

Relatório de análise de tensão - Invólucro Resto Quanton 3D



Arquivo analisado:	conceito4_RQ3.ipt
Versão do Autodesk Inventor:	2024.2 (Build 282272000, 272)
Data de criação:	13/11/2024, 17:54
Autor do estudo:	Fabio P. C.
Resumo:	Forças = 10,6066 N Momentos 2123,2 Nmm

Análise estática:1

Objetivo geral e configurações:

Objetivo do projeto	Ponto único
Tipo de estudo	Análise estática
Data da última modificação	13/11/2024, 17:53
Estado do modelo	[Principal]
Detectar e eliminar modos de corpo rígido	Não

iProperties

Resumo

Autor	Fabio P. C.
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Projeto

Nº da peça	conceito4_RQ3
Projetista	Fabio P. C.
Custo estimado	R\$ 0,00
Data da criação	15/01/2022

Status

Estado do projeto	TrabalhoEmCurso
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Física

Material	Resto Quanton 3D
Densidade	2,479 g/cm ³
Massa	0,422525 kg
Área	88987,2 mm ²
Volume	170442 mm ³
Centro de gravidade	x=20,7446 mm y=19,8263 mm z=-23,8947 mm

Nota: os valores físicos podem ser diferentes dos valores físicos utilizados por FEA indicados a seguir.

Configurações de malha:

Tamanho médio dos elementos (fração do diâmetro do modelo)	0.25
Tamanho mínimo dos elementos (fração do tamanho médio)	0.2

Fator de nivelamento	1.5
Ângulo máximo de giro	60 grau
Criar elementos de malha curva	Sim

Materiais

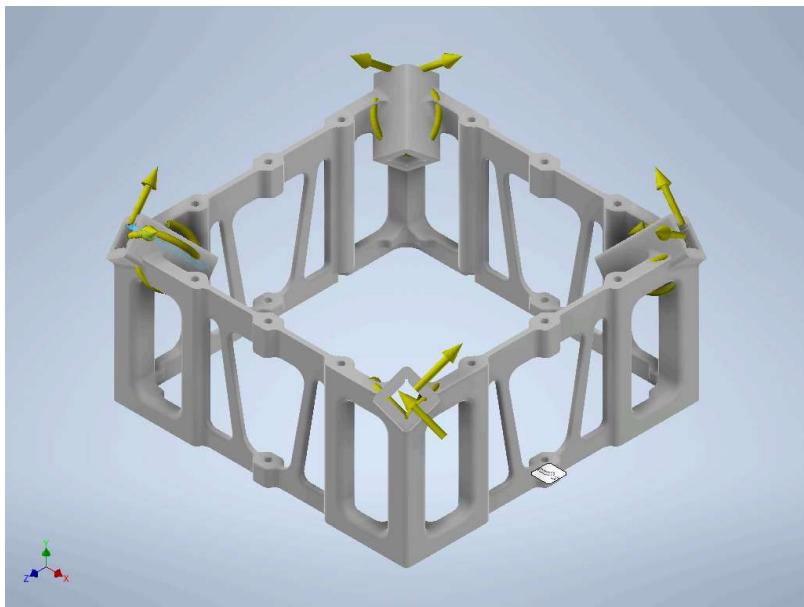
Nome	Resto Quanton 3D	
Geral	Densidade de massa	2,479 g/cm ³
	Resistência à escoamento	23,65 MPa
	Resistência máxima à tração	23,65 MPa
Tensão	Módulo de Young	1,6351 GPa
	Coeficiente de Poisson	0,47 s_m
	Módulo cortante	0,556156 GPa
Nome(s) de peça	conceito4_RQ3.ipt	

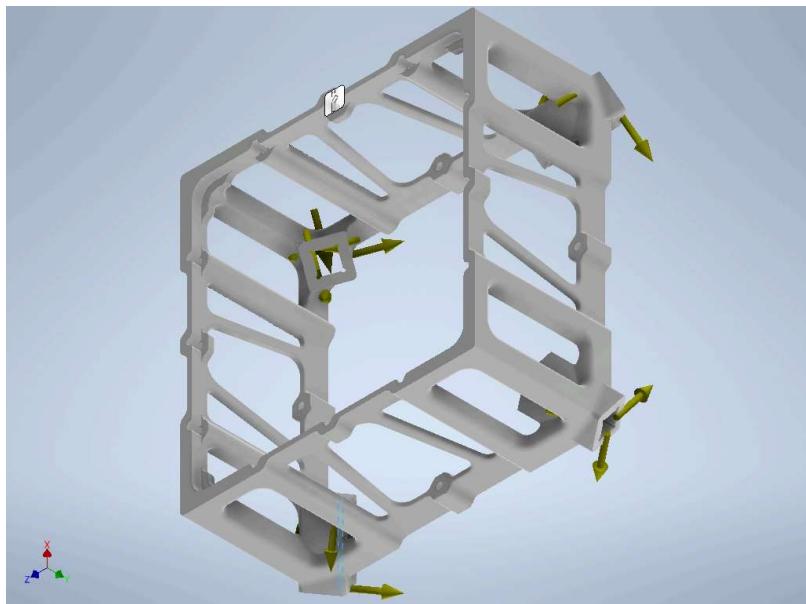
Condições de funcionamento

Momento:1

Tipo de carga	Momento
Magnitude	2123,200 N mm
Vetor X	-448,685 N mm
Vetor Y	1225,830 N mm
Vetor Z	-1674,515 N mm

Faces selecionadas



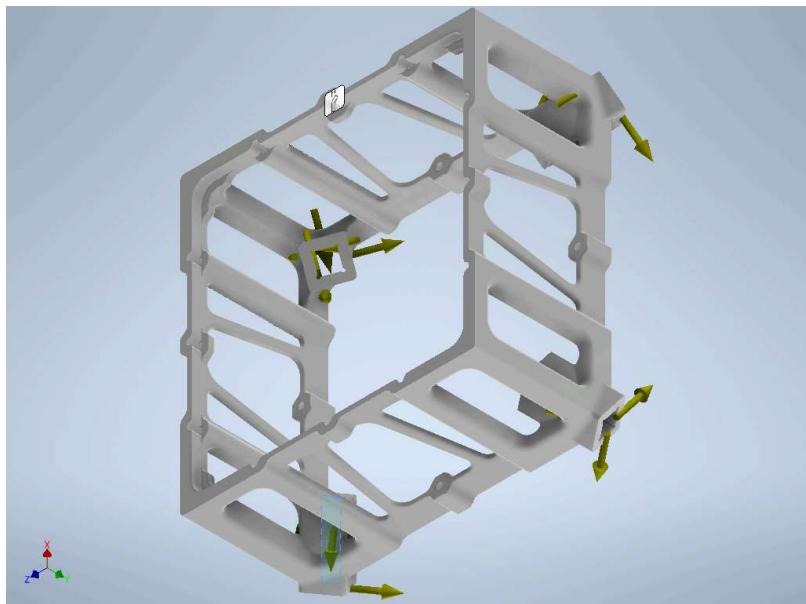


Momento:2

Tipo de carga	Momento
Magnitude	2123,200 N mm
Vetor X	-1674,515 N mm
Vetor Y	-1225,830 N mm
Vetor Z	-448,685 N mm

Faces selecionadas



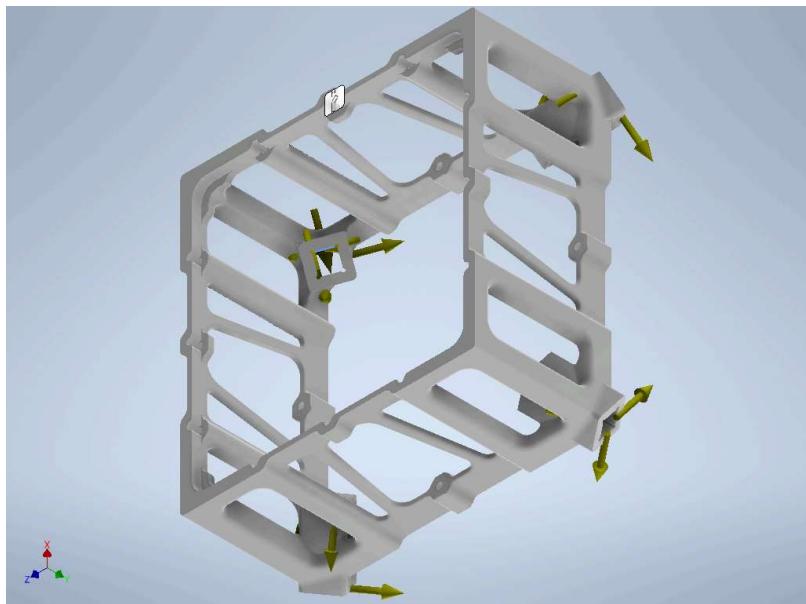


Momento:3

Tipo de carga	Momento
Magnitude	2123,200 N mm
Vetor X	-1674,515 N mm
Vetor Y	1225,830 N mm
Vetor Z	448,685 N mm

Faces selecionadas



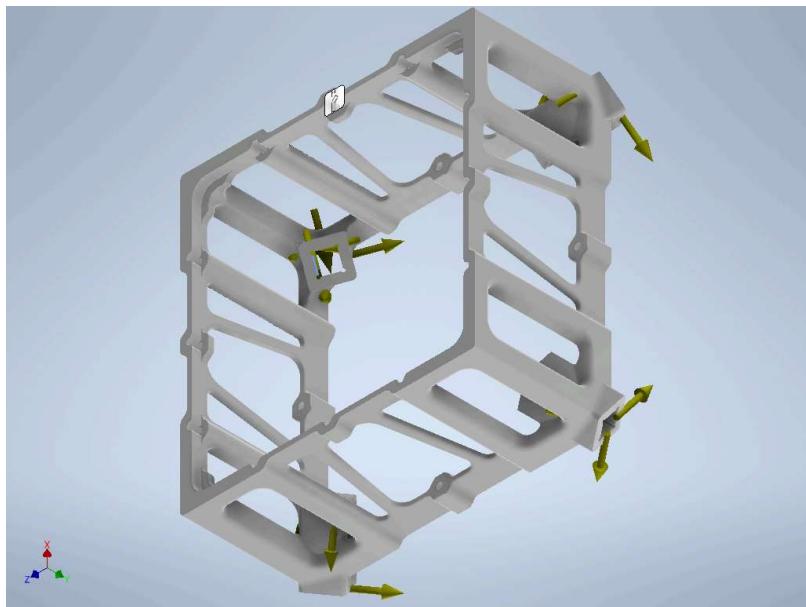


Momento:4

Tipo de carga	Momento
Magnitude	2123,200 N mm
Vetor X	-448,685 N mm
Vetor Y	-1225,830 N mm
Vetor Z	1674,515 N mm

Faces selecionadas

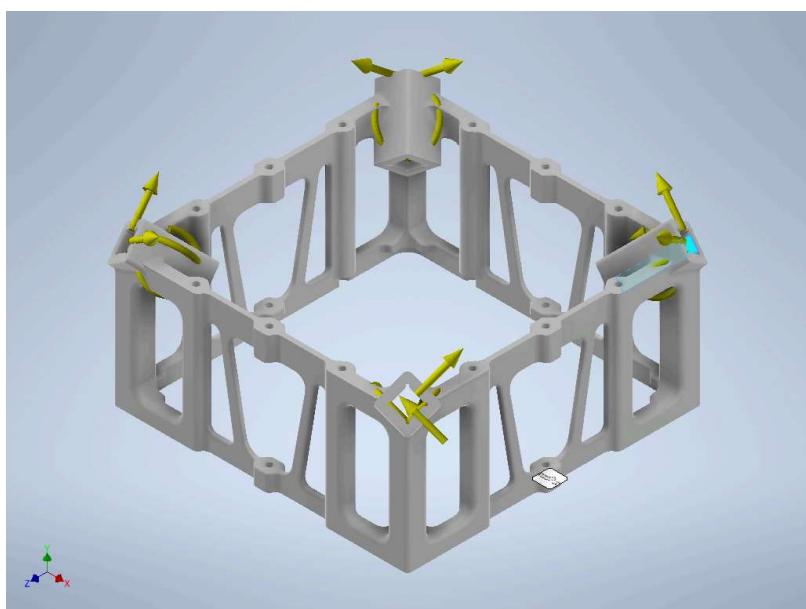


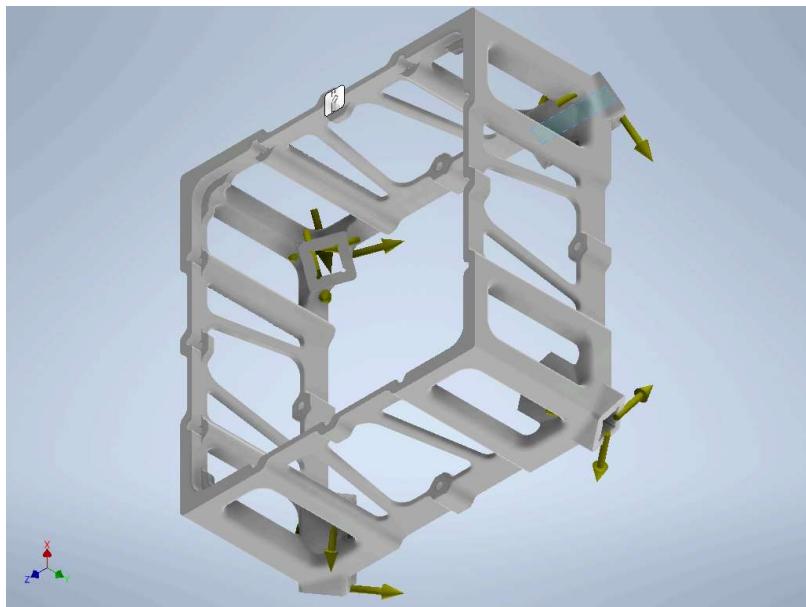


Momento:5

Tipo de carga	Momento
Magnitude	2123,200 N mm
Vetor X	448,685 N mm
Vetor Y	1225,830 N mm
Vetor Z	1674,515 N mm

