Test report

No.: 22-00075-CP-PRG-01

Test of a type of a vehicle
with regard to UN Regulation No. **14.00**
taking into consideration amendment No. **14.09, Supplement 1**
Approval subject: **Strength of safety belt anchorages**

And

Test of a type of a vehicle
with regard to UN Regulation No. **145.00**
taking into consideration amendment No. **145.00, Supplement 00, corrigendum 01**
Approval subject: **Uniform provisions concerning the approval of vehicles with regard to ISOFIX anchorages systems ISOFIX top tether anchorages and i-Size seating positions**

Approval status		
☐	Granting of a type approval	N/A
☐	Extension/correction to type approval no.	N/A

Test report only

0. Extension to cover:

- **Update of Information folder (addition of information about UN Regulations No.16 and 17)**
- **Editorial changes**

I. General

Make	MOBIFRAME
Type:	SAF42, SAF43
Category of vehicle:	M1, N1, M2, N2
Name and address of manufacturer	OKB SP. Z O.O. ul. Szkolna 9, Bukowiec 95-006, Brójce Poland
Reference number of information folder:	MOBIFRAME/07/2022-01
Date of issue of information folder:	15.02.2023

II. Test results

Refer to the Annex

III. Enclosures

Information Folder

IV. Statement of conformity

The mentioned information folder and the type described therein are in accordance with the test basis mentioned above. The worst-case was selected in accordance with document "Requirements for Test Reports (AS-PB-T-02)".

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Vehicle Certification Agency (VCA)	Vereinigtes Königreich *United Kingdom*	VCA-TS-006
Approval Authority of the Netherlands (RDW)	Niederlande *The Netherlands*	RDWT-082-xx
National Standards Authority of Ireland (NSAI)	Irland *Ireland*	Technical Service Number: 49
Vehicle Safety Certification Center (VSCC)	Taiwan/Taiwan	DE04-06-2
Société Nationale de Certification et d'Homologation s.à r.l.	Luxemburg *Luxembourg*	13/B(g)
Swedish Transport Agency (STA)	Schweden *Sweden*	TT 0024

Munich, 17.02.2023

Technischer Dienst Technical Service TÜV SÜD Auto Service GmbH 152

Ing. Vít Bursík
Authorized signatory

Annex

Test report

1. Technical data of the test sample

1.1	Make:	MOBIFRAME
1.2	Type:	SAF42, SAF43
1.2.1.	Variant/Version:	SAF42_???_?_??? – 2-seating positions SAF43_???_?_??? – 3-seating positions SAF??_SLM_?_??? – slim version of seat cushion SAF??_???_L_??? – fixation to the floor via quick release system SAF42_???_?_097 – bench width 97 cm SAF42_???_?_100 – bench width 100 cm SAF42_???_?_112 – bench width 112 cm SAF43_???_?_118 – bench width 118 cm SAF43_???_?_120 – bench width 120 cm SAF43_???_?_126 – bench width 126 cm SAF43_???_?_150 – bench width 150 cm
1.3	Commercial description(s):	SAF42, SAF43

1.3.1. Remark

Detailed drawings and description of benches (SAF42, SAF43) and their fixation solutions in vehicles are included in Information Document MOBIFRAME/07/2022-00 attached to this test report.

Test results and comparison of SAF42 and SAF43 anchorage points geometry and its influence on the vehicle's floor are presented in section "3. Test results" of this report.

1.4	Category of vehicle:	M1, N1, M2, N2
1.5	Test object:	Seat bench type SAF42 and SAF43 mounted in representative vehicle bodies (VW T6 and MB Sprinter) and on rigid test bench). For details see manufacturer's information folder.

1.6. Table of vehicle types for which is seat bench intended to use:

Manufacturer	Commercial description / Type or model designation	Wheelbase
Daimler / Mercedes-Benz	Sprinter (906, 907)	3250, 3665, 4325
	Sprinter, e-Sprinter (910)	3259, 3924
	Vito/Viano/V-klasse, e-Vito (639, 639/2, 639/4, 639/5)	3200, 3430
VW	Crafter (2E__, 3E__)	3250, 3665, 4325
	Crafter, e-Crafter (SYN__, SYM__ e.g. SYN1E, SYM1E, SYN2E, SYM2E, SYN2Z, SYM2Z)	3640, 4490
	T5 (7H_, 7E_, 7J_)	3000, 3400
	T6, T6.1, e-Transporter (7H_, 7E_, 7J_)	3000, 3400
Citroen	Jumper, e-Jumper (Y, CY)	3000, 3450, 4035
	Jumpy (G9/X, V)	3000, 3122
	Jumpy, e-Jumpy (G9/X, V)	2925, 3275
	SpaceTourer, E-SpaceTourer (V)	2925, 3275
	Berlingo, E-Berlingo	2785, 2975
Peugeot	Boxer, e-Boxer (Y)	3000, 3450, 4035
	Expert (VF3__)	3000, 3122
	Expert, e-Expert (G9/X, V)	2925, 3275
	Traveller, e-Traveller (V)	2925, 3275
	Rifter, e-Rifter	2785, 2975
Fiat	Ducato, e-Ducato (250)	3000, 3450, 4035
	Scudo (270)	3000, 3122
	Scudo (2022-…)	2925, 3275
	Talento (FJL, FFL)	3098, 3498
Opel	Movano (MR, MS, MW, MT)	3182, 3682, 4332
	Movano, Movano-e (Y)	3000, 3450, 4035
	Vivaro (F7)	3098, 3498
	Vivaro, Vivaro-e, Vivaro e-Kombi, Vivaro Life**,** Zafira Life (V)	2925, 3275
	Combo Life, Combo-e Life	2785, 2975
Renault	Master, Master E-Tech (FV, MA, MC, ML, MW, MR, MT, VA)	3182, 3682, 4332
	Trafic (FL, EL, L)	3098, 3498
	Trafic 2014 (JL, L)	3098, 3498
Renault Trucks	Master (MA, MB, MF, MG, VA, VB, VF, VG)	3182, 3682, 4332
Ford	Transit, (FA_, FD_, FS_, FZ_, FN_, FM_)	2933, 3300, 3750
	Transit, e-Transit (FC_)	3300, 3750, 3954
	Transit Custom, Turneo Custom (FA_, FB_, FC_, FD_, FE_, FF_)	2933, 3300
	Transit Connect (PU2)	2662, 3062
Iveco	Daily, Daily Electric (IS_____)	3000, 3300, 3520, 3950, 4100, 4750
Nissan	NV200	2725
	NV300, Primastar (4)	3098, 3498
	NV400 (M1)	3182, 3682, 4332
Toyota	Pro Ace (2013-2016)	3000, 3122

	Pro Ace, Pro Ace Verso, Pro Ace Electric (X, V)	2925, 3275
MAN	TGE, eTGE (SYN__, SYM__ e.g. SYN1E, SYM1E, SYN2E, SYM2E, SYN2Z, SYM2Z)	3640, 4490
MAXUS (LDV)	V80, Maxus (SV6C)	3100, 3850
	V90, Deliver 9, E-Deliver 9	3000, 3366, 3760
	Deliver 3, E Deliver 3	2910, 3285
Hyundai	H350 (EU(V))	3435, 3670
RAM	ProMaster	3000, 3450, 4035
Freightliner/Dodge	Sprinter	3250, 3665, 4325

1.7.	Type of bodywork using the codes set out in Part C of Annex II of Directive 2007/46/EC and/or in Part C of Annex I of Regulation (EU) 2018/858:	AC, AF, BB, BX, CA, SA, SG, SH
1.8.	Mass of seats:	SAF42 – 115 kg – mass of the heaviest configuration SAF43 – 135 kg – mass of the heaviest configuration

2. Test conditions

2.1. UN Regulation No. 14.09

2.1.1. Instrumentation:

- Digital ballance
- Electrohydraulic test device and respective fixtures
- Force measuring chain with load cells
- Interface 1210AF
- Tape rule

2.1.2. Ambient conditions:

Normal laboratory conditions, not directly limited in Regulation

2.2. UN Regulation No. 145.00

2.2.1. Instrumentation:

- Electro-hydraulic test equipment and control unit
- Force measuring chain
- Data acquisition unit
- Traction devices
- 3D H-point measurement device
- Tape measure

2.2.2. Ambient conditions:

Normal laboratory conditions, not directly limited in Regulation

3. Test results

3.1 Test procedures used (UN Regulation 14):

Strength test of safety belt anchorages according to UN Regulation 14.09 concerning to strength of seat bench to vehicle floor.

Floor system strength including seat to vehicle attachment and legs strength:

MOBIFRAME composite floor type FL

See test report No. 22-00051-CP-PRG-00 (ECE 14.09)

For seat bench

Make/ (*) Brand name of products	Seat type	Mass of the heaviest configuration (seat + legs/base)	Fulfilling of requirements
MOBIFRAME	SAF42 (SAF42 with 2 seat positions)	115 kg	See point 3.2.1, 3.2.2.,
MOBIFRAME	SAF43 (SAF43 with 3 seat positions)	135 kg	See point 3.2.3., 3.2.4.

(*) if stated, otherwise only the manufacturer

The below mentioned test results cover all variants including the maximum mass stated in the enclosed information document (seat bench, seat-to-vehicle anchorages, seat bench arrangement, removable elements and floor to vehicle attachment).

Geometrical requirements are fulfilled; all the seat belts anchorages are provided on- seat.

3.2. Forward facing seats for M1/N1 vehicles:

3.2.1. Seat bench type SAF42 (with 2 seats) mounted on representative vehicle body structure (VW T6 representative of small Vans).

Mass of the heaviest possible seat configuration covered by the test m_s = 115 kg.

Additional force applied to seat base:
F_z = 20 x ms x g (N) as relevant for M1 vehicle category.

Seat	Left	Right
Safety belt	Ar	Ar
Upper belt anchorage	Seat structure	Seat structure
Lower belt anchorages	Seat structure	Seat structure
Required force in shoulder belt portion	13 500 ± 200 N	13 500 ± 200 N
Required force lap belt portion	13 500 ± 200 N	13 500 ± 200 N
Required force inertia	23 000 N	
Force in the shoulder belt	13 650 N / > 0,2 s	13 500 N / > 0,2 s
Force in the lap belt	13 700 N / > 0,2 s	13 700 N / > 0,2 s
Inertia force in the seat base	24 000 N / > 0,2 s	
Displacement of upper anchorage point of seat bench	184 mm	
Remark: No ruptures occurred. Additional force is added to seat base. Upper anchorage points were in tolerance.		

3.2.2. Seat bench type SAF42 (with 2 seats) mounted on representative vehicle body structure (Mercedes Sprinter - representative of big Vans).

Mass of the heaviest possible seat configuration covered by the test m_s = 115 kg.

Additional force applied to seat base:
F_z = 20 x ms x g (N) as relevant for M1 vehicle category.

Seat	Left	Right
Safety belt	Ar	Ar
Upper belt anchorage	Seat structure	Seat structure
Lower belt anchorages	Seat structure	Seat structure
Required force in shoulder belt portion	13 500 ± 200 N	13 500 ± 200 N
Required force lap belt portion	13 500 ± 200 N	13 500 ± 200 N
Required force inertia	23 000 N	
Force in the shoulder belt	13 650 N / > 0,2 s	13 550 N / > 0,2 s
Force in the lap belt	13 750 N / > 0,2 s	13 700 N / > 0,2 s
Inertia force in the seat base	24 000 N / > 0,2 s	
Displacement of upper anchorage point of seat bench	176 mm	
Remark: No ruptures occurred. Additional force is added to seat base. Upper anchorage points were in tolerance.		

3.2.3. Seat bench type SAF43 (with 3 seats) mounted on representative vehicle body structure (VW T6 representative of small Vans).

Mass of the heaviest possible seat configuration covered by the test m_s = 135 kg.

Additional force applied to seat base:
F_z = 20 x ms x g (N) as relevant for M1 vehicle category.

Seat	Left	Central	Right
Safety belt	Ar	Ar	Ar
Upper belt anchorage	Seat structure	Seat structure	Seat structure
Lower belt anchorages	Seat structure	Seat structure	Seat structure
Required force in shoulder belt portion	13 500 ± 200 N	13 500 ± 200 N	13 500 ± 200 N
Required force lap belt portion	14 500 ± 200 N*	14 500 ± 200 N*	14 500 ± 200 N*
Required force inertia	24 500 N		
Force in the shoulder belt	13 600 N / > 0,2 s	13 400 N / > 0,2 s	13 800 N / > 0,2 s
Force in the lap belt	14 550 N / > 0,2 s*	14 400 N / > 0,2 s*	14 700 N / > 0,2 s*
Inertia force in the seat base	24 900 N / > 0,2 s		
Displacement of upper anchorage point	170 mm	214 mm	214 mm
Remark: No ruptures occurred. Additional force is added to seat base and lap belt portion too*. Upper anchorage points were in tolerance.			

3.2.4. Seat bench type SAF43 (with 3 seats) mounted on representative vehicle body structure (Mercedes Sprinter - representative of big Vans).

Mass of the heaviest possible seat configuration covered by the test m_s = 135 kg.

Additional force applied to seat base:
F_z = 20 x ms x g (N) as relevant for M1 vehicle category.

Seat	Left	Central	Right
Safety belt	Ar	Ar	Ar
Upper belt anchorage	Seat structure	Seat structure	Seat structure
Lower belt anchorages	Seat structure	Seat structure	Seat structure
Required force in shoulder belt portion	13 500 ± 200 N	13 500 ± 200 N	13 500 ± 200 N
Required force lap belt portion	14 500 ± 200 N*	14 500 ± 200 N*	14 500 ± 200 N*
Required force inertia	24 500 N		
Force in the shoulder belt	13 900 N / > 0,2 s	13 700 N / > 0,2 s	13 850 N / > 0,2 s
Force in the lap belt	14 600 N / > 0,2 s*	14 600 N / > 0,2 s*	14 650 N / > 0,2 s*
Inertia force in the seat base	24 800 N / > 0,2 s		
Displacement of upper anchorage point	170 mm	177 mm	177 mm
Remark: No ruptures occurred. Additional force is added to seat base and lap belt portion too*. Upper anchorage points were in tolerance.			

3.3. Test procedures used (UN Regulation R145):

Test of 2 seat bench type SAF42 and SAF43 - strength of ISOFIX and Top-tether anchorages according to UN Regulation 145.00.

The below mentioned test results cover all variants including the maximum mass stated in the enclosed information document
(seat, seat-to-vehicle anchorages, seat arrangement).

Make/ (*) Brand name of products	Name	Vehicle category	Direction of test forces	Fulfilling of requirements
MOBIFRAME	SAF43 with TOP TETHER	M1, N1, M2, N2	Forward	See point 3.3.1.
	SAF43 without TOP TETHER	M1, N1, M2, N2	Forward	See point 3.3.2.
	SAF43 without TOP TETHER	M1, N1, M2, N2	Oblique	See point 3.3.3.

(*) if stated, otherwise only the manufacturer

Note: For M1 category minimum 2 seats with ISOFIX anchorage systems and their ISOFIX top tether anchorages shall be mounted. At least one of them shall be in 2nd row of seats.

3.3.1. Seat bench type SAF43 - ISOFIX with Top Tether – forward direction

Seat bench SAF43	Left seat	Right seat
Required force	8 000 ± 250 N	8 000 ± 250 N
Max. measured force	7 950 N	8 000 N
Displacement of X point SFAD device (max 125 mm)	65 mm	65 mm
Result	Without failure	Without failure

3.3.2. Seat bench type SAF43 - ISOFIX without Top Tether – forward direction

Seat bench SAF43	Left seat	Right seat
Required force	8 000 ± 250 N	8 000 ± 250 N
Max. measured force	7 850 N	8 000 N
Displacement of X point SFAD device (max 125 mm)	66 mm	62 mm
Result	Without failure	Without failure

3.3.3. Seat bench type SAF43 - ISOFIX without Top Tether – oblique direction

Seat bench SAF43	Left seat	Right seat
Required force	5 000 ± 250 N	5 000 ± 250 N
Max. measured force	4 900 N	4 900 N
Displacement of X point SFAD device (max 125 mm)	91 mm	49 mm
Result	Without failure	Without failure

Note:
Test results of ISOFIX system of seat bench type SAF43 valid for seat bench type SAF42 too.

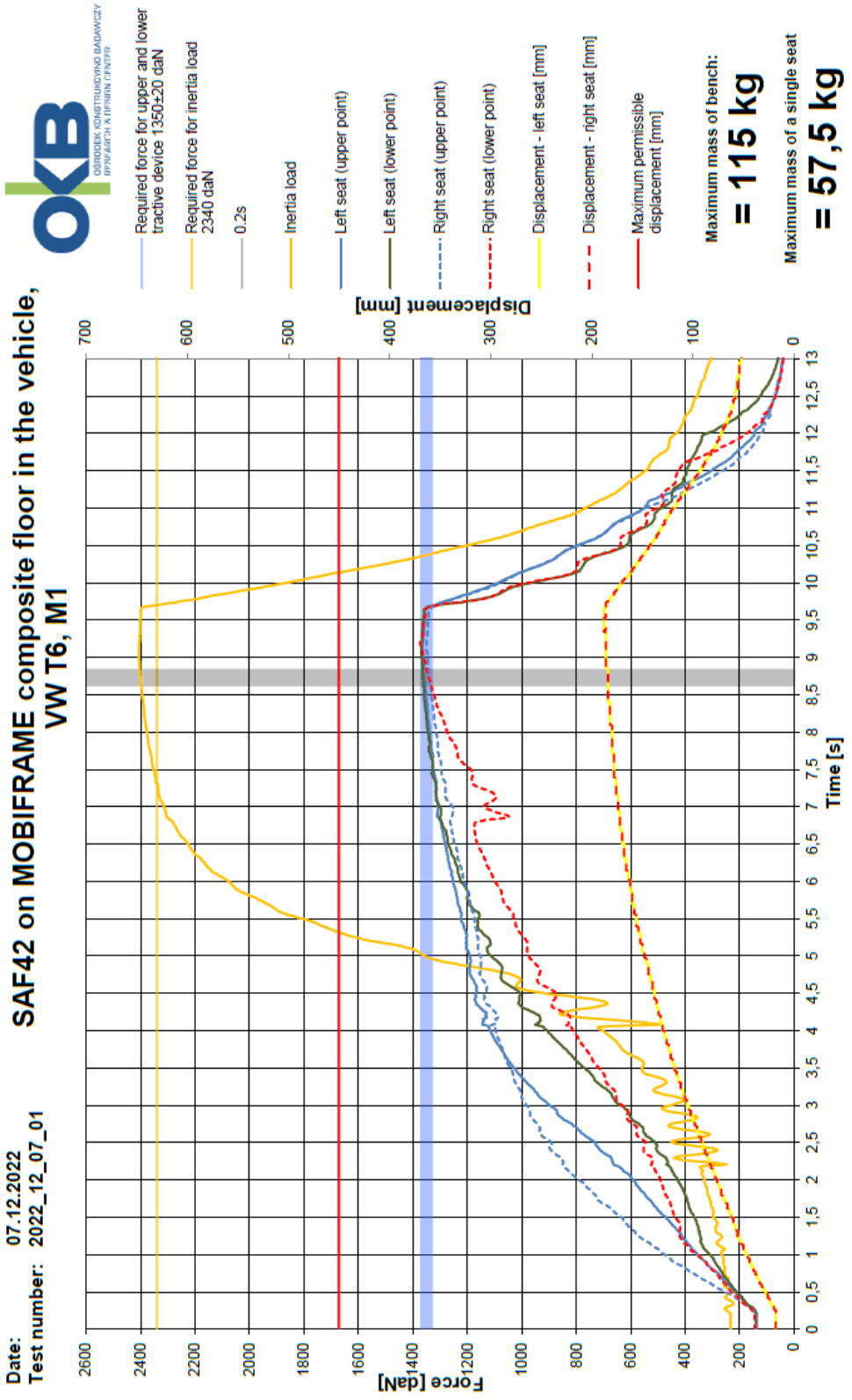
3.4. Final assessment:

Presented test results prove, that seat benches SAF42 and SAF43 meet the requirements of UN Regulation 14-09 and UN Regulation 145-00 and can be used in the M1, N1, M2 and N2 vehicles, if they are fixed as presented in Information Document MOBIFRAME/07/2022-00).

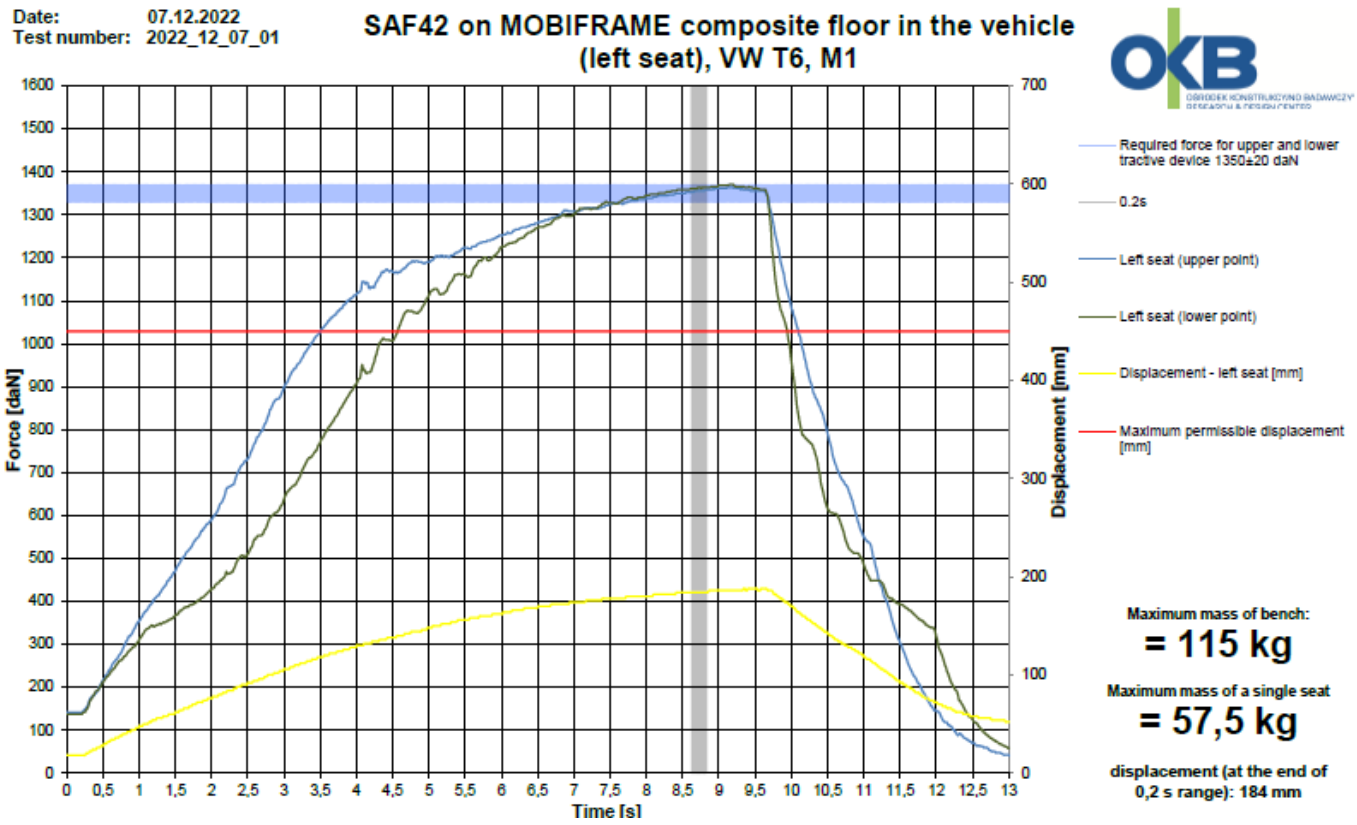
3.6. Test records

3.6.1. Graphs:

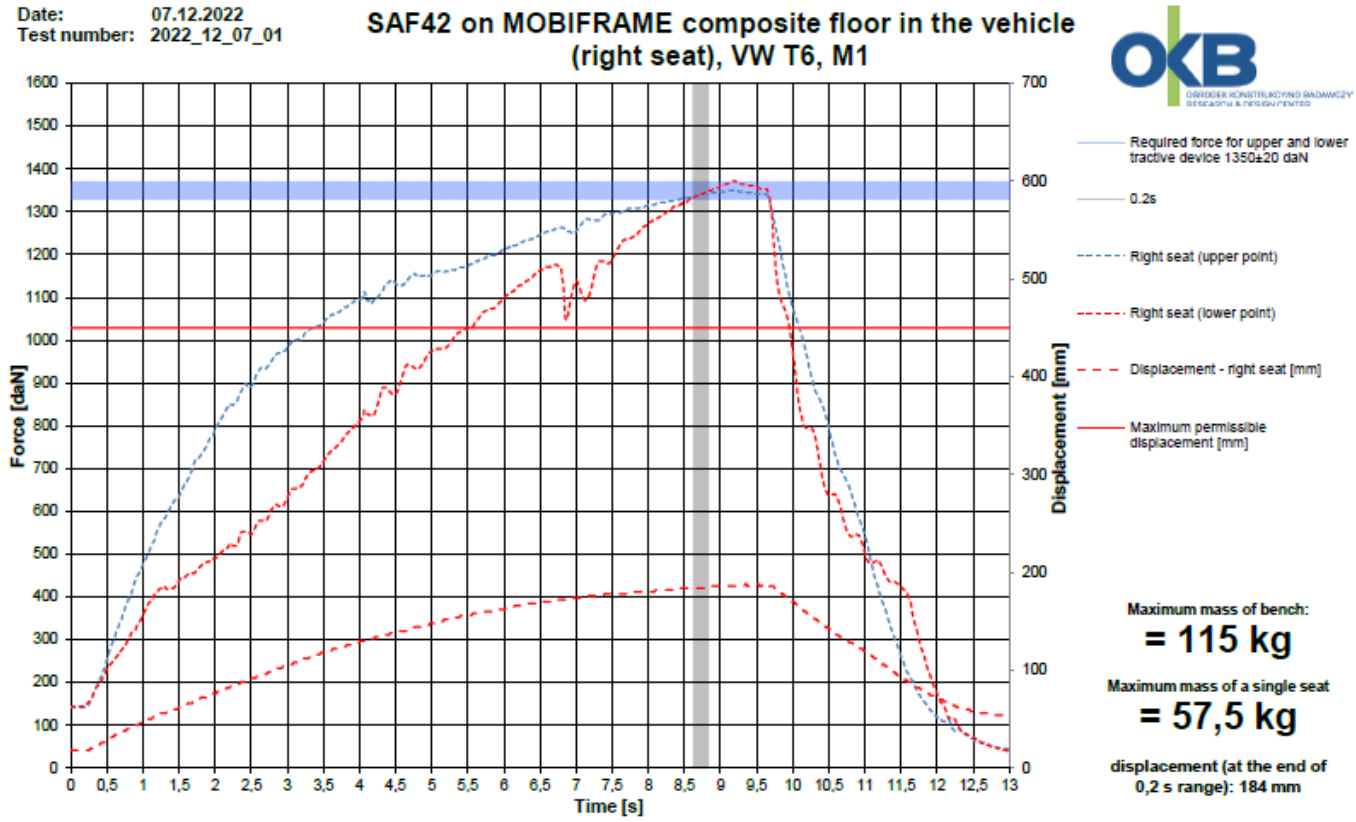
3.2.1. Seat bench type SAF42 installed in VW T6 vehicle body



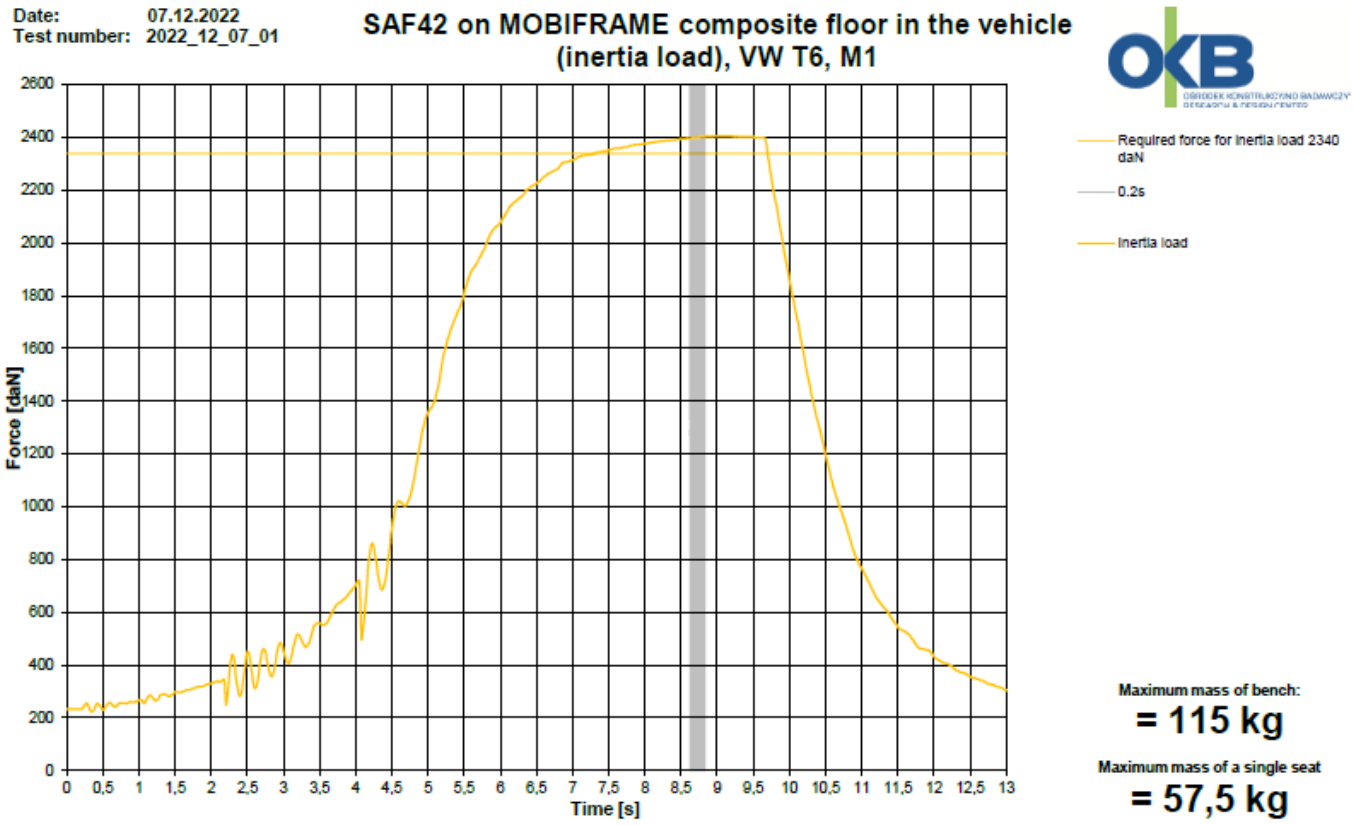
3.2.1. Left seat of seat bench type SAF42



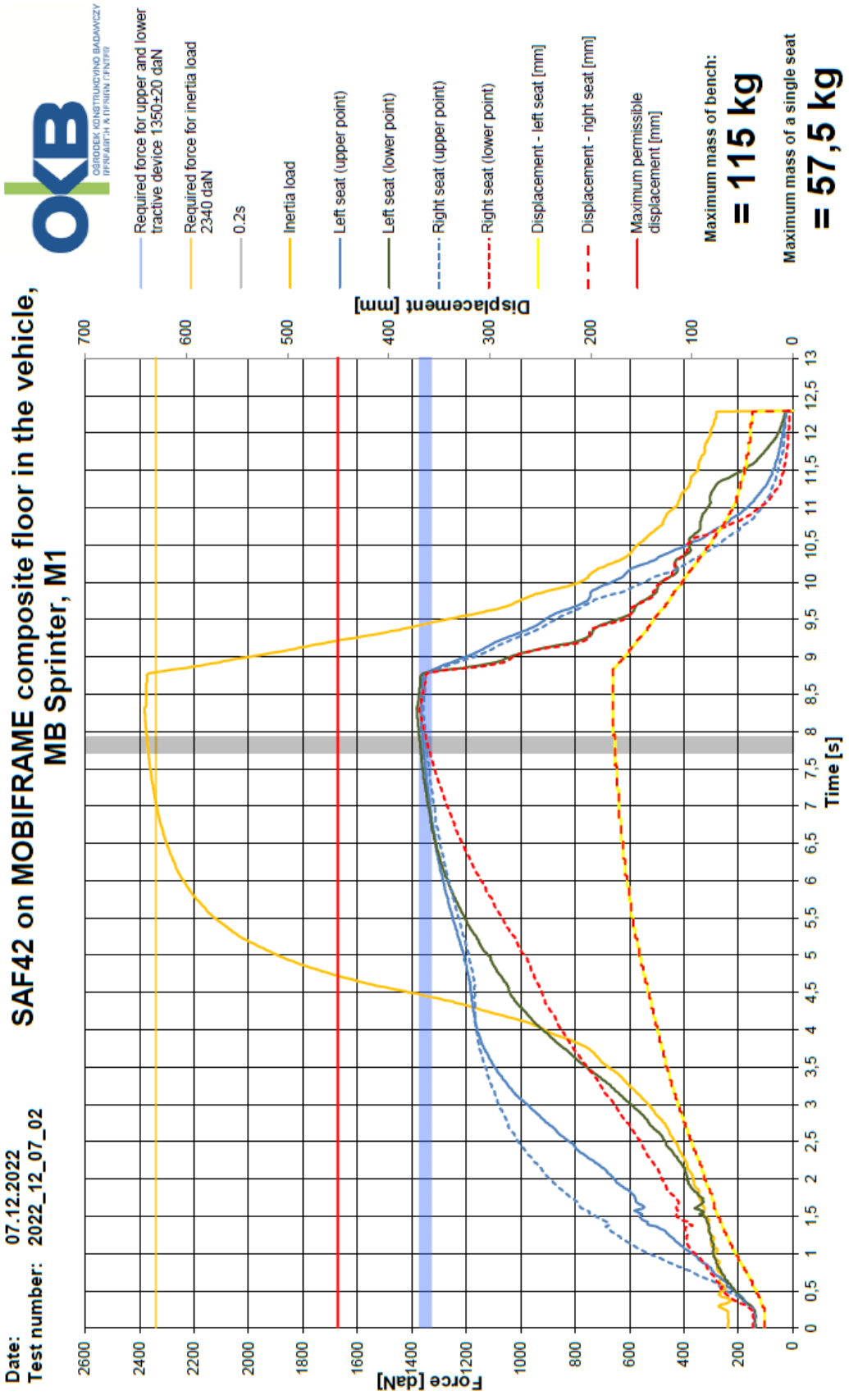
3.2.1. Right seat of seat bench type SAF42



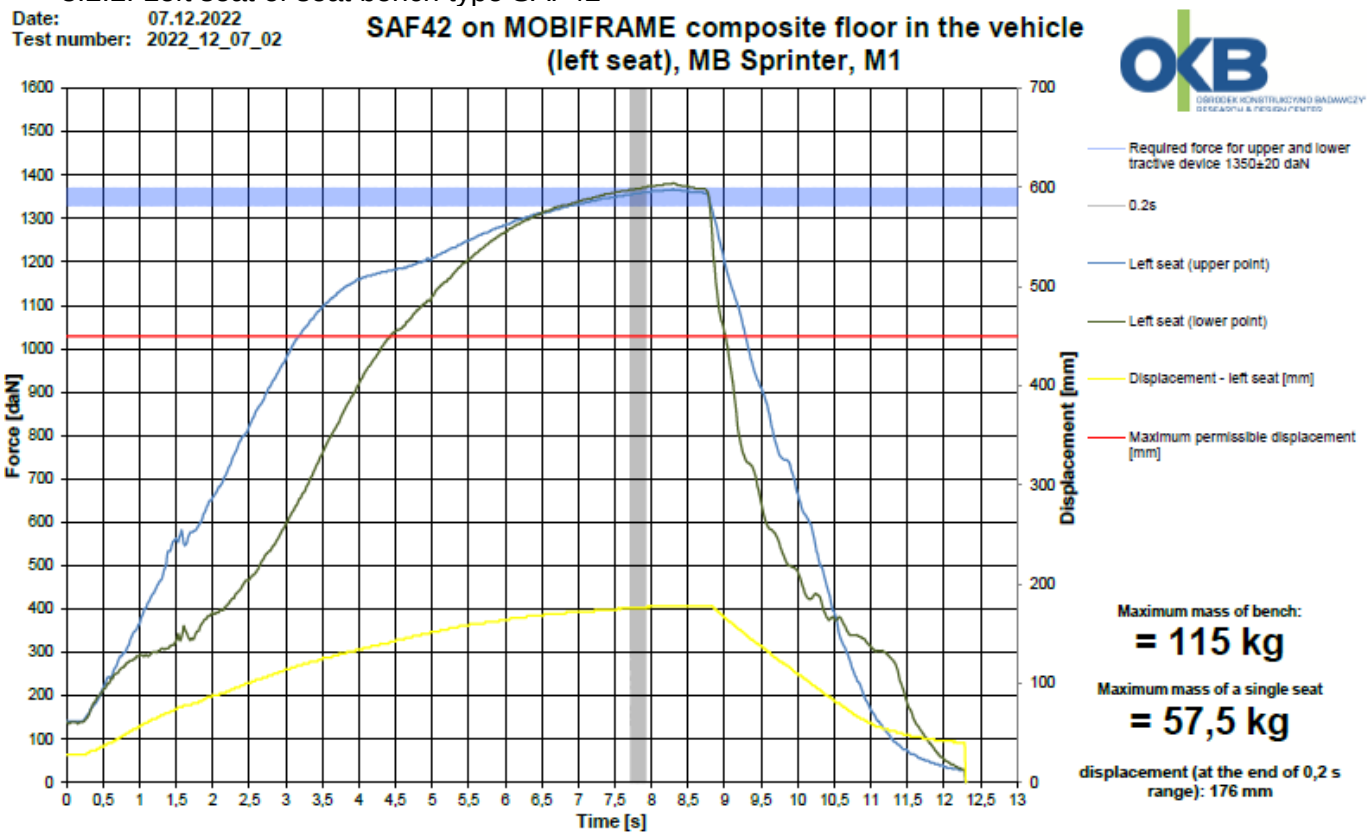
3.2.1. - Inertia load of SAF42 – Additional force applied to seat bench base (frame base)



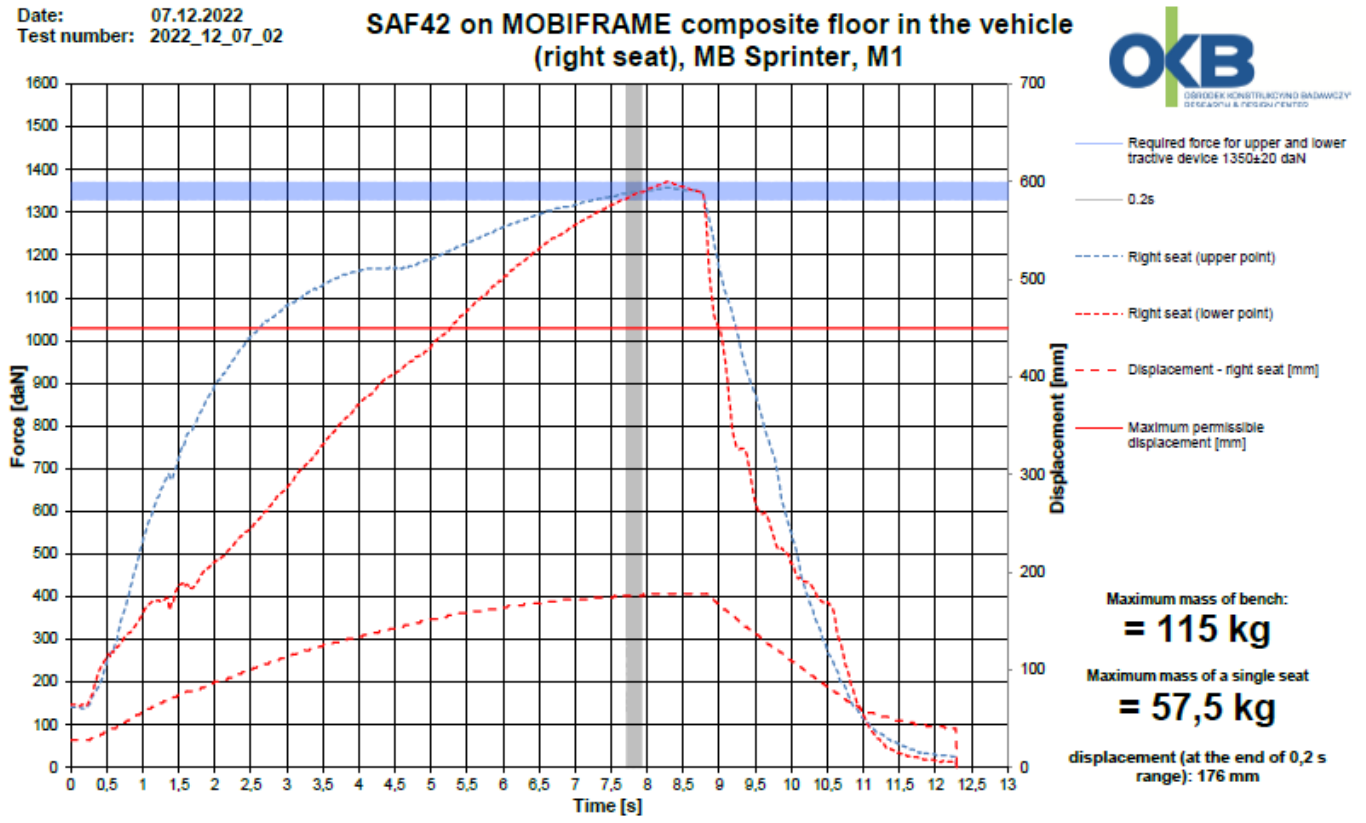
3.2.2. - Seat bench type SAF42 installed in Mercedes Sprinter vehicle body



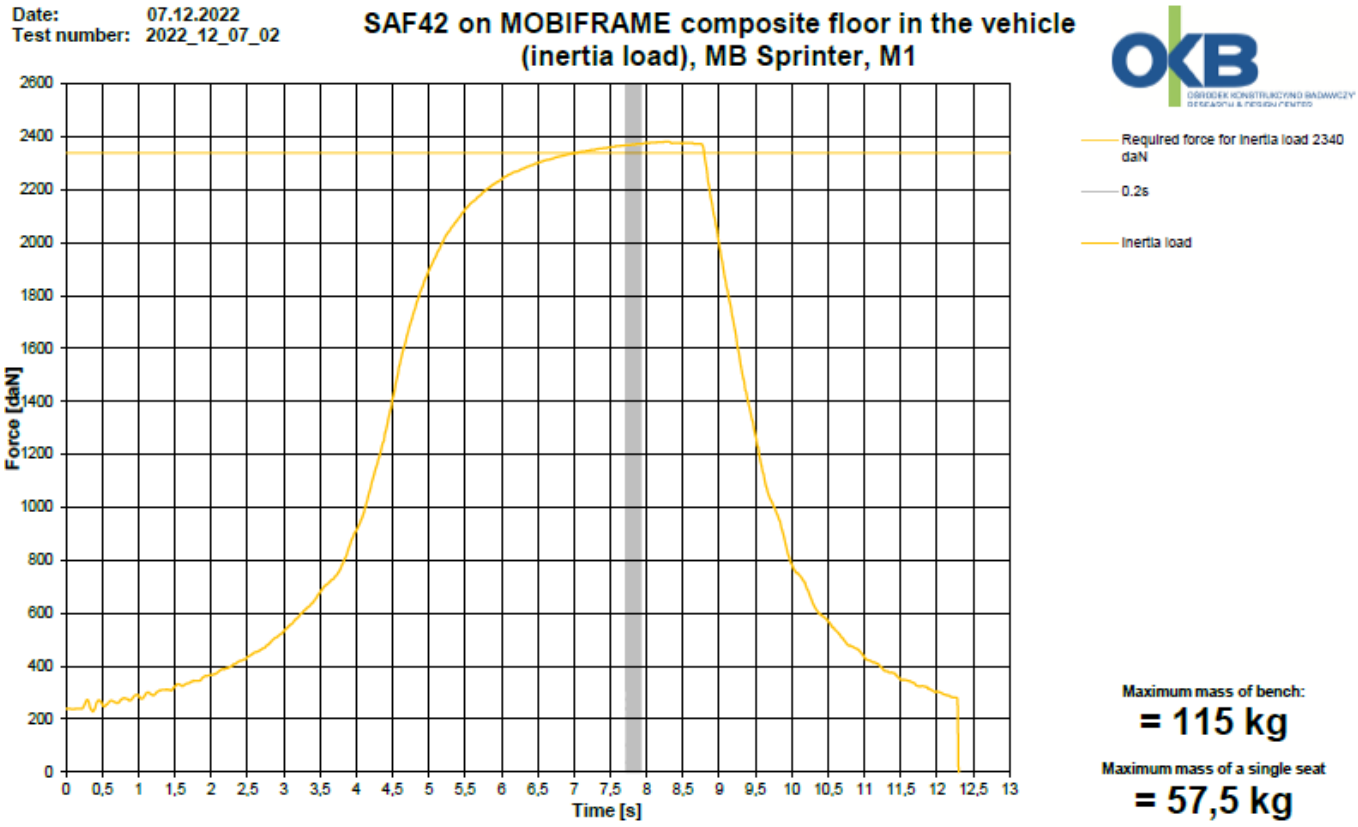
3.2.2. Left seat of seat bench type SAF42



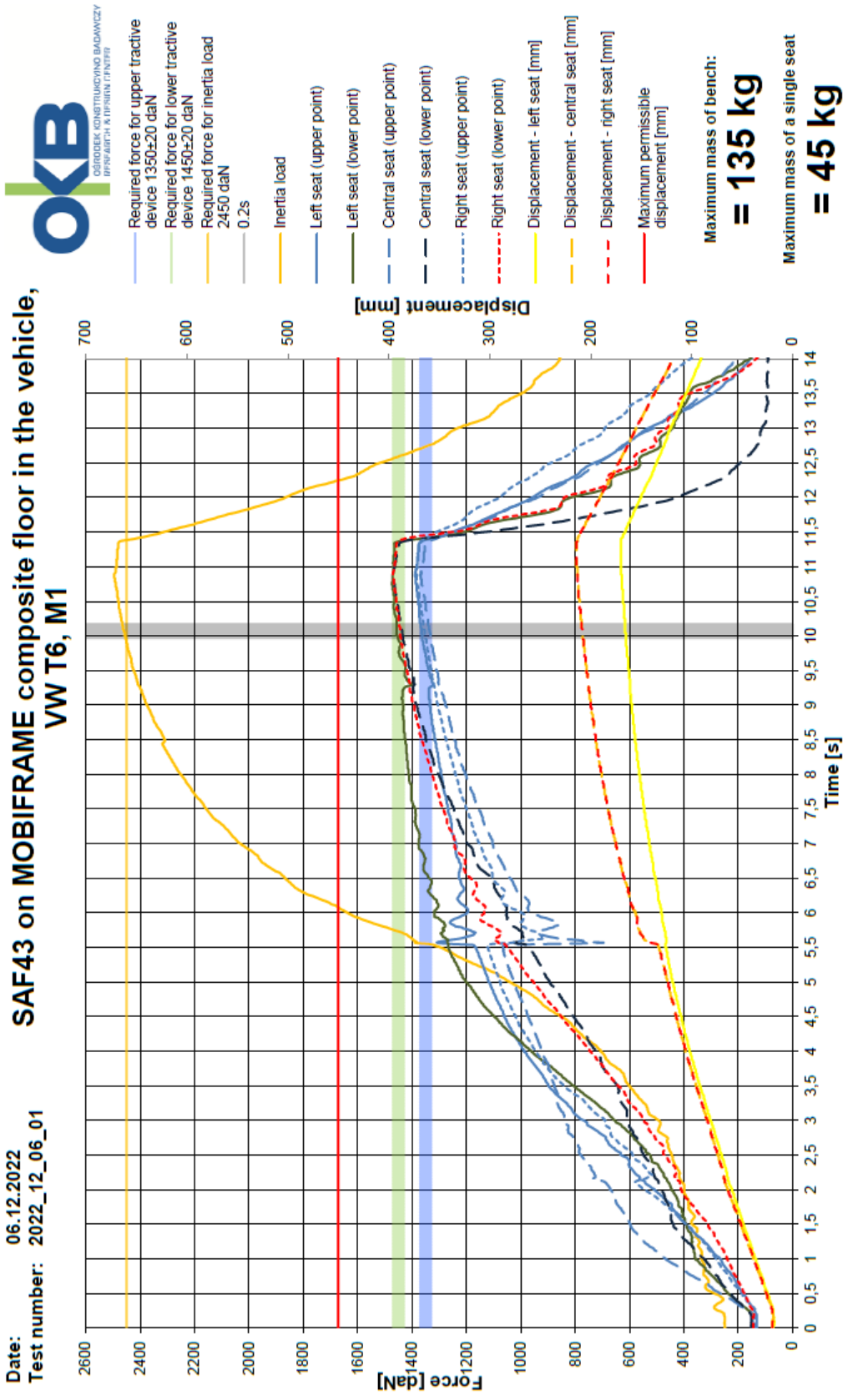
3.2.2. Right seat of seat bench type SAF42



