

Manufacturer: Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
Type: Wheeled Loader

Technical Report

15-TAHP-EK-0087/SRH

According to ISO 3471 and OSHA 1926.1001
Earth-Moving Machinery
Roll-Over Protective Structures

1 General

- | | | |
|-----|---|--|
| 1.1 | Make: | Sanko |
| 1.2 | Type: | MST Bachhoe Loader |
| 1.3 | Name and adress of ROPS manufacturer: | Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
4.Organize Sanayi Bölgesi
83414 Nolu Cad. No:124/1
TR-Şehitkamil / Gaziantep |
| 1.4 | Name(s) of adress(es) of assembly plant(s): | Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
4.Organize Sanayi Bölgesi
83414 Nolu Cad. No:124/1
TR-Şehitkamil / Gaziantep |
| 1.5 | Name and address of vehicle manufacturer: | Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
4.Organize Sanayi Bölgesi
83414 Nolu Cad. No:124/1
TR-Şehitkamil / Gaziantep |

Manufacturer: Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
Type: Wheeled Loader

Test Report

1. Trademark or name of protective structure

MST Backhoe Loader

2. Name and address of manufacturer of protective structure

Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
4.Organize Sanayi Bölgesi
83414 Nolu Cad. No:124/1
TR-Şehitkamil / Gaziantep

3. Name and address of machine manufacturer

Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
4.Organize Sanayi Bölgesi
83414 Nolu Cad. No:124/1
TR-Şehitkamil / Gaziantep

4. Specifications of machine on which the tests are carried out

4.1. Trademark

MST

4.2. Type and commercial description

M642 / M644

4.3. Serial number of ROPS

Not applicable

4.4. Mass of machine fitted with ROPS

9.240 kg

5.1. General arrangement drawing of both protective structure and its attachment to the machine

Refer to drawings.

5.2. Photographs from side and rear showing mounting details

Refer to enclosure.

5.3. Brief description of protective structure including type of construction, details of mounting on the tractor, details of cladding, means of access and escape, details of interior padding, features to prevent continuous rolling and details of heating and ventilation

Roof plate thickness is 4 mm, Bottom plate thickness is 3 mm, A pillar profile is 4,5 mm, B pillar profile is 4,5 mm, C pillar profile is 4,5 mm

Manufacturer: Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
Type: Wheeled Loader

The test was performed with ROPS and machine frame members soaked to 20 °C.
Verification of specification of the charpy V-notch impact strength requirements for ROPS structural metallic members:

Sample	Energy met at -20° C (J)	Energy met at -30° C (J)
6 mm S235JR quality sheet metal	154	160
4 mm shaped profile	68	76

5.4. Dimensions

Refer to drawings.

5.5. Details and quality of materials used, standard used

Refer to drawings

6. Test results

6.1 Loading and crushing tests

Loading tests were made to the middle of the rear, right-hand side, crushing on the top.

6.2. The reference mass used for calculating energy input and crushing forces:

9.240 kg

6.3. The requirements concerning cracks or tears and the protection of the zone of clearance were fulfilled. Protective structure does not interfere to the seat.

6.4. Loading energies and crushing forces according to ISO 3471 and OSHA 1926.1001 standard

Required Energies and Forces	Required Energies and Forces	Test Loads
Lateral loading force:	55440 N	55500 N
Lateral loading energy:	11324 J	11400 J
Vertical load force	181196 N	181392 N
Longitudinal load force:	44352 N	44400 N

6.5. Final permanent deflection measured after each the test

See enclosure for graphs.

7. Report number

Refer to headers.

8. Equipment for measuring and testing

Parameter of the test area

22 °C and %50 Humidity

Manufacturer: Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
Type: Wheeled Loader

9. Calibration Equipments

Test Instrument	Type	Manufacturer	ID - No.	
Loadcell	KHS125-200-AFB	MAG-BIAS	312011	☒
Loadcell	20t	PULSE	HT1 20319	☐
Loadcell	20t	PULSE	HT1 20318	☐
Loadcell	HT1W	PULSE	3028H71	☐
Loadcell	HT5M	PULSE	2910 HT1	☐
Accelometer	--	--	5189683	☐
Accelometer	--	Dytran	--	☒
Accelometer	--	Dytran	--	☒

10. Place and date of testing

BIAS Test Sistemleri
İkitelli Organize Sanayi Bölgesi
Metal İş Sanayi Sitesi 5.Blok No:57-59
34306 Başakşehir / İstanbul (TURKEY) 01.06.2015

11. Final Confirmation

As the result of inspections of Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş. company's sample seat, it has been confirmed that the sample vehicle fulfilled the requirements related to the TS EN ISO 3471 as given.

This report can not be multiplied without written approval of TÜV AUSTRIA.

This technical report consists of 8 pages.

İstanbul

12.07.2015

Recognized Expert
Eren AKDAĞ

Manufacturer: Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
Type: Wheeled Loader

Test Photos and Graphs



(Lateral Position)



(Vertical Position)

Revizyon Tarihi/Revision-Date:	0 / 09.01.2014	Döküman Numarası /Document No:	TUV-FRM-ATR-TUR-110	Sayfa/Page: 5 of 8
--------------------------------	----------------	-----------------------------------	---------------------	--------------------

Test Report
No.: 15-TAHP-EK-0087/SRH
D-Nr.: 19038/0000

TÜV AUSTRIA AUTOMOTIVE GMBH
Krugerstrasse 16, A-1015 Vienna
+43/(0)1/610 91-0 | automotive@tuv.at | www.tuv.at



Manufacturer: Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
Type: Wheeled Loader



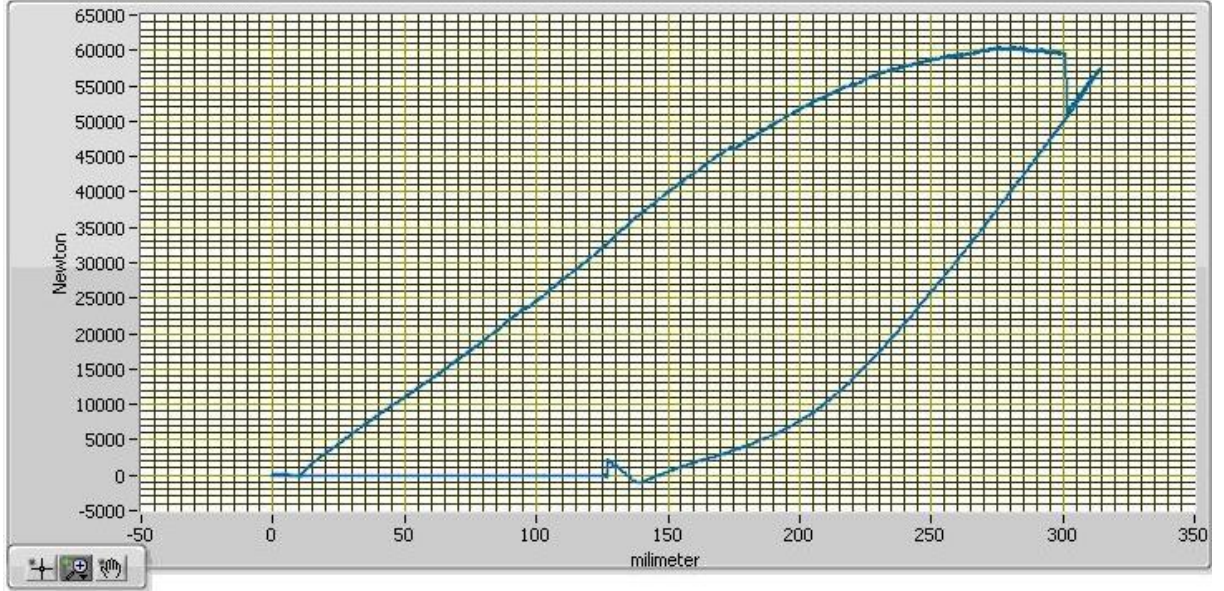
(Longitudinal Position)

Revizyon Tarihi/Revision-Date:	0 / 09.01.2014	Döküman Numarası /Document No:	TUV-FRM-ATR-TUR-110	Sayfa/Page: 6 of 8
--------------------------------	----------------	-----------------------------------	---------------------	--------------------

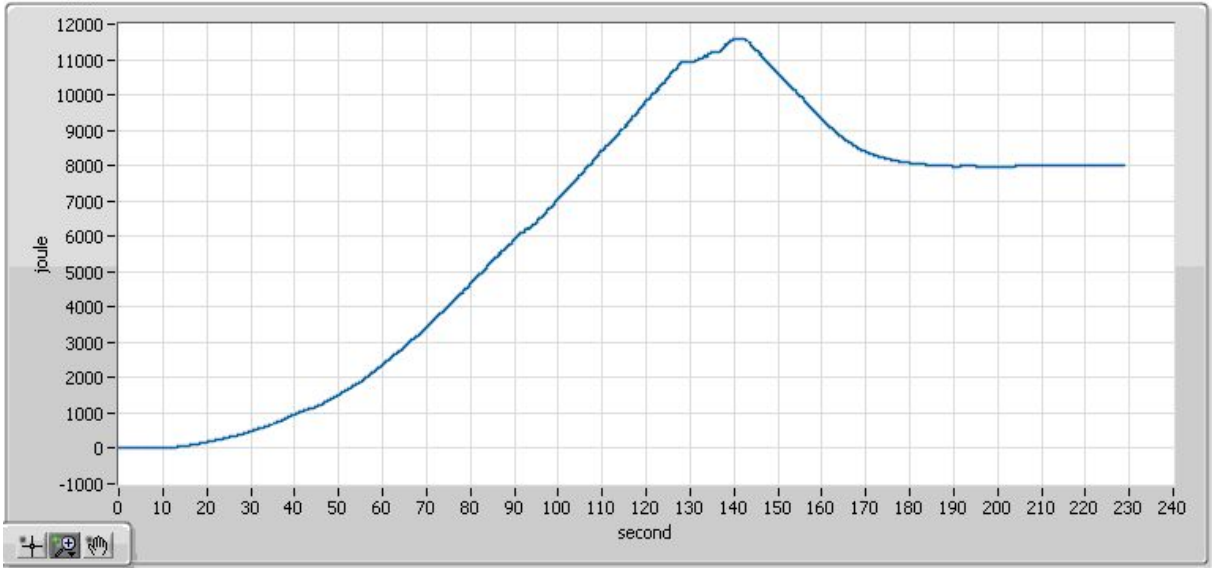
Manufacturer: Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
Type: Wheeled Loader

Lateral Position Test Graphs

Force vs. Position



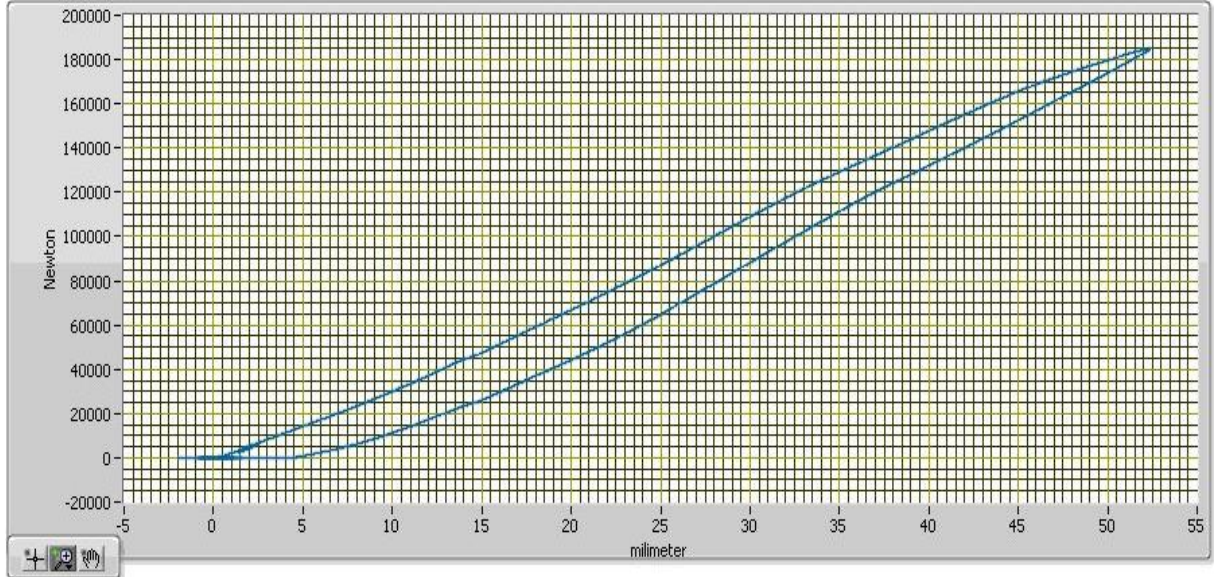
Energy Absorption



Manufacturer: Sanko Tekstil İşletmeleri Sanayi ve Ticaret A.Ş.
Type: Wheeled Loader

