



INFINITYCONST **evo**
Modular exhibition system

Statics and certificates

Version 01/2020



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1. Materials

1.1 Concepts and terms

Tensile Strength - The stress at which material is destroyed.

Yield Strength - The stress at which irretrievable deformation of the material occurs.

WLL - Working Load Limit declared by the manufacturer.

BL - Breaking Load - The load at which the material tensile strength is reached, determined by experiment.

YS - Yield Stress - The load at which the yield strength of the material is reached, determined in the static analysis program.

FoS by YS - Factor of Safety by Yield Stress.

Determined by the ratio of the Yield Stress (YS) to the Working Load Limit (WLL) according to the formula:

$$\text{FoS by YS} = \text{YS} : \text{WLL}$$

FoS by BL - Factor of Safety by Breaking Load.

Determined by the ratio of the Breacking Load (BL) to the Working Load Limit (WLL) according to the formula:

$$\text{FoS by BL} = \text{BL} : \text{WLL}$$



1.2 Mechanical properties of materials

Material	Russia	Germany	USA	Yield strength, MPa	Tensile strength, MPa	Elements
Aluminum	6063-T5			130	175	Extrusion, Connector Foot
Sheet carbon steel	08ПC	EN 1.0330	AISI 1008	220	330	Connector Covers
Austenitic stainless steel	12X18H9TЛ	EN 1.4878	AISI 321H	220	620	Connectors
	08X18H10	EN 1.4301	AISI 304	320	650	Static Elements, Connector Foot
	03X17H14M3	EN 1.4401	AISI 316	320	650	Static Elements
Steel grade	8.8			640	800	Fasteners
	10.9			900	1000	
	12.9			1080	1200	

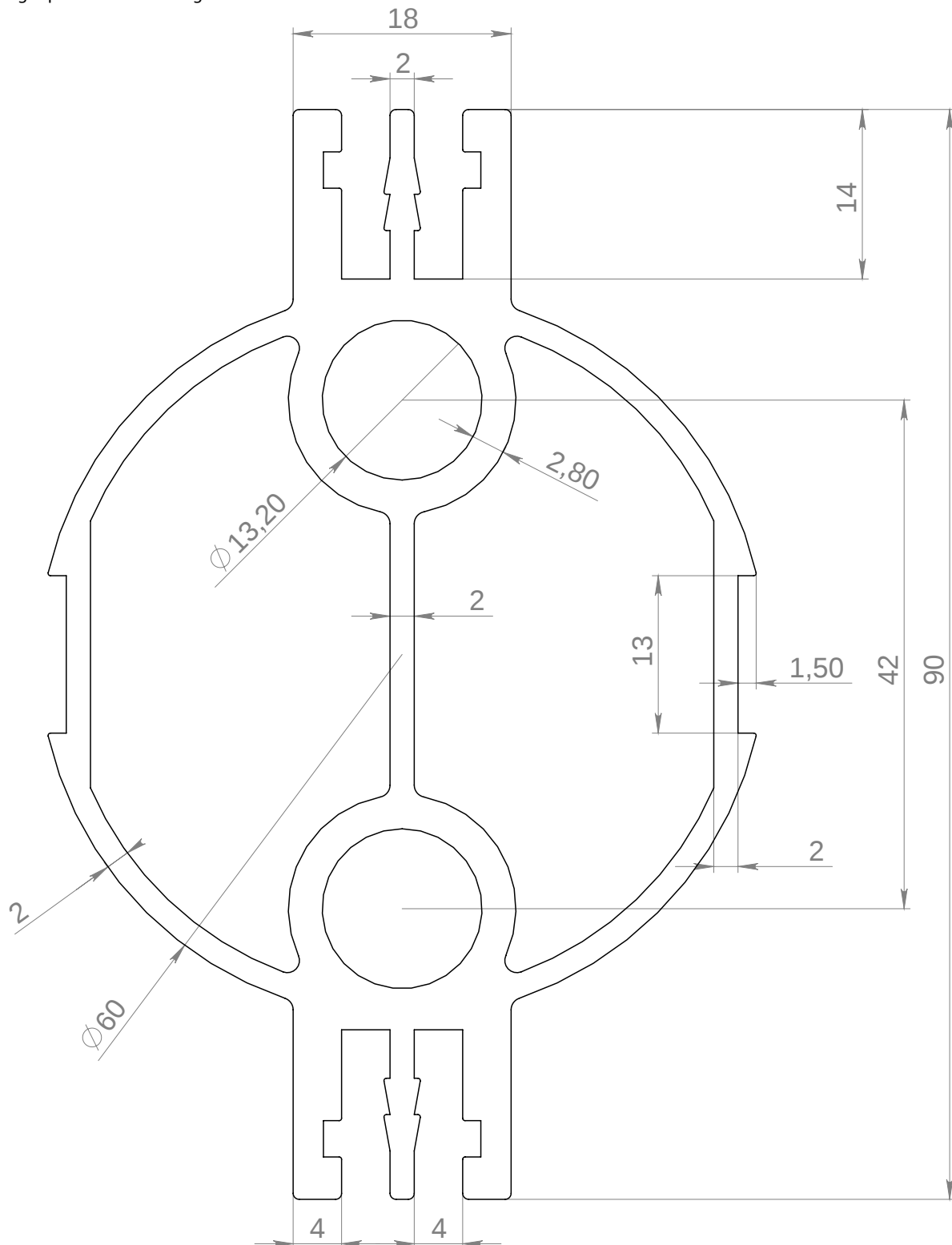
2. Elements

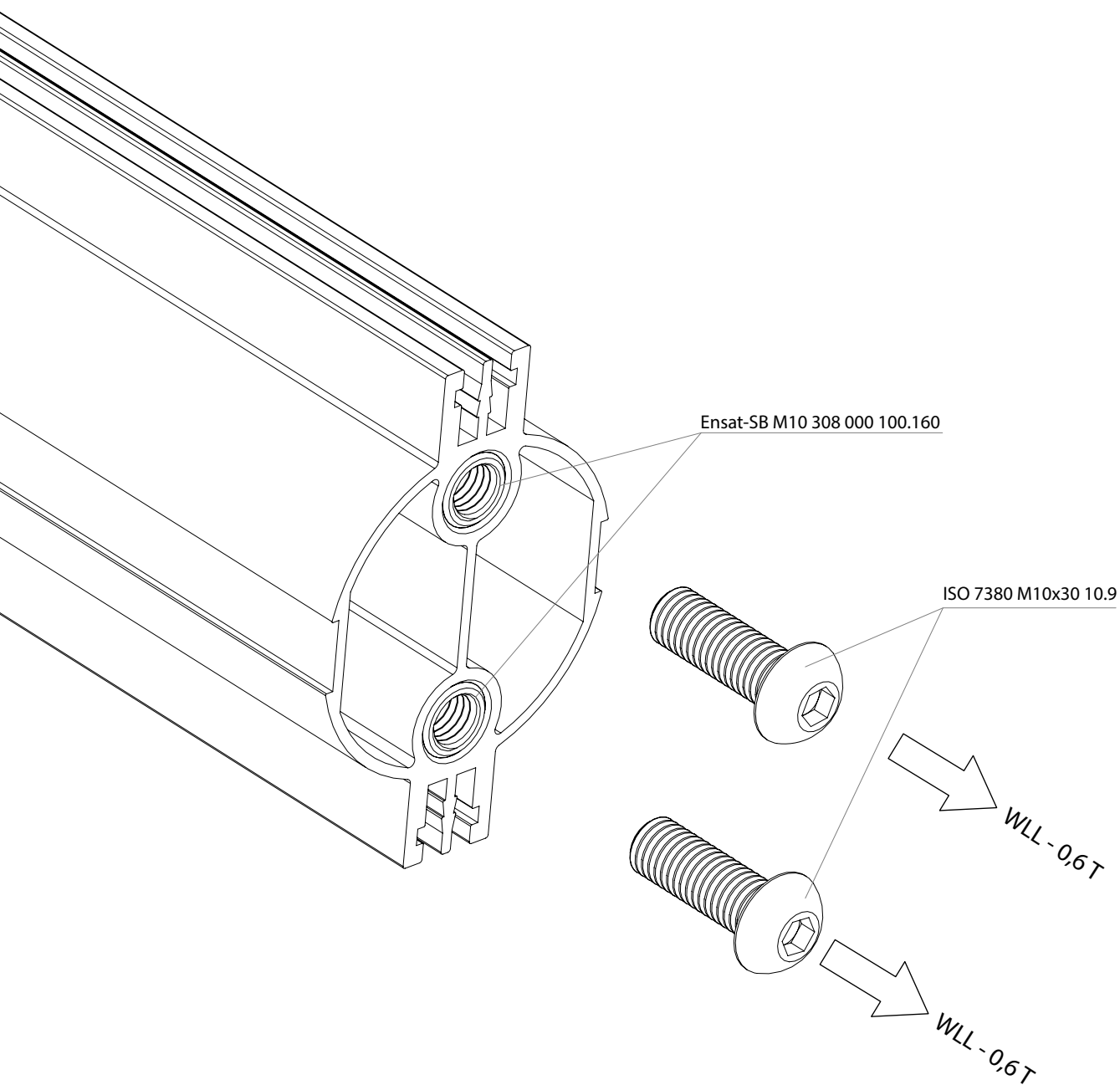
2.1 Extrusion

Material - Aluminum 6063-T5

Surface - Anodized with pre-shot blasting

Weight per 1 meter - 2.66 kg





Working load per one threaded connection M10:

WLL - 0,6 T

FoS by BL - 6 : 1

According to the results of tensile test No. 1 it was established:

- 2 threaded inserts Ensat-SB M10 were ripped out of the aluminum extrusion at the breaking load: BL - 7,02 T.
- The breaking load per one threaded connection: BL - 3,5 T.

2.2 Connectors

Material - Austenitic stainless steel 12X18H9TЛ (analog of AISI 321H, EN 1.4878)

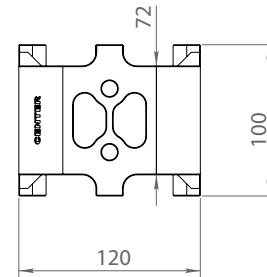
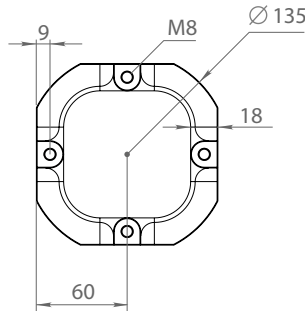
Technology - Precision investment casting

Surface - Shot blasting



C-C-60

Weight - 3,01 kg



According to the results of tensile test No. 1, it was found that the connector C-C-60 has a significantly greater factor of safety than other elements of the system, since after the destruction of the assembly, it was left without visible deformations and damage. The connector C-C-60 withstands the breaking load for this connection and the yield strength of the material is not reached.



C-R-60

Weight - 4,15 kg



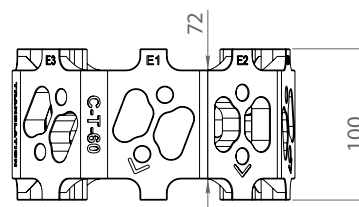
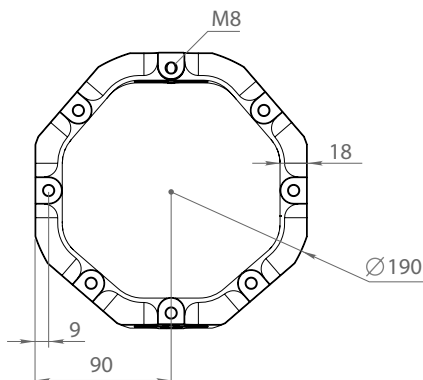
C-T-60

Weight - 4,15 kg



C-S-60

Weight - 4,31 kg



The connector C-T-60 is selected for static analysis. It's characteristics are identical to C-R-60 and C-S-60 connectors.

According to the results of tensile test No. 1, it was found that the connector C-T-60 withstands the breaking load for this connection, but the yield strength (deformation) is reached, as well as the local tensile strength of the material (crack).

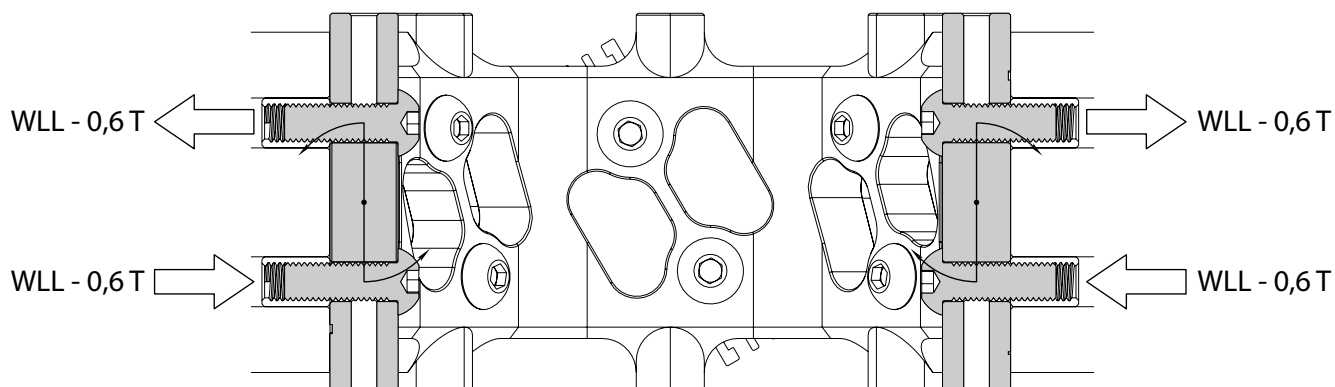


Torque

Torque appear in the connectors C-R-60, C-T-60, C-S-60 during the operation of the structure, when the pairs of threaded connections move in different directions.

Working load per one threaded connection:

WLL - 0,6 T



Combinations of torques

Possible combinations of torques in the connectors C-R-60, C-T-60, C-S-60 during the operation of the structure:

- The static analysis No. 1 considers the combination of torques shown in Figure 1.
- The static analysis No. 2 considers the combination of torques shown in Figure 2.

FoS by YS = 2 *

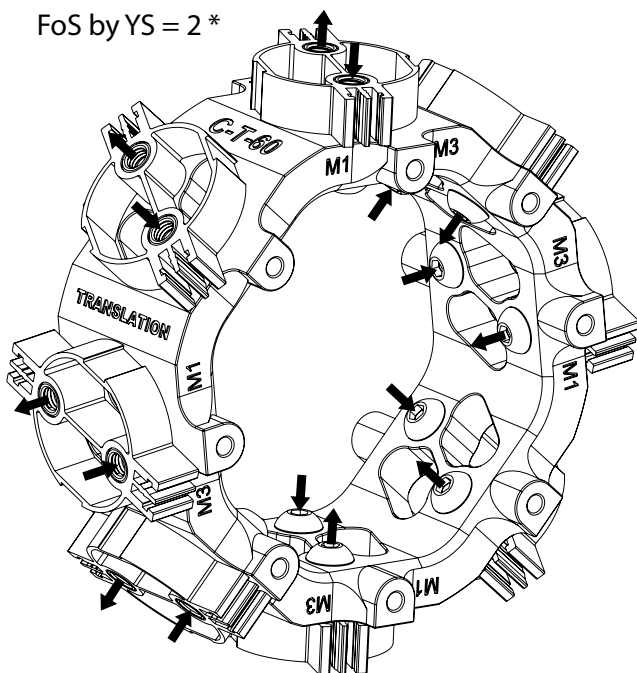


Figure 1

FoS by YS = 1,6 *

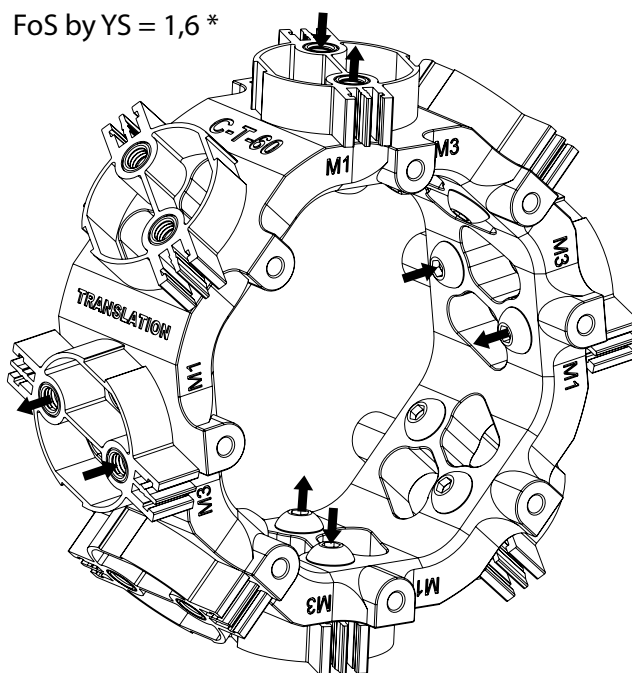


Figure 2

* Installing of connector covers CC2-RTS-60 increases the load bearing capacity and reduces the deformability of connectors.

2.3 Connector Foot

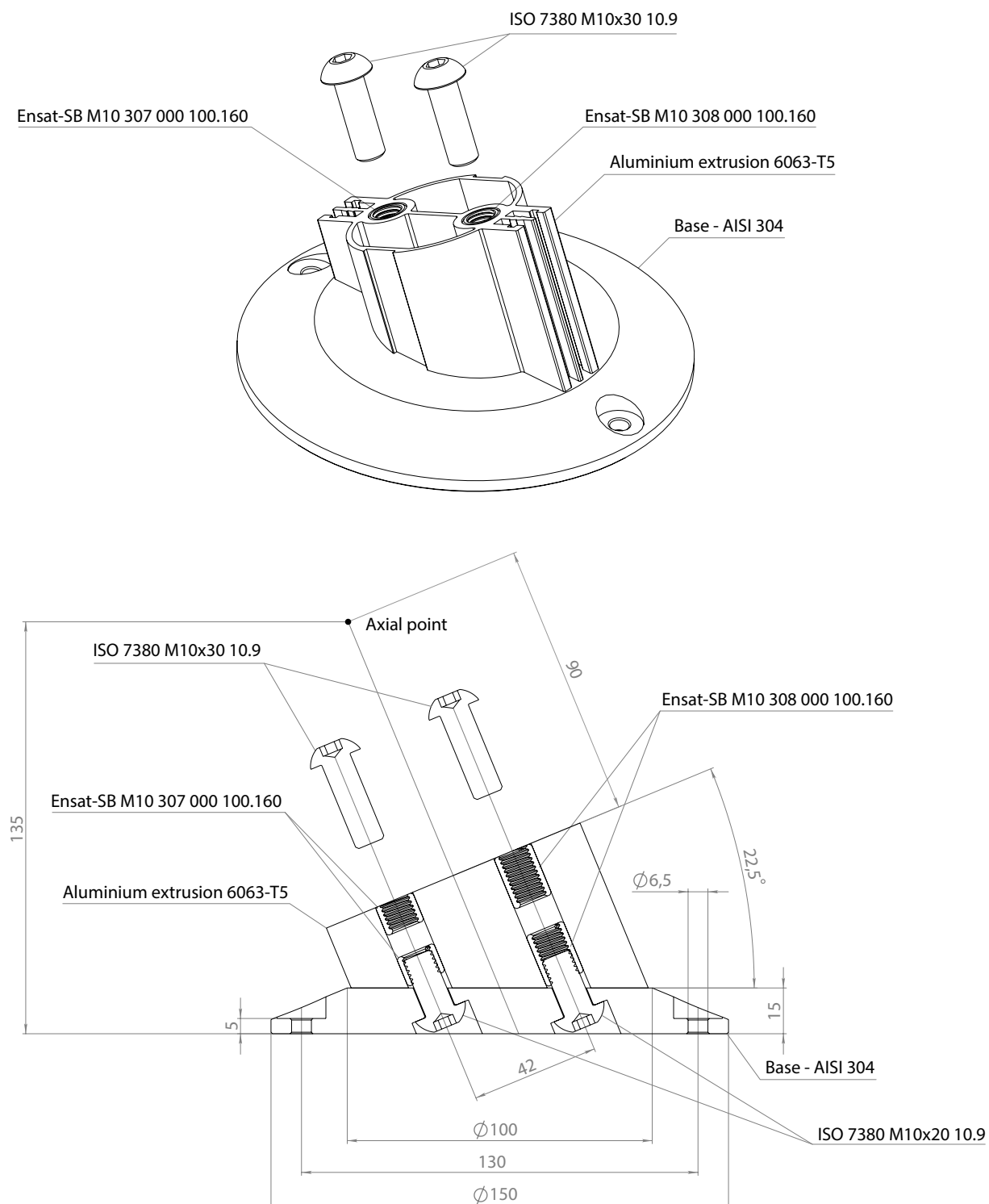
CF1-60

Materials:

Base - Austenitic stainless steel AISI 304 (analog of 08X18H10, EN 1.4301)

Extrusion - Aluminum 6063-T5

Weight - 1,58 kg



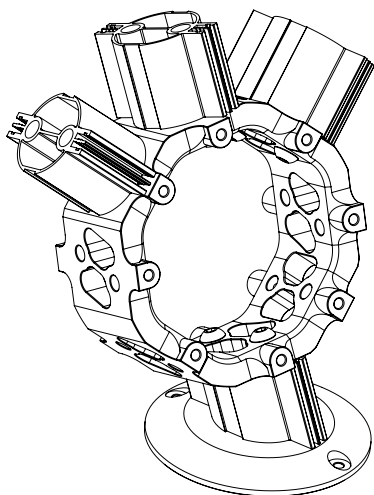


Working loads

The connector foot CF1-60 can be compressed (by weight of structure) or tensioned (by wind load). The working load depends on the number of aluminium extrusions attached to the connector. The main load is perceived by three aluminium extrusions located opposite the support.

