

Test report

No.: 22-00049-CP-PRG-00

Test of a type of a vehicle
with regard to ECE 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 ECE 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

I. General

Make	MOBIFRAME
Type:	SAF07
Version:	SAF07 – version with symmetrical leg and with/without adapter and fixation plate (dedicated for vehicles from table presented in Enclosure 1) SAF07-C – version with symmetrical leg and with/without adapter and fixation plate (dedicated for vehicles from table presented in Enclosure 1) SAF07-L – version with asymmetrical high leg (dedicated for Fiat Ducato/ Peugeot Boxer/ Citroen Jumper/ Opel Movano/RAM ProMaster) SAF07-S – version with asymmetrical low leg (dedicated for Fiat Ducato/ Peugeot Boxer/ Citroen Jumper/ Opel Movano/RAM ProMaster)
Category of vehicle:	M1, N1, M2, N2
Name and address of manufacturer	OKB SP. Z O.O. ul. Szkolna 9 95-006 Bukowiec Poland
Reference number of information folder:	MOBIFRAME/03/2022-00
Date of issue of information folder:	11.10.2022

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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TÜV SÜD Auto Service GmbH is designated as Technical Service by:

Genehmigungsbehörde Approval authority	Land Country	Registriernummer Registration number
Kraftfahrt-Bundesamt (KBA)	Deutschland <i>Germany</i>	KBA-P 00100-10
Vehicle Certification Agency (VCA)	Vereinigtes Königreich <i>United Kingdom</i>	VCA-TS-006
Approval Authority of the Netherlands (RDW)	Niederlande <i>The Netherlands</i>	RDWT-082-xx
National Standards Authority of Ireland (NSAI)	Irland <i>Ireland</i>	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 <i>Luxembourg</i>	13/B(g)
Swedish Transport Agency (STA)	Schweden <i>Sweden</i>	TT 0024

Munich, 21.10.2022



Ing. Vít Bursík
Authorized signatory

Annex

Test report

1. Technical data of the test sample

1.1. Make: MOBIFRAME

1.2. Type: SAF07

1.3. Commercial description(s): SAF07

1.3.1. Remark

Detailed drawings and description of benches type SAF07 in version (SAF07, SAF07-C, SAF07-L, SAF07-S) and their fixation solutions in vehicles are included in Information Document MOBIFRAME/03/2022-00 attached to this test report.

Test results and comparison of SAF07, SAF07-C, SAF07-L, SAF07-S 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: Double seat benches type SAF07 mounted in representative vehicle bodies (Fiat Ducato, and Renault Master) and on rigid test bench.
For details see manufacturer's information folder.

1.6. Mass of seat benches: SAF07:
Version SAF07, SAF07-C, SAF07-L, SAF07-S
30 kg – mass of the heaviest configuration

1.7. Drawings and/or photographs of the ISO-FIX anchorages systems, of the top tether anchorages if any, and of the vehicle structure
ISOFIX is optional for bodywork types: BB, CA, SA, SH

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

Manufacturer	Commercial description / Type	Wheelbase
Daimler / Mercedes-Benz	Sprinter, e-Sprinter (906, 907)	3250, 3665, 4325
	Sprinter (910)	3259, 3924
	Vito/Viano/V-klasse, e-Vito (639, 639/2, 639/4)	3200, 3430
VW	Crafter (2E__)	3250, 3665, 4325
	Crafter, e-Crafter (SYN__ e.g. SYN1E, SYN2E, SYN2Z)	3640, 4490
	T5 (7H_, 7E_, 7J_)	3000, 3400
	T6, T6.1, e-Transporter (7H_, 7E_, 7J_)	3000, 3400
Citroen	Jumper, e-Jumper (Y)	3000, 3450, 4035
	Jumpy (X)	3000, 3122
	Jumpy, e-Jumpy (2016)	2925, 3275
	SpaceTourer, E-SpaceTourer	2925, 3275
	Berlingo, E-Berlingo	2785, 2975

Peugeot	Boxer, e-Boxer (Y)	3000, 3450, 4035
	Expert (VF3__)	3000, 3122
	Expert, e-Expert (2016-...)	2925, 3275
	Traveller, e-Traveller	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)	3182, 3682, 4332
	Movano, Movano-e (Y)	3000, 3450, 4035
	Vivaro (F7)	3098, 3498
	Vivaro, Vivaro-e, Vivaro e-Kombi, Zafira Life	2925, 3275
	Combo Life, Combo-e Life	2785, 2975
Renault	Master, Master E-Tech (FV, MA, VA)	3182, 3682, 4332
	Trafic (FL, L)	3098, 3498
	Trafic 2014 (JL, L)	3098, 3498
Renault Trucks	Master (MF, VF)	3182, 3682, 4332
Ford	Transit (FA_, FD_)	2933, 3300, 3750
	Transit e-Transit (FC_)	3300, 3750, 3954
	Transit Custom (FA_, FC_), Turneo Custom	2933, 3300
	Transit Connect (PU2)	2662, 3062
Iveco	Daily, Daily Electric (IS_)	3000, 3300, 3520, 3950, 4100, 4750
Nissan	NV200	2725
	NV300, Primastar	3098, 3498
	NV400	3182, 3682, 4332
Toyota	Pro Ace (2013-2016)	3000, 3122
	Pro Ace, Pro Ace Verso, Pro Ace Electric (2016)	2925, 3275
MAN	TGE, eTGE (SYN__ e.g. SYN1E, SYN2E, SYN2Z)	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
Freight-liner/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 or in Part C of Annex I to Regulation (EU) 2018/858: AC, AF, BB, CA, SA, SH

2. Test conditions

2.1. ECE 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. ECE 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 (ECE R14):

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

Seat bench make	Seat bench type	Mass of the heaviest configuration (seat + legs/base)	Fulfilling of requirements
MOBIFRAME	SAF07 in version SAF07	30 kg	See point 3.2.1.
MOBIFRAME	SAF07 in version SAF07-L	30 kg	See point 3.2.2.
MOBIFRAME	SAF07 in version SAF07-C	30 kg	See point 3.2.3.

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 SAF07 with adapter on fixation plate in the representative vehicle. Mass of the heaviest possible seat configuration covered by the test $m_s = 2 \times 15 \text{ kg}$.

Additional force was applied into the lap belt portion:
 $F_z = 20 \times m_s \times g \text{ (N)}$ as relevant for M1 vehicle category.

Seat bench SAF07	Left seat	Right seat
Safety belt	Ar	Ar
Upper belt anchorage	Seat structure	Seat structure
Lower belt anchorages	Seat structure	Seat structure
Mass of seat/seats	2 x 15 kg	
Required force in shoulder belt portion	13 500 ± 200 N	13 500 ± 200 N
Required force lab belt portion	16 500 ± 200 N	16 500 ± 200 N
Force in the shoulder belt	13 600 N / > 0,2 s	13 800 N / > 0,2 s
Force in the lap belt	16 800 N / > 0,2 s	17 000 N / > 0,2 s
Displacement of upper anchorage point of seat bench	248 mm	
Remark: Additional force is added to the lap belt portion. Upper anchorage points were in tolerance.		

3.2.2. Seat bench type SAF07-L mounted in Fiat Ducato vehicle body.

Mass of the heaviest possible seat configuration covered by the test $m_s = 2 \times 15 \text{ kg}$.

Additional force was applied into the lap belt portion:

$F_z = 20 \times m_s \times g \text{ (N)}$ as relevant for M1 vehicle category.

Seat bench SAF07-L	Left seat	Right seat
Safety belt	Ar	Ar
Upper belt anchorage	Seat structure	Seat structure
Lower belt anchorages	Seat structure	Seat structure
Mass of seat/seats	2 x 15 kg	
Required force in shoulder belt portion	13 500 ± 200 N	13 500 ± 200 N
Required force lab belt portion	16 500 ± 200 N	16 500 ± 200 N
Force in the shoulder belt	13 840 N / > 0,2 s	13 680 N / > 0,2 s
Force in the lap belt	16 680 N / > 0,2 s	16 700 N / > 0,2 s
Displacement of upper anchorage point of seat bench	212 mm	
Remark: Additional force is added to the lap belt portion. Upper anchorage points were in tolerance.		

3.2.3. Seat bench type SAF07-C with adapter mounted on rigid plate.

Mass of the heaviest possible seat configuration covered by the test $m_s = 2 \times 15 \text{ kg}$.

Additional force was applied into the lap belt portion:

$F_z = 20 \times m_s \times g \text{ (N)}$ as relevant for M1 vehicle category.

Seat bench SAF07-C	Left seat	Right seat
Safety belt	Ar	Ar
Upper belt anchorage	Seat structure	Seat structure
Lower belt anchorages	Seat structure	Seat structure
Mass of seat/seats	2 x 15 kg	
Required force in shoulder belt portion	13 500 ± 200 N	13 500 ± 200 N
Required force lab belt portion	16 500 ± 200 N	16 500 ± 200 N
Force in the shoulder belt	13 600 N / > 0,2 s	13 400 N / > 0,2 s
Force in the lap belt	17 000 N / > 0,2 s	16 900 N / > 0,2 s
Displacement of upper anchorage point of seat bench	193 mm	
Remark: Additional force is added to the lap belt portion. Upper anchorage points were in tolerance.		

3.2.4. Comparison of SAF07 with 2 seat positions (total mass 30 kg) and SAF07-L (total mass 30 kg) in terms of force moment exerted on the vehicle floor.

3.2.4.1. Presented calculation of force moments proves (see below), that SAF07-C, SAF07-L, and SAF07-S can be used in the same fixation solutions as SAF07 (for details see Information Document MOBIFRAME/03/2022-00), where total mass of the bench does not exceed 30 kg.

Upper anchorage height: 1,209 m
 Lower anchorage height: 0,585 m
 (inertia load is applied into the lap belt portion)

SAF07	Required force	Measured moment (left seat)	Measured moment (right seat)
Shoulder belt (upper anchorage)	13 500 N	8 160 Nm	8 160 Nm
Lap belt (lower anchorage)	16 500 N	13 601 Nm	13 601 Nm
SUM		21 761 Nm	21 761 Nm
SUM of seat bench		43 522 Nm	

Upper anchorage height: 1,152 m
 Lower anchorage height: 0,426 m
 (inertia load is applied into the lap belt portion)

SAF07-L	Required force	Measured moment (left seat)	Measured moment (right seat)
Shoulder belt (upper anchorage)	13 500 N	7 776 Nm	7 776 Nm
Lap belt (lower anchorage)	16 500 N	9 904 Nm	9 904 Nm
SUM		17 680 Nm	17 680 Nm
SUM of seat bench		35 360 Nm	

Due to the position of the anchorage points at the seat benches, the moment calculation showed that during the test, higher moments than required were achieved. Therefore fixation solution for seat bench type SAF07 can be used for another versions of seat benches type SAF07-C, SAF07-L, and SAF07-S.

3.3. Test procedures used (ECE R145):

Test of seat bench type SAF07 - strength of ISOFIX and Top-tether anchorages according to ECE R 145.00

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).

Seat bench make	Name	Vehicle category	Direction of test forces	Fulfilling of requirements
MOBIFRAME	SAF07 with TOP TETHER	M1, N1, M2, N2	Forward	See point 3.3.1.
	SAF07 without TOP TETHER	M1, N1 M2, N2	Forward	See point 3.3.2.
	SAF07 without TOP TETHER	M1, N1 M2, N2	Oblique	See point 3.3.3.

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.

In case of special purpose M1 vehicle (motor-caravan) converted from N1 or N2 base vehicle, according to Commission Regulation 2018/858 and Directive 2007/46, ISOFIX and top tether anchorages are only optional (therefore, no ISOFIX or only lower ISOFIX anchorage points are acceptable).

3.3.1. Seat bench Type SAF07 (2 seat positions) - ISOFIX with Top Tether – forward direction

Seat bench	SAF07 (left seat)	SAF07 (right seat)
Required force	8 000 N $\pm$ 250 N	8 000 N $\pm$ 250 N
Max. measured force	8 000 N	8 000 N
Displacement of X point SFAD device (max 125 mm)	52 mm	54 mm
Result	Without failure	Without failure
Where was applied additional force	SFAD device	

3.3.2. Seat bench Type SAF07 (2 seat positions)
 ISOFIX without Top Tether – forward direction

Seat bench	SAF07 (left seat)	SAF07 (right seat)
Required force	8 000 N $\pm$ 250 N	8 000 N $\pm$ 250 N
Max. measured force	8 100 N	8 100 N
Displacement of X point SFAD device (max 125 mm)	63 mm	64 mm
Result	Without failure	Without failure
Where was applied additional force	SFAD device	

3.3.3. Seat bench Type SAF07 (2 seat positions)
 ISOFIX without Top Tether – Oblique direction

Seat bench	SAF07 (left seat)	SAF07 (right seat)
Required force	5 000 N $\pm$ 250 N	5 000 N $\pm$ 250 N
Max. measured force	5 000 N	4 850 N
Displacement of X point SFAD device (max 125 mm)	93 mm	98 mm
Result	Without failure	Without failure
Where was applied additional force	SFAD device	

3.4. Final assessment:

Presented test results prove, that seat benches SAFO7 in different versions meet the requirements of ECE Regulation 14-09 and 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/03/2022-00).

Test report No.:
 Manufacturer:
 Type:

22-00049-CP-PRG-00
 OKB Sp. z o.o., Poland
 SAF07

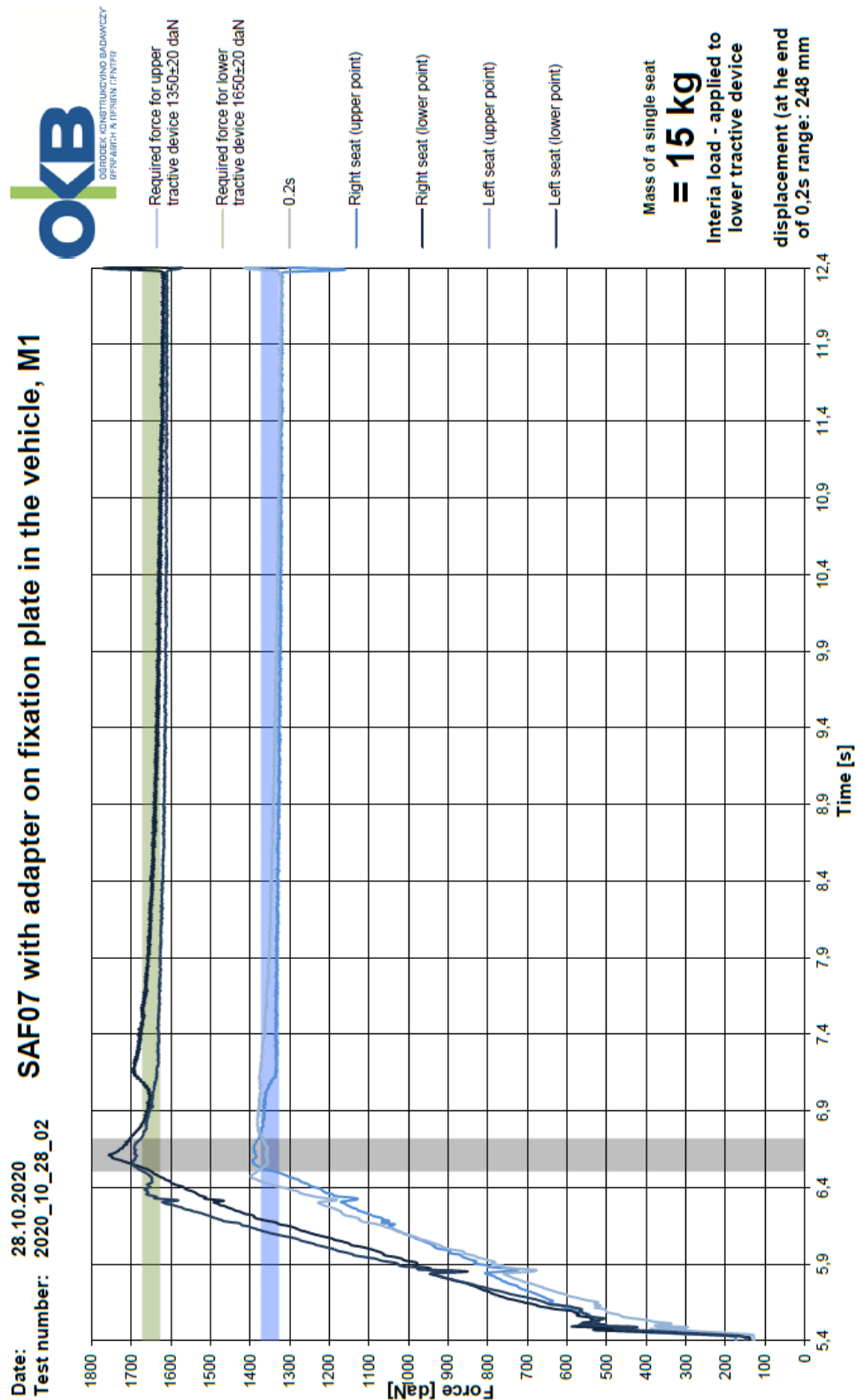


Auto Service

3.5. Test records

3.5.1. Graphs:

3.2.1. Seat bench type SAF07 with adapter – Left, Right seat in the representative vehicle



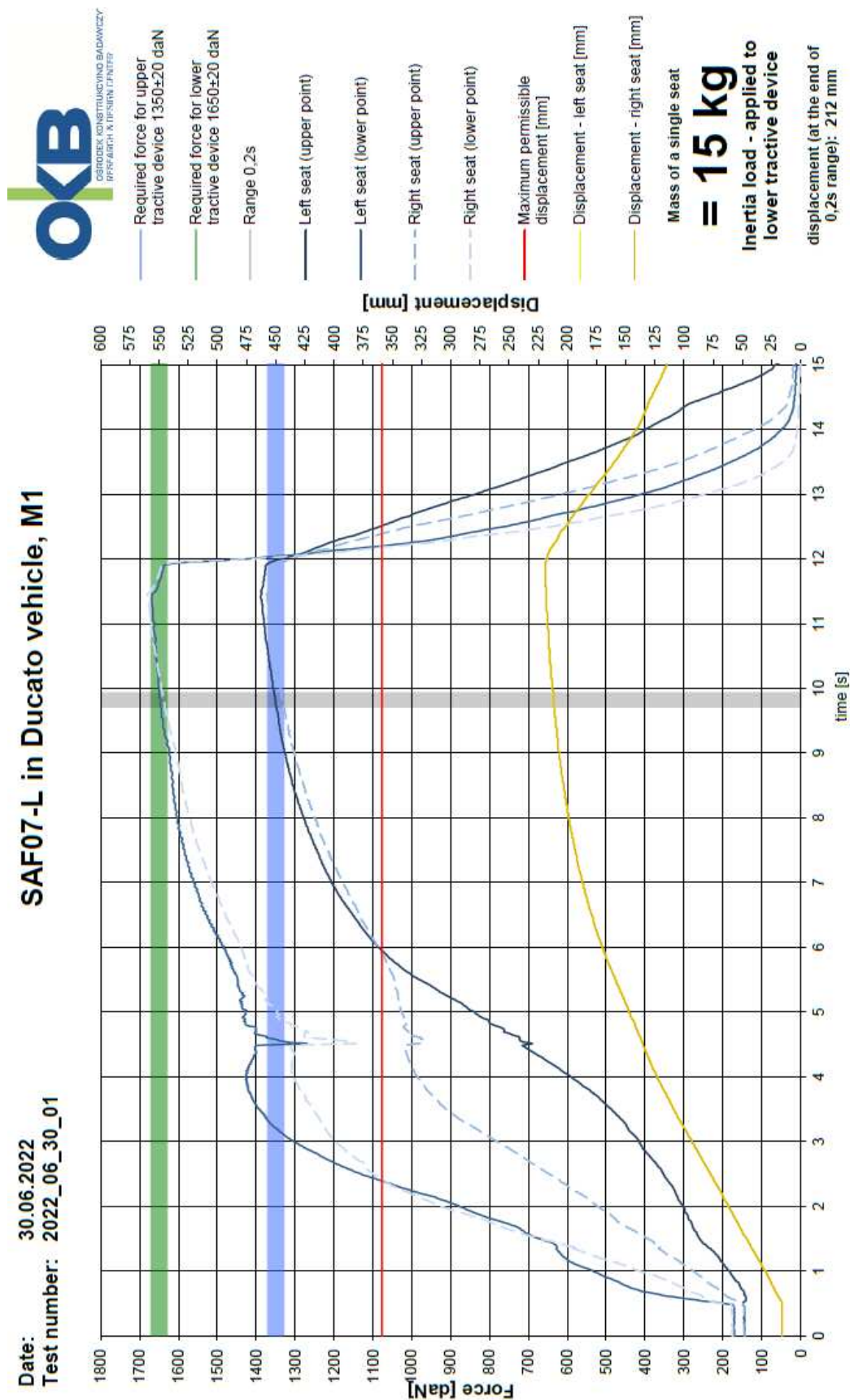
Test report No.:
 Manufacturer:
 Type:

22-00049-CP-PRG-00
 OKB Sp. z o.o., Poland
 SAF07

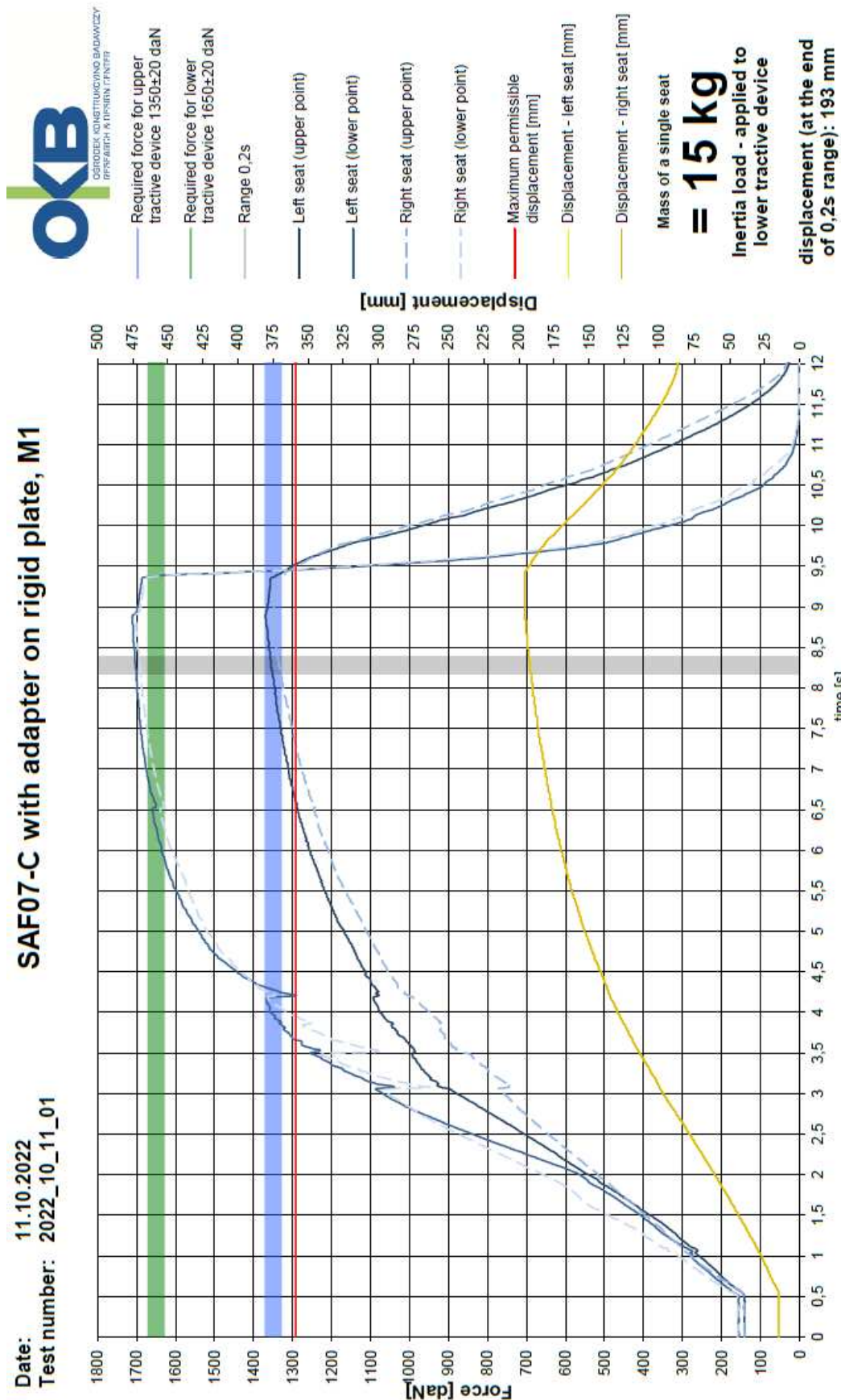


Auto Service

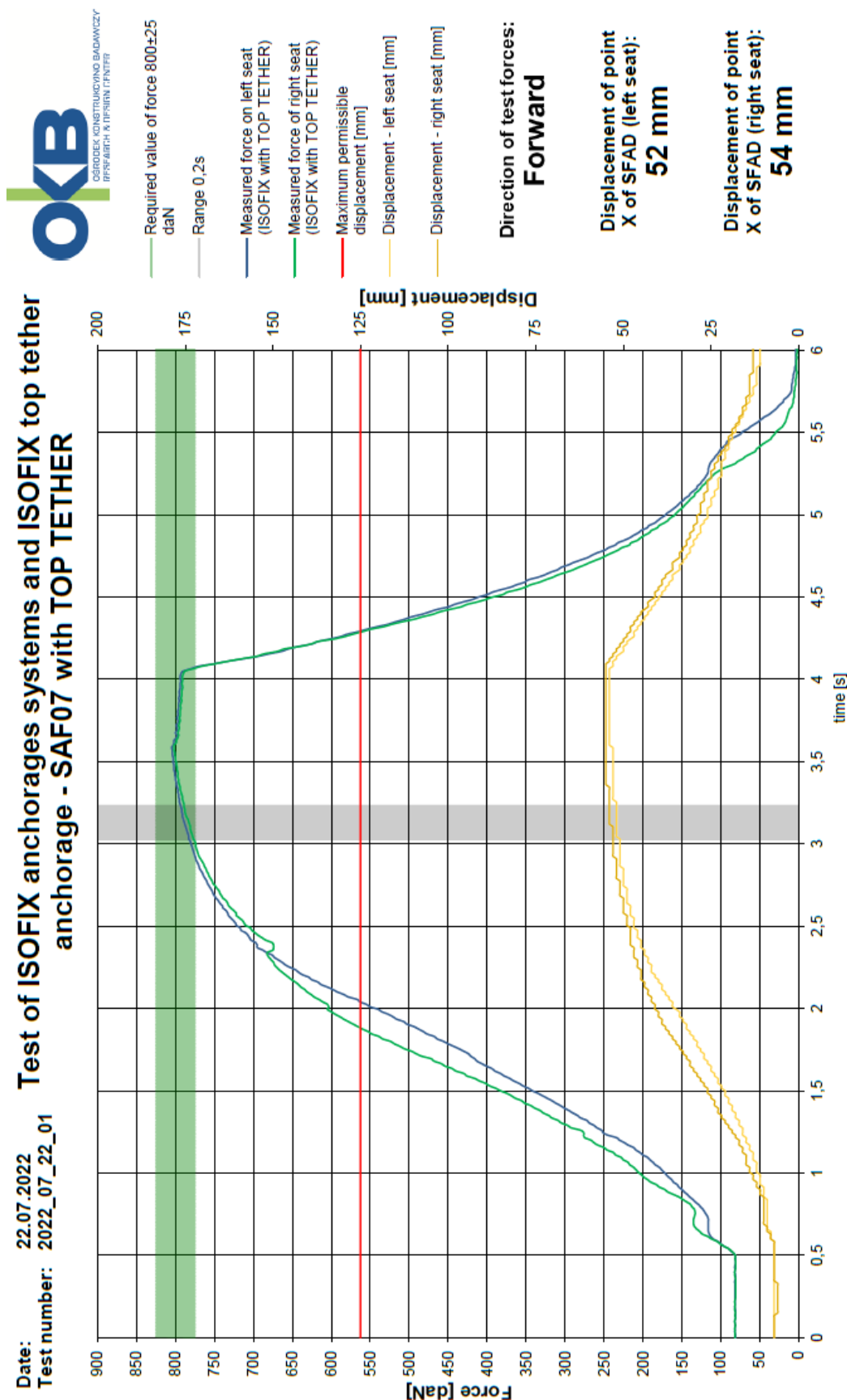
3.2.2. Seat bench type SAF07-L mounted on Fiat Ducato vehicle body – Left , Right seat



3.2.3. Seat bench type SAF07-C with adapter on rigid plate



3.3.1. Seat bench type SAF07 – ISOFIX with TOP TETHER – forward direction



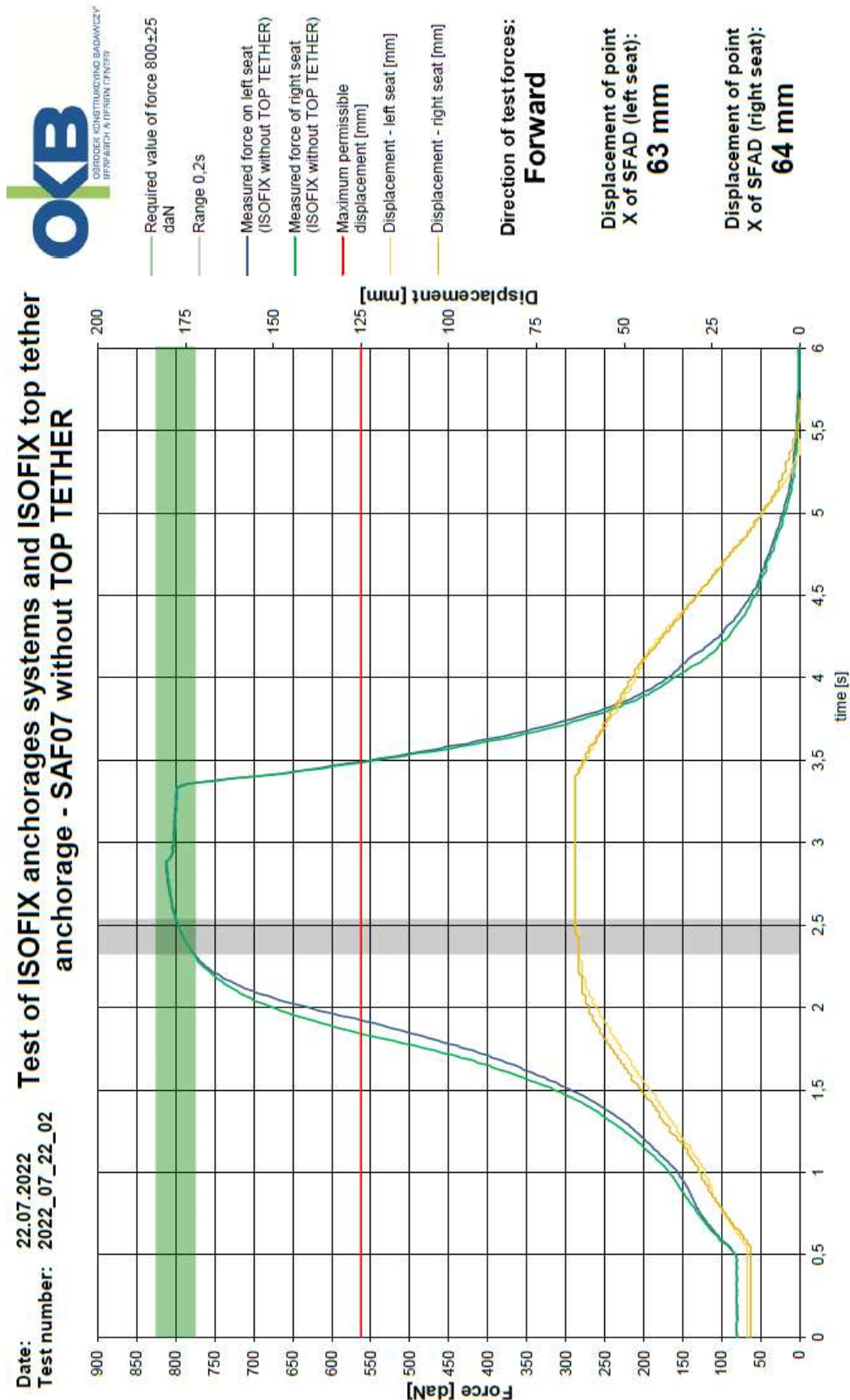
Test report No.:
 Manufacturer:
 Type:

22-00049-CP-PRG-00
 OKB Sp. z o.o., Poland
 SAF07

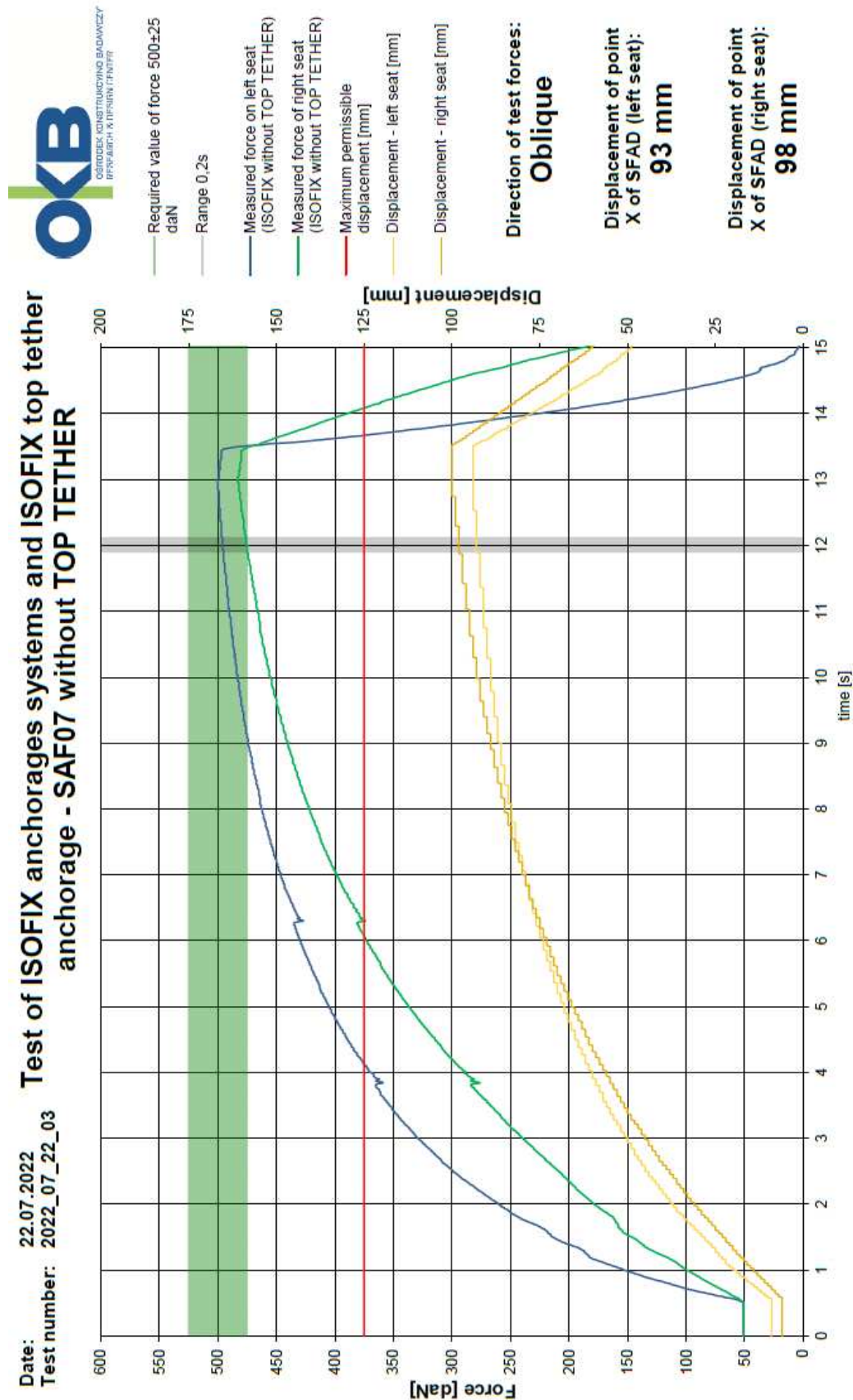


Auto Service

3.3.2. Seat bench type SAF07 – ISOFIX without TOP TETHER – forward direction



3.3.3. Seat bench type SAF07 - ISOFIX without TOP TETHER – oblique direction

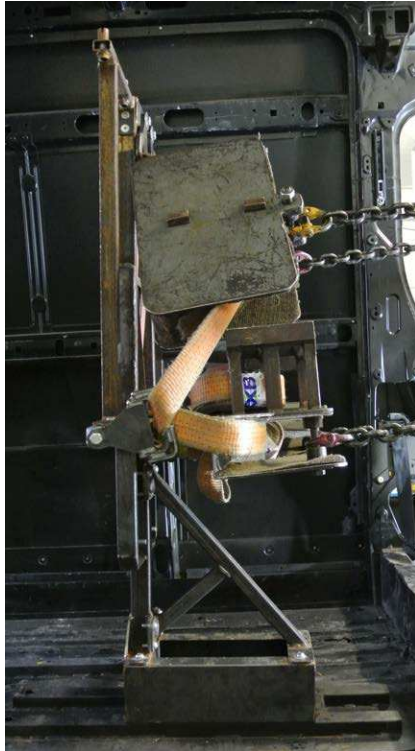


3.5.2. Photos

Forward facing seat

3.2.1. - Seat bench type SAF07 with adapter in the representative vehicle – Left, Right seat

Before test



After test



3.2.2. Seat bench type SAF07-L mounted on Fiat Ducato vehicle body – Left, Right seat

Before test



After test



3.2.3. Seat bench type SAF07-C with adapter on rigid plate

Before test



After test



3.3.1. Seat bench type SAF07 - ISOFIX with TOP TETHER– forward direction

Before test



After test



3.3.2. Seat bench type SAF07 - ISOFIX without TOP TETHER– forward direction

Before test



After test



3.3.3. Seat bench type SAF07 - ISOFIX without TOP TETHER– Oblique direction

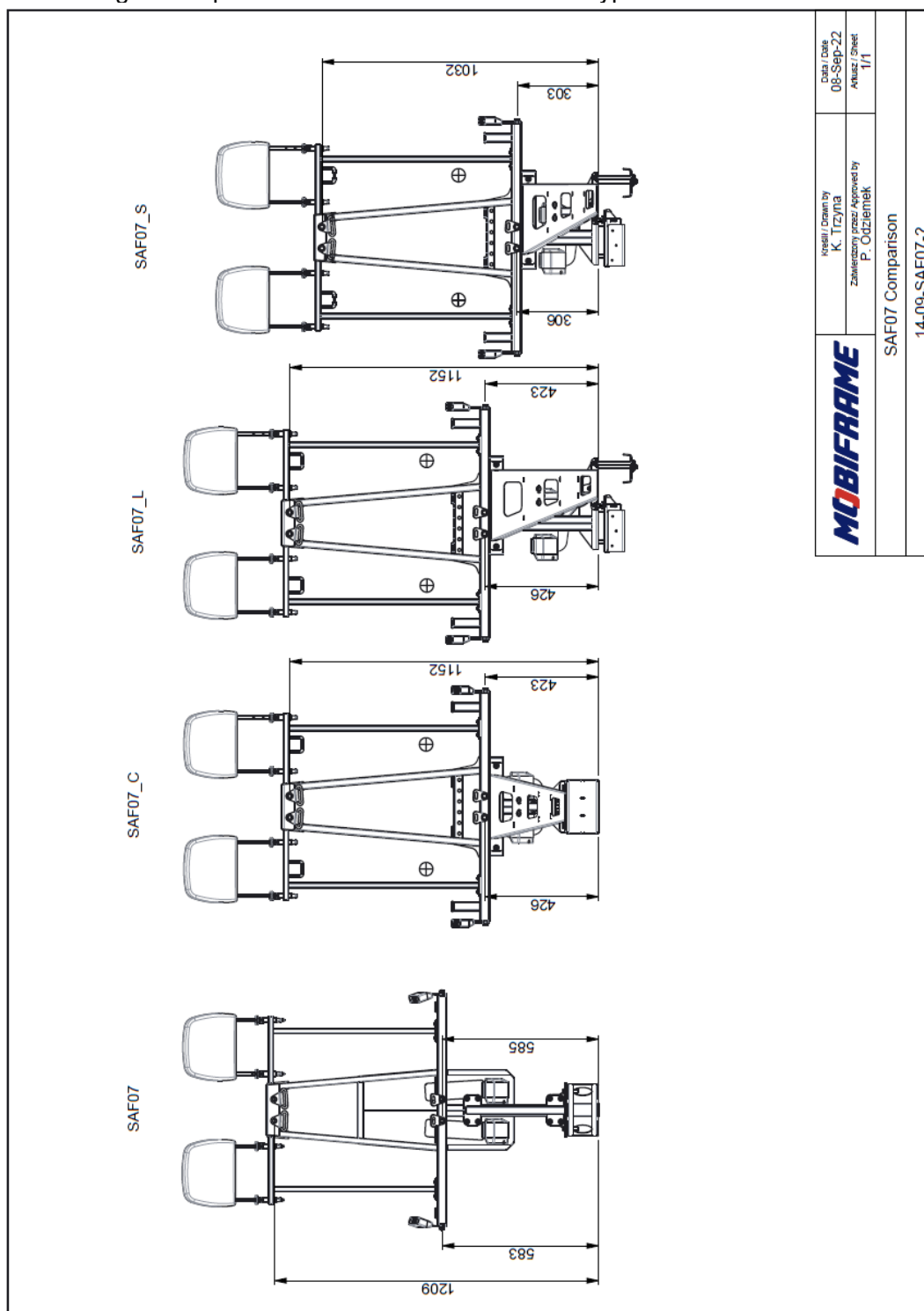
Before test



After test



3.5.3. Drawing – Comparison between seat benches type SAF07



4. Place and date of testing

As before and 22.09.2022

OKB Laboratory, Bukowiec, Poland

INFORMATION FOLDER / DOCUMENT:
MOBIFRAME/03/2022-00

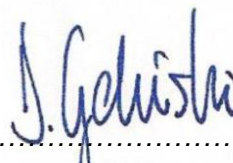
PURSUANT TO UN/ECE REGULATIONS

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

and

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 *SAF07*



.....
Damian Goliński
Vice President

Total number of pages: 58
Date of issue: 11.10.2022



		Date: 11.10.2022
	MOBIFRAME/03/2022-00	Page / pages: 1/58

List of documentation and supplements

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1. General construction characteristics of the vehicle	4
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List of enclosures