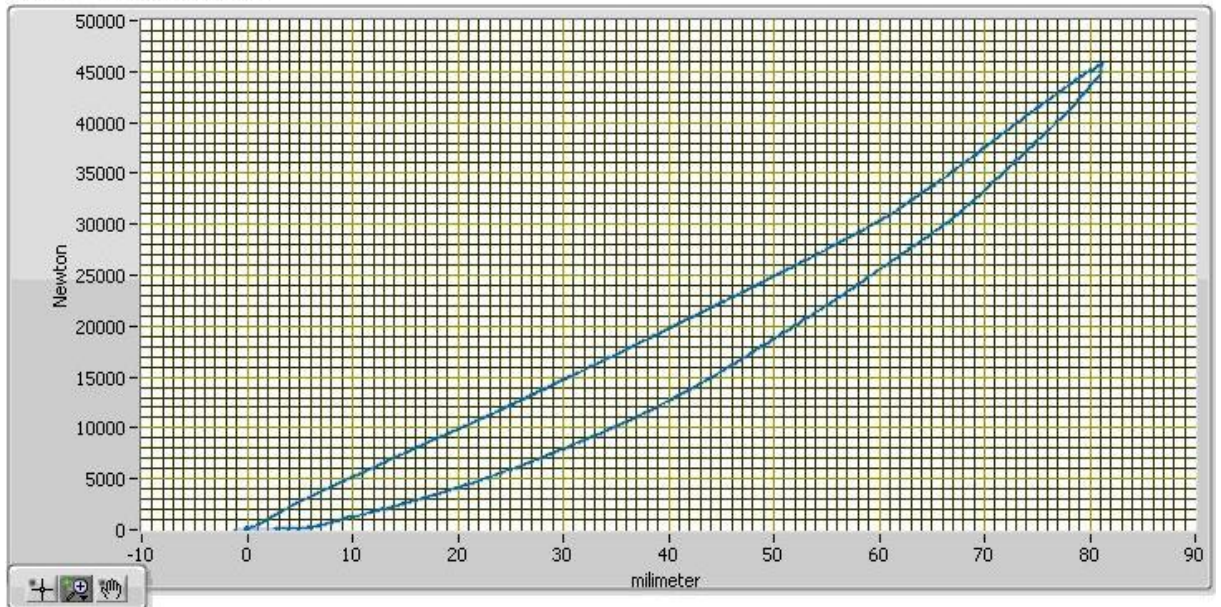
Vertical Position Test Graphs

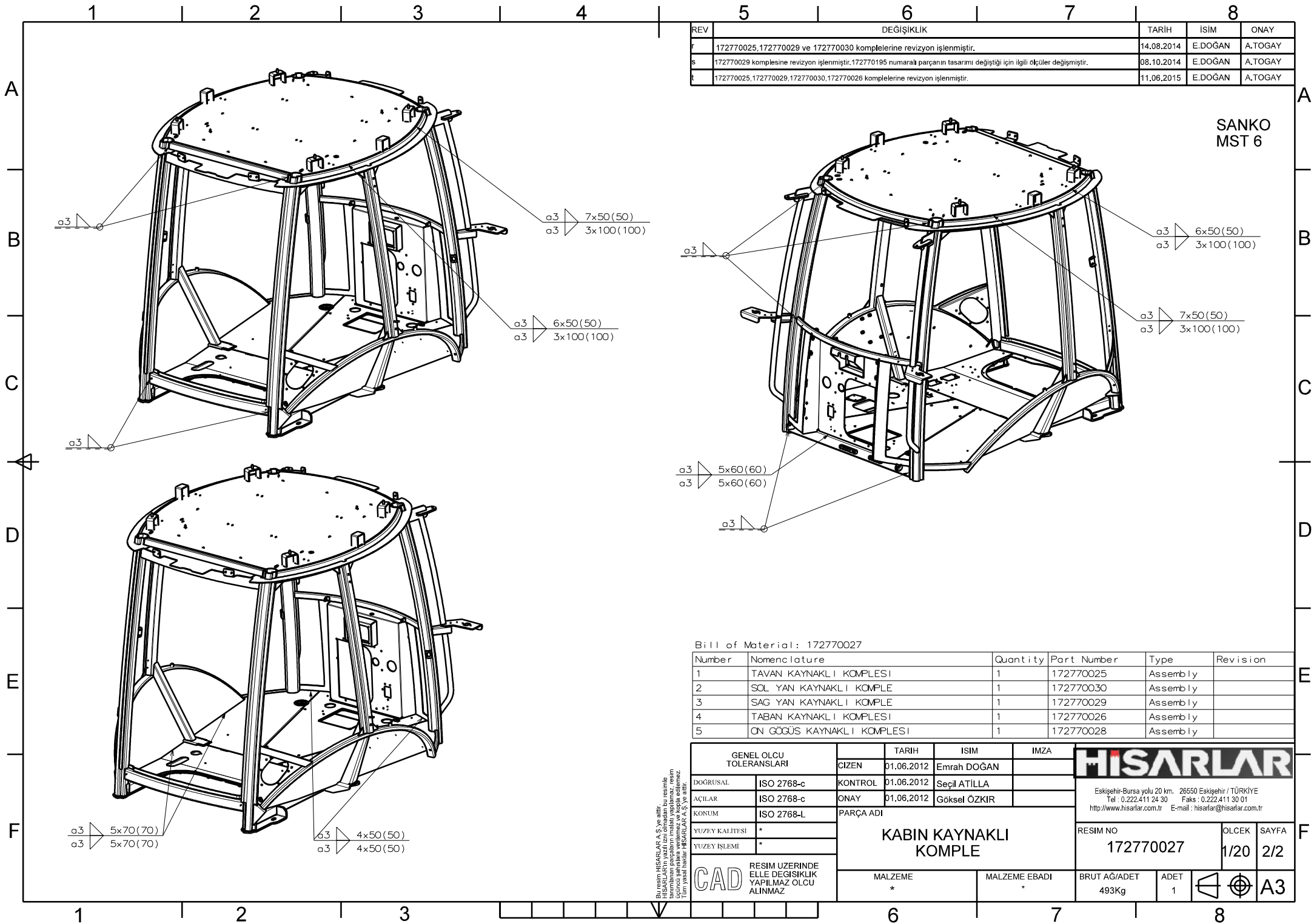
Force vs. Position



Longitudinal Position Test Graphs

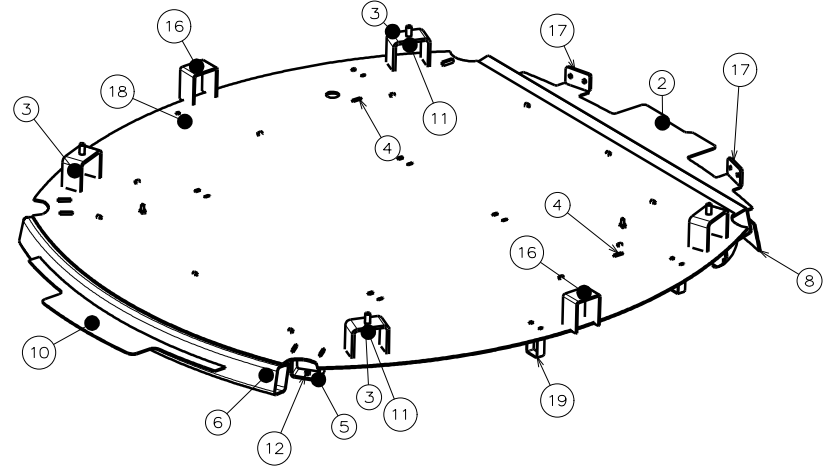
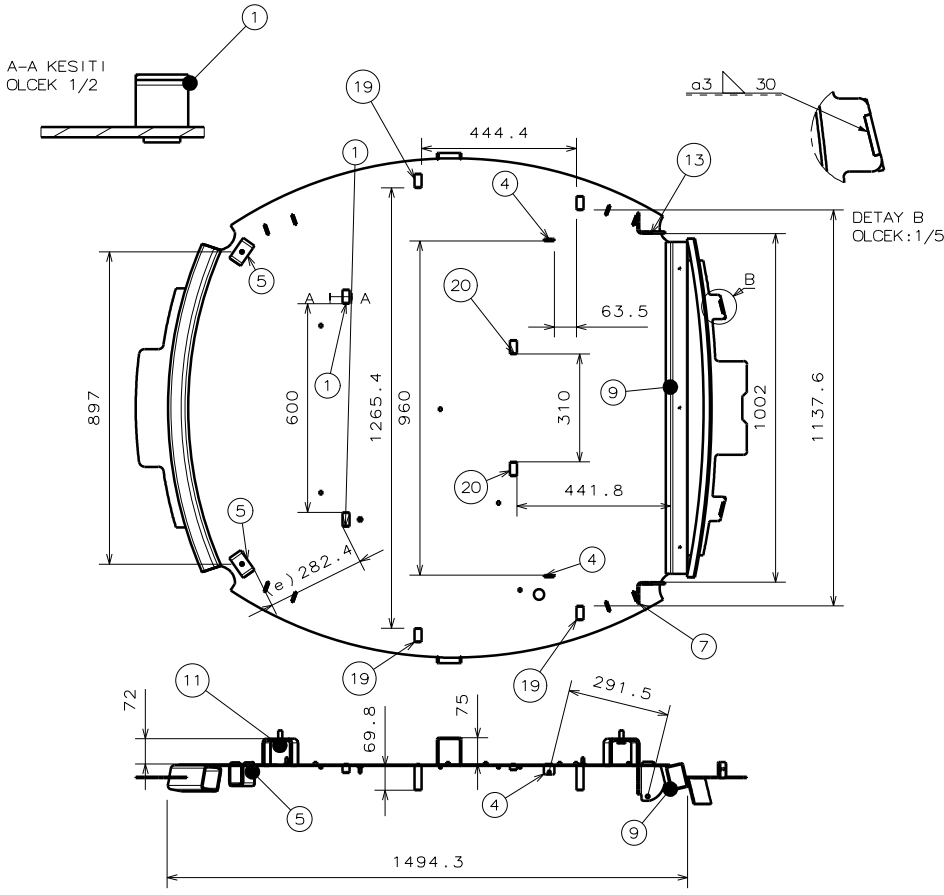
Force vs. Position





REV	DEĞİŞİKLİK	TARİH	İSİM	ONAY
h	172770109,144,121,241,503,529,531 detay parçalara ve 172770064 kaynaklı kompleksine revizyon işlenmiştir.	09.06.2015	E.DOĞAN	A.TOGAY

SANKO
MST 6



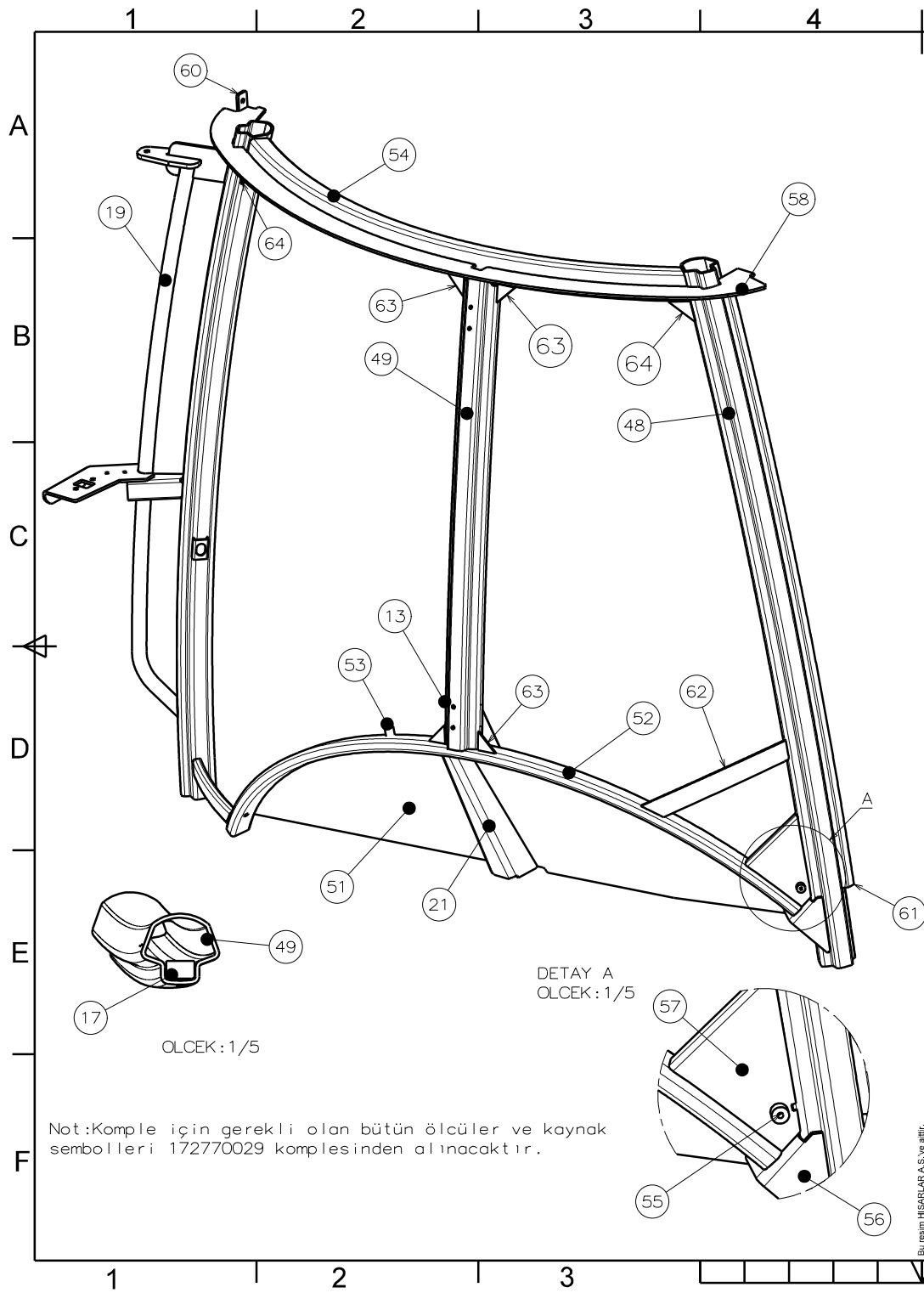
Bill of Material: 172770025

Number	Nomenclature	Quantity	Part Number	Type	Revision
2	TAVAN ARKA SACI	1	172770109	Part	
3	TAVAN DİS TRİM BRAKETİ	4	172770144	Part	
4	ARKA CERÇEVE AMORTİSORU BRAKETİ	2	172770161	Part	
5	TAVAN ON İC TRİM BRAKETİ	2	172770163	Part	
6	TAVAN ON PROFİLİ	1	172770121	Part	
7	AMORTİSOR BAĞLANTI BRAKETİ SAG	1	172770162	Part	
8	TAVAN ARKA ETEK SACI	1	172770240	Part	
9	TAVAN ARKA PROFİLİ	1	172770241	Part	
10	TAVAN ON SACI	1	172770503	Part	
12	M6 SOMUN	2	15013007	Part	
11	M12X35 Civata	4	15010313	Part	None
13	AMORTİSOR BAĞLANTI BRAKETİ SOL	1	172770191	Part	
16	TAVAN ORTA DESTEK SACI	2	172770529	Part	
17	TAVAN ARKA FAR BRAKETİ	2	172770531	Part	
1	TAVAN BAĞLANTI STOPERİ	2	172770522	Part	
19	İC DOSEME DESTEK PARÇASI-1	4	172770563	Part	
20	İC DOSEME DESTEK PARÇASI-2	2	172770564	Part	
18	TAVAN SACI KAYNAKLI KOMPLESİ	1	172770064	Assembly	