Faces selecionadas

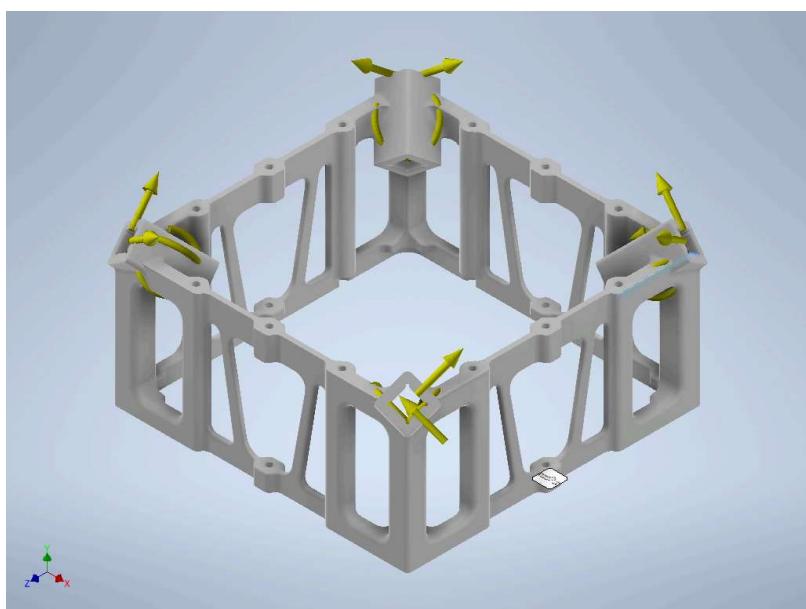


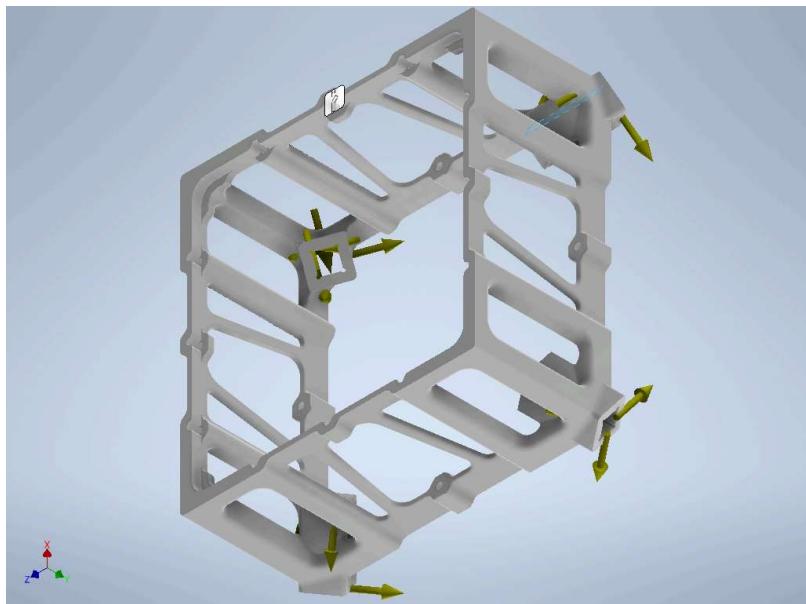


Momento:6

Tipo de carga	Momento
Magnitude	2123,200 N mm
Vetor X	1674,515 N mm
Vetor Y	-1225,830 N mm
Vetor Z	448,685 N mm

Faces selecionadas

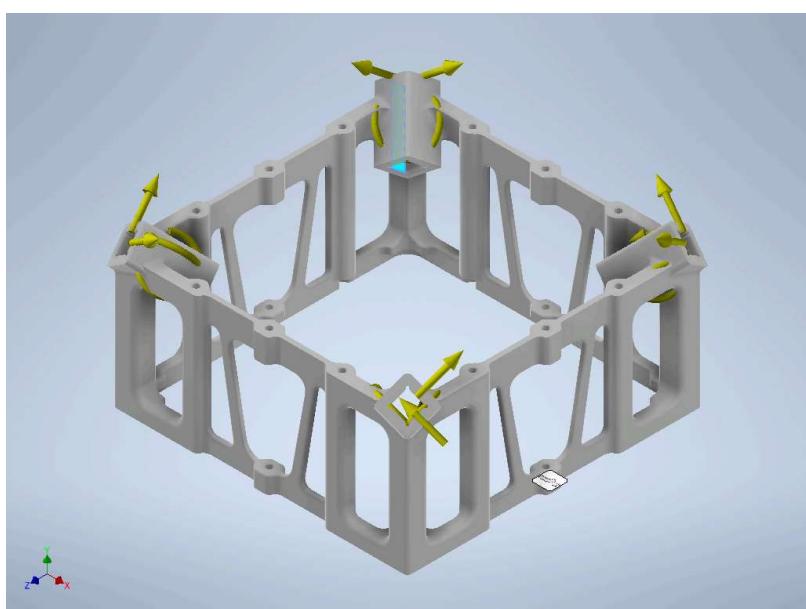


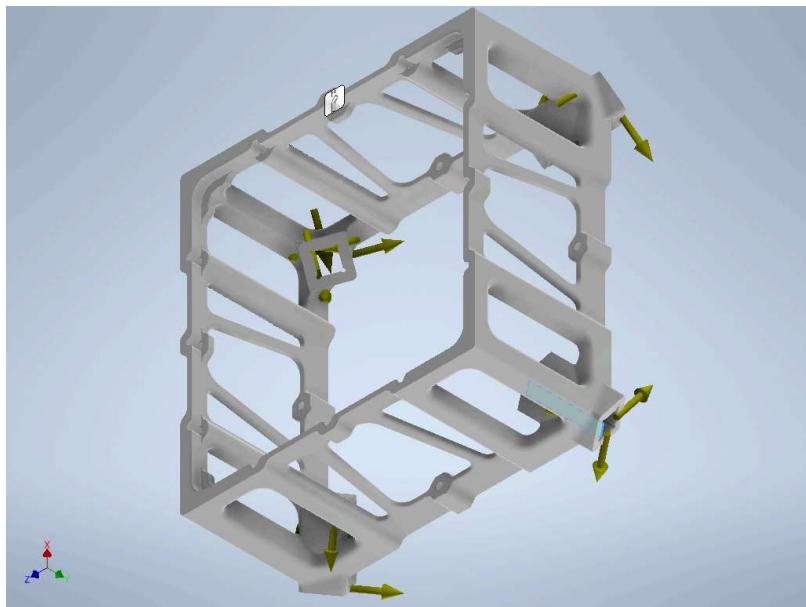


Momento:7

Tipo de carga	Momento
Magnitude	2123,200 N mm
Vetor X	1674,515 N mm
Vetor Y	1225,830 N mm
Vetor Z	-448,685 N mm

Faces selecionadas

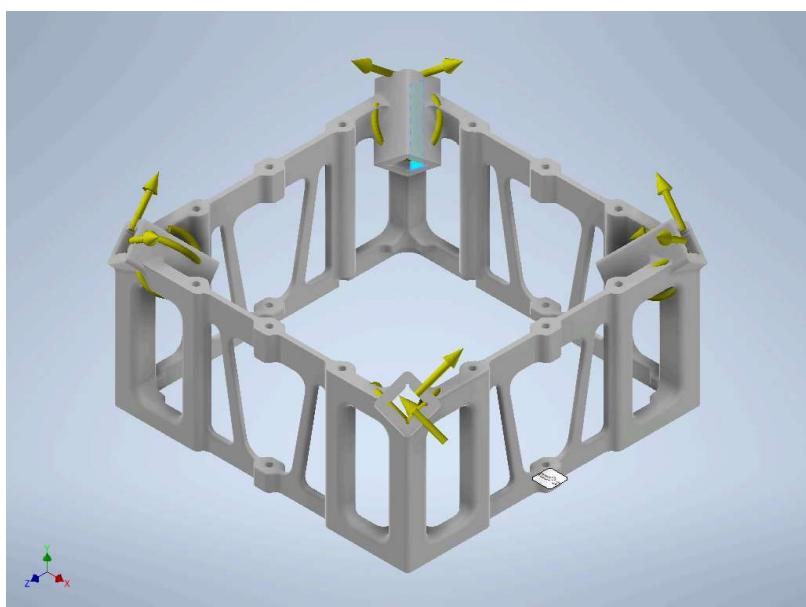


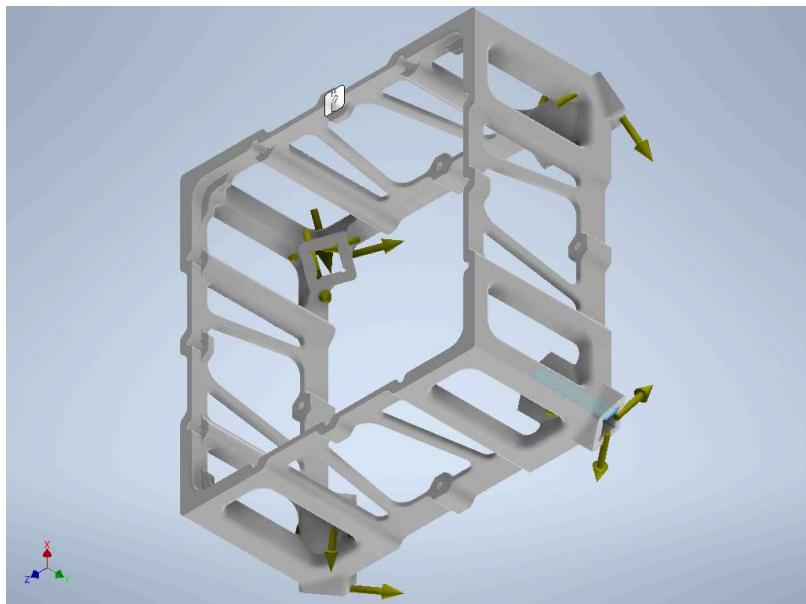


Momento:8

Tipo de carga	Momento
Magnitude	2123,200 N mm
Vetor X	448,685 N mm
Vetor Y	-1225,830 N mm
Vetor Z	-1674,515 N mm

Faces selecionadas

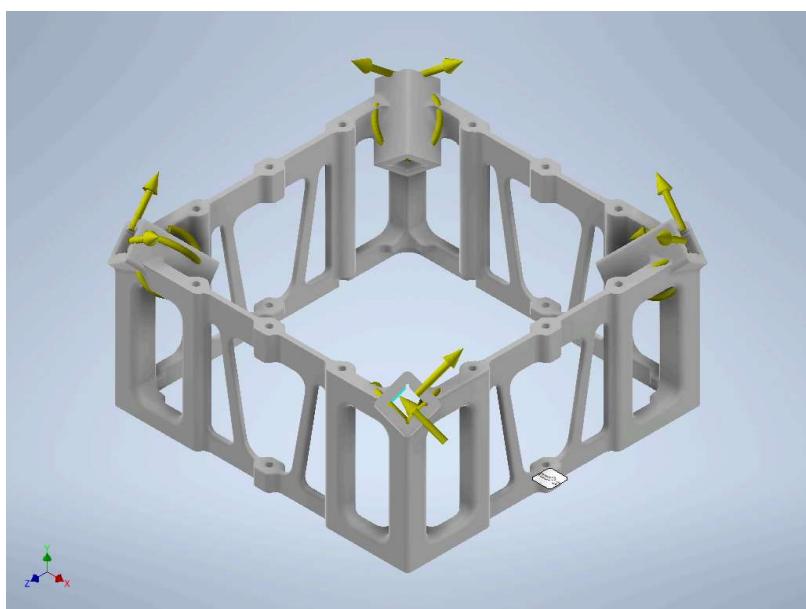


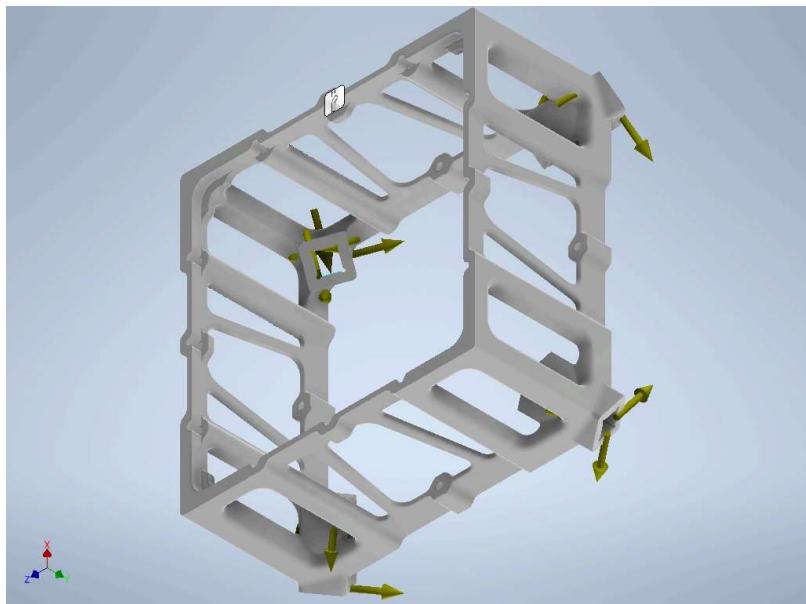


Força:3

Tipo de carga	Força
Magnitude	10,607 N
Vetor X	-8,365 N
Vetor Y	6,124 N
Vetor Z	2,241 N

Faces selecionadas

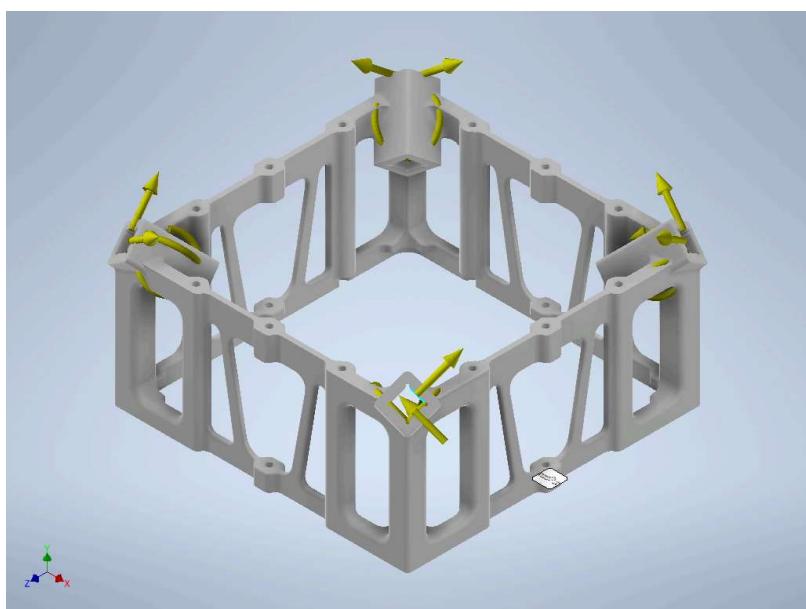


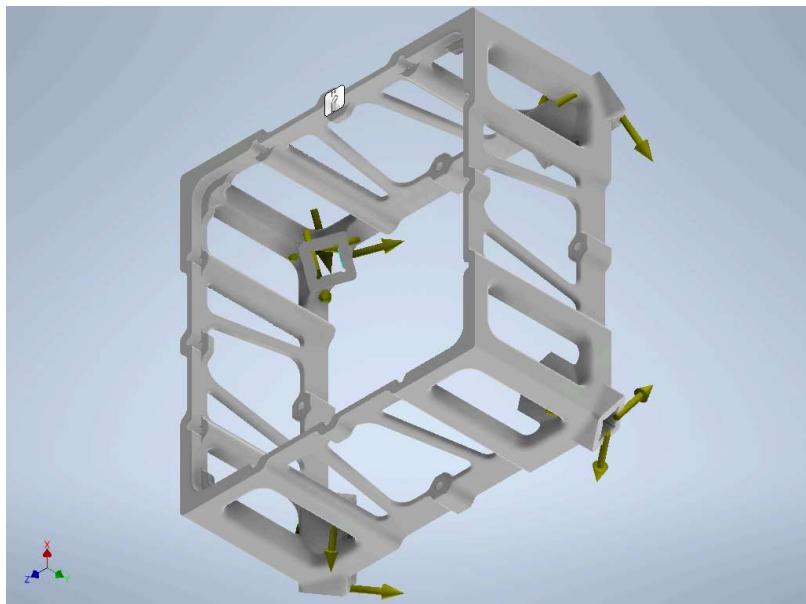


Força:4

Tipo de carga	Força
Magnitude	10,607 N
Vetor X	2,241 N
Vetor Y	6,124 N
Vetor Z	-8,365 N

