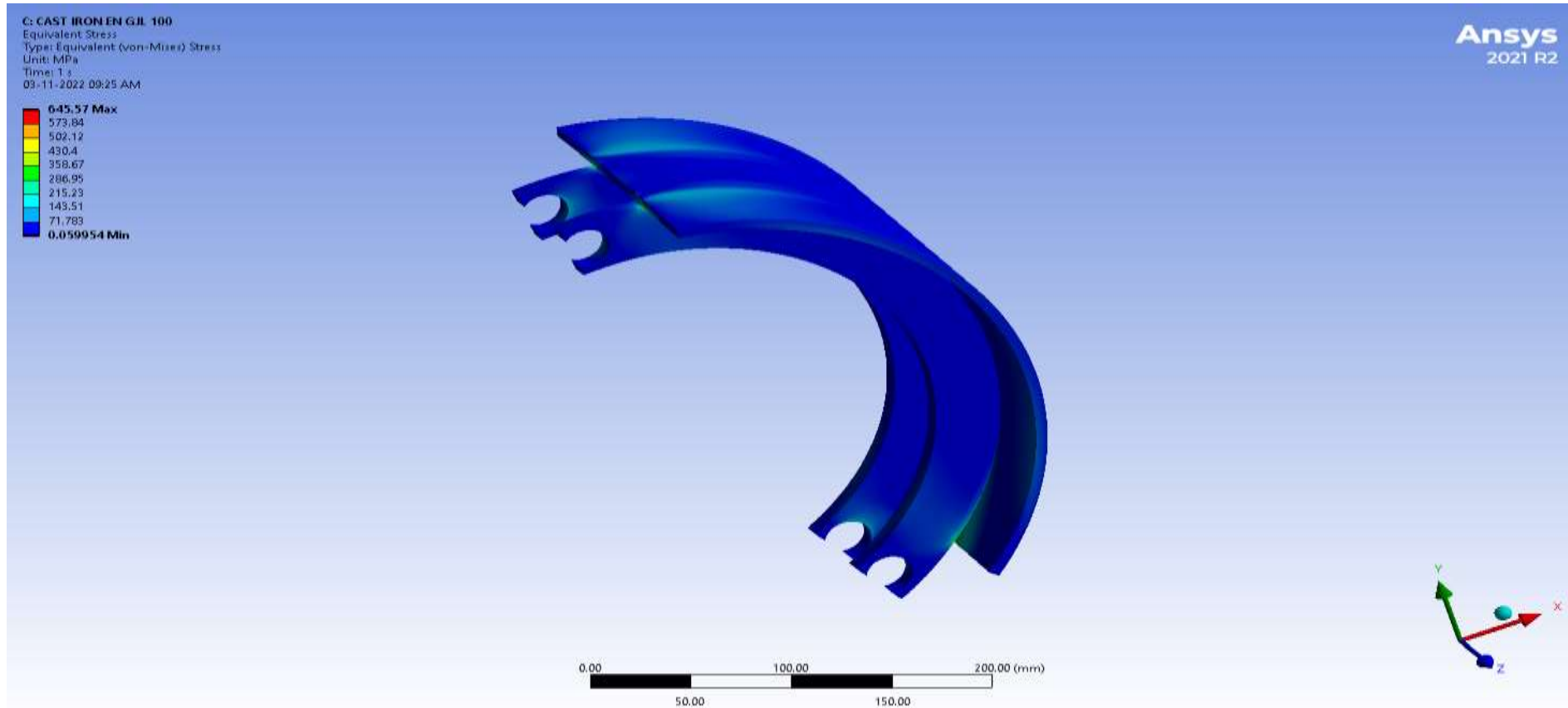
Safety factor is done for cross-sectional of work piece brake drum. safety factor of Gary Cast Iron is calculated drum which is minimum of about 0 and maximum of 0 around the circumference of the drum.

DEFORMATION - CAST IRON EN GJL 100



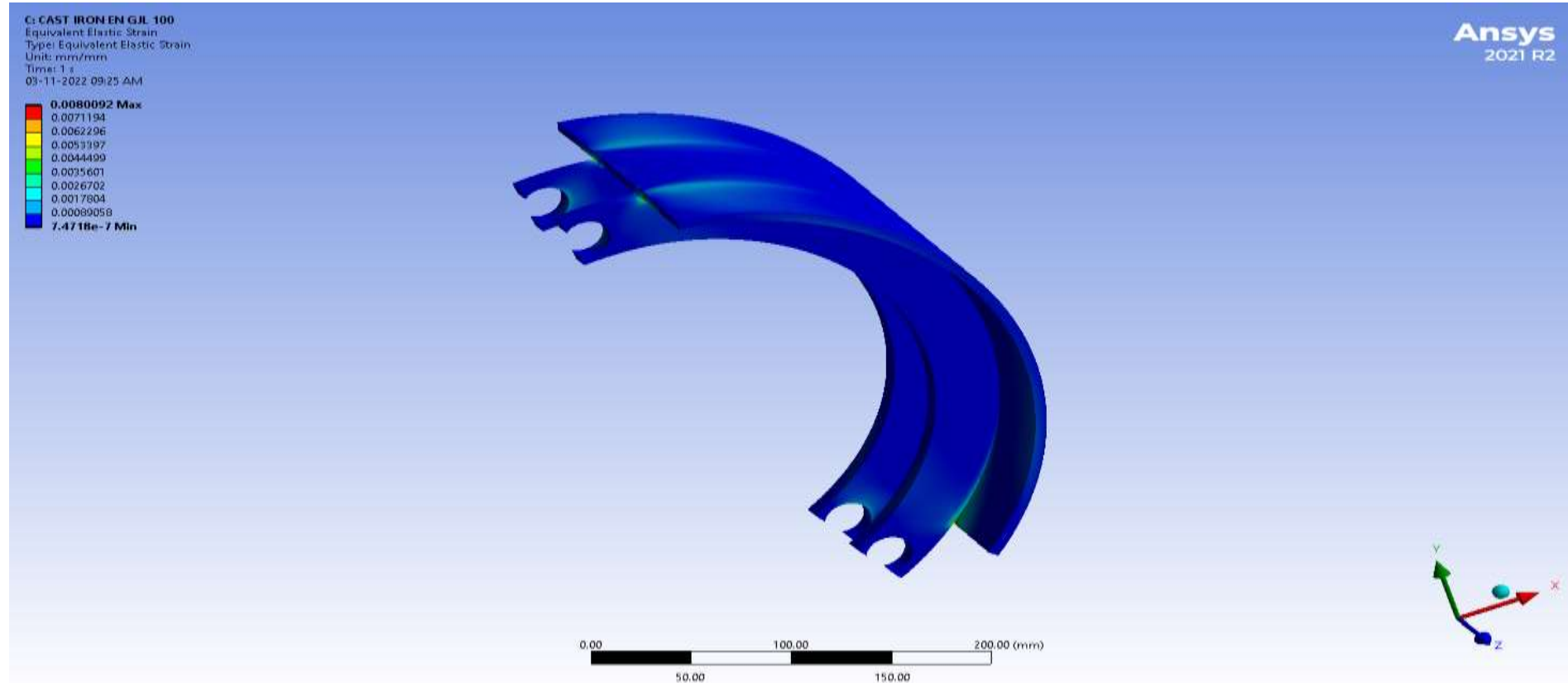
Total deformation is done for cross-sectional of work piece brake drum. Total Deformation of CAST IRON EN GJL 100 is calculated drum which is minimum of about 0 mm and maximum of 0.5818 mm around the circumference of the drum.

