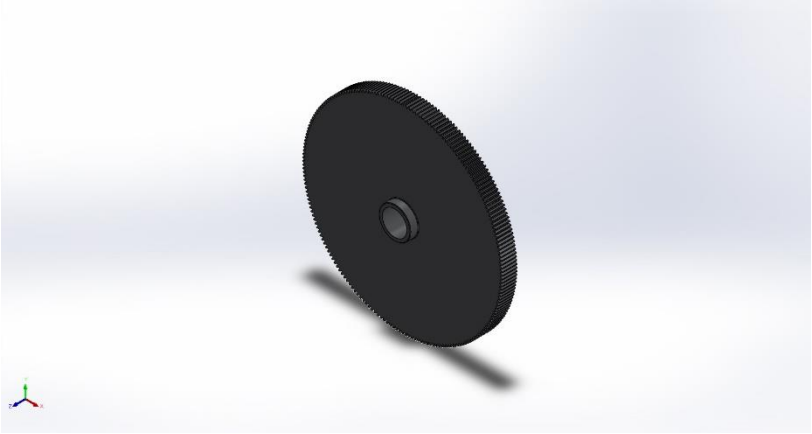


Simulation of Gear_small_2

Date: Freitag, 2. Mai 2025
Designer: Solidworks
Study name: Statisch 1
Analysis type: Static

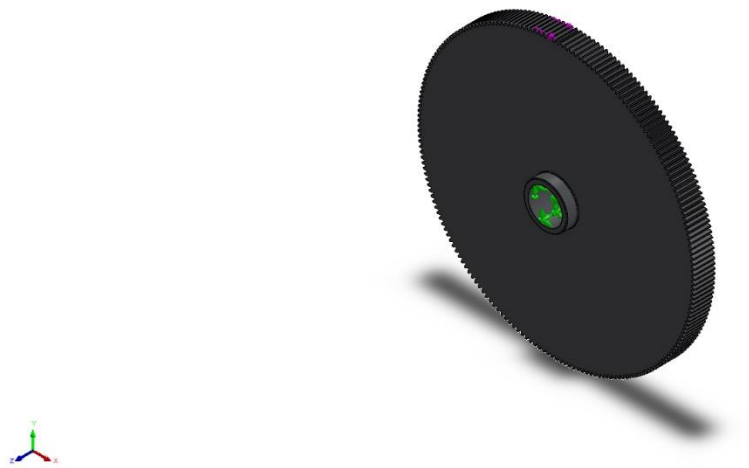
Table of Contents

Description

No Data

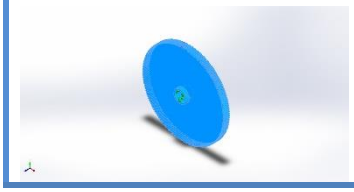
Assumptions

Model Information



Model name: Gear_small_2
Current Configuration: Default

Solid Bodies

Document Name and Reference	Treated As	Volumetric Properties	Document Path/Date Modified
Fase1 	Solid Body	**Mass:3,64406 kg** **Volume:0,000465635 m^3** **Density:7.826 kg/m^3** **Weight:35,7118 N**	**T:\Аспирантура\Стенд_026\Gear_small_2.SLDPRT**

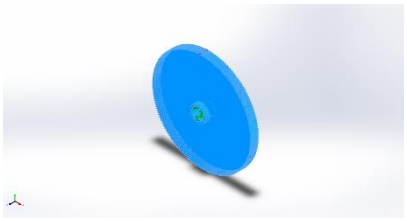
Study Properties

Study name	Statisch 1
Analysis type	Static
Mesh type	Solid Mesh
Thermal Effect:	On
Thermal option	Include temperature loads
Zero strain temperature	298 Kelvin
Include fluid pressure effects from SOLIDWORKS Flow Simulation	Off
Solver type	FFEPlus
Inplane Effect:	Off
Soft Spring:	Off
Inertial Relief:	Off
Incompatible bonding options	Automatic
Large displacement	Off
Compute free body forces	On
Friction	Off
Use Adaptive Method:	Off
Result folder	SOLIDWORKS document (T:\Аспирантура\Стенд_016)

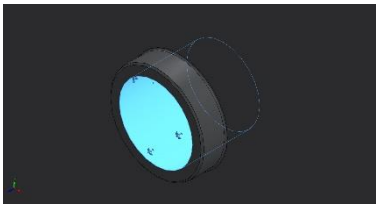
Units

Unit system:	SI (MKS)
Length/Displacement	mm
Temperature	Kelvin
Angular velocity	Rad/sec
Pressure/Stress	N/m^2