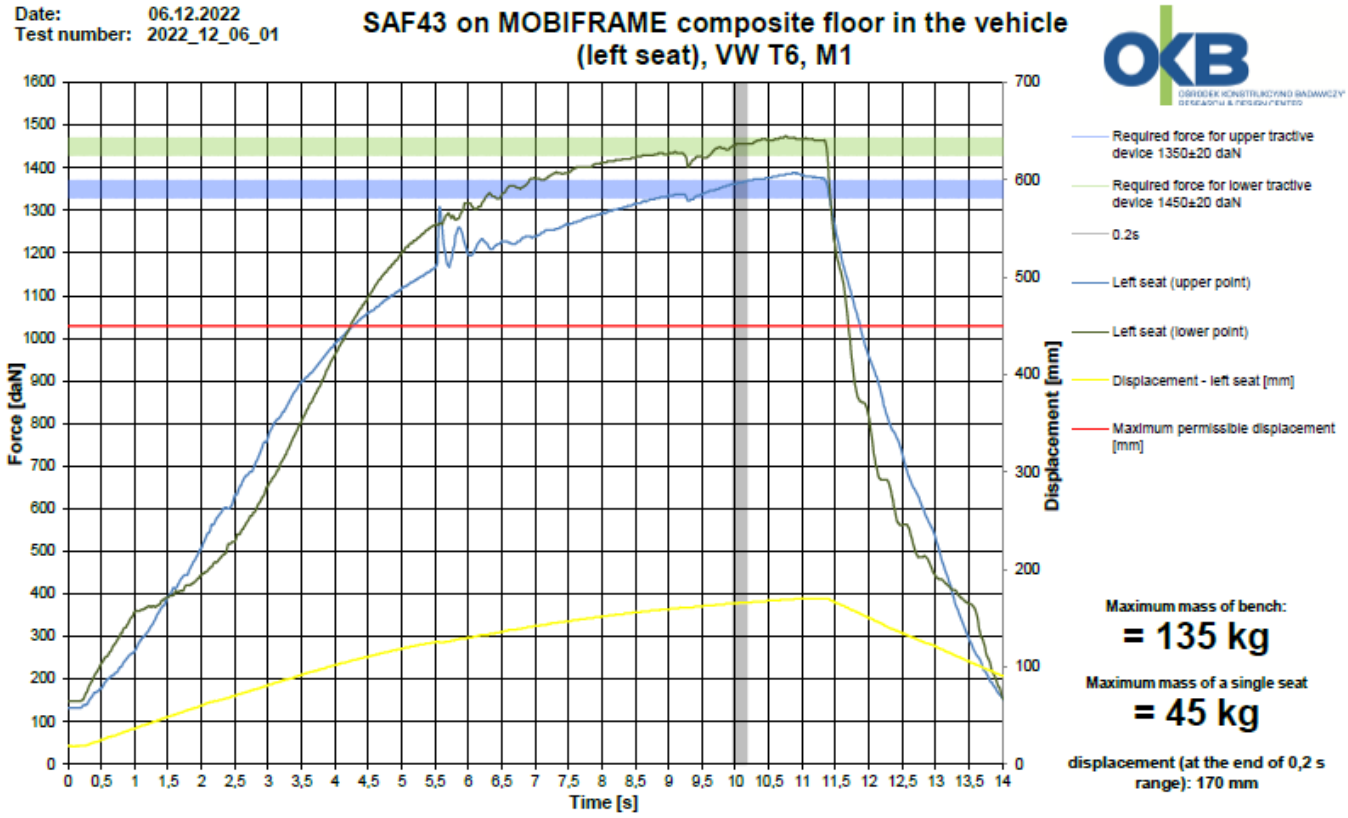
3.2.2. - Inertia load of SAF42– Additional force applied to seat bench base (frame base)



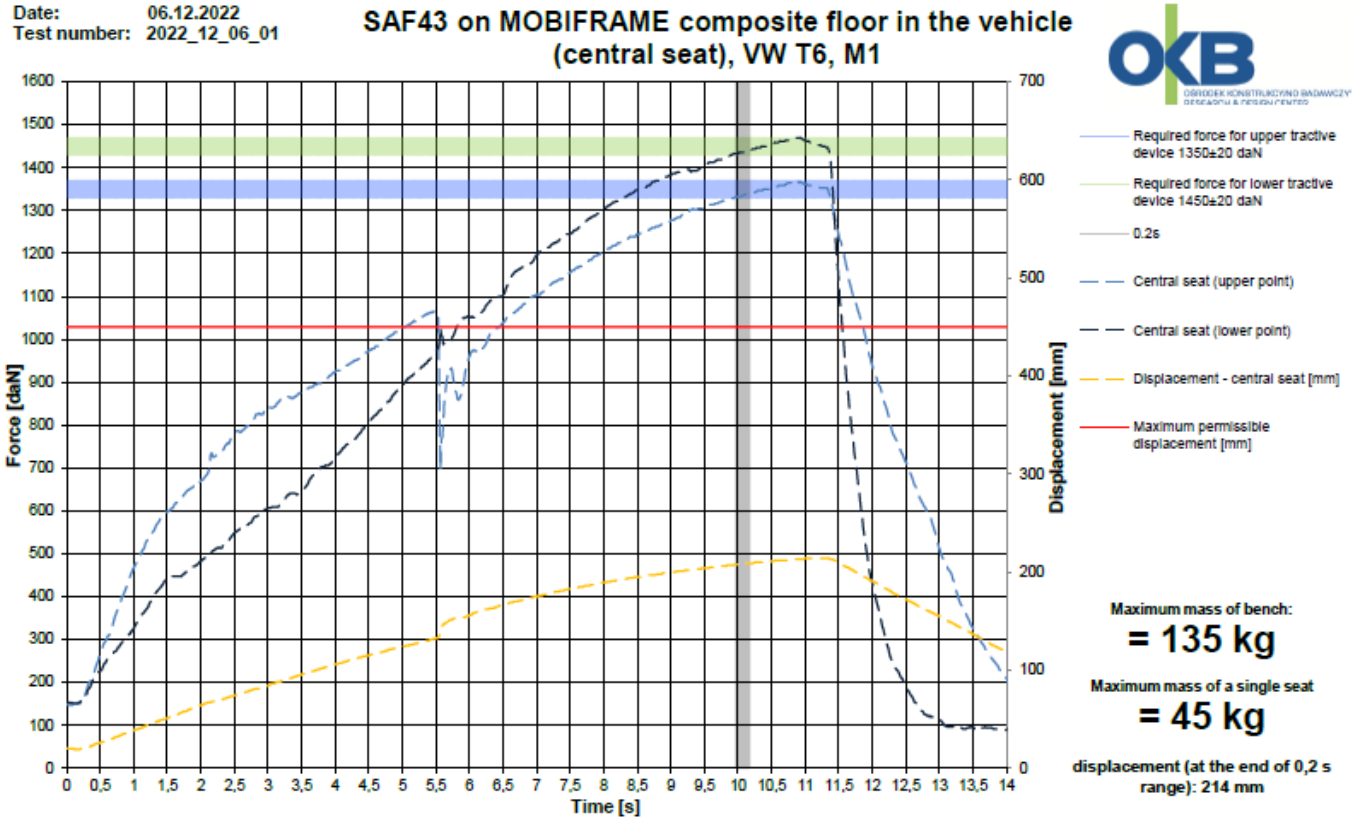
3.2.3. Seat bench type SAF43 installed in VW T6 vehicle body (3 seats)



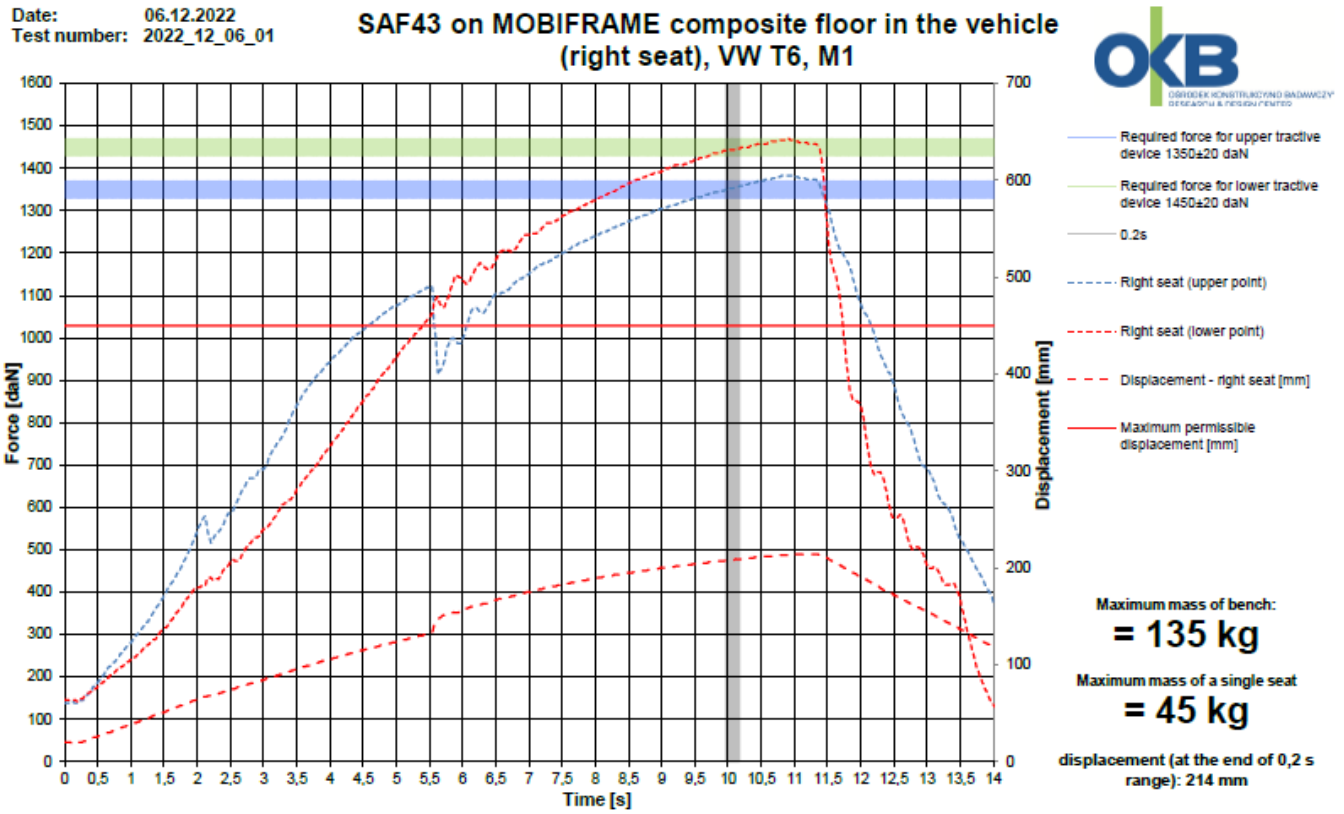
3.2.3.1. Left seat of seat bench type SAF43



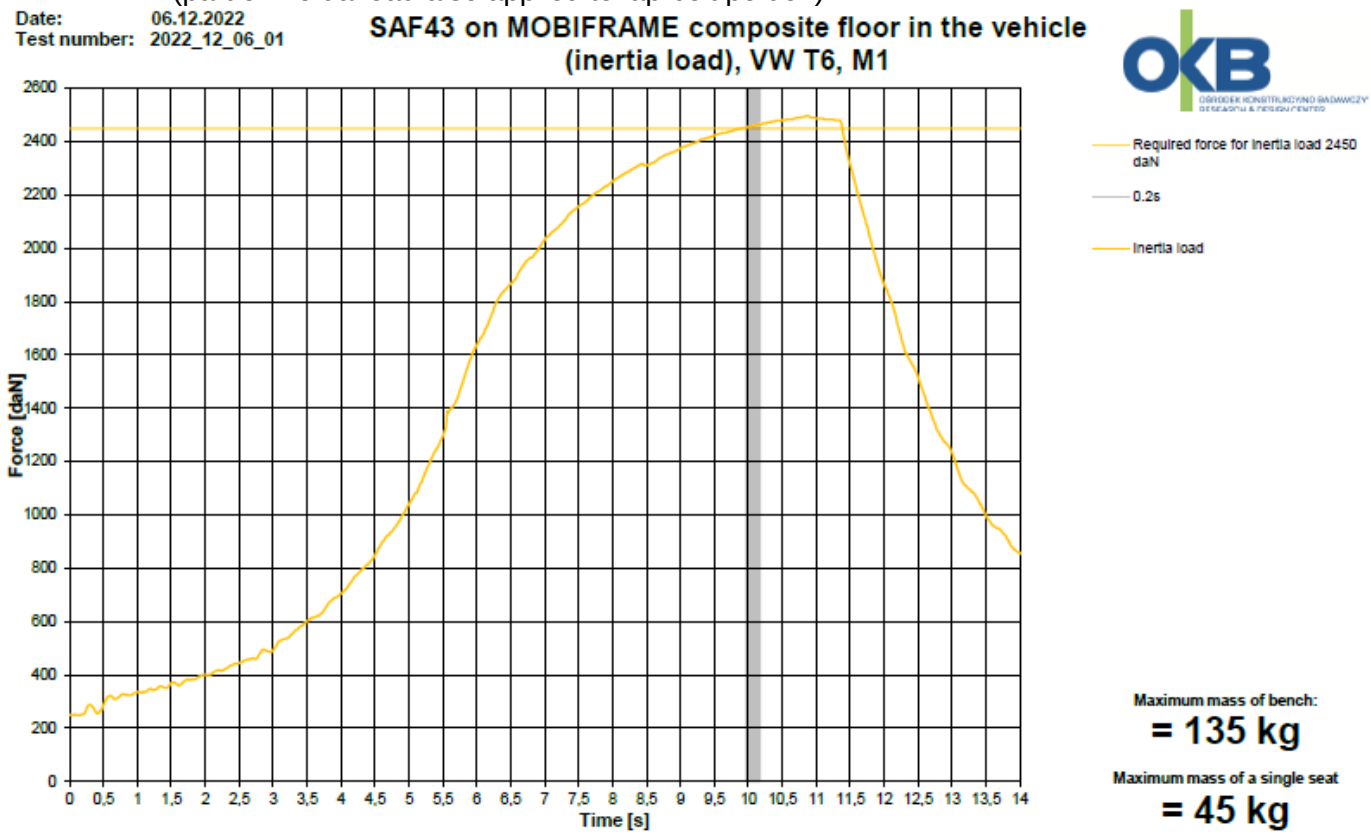
3.2.3.2. Central seat of seat bench type SAF43



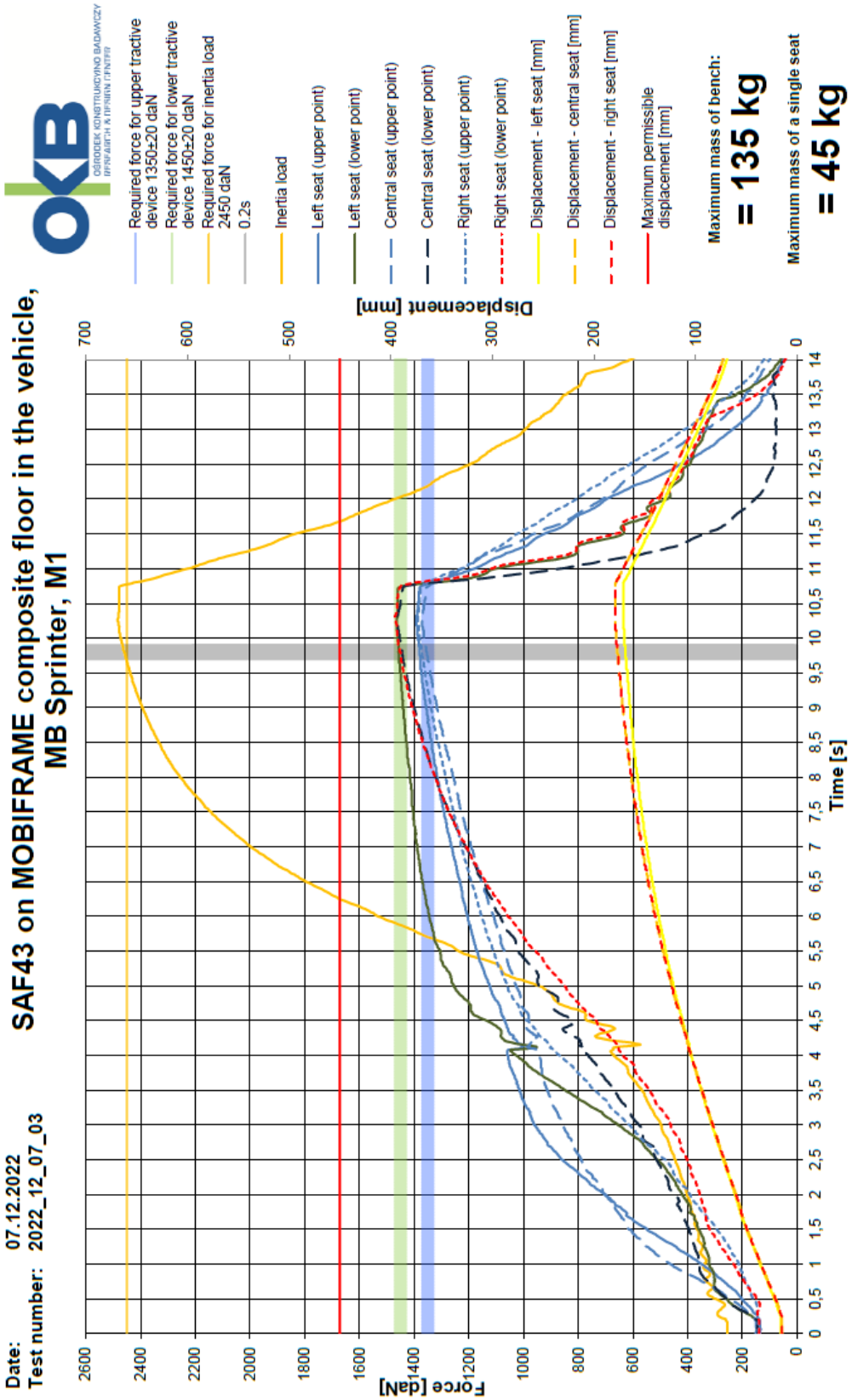
3.2.3.3. Right seat of seat bench type SAF43



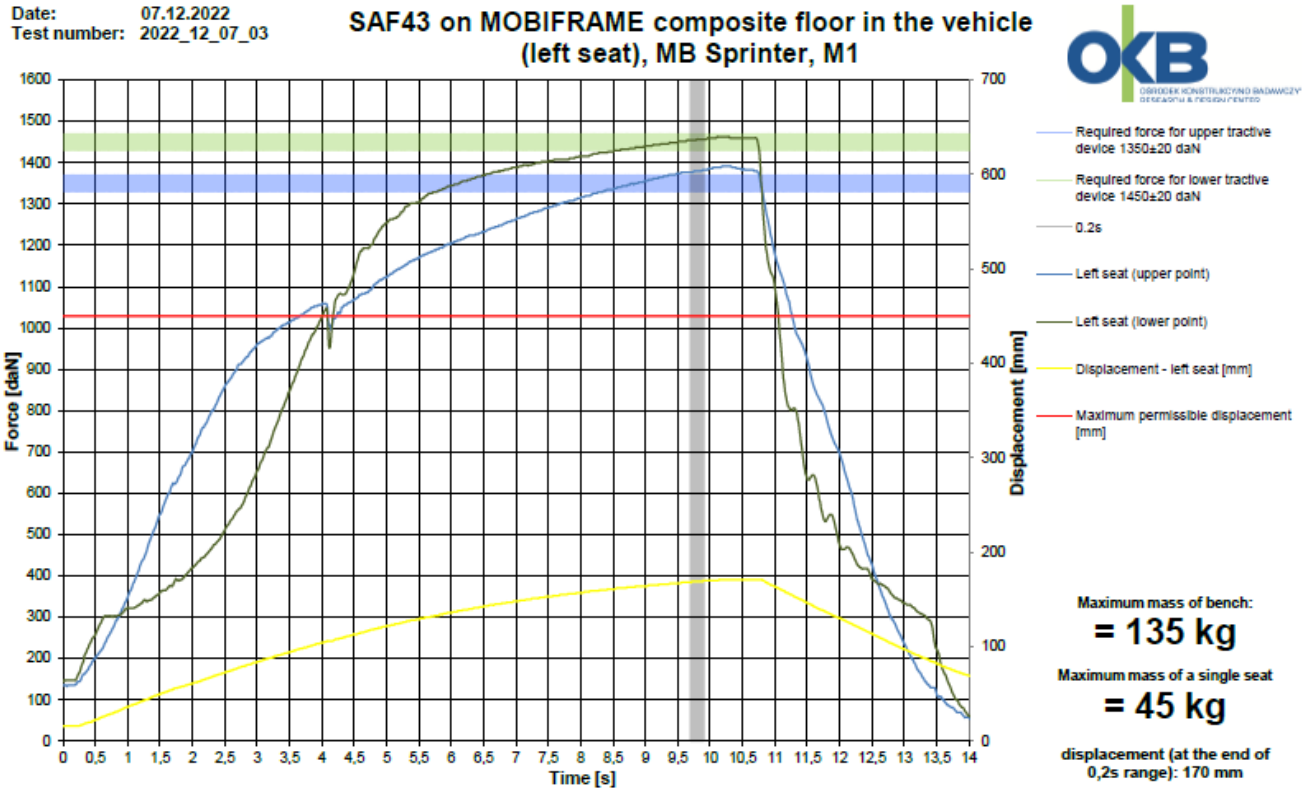
3.2.3.4. Inertia load of SAF43 – Additional force applied to seat bench base and (part of inertia load also applied to lap belt portion)



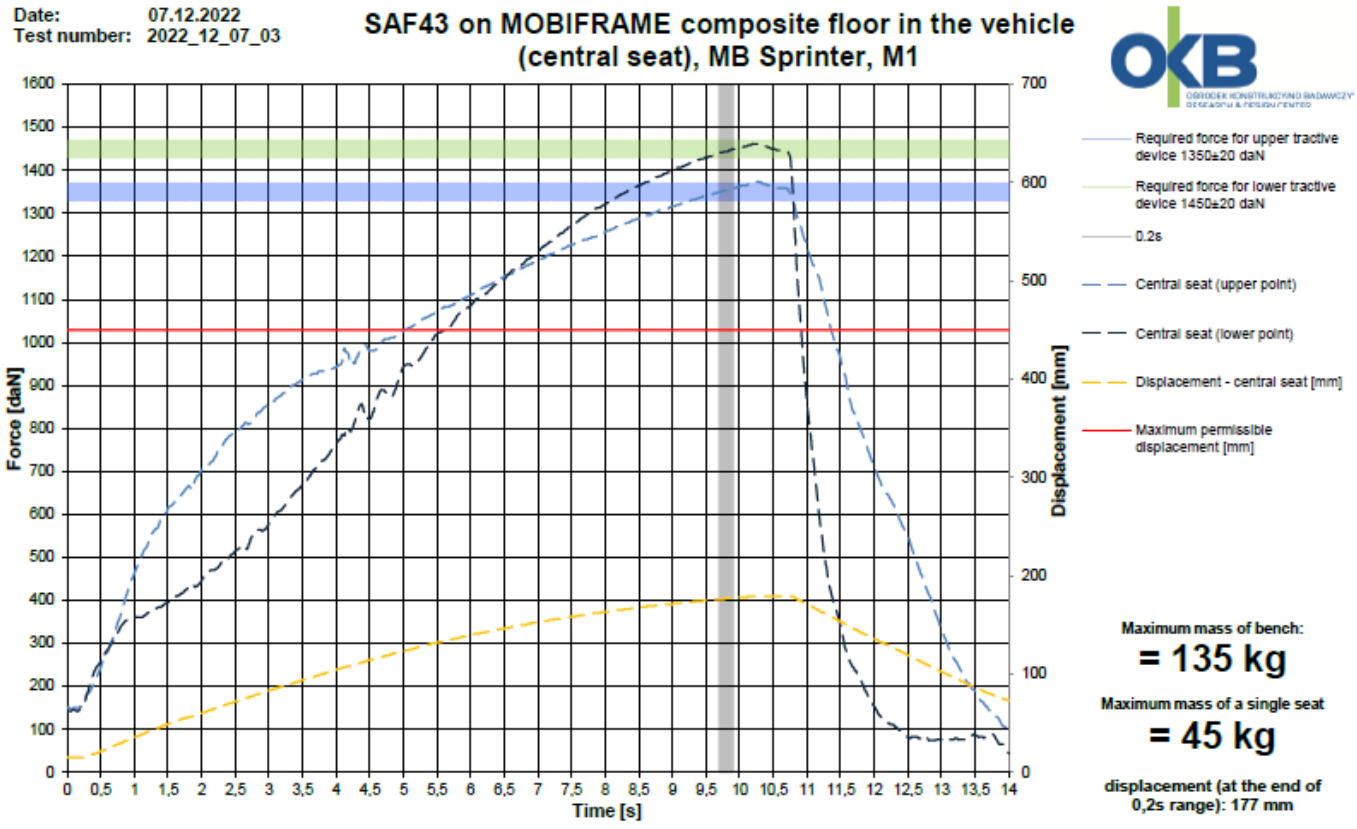
3.2.4. Seat bench type SAF43 installed in Mercedes Sprinter vehicle body (3 seats)



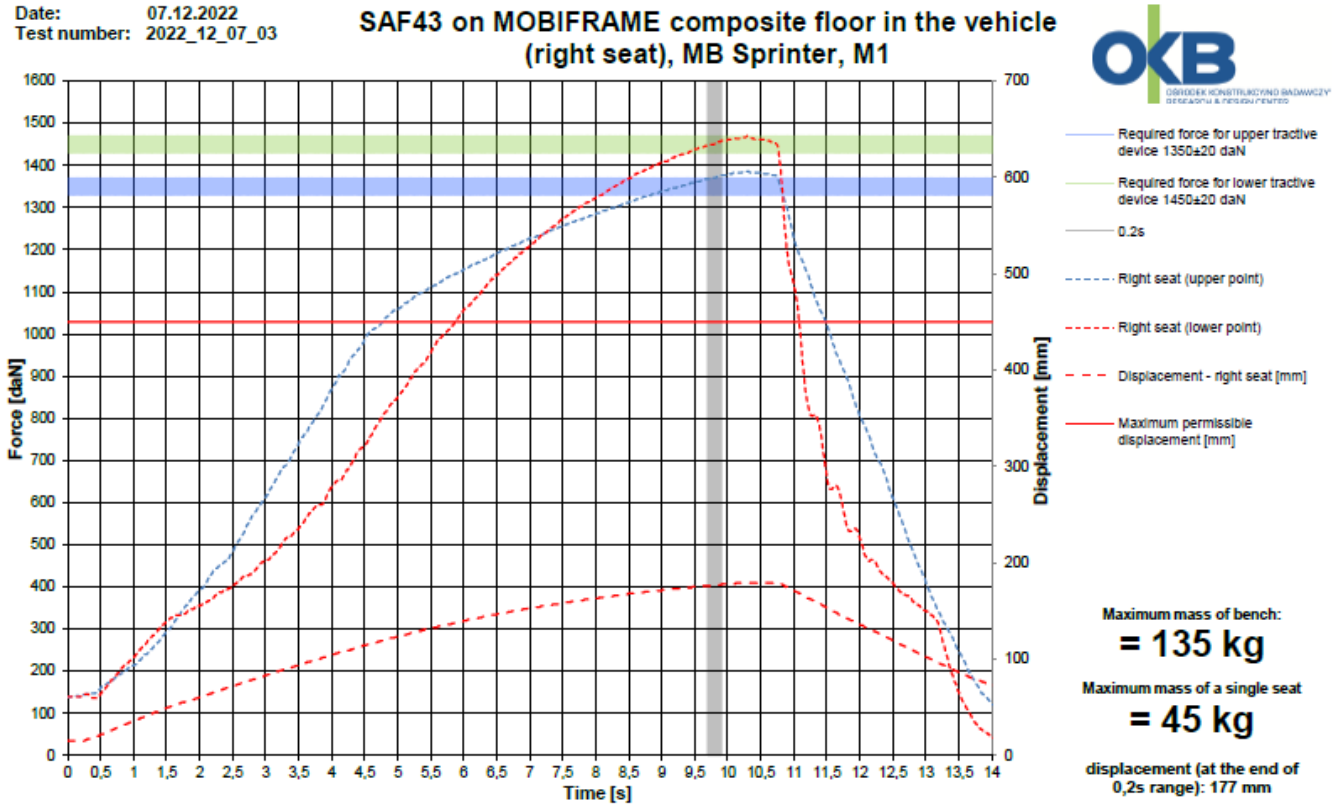
3.2.4.1. Left seat of seat bench type SAF43



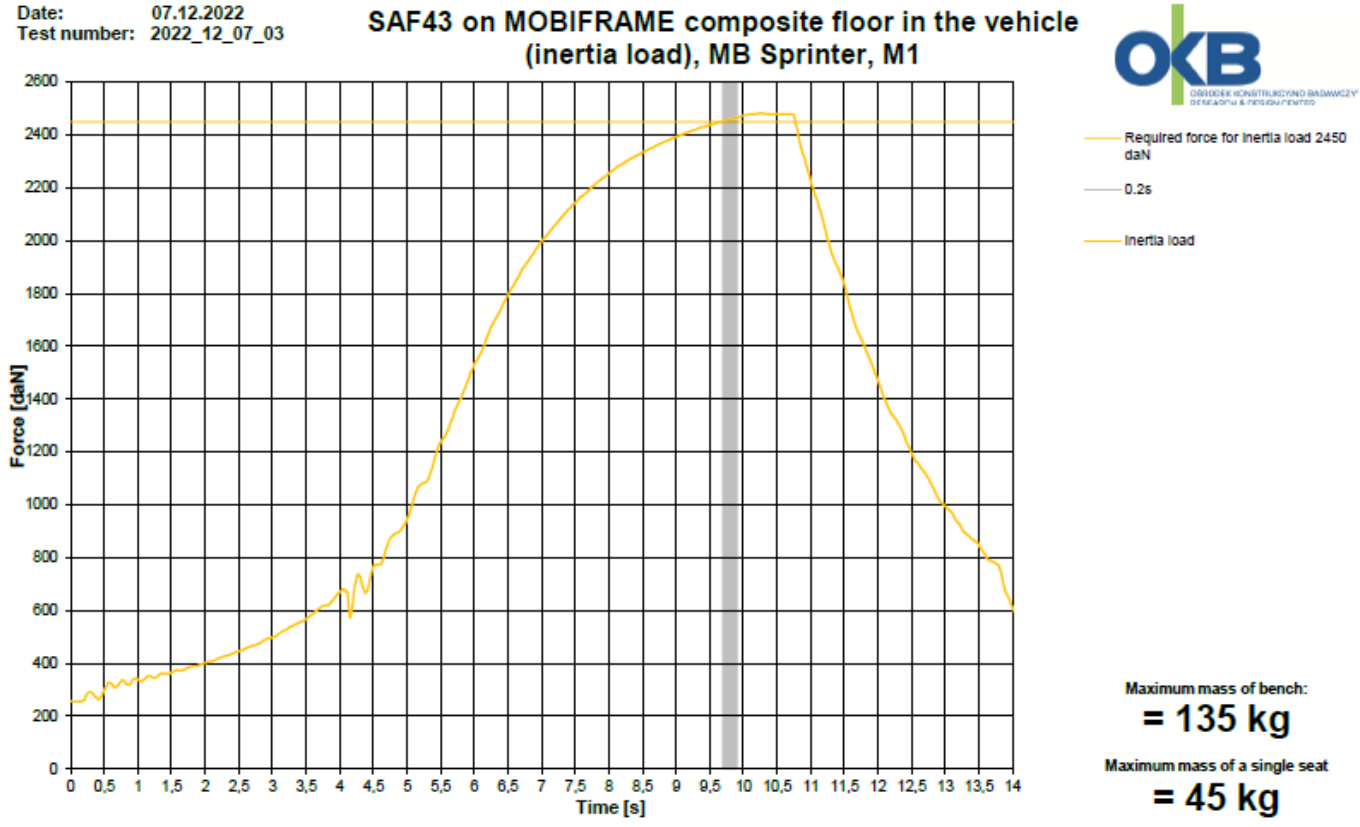
3.2.4.2. Central seat of seat bench type SAF43



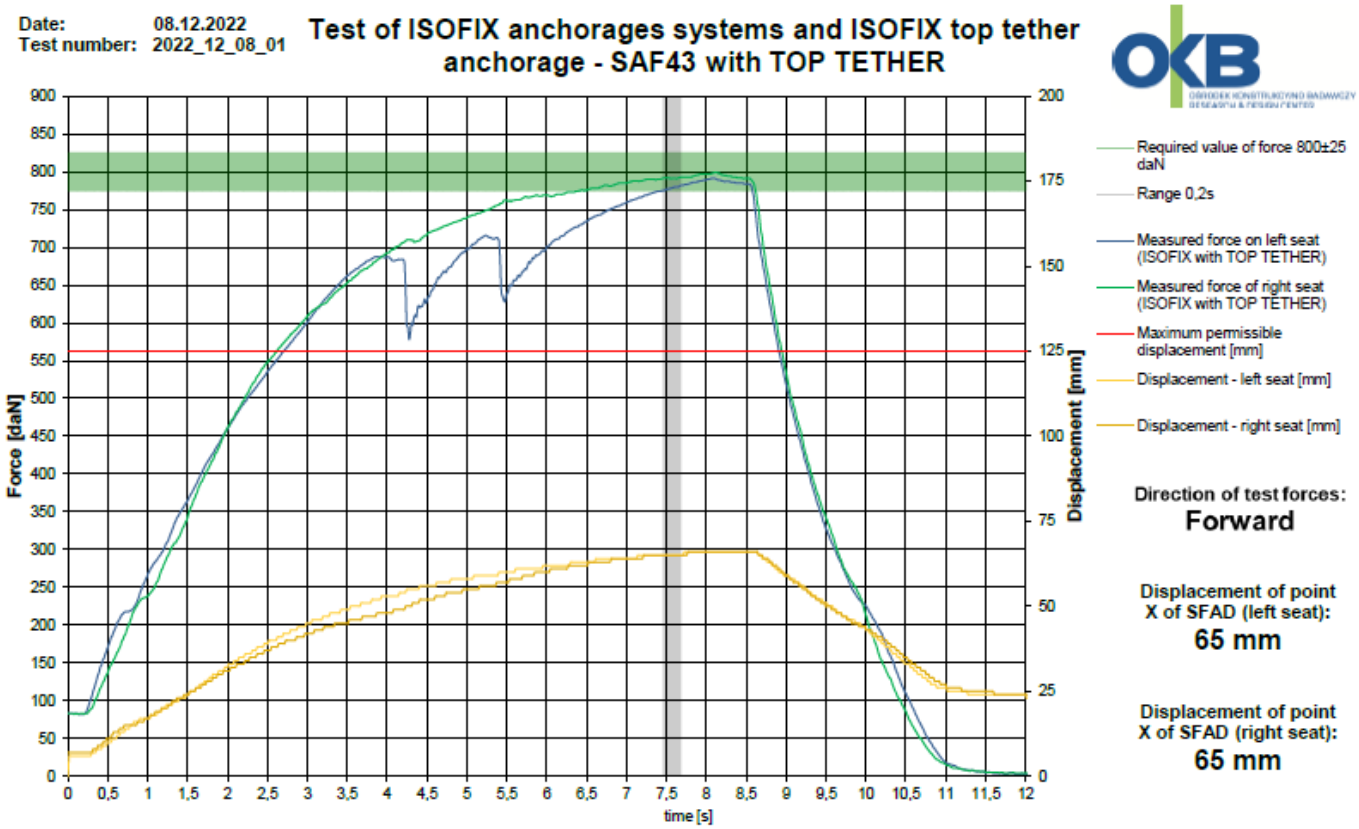
3.2.4.3. Right seat of seat bench type SAF43



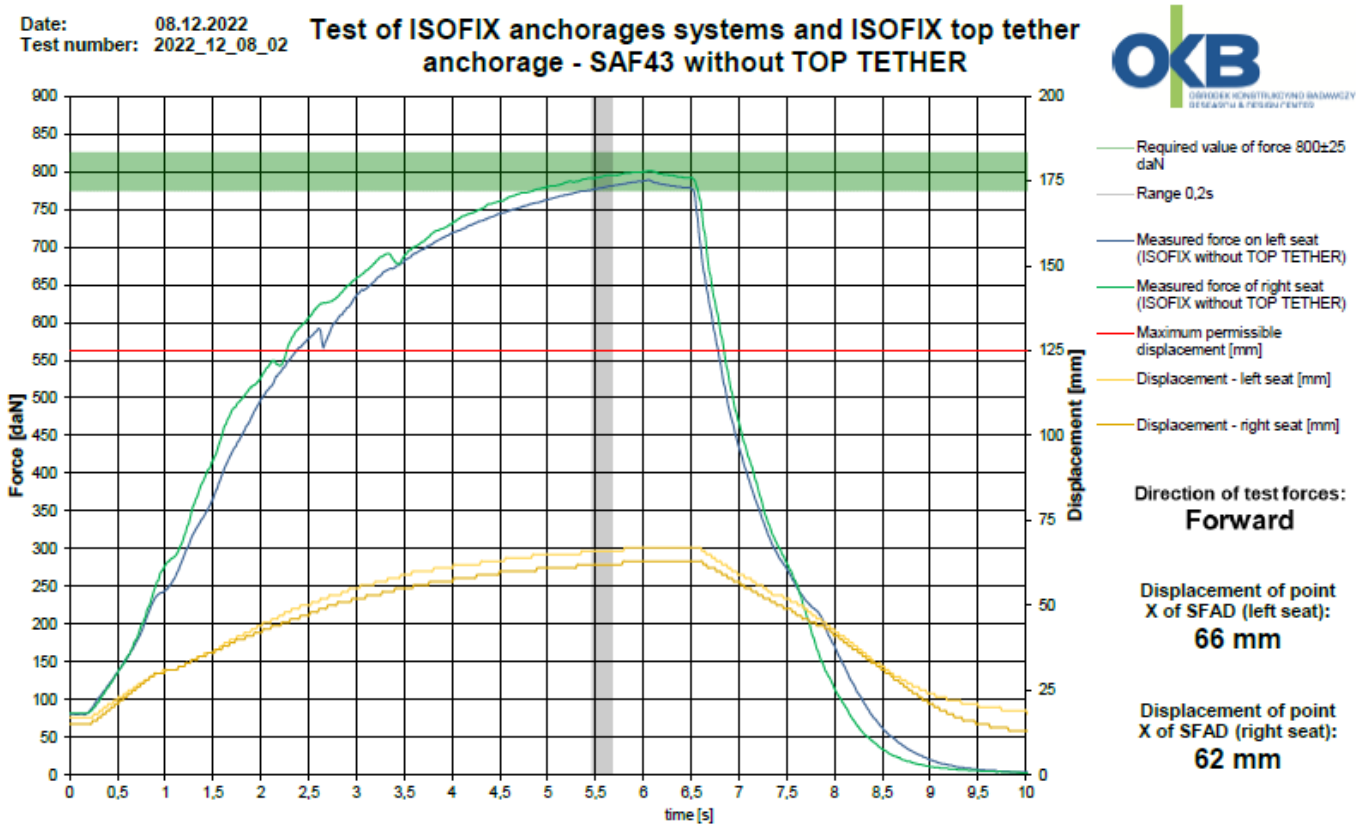
3.2.4.4. Inertia load of SAF43 – Additional force applied to seat bench base and (part of inertia load also applied to lap belt portion)



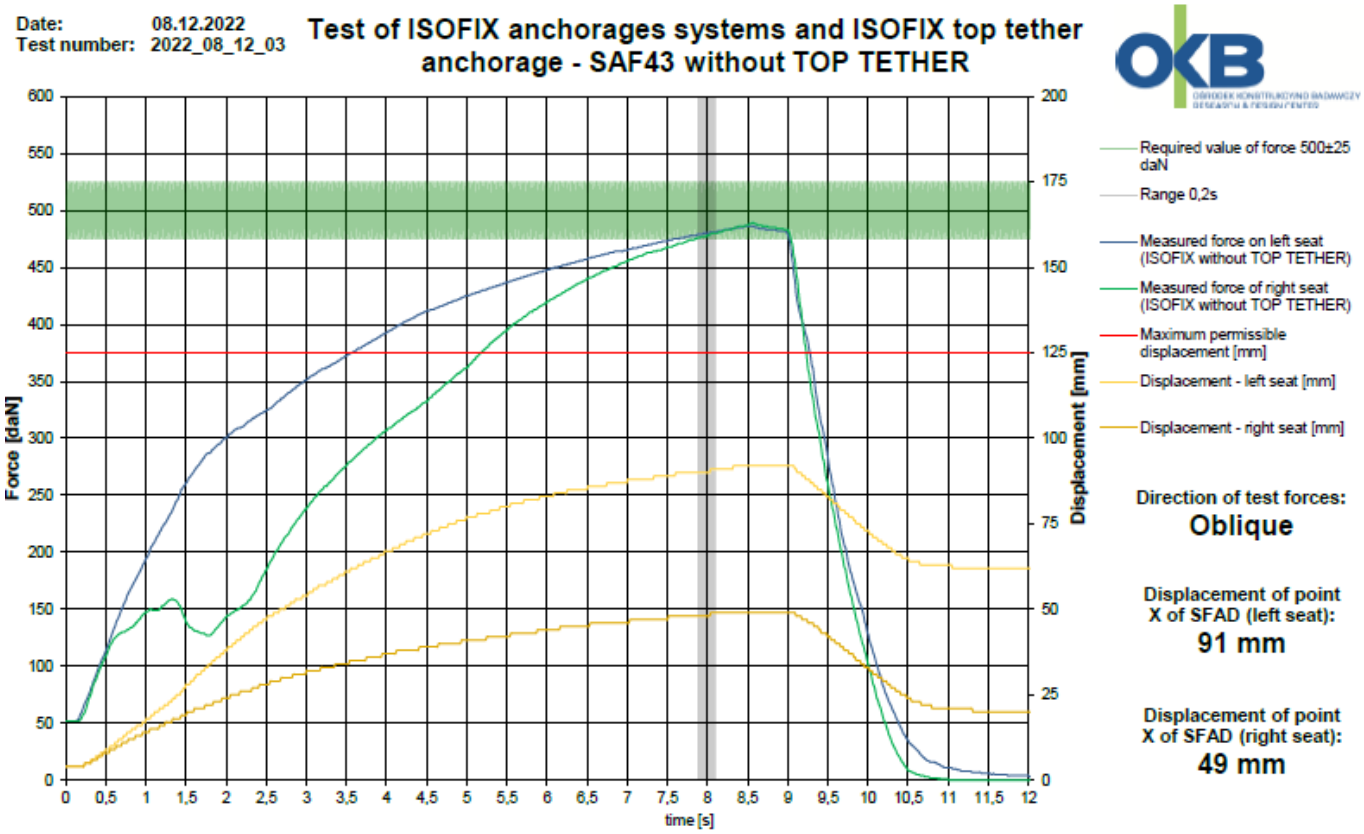
3.3.1. Seat bench type SAF43 – ISOFIX with TOP TETHER – forward direction



3.3.2. Seat bench type SAF43 – ISOFIX without TOP TETHER – forward direction



3.3.3. Seat bench type SAF43 - ISOFIX without TOP TETHER – oblique direction



3.6.2. Photos

Forward facing seat

3.2.1. – Seat bench type SAF42 installed in VW T6 vehicle body

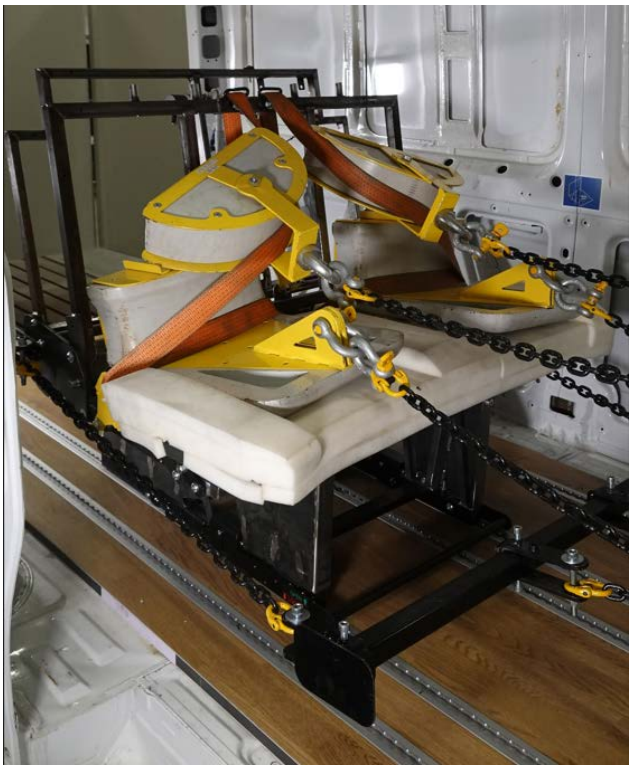
Before test

After test

3.2.2. - Seat bench type SAF42 installed in Mercedes Sprinter vehicle body

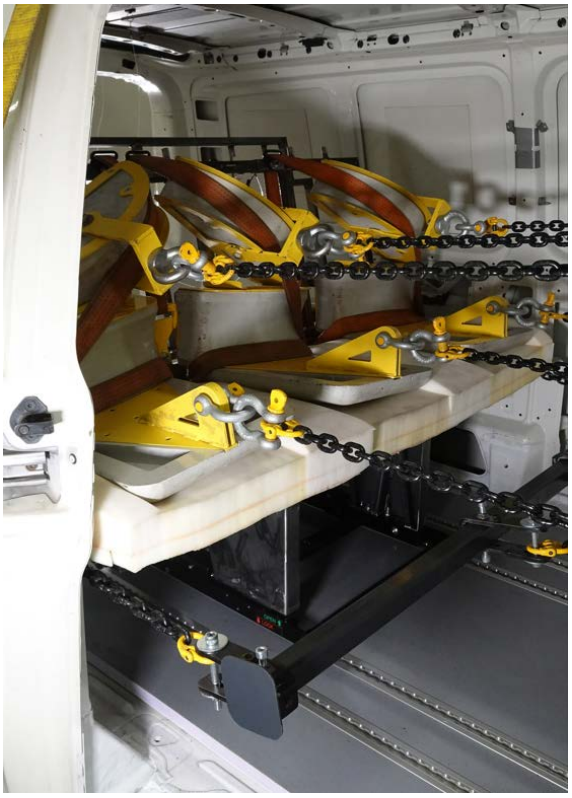
Before test

After test

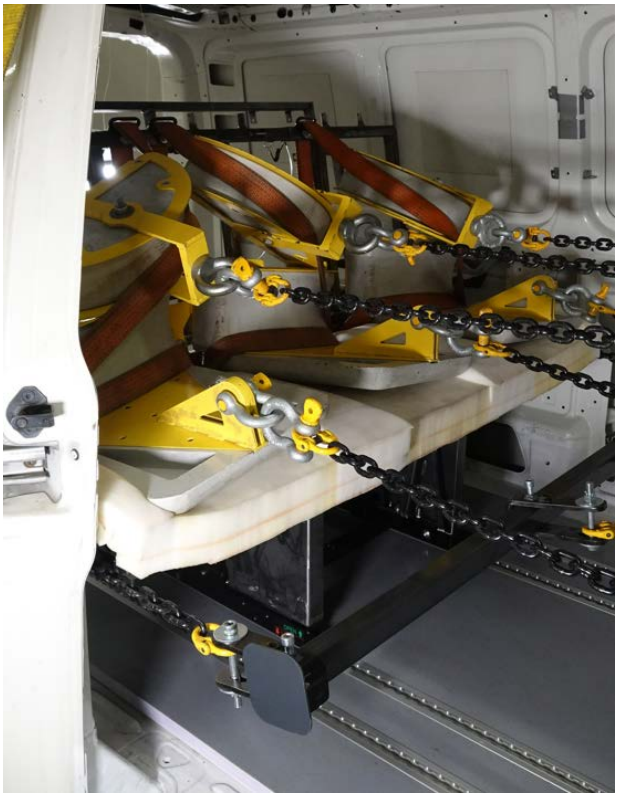


3.2.3. Seat bench type SAF43 installed in VW T6 vehicle body

Before test



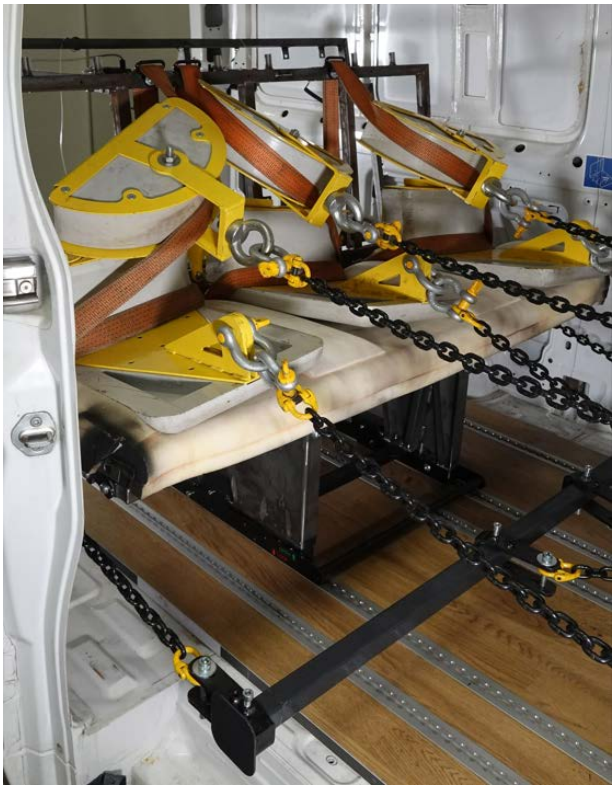
After test



3.2.4. Seat bench type SAF43 installed in Mercedes Sprinter vehicle body

Before test

After test



3.3.1. Seat bench type SAF43 – ISOFIX with TOP TETHER – forward direction

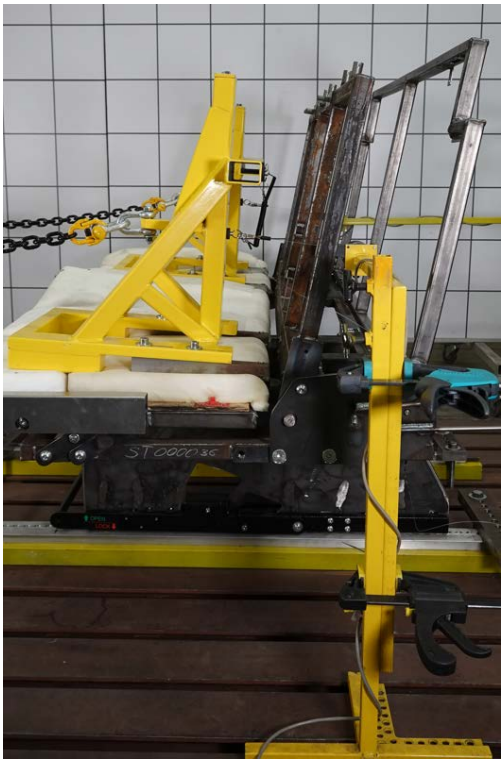
Before test

After test

3.3.2. Seat bench type SAF43 – ISOFIX without TOP TETHER – forward direction

Before test

After test



3.3.3. Seat bench type SAF43 - ISOFIX without TOP TETHER – oblique direction

Before test

After test

4. Place and date of testing

As before and 07 – 08.12.2022

OKB Laboratory, Bukowiec, Poland

Test report

No.: 23-00015-CP-PRG-00

Test of a seat bench
with regard to UN Regulation No. **16.00**
taking into consideration amendment No. **16.08, Supplement 2**
Approval subject: **Safety belts and their installation and child restraint systems**

Approval status	
Granting of a type approval	N/A
Extension/correction to type approval no.	N/A

Test report only.

I. *General*

Type	SAF42, SAF43
Commercial name(s) (if available):	SAF42, SAF43
Name and address of manufacturer	OKB SP. Z O.O. Szkolna 9, Bukowiec 95-006 Brójce Poland
Reference number of information folder	MOBIFRAME/07/2022-01
Date of issue of information folder	15.02.2023

II. Test results

Refer to the Annex

III. Enclosures

Information Folder

IV. Statement of conformity

The mentioned information folder and the type described therein are in accordance with the test basis mentioned above. Sampling plan or method result from the requirements of the test basis. The worst-case configuration was selected in accordance with process description "Requirements for Test Reports (AS-PB-T-02)". Valid decision rule in accordance with ILAC G8:2019, 4.2.1: in question of meeting the limits the measurement uncertainty was ignored.