STRESS - CAST IRON EN GJL 100



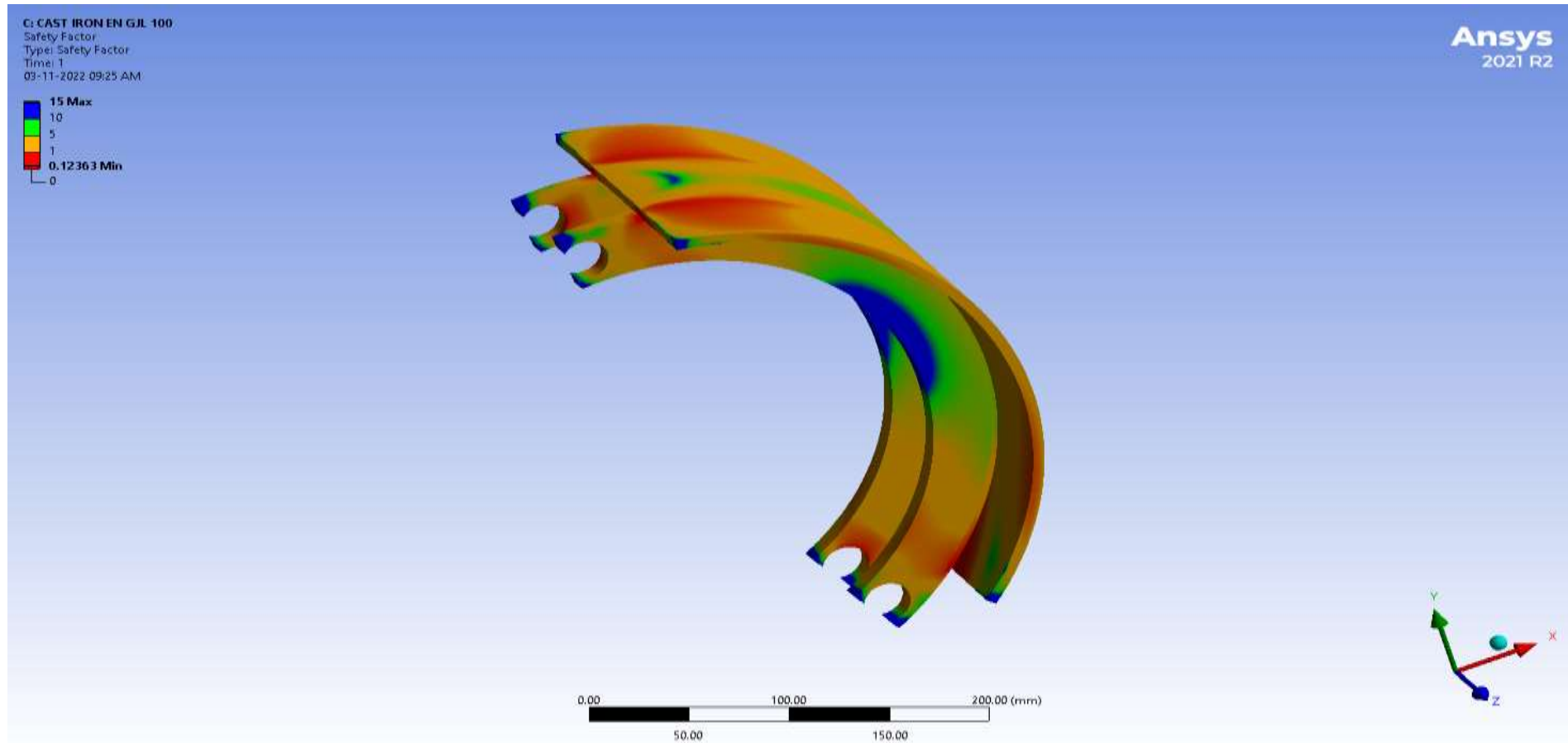
Equivalent stress is done for cross-sectional of work piece brake drum. Equivalent stress of CAST IRON EN GJL 100 is calculated drum which is minimum of about 0.05995 Mpa and maximum of 645.57 Mpa around the circumference of the drum.

STRAIN - CAST IRON EN GJL 100



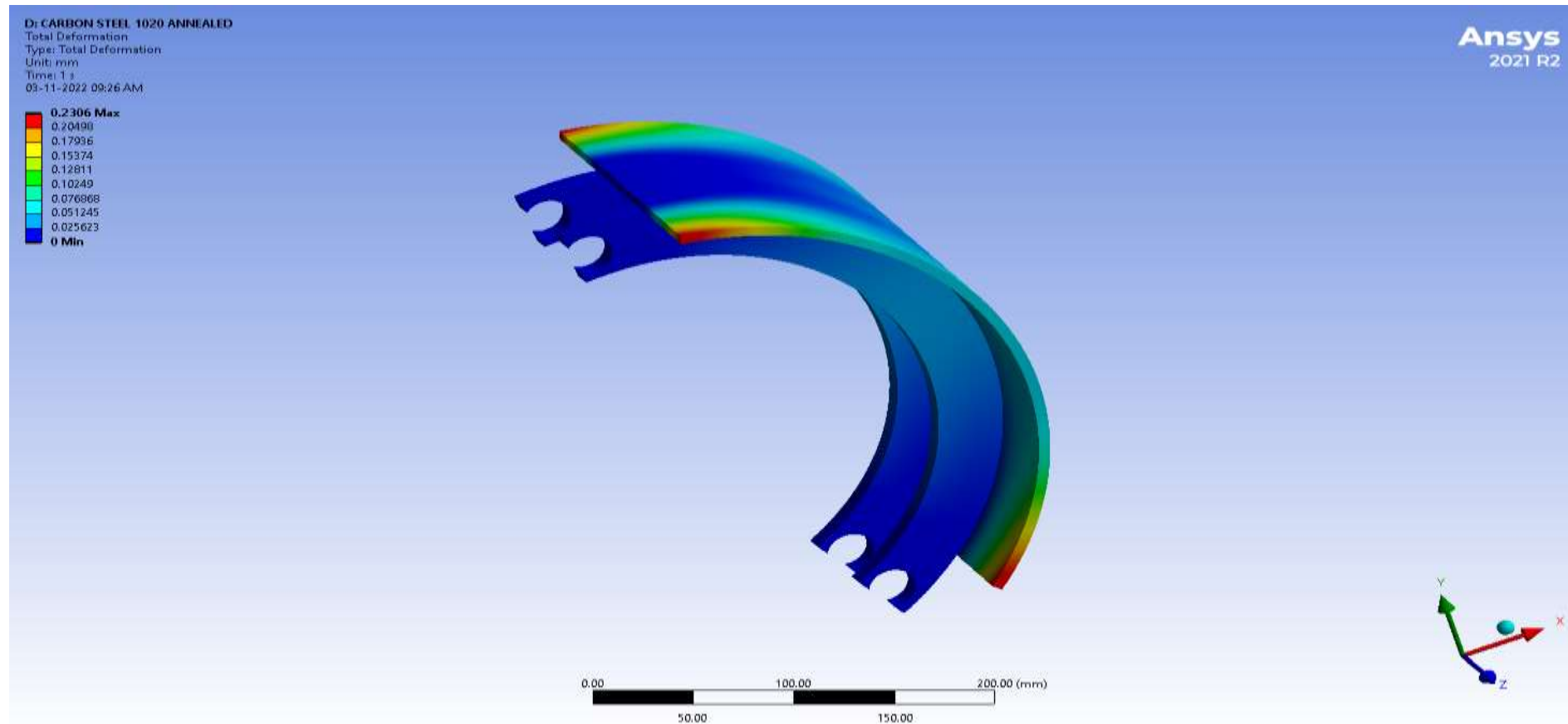
Equivalent strain is done for cross-sectional of work piece brake drum. Equivalent strain of CAST IRON EN GJL 100 l is calculated drum which is minimum of about 7.4718×10^{-7} Mpa and maximum of 0.008 Mpa around the circumference of the drum.