Material Properties

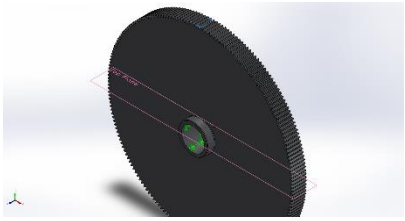
Model Reference	Properties	Components
	**Name:** Сталь 45 ГОСТ 1050-88 **Model type:** Linear Elastic Isotropic **Default failure criterion:** Max von Mises Stress **Yield strength:** 8,3e+08 N/m^2 **Tensile strength:** 9,8e+08 N/m^2 **Elastic modulus:** 2,04e+11 N/m^2 **Poisson's ratio:** 0,3 **Mass density:** 7.826 kg/m^3 **Shear modulus:** 7,8e+10 N/m^2 **Thermal expansion coefficient:** 1,19e-05 /Kelvin	Volumenkörper 1(Fase1)(Gear_small_2)
Curve Data:N/A		

Loads and Fixtures

Fixture name	Fixture Image	Fixture Details
Fixiert-1		**Entities:** 1 face(s) **Type:** Fixed Geometry

Resultant Forces

Components	X	Y	Z	Resultant
Reaction force(N)	-10,0001	-6,90967e-05	-3,47374e-05	10,0001
Reaction Moment(N.m)	0	0	0	0

Load name	Load Image	Load Details
Kraft-1		**Entities:** 1 edge(s), 1 plane(s) **Reference:** Top Plane **Type:** Apply force **Values:** 10; ---; --- N