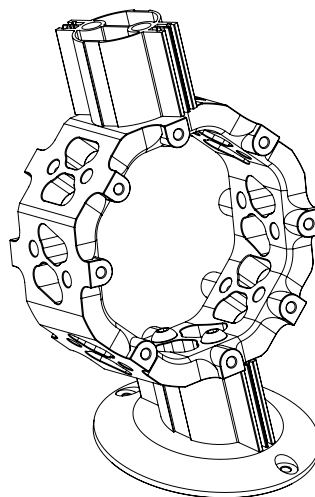
Compression

- Compressive working load according to the results of static analysis No. 3 is shown in Figure 3.
- Compressive working load according to the results of static analysis No. 4 is shown in Figure 4.



WLL - 0,8 T
FoS by YS = 2 *

Figure 3

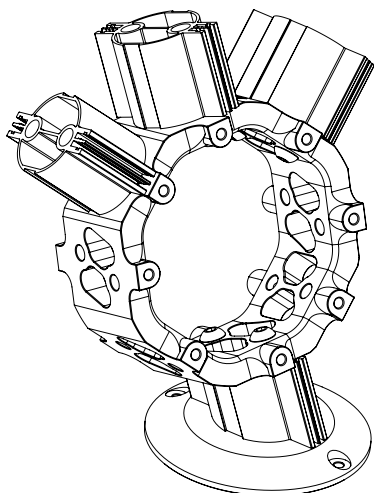


WLL - 0,3 T
FoS by YS = 2 *

Figure 4

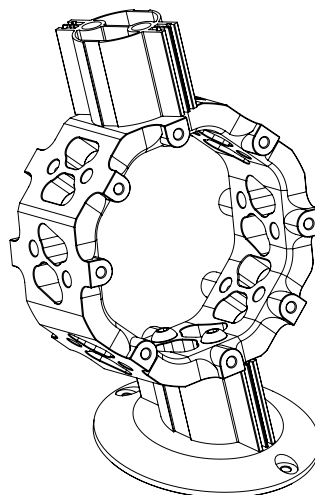
Tension

- Tensile working load according to the results of static analysis No. 5 is shown in Figure 5.
- Tensile working load according to the results of static analysis No. 6 is shown in Figure 6.



WLL - 0,6 T
FoS by YS = 2 *

Figure 5



WLL - 0,3 T
FoS by YS = 1,8 *

Figure 6

* Installing of connector covers CC2-RTS-60 increases the load bearing capacity and reduces the deformability of connectors.

2.4 Connector Covers

Material - Sheet carbon steel 08ПC (analog of AISI 1008, EN 1.0330) *

Surface - Powder coating

Thickness - 3 mm **

Fasteners - screws DIN 912 M8x16 8.8

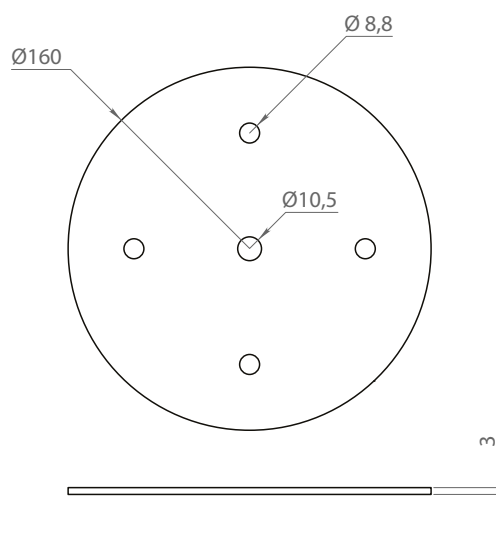


* Connector covers can be made of high-strength sheet steel on request.

** Connector covers can be made 3-8 mm thick on request.

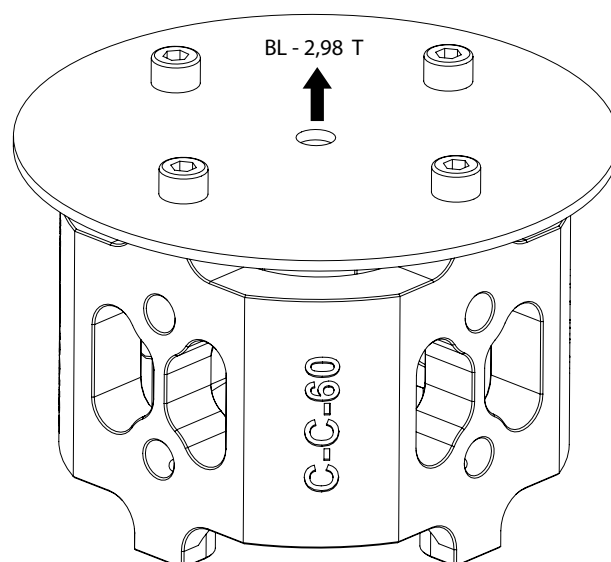
CC2-C-60

Weight - 0,46 kg



WLL - 0,3 T

FoS by BL - 10 : 1

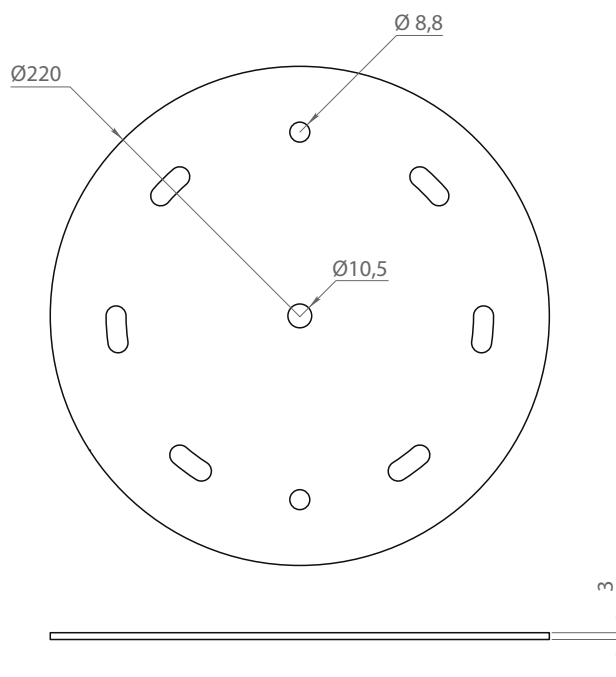


According to the results of tensile test No. 2,
it was found that the breaking load for the central mounting hole is: BL - 2,98 T.



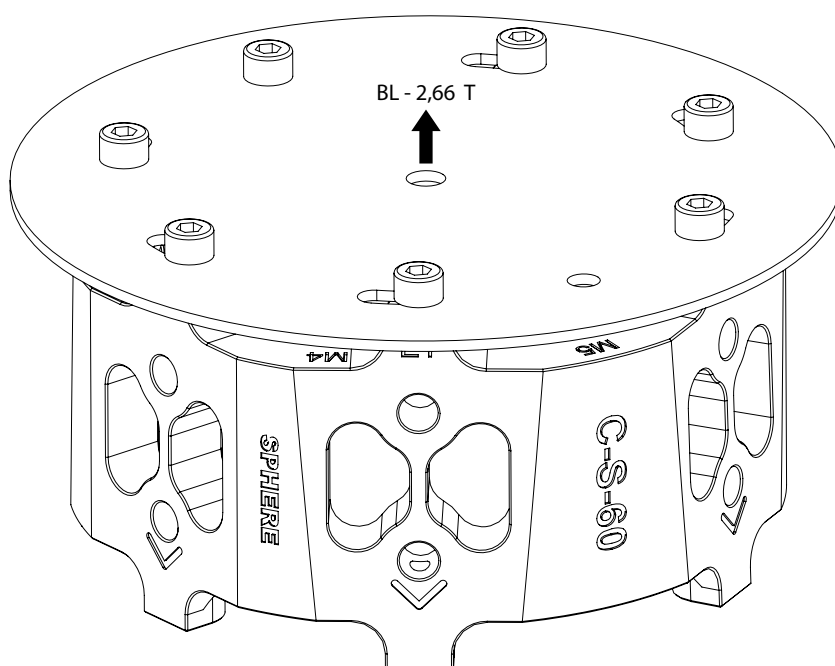
CC2-RTS-60

Weight - 0,85 kg



WLL - 0,3 T

FoS by BL - 9 : 1



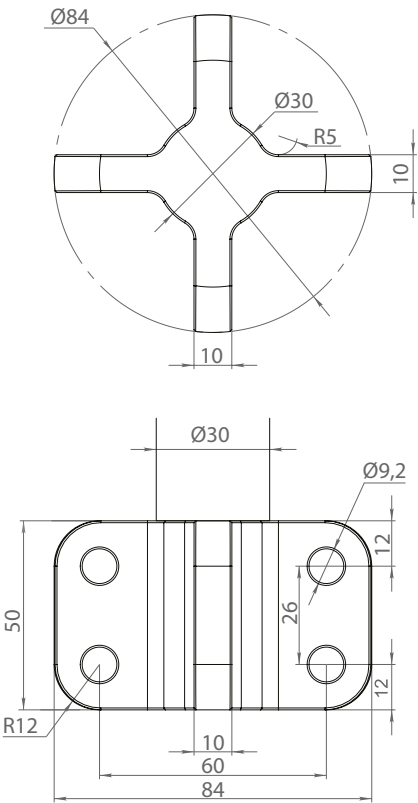
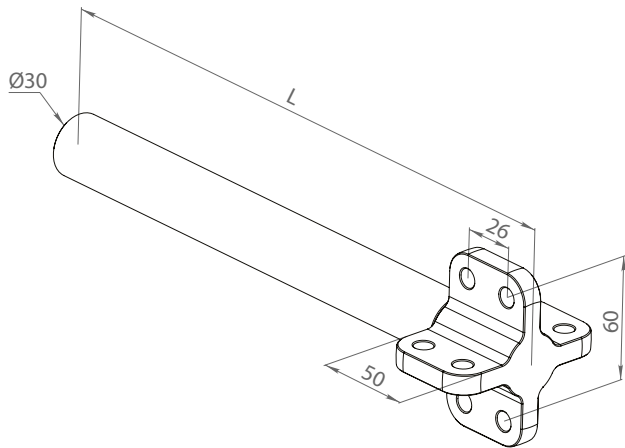
According to the results of tensile test No. 3,
it was found that the breaking load for the central mounting hole is: BL - 2,66 T.

2.5 Static Elements

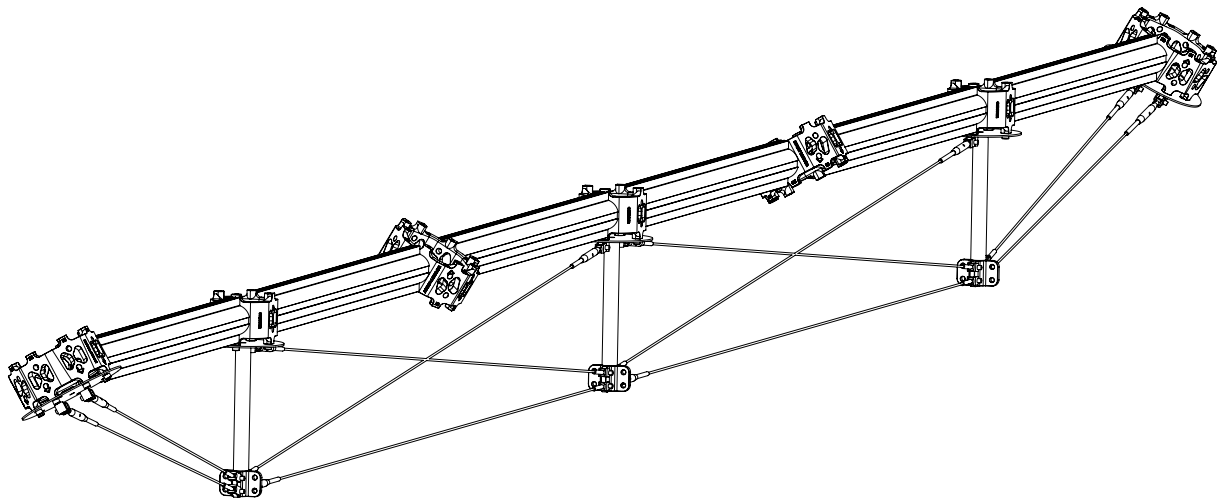
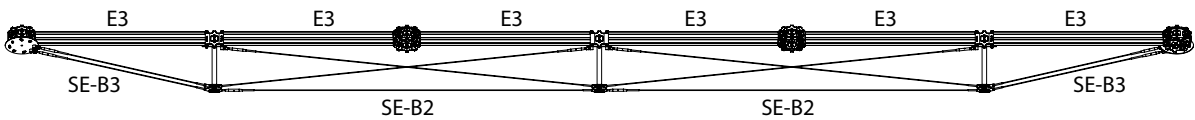
2.5.1 Truss consoles

Material - Austenitic stainless steel AISI 304 (analog of 08X18H10, EN 1.4301)

Fastener - Screw ISO 7380 M10x20 10.9



Axial size	A - 180 cm	A - 240 cm	A - 300 cm	A - 360 cm
Article	SE-C30	SE-C40	SE-C50	SE-C60
Length L	300 mm	400 mm	500 mm	600 mm
Weight	2,05 kg	2,61 kg	3,18 kg	3,74 kg





2.5.2 Braces

Material - Austenitic stainless steel AISI 316 (analog of 03X17H14M3, EN 1.4401)

Cable diameter - Ø 5 mm *

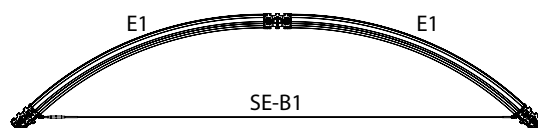
* It is possible to manufacture braces with a cable diameter Ø 4 mm on request.

Elements of braces



Loads	Ø 4 mm	Ø 5 mm
BL	1,34 T	2,1 T
WLL	0,27 T	0,42 T
FoS by BL	5 : 1	5 : 1

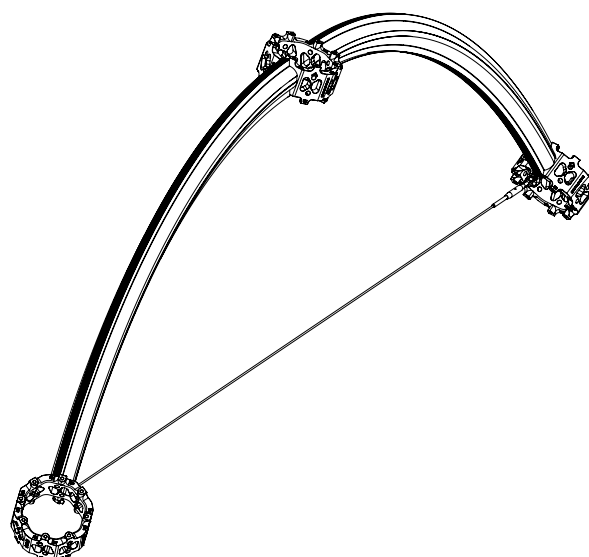
DIN 3053 Wire rope for shrouds 1X19



ART. 8275 Turnbuckle with fork and terminal **



ART. 8280 Fork terminal



ART. 8483 Toggle-terminal

** Avoid strong pre-tension of the turnbuckle, as this can significantly reduce the workload and lead to the destruction of the brace. It is recommended to lubricate the threads of the turnbuckle with a special water-repellent grease so that the threads do not nip.

2.5.3 Brace Connection points

SE-BC1

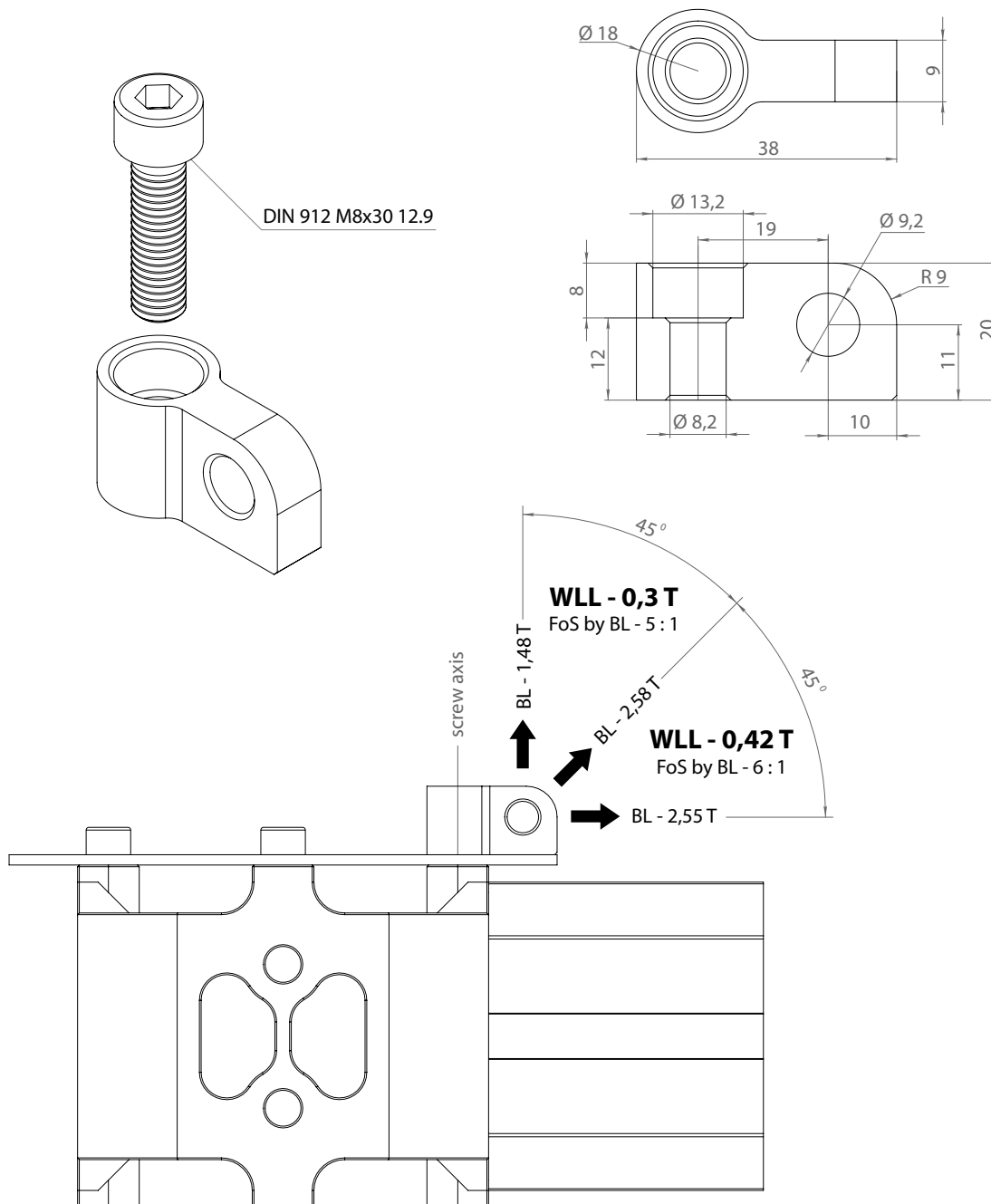
Material - Austenitic stainless steel AISI 304 * (analog of 08X18H10, EN 1.4301)

Weight - 0,05 kg

* Used cold drawn austenitic stainless steel AISI 304 with mechanical properties:

Yield strength - 560 MPa

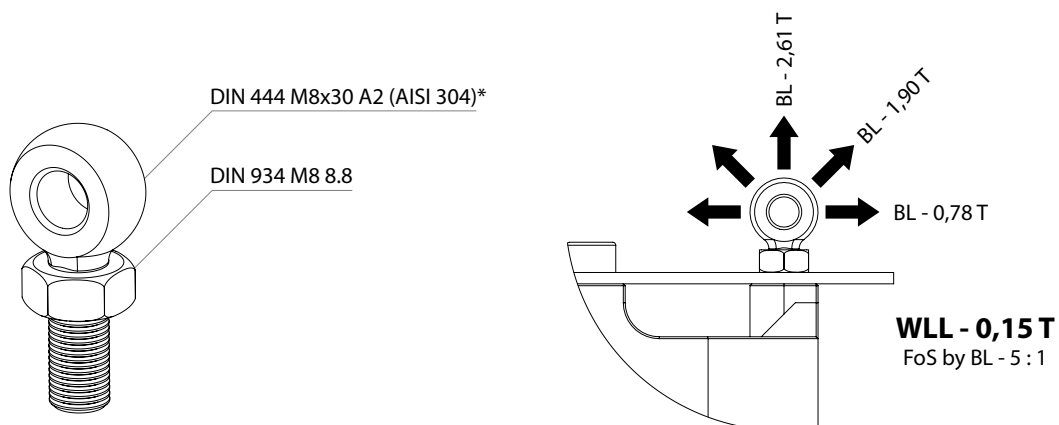
Tensile strength - 685 MPa



According to the results of tensile test No. 4, it was found that the breaking load at an angle of 90° to the screw axis is: BL - 2,55 T.
According to the results of tensile test No. 5, it was found that the breaking load at an angle of 45° to the screw axis is: BL - 2,58 T.
According to the results of tensile test No. 6, it was found that the breaking load in parallel to the screw axis direction is: BL - 1,48 T.