Faces selecionadas

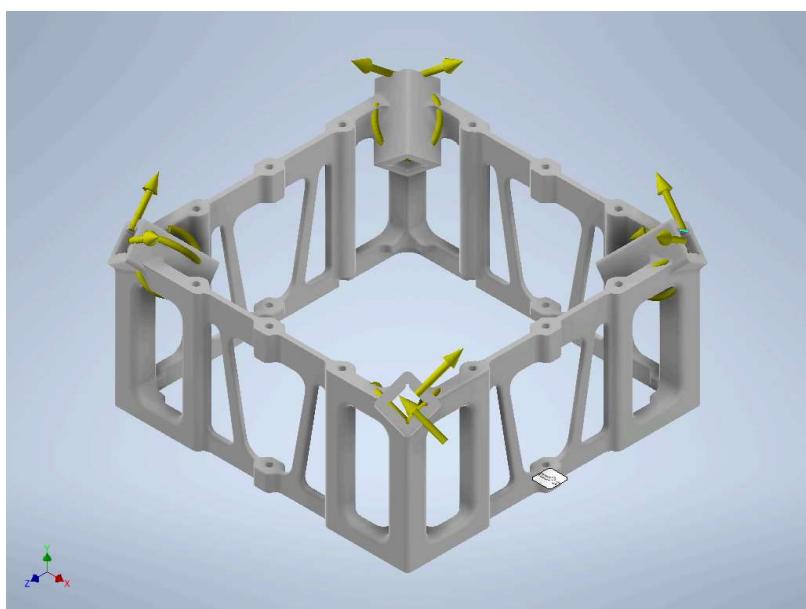


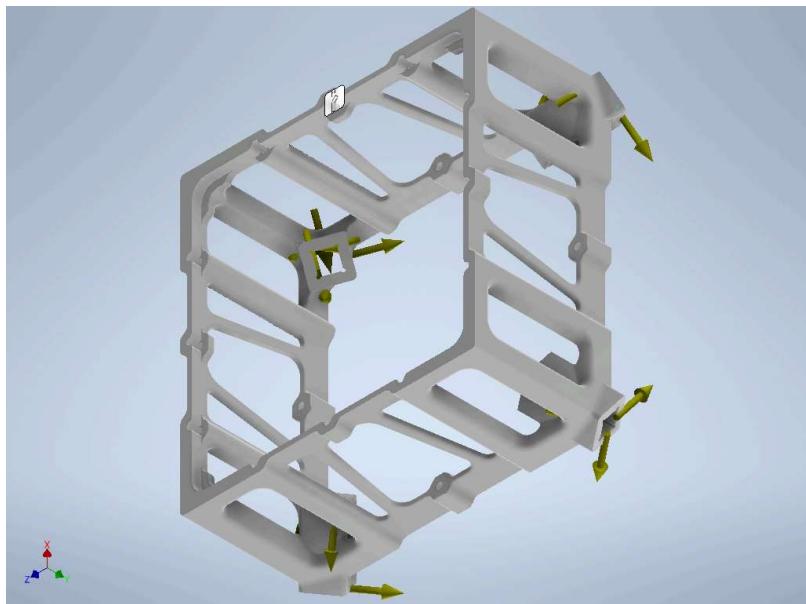


Força:5

Tipo de carga	Força
Magnitude	10,607 N
Vetor X	-8,365 N
Vetor Y	6,124 N
Vetor Z	-2,241 N

Faces selecionadas



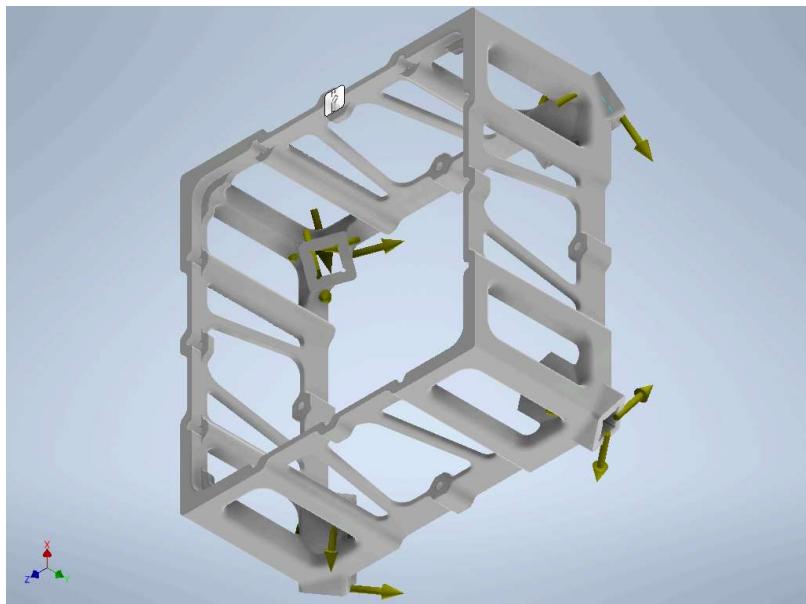


Força:6

Tipo de carga	Força
Magnitude	10,607 N
Vetor X	2,241 N
Vetor Y	6,124 N
Vetor Z	8,365 N

Faces selecionadas



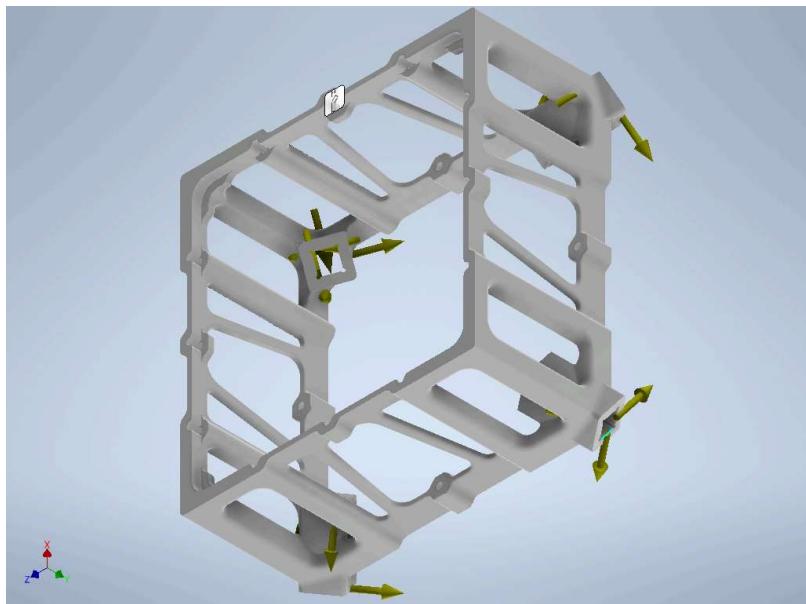


Força:7

Tipo de carga	Força
Magnitude	10,607 N
Vetor X	-2,241 N
Vetor Y	6,124 N
Vetor Z	8,365 N

Faces selecionadas

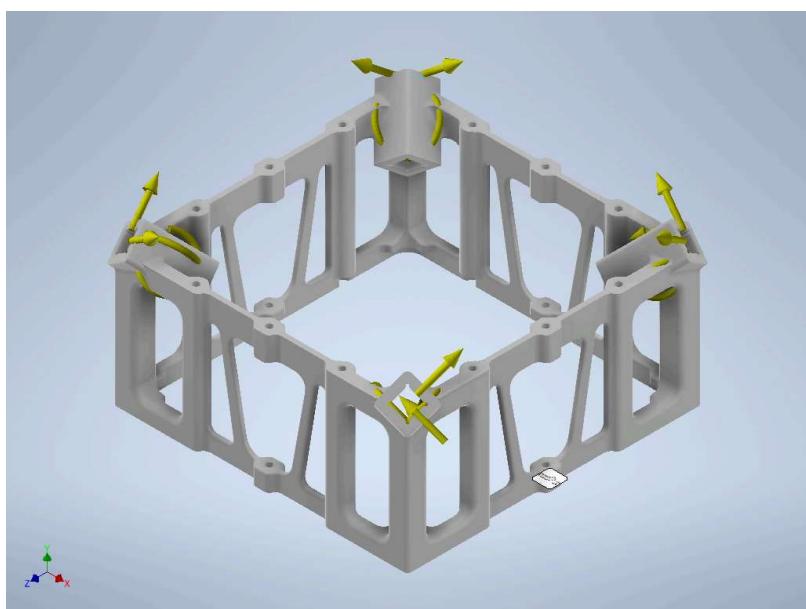


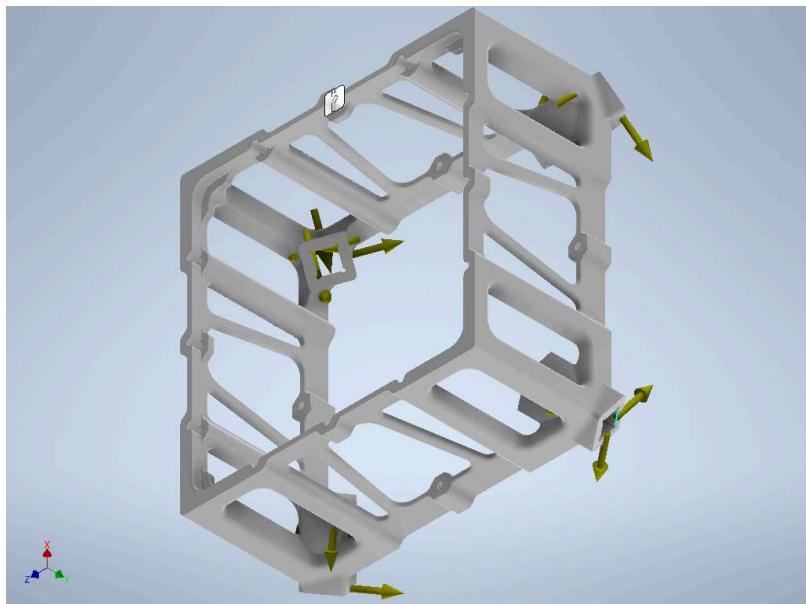


Força:8

Tipo de carga	Força
Magnitude	10,607 N
Vetor X	8,365 N
Vetor Y	6,124 N
Vetor Z	-2,241 N

Faces selecionadas

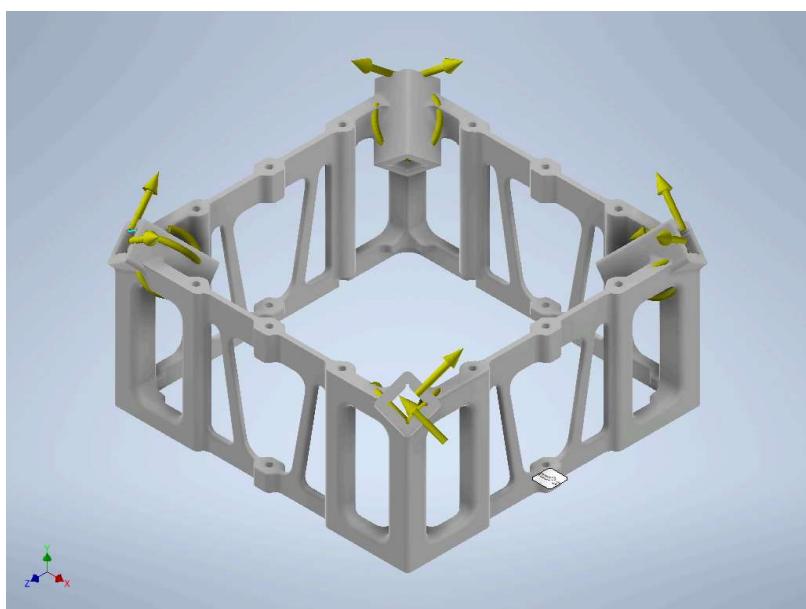


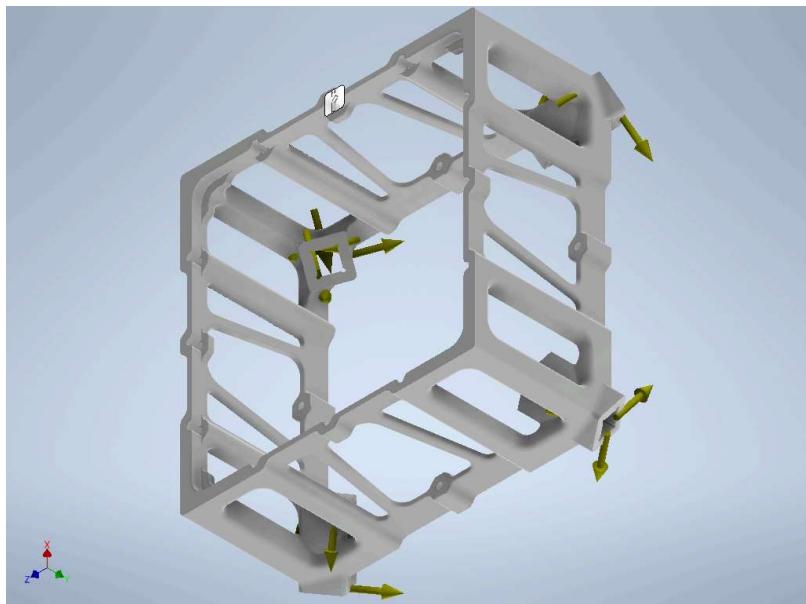


Força:9

Tipo de carga	Força
Magnitude	10,607 N
Vetor X	-2,241 N
Vetor Y	6,124 N
Vetor Z	-8,365 N

Faces selecionadas



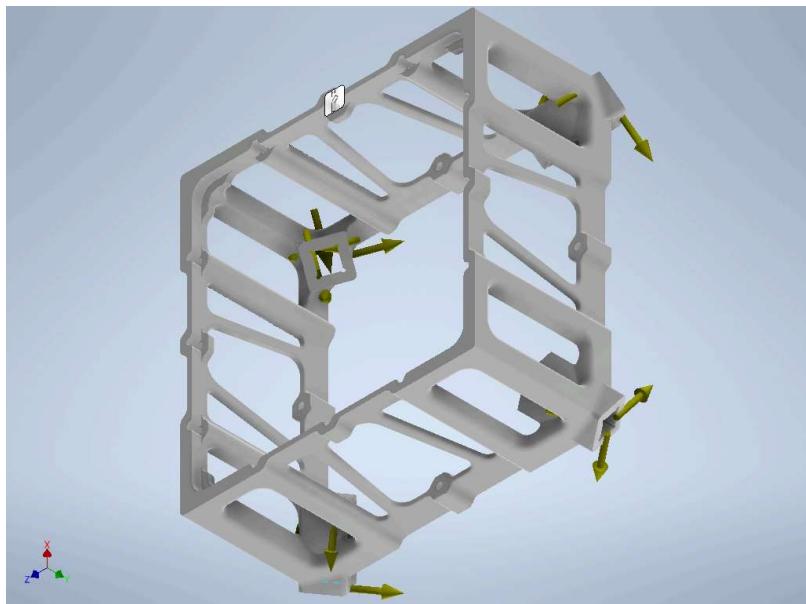


Força:10

Tipo de carga	Força
Magnitude	10,607 N
Vetor X	8,365 N
Vetor Y	6,124 N
Vetor Z	2,241 N