Connector Definitions
No Data

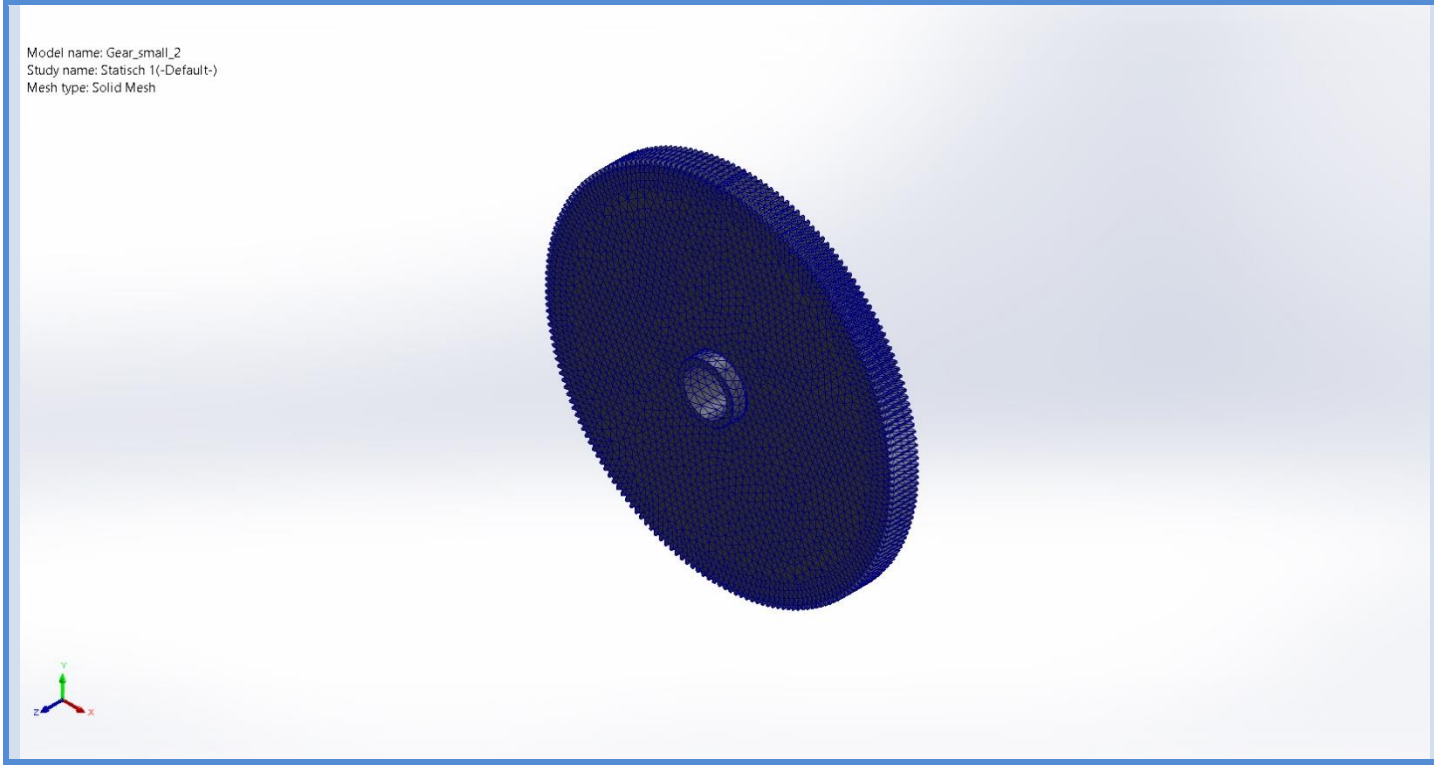
Contact Information
No Data

Mesh information

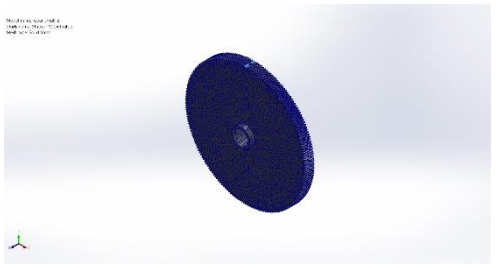
Mesh type	Solid Mesh
Mesher Used:	Standard mesh
Automatic Transition:	Off
Include Mesh Auto Loops:	Off
Jacobian points for High quality mesh	4 Points
Element Size	3,86424 mm
Tolerance	0,193212 mm
Mesh Quality	High

Mesh information - Details

Total Nodes	142014
Total Elements	92180
Maximum Aspect Ratio	11,853
% of elements with Aspect Ratio < 3	89,8
Percentage of elements with Aspect Ratio > 10	0,00651
Percentage of distorted elements	0
Time to complete mesh(hh;mm;ss):	00:00:13
Computer name:	RUSLANPC



Mesh Control Information:

Mesh Control Name	Mesh Control Image	Mesh Control Details
Steuerung-1		**Entities:** 5 face(s) **Units:** m **Size:** 0,00193212 **Ratio:** 0,00193212

Sensor Details

No Data

Resultant Forces

Reaction forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	-10,0001	-6,90967e-05	-3,47374e-05	10,0001

Reaction Moments

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N.m	0	0	0	0

Free body forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	0,00152464	-0,000450421	-0,000115219	0,00159396

