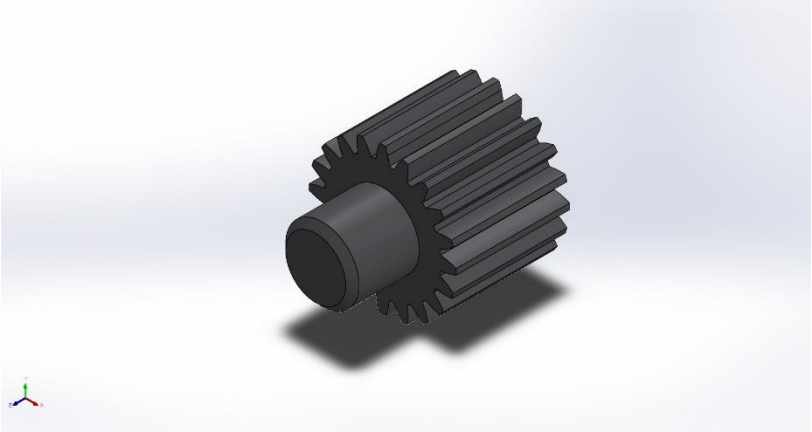


Simulation of Gear_001_i=10_small_z=20

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

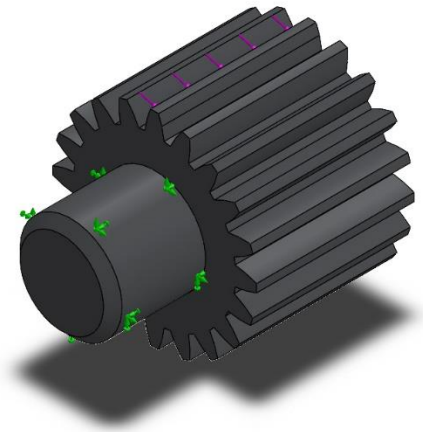
Table of Contents

Description

No Data

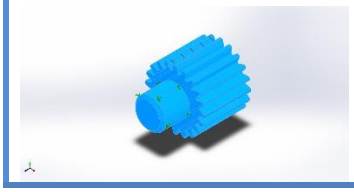
Assumptions

Model Information



Model name: Gear_001_i=10_small_z=20
Current Configuration: Default

Solid Bodies

Document Name and Reference	Treated As	Volumetric Properties	Document Path/Date Modified
Fase1 	Solid Body	**Mass:0,0487717 kg** **Volume:6,23201e-06 m^3** **Density:7.826 kg/m^3** **Weight:0,477963 N**	**T:\Аспирантура\Стенд_026\Gear_001_i=10_small_z=20.SLDPRT**

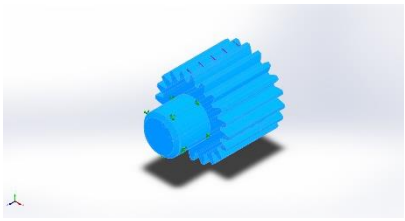
Study Properties

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)

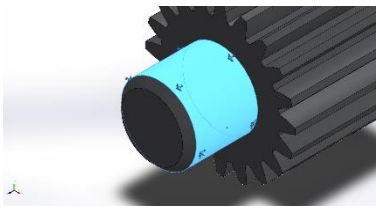
Units

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

Material Properties

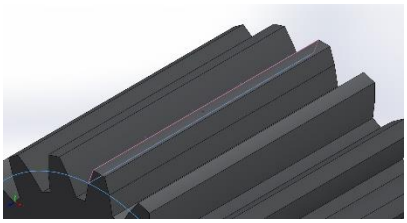
Model Reference	Properties	Components
	**Name:** Сталь 45 ГОСТ 1050-88 **Model type:** Linear Elastic Isotropic **Default failure criterion:** Unknown **Yield strength:** 8,3e+08 N/m^2 **Tensile strength:** 9,8e+08 N/m^2 **Elastic modulus:** 2,04e+11 N/m^2 **Poisson's ratio:** 0,3 **Mass density:** 7.826 kg/m^3 **Shear modulus:** 7,8e+10 N/m^2 **Thermal expansion coefficient:** 1,2e-05 /Kelvin	Volumenkörper 1(Fase1)(Gear_001_i=10_small_z=20)
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)	-96,4579	26,3802	3,41688e-05	100
Reaction Moment(N.m)	0	0	0	0

