# Shaft Component Generator (Version: 2017 (Build 210142000, 142))

9. 6. 2018

## ⊞ Project Info

## ⊟ Calculation

### ⊟ Material

| Material | | User material |
|---|---|---|
| Modulus of Elasticity | E | 206000 MPa |
| Modulus of Rigidity | G | 80000 MPa |
| Density | ρ | 7860 kg/m^3 |

Calculation Properties

| Include | | | |
|---|---|---|---|
| Yes | Density | ρ | 7860 kg/m^3 |
| Yes | Shear Displacement Ratio | β | 1,188 ul |
| | Number of Divisions | | 1000 ul |
| | Mode of reduced stress | | HMH |

### ⊟ Loads

| Index | Location | Radial Force | | | | Bending Moment | | | | Continuous Load | | | | | Axial Force | Torque | Deflection | | | | Deflection Angle |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Y | X | Size | Direction | Y | X | Size | Direction | Y | X | Size | Direction | Length | | | Y | X | Size | Direction | |
| 1 | 19,8 mm | | | | | | | | | | | | | | | 100,000 N m | 0,109 microm | | 0,109 microm | | 0,03 deg |
| 2 | 95,3 mm | 1261,135 N | | 1261,135 N | | | | | | | | | | | | | -38,120 microm | | 38,120 microm | 180,00 deg | 0,02 deg |
| 3 | 290,5 mm | 1261,125 N | | 1261,125 N | | | | | | | | | | | | | -41,838 microm | | 41,838 microm | 180,00 deg | 0,02 deg |
| 4 | 372,8 mm | | | | | | | | | | | | | | | -100,000 N m | -0,299 microm | | 0,299 microm | 180,00 deg | 0,03 deg |

### ⊟ Supports

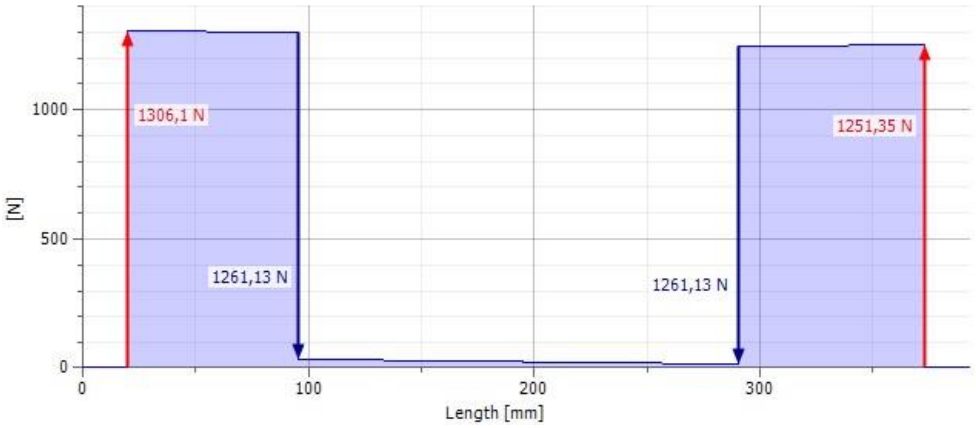
| Index | Type | Location | Reaction Force | | | | | Yielding | Type | Deflection | | | | Deflection Angle |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Y | X | Size | Direction | Axial Force | | | Y | X | Size | Direction | |
| 1 | Free | 20 mm | 1306,099 N | | 1306,099 N | | | | User | -0,000 microm | | 0,000 microm | 180,00 deg | 0,03 deg |
| 2 | Fixed | 373,3 mm | 1251,352 N | | 1251,352 N | | | | User | -0,000 microm | | 0,000 microm | 180,00 deg | 0,03 deg |

