

Technical Report No.: 122732 – 20 – TAC  
Test method: ECE No. 14.07  
Manufacturer / Order party: OKB Sp. z o.o., Poland  
Product under test: RAM02



Czech

1/9

**TECHNICAL REPORT  
No. 122732 – 20 – TAC**

Test according to  
Test according to Regulation ECE No. 14.07

**Uniform provisions concerning the approval of vehicles with regard to safety-belt anchorages, ISOFIX anchorages systems and ISOFIX top tether anchorages**

Test method: ECE No. 14.00 – date of entry into force: 1970-04-01  
including all amendments up to and including:  
ECE No. 14.07, supplement 8 – date of entry into force: 2018-02-10  
Objectives: Document for the manufacturer

**I. Technical data**

- 0.1.1. Order party: OKB Sp. z o.o.  
ul. Rokicińska 108/110  
95-006 Bukowiec  
Poland
- 0.1.2. Manufacturer: 2<sup>nd</sup> stage  
OKB Sp. z o.o.  
ul. Rokicińska 108/110  
95-006 Bukowiec  
Poland
- 0.1.3. Assembly plant: N/A
- 0.2. Product under test: RAM02
- 0.3. Test required: According to test procedure of checking of number, geometry and strength of safety belt anchorages according to ECE R No. 14.07, par. 5,6,7 and Annexes 3-6 and 9
- 0.4. Category of vehicle: M1, N1

Technical Report No.: 122732 – 20 – TAC  
 Test method: ECE No. 14.07  
 Manufacturer / Order party: OKB Sp. z o.o., Poland  
 Product under test: RAM02



Czech

2/9

## II. Test report

### 1. Test conditions

1.1. Test sample: Double seat type RAM02 mounted in 2<sup>nd</sup> row of seat and tested to representative vehicle body and on rigid test bench.

#### 1.1.1. Technical data from the manufacturer:

Make (trade name of manufacturer): OKB  
 Commercial name(s) (if available): RAM02  
 Dedicated for vehicle(s): See table 1.1.2.  
 Type of bodywork using the codes set out in Part C of Annex II of Directive 2007/46/EC: N/A  
 Mass of seat: Double seat type RAM02  
 62 kg – mass of the heaviest configuration

RAM02 is double seat frame with two single seat S1NOV01

#### 1.1.2.

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

Technical Report No.: 122732 – 20 – TAC  
 Test method: ECE No. 14.07  
 Manufacturer / Order party: OKB Sp. z o.o., Poland  
 Product under test: RAM02



Czech

3/9

Manufacturer	Commercial description / Type	Wheelbase
Peugeot	Boxer (Y)	3000, 3450, 4035
	Expert (VF3__)	3000, 3122
	Expert (2016)	2925, 3275
	Traveller	2925, 3275
Fiat	Ducato (250)	3000, 3450, 4035
	Scudo (270)	3000,3122
	Talento (FJL, FFL)	3098, 3498
Opel	Movano (MR, MS, MW)	3182, 3682, 4332
	Vivaro (F7)	3098, 3498
Renault	Master (FV, MA)	3182, 3682, 4332
	Trafic (FL, L)	3098, 3498
	Trafic 2014 (JL, L)	3098, 3498
Renault Truck	Master (MF)	3182, 3682, 4332
Ford	Transit (FA_, FD_)	2933, 3300, 3750
	Transit (FC_)	3300, 3750, 3954
	Transit Custom (FA_, FC_)	2933, 3300
	Transit Connect (PU2)	2662, 3062
Iveco	Daily (IS_)	3000, 3300, 3520, 3950, 4100, 4750
Nissan	NV200	2725
	NV300	3098, 3498
	NV400	3182, 3682, 4332
Toyota	Pro Ace, Pro Ace Verso (2016)	2925, 3275
MAN	TGE (SYN__ e.g. SYN1E, SYN2E, SYN2Z)	3640, 4490
LDV	V80, Maxus (SV6C)	3100, 3850
	V90, Deliver 9, E Deliver 9	3000, 3366, 3760
Hyundai	H350 (EU(V))	3435, 3670
RAM (Dodge)	ProMaster	3000, 3450, 4035

Technical Report No.: 122732 – 20 – TAC  
 Test method: ECE No. 14.07  
 Manufacturer / Order party: OKB Sp. z o.o., Poland  
 Product under test: RAM02



Czech

4/9

- 1.2. Test procedures used: According to test procedure of checking of number, geometry and strength of safety belt anchorages according to ECE R No. 14.07, par. 5,6,7 and Annexes 3-6 and 9
- 1.3. Measuring and test equipment: Electro-hydraulic test equipment and control unit  
 Force measuring chain  
 Data acquisition unit  
 Traction devices  
 3D H-point measurement device  
 Tape measure
- 1.5. Test track or site: OKB laboratory, Bukowiec, Poland,
2. Test results
- 2.1. First row of seats: See approval of the base vehicle
- 2.2. Other rows of seats: (Second row of seats)
- 2.2.1. Safety belt anchorages strength:

Frame bench type RAM02 on fixation plate in the vehicle.

Seat manufacturer	Seat type	Mass of the heaviest configuration (seat + legs/base)	Fulfilling of requirements
OKB	RAM02 (RAM02 is double seat frame with two single seat S1NOV01)	62 kg	See point 2.3.

Seat manufacturer	Seat type	Fulfilling of requirements
INTAP	S1NOV01	Test report No. BLB.056.012B

Technical Report No.: 122732 – 20 – TAC  
 Test method: ECE No. 14.07  
 Manufacturer / Order party: OKB Sp. z o.o., Poland  
 Product under test: RAM02



Czech

5/9

## 2.2.2. ISOFIX and Top Tether anchorages strength (if provided):

Seat manufacturer	Seat type	Fulfilling of requirements
INTAP	S1NOV01	See Technical report No. 120732-15-TAC

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 2<sup>nd</sup> row of seats.

## 2.3. Additional test of seat belt anchorages and seat to floor attachment.

Forward facing seat

## 2.3.1. Frame bench type RAM02 on fixation plate in the vehicle.

Mass of the heaviest possible single seat configuration covered by the test  $m_s$  = see table kg.

Additional force applied to seat base:

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

Type of seat	RAM02 (left seat)	RAM02 (right seat)
Safety belt	Ar	Ar
Mass of seat/seats	62 kg	
Required force in upper anchorage point	13 500 N $\pm$ 200 N	13 500 N $\pm$ 200 N
Required force in lower anchorage point	13 500 N $\pm$ 200 N	13 500 N $\pm$ 200 N
Max force in upper anchorage point	13 800 N/ > 0,2 s	13 900 N/ > 0,2 s
Max. force in lower anchorage point	13 500 N/ > 0,2 s	14 000 N/ > 0,2 s
Required force inertia	12 400 N	
Inertia force in the seat base	12 900 N /> 0,2 s	
Displacement of upper anchorage point	82 mm	97 mm
Where was applied additional force	CoG	

## 2.4. Final assessment:

Above mentioned Technical reports and test results cover all possible combinations of seat, frame to floor attachment and attachment of floor to vehicle mentioned in manufacturer's information folder.

Technical Report No.: 122732 – 20 – TAC  
 Test method: ECE No. 14.07  
 Manufacturer / Order party: OKB Sp. z o.o., Poland  
 Product under test: RAM02



Czech

6/9

3. Specimen submitted to test on: 2020-12-10
4. Date of test: 2020-12-10
- III. Manufacturer's information folder No. OKB/05/2020-00  
33 pages total of 2020-12-10
- IV. Other documentation  
 Photos: page 7  
 Graphs: page 8 - 9
- V. Attachments  
 No attachments

Measuring and test equipment and test site meet the requirements of the applicable legislation. This report must never be reproduced incomplete and without a written permission of the testing laboratory.

#### VI. Final assessment

The described sample

**complies**

with the requirements of ECE Regulation No. 14.07  
 for issue the document for manufacturer

This technical report consists of pages No. 1 to 9.

TÜV SÜD Czech s.r.o.  
 Novodvorská 994/138  
 142 21 Praha 4  
 Czech Republic  
 DIČ CZ33987121 -38-

  
 Vit Bursík

Report author



  
 Martin Hron

Business Unit Manager  
 Certification and Regulatory Compliance

Prague, 2019-12-15



Technical Report No.: 122732 – 20 – TAC  
Test method: ECE No. 14.07  
Manufacturer / Order party: OKB Sp. z o.o., Poland  
Product under test: RAM02



Czech

7/9

Photos:  
Forward facing seat

2.3.1. Frame bench type RAM02 on fixation plate in the vehicle.

Before test



After test



Technical Report No.: 122732 – 20 – TAC  
 Test method: ECE No. 14.07  
 Manufacturer / Order party: OKB Sp. z o.o., Poland  
 Product under test: RAM02



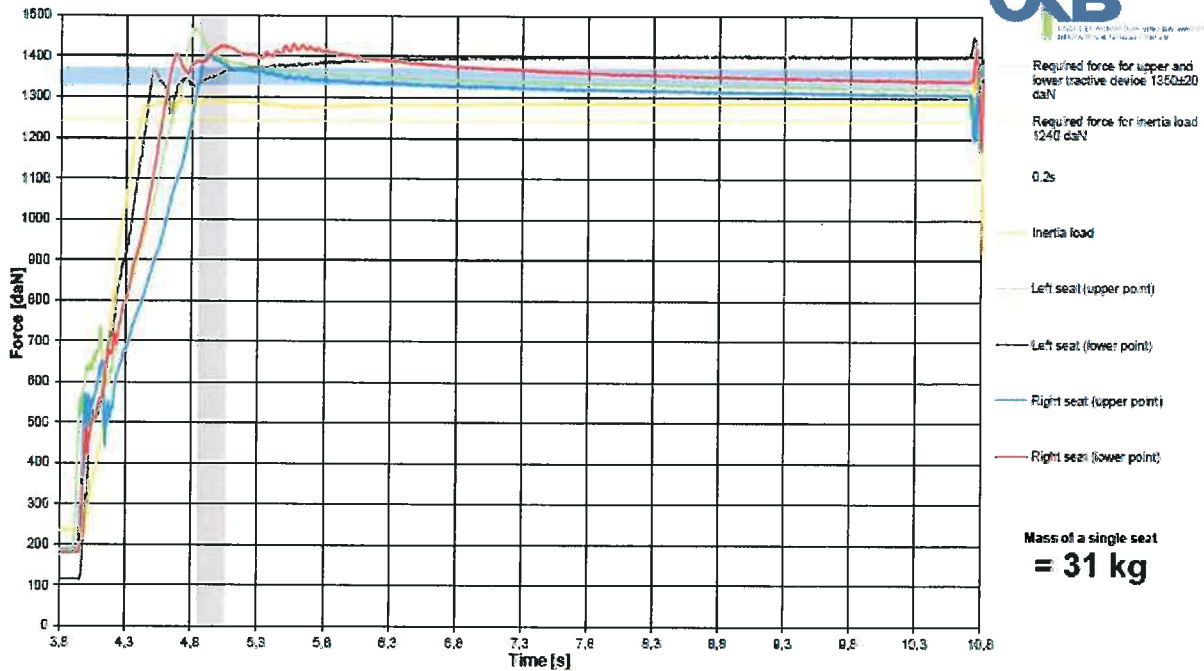
Czech

Graphs:

2.3.1. Frame bench type RAM02 on fixation plate in the vehicle.

Date: 28.10.2020  
 Test number: 2020\_10\_28\_01

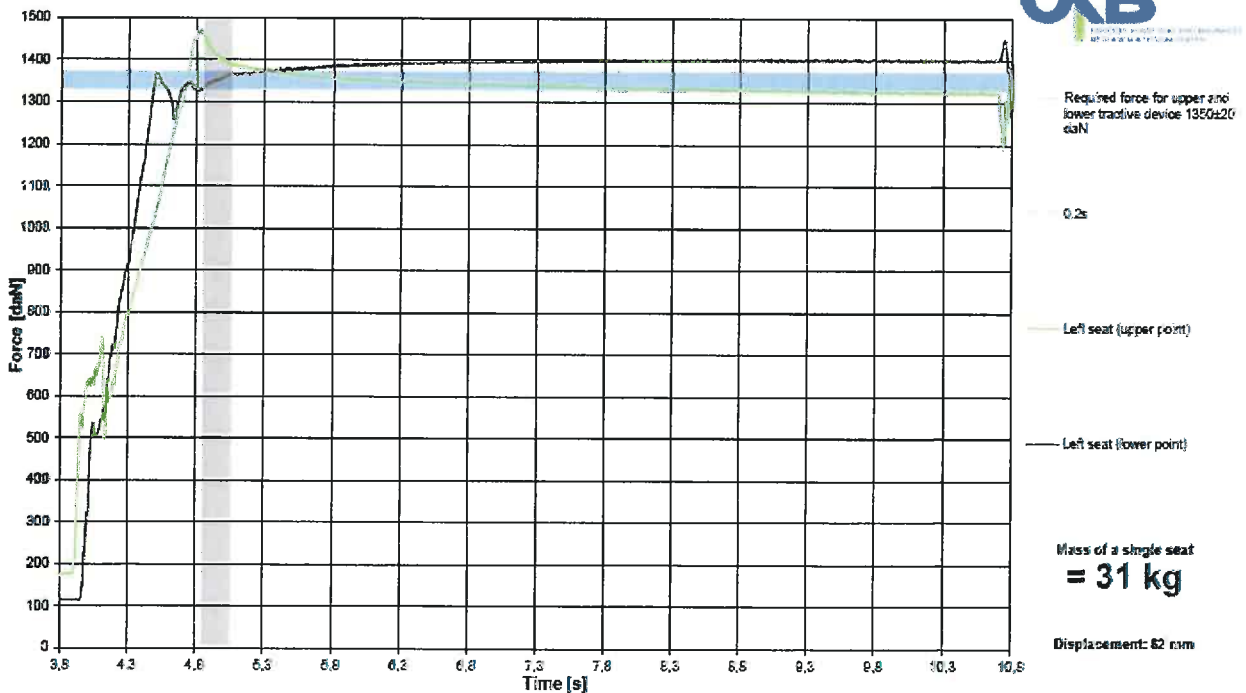
RAM02 on fixation plate in the vehicle, M1