Free body moments

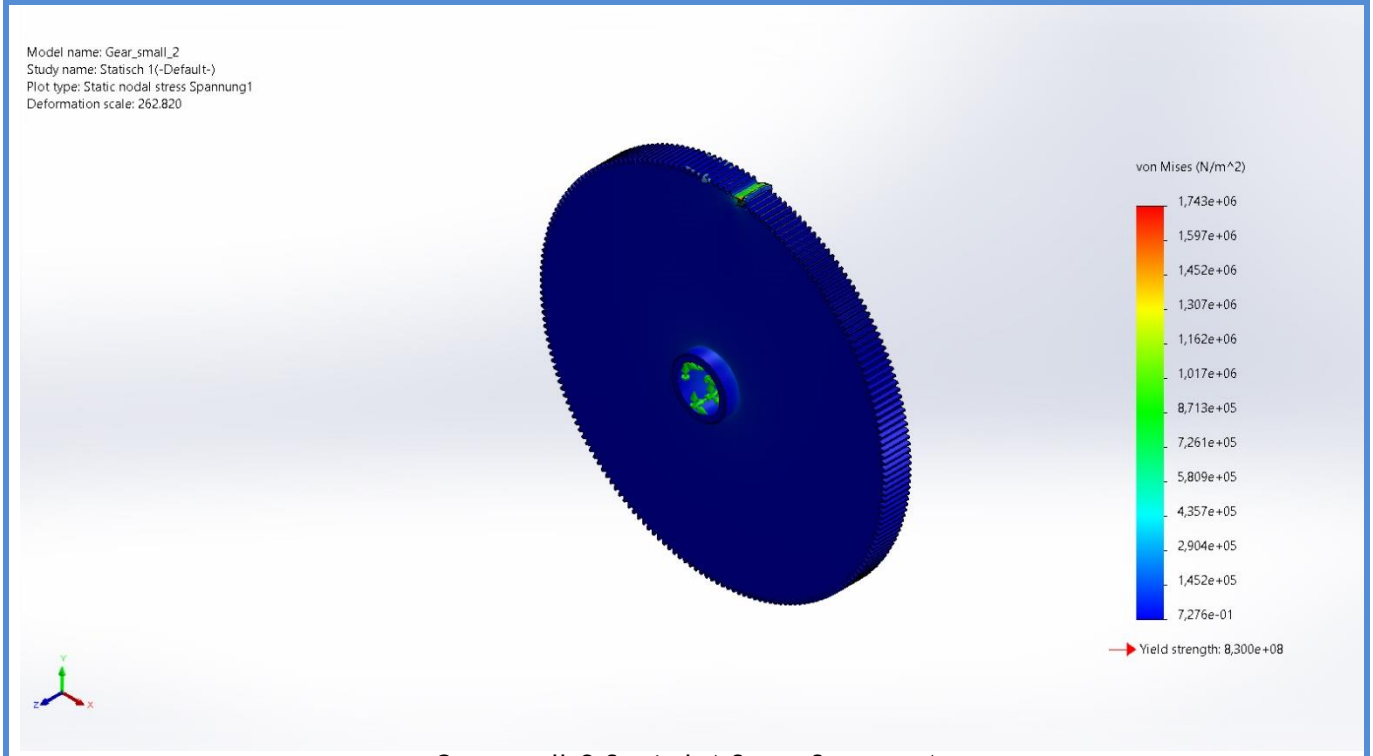
Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N.m	0	0	0	1e-33

