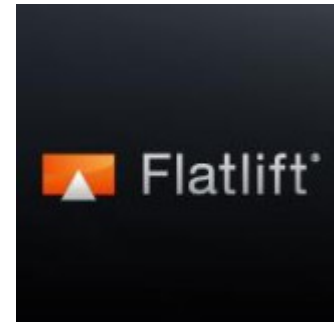


28.01.2017 max. FEA



Analyzed File:	Main & Bracket frames-01.iam
Creation Date:	1/28/2017, 12:10 AM
Simulation Author:	George Vasileiadis
Summary:	

Project Info (iProperties)

Summary

Author	George Vasileiadis
Company	FLATLIFT GmbH

Project

Part Number	Main & Bracket frames-01
Revision Number	

Physical

Mass	135.236 kg
Center of Gravity	x=1014.59 mm y=-3264.72 mm z=1565.22 mm

Note: Physical values could be different from Physical values used by FEA reported below.

Main frame and bracket FEA:1

General objective and settings:

Design Objective	Single Point
Simulation Type	Static Analysis
Last Modification Date	1/28/2017, 12:03 AM
Detect and Eliminate Rigid Body Modes	No

Separate Stresses Across Contact Surfaces	No
Motion Loads Analysis	No

Mesh settings:

Avg. Element Size (fraction of model diameter)	0.1
Min. Element Size (fraction of avg. size)	0.2
Grading Factor	1.5
Max. Turn Angle	60 deg
Create Curved Mesh Elements	No
Use part based measure for Assembly mesh	Yes

Material(s)

Name	S 235 JRH	
General	Mass Density	7.85 g/cm ³
	Yield Strength	207 MPa
	Ultimate Tensile Strength	345 MPa
Stress	Young's Modulus	220 GPa
	Poisson's Ratio	0.275 ul
	Shear Modulus	86.2745 GPa
Part Name(s)	Mainframe-ET-001-ver.03.ipt DIN 40 x 40 x 2 00000023.ipt DIN 40 x 40 x 2 00000023.ipt DIN 40 x 40 x 2 00000030.ipt DIN 40 x 40 x 2 00000030.ipt DIN 40 x 40 x 2 00000031.ipt DIN 40 x 40 x 2 00000030.ipt DIN 40 x 40 x 2 00000031.ipt DIN 40 x 40 x 2 00000034.ipt DIN 40 x 40 x 2 00000034.ipt DIN 40 x 40 x 2 00000036.ipt DIN 40 x 40 x 2 00000037.ipt DIN 40 x 40 x 2 00000039.ipt DIN 40 x 40 x 2 00000039.ipt DIN 40 x 40 x 2 00000017.ipt DIN 40 x 40 x 2 00000016.ipt DIN 40 x 40 x 2 00000022.ipt DIN 40 x 40 x 2 00000022.ipt DIN 40 x 40 x 2 00000003.ipt DIN 40 x 40 x 2 00000002.ipt DIN 40 x 40 x 2 00000001.ipt DIN 40 x 40 x 2 00000004.ipt DIN 40 x 40 x 2 00000005.ipt DIN 40 x 40 x 2 00000009.ipt DIN 40 x 40 x 2 00000009.ipt	

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Name	Generic	
General	Mass Density	1 g/cm ³
	Yield Strength	0 MPa
	Ultimate Tensile Strength	0 MPa
Stress	Young's Modulus	0.0000001 GPa
	Poisson's Ratio	0 ul
	Shear Modulus	0.00000005 GPa
Part Name(s)	Main frame-ver03.ipt Frame-Bracket-001.ipt	
Name	S 235 JRG2	
General	Mass Density	7.85 g/cm ³
	Yield Strength	235 MPa

[illegible]

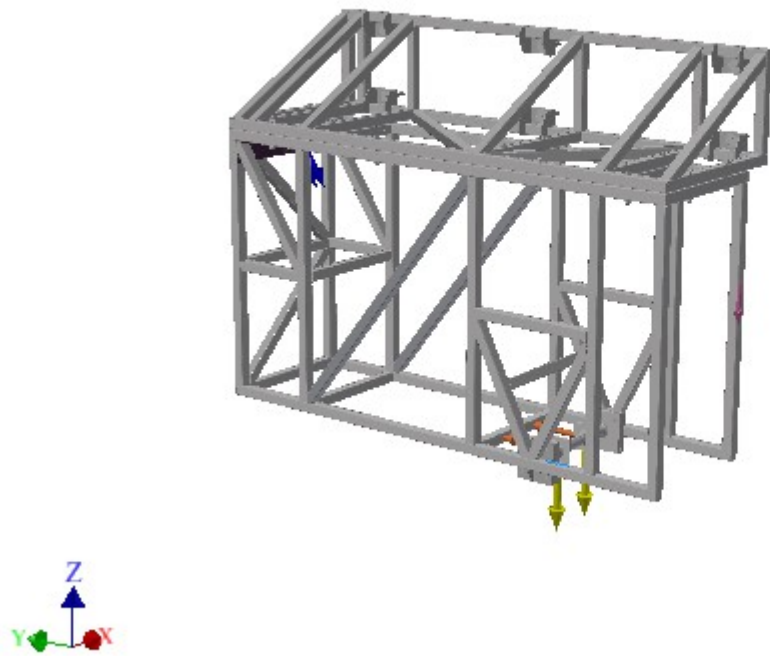
[illegible]