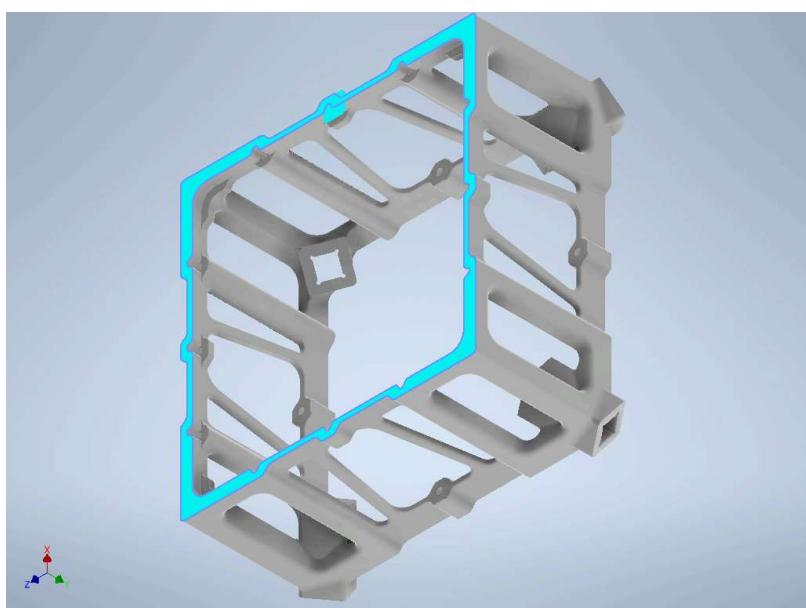
Faces selecionadas





Restrição fixa:1

Tipo de restrição | Restrição fixa



Resultados

Força e momento de reação em restrições

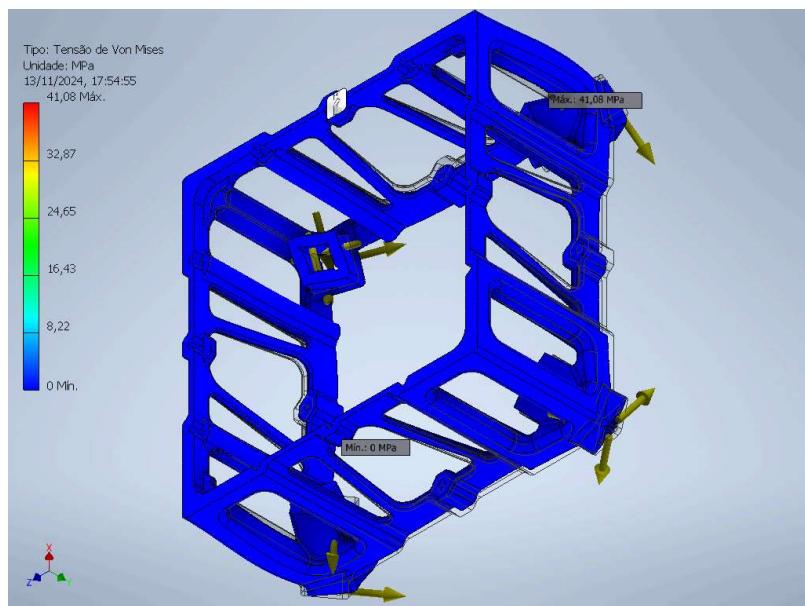
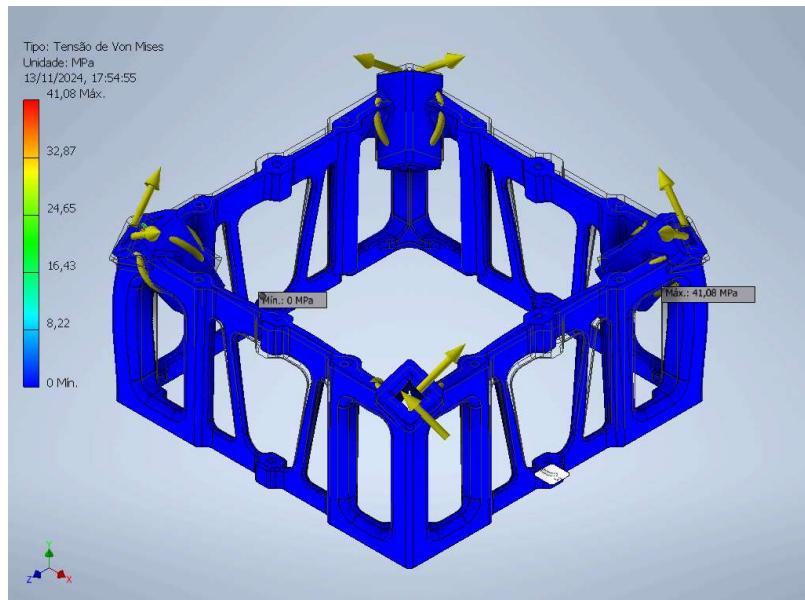
Nome da restrição	Força de reação		Momento de reação	
	Magnitude	"Componente (X,Y,Z)"	Magnitude	"Componente (X,Y,Z)"
Restrição fixa:1	48,9897 N	0 N	0 N m	0 N m
		-48,9897 N		0 N m
		0 N		0 N m

Resumo de resultados

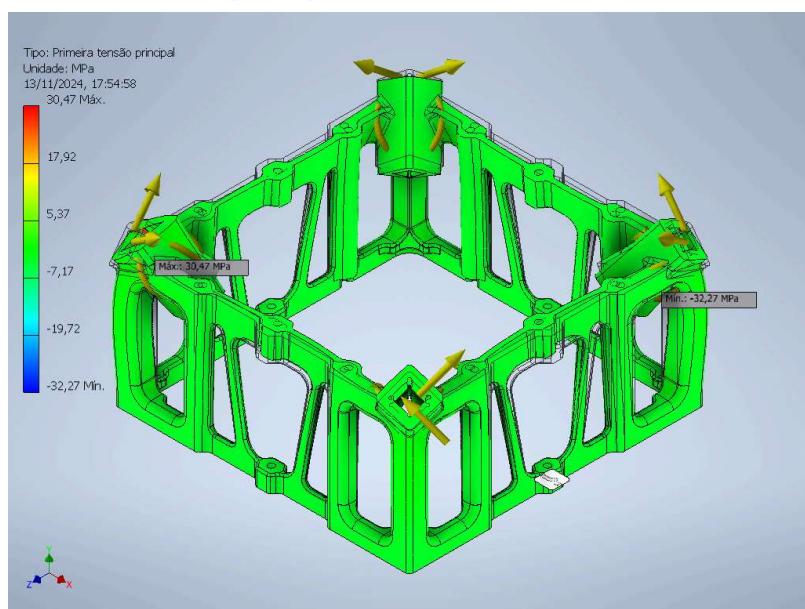
Nome	Mínima	Máxima
Volume	170442 mm ³	
Massa	0,422525 kg	
Tensão de Von Mises	0,00198227 MPa	41,0836 MPa
Primeira tensão principal	-32,2672 MPa	30,4688 MPa
Terceira tensão principal	-74,9785 MPa	19,941 MPa
Deslocamento	0 mm	0,35288 mm
Fator de segurança	0,575656 s_m	15 s_m
Tensão XX	-50,8098 MPa	20,2476 MPa
Tensão XY	-9,26668 MPa	14,6491 MPa
Tensão XZ	-12,7898 MPa	18,6886 MPa
Tensão YY	-46,8631 MPa	27,4765 MPa
Tensão YZ	-11,3926 MPa	18,4162 MPa
Tensão ZZ	-51,1802 MPa	27,1851 MPa
Deslocamento X	-0,133057 mm	0,22332 mm
Deslocamento Y	-0,351296 mm	0,116685 mm
Deslocamento Z	-0,223578 mm	0,132376 mm
Deformação equivalente	0,00000122222 s_m	0,0247474 s_m
Primeira deformação principal	0,000000730267 s_m	0,016063 s_m
Terceira deformação principal	-0,0263063 s_m	-0,000000696639 s_m
Deformação XX	-0,00764229 s_m	0,00793923 s_m
Deformação XY	-0,00833101 s_m	0,01317 s_m
Deformação XZ	-0,0114984 s_m	0,0168016 s_m
Deformação YY	-0,0137676 s_m	0,00924064 s_m
Deformação YZ	-0,0102423 s_m	0,0165567 s_m
Deformação ZZ	-0,00841274 s_m	0,00859425 s_m

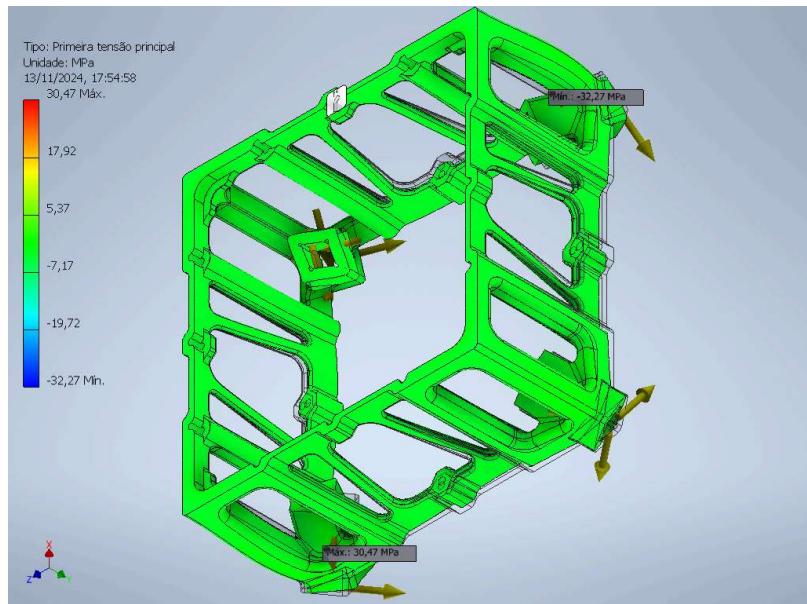
Figuras

Tensão de Von Mises

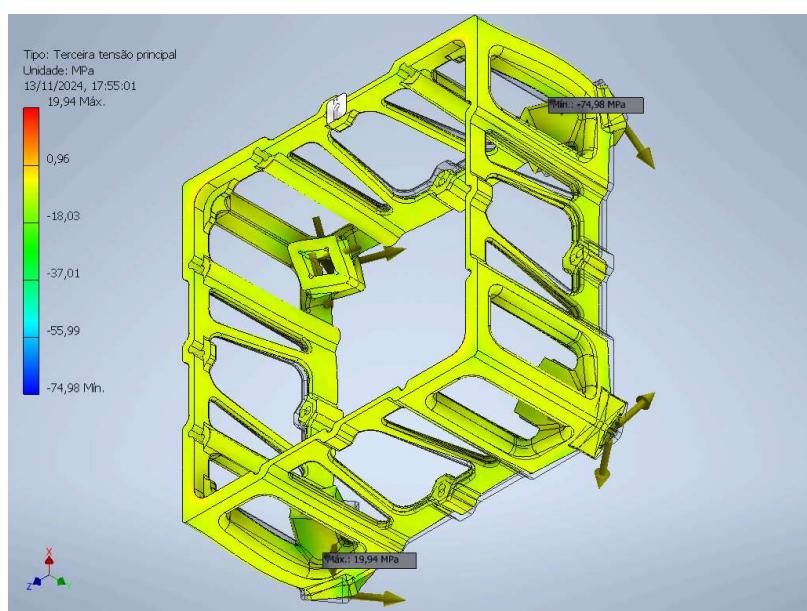
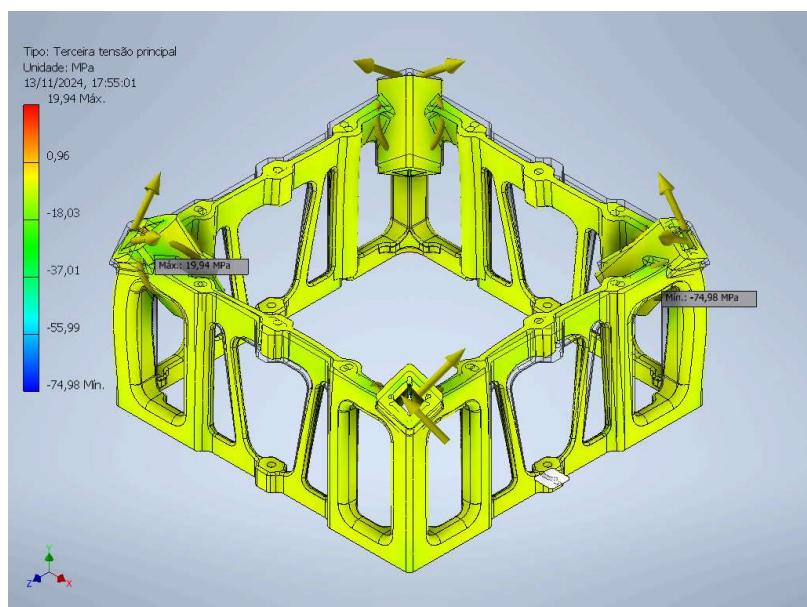


Primeira tensão principal

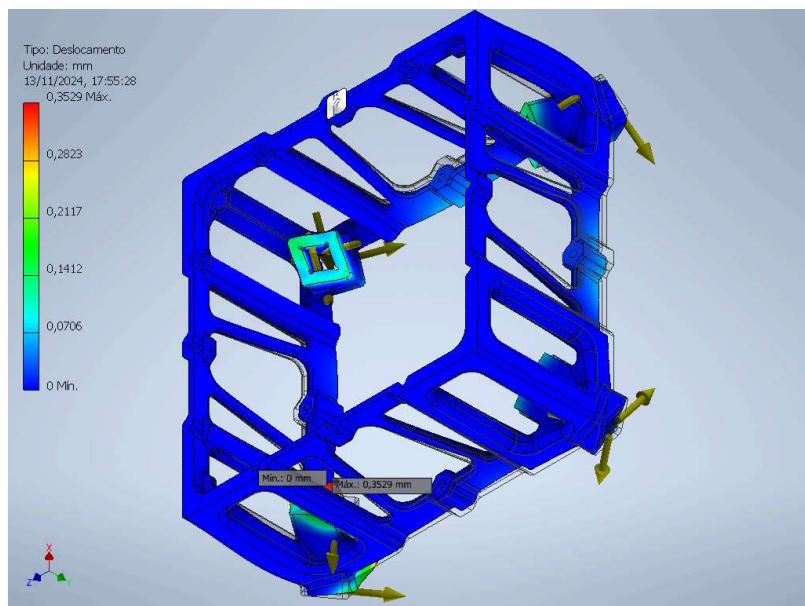
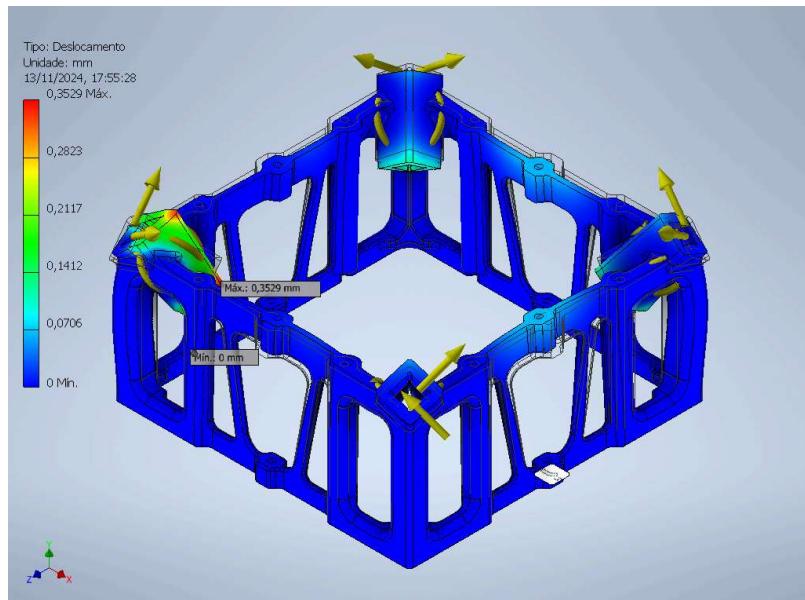