The manufacturer is responsible for the information (III.) and the test specimens provided by him. The test results relate only to the test specimens as received and mentioned (II.). The test specimens are representative for the type described (III.).

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Genehmigungsbehörde ***Approval authority***	**Land** ***Country***	**Registriernummer** ***Registration number***
Kraftfahrt-Bundesamt (KBA)	Deutschland *Germany*	KBA-P 00100-10
Vehicle Certification Agency (VCA)	Vereinigtes Königreich *United Kingdom*	VCA-TS-006
Approval Authority of the Netherlands (RDW)	Niederlande *The Netherlands*	RDWT-082-xx
National Standards Authority of Ireland (NSAI)	Irland *Ireland*	Technical Service Number: 49
Vehicle Safety Certification Center (VSCC)	Taiwan/Taiwan	DE04-06-2
Société Nationale de Certification et d'Homologation s.à r.l.	Luxemburg *Luxembourg*	13/B(g)
Swedish Transport Agency (STA)	Schweden *Sweden*	TT 0024

Munich, 17.02.2023

Technischer Dienst Technical Service TÜV SÜD Auto Service GmbH 152

Ing. Vít Bursík
Authorized signatory

Annex

1. Technical data of the test sample

1.1	Make:	MOBIFRAME
1.2	Type:	SAF42, SAF43
1.2.1.	Variant-version:	SAF42_???_?_??? – 2-seating positions SAF43_???_?_??? – 3-seating positions SAF??_SLM_?_??? – slim version of seat cushion SAF??_???_L_??? – fixation to the floor via quick release system SAF42_???_?_097 – bench width 97 cm SAF42_???_?_100 – bench width 100 cm SAF42_???_?_112 – bench width 112 cm SAF43_???_?_118 – bench width 118 cm SAF43_???_?_120 – bench width 120 cm SAF43_???_?_126 – bench width 126 cm SAF43_???_?_150 – bench width 150 cm
1.3	Category of vehicle:	M1, N1, M2, N2
1.4	Test object:	Seat bench SAF43_SLM_L_150 as a worst case representative, intended for use in other than front rows of vehicle. For details see manufacturer's information folder.
1.4.1.	Vehicle types for which is device intended to use:	see manufacturer's information document Enclosure 1

2. Test conditions

2.1. Instrumentation:

- Test fixtures ZZ-347, ZZ-430/1, /2, /3
- Force measurement device PM-1876
- Digital level gauge PM-2407
- Tape measure PM-3129

2.2. Ambient conditions:

Normal laboratory conditions, not directly limited in Regulation

3. Test results

3.1 Test procedures used (UN R16):

Test of 3 seat bench MOBIFRAME type SAF43 according to UN R 16.08, par. 8 and Annex 17 concerning to check of installation of safety belts and child restraint systems.

The below mentioned test results cover all variants stated in the enclosed information document.

3.2 Forward facing rear row of seats for M1/N1 vehicles MOBIFRAME type SAF43

(Numbering according to UN Regulation No.16.08, marked *italic*)

3.2.1 General

8.1. All the seats are equipped with 3-point safety belts with automatically or emergency locking retractor. The seat belts fulfilling the requirements of this regulation, component certificates are in hand.

8.1.1. Tab - Number and position of safety belts and restraint systems and seats on which they can be used.

Number and position of safety belts and restrain systems and seats on which they can be used:

		Complete EC type-approval mark	Variant (if applicable)	Belt adjustment device for height
First row	L	N/A	N/A	N/A
	C[1]	N/A	N/A	N/A
	R[1]	N/A	N/A	N/A
Other rows	L	E8*16R07/04* 16878	N/A	N/A
	C[1]			
	R			

*-If present

8.2. Seatbelts are fixed to the seatbelt anchorages fulfilling the requirements of UN R14 (see Test Report No. 22-00075-CP-PRG-00),
Seatbelts are designed so that they are readily to use, work properly and minimize the risk of injury during impact.

8.3. Rigid parts do not increase the risk of injury; the releasing buckle is visible and easily accessible. All safety belts are equipped with retractor with emergency locking.

8.3.5 Compliance with Annex 17 was confirmed.
Instruction manual contains information about transport of children in vehicle and instruction for installation of child restraint systems (CRS).

All seats intended for installation of CRS comply with requirements of Annex 17 of this Regulation.

8.4. Safety-belt reminder equipment

8.4.1. Requirements per specific seating position and exemptions

8.4.1.3. The safety-belt reminder is not compulsory on motor-caravans, vehicles for transport of disabled persons. Safety belts reminders are not compulsory for rear removable seats in all vehicle types (applicable for extensions of approvals forst granted before 1 september 2022).

(SAF??_???_L_???)

3.2.2 General CRS installation requirements

8.2.2.5. The possible slack in the belt does not prevent the correct installation of child restraint system recommended by manufacturer.

In the case of three-point belts, a tension of at least 50 N can be established in the lap section of the belt by external application of tension in the diagonal section of the belt.

8.3.5. In order to inform the vehicle user(s) of the provision made for the transport of children, the requirements of Annex 17 are met, see 3.2.3. and 3.2.4.

8.3.6 i-Size position

All i-Size seating position allow the installation of the ISOFIX child restraint fixtures "ISO/F2X" (B1), "ISO/R2" (D) and the support leg installation assessment volume as defined in Appendix 2 to Annex 17.

3.2.3 Compatibility test of “universal” category child restraint system – **outboard seating positions only**

(Numbering according to Annex 17 - Appendix 1 of the Regulation (marked italic))

	Test condition	**Required**	**Measured**
2.1.	Adjust the seat	To be in its full rearward and lowest position	No adjustment
2.2.	Adjust the seat-back angle	To be in designed position, if not given be at 25° degree	No adjustment
2.3.	Adjust upper belt anchorage	To be in its lowest position	No adjustment
2.9	Application of horizontal force	Push force of 100 N ±10N applied in the middle front part of fixture parallel with fixture base.	Rear outboard seat: 105 N
2.10	Application of vertical force	Push force of 100 N ±10N applied in the middle of upper surface of fixture vertically.	Rear outboard seat: 99 N
3.1.	With the belt arranged around the fixture	Base of fixture shall be in contact with both the forward and the rearward seat cushion surface	Pass rear outboard seat
3.2.		Lap portion of belt shall be in touch with the fixture on both sides	Pass rear outboard seat
3.3.		If requirements are not fulfilled while seat set acc. to 2.1., 2.2., 2.3, different location of the seat stated by the manufacturer is possible (vehicle handbook)	N/A

3.2.4 Compatibility test of ISOFIX child restraint system and i Size child restraint system – **outboard seating positions only**

(Numbering according to Annex 17- Appendix 2 of the Regulation (marked italic))

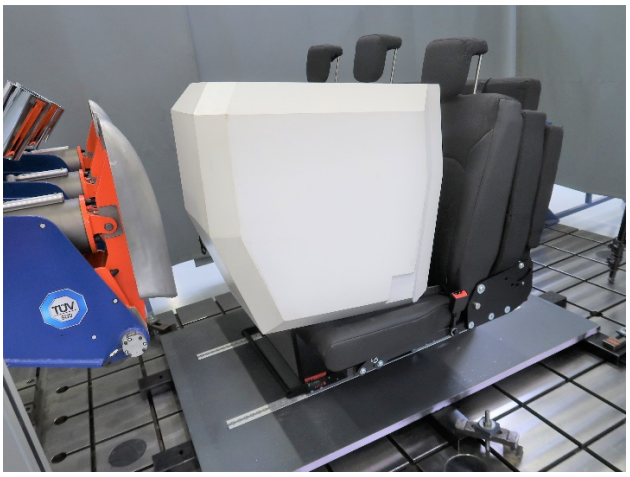
	Test condition	**Required**	**Measured**
2.1.	Adjust the seat	To be in its full rearward and lowest position	No adjustment
2.2.	Adjust the seat-back angle	To be in designed position, if not given be at 25 degree	No adjustment
2.5.	Application of force	Push force of 100 N ±10N in the middle between ISOFIX anchorages parallel with fixture base.	Fixture ISO/F2X: Pass Fixture ISO/R2: Pass
3.1.	With the fixture accommodate on seat	Fixture shall not be in interference with vehicle interior. Fixture base pitch angle shall be 15°±10° above the horizontal plane passing through the ISOFIX anchorages.	Fixture ISO/F2X: 9,1° Fixture ISO/R2: 7,8°
3.2.		The ISOFIX top tether anchorage shall remain accessible.	Pass
3.3.		Front passenger seat adjusted to the position stated by manufacturer in vehicle handbook: rearmost and lowest, seat-back in design position	Pass including space for support leg

3.3. Photos:

Space for support leg (i-Size)

Fixture ISO/F2X

Fixture ISO/R2



Fixture “universal” CRS – outboard seat

Fixture “universal” CRS – outboard seat

4. Place and date of testing

TÜV SÜD Czech s.r.o., Bezděčín, Czech Republic
13.02.2023

Test report

No.: 23-00016-CP-PRG-00

Test of a seat bench
with regard to UN Regulation No. **17.00**
taking into consideration amendment No. **17.09, Supplement 1**
Approval subject: **Strength of seats and their anchorages and head restraints**

Approval status		
☐	Granting of a type approval	N/A
☐	Extension/correction to type approval no.	N/A

Test report only

I. General

Make	MOBIFRAME
Type:	SAF42, SAF43
Category of vehicle:	M1, N1, M2, N2
Name and address of manufacturer	OKB SP. Z O.O. ul. Szkolna 9, Bukowiec 95-006, Brójce Poland
Reference number of information folder:	MOBIFRAME/07/2022-01
Date of issue of information folder:	15.02.2023

II. Test results

Refer to the Annex

III. Enclosures

Information Folder

IV. Statement of conformity

The mentioned type described therein is in accordance with the test basis mentioned above. Sampling plan or method result from the requirements of the test basis. The worst-case configuration was selected in accordance with process description "Requirements for Test Reports (AS-PB-T-02)". Valid decision rule in accordance with ILAC G8:2019, 4.2.1: in question of meeting the limits the measurement uncertainty was ignored.

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Kraftfahrt-Bundesamt (KBA)	Deutschland *Germany*	KBA-P 00100-10
Vehicle Certification Agency (VCA)	Vereinigtes Königreich *United Kingdom*	VCA-TS-006
Approval Authority of the Netherlands (RDW)	Niederlande *The Netherlands*	RDWT-082-xx
National Standards Authority of Ireland (NSAI)	Irland *Ireland*	Technical Service Number: 49
Vehicle Safety Certification Center (VSCC)	Taiwan/Taiwan	DE04-06-2
Société Nationale de Certification et d'Homologation s.à r.l.	Luxemburg *Luxembourg*	13/B(g)
Swedish Transport Agency (STA)	Schweden *Sweden*	TT 0024

Munich, 17.02.2023

Technischer Dienst Technical Service TÜV SÜD Auto Service GmbH 152

Ing. Vít Bursík
Authorized signatory

Annex

Test report

1. Technical data of the test sample

1.1	Make:	MOBIFRAME
1.2	Type:	SAF42, SAF43
1.2.1.	Variant/Version:	SAF42_???_?_??? – 2-seating positions SAF43_???_?_??? – 3-seating positions SAF??_SLM_?_??? – slim version of seat cushion SAF??_???_L_??? – fixation to the floor via quick release system SAF42_???_?_097 – bench width 97 cm SAF42_???_?_100 – bench width 100 cm SAF42_???_?_112 – bench width 112 cm SAF43_???_?_118 – bench width 118 cm SAF43_???_?_120 – bench width 120 cm SAF43_???_?_126 – bench width 126 cm SAF43_???_?_150 – bench width 150 cm
1.3	Commercial description(s):	SAF42, SAF43

1.3.1. Remark

Detailed drawings and description of benches (SAF42, SAF43) and their fixation solutions in vehicles are included in Information Document MOBIFRAME/07/2022-01 attached to this test report.

1.4	Category of vehicle:	M1, N1, M2, N2
1.5	Test object:	Seat bench type SAF42 and SAF43 mounted on MOBIFRAME floor with rails and on rigid test bench). For details see manufacturer's information folder.
1.6.	Mass of seat benches:	SAF42 – 115 kg – mass of the heaviest configuration SAF43 – 135 kg – mass of the heaviest configuration

1.7. Number of seating positions: SAF42 – 2
SAF43 – 3

1.8. Table of vehicle types for which is seat bench intended to use:

Manufacturer	Commercial description / Type or model designation	Wheelbase
Daimler / Mercedes-Benz	Sprinter (906, 907)	3250, 3665, 4325
	Sprinter, e-Sprinter (910)	3259, 3924
	Vito/Viano/V-klasse, e-Vito (639, 639/2, 639/4, 639/5)	3200, 3430
VW	Crafter (2E__, 3E__)	3250, 3665, 4325
	Crafter, e-Crafter (SYN__, SYM__ e.g. SYN1E, SYM1E, SYN2E, SYM2E, SYN2Z, SYM2Z)	3640, 4490
	T5 (7H_, 7E_, 7J_)	3000, 3400
	T6, T6.1, e-Transporter (7H_, 7E_, 7J_)	3000, 3400
Citroen	Jumper, e-Jumper (Y, CY)	3000, 3450, 4035
	Jumpy (G9/X, V)	3000, 3122
	Jumpy, e-Jumpy (G9/X, V)	2925, 3275
	SpaceTourer, E-SpaceTourer (V)	2925, 3275
	Berlingo, E-Berlingo	2785, 2975
Peugeot	Boxer, e-Boxer (Y)	3000, 3450, 4035
	Expert (VF3__)	3000, 3122
	Expert, e-Expert (G9/X, V)	2925, 3275
	Traveller, e-Traveller (V)	2925, 3275
	Rifter, e-Rifter	2785, 2975
Fiat	Ducato, e-Ducato (250)	3000, 3450, 4035
	Scudo (270)	3000, 3122
	Scudo (2022-…)	2925, 3275
	Talento (FJL, FFL)	3098, 3498
Opel	Movano (MR, MS, MW, MT)	3182, 3682, 4332
	Movano, Movano-e (Y)	3000, 3450, 4035
	Vivaro (F7)	3098, 3498
	Vivaro, Vivaro-e, Vivaro e-Kombi, Vivaro Life**,** Zafira Life (V)	2925, 3275
	Combo Life, Combo-e Life	2785, 2975
Renault	Master, Master E-Tech (FV, MA, MC, ML, MW, MR, MT, VA)	3182, 3682, 4332
	Trafic (FL, EL, L)	3098, 3498
	Trafic 2014 (JL, L)	3098, 3498
Renault Trucks	Master (MA, MB, MF, MG, VA, VB, VF, VG)	3182, 3682, 4332
Ford	Transit, (FA_, FD_, FS_, FZ_, FN_, FM_)	2933, 3300, 3750
	Transit, e-Transit (FC_)	3300, 3750, 3954
	Transit Custom, Turneo Custom (FA_, FB_, FC_, FD_, FE_, FF_)	2933, 3300
	Transit Connect (PU2)	2662, 3062
Iveco	Daily, Daily Electric (IS_____)	3000, 3300, 3520, 3950, 4100, 4750
Nissan	NV200	2725

	NV300, Primastar (4)	3098, 3498
	NV400 (M1)	3182, 3682, 4332
Toyota	Pro Ace (2013-2016)	3000, 3122
	Pro Ace, Pro Ace Verso, Pro Ace Electric (X, V)	2925, 3275
MAN	TGE, eTGE (SYN__, SYM__ e.g. SYN1E, SYM1E, SYN2E, SYM2E, SYN2Z, SYM2Z)	3640, 4490
MAXUS (LDV)	V80, Maxus (SV6C)	3100, 3850
	V90, Deliver 9, E-Deliver 9	3000, 3366, 3760
	Deliver 3, E Deliver 3	2910, 3285
Hyundai	H350 (EU(V))	3435, 3670
RAM	ProMaster	3000, 3450, 4035
Freightliner/Dodge	Sprinter	3250, 3665, 4325

1.9. Type of bodywork using the codes set out in Part C of Annex II of Directive 2007/46/EC and/or in Part C of Annex I of Regulation (EU) 2018/858: AC, AF, BB, BX, CA, SA, SG, SH

2. Test conditions

2.1. Instrumentation:

- Digital ballance
- Accelerometre
- Head restraint performance test device
- Linear impactor
- 3DH-point measurement device
- Caliper
- Measurement 2D frame

2.2. Ambient conditions:

Normal laboratory conditions, not directly limited in Regulation

3. Test results

3.1. Test procedures used (UN Regulation 17):

Static and energy dissipation test of strength of seat anchorages, adjustment and displacement mechanisms and head restraints according to UN Regulation No. 17.09.

The below mentioned test results cover all versions including the maximum mass stated in the enclosed information document.
(seat, seat-to-vehicle anchorages, seat arrangement).

Head restraint positioning
2nd row – uppermost position (lowest position in case of energy dissipation test)

3.2 Strength test of seats and head restrains and energy absorption tests according ECE Regulation No. 17.09 – See point 3.2.2.

3.2.2. Head restraint/seat back performance

Static tests: Test No. 62022-23_01, 02

H point measuring: See Table 1

Table 1: H-point coordinates

H-Point position (from manufacturer)	Seat position	Left seat	Center seat	Right seat
	Coordinate X	110,00	110,00	110,00
	Coordinate Z	179,00	179,00	179,00
	relatively to	lower seat belt outside anchorage point		
	Torso angle	21°		
H-Point position (measured)	Seat position	Left seat	Center seat	Right seat
	Coordinate X	-104,71	-104,71	-104,71
	Coordinate Z	168,33	168,33	168,33
	relatively to	lower seat belt outside anchorage point		
	Torso angle	17,9°		

Head restraint/seat back performance

Definition and requirement	Paragraph		Measured values
	Requirement	Test procedure	Rear seats
No side facing seats in vehicles of the class M1, N1	*5.1.*	*N/A*	No side facing seats installed.
Adjusting and displacement automatic locking systems	*5.2.1 – 5.2.2.*	*N/A*	Adjustment and locking system lock automatically in the position for use.
Energy absorption of the rear parts of the seats, the deceleration of the headform **≤ 80 g** continuously for more than 3 ms under the impact	*5.2.3*	*6.8.1.1, Annex 6*	N/A
Roughness or sharp edges of the rear seat parts - radii 2,5 mm in area 1 - radii 2,5 mm in area 2 - radii 3,2 mm in area 3	*5.2.4*	*6.8.1*	N/A
No seat ruptures after tests	*5.2.5*	*6.2*	No ruptures occurred.

Head restraint/seat back performance

Requirements for vehicles of category N, M_2 and M_3	5.3.		PASS
Installation of the head restraints (min. front outboard seats)	5.4.	N/A	Bench is equipped with head restraint
No additional cause of danger to occupants of the vehicle by the head restraint; energy absorption - the deceleration of the headform **≤ 80 g** continuously for more than 3 ms under the impact*	*5.5.*	*6.8.1.1.3, Annex 6*	Front head restraint surface: a_{max}=66,78 g a3ms=22,81 g v=23,97 km/h
Highest distance of the head restraint top from R point: **H ≥ 750 mm** for **rear** seats	*5.6.3.1*	*6.5*	818 mm
Min. height in any position for use **H ≥ 750 mm** for **rear outboard** seat **H ≥ 700 mm** for **rear middle** seats	*5.6.3.2 (5.6.5.)*	*6.5*	758 mm
Height of the head restraint effective area **h ≥ 100 mm**	*5.7.1*	*6.5*	> 100 mm
Gap between head restraint and seat-back **m ≤ 25 mm**	*5.8*	*6.7*	0 mm
Integral head restraints	*5.9*	*6.7, 6.4.3.3.2*	N/A
Head restraints with gaps	*5.10*	*6.7*	N/A (no gaps)
Width of head restraint 65 mm below its top **L ≥ 170 mm**	*5.11*	*6.6*	197 mm
Head rearward displacement **X < 102 mm** when loaded to moment 373 Nm around R point	*5.12*	*6.4*	54,9 mm (left seat) 57,0 mm (centre seat) 58,6 mm (right seat)
Loading force for head restraint **F ≥ 890 N**	*5.13*	*6.4.3.6.*	894,5 N without rupture (left seat) 894,2 N without rupture (centre seat) 894,3 N without rupture (right seat)
Raise the head restraint beyond the operational height	*5.14*	*N/A*	Only with deliberate action
Strength of the seat back under the load of 530 Nm per seating position	*5.2.7, 5.15*	*6.2*	Passed without ruptures
Luggage displacement retention requirements	*5.16*	*Annex 9*	N/A

General note:

5.3.1. Bench seats are firmly anchored to the vehicle floor.

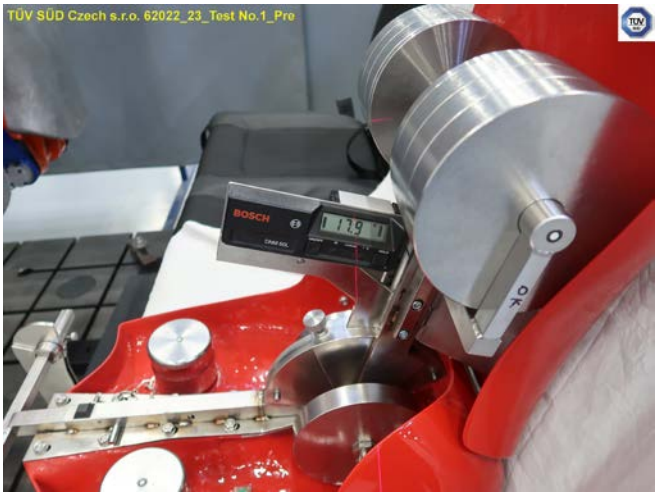
5.3.2. Bench seats are automatically lockable in all the positions provided.

5.3.3. Adjustable seat-backs are lockable in all the positions provided (if applicable)

5.3.4. All Bench seats which can be tipped forward or have fold-on backs and folding seats are lock automatically in the position of use by occupants.

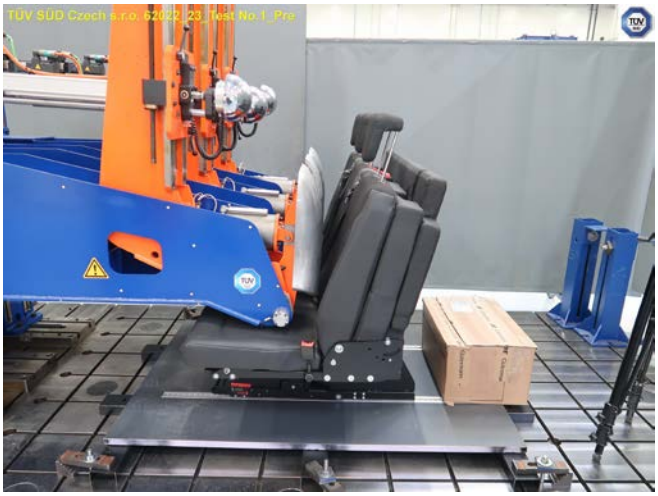
Photos:

H-Point, torso angle and head restraint measuring



Head restraint performance

Pre



Post

Energy dissipation

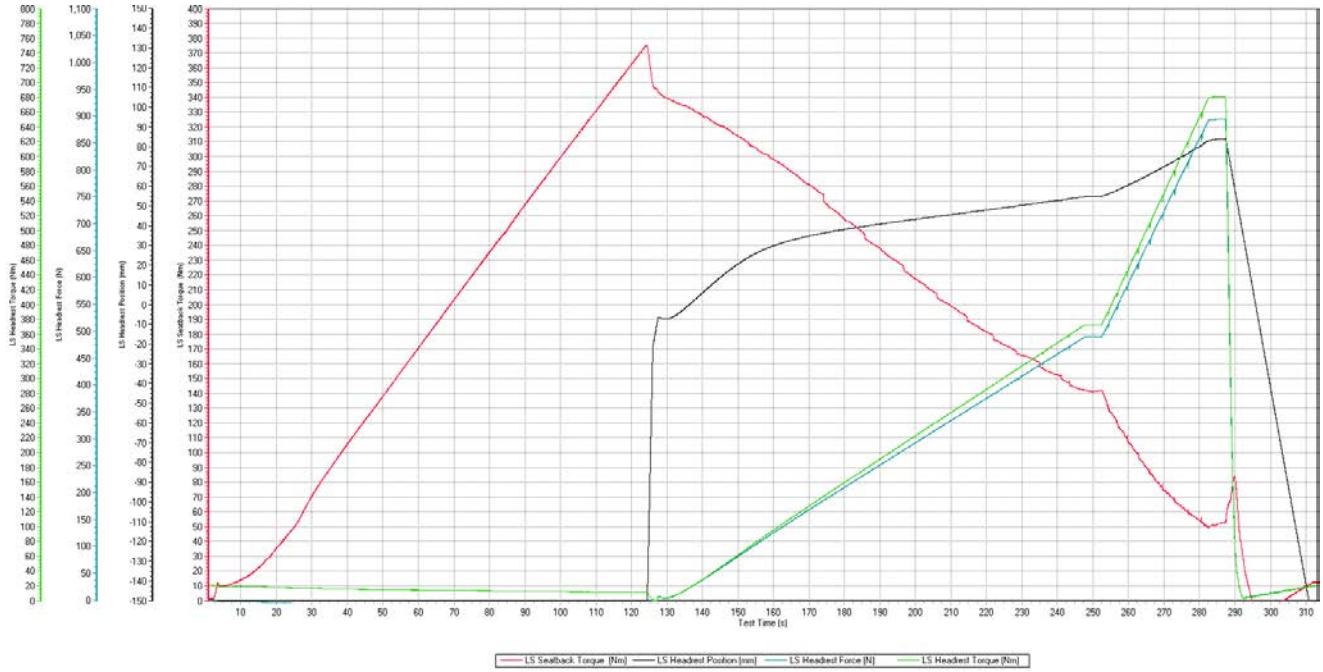
Pre

Post

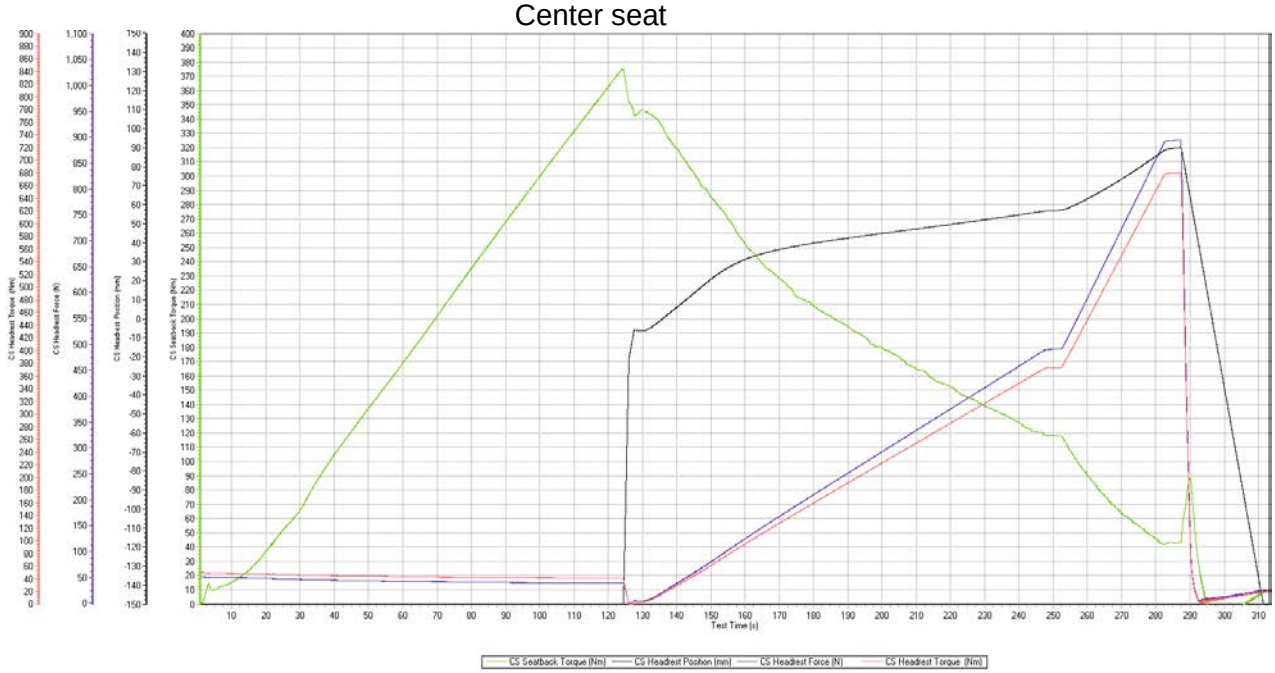
Graphs:

Head restraint performance

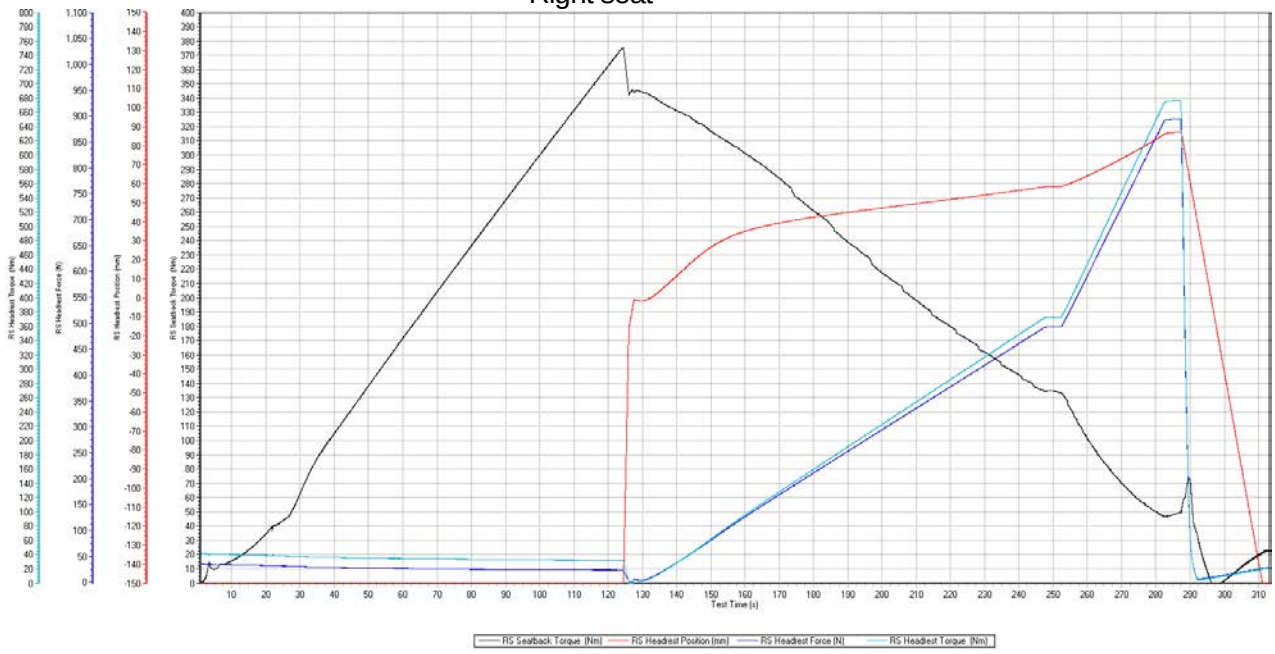
Left seat



Center seat

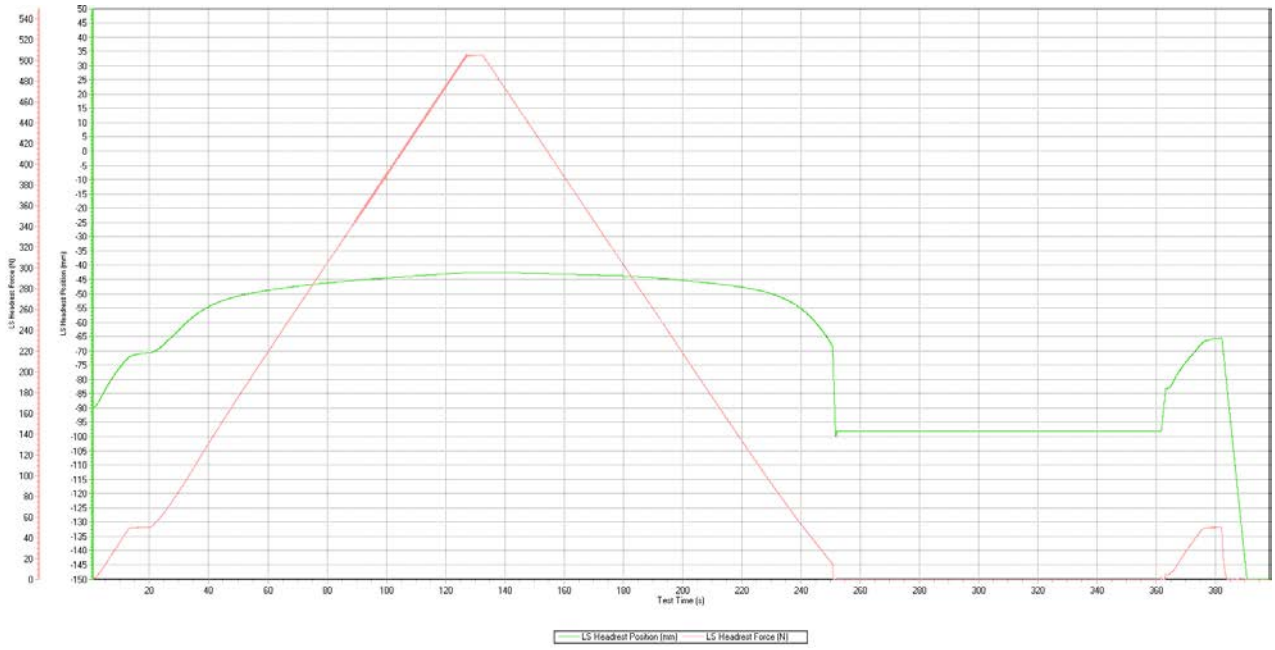


Right seat

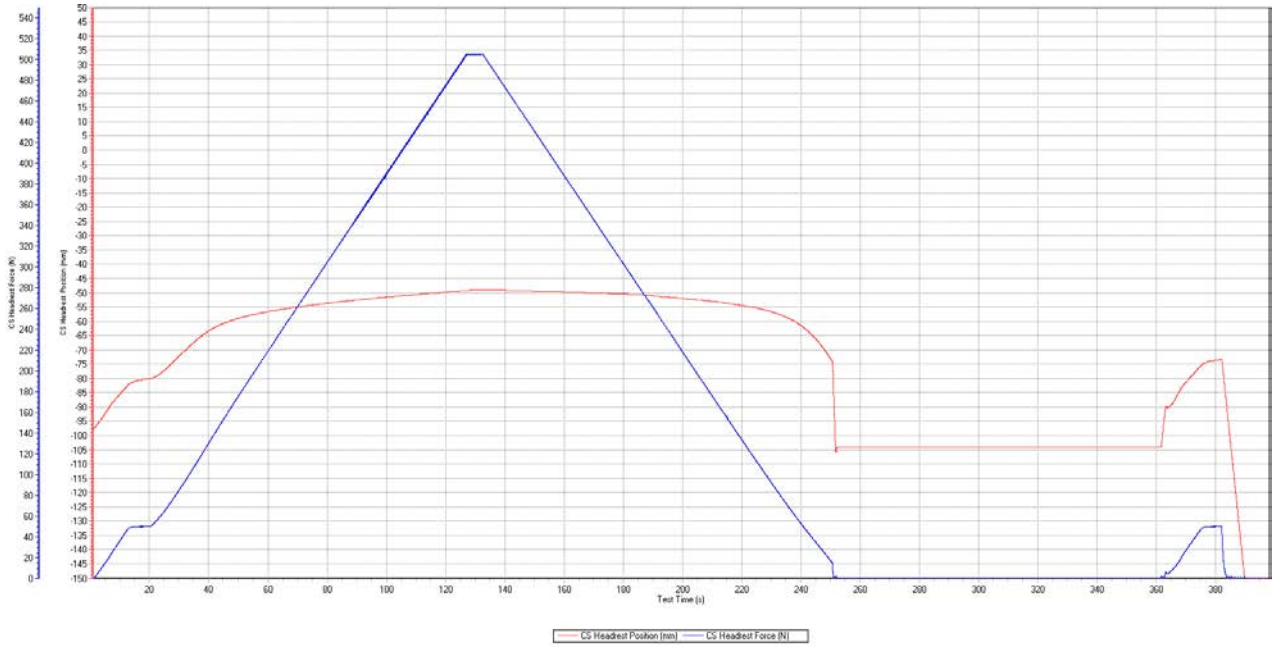


Height retention

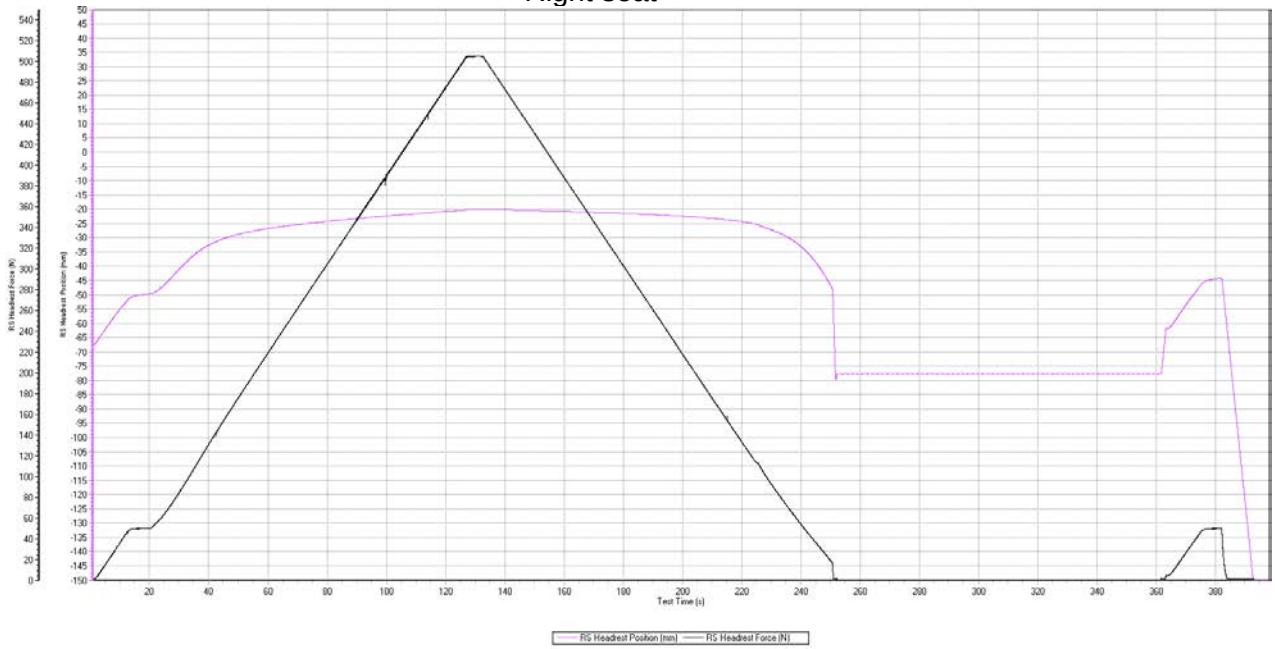
Left seat



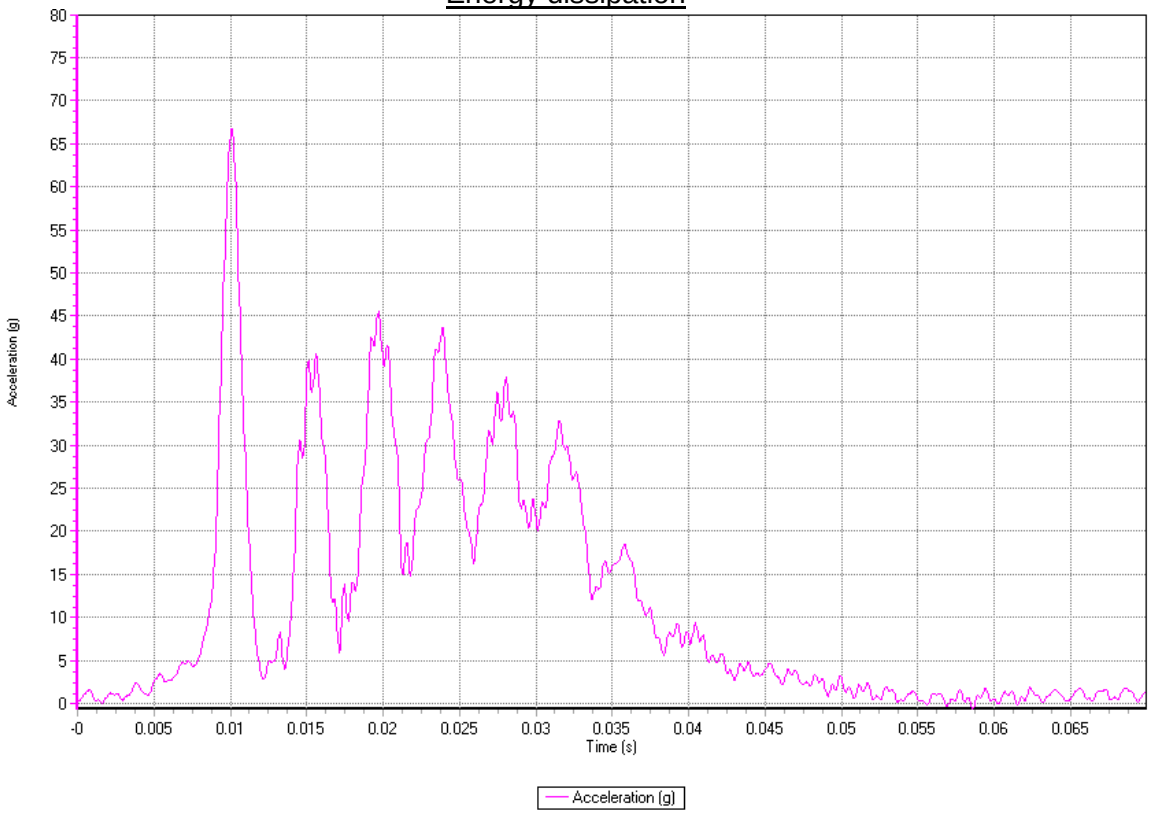
Center seat



Right seat



Energy dissipation



4. Place and date of testing

TÜV SÜD Czech, Bezděčín, Czech Republic,
As before and 13.02.2023

INFORMATION FOLDER / DOCUMENT:
*MOBIFRAME/07/2022-**01***

PURSUANT TO UN/ECE REGULATIONS
No. 14-09
“UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO SAFETY-BELT ANCHORAGES“
(as last amended)

No. 16-08
“UNIFORM PROVISIONS CONCERNING THE APPROVAL OF: SAFETY-BELTS, RESTRAINT SYSTEMS, CHILD RESTRAINT SYSTEMS AND ISOFIX CHILD RESTRAINT SYSTEMS FOR OCCUPANTS OF POWER-DRIVEN VEHICLES EQUIPPED WITH SAFETY-BELTS, SAFETY-BELT REMINDER, RESTRAINT SYSTEMS, CHILD RESTRAINT SYSTEMS AND ISOFIX CHILD RESTRAINT SYSTEMS”
(as last amended)

No. 17-09
“UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO THE SEATS, THEIR ANCHORAGES AND ANY HEAD RESTRAINTS”
(as last amended)

No. 145-00
“UNIFORM PROVISIONS CONCERNING THE APPROVAL OF VEHICLES WITH REGARD TO ISOFIX ANCHORAGE SYSTEMS ISOFIX TOP TETHER ANCHORAGES AND I-SIZE SEATING POSITIONS“
(as last amended)

FOR THE SEAT *MOBIFRAME*
TYPE *SAF42, SAF43*

.....
Damian Goliński
Vice President

Technischer Dienst Technical Service
TÜV SÜD
TÜV SÜD Auto Service GmbH
152

Total number of pages: ***100***
Date of issue: ***15.02.2023***

List of documentation and supplements

List of enclosures

Table of vehicles types	Enclosure 1
Drawings of seats, seat belt anchorages, ISOFIX anchorage systems and ISOFIX Top Tether anchorages, **head restraints, displacement and locking systems**	Enclosure 2
Seat anchorages and floor details	Enclosure 3

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Confirmation

We hereby declare that the vehicle specimens submitted for this approval test have been manufactured and assembled on conditions of ordinary mass production and that they are compatible with the enclosed documentation.

Date of issue: *23th February 2023*

.....