Load name	Load Image	Load Details
Kraft-1		**Entities:** 1 edge(s) **Reference:** Face< 1 > **Type:** Apply force **Values:** -100; ---; --- N

Connector Definitions
No Data

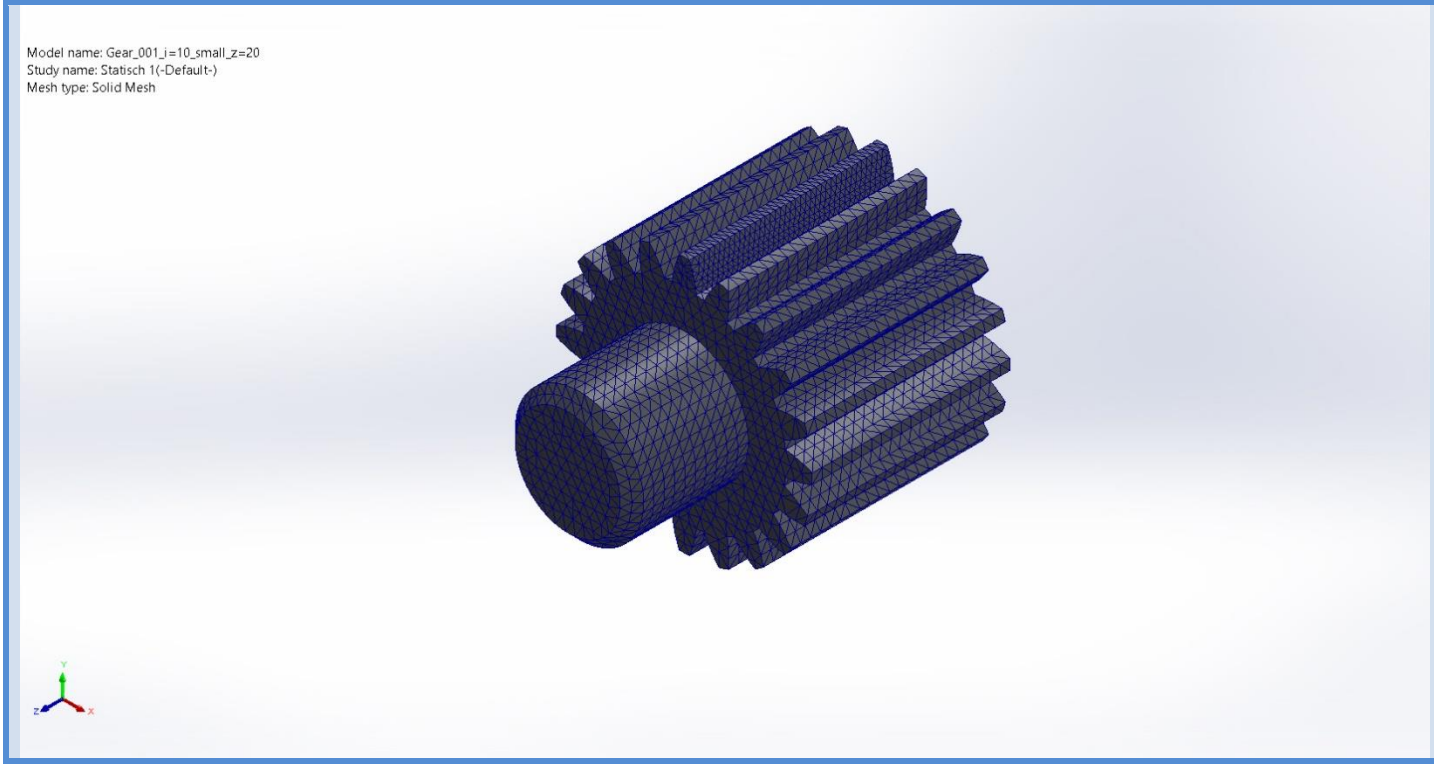
Contact Information
No Data

Mesh information

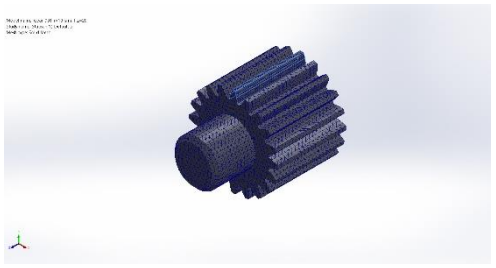
Mesh type	Solid Mesh
Mesher Used:	Standard mesh
Automatic Transition:	Off
Include Mesh Auto Loops:	Off
Jacobian points for High quality mesh	4 Points
Element Size	0,000879107 m
Tolerance	4,39553e-05 m
Mesh Quality	High

Mesh information - Details

Total Nodes	95780
Total Elements	64586
Maximum Aspect Ratio	4,3985
% of elements with Aspect Ratio < 3	99,9
Percentage of elements with Aspect Ratio > 10	0