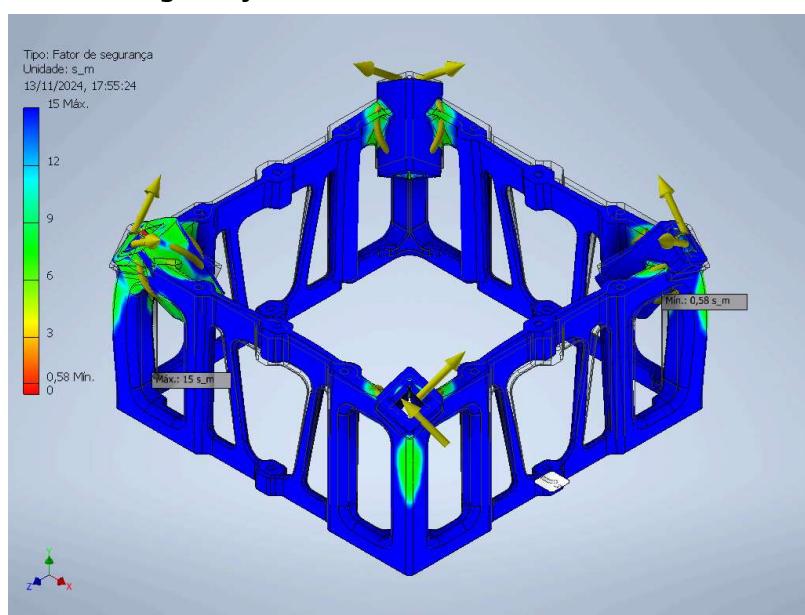
Terceira tensão principal

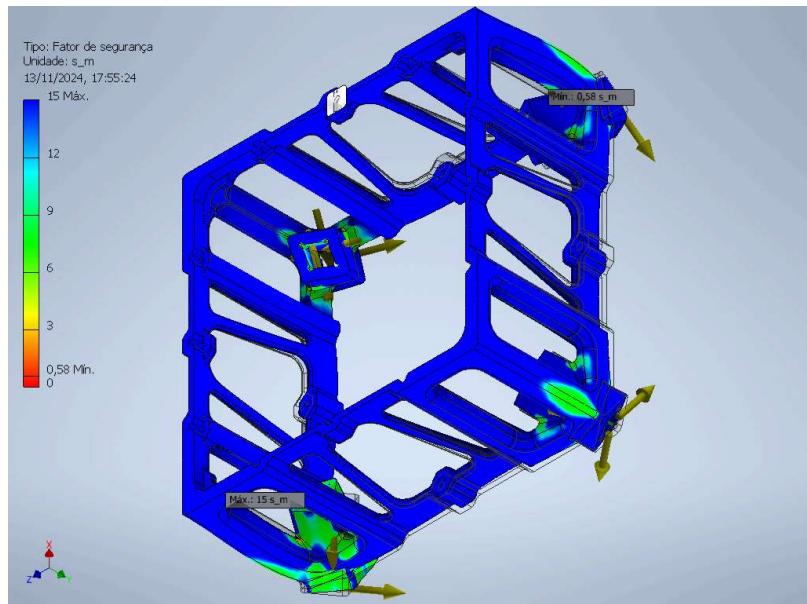


Deslocamento

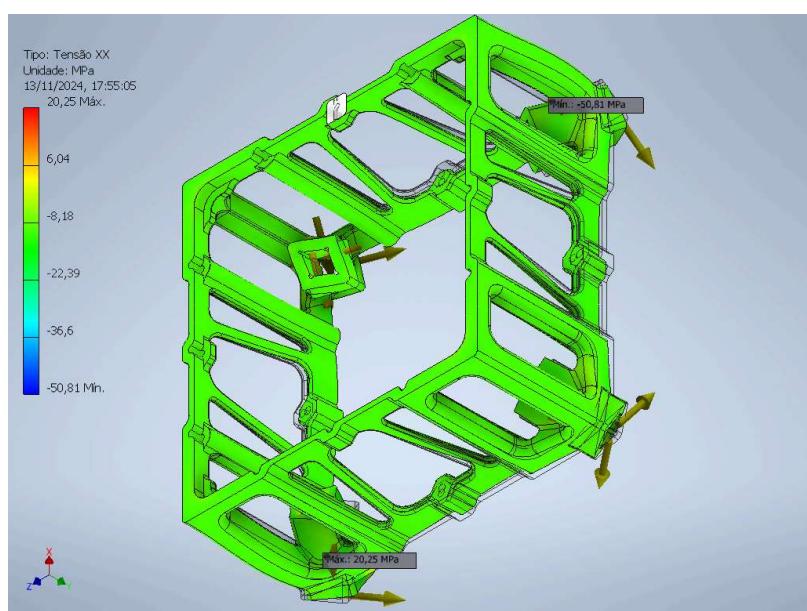
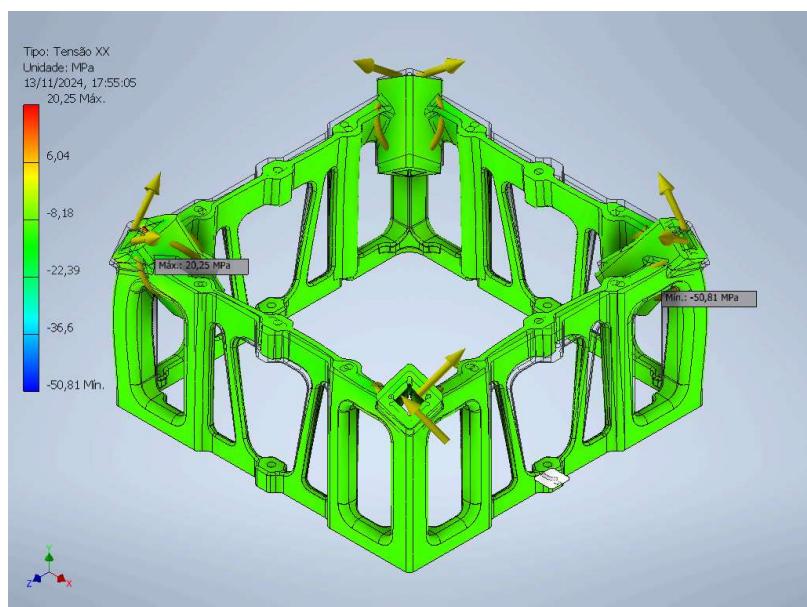


Fator de segurança

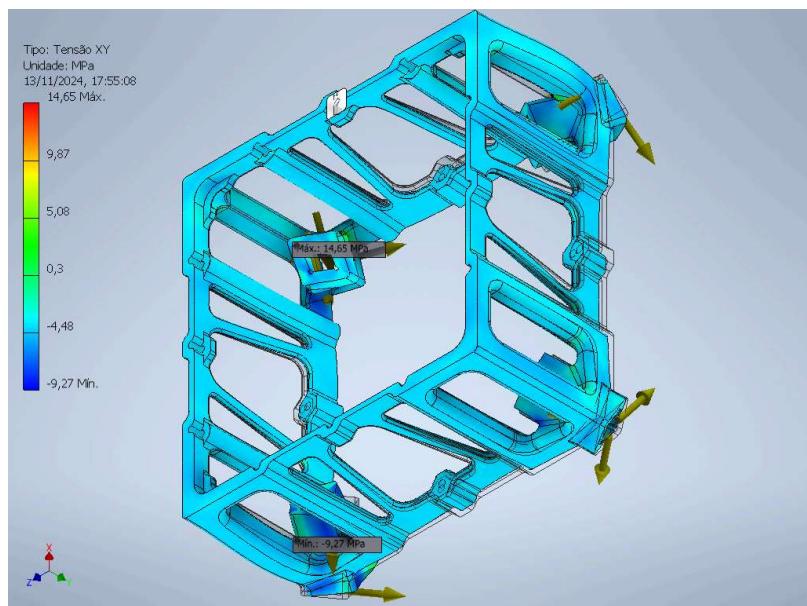
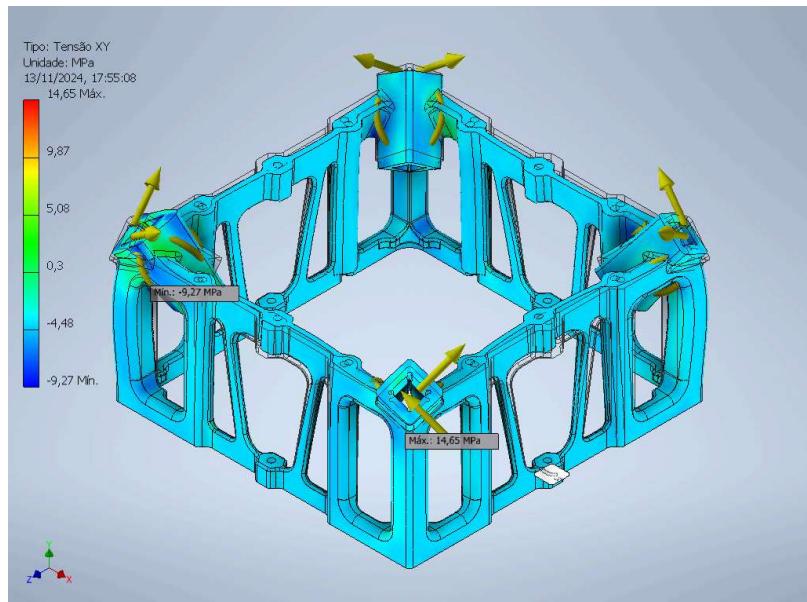




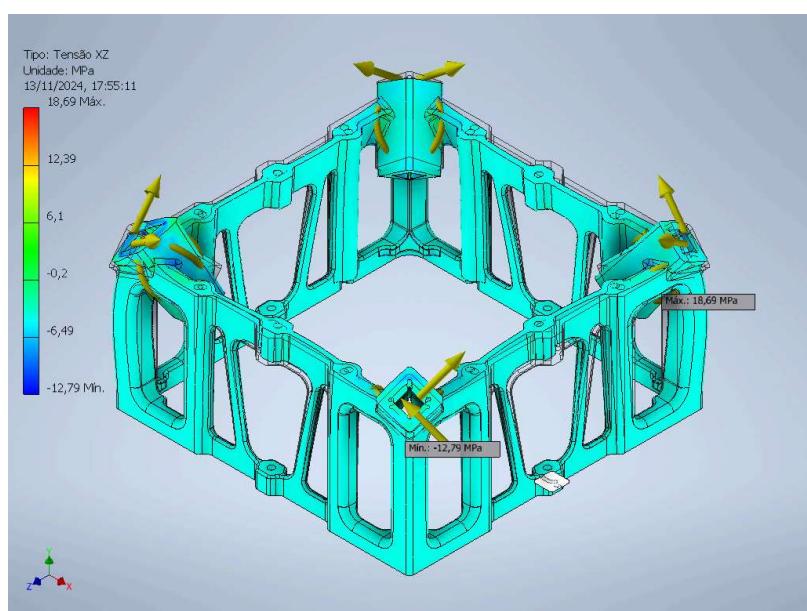
Tensão XX

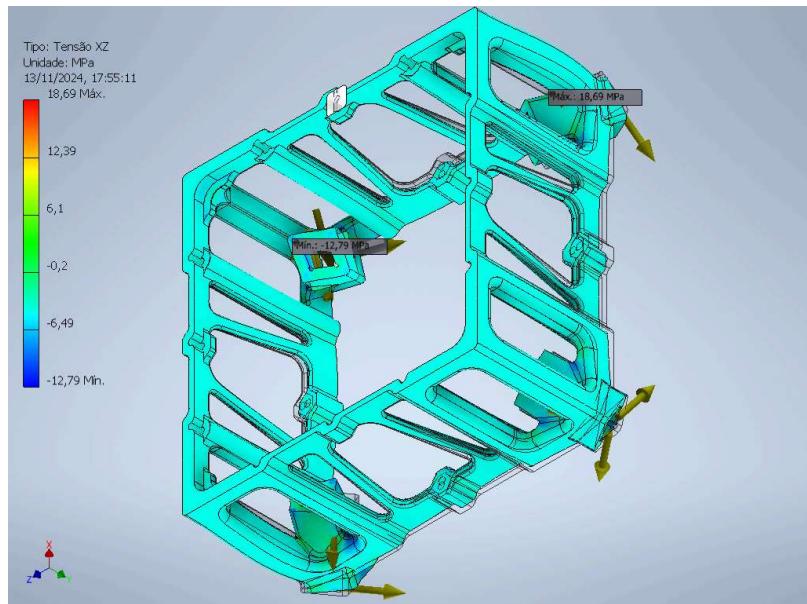


Tensão XY

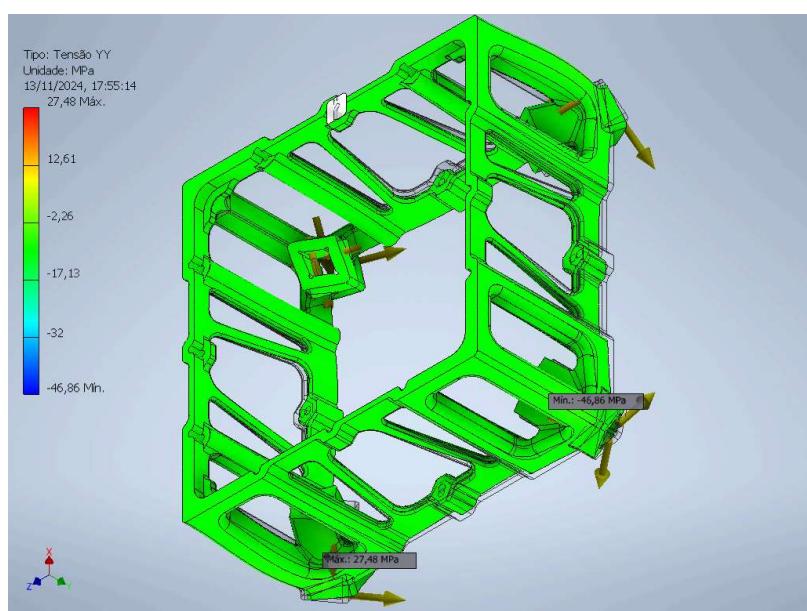
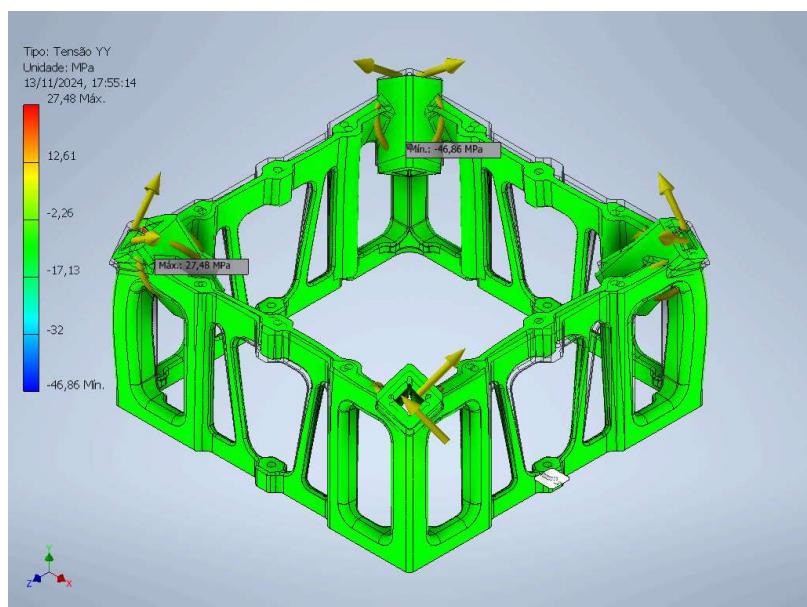