GENEL OLCU TOLERANSLARI	CİZEN	TARİH	İSİM	İMZA	HİSARLAR			
DOĞRUSAL	ISO 2768-c	KONTROL	13.07.2012	Emrah DOĞAN	Eskişehir-Bursa yolu 20 km. 26550 Eskişehir / TÜRKİYE Tel : 0.222.411 24 30 Faks : 0.222.411 30 01 http://www.hisarlar.com.tr E-mail : hisarlar@hisarlar.com.tr			
AÇILAR	ISO 2768-c	ONAY	13.07.2012	Seçil ATILLA				
KONUM	ISO 2768-L	PARÇA ADI		Göksel ÖZKIR				
YÜZEY KALİTESİ	*	TAVAN KAYNAKLI KOMPLESİ			RESİM NO	OLCEK	SAYFA	
YÜZEY İŞLEMİ	*				172770025	1/10	1/1	
RESİM ÜZERİNDE ELLE DEĞİŞİKLİK YAPILMAZ OLCU ALINMAZ	MALZEME	MALZEME EBADI			BRUT AĞ/ADET	ADET	A3	
	*	*			*	1		

Bu resim HİSARLAR A.Ş.'ye aittir.
HİSARLAR'ın yazılımı olmadan bu resim
tanımlanan parçaların imalatı yapılamaz, resim
kullanılarak başka bir ürün yapılamaz.
Tüm yasal hakları HİSARLAR A.Ş.'ye aittir.

CAD



REV	DEĞİŞİKLİK	TARİH	İSİM	ONAY
9	172770151, 119 ve 565 numaralı parçalara revizyon işlenmiştir. 172770501 numaralı parçanın resmi oluşturulmuştur.	10.06.2015	E.DOĞAN	A.TOGAY

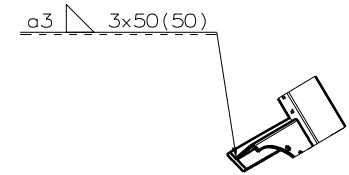
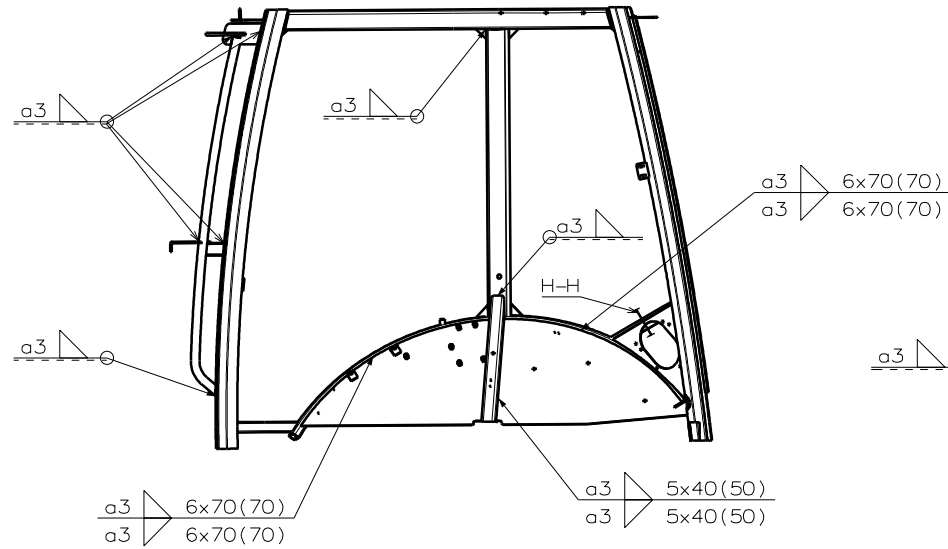
SANKO
MST 6

Bill of Material: 172770030

Number	Nomenclature	Quantity	Part Number	Type	Revision
48	SOL ARKA DIKME PROFİLİ	1	172770110	Part	
49	ORTA DİREK PROFİLİ SOL	1	172770114	Part	
50	KİTLET SACI	1	172770195	Part	
51	CAMURLUK SACI SOL	1	172770151	Part	
52	CAMURLUK PROFİLİ SOL	1	172770125	Part	
53	CAMURLUK BRAKETİ 1	1	172770172	Part	
54	KAPI ÜST PROFİLİ SOL	1	172770119	Part	
55	BRAKET_3	1	172770156	Part	
56	BRAKET_2 SOL	1	172770500	Part	
57	BRAKET_1 SOL	1	172770501	Part	
58	TAVAN YAN SACI	1	172770502	Part	
59	ORTA DİREK DESTEK PROFİLİ SOL	1	172770565	Part	
60	TAVAN ON FAR BRAKETİ	1	172770530	Part	
61	RULMAN ÇALIŞMA SACI SOL	1	172770507	Part	
62	SOL ALT CAM DESTEK SACI	1	172770284	Part	
63	ORTA PROFİL DESTEK SACI	4	172770521	Part	
64	DIKME PROFİLİ DESTEK SACI	2	172770520	Part	
21	CAMURLUK DESTEK SACI SOL	1	172770541	Part	
19	KAPI ALT PROFİLİ SOL	1	172770127	Part	
17	ORTA DİREK KAPAGI	1	172770841	Part	

GENEL ÖLÇÜ TOLERANSLARI		TARİH	İSİM	İMZA
DOĞRUSAL	ISO 2768-c	13.08.2012	Emrah DOĞAN	
ACILAR	ISO 2768-c	KONTROL	13.08.2012	Seçil ATILLA
KONUM	ISO 2768-L	ONAY	13.08.2012	Göksele ÖZKIR
YÜZEY KALİTESİ	*	PARÇA ADI		
YÜZEY İŞLEMİ	*	SOL YAN KAYNAKLI KOMPLE		
CAD	RESİM ÜZERİNDE ELLE DEĞİŞİKLİK YAPILMAZ ÖLÇÜ ALINMAZ	MALZEME	MALZEME EBADI	BRUT AĞ/ADET
		*	*	*
		RESİM NO		OLCEK
		172770030		1/10
		SAYFA		1
		A3		

SANKO
MST 6



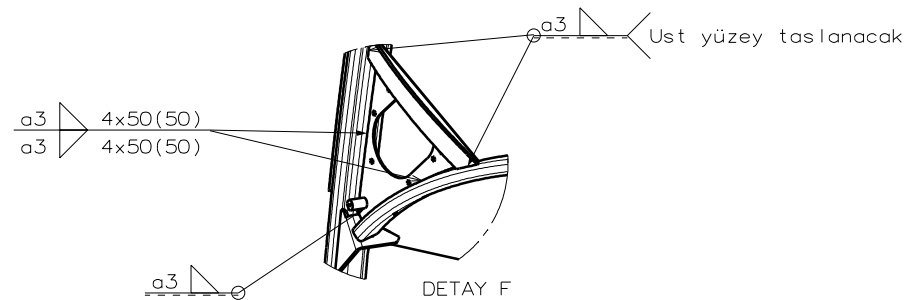
DETAY E

a3

a3

5x40(50)

5x40(50)



GENEL ÖLÇÜ
TOLERANSLARI

DOĞRUSAL

AÇILAR

KONUM

YÜZEY KALİTESİ

YÜZEY İŞLEMİ

CAD

ISO 2768-c

ISO 2768-c

ISO 2768-L

*

*

RESİM ÜZERİNDE
ELLE DEĞİŞİKLİK
YAPILMAZ ÖLÇÜ
ALINMAZ

CİZEN

KONTROL

ONAY

PARÇA ADI

SAG YAN KAYNAKLI
KOMPLE

MALZEME

*

TARİH

13.08.2012

13.08.2012

13.08.2012

MALZEME EBADI

*

İSİM

Emrah DOĞAN

Seçil ATILLA

Göksel ÖZKIR

İMZA

HISARLAR

Eskişehir-Bursa yolu 20 km. 26550 Eskişehir / TÜRKİYE
Tel : 0.222.411 24 30 Faks : 0.222.411 30 01
http://www.hisarlar.com.tr E-mail : hisarlar@hisarlar.com.tr

RESİM NO

172770029

OLCEK

1/15

SAYFA

2/2

BRUT AĞ/ADET

*

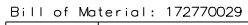
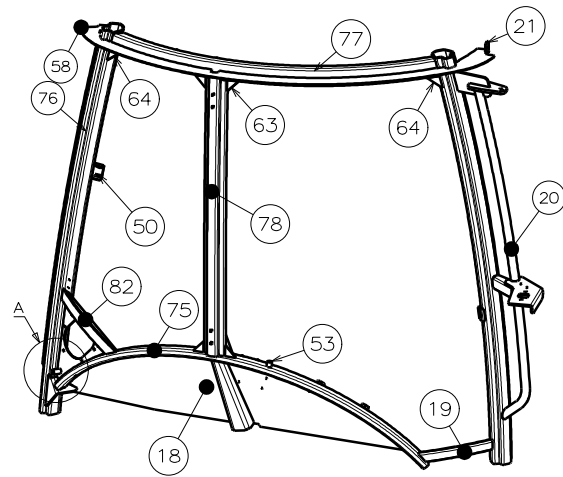
ADET

1

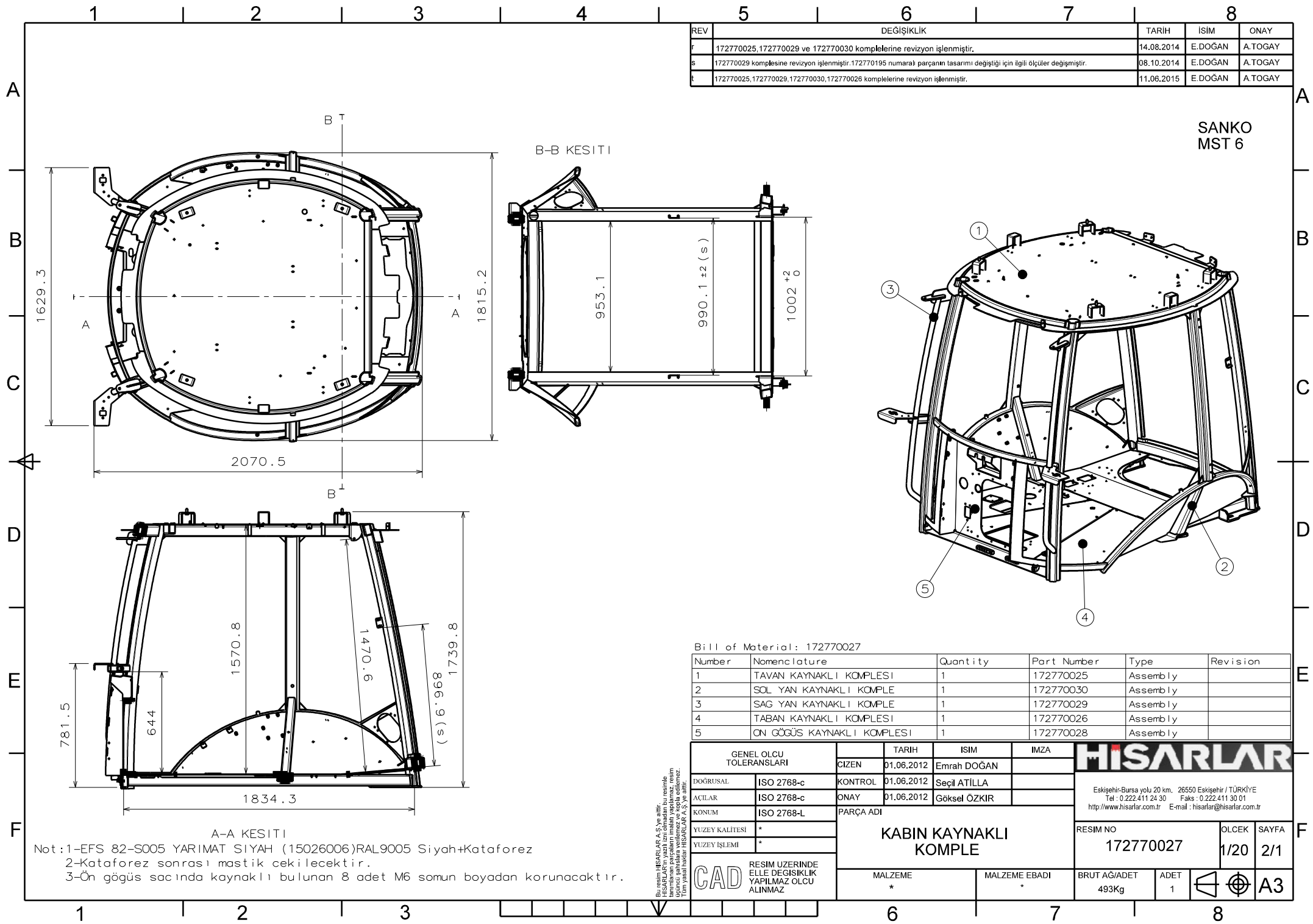
A3

0.00

SANKO
MST 6



GENEL ÖLÇÜ TOLERANSLARI		TARİH		İSİM		İMZA		HİSARLAR			
		CİZEN		13.08.2012		Emrah DOĞAN					
DOĞRUSAL	ISO 2768-c	KONTROL		13.08.2012		Seçil ATILLA		Eskişehir-Bursa yolu 20 km. 26550 Eskişehir / TÜRKİYE Tel : 0 222 411 24 30 Faks : 0 222 411 30 01 http://www.hisarlar.com.tr E-mail : hisarlar@hisarlar.com.tr			
AÇILAR	ISO 2768-c	ONAY		13.08.2012		Göksel ÖZKIR					
KONUM	ISO 2768-L	PARÇA ADI									
YÜZEY KALİTESİ	*	SAG YAN KAYNAKLI KOMPLE						RESİM NO		OLCEK	SAYFA
YÜZEY İŞLEMİ	*							172770029		1/15	2/1
CAD RESİM ÜZERİNDE ELLE DEĞİŞİKLİK YAPILMAZ ÖLÇÜ ALINMAZ	MALZEME		MALZEME EBADI		BRUT AĞ/ADET		ADET		A3		
	*		*		*		1				



