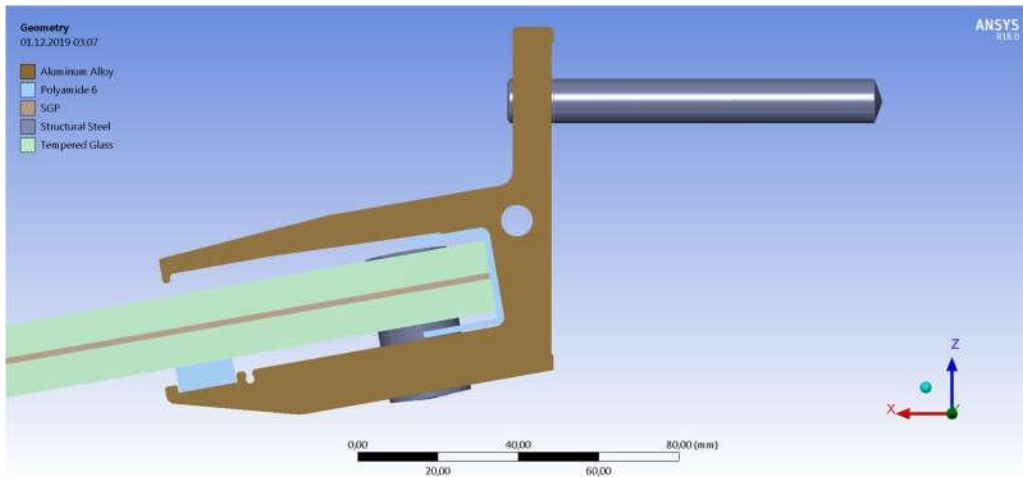
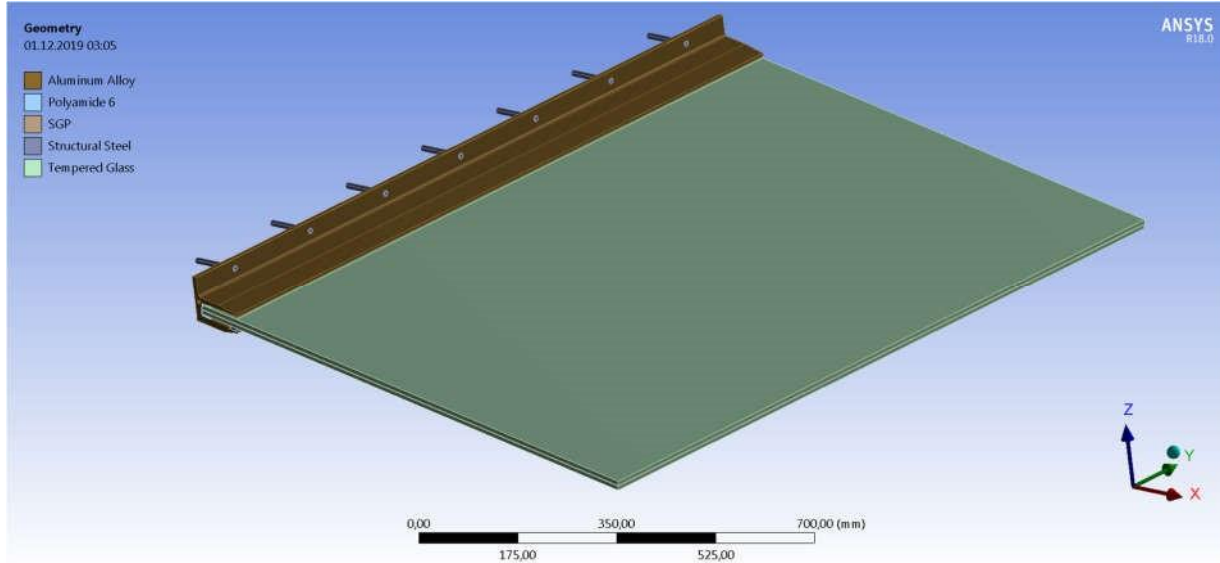




BTS ALUMINUM
N100 SYSTEM
Structural Calculation Report



Note: This simulation was solved using Ansys Mechanical Pro R18
Prepared By : ALP ARGE INC.