Table of vehicles types	Enclosure 1
Methods of seats fixation to the vehicle	Enclosure 2
Drawings of seats and components	Enclosure 3
Adhesives for Fixation Plate	Enclosure 4



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: 11th October 2022



Damian Goliński
Vice President



0. GENERAL

0.1 Make (trade name of manufacturer): MOBIFRAME

0.2 Type: SAF07

Version:

SAF07 – version with symmetrical leg and with/without adapter and fixation plate (dedicated for vehicles from table presented in Enclosure 1)

SAF07-C – version with symmetrical leg and with/without adapter and fixation plate (dedicated for vehicles from table presented in Enclosure 1)

SAF07-L – version with asymmetrical high leg (dedicated for Fiat Ducato/ Peugeot Boxer/ Citroen Jumper/ Opel Movano/ RAM ProMaster)

SAF07-S – version with asymmetrical low leg (dedicated for Fiat Ducato/ Peugeot Boxer/ Citroen Jumper/ Opel Movano/ RAM ProMaster)

0.2.1 Commercial name(s) (if available): SAF07

0.2.2 Dedicated for vehicle(s): See Enclosure 1

0.3 Means of identification of type: N/A

0.3.1 Location of that marking: N/A

0.4 Category of vehicle: M1, N1, M2, N2

0.5 Name and address of manufacturer: OKB SP. Z O.O.
ul. Szkolna 9
95-006 Bukowiec
Poland

1. GENERAL CONSTRUCTION CHARACTERISTICS OF THE VEHICLE

1.1 Photographs and/or drawings of a representative vehicle: See 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, CA, SA, SH
9.10	Interior arrangement	
9.10.3	Seats	
9.10.3.1	Number of seating positions:	2
9.10.3.1.1	Location and arrangement:	In case of fixation by means of Fixation Plate - any position in the vehicle behind pillar B (see Enclosure 2) In case of fixation by means of dedicated underfloor reinforcements – pre-defined position (see Enclosure 2)
9.10.3.2	Seat(s) designated for use only when the vehicle is stationary:	N/A
9.10.3.3	Mass:	SAF07, SAF07-C, SAF07-L, SAF07-S – 30 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 Enclosure 2, Enclosure 3
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 Enclosure 3
9.10.3.4.5	The parts of the vehicle used as anchorages:	See Enclosure 2
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 Enclosure 3
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
9.13	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): 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	N/A	N/A

Other rows of seats			Anchorage location	
			Vehicle structure	Seat structure
Left-hand seat	Lower anchorages	outboard	--	Ar
		inboard	--	Ar
	Upper anchorages		--	Ar
Right-hand seat	Lower anchorages	outboard	--	Ar
		inboard	--	Ar
	Upper anchorages		--	Ar

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 ISOFIX is optional for bodywork types: BB, CA, SA, SH

9.13.5.1 Number:

9.13.5.1.1 Of the low ISOFIX anchorages See Enclosure 3

9.13.5.1.2 Of the ISOFIX top tether anchorages See Enclosure 3

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 Enclosure 2 and 3

9.13.5.4 Drawing and/or photographs of the ISOFIX anchorages systems, of the ISOFIX top tether anchorages See Enclosure 3



9.13.5.5 Drawing and/or photographs of the See Enclosures
position and the form of the symbols
of the ISOFIX anchorages system, if
necessary



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Enclosure 1: TABLE OF VEHICLES TYPES

Manufacturer	Commercial description / Type or model designation	Wheelbase
Daimler / Mercedes-Benz	Sprinter, e-Sprinter (906, 907)	3250, 3665, 4325
	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, 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



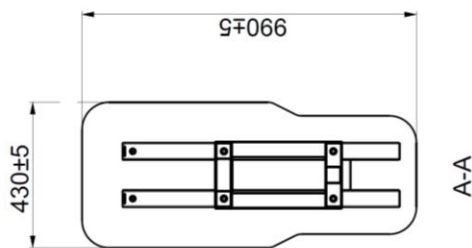
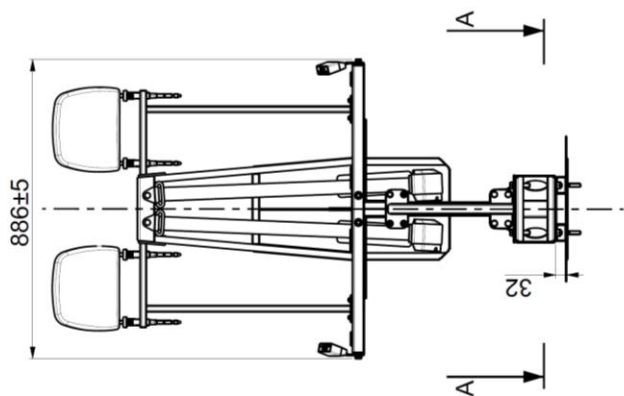
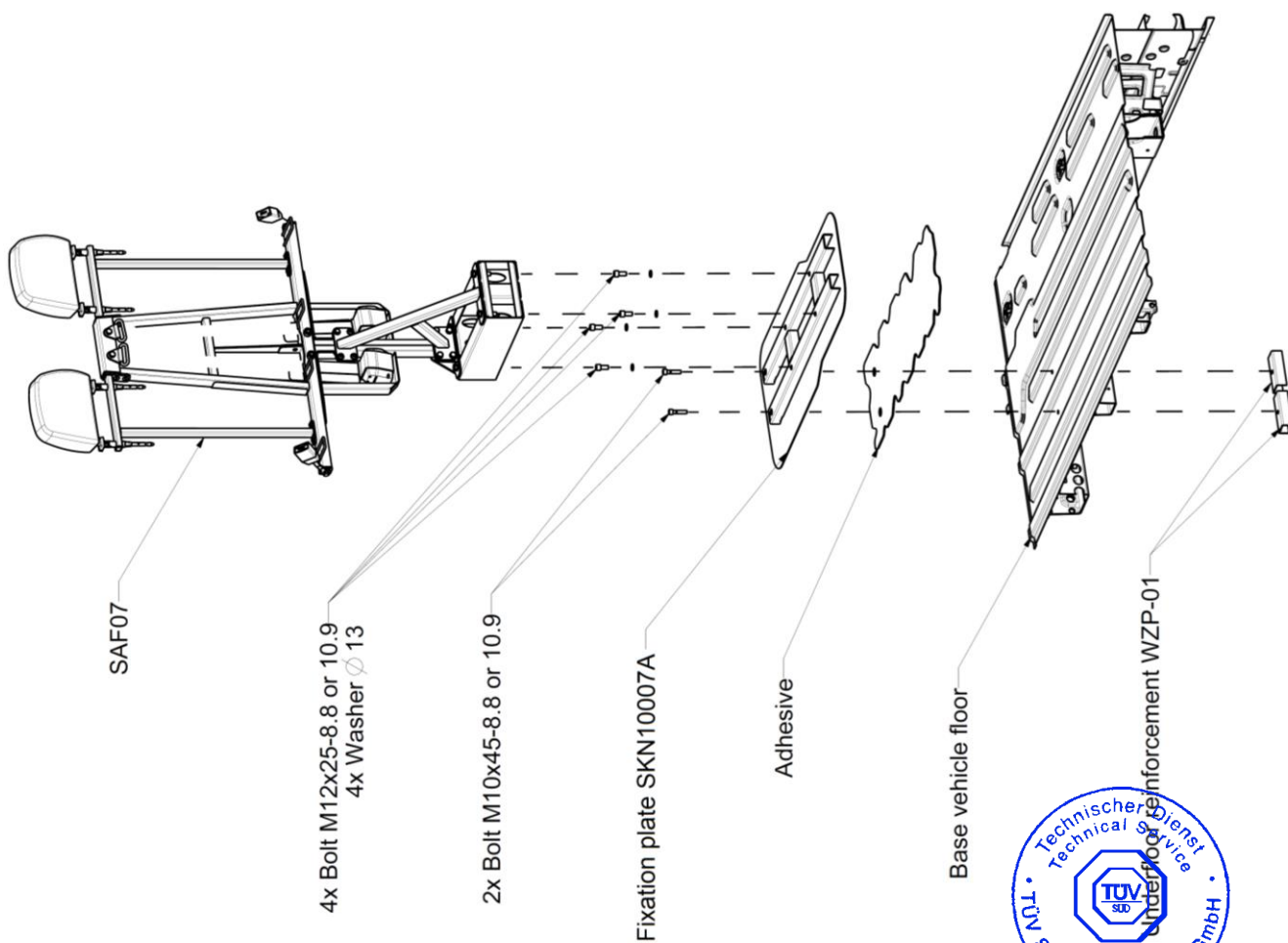
Enclosure 2: METHODS OF SEATS FIXATION TO THE VEHICLE

2.1 Fixation of double seat bench by means of Fixation Plate – dedicated for all vehicles presented in Enclosure 1

SAF07:

(see next pages)

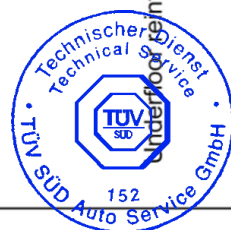


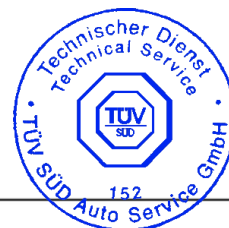
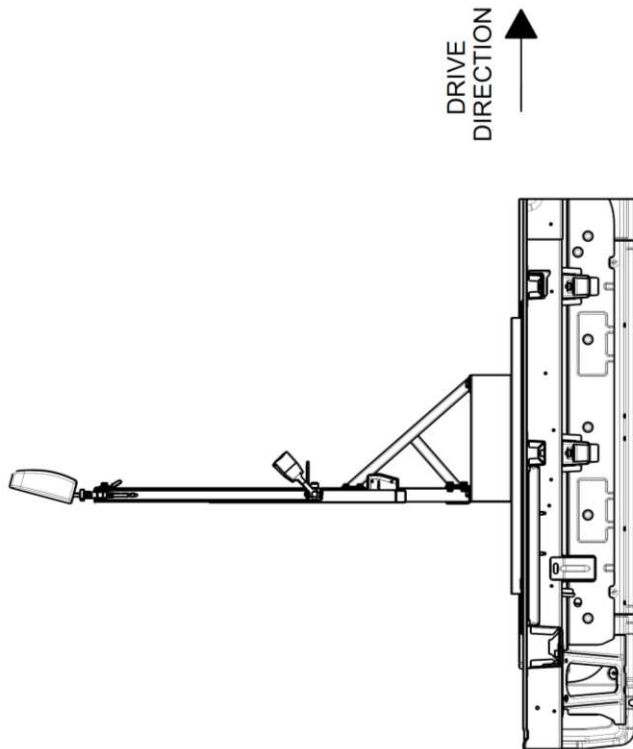
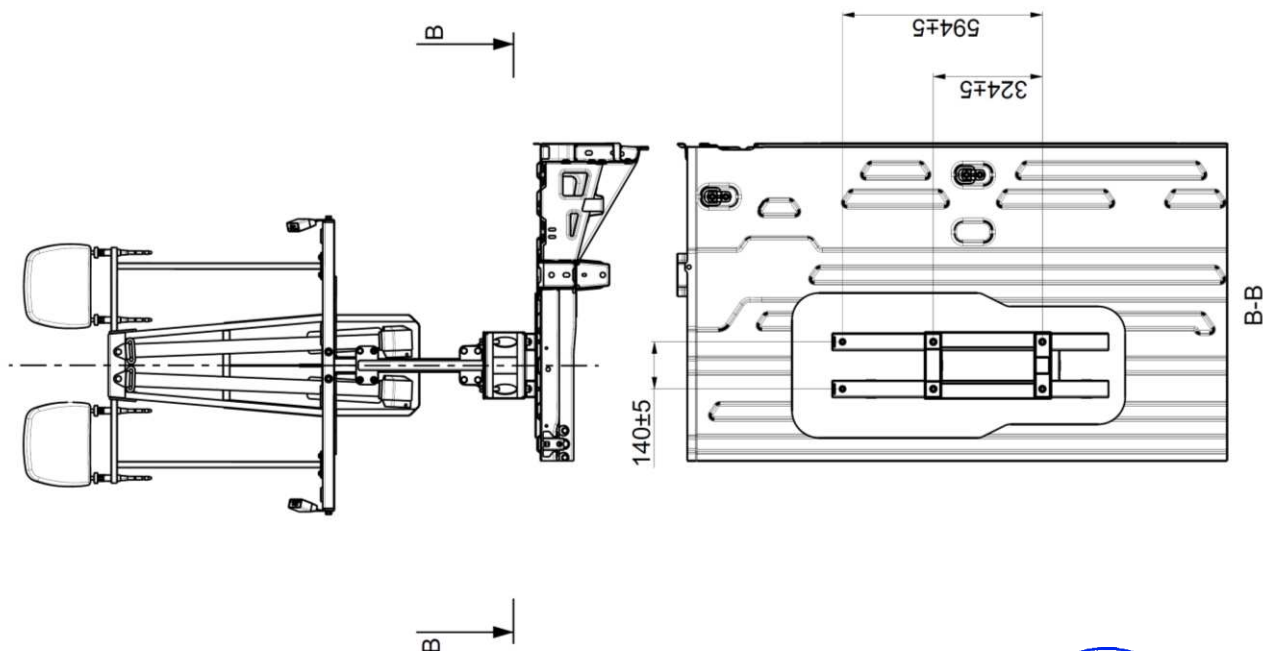


Zaprojektowany przez / Designed by K. Trzyna	Sprawdzony przez / Checked by P. Ouzimek	Zatwierdzony przez / Approved by M. Jankowski
Fixation of SAF07 on Fixation plate PM-SAF07-01 to the vehicle VW Crafter		
Date / Data 27-Nov-20		
Arkusz / Sheet 1/3		

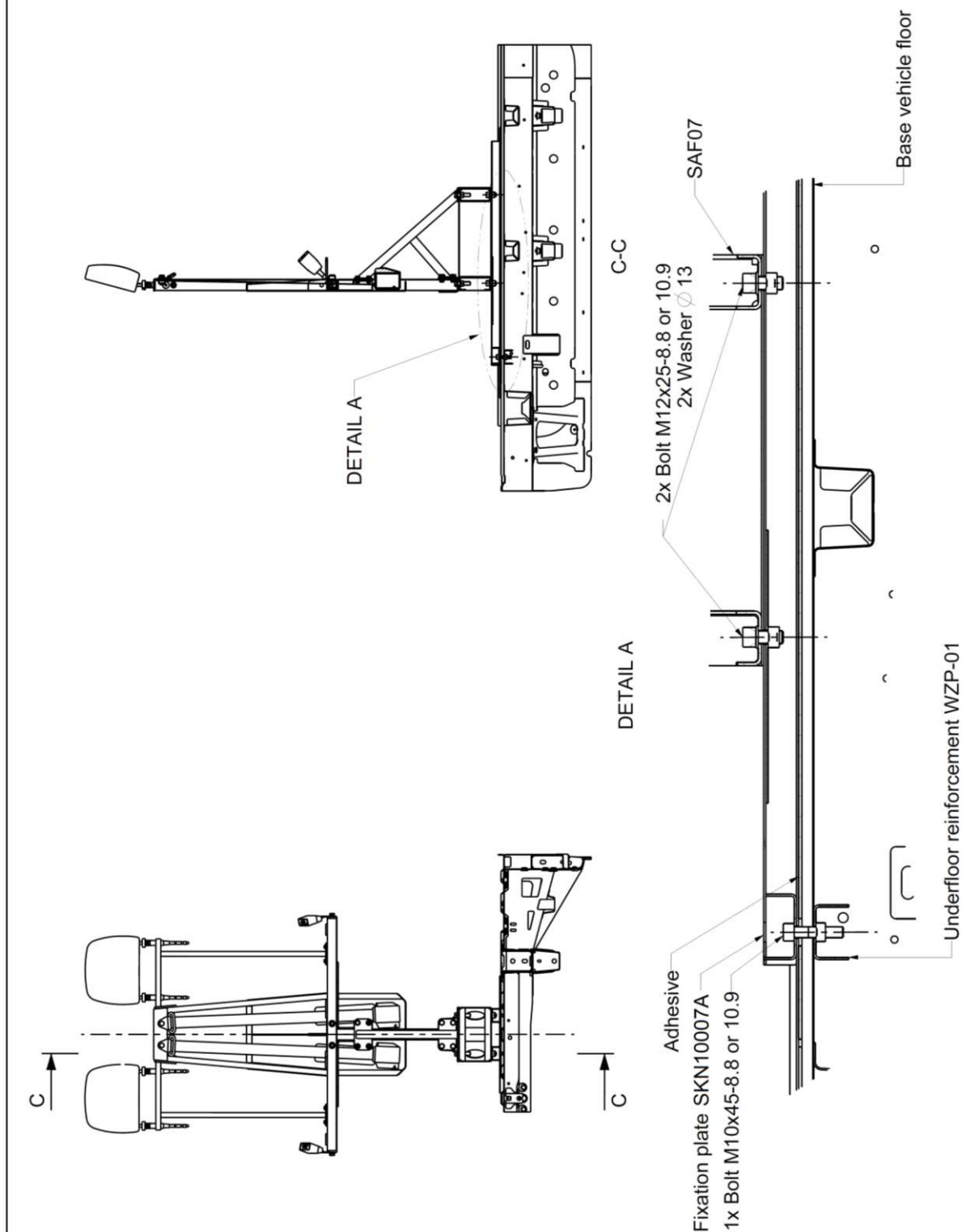
MOBIFRAME

ASM10007A





Zaprojektowany przez / Designed by K. Trzyna	Suplementy przez / Checked by P. Odrzemek	Zatwierdzony przez / Approved by M. Jankowski
Fixation of SAF07 on Fixation plate PM-SAF07-01 to the vehicle VW Crafter		
Date / Data 27-Nov-20		
Arkus / Sheet 2/3		
ASM10007A		