Bu resim HİSARLAR A.Ş.'ye aittir.
HİSARLAR'ın yazılı izni olmadan bu resimle
başka bir amaçla kullanılamaz, resim
temin eden parçaların imalatı yapılmaz,
Tüm yazılı hakları HİSARLAR A.Ş.'ye aittir.

Eskişehir-Bursa yolu 20 km. 26550 Eskişehir / TÜRKİYE
Tel : 0 222 411 24 30 Faks : 0 222 411 30 01
http://www.hisarlar.com.tr E-mail : hisarlar@hisarlar.com.tr

A3

DETAY A
OLCEK 1/5

DETAY B
OLCEK 1/5

1985.8

1987.3

37.2

4.7"

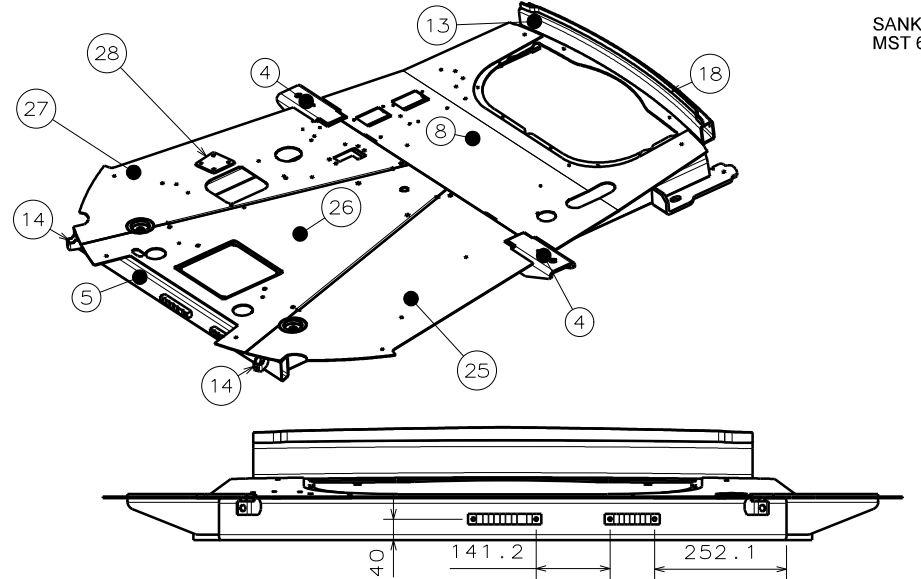
G-G KESİTİ
OLCEK:1/5

DETAY C
OLCEK:1/5

Ø5 matkap ile delinip M6 dis açılacaktır.

REV	DEĞİŞİKLİK	TARİH	İSİM	ONAY
1	172770545,546,131,134,135,154,140,235 ve 15013014 M10 sonunu iptal edilmiştir. 15013011 M8 sonundan 4 adet iptal edilmiştir. 172770225,130,174,181,224 numaralı parçalara revizyon uygulanmıştır. 172770600,601,602,603,617,618,621,622,625,626,633 numaralı parçalar eklenmiştir.	10.06.2015	E DOĞAN	A.TOGAY

SANKO
MST 6



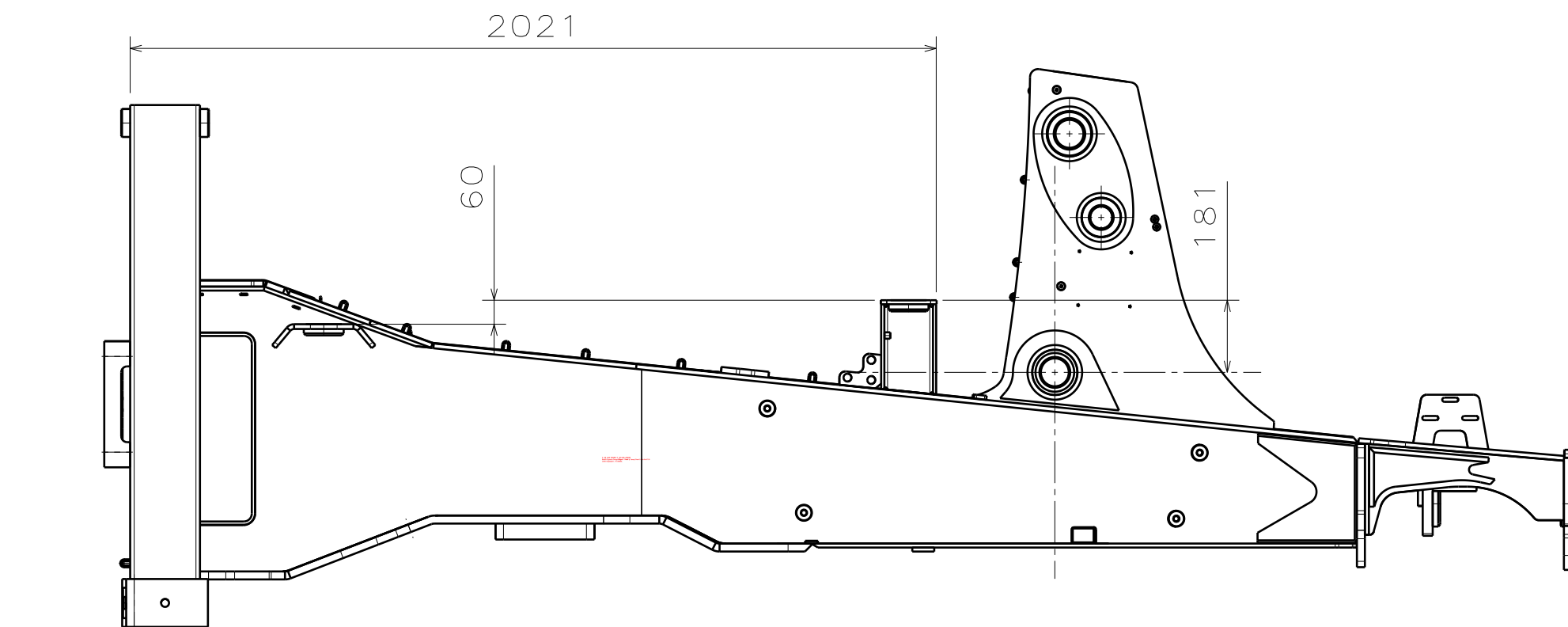
Bill of Materials: 172770026

Number	Nomenclature	Quantity	Part Number	Type	Revision
1	TABAN PROFİLİ SAG	1	172770225	Part	
2	TABAN PROFİLİ SOL	1	172770130	Part	
4	PROFİL DESTEK SACI	2	172770132	Part	
5	TABAN ON PROFİLİ	1	172770174	Part	
6	ARKA TABAN DESTEK SACI SAG	1	172770224	Part	
7	ARKA TABAN DESTEK SACI SOL	1	172770181	Part	
13	TABAN ARKA PROFİLİ	1	172770123	Part	
15	DIN934 M8 SOMUN	8	15013010	Part	
16	DİREKSİYON KOLONU BORU KELEPÇESİ	1	172106119	Part	
17	FREN VALF BORU KELEPÇESİ	1	172106111	Part	
18	ARKA ÇERÇEVE ALT FİTİL SACI	1	172770506	Part	
20	ARKA SERVİS KAPAGI ÇERÇEVESİ	1	172770259	Part	
21	SİGORTA BAĞLANTI SOMUNU	3	172770252	Part	
14	ON DİŞ TRİM BAĞLANTI BRAKETİ	2	172770165	Part	
22	ROPS DESTEK SACI	2	172770542	Part	
8	ARKA TABAN SACI	1	172770603	Part	
25	KABİN TABANI ON SOL	1	172770600	Part	
26	KABİN TABANI ORTA SACI	1	172770601	Part	
27	TABAN SACI SAG	1	172770602	Part	
28	REXROTH JOYS. BAĞLANTI Sİ	1	172770633	Part	
29	M6 X30 SEKTÖRÜR , DİN 913	14	10004032	Part	
30	KOLUK ALT BAĞLANTI Sİ	1	172770625	Part	
31	KABİN ALT DESTEK SACI	1	172770626	Part	
32	KABİN BAĞLANTI DESTEK SACI	2	172770617	Part	
33	ON KABİN TAKOZ BAĞLANTI Sİ	2	172770618	Part	
34	ON ÇERÇEVE SACI-1	2	172770621	Part	
35	ON ÇERÇEVE SACI-2	2	172770622	Part	

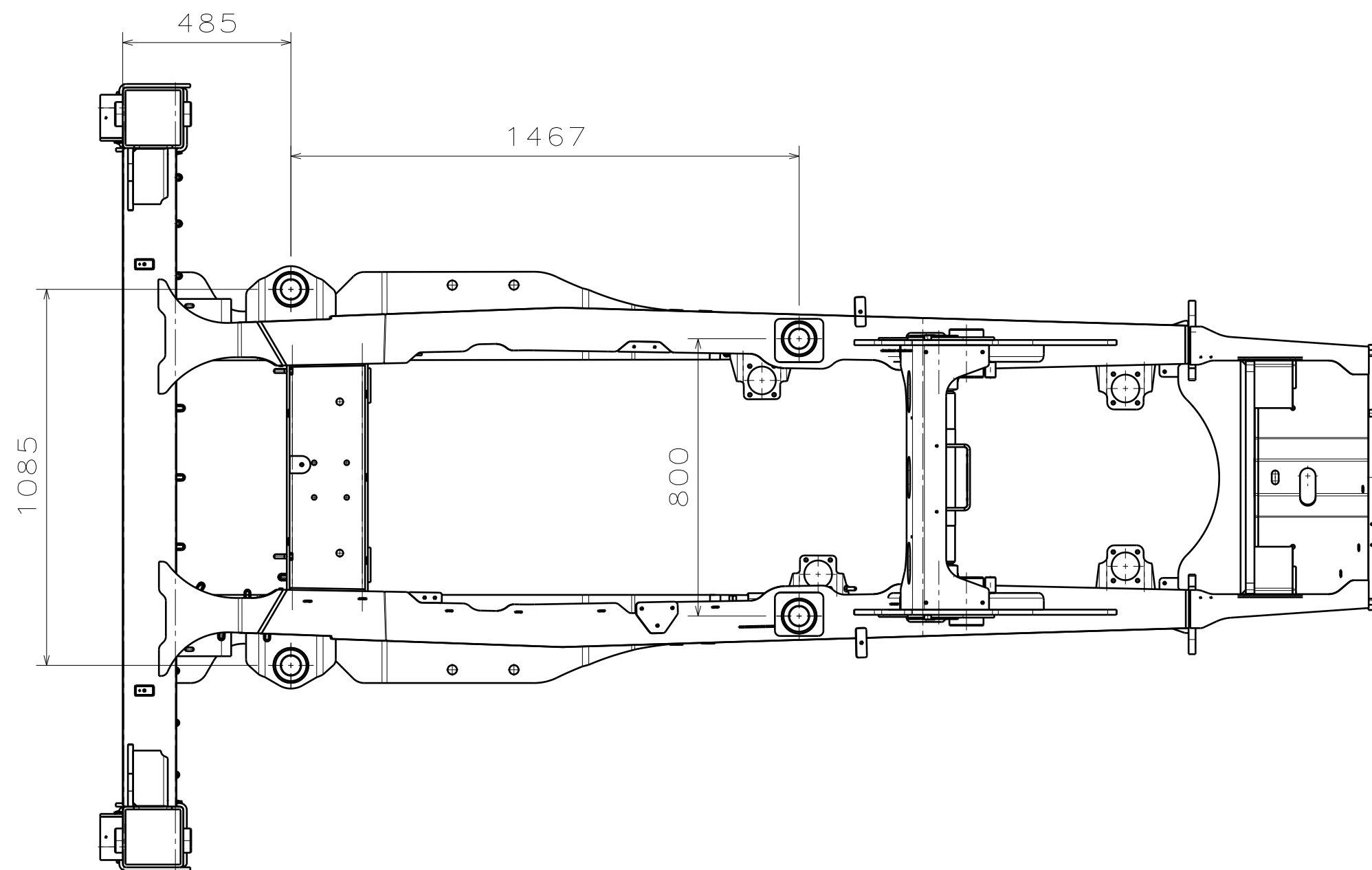
GENEL OLCU TOLERANSLARI		TARİH	İSİM	İMZA
DOĞRUSAL	ISO 2768-c	KONTROL	13.07.2012	Emrah DOĞAN
AÇILAR	ISO 2768-c	ONAY	13.07.2012	Seçil ATILLA
KONUM	ISO 2768-L	PARÇA ADI		Göksef ÖZKIR
YÜZEY KALİTESİ	*	TABAN KAYNAKLI KOMPLESİ		
YÜZEY İŞLEMİ	*			
RESİM ÜZERİNDE ELLE DEĞİŞİKLİK YAPILMAZ OLCU ALINMAZ		MALZEME	MALZEME EBADI	BRUT AĞ/ADET
		St 37-2	*	*
		ADET	1	A3