### ⊟ Results

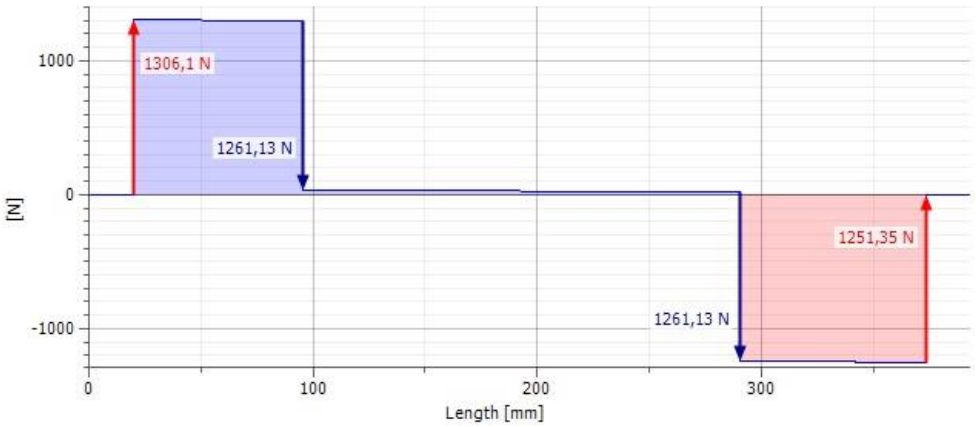
| Length | L | 392,800 mm |
|---|---|---|
| Mass | Mass | 3,588 kg |
| Maximal Bending Stress | σB | 16,435 MPa |
| Maximal Shear Stress | τS | 1,846 MPa |
| Maximal Torsional Stress | τ | 18,863 MPa |
| Maximal Tension Stress | σT | 0,000 MPa |
| Maximal Reduced Stress | σred | 34,269 MPa |
| Maximal Deflection | fmax | 58,625 microm |
| Angle of Twist | φ | 0,13 deg |

