

Belastungsanalyse - Bericht



Analysierte Datei:	Block_470bar_FEM.ipt
Autodesk Inventor-Version:	2016 (Build 200138000, 138)
Erstellungsdatum:	23.01.2018, 11:50
Simulationsersteller:	MuellerS
Übersicht:	

☐ Projektinfo (iProperties)

☐ Übersicht

Titel	Block_470bar_FEM
Autor	muellers

☐ Projekt

Bauteilnummer	Block_470bar_FEM
Bezeichnung	Block
Revisionsnummer	00
Konstrukteur	muellers
Kosten	0,00 €

☐ Status

Konstruktionsstatus	InBearbeitung
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☐ Physische Eigenschaften

Material	C45E (1.1191)
Dichte	7,84 g/cm ³
Masse	39,314 kg
Fläche	419310 mm ²
Volumen	5014540 mm ³
Schwerpunkt	x=-116,234 mm y=144,814 mm z=61,5469 mm

Anmerkung: Physikalische Werte können sich von den weiter unten berichteten, von FEM verwendeten physikalischen Werten unterscheiden.

☐ Simulation:1

Allgemeines Ziel und Einstellungen:

Konstruktionsziel	Einzelner Punkt
Simulationstyp	Statische Analyse
Letztes Änderungsdatum	23.01.2018, 11:43
Modi für starres Bauteil suchen und entfernen	Nein

Netzeinstellungen:

Durchschnittl. Elementgröße (als Teil des Modelldurchmessers)	0,1
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Min. Elementgröße (als Teil der durchschn. Größe)	0,2
Einteilungsfaktor	1,5
Max. Drehwinkel	60 grd
Kurvenförmige Netzelemente erstellen	Ja

☐ Material(ien)

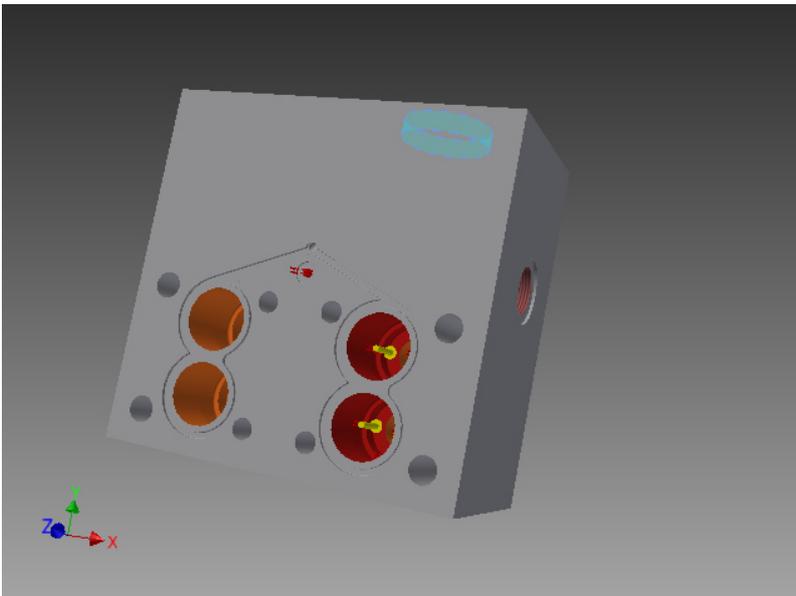
Name	C45E (1.1191)	
Allgemein	Massendichte	7,84 g/cm ³
	Streckgrenze	500 MPa
	Zugfestigkeit	700 MPa
Spannung	Elastizitätsmodul	210 GPa
	Poissonsche Zahl	0,287 oE
	Schubmodul	81,5851 GPa
Bauteilname(n)	Block_470bar_FEM.ipt	

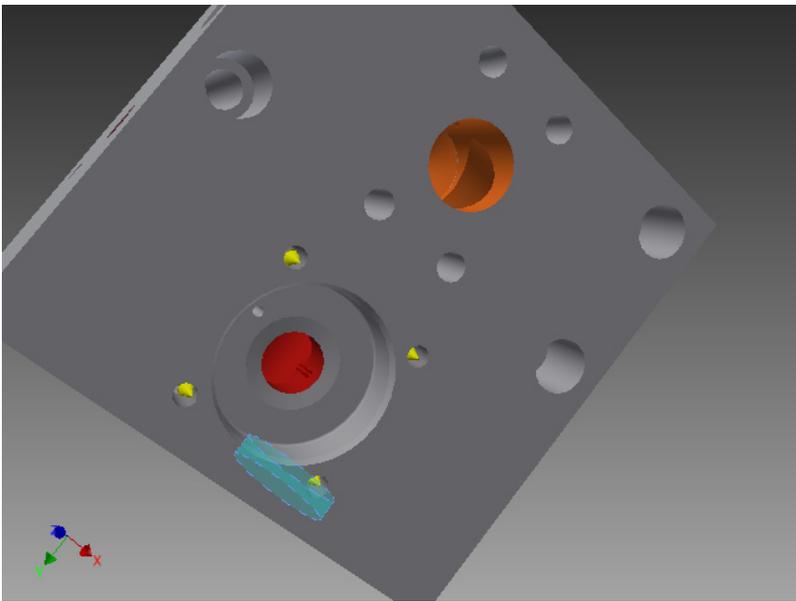
☐ Betriebsbedingungen

☐ Kraft:1

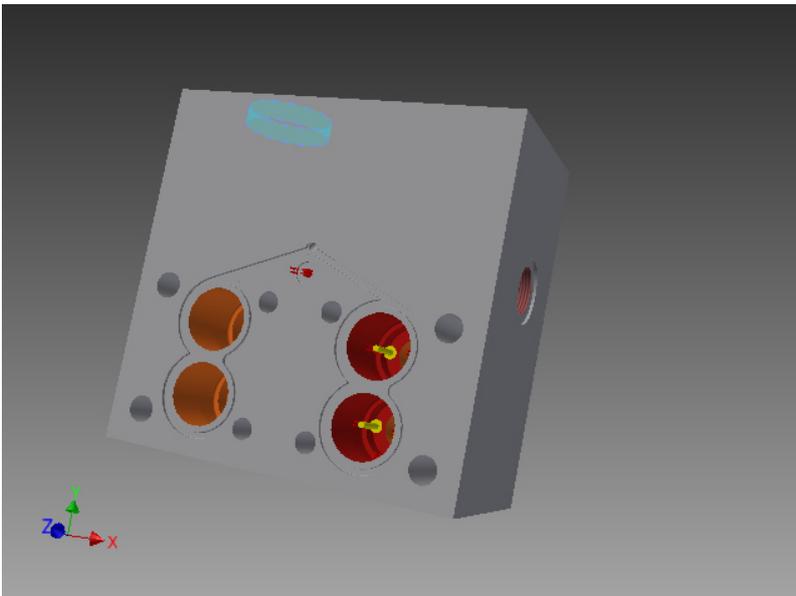
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Vektor Y	5906.000 N
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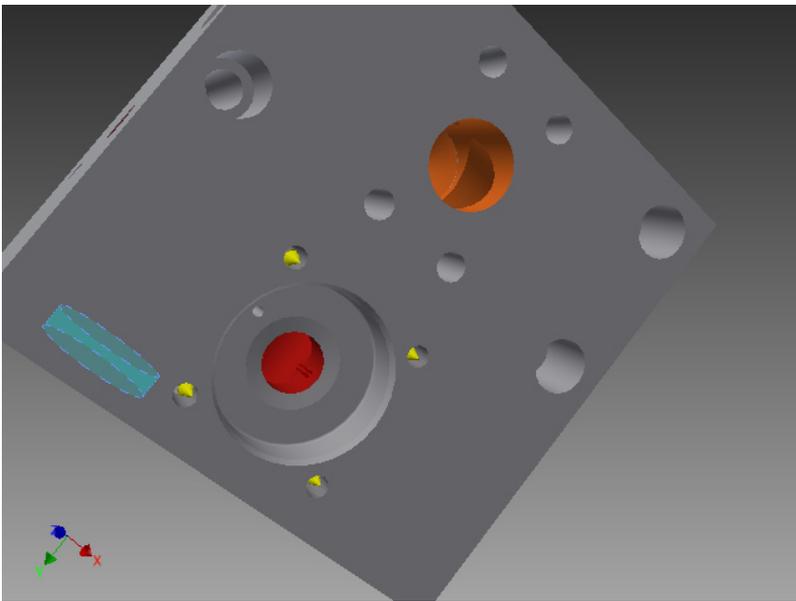
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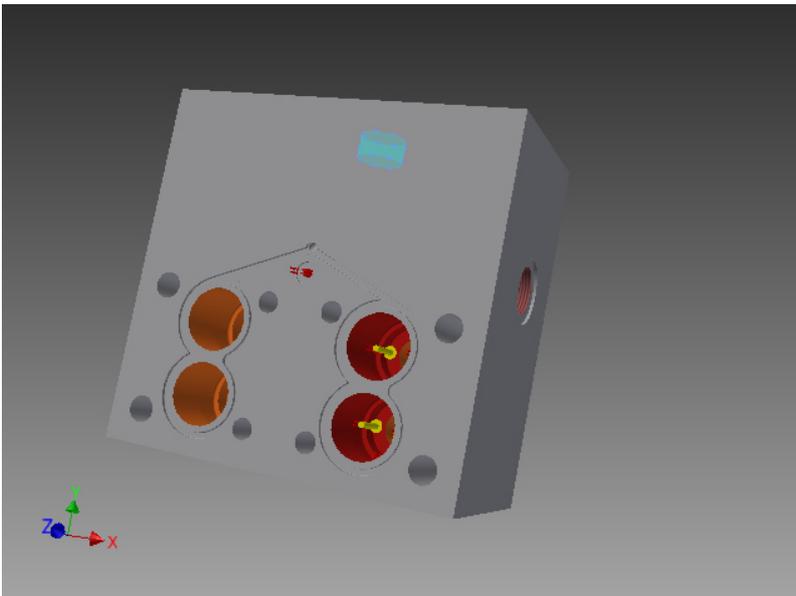
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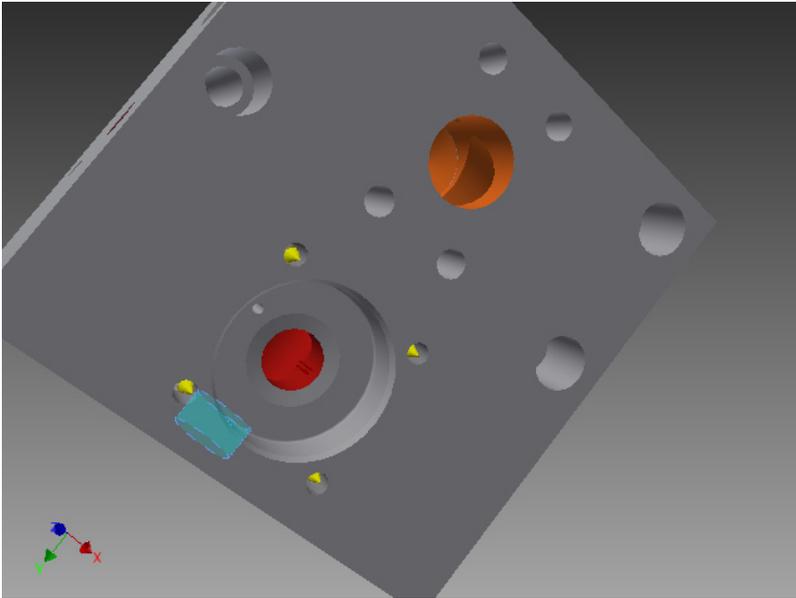
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Vektor X	0.000 N
Vektor Y	5906.000 N
Vektor Z	0.000 N

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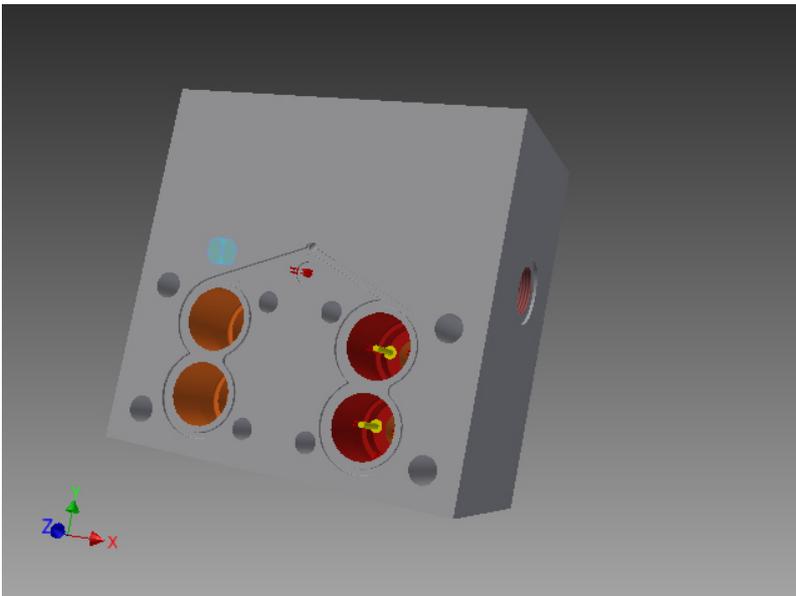
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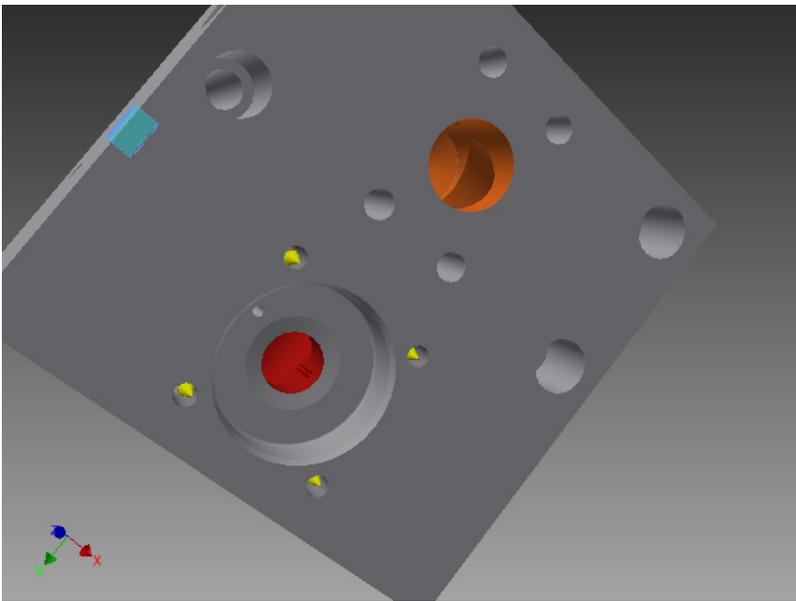
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Vektor Y	3547.500 N
Vektor Z	0.000 N