DIN 444

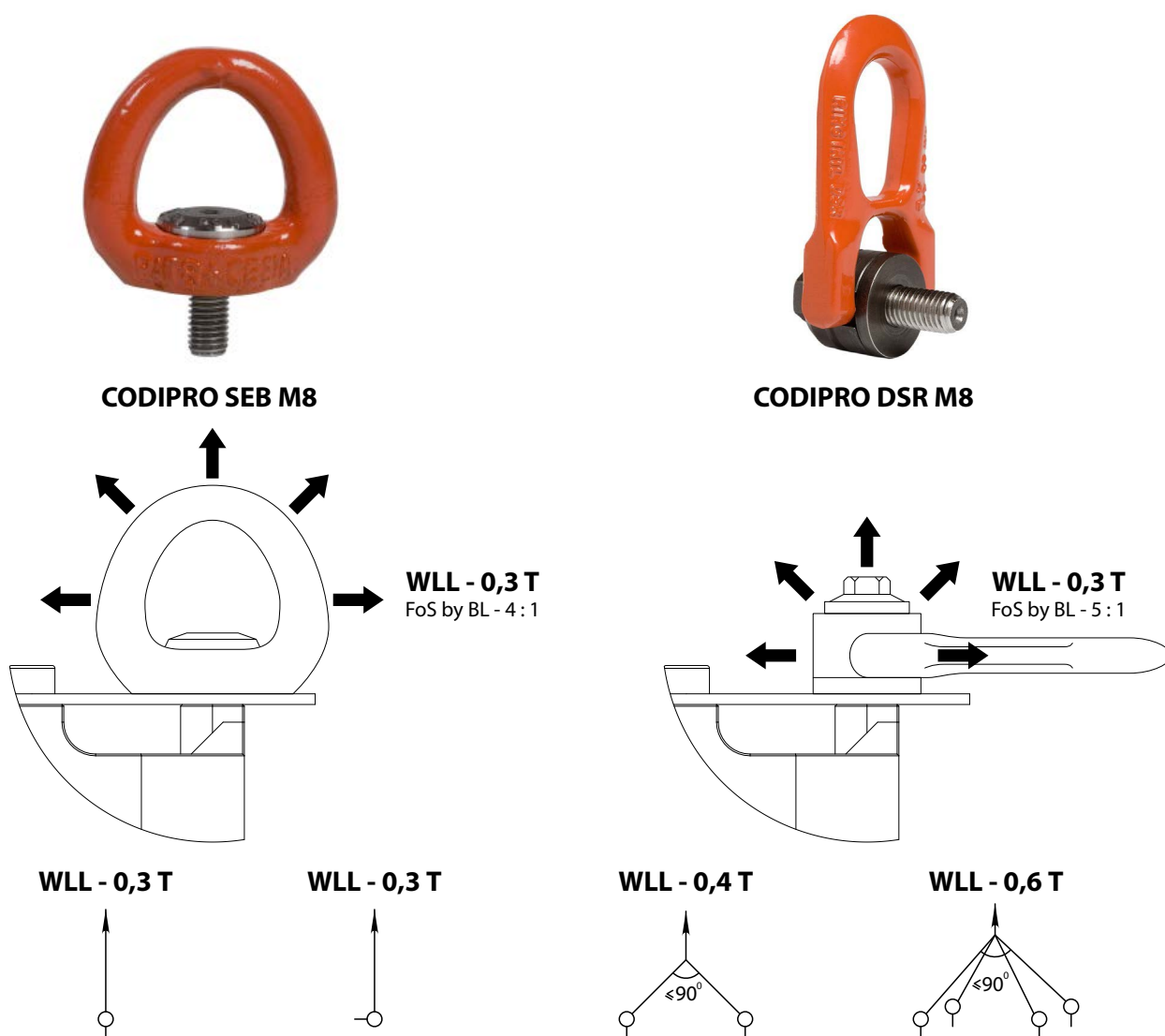


According to the results of tensile test No. 7, it was found that the breaking load at an angle of 90° to the screw axis is: BL - 0,78 T. According to the results of tensile test No. 8, it was found that the breaking load at an angle of 45° to the screw axis is: BL - 1,90 T. According to the results of tensile test No. 9, it was found that the breaking load in direction of screw axis is: BL - 2,61 T.

* DIN 444 M8x30 8.8 available on request.

2.5.4 Suspension points

As suspension points, we recommend to use eye bolts M8 CODIPRO** or analogues certified for lifting in all directions .

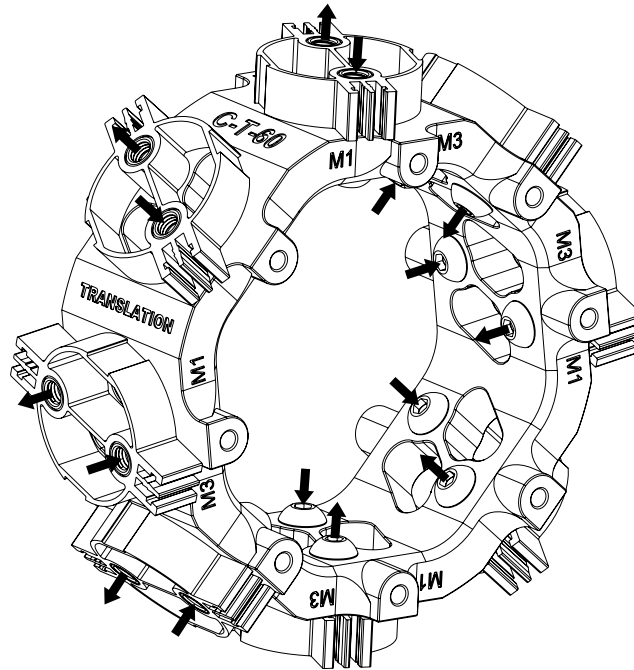


3. Static analysis of elements

3.1 Static analysis No. 1

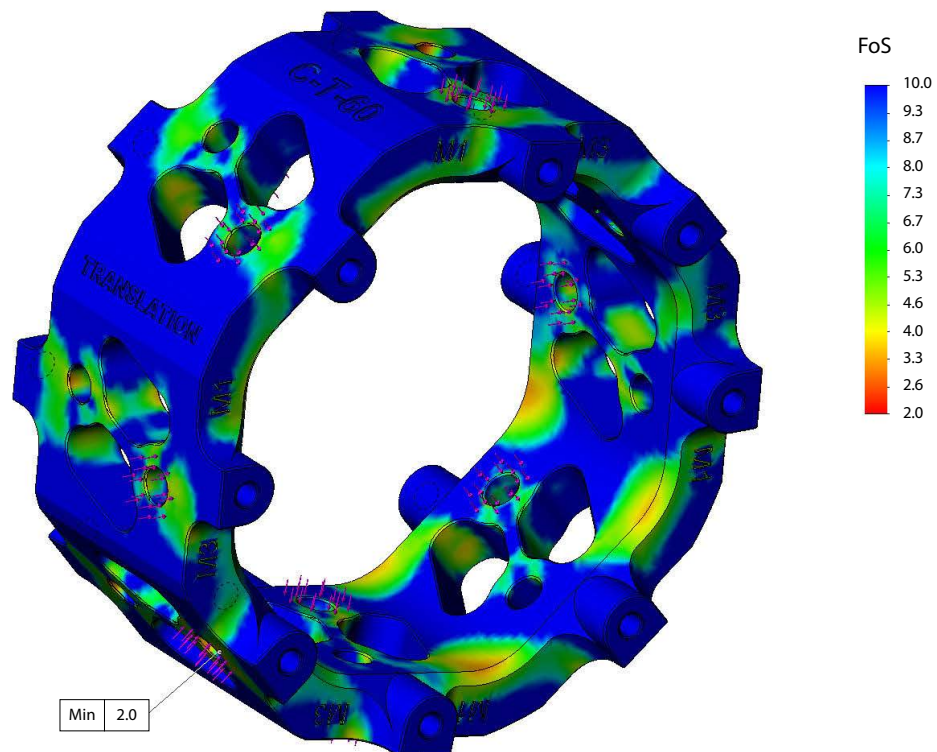
The purpose of the analysis is to check the factor of safety of the connector C-T-60 when exposed to a combination of torques.

External loads:  6 kN per one fixing hole



Allocation of factor of safety

Minimal FoS by YS = 2 *

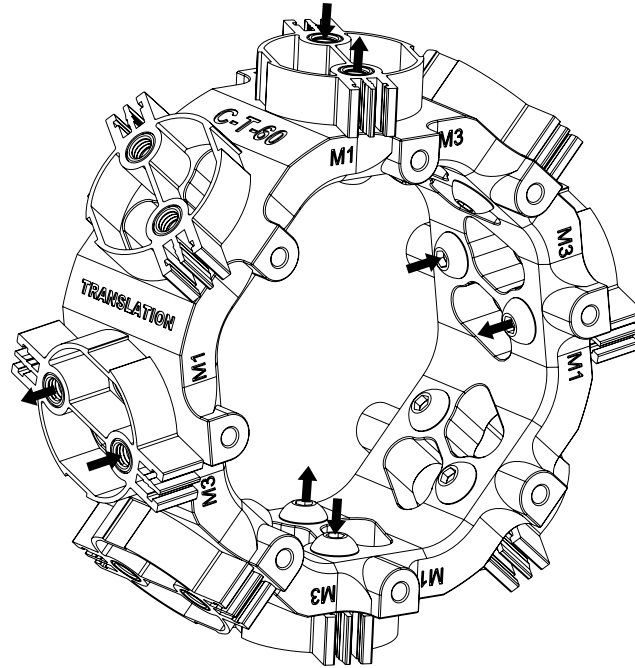




3.2 Static analysis No. 2

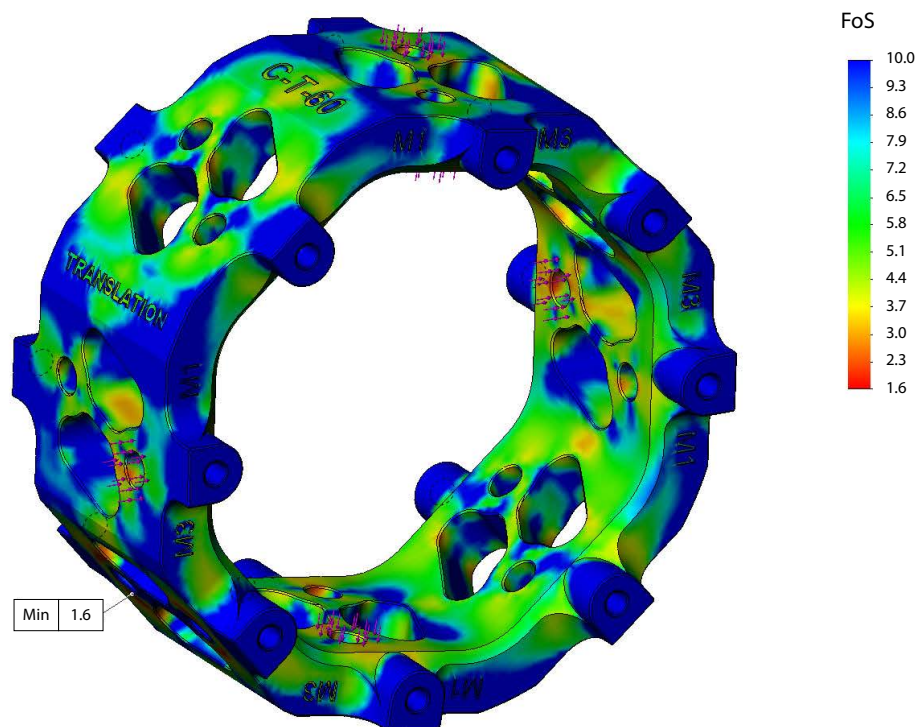
The purpose of the analysis is to check the factor of safety of the connector C-T-60 when exposed to a combination of torques.

External loads:  6 kN per one fixing hole



Allocation of factor of safety

Minimal FoS by YS = 1,6 *

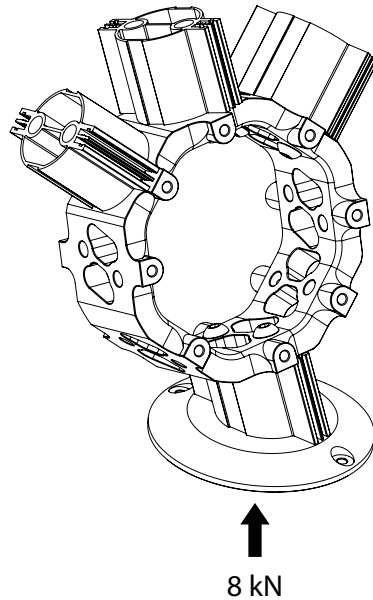


* Installing of connector covers CC2-RTS-60 increases the load bearing capacity and reduces the deformability of connectors.

3.3 Static analysis No. 3

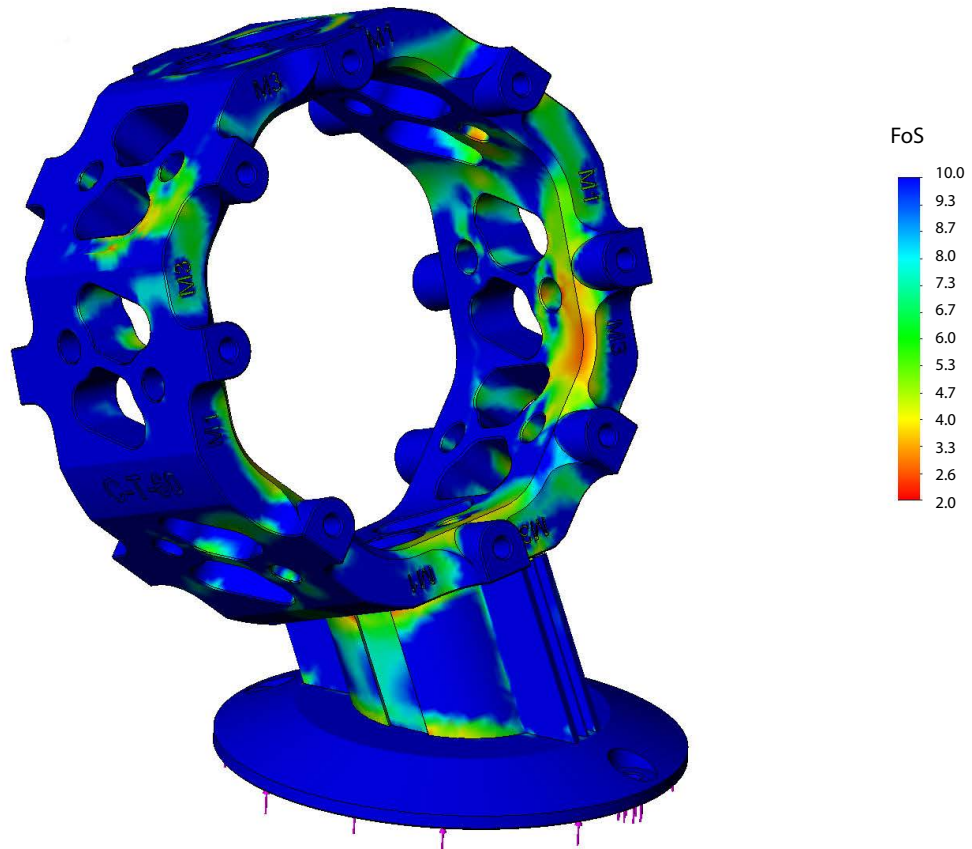
The purpose of the analysis is to check the factor of safety of the connector foot CF1-60 when exposed to a compressive load.