Damian Goliński

Vice President

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0.	GENERAL	
0.1	Make (trade name of manufacturer):	MOBIFRAME
0.2	Type:	SAF42, SAF43
		Variant/Version:
		SAF42_???_?_??? – 2-seating positions SAF43_???_?_??? – 3-seating positions
		SAF??_SLM_?_??? – slim version of seat cushion
		SAF??_???_L_??? – fixation to the floor via quick release system
		SAF42_???_?_097 – bench width 97 cm SAF42_???_?_100 – bench width 100 cm SAF42_???_?_112 – bench width 112 cm SAF43_???_?_118 – bench width 118 cm SAF43_???_?_120 – bench width 120 cm SAF43_???_?_126 – bench width 126 cm SAF43_???_?_150 – bench width 150 cm
0.2.1	Commercial name(s) (if available):	SAF42, SAF43
0.2.2	Dedicated for vehicle(s):	See Enclosure 1
0.4	Category of vehicle:	M1, N1, M2, N2
0.5	Name and address of manufacturer:	OKB SP. Z O.O. Szkolna 9, Bukowiec 95-006 Brójce Poland

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1.	GENERAL CONSTRUCTION CHARACTERISTICS OF THE VEHICLE	
1.1	Photographs and/or drawings of a representative vehicle:	See base vehicle type approvals of vehicles in Enclosure 1
9.	BODYWORK	
9.1	Type of bodywork using the codes set out in Part C of Annex II of Directive 2007/46/EC or in Part C of Annex I to Regulation (EU) 2018/858:	AC, AF, BB, BX, CA, SA, SG, SH
9.10	Interior arrangement	
9.10.3	Seats	
9.10.3.1	Number of seating positions:	No restrictions (depending only on the vehicle category and vehicle size)
9.10.3.1.1	Location and arrangement:	Anywhere on the floor
9.10.3.2	Seat(s) designated for use only when the vehicle is stationary:	N/A
9.10.3.3	Mass:	SAF42 – 115 kg – mass of the heaviest configuration SAF43 – 135 kg – mass of the heaviest configuration
9.10.3.4	Characteristics: for seats not type-approved as components, description and drawings of	
9.10.3.4.1	The seats and their anchorages:	See Enclosures
9.10.3.4.2	The adjustment system:	See Enclosures
9.10.3.4.3	The displacement and locking systems:	See Enclosures
9.10.3.4.4	The seat-belt anchorages (if incorporated in the seat structure):	See Enclosures
9.10.3.4.5	The parts of the vehicle used as anchorages:	See Enclosures
9.10.3.5	Coordinates or drawing of the R-point	
9.10.3.5.1	Driver's seat:	N/A
9.10.3.5.2	All other seating positions:	See Enclosures
9.10.3.6	Design torso angle	
9.10.3.6.1	Driver's seat:	N/A

9.10.3.6.2	All other seating positions:	See Enclosures
9.10.3.7	Range of seat adjustment	
9.10.3.7.1	Driver's seat:	N/A
9.10.3.7.2	All other seating positions:	See Enclosures

9.10.4.	**Head restraints**	
9.10.4.1.	**Type(s) of head restraints:**	**detachable**
9.10.4.2.	**Type-approval number(s), if available:**	**N/A**
9.10.4.3.	**For head restraints not yet approved**	**See Enclosures**
9.12.	**Safety belts and/or other restraint systems**	
9.12.1.	**Number and position of safety belts and restraint systems and seats on which they can be used:** **(L = left, R = right, C = centre)**	

		Complete EC type-approval mark	**Variant (if applicable)**	**Belt adjustment device for height**
First row	**L**	**N/A**	**N/A**	**N/A**
	C[1]	**N/A**	**N/A**	**N/A**
	R[1]	**N/A**	**N/A**	**N/A**
Other rows	**L**	**E8*16R07/04* 16878**	**N/A**	**N/A**
	C[1]			
	R			

[1]-If present

9.12.2.	**Nature and position of supplementary restraint system:**	**ISOFIX anchorages mounted in 2 seating positions (concerns ECE Regulation No. 145)**
9.12.3.	**Nature and position of safety belt anchorages and proof of compliance with ECE R 14 or Directive 76/115/EEC:**	**See paragraphs in this document**

9.12.4.	**Brief description of the electrical/ electronic components (if any):**	**No safety belt reminder or other electronic components. Safety belt reminders not required in motor-caravans and wheelchair accessible vehicles. Additionally, safety belt reminders are not compulsory for rear removable seats in all vehicle types (applicable for extensions of approvals first granted before 1 September 2022)**
9.13	Safety belt anchorages	
9.13.1	Photographs and/or drawings of the bodywork showing the position and dimensions of the actual and effective anchorages including the R-points:	See Enclosures
9.13.2	Drawings of the belt anchorages and parts of the vehicle structure where they are attached (with the material indication):	Seatbelt anchorages and ISOFIX anchorages systems and ISOFIX top tether anchorages – see Enclosures
9.13.3	Designation of the types of safety belt authorised for fitting to the anchorages with which the vehicle is equipped:	

			Anchorage location	
			Vehicle structure	Seat structure
First row of seats			No changes in 2nd stage of production	No changes in 2nd stage of production
Second and/or other rows of seats			Anchorage location	
			Vehicle structure	Seat structure
Left-hand seat	Lower anchorages	outboard	--	*Ar*
		inboard	--	*Ar*
	Upper anchorages		--	*Ar*
Central seat[1]	Lower anchorages	outboard	--	*Ar*
		inboard	--	*Ar*
	Upper anchorages		--	*Ar*
Right-hand seat	Lower anchorages	outboard	--	*Ar*
		inboard	--	*Ar*
	Upper anchorages		--	*Ar*

[1] **- if applicable**

Child restraint systems are not allowed to be installed in central seating position (if applicable). They are allowed only for outboard seating positions (left and right in SAF42 and SAF43)

9.13.4	Description of a particular type of safety belt where an anchorage is located in the seat backrest or incorporates an energy dissipating device:	Ar4m
9.13.5	Drawings and/or photographs of the ISOFIX anchorages systems, of the top tether anchorages if any, and of the vehicle structure	
9.13.5.1	Number:	
9.13.5.1.1	Of the low ISOFIX anchorages	See Enclosures
9.13.5.1.2	Of the ISOFIX top tether anchorages	See Enclosures
9.13.5.1.3	Of the integrated " built in" child restraint system(s) of mass groups 0, or 0+, or 1:	N/A
9.13.5.2	Convertible vehicle, as defined in annex 7, paragraph 8.1 of the Consolidated Resolution on the Construction of Vehicles (R.E.3)	N/A
9.13.5.3	Photographs and/or drawings of the bodywork showing the position and dimensions of the anchorages	See Enclosures
9.13.5.4	Drawing and/or photographs of the ISOFIX anchorages systems, of the ISOFIX top tether anchorages	See Enclosures
9.13.5.5	Drawing and/or photographs of the position and the form of the symbols of the ISOFIX anchorages system, if necessary	Label with the word „ISOFIX“ complies with requirements of ECE R145 - near ISOFIX system – see Enclosure 2

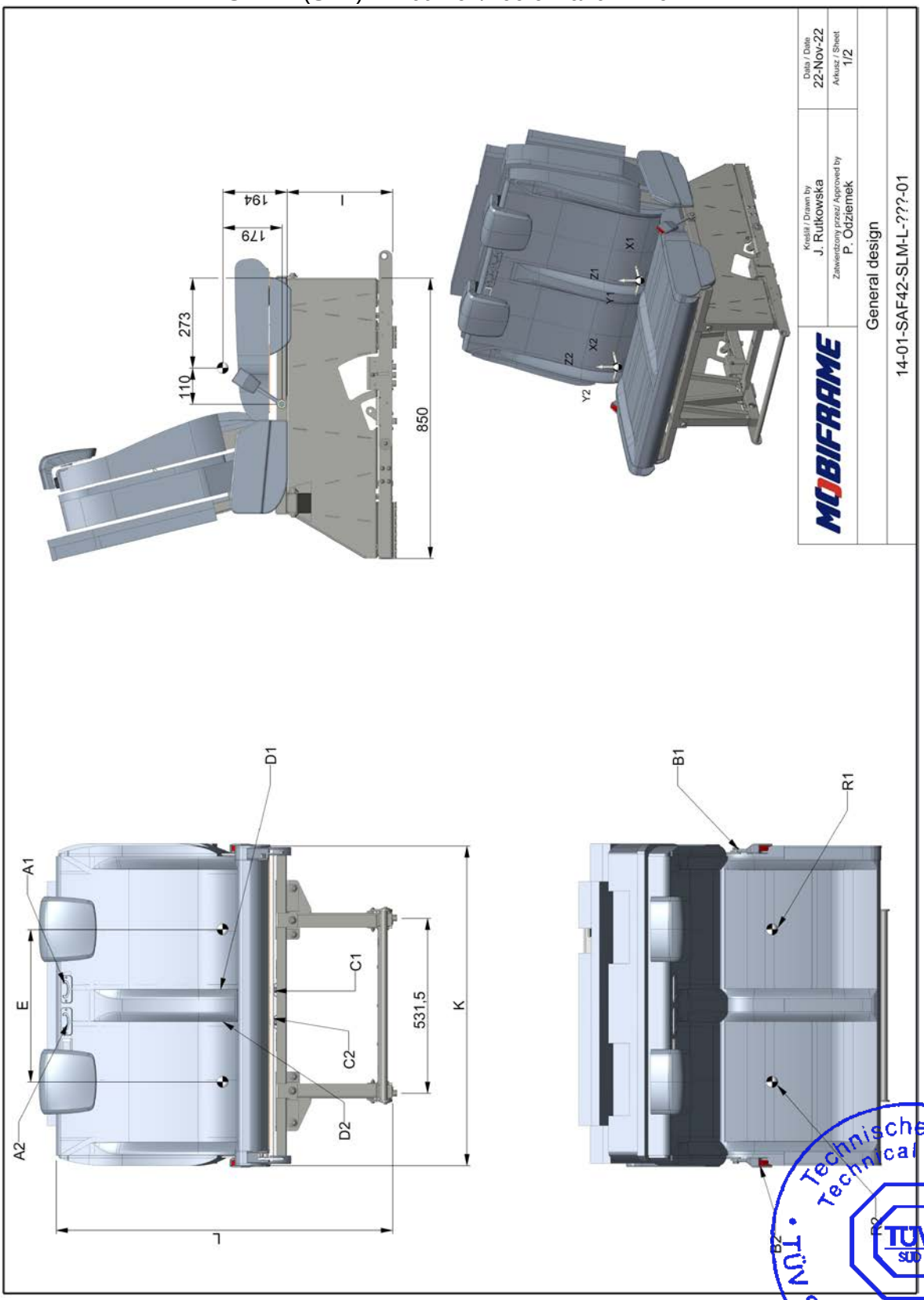
Enclosure 1: TABLE OF VEHICLES TYPES

Manufacturer	Commercial description / Type or model designation	Wheelbase
Daimler / Mercedes-Benz	Sprinter (906, 907)	3250, 3665, 4325
	Sprinter, e-Sprinter (910)	3259, 3924
	Vito/Viano/V-klasse, e-Vito (639, 639/2, 639/4, 639/5)	3200, 3430
VW	Crafter (2E__, 3E__)	3250, 3665, 4325
	Crafter, e-Crafter (SYN__, SYM__ e.g. SYN1E, SYM1E, SYN2E, SYM2E, SYN2Z, SYM2Z)	3640, 4490
	T5 (7H_, 7E_, 7J_)	3000, 3400
	T6, T6.1, e-Transporter (7H_, 7E_, 7J_)	3000, 3400
Citroen	Jumper, e-Jumper (Y, CY)	3000, 3450, 4035
	Jumpy (G9/X, V)	3000, 3122
	Jumpy, e-Jumpy (G9/X, V)	2925, 3275
	SpaceTourer, E-SpaceTourer (V)	2925, 3275
	Berlingo, E-Berlingo	2785, 2975
Peugeot	Boxer, e-Boxer (Y)	3000, 3450, 4035
	Expert (VF3__)	3000, 3122
	Expert, e-Expert (G9/X, V)	2925, 3275
	Traveller, e-Traveller (V)	2925, 3275
	Rifter, e-Rifter	2785, 2975
Fiat	Ducato, e-Ducato (250)	3000, 3450, 4035
	Scudo (270)	3000, 3122
	Scudo (2022-…)	2925, 3275
	Talento (FJL, FFL)	3098, 3498
Opel	Movano (MR, MS, MW, MT)	3182, 3682, 4332
	Movano, Movano-e (Y)	3000, 3450, 4035
	Vivaro (F7)	3098, 3498
	Vivaro, Vivaro-e, Vivaro e-Kombi, Vivaro Life, Zafira Life (V)	2925, 3275
	Combo Life, Combo-e Life	2785, 2975
Renault	Master, Master E-Tech (FV, MA, MC, ML, MW, MR, MT, VA)	3182, 3682, 4332
	Trafic (FL, EL, L)	3098, 3498
	Trafic 2014 (JL, L)	3098, 3498
Renault Trucks	Master (MA, MB, MF, MG, VA, VB, VF, VG)	3182, 3682, 4332
Ford	Transit, (FA_, FD_, FS_, FZ_, FN_, FM_)	2933, 3300, 3750
	Transit, e-Transit (FC_)	3300, 3750, 3954
	Transit Custom, Turneo Custom (FA_, FB_, FC_, FD_, FE_, FF_)	2933, 3300
	Transit Connect (PU2)	2662, 3062
Iveco	Daily, Daily Electric (IS_____)	3000, 3300, 3520, 3950, 4100, 4750
Nissan	NV200	2725
	NV300, Primastar (4)	3098, 3498
	NV400 (M1)	3182, 3682, 4332

Toyota	Pro Ace (2013-2016)	3000, 3122
	Pro Ace, Pro Ace Verso, Pro Ace Electric (X, V)	2925, 3275
MAN	TGE, eTGE (SYN__, SYM__ e.g. SYN1E, SYM1E, SYN2E, SYM2E, SYN2Z, SYM2Z)	3640, 4490
MAXUS (LDV)	V80, Maxus (SV6C)	3100, 3850
	V90, Deliver 9, E-Deliver 9	3000, 3366, 3760
	Deliver 3, E Deliver 3	2910, 3285
Hyundai	H350 (EU(V))	3435, 3670
RAM	ProMaster	3000, 3450, 4035
Freightliner/Dodge	Sprinter	3250, 3665, 4325

Enclosure 2: DRAWINGS OF SEATS, SEAT BELT ANCHORAGES, ISOFIX ANCHORAGE SYSTEMS AND ISOFIX TOP TETHER ANCHORAGES

SAF42 (Slim) – width: 97/100 cm and 112 cm



SAF42_SLM_L_97			
LEFT SEAT		RIGHT SEAT	
R point 1		R Point 2	
Rx1	0 mm	Rx2	0 mm
Ry1	0 mm	Ry2	0 mm
Rz1	0 mm	Rz2	0 mm
Pillar loop 1		Pillar loop 2	
Ax1	323 mm	Ax2	323 mm
Ay1	181 mm	Ay2	-183 mm
Az1	466 mm	Az2	466 mm
Buckle 1		Buckle 2	
Bx1	110 mm	Bx2	110 mm
By1	-241 mm	By2	239 mm
Bz1	-179 mm	Bz2	-179 mm
α1	58 deg	α2	58 deg
End bracket 1		End bracket 2	
Cx1	237 mm	Cx2	237 mm
Cy1	184 mm	Cy2	-181 mm
Cz1	-146 mm	Cz2	-146 mm
α1	32 deg	α2	32 deg
Retractor 1		Retractor 2	
Dx1	229 mm	Dx2	229 mm
Dy1	184 mm	Dy2	-181 mm
Dz1	-17 mm	Dz2	-17 mm

SAF42_SLM_L_100			
LEFT SEAT		RIGHT SEAT	
R point 1		R Point 2	
Rx1	0 mm	Rx2	0 mm
Ry1	0 mm	Ry2	0 mm
Rz1	0 mm	Rz2	0 mm
Pillar loop 1		Pillar loop 2	
Ax1	323 mm	Ax2	323 mm
Ay1	181 mm	Ay2	-183 mm
Az1	466 mm	Az2	466 mm
Buckle 1		Buckle 2	
Bx1	110 mm	Bx2	110 mm
By1	-241 mm	By2	239 mm
Bz1	-179 mm	Bz2	-179 mm
α1	58 deg	α2	58 deg
End bracket 1		End bracket 2	
Cx1	237 mm	Cx2	237 mm
Cy1	184 mm	Cy2	-181 mm
Cz1	-146 mm	Cz2	-146 mm
α1	32 deg	α2	32 deg
Retractor 1		Retractor 2	
Dx1	229 mm	Dx2	229 mm
Dy1	184 mm	Dy2	-181 mm
Dz1	-17 mm	Dz2	-17 mm

	SAF42-SLM-L-97	SAF42-SLM-L-100
E	463 mm	
I	319 mm	
K	970±10 mm	1000±10 mm
L	1020±10 mm	

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MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 22-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 2/2
General design		
14-01-SAF42-SLM-L-???-01		

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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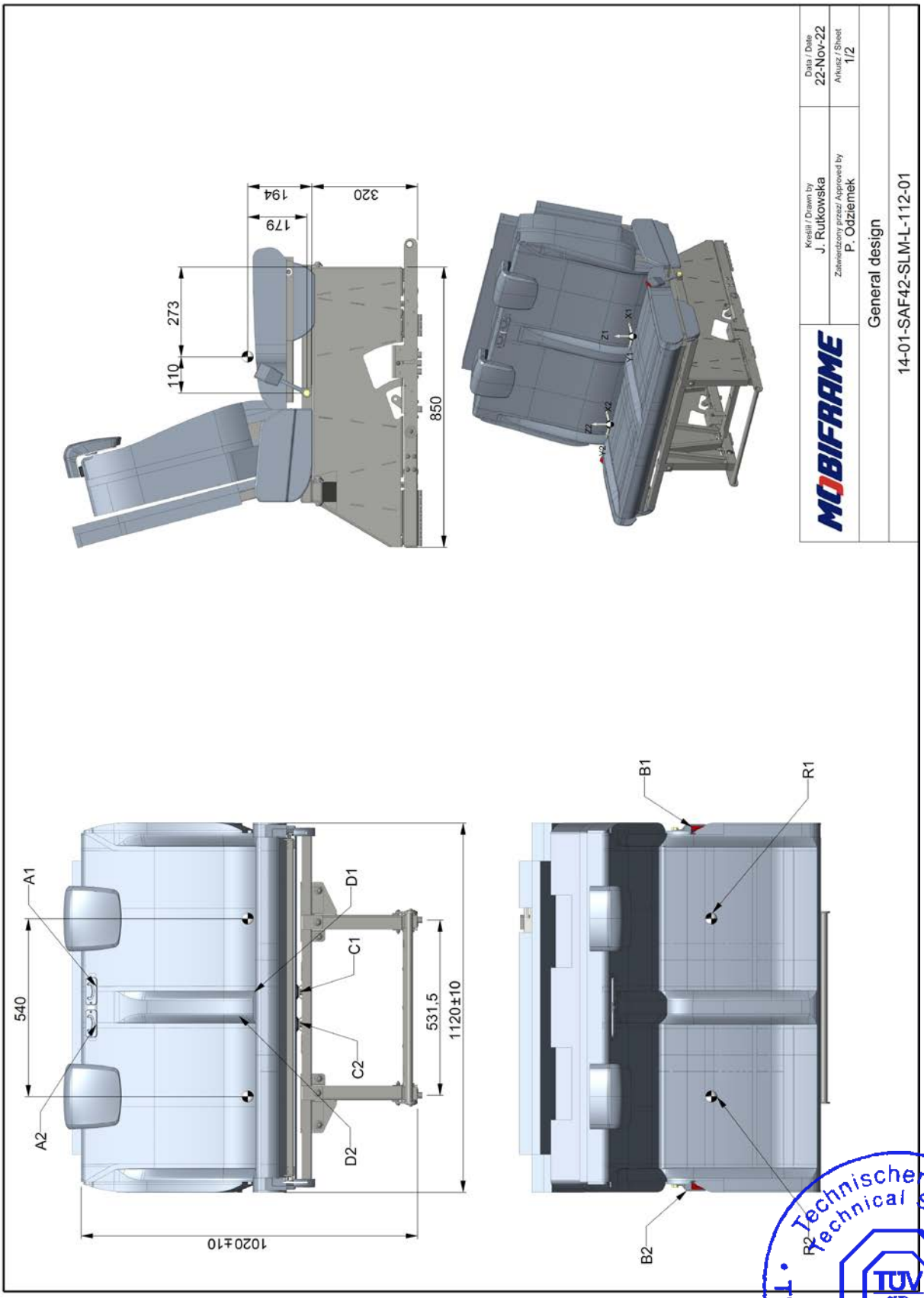

SAF42_SLM_L_112			
LEFT SEAT		RIGHT SEAT	
R point 1		R Point 2	
Rx1	0 mm	Rx2	0 mm
Ry1	0 mm	Ry2	0 mm
Rz1	0 mm	Rz2	0 mm
Pillar loop 1		Pillar loop 2	
Ax1	323 mm	Ax2	323 mm
Ay1	221 mm	Ay2	-221 mm
Az1	466 mm	Az2	466 mm
Buckle 1		Buckle 2	
Bx1	110 mm	Bx2	110 mm
By1	-265 mm	By2	265 mm
Bz1	-179 mm	Bz2	-179 mm
α1	58 deg	α2	58 deg
End bracket 1		End bracket 2	
Cx1	237 mm	Cx2	237 mm
Cy1	222 mm	Cy2	-219 mm
Cz1	-146 mm	Cz2	-146 mm
α1	32 deg	α2	32 deg
Retractor 1		Retractor 2	
Dx1	229 mm	Dx2	229 mm
Dy1	222 mm	Dy2	-219 mm
Dz1	-17 mm	Dz2	-17 mm

MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 22-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 2/2
General design		
14-01-SAF42-SLM-L-112-01		

MOBIFRAME

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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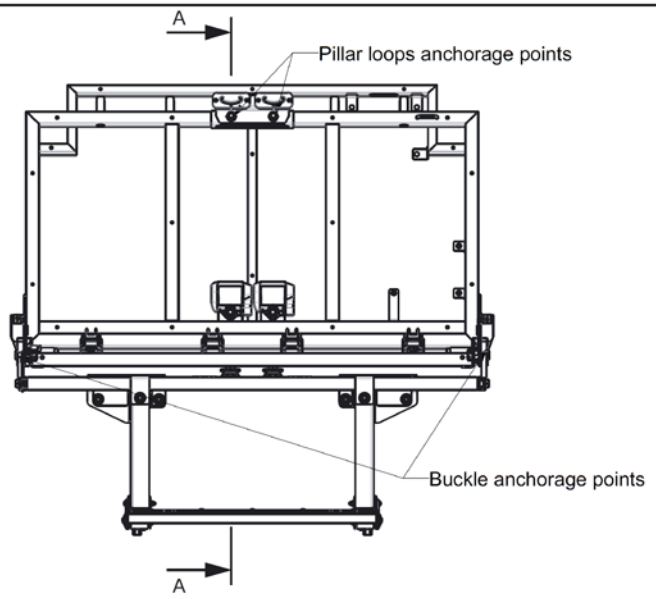
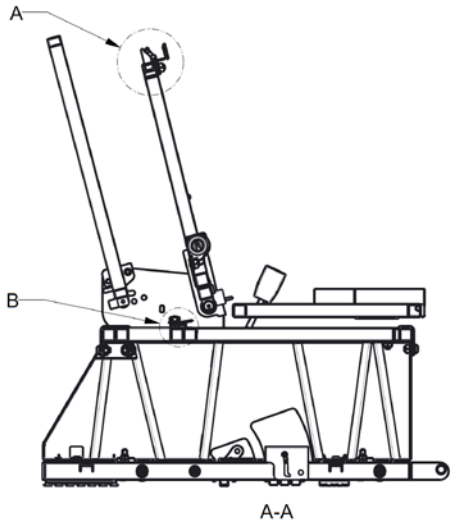
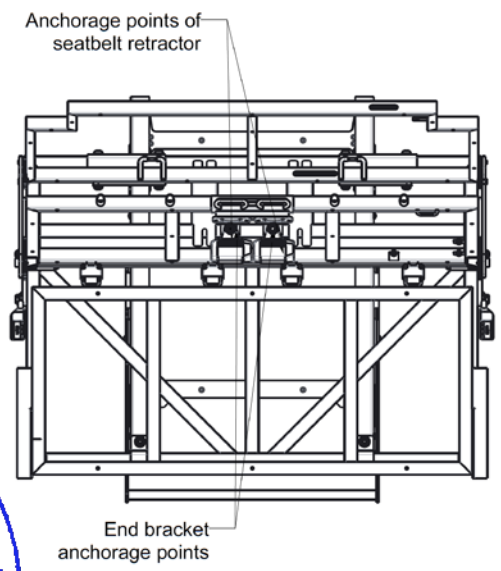
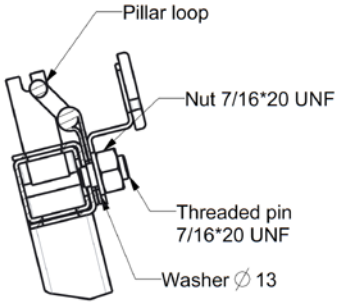
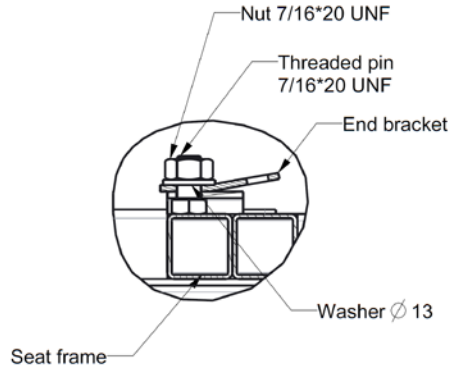








Detail A



Detail B

MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 22-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 1/2
Seatbelt anchorage points		
14-01-SAF42-SLM-L-???-01		

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MOBIFRAME

MOBIFRAME/07/2022-**01**

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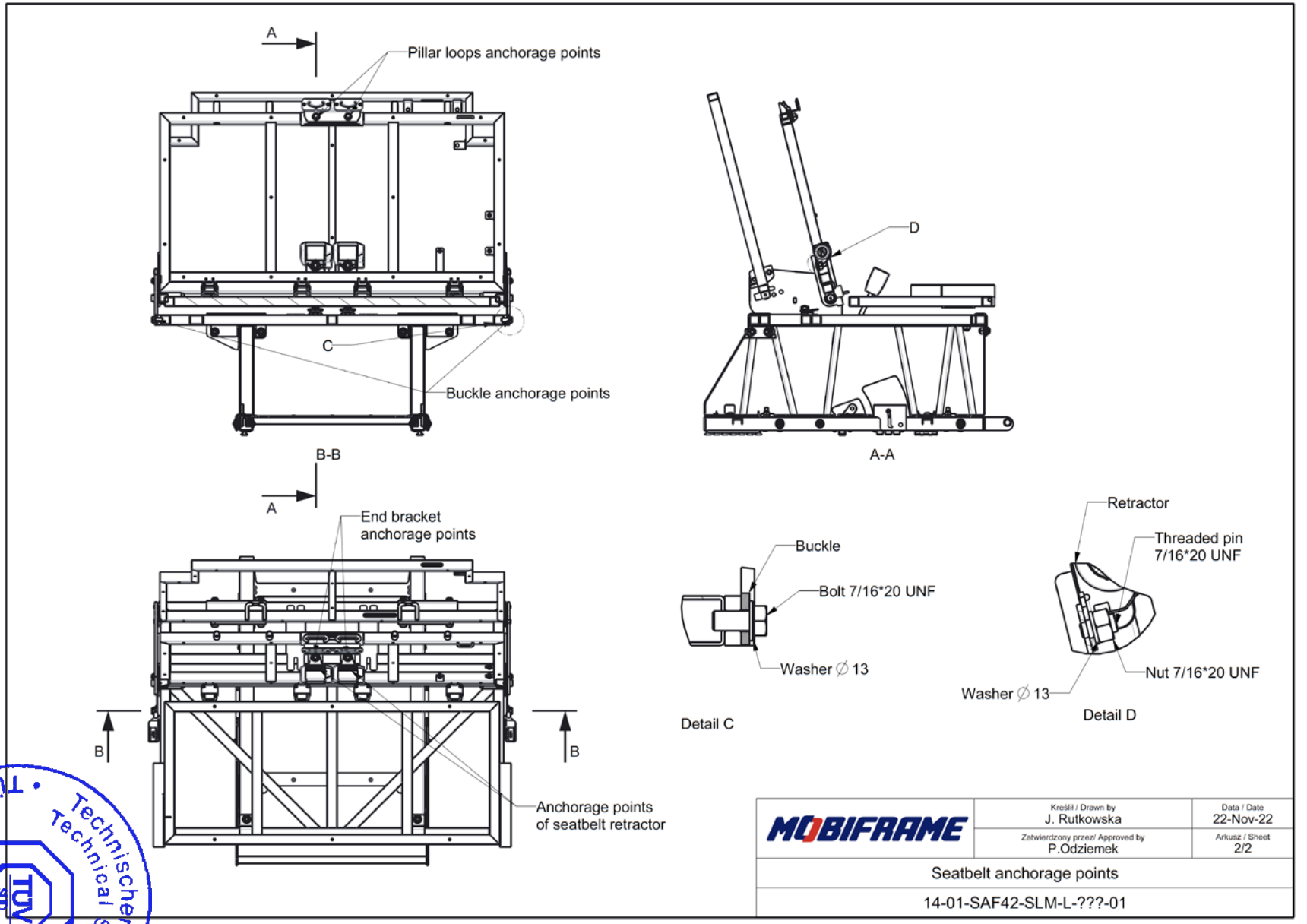

MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 22-Nov-22
	Zatwierdzony przez/ Approved by: P.Odziemek	Arkusz / Sheet: 2/2
Seatbelt anchorage points		
14-01-SAF42-SLM-L-???-01		

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MOBIFRAME

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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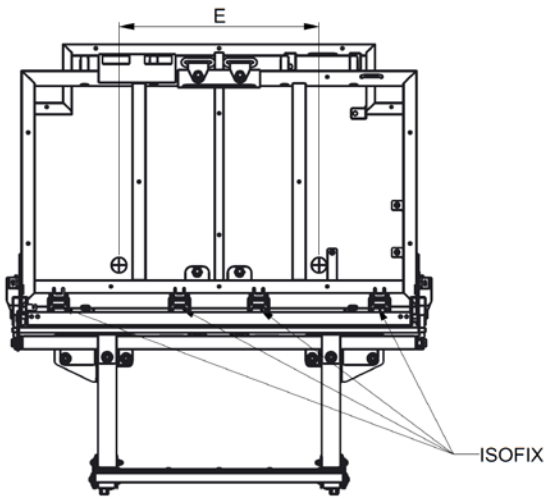

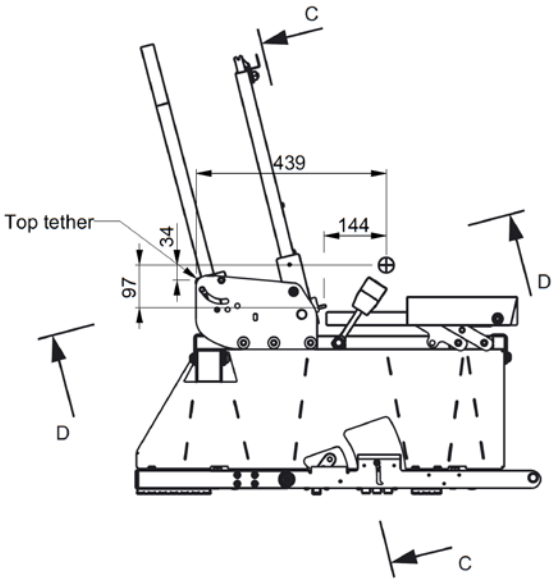

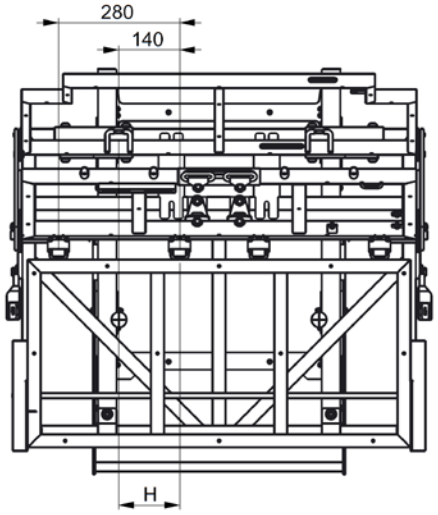

	SAF42-SLM-L-97	SAF42-SLM-L-100
E - between R point	463 mm	463 mm
H - between inside ISOFIX fixation and R point (right seat)	140 mm	140 mm

MOBIFRAME

Kreślił / Drawn by	Data / Date
J. Rutkowska	22-Nov-22
Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet 1/2

ISOFIX and top tether system

14-01-SAF42-SLM-L-???-01

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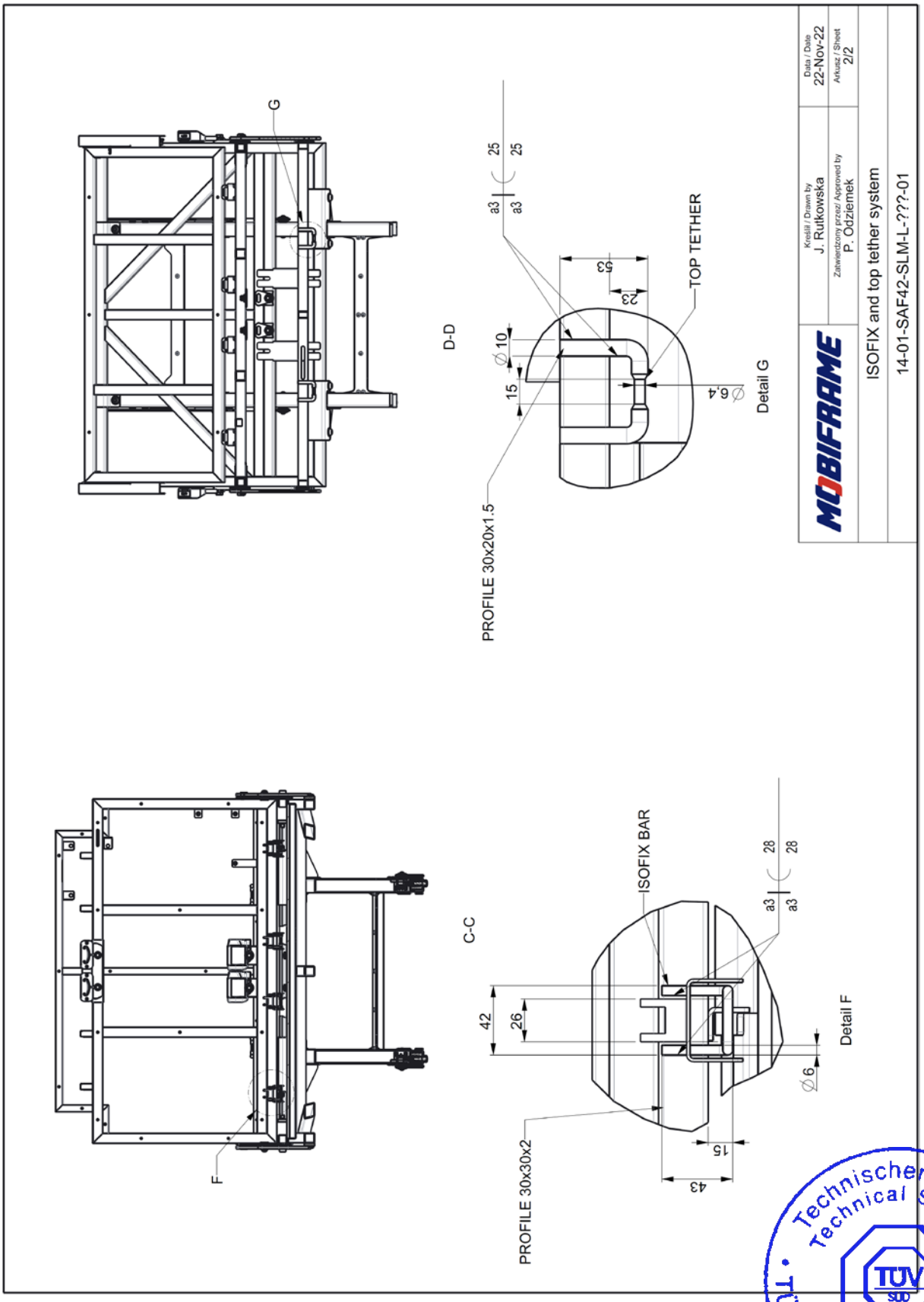
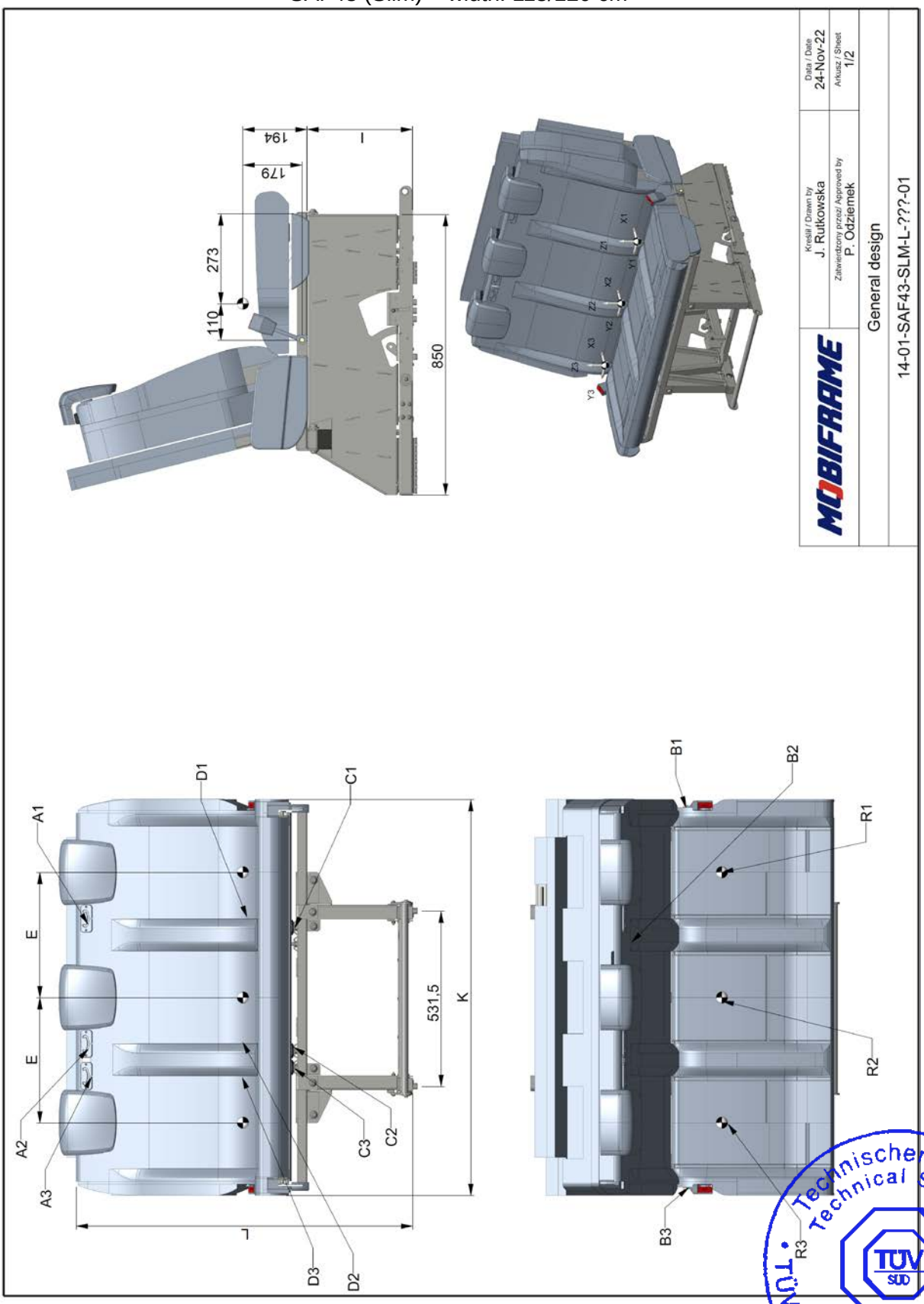


SAF43 (Slim) – width: 118/120 cm



SAF43_SLM_L_118					
LEFT SEAT		CENTER SEAT		RIGHT SEAT	
R point 1		R Point 2		R point 3	
Rx1	0 mm	Rx2	0 mm	Rx3	0 mm
Ry1	0 mm	Ry2	0 mm	Ry3	0 mm
Rz1	0 mm	Rz2	0 mm	Rz3	0 mm
Pillar loop 1		Pillar loop 2		Pillar loop 3	
Ax1	323 mm	Ax2	323 mm	Ax3	323 mm
Ay1	141 mm	Ay2	141 mm	Ay3	-141 mm
Az1	466 mm	Az2	466 mm	Az3	466 mm
Buckle 1		Buckle 2		Buckle 3	
Bx1	110 mm	Bx2	273 mm	Bx3	110 mm
By1	-196 mm	By2	-162 mm	By3	196 mm
Bz1	-179 mm	Bz2	-149 mm	Bz3	-179 mm
α1	58 deg	α2	32 deg	α3	58 deg
End bracket 1		End bracket 2		End bracket 3	
Cx1	237 mm	Cx2	237 mm	Cx3	237 mm
Cy1	168 mm	Cy2	162 mm	Cy3	-168 mm
Cz1	-146 mm	Cz2	-146 mm	Cz3	-146 mm
α1	32 deg	α2	32 deg	α3	32 deg
Retractor 1		Retractor 2		Retractor 3	
Dx1	229 mm	Dx2	229 mm	Dx3	229 mm
Dy1	141 mm	Dy2	141 mm	Dy3	-141 mm
Dz1	-17 mm	Dz2	-17 mm	Dz3	-17 mm

SAF43_SLM_L_120					
LEFT SEAT		CENTER SEAT		RIGHT SEAT	
R point 1		R Point 2		R point 3	
Rx1	0 mm	Rx2	0 mm	Rx3	0 mm
Ry1	0 mm	Ry2	0 mm	Ry3	0 mm
Rz1	0 mm	Rz2	0 mm	Rz3	0 mm
Pillar loop 1		Pillar loop 2		Pillar loop 3	
Ax1	323 mm	Ax2	323 mm	Ax3	323 mm
Ay1	141 mm	Ay2	141 mm	Ay3	-141 mm
Az1	466 mm	Az2	466 mm	Az3	466 mm
Buckle 1		Buckle 2		Buckle 3	
Bx1	110 mm	Bx2	273 mm	Bx3	110 mm
By1	-196 mm	By2	-162 mm	By3	196 mm
Bz1	-179 mm	Bz2	-149 mm	Bz3	-179 mm
α1	58 deg	α2	32 deg	α3	58 deg
End bracket 1		End bracket 2		End bracket 3	
Cx1	237 mm	Cx2	237 mm	Cx3	237 mm
Cy1	168 mm	Cy2	162 mm	Cy3	-168 mm
Cz1	-146 mm	Cz2	-146 mm	Cz3	-146 mm
α1	32 deg	α2	32 deg	α3	32 deg
Retractor 1		Retractor 2		Retractor 3	
Dx1	229 mm	Dx2	229 mm	Dx3	229 mm
Dy1	141 mm	Dy2	141 mm	Dy3	-141 mm
Dz1	-17 mm	Dz2	-17 mm	Dz3	-17 mm

	SAF43_SLM_L_118	SAF43_SLM_L_120
E	380 mm	
I	319 mm	
K	1180 ±10 mm	1200 ±10 mm
L	1020 ±10 mm	

MOBIFRAME

Kreślił / Drawn by	Data / Date
J. Rutkowska	23-Nov-22
Zatwierdzony przez/ Approved by: P.Odziemek	Arkusz / Sheet: 2/2

General design

14-01-SAF43-SLM-L-???-01

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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MOBIFRAME

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Date: **15.02.2023**

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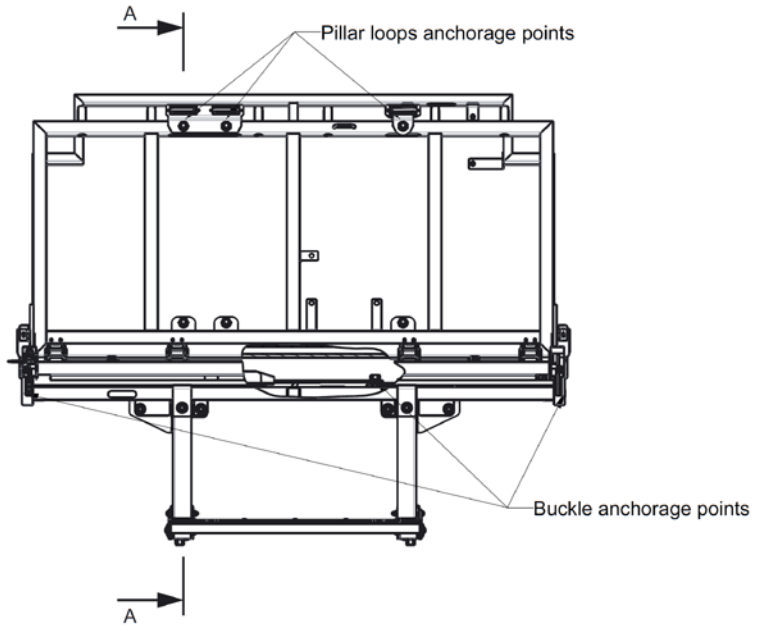
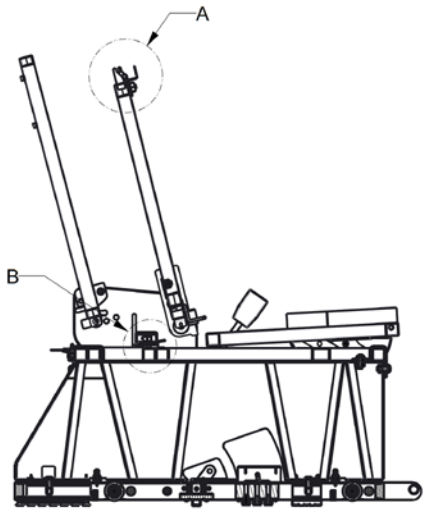
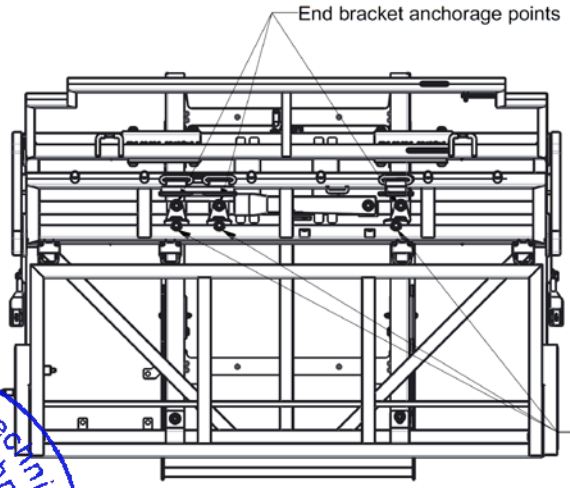
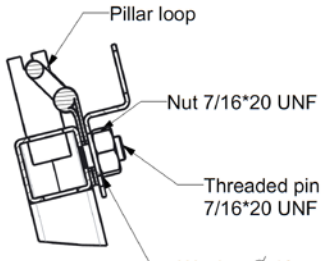


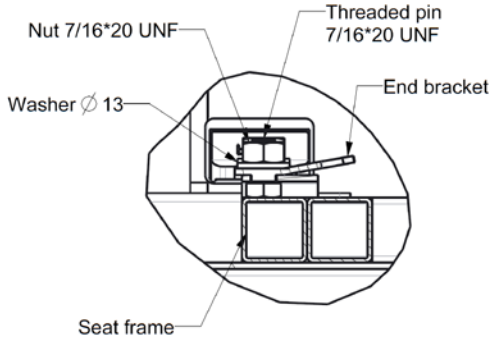


A-A





Detail A



Deatail B

MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 22-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 1/2
Seatbelt anchorage points		
14-01-SAF43-SLM-L-???-01		

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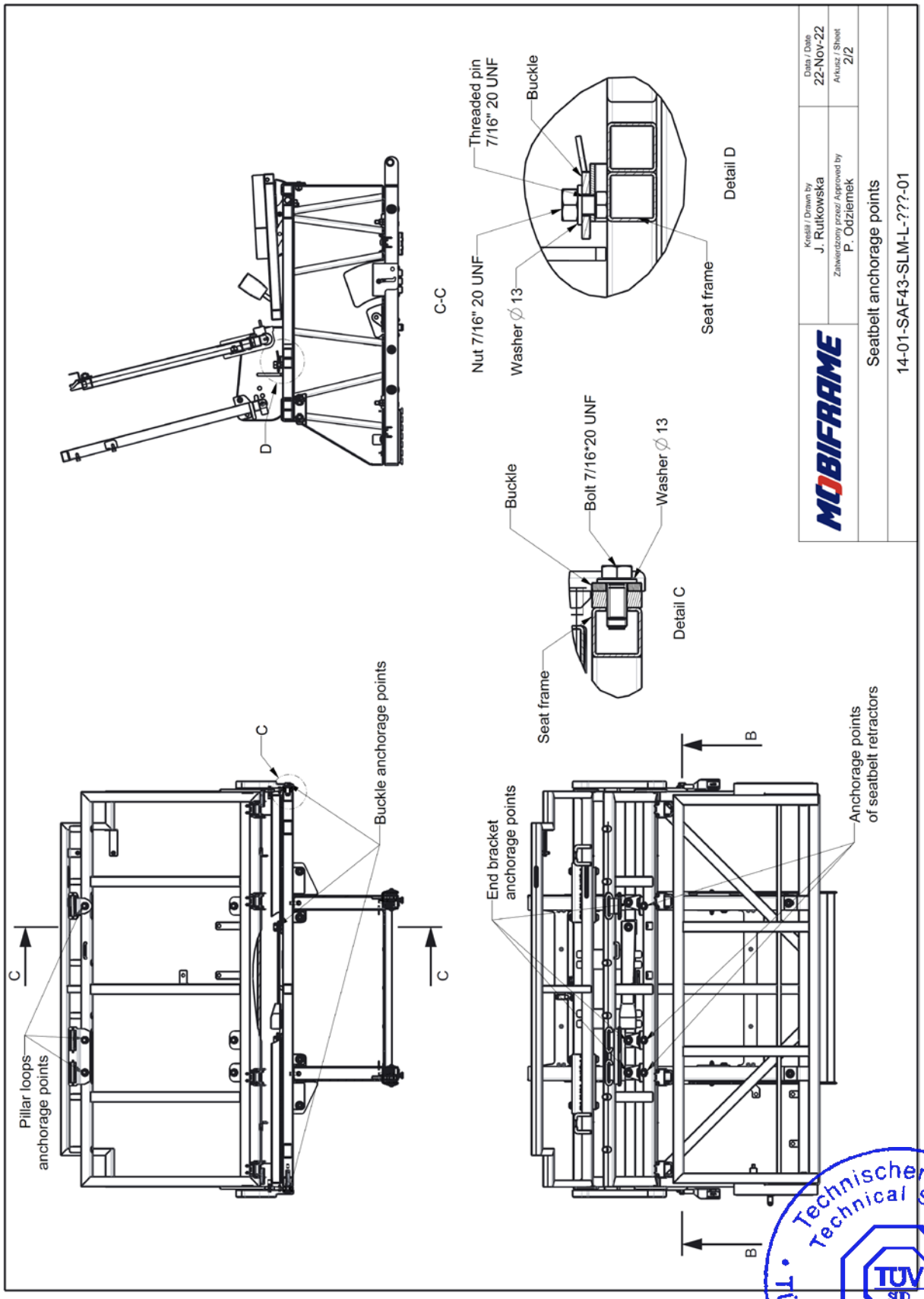

MOBIFRAME

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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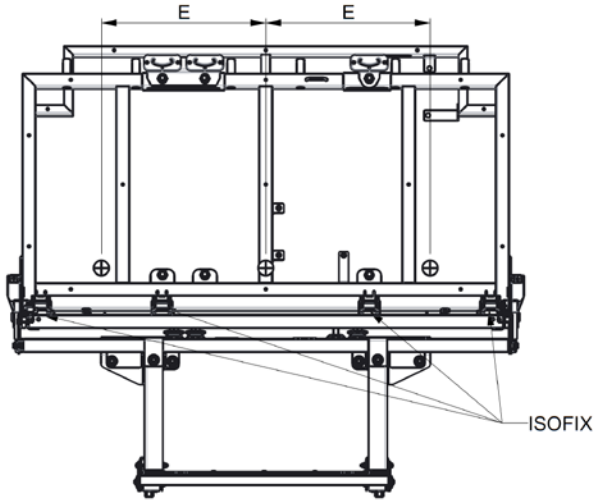
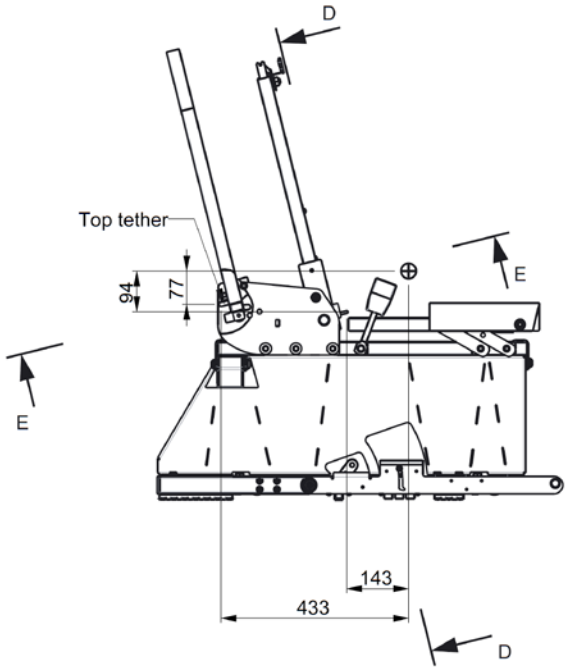
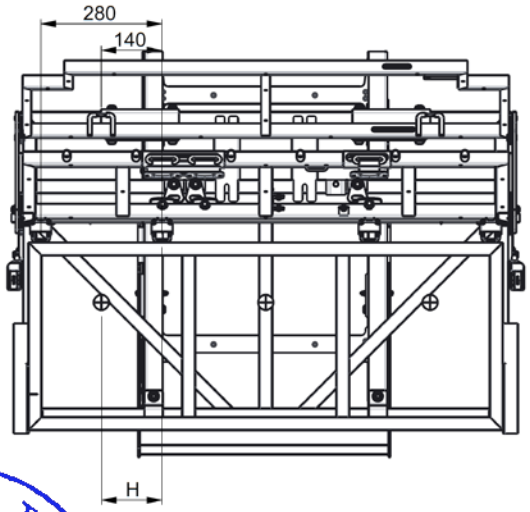
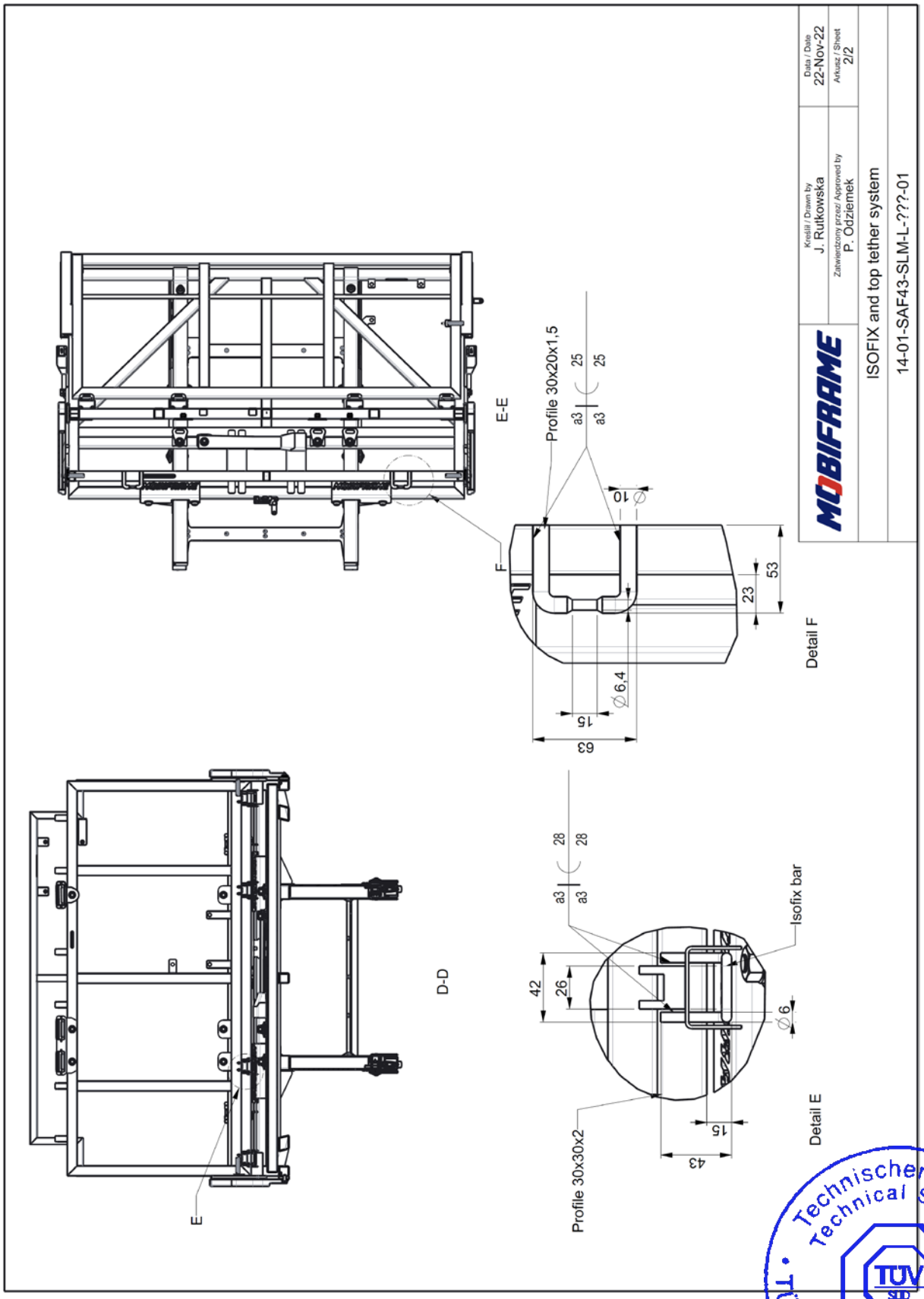