Tensão XZ

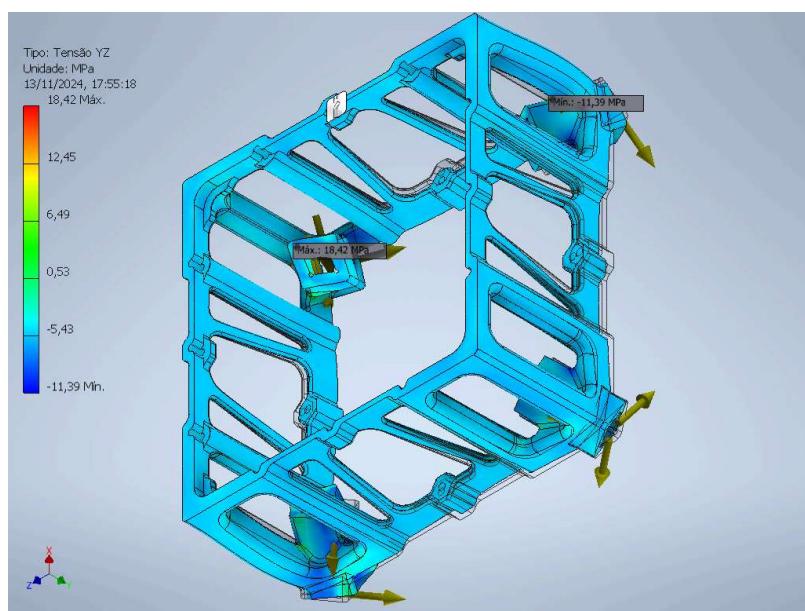
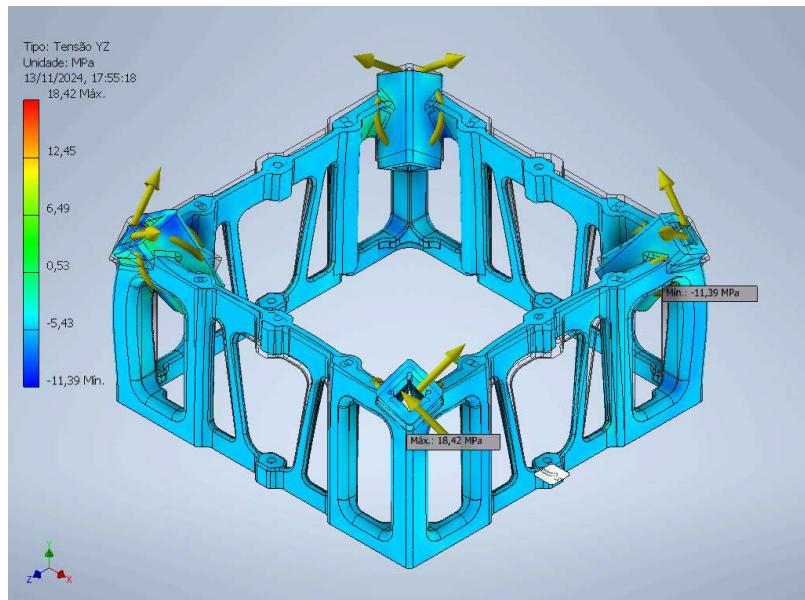




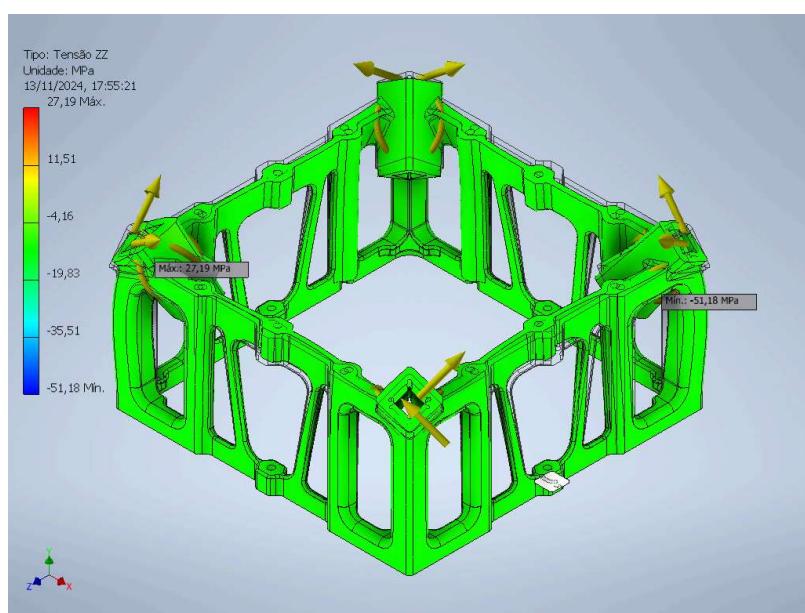
Tensão YY

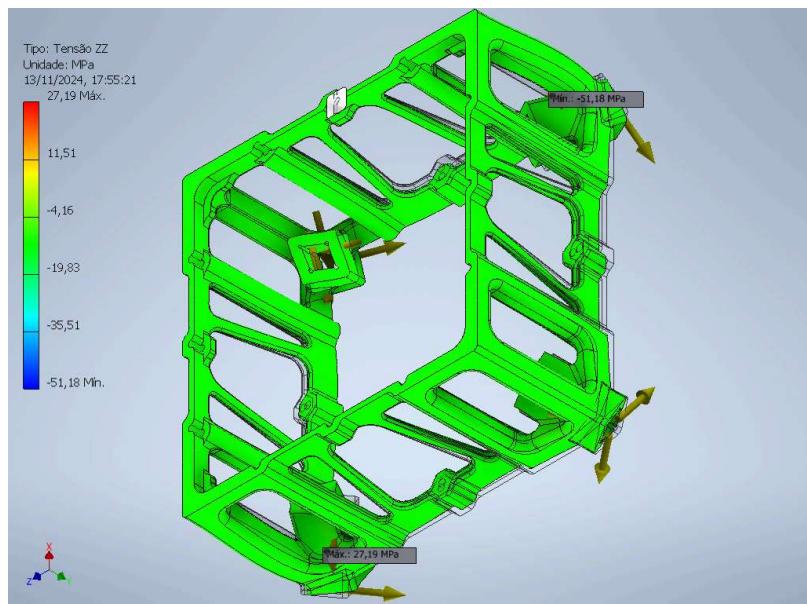


Tensão YZ

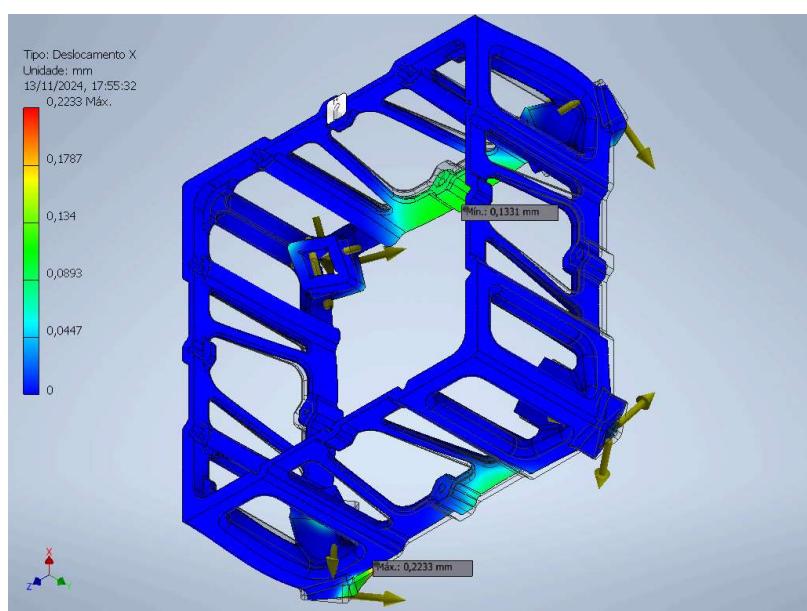
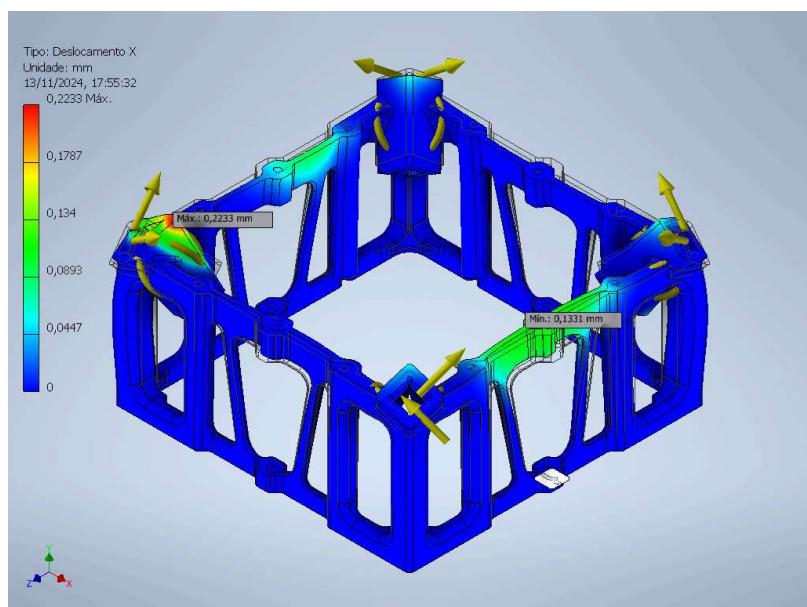


Tensão ZZ

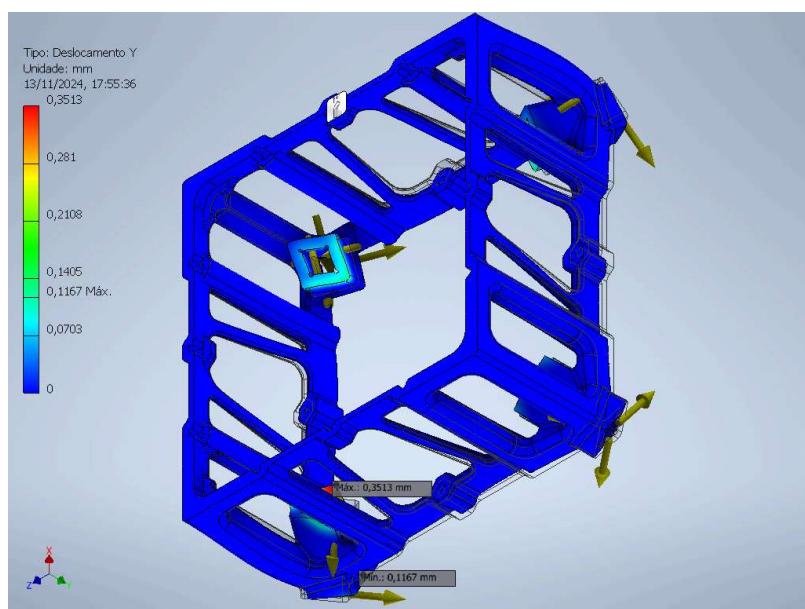
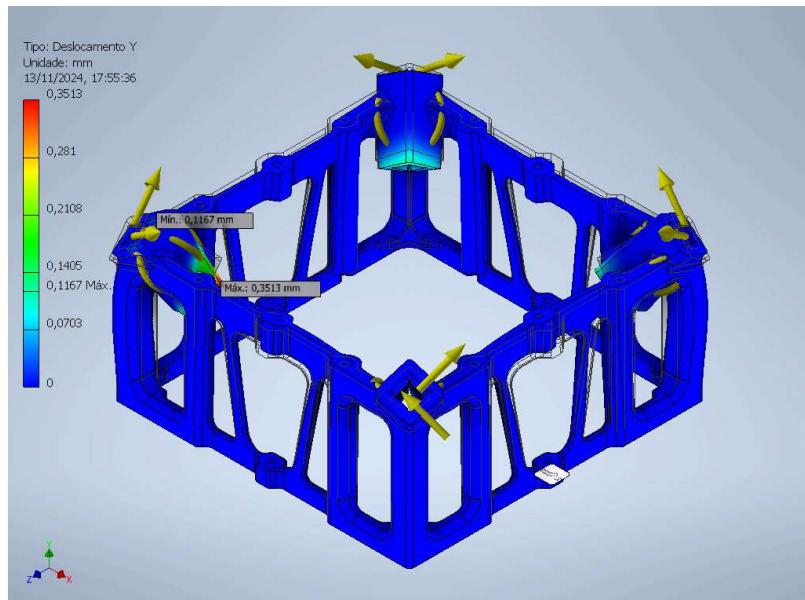