### ⊟ Preview

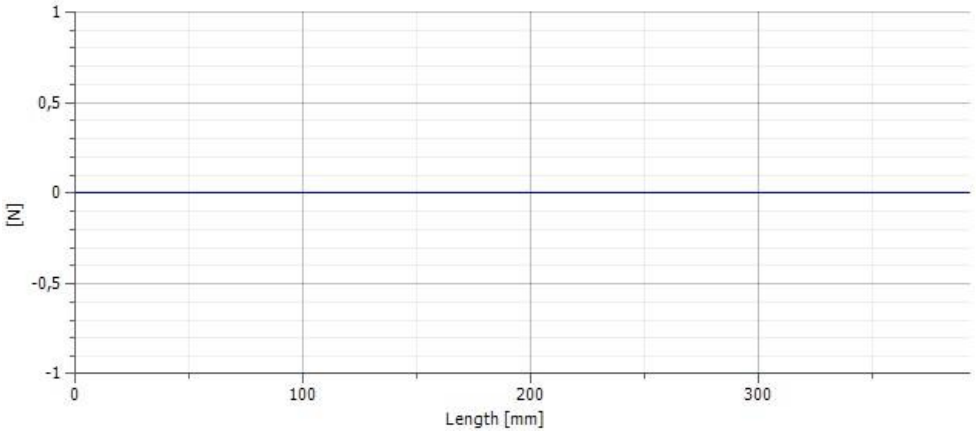
Shear Force



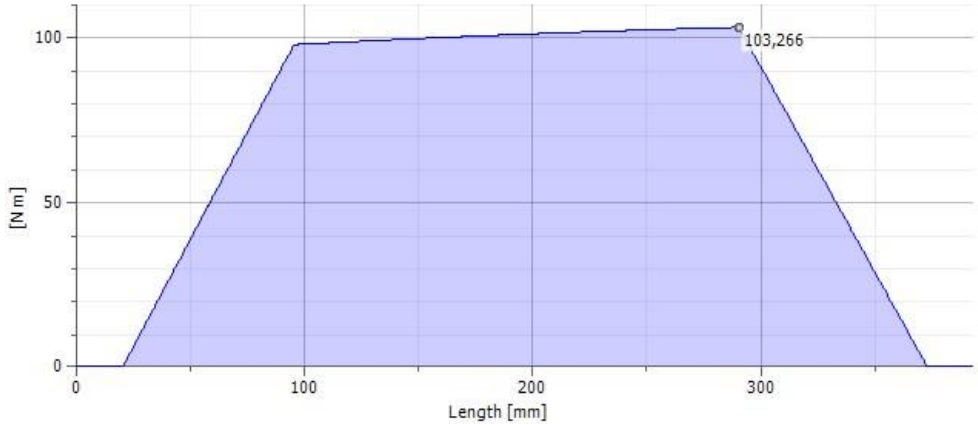

Shear Force, YZ Plane



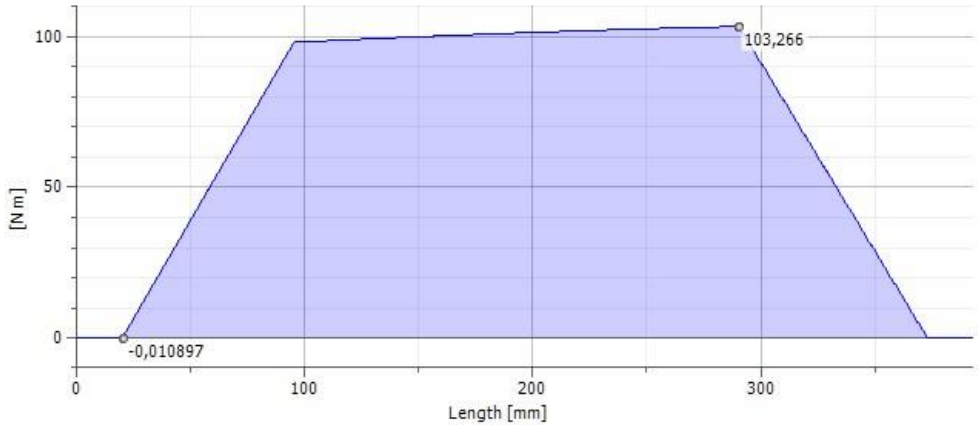

Shear Force, XZ Plane



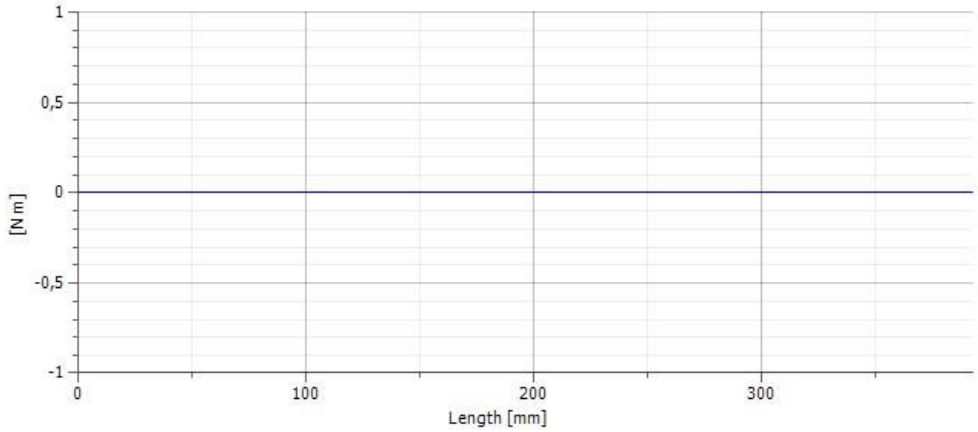