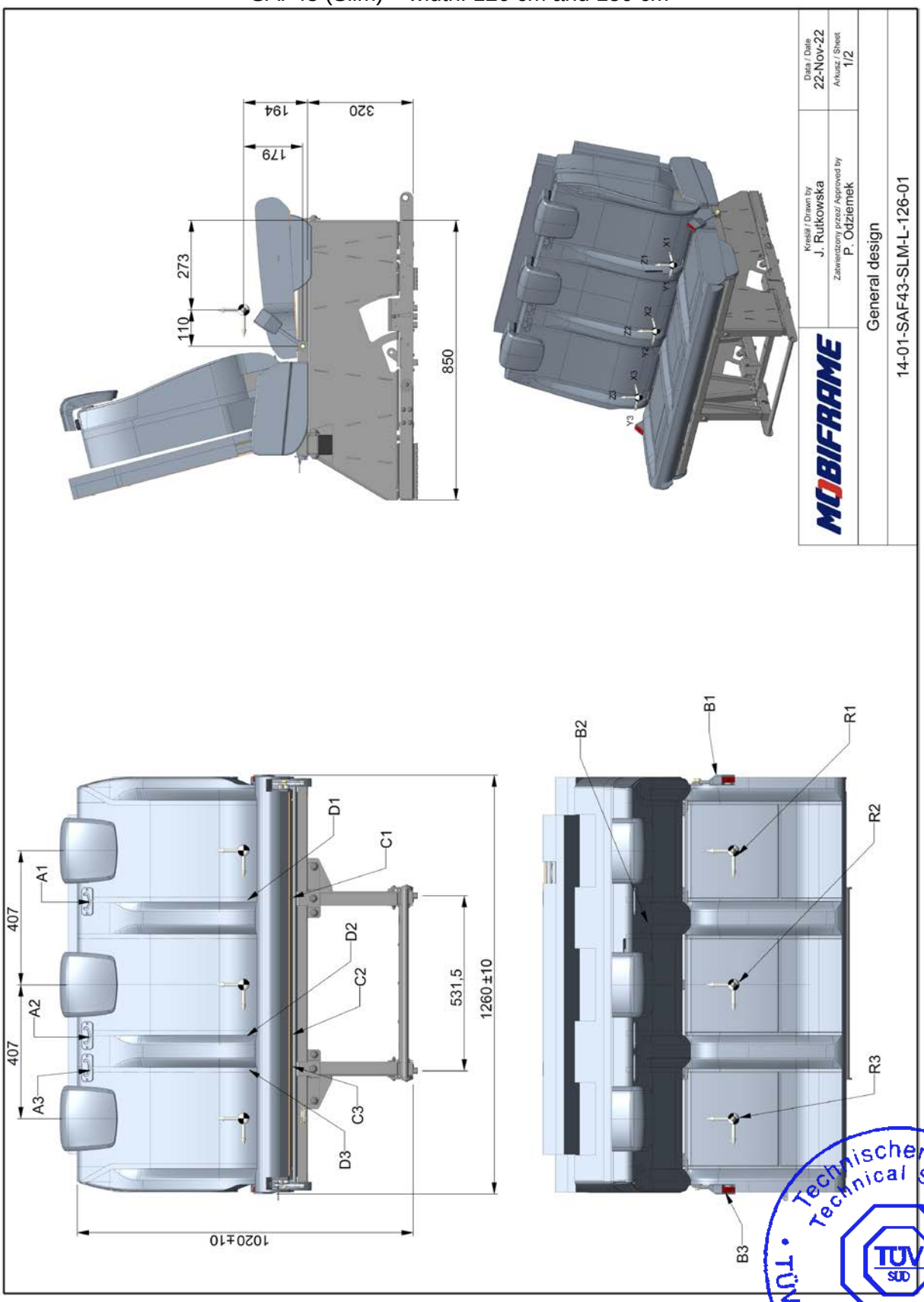


	SAF43_SLM_L_118	SAF43_SLM_L_120
E - between R point	380 mm	380 mm
H - between inside ISOFIX fixation and R point (right seat)	140 mm	140 mm

MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 23-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 1/2
ISOFIX and top tether system		
14-01-SAF43-SLM-L-???-01		



SAF43 (Slim) – width: 126 cm and 150 cm



SAF43_SLM_L_126					
LEFT SEAT		CENTER SEAT		RIGHT SEAT	
R point 1		R Point 2		R point 3	
Rx1	0 mm	Rx2	0 mm	Rx3	0 mm
Ry1	0 mm	Ry2	0 mm	Ry3	0 mm
Rz1	0 mm	Rz2	0 mm	Rz3	0 mm
Pillar loop 1		Pillar loop 2		Pillar loop 3	
Ax1	323 mm	Ax2	323 mm	Ax3	323 mm
Ay1	154 mm	Ay2	154 mm	Ay3	-154 mm
Az1	466 mm	Az2	466 mm	Az3	466 mm
Buckle 1		Buckle 2		Buckle 3	
Bx1	110 mm	Bx2	273 mm	Bx3	110 mm
By1	-209 mm	By2	-189 mm	By3	208 mm
Bz1	-179 mm	Bz2	-149 mm	Bz3	-179 mm
α1	58 deg	α2	32 deg	α3	58 deg
End bracket 1		End bracket 2		End bracket 3	
Cx1	237 mm	Cx2	237 mm	Cx3	237 mm
Cy1	142 mm	Cy2	155 mm	Cy3	-154 mm
Cz1	-146 mm	Cz2	-146 mm	Cz3	-146 mm
α1	32 deg	α2	32 deg	α3	32 deg
Retractor 1		Retractor 2		Retractor 3	
Dx1	229 mm	Dx2	229 mm	Dx3	229 mm
Dy1	154 mm	Dy2	154 mm	Dy3	-154 mm
Dz1	-17 mm	Dz2	-17 mm	Dz3	-17 mm

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MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 23-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 2/2
General design		
14-01-SAF43-SLM-L-126-01		

MOBIFRAME

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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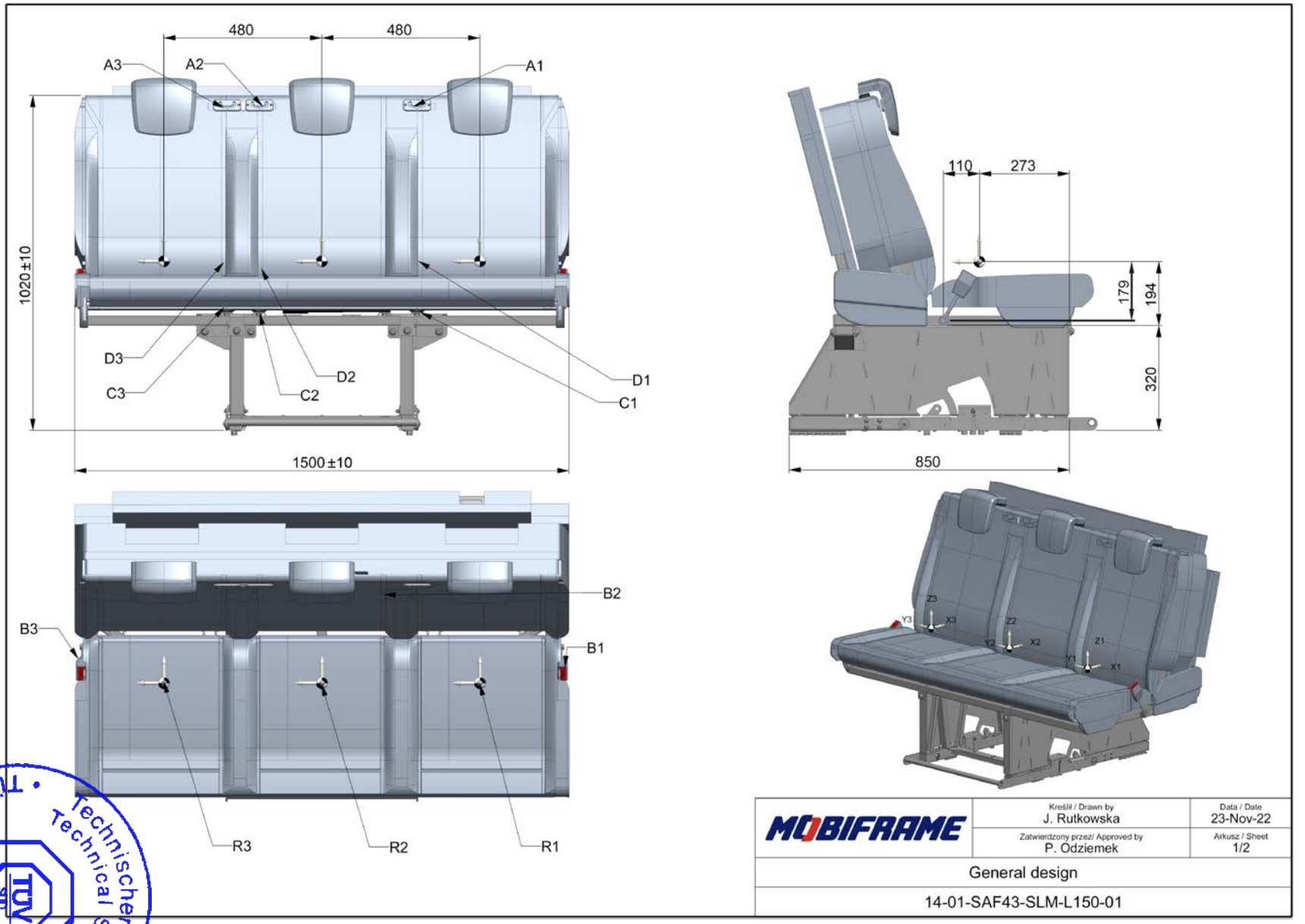

MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 23-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 1/2
General design		
14-01-SAF43-SLM-L150-01		

TÜV SÜD Auto Service GmbH 152 · Technischer Dienst Technical Service

SAF43_SLM_L_150					
LEFT SEAT		CENTER SEAT		RIGHT SEAT	
R point 1		R Point 2		R point 3	
Rx1	0 mm	Rx2	0 mm	Rx3	0 mm
Ry1	0 mm	Ry2	0 mm	Ry3	0 mm
Rz1	0 mm	Rz2	0 mm	Rz3	0 mm
Pillar loop 1		Pillar loop 2		Pillar loop 3	
Ax1	323 mm	Ax2	323 mm	Ax3	323 mm
Ay1	191 mm	Ay2	191 mm	Ay3	-292 mm
Az1	466 mm	Az2	466 mm	Az3	466 mm
Buckle 1		Buckle 2		Buckle 3	
Bx1	110 mm	Bx2	273 mm	Bx3	110 mm
By1	-246 mm	By2	-191 mm	By3	246 mm
Bz1	-179 mm	Bz2	-145 mm	Bz3	-179 mm
α1	58 deg	α2	32 deg	α3	58 deg
End bracket 1		End bracket 2		End bracket 3	
Cx1	237 mm	Cx2	237 mm	Cx3	237 mm
Cy1	191 mm	Cy2	191 mm	Cy3	-191 mm
Cz1	-146 mm	Cz2	-146 mm	Cz3	-146 mm
α1	32 deg	α2	32 deg	α3	32 deg
Retractor 1		Retractor 2		Retractor 3	
Dx1	229 mm	Dx2	229 mm	Dx3	229 mm
Dy1	191 mm	Dy2	191 mm	Dy3	-191 mm
Dz1	-17 mm	Dz2	-17 mm	Dz3	-17 mm

TÜV SÜD Auto Service GmbH 152 Technischer Service Technical Service Dienst

MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 23-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 2/2
General design		
14-01-SAF43-SLM-L150-01		

MOBIFRAME

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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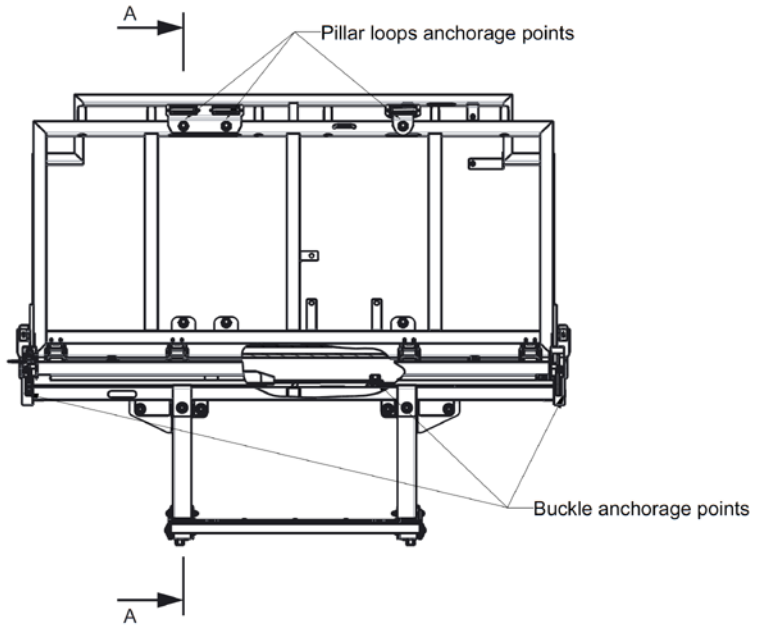
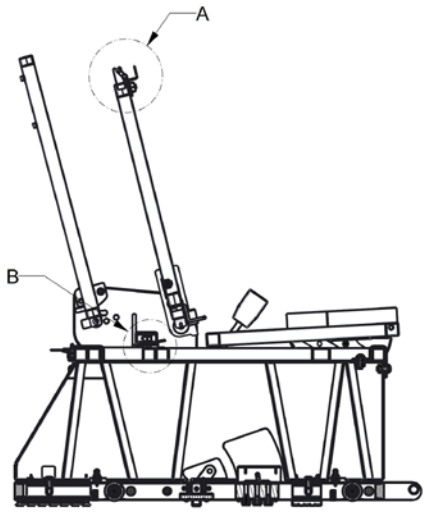
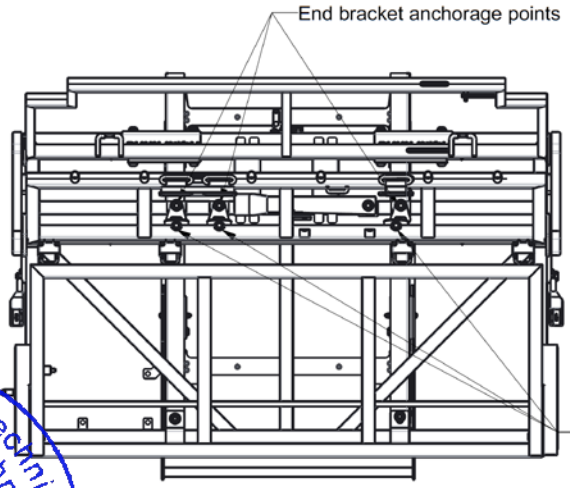
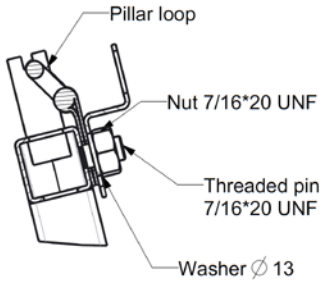


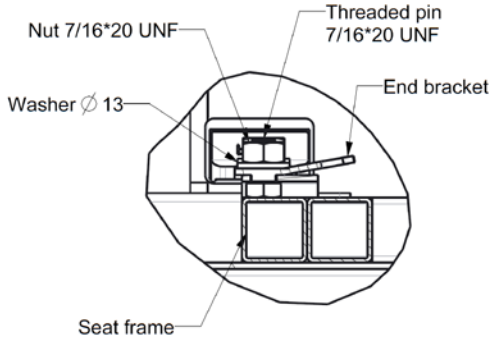


A-A





Detail A



Deatail B

MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 22-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 1/2
Seatbelt anchorage points		
14-01-SAF43-SLM-L-???-01		

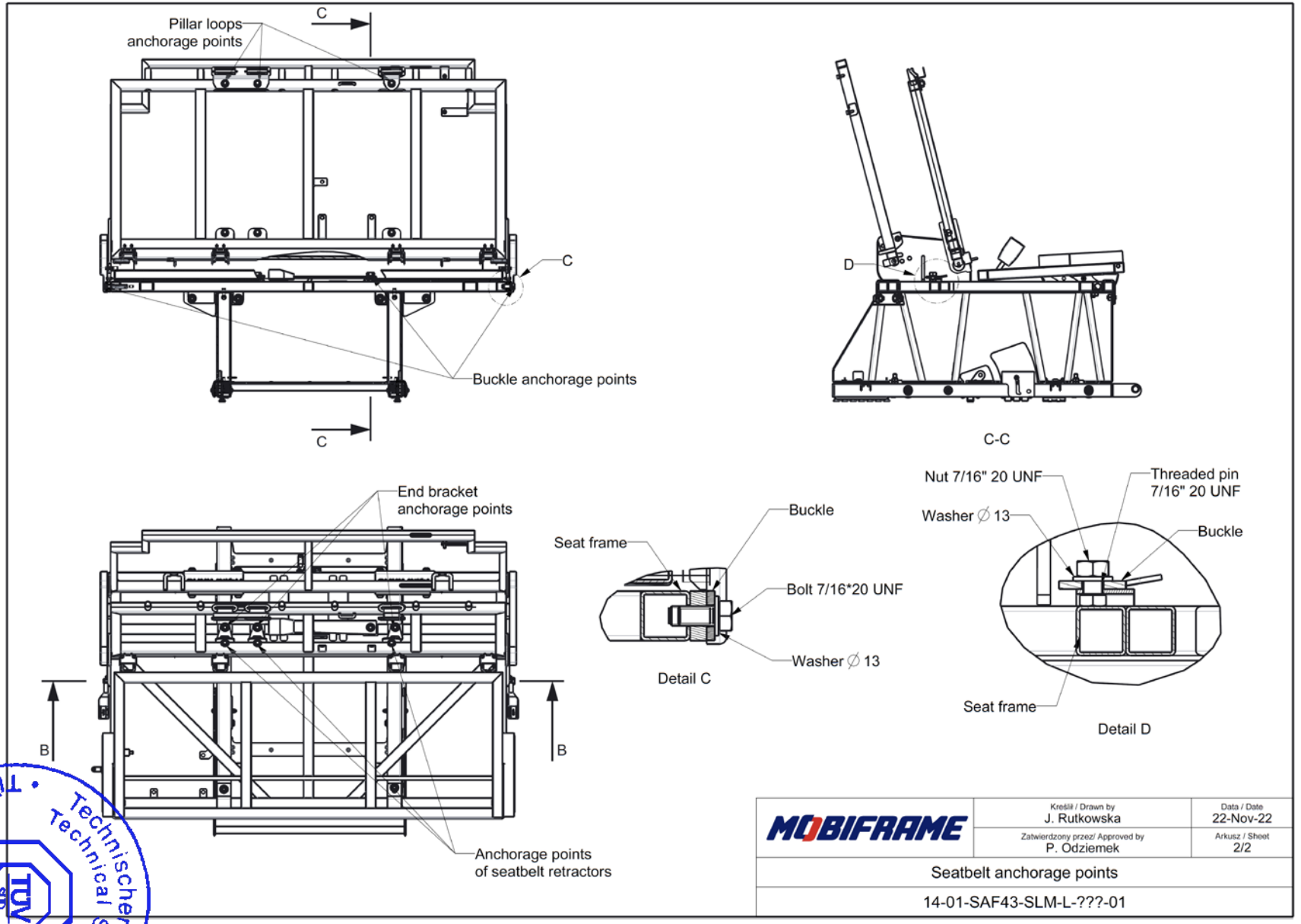
TÜV SÜD Auto Service GmbH · Technischer Dienst Technical Service · 152

MOBIFRAME

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

Page / pages: 30/100



MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 22-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 2/2
Seatbelt anchorage points		
14-01-SAF43-SLM-L-???-01		

TÜV SÜD Auto Service GmbH 152 · Technischer Dienst Technical Service

MOBIFRAME

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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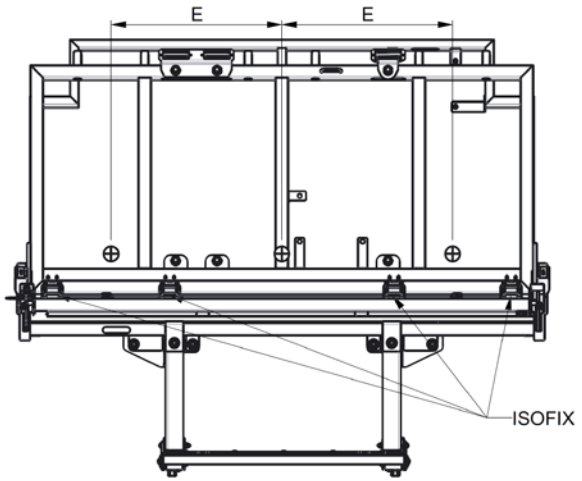
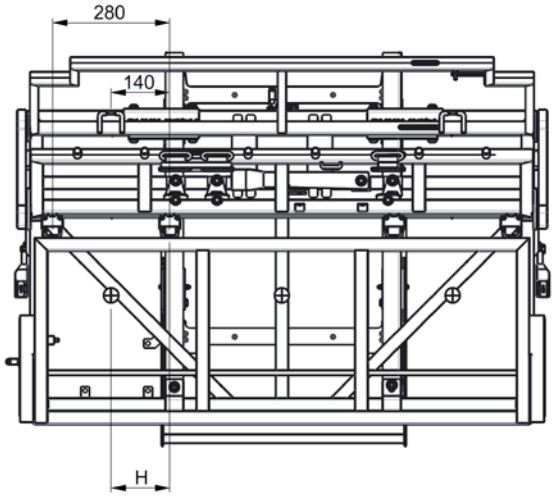
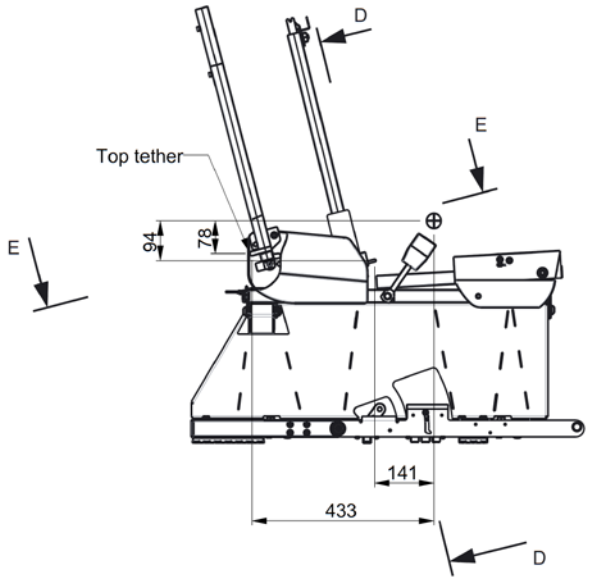






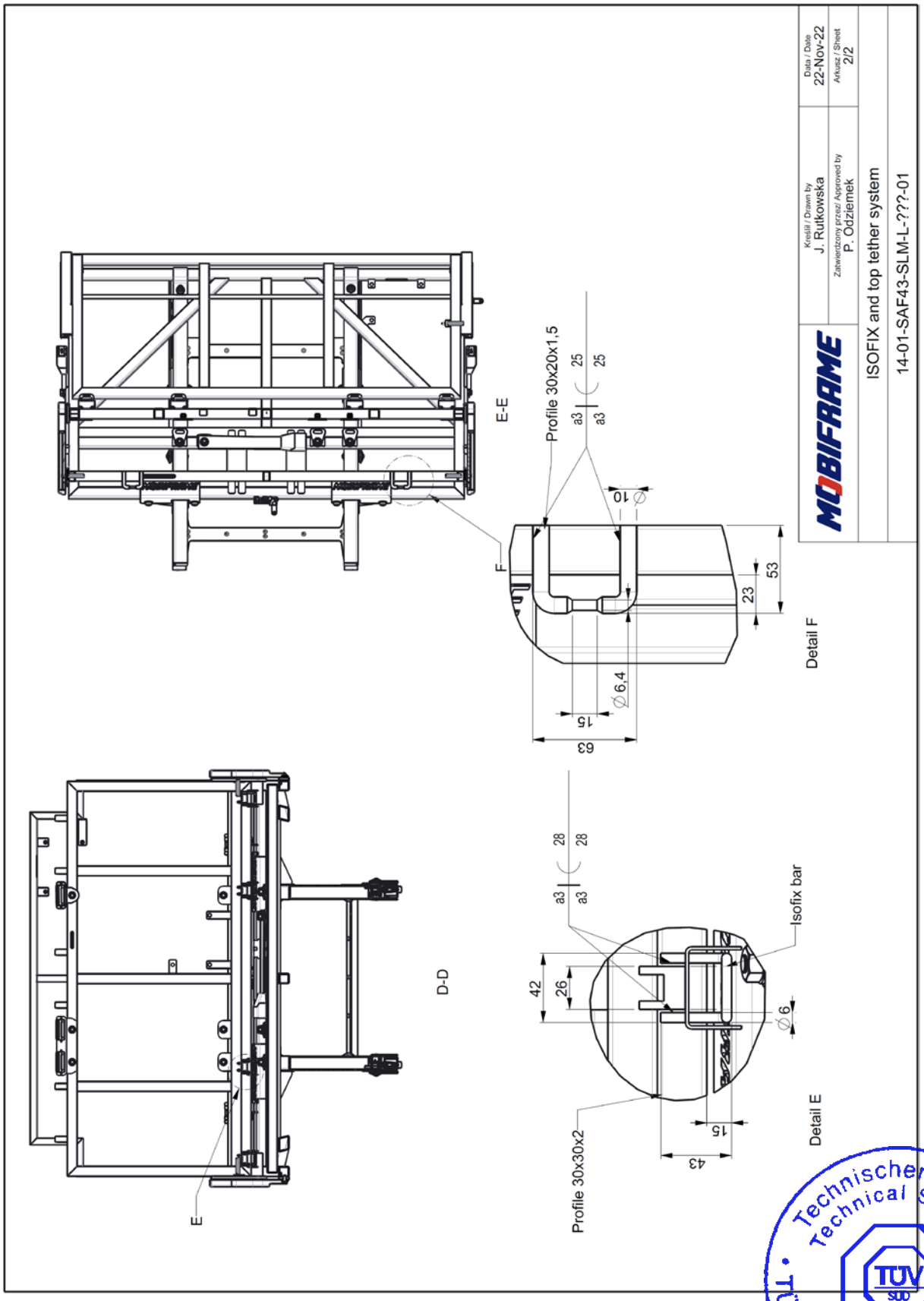
	SAF43_SLM_L_126	SAF43_SLM_L_150
E - between R point	407 mm	480 mm
H - between inside ISOFIX fixation and R point (right seat)	140 mm	140 mm

MOBIFRAME	Kreślił / Drawn by: J. Rutkowska	Data / Date: 22-Nov-22
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 1/2

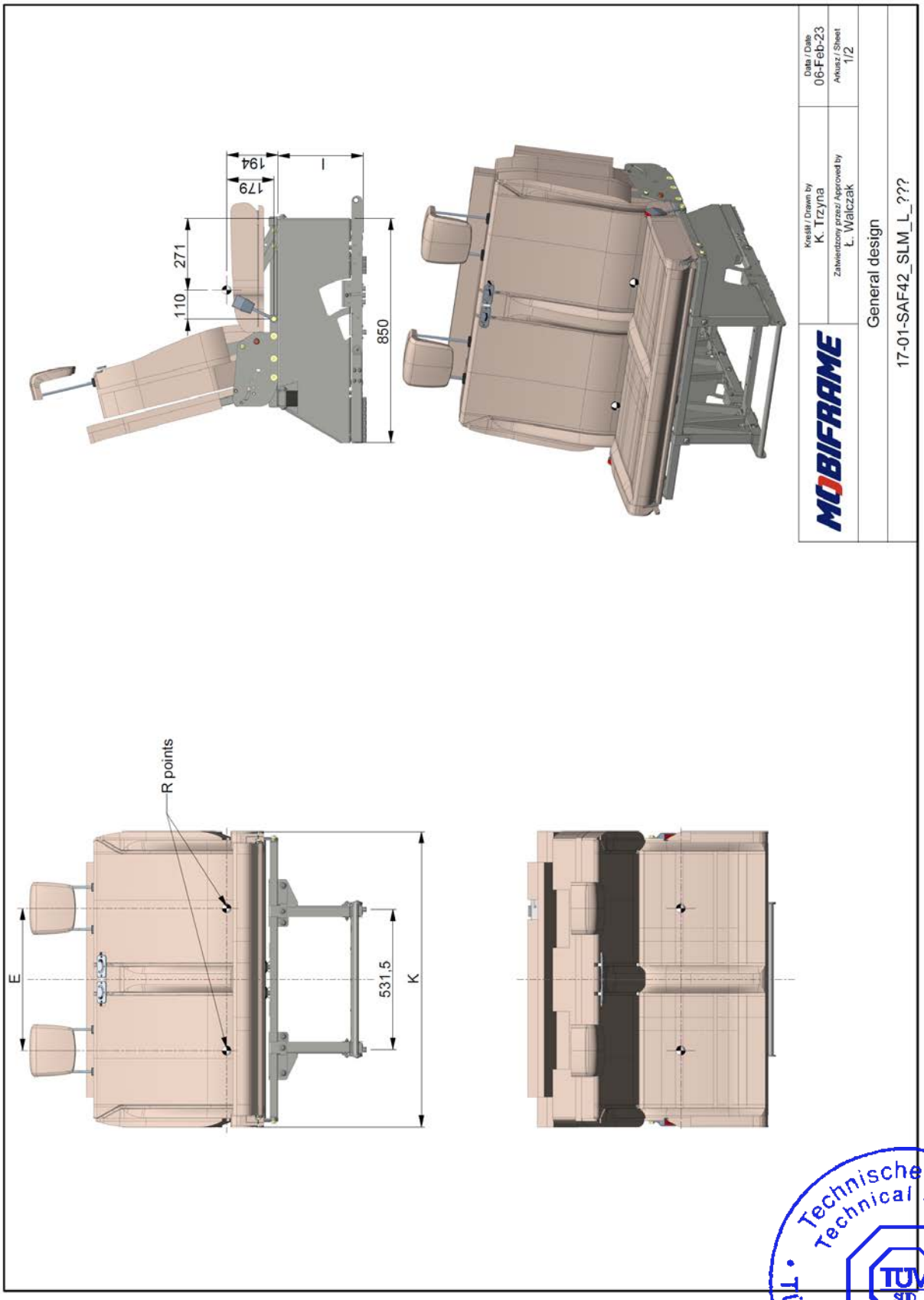
ISOFIX and top tether system

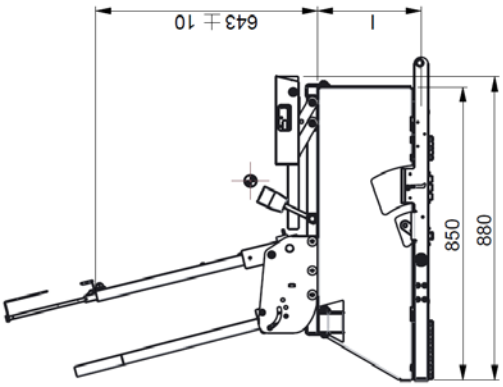
14-01-SAF43-SLM-L-???-01

TÜV SÜD Auto Service GmbH · Technischer Dienst · Technical Service · 152



Position and the form of the symbols of the ISOFIX anchorages system





Tolerances for all parameters = ∓ 10 mm			
	SAF42_SLM_L_97	SAF42_SLM_L_100	SAF42_SLM_L_112
E	463 mm	463 mm	540 mm
F		160 mm	
G	303 mm	303 mm	380 mm
I		324 - 344 mm	
J	954 mm	954 mm	1084 mm
K	950 mm	1000 mm	1120 mm

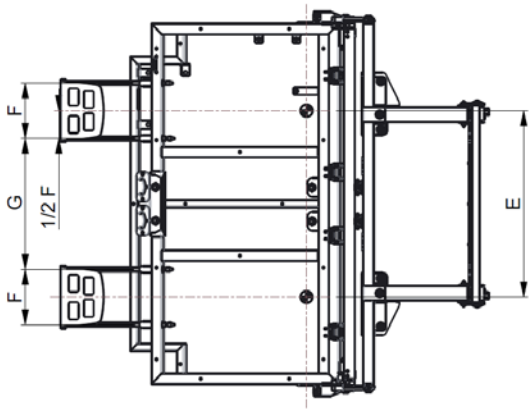
MOBIFRAME

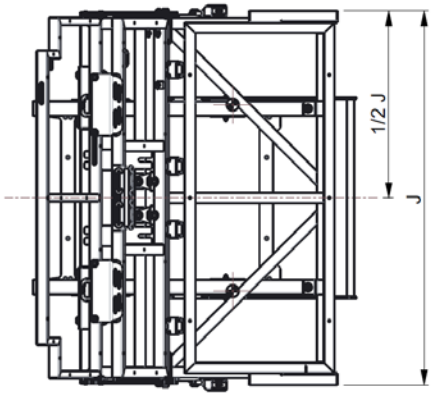
Kreślił / Drawn by: K. Trzyna — Data / Date: 06-Feb-23

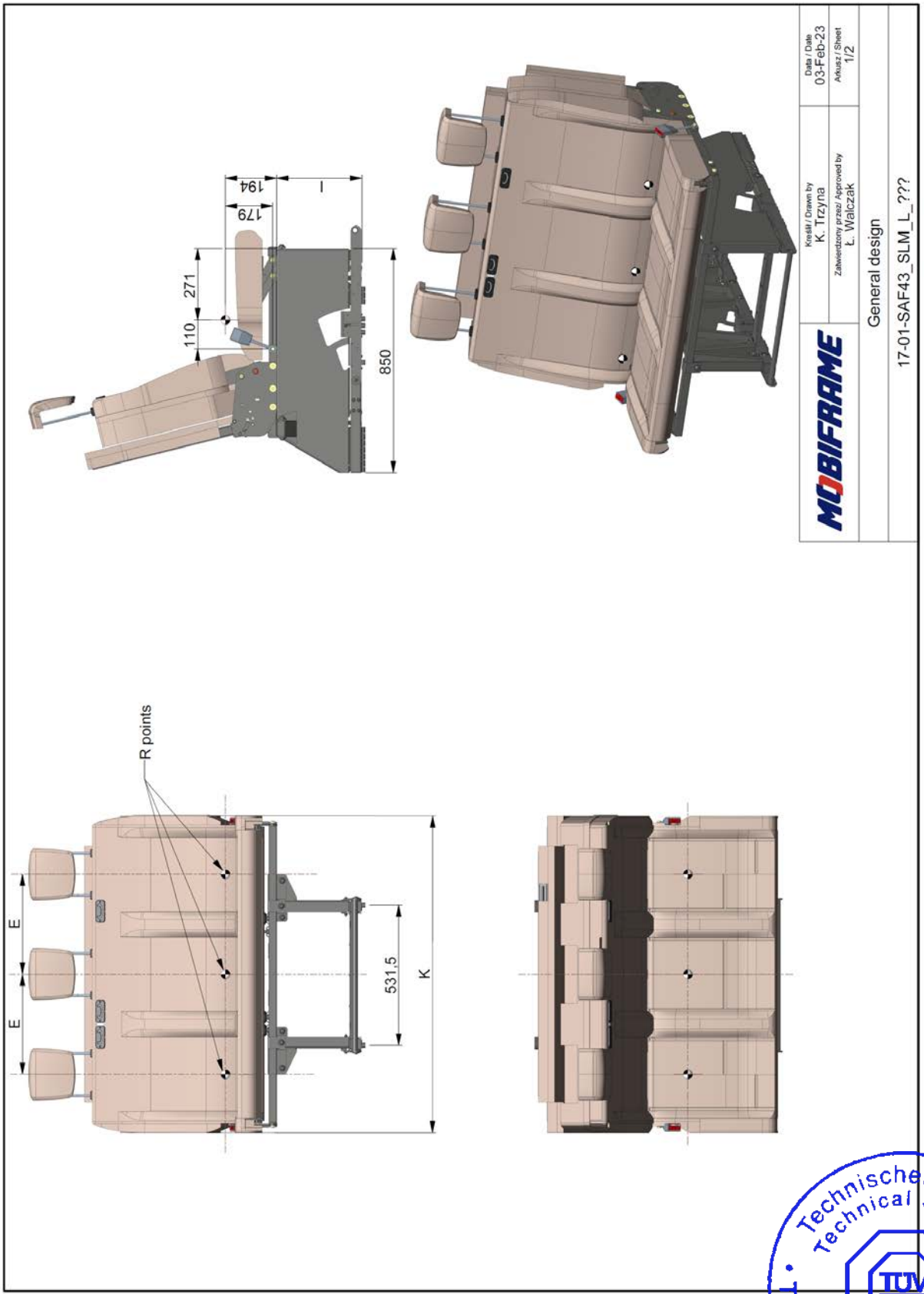
Zatwierdzony przez/ Approved by: Ł. Walczak — Arkusz / Sheet: 2/2

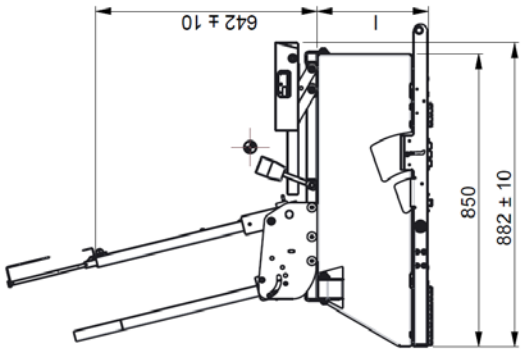
General design

17-01-SAF42_SLM_L_???









Tolerances for all parameters = ± 10 mm

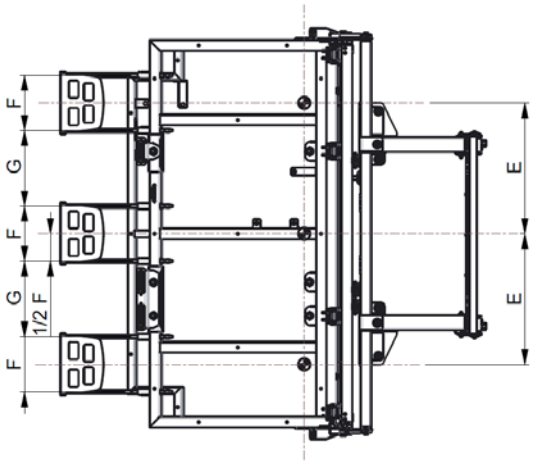
	SAF43_SLM_L_118	SAF43_SLM_L_120	SAF43_SLM_L_126	SAF43_SLM_L_150
E	380 mm	380 mm	407 mm	480 mm
F	160 mm			
G	220 mm	220 mm	250 mm	320 mm
I	324 - 344 mm			
J	1164 mm	1164 mm	1244 mm	1464 mm
K	1180 mm	1200 mm	1260 mm	1500 mm

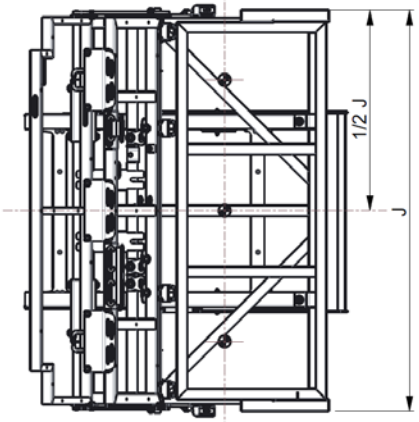
MOBIFRAME

Kreślił / Drawn by: K. Trzyna
Data / Date: 03-Feb-23
Zatwierdzony przez/ Approved by: Ł. Walczak
Arkusz / Sheet: 2/2

General design

17-01-SAF43_SLM_L_???



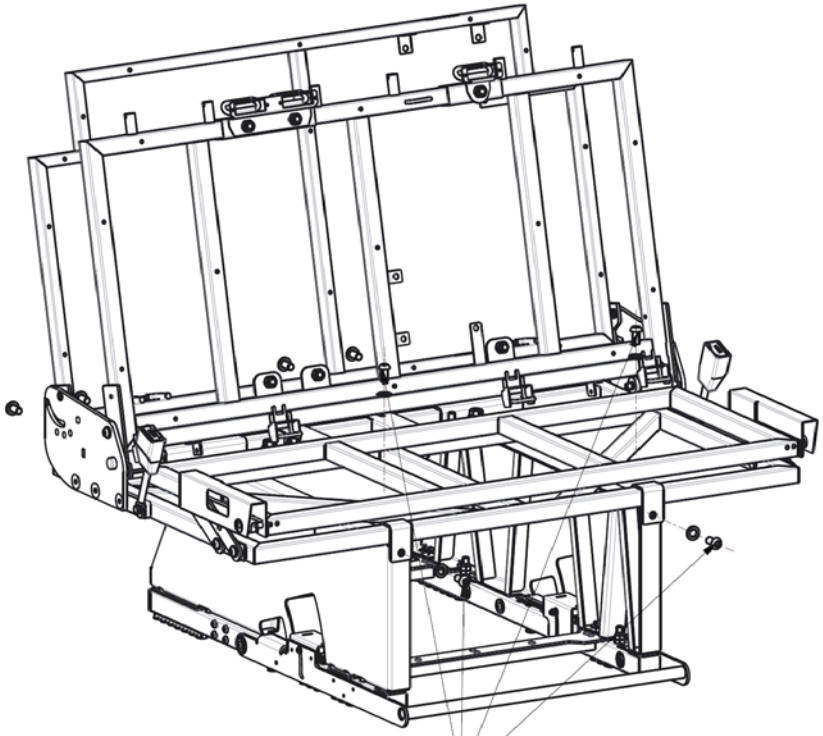


MOBIFRAME

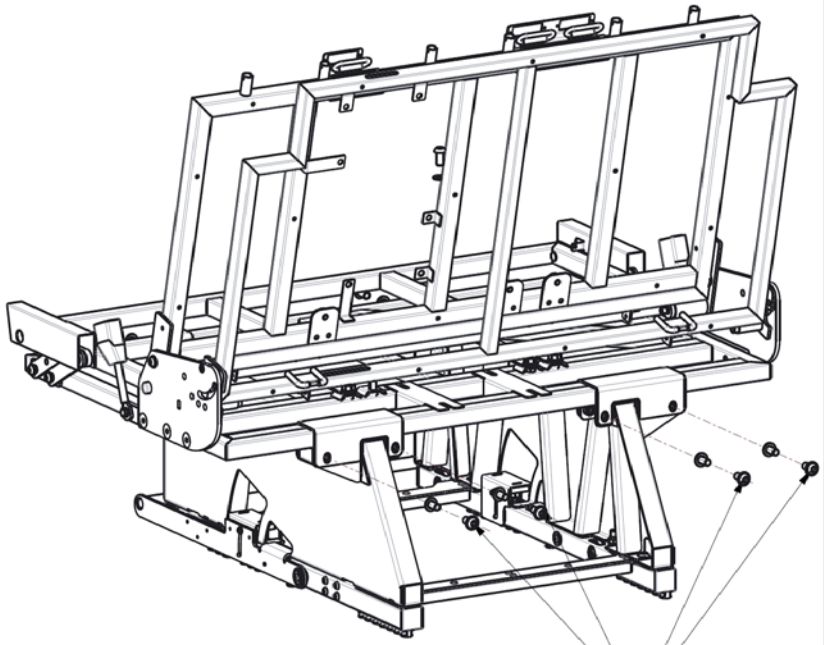
MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

Page / pages: 38/100



4x Bolt M12x25 - 10.9 ISO 7380
4x Washer M12 DIN 125



8x Bolt M12x25 - 10.9 ISO 7380
8x Washer M12 DIN 125

Remark:
The drawing applies to SAF42 and SAF43.

MOBIFRAME	Kreślił / Drawn by: K. Trzyna	Data / Date: 03-Feb-23
	Zatwierdzony przez/ Approved by: Ł. Walczak	Arkusz / Sheet: 1/1
Base and bench connection		
17-02-SAF??_SLM_L_???		

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MOBIFRAME

MOBIFRAME/07/2022-**01**

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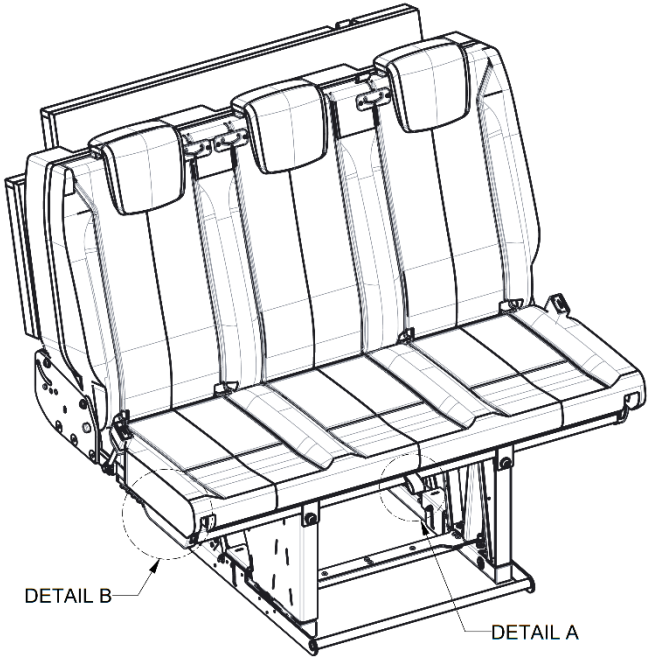
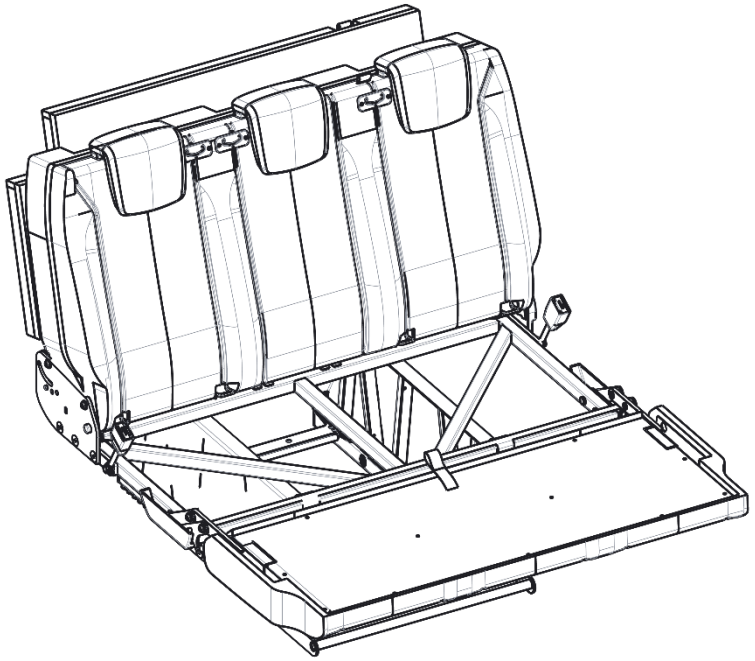
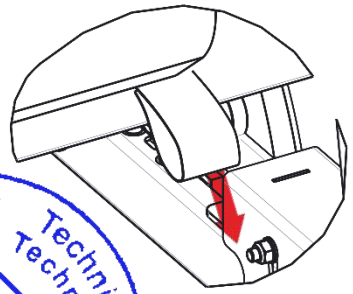
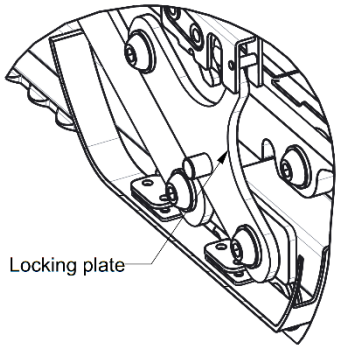




DETAIL A

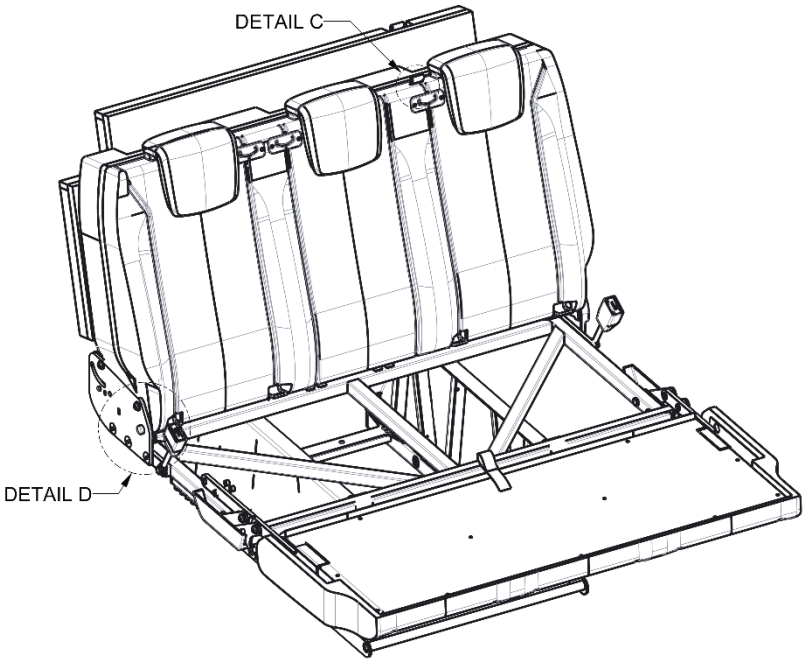


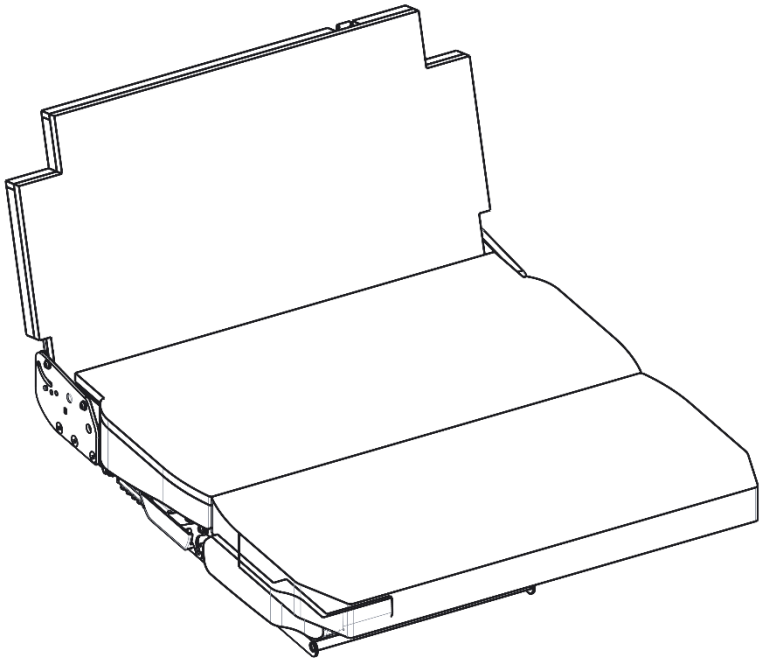
DETAIL B



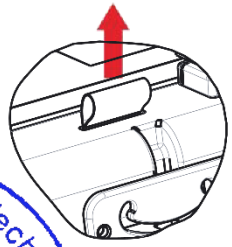
Remark: Seat cushion can be also locked by 2 locks on opposite sides

MOBIFRAME	Kreślił / Drawn by K. Trzyna	Data / Date 11-Jan-23
	Zatwierdzony przez/ Approved by Ł. Walczak	Arkusz / Sheet 1/3
Displacement and locking systems		
17-06-SAF??_SLM_?_???		