Units

Unit System	Metric (mm, kg, N, s)
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Material Data

Aluminum Alloy

Aluminum Alloy > Constants

Density	2,77e-006 kg mm ⁻³
---------	-------------------------------

Aluminum Alloy > Tensile Yield Strength

Tensile Yield Strength MPa
280,

Aluminum Alloy > Isotropic Elasticity

Temperature C	Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa
	71000	0,33	69608	26692

Glass

glass > Constants

Density	2,5e-006 kg mm ⁻³
---------	------------------------------

glass > Isotropic Elasticity

Temperature C	Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa
	70000	0,21	40230	28926

glass > Tensile Yield Strength

Tensile Yield Strength MPa
50,

Glass > Compressive Yield Strength

Compressive Yield Strength MPa
100,



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Polyamide 6

Density	1,13E-06 kg mm ⁻³
---------	------------------------------

Isotropic Elasticity

Temperature C	Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa
	2600	0,39	3939	935,2

Tensile Yield Strength

Tensile Yield Strength MPa
78

SGP

SGP > Constants

Density	9,5e-007 kg mm ⁻³
---------	------------------------------

SGP > Isotropic Elasticity

Temperature C	Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa
	300,	0,463	1351,4	102,53

SGP > Tensile Yield Strength

Tensile Yield Strength MPa
34,5

SGP > Compressive Yield Strength

Compressive Yield Strength MPa
34,5



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Structural Steel

Structural Steel > Constants

Density	7,85e-006 kg mm ⁻³
---------	-------------------------------

Structural Steel > Tensile Yield Strength

Tensile Yield Strength MPa
250,

Structural Steel > Isotropic Elasticity

Temperature C	Young's Modulus MPa	Poisson's Ratio	Bulk Modulus MPa	Shear Modulus MPa
	2,e+005	0,3	1,6667e+005	76923



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 - Standard Earth Gravity
 - Loads
 - Solution
 - Results
 - CONCLUSION & NOTES



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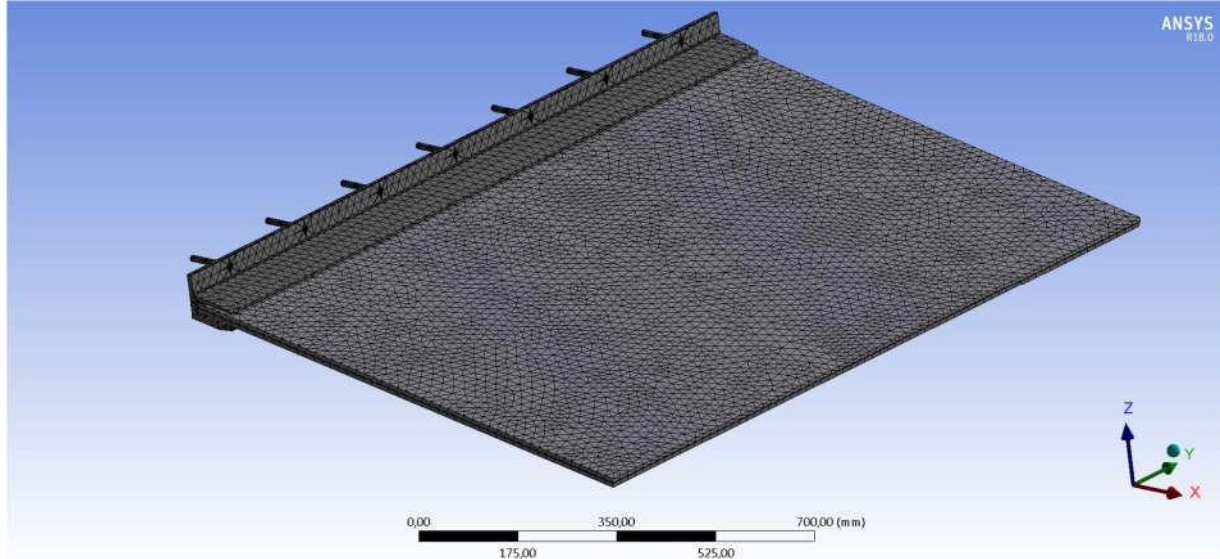
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Model



Nodes Number : 168658

lements Number : 65222

Sizing	
Size Function	Adaptive
Relevance Center	Medium
Element Size	Default
Initial Size Seed	Active Assembly
Transition	Fast
Span Angle Center	Medium
Automatic Mesh Based Defeaturing	On
Defeature Size	Default
Minimum Edge Length	2,6161e-002 mm