2.3.1. Frame bench type RAM02 on fixation plate in the vehicle (left seat).

Date: 28.10.2020  
 Test number: 2020\_10\_28\_01

RAM02 on fixation plate in the vehicle (left seat), M1





Technical Report No.: 122732 – 20 – TAC  
 Test method: ECE No. 14.07  
 Manufacturer / Order party: OKB Sp. z o.o., Poland  
 Product under test: RAM02

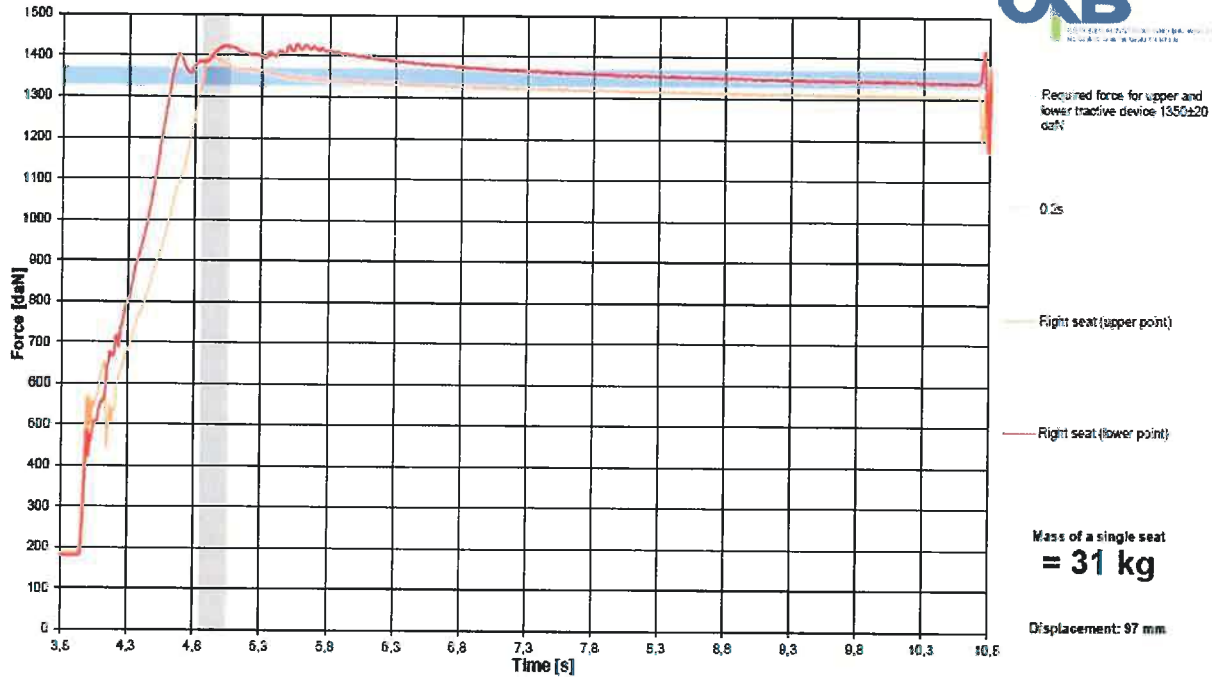


Czech

2.3.1. Frame bench type RAM02 on fixation plate in the vehicle (right seat).

Date: 28.10.2020  
 Test number: 2020\_10\_28\_01

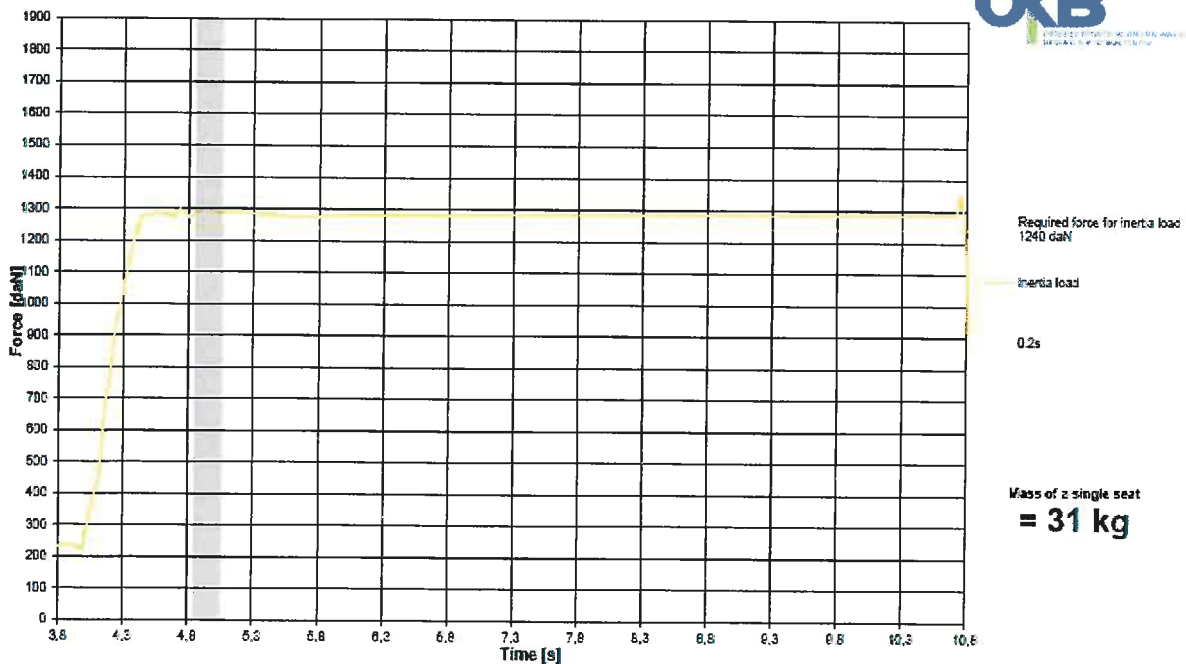
RAM02 on fixation plate in the vehicle (right seat), M1



2.3.1. Frame bench type RAM02 on fixation plate in the vehicle (inertia load).

Date: 28.10.2020  
 Test number: 2020\_10\_28\_01

RAM02 on fixation plate in the vehicle (inertia load), M1



End of the technical report

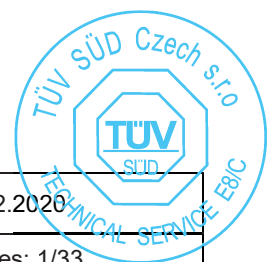
**INFORMATION FOLDER / DOCUMENT:  
OKB/05/2020-00**

**PURSUANT TO UN/ECE REGULATIONS  
No. 14-07  
“UNIFORM PROVISIONS CONCERNING THE APPROVAL  
OF VEHICLES WITH REGARD TO SAFETY-BELT  
ANCHORAGES“  
(as last amended)  
  
FOR THE SEAT OKB  
TYPE RAM02**

*J. Goliński*

.....  
Damian Goliński  
Vice President

Total number of pages: 33  
Date of issue: 10.12.2020



		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 1/33

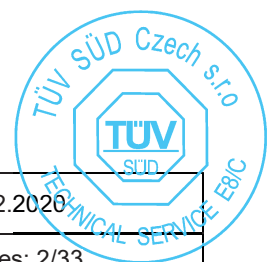
### List of documentation and supplements

Confirmation.....	3
0. General.....	4
1. General construction characteristics of the vehicle .....	4
9. Bodywork.....	4

### List of enclosures

Table of vehicles types	Enclosure 1
Drawings of seat and seat belt anchorages	Enclosure 2
Seat anchorages	Enclosure 3

		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 2/33



**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: 10<sup>th</sup> December 2020



.....  
Damian Goliński  
*Vice President*

		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 3/33



0. GENERAL
- 0.1 Make (trade name of manufacturer): OKB
- 0.2 Type: RAM02
- 0.2.1 Commercial name(s) (if available): RAM02
- 0.2.2 Dedicated for vehicle(s): See Enclosure 1
- 0.3 Means of identification of type: Letter and digits
- 0.3.1 Location of that marking: Near statutory plate
- 0.4 Category of vehicle: M1, N1
- 0.5 Name and address of manufacturer: OKB SP. Z O.O.  
 ul. Rokicińska 108/110  
 95-006 Bukowiec  
 Poland
- 0.8 Name(s) and address(es) of assembly plant(s): N/A
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: N/A
- 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: Any position in the vehicle
- 9.10.3.2 Seat(s) designated for use only when the vehicle is stationary: N/A
- 9.10.3.3 Mass: RAM02 – 62 kg – mass of the heaviest configuration

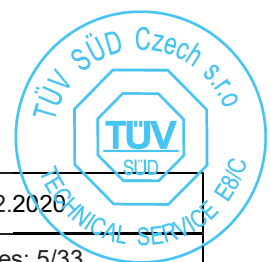
RAM02 is double seat frame with two single seats S1NOV01



		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 4/33

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 2
9.10.3.4.5	The parts of the vehicle used as anchorages:	See Enclosure 3
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 2
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:	adjustable
9.10.4.2.	Type-approval number(s), if available:	N/A
9.10.4.3.	For head restraints not yet approved	N/A
9.12.	Safety belts and/or other restraint systems	

		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 5/33





- 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 <sup>1</sup>	N/A	N/A	N/A
	R <sup>1</sup>	N/A	N/A	N/A
Other rows	L*	E20 16R-04 0886	E20 16R-04 0885 E20 16R-04 0889	N/A
	R*			

<sup>1</sup>-If present

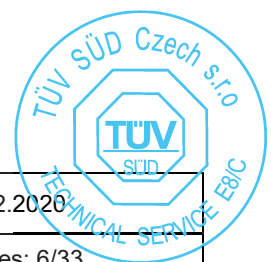
\*- seats alternatively mounted symmetrically about the longitudinal symmetry line

- 9.12.2. Nature and position of supplementary restraint system:  
 (L = left, R = right, C = centre)

ISOFIX anchorages mounted in 2 seating positions

- 9.12.3. Nature and position of safety belt anchorages and proof of compliance with ECE R 14 or Directive 76/115/EEC: N/A
- 9.12.4. Brief description of the electrical/ electronic components (if any): N/A
- 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 Enclosure 2

		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 6/33



9.13.3 Designation of the types of safety belt authorised for fitting to the anchorages with which the vehicle is equipped:

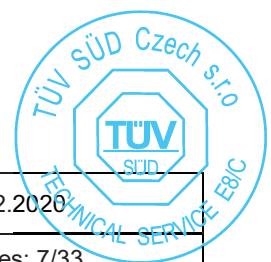
	Anchorage location	
	Vehicle structure	Seat structure
First row of seats	N/A	N/A

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:

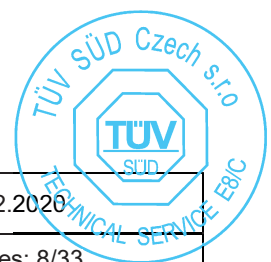
Ar4m

		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 7/33

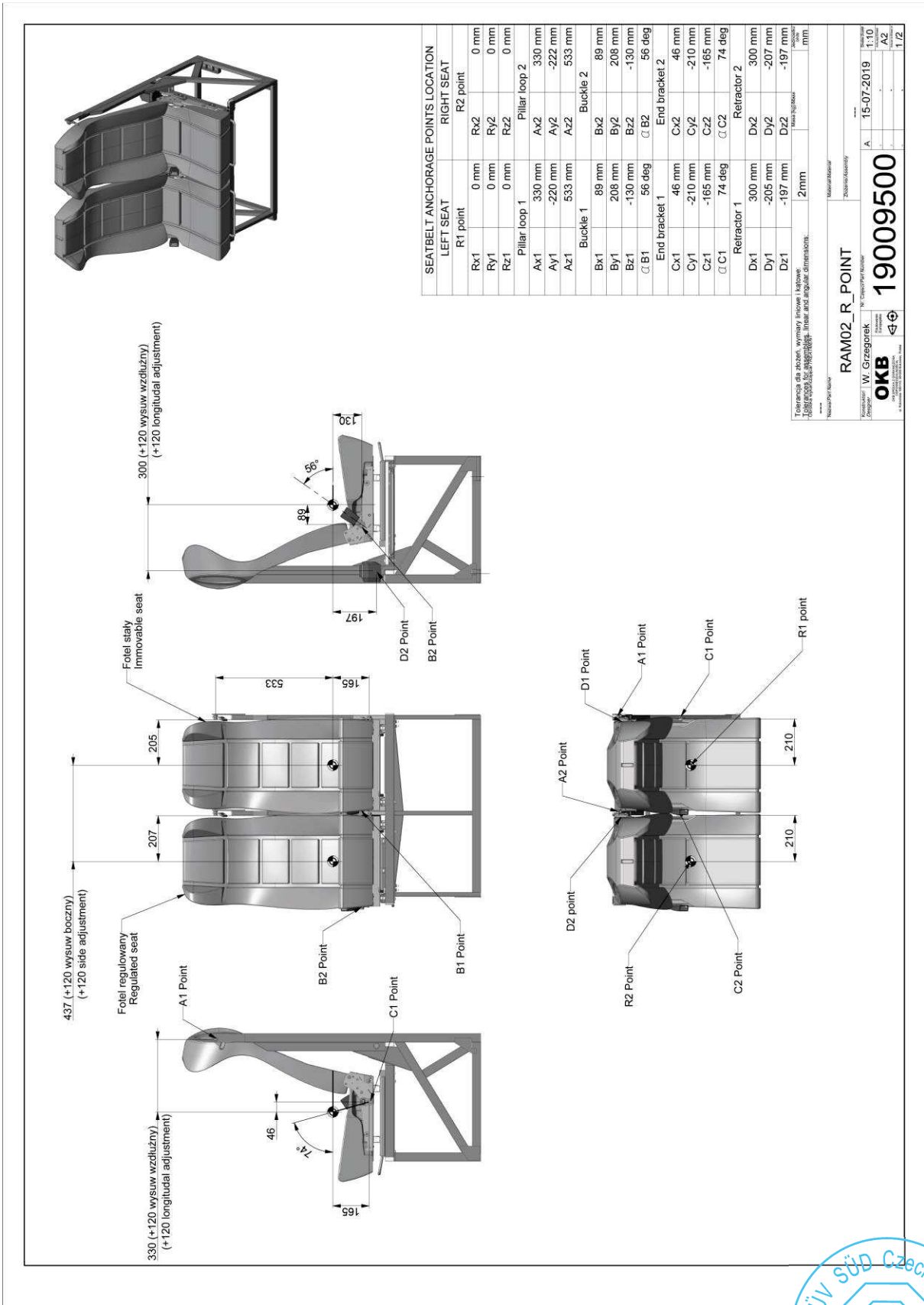


**Enclosure 1: TABLE OF VEHICLES TYPES**

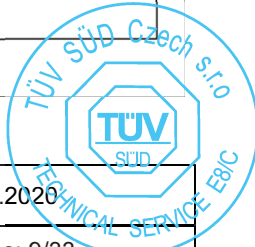
Manufacturer	Commercial description / Type	Wheelbase
Daimler / Mercedes-Benz	Sprinter (906, 907)	3250, 3665, 4325
	Sprinter (910)	3259, 3924
	Vito/Viano/V-klasse (639, 639/2, 639/4)	3200, 3430
VW	Crafter (2E_ )	3250, 3665, 4325
	Crafter (SYN_ e.g. SYN1E, SYN2E, SYN2Z)	3640, 4490
	T5 (7H_ , 7E_ )	3000, 3400
	T6 (7H_ , 7E_ , 7J_ )	3000, 3400
Citroen	Jumper (Y)	3000, 3450, 4035
	Jumpy (X)	3000, 3122
	Jumpy (2016)	2925, 3275
	SpaceTourer	2925, 3275
Peugeot	Boxer (Y)	3000, 3450, 4035
	Expert (VF3_ )	3000, 3122
	Expert (2016)	2925, 3275
	Traveller	2925, 3275
Fiat	Ducato (250)	3000, 3450, 4035
	Scudo (270)	3000,3122
	Talento (FJL, FFL)	3098, 3498
Opel	Movano (MR, MS, MW)	3182, 3682, 4332
	Vivaro (F7)	3098, 3498
Renault	Master (FV, MA)	3182, 3682, 4332
	Trafic (FL, L)	3098, 3498
	Trafic 2014 (JL, L)	3098, 3498
Renault Truck	Master (MF)	3182, 3682, 4332
Ford	Transit (FA_ , FD_ )	2933, 3300, 3750
	Transit (FC_ )	3300, 3750, 3954
	Transit Custom (FA_ , FC_ )	2933, 3300
	Transit Connect (PU2)	2662, 3062
Iveco	Daily (IS_ )	3000, 3300, 3520, 3950, 4100, 4750
Nissan	NV200	2725
	NV300	3098, 3498
	NV400	3182, 3682, 4332
Toyota	Pro Ace, Pro Ace Verso (2016)	2925, 3275
MAN	TGE (SYN_ e.g. SYN1E, SYN2E, SYN2Z)	3640, 4490
LDV	V80, Maxus (SV6C)	3100, 3850
	V90, Deliver 9, E Deliver 9	3000, 3366, 3760
Hyundai	H350 (EU(V))	3435, 3670
RAM (Dodge)	ProMaster	3000, 3450, 4035

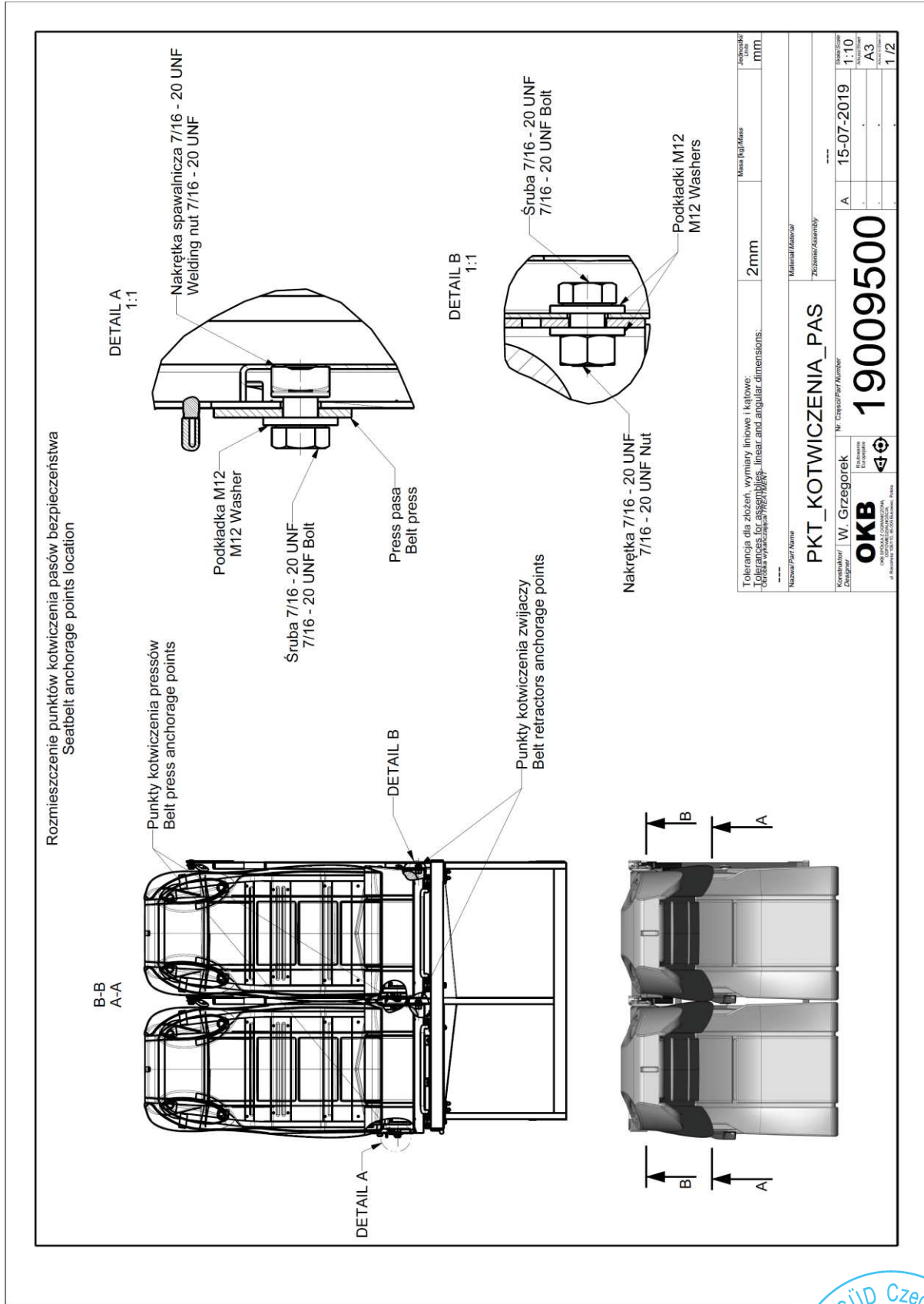


Enclosure 2: DRAWINGS OF SEATS AND SEATBELTS ANCHORAGES

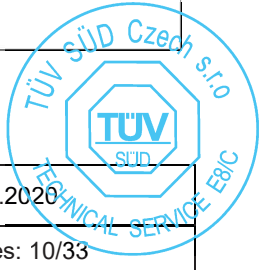


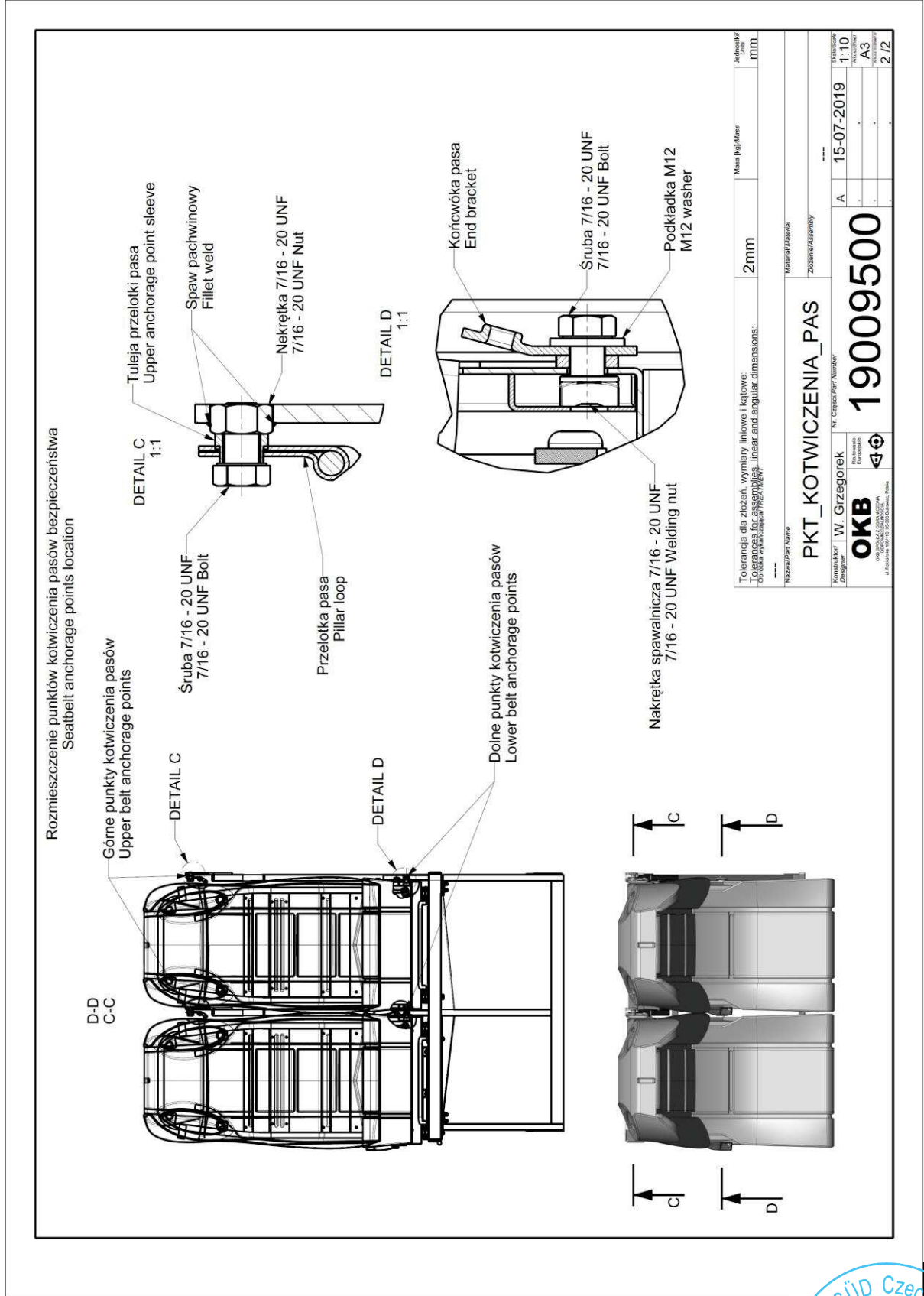
SEATBELT ANCHORAGE POINTS LOCATION	
LEFT SEAT	RIGHT SEAT
R1 point	R2 point
Rx1 0 mm	Rx2 0 mm
Ry1 0 mm	Ry2 0 mm
Rz1 0 mm	Rz2 0 mm
Pillar loop 1	
Ax1 330 mm	Ax2 330 mm
Ay1 -220 mm	Ay2 -222 mm
Az1 533 mm	Az2 533 mm
Buckle 1	
Bx1 89 mm	Bx2 89 mm
By1 208 mm	By2 208 mm
Bz1 -130 mm	Bz2 -130 mm
∠ B1 56 deg	∠ B2 56 deg
End bracket 1	
Cx1 46 mm	Cx2 46 mm
Cy1 -210 mm	Cy2 -210 mm
Cz1 -185 mm	Cz2 -185 mm
∠ C1 74 deg	∠ C2 74 deg
Retractor 1	
Dx1 300 mm	Dx2 300 mm
Dy1 -205 mm	Dy2 -207 mm
Dz1 -197 mm	Dz2 -197 mm
Retractor 2	
Dx1 300 mm	Dx2 300 mm
Dy1 -205 mm	Dy2 -207 mm
Dz1 -197 mm	Dz2 -197 mm
Tolerancja dla zlozen, wymiary linowe i katowe: ±0,1 mm; wymiary katowe: ±0,5 deg; wymiary liniowe i katowe: ±0,1 mm; wymiary katowe: ±0,5 deg	
Nazwa: RAM02_R_POINT	
Zakaznik: W. Grzegorek	
Tytuł: Konstrukcja fotela	
Data: 15-07-2019	
Skala: 1:10	
Kolor: A2	
Liczba: 1/2	