FOS - CAST IRON EN GJL 100



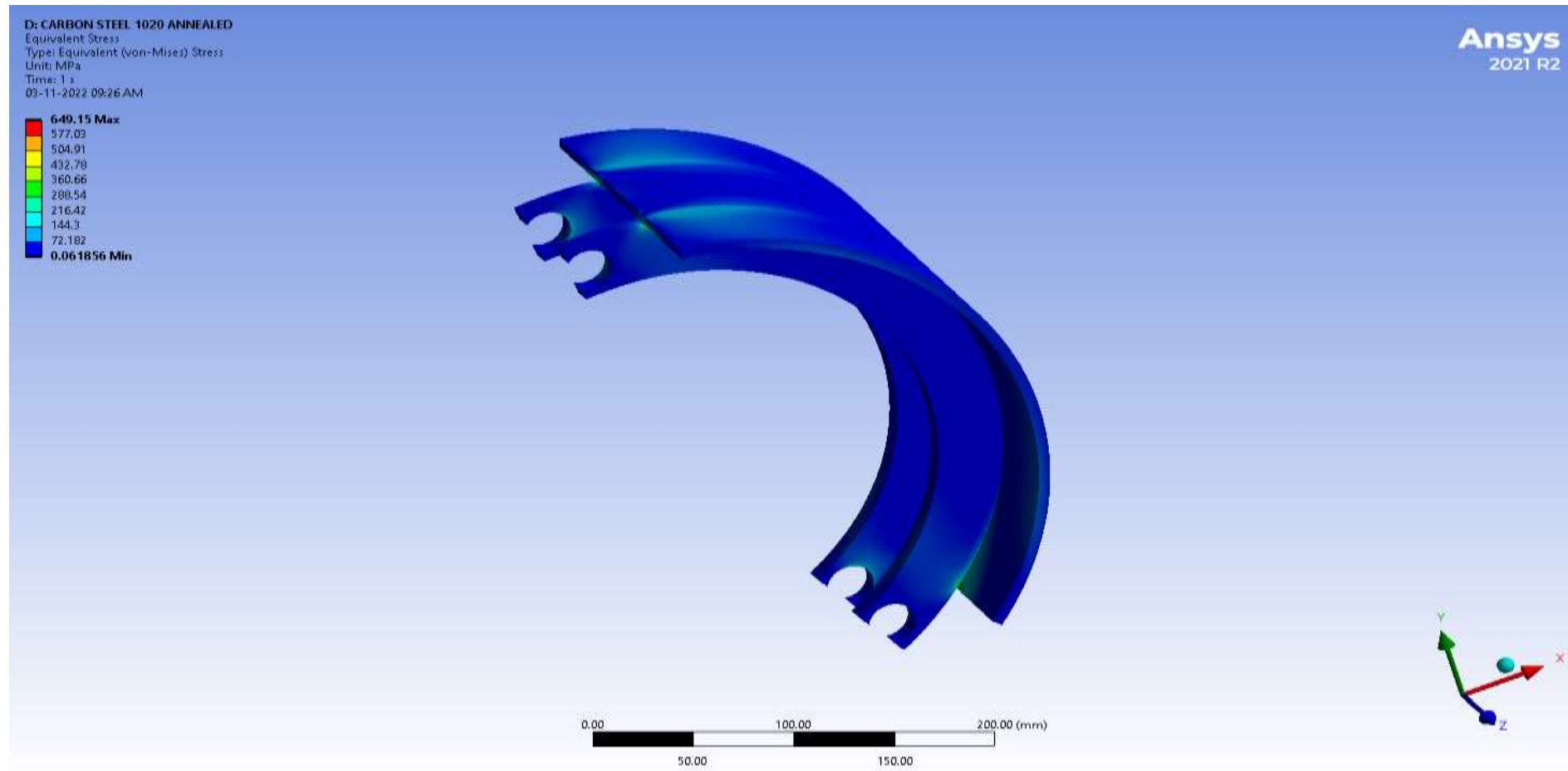
Safety factor is done for cross-sectional of work piece brake drum. safety factor of CAST IRON EN GJL 100 is calculated drum which is minimum of about 0 and maximum of 0.124 around the circumference of the drum.

DEFORMATION - CARBON STEEL 1020 ANNEALED



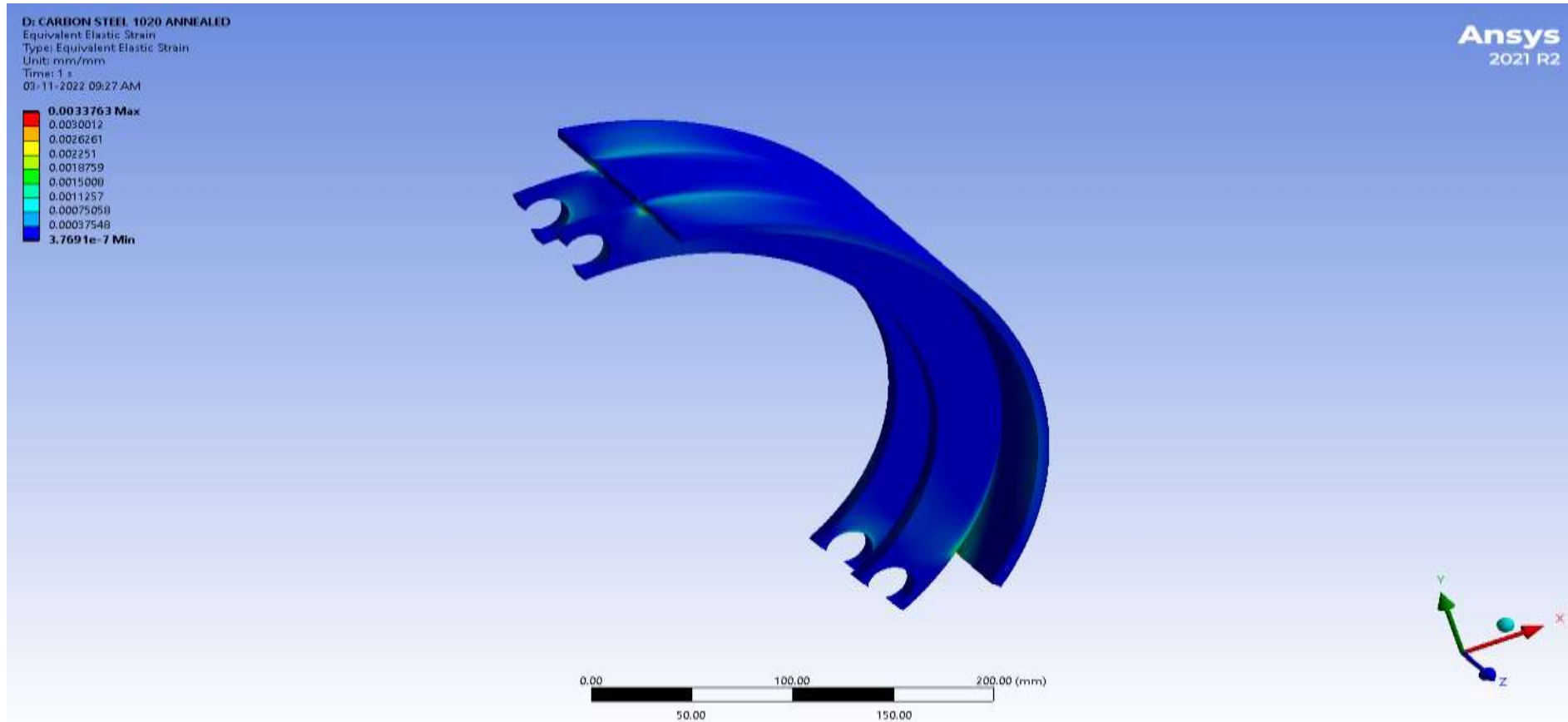
Total deformation is done for cross-sectional of work piece brake drum. Total Deformation of CARBON STEEL 1020 ANNEALED is calculated drum which is minimum of about 0 mm and maximum of 0.23 mm around the circumference of the drum.