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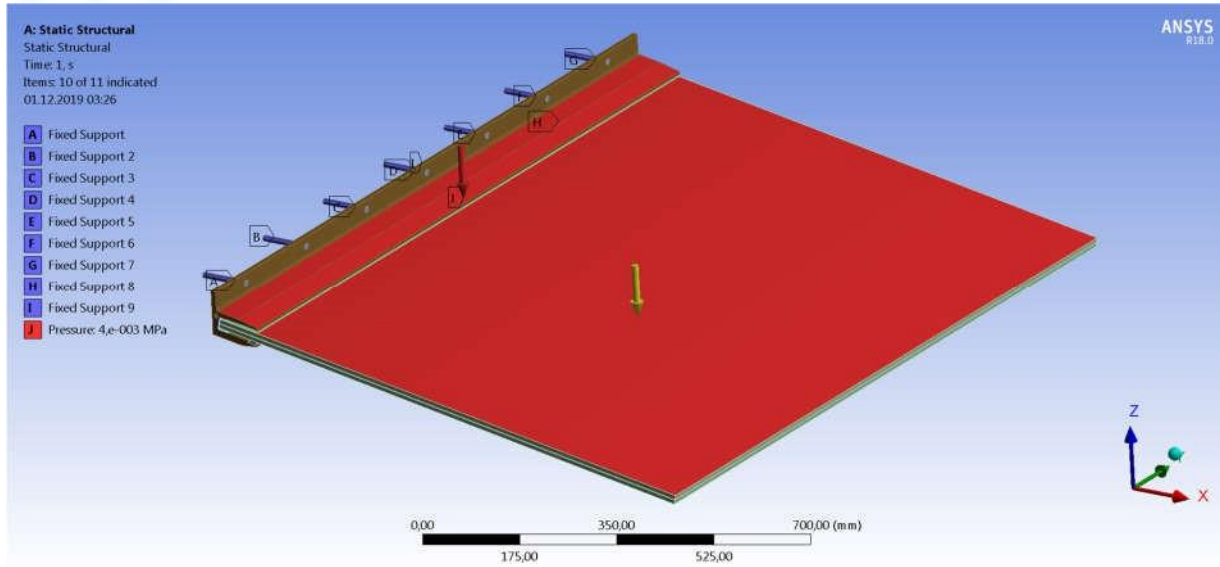
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N100 SYSTEM

Structural Calculation Report



Static Structural

Boundary and Load Conditions

Surfaces J: Snow Load Pressure value is 4,e-003 MPa(4000 Pa and 400 kg/m²) on all red surface.

Surfaces A,B,C,D,E,F,G and H : Fixed Support

The Standart Earth Gravity value is 9806,6 mm/s² for All Parts-yellow arrow and is defined as -Z direction



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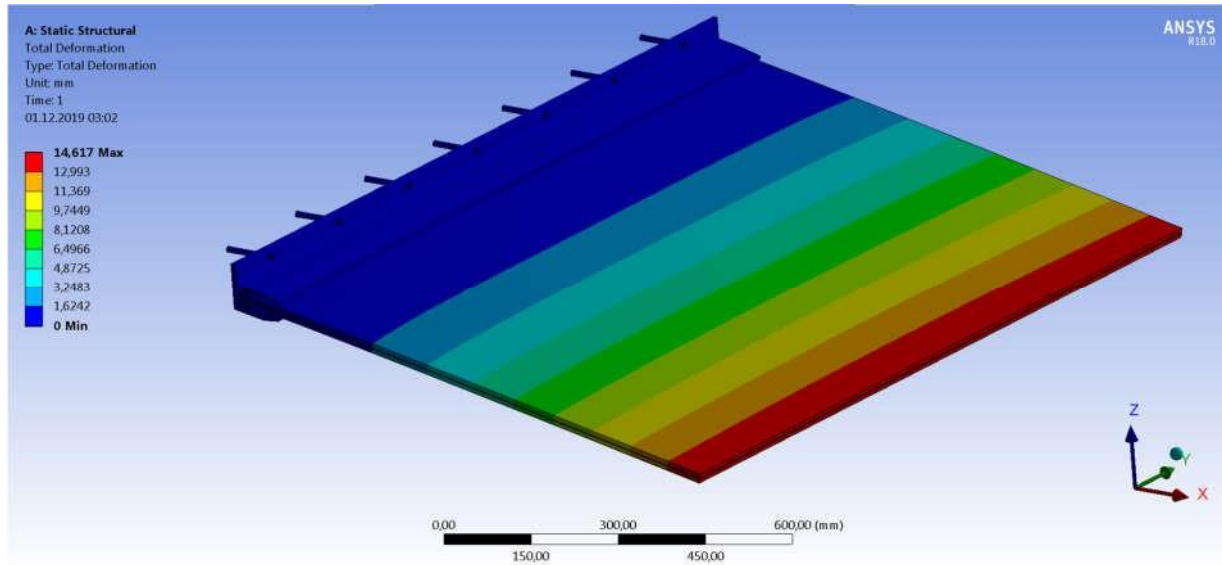