Ausgewählte Fläche(n)

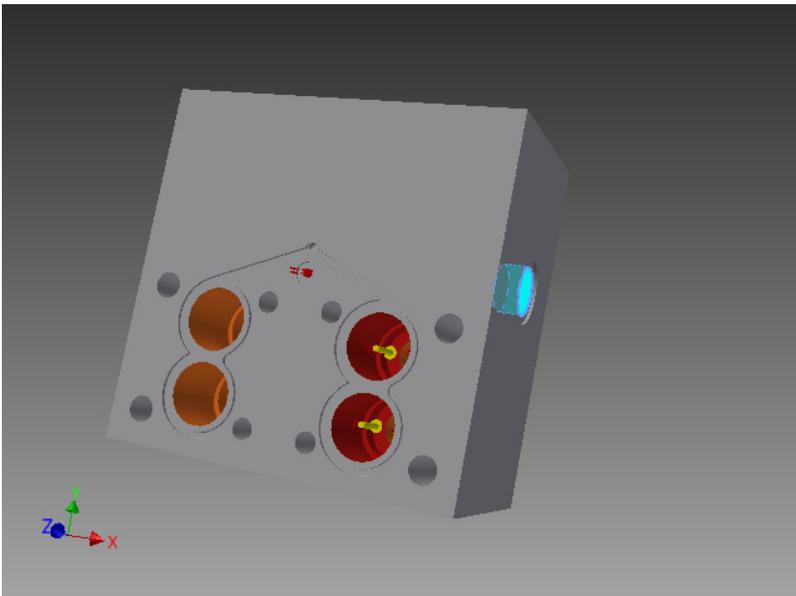
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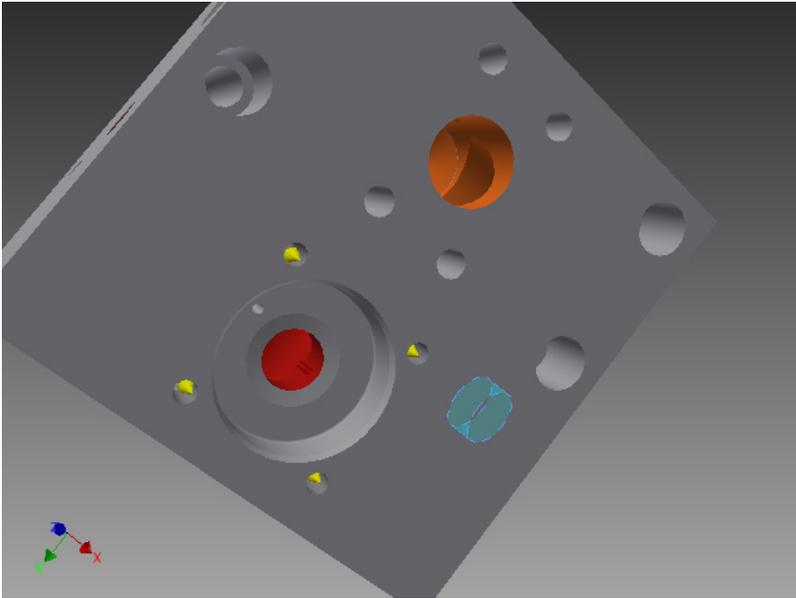
Belastungstyp	Kraft
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Vektor Y	0.000 N
Vektor Z	0.000 N

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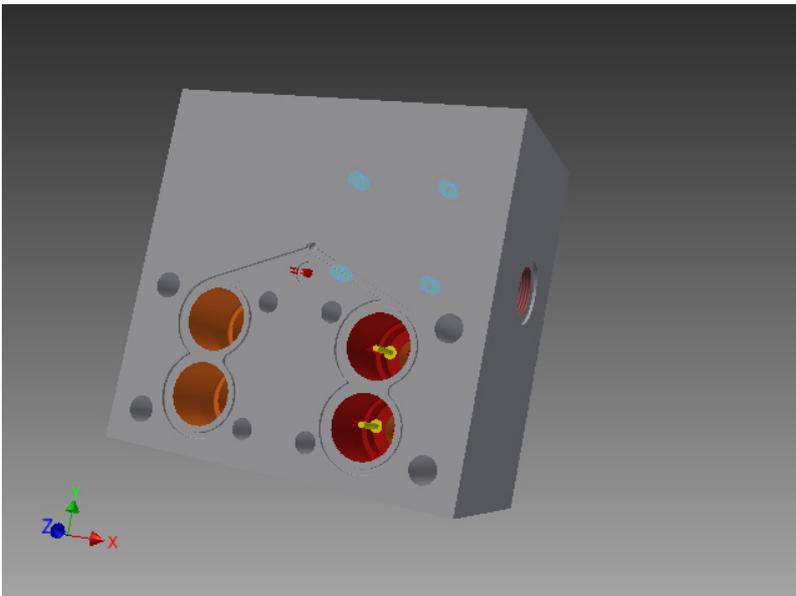
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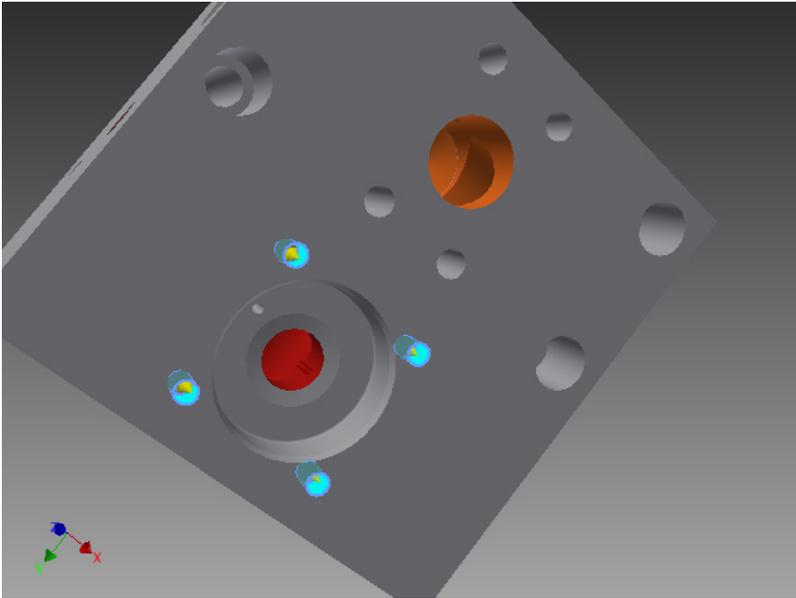
Belastungstyp	Kraft
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Vektor X	3547.500 N
Vektor Y	0.000 N
Vektor Z	0.000 N

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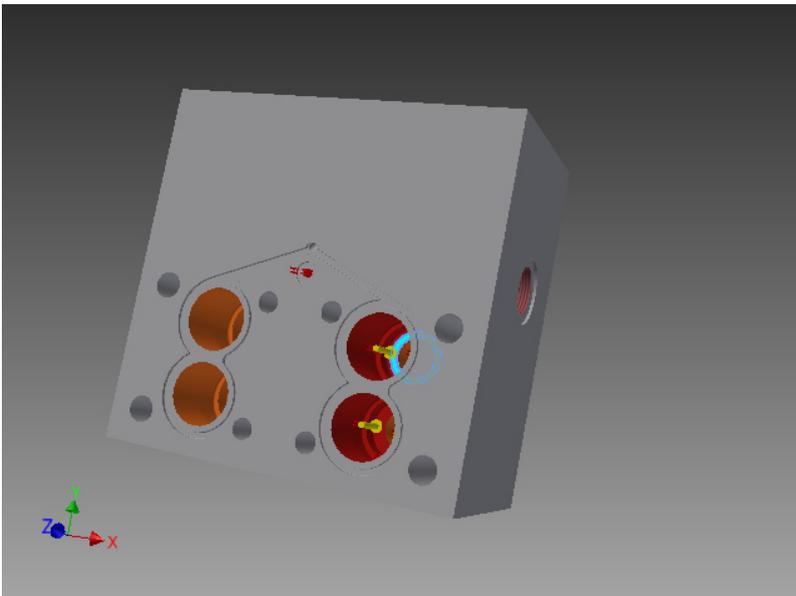
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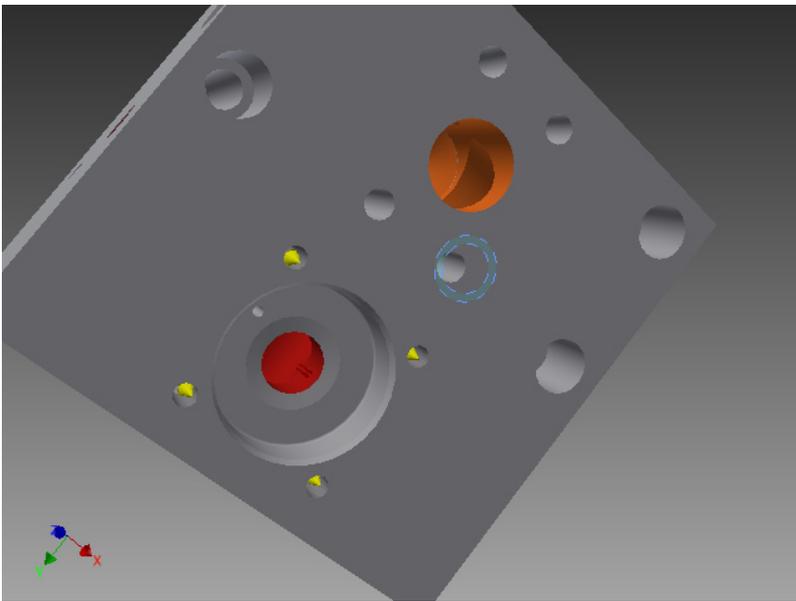
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Vektor Y	0.000 N
Vektor Z	-2894.000 N

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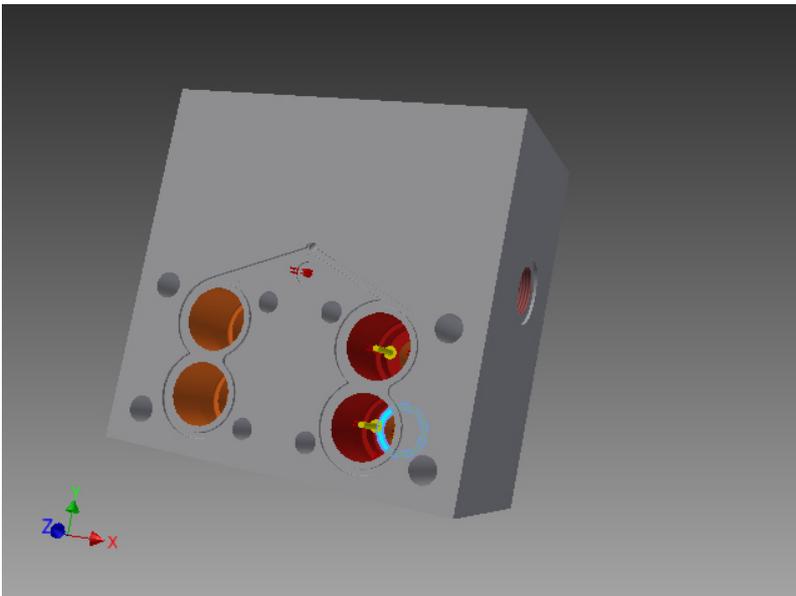
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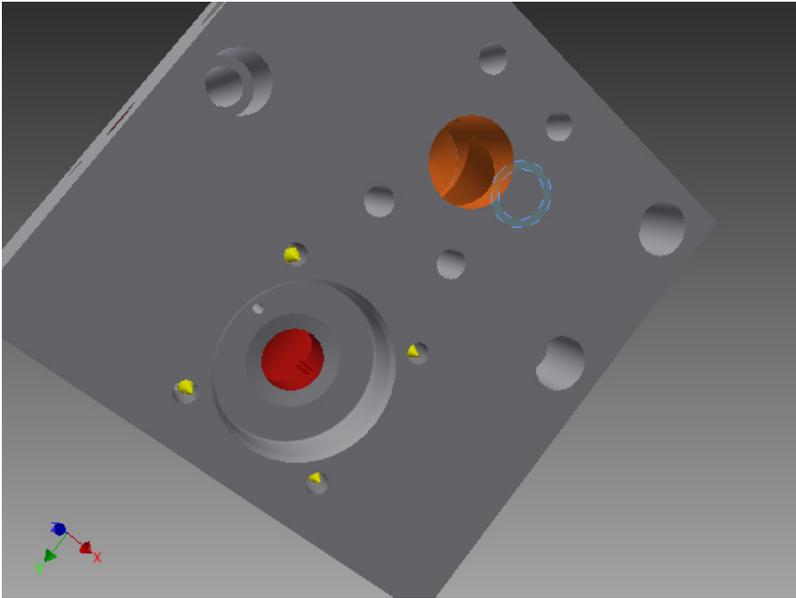
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Vektor Y	0.000 N
Vektor Z	-1899.000 N

Ausgewählte Fläche(n)

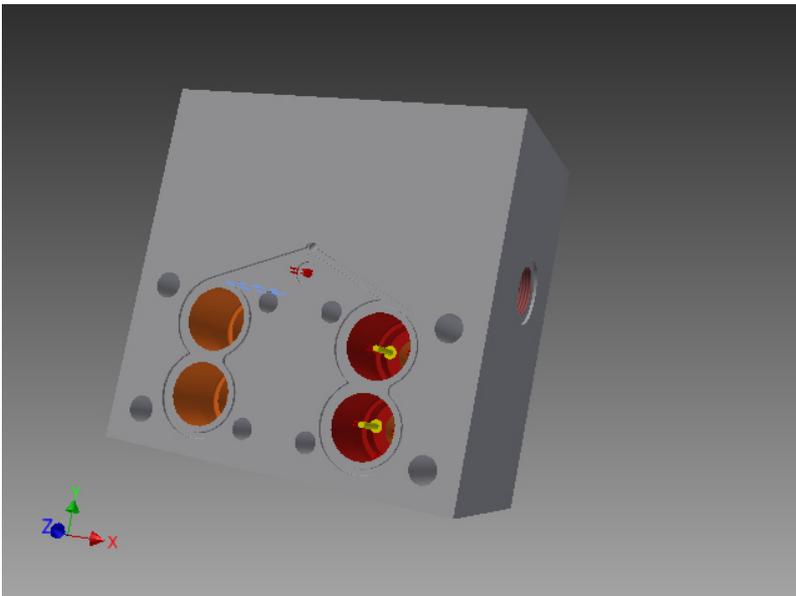
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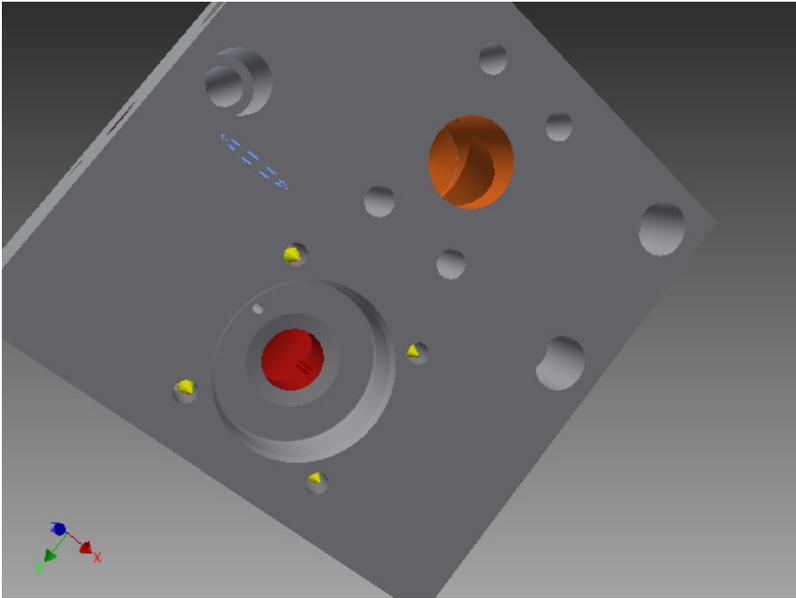
Belastungstyp	Kraft
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Vektor X	0.000 N
Vektor Y	0.000 N
Vektor Z	-1899.000 N