HISARLAR
Eskişehir-Bursa yolu 20 km. 26550 Eskişehir / TÜRKİYE
Tel : 0222.411 24 30 Faks : 0222.411 30 01
http://www.hisarlar.com.tr E-mail : hisarlar@hisarlar.com.tr

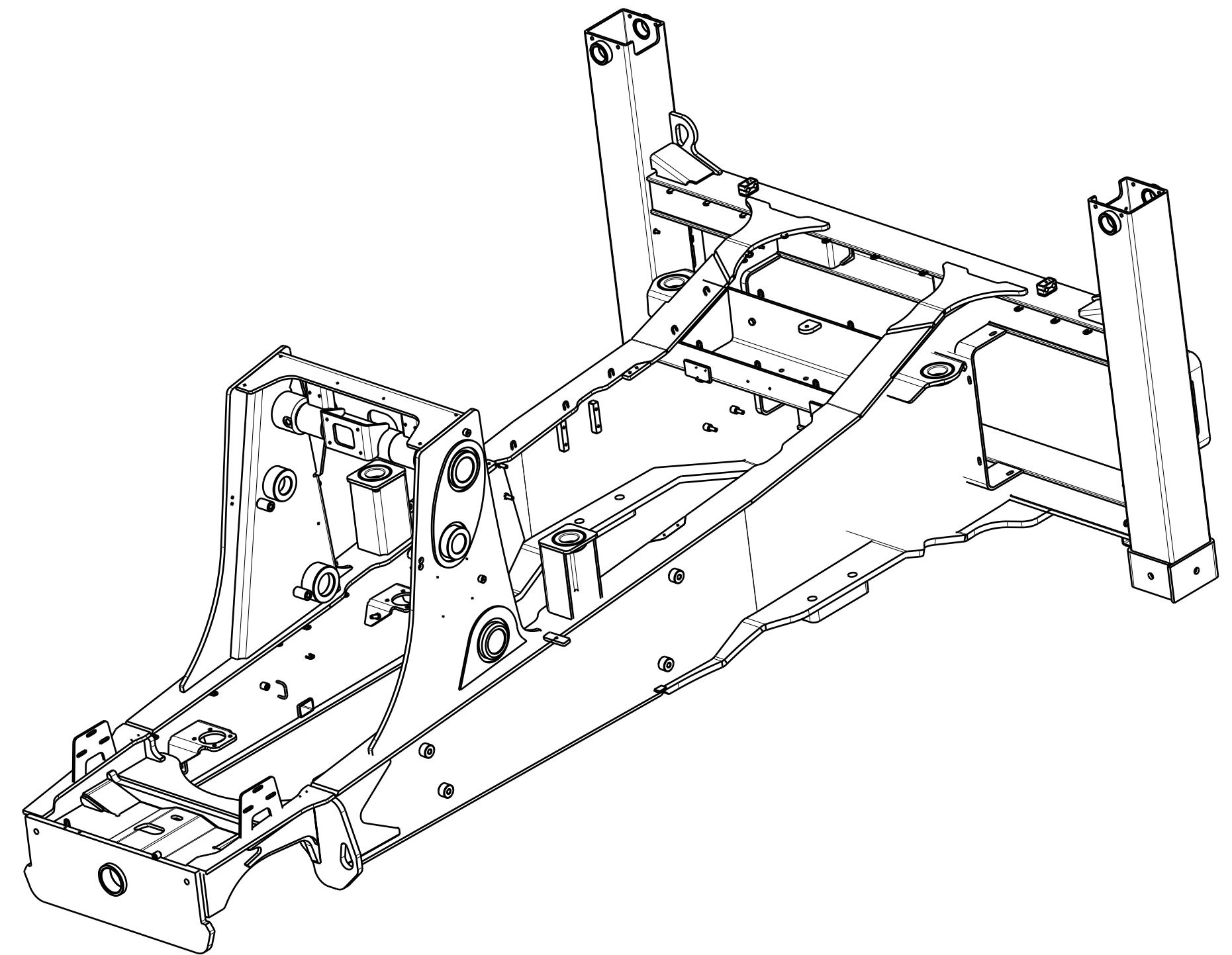
RESİM NO
172770026
OLCEK
1/10
SAYFA
2/1



Front view
Scale: 1:15

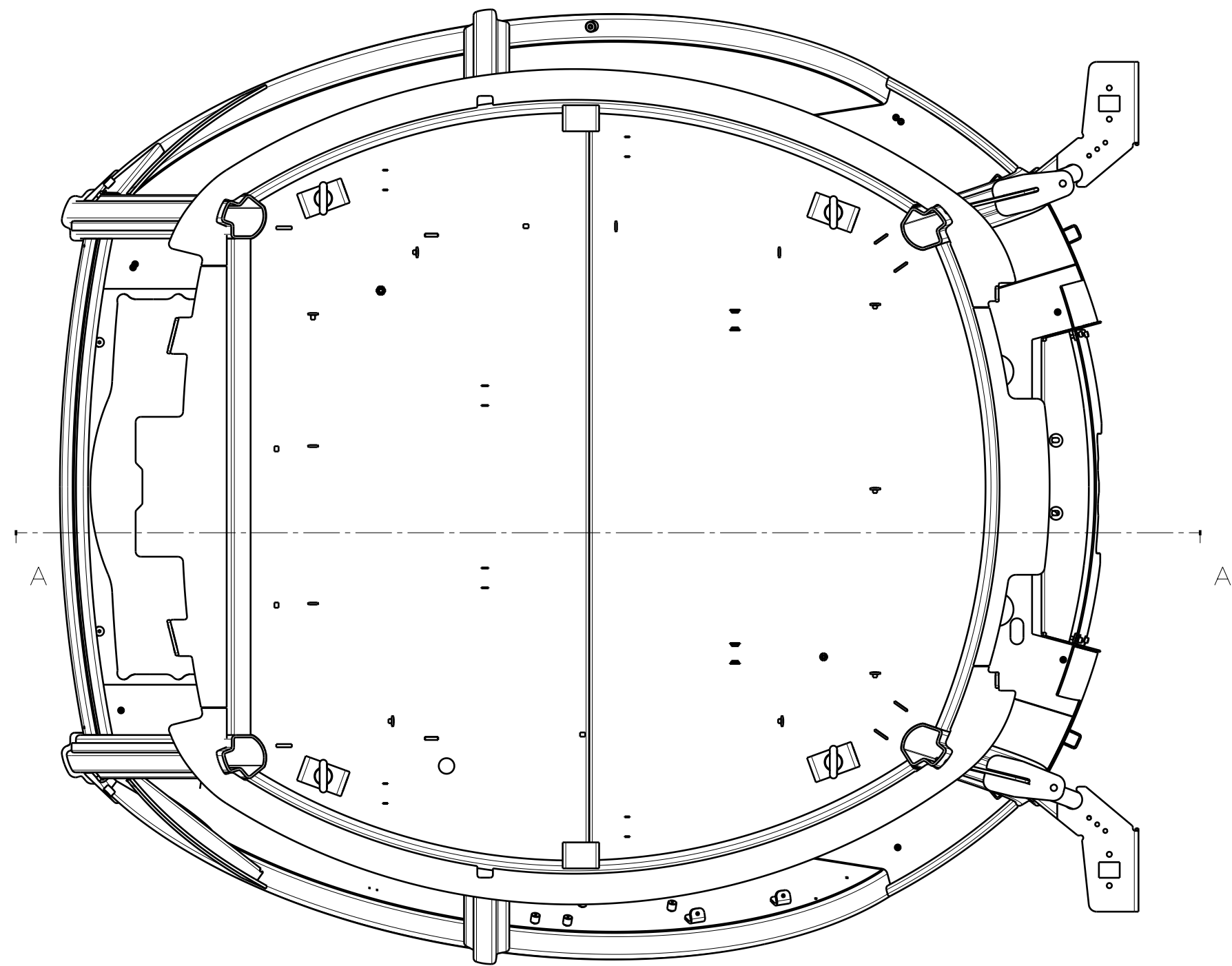


Top view
Scale: 1:15

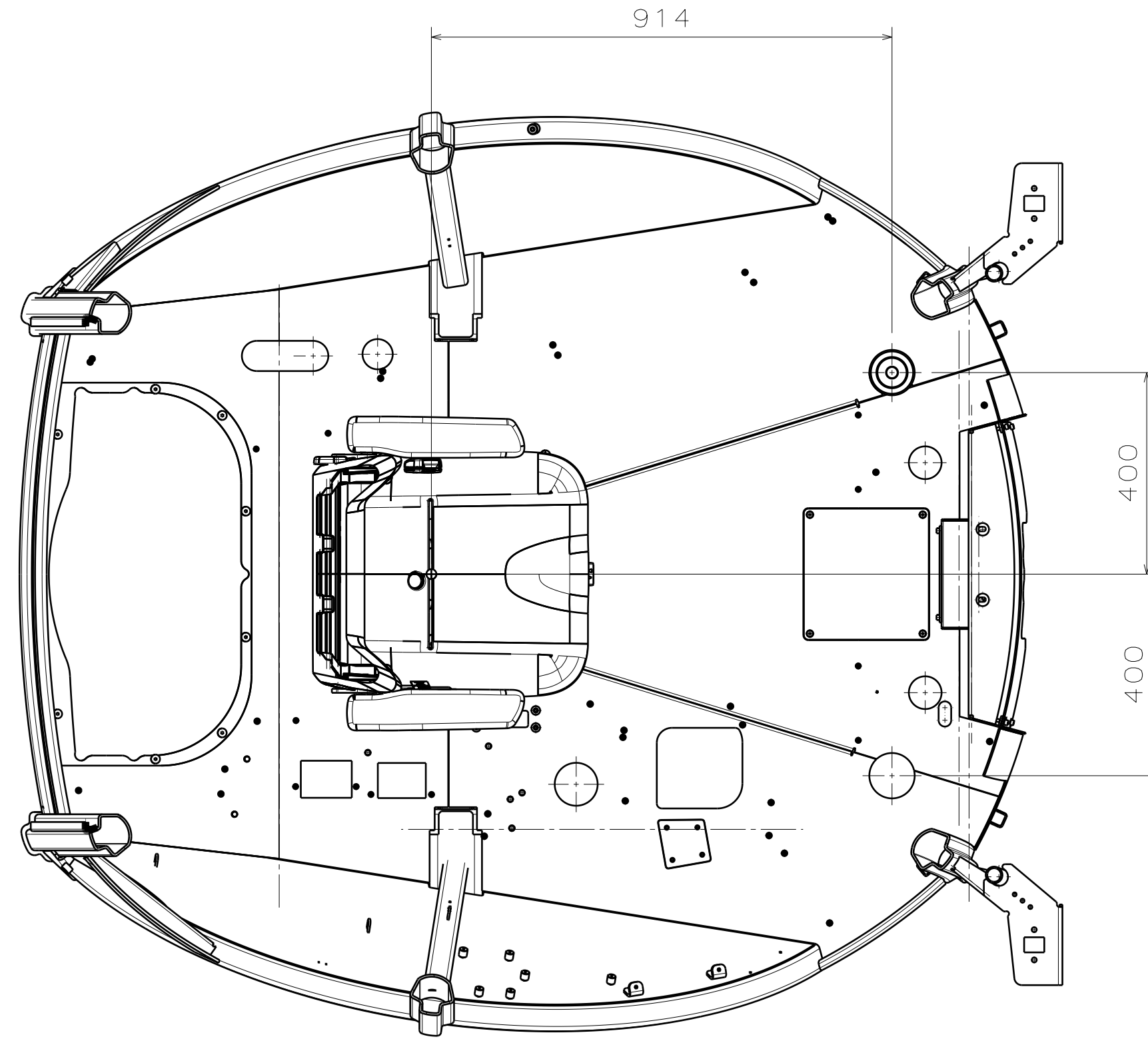


Isometric view
Scale: 1:15

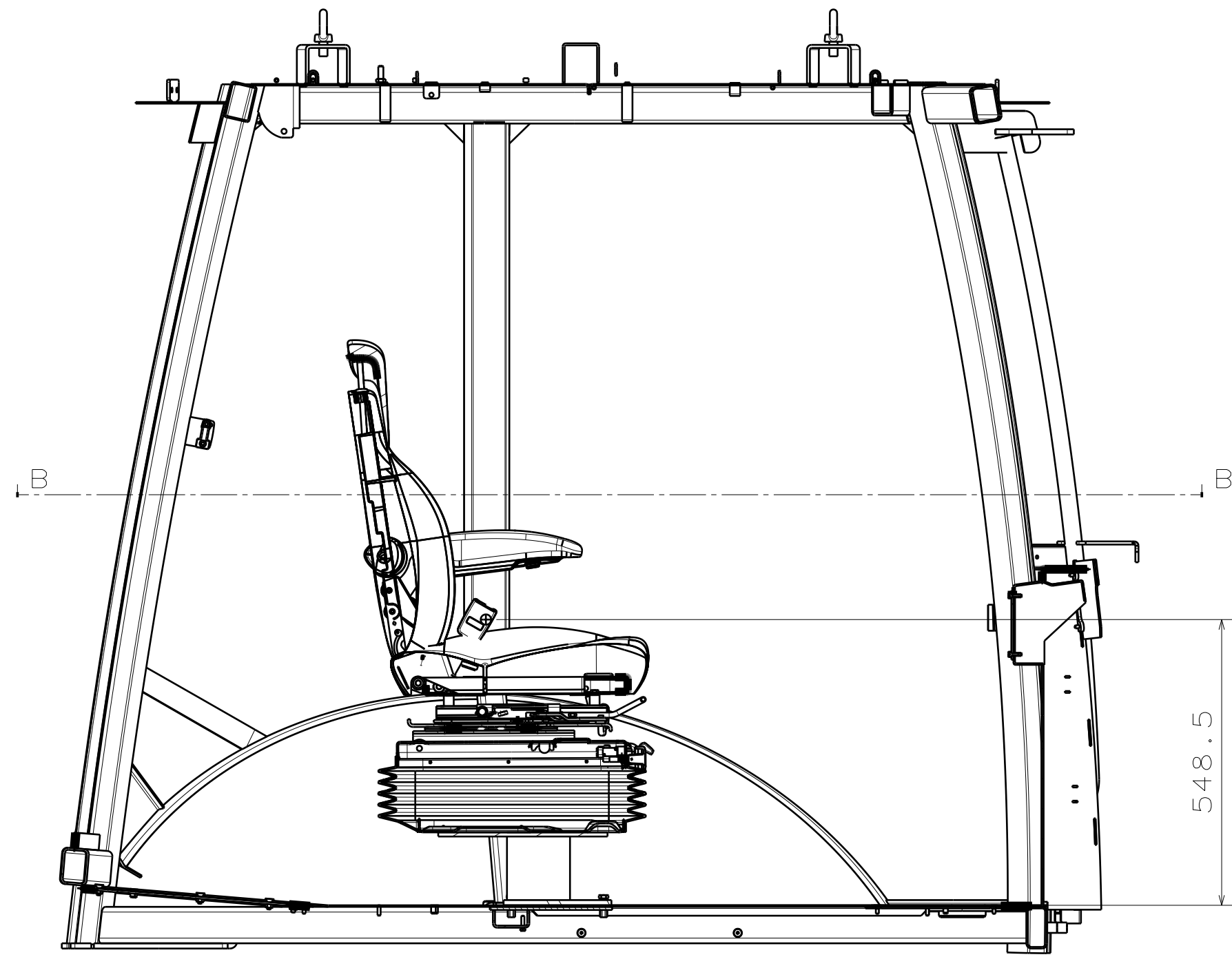
DESIGNED BY: S.MEMIKBESE		DATE: 27.05.2015		CHECKED BY: M.SONMEZ		APPROVED BY: L.KIRILANGIC		UR-GE DEPARTMAN I	
TOTAL EFFECTIVE CASE DEPTH				SCALE 1:15		Weight (Kg) 1.051,14			
HARDNESS		HOMOLOGATION		QUANTITY					
CORE		SURF.		MATERIAL St 52-3:		REFERENCE		UQUNQU ACI METODU CLOULER mm DIR	