External load:  8 kN per the base of connector foot CF1-60



Allocation of factor of safety

Minimal FoS by YS = 2 *

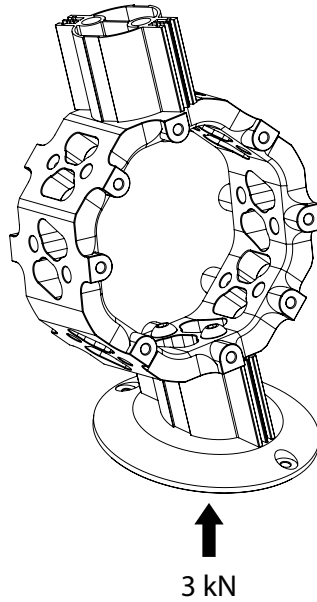




3.4 Static analysis No. 4

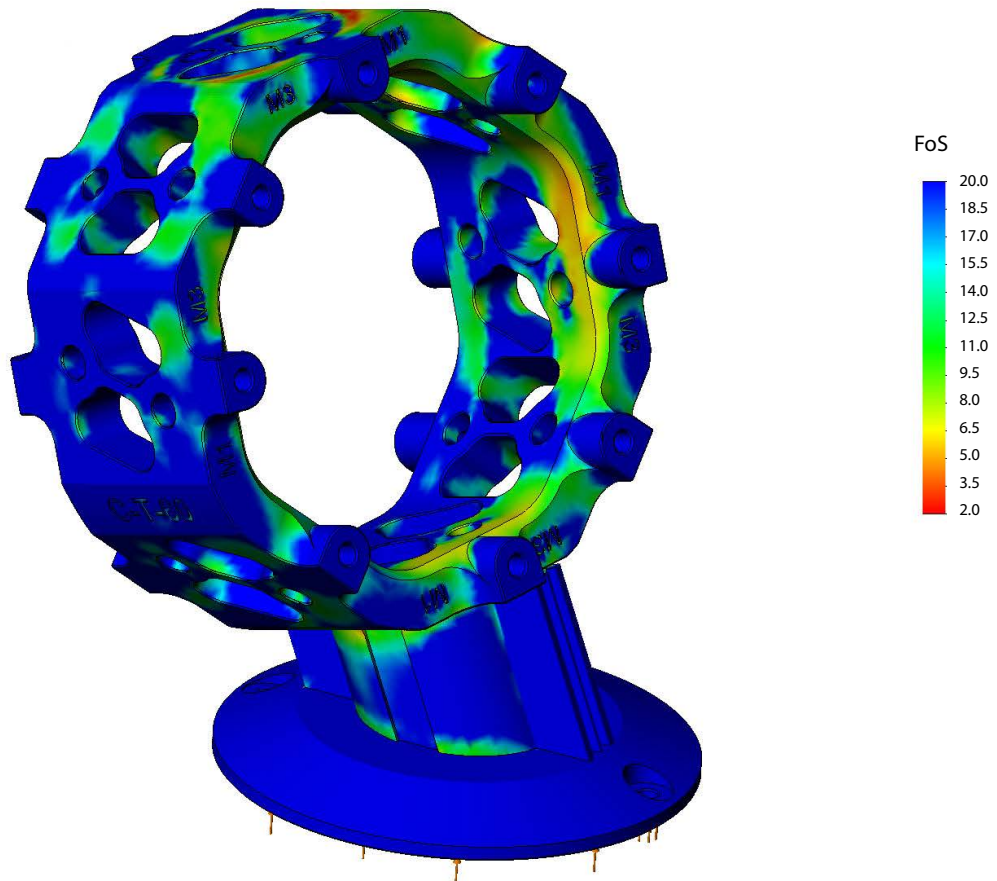
The purpose of the analysis is to check the factor of safety of the connector foot CF1-60 when exposed to a compressive load.

External load: ➡ 3 kN per the base of connector foot CF1-60



Allocation of factor of safety

Minimal FoS by YS = 2 *

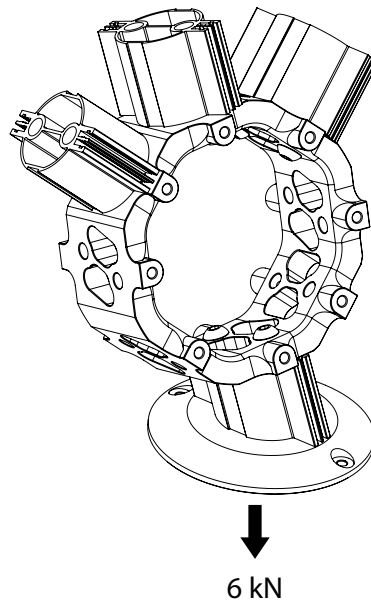


* Installing of connector covers CC2-RTS-60 increases the load bearing capacity and reduces the deformability of connectors.

3.5 Static analysis No. 5

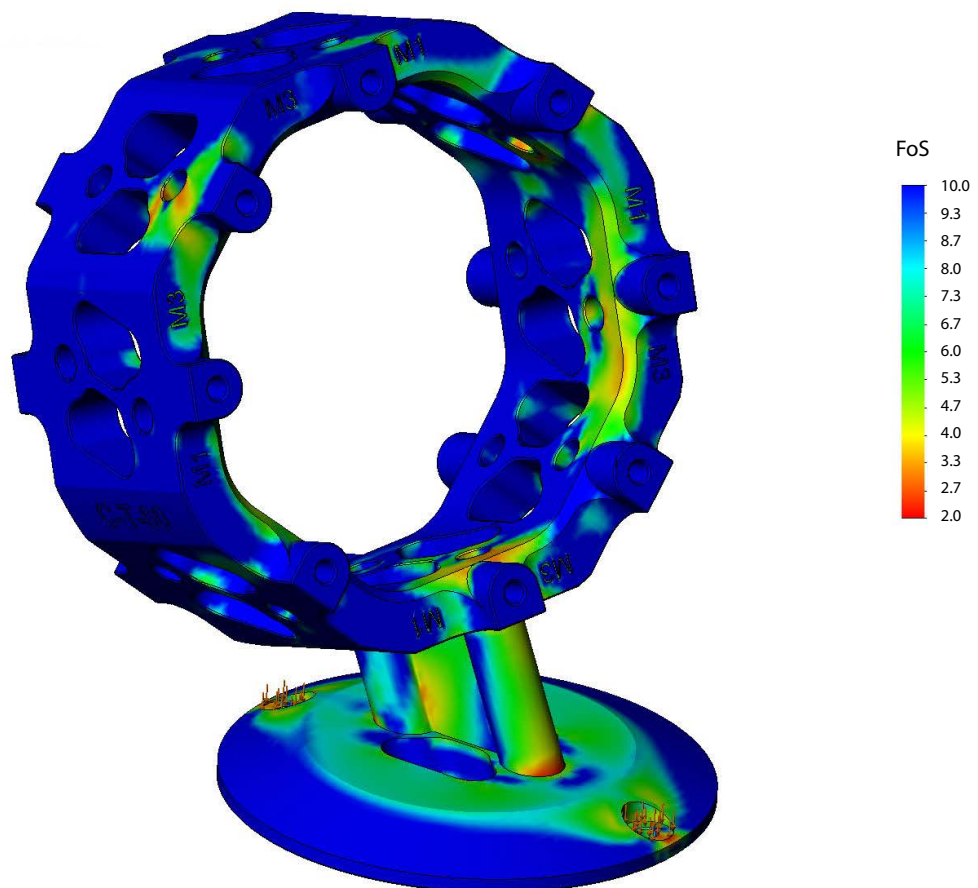
The purpose of the analysis is to check the factor of safety of the connector foot CF1-60 when exposed to a tensile load.

External load:  6 kN per two mounting holes of the connector foot CF1-60



Allocation of factor of safety

Minimal FoS by YS = 2 *

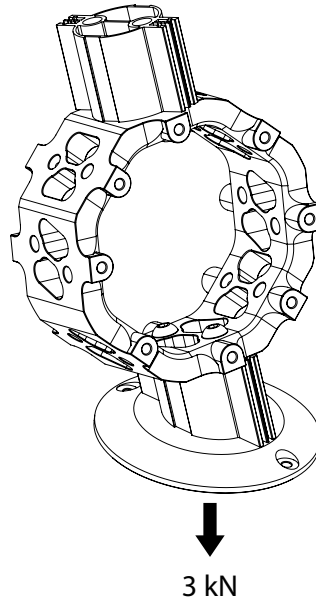




3.6 Static analysis No. 6

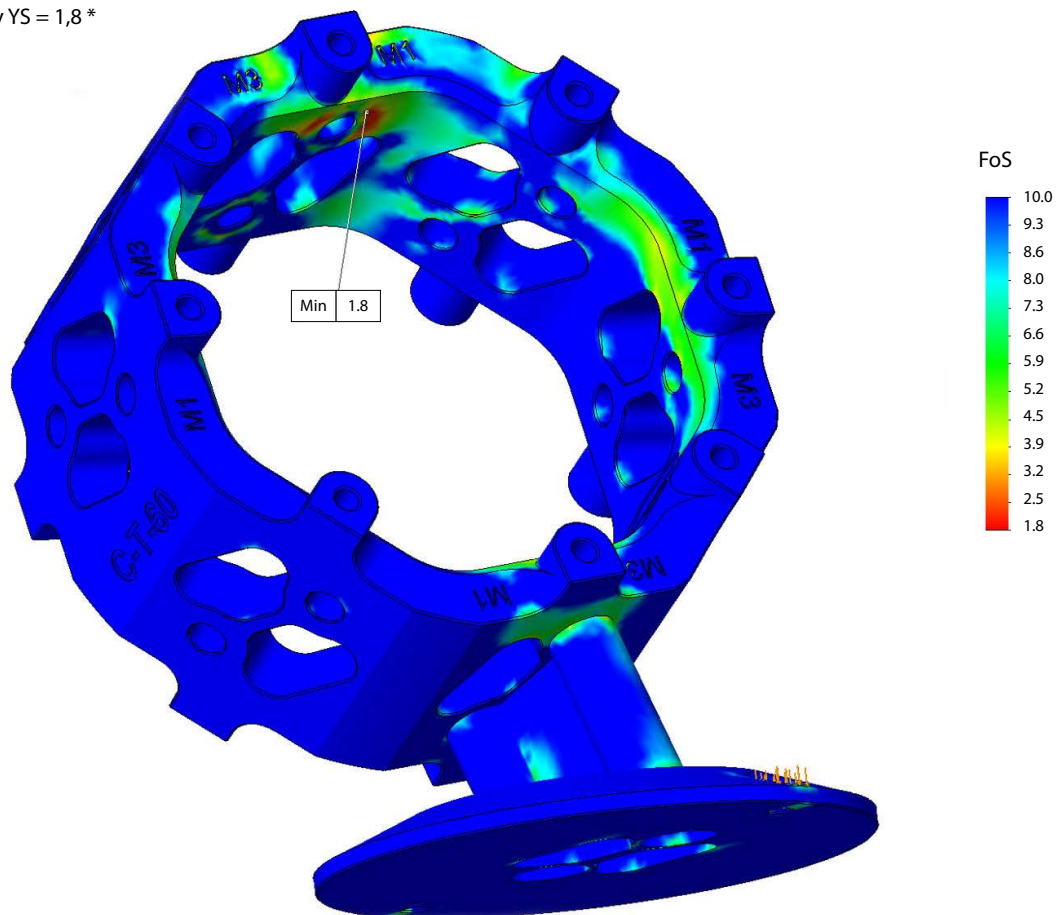
The purpose of the analysis is to check the factor of safety of the connector foot CF1-60 when exposed to a tensile load.

External load: ➡ 3 kN per two mounting holes of the connector foot CF1-60



Allocation of factor of safety

Minimal FoS by YS = 1,8 *



* Installing of connector covers CC2-RTS-60 increases the load bearing capacity and reduces the deformability of connectors.

4. Tensile tests

4.1 Tensile test No. 1

- The purpose of the test is to determine the breaking load for the aluminium extrusion attached to connectors.
- The INFINITYCONStevo sample was provided for testing, consisting of:
1 C-T-60, 1 C-C-60, 1 E3-60-180, 4 ISO 7380 M10x30 10.9 (photo 1).



photo 1

Results

- Destruction occurred at a load: **BL - 7,02 T** (photo 2).
- 2 threaded inserts Ensaf-SB M10 were ripped out of aluminium extrusion (photo 3).
- The connector C-T-60 is severely deformed (photo 4) and cracked (photo 5), but this did not lead to its destruction.
- The connector C-C-60 has no visible deformations and damage.
- Screws ISO 7380 M10x30 10.9 have no visible deformation and damage.



photo 2



photo 3



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photo 4



photo 5

4.2 Tensile test No. 2

- The purpose of the test is to determine the breaking load for the central mounting hole of the connector cover CC2-C-60.
- The INFINITYCONSTEvo sample was provided for testing, consisting of:
 - 1 C-C-60, 1 CC2-C-60, 4 DIN 912 M8x16 8.8, 1 CODIPRO SEB M10, 1 DIN 934 M10 8.8 (photo 6).



photo 6

Results

- Destruction occurred at a load: **BL - 2,98 T** (photo 7).
- The connector cover CC2-C-60 is destroyed and severely deformed (photo 8).
- The eye bolt CODIPRO SEB M10 has no visible deformations and damage.
- The nut DIN 934 M10 8.8 has no visible deformations and damage.
- The connector C-C-60 has no visible deformations and damage.
- Screws DIN 912 M8x16 8.8 have no visible deformations and damage.

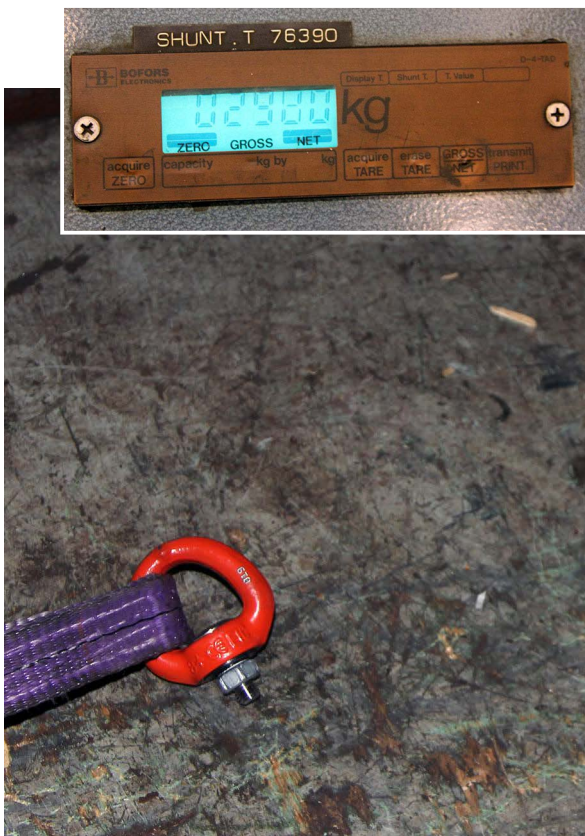


photo 7



photo 8



4.3 Tensile test No. 3

- The purpose of the test is to determine the breaking load for the central mounting hole of the connector cover CC2-RTS-60.
- The INFINITYCONSTevo sample was provided for testing, consisting of:
1 C-S-60, 1 CC2-RTS-60, 7 DIN 912 M8x16 8.8, 1 CODIPRO SEB M10, 1 DIN 934 M10 8.8 (photo 9).



photo 9

Results

- Destruction occurred at a load: **BL - 2,66 T** (photo 10).
- The connector cover CC2-RTS-60 is destroyed and severely deformed (photo 11).
- The eye bolt CODIPRO SEB M10 has no visible deformations and damage.
- The nut DIN 934 M10 8.8 has no visible deformations and damage.
- The connector C-S-60 has no visible deformations and damage.
- Screws DIN 912 M8x16 8.8 have no visible deformations and damage.

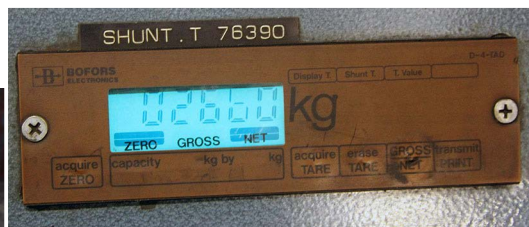


photo 10

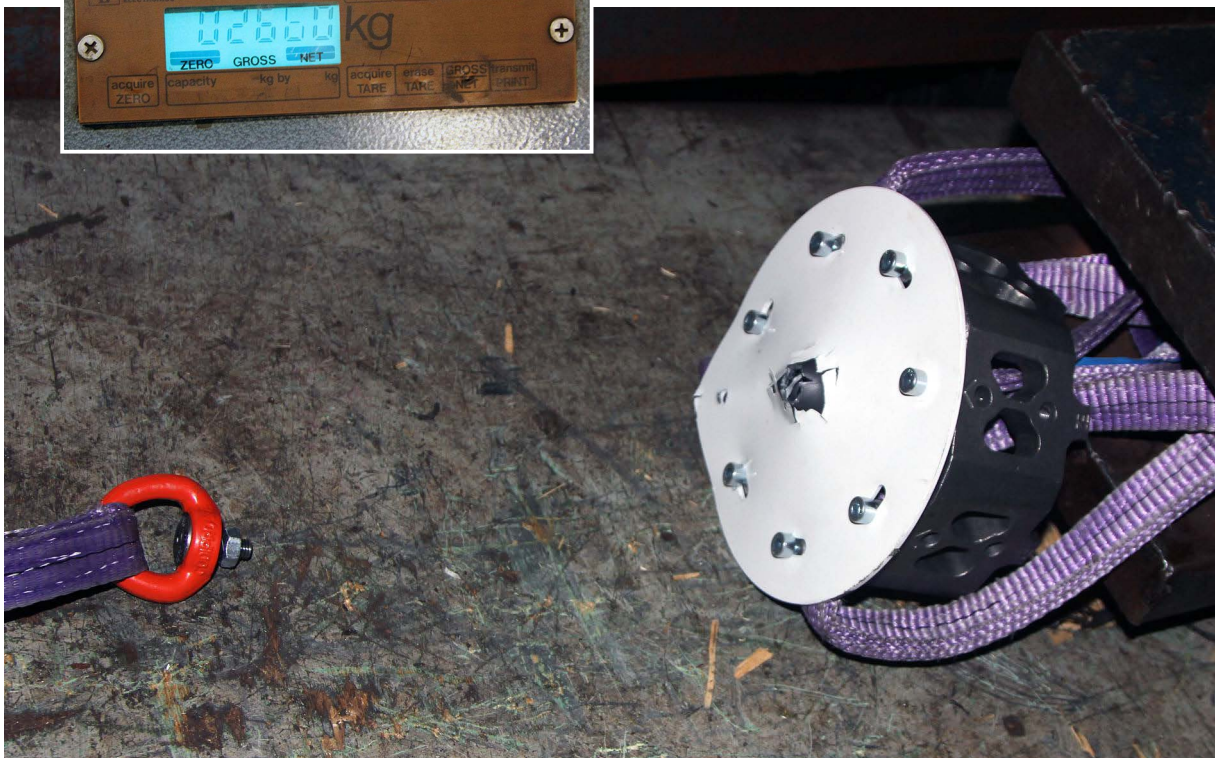


photo 11

4.4 Tensile test No. 4

- The purpose of the test is to determine the breaking load for the brace connection SE-BC1 at an angle of 90° to the screw axis.
- The INFINITYCONSTEvo sample was provided for testing, consisting of:
 - 1 C-C-60, 1 CC2-C-60, 1 SE-BC1, 1 DIN 912 M8x30 12.9, 3 DIN 912 M8x16 8.8 (photo 12).

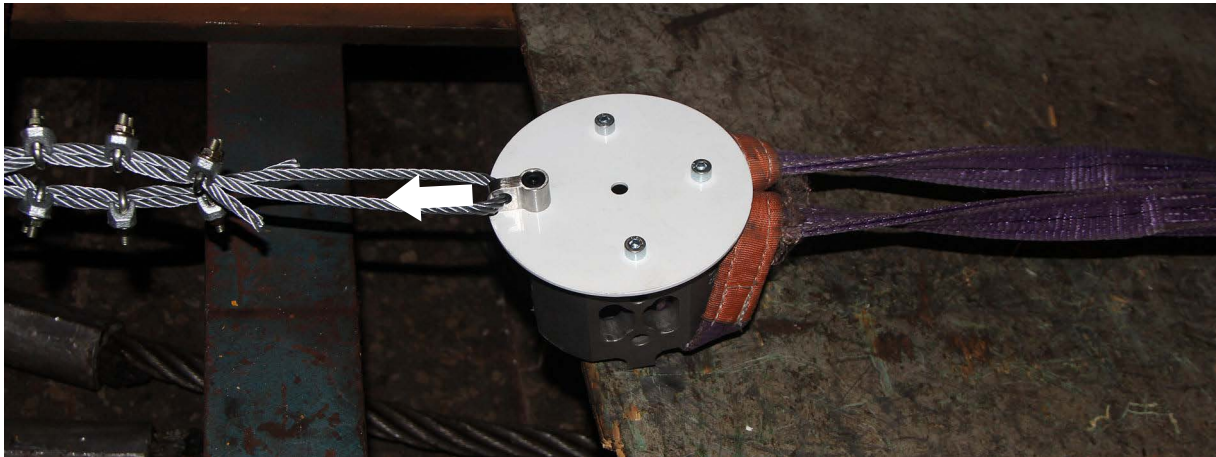


photo 12

Results

- Destruction occurred at a load: **BL - 2,55 T** (photo 13).
- The fixing screw DIN 912 M8x30 12.9 is destroyed (photo 14).
- The brace connection SE-BC1 has no visible deformation and damage.
- The connector cover CC2-C-60 has a slight deformation at the base of the SE-BC1.
- The connector C-C-60 has no visible deformations and damage.
- Screws DIN 912 M8x16 8.8 have no visible deformations and damage.