☐ Ausgewählte Fläche(n)

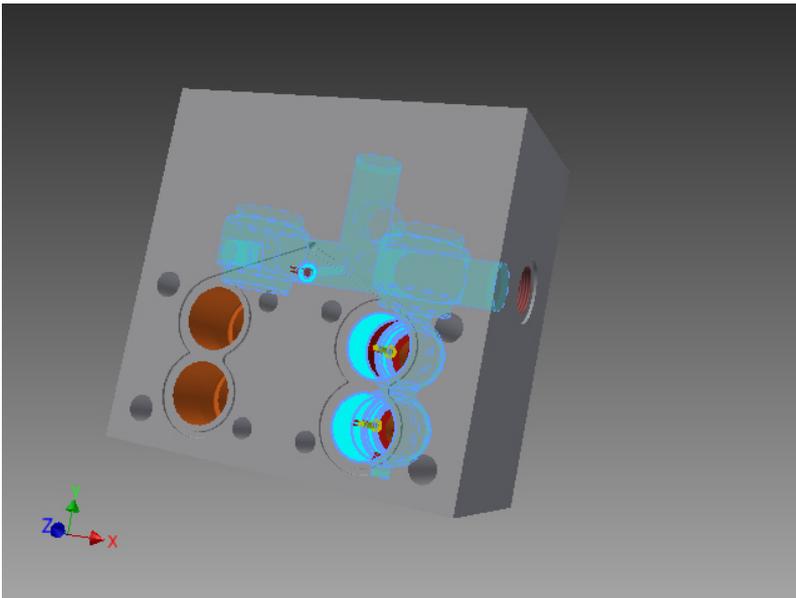
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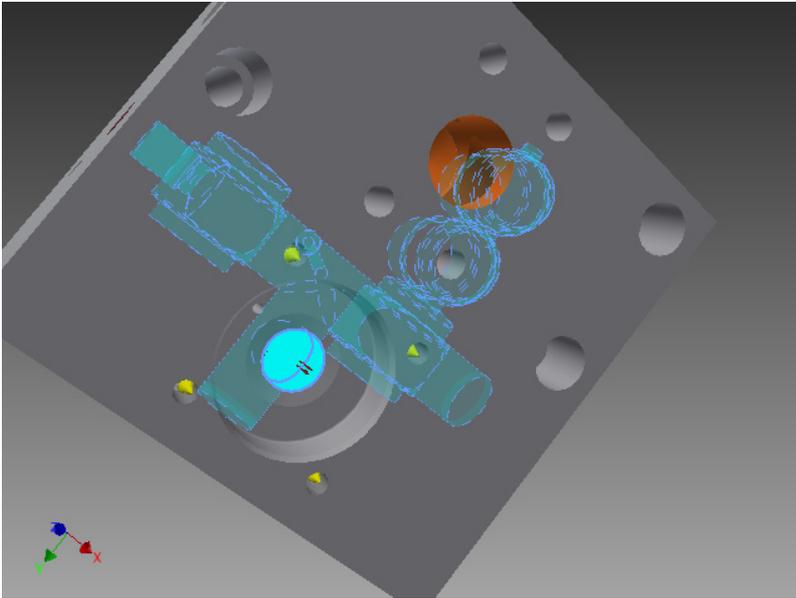
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Ausgewählte Fläche(n)

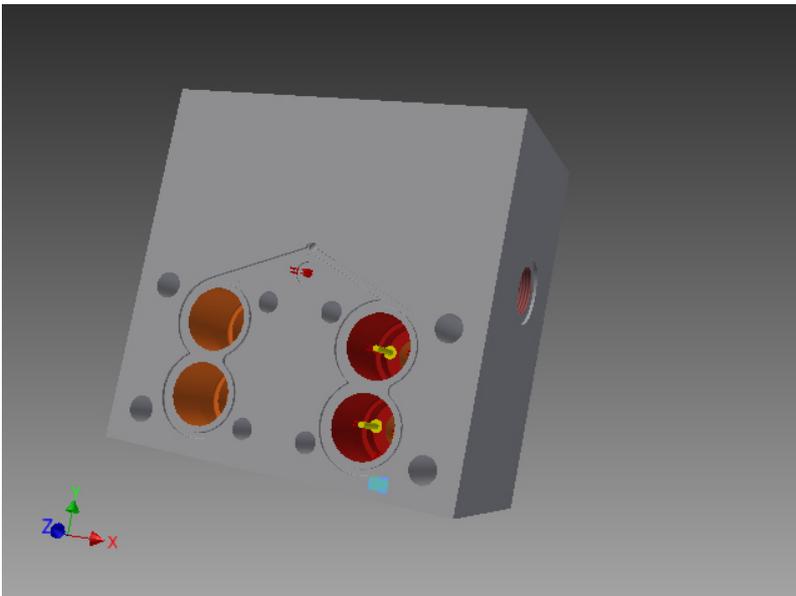
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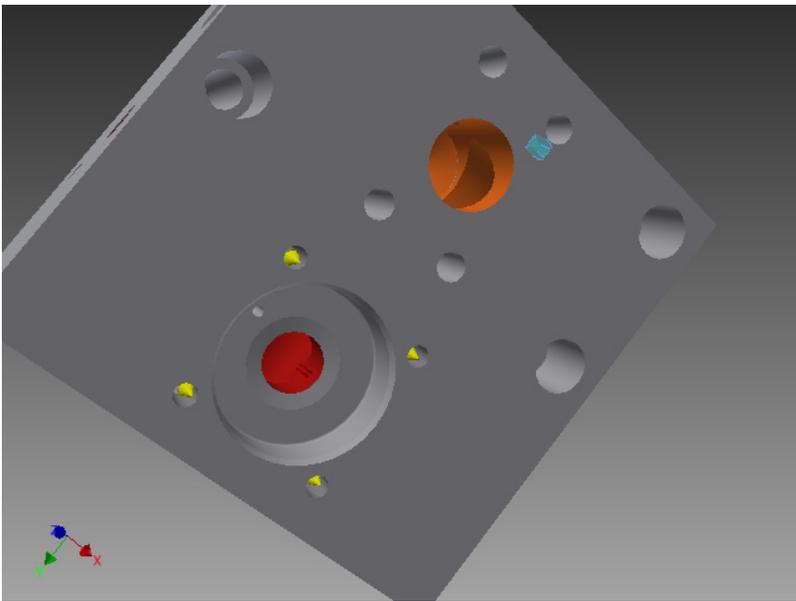
Belastungstyp	Druck
Größe	47.000 MPa

Ausgewählte Fläche(n)

**Kraft:10**

Belastungstyp	Kraft
Größe	489.000 N
Vektor X	0.000 N
Vektor Y	-489.000 N
Vektor Z	0.000 N

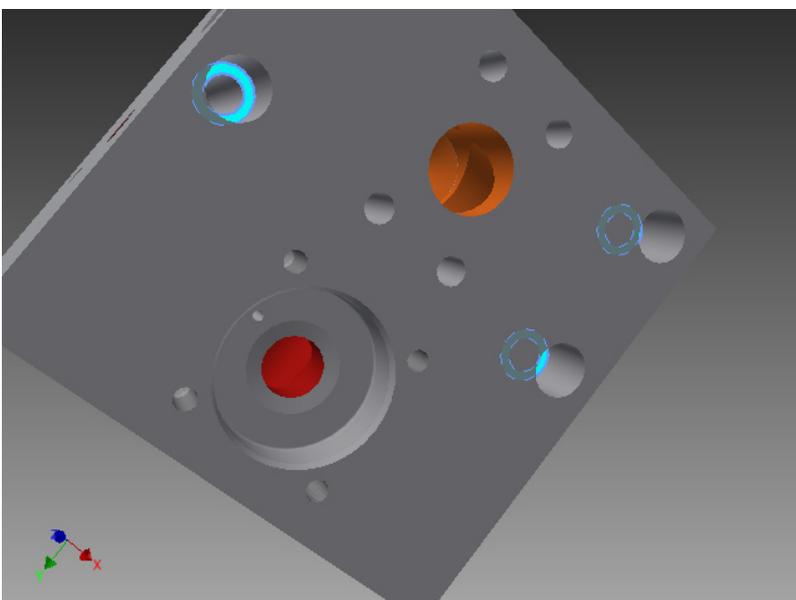
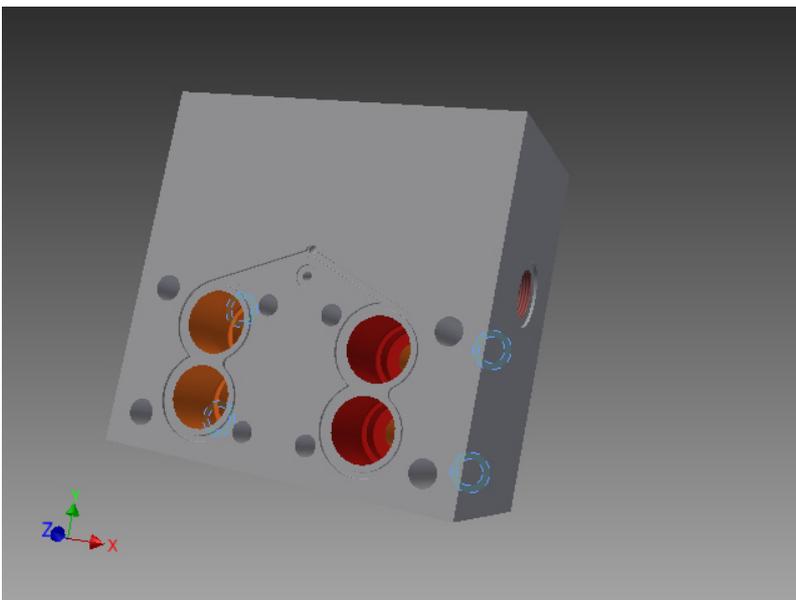
Ausgewählte Fläche(n)



☐ **Festgelegte Abhängigkeit:1**

Abhängigkeitstyp Festgelegte Abhängigkeit

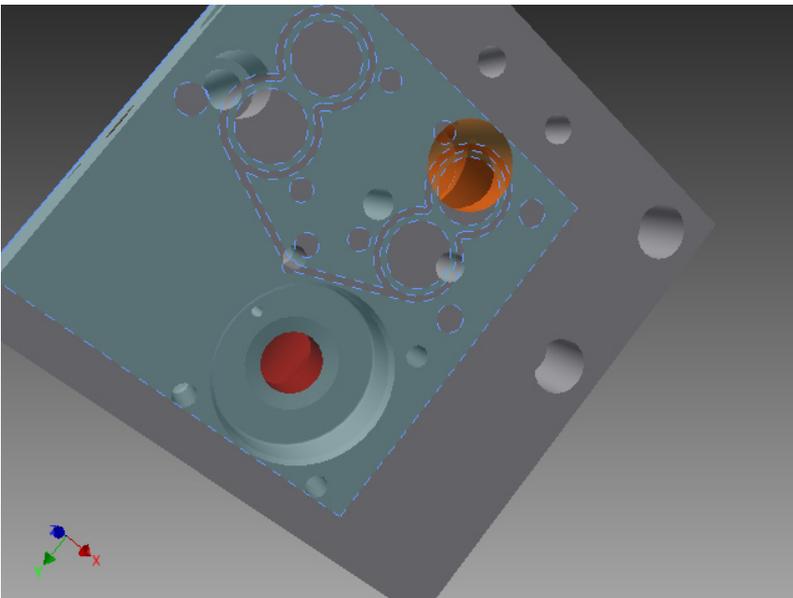
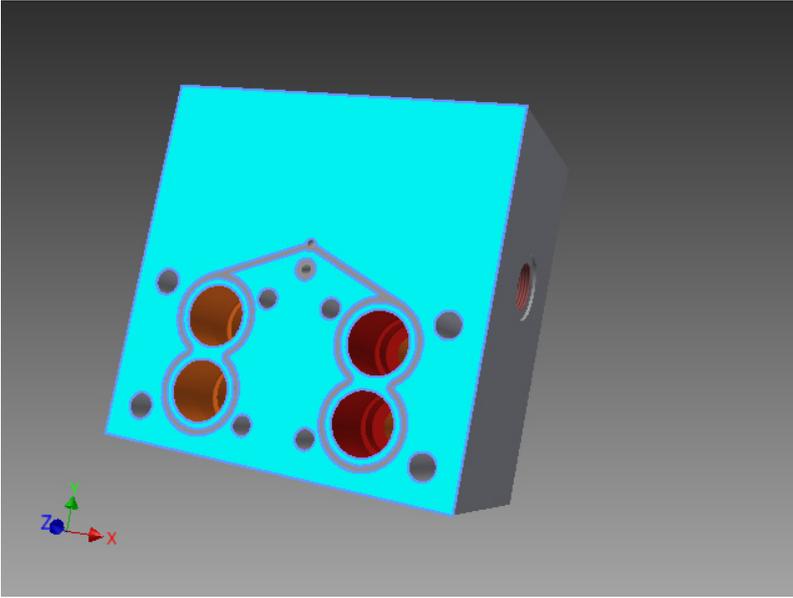
☐ **Ausgewählte Fläche(n)**



Reibungslose Abhängigkeit:1

Abhängigkeitstyp Reibungslose Abhängigkeit

Ausgewählte Fläche(n)