HEAT TREATMENT				UNSPECIFIED TOLERANCES				DRAWING NAME MST 644 PLUS SASE	
FINISH				DIN EN 10025-94				DRAWING NUMBER 174631003	
								THIRD ANGLE METHOD DIMENSIONS IN mm	
								SIZE A2	



Front view
Scale: 1:10

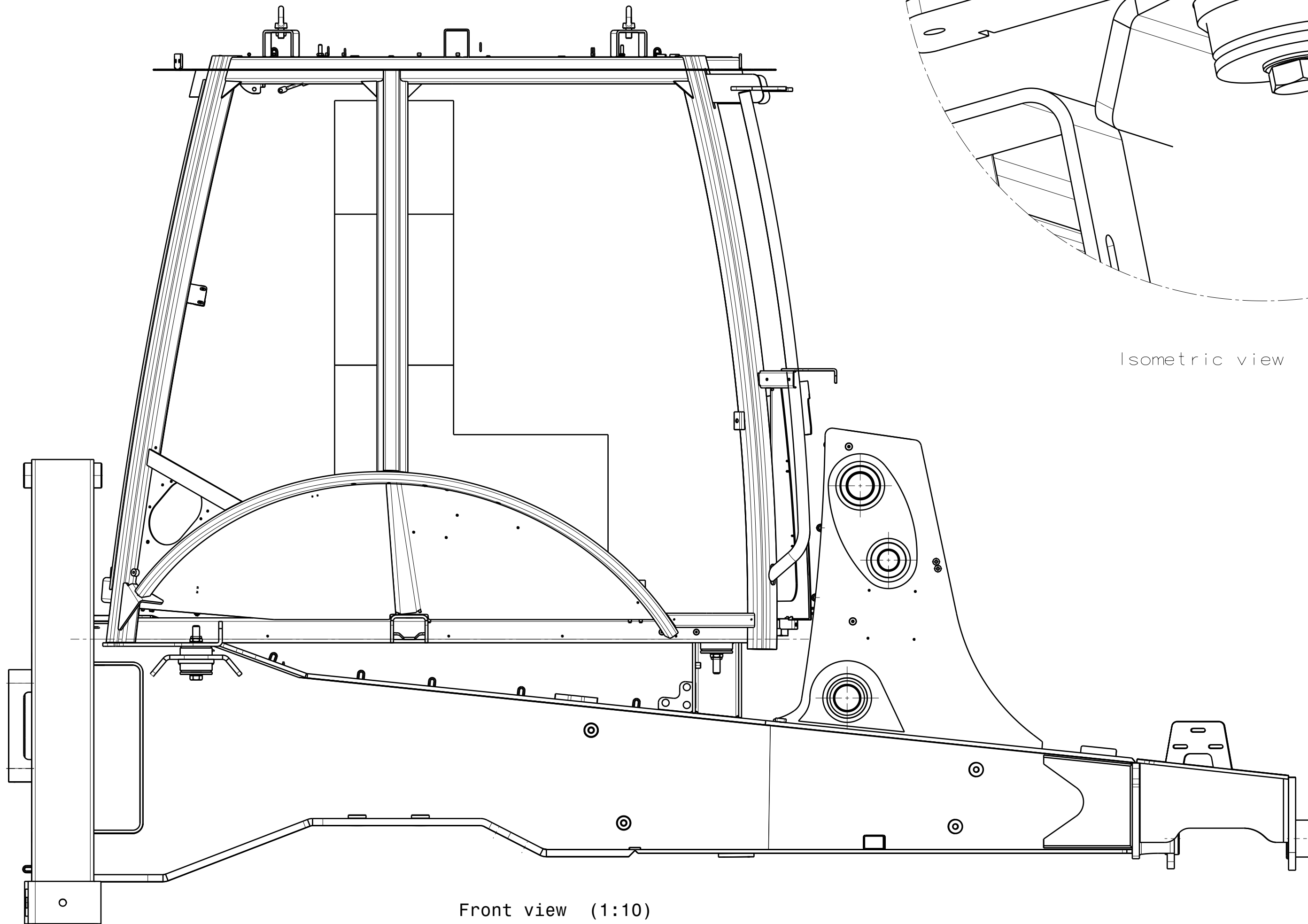


Section view B-B
Scale: 1:10

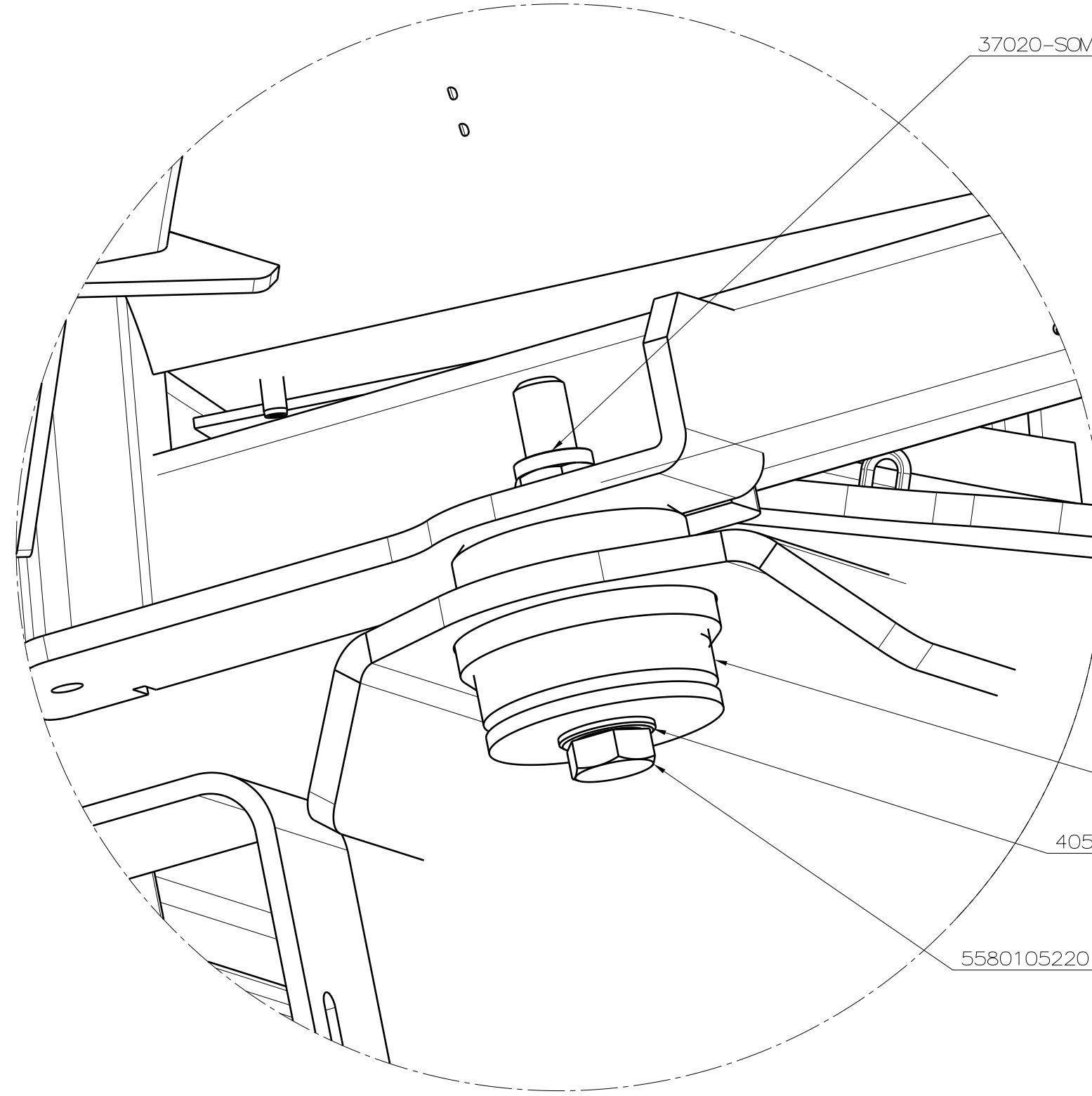


Section view A-A
Scale: 1:10

DESIGNED BY: S. MENTREBESZ	DATE: 27.05.2015	CHECKED BY: M. SOMMEZ	APPROVED BY: L. KRZEMINSKI	UR-GE DEPARTMAN I	
TOTAL EFFECTIVE CASE DEPTH	SCALE: 1:10	Weight (kg): 1.994,01	QUANTITY		
HARDNESS	POSITION	MATERIAL: St 52-3	REFERENCE	THIRD ANGLE METHOD DIMENSIONS IN mm	DRAWING NAME: MST 6 PLUS KABIN
CORE	SURF.				
HEAT TREATMENT	UNSPECIFIED TOLERANCES	DIN EN 10025-94	DRAWING NUMBER: 172770020	SIZE: A1	
FINISH					



Front view (1:10)