Percentage of distorted elements	0
Time to complete mesh(hh;mm;ss):	00:00:05
Computer name:	RUSLANPC



Mesh Control Information:

Mesh Control Name	Mesh Control Image	Mesh Control Details
Steuerung-1		**Entities:** 4 face(s) **Units:** m **Size:** 0,000439553 **Ratio:** 0,000439553

Sensor Details

No Data

Resultant Forces

Reaction forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	-96,4579	26,3802	3,41688e-05	100

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	-0,00162449	-0,000243527	-0,00218159	0,00273086

Free body moments

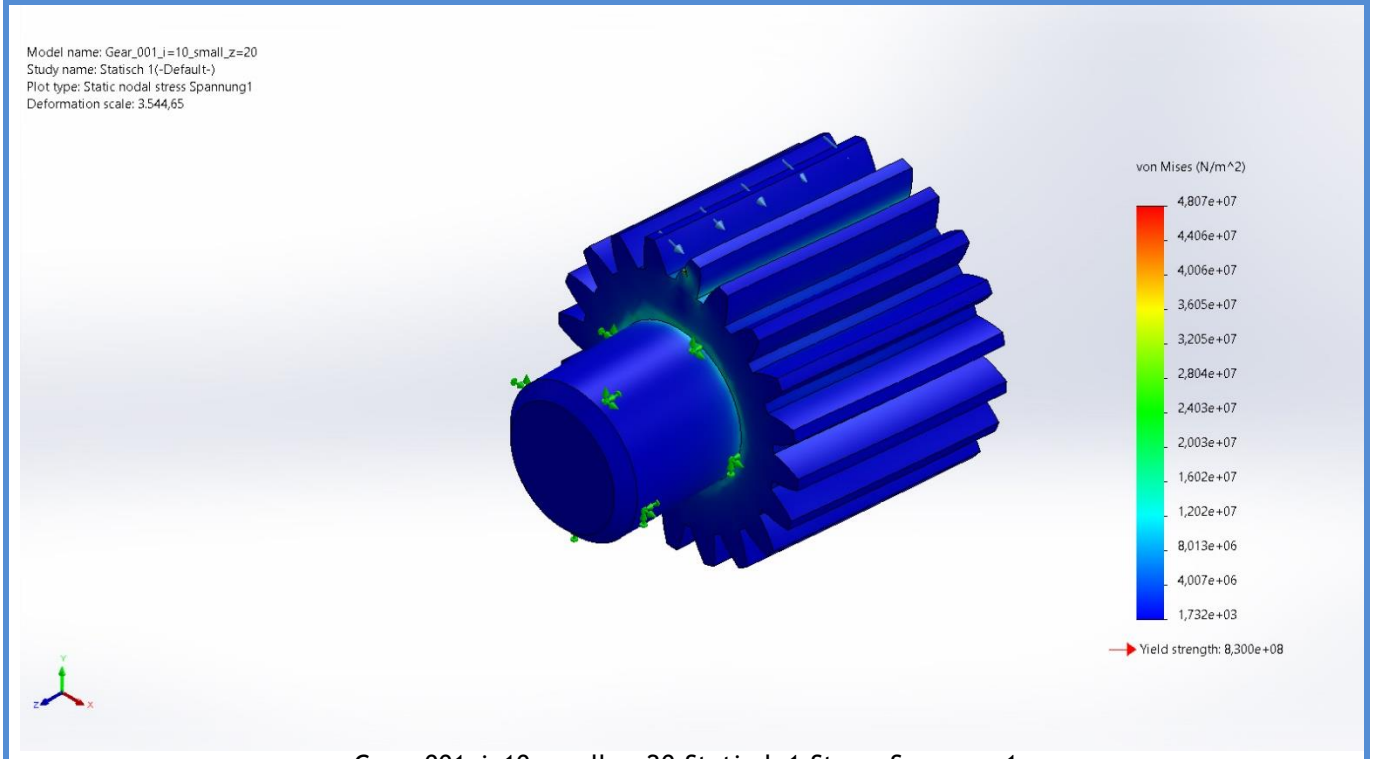
Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N.m	0	0	0	1e-33