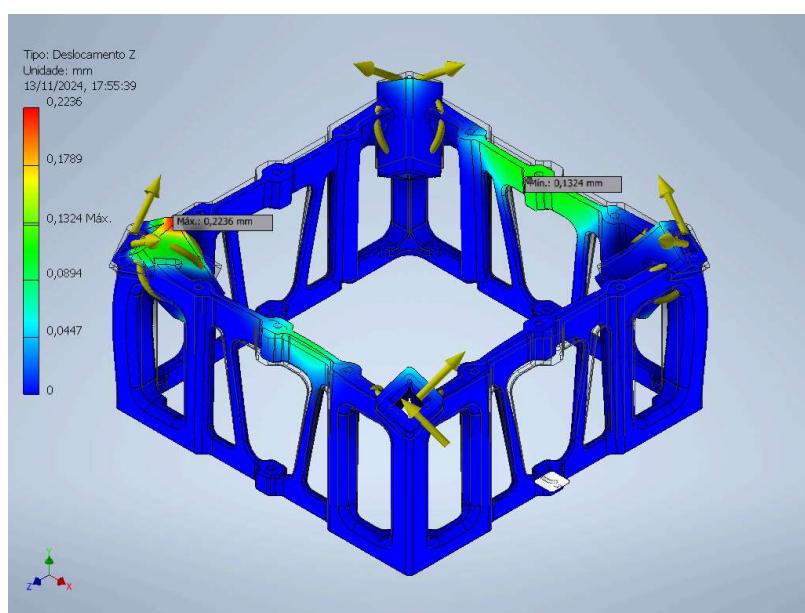
Deslocamento X

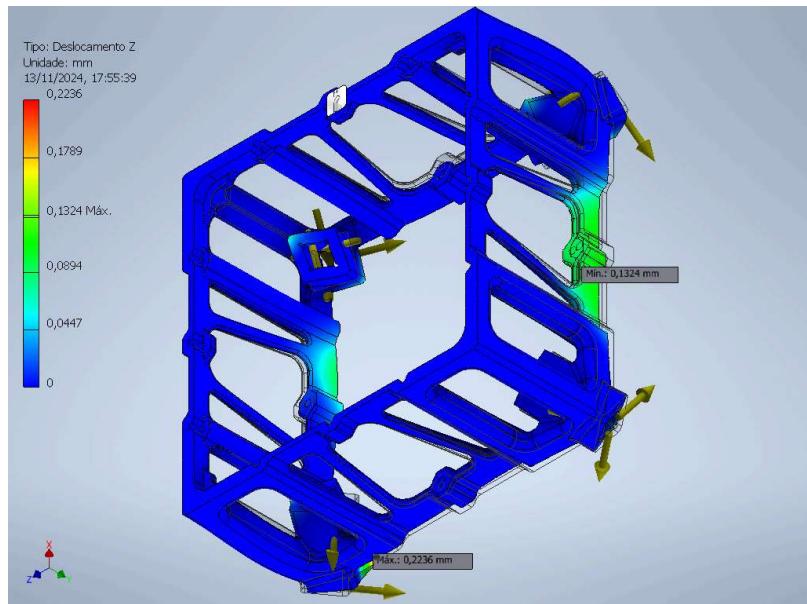


Deslocamento Y

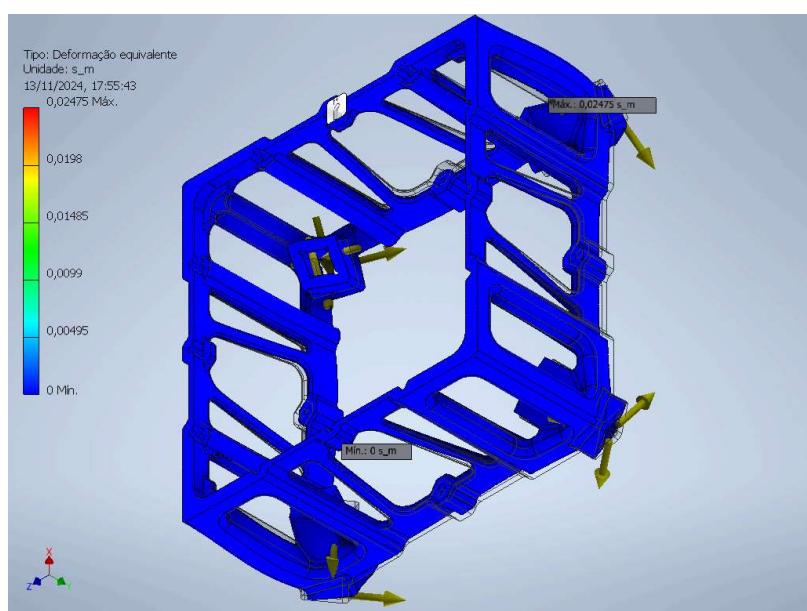
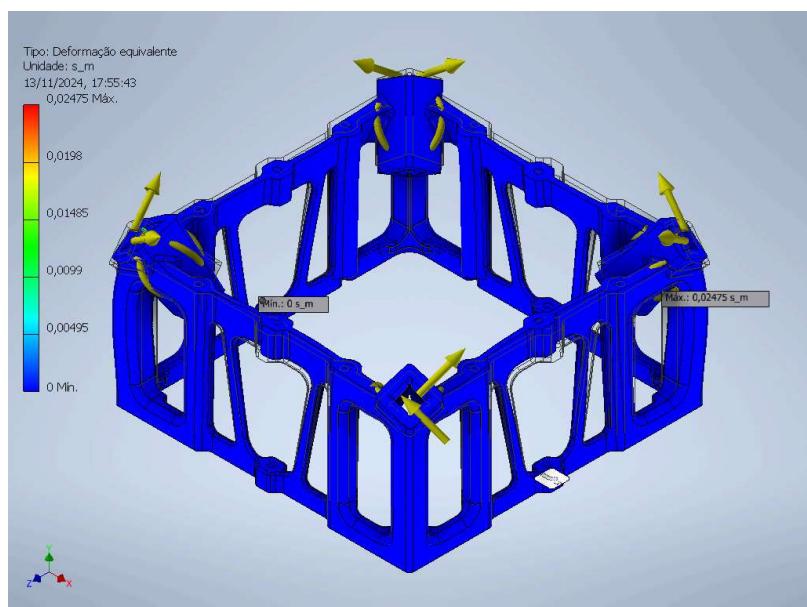


Deslocamento Z

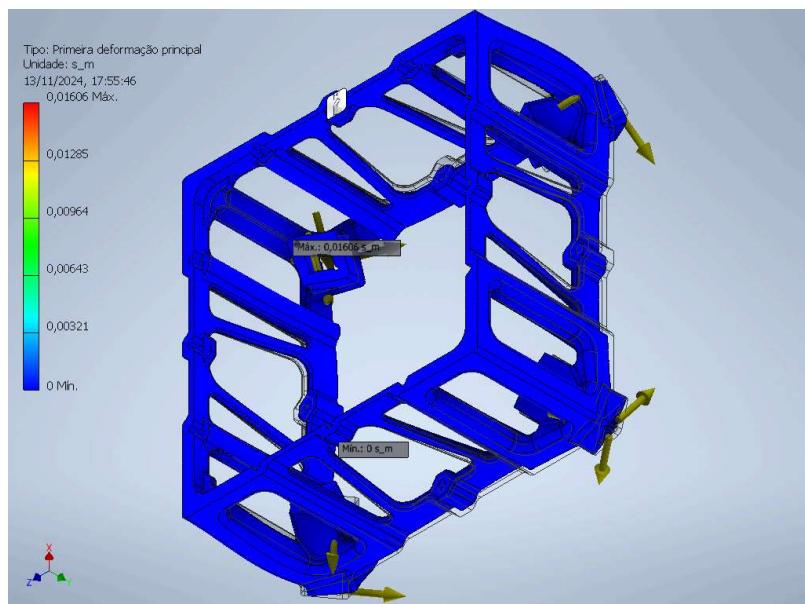
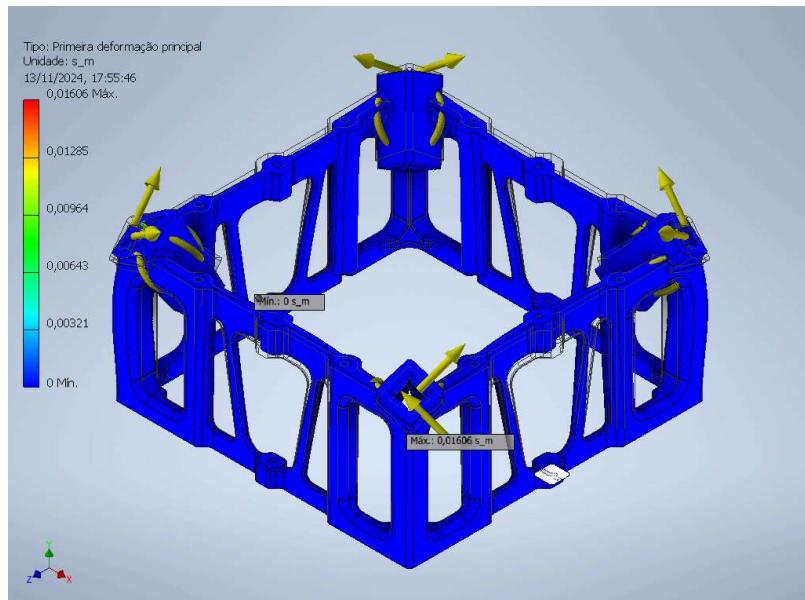




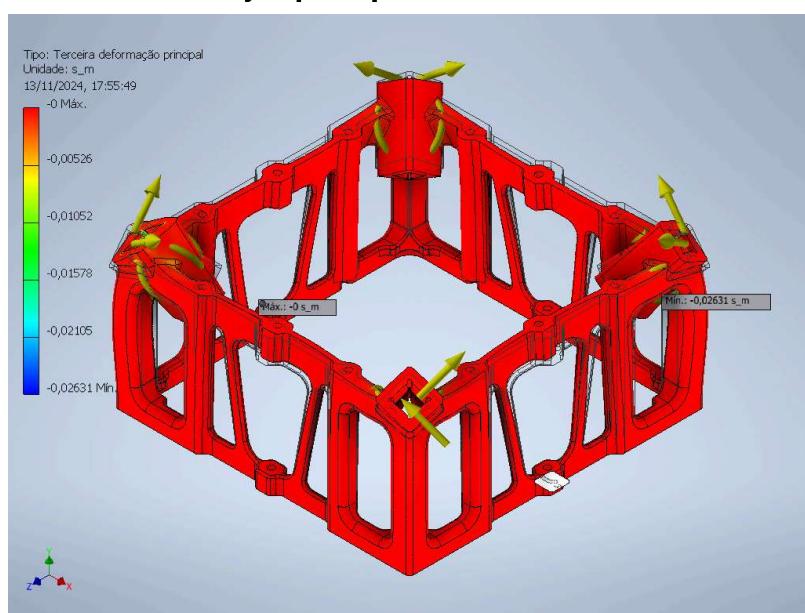
Deformação equivalente

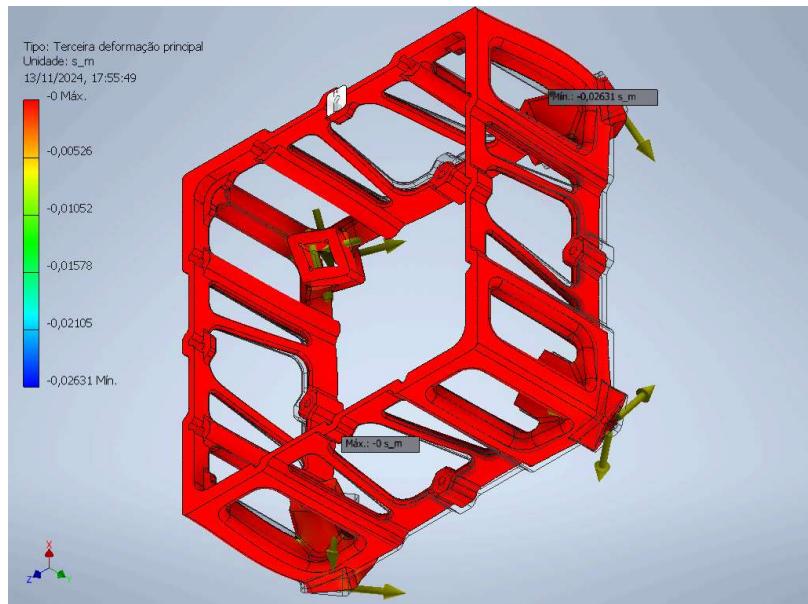


Primeira deformação principal

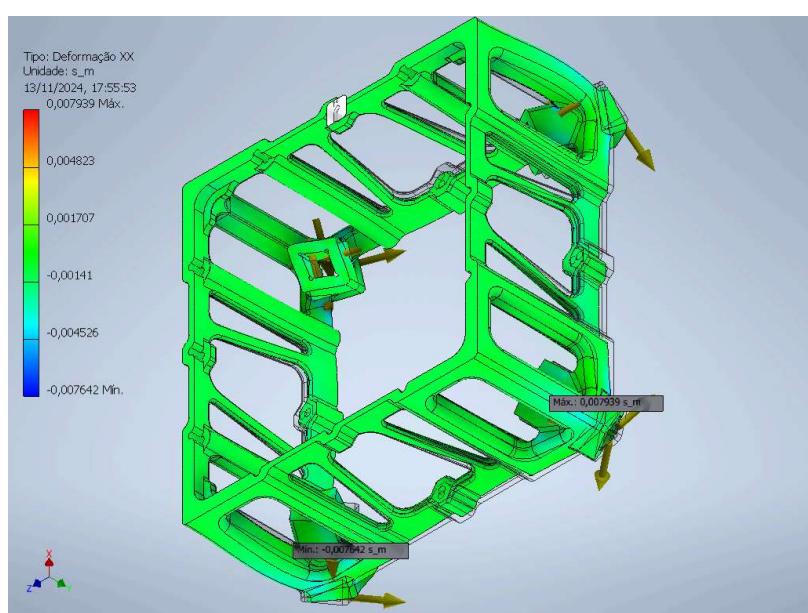
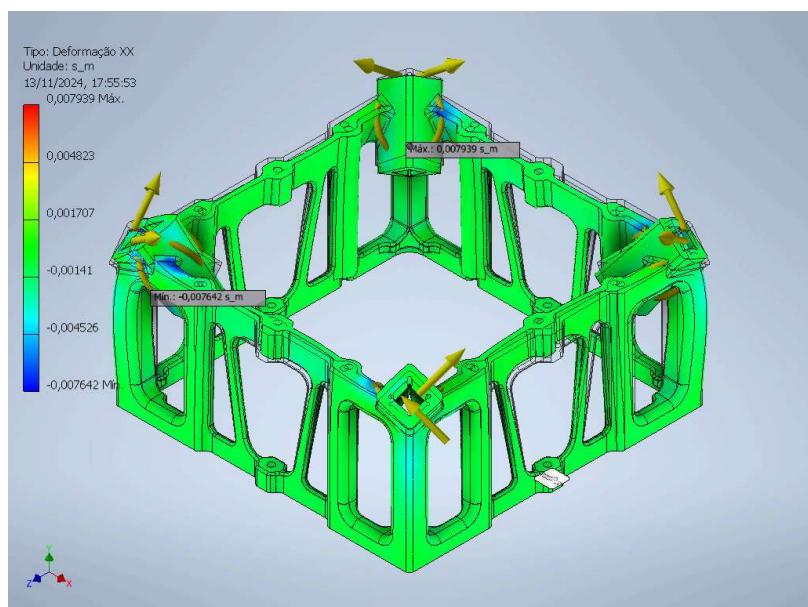