Ergebnisse

Rückstoßkraft und -moment an Abhängigkeiten

Name der Abhängigkeit	Rückstoßkraft		Rückstoßmoment	
	Größe	Komponente (X,Y,Z)	Größe	Komponente (X,Y,Z)
Festgelegte Abhängigkeit:1	128885 N	-23346,4 N	3559,42 N m	1622,5 N m
		100421 N		-1804,91 N m
		77343 N		2603,7 N m
Reibungslose Abhängigkeit:1	72472,6 N	0 N	3824,99 N m	-3616,71 N m
		0 N		-1244,97 N m
		-72472,6 N		0 N m

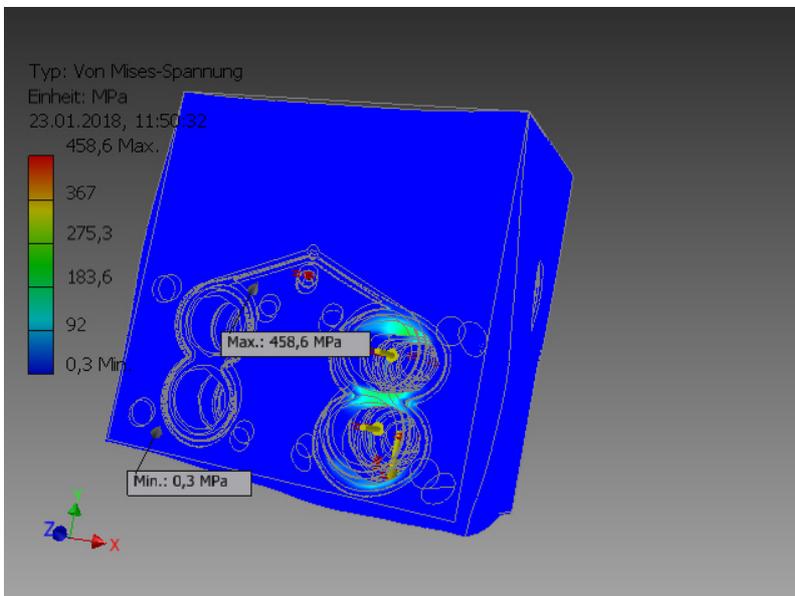
Ergebniszusammenfassung

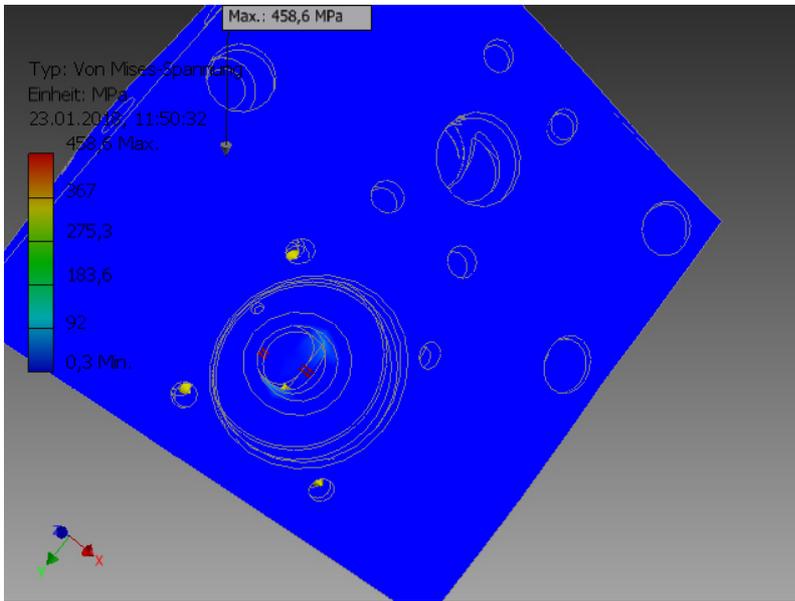
Name	Minimum	Maximum
Volumen	5014540 mm ³	
Masse	39,314 kg	

Von Mises-Spannung	0,323077 MPa	458,622 MPa
1. Hauptspannung	-42,875 MPa	480,668 MPa
3. Hauptspannung	-264,338 MPa	60,7453 MPa
Verschiebung	0 mm	0,0270442 mm
Sicherheitsfaktor	1,09022 oE	15 oE
Spannung XX	-148,559 MPa	331,614 MPa
Spannung XY	-198,378 MPa	149,021 MPa
Spannung XZ	-143,866 MPa	181,514 MPa
Spannung YY	-176,378 MPa	202,191 MPa
Spannung YZ	-96,0281 MPa	124,489 MPa
Spannung ZZ	-145,268 MPa	199,348 MPa
X Verschiebung	-0,0127568 mm	0,0265382 mm
Y Verschiebung	-0,0182413 mm	0,00461079 mm
Z Verschiebung	-0,0130813 mm	0,0077641 mm
Vergleichsbelastung	0,0000013997 oE	0,00192877 oE
1. Hauptbelastung	-0,0000478457 oE	0,00218606 oE
3. Hauptbelastung	-0,0011471 oE	0,00000229713 oE
Belastung XX	-0,000592632 oE	0,00140141 oE
Belastung XY	-0,00121578 oE	0,000913283 oE
Belastung XZ	-0,000881694 oE	0,00111242 oE
Belastung YY	-0,000654918 oE	0,000853237 oE
Belastung YZ	-0,000588515 oE	0,000762938 oE
Belastung ZZ	-0,00056332 oE	0,00074876 oE

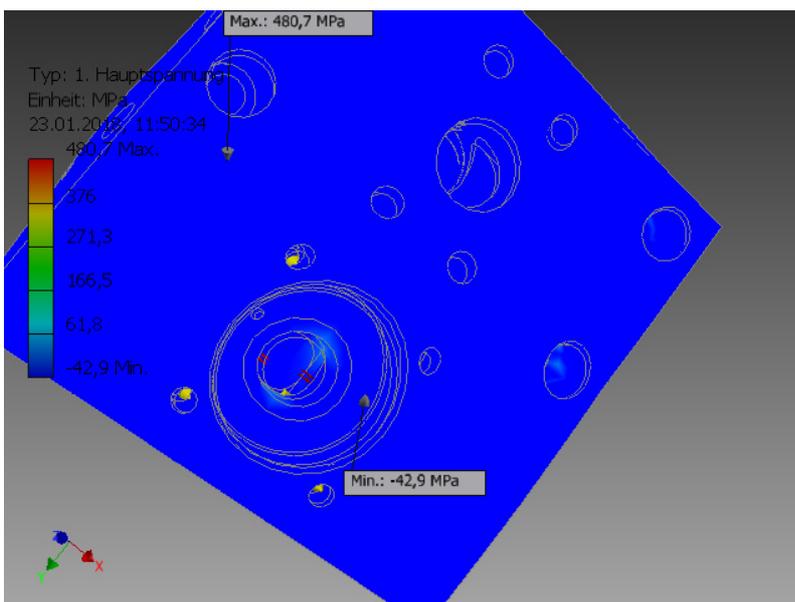
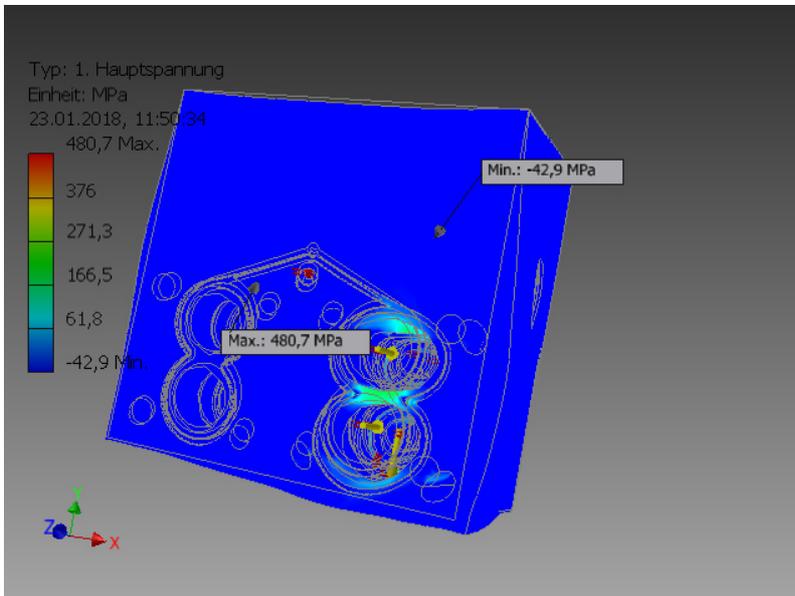
☐ Zahlen

☐ Von Mises-Spannung

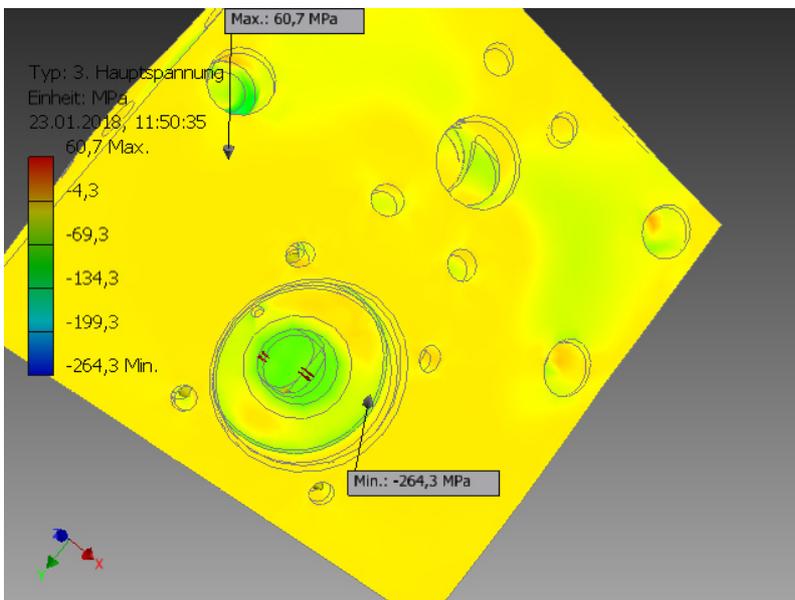
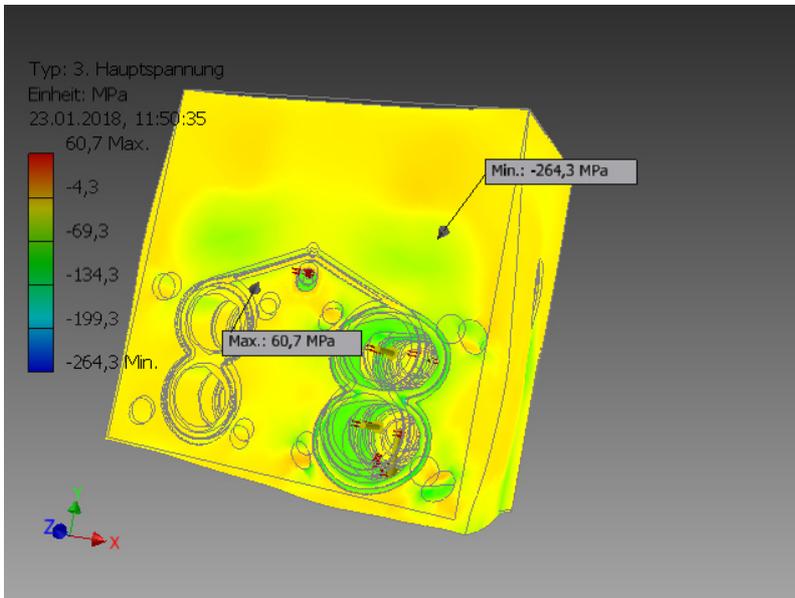




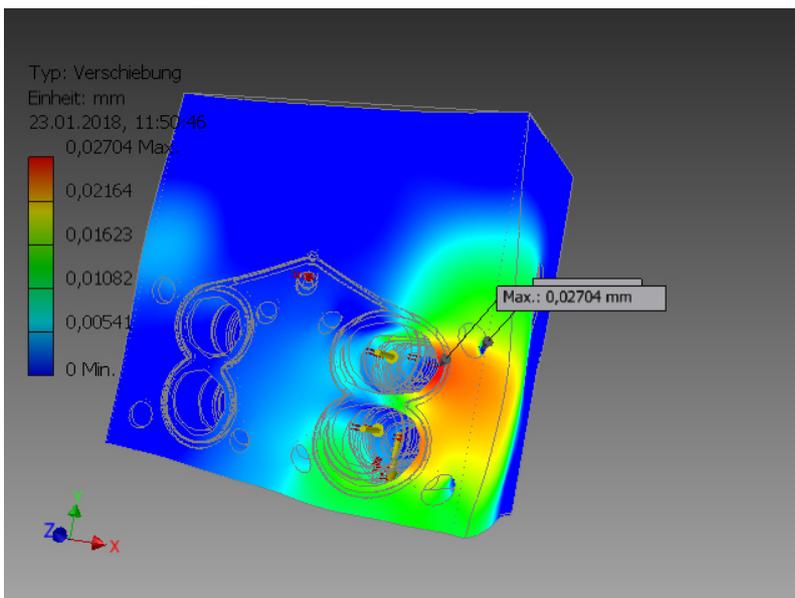
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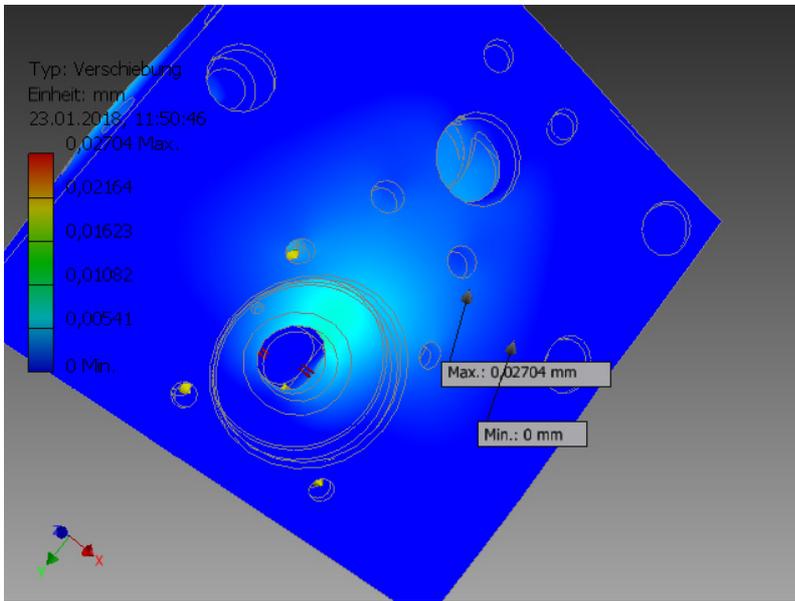


