



# Simulation - Dgcs 1042A

Study name:Static 1  
Analysis type:Static

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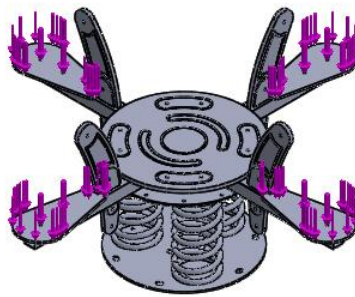
## Description

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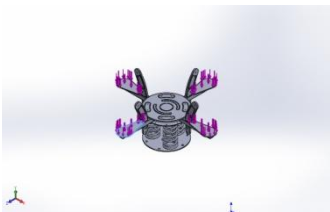


# Assumptions

## Model Information



Model name:DGCS 1042 A

	Treated As	Volumetric Properties
<p>Gövdeleri Kaydet1[20]-1-solid1</p> 	Solid Body	<p>Mass:0.658723 kg Volume:0.000691936 m<sup>3</sup> Density:952 kg/m<sup>3</sup> Weight:6.45549 N</p>

<p>Gövdeleri Kaydet1[19]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:1.08735 kg Volume:0.00114217 m<sup>3</sup> Density:952 kg/m<sup>3</sup> Weight:10.656 N</p>
<p>Gövdeleri Kaydet1[2]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.860786 kg Volume:0.000110357 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:8.43571 N</p>
<p>Gövdeleri Kaydet1[15]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.658723 kg Volume:0.000691936 m<sup>3</sup> Density:952 kg/m<sup>3</sup> Weight:6.45549 N</p>
<p>Gövdeleri Kaydet1[11]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:1.19094 kg Volume:0.000152684 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:11.6712 N</p>
<p>Gövdeleri Kaydet1[12]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.860786 kg Volume:0.000110357 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:8.43571 N</p>
<p>Gövdeleri Kaydet1[27]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:1.19094 kg Volume:0.000152684 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:11.6712 N</p>



<p>Gövdeleri Kaydet1[21]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.860791 kg Volume:0.000110358 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:8.43575 N</p>
<p>Gövdeleri Kaydet1[6]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:1.08735 kg Volume:0.00114217 m<sup>3</sup> Density:952 kg/m<sup>3</sup> Weight:10.656 N</p>
<p>Gövdeleri Kaydet1[13]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.860786 kg Volume:0.000110357 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:8.43571 N</p>
<p>Gövdeleri Kaydet1[4]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:11.963 kg Volume:0.00153372 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:117.238 N</p>
<p>Gövdeleri Kaydet1[28]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:11.963 kg Volume:0.00153372 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:117.238 N</p>
<p>Gövdeleri Kaydet1[7]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.860782 kg Volume:0.000110357 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:8.43566 N</p>



<p>Gövdeleri Kaydet1[26]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:1.19094 kg Volume:0.000152684 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:11.6712 N</p>
<p>Gövdeleri Kaydet1[18]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:12.4973 kg Volume:0.00160221 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:122.473 N</p>
<p>Gövdeleri Kaydet1[16]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:12.4639 kg Volume:0.00159794 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:122.146 N</p>
<p>Gövdeleri Kaydet1[9]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.658723 kg Volume:0.000691936 m<sup>3</sup> Density:952 kg/m<sup>3</sup> Weight:6.45549 N</p>
<p>Gövdeleri Kaydet1[10]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:4.53762 kg Volume:0.0047664 m<sup>3</sup> Density:952 kg/m<sup>3</sup> Weight:44.4686 N</p>
<p>Gövdeleri Kaydet1[8]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.860791 kg Volume:0.000110358 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:8.43575 N</p>



<p>Gövdeleri Kaydet1[25]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.860786 kg Volume:0.000110357 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:8.43571 N</p>
<p>Gövdeleri Kaydet1[24]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:12.3963 kg Volume:0.00158927 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:121.484 N</p>
<p>Gövdeleri Kaydet1[1]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:11.963 kg Volume:0.00153372 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:117.238 N</p>
<p>Gövdeleri Kaydet1[5]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:1.08735 kg Volume:0.00114217 m<sup>3</sup> Density:952 kg/m<sup>3</sup> Weight:10.656 N</p>
<p>Gövdeleri Kaydet1[23]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.658723 kg Volume:0.000691936 m<sup>3</sup> Density:952 kg/m<sup>3</sup> Weight:6.45549 N</p>
<p>Gövdeleri Kaydet1[17]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:19.7319 kg Volume:0.00252973 m<sup>3</sup> Density:7800 kg/m<sup>3</sup> Weight:193.373 N</p>