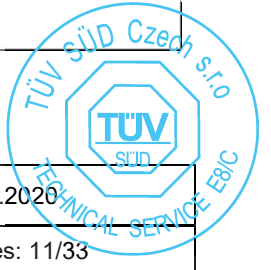


Tolerancje dla złożeń, wymiary liniowe i kątowe: Tolerances for assemblies, linear and angular dimensions: Tolerances for dimensions of assemblies		2mm	2mm	mm
Nazwa/Part Name		Materiał/Material		
Konstruktor/ Designer		Zbiórka/Assembly		
Nr. Części/Part Number		Data/Data		
OKB		15-07-2019		
PKT_KOTWICZENIA_PAS		1:10		
19009500		A3		
		1/2		



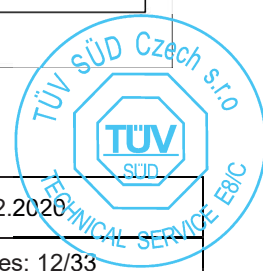
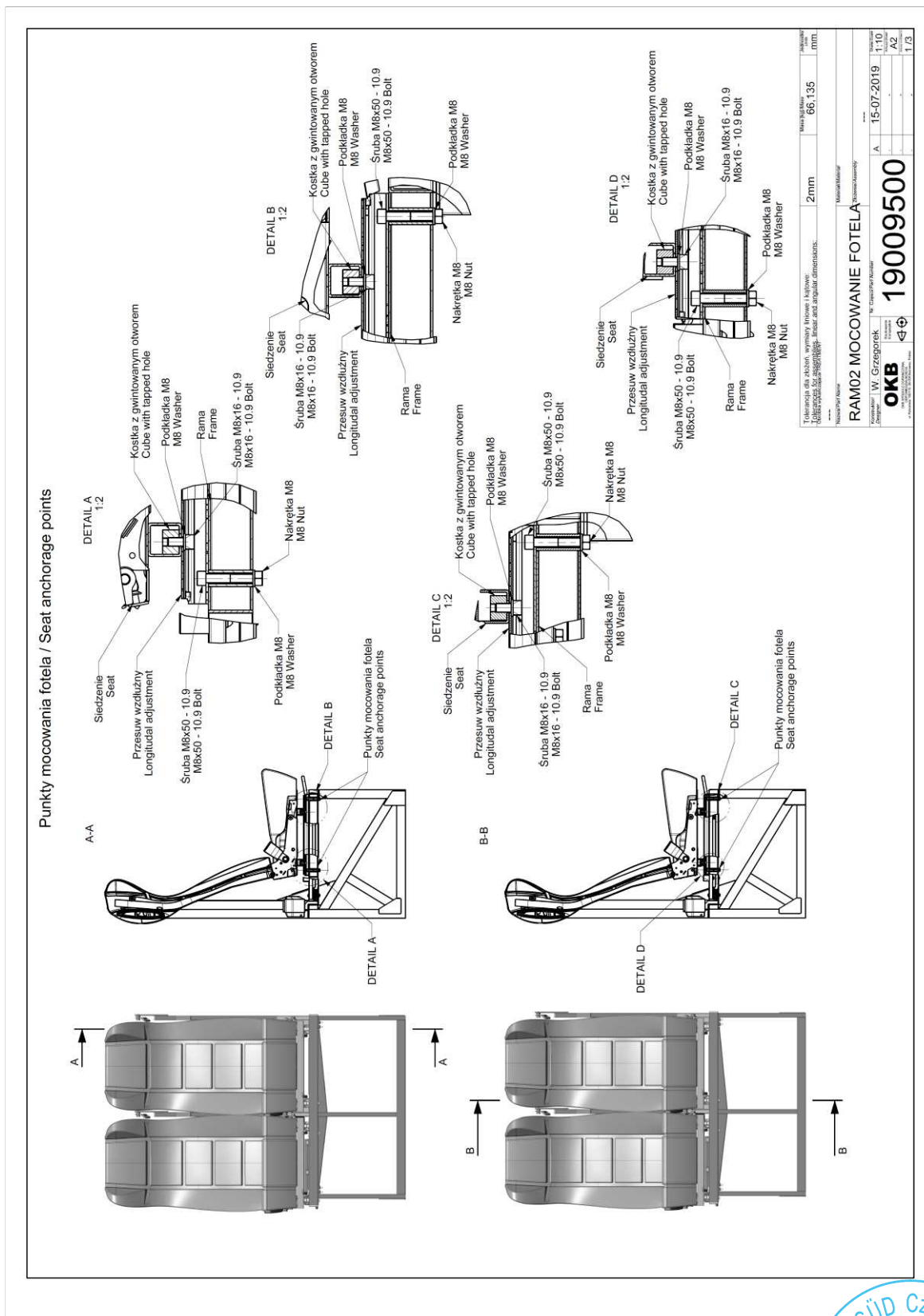


Tolerancje dla złącz, wymiary liniowe i kątowe: Tolerances for assemblies, linear and angular dimensions: Tolerances for assemblies		Masa/Weight/Mass	2mm	Wielkość/Scale	mm
Nazwa/Part Name		Materiał/Material			
Zbiórka/Assembly		PKT_KOTWICZENIA_PAS			
Nr. Części/Part Number		A			
Data wydania/Issue Date		15-07-2019			
Makrotytuł/Macro Title		19009500			
Kwalifikacja/Knowledge		OKB			
Zaprojektował/Designed		W. Grzegorek			
Sprawdził/Checked					
Weryfikacja/Verification					
Wzrost/Scale		2/2			

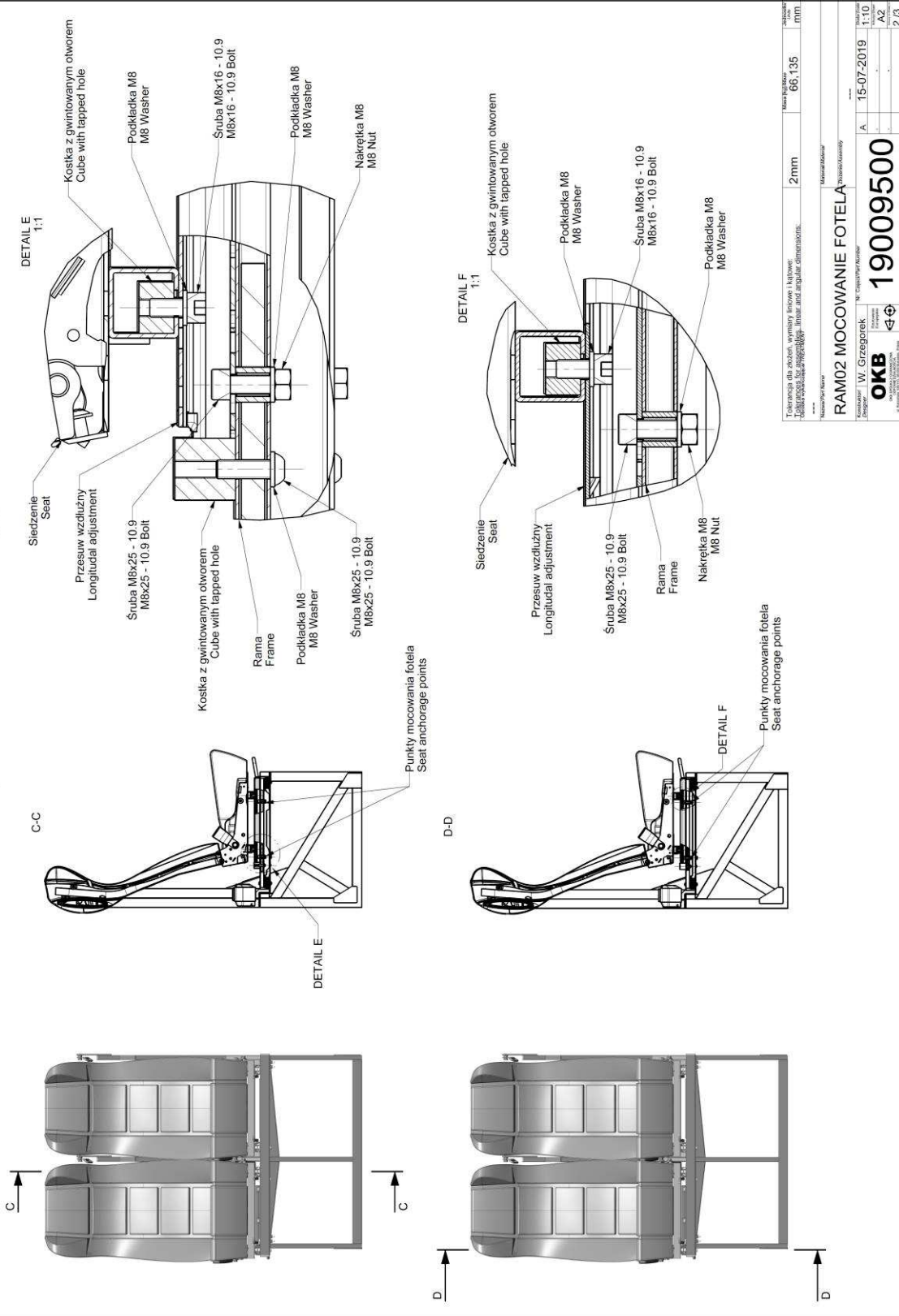




Fixation of seats to RAM02 frame

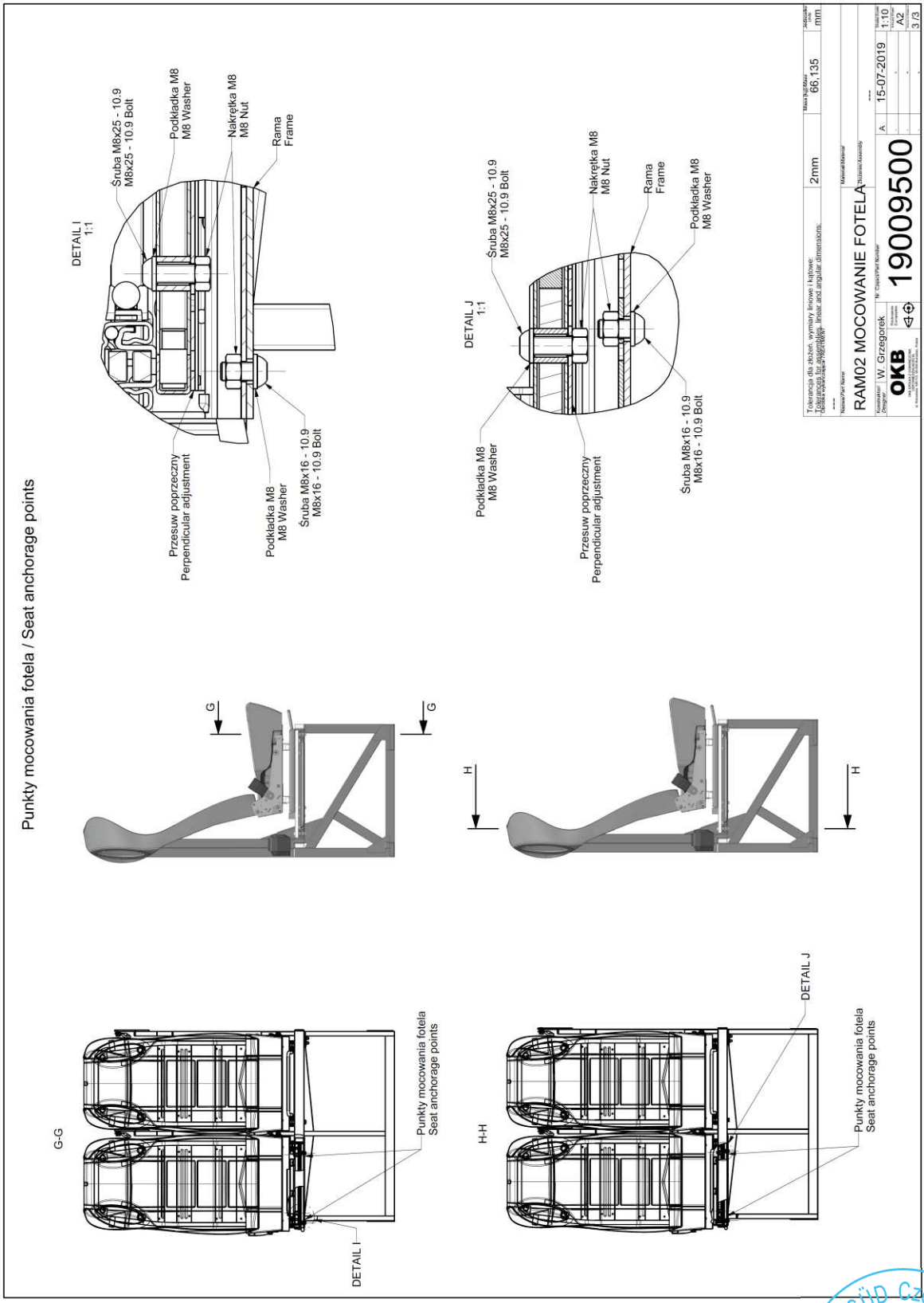


Punkty mocowania fotela / Seat anchorage points



Tolerancja dla obrabiarki, wymiary liniowe i kątowe: Tolerances for the machine, linear and angular dimensions:		2mm	Maksymalna grubość materiału: Maximum material thickness:	66,135	Wielkość formatu: Format size:	A2
Nazwa rysunku: Drawing name:		RAM02 MOCOWANIE FOTEŁA / SEAT ANCHORAGE POINTS		Data wydania: Issue date:		15-07-2019
Wykonany przez: Executed by:		W. Grzegarek		Skala: Scale:		1:10
Zaprojektował: Designed by:		OKB		Czyść rysunek: Clean drawing:		A2
Weryfikacja: Verification:				Liczba stron: Number of pages:		2/3
Numer rysunku: Drawing number:		19009500		Wersja: Version:		