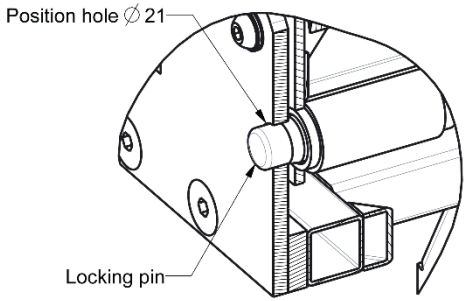




DETAIL C



DETAIL D



MOBIFRAME	Kreślił / Drawn by K. Trzyna	Data / Date 11-Jan-23
	Zatwierdzony przez/ Approved by Ł. Walczak	Arkusz / Sheet 2/3
Displacement and locking systems		
17-06-SAF??_SLM_?_???		

MOBIFRAME

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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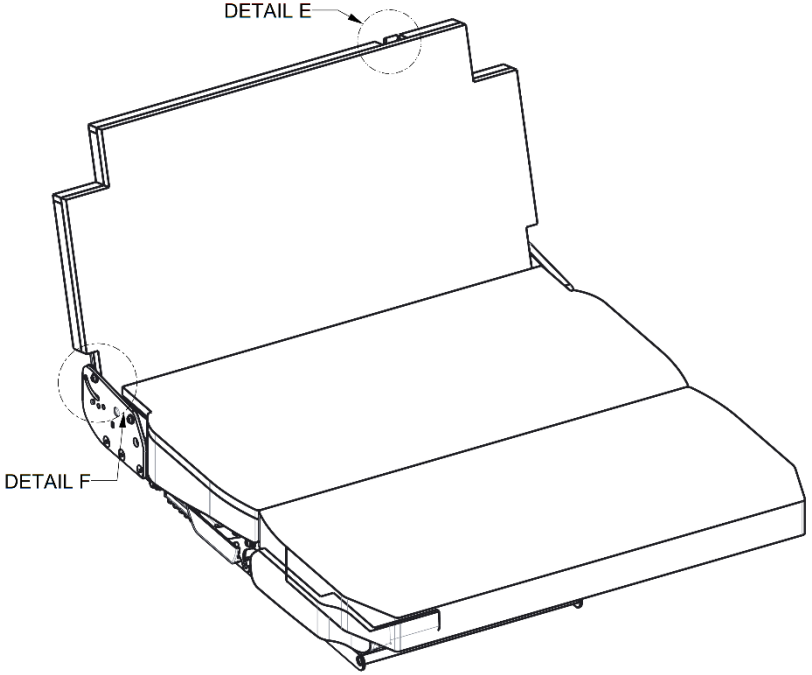
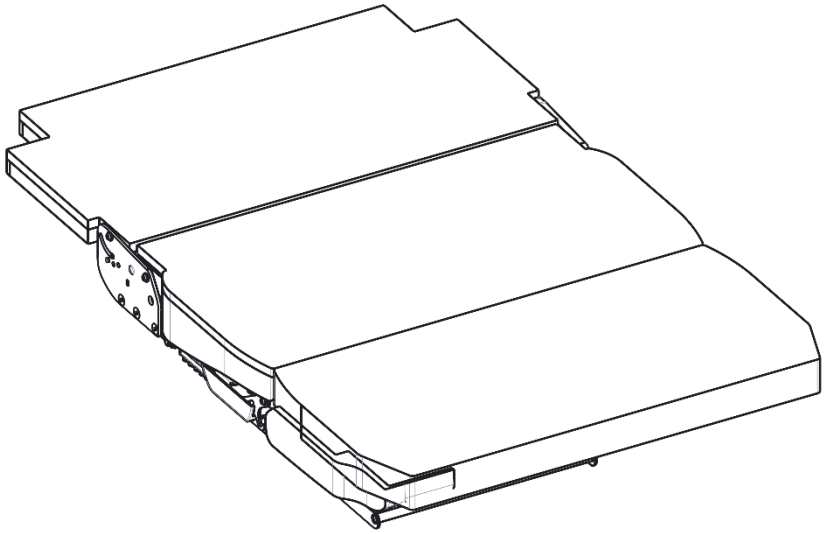
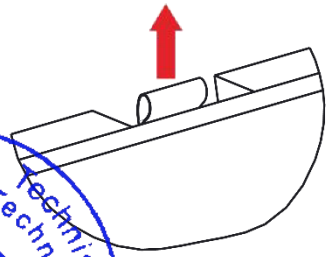
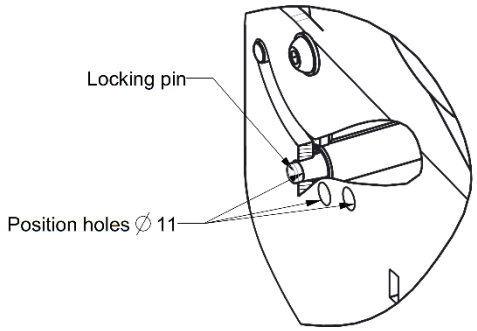




DETAIL E



DETAIL F



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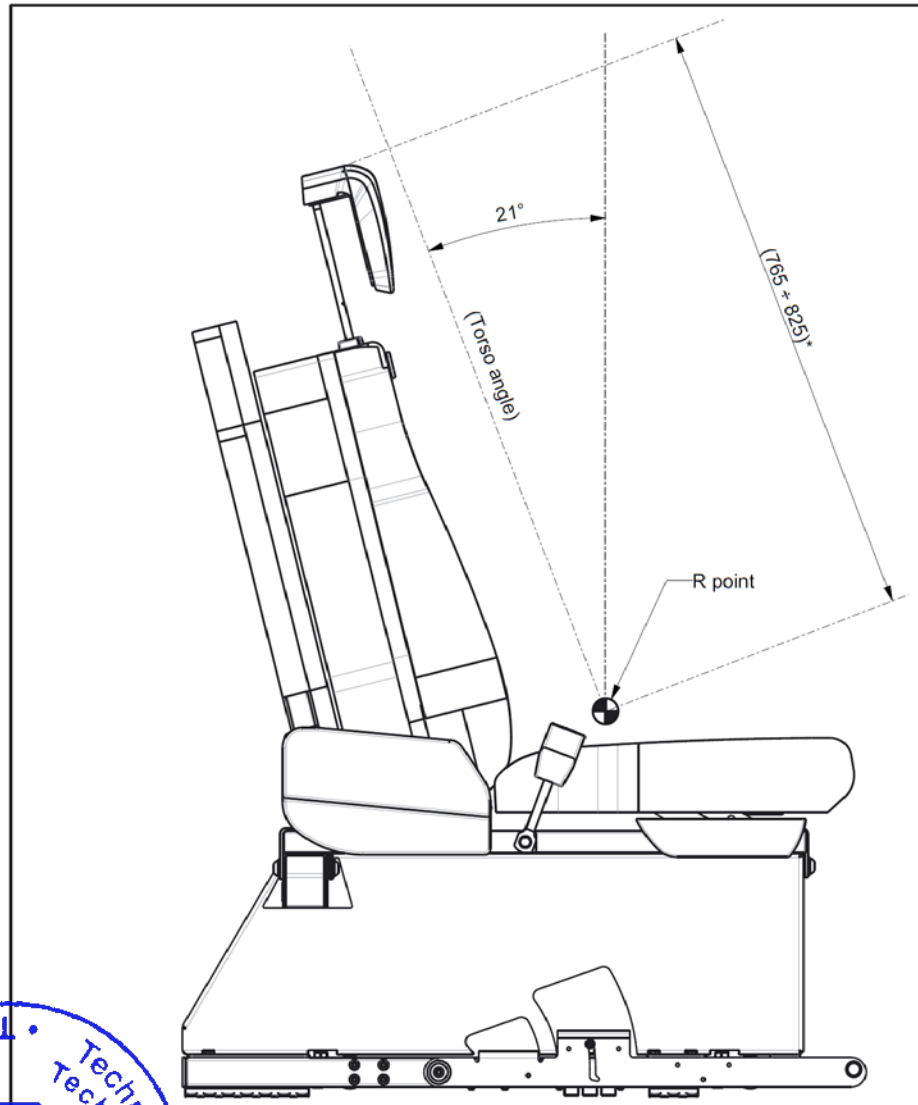
MOBIFRAME	Kreślił / Drawn by: K. Trzyna	Data / Date: 11-Jan-23
	Zatwierdzony przez/ Approved by: Ł. Walczak	Arkusz / Sheet: 3/3

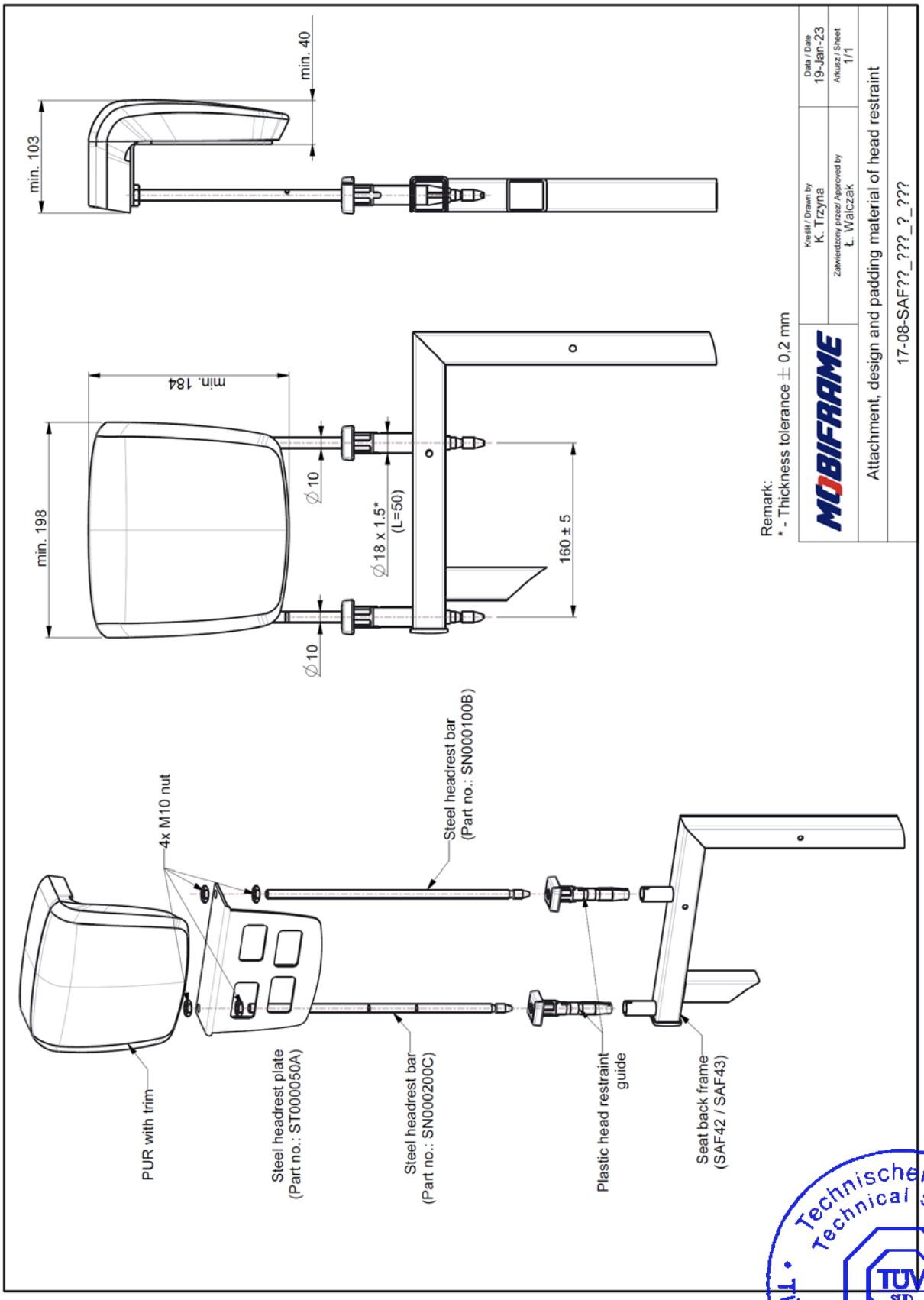
Displacement and locking systems

17-06-SAF??_SLM_?_???



Remark:
* Maximum 2 positions of use
Actual minimum and maximum position shall lie within presented range

MOBIFRAME	Kreślił / Drawn by K. Trzyna	Data / Date 19-Jan-23
	Zatwierdzony przez/ Approved by Ł. Walczak	Arkusz / Sheet 1/1
Height of adjustable head restraint		
17-07-SAF??_SLM_?_???		



MOBIFRAME	Kreślił / Drawn by: K. Trzyna	Data / Date: 23-Feb-23
	Zatwierdzony przez/ Approved by: P. Odziemek	Arkusz / Sheet: 1/2

SAF42/43 general view without and with optional drawer

17-09-SAF??-???-?-???

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TÜV SÜD
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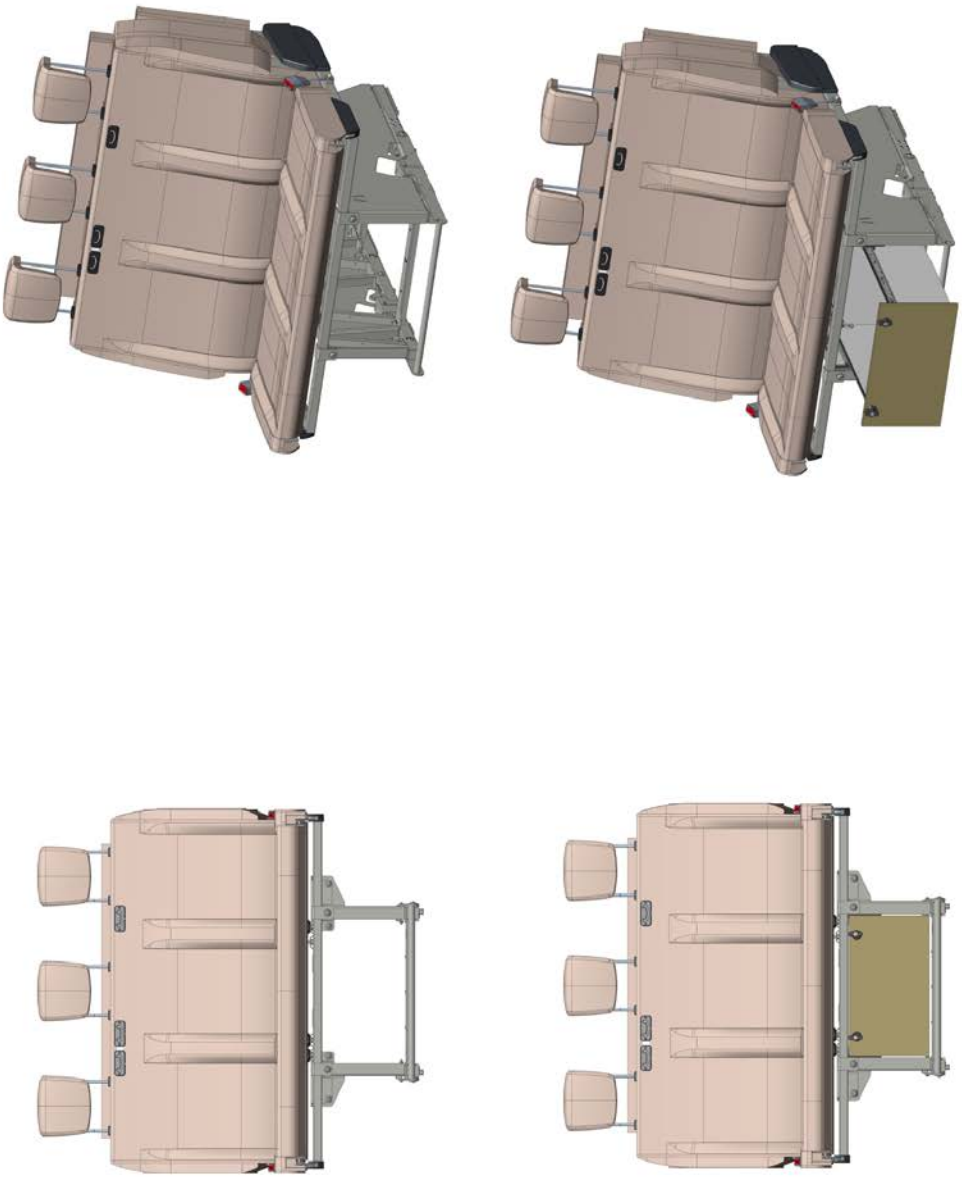

Kreślił / Drawn by: K. Trzyna	Zatwierdzony przez/ Approved by: P. Odziemek	Data / Date: 23-Feb-23
MOBIFRAME		Arkusz / Sheet: 2/2

SAF42/43 general view without and with optional drawer

17-09-SAF??-???-?-???

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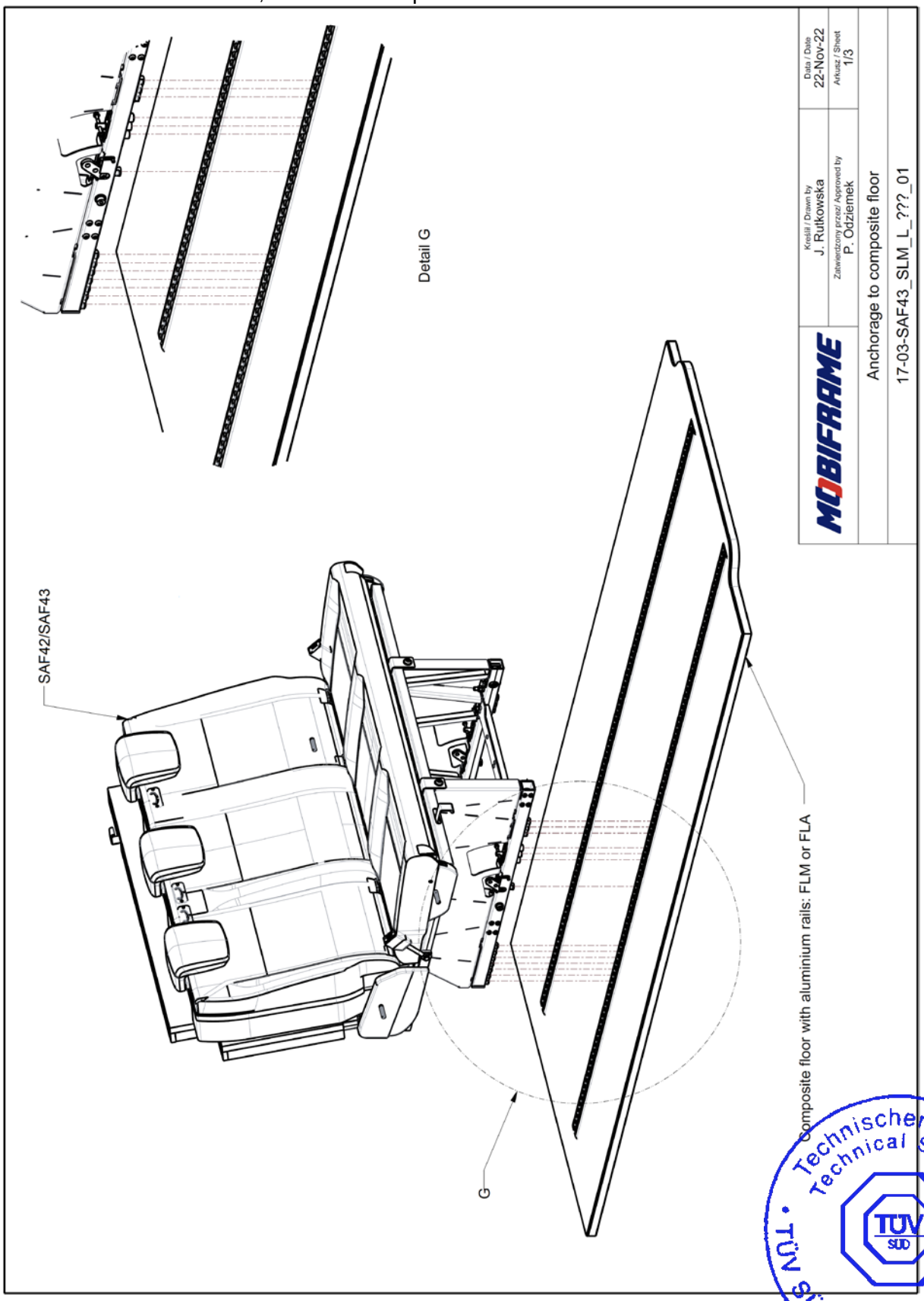
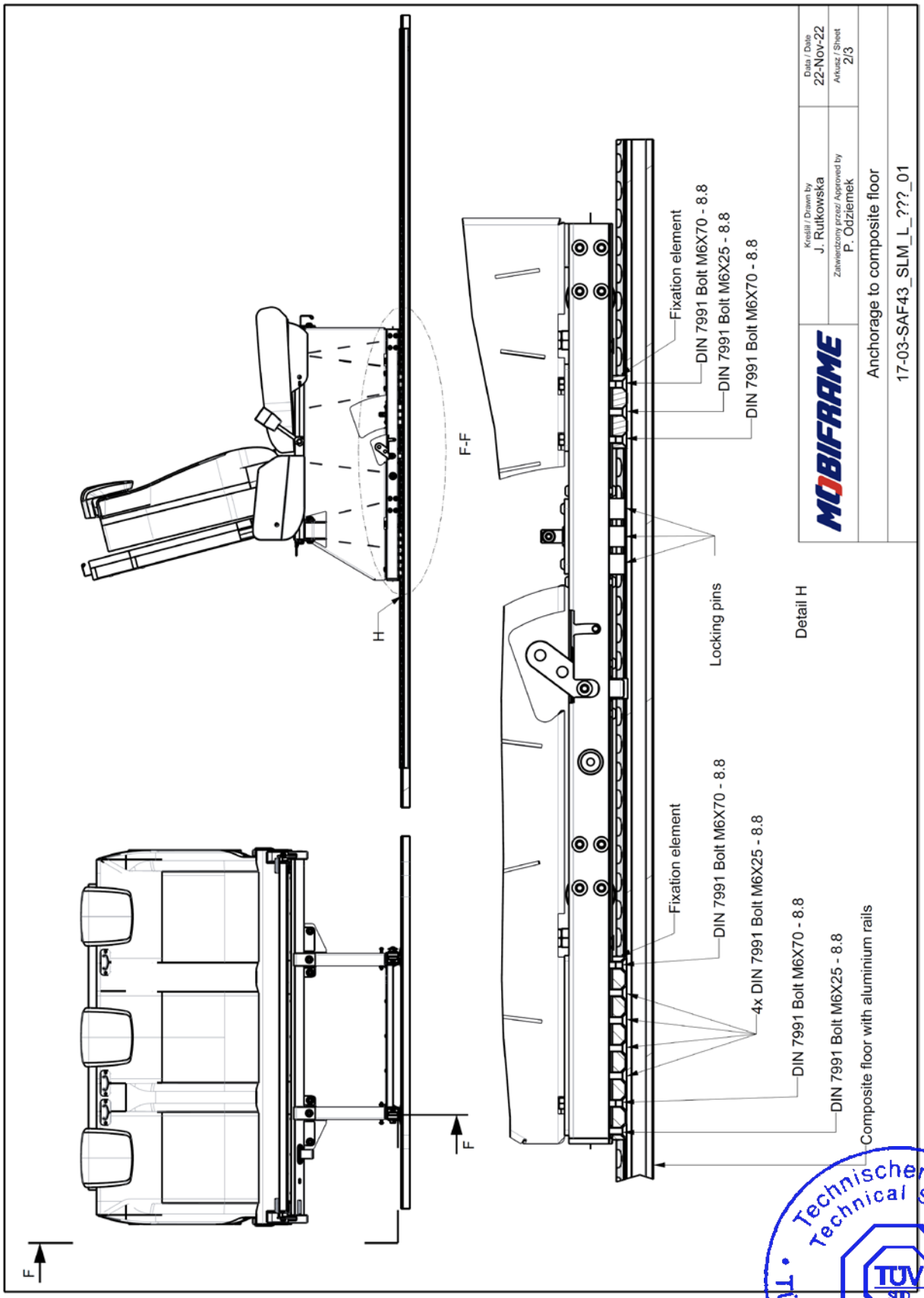
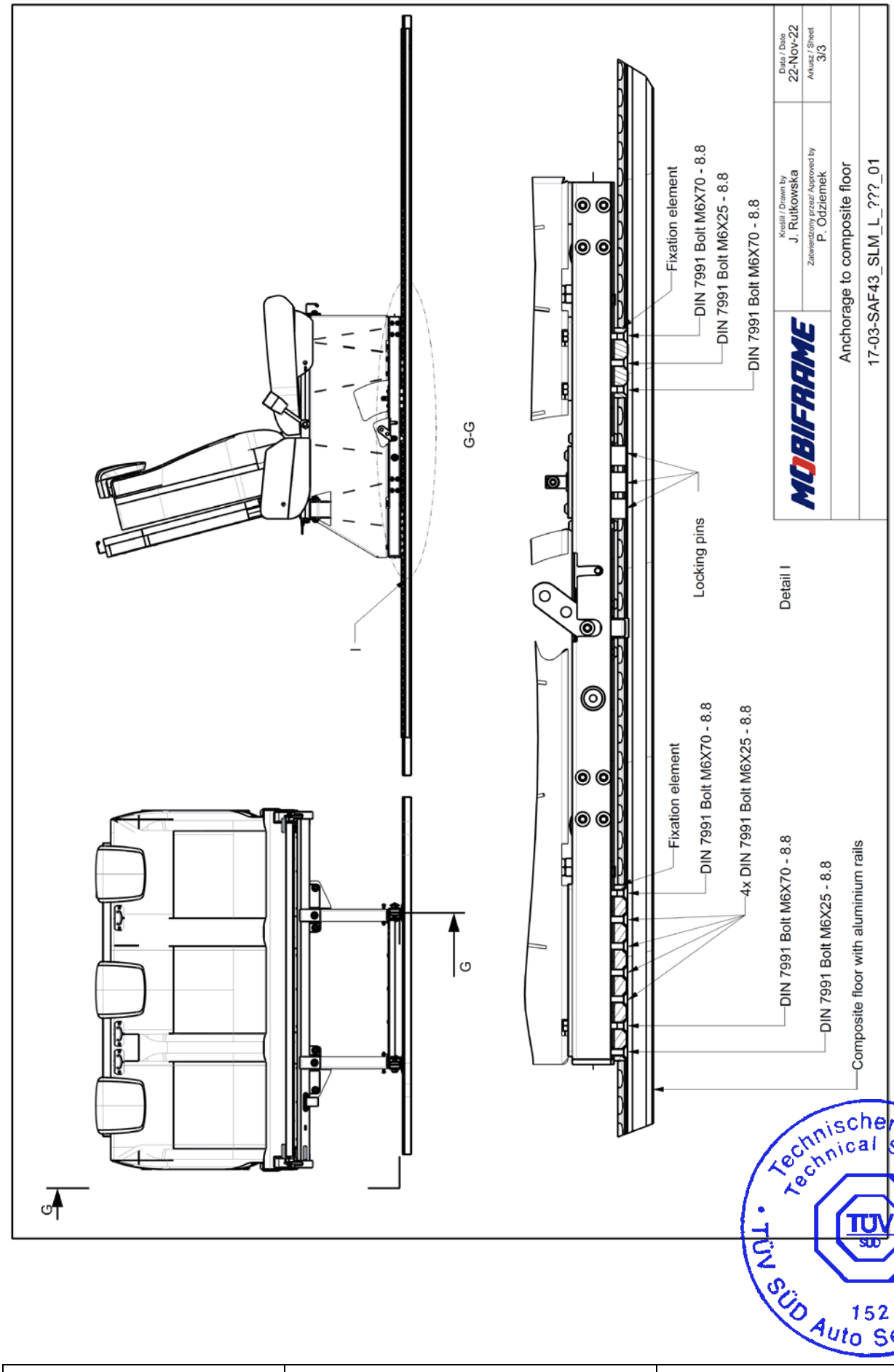
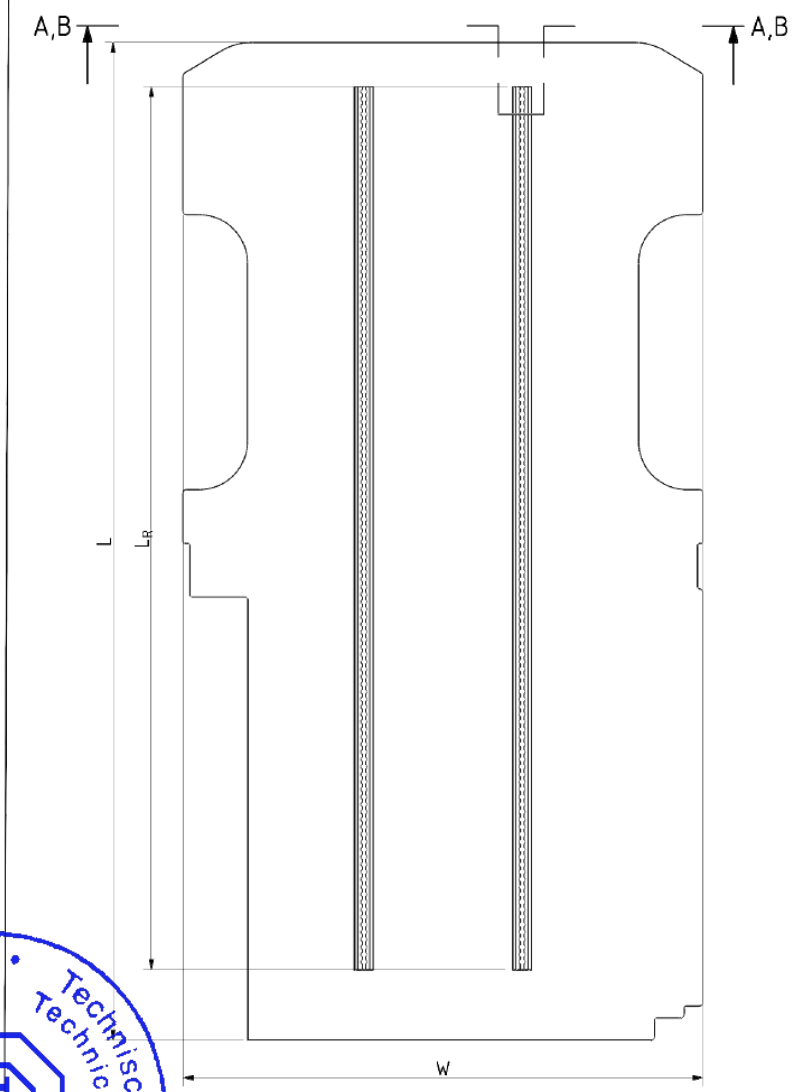
Enclosure 3: SEAT ANCHORAGES AND FLOOR DETAILS

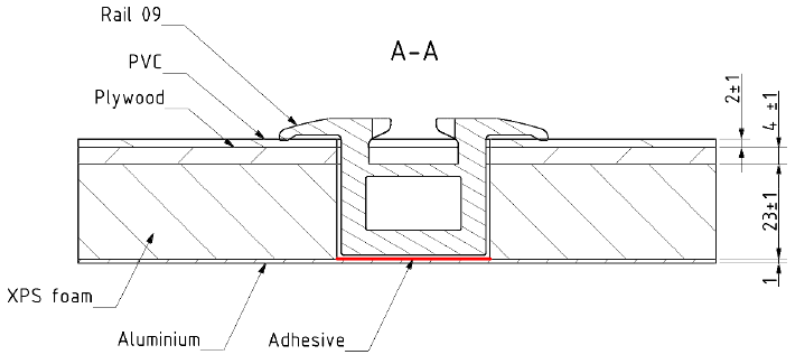
Fixation of SAF42, SAF43 to composite floor with aluminum rails FLM or FLA

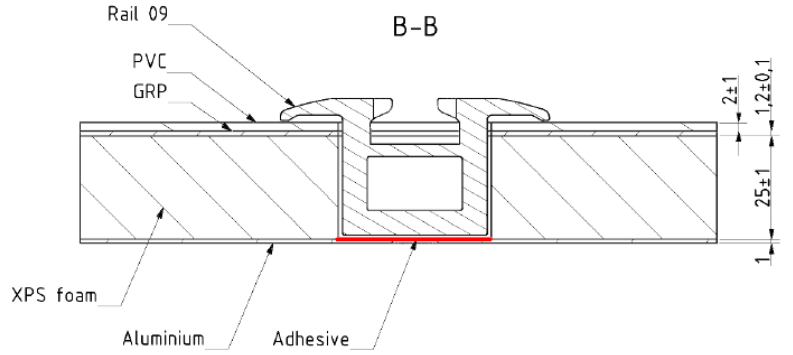






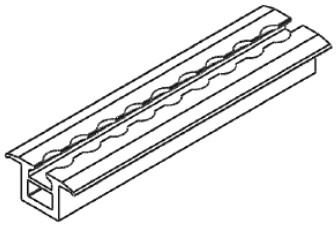


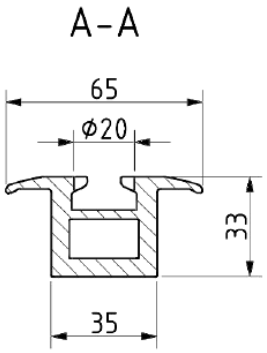


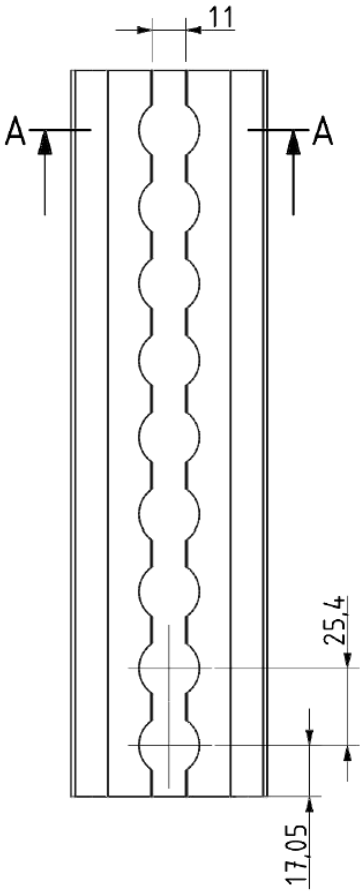


Remarks:
1. Any arrangement of RAIL 09 is allowed.
2. Any number of RAIL 09 in the floor is allowed.
3. Minimum number of RAIL 09 per 1 seat = 2 (for M1 category).
4. W,L - according to vehicle dimensions and conversion type.
5. L_{min}= 800 mm
6. L_{Rmin}= 700 mm for seat fixation.

MOBIFRAME	Kreślił/Drawn by Ł.Chuszno	Data/Date 11.06.2021
	Zatwierdzany przez/Approved by P.Dominczyk	Arkusz/Sheet 1/1
Composite floor		
FLM		







Uwagi/Remarks:
1. Tolerancja/Tolerance PN-EN 755-9
2. Materiał/Material: EN AW 6005 T6

	Kreślił/Drawn by	Data/Date
MOBIFRAME	Ł.Chuszno	11.06.2021
	Zatwierdzony przez/Approved by	Arkusz/Sheet
	P.Dominczyk	1/1
Rail 09		
RAI09		

MOBIFRAME

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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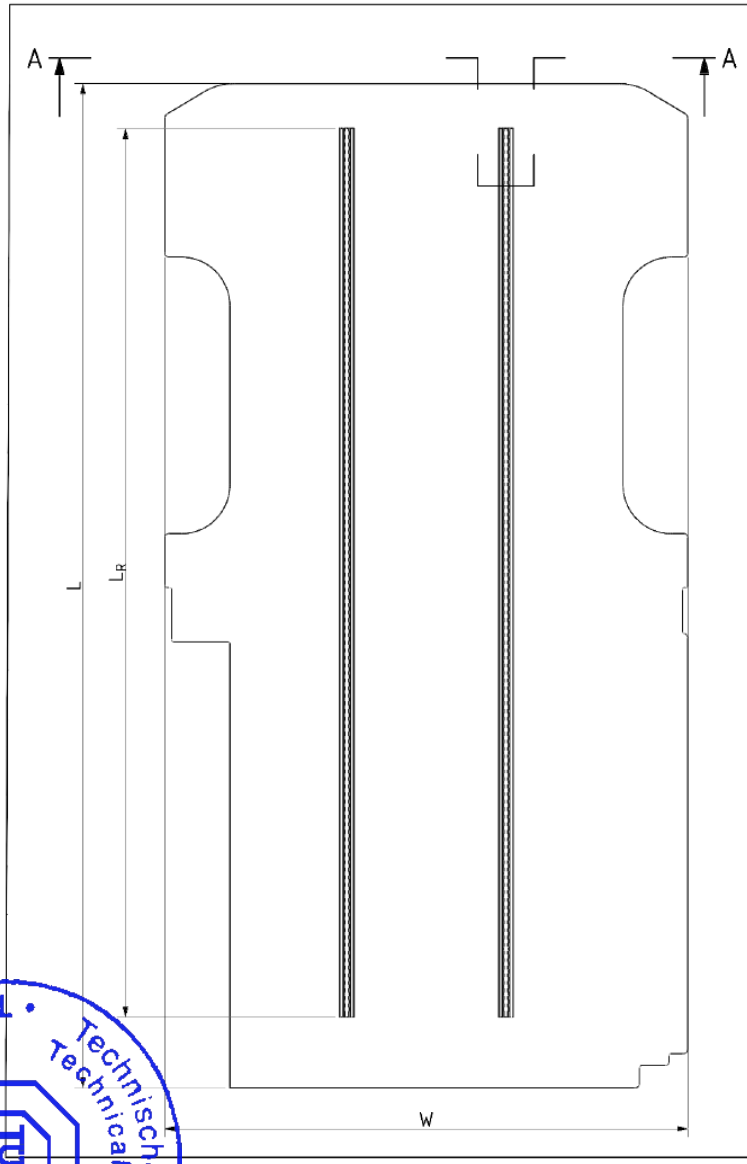

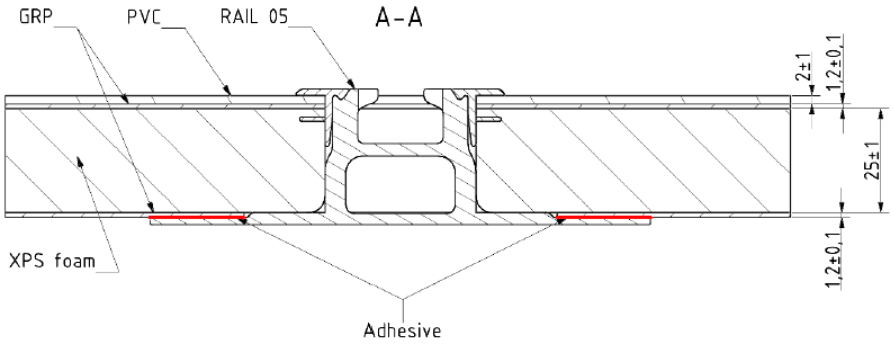

Remarks:
1. Any arrangement of the RAIL 05 is allowed.
2. Any number of the RAIL 05 in the floor is allowed.
3. Minimum number of the RAIL 05 per 1 seat = 2 (for M1 category).
4. W,L - according to the vehicle dimensions and conversion type.
5. L_{min}= 800 mm
6. L_{Rmin}= 700 mm for the seat fixation.

MOBIFRAME	Kreślił/Drawn by: Ł.Chuszno	Data/Date: 11.06.2021
	Zatwierdzony przez/Approved by: P.Dominczyk	Arkusz/Sheet: 1/1
Composite floor		
FLA		

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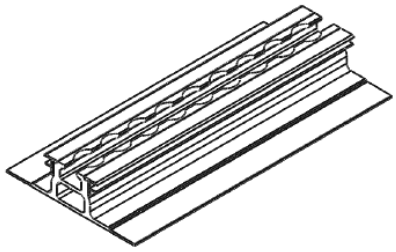
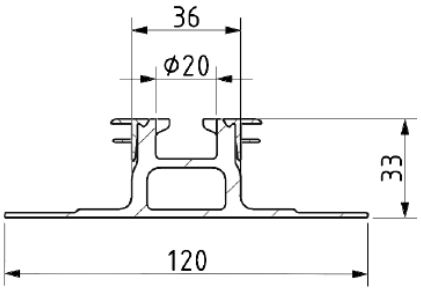
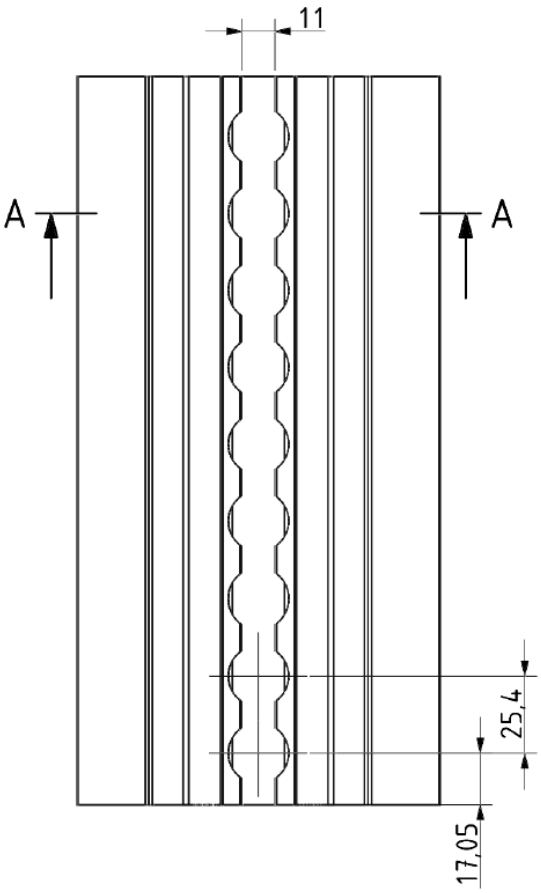




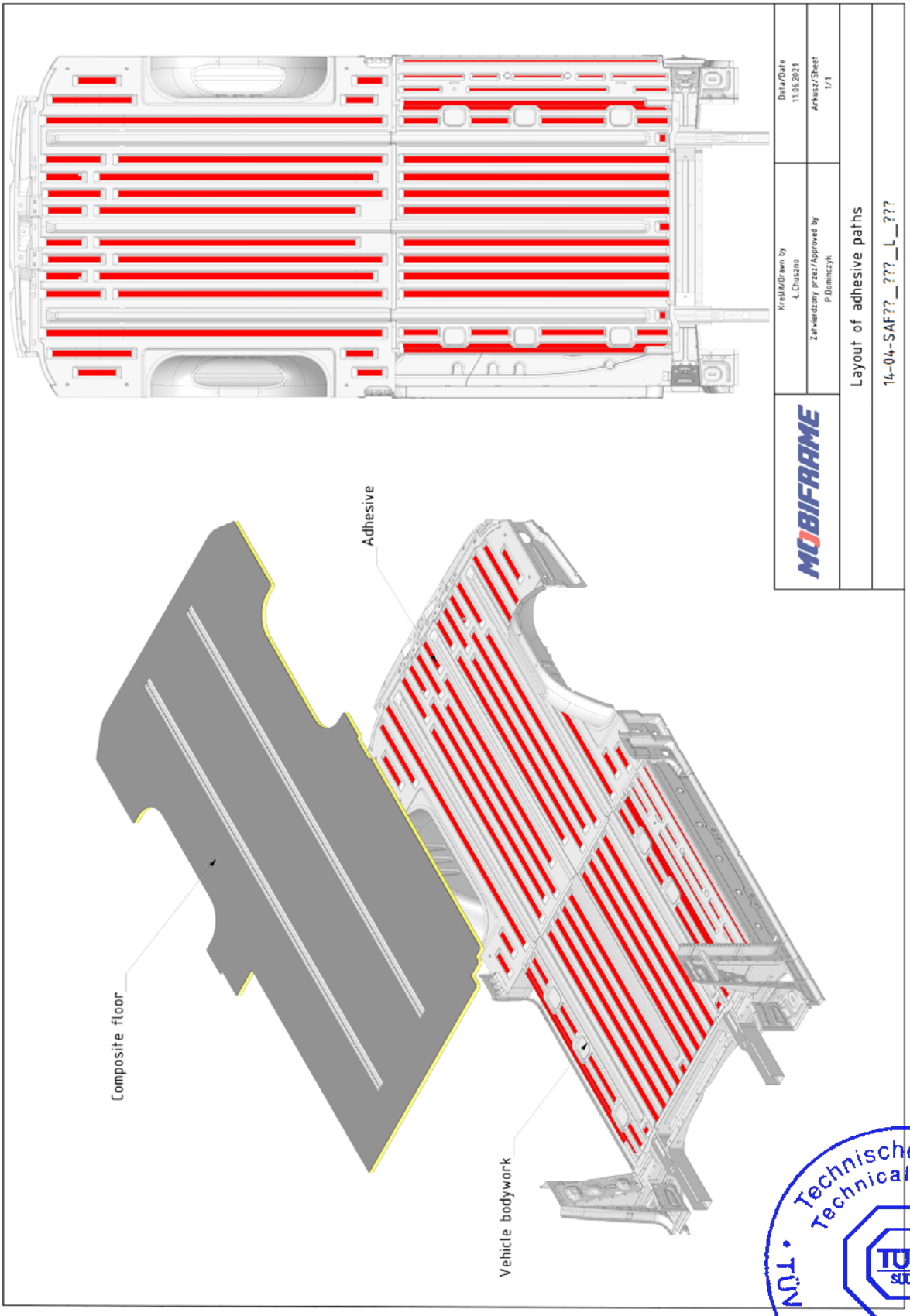


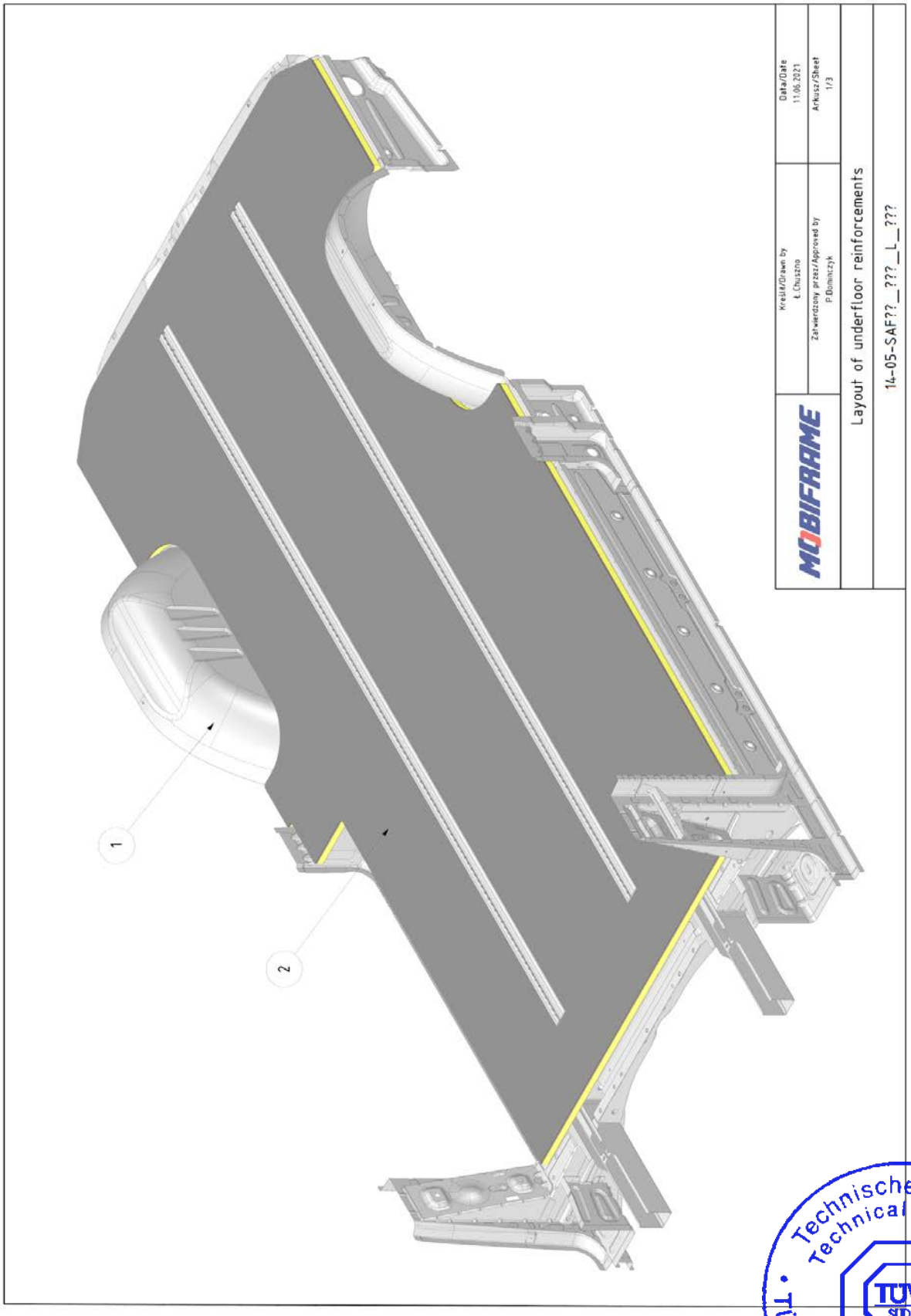
Uwagi/Remarks:
1. Tolerancja/Tolerance PN-EN 755-9
2. Materiał/Material: EN AW 6005 T6