<p>Gövdeleri Kaydet1[3]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:17.1219 kg  Volume:0.00219512 m<sup>3</sup>  Density:7800 kg/m<sup>3</sup>  Weight:167.795 N</p>
<p>Gövdeleri Kaydet1[22]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:0.860782 kg  Volume:0.000110357 m<sup>3</sup>  Density:7800 kg/m<sup>3</sup>  Weight:8.43566 N</p>
<p>Gövdeleri Kaydet1[14]-1-solid1</p> 	<p>Solid Body</p>	<p>Mass:1.08735 kg  Volume:0.00114217 m<sup>3</sup>  Density:952 kg/m<sup>3</sup>  Weight:10.656 N</p>



## Study Properties

Study name	Static 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

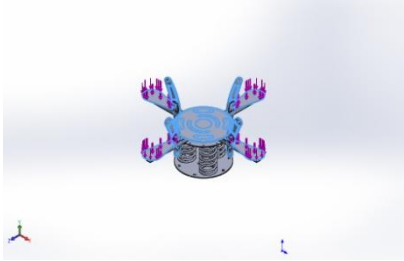

## Units

Unit system:	SI (MKS)
Length/Displacement	mm
Temperature	Kelvin
Angular velocity	Rad/sec
Pressure/Stress	N/mm <sup>2</sup> (MPa)

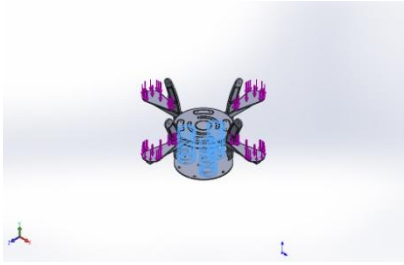




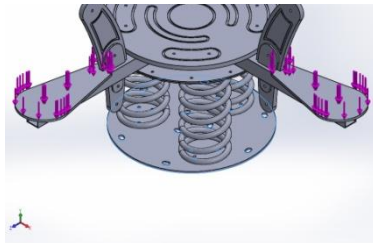
## Material Properties

Model Reference	Properties	Components
	<p> <b>Name:</b> PE High Density  <b>Model type:</b> Linear Elastic Isotropic  <b>Default failure criterion:</b> Unknown  <b>Tensile strength:</b> 22.1 N/mm<sup>2</sup>  <b>Elastic modulus:</b> 1070 N/mm<sup>2</sup>  <b>Poisson's ratio:</b> 0.4101  <b>Mass density:</b> 952 g/cm<sup>3</sup>  <b>Shear modulus:</b> 377.2 N/mm<sup>2</sup> </p>	<p>           SolidBody 1(Gövdeleri Kaydet1[20]-1-solid1)(1042simulationlastpart),            SolidBody 2(Gövdeleri Kaydet1[19]-1-solid1)(1042simulationlastpart),            SolidBody 4(Gövdeleri Kaydet1[15]-1-solid1)(1042simulationlastpart),            SolidBody 9(Gövdeleri Kaydet1[6]-1-solid1)(1042simulationlastpart),            SolidBody 17(Gövdeleri Kaydet1[9]-1-solid1)(1042simulationlastpart),            SolidBody 18(Gövdeleri Kaydet1[10]-1-solid1)(1042simulationlastpart),            SolidBody 23(Gövdeleri Kaydet1[5]-1-solid1)(1042simulationlastpart),            SolidBody 24(Gövdeleri Kaydet1[23]-1-solid1)(1042simulationlastpart),            SolidBody 28(Gövdeleri Kaydet1[14]-1-solid1)(1042simulationlastpart)         </p>
Curve Data:N/A		
	<p> <b>Name:</b> 1.0037 (S235JR)  <b>Model type:</b> Linear Elastic Isotropic  <b>Default failure criterion:</b> Max von Mises Stress  <b>Yield strength:</b> 235 N/mm<sup>2</sup>  <b>Tensile strength:</b> 360 N/mm<sup>2</sup>  <b>Elastic modulus:</b> 210000 N/mm<sup>2</sup>  <b>Poisson's ratio:</b> 0.28  <b>Mass density:</b> 7800 g/cm<sup>3</sup>  <b>Shear modulus:</b> 79000 N/mm<sup>2</sup>  <b>Thermal expansion:</b> 1.1e-005 /Kelvin         </p>	<p>           SolidBody 3(Gövdeleri Kaydet1[2]-1-solid1)(1042simulationlastpart),            SolidBody 5(Gövdeleri Kaydet1[11]-1-solid1)(1042simulationlastpart),            SolidBody 6(Gövdeleri Kaydet1[12]-1-solid1)(1042simulationlastpart)         </p>