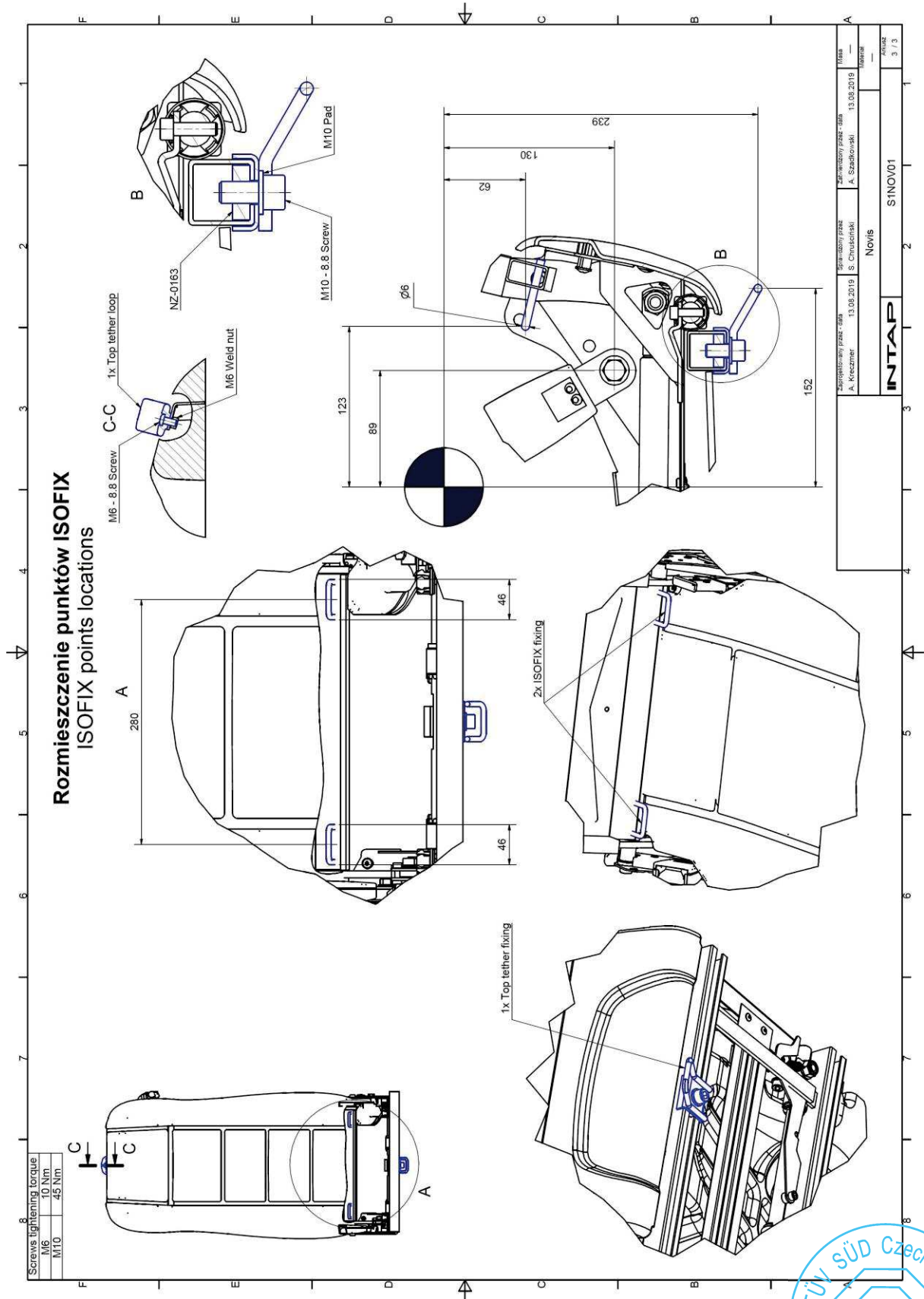
Punkty mocowania fotela / Seat anchorage points



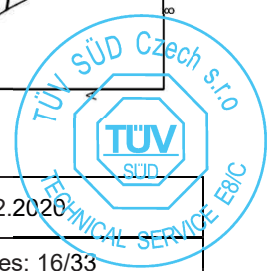
Tolerancje dla złożów, wymiary linowe i kątowe: Tolerances for assemblies, linear and angular dimensions:		2mm	66,135	mm
Nazwa / Name: RAMI02 MOCOWANIE FOTEŁA				
Kod / Code: 19009500				
Wydawca / Issued by: OKB				
Data / Date: 15-07-2019				
Wersja / Version: A2				
Liczba stron / Number of pages: 3/3				



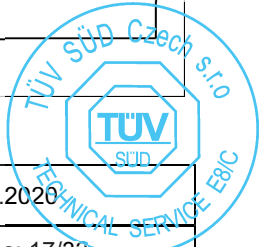
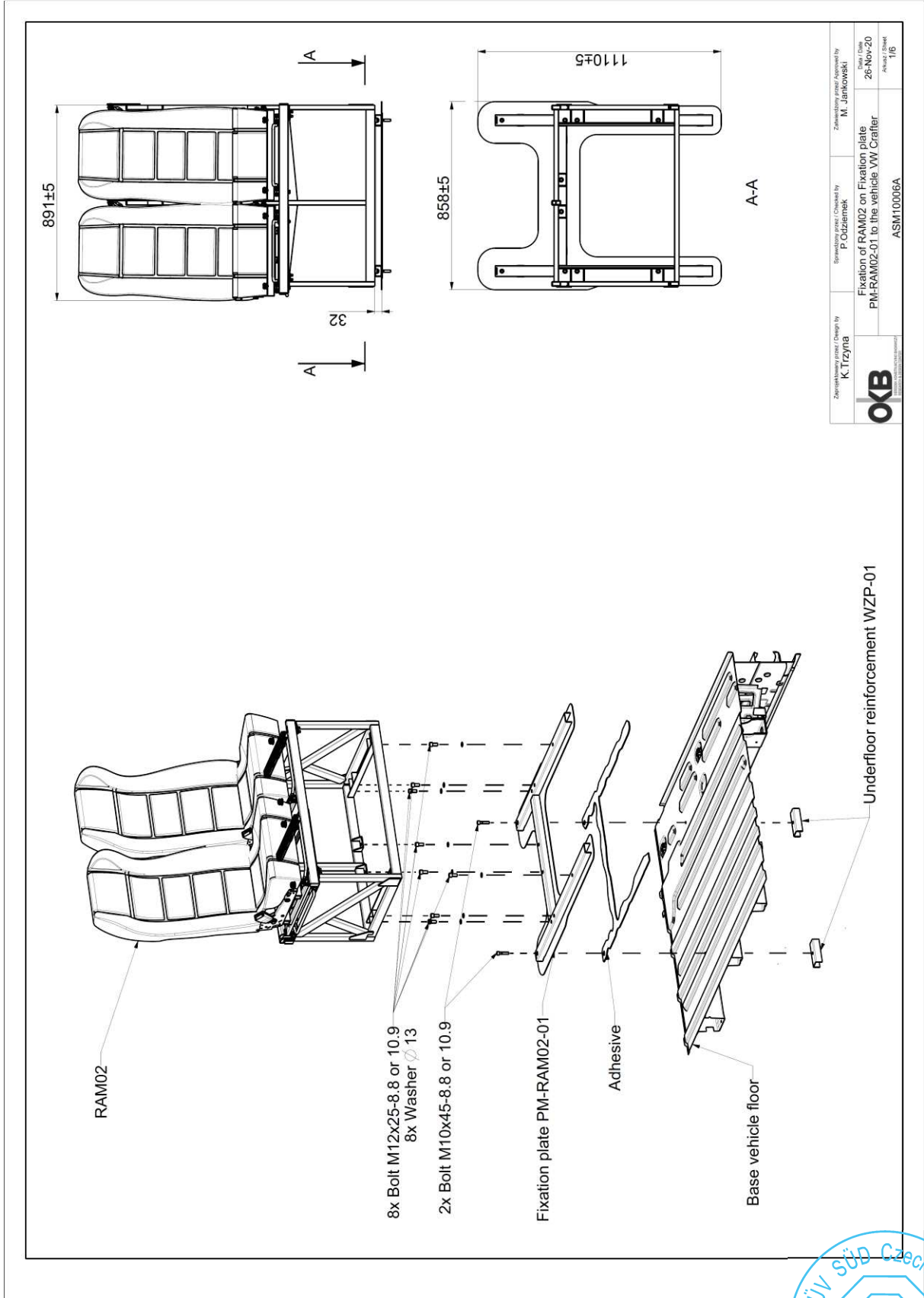




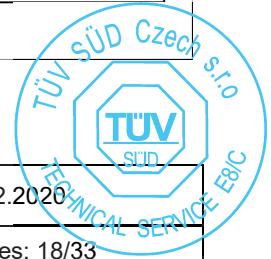
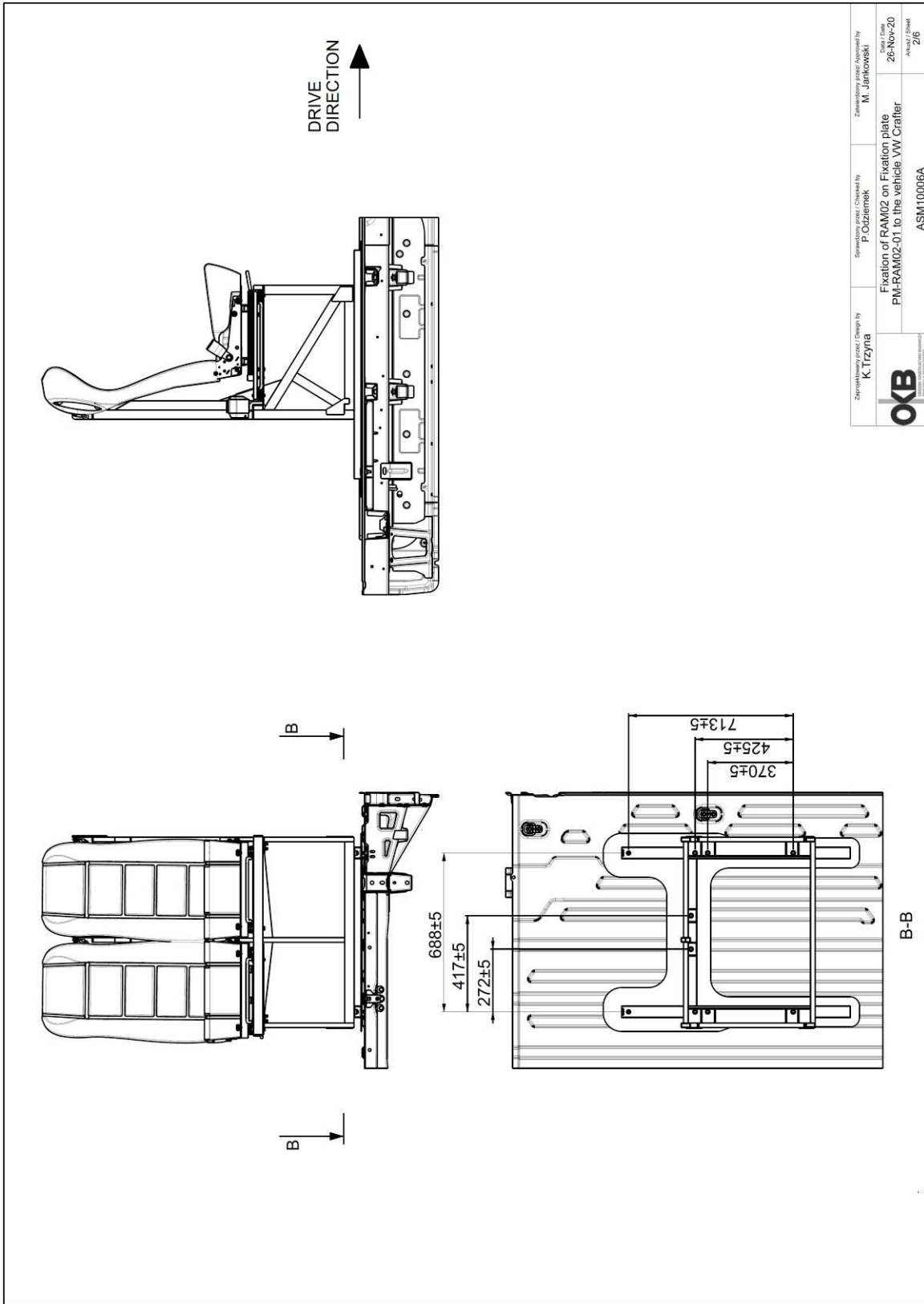
Zaprojektowany przez: -M10- A. Kreczmer		Sprawdzony przez: -M10- S. Chmielecki		Zaprojektowany przez: -M10- A. Szarowicki		Sprawdzony przez: -M10- 13.08.2018	
Tytuł: _____		Data: 13.08.2018		Miejscowość: _____		Strona: 3 / 3	
Novis				SINOV01			
INTAP				KRAJÓZ			