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Solution

Total Deformation

Time [s]	Minimum [mm]	Maximum [mm]
1,	0,	14,617



Total deformation result is max 14,617 mm and min 0 under the boundary and load conditions. It occurs on Glass parts



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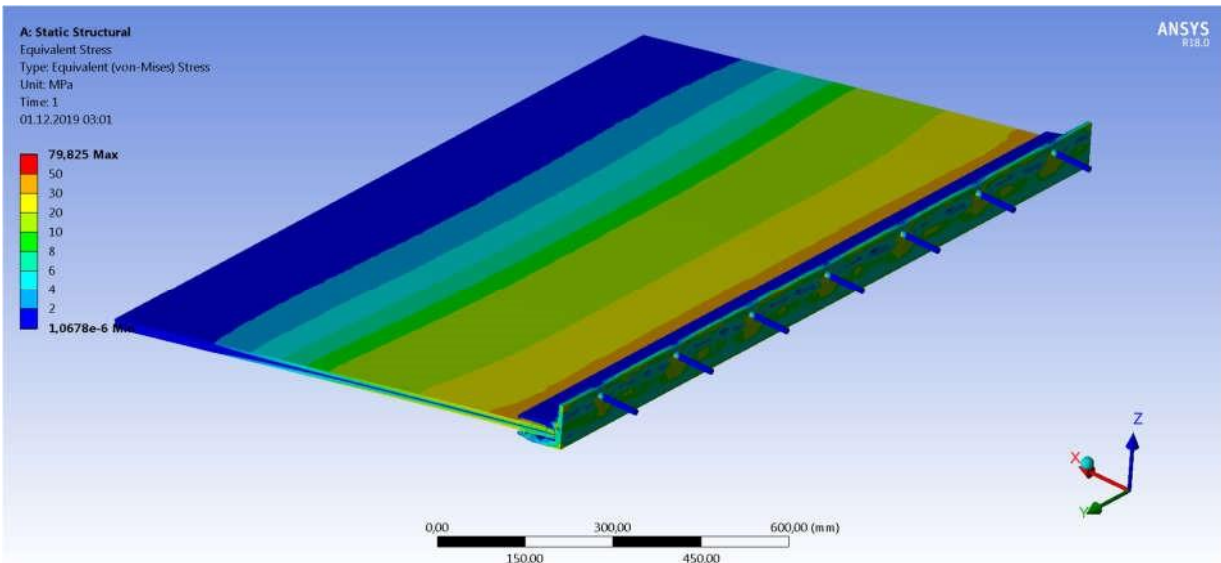
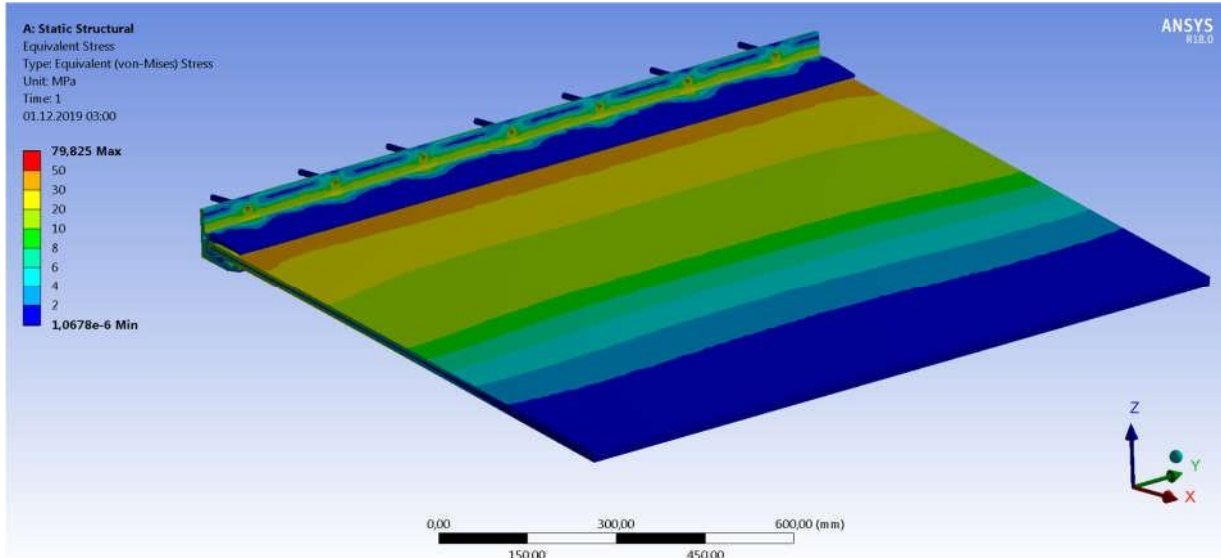
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Structural Calculation Report