STRESS - CARBON STEEL 1020 ANNEALED



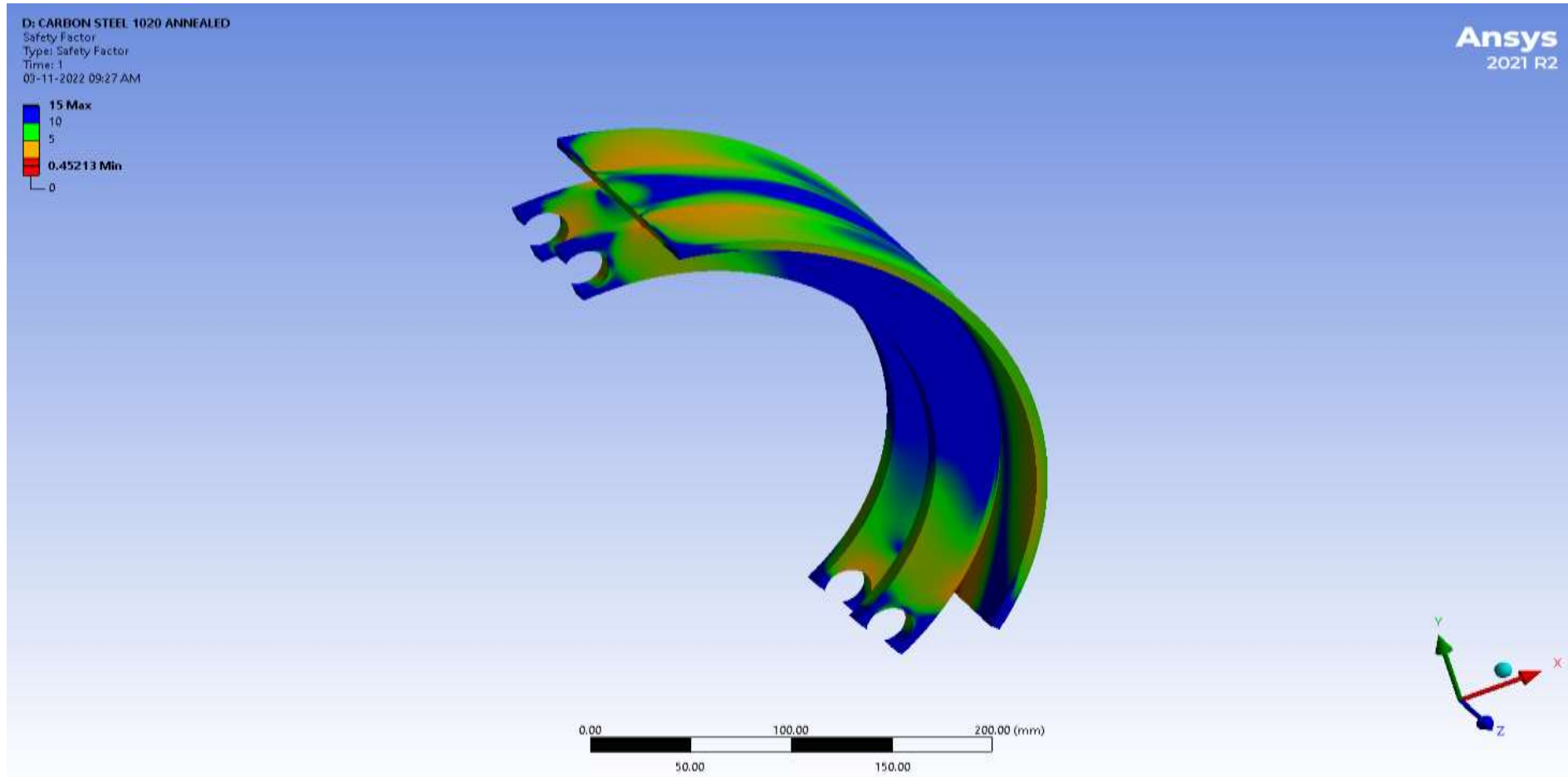
Equivalent stress is done for cross-sectional of work piece brake drum. Equivalent stress of CARBON STEEL 1020 ANNEALED is calculated drum which is minimum of about 0.0618 Mpa and maximum of 649.15 Mpa around the circumference of the drum.

STRAIN - CARBON STEEL 1020 ANNEALED



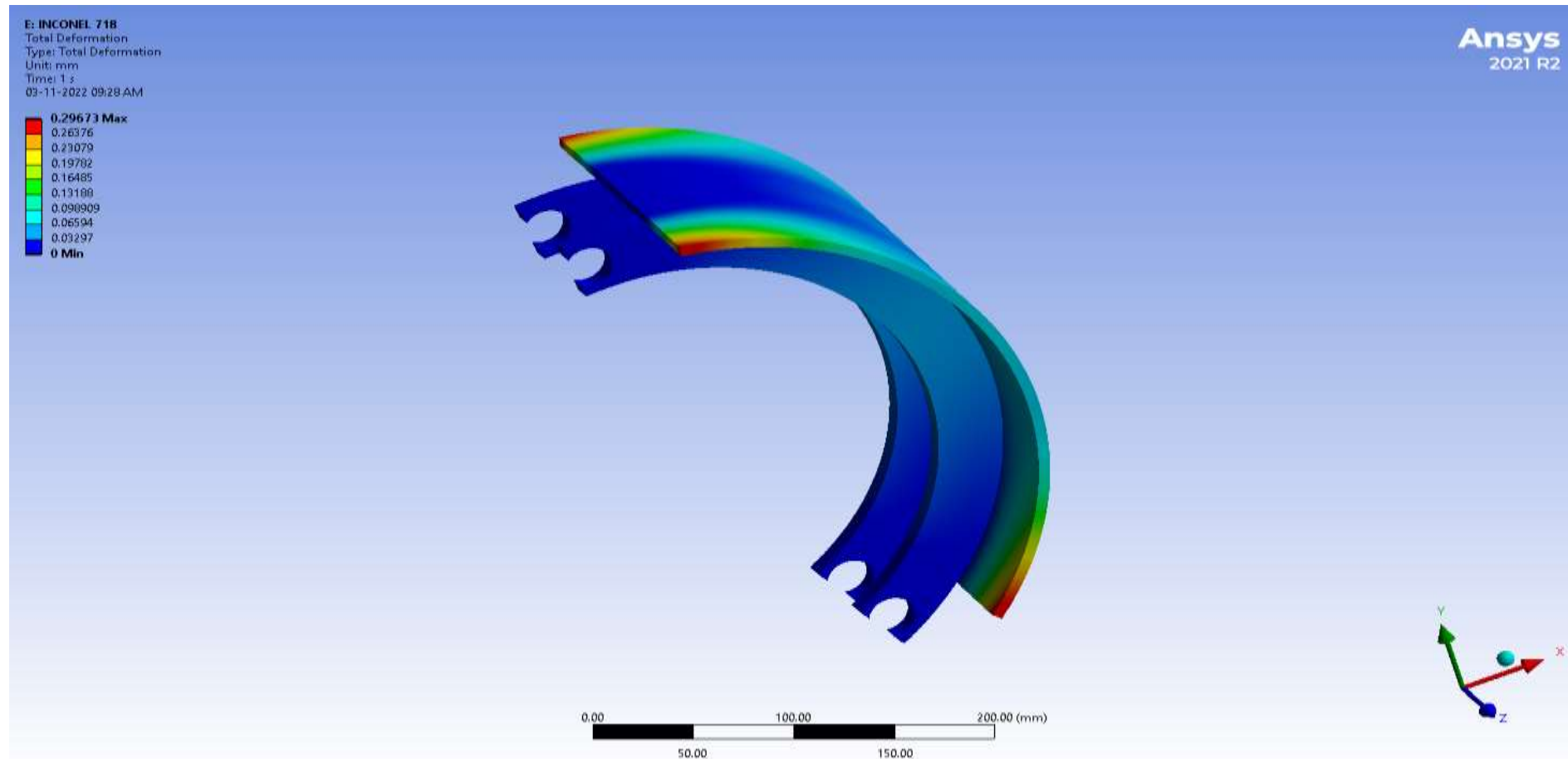
Equivalent strain is done for cross-sectional of work piece brake drum. Equivalent strain of CARBON STEEL 1020 ANNEALED is calculated drum which is minimum of about 3.769×10^{-7} Mpa and maximum of 0.003376 Mpa around the circumference of the drum.