Operating conditions

Vertical main load-01

Load Type	Force
Magnitude	2000.000 N
Vector X	-0.000 N
Vector Y	-0.000 N
Vector Z	-2000.000 N

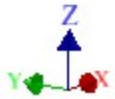
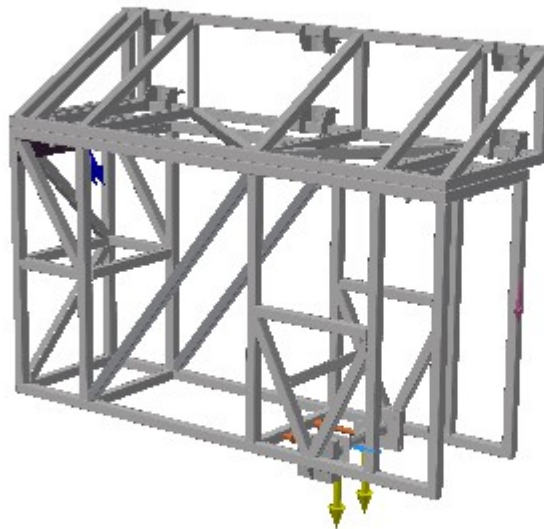
Selected Face(s)



Vertical main load-02

Load Type	Force
Magnitude	2000.000 N
Vector X	0.000 N
Vector Y	-0.000 N
Vector Z	-2000.000 N

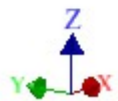
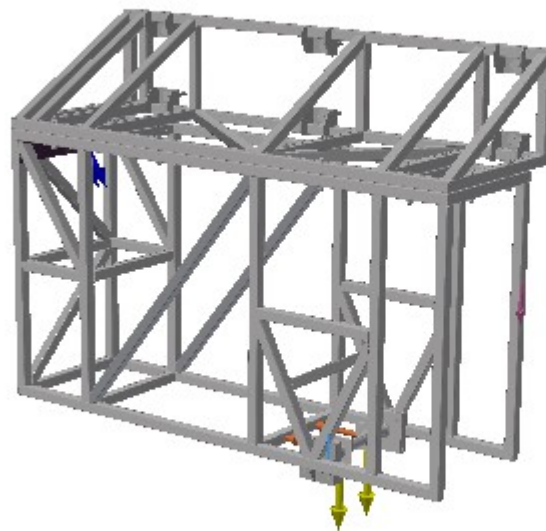
Selected Face(s)



Axle load on Y -01

Load Type	Force
Magnitude	1000.000 N
Vector X	-0.000 N
Vector Y	1000.000 N
Vector Z	-0.000 N

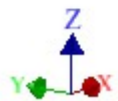
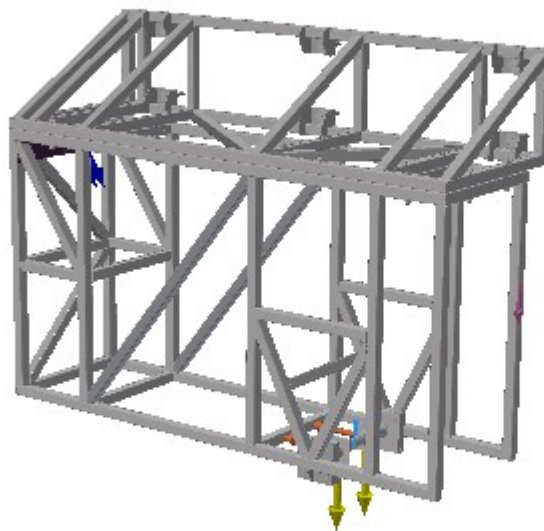
Selected Face(s)



axle load on Y -02

Load Type	Force
Magnitude	1000.000 N
Vector X	0.000 N
Vector Y	1000.000 N
Vector Z	-0.000 N