Bending Moment



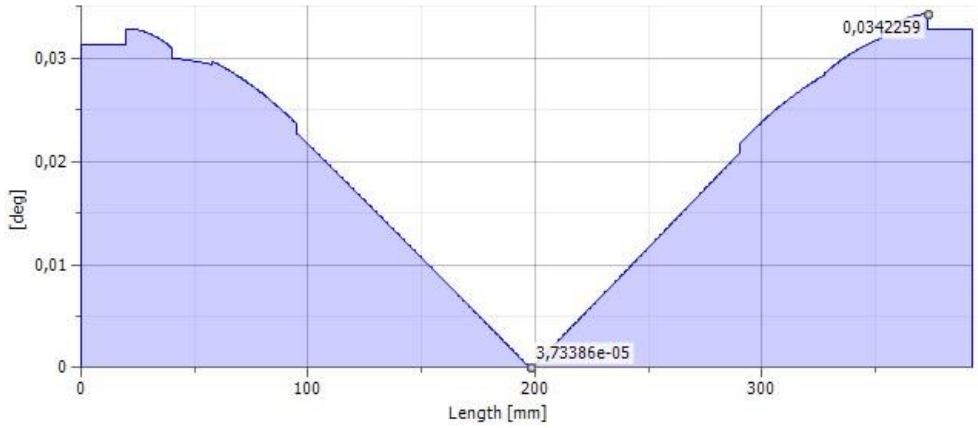

Bending Moment, YZ Plane



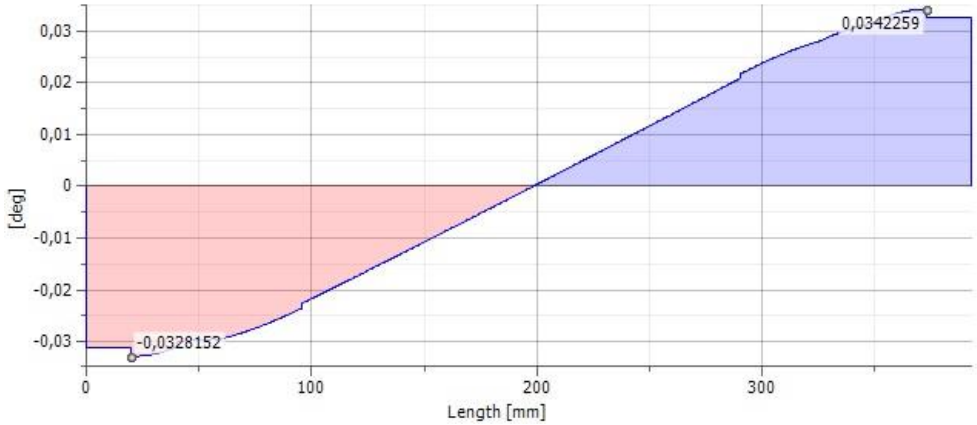

Bending Moment, XZ Plane



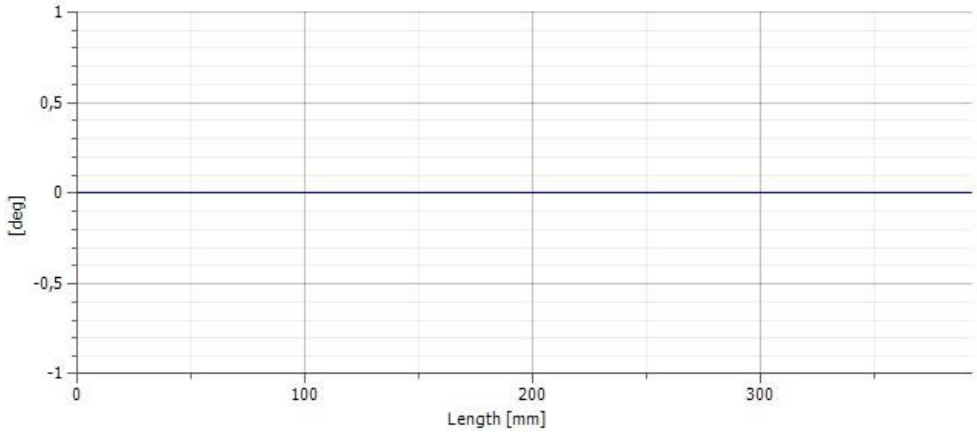