	<p>coefficient:</p>	<p>t),  SolidBody 7(Gövdeleri Kaydet1[27]-1-solid1)(1042simulationlastpar t),  SolidBody 8(Gövdeleri Kaydet1[21]-1-solid1)(1042simulationlastpar t),  SolidBody 10(Gövdeleri Kaydet1[13]-1-solid1)(1042simulationlastpar t),  SolidBody 13(Gövdeleri Kaydet1[7]-1-solid1)(1042simulationlastpar t),  SolidBody 14(Gövdeleri Kaydet1[26]-1-solid1)(1042simulationlastpar t),  SolidBody 15(Gövdeleri Kaydet1[18]-1-solid1)(1042simulationlastpar t),  SolidBody 16(Gövdeleri Kaydet1[16]-1-solid1)(1042simulationlastpar t),  SolidBody 19(Gövdeleri Kaydet1[8]-1-solid1)(1042simulationlastpar t),  SolidBody 20(Gövdeleri Kaydet1[25]-1-solid1)(1042simulationlastpar t),  SolidBody 21(Gövdeleri Kaydet1[24]-1-solid1)(1042simulationlastpar t),  SolidBody 25(Gövdeleri Kaydet1[17]-1-solid1)(1042simulationlastpar t),  SolidBody 26(Gövdeleri Kaydet1[3]-1-solid1)(1042simulationlastpar t),  SolidBody 27(Gövdeleri Kaydet1[22]-1-solid1)(1042simulationlastpar t)</p>
Curve Data:N/A		

	<p><b>Name:</b> 1.7225 (42CrMo4)  <b>Model type:</b> Linear Elastic Isotropic  <b>Default failure criterion:</b> Max von Mises Stress  <b>Yield strength:</b> 750 N/mm<sup>2</sup>  <b>Tensile strength:</b> 1000 N/mm<sup>2</sup>  <b>Elastic modulus:</b> 210000 N/mm<sup>2</sup>  <b>Poisson's ratio:</b> 0.28  <b>Mass density:</b> 7800 g/cm<sup>3</sup>  <b>Shear modulus:</b> 79000 N/mm<sup>2</sup>  <b>Thermal expansion coefficient:</b> 1.1e-005 /Kelvin</p>	<p>SolidBody 11(Gövdeleri Kaydet1[4]-1-solid1)(1042simulationlastpart),  SolidBody 12(Gövdeleri Kaydet1[28]-1-solid1)(1042simulationlastpart),  SolidBody 22(Gövdeleri Kaydet1[1]-1-solid1)(1042simulationlastpart)</p>
<p>Curve Data:N/A</p>		

## Loads and Fixtures


Fixture name	Fixture Image	Fixture Details		
Fixed-1		<p><b>Entities:</b> 1 face(s)  <b>Type:</b> Fixed Geometry</p>		
<p><b>Resultant Forces</b></p>				
Components	X	Y	Z	Resultant
Reaction force(N)	0.0437009	5998.55	-0.830303	5998.55
Reaction Moment(N.m)	0	0	0	0

Load name	Load Image	Load Details
Force-1		<p><b>Entities:</b> 4 face(s)  <b>Type:</b> Apply normal force  <b>Value:</b> 1500 N</p>

## Connector Definitions

No Data

## Contact Information

Contact	Contact Image	Contact Properties
Global Contact		<b>Type:</b> Bonded <b>Components:</b> 1 component(s) <b>Options:</b> Compatible mesh



## Mesh Information

Mesh type	Solid Mesh
Mesher Used:	Curvature based mesh
Jacobian points	4 Points
Maximum element size	16.6629 mm
Minimum element size	3.33258 mm
Mesh Quality	High

### Mesh Information - Details

Total Nodes	396609
Total Elements	229440
Maximum Aspect Ratio	1050.6
% of elements with Aspect Ratio < 3	81.4
% of elements with Aspect Ratio > 10	0.541
% of distorted elements(Jacobian)	0
Time to complete mesh(hh:mm:ss):	00:00:35
Information	The results are not conclusive. It varies by knitting quality.



Model name: 1042simulationlastpart  
 Study name: Static1(-Default-)  
 Mesh type: Solid mesh



## Sensor Details

No Data

## Resultant Forces

### Reaction Forces

Selection set	Units	Sum X	Sum Y	Sum Z	Resultant
Entire Model	N	0.0437009	5998.55	-0.830303	5998.55

### Reaction Moments

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



**Beams**  
No Data

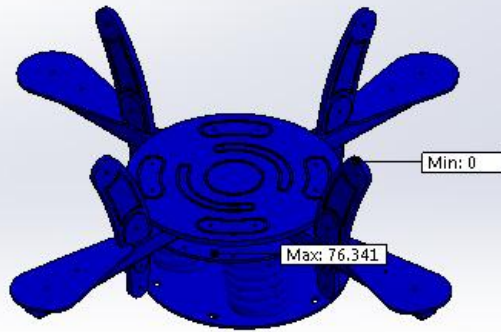
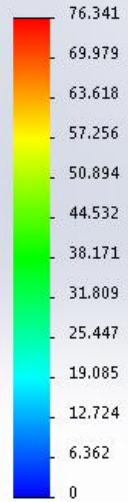