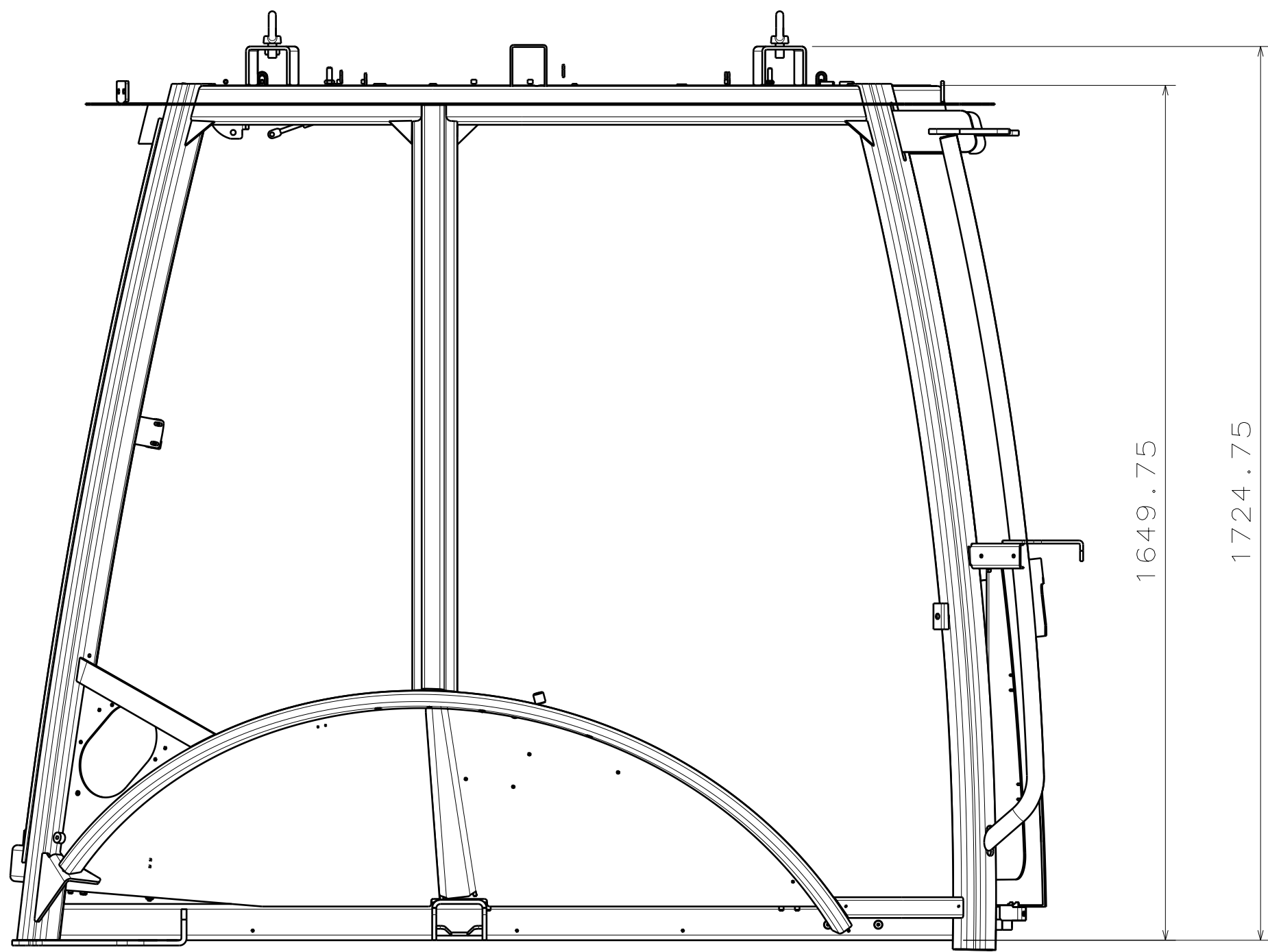
Isometric view (1:2)

37020-SOMUN, DIN 985, 10, M20, GVZ (AKB Fiberli)

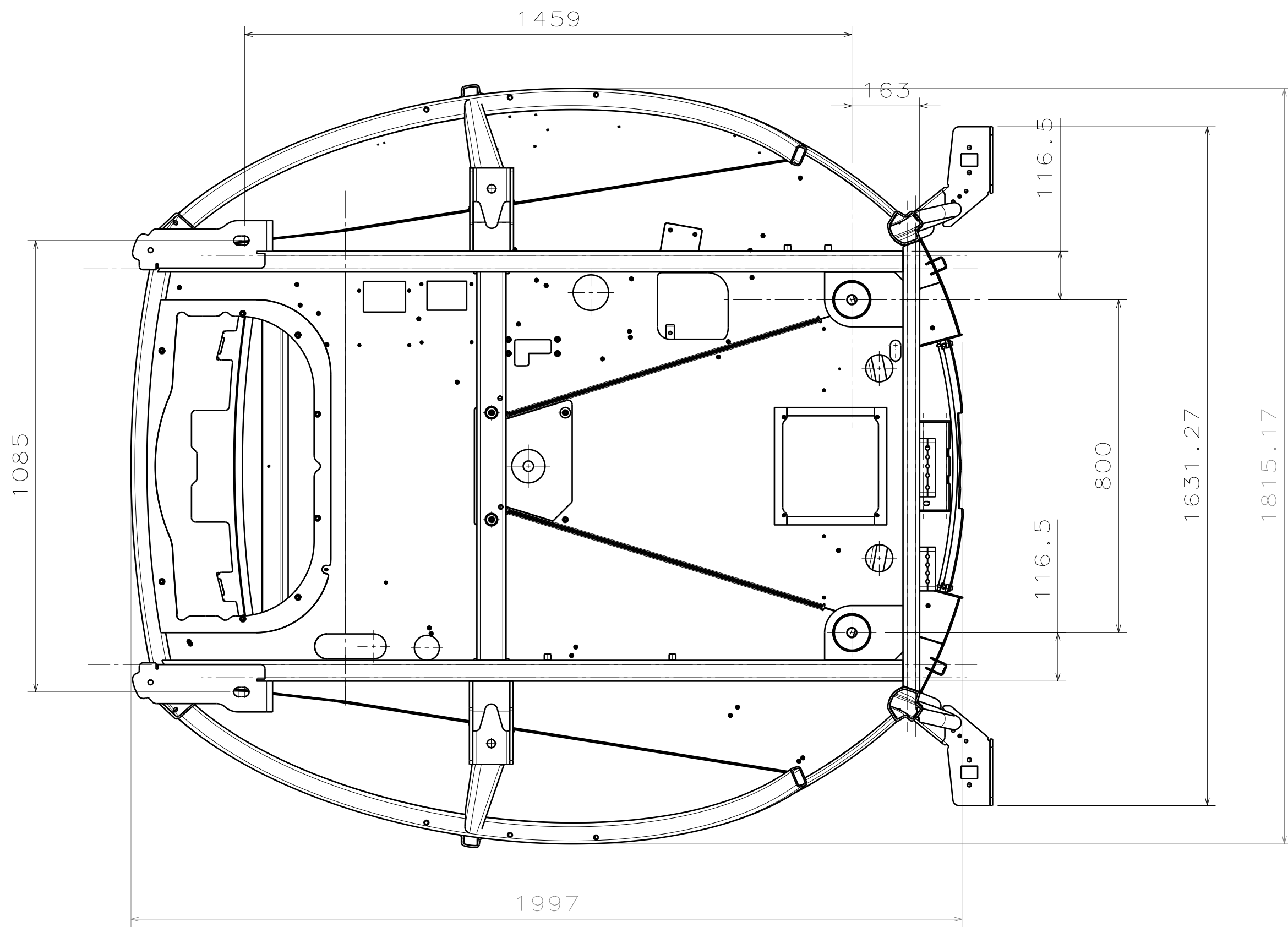
174770272-KABIN TAKOZU

40520-RONDELA, DIN 125, M20, SIYAH

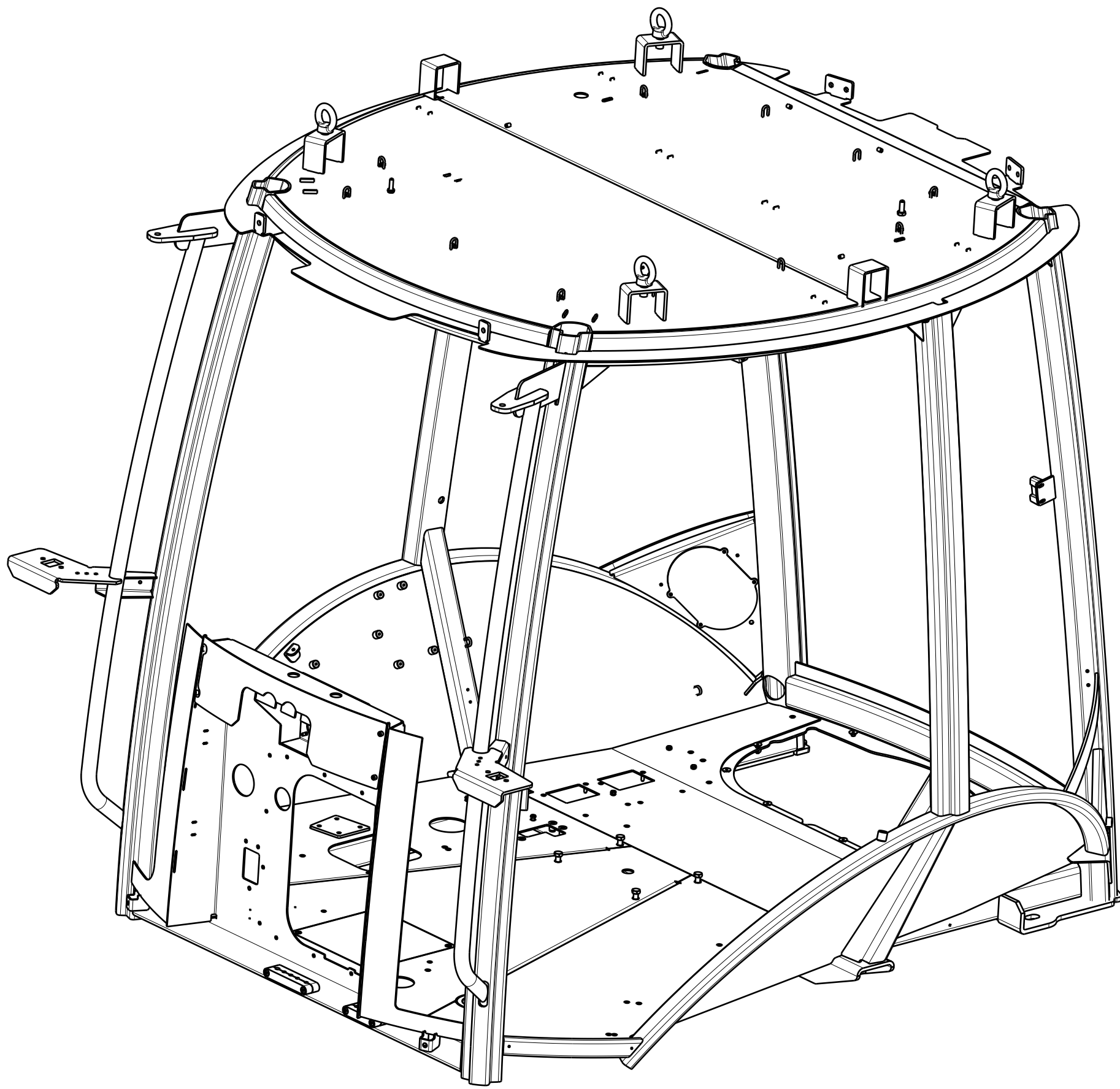
5580105220140000-CIVATA, DIN 931, 10.9, M20x140, GVZ