Deflection Angle



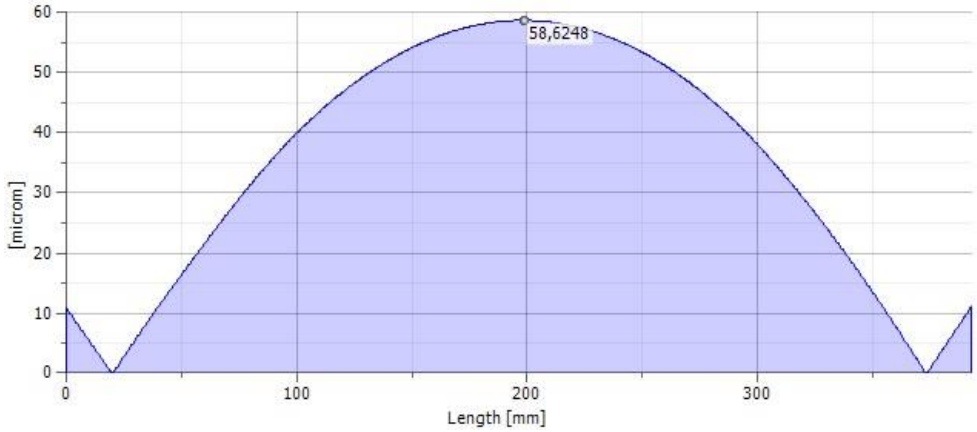

Deflection Angle, YZ Plane



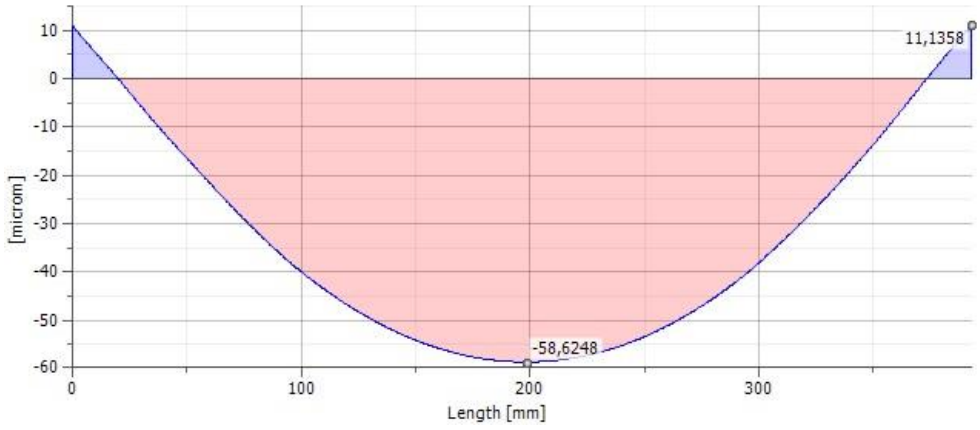

Deflection Angle, XZ Plane



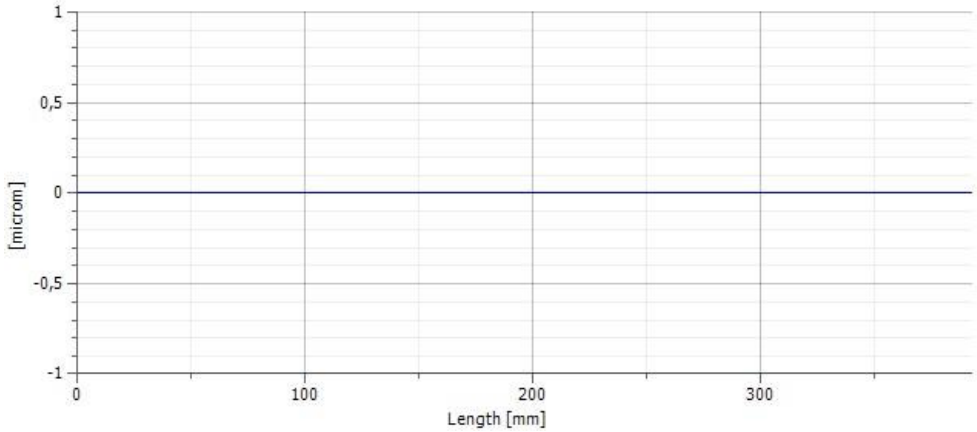

Deflection




Deflection, YZ Plane