# Study Results

Name	Type	Min	Max
Stress1	VON: von Mises Stress	3.48844e-008 N/mm <sup>2</sup> (MPa) Node: 17551	76341 N/mm <sup>2</sup> (MPa) Node: 254548

Model name: 1042simulationlastpart  
 Study name: Static1(-Default)  
 Plot type: Static nodal stress Stress1  
 Deformation scale: 5.5824

von Mises (N/mm<sup>2</sup> [MPa])

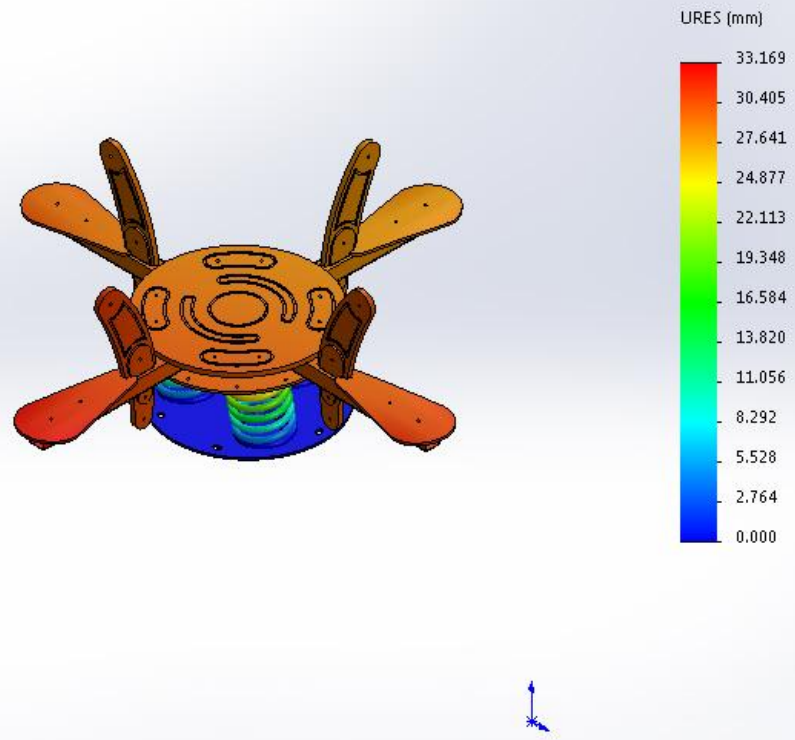


DGCS 1042 A-Static 1-Stress-Stress1

Name	Type	Min	Max
Displacement1	URES: Resultant Displacement	0 mm Node: 313135	33.1688 mm Node: 1260



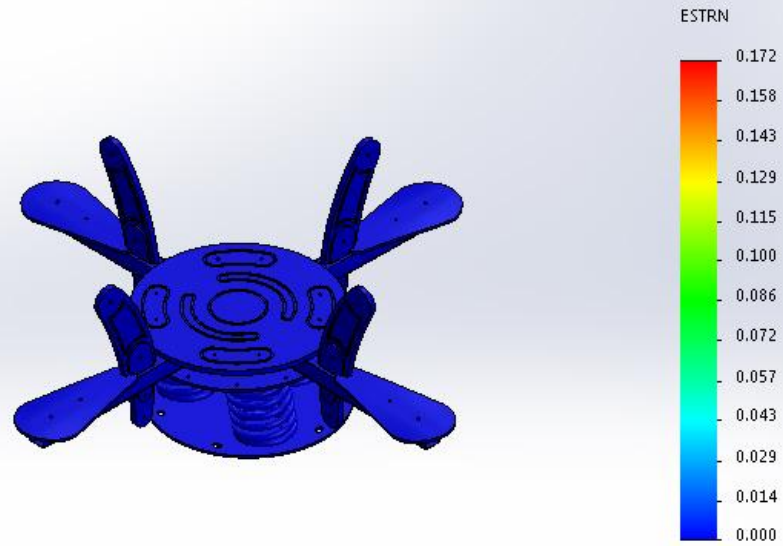
Model name: 1042simulationlastpart  
 Study name: Static 1(-Default)  
 Plot type: Static displacement Displacement1  
 Deformation scale: 5.5824



DGCS 1042 A-Static -Displacement1

Name	Type	Min	Max
Strain1	ESTRN: Equivalent Strain	5.19396e-012 Element: 186602	0.172119 Element: 143994

Model name: 1042simulationlastpart  
Study name: Static1(-Default)  
Plot type: Static strain Strain1  
Deformation scale: 5.5824



DGCS 1042 A -Static -Strain1

## Conclusion