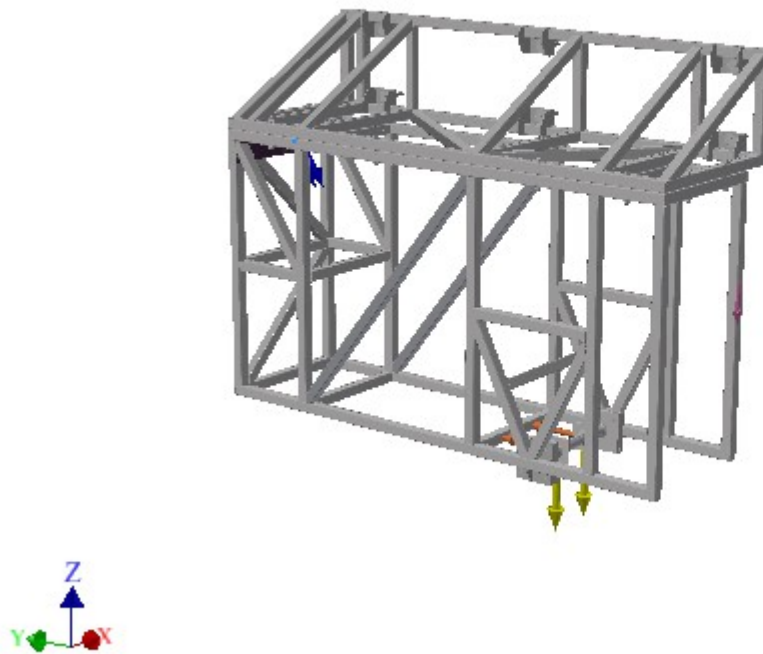
Selected Face(s)



Motor reaction force-01

Load Type	Force
Magnitude	2250.000 N
Vector X	0.000 N
Vector Y	-1248.075 N
Vector Z	-1872.113 N

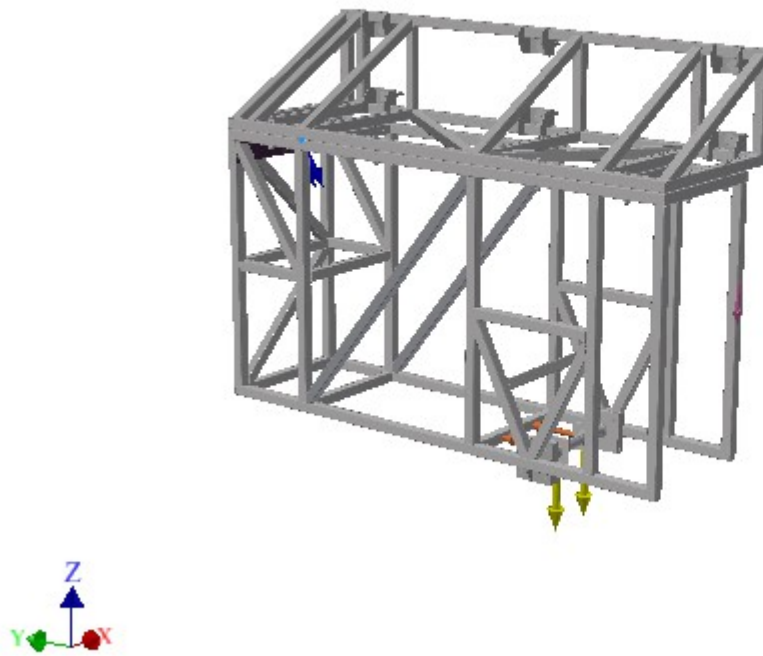
Selected Face(s)



Motor reaction force-02

Load Type	Force
Magnitude	2250.000 N
Vector X	-0.000 N
Vector Y	-1248.075 N
Vector Z	-1872.113 N

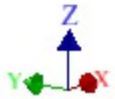
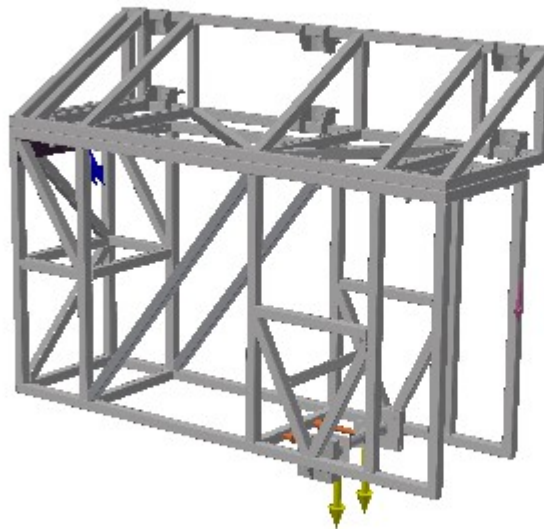
Selected Face(s)



Gravity

Load Type	Gravity
Magnitude	9810.000 mm/s ²
Vector X	0.000 mm/s ²
Vector Y	0.000 mm/s ²
Vector Z	-9810.000 mm/s ²