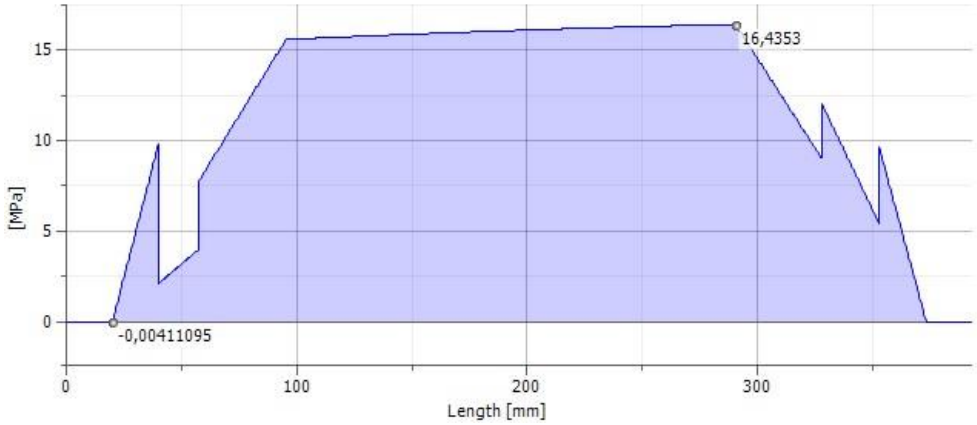



Deflection, XZ Plane

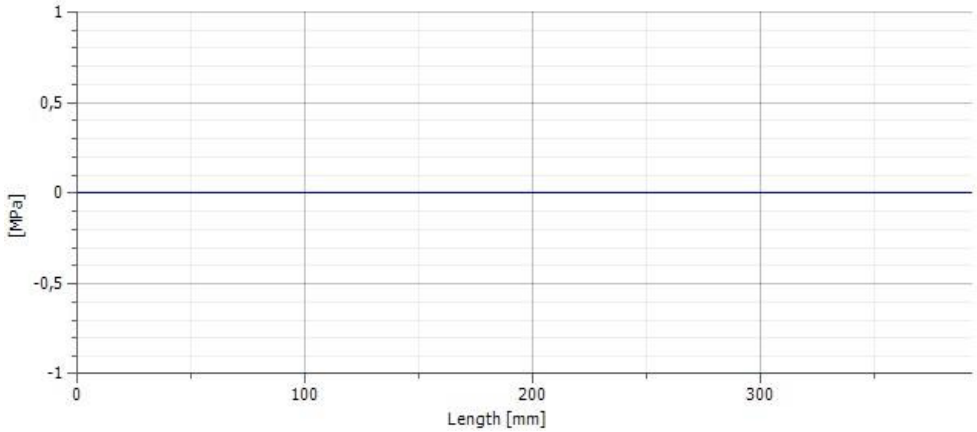



Bending Stress

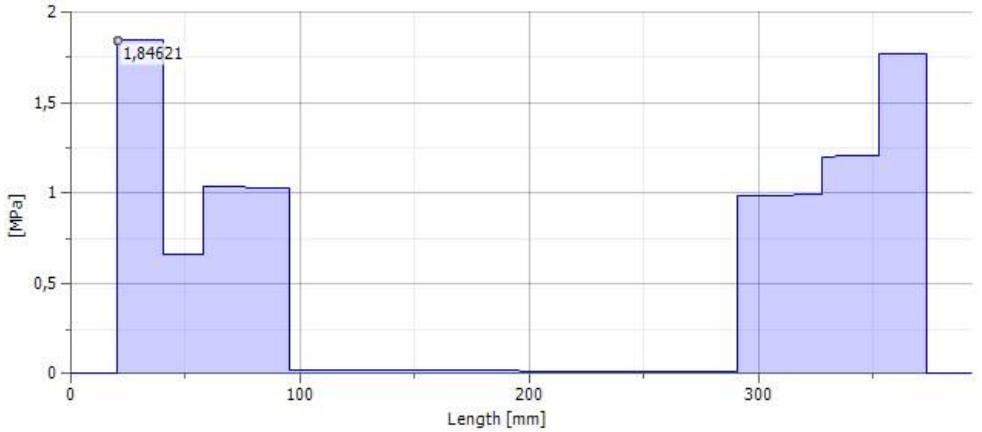

Bending Stress, YZ Plane



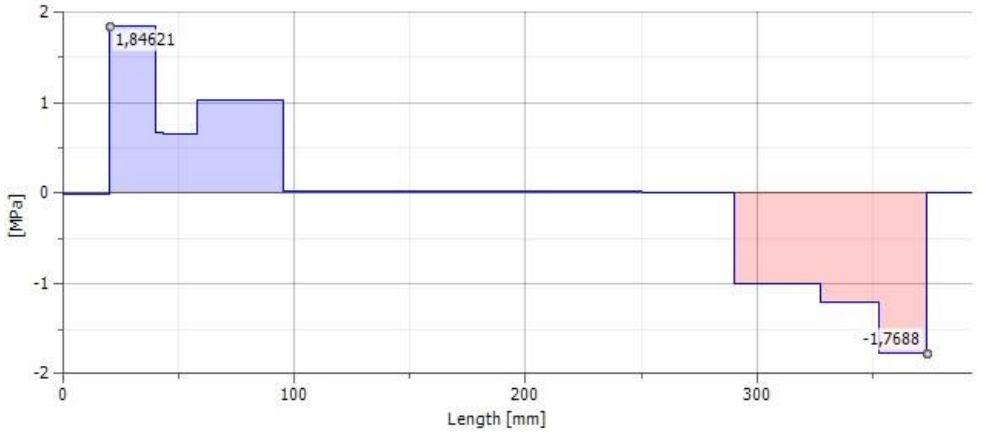