Beams

No Data

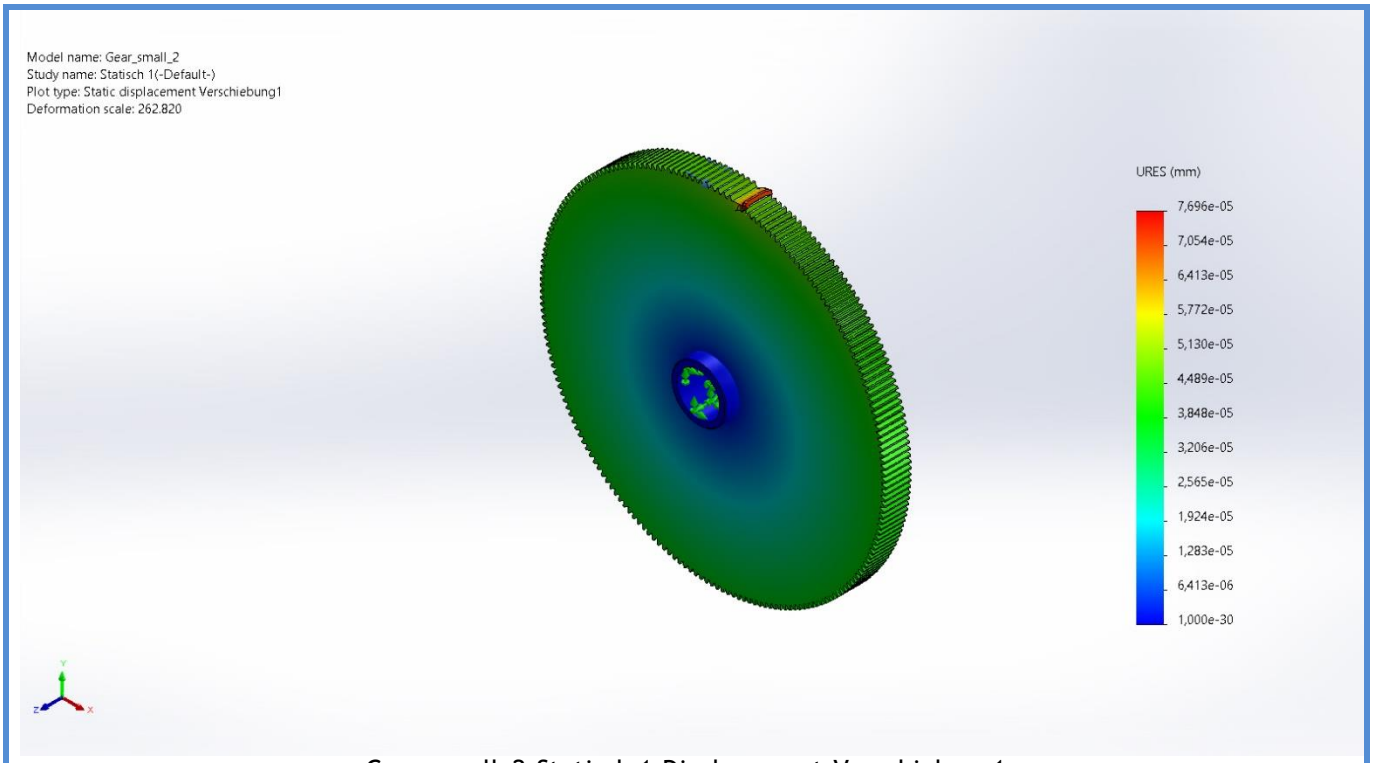
Study Results

Name	Type	Min	Max
Spannung1	VON: von Mises Stress	7,276e-01N/m^2 Node: 110299	1,743e+06N/m^2 Node: 1015



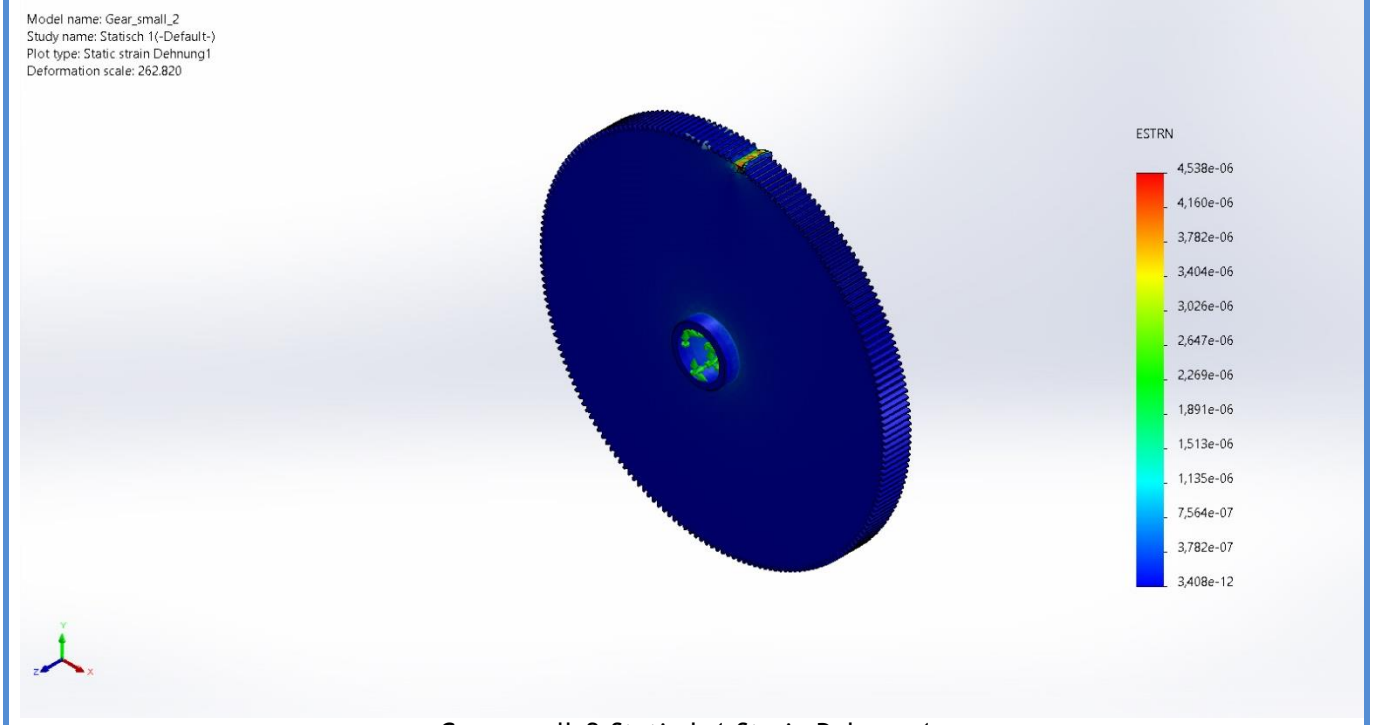
Gear_small_2-Statisch 1-Stress-Spannung1