Zaprojektował / Projektant
M. Jankowski

Sprawdzał / Check by
P. Odrzemek

Zaprojektował / Projektant
K. Trzyna

Data / Date
27-Nov-20

Fixation of SAF07 on Fixation plate
PM-SAF07-01 to the vehicle VW Crafter

MOBIFRAME

Aktualiz / Detail
3/3

ASM10007A

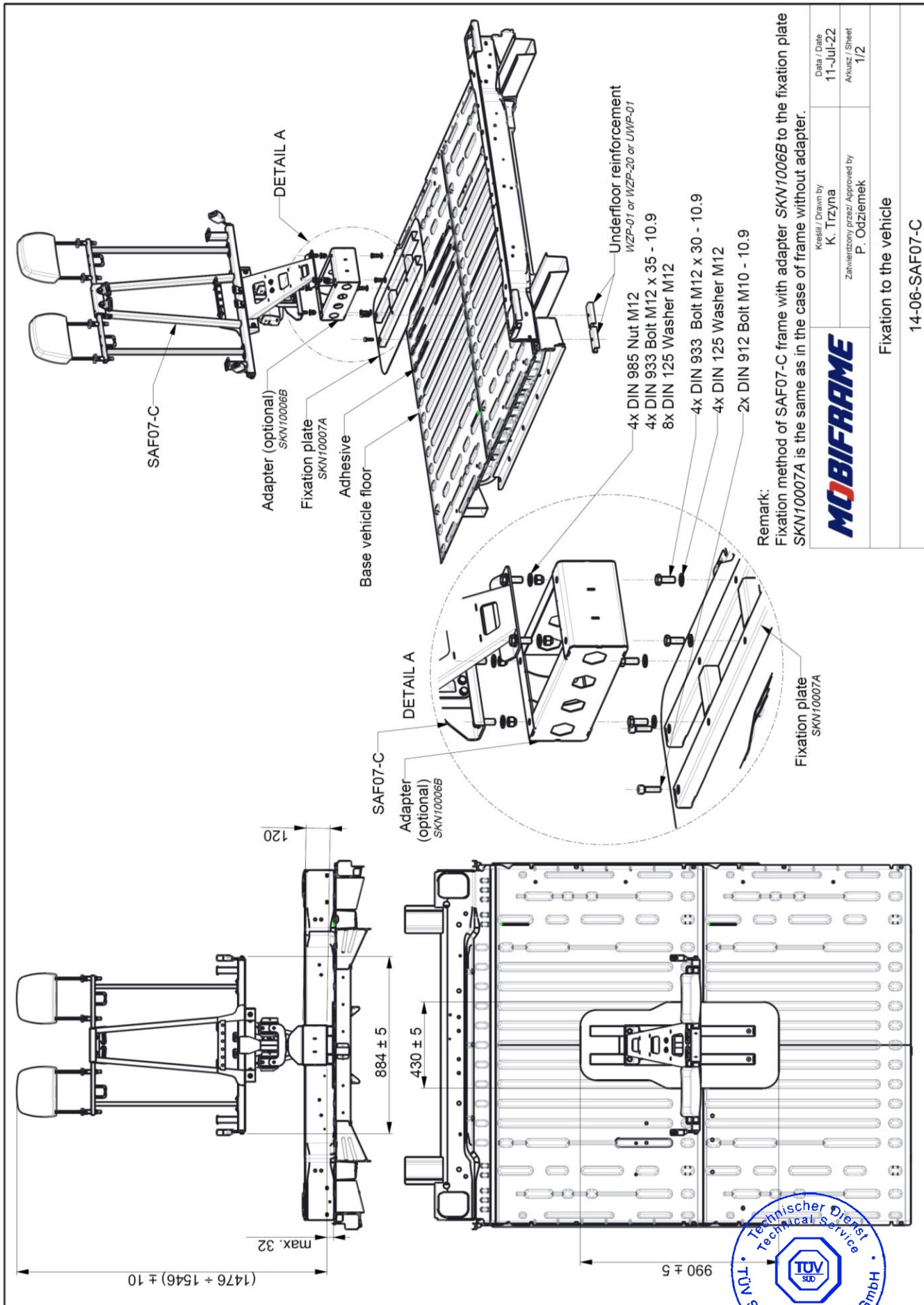


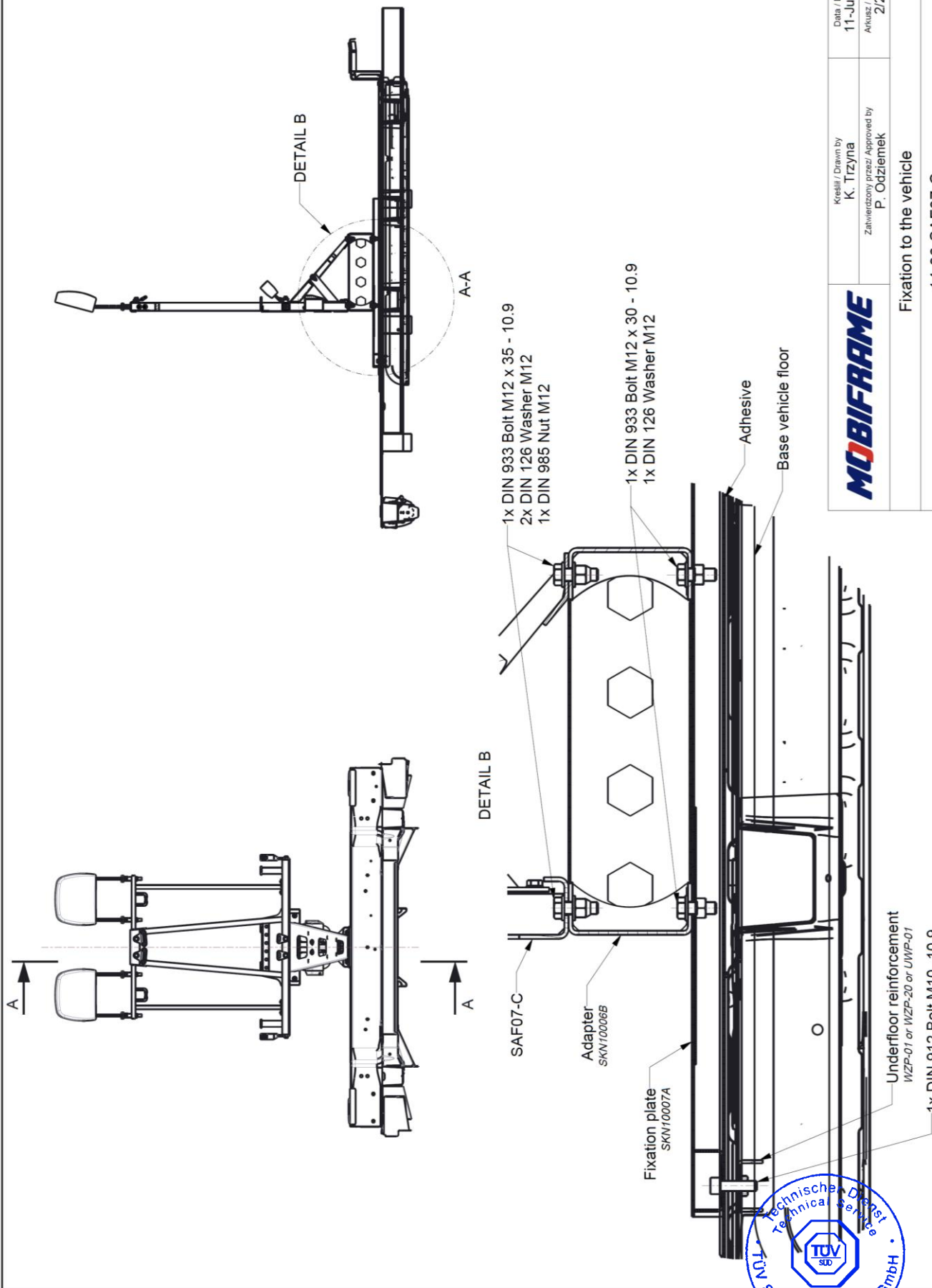
SAF07-C:

(see next pages)

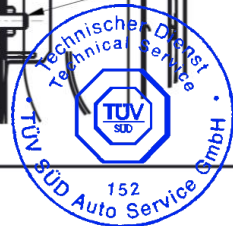


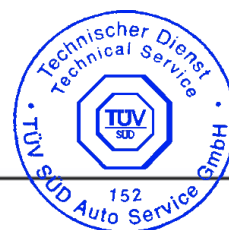
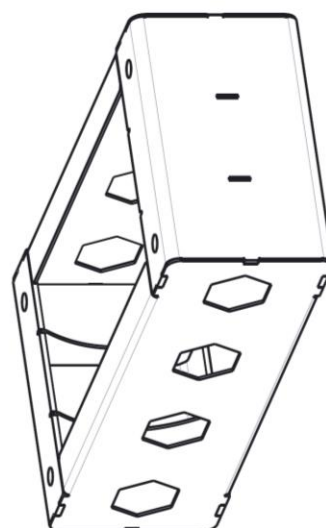
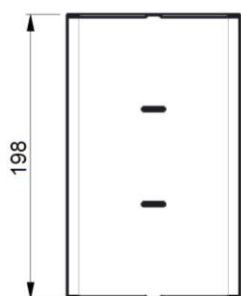
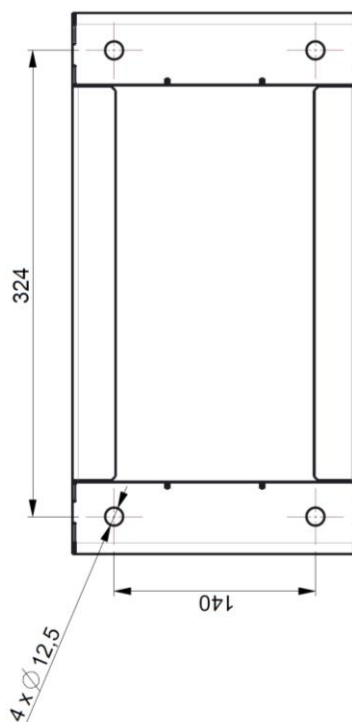
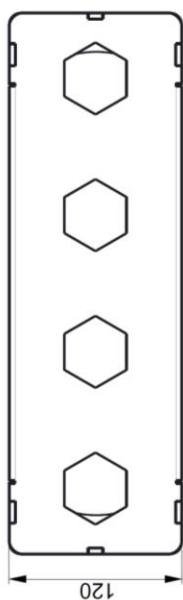
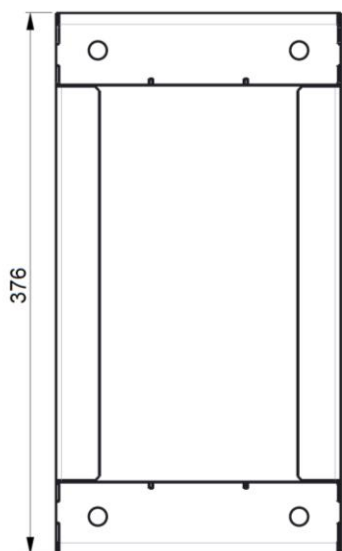
		Date: 11.10.2022
	MOBIFRAME/03/2022-00	Page / pages: 14/58





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	Zatwierdzony przez / Approved by P. Oczemek	Arkusz / Sheet 2/2
Fixation to the vehicle		
14-06-SAF07-C		





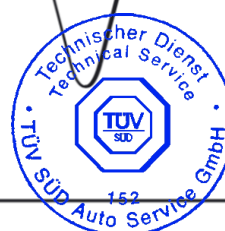
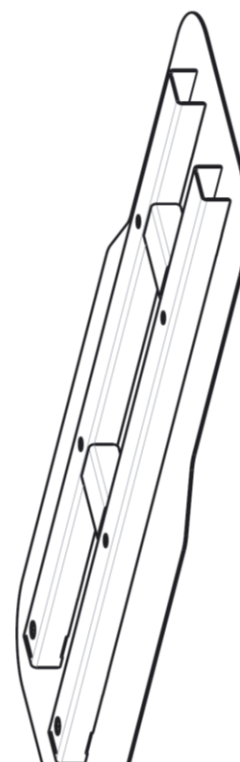
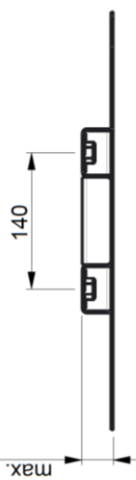
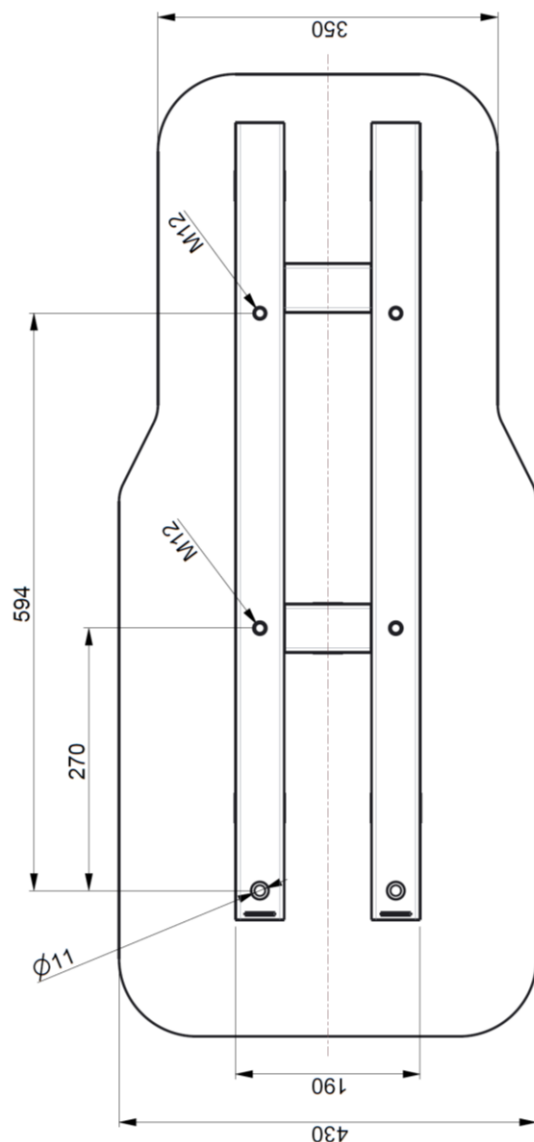
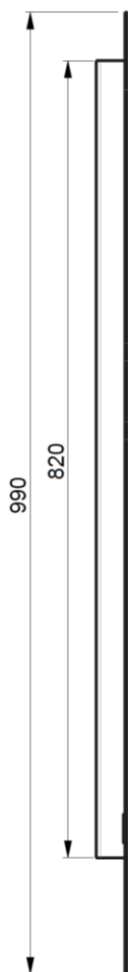
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	Zatwierdził przez / Approved by P. Odziemek	Arkusz / Sheet 1/1
Adapter		
SKN10006B		

SAF07 and SAF07-C fixation components:

(see next pages)



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MOBIFRAME

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K. Trzyna

Zatwierdził przez / Approved by
P. Odziemek

Data / Date
19-Jul-22
Arkusz / Sheet
1/1

Fixation plate

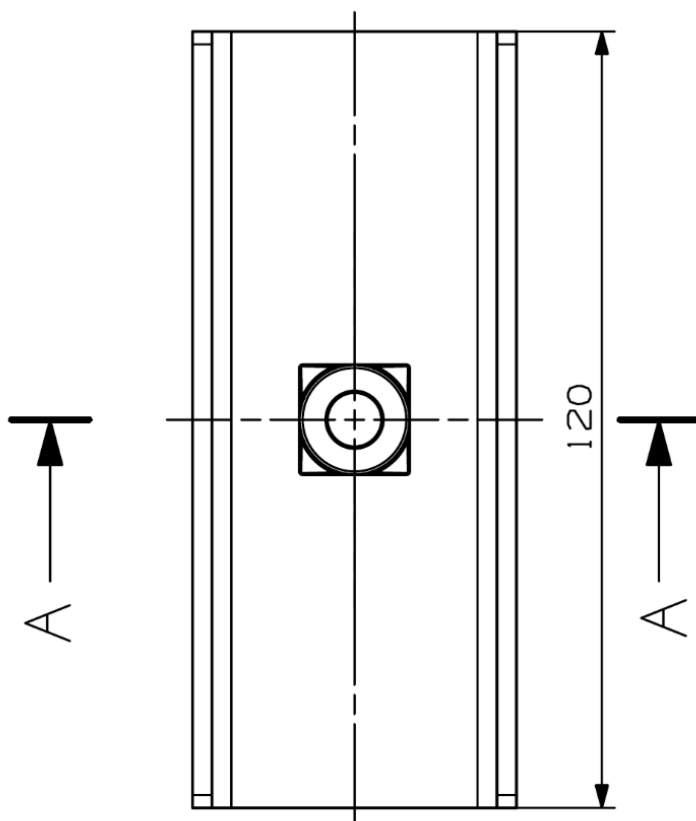
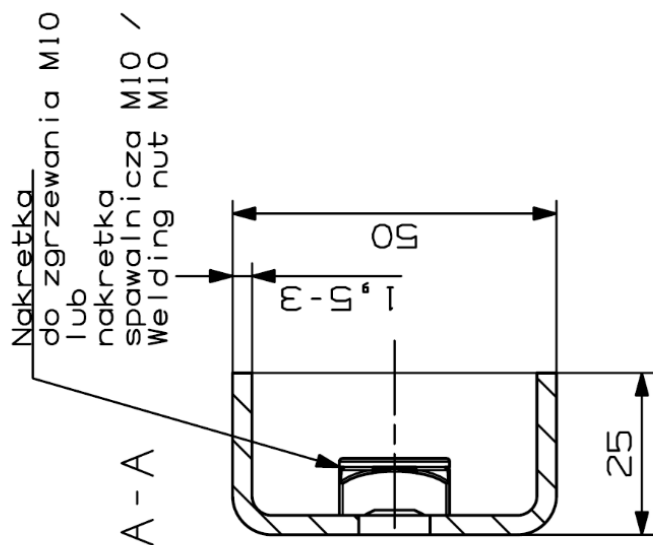
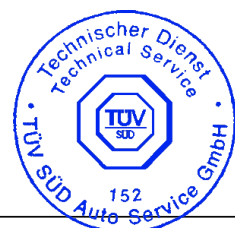
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MOBIFRAME/03/2022-00

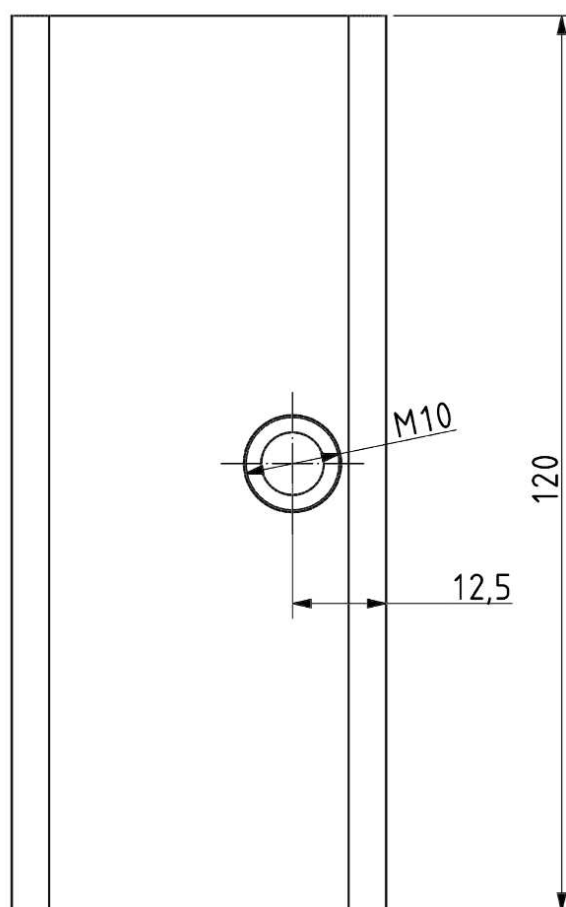
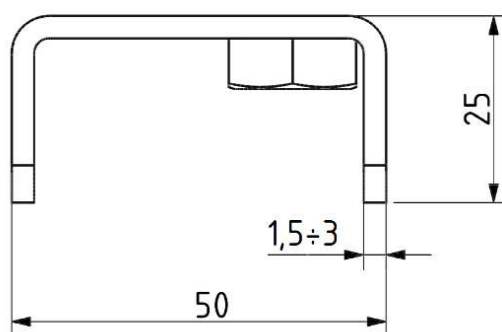
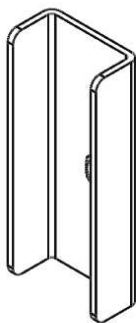
Date: 11.10.2022

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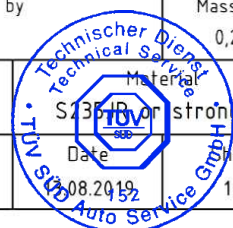