Bending Stress, XZ Plane



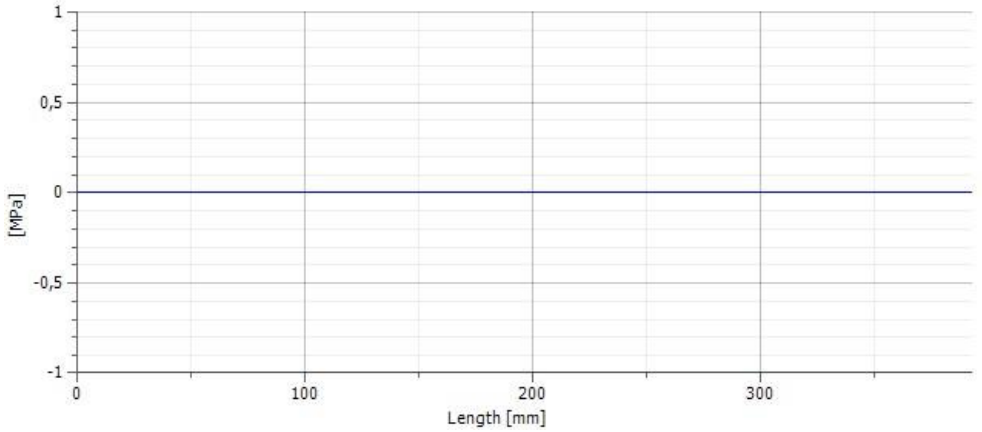

Shear Stress



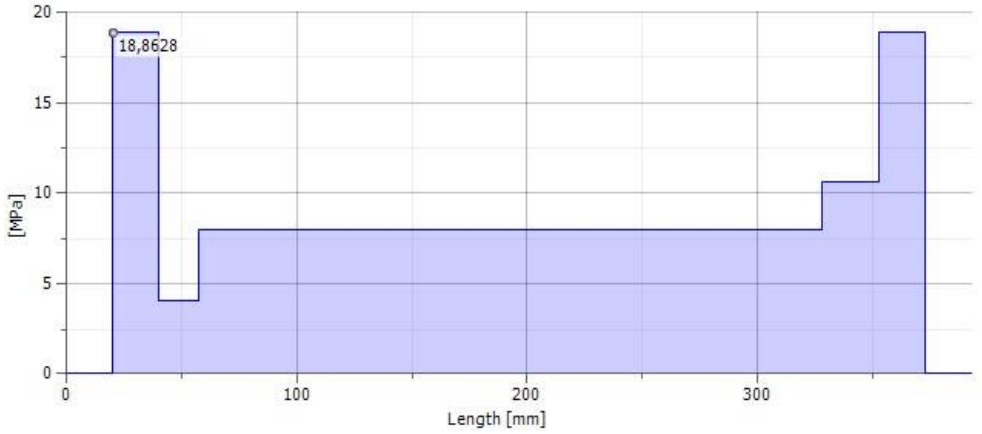

Shear Stress, YZ Plane



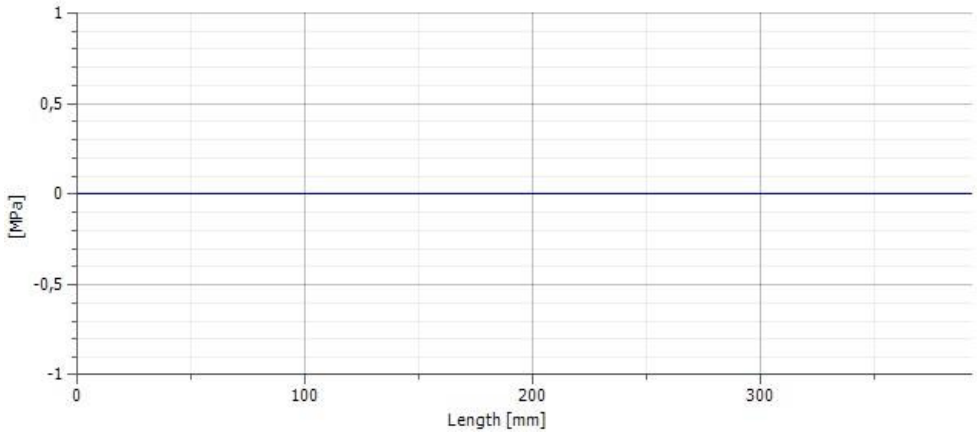

Shear Stress, XZ Plane