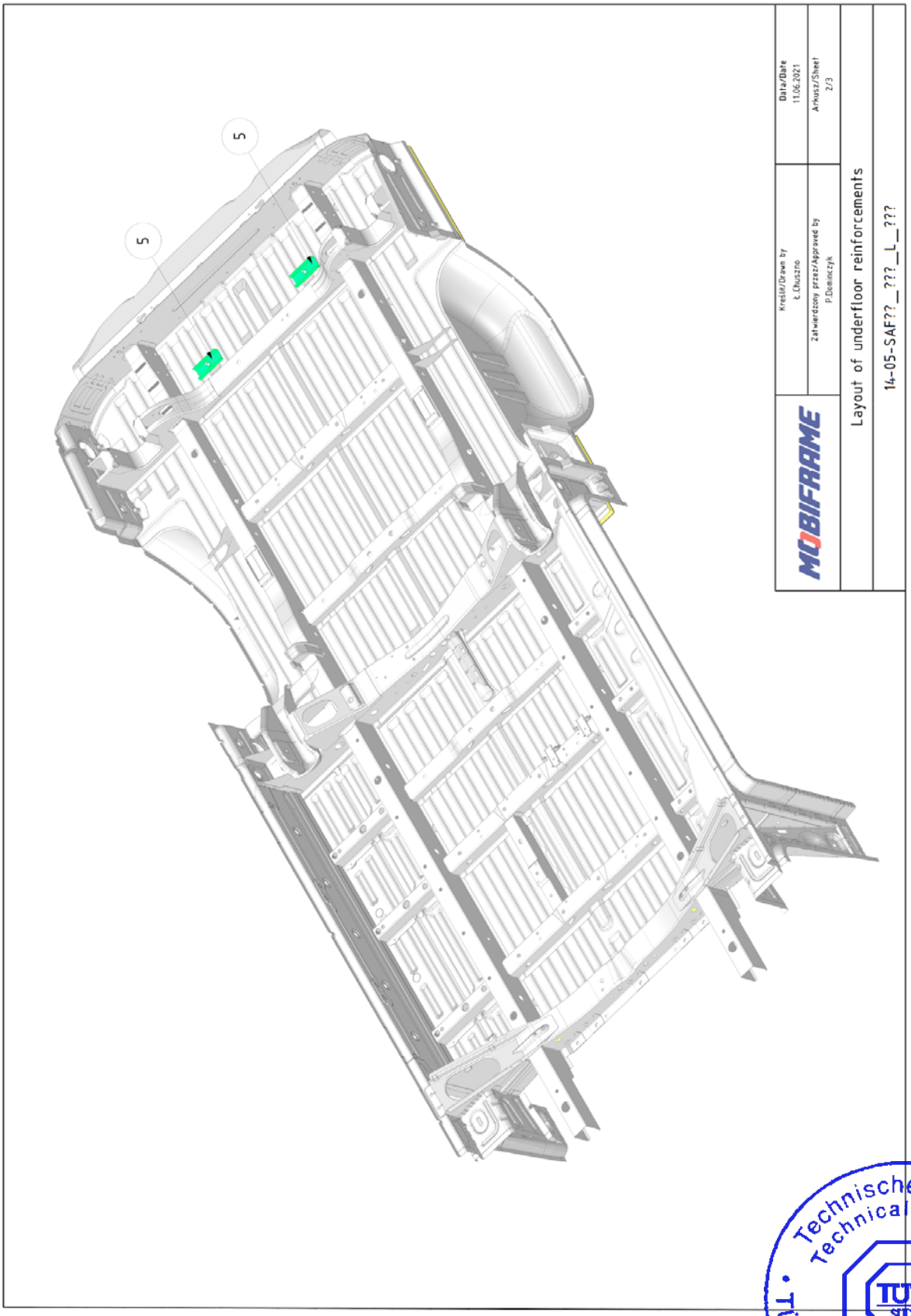
MOBIFRAME	Kreślił/Drawn by Ł.Chuszno	Data/Date 11.06.2021
	Zatwierdzony przez/Approved by P.Dominczyk	Arkusz/Sheet 1/1
Rail 05		
RAI05		

Technischer Dienst Technical Service TÜV SÜD Auto Service GmbH 152

Installation of composite floor to the vehicle







MOBIFRAME

MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

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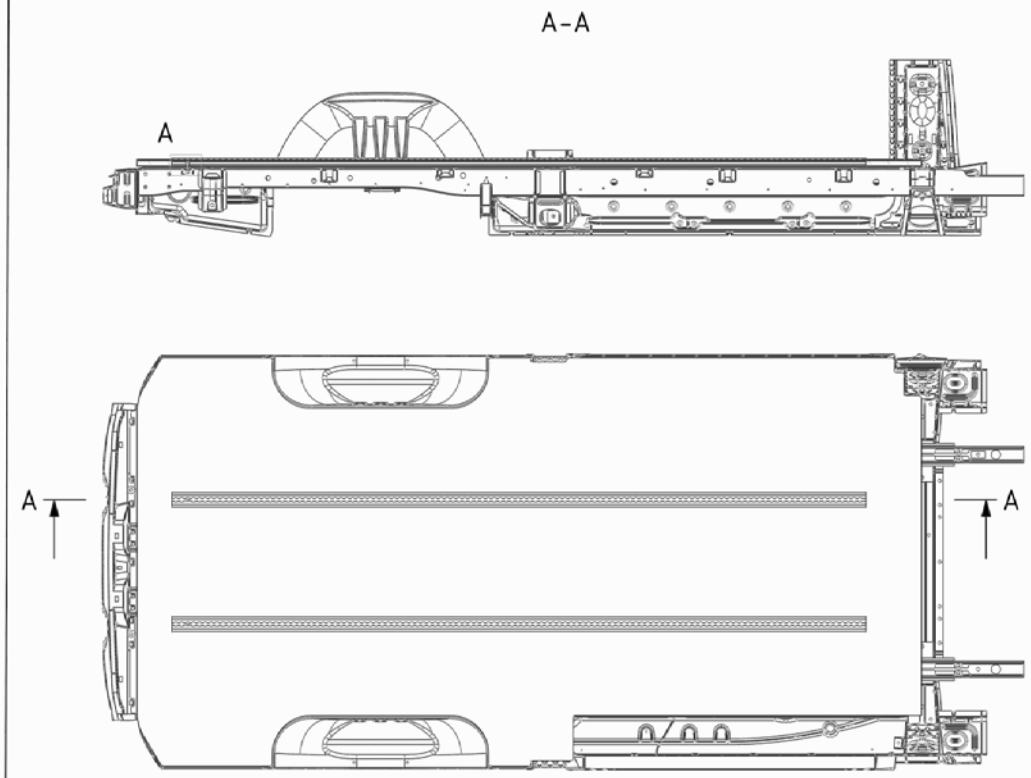
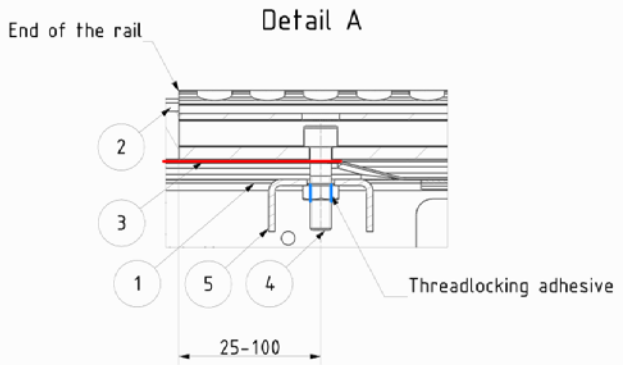
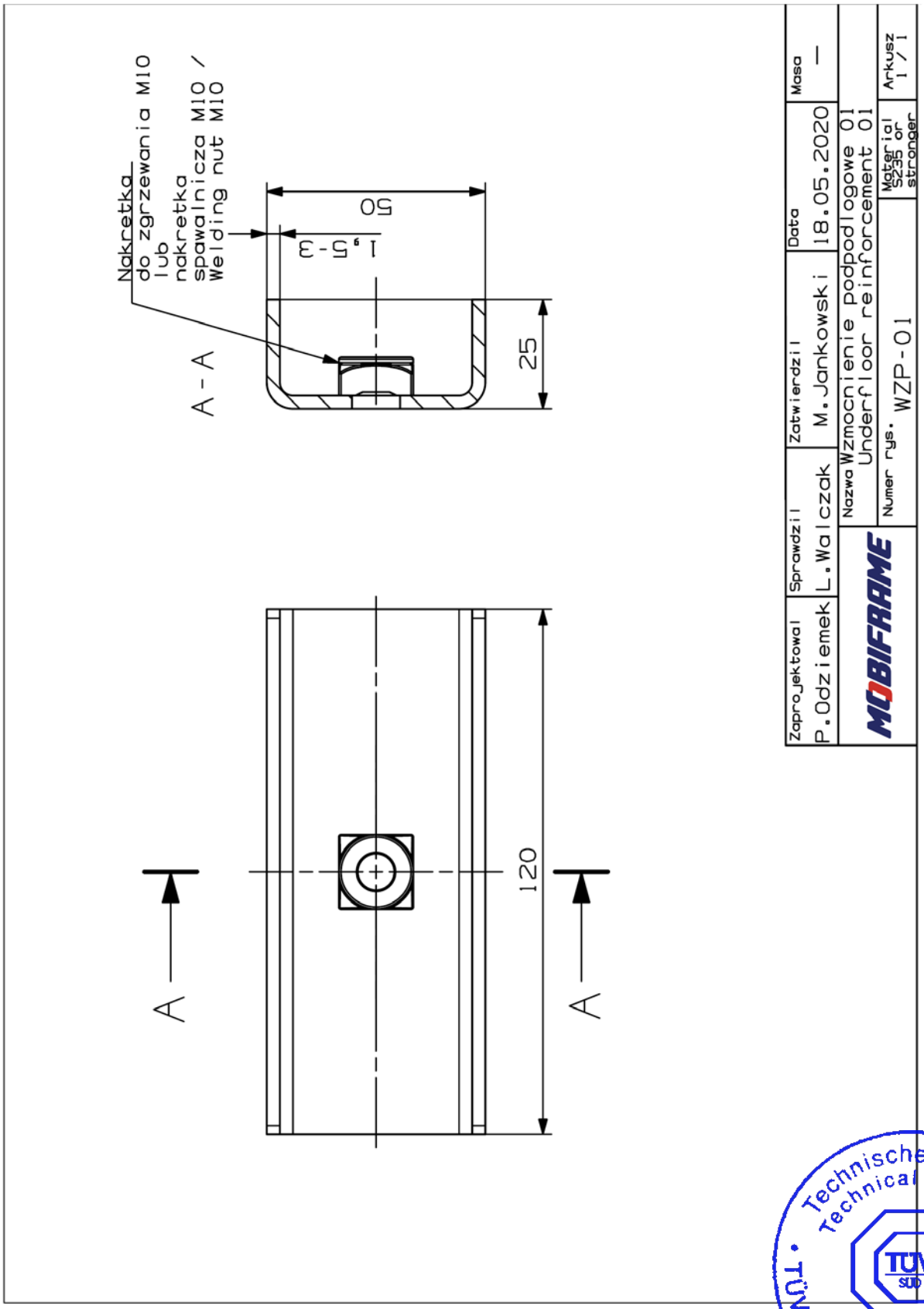


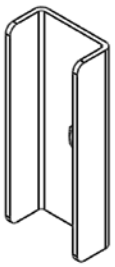


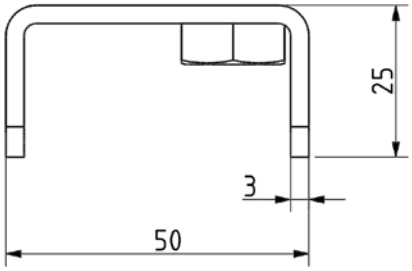
ITEM NO.	PART NAME	QTY
1	Vehicle bodywork	1
2	Composite floor	1
3	Adhesive	1
4	DIN 912 - M10 x 40	2
5	Underfloor reinforcement	2

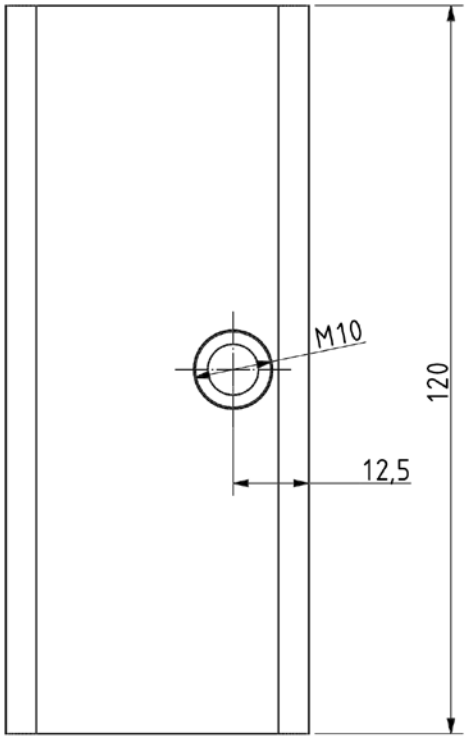
Remarks:
1. Tightening torques:
   M10 - 10.9: 30 NM
2. The length of the bolts depends on vehicle's bodywork.
3. Every rail must be tightened at the end using one of the reinforcements:
   WZP-01, WZP-20, UWP-01.
4. In case of use of underfloor reinforcement UWP-01 additional nut M10 and washer ⌀10,5 should be applied.
5. It is allowed to rotate the underfloor reinforcements by 90±5 degrees.
6. Minimal usage of the adhesive per m^2 is 1000 g.
7. Use the Threadlocking adhesive to tighten the rail to the underfloor reinforcement.

MOBIFRAME	Kreślił/Drawn by: Ł.Chuszno	Data/Date: 11.06.2021
	Zatwierdzony przez/Approved by: P.Dominczyk	Arkusz/Sheet: 3/3
Layout of underfloor reinforcements		
14-05-SAF??_???_L_???		









Tolerance class according to DIN 7168		0,5 - 3	3 - 6	6 - 30	30 - 120	120 - 400	400 -1000	1000 - 2000	2000 - 4000	>4000
m	Medium	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2	±3

Designed by	Checked by	Approved by	Mass [kg]
			0,265

MOBIFRAME	Underfloor reinforcement	Material S235JR
	WZP-20	Date 13.08.2019 / Sheet 1/1

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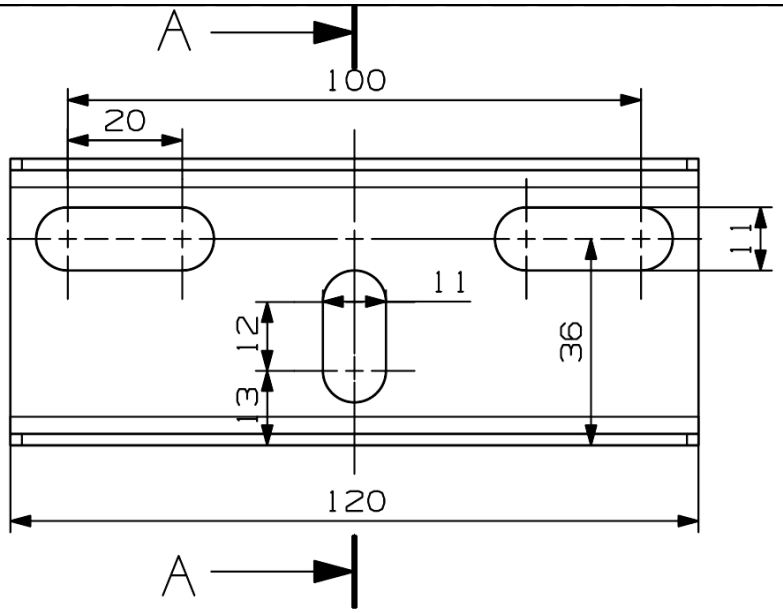
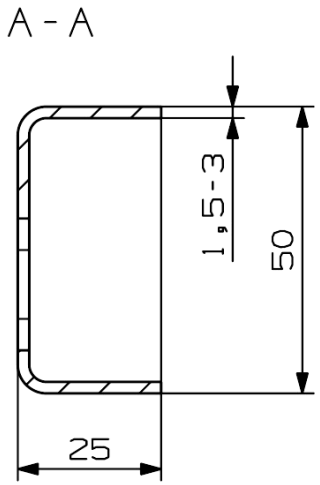
MOBIFRAME

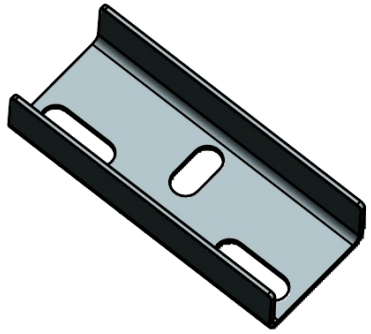
MOBIFRAME/07/2022-**01**

Date: **15.02.2023**

Page / pages: 59/100







In case of use of underfloor reinforcement UWP-01
additional nut M10 and washer Ø10,5 should be applied.

Zaprojektował	Sprawdził	Zatwierdził	Data	Masa
P.Odziemek	L.Walczak	M.Jankowski	08.09.2020	—

MOBIFRAME

Nazwa: Uniwersalne wzmocnienie podpodłogowe

Numer rys.: UWP-01 | Materiał: S235 or stronger | Arkusz: 1 / 1

Installation instructions of floor type FL (Betamate adhesive)

List of parts required for installation of composite floor:

- Betaclean 3350
- Betaprime 5061
- Betamate 7120
- M10 bolts
- Underfloor reinforcements type WZP-01/WZP-20/UWP-01
- Pad kit (optional)
- Rubber blanking plugs
- Jigs (optional)

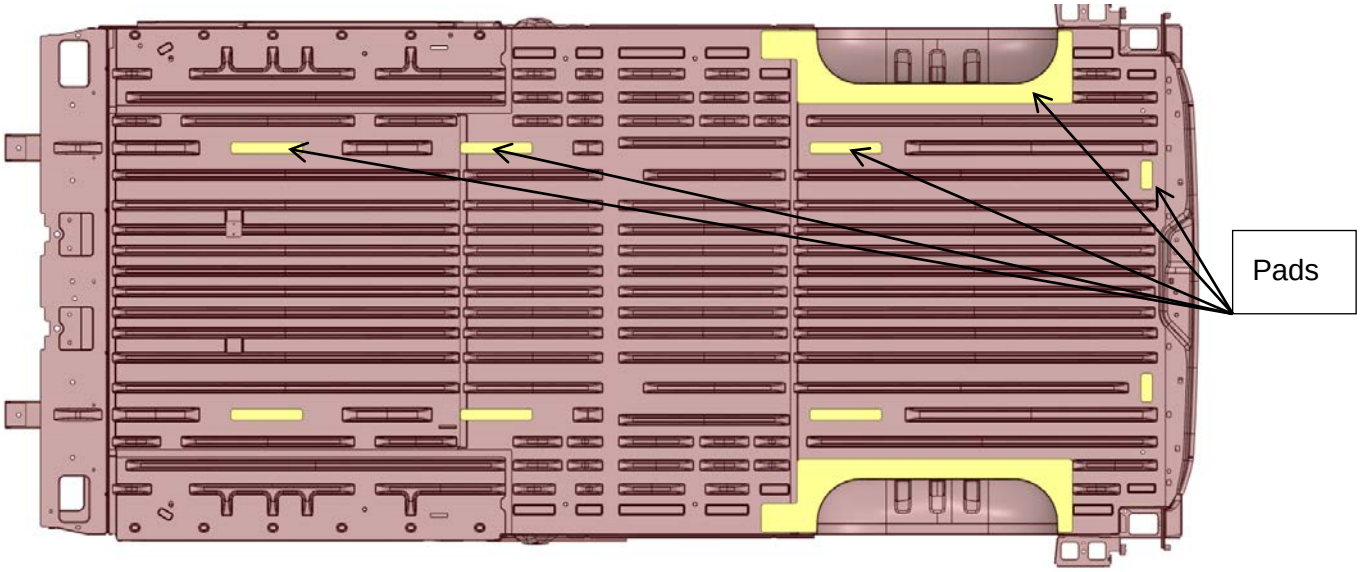
Step 1. Preparation of the vehicle body and composite floor

Clean vehicle floor before installation. Surface must be clean, dry and free from all traces of grease, oil and dust. Use Betaclean (cleaner) to degrease the vehicle's floor and the bottom side of the composite floor.

Step 2. Support pads

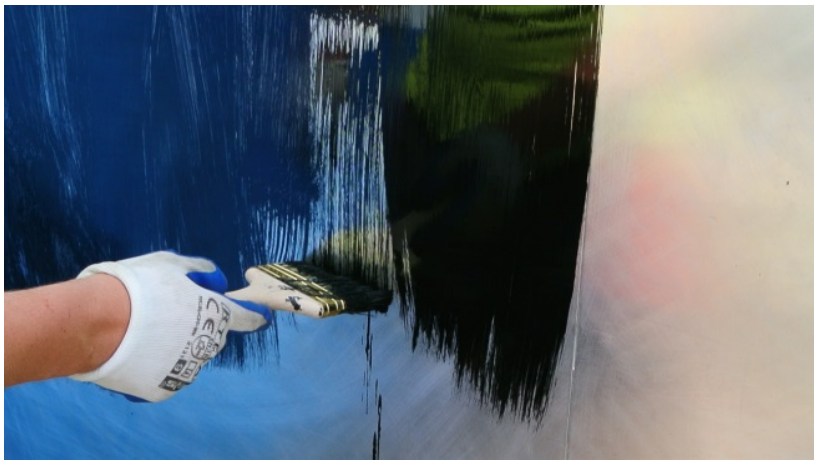
Fill the big gaps on the vehicle floor with plywood pads to eliminate height differences. Pads layout depends on the type of vehicle and composite floor project.

Example pads layout



Step 3. Primmering

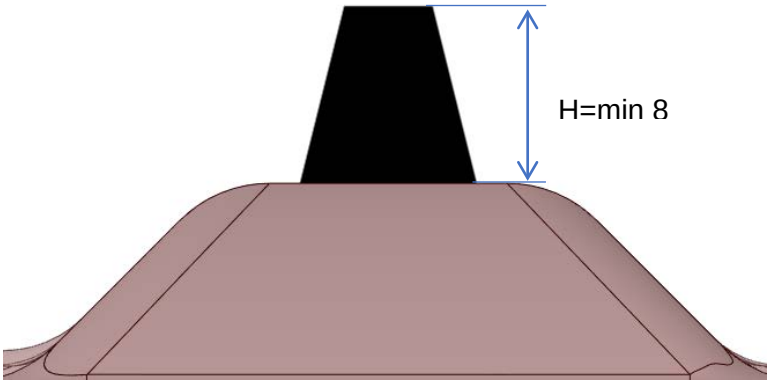
Apply Betaprime onto the vehicle's floor and also onto the bottom side of the composite floor. Primer can be applied with a brush or roller. Contact surfaces (of vehicle floor and composite floor) must be covered by Betaprime. Primer can be applied between the 10-40°C. Primer drying time min. 10 minutes. For more details see the technical data sheet of product.



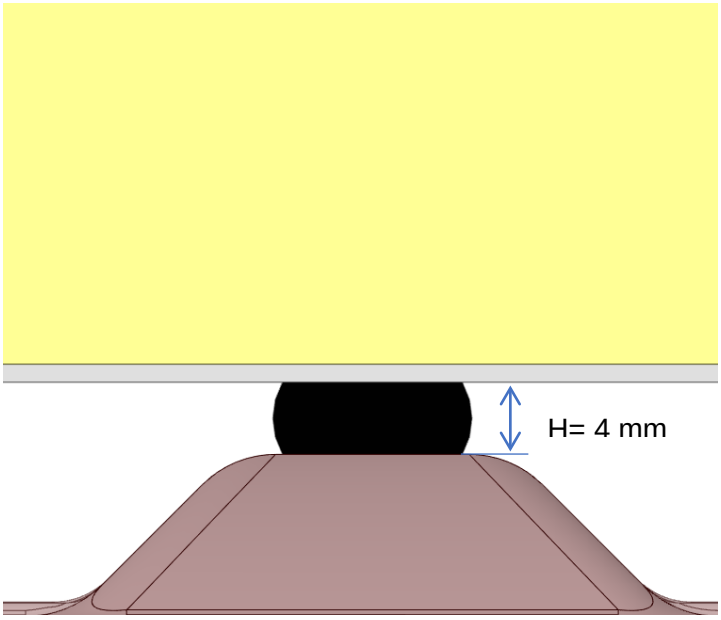
Step 4. Gluing

Don’t walk on the primered surfaces. Use a piece of carton for protection. Apply Betamate glue on the high spots of vehicle floor. Primer should be dry. The adhesive must be applied on the surfaces coated previously by Betaprime. Glue can be applied between the 10-40°C. For more details see the technical data sheet of product.

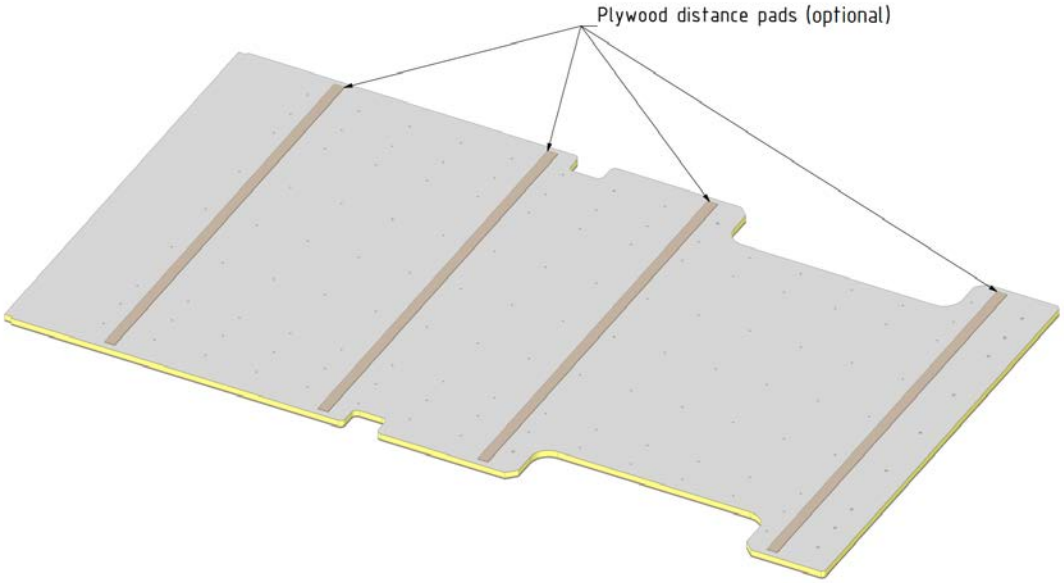
Recommended glue bead



Pressed bead of glue



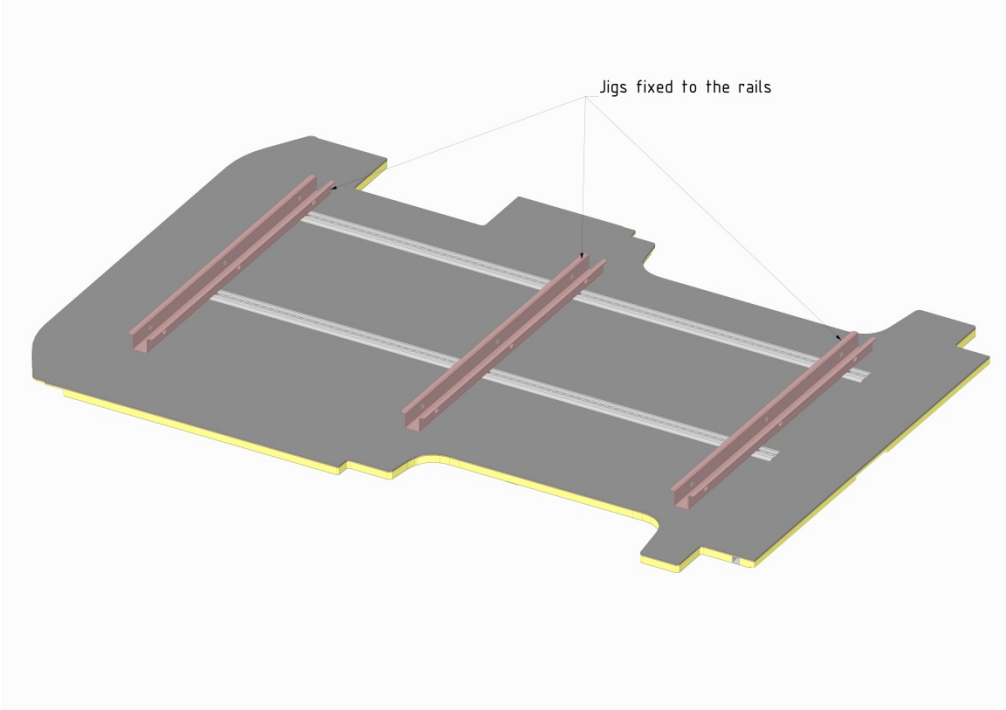
MOBIFRAME composite floor has preinstalled support pads on the bottom. This ensures that the floor remains flat and you can achieve the proper amount of glue layer.

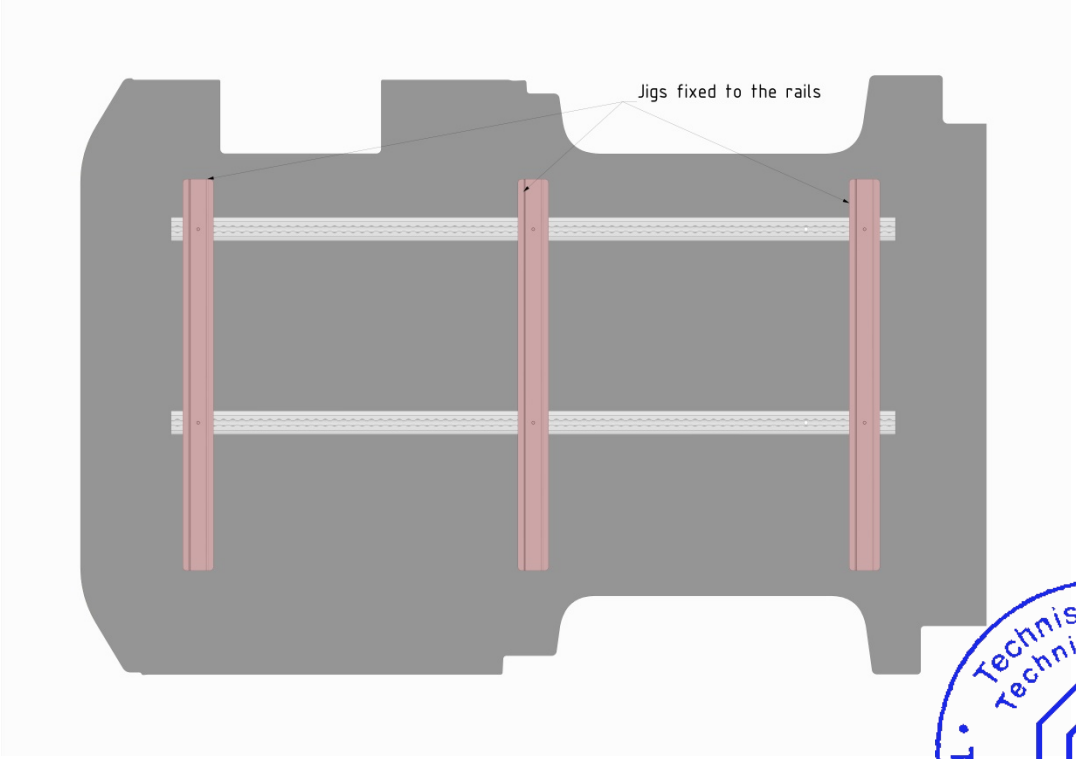


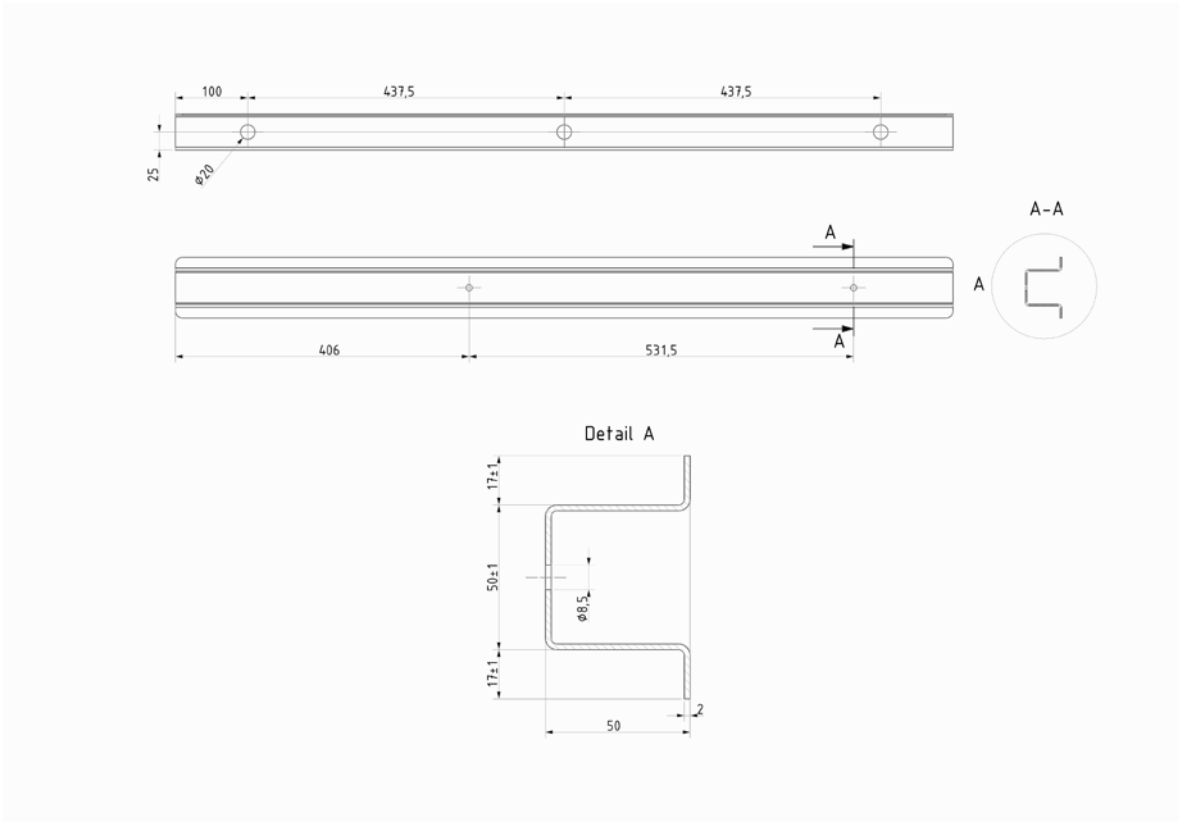
Step 5. Jigs

If floor works with any sliding systems, it is highly recommended to use jigs fixed to the rails. Jigs ensure the flatness the floor and proper working sliding systems. Jigs are mounted to the rails across the floor, at the end, front and in the middle. Jigs can be designed and produced on request .

Example floor with jigs



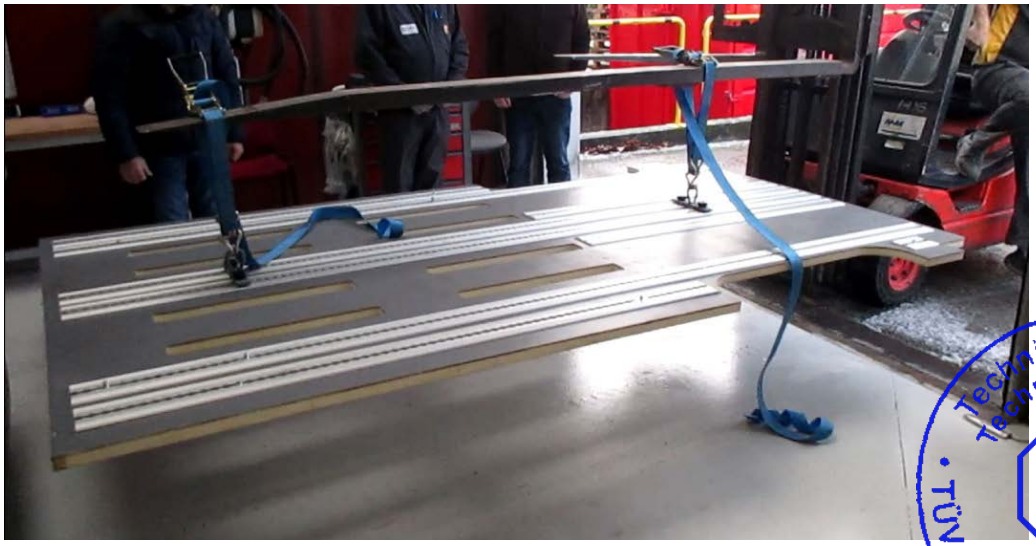




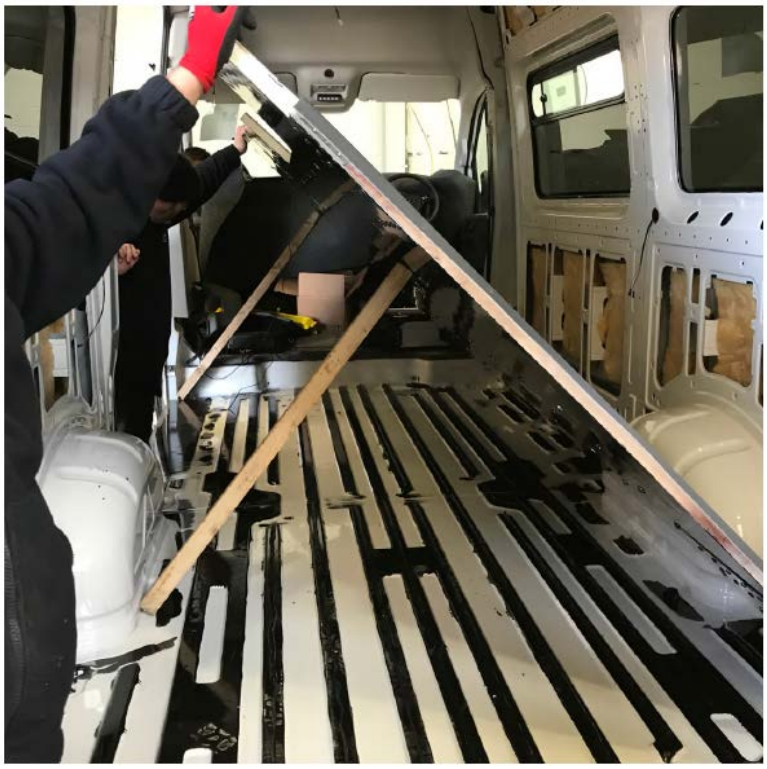
6. Dropping the floor

Place and drop in the composite floor on the glue. You can either use a forklift and optional equipment (belts, auxiliary elements etc.) as shown or put the floor on its side manually. After the floor is inside the vehicle you must press down to ensure the glue is pressed down. You can do this by walking across the floor. Leave the floor for at least 24 h. Don't walk on the floor and don't move the vehicle.

Installation with forklift



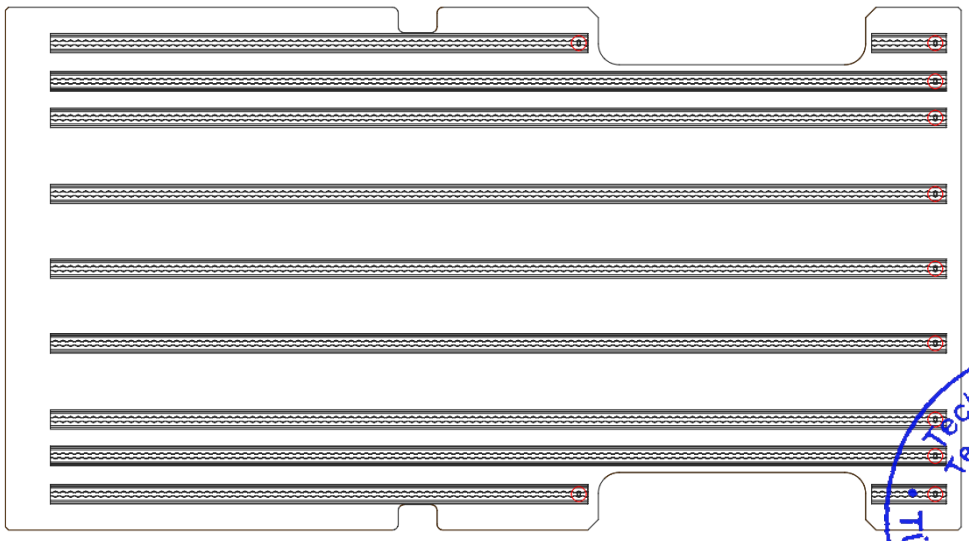
Manually installation

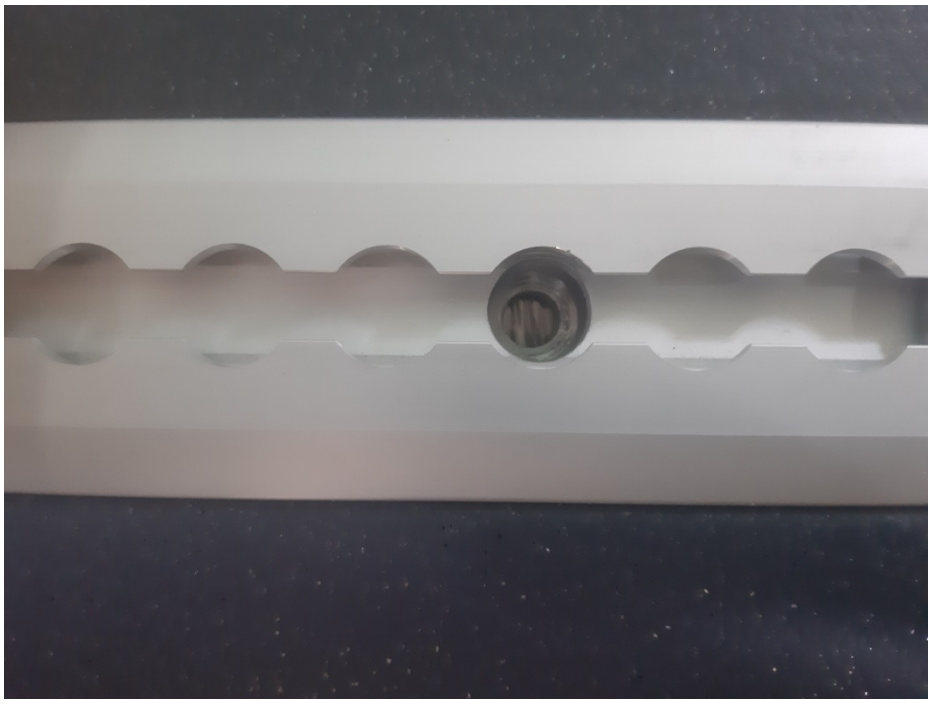


Step 7. Underfloor reinforcements

48 h after gluing, drill the vehicle floor according existing holes in composite floor. Use φ11 drill. There is one hole/reinforcement per rail.

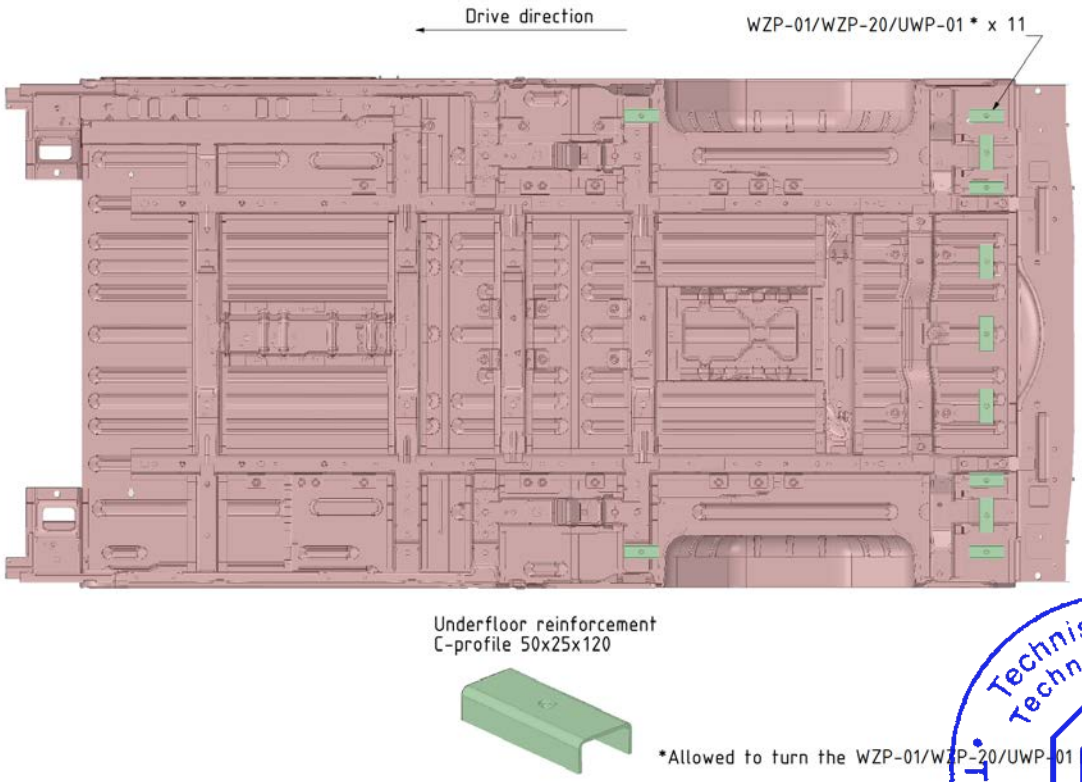
Example layout of holes





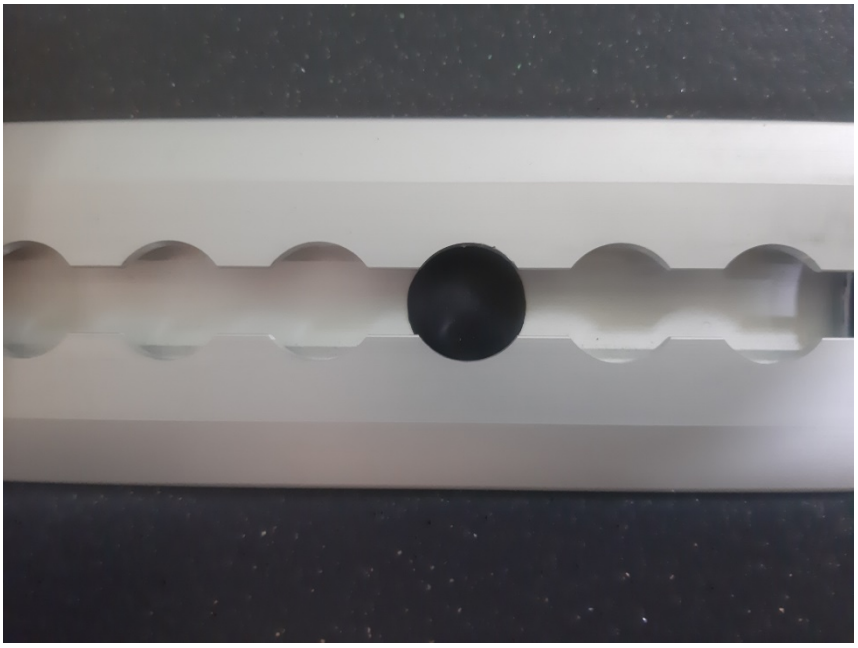
Tight the underfloor reinforcements. Tightening torque 30 Nm. Use the liquid anaerobic glue to secure the bolts.

Example reinforcement layout



Step 8. Blanking plugs

Put the rubber blank plugs into the installation holes.



Dow Automotive

Technical Data Sheet

Aftermarket Division

BETACLEAN 3350

Description / Application:

BETACLEAN 3350 is a cleaner for removing dirt and grease from plastics, paints, metals and glass

All Dow Automotive products are primarily developed in co-operation with the automobile manufacturers, according to their needs and their specifications; they are approved for the specific applications as defined by the customer.

The use of the product other than approved application have to be released in written form by the Technical Service of Dow Automotive.

Technical Data:

Basis	Heptane
Colour	Colourless, transparent
Density	0,68 g/cm³ at 23°C
Flash point	See health and safety data sheet.
Instructions for use	Wipe contaminated surface with BETACLEAN 3350 saturated, binder-free tissues or cloths. Preliminary trials carried out by our technical service department are recommended.
Shelf life	24 months in unopened containers
Containers	100, 1000ml aluminium containers
Protection measures	See health and safety data sheet.

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Quality is our highest priority. Dow Automotive works with a highly modern Quality Management System which meets all international requirements of **QS 9000**, **VDA-6** and **ISO 9001**.

The above information implies no liability as to the usage of our products. Since the applications, utilisation and processing of our products are

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Dow Automotive

Technical Datasheet
Aftermarket Division

BETAPRIME 5061

Description / Application:

One-Step adhesion promoter for glass, ceramic serigraphy in combination with BETASEAL and BETAMATE PUR Adhesives. A prior cleaning of the bonding surface with BETACLEAN 3300 is necessary.

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The use of the product other than approved application have to be released in written form by the Technical Service of Dow Automotive.