Beams

No Data

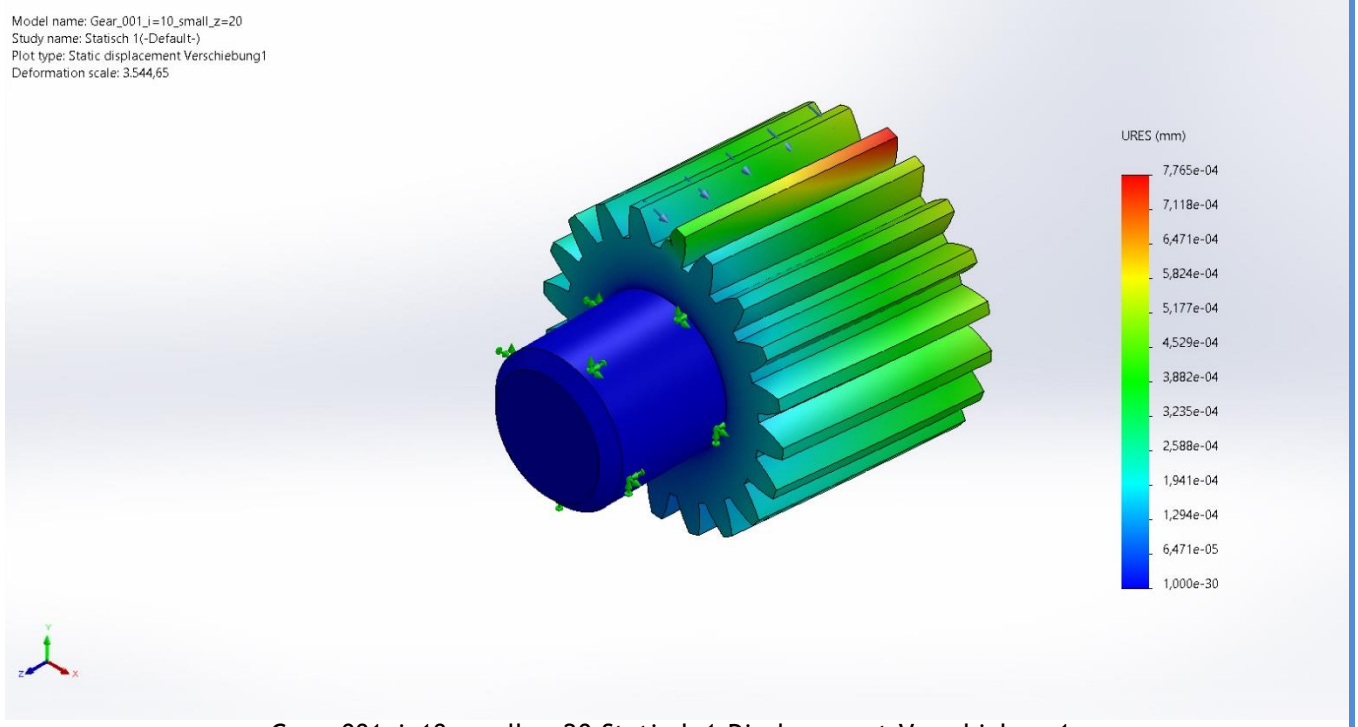
Study Results

Name	Type	Min	Max
Spannung1	VON: von Mises Stress	1,732e+03N/m^2 Node: 2932	4,807e+07N/m^2 Node: 413