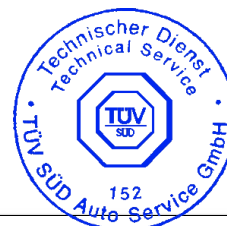
Zaprojektował P. Odziemek	Sprawił L. Walczak	Zatwierdził M. Jankowski	Data 18.05.2020	Masa —
Nazwa Wzmocnienie podłogowe 01				
Underfloor reinforcement 01				
Numer rys. WZP-01			Material S235 or stronger	Arkusz 1 / 1



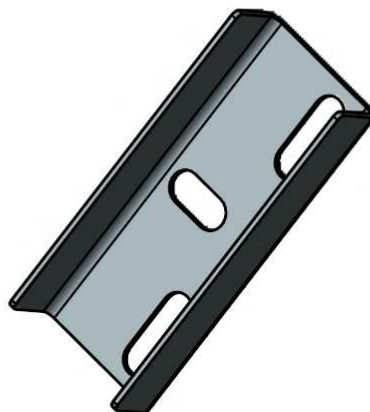
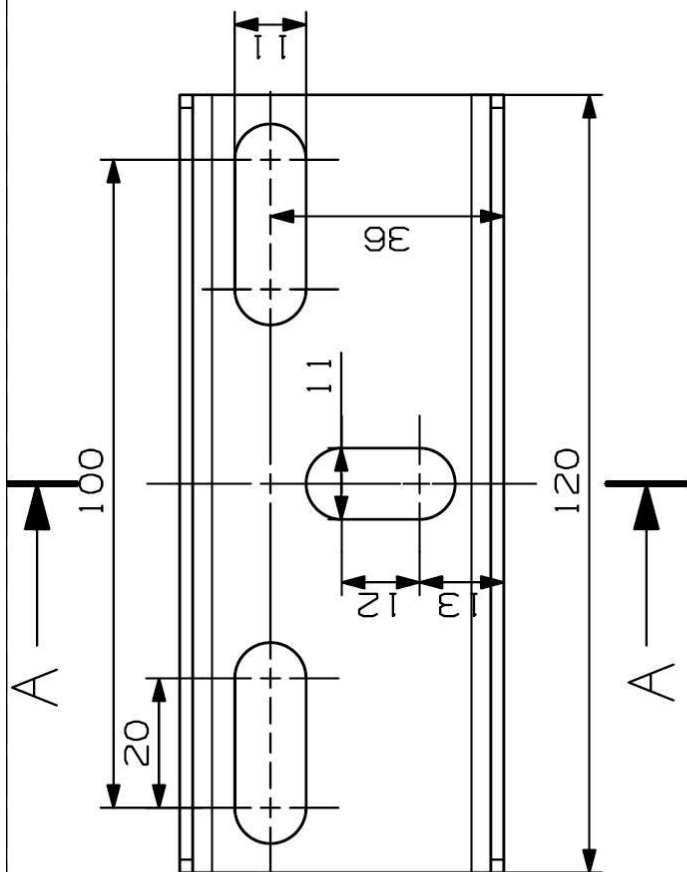


Tolerance class according to DIN 7168		0,5 - 3	3 - 6	6 - 30	30 - 120	120 - 400	400 - 1000	1000 - 2000	2000 - 4000	>4000
m	Medium	±0,1	±0,1	±0,2	±0,3	±0,5	±0,8	±1,2	±2	±3
Designed by P.D			Checked by			Approved by			Mass [kg] 0,265	
		Underfloor reinforcement						Material S235JR or stronger		
		WZP-20						Date 08.2019 Sheet 1/1		





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

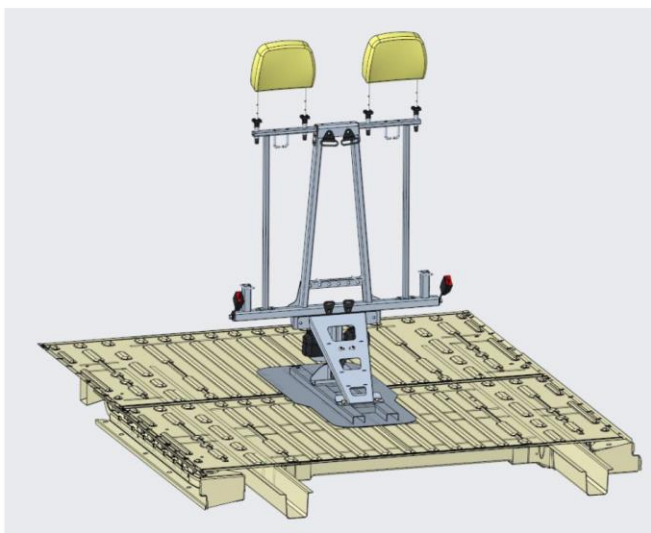
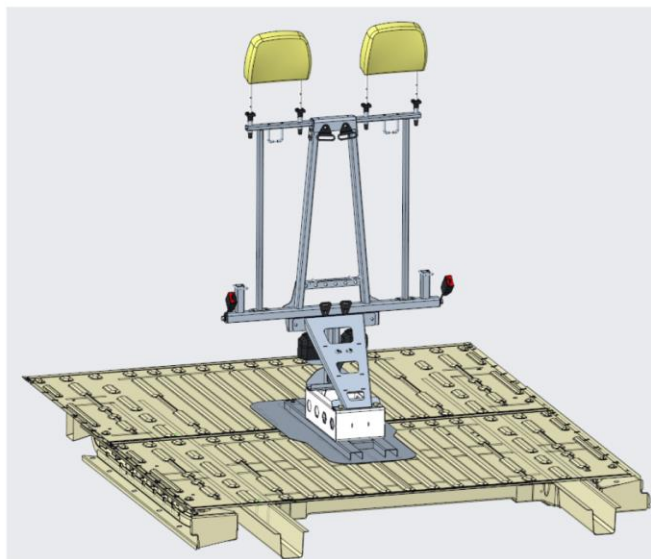
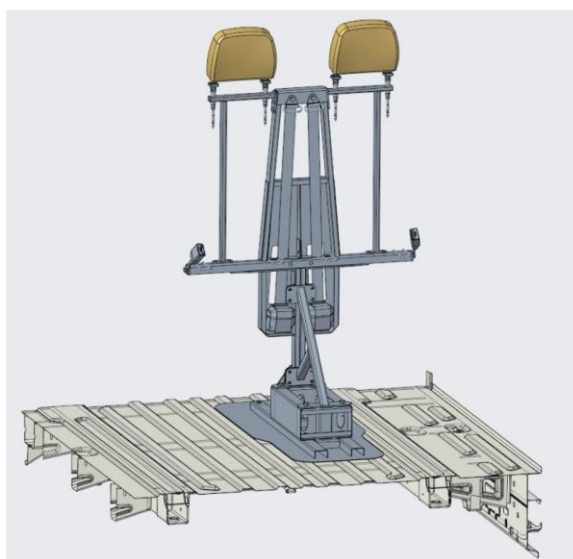


Zaprojektował P. Odziejewski	Sprawdził L. Walczak	Zatwierdził M. Jankowski	Data 08.09.2020	Masa —
Nazwa Uniwersalne wzmocnienie podpodłogowe				
Numer rys. UWP-01			Materiał S235 or stronger	Arkusz 1 / 1



Installation guide:

Fixation of SAF07 and SAF07-C to the vehicle floor



Step 1. Preparation of the vehicle body and fixation plate

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 fixation plate.



Step 2. Primmering

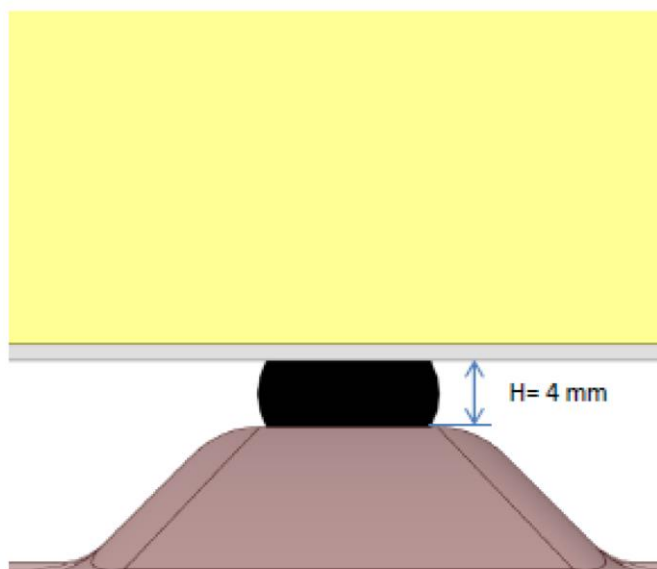
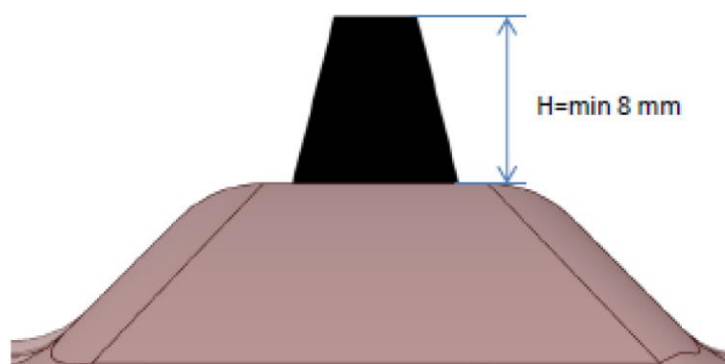
Apply Betaprime on the vehicle's floor and also on bottom side of the fixation plate. Primer can be applied with a brush or roller. Contact surfaces (of vehicle floor and fixation plate) must be covered by Betaprime.



Step 3. Gluing

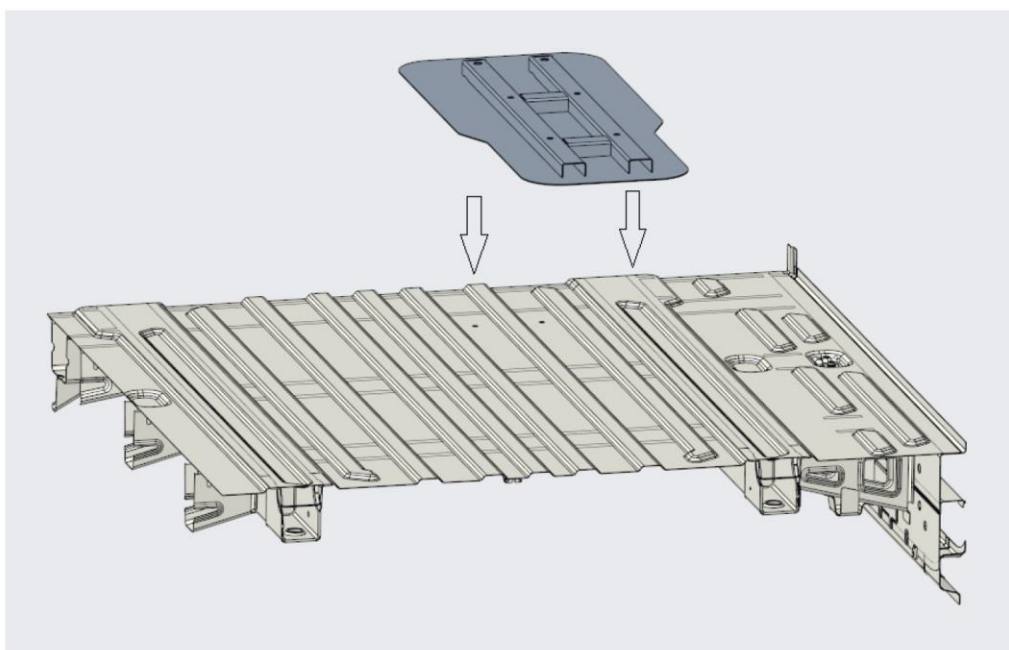
Don't walk on the primed surfaces. Use a piece of carton for protection. Apply Betamate glue on raised floor ribs of vehicle floor in the place where the bench is attached. Primer should be dry. The adhesive must be applied on the surfaces coated previously by Betaprime.

Recommended glue bead



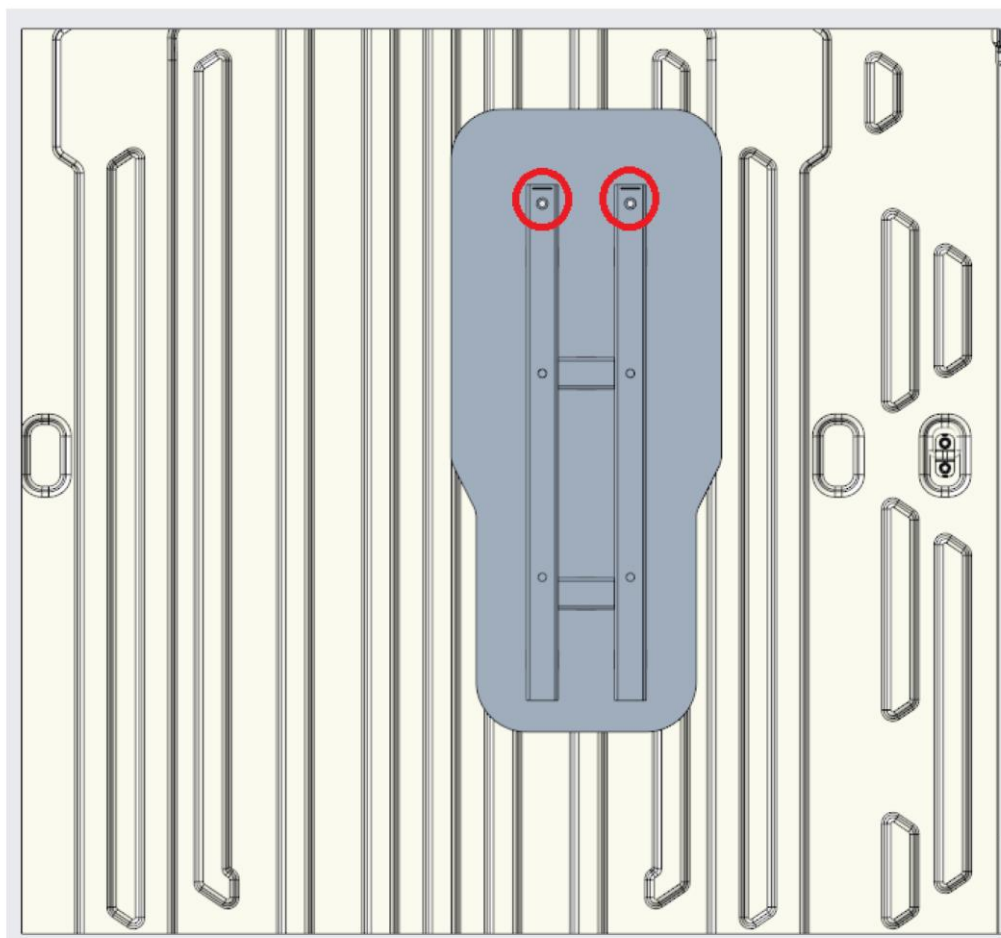


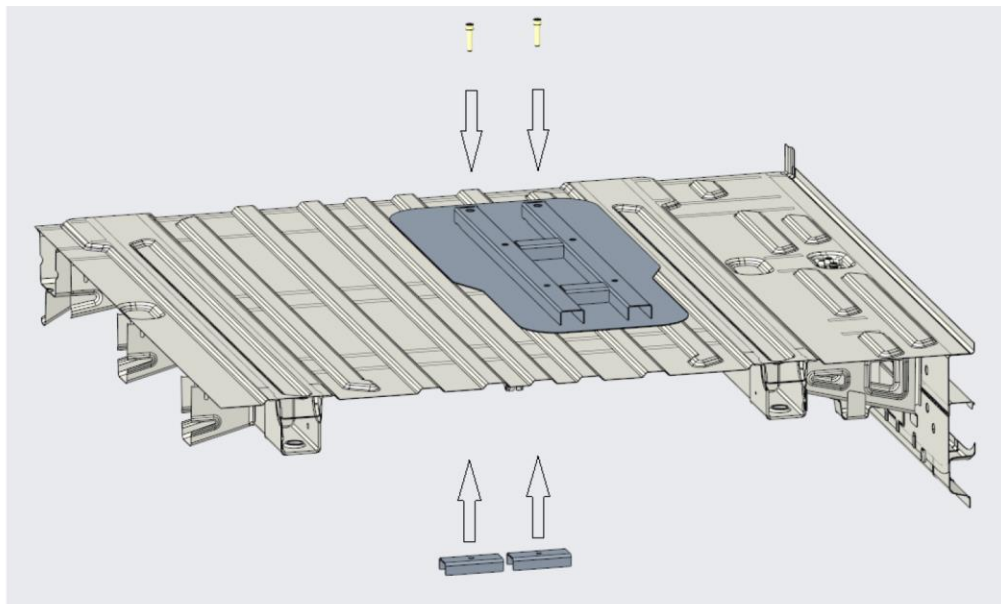
Place and glue the fixation plate to the desired location on the vehicle floor. Leave the floor for at least 24 h. Don't walk on the fixation plate and don't move the vehicle.



Step 4. Underfloor reinforcements

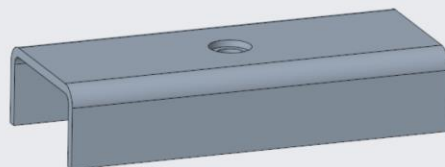
Drill holes $\phi 11$ in the vehicle floor according existing holes in fixation plate.



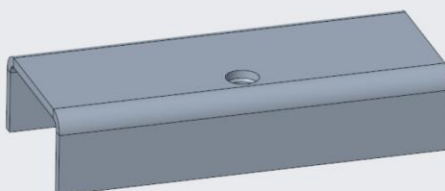


Screw the underfloor reinforcements. Tightening torque 30 Nm. Use liquid anaerobic glue to secure the bolts.

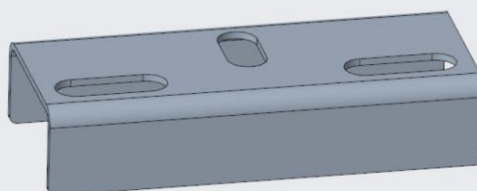




Underfloor reinforcement WZP-01
C-profile 50x25x120 with M10 nut



Underfloor reinforcement WZP-20
C-profile 50x25x120 with M10 nut



Underfloor reinforcement UWP-01
C-profile 50x25x120 with M10 nut

Underfloor reinforcement can be rotated by 90 degrees. Put the rubber blank plugs into the installation holes.