FOS - CARBON STEEL 1020 ANNEALED



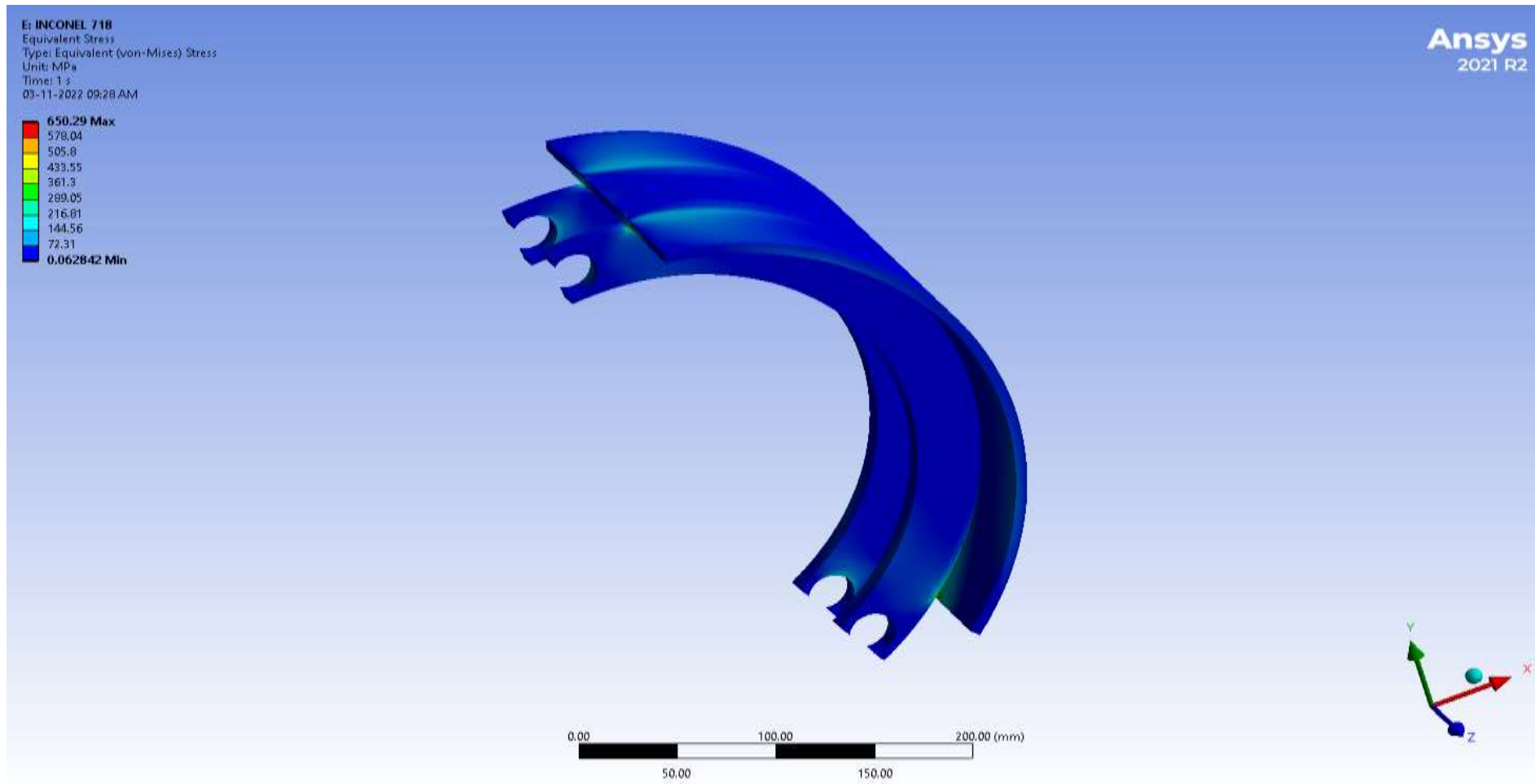
Safety factor is done for cross-sectional of work piece brake drum. safety factor of CARBON STEEL 1020 ANNEALED is calculated drum which is minimum of about 0 and maximum of 0.45 around the circumference of the drum.

DEFORMATION - INCONEL 718



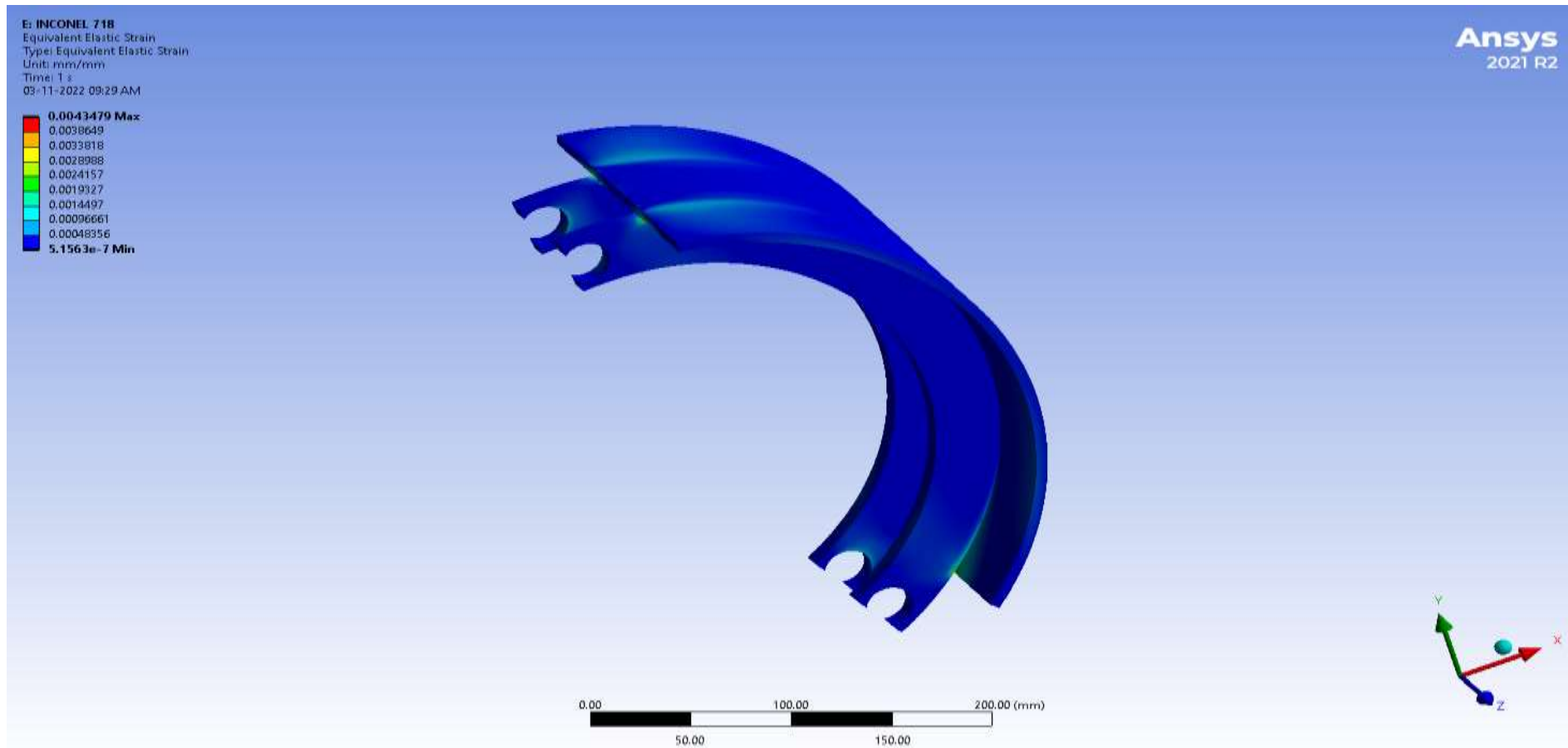
Total deformation is done for cross-sectional of work piece brake drum. Total Deformation of INCONEL 718 is calculated drum which is minimum of about 0 mm and maximum of 0.2967 mm around the circumference of the drum.

