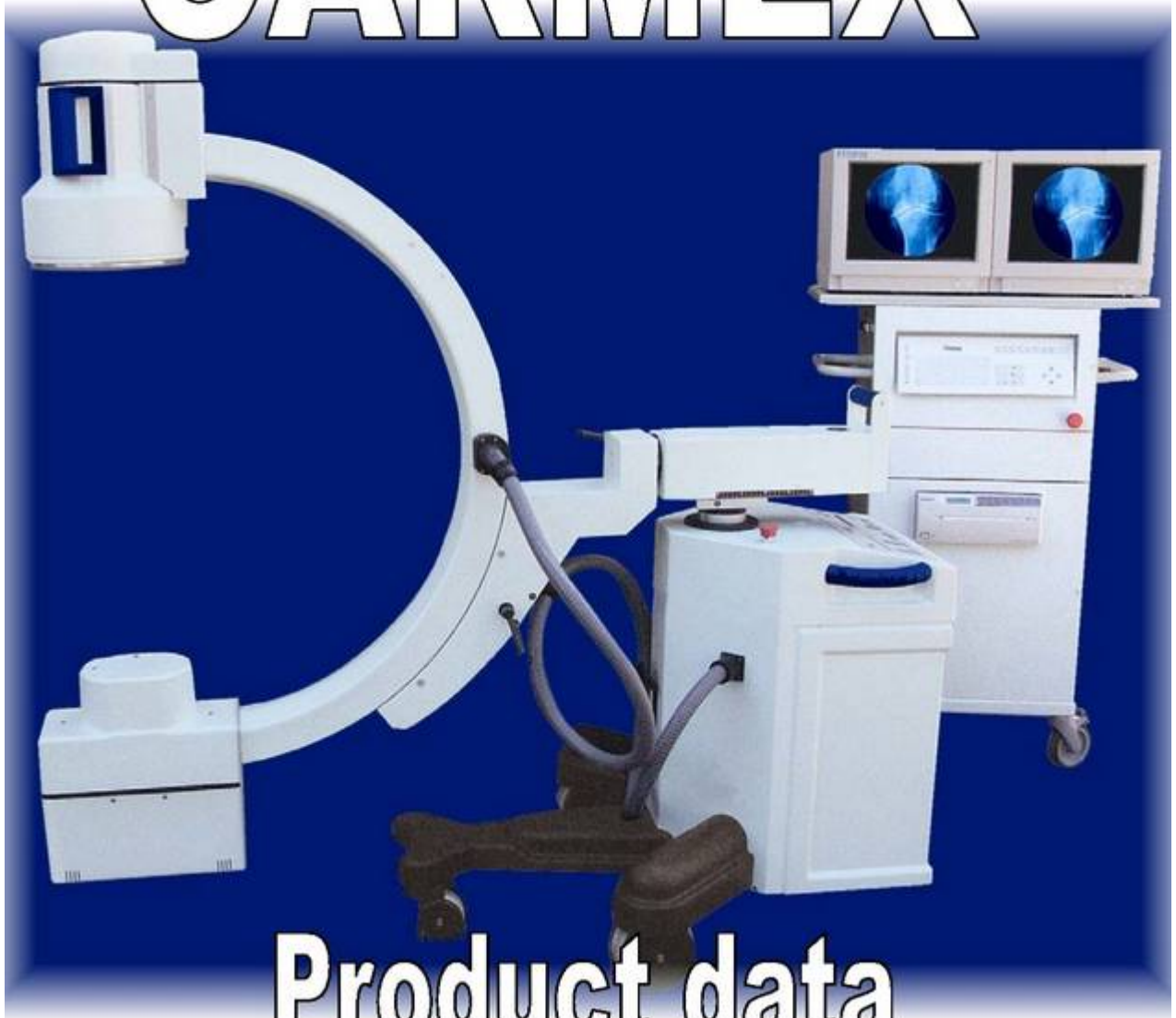


CARMEX



Product data

MOBILE X-RAY UNIT WITH IMAGE INTENSIFIERS CARMEX

Using the modular configuration principle, CARMEX can be used in different applications: from orthopedics to basic surgery, from urology to cardiology, for interventional radiology and emergency departments.

The digital technology, used for controlling the x-ray generator and for image processing, guarantees also protection and safety against the radiation and ensures very high quality vision.