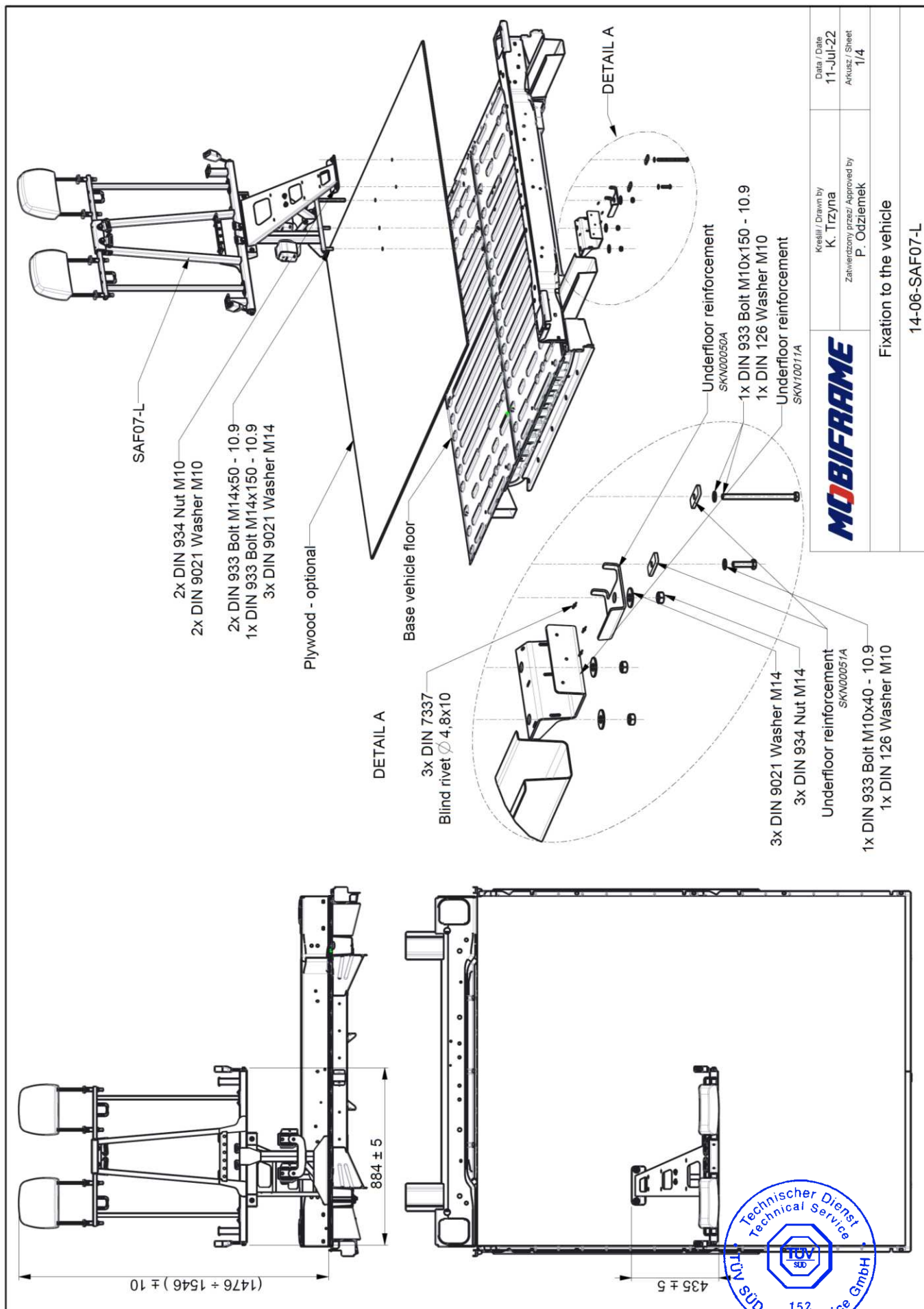
2.2. Fixation of double bench frame by means of underfloor reinforcements – dedicated for
Fiat Ducato/Peugeot Boxer/Citroen Jumper/Opel Movano/RAM ProMaster

SAF07-L:

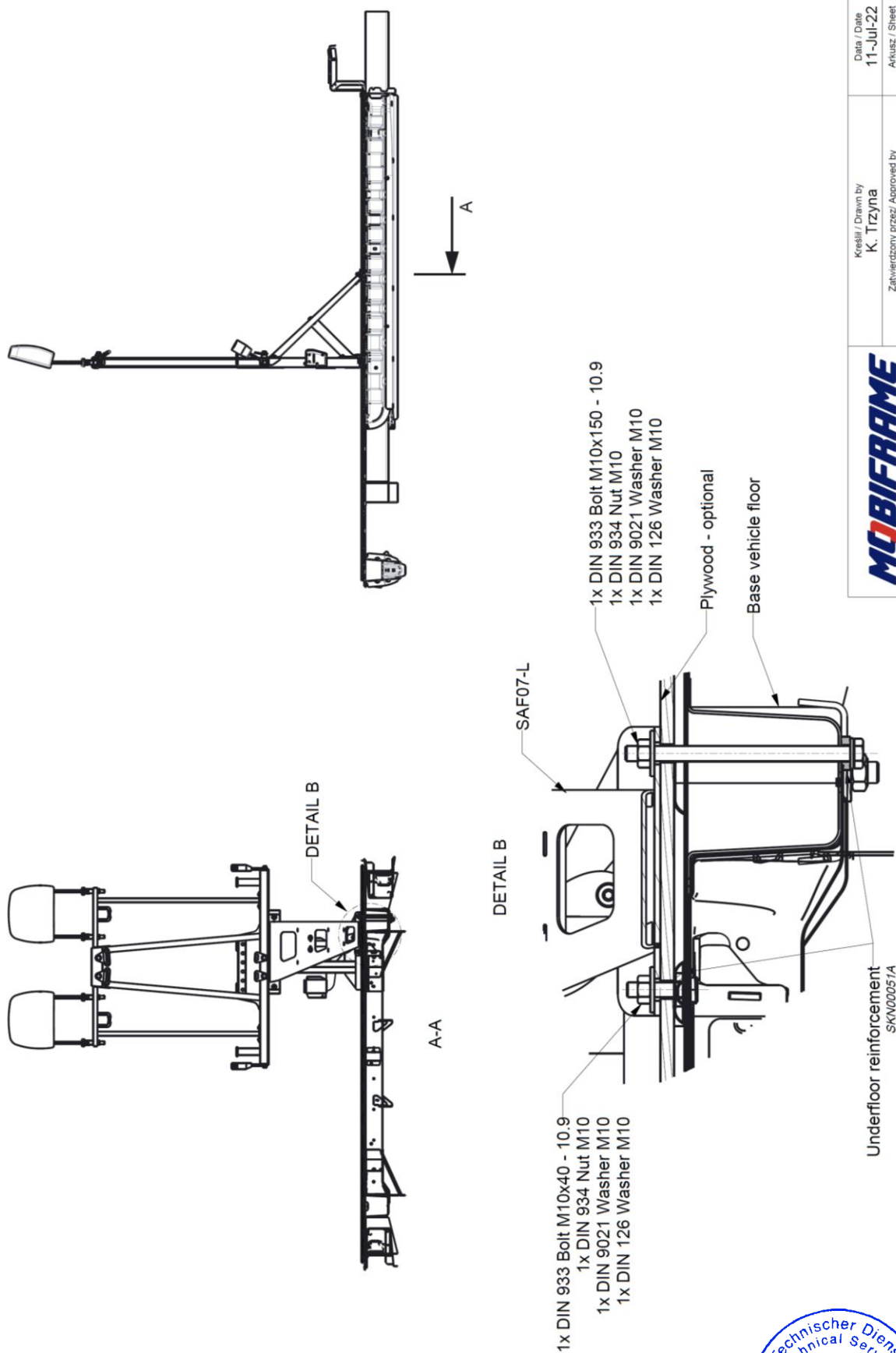
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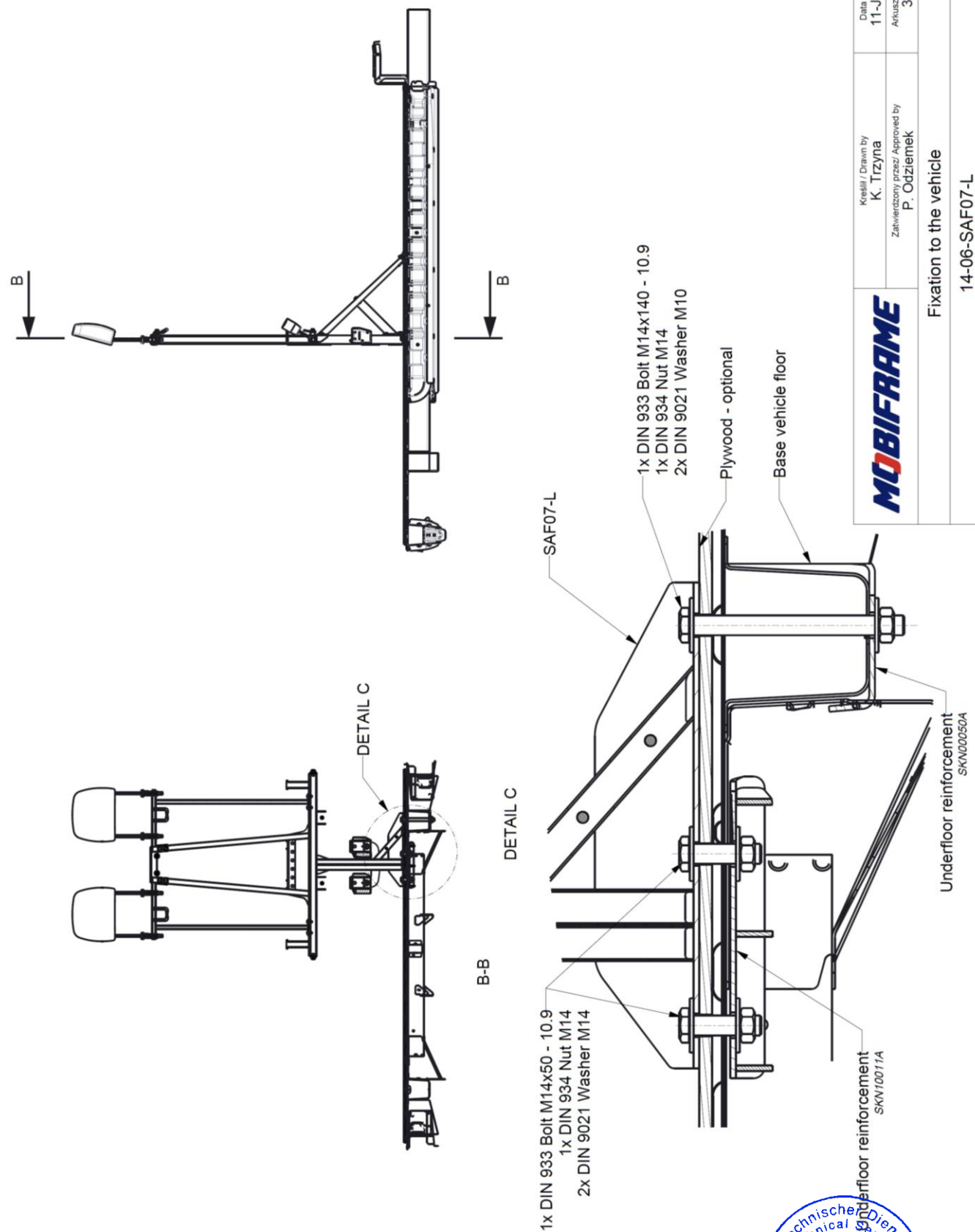


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Kreiert / Drawn by K. Trzyna	Data / Date 11-Jul-22
Zatwierdzony przez / Approved by P. Odziemek	Akusz / Sheet 1/4
Fixation to the vehicle	
14-06-SAF07-L	





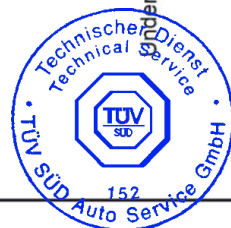
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11-Jul-22
Arkusz / Sheet
3/4

Kreśli / Drawn by
K. Trzyna
Zatwierdzony przez / Approved by
P. Odziemek

MOBIFRAME

Fixation to the vehicle

14-06-SAF07-L





DETAIL D

SAF07-L

Plywood - optional

Base vehicle floor



TÜV SÜD • Technischer Dienst
Technische Service

152

Unterstützung der Bauteile

SKN 00011A

11 PDIN 7337 Blind

Data / Date
11-Jul-22
Arkusz / Sheet
4/4

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K. Trzyna
Zatwierdzony przez/ Approved by
P. Odziemek

MOBIFRAME

Fixation to the vehicle

14-06-SAF07-L



MOBIFRAME/03/2022-00

Date: 11.10.2022

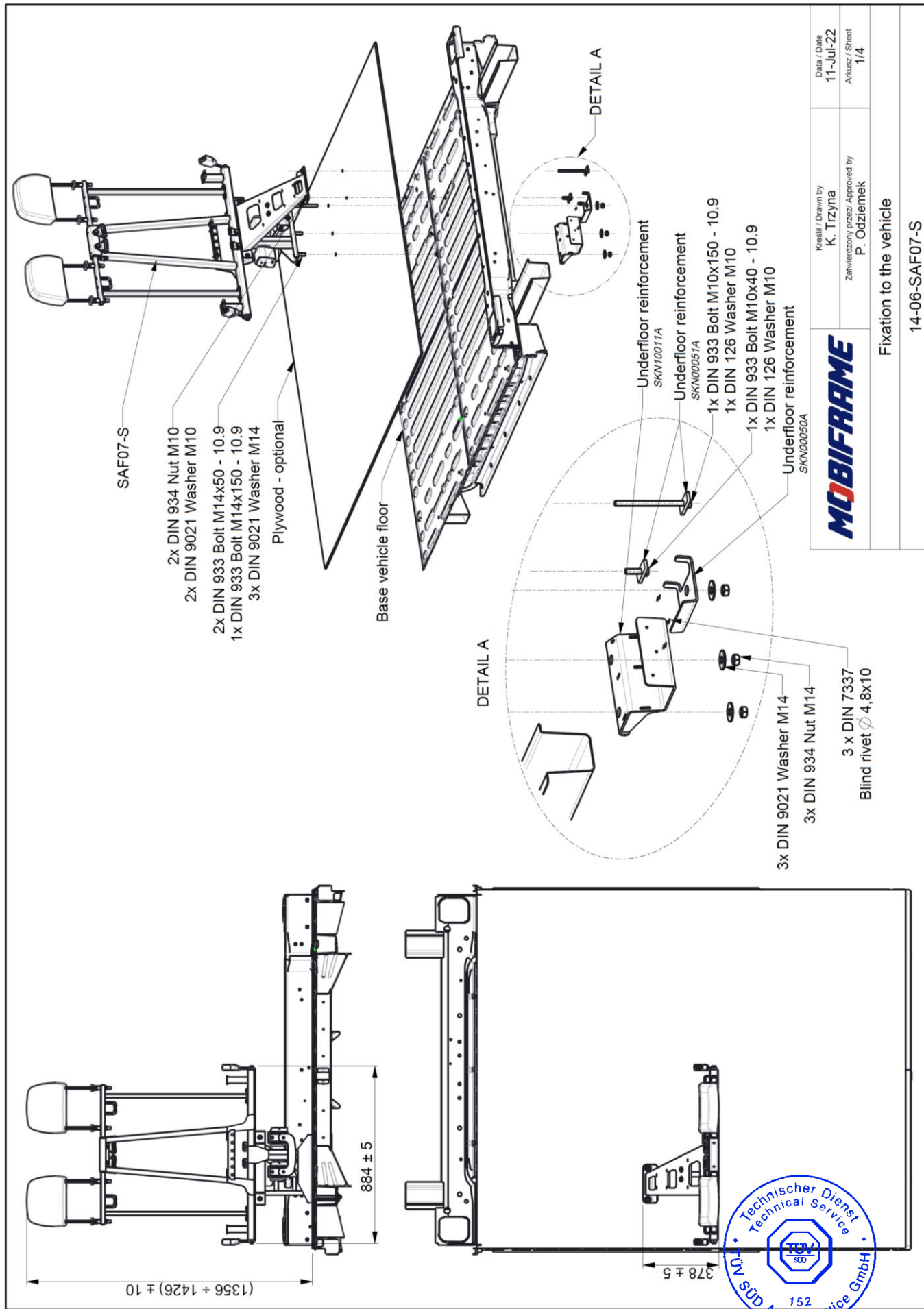
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SAF07-S

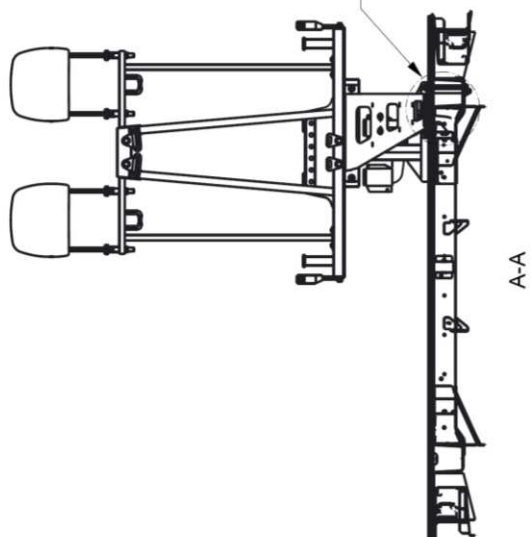
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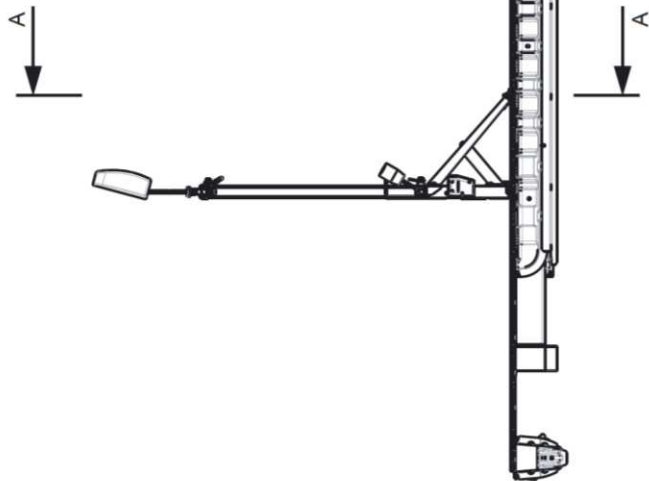


MOBIFRAME	Kresli / Drawn by K. Trzyna	Data / Date 11-Jul-22
	Zatwierdzony przez / Approved by P. Odziemek	Akusz / Sheet 1/4
Fixation to the vehicle		
14-06-SAF07-S		

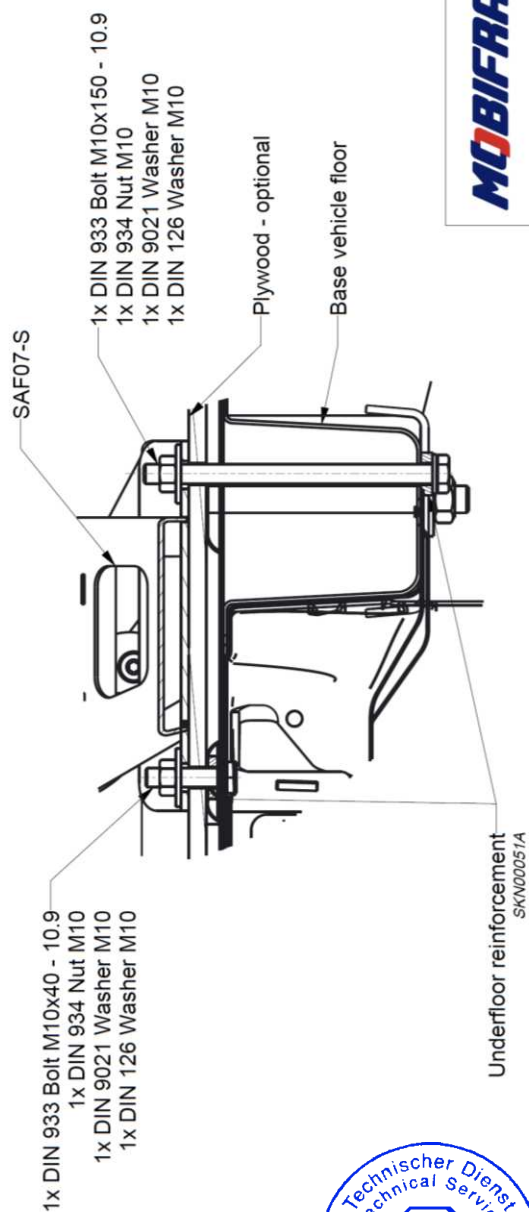


DETAIL B

A-A



DETAIL B




Kreślił / Drawn by
K. Trzyna

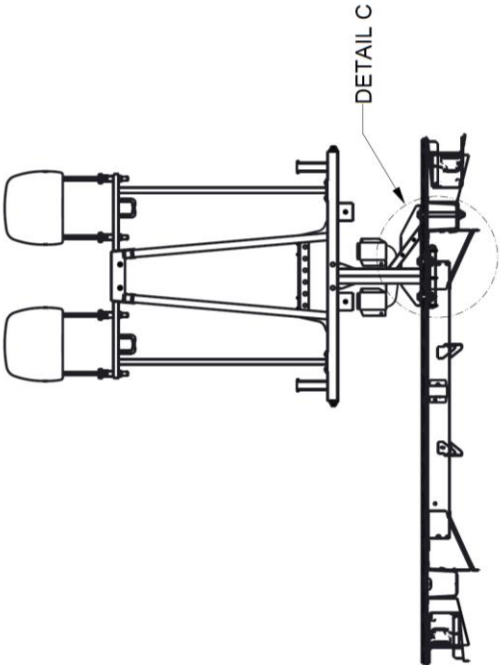
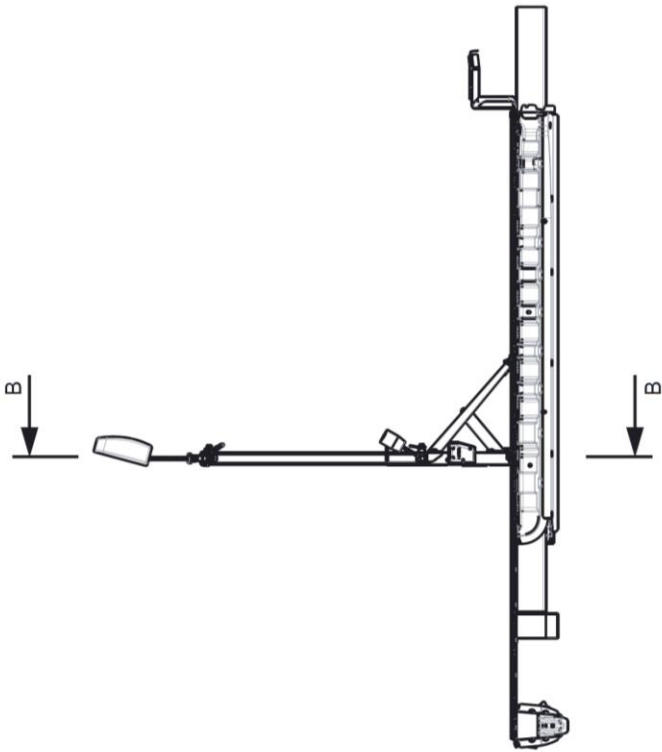
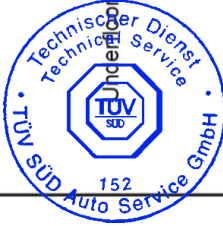
Zatwierdził przez / Approved by
P. Odziemek