Name	Type	Min	Max
Verschiebung1	URES: Resultant Displacement	0,000e+00mm Node: 110	7,696e-05mm Node: 1014



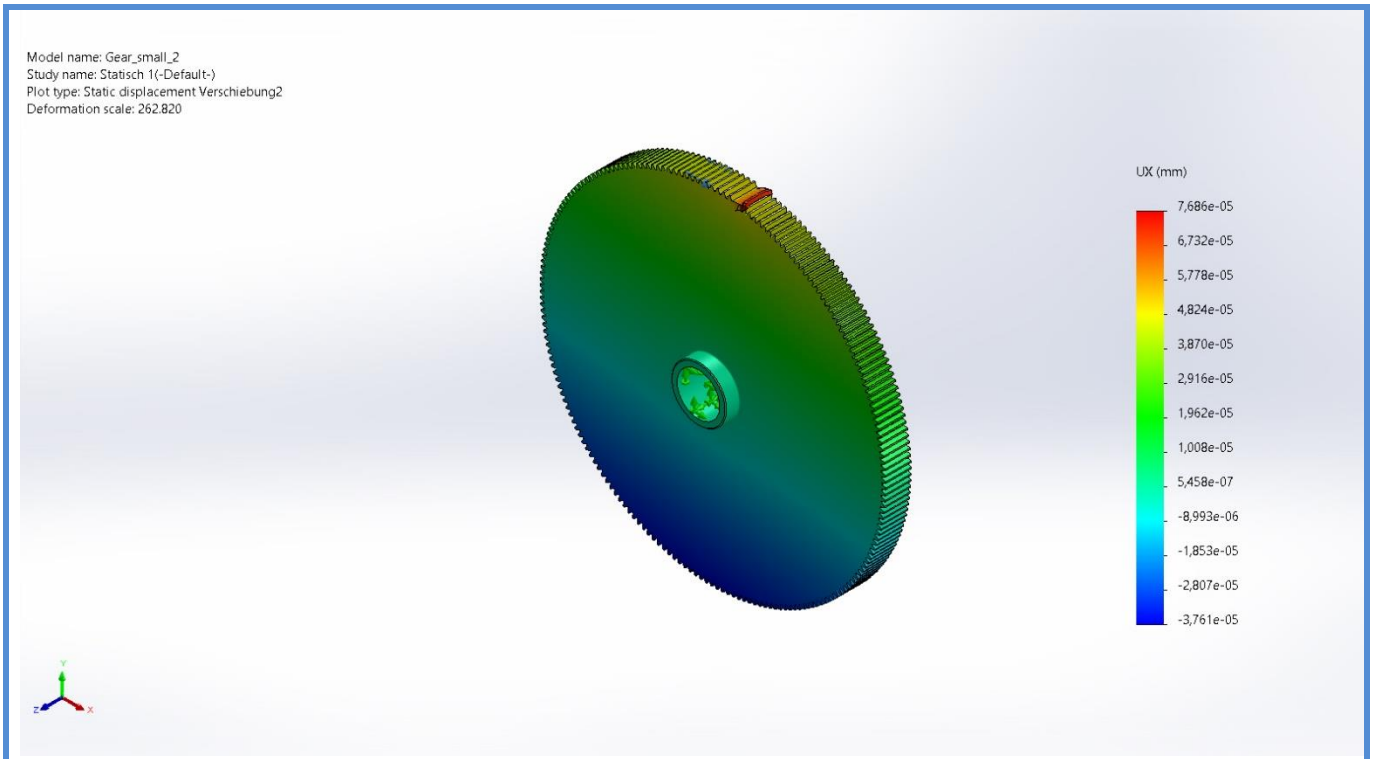
Gear_small_2-Statisch 1-Displacement-Verschiebung1

Name	Type	Min	Max
Dehnung1	ESTRN: Equivalent Strain	3,408e-12 Element: 37708	4,538e-06 Element: 37788



Gear_small_2-Statisch 1-Strain-Dehnung1

Name	Type	Min	Max
Verschiebung2	UX: X Displacement	-3,761e-05mm Node: 138155	7,686e-05mm Node: 1014



Gear_small_2-Statisch 1-Displacement-Verschiebung2

Conclusion