Technical Data:

Basis	Silane modified polymers
Colour	black
Pigments	carbon black
Density	approx. 0.97 g/cm^3 bei 23°C
Viscosity (DIN-cup 4)	< 14 s bei 23°C
Flash Point	See health and safety data sheet.
Processing temperature	ideal 10 - 40°C
Tack free time	50 - 150 sec @ 23°C / 50 % r.h.
Evaporation time	min. 10 min @ 23°C / 50 % r.h., max. 8h Reactivation with BP 5061 or BW 4001, 4002 possible.
Instruction for use	Shake container well before opening. Continue to shake for at least 60s after steel balls inside the container are released. Caution! The product is extremely hygroscopic! Close container immediately after use to preserve remaining contents. Use up remainder within a few days.
Bonding surface preparation	Clean bonding areas with the BETACLEAN 3300. Verify compatibility or consult our technical service department.
Cleaning	Clean Equipment with BETACLEAN 3000
Shelf life	9 months in unopened containers (see "use before" date printed on the container)

Technischer Dienst Technical Service TÜV SÜD Auto Service GmbH 152

Storage once opened	- applicator: single use, do not store - 100 ml bottle: 5 days in original container
Storage	Temperature: 5°C to 25°C Short term up to 40°C
Containers	Single use applicator, 100 ml aluminium bottle
Protection measures	See health and safety data sheet

Dow Automotive quality assurance

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Environment: All sites of Dow Automotive are conforming to ISO 14001:2004.

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Fax +001 248 391 64 17

BETAPRIME™ 5500

Short Description

Adhesion promoting primer for laminated glass with enamel layer inside and enamel substrates. To be used in combination with Dow Automotive Systems PUR-Adhesive/sealants.

Properties

One-step primer which can be used without silane wipe pretreatment. Primer with short open time.

Application

All Dow Automotive products are primarily developed in co-operation with the automobile manufacturers, according to their needs and their specifications, they are approved for the specific applications as defined by the customer. The use of the product other than approved appliction have to be released in written form by the Technical Service of Dow Automotive.

Technical Data

Unless specified otherwise test are conducted at 23°C/50% relative humidity.

Basis	Polyisocyanates
Colour	black
Pigments	Carbon black
Density	0.901 - 1.001 g/cm³
Solid contents	35 - 40%
Viscosity DIN-cup 4mm after 3d 40°C	10.5 - 13 s
Minimum open time	3 minutes / felt application
Maximum opentime	3 days / felt application
Reactivation:	One time reactivation possible with: BETAWIPE™ VP04604 (wipe-on / wipe off) maximum open time 15 minutes.
Processing temperature	10 - 40°C
Processing instructions	Primer bottle needs to be shaken for at least one minute before opening, to release the steel balls within the container. In case steel balls are not dislodged, then it is recommended to strike the top of the container against a hard surface so that the steel balls are audible within the container. This is essential in order to disperse any possible sediment within the primer.
Caution	The product is extremely sensitive to humidity. It is imperative that container should be closed immediatly after use, in order to extend durability of the remaining primer contents.
Shelf life	6 months at + 5°C - +25°C in unopened containers.
Shelf life after opening	Depending on ambient conditions and working method: Use following test method to monitor if primer can be furter used for one day or if it is non-conformous and has to be dispode of. Daily measurement of viscosity DIN 4 cup: must not exceed 17 seconds.
Bonding Surface Preparation	All bonding surfaces must be free of impurities (dirt, dust, water, oil, grease, release agent and similar contaminants). Verify compatibility before use, or consult our Technical Service for more information.
Processing equipment	Primer applicator, primer application device (flask with primer applicator head and felt) or automatic primer application system.
Cleaning	Clean equipment with BETACLEAN™ 3000
Containers	Aluminium bottles

www.dowautomotive.com
Dow Europe GmbH
8810 Horgen, Switzerland

Health and Safety

The use of bonding agent (primer) is generally harmless and as long as the basic rules for safe handling of chemicals are applied. However, the direct contact of uncured primer to food and food containers shall be avoided. Mandatory are protective measures in order to prevent direct skin contact as well as to avoid solvent inhalation. Proper ventilation should apply when using primers with high volatile content. If any primer is applied in the means of spraying technique, special care should apply in relation to respiration and personal protection in order to prevent aerosol inhalation. Suitable solvent resistant rubber gloves, conventional eye protection as well as appropriate type of respirator mask are essential. In case of direct contact with any primers the skin must be rinsed first with warm water and then cleaned thoroughly with conventional soap. Solvents shall be avoided. For detailed protective measures refer to the material safety data sheets.

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Automotive Systems

Technical Datasheet

BETAMATE™ 7120

Short Description

One component, moisture curing adhesive with excellent sag and bead stability based on polyurethane chemistry. The adhesive cures with environmental moisture and skin formation and curing is dependent on humidity, temperature and application dimensions.

Properties

Cold processable, medium viscosity, low modulus adhesive with excellent UV stability attributes. It is primerless to paint on automotive paints.

Application

All Dow Automotive products are primarily developed in co-operation with the automobile manufacturers, according to their needs and their specifications, they are approved for the specific applications as defined by the customer. The use of the product other than approved appliction have to be released in written form by the Technical Service of Dow Automotive Systems.

Technical Data

Unless specified otherwise test are conducted at 23°C/50% relative humidity.

Basis	Polyurethane prepolymers
Colour	black
Density	1.22 - 1.26 g/cm³
Solid contents	min 98%
Viscosity Extrusion, Ballan at 23°C, 4mm nozzle / 4bar	12 - 20 g/min
Processing temperature	10 - 40°C
Skinning time	25 - 45 min
Cure rate after 48h	min 3.5 mm
Sagging, on vertical wall tilting	max 30°
Hardness Shore A (DIN 53 505)	55 - 65
Lap shear strength (DIN EN 1465)	min 5.0 MPa after 7d
Tensile strength (DIN 53 504)	9 MPa
Elongation at break (DIN 53504)	> 500%
G-Modulus	1.0 - 1.5 MPa
Specific electrical volume resistivity	10^6 Ωcm
Temperature stability	-40°C to 100°C
Resistance to chemicals	Highly resistant to aqueous chemicals, petrol, alcohol and mineral oils; conditionally to esters, ketones, aromatics and chlorinated hydrocarbons.
Bonding surface preparation	All bonding surfaces must be free of dirt, dust, water, oil and grease. In general surfaces should be primed. Verify compatibility or consult our technical service department.
Cleaning	Uncured adhesive residues can easily be removed with BETACLEAN 3500. Hardened adhesive residues can only be removed mechanically. Immerse equipment in BETACLEAN 3000.
Shelf life	Short time storage temperatures: 0°C to 40°C. 6 months at +5°C to +25°C in unopened containers.
Containers	Cartridges / Pails / Drums

Health and Safety

The use of polyurethane adhesives is generally harmless and as long as the basic rules for safe handling of chemicals are applied. However, the direct contact of uncured adhesive with food and food containers should be avoided. It is mandatory to use protective measures in order to prevent direct skin contact. Suitable gloves and eye protection are essential. Should the skin come into contact with uncured adhesive,it must be rinsed first with warm water and then cleaned thoroughly with conventional soap. Cleaning skin with solvents must be avoided. It is essential to ensure good ventilation. For detailed protective measures refer to the Material Safety Data Sheets.

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Installation instructions of floor type FL (Forgeway adhesive)

List of parts required for installation of composite floor:

- Formoa surface activator
- Formoa 095
- M10 bolts
- Underfloor reinforcements type WZP-01/WZP-20
- Pad kit (optional)
- Rubber blanking plugs
- Jigs (optional)
- Tools – 600 ml cartridge gun, brush or roller, wipe clothes, Allen wrench 8, Loctite

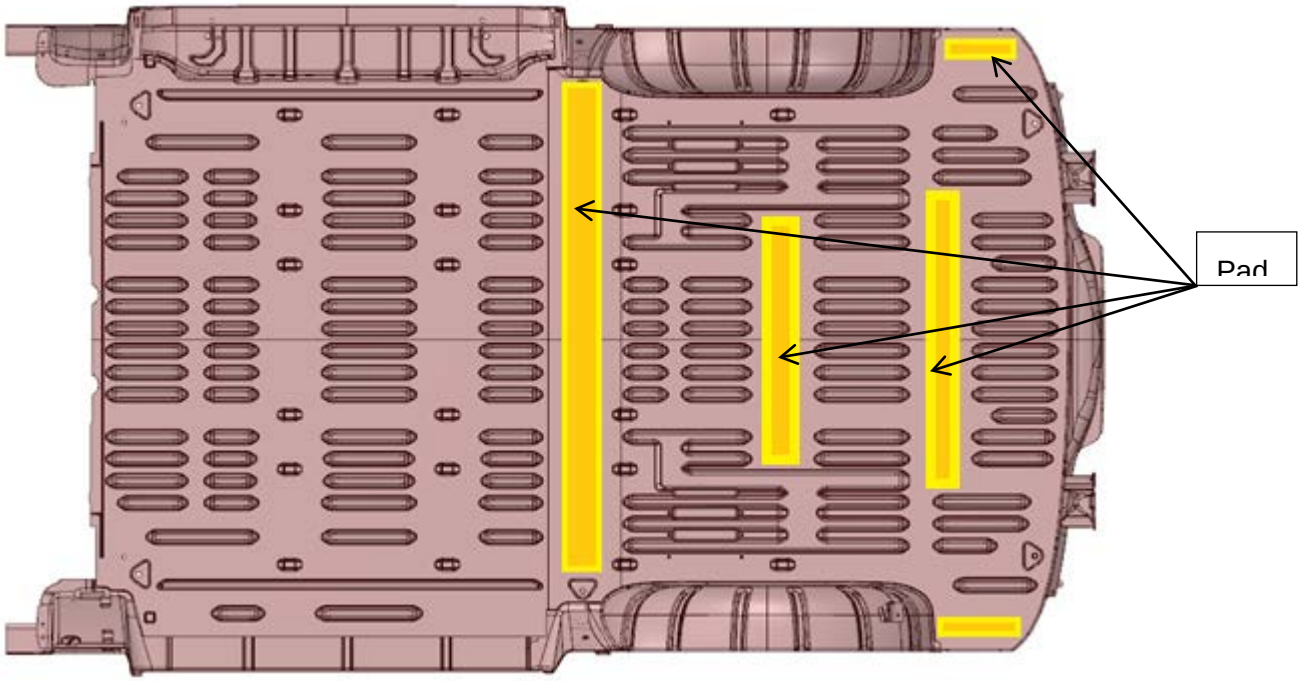
Step 1. Preparation of the vehicle body and composite floor

Clean vehicle floor before installation. Surface must be clean, dry and free from all traces of grease, oil and dust. Grind the vehicle's floor – use scotch brite. Apply on the composite and vehicle floor activator before installation.

Step 2. Support pads

Fill the big gaps on the vehicle floor with aluminium/steel or plywood pads to eliminate height differences. Pads layout depends on the type of vehicle and composite floor project.

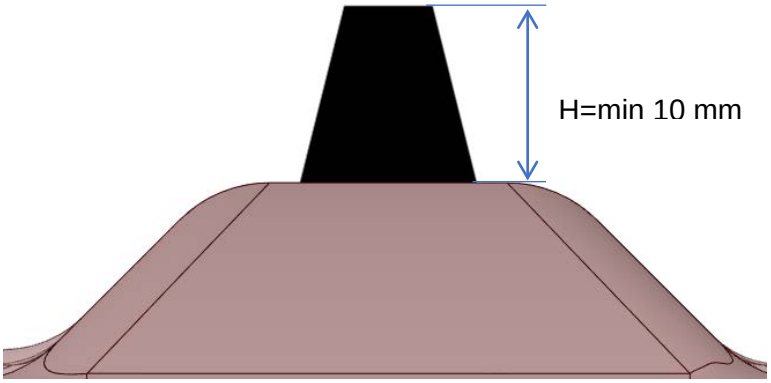
Example pads layout



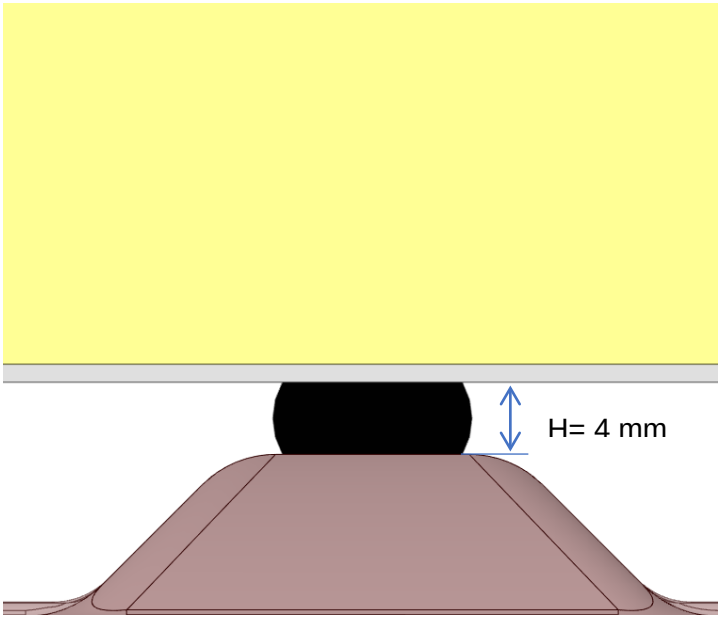
Step 4. Gluing

Don't walk on the cleaned surfaces. Use a piece of carton for protection. Apply Formoa 095 glue on the high spots of vehicle floor. Glue can be applied between the 10-40°C. For more details see the technical data sheet of product.

Recommended glue bead



Pressed bead of glue



Step 5. Jigs

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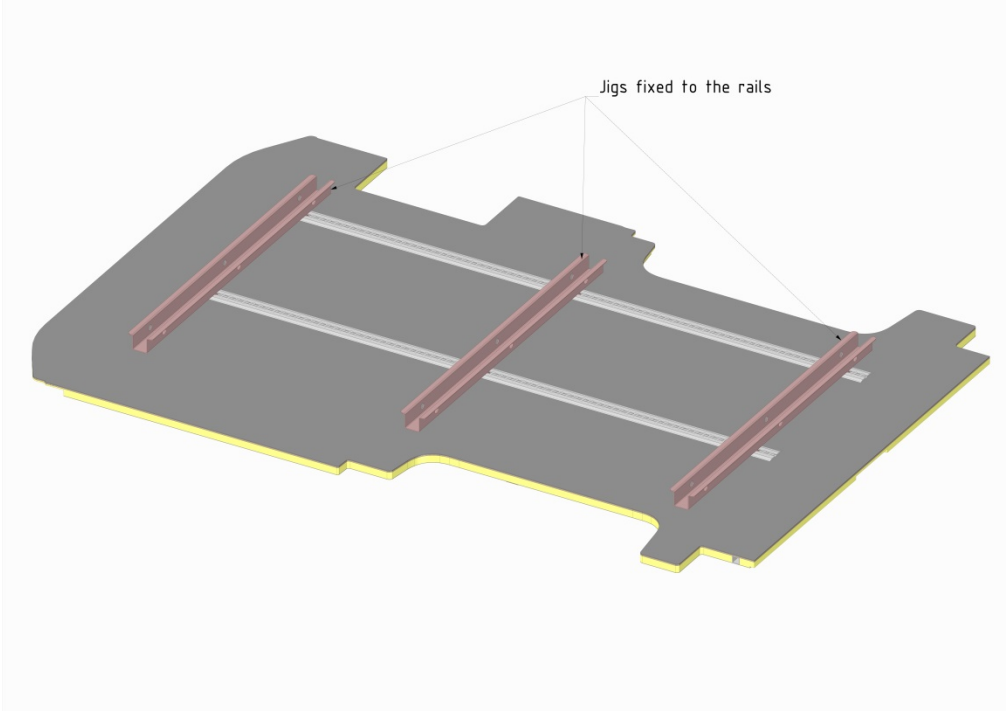
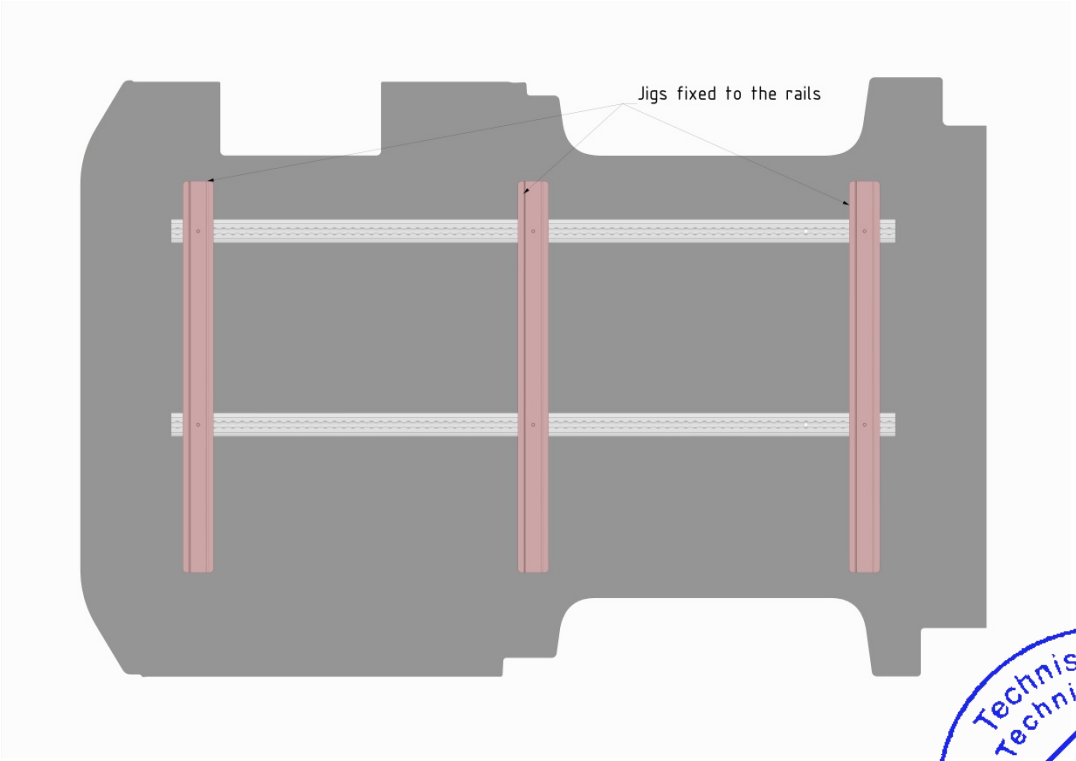
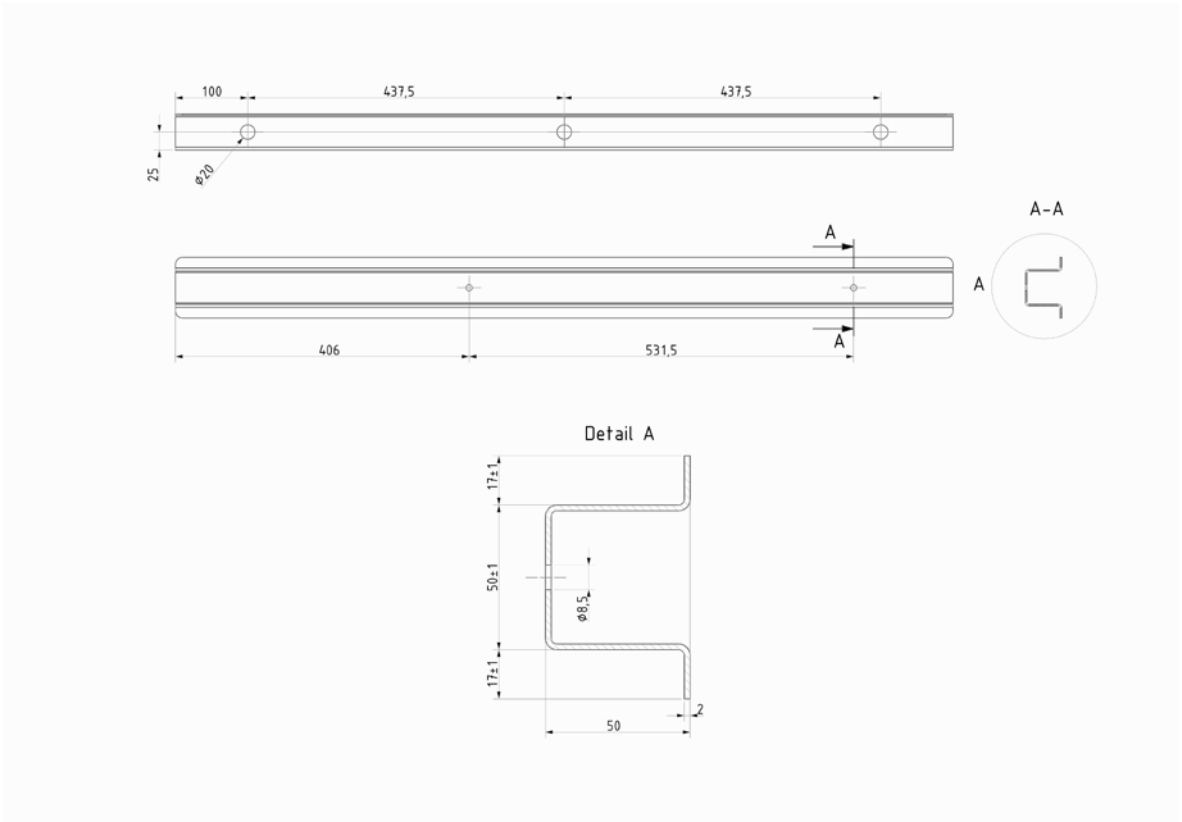
If floor works with any sliding systems, it is highly recommended to use jigs fixed to the rails. Jigs ensure the flatness the floor and proper working sliding systems. Jigs are mounted to the rails across the floor, at the end, front and in the middle. Jigs can be designed and produced on request .

Example floor with jigs



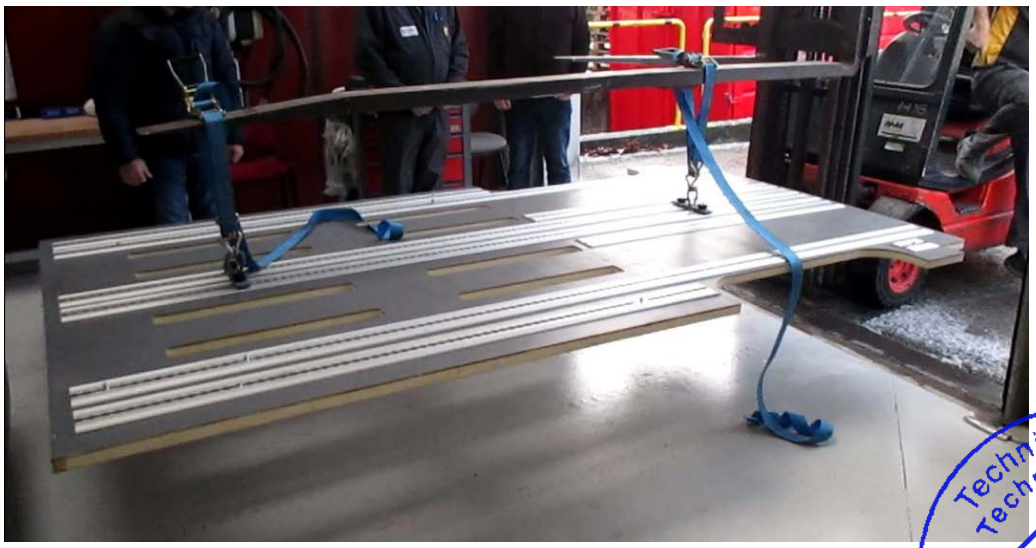




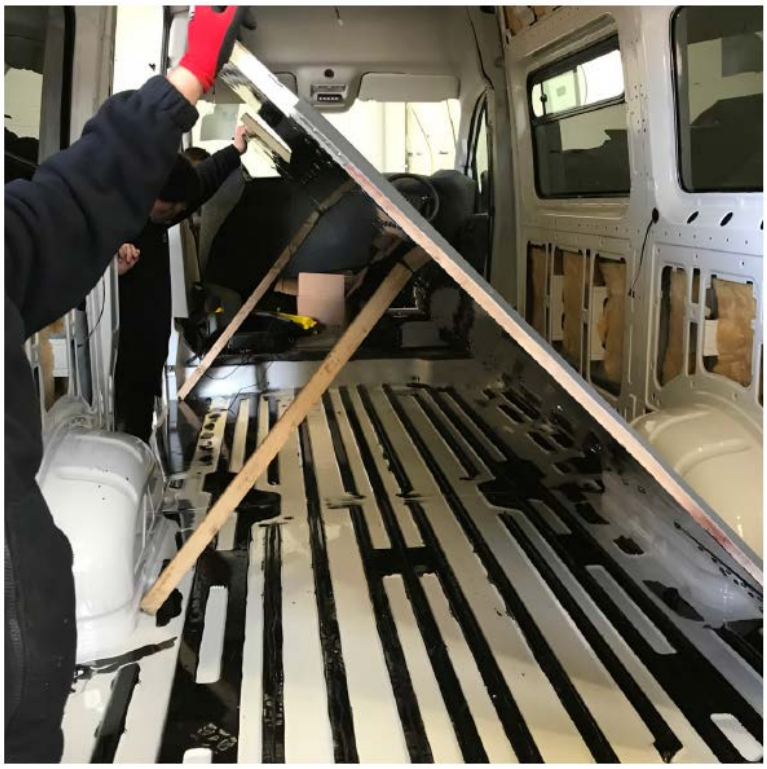
6. Dropping the floor

Place and drop in the composite floor on the glue. You can either use a forklift as shown or put the floor on its side manually. After the floor is inside the vehicle you must press down to ensure the glue is pressed down. You can do this by walking across the floor. Leave the floor for at least 48 h. Don't walk on the floor and don't move the vehicle.

Installation with forklift



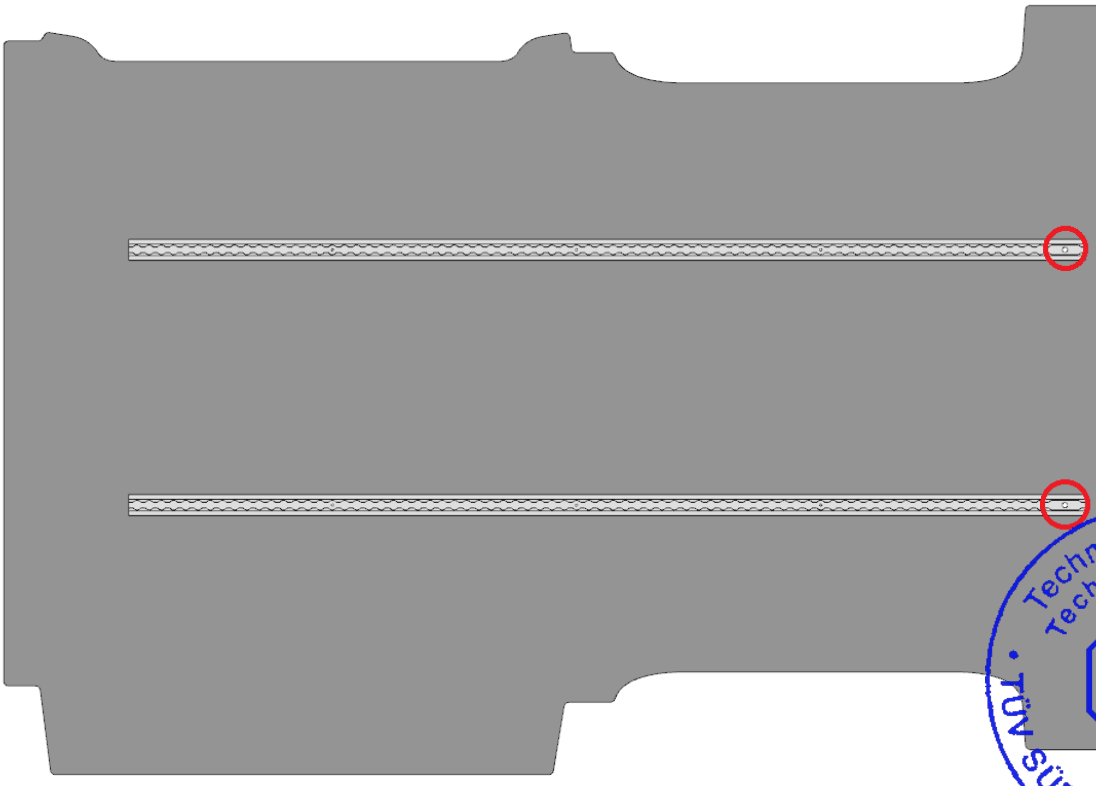
Manually installation

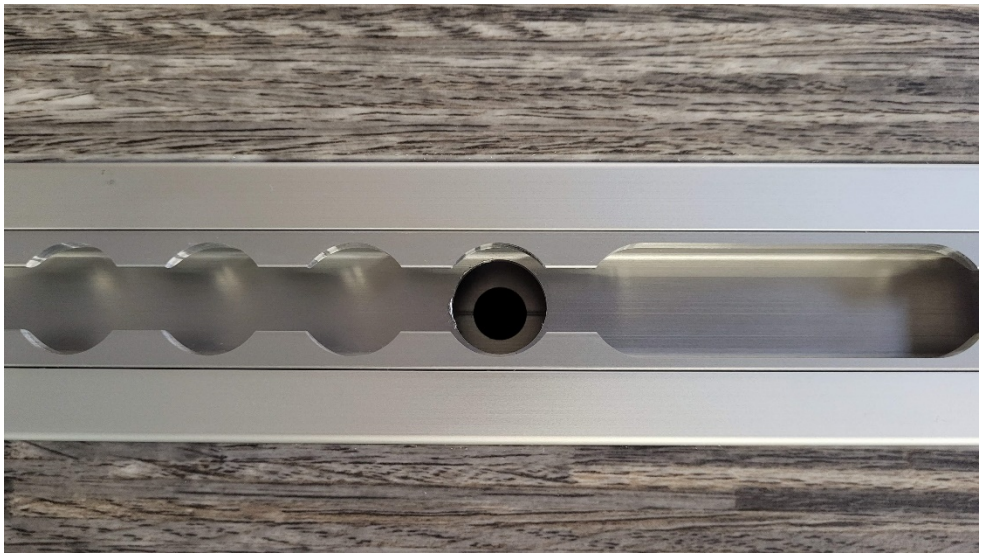


Step 7. Underfloor reinforcements

72 h after gluing, drill the vehicle floor according existing holes in composite floor. Use φ11 drill. There is one hole/reinforcement per rail.

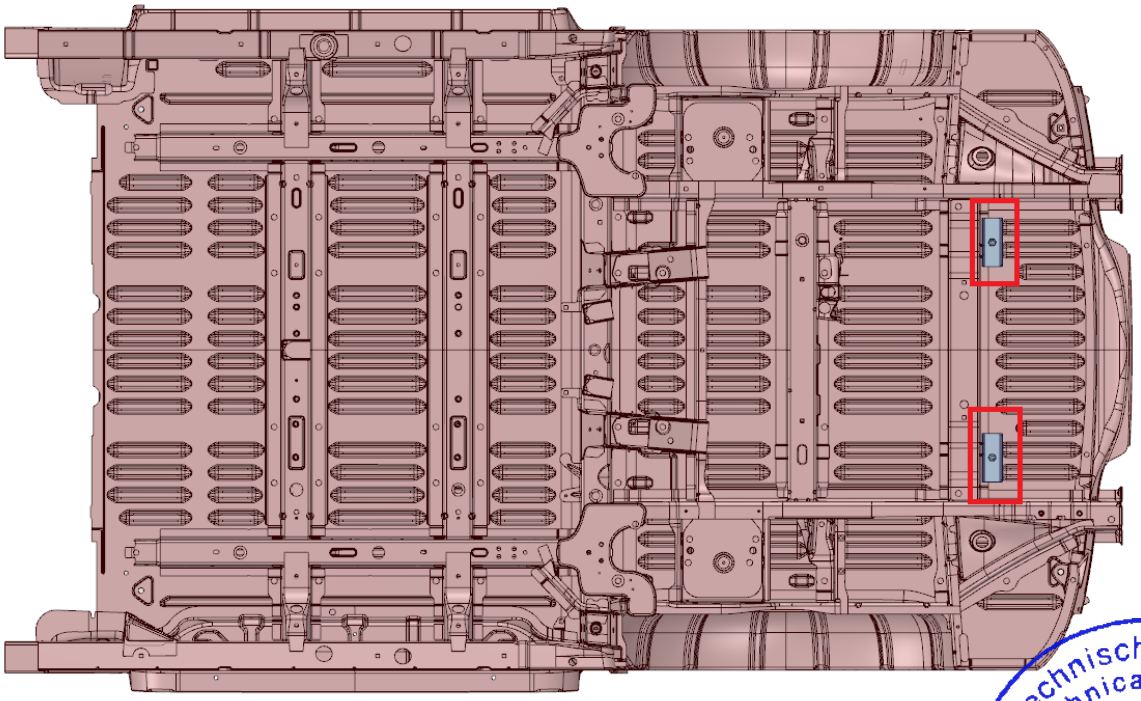
Example layout of holes





Tight the underfloor reinforcements. Tightening torque 15 Nm. Use the liquid anaerobic glue to secure the bolts.

Example reinforcement layout



Step 8. Blanking plugs

Put the rubber blank plugs into the installation holes.

Fw
Forgeway

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SECTION 1: Identification of the substance/mixture and of the company/ undertaking

· **1.1 Product identifier**

· **Trade name: FORMOA SURFACE ACTIVATOR**

· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
Surface cleaner and activator for removing surface contaminants from non porous substrates and to improve adhesion prior to using FORMOA adhesives

· **Application of the substance / the mixture**
Applied via lint free wiper to substrates - apply and allow to flash off

· **1.3 Details of the supplier of the safety data sheet**

· **Manufacturer/Supplier:**
Forgeway
Collet Way, Brunel Road Ind Estate
Newton Abbot, Devon
TQ12 4PH

· **Further information obtainable from:**
Product safety department.
glen.buckley@forgeway.com

· **1.4 Emergency telephone number:**
+44 (0)203 394 9871 (24 hours, UK number, English)
For technical and commercial enquiries call +44 (0)1626 367070 during office hours (0700 - 1630 UK Time)

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**

· **Classification according to Regulation (EC) No 1272/2008**

GHS02 flame

Flam. Liq. 2 H225 Highly flammable liquid and vapour.

GHS07

Eye Irrit. 2 H319 Causes serious eye irritation.
STOT SE 3 H336 May cause drowsiness or dizziness.

· **2.2 Label elements**

· **Labelling according to Regulation (EC) No 1272/2008**
The product is classified and labelled according to the CLP regulation.

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· **Hazard pictograms**

GHS02 GHS07

· **Signal word** Danger

· **Hazard-determining components of labelling:**
propan-2-ol
· **Hazard statements**
H225 Highly flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
· **Precautionary statements**

P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P241	Use explosion-proof electrical/ventilating/lighting equipment.
P303+P361+P353	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower.
P305+P351+P338	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P405	Store locked up.
P501	Dispose of contents/container in accordance with local/regional/national/ international regulations.

· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

· **Dangerous components:**

CAS: 67-63-0 EINECS: 200-661-7	propan-2-ol Flam. Liq. 2, H225; Eye Irrit. 2, H319; STOT SE 3, H336	50-100%
CAS: 546-68-9 EINECS: 208-909-6	titanium tetraisopropanolate Flam. Liq. 3, H226; Eye Irrit. 2, H319	2.5-10%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Generally the product does not irritate the skin.
· **After eye contact:**
Rinse opened eye for several minutes under running water. If symptoms persist, consult a doctor.
· **After swallowing:** If symptoms persist consult doctor.
· **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

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SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:**
CO2, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
· **For safety reasons unsuitable extinguishing agents:** Water with full jet
· **5.2 Special hazards arising from the substance or mixture**
No further relevant information available.
· **5.3 Advice for firefighters**
· **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
· **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Ensure adequate ventilation.
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling** No special precautions are necessary if used correctly.
· **Information about fire - and explosion protection:**
Keep ignition sources away - Do not smoke.
Protect against electrostatic charges.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** Store in a cool location.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:**
Keep container tightly sealed.
Store in cool, dry conditions in well sealed receptacles.
· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

· **8.1 Control parameters**

· **Ingredients with limit values that require monitoring at the workplace:**	
67-63-0 propan-2-ol	
WEL	Short-term value: 1250 mg/m³, 500 ppm Long-term value: 999 mg/m³, 400 ppm

· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing
Wash hands before breaks and at the end of work.

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Avoid contact with the eyes.
Avoid contact with the eyes and skin.
· **Respiratory protection:** *Not required.*
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:**

Tightly sealed goggles

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	*Liquid*
Colour:	*Colourless*
· **Odour:**	*Alcohol-like*
· **Odour threshold:**	*Not determined.*
· **pH-value:**	*Not determined.*
· **Change in condition**	
Melting point/freezing point:	*Undetermined.*
Initial boiling point and boiling range:	*82 °C*
· **Flash point:**	*12 °C*
· **Flammability (solid, gas):**	*Not applicable.*
· **Ignition temperature:**	*425 °C*
· **Decomposition temperature:**	*Not determined.*
· **Auto-ignition temperature:**	*Product is not selfigniting.*
· **Explosive properties:**	*Product is not explosive. However, formation of explosive air/vapour mixtures are possible.*
· **Explosion limits:**	
Lower:	*2.0 Vol %*
Upper:	*12.0 Vol %*
· **Vapour pressure at 20 °C:**	*43 hPa*
· **Density at 20 °C:**	*0.8035 g/cm³*
· **Relative density**	*Not determined.*
· **Vapour density**	*Not determined.*

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· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with water:**	Not miscible or difficult to mix.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	90.0 %
VOC (EC)	90.00 %
· **9.2 Other information**	No further relevant information available.

SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.
· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **10.3 Possibility of hazardous reactions** No dangerous reactions known.
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity** Based on available data, the classification criteria are not met.

· **LD/LC50 values relevant for classification:**

67-63-0 propan-2-ol		
Oral	LD50	5000 mg/kg (rat)
Dermal	LD50	12800 mg/kg (rabbit)
Inhalative	LC50/4 h	39.3 mg/l (rat)

· **Primary irritant effect:**
· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation**
Causes serious eye irritation.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure**
May cause drowsiness or dizziness.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.

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SECTION 12: Ecological information

· **12.1 Toxicity**

· **Aquatic toxicity:**		
67-63-0 propan-2-ol		
Inhalative	LC50/96 h	9604 mg/l (fish)
	EC50/24 h	>1000 mg/l (algae)
		5102 mg/l (daphnia)
	EC50/72 h	>2000 mg/l (algae)

· **12.2 Persistence and degradability** No further relevant information available.
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water
Do not allow product to reach ground water, water course or sewage system.
Danger to drinking water if even small quantities leak into the ground.
· **12.5 Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.
· **12.6 Other adverse effects** No further relevant information available.

SECTION 13: Disposal considerations

· **13.1 Waste treatment methods**
· **Recommendation**
Must not be disposed together with household garbage. Do not allow product to reach sewage system.

· **Uncleaned packaging:**
· **Recommendation:** Disposal must be made according to official regulations.

SECTION 14: Transport information

· **14.1 UN-Number**	
· **ADR, IMDG, IATA**	UN1219
· **14.2 UN proper shipping name**	
· **ADR**	1219 ISOPROPANOL (ISOPROPYL ALCOHOL)
· **IMDG, IATA**	ISOPROPANOL (ISOPROPYL ALCOHOL)
· **14.3 Transport hazard class(es)**	
· **ADR, IMDG, IATA**	

· **Class**	3 Flammable liquids.
· **Label**	3
· **14.4 Packing group**	
· **ADR, IMDG, IATA**	II
· **14.5 Environmental hazards:**	
· **Marine pollutant:**	No

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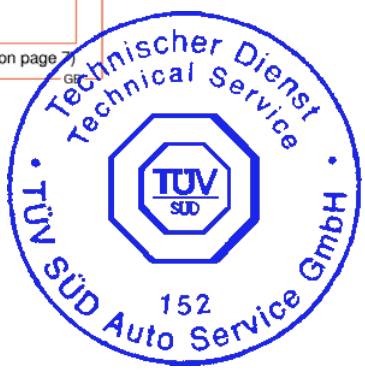

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· **14.6 Special precautions for user**	Warning: Flammable liquids.
· **Danger code (Kemler):**	33
· **EMS Number:**	F-E,S-D
· **Stowage Category**	B
· **14.7 Transport in bulk according to Annex II of Marpol and the IBC Code**	Not applicable.
· **Transport/Additional information:**	
· **ADR**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **Transport category**	2
· **Tunnel restriction code**	D/E
· **IMDG**	
· **Limited quantities (LQ)**	1L
· **Excepted quantities (EQ)**	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml
· **UN "Model Regulation":**	UN 1219 ISOPROPANOL (ISOPROPYL ALCOHOL), 3, II

SECTION 15: Regulatory information

· **15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **Directive 2012/18/EU**
· **Named dangerous substances - ANNEX I** None of the ingredients is listed.
· **Seveso category** P5c FLAMMABLE LIQUIDS
· **Qualifying quantity (tonnes) for the application of lower-tier requirements** 5,000 t
· **Qualifying quantity (tonnes) for the application of upper-tier requirements** 50,000 t
· **REGULATION (EC) No 1907/2006 ANNEX XVII** Conditions of restriction: 3
· **15.2 Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Relevant phrases**
H225 Highly flammable liquid and vapour.
H226 Flammable liquid and vapour.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.

· **Department issuing SDS:** Product safety department.
· **Contact:** Mr. Buckley
· **Abbreviations and acronyms:**
RID: Règlement international concernant le transport des marchandises dangereuses par chemin de fer (Regulations Concerning the International Transport of Dangerous Goods by Rail)
IATA-DGR: Dangerous Goods Regulations by the "International Air Transport Association" (IATA)
ICAO: International Civil Aviation Organisation
ICAO-TI: Technical Instructions by the "International Civil Aviation Organisation" (ICAO)
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods

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IATA: International Air Transport Association
GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Flam. Liq. 2: Flammable liquids – Category 2
Flam. Liq. 3: Flammable liquids – Category 3
Eye Irrit. 2: Serious eye damage/eye irritation – Category 2
STOT SE 3: Specific target organ toxicity (single exposure) – Category 3

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SECTION 1: Identification of the substance/mixture and of the company/ undertaking

· **1.1 Product identifier**

· **Trade name: FORMOA 095 WHITE**
· **1.2 Relevant identified uses of the substance or mixture and uses advised against**
No further relevant information available.
· **Application of the substance / the mixture** Adhesive/Sealant

· **1.3 Details of the supplier of the safety data sheet**
· **Manufacturer/Supplier:**
Forgeway
Collet Way, Brunel Road Ind Estate
Newton Abbot, Devon
TQ12 4PH

· **Further information obtainable from:**
Product safety department.
glen.buckley@forgeway.com
· **1.4 Emergency telephone number:**
+44 (0)203 394 9871 (24 hours, UK number, English)
For technical and commercial enquiries call +44 (0)1626 367070 during office hours (0700 - 1630 UK Time)

SECTION 2: Hazards identification

· **2.1 Classification of the substance or mixture**
· **Classification according to Regulation (EC) No 1272/2008**
The product is not classified according to the CLP regulation.

· **2.2 Label elements**
· **Labelling according to Regulation (EC) No 1272/2008** Void
· **Hazard pictograms** Void
· **Signal word** Void
· **Hazard statements** Void
· **Additional information:**
EUH208 Contains N-(3-(trimethoxysilyl)propyl)ethylenediamine. May produce an allergic reaction.
EUH210 Safety data sheet available on request.
· **2.3 Other hazards**
· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

SECTION 3: Composition/information on ingredients

· **3.2 Chemical characterisation: Mixtures**
· **Description:** Mixture of substances listed below with nonhazardous additions.

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· **Dangerous components:**

EC number: 907-495-0	Amide wax rheology modifier	Aquatic Chronic 3, H412	≤ 2.5%

· **Additional information:** For the wording of the listed hazard phrases refer to section 16.

SECTION 4: First aid measures

· **4.1 Description of first aid measures**
· **General information:** No special measures required.
· **After inhalation:** Supply fresh air; consult doctor in case of complaints.
· **After skin contact:** Generally the product does not irritate the skin.
· **After eye contact:** Rinse opened eye for several minutes under running water.
· **After swallowing:** If symptoms persist consult doctor.
· **4.2 Most important symptoms and effects, both acute and delayed**
No further relevant information available.
· **4.3 Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

SECTION 5: Firefighting measures

· **5.1 Extinguishing media**
· **Suitable extinguishing agents:** Use fire extinguishing methods suitable to surrounding conditions.
· **5.2 Special hazards arising from the substance or mixture**
No further relevant information available.
· **5.3 Advice for firefighters**
· **Protective equipment:** No special measures required.

SECTION 6: Accidental release measures

· **6.1 Personal precautions, protective equipment and emergency procedures** Not required.
· **6.2 Environmental precautions:** Do not allow to enter sewers/ surface or ground water.
· **6.3 Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
· **6.4 Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

SECTION 7: Handling and storage

· **7.1 Precautions for safe handling** No special measures required.
· **Information about fire - and explosion protection:** No special measures required.

· **7.2 Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:** No special requirements.
· **Information about storage in one common storage facility:** Not required.
· **Further information about storage conditions:** None.
· **7.3 Specific end use(s)** No further relevant information available.

SECTION 8: Exposure controls/personal protection

· **Additional information about design of technical facilities:** No further data; see item 7.

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Trade name: FORMOA 095 WHITE

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· **8.1 Control parameters**
· **Ingredients with limit values that require monitoring at the workplace:**
The product does not contain any relevant quantities of materials with critical values that have to be monitored at the workplace.
· **Additional information:** The lists valid during the making were used as basis.

· **8.2 Exposure controls**
· **Personal protective equipment:**
· **General protective and hygienic measures:**
The usual precautionary measures are to be adhered to when handling chemicals.
· **Respiratory protection:** Not required.
· **Protection of hands:**
The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation
· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.
· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.
· **Eye protection:** Goggles recommended during refilling

SECTION 9: Physical and chemical properties

· **9.1 Information on basic physical and chemical properties**	
· **General Information**	
· **Appearance:**	
Form:	Pasty
Colour:	White
· **Odour:**	Odourless
· **Odour threshold:**	Not determined.
· **pH-value:**	Not determined.
· **Change in condition**	
Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	Undetermined.
· **Flash point:**	Not applicable.
· **Flammability (solid, gas):**	Not applicable.
· **Ignition temperature:**	305 °C
· **Decomposition temperature:**	Not determined.
· **Auto-ignition temperature:**	Product is not selfigniting.
· **Explosive properties:**	Product does not present an explosion hazard.
· **Explosion limits:**	
Lower:	Not determined.
Upper:	Not determined.
· **Vapour pressure:**	Not determined.
· **Density at 20 °C:**	1.49 g/cm³

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· **Relative density**	Not determined.
· **Vapour density**	Not determined.
· **Evaporation rate**	Not determined.
· **Solubility in / Miscibility with water:**	Not miscible or difficult to mix.
· **Partition coefficient: n-octanol/water:**	Not determined.
· **Viscosity:**	
Dynamic:	Not determined.
Kinematic:	Not determined.
· **Solvent content:**	
Organic solvents:	0.0 %
VOC (EC)	0.01 %
· **9.2 Other information**	No further relevant information available.

SECTION 10: Stability and reactivity

· **10.1 Reactivity** No further relevant information available.
· **10.2 Chemical stability**
· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.
· **10.3 Possibility of hazardous reactions** No dangerous reactions known.
· **10.4 Conditions to avoid** No further relevant information available.
· **10.5 Incompatible materials:** No further relevant information available.
· **10.6 Hazardous decomposition products:** No dangerous decomposition products known.

SECTION 11: Toxicological information

· **11.1 Information on toxicological effects**
· **Acute toxicity** Based on available data, the classification criteria are not met.
· **Primary irritant effect:**
· **Skin corrosion/irritation** Based on available data, the classification criteria are not met.
· **Serious eye damage/irritation** Based on available data, the classification criteria are not met.
· **Respiratory or skin sensitisation** Based on available data, the classification criteria are not met.
· **CMR effects (carcinogenity, mutagenicity and toxicity for reproduction)**
· **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
· **Carcinogenicity** Based on available data, the classification criteria are not met.
· **Reproductive toxicity** Based on available data, the classification criteria are not met.
· **STOT-single exposure** Based on available data, the classification criteria are not met.
· **STOT-repeated exposure** Based on available data, the classification criteria are not met.
· **Aspiration hazard** Based on available data, the classification criteria are not met.

SECTION 12: Ecological information

· **12.1 Toxicity**
· **Aquatic toxicity:** No further relevant information available.
· **12.2 Persistence and degradability** No further relevant information available.
· **12.3 Bioaccumulative potential** No further relevant information available.
· **12.4 Mobility in soil** No further relevant information available.
· **Additional ecological information:**
· **General notes:**
Water hazard class 1 (German Regulation) (Self-assessment): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.

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· ***12.5 Results of PBT and vPvB assessment***
· ***PBT:*** *Not applicable.*
· ***vPvB:*** *Not applicable.*
· ***12.6 Other adverse effects*** *No further relevant information available.*

SECTION 13: Disposal considerations

· ***13.1 Waste treatment methods***
· ***Recommendation*** *Smaller quantities can be disposed of with household waste.*

· ***Uncleaned packaging:***
· ***Recommendation:*** *Disposal must be made according to official regulations.*

SECTION 14: Transport information

· ***14.1 UN-Number*** · ***ADR, ADN, IMDG, IATA***	*Void*
· ***14.2 UN proper shipping name*** · ***ADR, ADN, IMDG, IATA***	*Void*
· ***14.3 Transport hazard class(es)*** · ***ADR, ADN, IMDG, IATA*** · ***Class***	*Void*
· ***14.4 Packing group*** · ***ADR, IMDG, IATA***	*Void*
· ***14.5 Environmental hazards:***	*Not applicable.*
· ***14.6 Special precautions for user***	*Not applicable.*
· ***14.7 Transport in bulk according to Annex II of Marpol and the IBC Code***	*Not applicable.*
· ***UN "Model Regulation":***	*Void*

SECTION 15: Regulatory information

· ***15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture***

· ***Directive 2012/18/EU***
· ***Named dangerous substances - ANNEX I*** *None of the ingredients is listed.*
· ***15.2 Chemical safety assessment:*** *A Chemical Safety Assessment has not been carried out.*

SECTION 16: Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· ***Relevant phrases***
H412 Harmful to aquatic life with long lasting effects.

· ***Department issuing SDS:*** *Product safety department.*
· ***Contact:*** *Mr. Buckley*
· ***Abbreviations and acronyms:***
ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
IMDG: International Maritime Code for Dangerous Goods
IATA: International Air Transport Association

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GHS: Globally Harmonised System of Classification and Labelling of Chemicals
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
VOC: Volatile Organic Compounds (USA, EU)
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3

GB