Data / Date
11-Jul-22

Arkusz / Sheet
2/4

Fixation to the vehicle

14-06-SAF07-S



B-B

DETAIL C

1x DIN 933 Bolt M14x50 - 10.9
1x DIN 934 Nut M14
2x DIN 9021 Washer M14

SAF07-S

1x DIN 933 Bolt M14x150 - 10.9
1x DIN 934 Nut M14
2x DIN 9021 Washer M14

Plywood - optional

Base vehicle floor

Underfloor reinforcement
SKN10011A

Underfloor reinforcement
SKN000504



Date / Date

11-Jul-22

Kreślił / Drawn by

K. Trzyna

Zatwierdził przez / Approved by

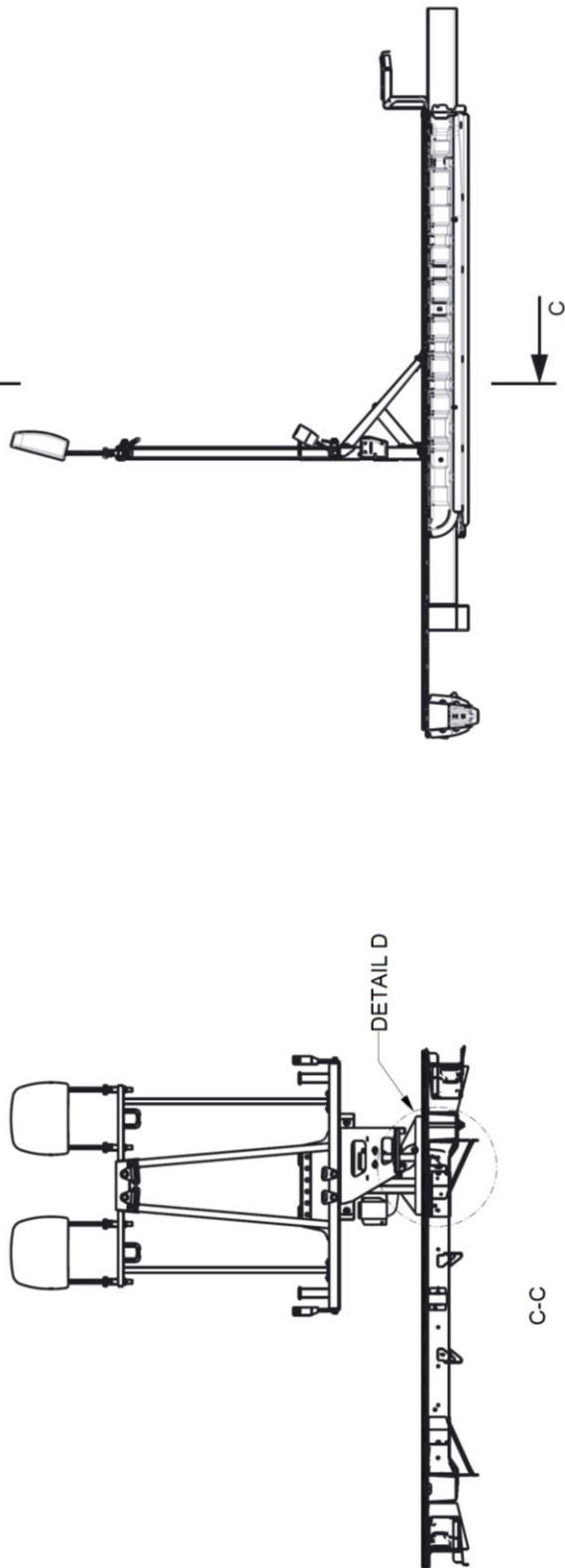
P. Odziemek

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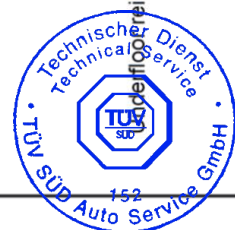
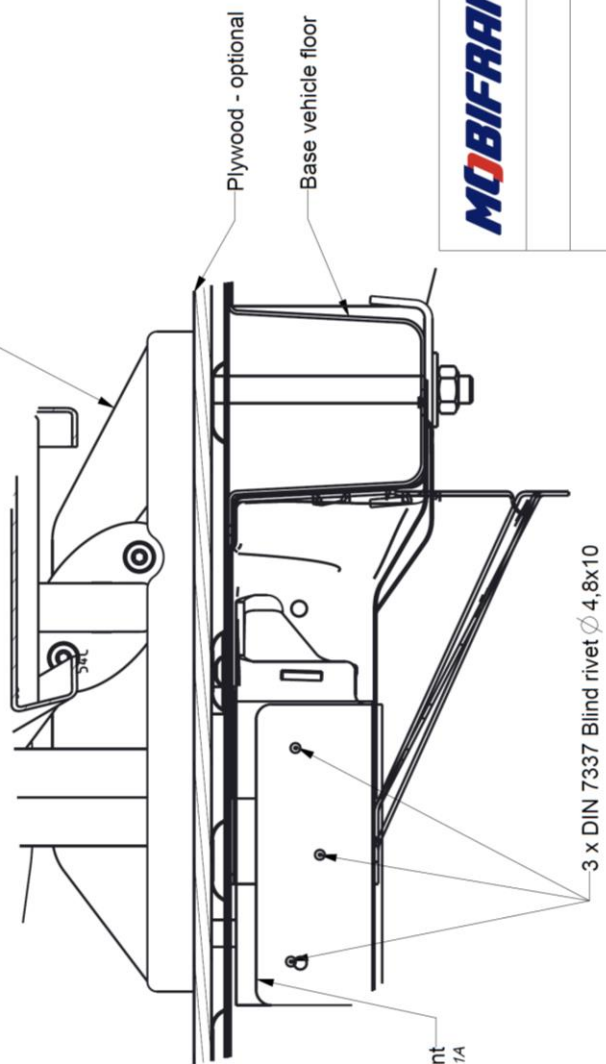
Fixation to the vehicle

14-06-SAF07-S



DETAIL D

SAF07-S



Data / Date
11-Jul-22
Arkusz / Sheet
4/4

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Zatwierdził przez / Approved by
P. Odziemek

MOBIFRAME

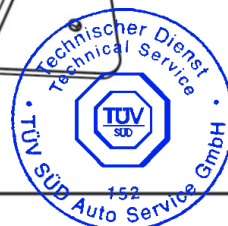
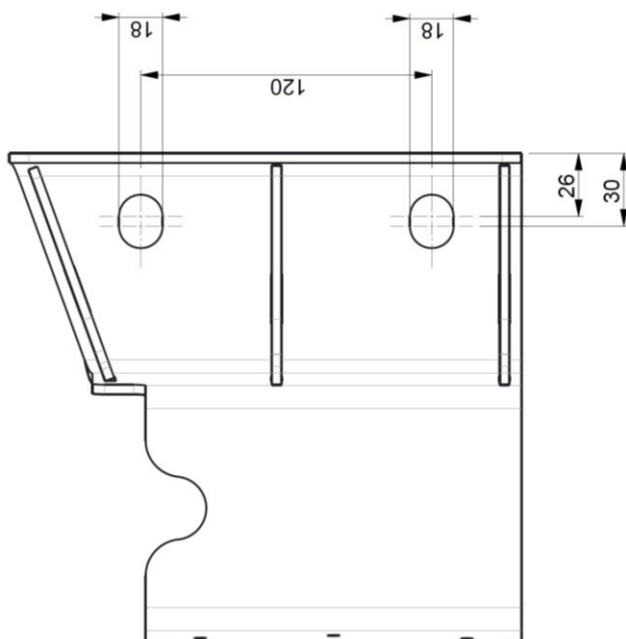
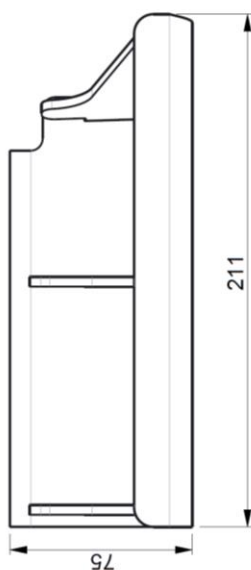
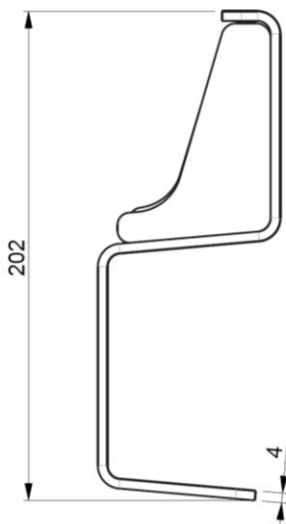
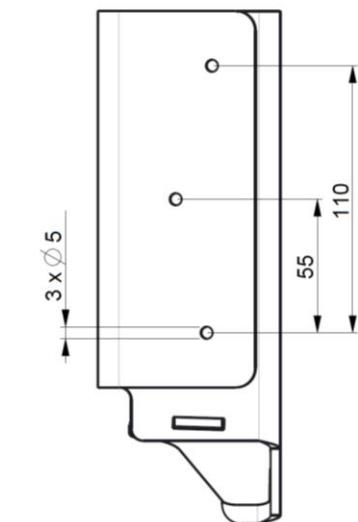
Fixation to the vehicle

14-06-SAF07-S

SAF07-L and SAF07-S fixation components:

(see next pages)





Data / Date
19-Jul-22
Arkus / Sheet
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Zatwierdził / Drawn by
P. Odziemek

MOBIFRAME

Underfloor reinforcement

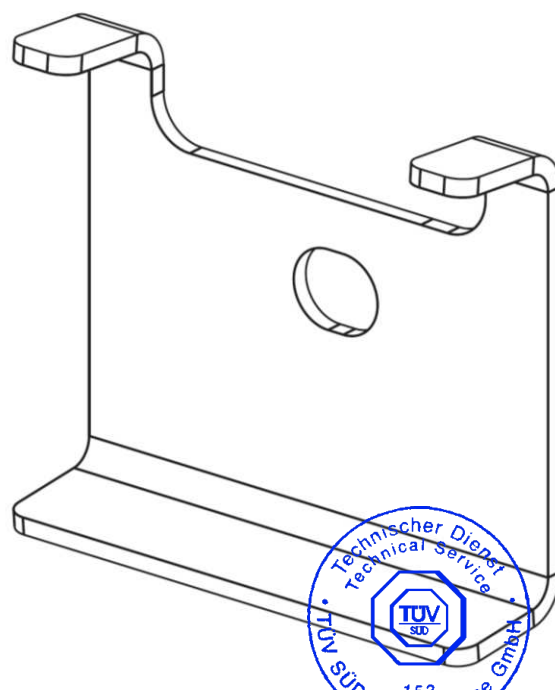
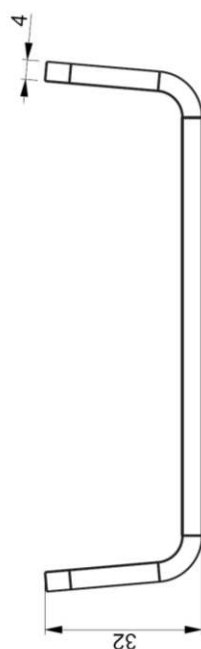
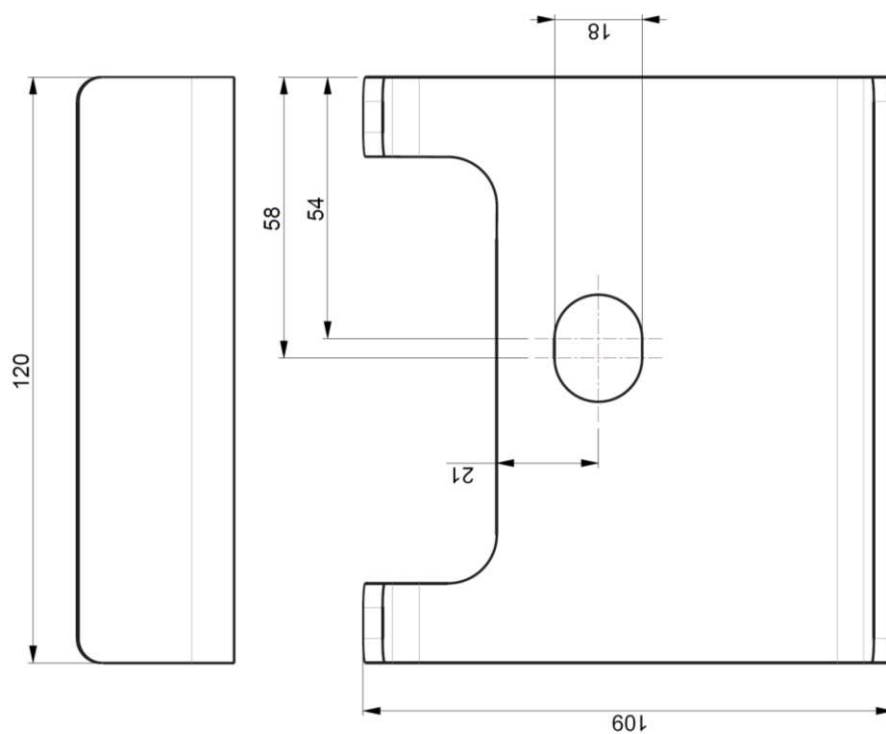
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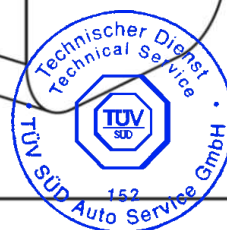
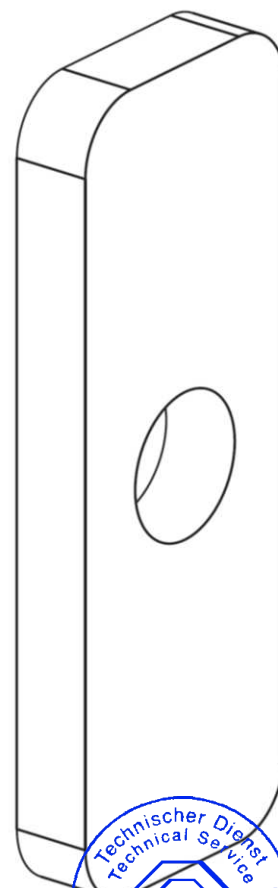
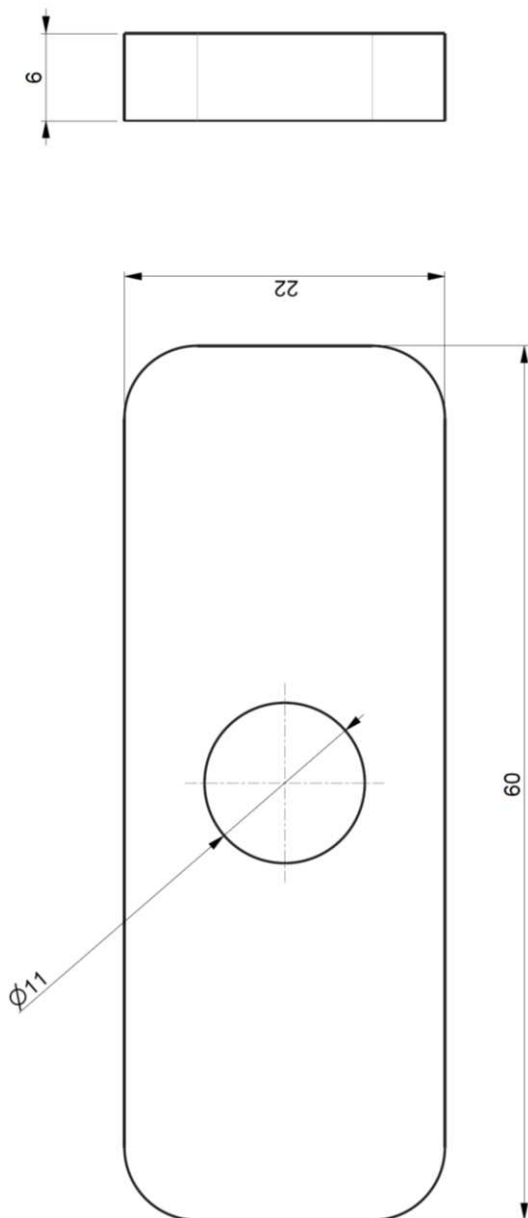
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Date: 11.10.2022

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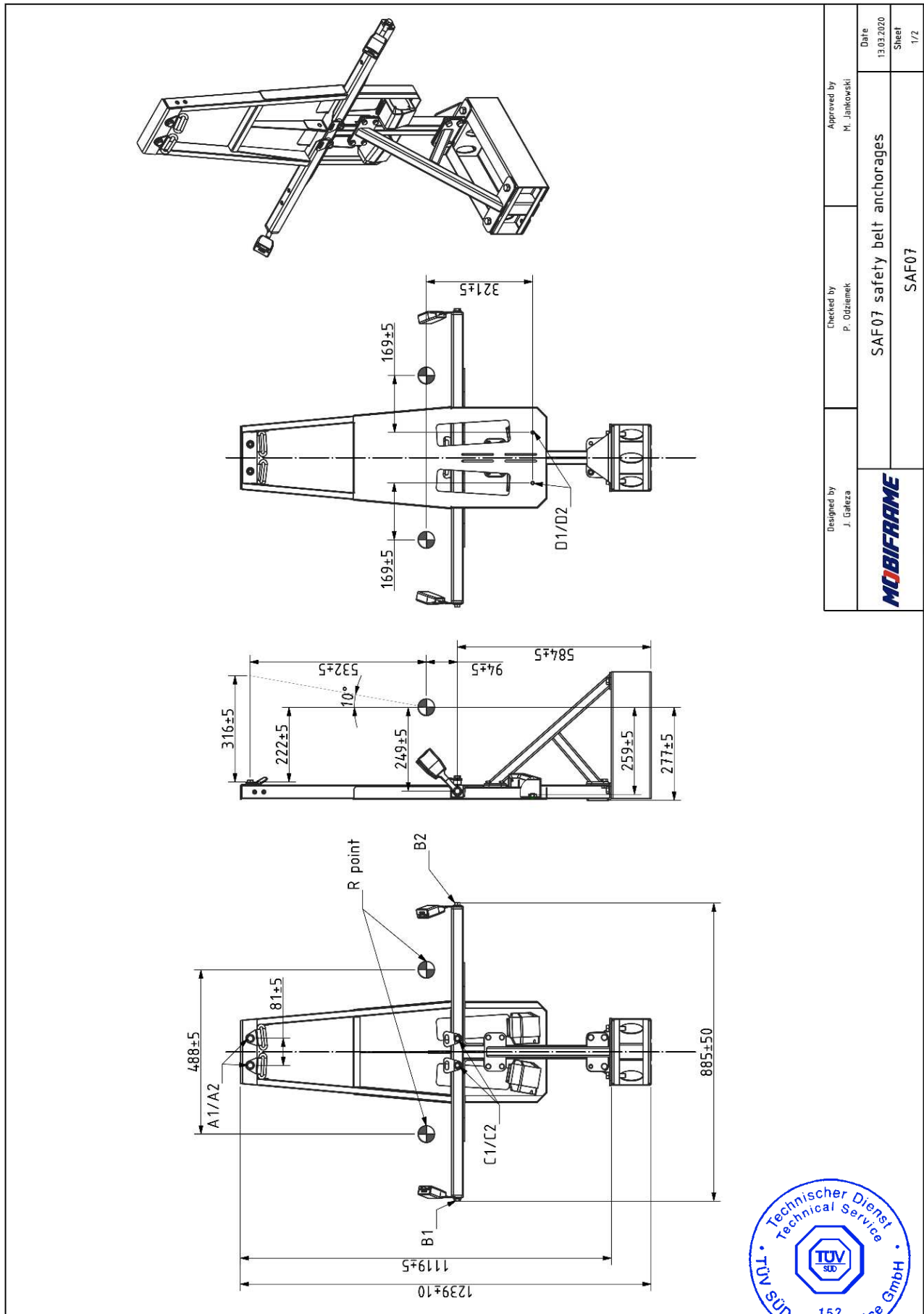
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	Zatwierdził przez/ Approved by P. Odziemek	Arkusz / Sheet 1/1
Underfloor reinforcement		
SKN00050A		