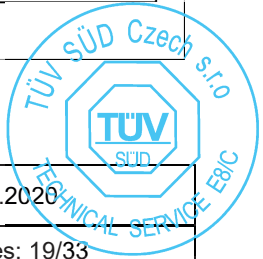
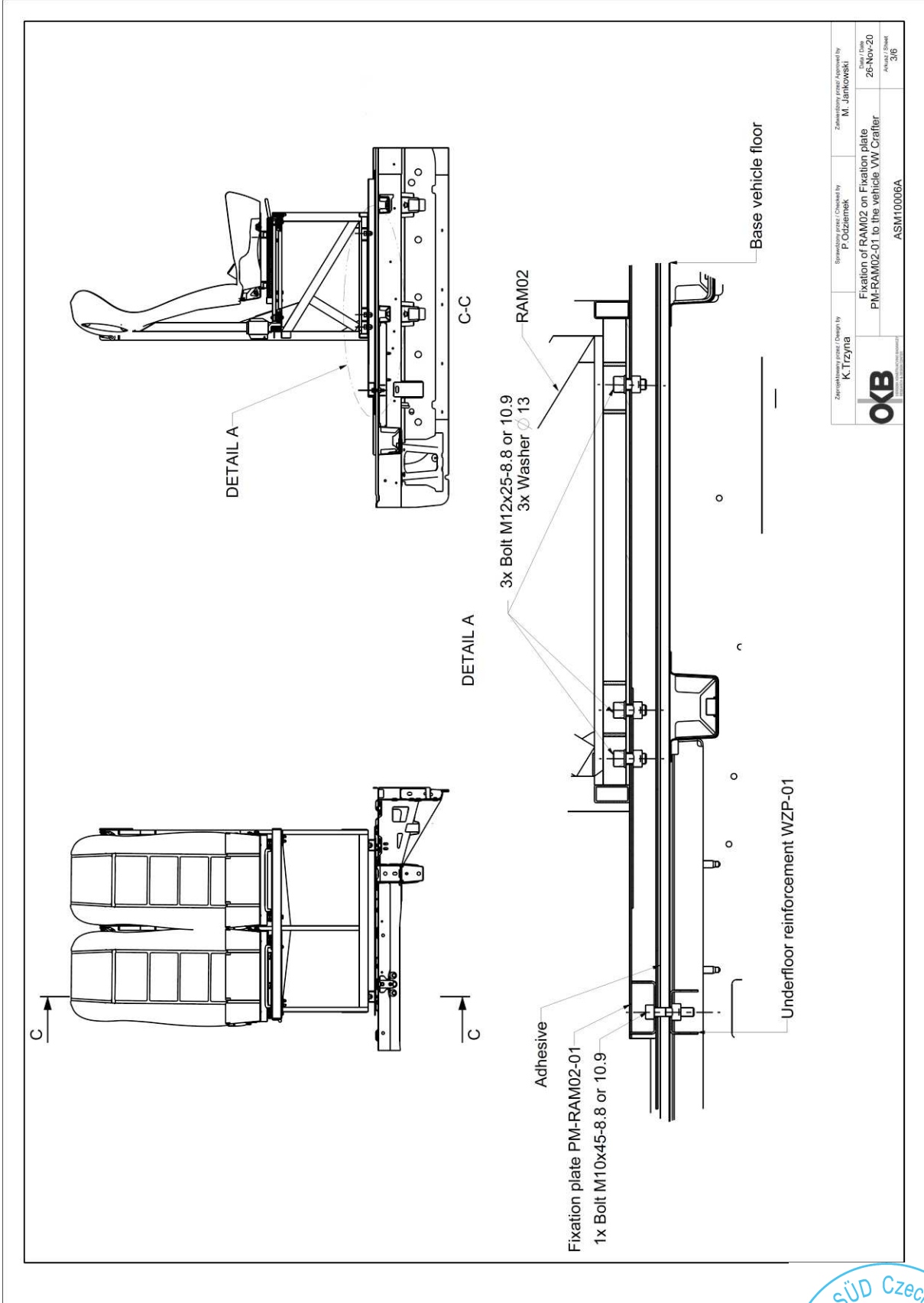
**Enclosure 3: SEAT ANCHORAGES**



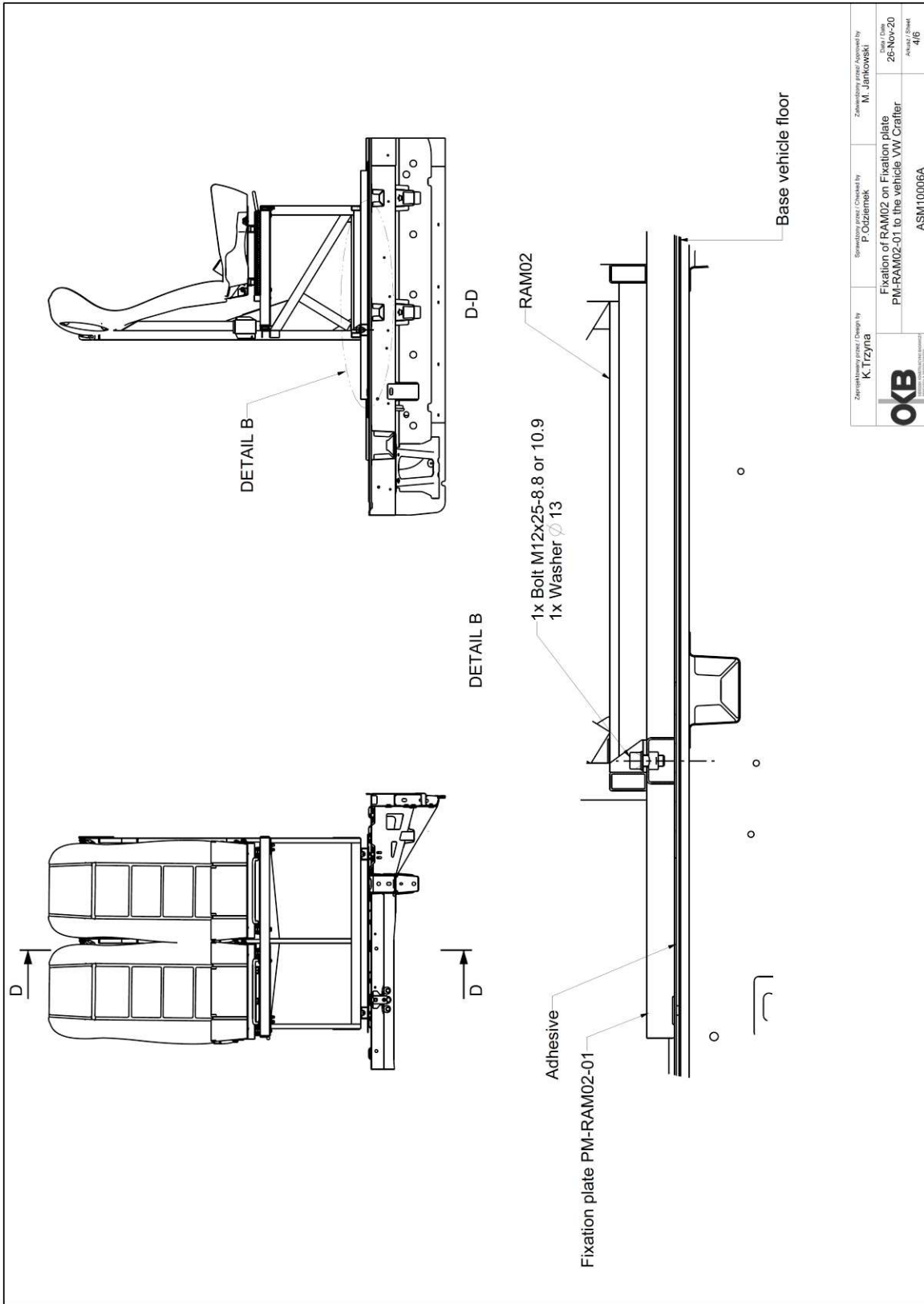




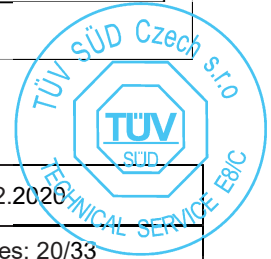
	OKB/05/2020-00	Date: 10.12.2020 Page / pages: 18/33
--	----------------	---