3. Hauptspannung

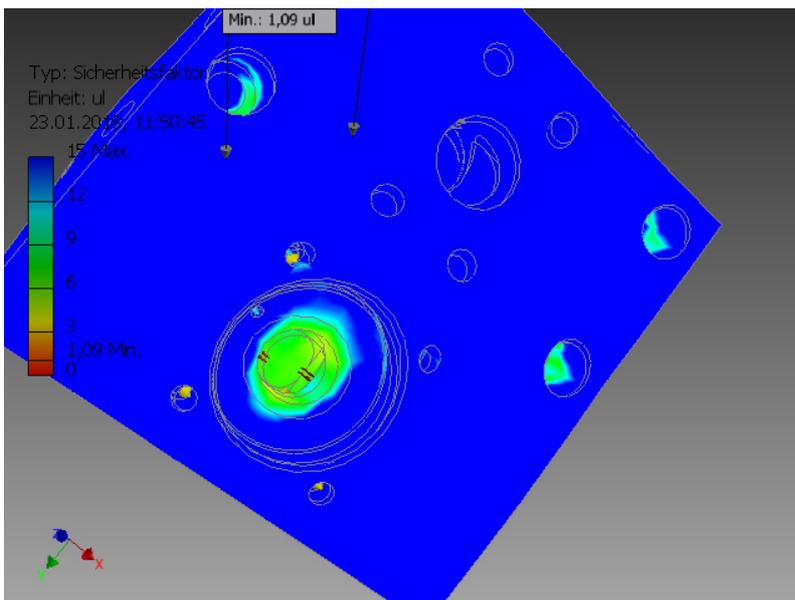
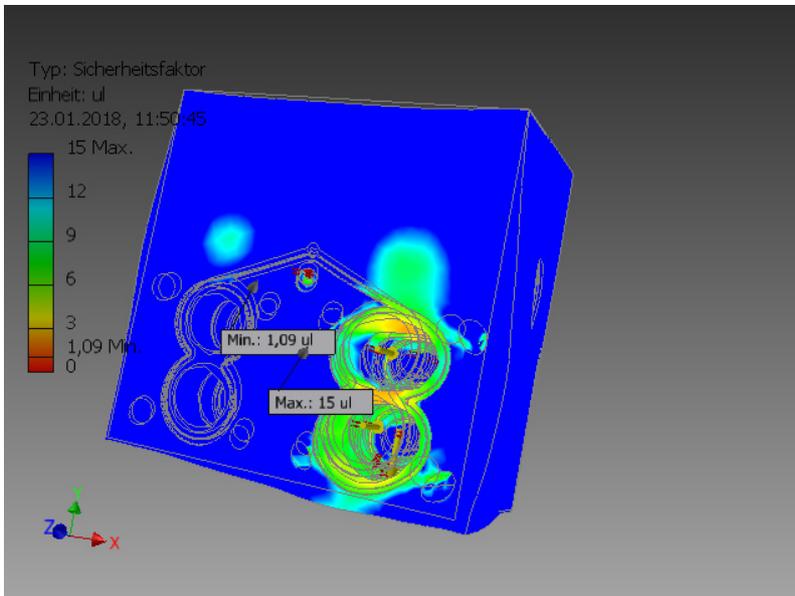


☐ Verschiebung

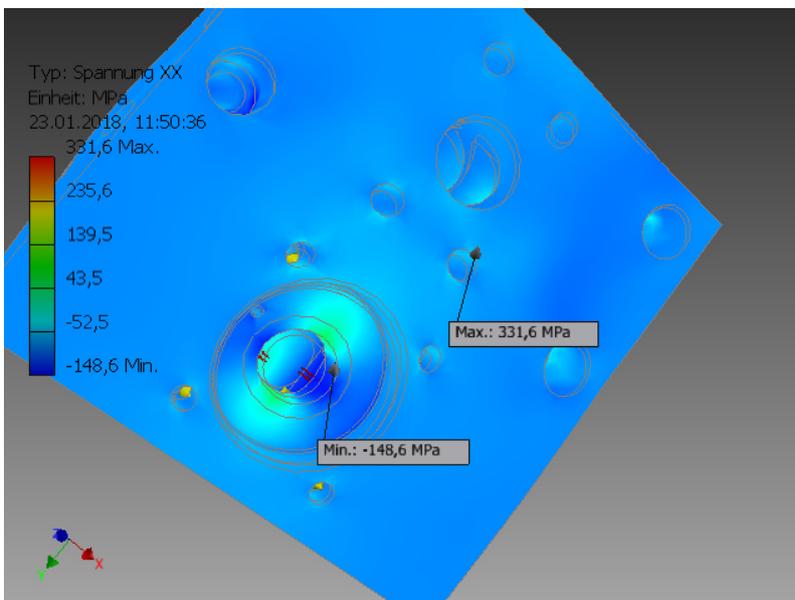
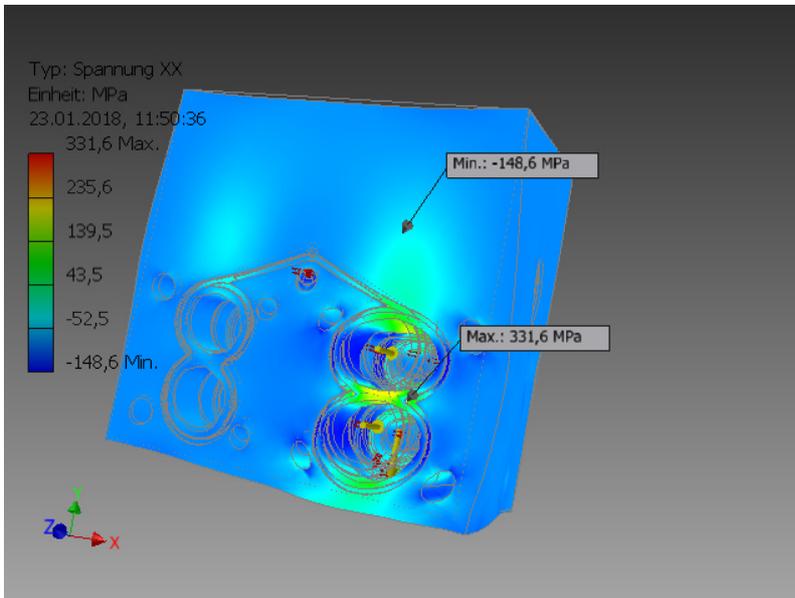




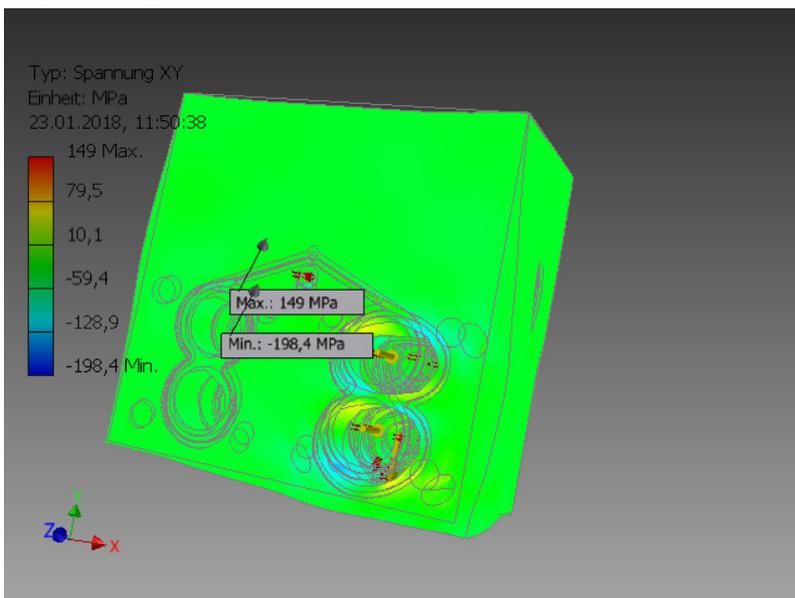
Sicherheitsfaktor

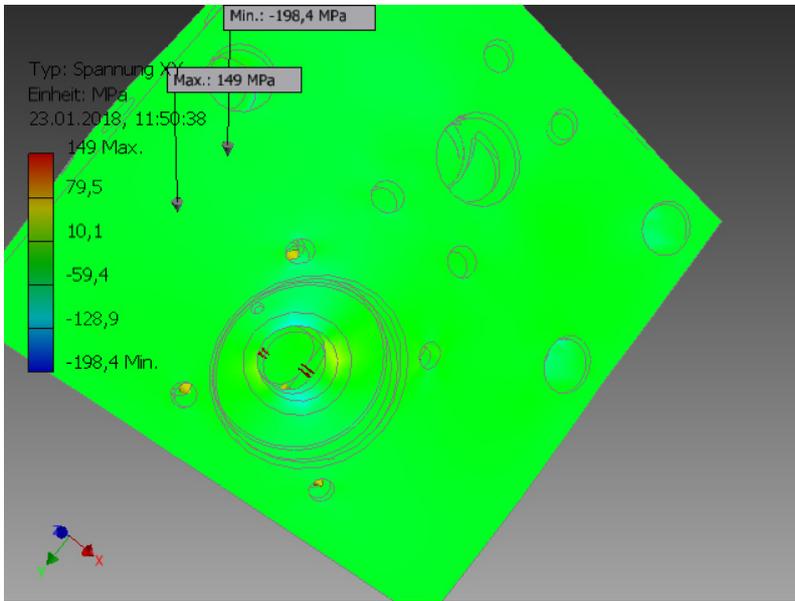


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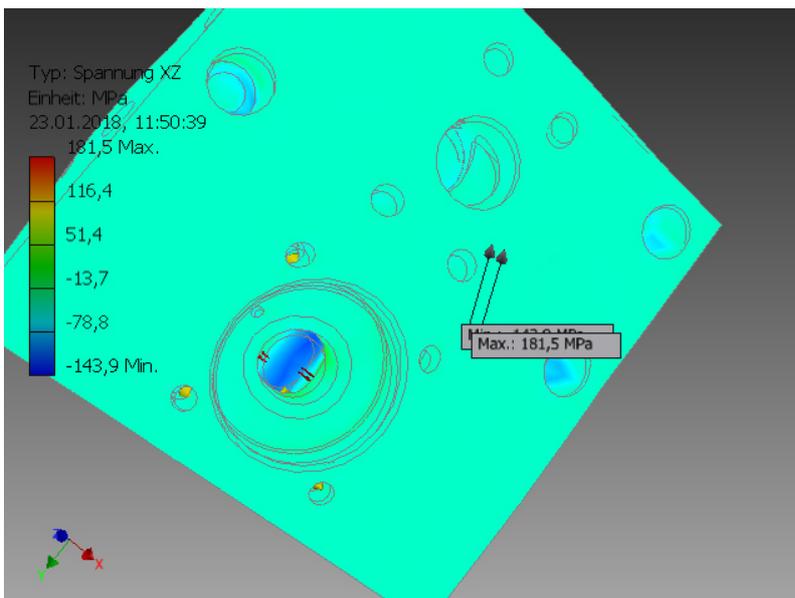
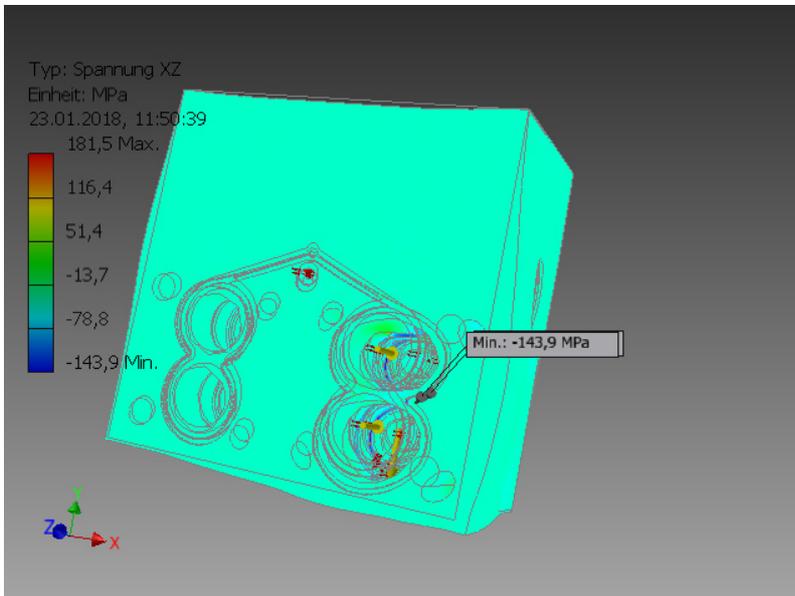


☐ **Spannung XY**

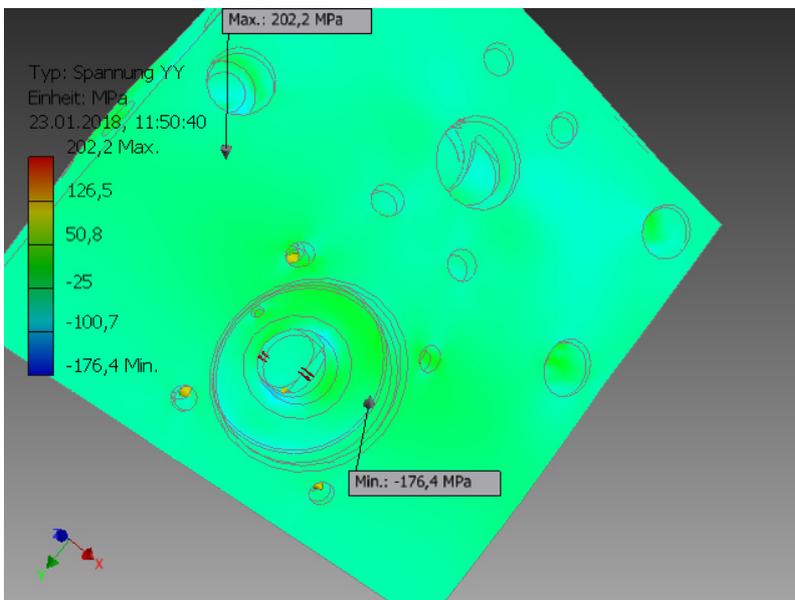
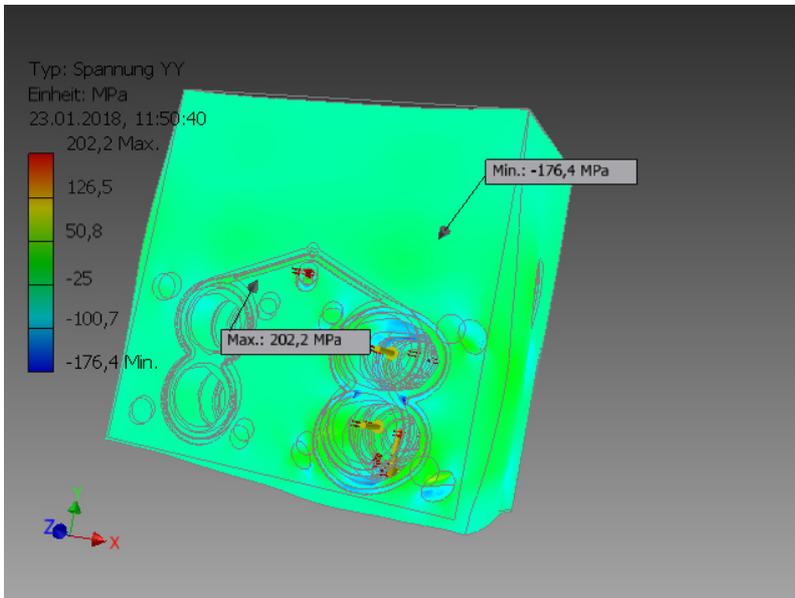