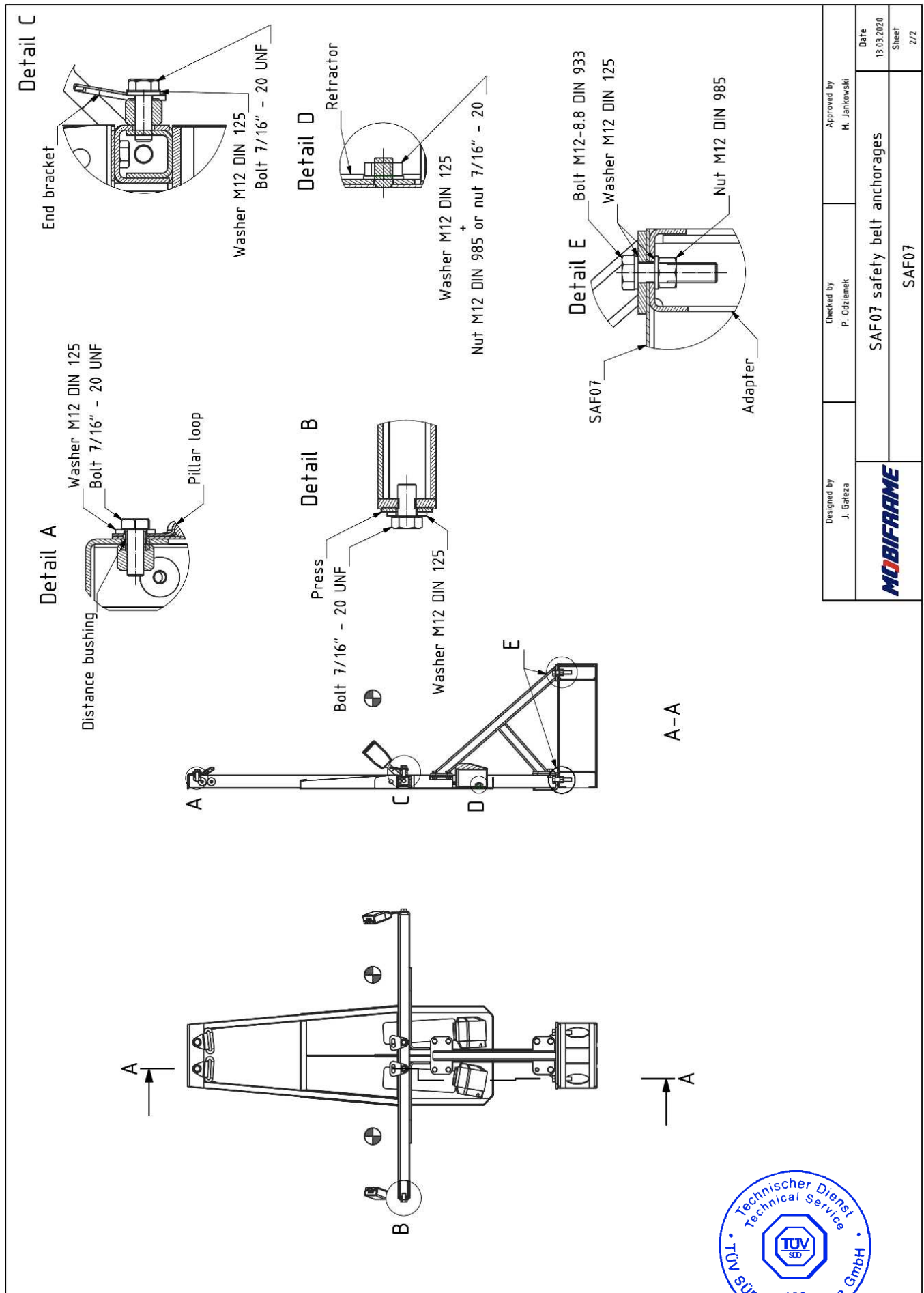
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	Zatwierdzone przez / Approved by P. Odziemek	Arkusz / Sheet 1/1
Underfloor reinforcement		
SKN00051A		

Enclosure 3: DRAWINGS OF SEATS AND COMPONENTS

SAF07

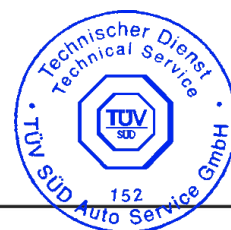
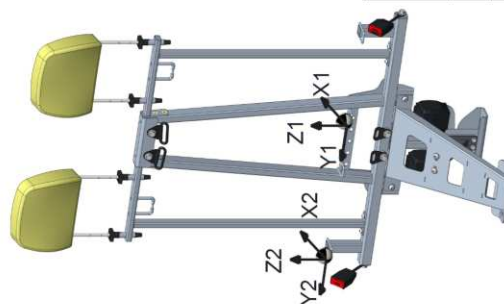
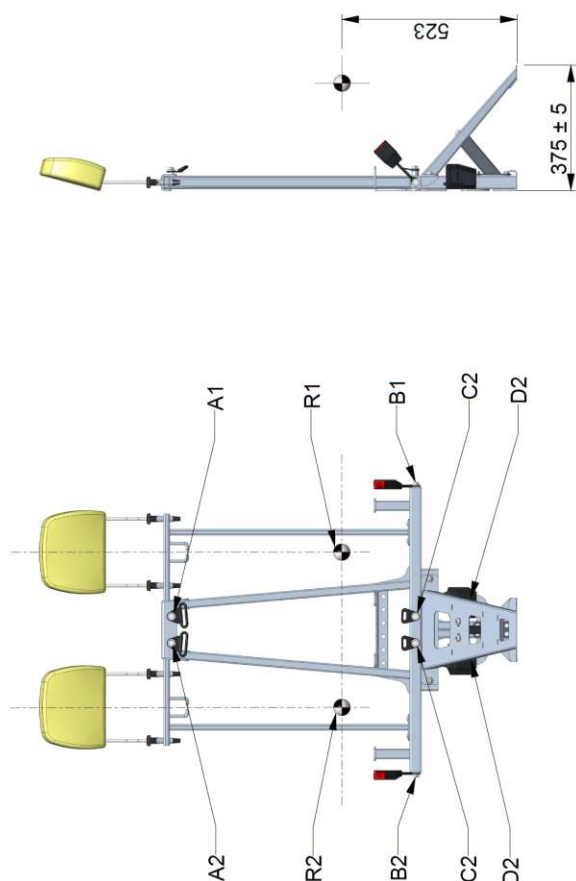


Designed by J. Galeza	Checked by P. Odziemek	Approved by M. Janikowski	Date 13.03.2020
SAF07 safety belt anchorages			Sheet 1/2
MOBIFRAME			SAF07



SAF07-C

SAF07-C	
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 262 mm	Ax2 262 mm
Ay1 192 mm	Ay2 - 192 mm
Az1 509 mm	Az2 509 mm
Buckle 1	Buckle 2
Bx1 297 mm	Bx2 297 mm
By1 - 200 mm	By2 200 mm
Bz1 - 220 mm	Bz2 - 220 mm
$\alpha 1$ 37°	$\alpha 2$ 37°
End bracket 1	End bracket 2
Cx1 258 mm	Cx2 258 mm
Cy1 -192 mm	Cy2 192 mm
Cz1 -217 mm	Cz2 - 217 mm
$\alpha 1$ 41°	$\alpha 2$ 41°
Retractor 1	Retractor 2
Dx1 314 mm	Dx2 314 mm
Dy1 147 mm	Dy2 - 147 mm
Dz1 - 379 mm	Dz2 - 379 mm


MOBIFRAME

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Zahewdzony przez / Approved by
P. Odziemek

Data / Date
11-Jul-22
Arkusz / Sheet
1/1

General design

14-01-SAF07-C

MOBIFRAME

MOBIFRAME/03/2022-00

Date: 11.10.2022

Page / pages: 47/58

SAF07-L			
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	262 mm	Ax2	262 mm
Ay1	192 mm	Ay2	- 192 mm
Az1	509 mm	Az2	509 mm
Buckle 1		Buckle 2	
Bx1	297 mm	Bx2	297 mm
By1	- 200 mm	By2	200 mm
Bz1	- 220 mm	Bz2	- 220 mm
α1	37°	α2	37°
End bracket 1		End bracket 2	
Cx1	258 mm	Cx2	258 mm
Cy1	-192 mm	Cy2	192 mm
Cz1	-217 mm	Cz2	- 217 mm
α1	41°	α2	41°
Retractor 1		Retractor 2	
Dx1	314 mm	Dx2	314 mm
Dy1	147 mm	Dy2	- 147 mm
Dz1	- 469 mm	Dz2	- 469 mm

Kreiert / Drawn by
K. Trzyna

Zaakceptowany przez / Approved by
P. Odziemek

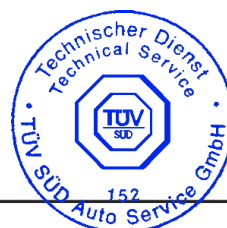
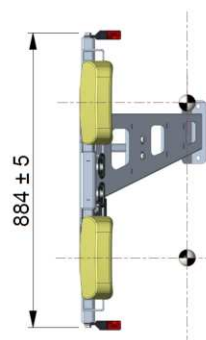
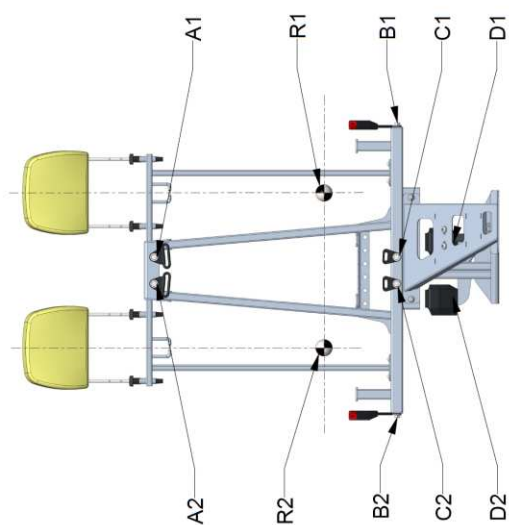
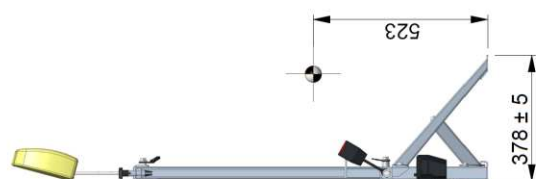
Data / Date
11-Jul-22

Arkusz / Sheet
1/1

General design

14-01-SAF07-L

SAF07-S	
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 262 mm	Ax2 262 mm
Ay1 192 mm	Ay2 - 192 mm
Az1 509 mm	Az2 509 mm
Buckle 1	Buckle 2
Bx1 297 mm	Bx2 297 mm
By1 - 200 mm	By2 200 mm
Bz1 - 220 mm	Bz2 - 220 mm
$\alpha 1$ 37°	$\alpha 2$ 37°
End bracket 1	End bracket 2
Cx1 258 mm	Cx2 258 mm
Cy1 -192 mm	Cy2 192 mm
Cz1 -217 mm	Cz2 - 217 mm
$\alpha 1$ 41°	$\alpha 2$ 41°
Retractor 1	Retractor 2
Dx1 314 mm	Dx2 314 mm
Dy1 147 mm	Dy2 - 147 mm
Dz1 - 379 mm	Dz2 - 379 mm


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K. Trzyna

Data / Date

11-Jul-22

Zatwierdzony przez / Approved by

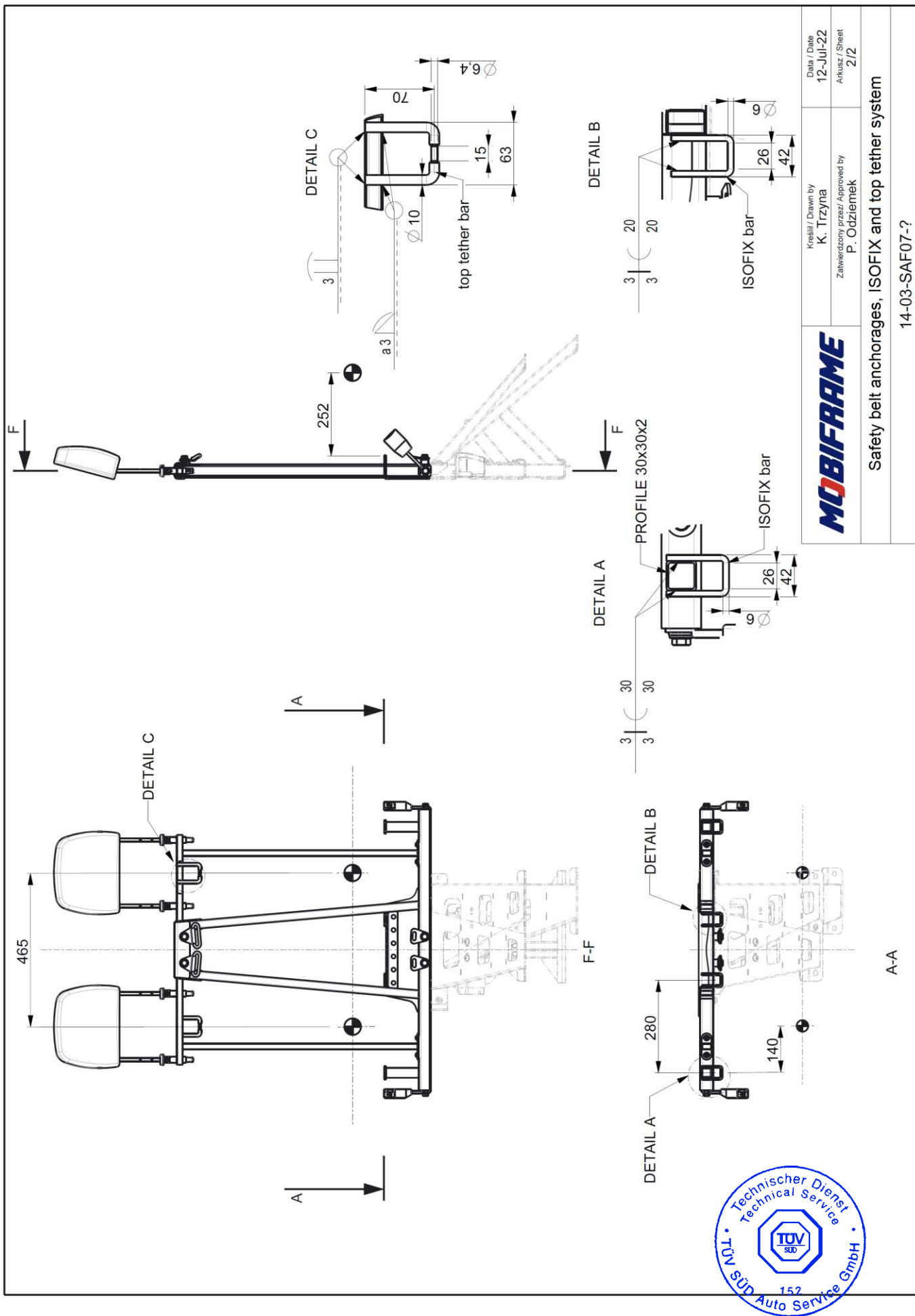
P. Odziemek

Arkusz / Sheet

1/1

General design

14-01-SAF07-S



Enclosure 4: ADHESIVES FOR FIXATION PLATE



Technical Data Sheet

Dow Automotive

BETACLEAN 3350

Description / Application:

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

All Dow Automotive products are primarily developed in co-ordination 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 writing by the Technical Service of Dow Automotive.

Technical Data:

Basis	Heptane
Colour	Colourless, transparent
Density	0,68 g/cm ³ at 23°C
Flash point	-4°C
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	12 months in unopened containers
Containers	100, 250, 1000ml aluminium containers
Protection measures	See health and safety data sheet.

DOW AUTOMOTIVE Quality Management

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.

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Dow Automotive AG, Techn. Datasheet, BETACLEAN, Status terminated, Issue 01, 1.2.96, D-19/sr, Page 1





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.

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	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)

Dow Automotive, Techn. Datasheet, BETAPRIME, Status terminated, Issue 04, 15.01.2001, Sie/D-3, Page 1



MOBIFRAME

MOBIFRAME/03/2022-00

Date: 11.10.2022

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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

Quality is our utmost goal. Dow Automotive works according to a modern quality management system conforming to ISO/TS 16949:2002.

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

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Automotive Systems

Technical Datasheet

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 application 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 open time	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 immediately 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 further used for one day or if it is non-conformous and has to be disposed 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

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Dow Europe GmbH
8810 Horgen, Switzerland

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Dow Automotive Systems

Subject to change!





Automotive Systems

Technical Datasheet

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.

Dow Automotive Systems Quality Assurance

Quality is our utmost goal. Dow Automotive works according to a modern quality management system conforming to ISO/TS 16949.

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

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**MOBIFRAME**

MOBIFRAME/03/2022-00

Date: 11.10.2022

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**Dow Automotive**

BETAMATE 7120

Description / Application:

Single-component, high-viscosity, atmospheric humidity-curing polyurethane bonding/sealing compound for high-strength, permanently elastic adhesive joints.

This material is used in the direct glazing process of the automotive industry in combination with glass-primer and wipe and paint primer. It is also suitable for bonding certain plastic parts in conjunction with the plastic primer BETAPRIME 5404 and/or a specific pretreatment according to prior test results.

All Dow Automotive products are primarily developed in co-ordination 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 writing by the Technical Service of Dow Automotive.

Technical Data:

Basis	polyurethane prepolymers
Colour	black
Density	ca. 1.23 g/cm ³ at 23°C
Solid contents	> 98%
Viscosity (Extrusion, Ballan 4 mm nozzle, 4 bar)	pasty, pumpable 12 - 18 g/min at 23°C
Flash point	> 100°C
Processing temperature	10 - 40°C
Open time	max. 15 min at 23°C/50% rh primerless
Sagging behavior	very good, non-sagging
Tack-free time	approx. 30 min at 23°C/50% rh
Cure rate	> 4 mm in 48 h at 23°C/50%rh
Tensile strength (DIN 53 504)	9 ± 1 MPa
Elongation at break (DIN 53 504)	> 500%
Lap shear resistance (EN 1465)	min. 5 MPa (height of adhesive layer: 2mm) 23°C/50% rh,
Resistance to tear propagation (DIN 53 515)	approx. 15 N/mm
Shore A hardness (DIN 53 505)	60 +/-5
Abrasion resistance	Extremely high

Dow Automotive AG, Techn. Datenblatt, BETAMATE, Status terminated, Ausgabe 03, 27.04.99, D-7/sr, Page 1



Temperature stability	-40°C to 100°C, for short periods up to 120°C
Resistance to chemicals	Highly resistant to aqueous chemicals, petrol, alcohol and mineral oils. Conditionally resistant 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.
Processing equipment	Cartridges: hand-operated or pneumatic gun with mechanical piston Drums, pails: commercial pumping system with connection to automatic applicator, if required.
Cleaning	Uncured BETAMATE 7120 residues can easily be removed with BETACLEAN 3000 or BETACLEAN 3500. Hardened BETAMATE 7120 residues can only be removed mechanically. Immerse equipment in BETACLEAN 3000.
Shelf life	6 months at +5°C to +25°C in unopened containers. (See "use before" date printed on container).
Containers	300 ml cartridges, cardboard packs of 12 Pails: 22 litres Drums: 200 litres
Protection measures	See health and safety data sheet.

Dow Automotive Quality Management

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

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