Terceira deformação principal

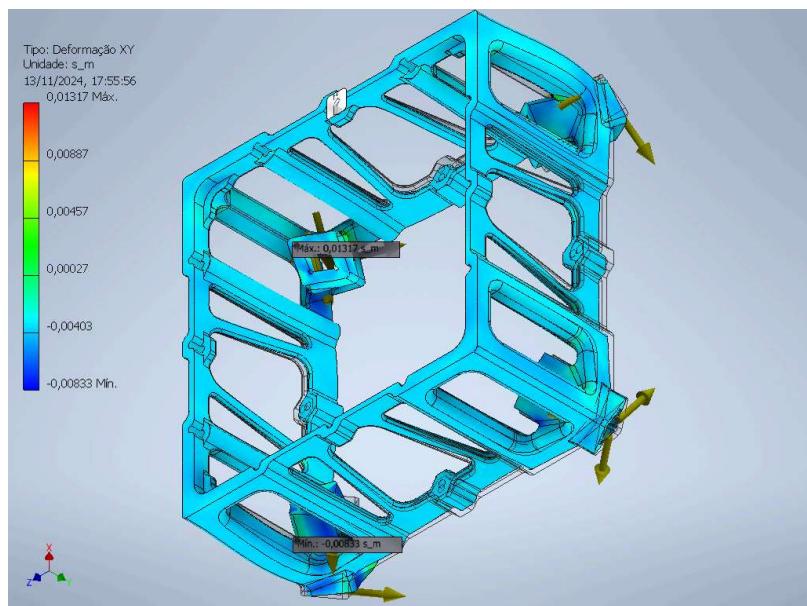
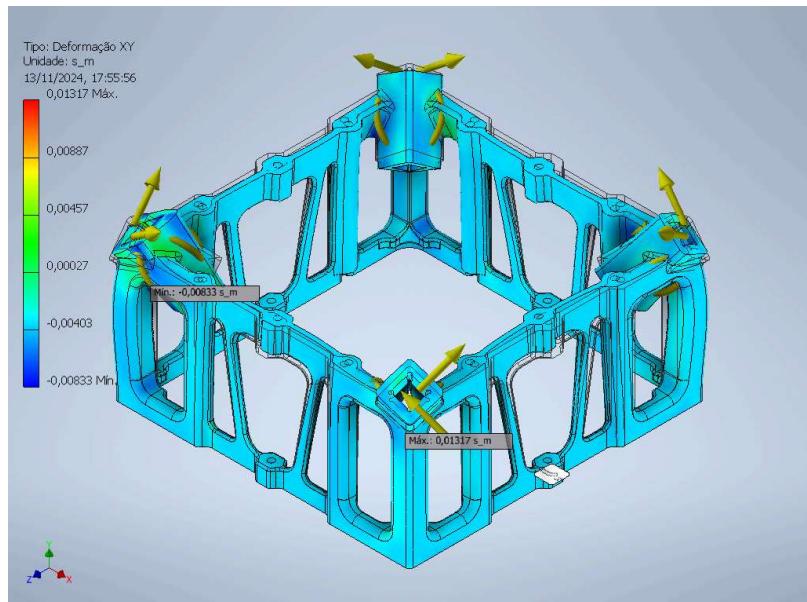




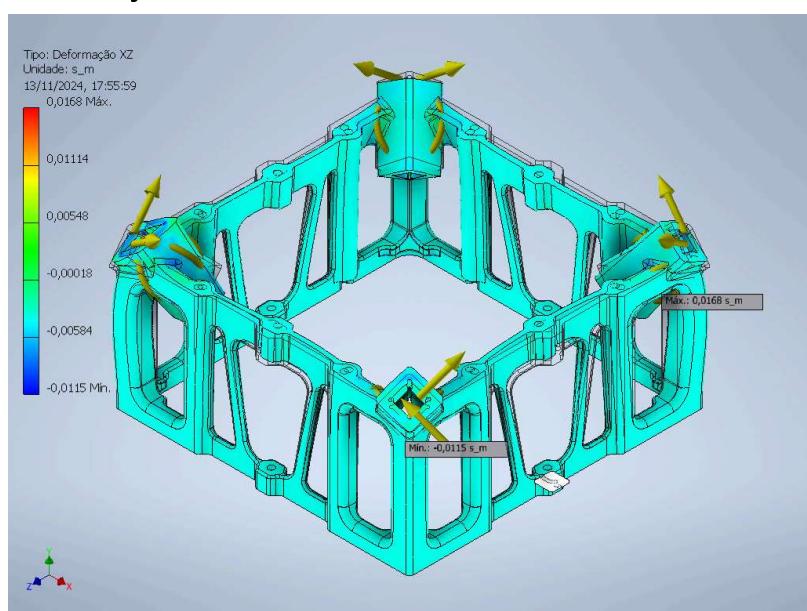
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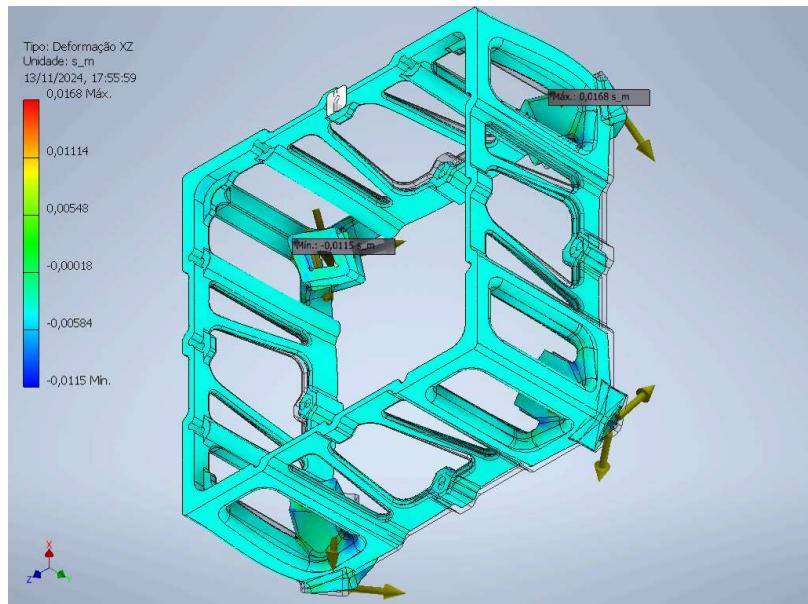


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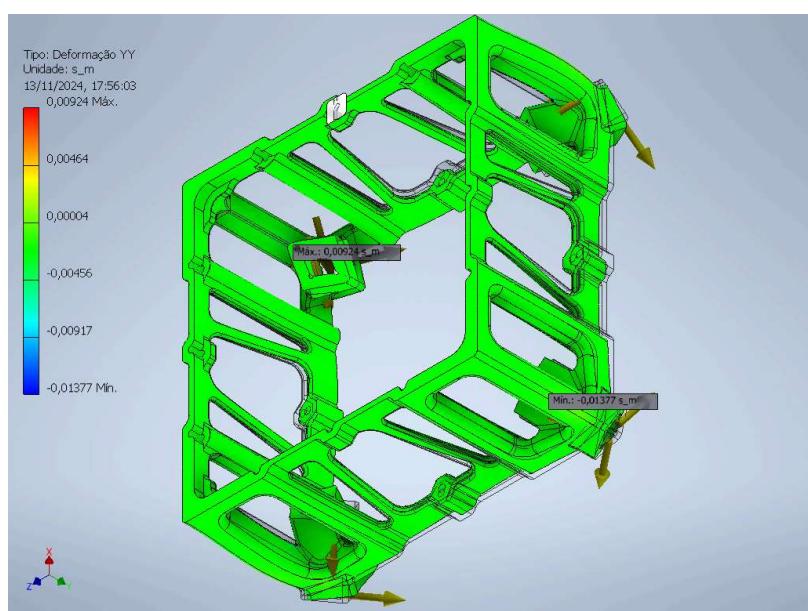
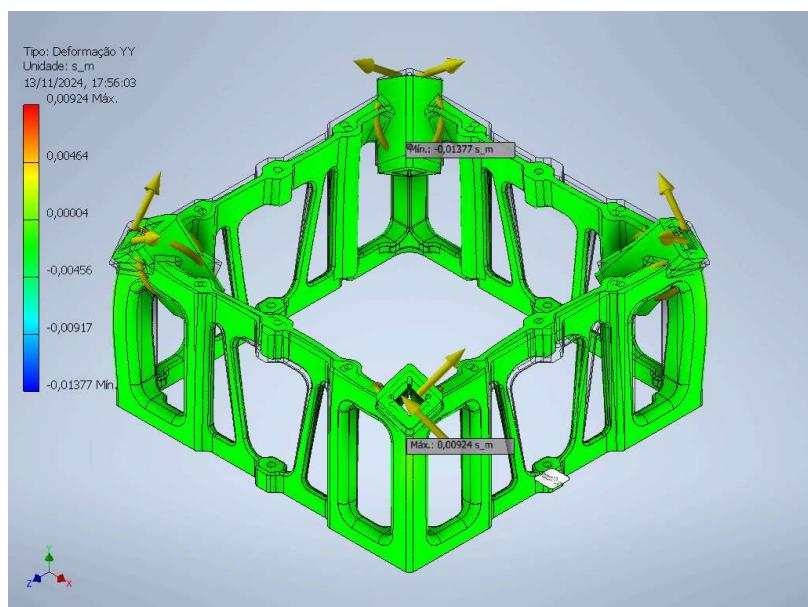


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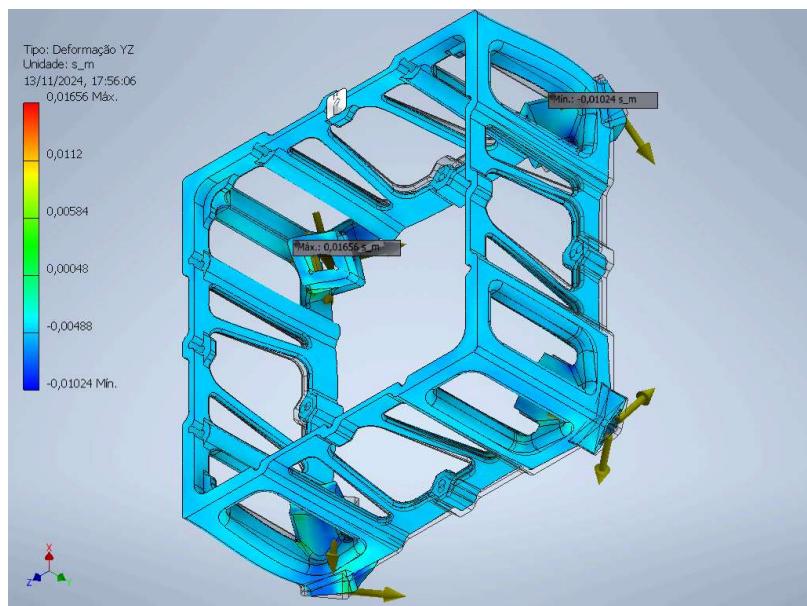
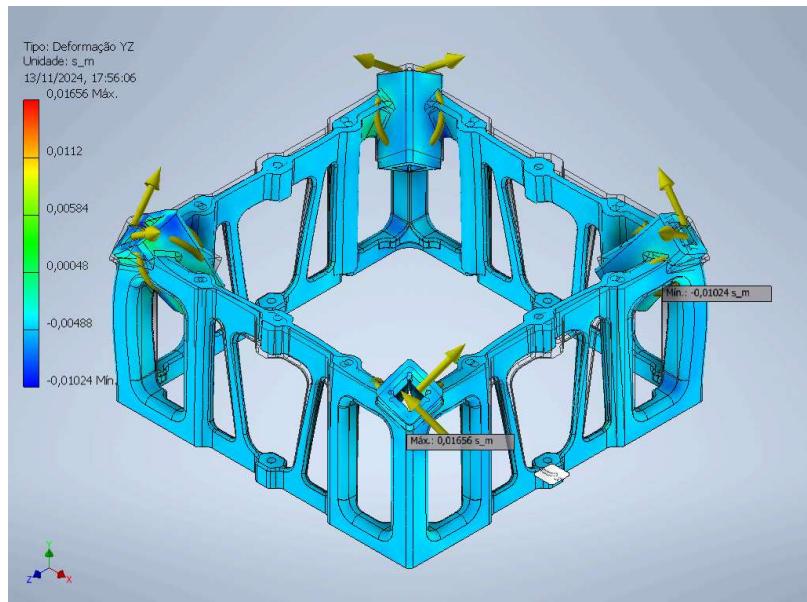




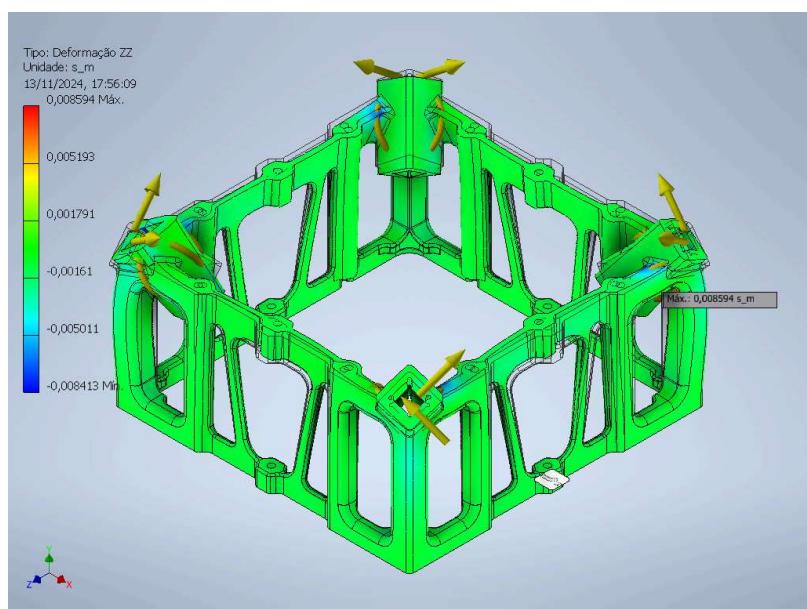
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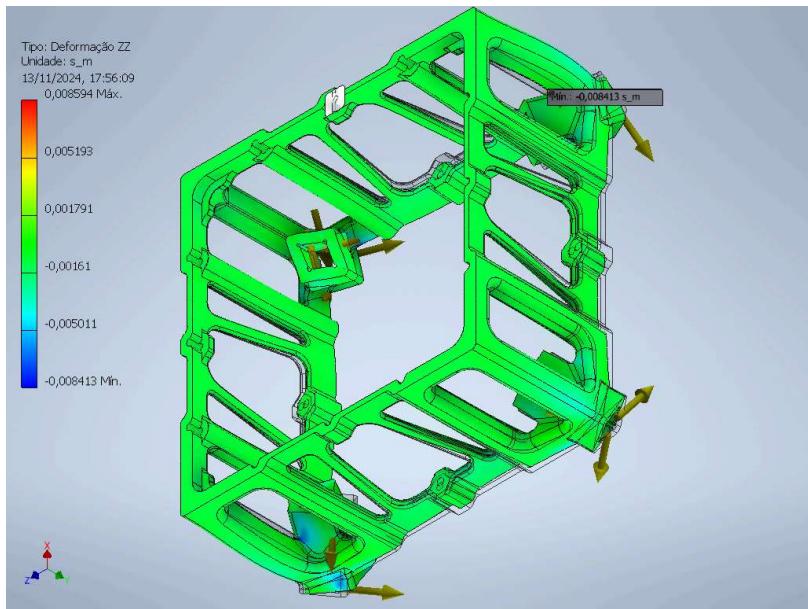


Deformação YZ



Deformação ZZ





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