Equivalent Stress

Time [s]	Minimum [MPa]	Maximum [MPa]
1,	0	79,825



Equivalent stress result is max 79,825 MPa and min 1,0678e-6MPa under the boundary and load conditions for All Models. Max stress occurs on the Aluminium profile.



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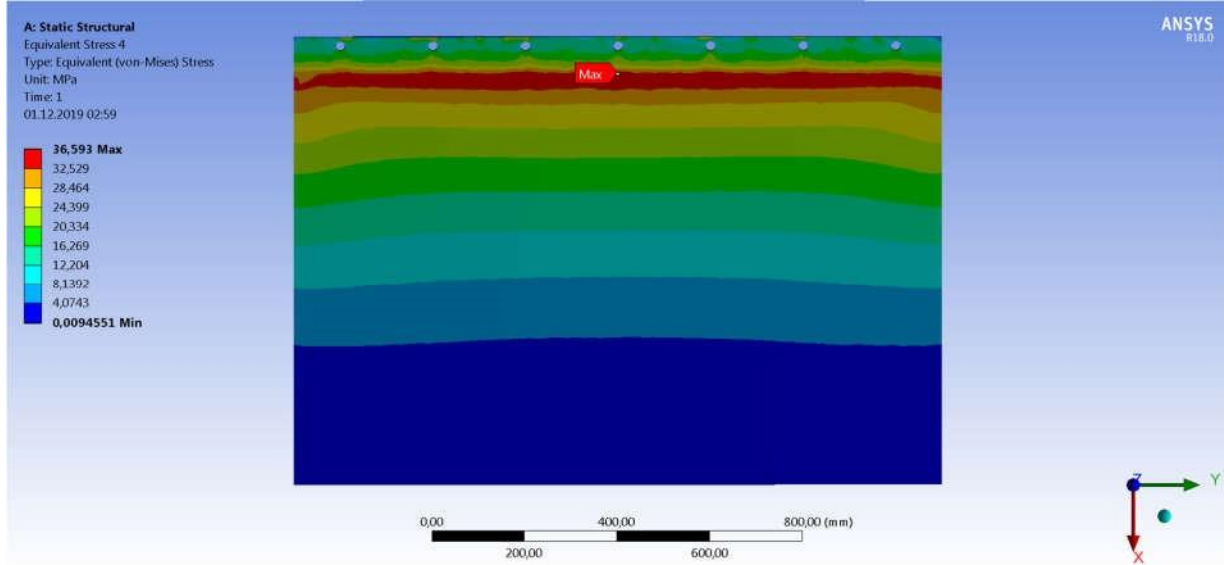
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Structural Calculation Report

Equivalent Stress 2

Time [s]	Minimum [MPa]	Maximum [MPa]
1,	0	36,593



Equivalent stress result is max 36,593MPa and min 0,0094551MPa under the boundary and load conditions for only Glass parts.