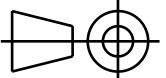
Front view
Scale: 1:10

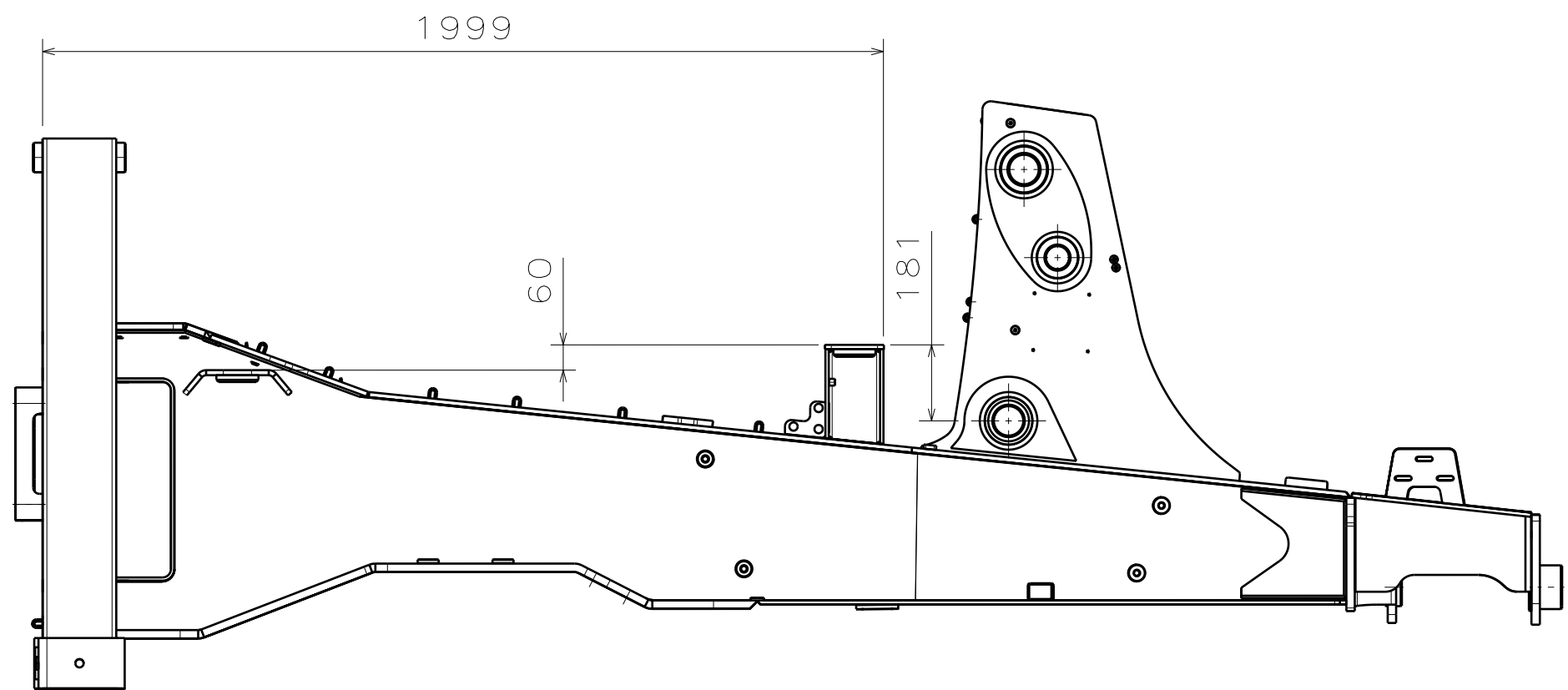


Bottom view
Scale: 1:10

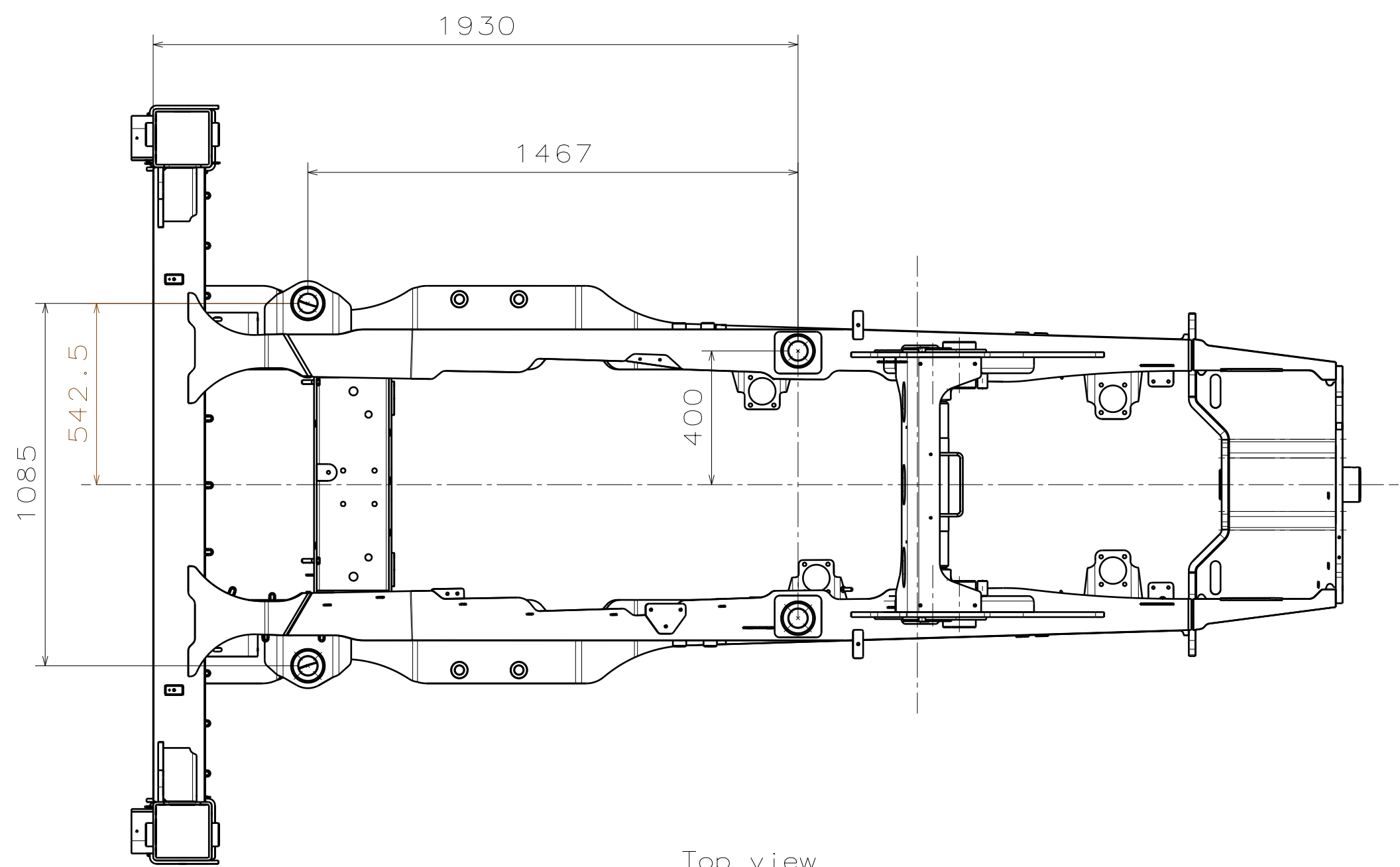


Isometric view
Scale: 1:10

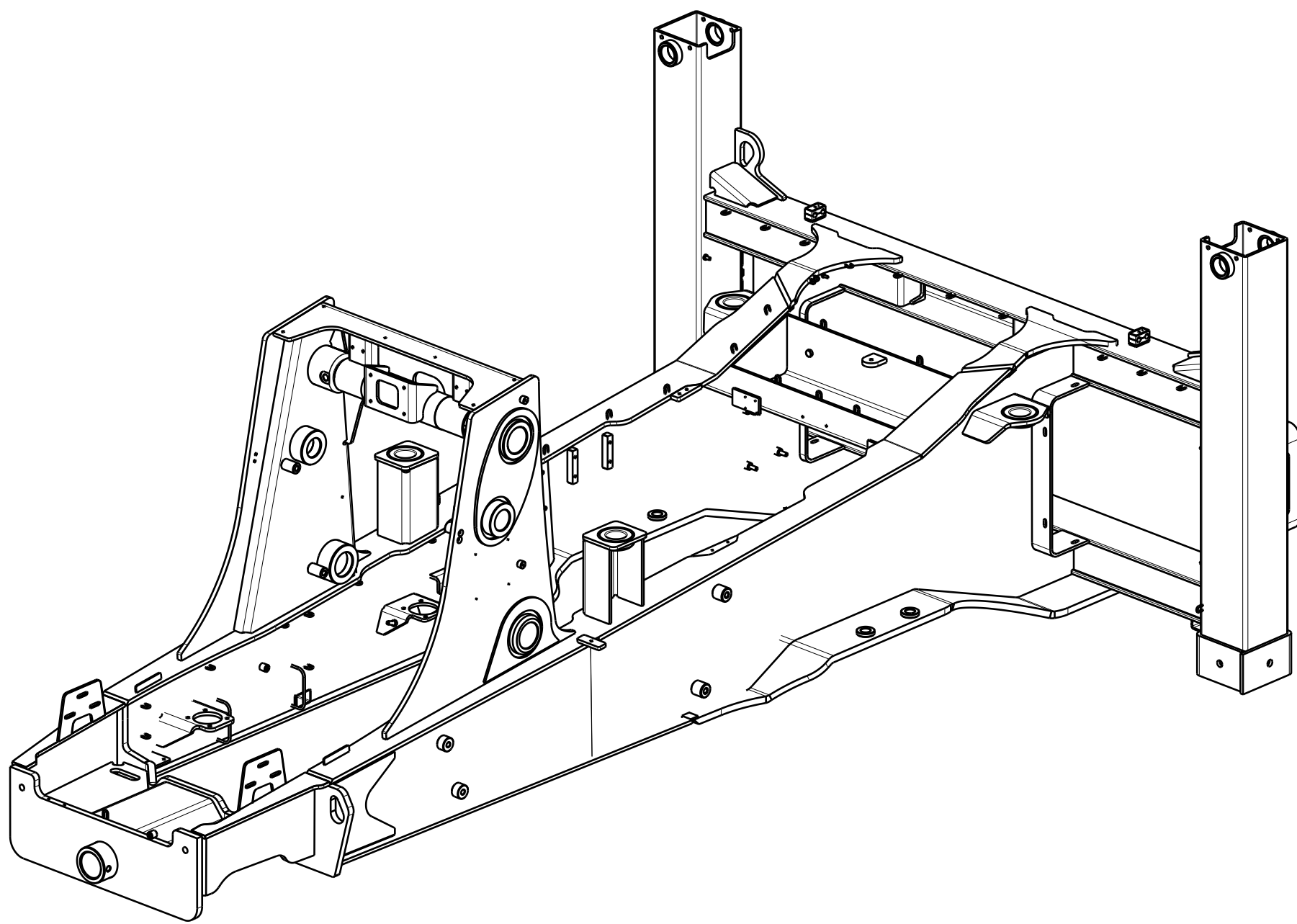
DESIGNED BY: S.MENTRIBESE	DATE: 27.05.2015	CHECKED BY: M.SOMIEZ	APPROVED BY: L.KRIZIANCIC	UR-GE DEPARTMAN I	
TOTAL EFFECTIVE CASE DEPTH		SCALE 1 : 10	Weight (Kg) 1.994,01		
		QUANTITY			
HARDNESS		OUNCU ACH METODU OGLULER mm DİR			THIRD ANGLE METHOD DIMENSIONS IN mm
CORESURF.					
HEAT TREATMENT		UNSPECIFIED TOLERANCES		DRAWING NAME MST 6 PLUS KABIN A1	
FINISH		DIN EN 10025-94		DRAWING NUMBER 172770020	SIZE A1



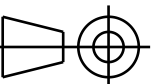
Front view
Scale: 1:15

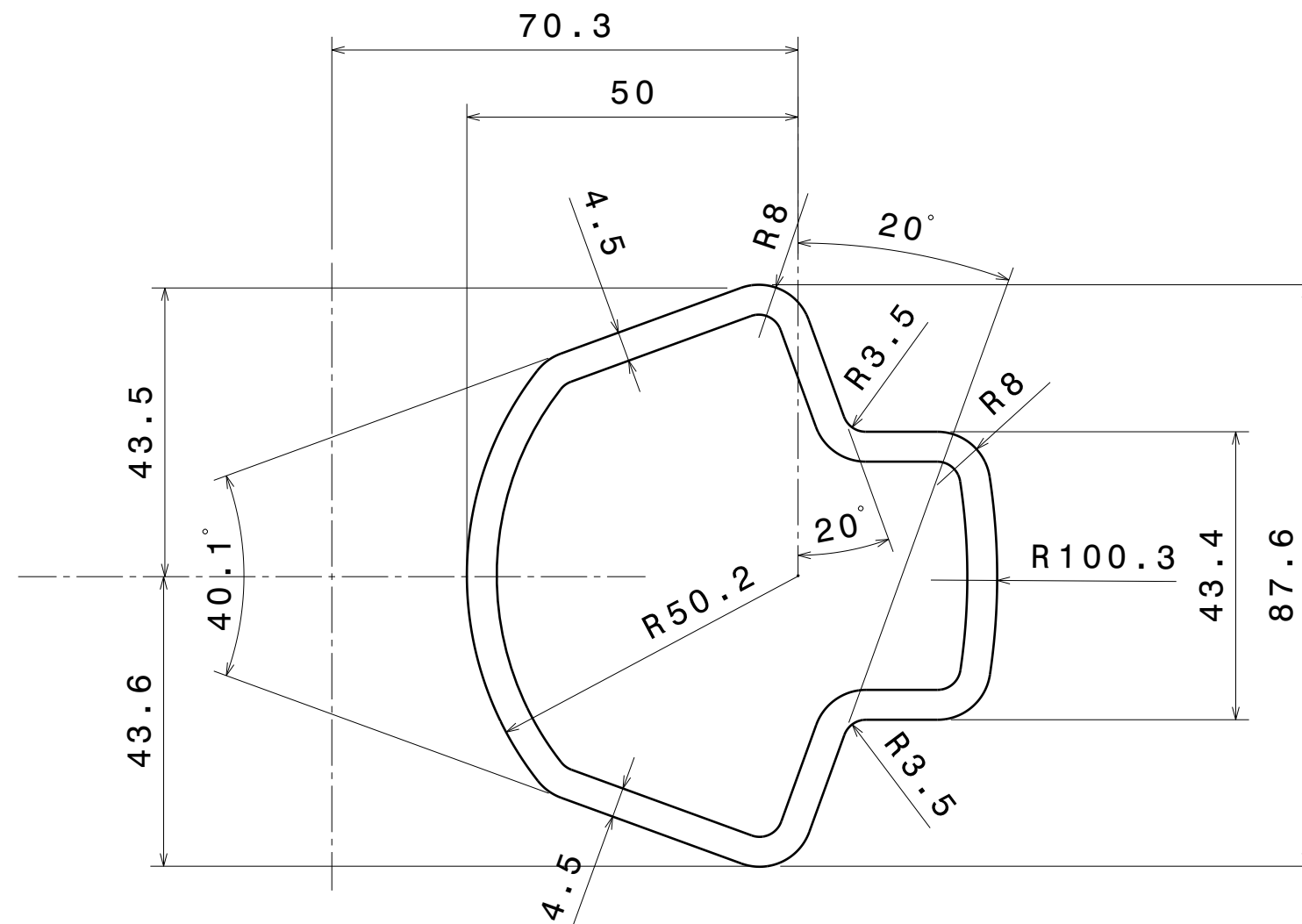


Top view
Scale: 1:15



Isometric view
Scale: 1:15

DESIGNED BY: S.MEMIKBESE		DATE: 27.05.2015		CHECKED BY: M.SONMEZ		APPROVED BY: L.KIRILANGIC		UR-GE DEPARTMAN I			
TOTAL EFFECTIVE CASE DEPTH				SCALE 1:15		Weight (Kg) 1.132,79					
HARDNESS		HOMOLOGATION		QUANTITY							
				UÇUNU ACI METODU ÇÖLÜLER mm DIR							
CORE		SURF.		REFERENCE				THIRD ANGLE METHOD DIMENSIONS IN mm			
HEAT TREATMENT				UNSPECIFIED TOLERANCES							
FINISH				DIN EN 10025-94				DRAWING NAME MST6 2 WS PLUS SASI A2			
								DRAWING NUMBER 172631003 A2			



Front view
Scale: 1:1