It is possible to choose between three types of image intensifiers 7, 9 or 12 inches, two different x-ray tube, stationary or rotating anode and six different digital systems with the capability to store from 1 to 36.000 images and more.

Common features to the whole range of CARMEX:

- Compact and light mechanical structure (arm in aluminium alloy and plenty components in plastic) in order to move easily the system even in very difficult and restricted areas.

The highly ergonomic control panel offers excellent supervision of all parameters and possible regulations



- Perfectly balanced movements which do not require the continuous use of the brakes in normal use.
- The 662 mm arm depth and the "wig-wag" +/- 12° movement permit a large exploration.
- Microprocessor controlled 40 kHz high frequency x-ray generator which permits a perfect control of the x-ray dose.
- It is possible to work in different ways: continuous fluoroscopy, pulsed fluoroscopy, radiography, digital radiography (snap shot), cassette radiography.
- High definition CCD TV camera with 100 Hz video output for a view of the images without flickering combined to 17" 100 Hz monochromatic high contrast monitors.
- Image rotation and inversion (right / left), spatial filter (sharp, smooth), inversion black/white and motion detection.

Particular realisation of the wheels which are equipped with cable pushers in order to clear the path of cables. The wheels group is covered with shockproof plastic. Mechanical designed for a low weight of support arms



- In transport position, the particular balancing of the equipment permits, with a small pressure on the handles, to lift the front wheels in order to get over small obstacles.
- The direction of the wheels and braking are controlled by a single handle positioned on the side.



400 mm of Arm elevation, two command on the two side of console. Near all movement appear a graduate scale for the position.



In all version particular care has been taken in keeping the dose at very low level in order to do so following accessories are available.

- Laser localiser.
 - Collimator: motorised iris and motorised rotating blades.
 - Dose Area Meter device with display on the control panel in accordance international rule CEI 62/7, with continuous fluoroscopy at 60 KV (mA are automatic), the DAM value is 893mGy*cm².
 - Automatic storing of the last image (LIH).
 - Virtual collimator which permits to position the image in a desired way without x-ray emission.
- The image quality is carefully made and guaranteed by software device present on all versions such as recursive filtering for noise reduction with motion detection device and edge enhancement filter for a better view of the details.



The digital memories available include basic and advanced versions which permit to make interventional radiology thanks to the software of DSA, ROADMAPPING, MAX OP, CINE LOOP.

The digital memory of VDP 140 series can introduce many patients information in the images like hospital name and hospital department, date and time of the exam, name, age, sex, registration, type, physician and comment for every patient; all this information would be print by thermal printer (optional) or recorded by video recorder (optional).

CERTIFICATION

The CARMEX mobile x-ray unit is a **II b** class device, according to 93/42 CEE European directive. IMQ (certification corporate body number 0051) provides CE certification of Socimed CARMEX, certificate number 400/MDD.

The device is made according to directives 93/42/EEC, the harmonised norms applicable are:

CEI EN 60601-1	CEI EN 60601-2-7	CEI 62-2
CEI EN 60601-1-2	CEI EN 60601-2-28	IEC 878
CEI EN 60601-1-3	EN475	

MODEL AND CONFIGURATION

There are four principal CARMEX models:

CARMEX 7F: C-arm with 7 inc. image intensifier and stationary x-ray tube anode.

CARMEX 9F: C-arm with 9 inc. image intensifier and stationary x-ray tube anode.

CARMEX 9R: C-arm with 9 inc. image intensifier and rotating x-ray tube anode.

CARMEX 12R: C-arm with 12 inc. image intensifier and rotating x-ray tube anode.

(In the basic configuration all models are equipped with memory system type **VDM 1**).