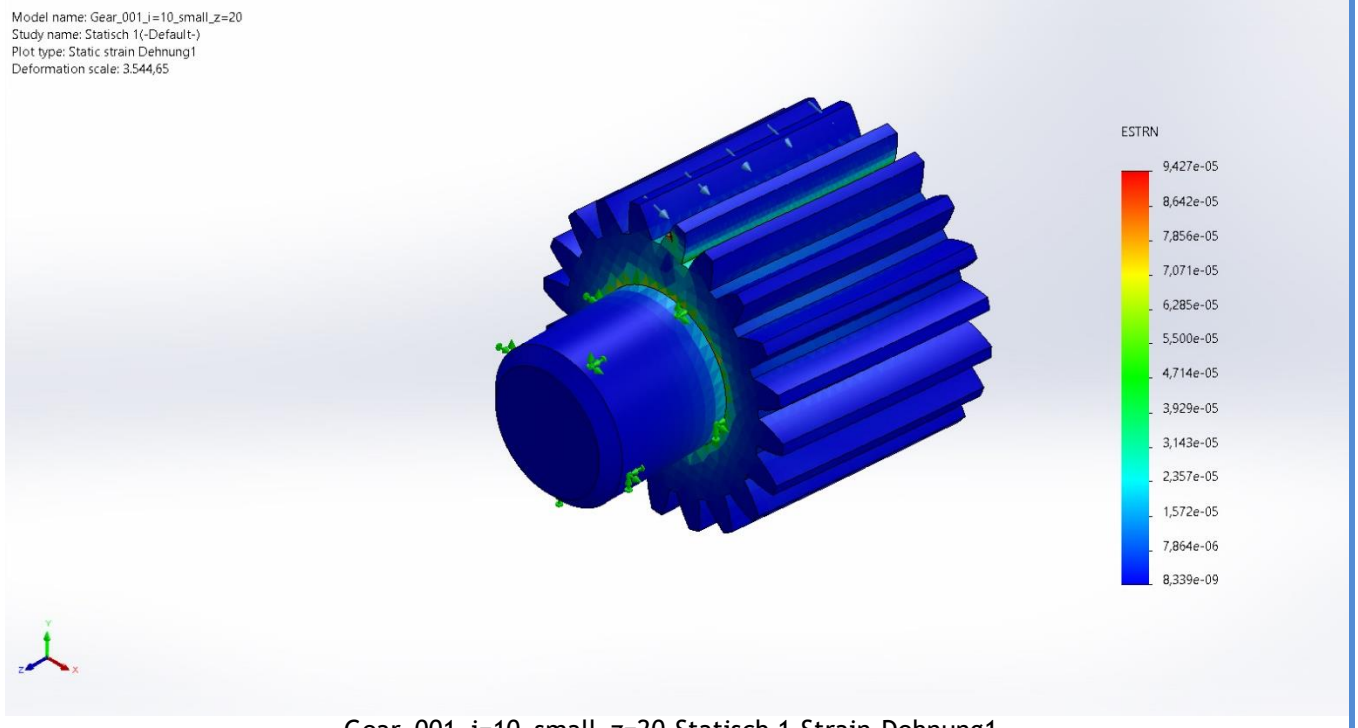
Gear_001_i=10_small_z=20-Statisch 1-Stress-Spannung1

Name	Type	Min	Max
Verschiebung1	URES: Resultant Displacement	0,000e+00mm Node: 14	7,765e-04mm Node: 538