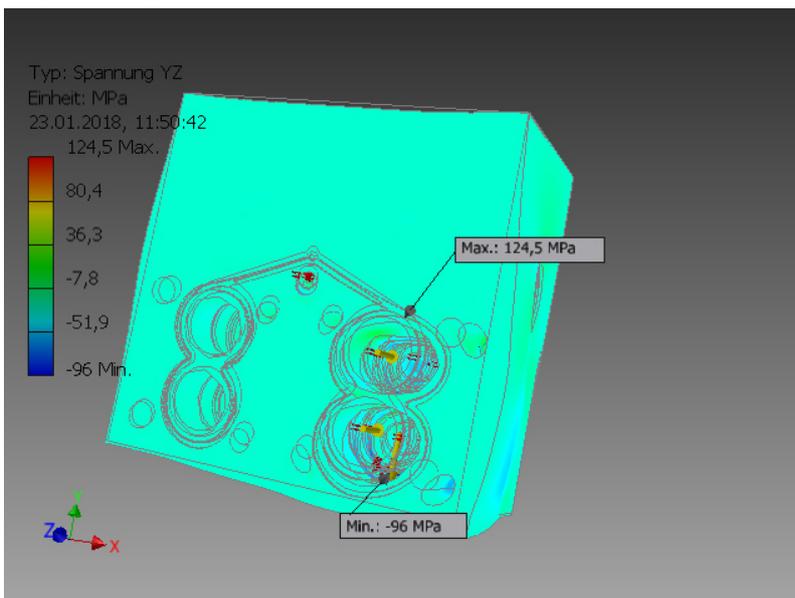
Spannung XZ

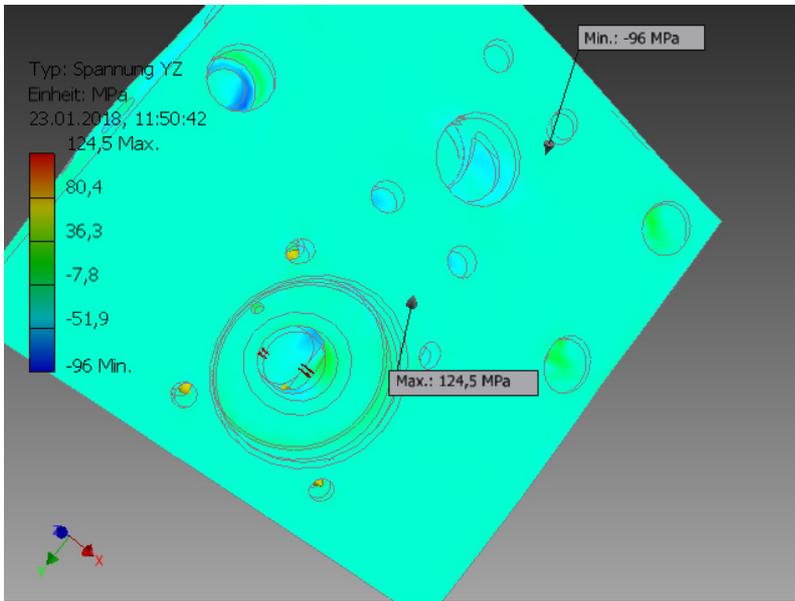


Spannung YY

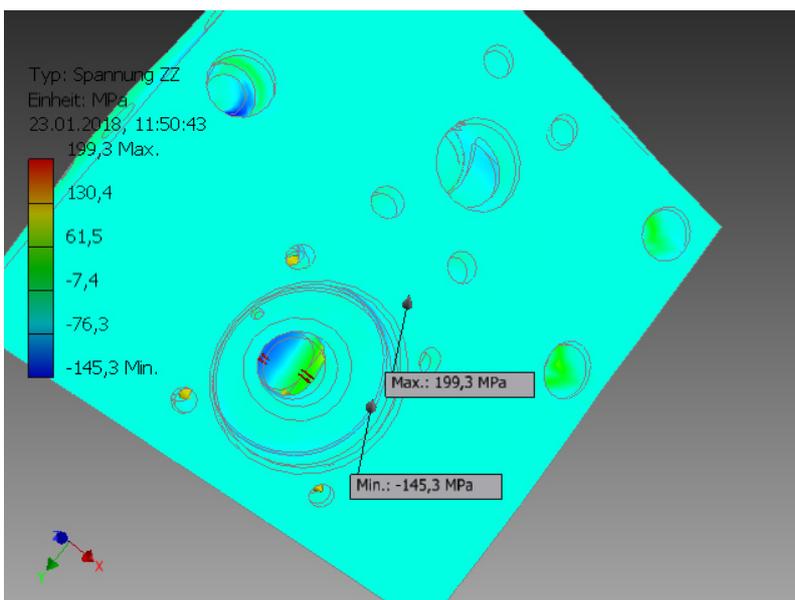
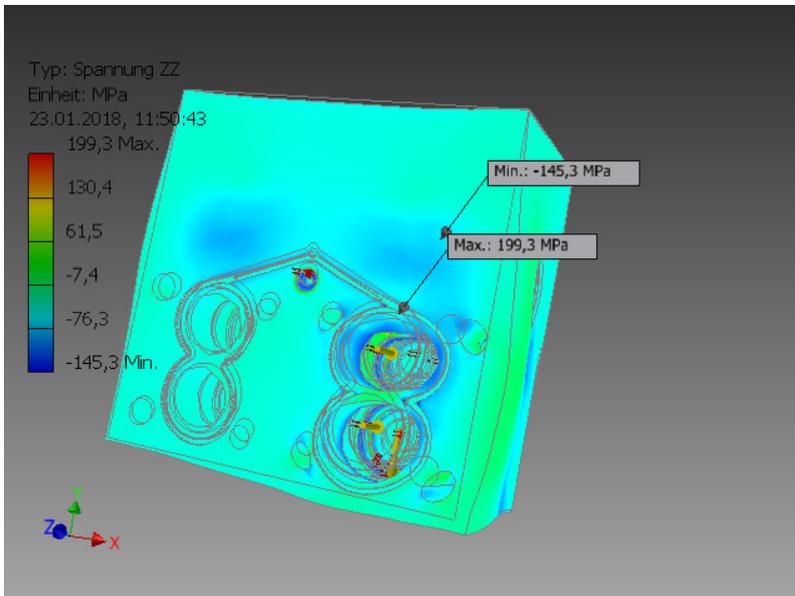


Spannung YZ

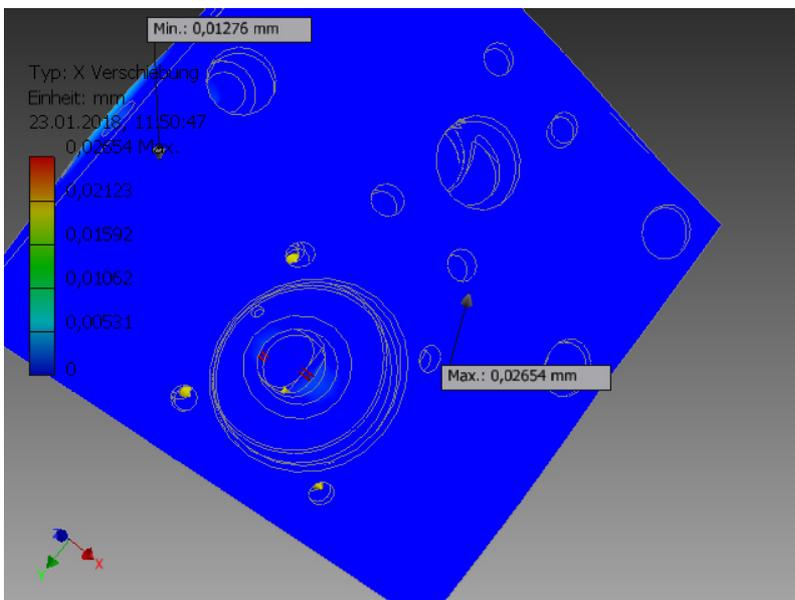
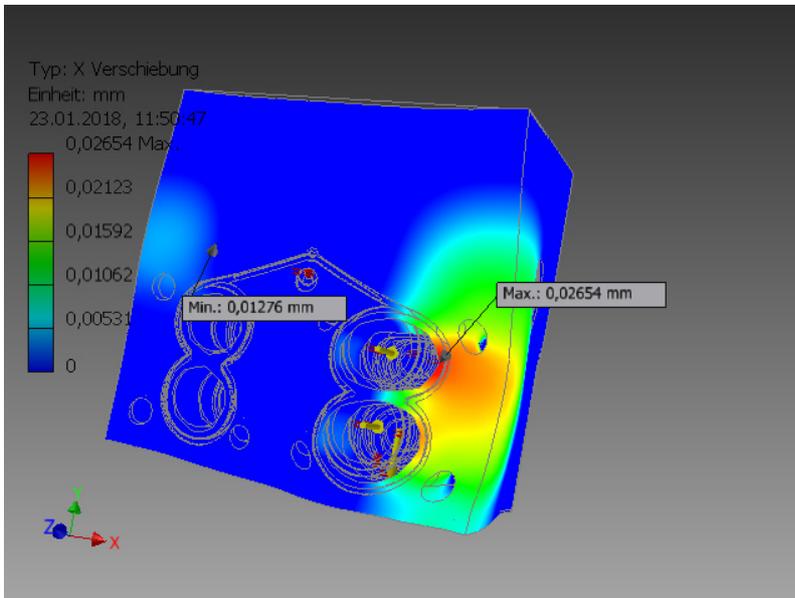




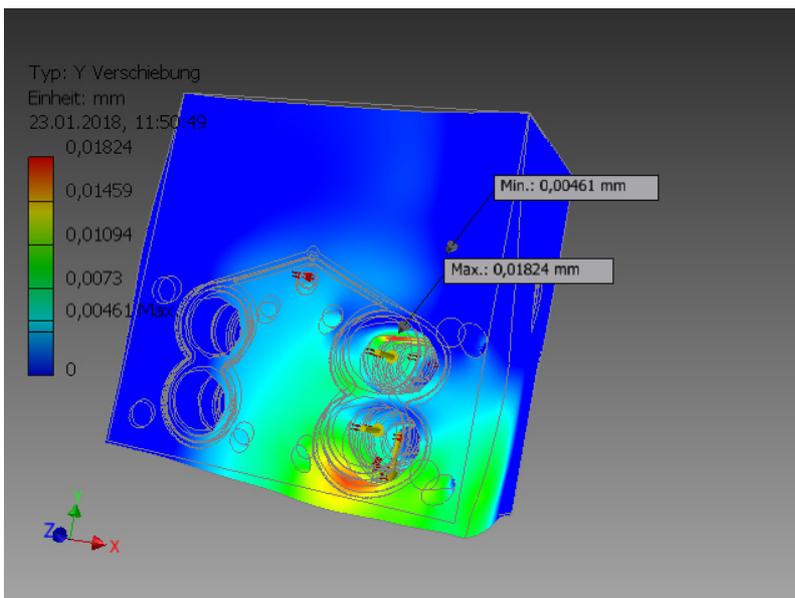
Spannung ZZ

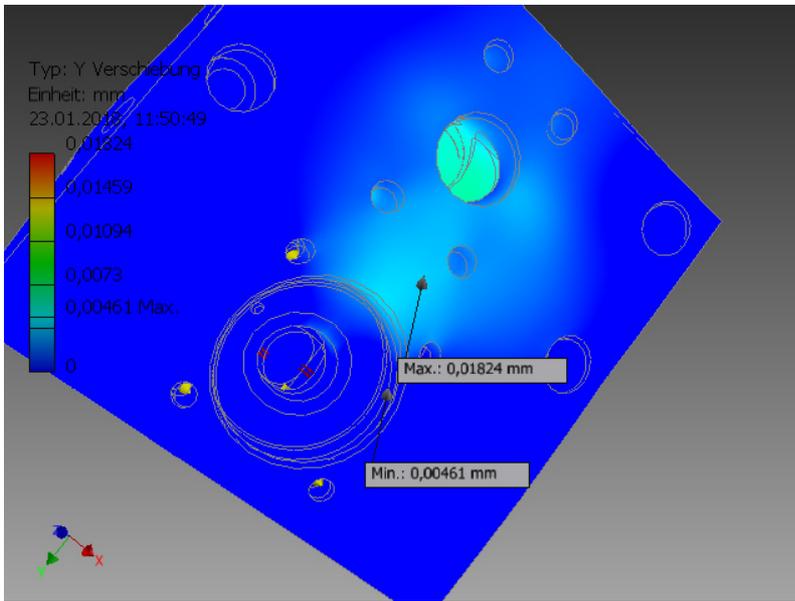


X Verschiebung

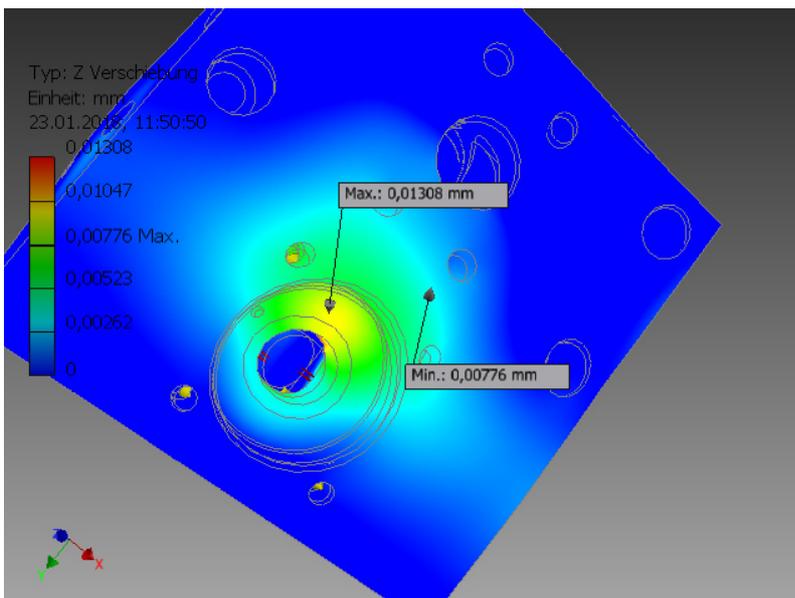
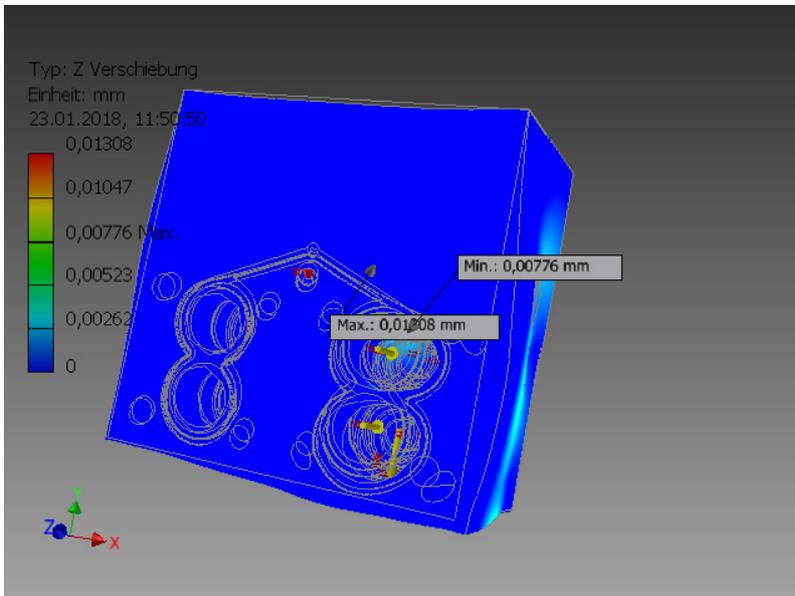