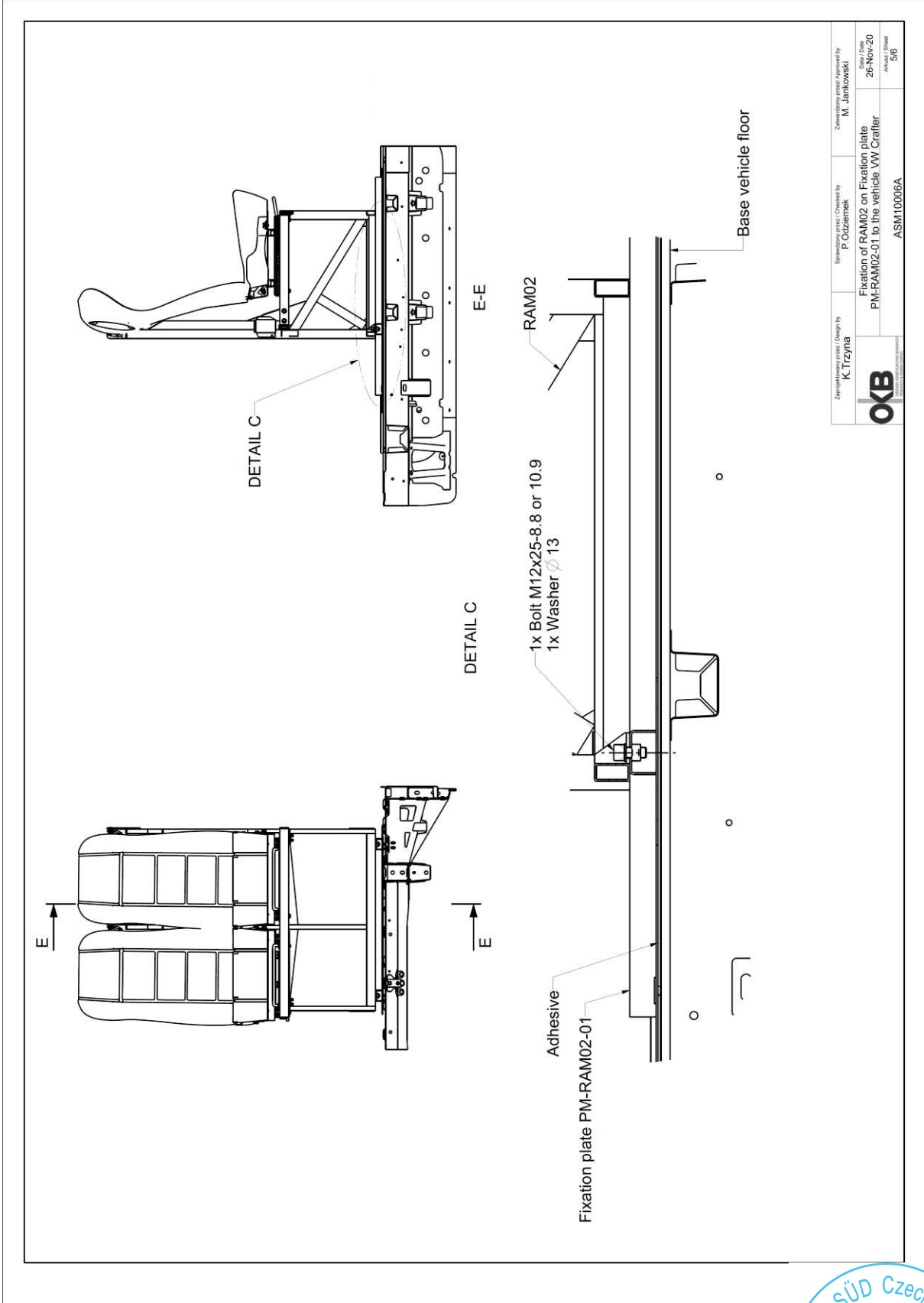


	OKB/05/2020-00	Date: 10.12.2020
		Page / pages: 19/33

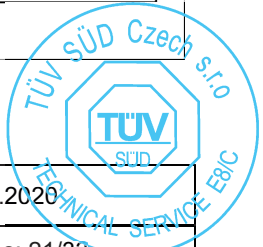


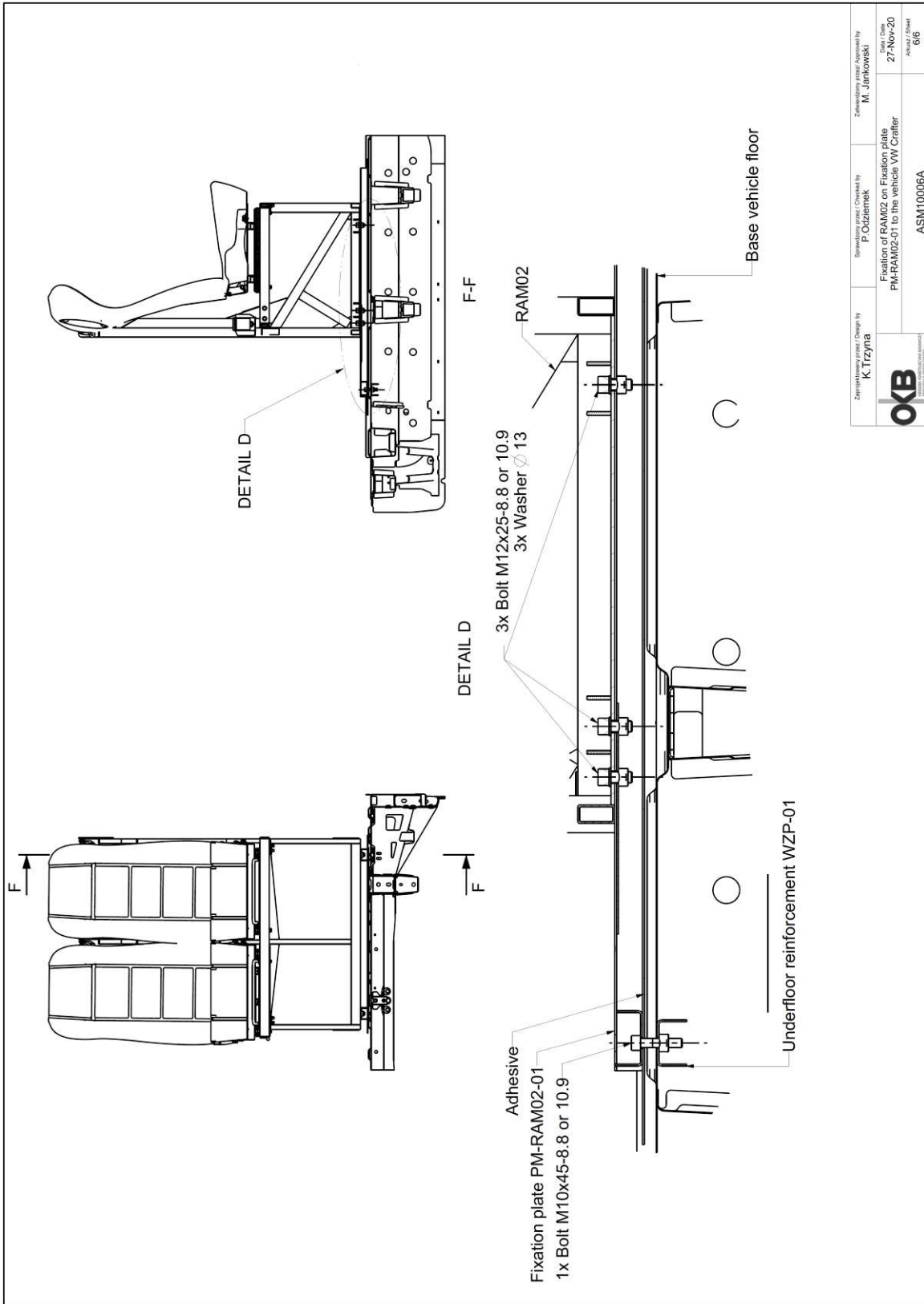
Zaprojektowany przez / Design by <b>K. Trzyna</b>	Sprawdzony przez / Checked by <b>P. Ozierniak</b>	Zatwierdzony przez / Approved by <b>M. Jankowski</b>
Fixation of RAM02 on Fixation plate PM-RAM02-01 to the vehicle.VW Crafter		Sheet / Sheet 4/6
		ASM10006A



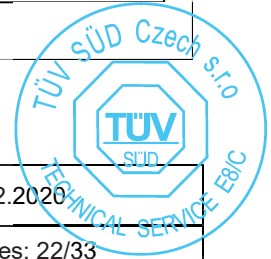


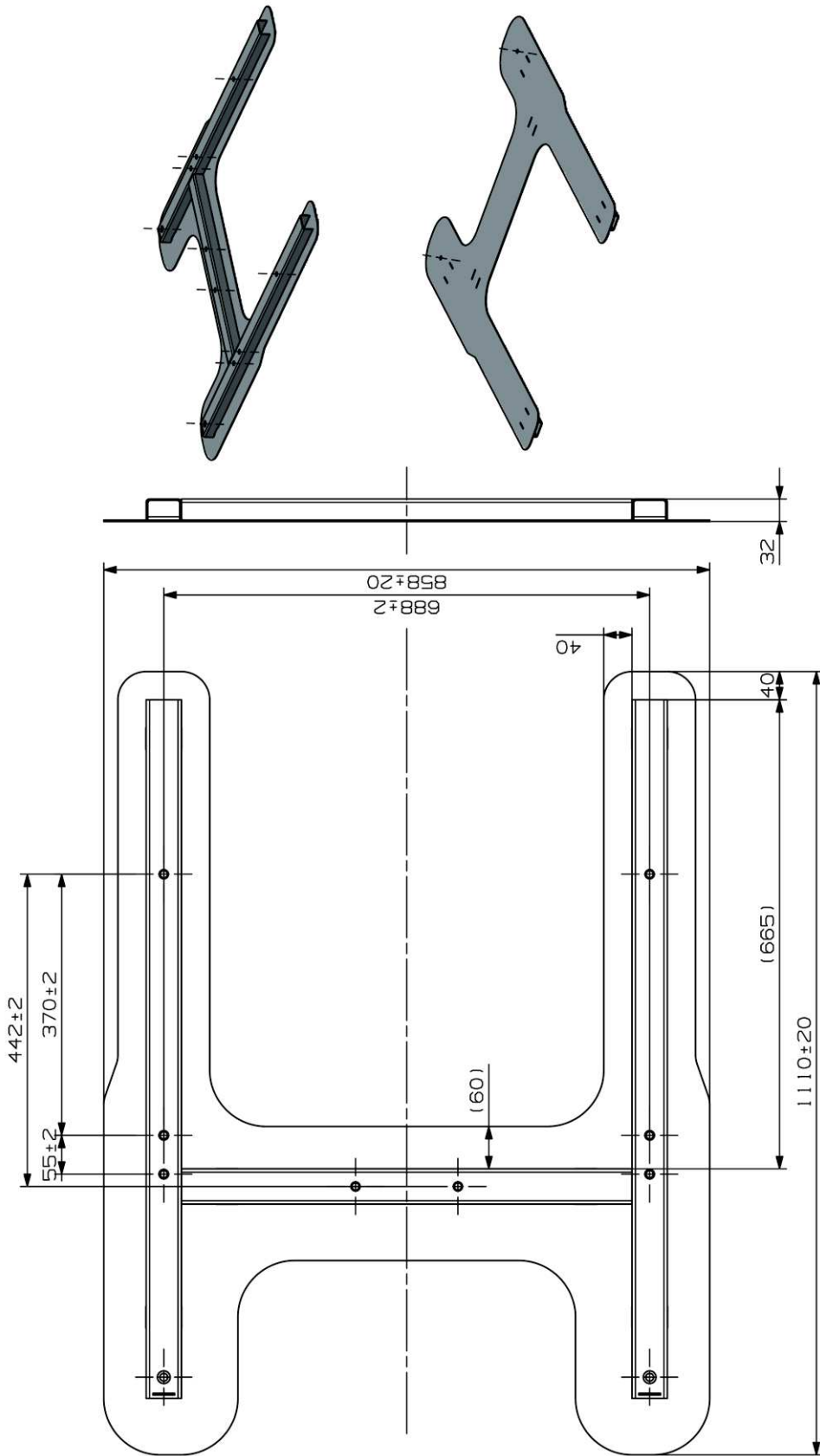
Zaprojektowany przez / Designed by <b>K. Trzyna</b>	Sprowadzony przez / Checked by <b>P. Ozierniak</b>	Zatwierdzony przez / Approved by <b>M. Jankowski</b>
Fixation of RAM02 on Fixation plate PM-RAM02-01 to the vehicle_VW Crafter		Sheet / Sheet <b>5/6</b>
<b>OKB</b>		ASM10006A
Date / Data <b>26-Nov-20</b>		



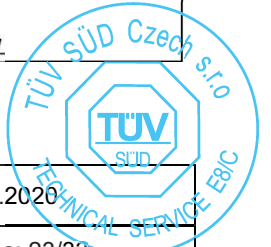


Zaprojektowany przez / Designed by <b>K. Trzyna</b>	Sprawdzony przez / Checked by <b>P. Oziemek</b>	Zatwierdzony przez / Approved by <b>M. Jankowski</b>
Fixation of RAM02 on Fixation plate PM-RAM02-01 to the vehicle VW Crafter		Data / Date 27-Nov-20
<b>OKB</b>		Arkuszy / Sheet 6/6
ASM10006A		

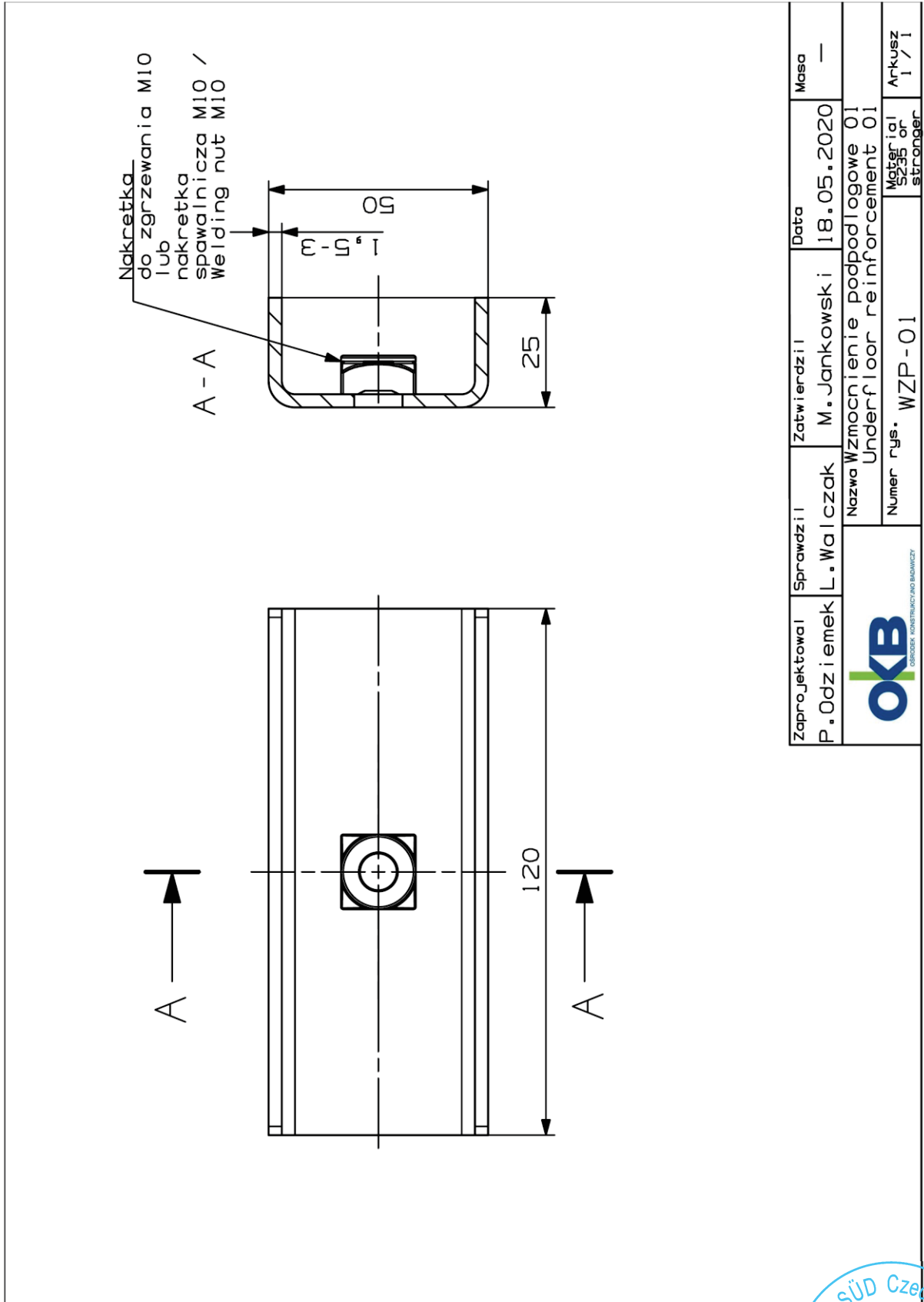





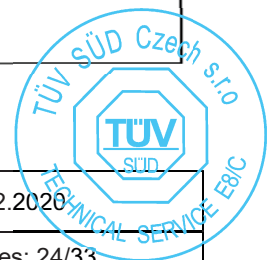
Zaprojektował	Sprawił	Zatwierdził	Data	Masa
P. Odziejewski	L. Walczak	M. Jankowski	09.09.2020	-
Nazwa			Material	Arkusze
ramo mocujaca stelaz RAM02			-	1/1
Numer			Material	Arkusze
PM-RAM02-01			-	1/1







Zaprojektował	Sprawdził	Zatwierdził	Data	Masa
P. Odziejemek	L. Walczak	M. Jankowski	18.05.2020	—
 <small>OSRODEK KONSTRUKCYJNO BADAWCZY</small>			Nazwa Wzmocnienie podłogowe 01	
			Underfloor reinforcement 01	
Numer rys. WZP-01			Materiał S235 or stranger	

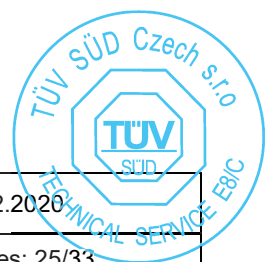


Preparation of the vehicle body



Clean vehicle bodywork before installing the fixation plate. For this purpose use Betaclean (cleaner) to degrease the vehicle's floor and the underside of the fixation plate.