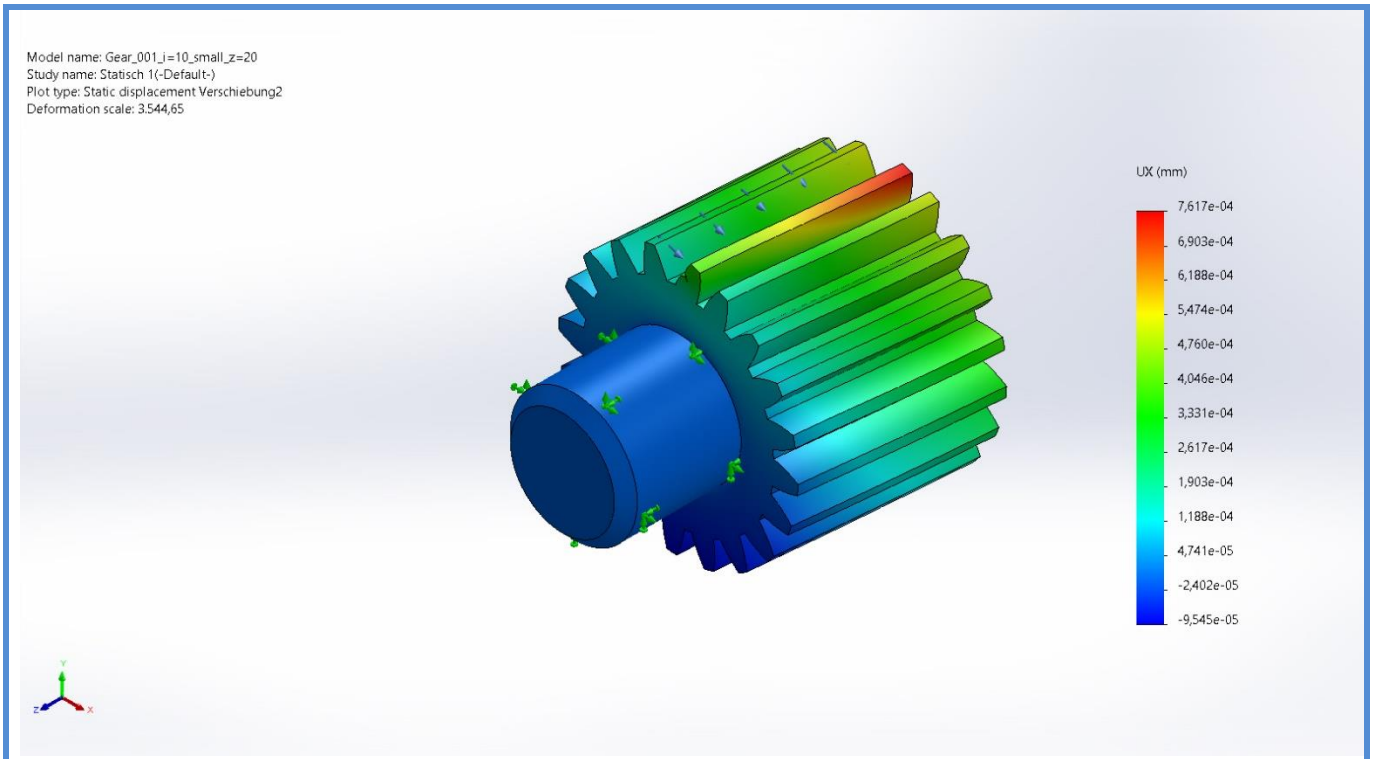
Gear_001_i=10_small_z=20-Statisch 1-Displacement-Verschiebung1

Name	Type	Min	Max
Dehnung1	ESTRN: Equivalent Strain	8,339e-09 Element: 10541	9,427e-05 Element: 51570



Gear_001_i=10_small_z=20-Statisch 1-Strain-Dehnung1

Name	Type	Min	Max
Verschiebung2	UX: X Displacement	-9,545e-05mm Node: 79330	7,617e-04mm Node: 538



Gear_001_i=10_small_z=20-Statisch 1-Displacement-Verschiebung2

Conclusion