STRESS - INCONEL 718



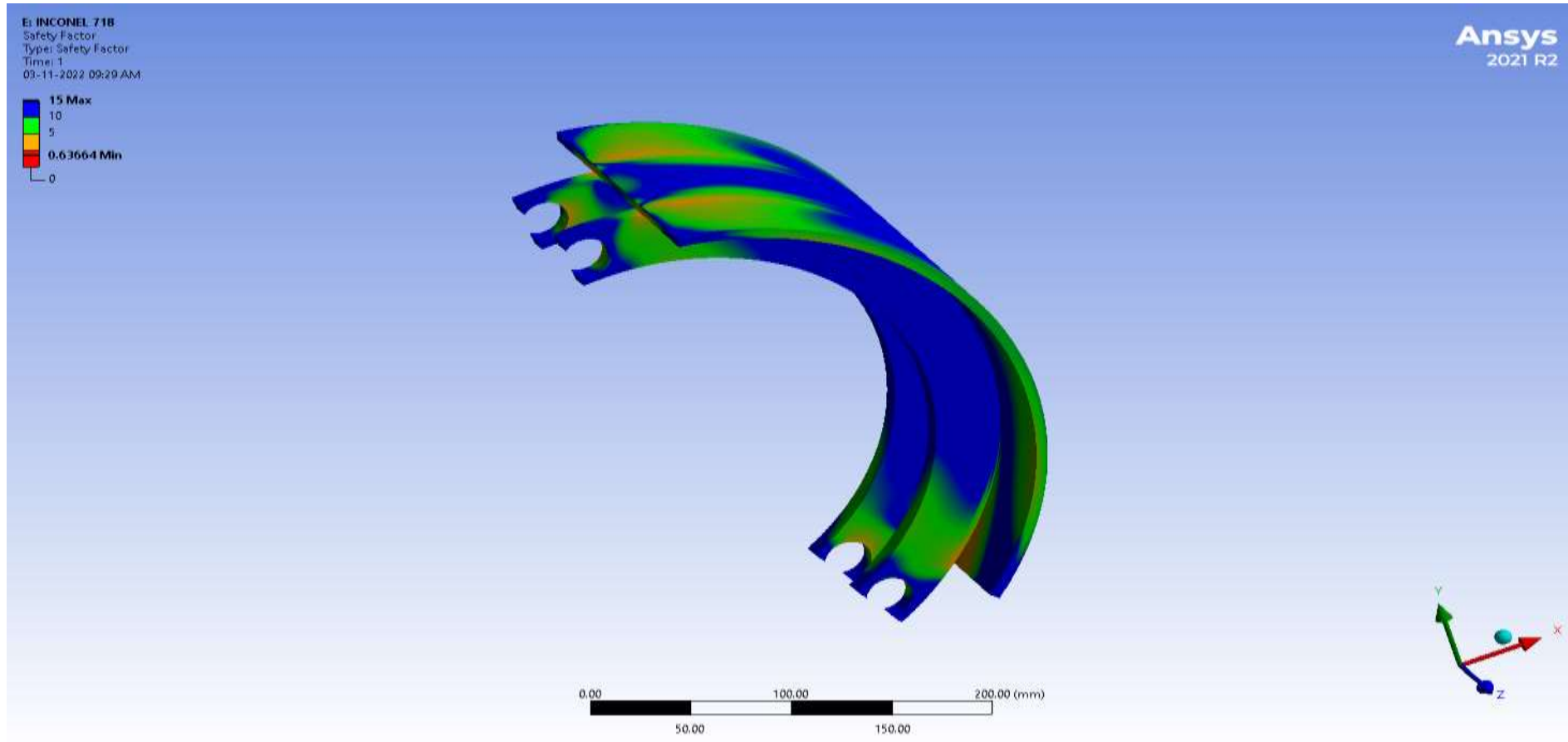
Equivalent stress is done for cross-sectional of work piece brake drum. Equivalent stress of INCONEL 718 is calculated drum which is minimum of about 0.0628 Mpa and maximum of 650.29 Mpa around the circumference of the drum.