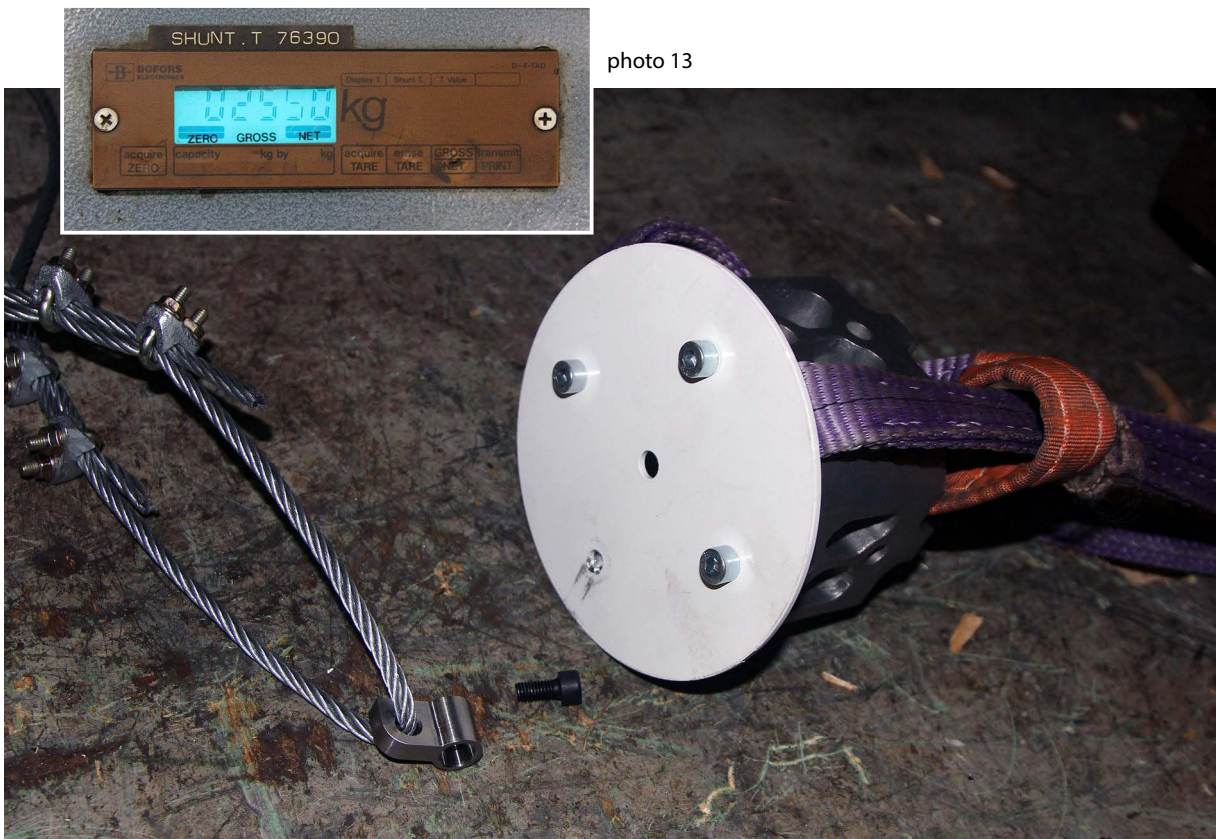


photo 13



photo 14



4.5 Tensile test No. 5

- The purpose of the test is to determine the breaking load for the brace connection SE-BC1 at an angle of 45° to the screw axis.
- The INFINITYCONSTevo sample was provided for testing, consisting of:
1 C-C-60, 1 CC2-C-60, 1 SE-BC1, 1 DIN 912 M8x30 12.9, 2 DIN 912 M8x16 8.8 (photo 15).



photo 15

Results

- Destruction occurred at a load: **BL - 2,58 T** (photo 16).
- The fixing screw DIN 912 M8x30 12.9 is destroyed (photo 17).
- The brace connection SE-BC1 has no visible deformation and damage.
- The connector cover CC2-C-60 has a slight deformation at the base of the SE-BC1.
- The connector C-C-60 has no visible deformations and damage.
- Screws DIN 912 M8x16 8.8 have no visible deformations and damage.

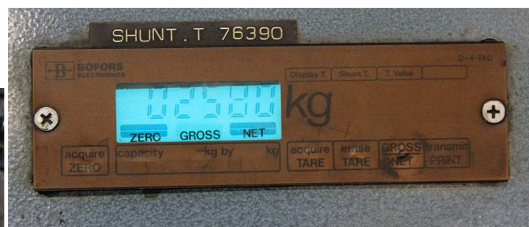


photo 16



photo 17

4.6 Tensile test No. 6

- The purpose of the test is to determine the breaking load for the brace connection SE-BC1 in parallel to the screw axis direction.
- The INFINITYCONSTEvo sample was provided for testing, consisting of:
 - 1 C-C-60, 1 CC2-C-60, 1 SE-BC1, 1 DIN 912 M8x30 12.9, 1 DIN 912 M8x16 8.8 (photo 18).



photo 18

Results

- Destruction occurred at a load: **BL - 1,48 T** (photo 19).
- The fixing screw DIN 912 M8x30 12.9 is destroyed (photo 20).
- The brace connection SE-BC1 has a slight deformation at the base.
- The connector cover CC2-C-60 has a slight deformation at the base of the SE-BC1.
- The connector C-C-60 has no visible deformations and damage.
- The screw DIN 912 M8x16 8.8 has no visible deformations and damage.

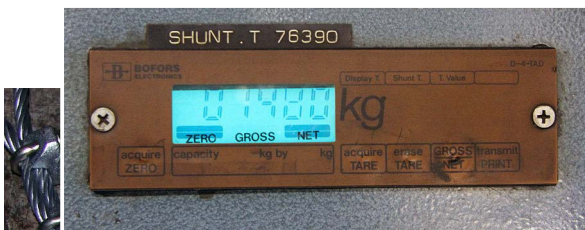


photo 19



photo 20



4.7 Tensile test No. 7

- The purpose of the test is to determine the breaking load for the eye bolt DIN 444 M8x30 A2 at an angle of 90° to the screw axis.
- The INFINITYCONSTeVo sample was provided for testing, consisting of:
 - 1 C-C-60, 1 CC2-C-60, 1 DIN 444 M8x30 A2, 1 DIN 934 M8 8.8, 3 DIN 912 M8x16 8.8 (photo 21).

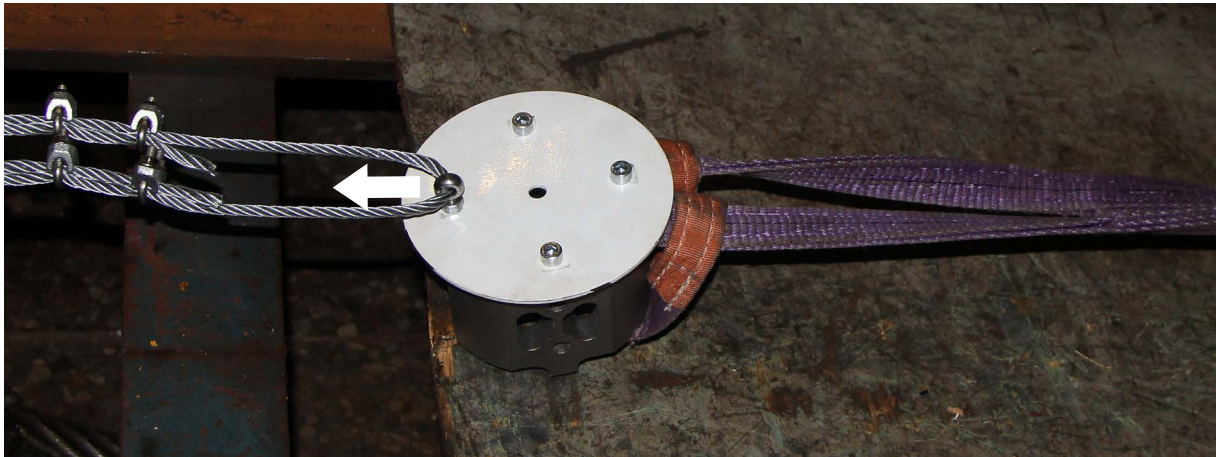


photo 21

Results

- Destruction occurred at a load: **BL - 0,78 T** (photo 22).
- The eye bolt DIN 444 M8x30 A2 is destroyed (photo 23).
- The connector cover CC2-C-60 has a slight deformation at the base of the nut DIN 934 M8 8.8.
- The nut DIN 934 M8 8.8 has no visible deformation and damage.
- The connector C-C-60 has no visible deformations and damage.
- Screws DIN 912 M8x16 8.8 have no visible deformations and damage.



photo 22

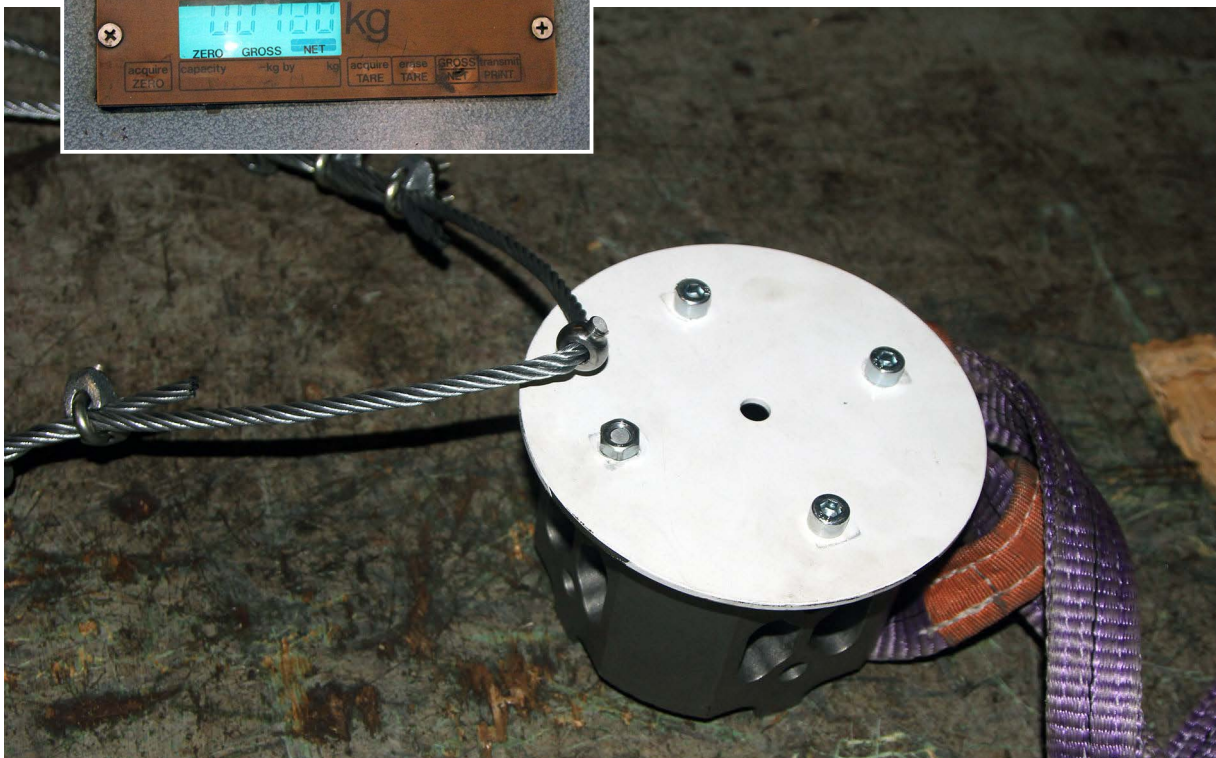


photo 23

4.8 Tensile test No. 8

- The purpose of the test is to determine the breaking load for the eye bolt DIN 444 M8x30 A2 at an angle of 45° to the screw axis.
- The INFINITYCONSTEvo sample was provided for testing, consisting of:
 - 1 C-C-60, 1 CC2-C-60, 1 DIN 444 M8x30 A2, 1 DIN 934 M8 8.8, 2 DIN 912 M8x16 8.8 (photo 24).



photo 24

Results

- Destruction occurred at a load: **BL - 1,90 T** (photo 25).
- The eye bolt DIN 444 M8x30 A2 is destroyed (photo 26).
- The connector cover CC2-C-60 has a slight deformation at the base of the nut DIN 934 M8 8.8.
- The nut DIN 934 M8 8.8 has no visible deformation and damage.
- The connector C-C-60 has no visible deformations and damage.
- Screws DIN 912 M8x16 8.8 have no visible deformations and damage.



photo 25



photo 26



4.9 Tensile test No. 9

- The purpose of the test is to determine the breaking load for the eye bolt DIN 444 M8x30 A2 in direction of screw axis.
- The INFINITYCONSTeVo sample was provided for testing, consisting of:
 - 1 C-C-60, 1 CC2-C-60, 1 DIN 444 M8x30 A2, 1 DIN 934 M8 8.8, 1 DIN 912 M8x16 8.8 (photo 27).



photo 27

Results

- Destruction occurred at a load: **BL - 2,61 T** (photo 28).
- The steel cable Ø-6,2mm is destroyed (photo 29).*
- The eye bolt DIN 444 M8x30 A2 and the nut DIN 934 M8 8.8 has no visible deformation and damage.
- The connector cover CC2-C-60 has no visible deformation and damage.
- The connector C-C-60 has no visible deformations and damage.
- The screw DIN 912 M8x16 8.8 has no visible deformations and damage.

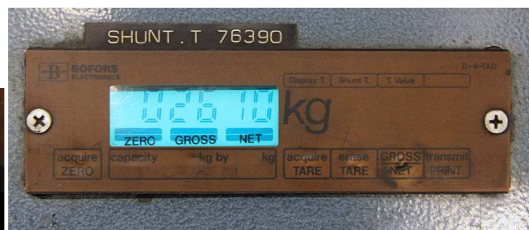


photo 28



* The test did not lead to the destruction of the eyebolt DIN 444 M8x30 A2, but the breaking load is recognized as the limit for this connection.

photo 29

ФЕДЕРАЛЬНОЕ АГЕНТСТВО ПО ТЕХНИЧЕСКОМУ РЕГУЛИРОВАНИЮ И МЕТРОЛОГИИ

Федеральное бюджетное учреждение
 “Государственный региональный центр стандартизации, метрологии
 и испытаний в г. Санкт-Петербурге и Ленинградской области”
 (ФБУ “Тест-С.-Петербург”)

наименование аккредитующей организации

АТТЕСТАТ № 434-4774-2015

Дата выдачи “13” ноября 2015 г.

Удостоверяется, что **Стенд для испытаний такелажа и средств**
 наименование и обозначение испытательного

крепления груза “Талурит А/В” Тип 100 Т зав.№ G.2
 оборудования, заводской или инвентарный номер

принадлежащий **ООО “Леотек-Грузохват”**
 наименование предприятия (организации), подразделения, центра

по результатам первичной (периодической) аттестации, протокол № 35
 от 13.11.2015 г., признан пригодным для использования при испытаниях

такелажа и средств крепления грузов
 наименование продукции

по РД 10-33-93 “Стропы грузовые общего назначения. Требования
 наименование и обозначение документов на методики испытаний (при необходимости)

к устройству и безопасной эксплуатации”

“Правила безопасности опасных производственных объектов, на которых
 используются подъёмные сооружения”

Периодичность аттестации 60 месяцев

Аттестат выдан
 За генерального директора
 ФБУ “Тест-С.-Петербург”
 М.П.

ФБУ “Тест-С.-Петербург”

Кол
 Т.М. Козлякова

“13” ноября 2015 г.

АКТ № 12
ОБ ИСПЫТАНИИ И ОСВИДЕТЕЛЬСТВОВАНИИ
OF TEST AND SURVEY

№ 336

«30» января 2019г

Результаты освидетельствования: / Survey results:

№	Отличительный номер или знак (маркировка) Distinguishing number or mark	Наименования изделия Description of product	Кол-во деталей Number of gears	Допустимая рабочая нагрузка, кН Safe working load (SWL), T.C.	Пробная нагрузка, кН Proof load (PL), T.C.	Разрывная нагрузка, т Breaking load (BL), T.C.	Вид нагрузки: 1-растяжение, 2-срез, 3-сжатие Type of load: 1-tension, 2-shearing, 3-compression
1	2	3	4	5	6	7	8
1	б/н	INFINITYCONTevo assembly 1 including: 1 C-T-60, 1 C-C-60, 1 E3-60-180, 4 ISO 7380 M10x30 10.9	1			7,02т	1
2	б/н	INFINITYCONTevo assembly 2 including: 1 C-C-60, 1 CC2-C-60, 4 DIN 912 M8x16 8.8, 1 CODIPRO SEB M10, 1 DIN 934 M10 8.8	1			2,98т	1
3	б/н	INFINITYCONTevo assembly 3 including: 1 C-S-60, 1 CC2-RTS-60, 7 DIN 912 M8x16 8.8, 1 CODIPRO SEB M10, 1 DIN 934 M10 8.8	1			2,66т	1
4	б/н	INFINITYCONTevo assembly 4 including: 1 C-C-60, 1 CC2-C-60, 1 SE-BC1, 1 DIN 912 M8x30 12.9, 3 DIN 912 M8x16 8.8	1			2,55т	1
5	б/н	INFINITYCONTevo assembly 5 including: 1 C-C-60, 1 CC2-C-60, 1 SE-BC1, 1 DIN 912 M8x30 12.9, 2 DIN 912 M8x16 8.8	1			2,58т	1
6	б/н	INFINITYCONTevo assembly 6 including: 1 C-C-60, 1 CC2-C-60, 1 SE-BC1, 1 DIN 912 M8x30 12.9, 1 DIN 912 M8x16 8.8	1			1,48т	1
7	б/н	INFINITYCONTevo assembly 7 including: 1 C-C-60, 1 CC2-C-60, 1 DIN 444 M8x30 A2, 1 DIN 934 M8 8.8, 3 DIN 912 M8x16 8.8	1			0,78т	1
8	б/н	INFINITYCONTevo assembly 8 including: 1 C-C-60, 1 CC2-C-60, 1 DIN 444 M8x30 A2, 1 DIN 934 M8 8.8, 2 DIN 912 M8x16 8.8	1			1,90т	1
9	б/н	INFINITYCONTevo assembly 9 including: 1 C-C-60, 1 CC2-C-60, 1 DIN 444 M8x30 A2, 1 DIN 934 M8 8.8, 1 DIN 912 M8x16 8.8	1			2,61т	1

Заказчик испытаний на растяжение: ООО «Студия Дега» ИНН 7805251955
Данные об испытательном оборудовании: Стенд для испытаний таллажа и средств крепления (подъема) грузов «Таллурит А/В» Тип 100.Т, заводской номер G.2. (Аттестат № 434-4774-2015 от 13.11.15 выдан ФБУ «Тест-С.-Петербург»)

Масляков В.М.
(Ф.И.О. представителя ОТК)
(Representative of ОТК)



(подпись)
(signature)
МП / LS

Изделия сертифицированы Декларацией о соответствии Таможенного союза
Срок действия декларации до 30.09.2019г
ТС № RU № Д-RU.МБ 11.В. 00009 от 01.10.2014г, ТС № RU № Д-RU.МБ 11.В. 00010 от 01.10.2014г
ТС № RU № Д-RU.МБ 11.В. 00011 от 01.10.2014г
Одобрение РМРС технической документации по изготовлению изделий №381-09-56308 от 25.02.2015г

Свидетельство о признании изготовителя Российским Морским Регистром Судоходства № 15.02390.381 от 27.07.2015
Certificate for firm recognition of Russian Maritime Register of Shipping № 15.02390.381 dated 27.07.2015

5. Certificates

Заготовка детали «Коннектор С-S-60»

Сертификат качества № 258

1. Основные сведения об изделии

Заготовка детали «коннектор С-S-60»

в количестве 50 (пятьдесят) шт.