Y Verschiebung

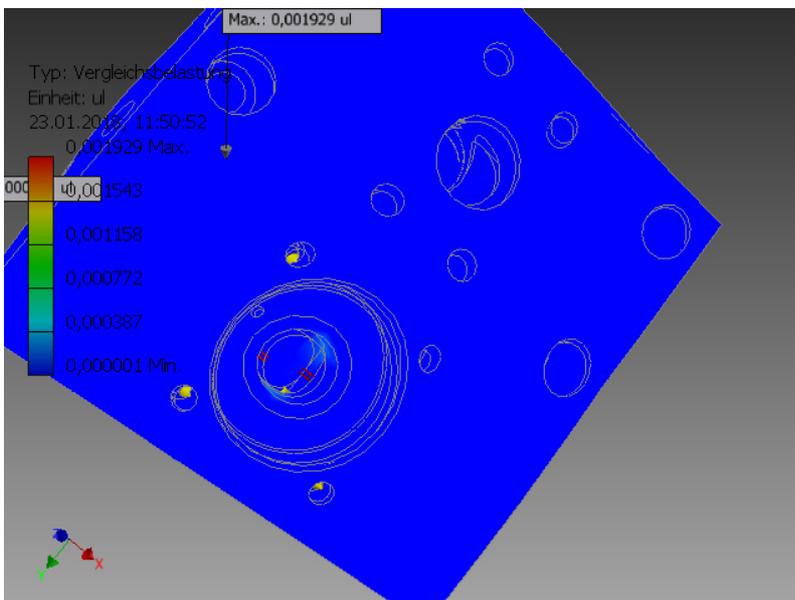
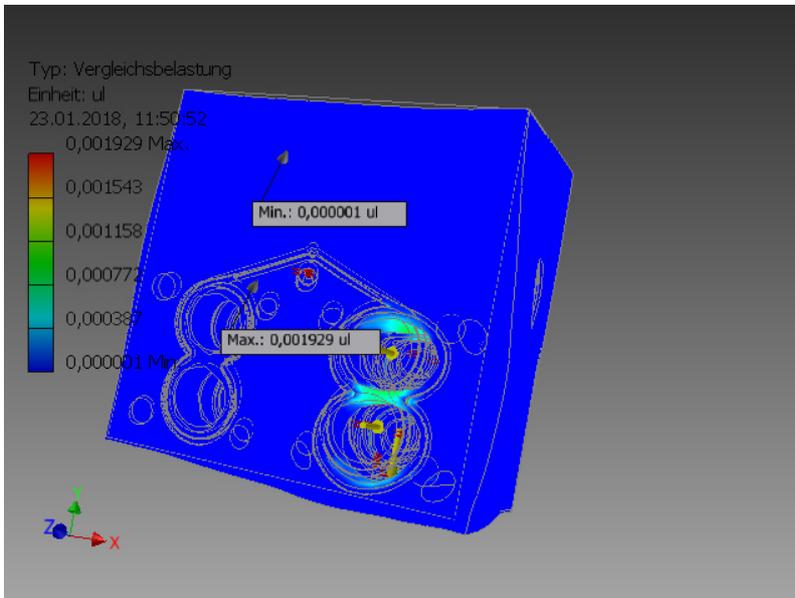




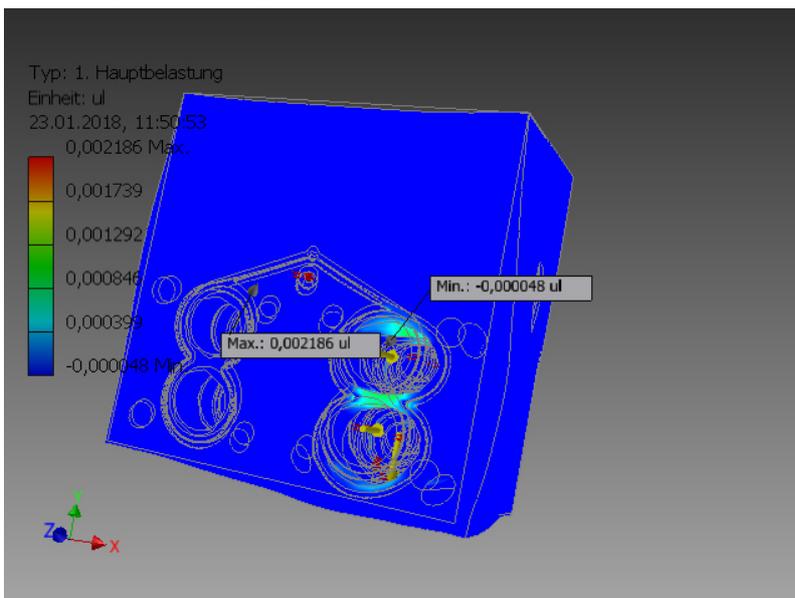
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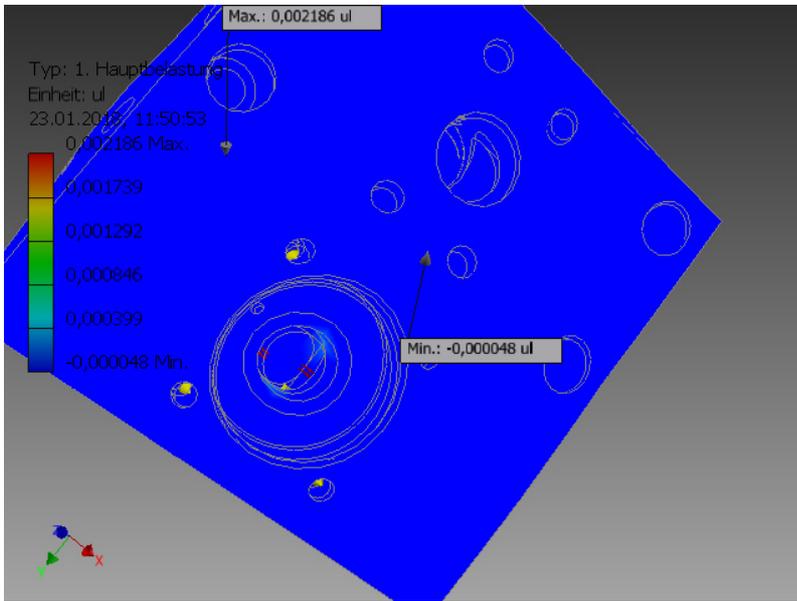


Vergleichsbelastung

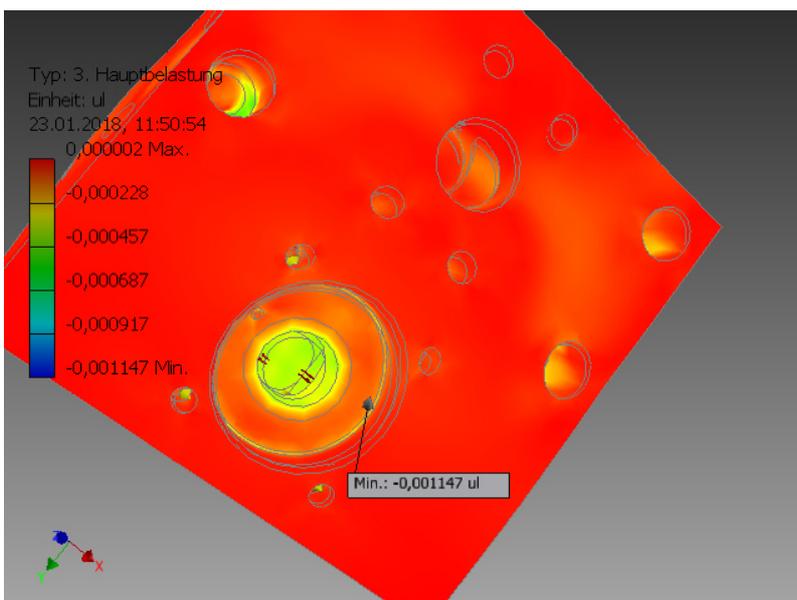
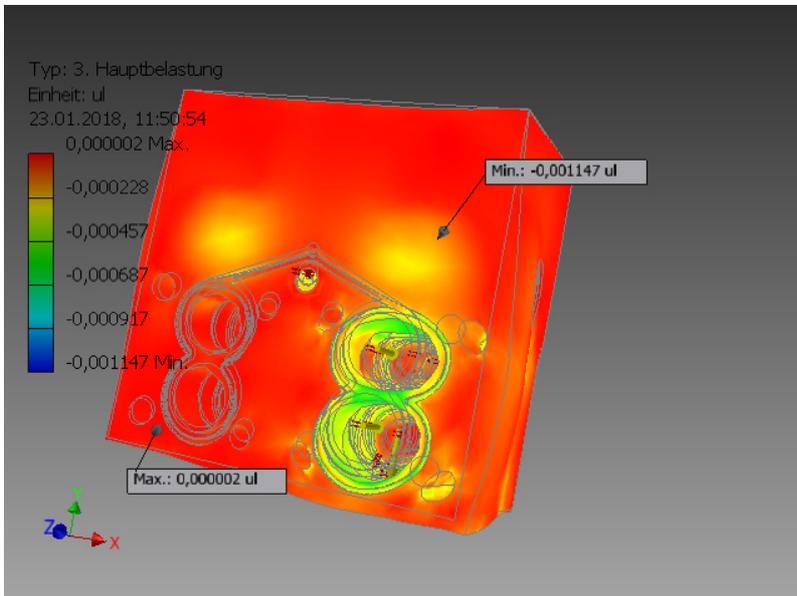


1. Hauptbelastung

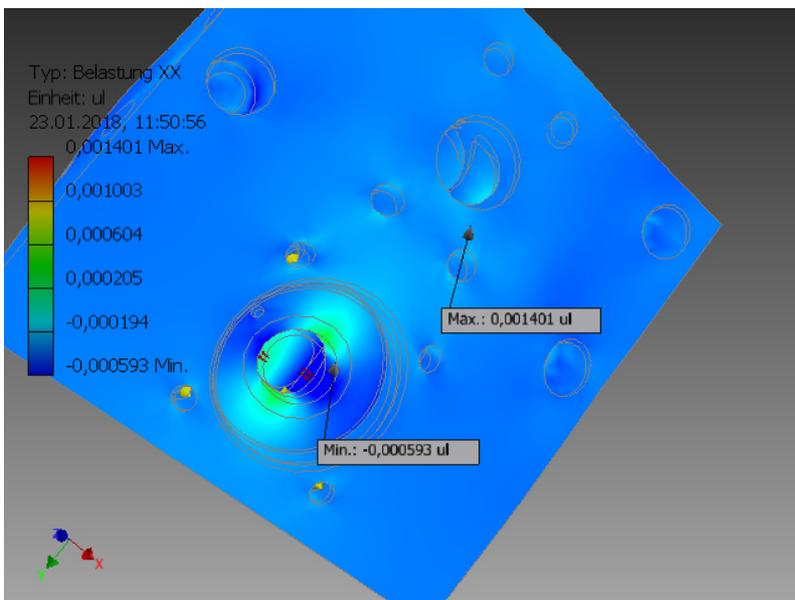
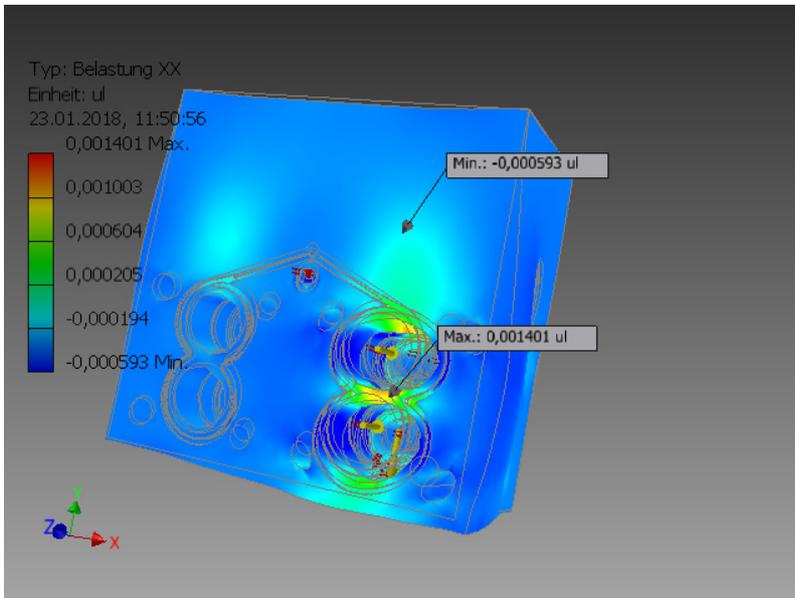