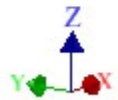
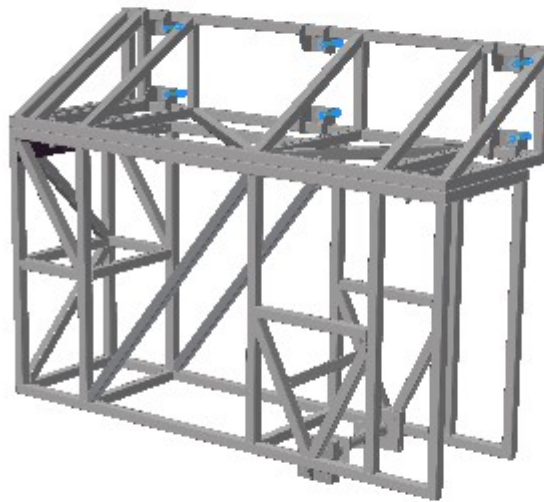
Selected Face(s)



Fixed Constraint:1

Constraint Type	Fixed Constraint
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Selected Face(s)



Results

Reaction Force and Moment on Constraints

Constraint Name	Reaction Force		Reaction Moment	
	Magnitude	Component (X,Y,Z)	Magnitude	Component (X,Y,Z)
Fixed Constraint:1	9112.87 N	0 N	3896.83 N m	-92.1413 N m
		496.151 N		3889.62 N m
		9099.35 N		-218.159 N m

Result Summary

Name	Minimum	Maximum
Volume	17841800 mm^3	
Mass	140.058 kg	
Von Mises Stress	0.00000136855 MPa	401.955 MPa
Displacement	0 mm	1.51127 mm
Safety Factor	1.1927 ul	15 ul

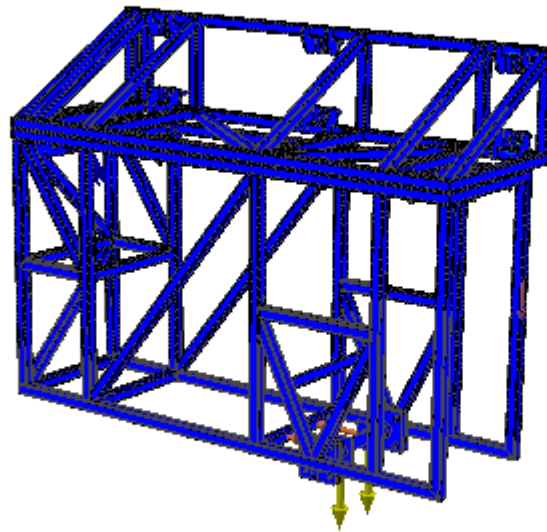
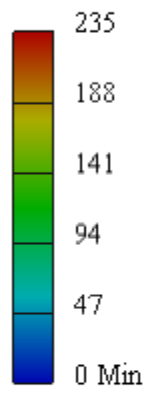
Figures

Von Mises Stress

Type: Von Mises Stress

Unit: MPa

1/28/2017, 12:10:31 AM

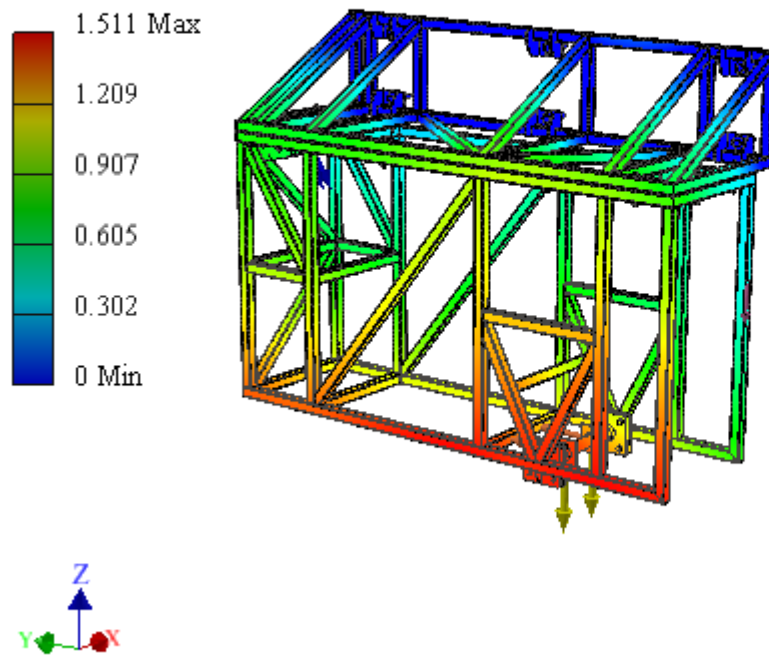


Displacement

Type: Displacement

Unit: mm

1/28/2017, 12:10:39 AM



Safety Factor

Type: Safety Factor

Unit: ul

1/28/2017, 12:10:35 AM