Материал корпуса Сталь 12Х18Н9ТЛ ГОСТ 977-88

2. Свидетельство о приемке

Партия изготовлена в соответствии с чертежом _____ и признана годной

Наименование детали	Номер плавки	Количество	Химический состав, %					
			C	Si	Mn	Cr	Ni	Ti
Коннектор	-- --	50	0,062	0,78	1,76	17,97	9,77	0,321
Механические свойства								
Временное сопротивление, σ_b , МПа		Относ. Удлинение, δ %						
620		42,5						

Результаты дополнительных испытаний: склонность к МКК по методу АМУ ГОСТ 6032-89 не выявлена.

Настоящая партия в количестве 50 штук соответствует требованиям ГОСТ 977-88 для отливок 2-й группы

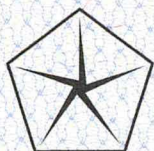
Зам. Генерального директора по



(подпись)

Г.Д. Турапин
(расшифровка подписи)

февраля 2018 г.



СИСТЕМА ДОБРОВОЛЬНОЙ СЕРТИФИКАЦИИ «СТРОЙСЕРТИФИКАТ»

СЕРТИФИКАТ СООТВЕТСТВИЯ

000525

№ СТ.RU.1.001.C00525

Срок действия с 24.12.2016г. по 23.12.2019г.

ОРГАН ПО СЕРТИФИКАЦИИ ОС "ЦНЭКСтройсертификация" РОСС RU.СТ.АО.1.001
115432, г. Москва, ул.Трофимова, д.21, корп. 1, тел.(495)742-30-02

ПРОДУКЦИЯ

Профили прессованные из алюминиевых сплавов для светопрозрачных ограждающих конструкций по ГОСТ 22233-2001

Серийный выпуск.

код ОК 005(ОКП):

527522

СООТВЕТСТВУЕТ ТРЕБОВАНИЯМ НОРМАТИВНЫХ ДОКУМЕНТОВ

ГОСТ 22233-2001 п.п. 5.1 – 5.4

код ТН ВЭД :

ИЗГОТОВИТЕЛЬ

ООО "Международная алюминиевая компания"
142500, Московская обл., г. Павловский Посад, ул. 1 Мая, д. 105

СЕРТИФИКАТ ВЫДАН

ООО "Международная алюминиевая компания"
142500, Московская обл., г. Павловский Посад, ул. 1 Мая, д. 105
ИНН: 5035022276, тел.: (495) 995-90-24

НА ОСНОВАНИИ

протокола испытаний № 589/153/3-16 от 30.11.2016г.
ИЦ "МЕТАЛЛТЕСТ" ФГУП "ЦНИИЧермет им. И.П.Бардина", сертификата соответствия пожарной безопасности № НСОПБ.RU.ПР019/3.Н.01195 до 16.10.2019г., выдан ОС ООО "ПожСтандарт", аттестат аккредитации № НСОПБ.ЮАБ0.RU.ОС.ПР.019/3; решения о выдаче сертификата соответствия ОС "ЦНЭКСтройсертификация" № 10/16 от 24.12.2016г.

ДОПОЛНИТЕЛЬНАЯ ИНФОРМАЦИЯ

Подтверждение действия сертификата соответствия указано на оборотной стороне.
Договор на инспекционный контроль № 09/16 ИК от 24.12.2016г.



Руководитель органа
по сертификации

Эксперт

подпись

подпись

М.А.Петровская

инициалы, фамилия

П.А.Гуськов

инициалы, фамилия

Сертификат имеет юридическую силу на всей территории Российской Федерации

**VIRAJ PROFILES LIMITED (SRM Division)**

Works: SURVEY NO.- 25/1, 25/2, 26 & 34, Village- MAAN, Taluka- PALGHAR, Dist.- THANE, MAHARASHTRA -401 506, INDIA,
e-mail- vielqc@viraj.com

(A02) INSPECTION CERTIFICATE & MILL TEST REPORT (DIN EN 10204-3.1)														
(A06)CUSTOMER : METALLSERVIS STAHANOVSKAYA UL. 19 MOSCOW 109428 RUSSIAN FEDERATION				Manufacturer's Symbol (A04) 		(A03)MTR NO.		1041336/9						
						(Z02) DATE		12.08.2018						
						MATERIAL SPEC.								
						(B02) GRADE		AISI 304						
						DIMENSIONAL SPEC.		h11						
(B01) : STAINLESS STEEL BRIGHT BARS				(B04) DELIVERY CONDITION : COLD DRAWN										
Approved acc. To AD 2000-Merkblatt W0 and certified acc. To PED (2014/68/EU) by Certification Body for Pressure Equipment of TUVNORD System (Notified body,reg.no:0045)														
(A07)ORDER NO: MS-07/2018-BB										(A09)Article No:				
(B09-B11)ITEM DESCRIPTION				LENGTH		(B08) PIECES(Nos)			NET WEIGHT(TO)			(B07) HEAT NO		
SQUARE 20.000 MM				3.00(-0/+100MM)		103			1.004			50349		
Bundle No		1100943942												
(C71-C92) CHEMICAL ANALYSIS														
ELEMENT	%C	%Mn	%Si	%S	%P	%Cr	%Ni	%Cu	%Mo		%Co	%N2		
HEAT	0.0210	1.5300	0.2900	0.0260	0.0370	18.2000	8.0600	0.7000	0.3300		0.1900	0.0750		
MECHANICAL PROPERTIES														
Inspection No.	Test specificaiton ASTM-A370													
			(C03) Test Temp @RT		(C02) Test Direction L									
	(C12) Tensile Strength	Proof Strength				(C13) Elongation%		Reduction of Area%		Hardness				
		Rp=0.2%		Rp = 1%										
	Mpa		Mpa		Mpa		Lo=4D		HBW					
	685.00		560.00				37.00		70.00		203			
METALLURGICAL PROPERTIES														
(B03)COROSION TEST				MICRO OBSERVATION						GRAIN SIZE ASTM E-112				
PASSED IGC TEST AS PER ASTM-A262 & DIN EN ISO 3651-2				NO CARBIDE PRECIPITATION OBSERVED ON GRAIN BOUNDARIES						7				
:														
(B06)Product Marking : SIZE, GRADE, HEAT NO., LOGO & INSPECTOR STAMP														
MATERIAL CONFIRMS TO ASTM A276/A276M-17 COND A, ASTM A479/A479M-18, ASME SA 479-15. DIN EN 10088-3:2005. INTERGRANULAR CORROSION TEST SATISFACTORY AS PER ASTM A262-15 PRACTICE E. CERTIFIED AS PER EN 10204-3.1. NACE MR 0175/ISO-15156-2015, NACE MR 0103-2015. GRADE:1.4301, AISI 304.														
REMARKS : MINIMUM SOLUTION ANNEALING TEMPERATURE 1050°C, SOAKING TIME 01 HR/INCH WATER QUENCHED. MATERIAL IS FREE FROM MERCURY CONTAMINATION, FREE FROM WELD OR WELD REPAIRS. WE CONFIRM THAT THE MATERIAL HAS BEEN TESTED AND FOUND TO BE FREE FROM RADIOACTIVE CONTAMINATION.														

we certify that the above material has been inspected and tested and complies with the order/contract and is of Indian origin



AUTHORIZED WORKS INSPECTOR

RADHAKRISHNA MURTHY

		Публичное акционерное общество "Новолипецкий металлургический комбинат"										Цех № 13							
Сертификат № 43085 от 17.09.2018										Заказ № 40291172-18				Ватер/Авто № 54102322					
Грузополучатель: 5667										АКЦИОНЕРНОЕ ОБЩЕСТВО "МЕТАЛЛОКОМПЛЕКТ-М"									
129571										142153 ПОДОЛЬСКИЙ Р-Н, Д. БОЛЬШО									
										Московская обл УЛ. ПРОМЫШЛЕННАЯ КОРП. 7									
Наименование продукции: Прокат для гибки и холодной штамповки																			
№ п. п.	№ позиции	№ Партии-упаковки	Сорт	Марка стали	Категория	Точность проката по ширине	Размеры, мм	Кол-во	Масса, кг		Кол. мстр. (по треб.)	Кол. шпо (по треб.)	Кол-во листов в пачке (по треб.)	Примечания (по треб.)	ГОСТ, ТУ				
									Нетто	Брутто									
1	3	182558-2	1	08пс	6	ВТ	3 1250 2500	1	4420	4520			1	ТУ 14-106-321-2010					
2	3	182558-3	1	08пс	6	ВТ	3 1250 2500	1	4600	4700			1	ТУ 14-106-321-2010					
3	3	182558-4	1	08пс	6	ВТ	3 1250 2500	1	4520	4620			1	ТУ 14-106-321-2010					
4	3	182558-5	1	08пс	6	ВТ	3 1250 2500	1	4420	4520			1	ТУ 14-106-321-2010					
5	3	182558-6	1	08пс	6	ВТ	3 1250 2500	1	4320	4420			1	ТУ 14-106-321-2010					
6	3	182559-1	1	08пс	6	ВТ	3 1250 2500	1	4380	4480			1	ТУ 14-106-321-2010					
7	3	182559-2	1	08пс	6	ВТ	3 1250 2500	1	4420	4520			1	ТУ 14-106-321-2010					
								7	31080	31780									
№ п. п.		Химический анализ, %																	
		№ Плавки	C	Si	Mn	S	P	Al	Cr	Ni	Cu	Ti	B	V	Nb	N2			
1		1820484	.07	.019	.31	.017	.007	.033	.03	.02	.05	.002		.002	.002	.004			

№ п. п.	№ Партии	Группа прочности	Группа отделки	Плоскостность по (треб.)	Характер кромок	Категория выгибки	Предел тек-ти, Н/мм ²	Врем. сопротив., Н/мм ²	Относ. удл., %	Глубина сфер. лунки, мм	Твердость	Микроструктура		Шероховатость, мкм	Коэф. пл. ан. R ₉₀	Показ. деф. упр п ₉₀	Коэф. наводорож., %
												Велич. зерна	Балл. цем.				
1	182558	K270B	II	ПВ	О	Г		330	31			9					0
2	182558	K270B	II	ПВ	О	Г		330	31			9					0
3	182558	K270B	II	ПВ	О	Г		330	31			9					0
4	182558	K270B	II	ПВ	О	Г		330	31			9					0
5	182558	K270B	II	ПВ	О	Г		330	31			9					0
6	182559	K270B	II	ПВ	О	Г		330	31			9					0
7	182559	K270B	II	ПВ	О	Г		330	31			9					0

Объем: 1130100-0.718 куб.м.

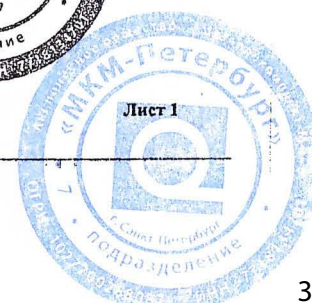
Упаковка: КОРОБА / СХ. 05

Примечание: раскис. АЛ №договора: X104509-15

ПРИЗНАК ПРОМАСЛИВАНИЯ: 0- без промасливания, 1- с промасливанием
БЕЗ ПРАВА ОТГРУЗКИ НА ЭКСПОРТ

Указанная в сертификате продукция соответствует действующим в России стандартам и техническим условиям
при переписке по вопросам качества ссылаться на номер сертификата.

Формы 100-13



Specification

IBENA®

Article 8994

Material	
total composition	75% Trevira CS / 25% Elasthan FR
Total mass (DIN EN 12127) [g/m ²]	200 ± 15 %
Width (DIN EN 1773) [cm]	≥ 300 on relaxed position approx. 450 on tension position
Fabric Colour	white, silver or black
Flammability (DIN 4102)	
Burning class	class B1
Dimensional Change (DIN EN 25077; DIN EN ISO 6330, 4M; F) 5 washes at 40°C	
length direction [%]	± 3
cross direction [%]	± 3
Making-Up	rolled full width on an paper tube or as ready-made tube
Care symbols	
	ironing level 1
	do not tumble dry
	do not dry clean
	do not bleach
	normal wash up to 40°C

46414 Rhede, im September 2016
QS-Smeulders

zum Nachweis des Brandverhaltens nach DIN 4102-1

Aktenzeichen: FLT 3597416

Auftraggeber: IBENA Textilwerke GmbH
Industriestraße 7-13
D – 46395 Bocholt

Prüfauftrag vom 2016-06-30 **Eingegangen am** 2016-06-30

Probenmaterial: Unbeschichtete Wirkwaren aus flammhemmend ausgerüsteten Garnen, zur Verwendung als Dekoration, bezeichnet als **“Trevira CS XXL Stretch“**.
(Einzelheiten siehe Blatt 2)

Eingangsdatum: 2016-06-28

Prüfgegenstand des Auftrages: Prüfung auf Schwerentflammbarkeit (Baustoffklasse B1) nach DIN 4102-1

Ergebnis: Das geprüfte Material erfüllt in beliebigen Farben, in freihängender Anordnung oder im Abstand von > 40 mm zu gleichen oder anderen flächigen Baustoffen die Anforderungen an schwerentflammbare Baustoffe (Baustoffklasse B1) nach DIN 4102-1 (Einzelheiten siehe Blatt 5).

Geltungsdauer bis: 2021-08-31

Probennahme: Das Probenmaterial wurde der Prüfstelle vom Hersteller zugesandt.

Hinweis: Falls der o.g. Baustoff (-verbund) nicht als Bauprodukt gem. MBO §2, Abs. 9, Ziffer 1 verwendet wird, ist ein allgemeines bauaufsichtliches Prüfzeugnis nicht erforderlich. Dieses Prüfzeugnis gilt nicht, wenn der geprüfte Baustoff als Bauprodukt im Sinne der Landesbauordnungen verwendet wird (MBO § 17, Abs. 3).

Dieses Prüfzeugnis ersetzt nicht einen ggf. notwendigen bauaufsichtlichen Verwendbarkeitsnachweis nach Landesbauordnung. Dieser ist zu führen durch:

- eine allgemeine bauaufsichtliche Zulassung oder durch
- ein allgemeines bauaufsichtliches Prüfzeugnis oder durch
- eine Zustimmung im Einzelfall.

Im bauaufsichtlichen Verfahren kann dieses Prüfzeugnis als Grundlage dienen

- bei geregelten Bauprodukten für die vorgeschriebenen Übereinstimmungsnachweise
- bei nicht geregelten Bauprodukten für die erforderlichen Verwendbarkeitsnachweise.

Dieses Prüfzeugnis ersetzt das Prüfzeugnis FLT 3490614 vom 7. August 2014.

Dieses Prüfzeugnis besteht aus Blatt 1 bis 5 und 4 Anlagen.

Anerkannte Prüf-, Überwachungs- und Zertifizierungsstelle

Prüfzeugnisse dürfen nur in vollem Wortlaut und ohne Zusätze veröffentlicht werden. Für veränderte Wiedergabe und Auszüge ist vorher die widerrufliche, schriftliche Einwilligung der ausstellenden Prüfstelle einzuholen. Die Prüfergebnisse beziehen sich ausschließlich auf die untersuchten Prüfmaterien.



Prüfstelle für das
Brandverhalten
von Baustoffen
Dipl.-Ing. Uwe Kühnast

Steinstrasse 18
D - 14822 Borkheide
Fon: +49 33845 90901
Fax: +49 33845 90909
Mail: info@firelabs.de
PÜZ-Stelle (LBO): BRA09

PRÜFZEUGNIS



1 Beschreibung des Versuchsmaterials

1.1 Probenmaterial (nach Angaben des Herstellers)

Bei dem angelieferten Material handelt es sich um unbeschichtete Wirkwaren aus 75% flammhemmend ausgerüstetem Polyestergarn (Handelsname "Trevira CS") und 25% flammhemmend ausgerüsteten Kunststofffasern (Handelsname "Dorlasthan FR"). Die Gewirke sollen im Inneren von Gebäuden zu Dekorationszwecken verwendet werden und wurden vom Auftraggeber mit dem Handelsnamen "Trevira CS XXL Stretch" bezeichnet.

1.2 Beschreibung des angelieferten Materials

Für die Prüfungen wurden der Prüfstelle 3 Abschnitte unbeschichteter Wirkwaren aus Kunststofffasern von jeweils ca. 5 m Länge und ca. 3 m Breite vom Hersteller zur Verfügung gestellt. Die Wirkwaren waren mit den jeweiligen Artikel- und Farb-Nummern des Herstellers gekennzeichnet und wurden vom Auftraggeber mit folgenden Produktangaben bezeichnet:

Handelsname	Art-Nr.	Farb-Nr.	Farbe
Trevira CS XXL Stretch	8994	75	schwarz
		436	rot
		60	weiß

./: keine Angaben

Materialkennwerte: siehe Abschnitt 4.1; Fotos: siehe Anlagen;

Weitere Angaben lagen der Prüfstelle nicht vor, Angaben zum Hersteller und ein Muster sind bei der Prüfstelle hinterlegt.

2 Herstellung der Probekörper

Aus dem Versuchsmaterial wurden für die Prüfungen im Brennkasten Proben in den Abmessungen 190 mm x 90 mm für die Kantenbeflammung, sowie Proben in den Abmessungen 230 mm x 90 mm für die Flächenbeflammung jeweils in Längs- und Querrichtung des Materials zugeschnitten.

Für die Prüfungen im Brandschacht wurden 6 Probekörper hergestellt. Die Proben (jeweils 1000 mm x 190 mm) der Probekörper A, C, und E wurden aus der Längsrichtung, die der Probekörper B, D und F aus der Querrichtung des Materials in der jeweiligen Farbe entnommen.

Anschließend wurden die Proben nach DIN 50014-23/50-2 bis zur Gewichtskonstanz gelagert.

3 Versuchsdurchführung

Die Prüfungen im Brennkasten wurden nach DIN 4102-1, Abschnitt 6.2.5 (Baustoffklasse B2). Die Prüfungen im Brandschacht wurden nach DIN 4102-1 und -16 (Baustoffklasse B1) durchgeführt.

Alle Prüfungen erfolgten einlagig, in freihängender Anordnung.

Die Prüfungen wurden im August 2016 durchgeführt.

4 Ergebnisse

- Abschnitt 4.1 Materialkennwerte
- Abschnitt 4.2.1 Prüfung im Brennkasten
- Abschnitt 4.2.2 Prüfung im Brandschacht

4.1 Materialkennwerte

Tabelle 1

Handelsname	Farbe	Herstellerangaben		Messwerte		
		Dicke [mm]	Flächengewicht [g/m ²]	Dicke (i.M.) [mm]	Dicke (s) [mm]	Flächengewicht [g/m ²]
Trevira CS XXL Stretch	schwarz	0,6 ± 0,1	200 ± 15%	0,60	0,017	193
	rot			0,61	0,007	206
	weiß			0,56	0,008	196

i.M. im Mittel
s Standardabweichung



4.2 Ergebnisse des Brandverhaltens

4.2.1 Ergebnisse der Prüfung im Brennkasten

Nach DIN 4102-1 müssen schwerentflammbare Baustoffe auch die Anforderungen der Baustoffklasse B2 (normalentflammbar) erfüllen. Bei der Prüfung im Brennkasten nach DIN 50 050 wurden die Anforderungen an Baustoffe der Baustoffklasse B2 erfüllt. Brennendes Abfallen/ Abtropfen trat bei diesen Prüfungen nicht auf. (Ergebnisse: siehe Anlage 4)

4.2.2 Ergebnisse der Prüfung im Brandschacht

Tabelle 3

Ergebnisse der Brandschachtprüfung (Teil 1)								
Zeile Nr.		Messwerte Probekörper						Anforderungen
		A	B	C	D	E	F	
1	Nr. der Probenanordnung gem. DIN 4102 –15 Tabelle 1	1	1	1	1	1	1	
2	Maximale Flammenhöhe über Probenunterkante ... cm	30	30	30	30	30	30	*)
3	Zeitpunkt ¹⁾ min	1	1	1	1	1	1	
4	Durchschmelzen/ Durchbrennen Zeitpunkt ¹⁾ min	1	1	1	1	1	1	
5	Probenrückseite: Flammen / Glimmen Zeitpunkt ¹⁾ min:s	./.	./.	./.	./.	./.	./.	
6	Verfärbungen Zeitpunkt ¹⁾ min:s	./.	./.	./.	./.	./.	./.	
7	Brennendes Abtropfen Beginn ¹⁾ min	Ja	Nein	Ja	Ja	Nein	Ja	
8	Umfang: vereinzelt abtropfendes Probenmaterial	1		1	1		1	
9	stetig abtropfendes Probenmaterial	Ja		Ja	Ja		Ja	
		Nein		Nein	Nein		Nein	
10	Brennend abfallende Probenteile Beginn ¹⁾ min	Nein	Nein	Nein	Nein	Nein	Nein	-
11	Umfang: vereinzelt abfallende Probenteile							
12	stetig abfallende Probenteile							
13	Dauer des Weiterbrennens auf dem Siebboden (max.)... min:s	0:04	./.	0:05	0:05	./.	0:04	
14	Beeinträchtigung der Brenner- flamme durch abtropfendes / abfallendes Material Zeitpunkt ¹⁾ min:s	Nein	Nein	Nein	Nein	Nein	Nein	-
15	Vorzeitiges Versuchsende Ende des Brandgeschehens an der Probe ¹⁾ min							-
16	Zeitpunkt eines ggf. erfolgten Versuchsabbruchs ¹⁾ min:s	3	3	3	3	3	3	
		./.	./.	./.	./.	./.	./.	