STRAIN - INCONEL 718



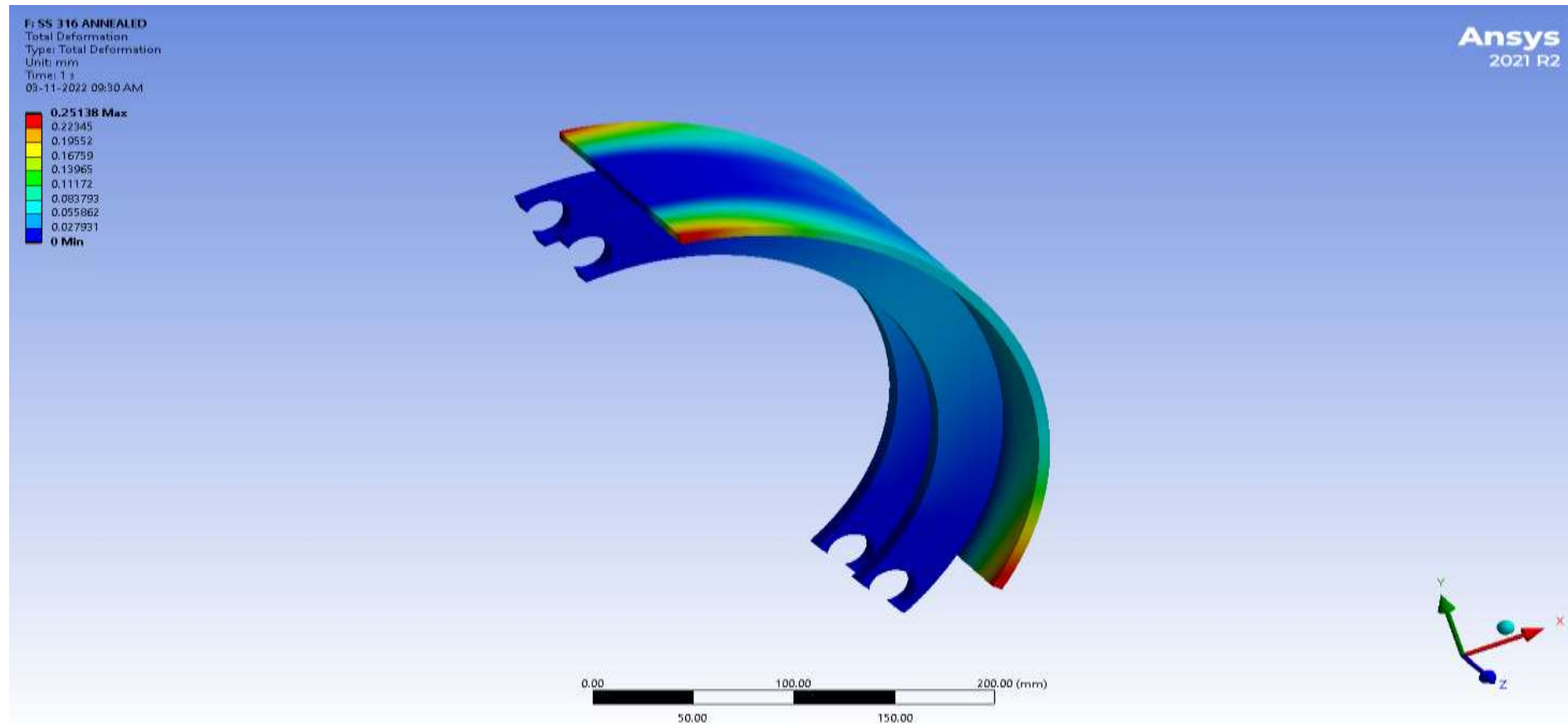
Equivalent strain is done for cross-sectional of work piece brake drum. Equivalent strain of INCONEL 718 is calculated drum which is minimum of about 5.1563×10^{-7} Mpa and maximum of 0.004348 Mpa around the circumference of the drum.

FOS - INCONEL 718



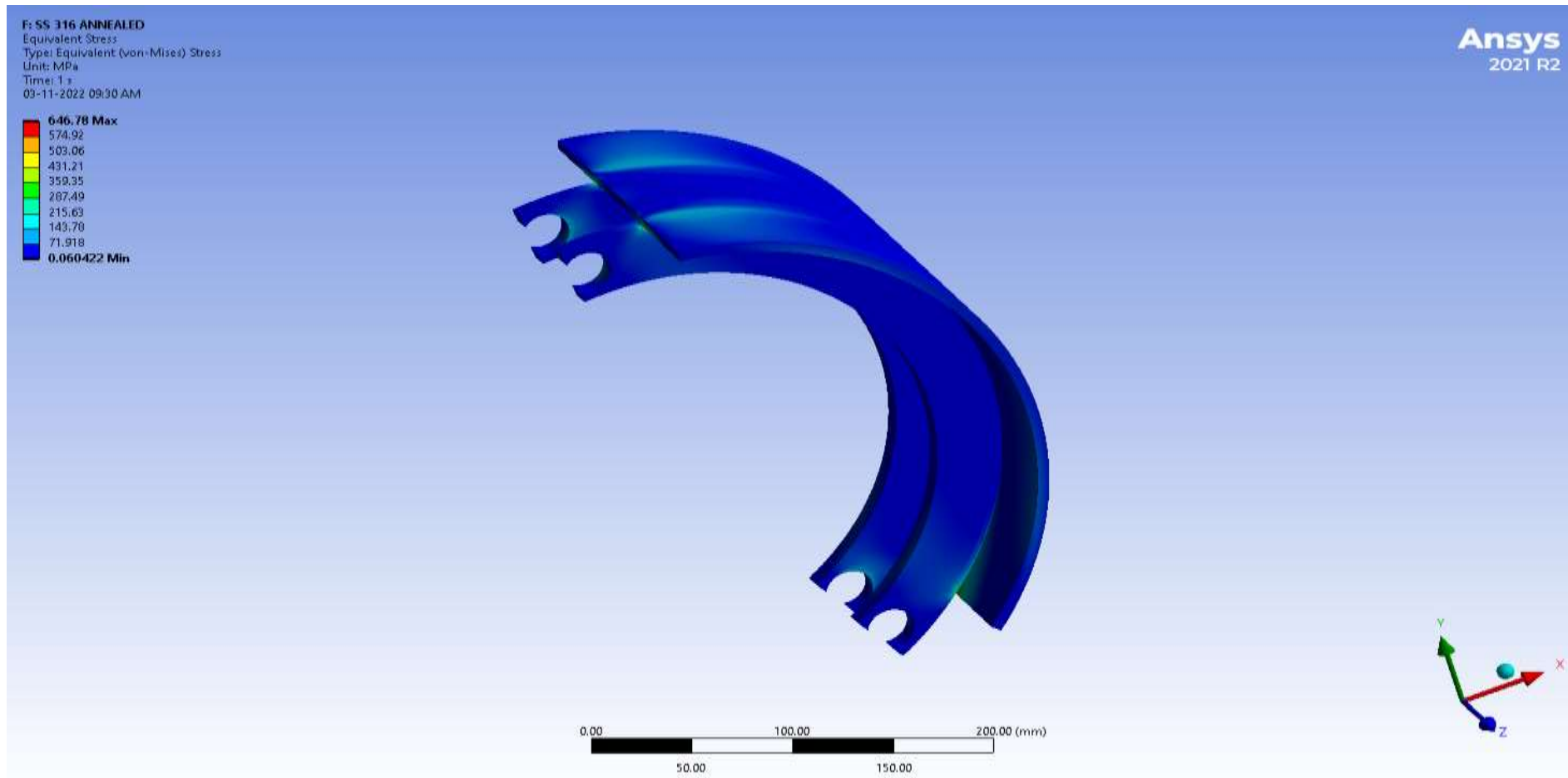
Safety factor is done for cross-sectional of work piece brake drum. safety factor of INCONEL 718 is calculated drum which is minimum of about 0 and maximum of 0.6366 around the circumference of the drum.