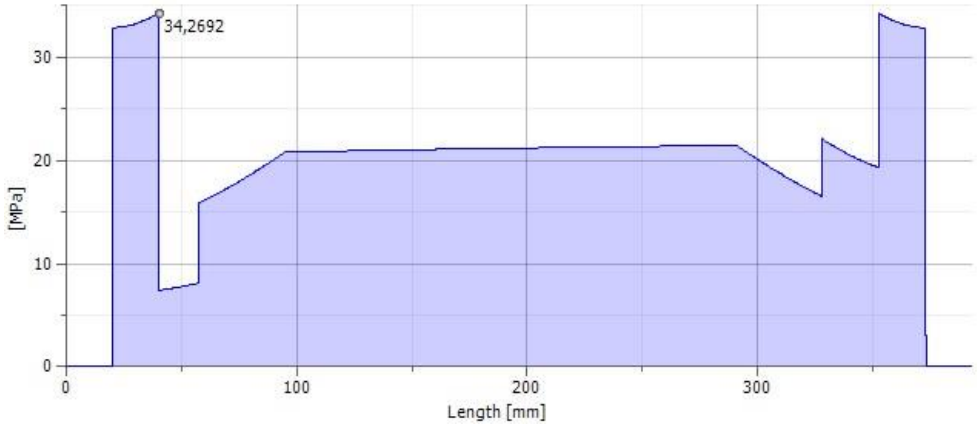

Torsional Stress



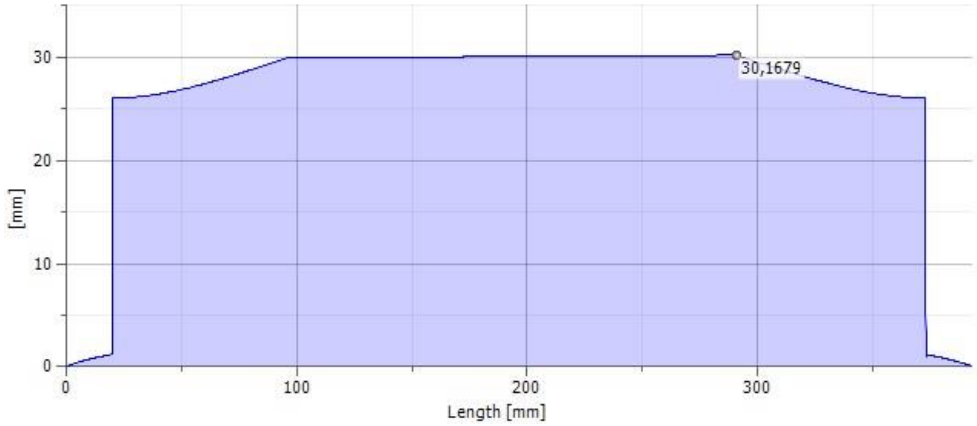

Tension Stress




Reduced Stress




Ideal Diameter




Summary of Messages 14:56:15

Calculation: Calculated.