* = **Optional**

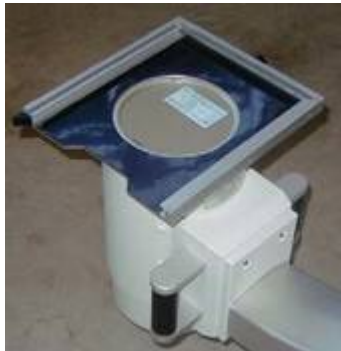
CARMEX MODELS		CARMEX 7F	CARMEX 9F	CARMEX 9R	CARMEX 12R
C-ARM	Horizontal movement	200mm	200mm	200mm	200mm
	Motorised vertical movement	400mm	400mm	400mm	400mm
	Wig-Wag	± 12°	± 12°	± 12°	± 10°
	I.I. – Rx focus distance	940mm	920mm	987mm	928mm
	Angular movement	115°	115°	115°	115°
	Rotation movement	> ± 200°	> ± 200°	> ± 200°	> ± 200°
	Arc depth	660 mm	660 mm	660 mm	640 mm
POWER REQUIREMENTS	Mains voltage	230 V	230 V	230 V	230 V
	Frequency	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz	50 / 60 Hz
	Fuses	16 A	16 A	16 A	16 A
	Max absorbed	From 9 A to 24A	From 9 A to 24A	From 9 A to 24A	From 9 A to 24A
	Max impedance	0.4 Ω	0.4 Ω	0.4 Ω	0.4 Ω
RX GENERATOR MONOBLOCK	Type	PSM RX HF1 F/2	PSM RX HF1 F/2	PSM RX HF1 R/2	PSM RX HF1 R/2
	Max voltage	110 kVp	110 kVp	120 kVp	120 kVp
	Max power	3,5 kW	3,5 kW	5 kW	5 kW
	Max mA digital radiogr.	65 mA	65 mA	65 mA	65 mA
	Max mA cont. fluoro	4 mA	4 mA	4 mA	4 mA
	Max mA boost fluoro	7 mA	7 mA	8 mA	8 mA
	Thermal capacity	500 KJ	500 KJ	600 KJ	600 KJ
	Continuous dissipation	60W	60W	60W	60W
Total Filtration	> 2.8 mm Al	> 2.8 mm Al	> 2.8 mm Al	> 2.8 mm Al	
X-RAY TUBE	Type	CEI mod. 0X–110–5/A	CEI mod. 0X–110–5/A	IAE X20P 0.3/0.6	IAE X20P 0.3/0.6
	Anode material	Tungsten	Tungsten	RTM	RTM
	Angle	12°	12°	10°	10°
	Focus	0.6 - 1.5 mm	0.6 - 1.5 mm	0.3 - 0.6 mm	0.3 - 0.6 mm
	Max anode load(SF/LF)	0.77KW - 3.85KW	0.77KW - 3.85KW	5 KW - 17 KW	5 KW - 17 KW
	Anode thermal capacity	30 KJ	30 KJ	150 KJ	150 KJ
	Anode cooling	230 W	230 W	300 W	300 W
	Filtration	2.8 mm Al	2.8 mm Al	2.8 mm Al	2.8 mm Al
	Conformity	IEC613-336(CE0459)	IEC613-336(CE0459)	IEC613-336 (CE0051)	IEC613-336 (CE0051)