¹⁾ Zeitangaben ab Versuchsbeginn

- Keine Angaben bzw. nicht geprüft

./. Kein Auftreten des Ereignisses

*) Darf keinen Anlass zu Beanstandungen geben



Ergebnisse der Brandschachtprüfung (Teil 2)								
Zeile Nr.		Messwerte Probekörper						Anforderungen
		A	B	C	D	E	F	
17	<u>Nachbrennen nach Versuchsende</u> Dauer min:s Brennend abgefallene Probeteile	Nein	Nein	Nein	Nein	Nein	Nein	
18	Anzahl der Proben							
19	Probenvorderseite							
20	Probenrückseite							
21	Flammenlänge cm							
22	<u>Nachglimmen nach Versuchsende</u> Dauer min	Nein	Nein	Nein	Nein	Nein	Nein	
23	Anzahl der Proben							
24	Ort des Auftretens:							
25	untere Probenhälfte							
26	obere Probenhälfte							
27	Probenvorderseite							
28	Probenvorderseite							
29	<u>Rauchdichte</u> ≤ 400 % min	3,4	0,8	3,5	1,6	2,3	11,9	
30	≥ 400 % min (sehr starke Rauchentwicklung) Diagramm in Bild Nr.	./. 1	./. 3	./. 5	./. 7	./. 9	./. 11	
31	<u>Restlängen</u> Einzelwerte cm	74 71 67 72	69 66 73 73	73 71 68 70	75 74 75 74	74 75 75 74	71 71 73 73	> 0
32	Mittelwert cm	71	70	70	74	74	72	≥15
33	Foto des Probekörpers auf Bild Nr.	2	4	6	8	10	12	
34	<u>Rauchgastemperatur</u> Maximum Mittelwert °C	111	117	116	119	116	115	≤ 200
35	Zeitpunkt ¹⁾ min:s	9:50	9:56	10:00	10:00	9:48	9:52	
36	Diagramm auf Bild Nr.	1	3	5	7	9	11	
37	<u>Bemerkungen:</u> Zeile 32: Auf Grund der verbliebenen Restlänge von ≥ 45 cm konnte auf weitere Versuche verzichtet werden. (DIN 4102-16:2015-09, 5.2 b)). Zeile 13: Dauer des Weiterbrennens von Probenteilen auf dem Siebboden von < 20 Sek. führt nicht zur Kennzeichnung "brennend abfallend/abtropfend" (Diagramme und Fotos siehe Anlagen 1 – 3)							

¹⁾ Zeitangaben ab Versuchsbeginn

- nicht geprüft

./. kein Auftreten des Ereignisses

*) darf keinen Anlass zu Beanstandungen geben

Probekörper	Versuch-Nr.	Farbe	Entnahmerichtung der Proben
A	588516-001	schwarz	Längsrichtung
B	588516-002		Querrichtung
C	588516-003	rot	Längsrichtung
D	588516-004		Querrichtung
E	588516-005	weiß	Längsrichtung
F	588516-006		Querrichtung



5 Beurteilung

In Abschnitt 4.2 wurden die Prüfergebnisse des im Abschnitt 1 und 4.1 beschriebenen Versuchsmaterials zusammengestellt und den Anforderungen der DIN 4102-1 gegenübergestellt. Aus den vorstehenden Prüfergebnissen ergibt sich, dass die an Baustoffe der Klasse B1 gestellten Anforderungen von dem geprüften Baustoff, im Abstand von > 40 mm zu gleichen oder anderen flächigen Baustoffen, in beliebigen Farben erfüllt wurden.

Die Anforderungen an Baustoffe der Baustoffklasse B2 wurden ebenfalls erfüllt, brennendes Abfallen/Abtropfen trat bei diesen Prüfungen nicht auf.

Der Nachweis der Verwendung

- im Außenbereich (Alterungsverhalten durch Freibewitterung)
- nach dem Waschen oder Chemischreinigen

wurde nicht geführt.

6 Besondere Hinweise

Die genannten Ergebnisse gelten nur für den in Abschnitt 1 beschriebenen Baustoff. Im Verbund mit zusätzlichen Materialien (Beschichtung, Untergrund) kann sich das Brandverhalten ändern.

Dieses Prüfzeugnis gilt nicht, wenn der Baustoff als Bauprodukt im Sinne der Landesbauordnungen verwendet wird (MBO § 17, Abs. 3).

Das Prüfzeugnis ist kein Ersatz für eine allgemeine bauaufsichtliche Zulassung oder ein allgemeines bauaufsichtliches Prüfzeugnis. Es wird unbeschadet eventueller Rechte Dritter erteilt.

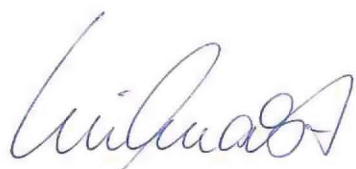
Im bauaufsichtlichen Verfahren kann dieses Prüfzeugnis als Grundlage dienen

- bei geregelten Bauprodukten für die vorgeschriebenen Übereinstimmungsnachweise
- bei nicht geregelten Bauprodukten für die erforderlichen Verwendbarkeitsnachweise.

Die Erläuterungen in DIN 4102-1 Anhang D, insbesondere zur Fremdüberwachung sind besonders zu beachten.

Die Gültigkeit dieses Prüfzeugnisses endet am 2021-08-31, falls sich die Prüfvorschriften und Beurteilungsgrundlagen, dem Stand der Technik folgend, nicht vorzeitig ändern.

Borkheide, den 8. Oktober 2016



Leiter der Prüfstelle
(Dipl.-Ing. Uwe Kühnast)



Sachbearbeiter / Prüfer
(Dipl.-Ing. Manfred Sailer)

Last change: April 11, 2018

be.tex® Samba FR | Product no.: 4384-6266

Woven



PRODUCT FEATURES

Material: 100% polyester
 Weight: 195 g/m²
 Thickness: 250 µm
 Stretch: < 1 %
 Transmission factor: 38 %
 Whitepoint: 94, 1, -6 L*a*b

WIDTH (cm)

ca. 160
 ca. 260
 ca. 320

LENGTH (m)

ca. 70
 ca. 100
 ca. 100

APPLICATIONS

inflatables
 display frame systems
 light boxes
 pop up display systems
 bean bags
 table cloth
 banners
 tents / parasols

FEATURES

air tight
 water tight
 no fraying
 good flatness
 crease free
 lotus effect
 light diffusion coating

DESCRIPTION

Topseller and market standard for light boxes. Perfect backlighting characteristics and color-intensive print features. Absolutely crease free, therefore perfect for folded shipment, sun umbrellas, tents, blow-ups, beanbags, lightboxes, aluframes, etc. be.tex® Samba FR is even unlit and unprinted an absolute allrounder. Uncoated side with Lotus-effect. Water column coated side > 900 mm, uncoated side > 650 mm.

NOTES

Dye sub paper transfer on uncoated side: self-tests are recommended. For Latex prints with a very high ink-load (backlit) self-tests are recommended. Do not use self-adhesive products as flat profile 4545-1sk for processing (lotus on the back). Technical textiles are naturally subject to weather conditions. This product can be used outdoor for a short term. When handled carefully this fabric can be even folded after printing.

RAPPORT DE CLASSEMENT DE REACTION AU FEU

REACTION TO FIRE CLASSIFICATION REPORT

N° 19355-17/RC

SELON LA NORME EUROPEENNE EN 13501-1 : 2013
IN ACCORDANCE WITH EN 13501-1 : 2013

« Au sens de l'arrêté du 21/11/2002, le classement établi par le présent rapport n'est pas valable vis à vis de la réglementation de sécurité incendie française »

Valable jusqu'au 27 février 2022
Valid until February 27th, 2022

1 - INTRODUCTION

1 – INTRODUCTION

Le présent rapport de classement définit le classement attribué au produit « 4384-6266 be.tex® Samba FR » conformément aux modes opératoires donnés dans l'EN 13501-1 : 2013.

This classification report defines the classification assigned to the product "4384-6266 be.tex® Samba FR" (as described by the sponsor) according to the procedures given in EN 13501-1 : 2013.

DEMANDEUR : <i>Sponsor:</i>	A BERGER GmbH Kuhleshütte 84 D-47809 KREFELD ALLEMAGNE
REFERENCE COMMERCIALE : <i>Commercial brand name :</i>	4384-6266 be.tex® Samba FR
Date d'émission du rapport : <i>Date of issue :</i>	27/02/2017 February 27 th , 2017
La reproduction de ce rapport d'essai n'est autorisée que sous sa forme intégrale. Il comporte 6 pages. <i>Reproduction of this document is only authorized in its unabridged version. It comprises 6 pages.</i>	

Modèle 01/2017/JOSE253/RC140

Airbus Safran Launchers SAS
Siège social : Tour Cristal, 7-11 Quai André Citroën- 75015 Paris – France
Société par actions simplifiée au capital de 265 904 408 (519 032 247 RCS Nanterre)

www.airbusafran-launchers.com / www.labo-feu.fr / www.fire-laboratory.com

ACCREDITATION
N° 1-6245
Portée disponible
sur www.cofrac.fr



2 - DETAILS SUR LE PRODUIT CLASSIFIE

2 - DETAILS OF CLASSIFIED PRODUCT

Le produit « 4384-6266 be.tex® Samba FR », est défini en tant que textile libre pour rideau et tenture.

The product, "4384-6266 be.tex® Samba FR", is defined as a fabric for curtain.

Les principales caractéristiques du produit, « 4384-6266 be.tex® Samba FR », soumis aux essais sont décrites ci-dessous :

The main features of the tested product, "4384-6266 be.tex® Samba FR" are described below:

Date de réception des échantillons 24/01/2017

Date of reception of the samples 01/24/2017

Description et composition : Tissu 100% polyester enduit avec une résine PU à base d'eau, ignifugé dans la masse.

Product description and composition: 100% polyester fabric coated with water-based acrylic PU fire retardant.

Densité ou masse surfacique : 195 g/m²

Density or weight per square meter: 195 g/m²

Epaisseur(s) testée(s) : 0,27 mm

Thickness tested :

Couleur(s) testée(s) : Blanc

Color tested : White

Substrat (nature, épaisseur, masse volumique) : Sans substrat

Substrate (nature, thickness, density) : No

Identification des échantillons : -

Sample identification : -

Information transmise par le demandeur

Information given by the sponsor

3 – RAPPORTS ET RESULTATS EN APPUI DU PRESENT CLASSEMENT

3 – TEST REPORTS AND TEST RESULTS IN SUPPORT OF THIS CLASSIFICATION

3.1 – Rapports d'essais

3.1 – Test reports

Le classement se base sur le(s) rapport(s) d'essais suivant(s) :

This classification is based on the test report(s) listed below:

Nom du laboratoire <i>Laboratory name</i>	Nom du demandeur <i>Sponsor name</i>	N° de rapport d'essais <i>Test report no</i>	Méthode d'essai <i>Test method</i>
AIRBUS SAFRAN LAUNCHERS	A BERGER GmbH Kuhleshütte 84 D-47809 KREFELD ALLEMAGNE	19355-17/RE	Allumabilité NF EN ISO 11925-2 : 2013 <i>Single flame source test</i> EN ISO 11925-2 : 2013
		19355-17/RE	Essai S.B.I. NF EN 13823 : 2015 <i>S.B.I test EN 13823 : 2015</i>
		19355-17/RE	Essai P.C.S. NF EN ISO 1716 : 2013 <i>P.C.S test EN ISO 1716 : 2013</i>

3.2 – Résultats

3.2 – Test results

Résultats de l'essai d'Allumabilité

Méthode d'essai <i>Test method</i>	Paramètre <i>Parameter</i>	Nombre d'essais <i>Number of tests</i>	Résultats <i>Results</i>	
			Paramètre continu - moyenne (m) <i>Continuous parameter - (m) average</i>	Conformité avec les paramètres <i>Compliance with the parameters</i>
NF EN ISO 11925-2 : 2013 Exposition de 30 s en surface <i>Surface exposure of 30 s</i>	Propagation de flamme (Fs) <i>Flame spread (Fs)</i>	6	Fs < 150 mm	Oui / Yes
	Instant de dépassement (s) <i>Time of overtaking (s)</i>		/	Oui / Yes
	Gouttes enflammées <i>Flaming droplets</i>		Oui / Yes	Oui / Yes
	Inflammation du papier filtre <i>Ignition of the filter paper</i>		Oui / Yes	Oui / Yes

Modèle 01/2017/JOSE253/RC140

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ACCREDITATION
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Méthode d'essai <i>Test method</i>	Paramètre <i>Parameter</i>	Nombre d'essais <i>Number of tests</i>	Résultats <i>Results</i>	
			Paramètre continu - moyenne (m) <i>Continuous parameter - (m) average</i>	Conformité avec les paramètres <i>Compliance with the parameters</i>
NF EN ISO 11925-2 : 2013 Exposition de 30 s en bord <i>Edge exposure of 30 s</i>	Propagation de flamme (Fs) <i>Flame spread (Fs)</i>	6	Fs < 150 mm	Oui / Yes
	Instant de dépassement (s) <i>Time of overtaking (s)</i>		/	Oui / Yes
	Gouttes enflammées <i>Flaming droplets</i>		Oui / Yes	Oui / Yes
	Inflammation du papier filtre <i>Ignition of the filter paper</i>		Oui / Yes	Oui / Yes

Résultats de l'essai SBI

Méthode d'essai <i>Test method</i>	Paramètre <i>Parameter</i>	Nombre d'essais <i>Number of tests</i>	Résultats <i>Results</i>
			Paramètre continu - moyenne (m) <i>Continuous parameter - (m) average</i>
NF EN ISO 13823 : 2016	LFS	3	Non / No
	Particules enflammées / goutelettes <i>Flaming particles / droplets</i>		Non / No
	FIGRA _{0,2MJ} (W/s)		2,3
	FIGRA _{0,4MJ} (W/s)		2,3
	SMOGR (m²/s²)		0
	THR _{600s} (MJ)		0,6
	TSP _{600s} (MJ)		23,3

Modèle 01/2017/JOSE253/RC140

Airbus Safran Launchers SAS
Siège social : Tour Cristal, 7-11 Quai André Citroën - 75015 Paris - France
Société par actions simplifiée au capital de 265 904 408 - (519 032 247 RCS Nanterre)

www.airbusafran-launchers.com / www.labo-feu.fr / www.fire-laboratory.com

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N° 1-6245
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sur www.cofrac.fr



4 – CLASSEMENT ET DOMAINE D'APPLICATION

4 – CLASSIFICATION AND FIELD OF APPLICATION

4.1 – Référence de classement

4.1 – Reference and direct field of application

Le présent classement a été effectué conformément à l'EN 13501-1 : 2013.

This classification has been carried out in accordance with EN 13501-1 : 2013.

4.2 – Classement

4.2 – Classification

Le produit « 4384-6266 be.tex® Samba FR » a été classé en fonction de son comportement au feu :

The product "4384-6266 be.tex® Samba FR" in relation to its reaction to fire is classified :

B

Le classement supplémentaire en relation avec la production de fumée est :

The additional classification in relation to smoke production is :

s1

Le classement supplémentaire en relation avec les gouttelettes/particules enflammées est :

The additional classification in relation to flaming droplets/particles is :

d0

Le format du classement de réaction au feu pour les produits de construction, à l'exception des revêtements de sol et des produits d'isolation thermique pour conduites linéaires est :

The format of the reaction to fire classification for construction products excluding floorings and linear pipe thermal insulation product is:

Comportement au feu <i>Fire behaviour</i>		Production de fumée <i>Smoke production</i>			Gouttelettes enflammées <i>Flaming droplets</i>	
B	-	s	1	,	d	0

Classement de réaction au feu :
Reaction to fire classification:

B – s1, d0

L'incertitude de mesure associée au résultat n'a pas été prise en compte pour prononcer ce classement.

Measurement uncertainty associated with the result has not been taken in consideration for this classification.

4.3 – Domaine d'application **4.3 – Field of application**

Le présent classement est valable pour les paramètres suivants liés au produit :
This classification is valid for the following product parameters:

Epaisseur (thickness)	0,27 mm
Masse surfacique (density)	195 g/m ²
Coloris (Color)	Blanc (White)

Le présent classement est valable pour les conditions suivantes :
This classification is valid for the following conditions:

L'éprouvette est constituée d'un seul élément dont l'encombrement respectif est de (1500x1500) mm réparti sur la grande et petite aile.
L'assemblage est réalisé conformément à la norme NF EN 13823:2015
L'échantillon a été fixé tendu sur cadre métallique (par perforation sur des pointes métalliques), conformément à l'annexe A de l'EN 14716.

This classification is valid for the product described in §2 for the following end use parameters:

*Sample consists of one element. The size of sample is: (1500x1500) mm.
The assembly is performed according to standard EN 13823:2015.
The sample was fixed on a metal frame (by perforation on metal tips) in accordance with Annex A of EN 14716.*

5 – LIMITATIONS **5 – LIMITATIONS**

Le présent document de classement n'est pas une approbation ni une certification de type du produit.
This classification does not represent type approval nor certification of the product.

Au Bouchet, le 27 Février 2017
At Le Bouchet, on February 27th, 2017

Signé

Le responsable de l'essai
Test officer

M. ROULLE



Approuvé

Le chef de service
« Essais de réaction au feu »
Head of the fire testing laboratory

H. BARBIER



Modèle 01/2017/JOSE253/RC140

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6. Static analysis of construction

6.1 Euroshop 2020

Extrusions

E1-60-300 : 48 pcs.
E2-60-300 : 58 pcs.
E3-60-300 : 28 pcs.

Connectors

C-R-60 : 16 pcs.
C-T-60 : 8 pcs.
C-S-60 : 6 pcs.
C-C-60 : 23 pcs.
CF1-60 : 8 pcs.
CC2-RTS-60 : 52 pcs.
CC2-C-60 : 46 pcs.

Static Elements

SE-C50 : 8 pcs.
SE-B2-300 : 12 pcs.
SE-B3-300 : 16 pcs.
SE-B4-300 : 8 pcs.