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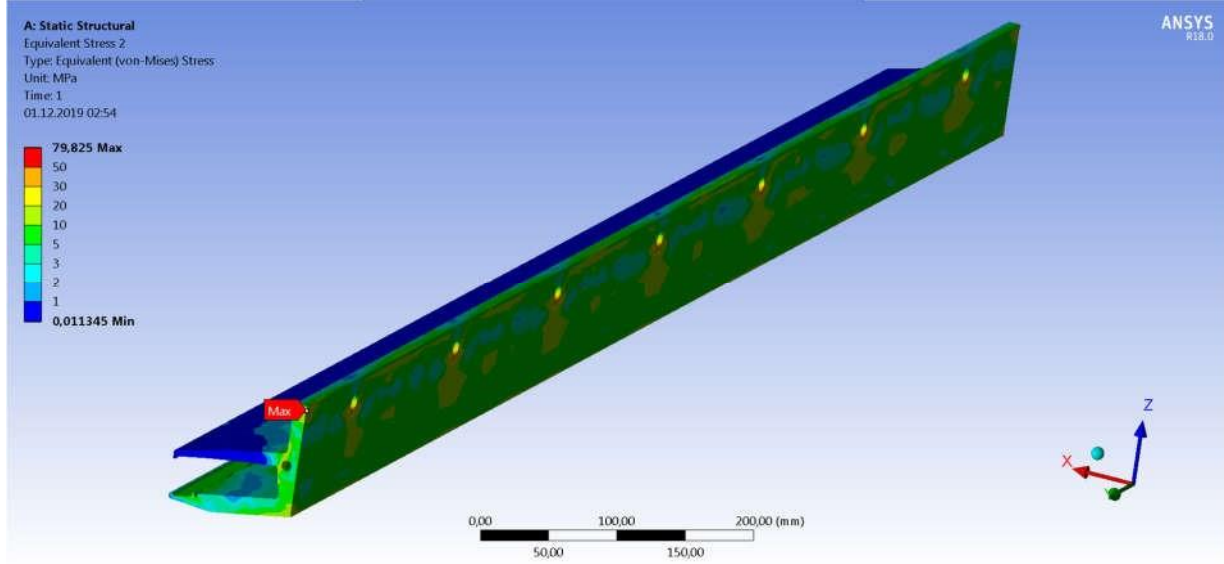
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Equivalent Stress 3

Time [s]	Minimum [MPa]	Maximum [MPa]
1,	0	79,825



Equivalent stress result is max 79,825MPa and min 0,011345MPa under the boundary and load conditions for only aluminium profile.



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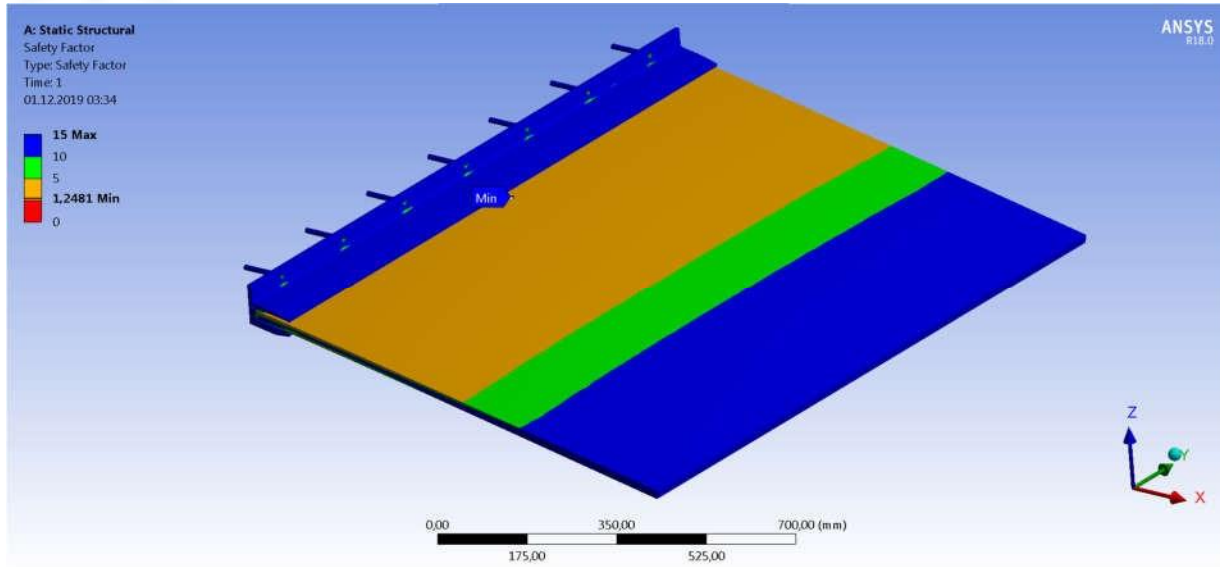
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Safety Factor

Time [s]	Minimum	Maximum
1,	1,2481	15,

The Safety Factor is max. 15 and min 1,2481 under the boundary and load conditions for All Models.

The min. 1,2481 Safety Factor occurs on the Glass parts

CONCLUSION & NOTES

Due to structural analysis of the V100 glass system according to loads given above, The system is safe with 1,2481



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