DEFORMATION - SS 316 ANNEALED



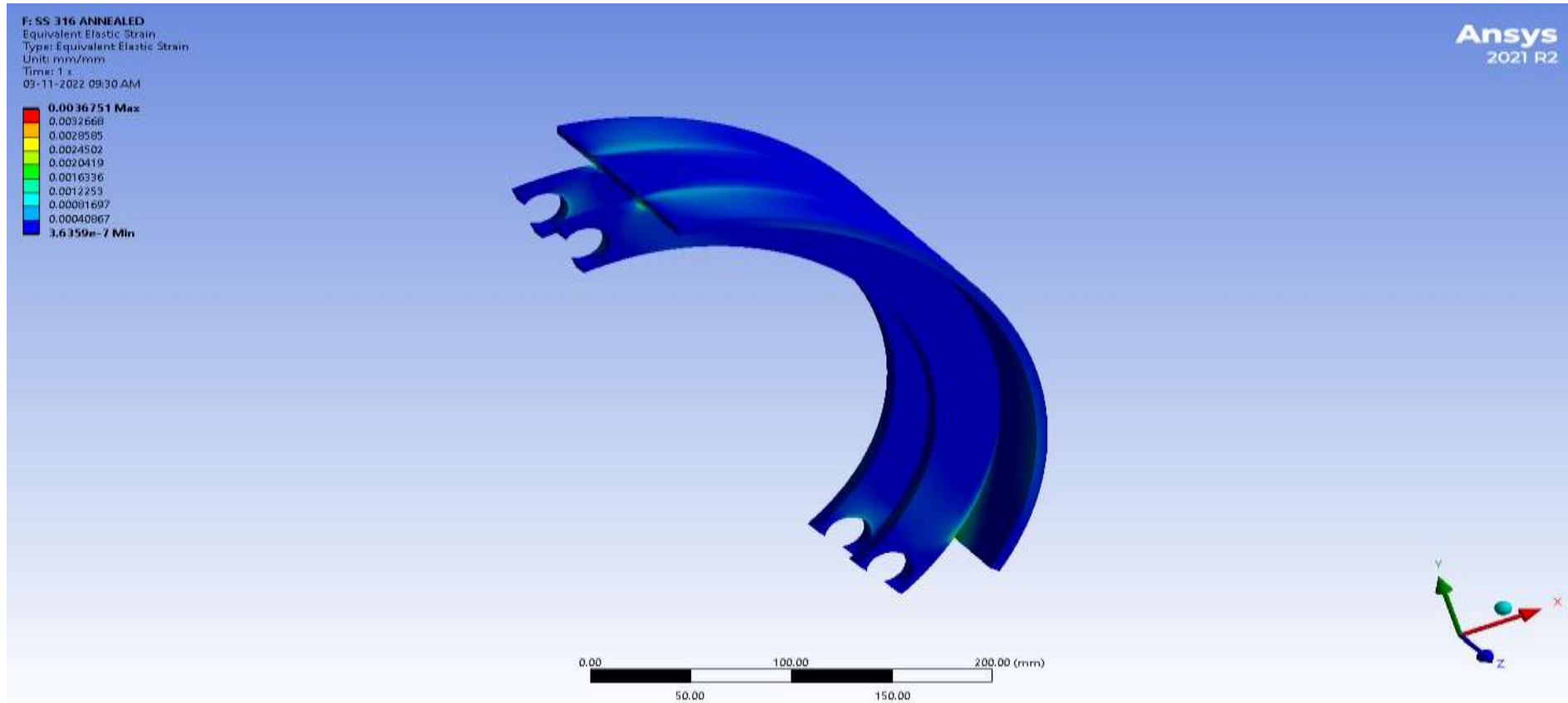
Total deformation is done for cross-sectional of work piece brake drum. Total Deformation of SS 316 ANNEALED is calculated drum which is minimum of about 0 mm and maximum of 0.2517 mm around the circumference of the drum.

STRESS - SS 316 ANNEALED



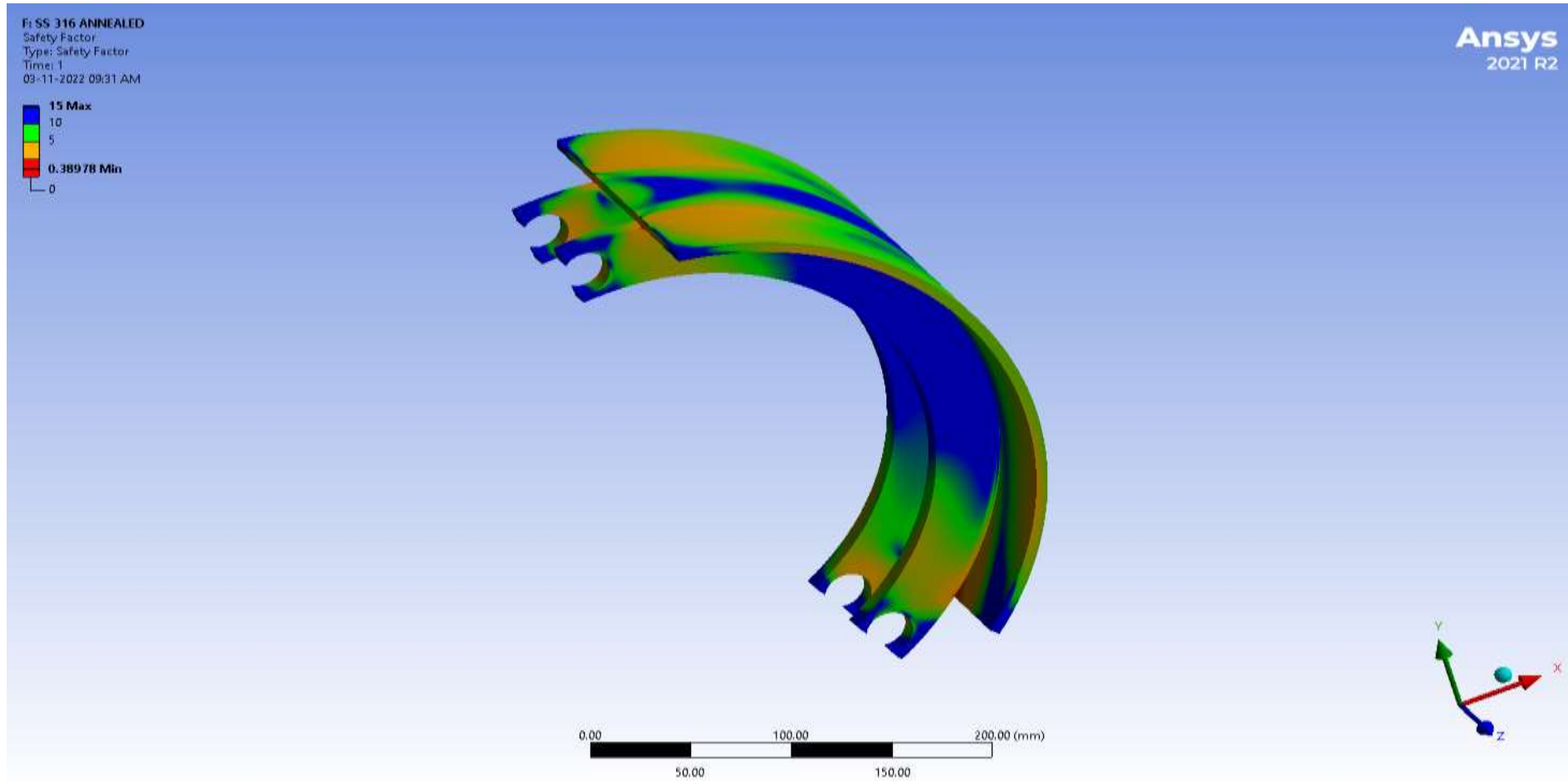
Equivalent stress is done for cross-sectional of work piece brake drum. Equivalent stress of SS 316 ANNEALED is calculated drum which is minimum of about 0.060 Mpa and maximum of 646.78 Mpa around the circumference of the drum.

STRAIN - SS 316 ANNEALED



Equivalent strain is done for cross-sectional of work piece brake drum. Equivalent strain of SS 316 ANNEALED is calculated drum which is minimum of about 3.636×10^{-7} Mpa and maximum of 0.00367 Mpa around the circumference of the drum.

FOS - SS 316 ANNEALED



Safety factor is done for cross-sectional of work piece brake drum. safety factor of SS 316 ANNEALED is calculated drum which is minimum of about 0 and maximum of 0.3897 around the circumference of the drum.

BRAKE PAD				
MATERIAL	TOTAL DEFORMATION (mm)	STRESS (Mpa)	STRAIN	FOS
STRUCTURAL STEEL	0.244	650.29	0.0035	0.38
GRAY CAST IRON	0.445	647.97	0.0065	0
CAST IRON EN GJL 100	0.548	645.57	0.008	0.12
CARBON STEEL 1020 ANNEALED	0.231	649.15	0.0033	0.45
INCONEL 718	0.297	650.29	0.0043	0.64
SS 316 ANNEALED	0.251	646.78	0.0037	0.39