Fabrics

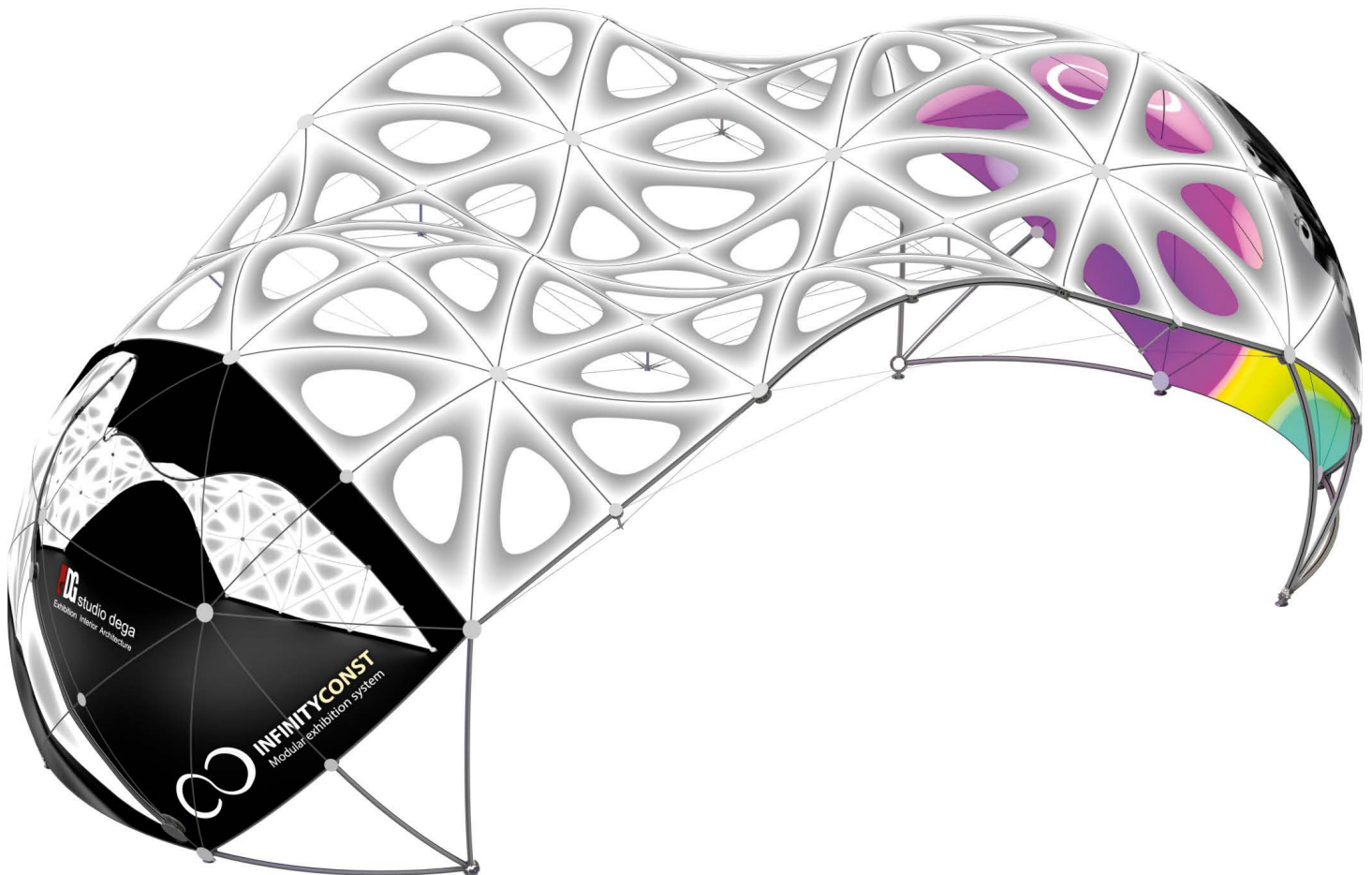
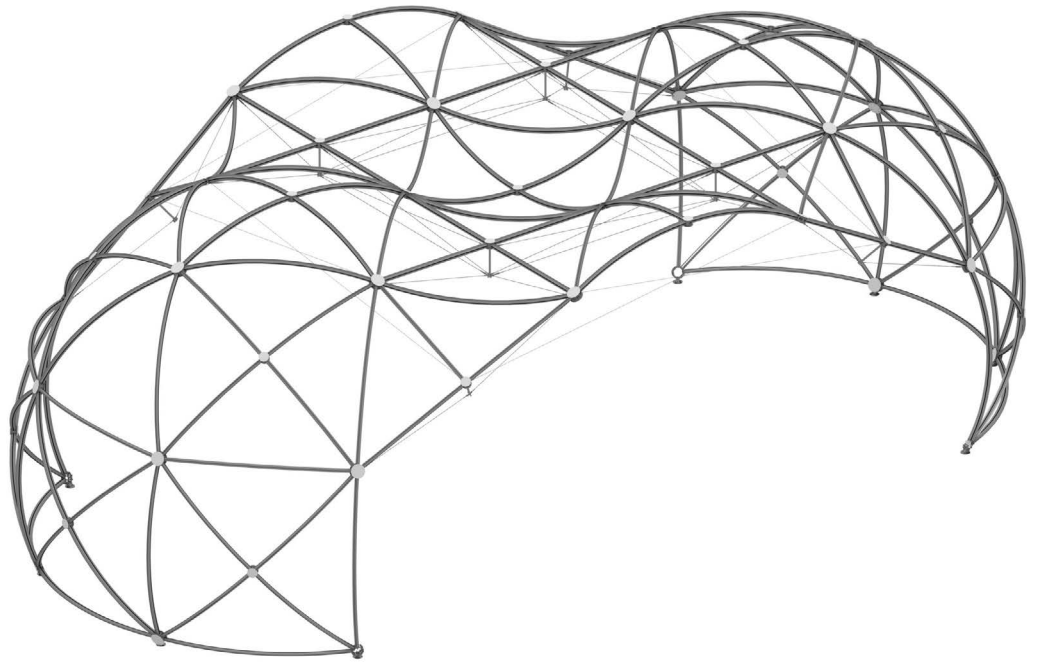
F1-4-300 : 48 pcs.
F5-300 : 4 pcs.
FH1-4-300 : 48 pcs.

LED System

L1-24-300 : 78 pcs.
L2-24-300 : 144 pcs.
L3-1500-24-SET : 2 pcs.

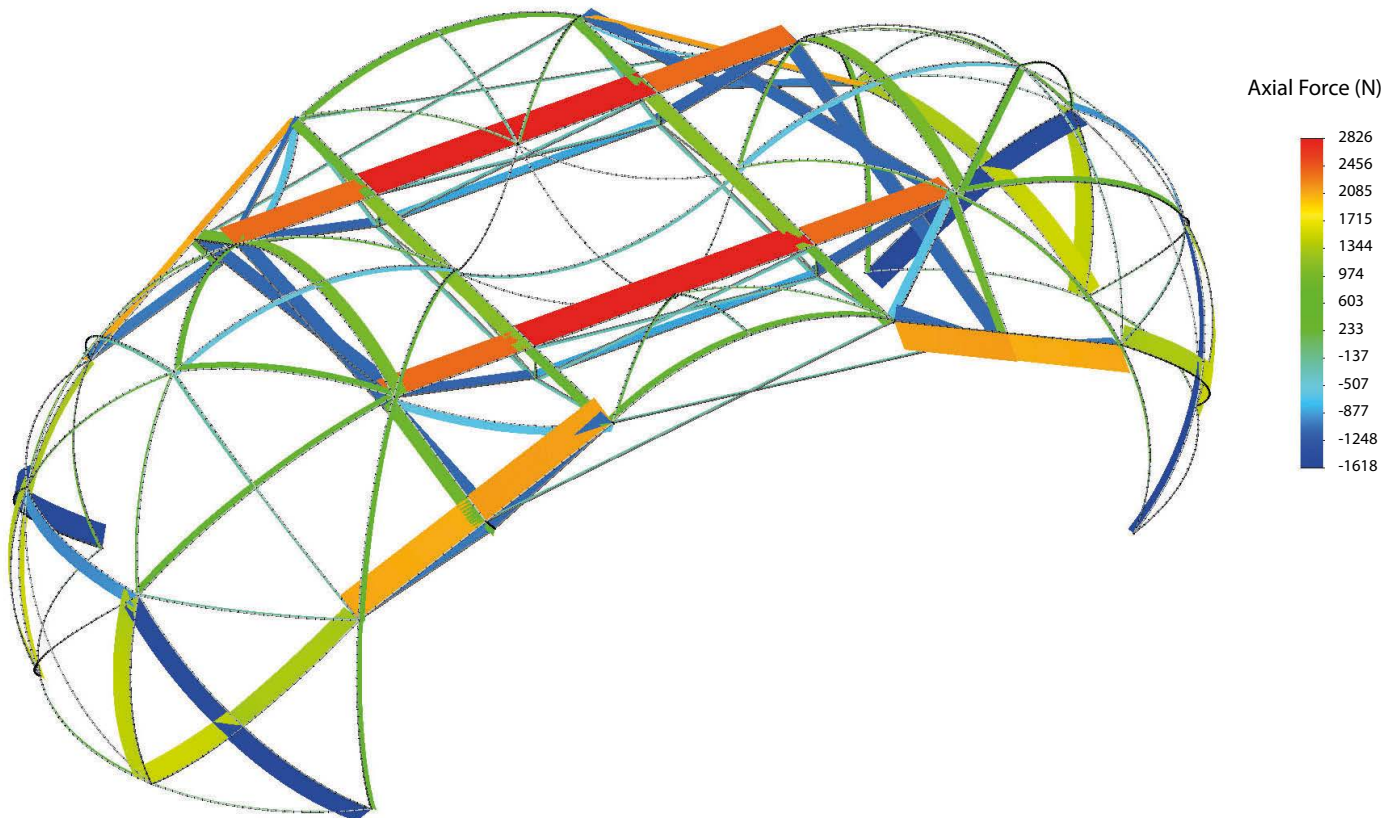
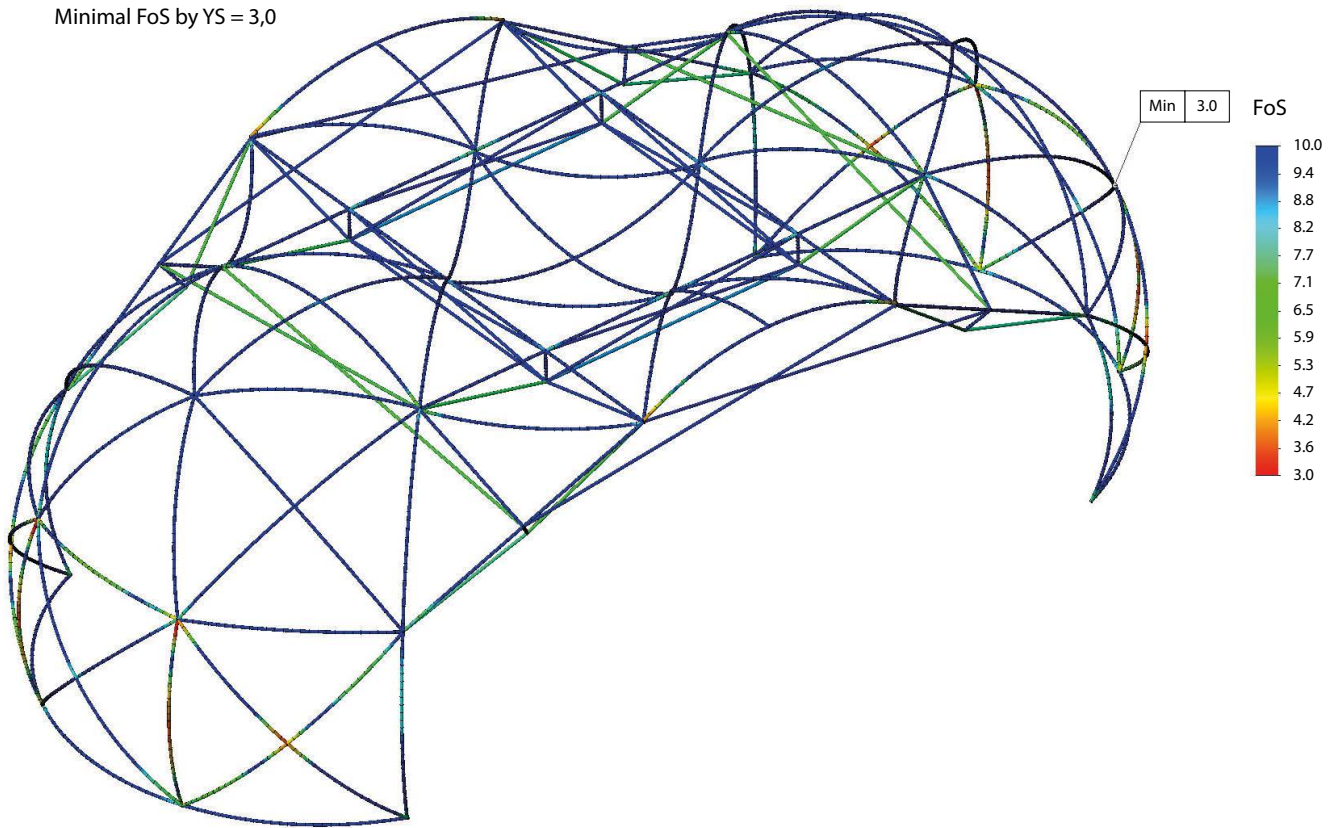
Weight : 1304 kg.

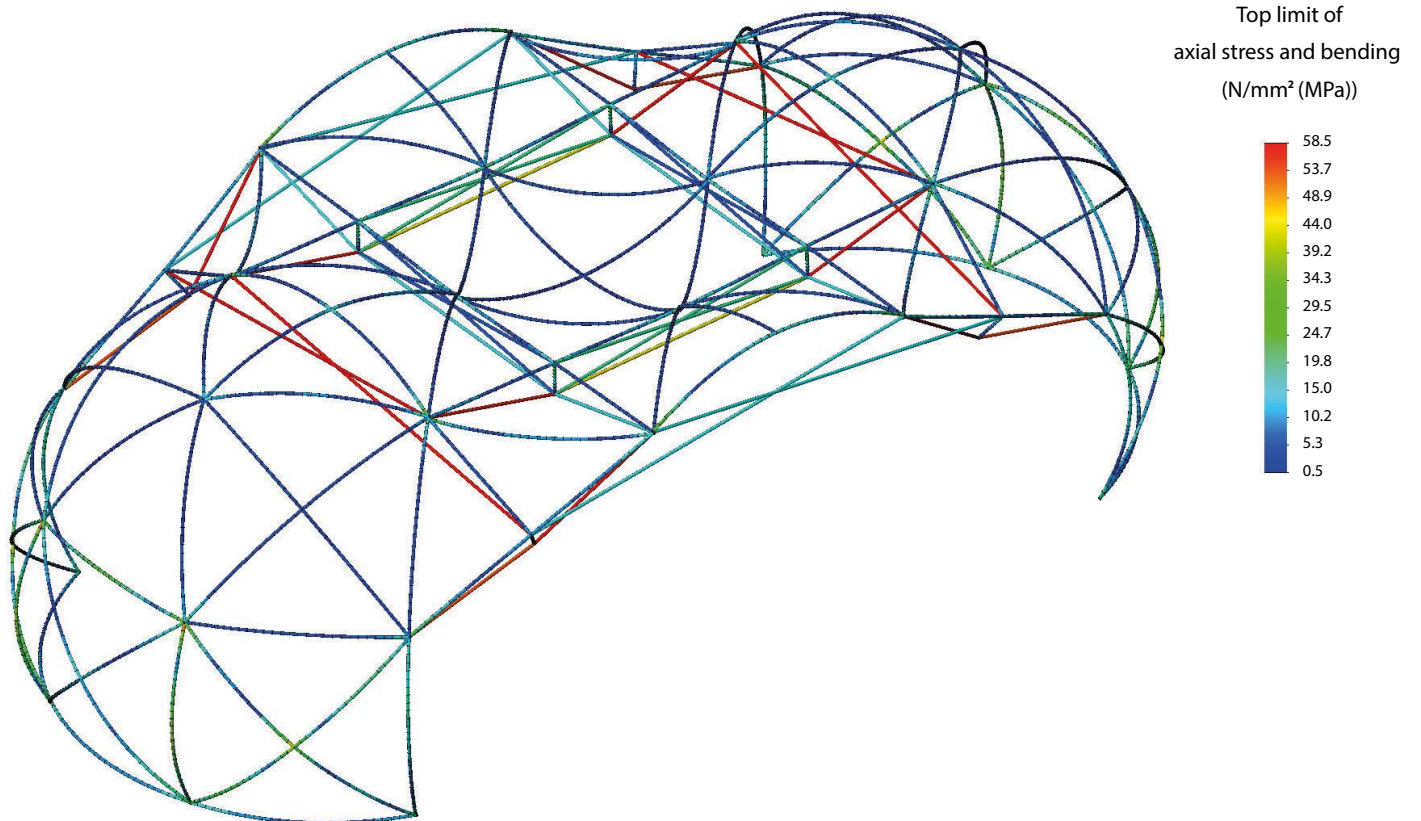
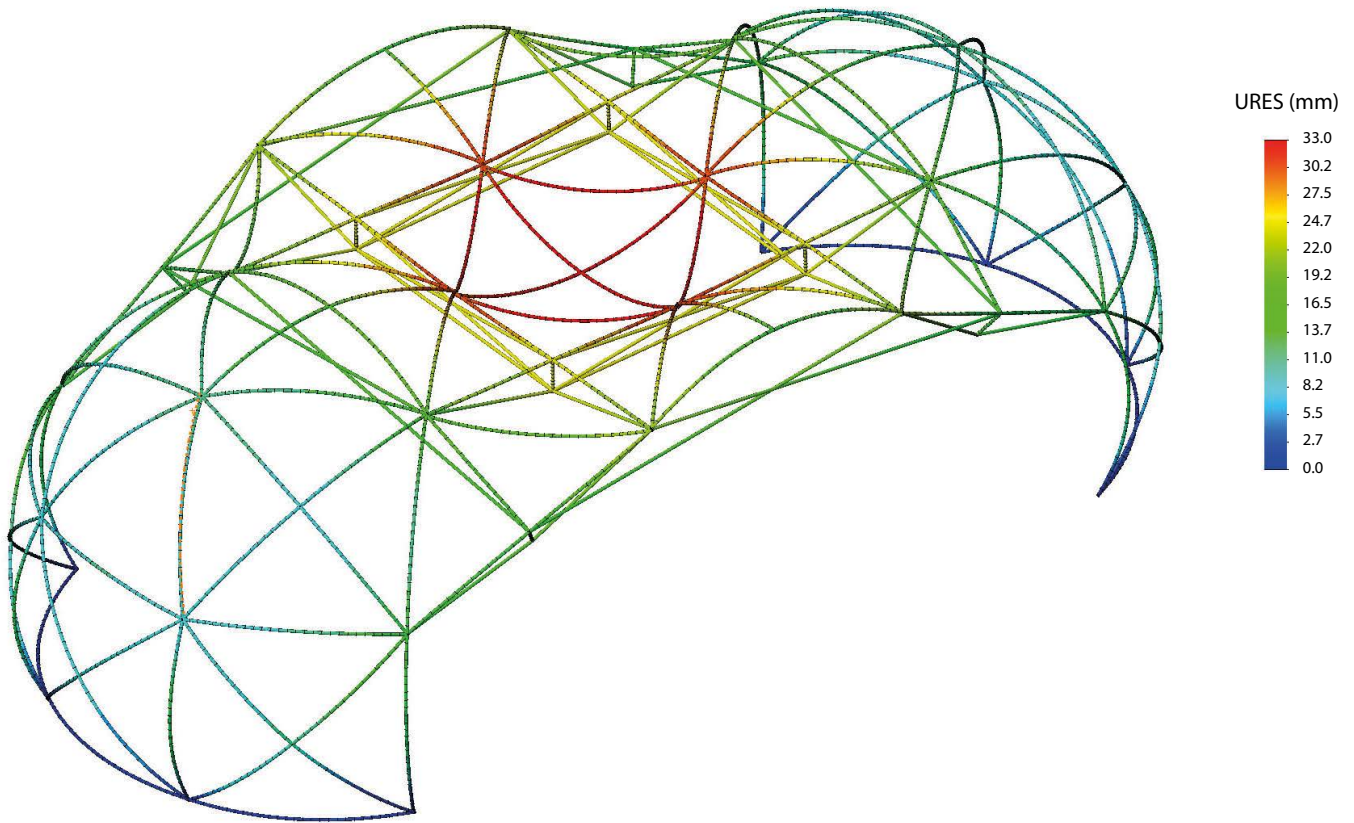
Size (LxWxH) : 17.0 x 8.7 x 5.9 m.



Allocation of factor of safety

Minimal FoS by YS = 3,0







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Exhibition Interior Architecture

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