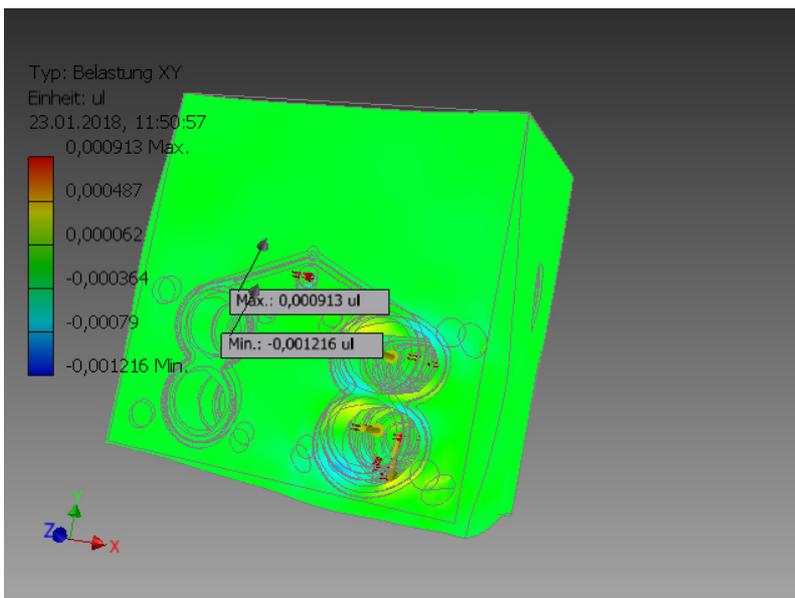
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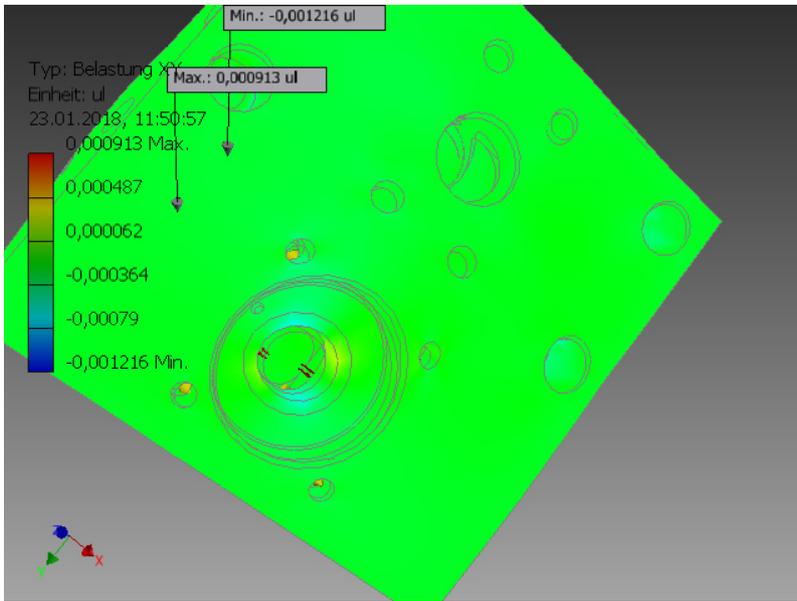


Belastung XX

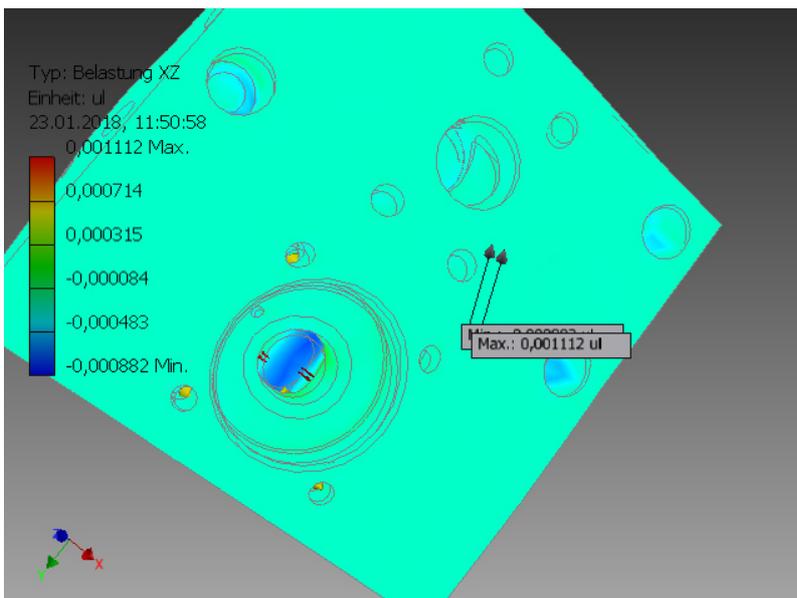
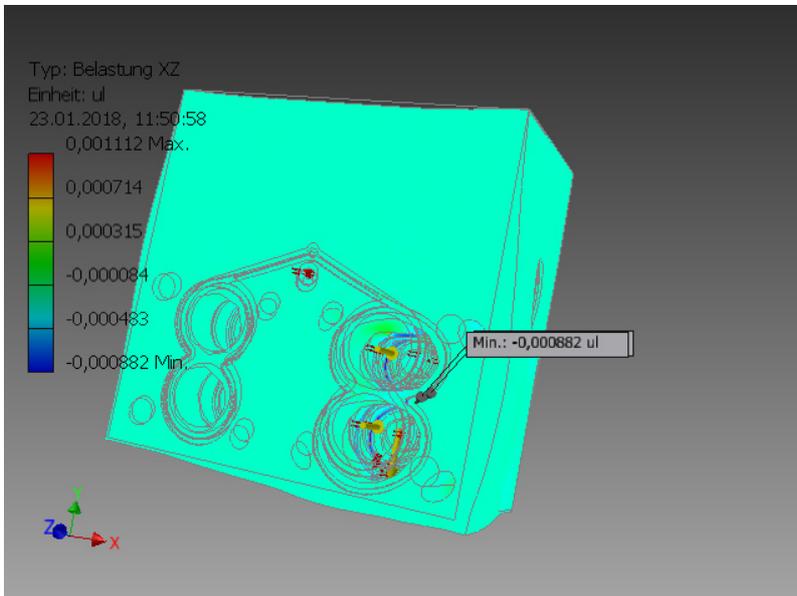


Belastung XY

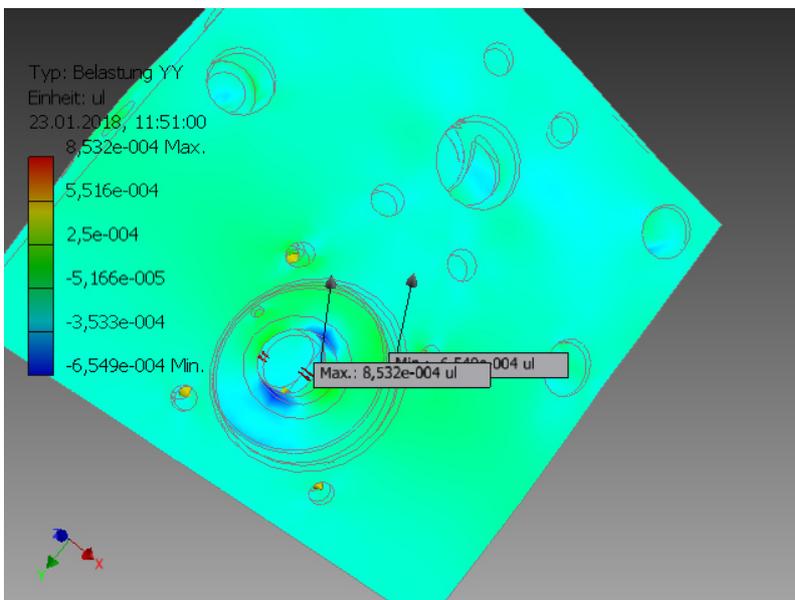
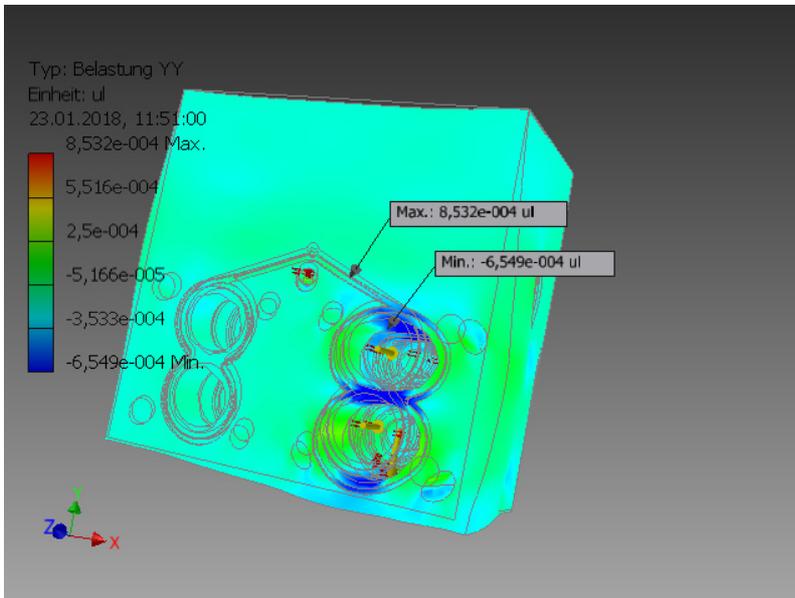




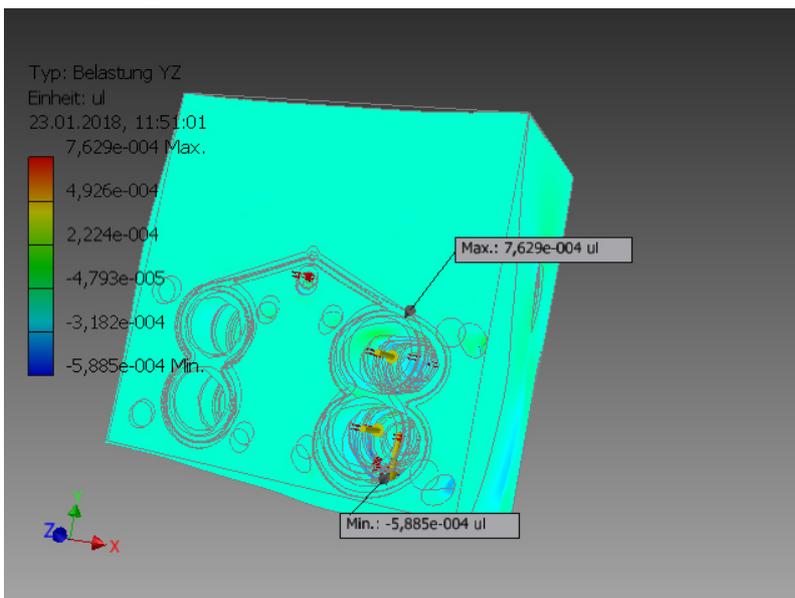
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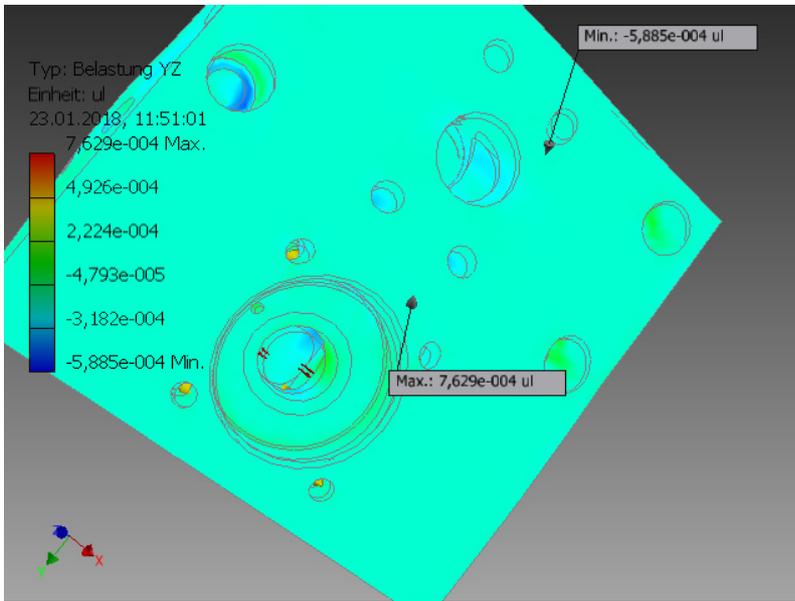


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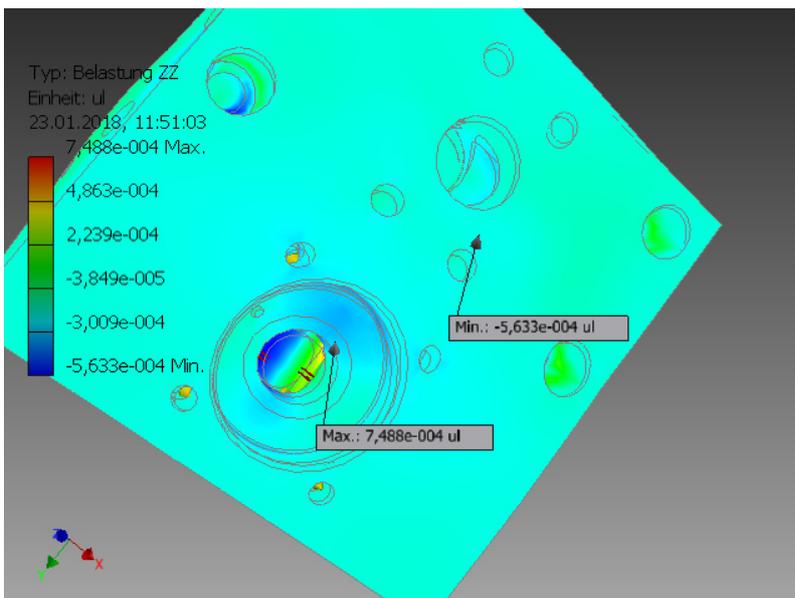
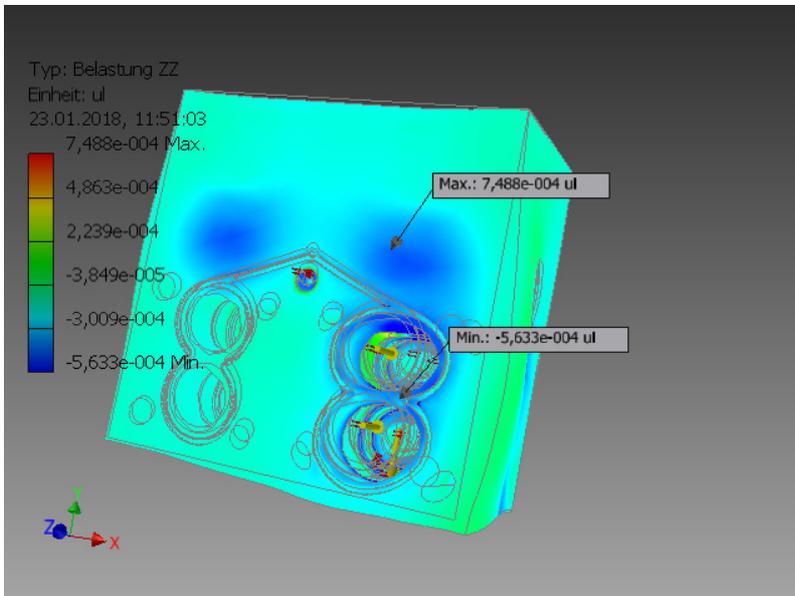


Belastung YZ





Belastung ZZ



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