		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 25/33



### Application of primer

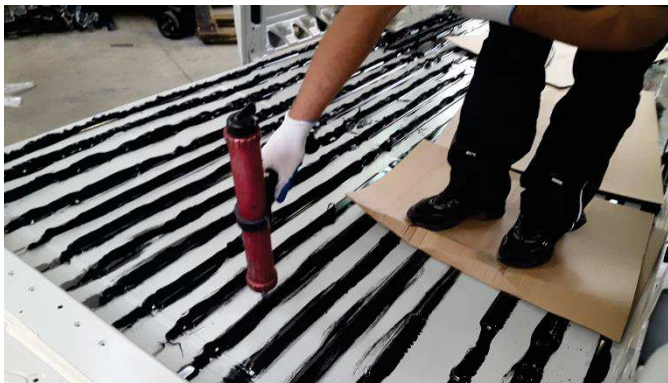


Apply Betaprime to the vehicle's floor and underside of the fixation plate.

Primer can be applied with either a brush or a roller.

Note: Contact surfaces (of vehicle floor and fixation plate) must be covered by Betaprime.

### Gluing of the floor into vehicle

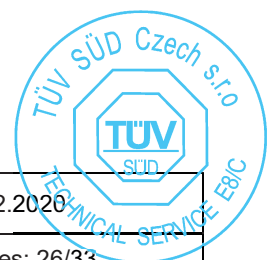


Use Betamate to glue the fixation plate.

The adhesive must be applied to the surfaces coated previously by Betaprime.

After placing the fixation plate in the vehicle, the beads of glue must be pressed down evenly over the whole surface of the floor.

		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 26/33





## 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:

<b>Basis</b>	Heptane
<b>Colour</b>	Colourless, transparent
<b>Density</b>	0,68 g/cm <sup>3</sup> at 23°C
<b>Flash point</b>	-4°C
<b>Instructions for use</b>	Wipe contaminated surface with BETACLEAN 3350 saturated, binder-free tissues or cloths. Preliminary trials carried out by our technical service department are recommended.
<b>Shelf life</b>	12 months in unopened containers
<b>Containers</b>	100, 250, 1000ml aluminium containers
<b>Protection measures</b>	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.

**Dow Automotive AG**  
 CH-8807 Freienbach  
 Tel. +41(0)55416 81 11  
 Fax +41(0)55416 82 20

**Dow Automotive (Deutschland) GmbH**  
 D-35683 Dillenburg  
 Tel. +49(0)2771 8 71 40  
 Fax +49(0)2771 87 14 70

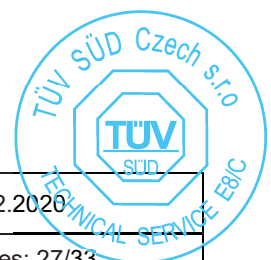
**Dow Automotive (Italia) S.r.l**  
 I-20010 Bareggio (MI)  
 Tel. +39(0)2 90 36 11 66  
 Fax +39(0)2 90 27 66 98

**Dow Automotive (España) S.A.**  
 E-28816 Camarma de Esteruelas (Madrid)  
 Tel. +34 (9)1 886 61 43  
 Fax +34 (9)1 885 75 60

**Dow Automotive (France) S.A.**  
 F-60130 Saint-Just en chaussee  
 Tel. +33(0) 3 44 77 61 00  
 Fax. +33(0) 3 44 77 61 61

**Dow Automotive (UK) Ltd.**  
 GB-Nuneaton-Warwickshire CV10 7QT  
 Tel. +44 (0) 24 7635 72 00  
 Fax. +44 (0) 24 7635 72 57

		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 27/33





## Technical Datasheet Aftermarket Division

**Dow Automotive**

# 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:

<b>Basis</b>	Silane modified polymers
<b>Colour</b>	black
<b>Pigments</b>	carbon black
<b>Density</b>	approx. 0.97 g/cm <sup>3</sup> bei 23°C
<b>Viscosity (DIN-cup 4)</b>	< 14 s bei 23°C
<b>Flash Point</b>	See health and safety data sheet.
<b>Processing temperature</b>	ideal 10 - 40°C
<b>Tack free time</b>	50 - 150 sec @ 23°C / 50 % r.h.
<b>Evaporation time</b>	min. 10 min @ 23°C / 50 % r.h., max. 8h Reactivation with BP 5061 or BW 4001, 4002 possible.
<b>Instruction for use</b>	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.
<b>Bonding surface preparation</b>	Clean bonding areas with the BETACLEAN 3300. Verify compatibility or consult our technical service department.
<b>Cleaning</b>	Clean Equipment with BETACLEAN 3000
<b>Shelf life</b>	9 months in unopened containers (see "use before" date printed on the container)



		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 28/33



**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.

All statements, technical information and recommendations contained in this document are based on tests that we believe are reliable.

However, the accuracy or completeness of the statements, information and recommendations is not guaranteed, as before using, the user should determine the suitability of the product for user's intended purpose.

This document does not create any liability and all warranties, express or implied, including the implied warranties of merchantability and fitness for a particular purpose are disclaimed. Neither seller nor manufacturer shall be liable either in contract or tort for any loss or damage, direct, incidental, or consequential, arising out of the use and or the inability to use the product. Seller's/manufacturer's only obligation is the replacement of defective product.

Dow France S.A.S  
 Z.I. Nord, route d'Amiens  
 F-60130 St-Just-en-Chaussée  
 Tel. +33 (0) 3 44 77 61 00  
 Fax. +33 (0) 3 44 77 61 61

Dow Automotive UK Ltd.  
 GB-Nuneaton Warwickshire  
 CV107QT  
 Tel. +44 (0) 1203 35 72 00  
 Fax. +44 (0) 1203 35 72 57

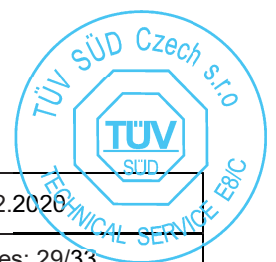
Dow Automotive (Allemagne) GmbH  
 Am Kronberger Hang 4  
 D- 65824 Schwalbach  
 Tel. +49 (0) 6196 566 0  
 Fax. +49 (0) 6196 566 444

Dow Automotive (Italie) SRL  
 Via Patroclo (Sales office)  
 I-20151 Milan  
 Tel. +39 (0) 2 48 221  
 Fax. +39 (0) 2 48 22 40 66

Dow Automotive (España) S.L.  
 C/ Camino del Corral, 7  
 E-28816 Camarma de Esteruelas (Madrid)  
 Tel. +34 (9) 1886 61 43  
 Fax. +34 (9) 1885 75 60

Dow Automotive (Suisse)  
 Wolleraustrasse 15-17  
 CH-8807 Freienbach  
 Tel. +41 (0) 55 416 81 11  
 Fax. +41 (0) 55 416 82 20

Dow Automotive (USA)  
 1250 Harmon Road  
 Auburn Hills, MI - 48326  
 Tel. +001 248 391 63 00  
 Fax +001 248 391 64 17



		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 29/33





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

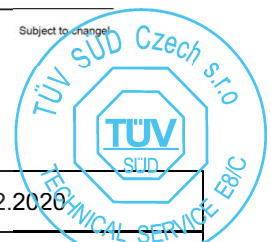
All Dow Automotive products are primarily developed in co-operation with the automobile manufacturers, according to their needs and their specifications, they are approved for the specific applications as defined by the customer. The use of the product other than approved application have to be released 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/cm <sup>3</sup>
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

	Date: 10.12.2020
OKB/05/2020-00	Page / pages: 30/33





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.

All statements, technical information and recommendations contained in this document are based on tests that we believe are reliable. However, the accuracy or completeness of the statements, information and recommendations is not guaranteed, as before using, the user should determine the suitability of the product for user's intended purpose.

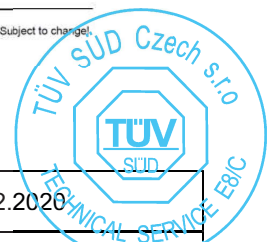
This document does not create any liability and all warranties, express or implied, including the implied warranties of merchantability and fitness for a particular purpose are disclaimed. Neither seller nor manufacturer shall be liable either in contract or tort for any loss or damage, direct, incidental, or consequential, arising out of the use and or the inability to use the product. Seller's/manufacturer's only obligation is the replacement of defective product.

### Dow Automotive Systems Main Offices

<p><b>The Dow Chemical Company</b> Customer Information Group Europe</p> <p>Phone +800 3 6946367 Phone +32 3 450 2240 Italia 800 783 825 Fax +32 3 450 2815</p>	<p><b>Dow Automotive Systems</b> World Head Quarter</p> <p>1250 Harmon Road Auburn Hills, MI 48326 USA Tel. +1 248 391 63 00 Fax +1 248 391 64 17</p>	<p><b>Dow Automotive Systems</b></p> <p>Dow Deutschland Anlagengesellschaft GmbH Am Kronberger Hang 4 65824 Schwalbach Germany Tel: +49 6196 566 0 Fax: +49 6196 566 444</p>	<p><b>Dow Automotive Systems</b></p> <p>Dow Europe GmbH Bachtobelstrasse 3 CH-8810 Horgen Switzerland Tel. +41 (0) 44 728 2111 Fax. +41 (0) 44 728 2935</p>
<p><b>Dow Automotive Systems</b></p> <p>Dow Chemical Ibérica, S.L. Ribera del Loira, 4-6 - Planta 4ª (Edificio IRIS) 28042 Madrid Spain Tel. + 34 91 740 7800 Fax. + 34 91 740 7785</p>	<p><b>Dow Automotive Systems</b></p> <p>Dow France S.A.S. 23 avenue Jules Rimet 93631 La Plaine St Denis Cedex France Tel: +33 1 49 21 78 78 Fax: +33 1 49 21 79 79</p>	<p><b>Dow Automotive Systems</b></p> <p>Dow Italia Divisione Commerciale s.r.l. Via F. Albani, 65 - 20148 Milano Italy Tel: +39 02 482 21 Fax: +39 02 482 241 08</p>	

NOTICE: No freedom from any patent owned by Dow or others is to be inferred. Because use conditions and applicable laws may differ from one location to another and may change over time, the Customer is responsible for determining whether products and the information in this document are appropriate for the Customer's use and for ensuring that the Customer's workplace and disposal practices are in compliance with the applicable laws and other governmental enactments. Dow assumes no obligations or liability for the information in this document. No warranties are given. Dow Automotive Systems is a business unit of The Dow Chemical Company.

		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 31/33





**Dow Automotive**

# BETAMATE 7120

**Description / Application:**

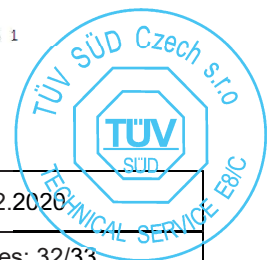
Single-component, high-viscosity, atmospheric humidity-curing polyurethane bonding/sealing compound for high-strength, permanently elastic adhesive joints. This material is used in the direct glazing process of the automotive industry in combination with glass-primer and wipe and paint primer. It is 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 <sup>3</sup> 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



		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 32/33



<b>Temperature stability</b>	-40°C to 100°C, for short periods up to 120°C
<b>Resistance to chemicals</b>	Highly resistant to aqueous chemicals, petrol, alcohol and mineral oils. Conditionally resistant to esters, ketones, aromatics and chlorinated hydrocarbons
<b>Bonding surface preparation</b>	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.
<b>Processing equipment</b>	Cartridges: hand-operated or pneumatic gun with mechanical piston Drums, pails: commercial pumping system with connection to automatic applicator, if required.
<b>Cleaning</b>	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.
<b>Shelf life</b>	6 months at +5°C to +25°C in unopened containers. (See "use before" date printed on container).
<b>Containers</b>	300 ml cartridges, cardboard packs of 12 Pails: 22 litres Drums: 200 litres
<b>Protection measures</b>	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**.

**Dow Automotive AG**  
 CH-8807 Freienbach  
 Tel. +41(0)55416 81 11  
 Fax +41(0)55416 82 20

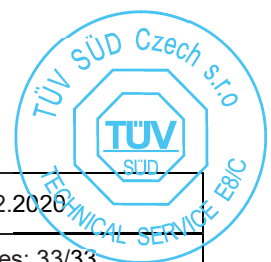
**Dow Automotive (Italia) S.r.l**  
 I-20010 Bareggio (MI)  
 Tel. +39(0)2 90 36 11 66  
 Fax +39(0)2 90 27 66 98

**Dow Automotive (France) S.A.**  
 F-60130 Saint-Just en chaussee  
 Tel. +33(0) 3 44 77 61 00  
 Fax. +33(0) 3 44 77 61 61

**Dow Automotive (Deutschland) GmbH**  
 D-35683 Dillenburg  
 Tel. +49(0)2771 8 71 40  
 Fax +49(0)2771 87 14 70

**Dow Automotive (España) S.A.**  
 E-28816 Camarma de Esteruelas (Madrid)  
 Tel. +34 (9)1 886 61 43  
 Fax +34 (9)1 885 75 60

**Dow Automotive (UK) Ltd.**  
 GB-Nuneaton-Warwickshire CV10 7QT  
 Tel. +44 (0) 24 7635 72 00  
 Fax. +44 (0) 24 7635 72 57



		Date: 10.12.2020
	OKB/05/2020-00	Page / pages: 33/33