CARMEX MODELS		CARMEX 7F	CARMEX 9F	CARMEX 9R	CARMEX 12R
COLLIMATOR	Type R621AMP	Motorised Iris	Motorised Iris	Motorised Iris	/
	Type R625MP	/	/	/	Motorised Iris
	Type R601MP *	Motorised Iris Motorised Rot. blades	Motorised Iris Motorised Rot. blades	Motorised Iris Motorised Rot. blades	/ /
	Type R605MP *	/	/	/	Motorised Iris Motorised Rot. blades
	Type CAN R 605 ASM (only with VDP140 series) *	Motorised Iris Motorised Rot. blades	Motorised Iris Motorised Rot. blades	Motorised Iris Motorised Rot. blades	/ /
	Type CAN R 605 ASM-12 (only with VDP 140 series) *	/	/	/	Motorised Iris Motorised Rot. blades
DOSE METER DEVICE	Type vacutec *	Available	Available	Available	Available
LASER LOCALISER	Type. n.a. *	Cross type	Cross type	Cross type	Cross type
FLUOROSCOPY	focus	0.6 mm	0.6 mm	0.3 mm	0.3 mm
	kVp range 1 KV steps	40 - 110 KV	40 - 110 KV	40 - 120 KV	40 - 120 KV
	mA range (boost fluoro)	0.4 - 7 mA	0.4 - 7 mA	0.4 - 8 mA	0.4 - 8 mA
	KV and mA automatic dose regulation in all models				
	Timer minimum range	0,01 sec			
	Max fluoroscopy time	After 5 continuous minutes, audio alarm			
	Display	KV -mA - alarm	KV - mA - alarm	KV - mA - alarm	KV - mA - alarm
Max load x-ray monobloc	30 sec ON- 90 sec OFF, during 130 minutes @ 100 KV and 3,8 mA		30 sec ON- 90 sec OFF, during 140 minutes @ 100 KV and 3,8 mA		
FLUOROSCOPY ONE SHOT	Focus	0,6 mm	0,6 mm	0,3 mm	0,3 mm
	KV p range	40 – 110 Kv	40 – 110 Kv	40 – 120 Kv	40 – 120 Kv
	mA range	0.4 - 7 mA	0.4 - 7 mA	0.4 - 8 mA	0.4 - 8 mA
PULSED FLUOROSCOPY	Focus	0,6 mm	0,6 mm	0,3 mm	0,3 mm
	kVp range 1 KV steps	40 - 110 KV	40 - 110 KV	40 - 120 KV	40 - 120 KV
	mA variation range	0,2 – 4 mA	0,2 – 4 mA	0,2 – 4 mA	0,2 – 4 mA
	Timer	After 5 continuous minutes, audio alarm			
	Display	KV -mA - alarm	KV - mA - alarm	KV - mA - alarm	KV - mA - alarm
RADIOGRAPHY	Focus	1.5 mm	1.5 mm	0.6 mm	0.6 mm
	kVp range 1 KV steps	40 - 110 KV	40 - 110 KV	40 - 120 KV	40 - 120 KV
	mA variation range	25,4 – 65 mA	25,4 – 65 mA	23,3 – 65 mA	23,3 – 65 mA
	mAs range	1 - 250 mAs	1 - 250 mAs	1 - 250 mAs	1 - 250 mAs
	Utilization factor	1:14	1:14	1:14	1:14
IMAGE INTENSIFIER	Type	TH9416HP	TH 9428 HP	TH9428HP	TH9432HP
	Field	7" / 5"	9" / 6" / 4"	9" / 6" / 4"	12" / 9" / 6"
	Technology	all metal	all metal	all metal	all metal
	Input screen	Hi-Res Csl	Hi-Res Csl	Hi-Res Csl	Hi-Res Csl
	Typical central resolution	50 / 54 lp/cm	48 / 56 / 64 lp/cm	48 / 56 / 64 lp/cm	44 / 50 / 56 lp/cm
	Contrast ratio	30:1 (5"), 22:1 (7")	30:1(4"), 25:1 (6"), 23:1 (9")	30:1(4"), 25:1 (6"), 23:1 (9")	30:1(6"), 25:1 (9"), 22:1 (12")
	DQE at 59,5 kV	65% (IEC standard)	65% (IEC standard)	65% (IEC standard)	65% (IEC standard)
	Conversion factor	150 cd/m2/mR/s	240 cd/m2/mR/s	240 cd/m2/mR/s	240 cd/m2/mR/s
GRID	Diameter	180 mm	235 mm	235 mm	335 mm
	Material	Al	Al	Al	Al
	Ratio	8:1	8:1	8:1	8:1
	Blades	103 Bl/ inch	103 Bl/ inch	103 Bl/ inch	103 Bl/ inch

CARMEX MODELS		CARMEX 7F	CARMEX 9F	CARMEX 9R	CARMEX 12R
TV CAMERA	Type	CCD 1/2" , Low lag			
	Matrix CCD	752x582 (50Hz - 625 lines) 768x494(60Hz - 525 lines))			
	Video out	1 Vpp max			
	Bandwidth	14 MHz			
	Scanning	4:3			
	Signal/noise ratio	40 dB @., 12 lux			
	Mechanical rotation	>360°			
TV MONITOR	Type	B/W - Flat screen			
	CRT	17"			
	Bandwidth	40 MHz			
	Scanning mode	Vertical 100Hz (50Hz) 120 Hz (60Hz) 625/525 lines			
MEMORY SYSTEM	Type VDM 1				
	RAM memory	1			
	Matrix acquisition	576 x 576 x 8 bits			
	Video signal output	1 - interlaced 100Hz (50Hz) or 120Hz (60Hz)			
	Monitor number	1			
	Video output aux	1 - interlaced 50Hz (50Hz) or 60Hz (60Hz)			
	Type of signal	1 Vpp, sync - 300mV, aspect ratio 4/3			
MEMORY SYSTEM	Type VDM 4+1 *				
	RAM memory	4			
	Matrix acquisition	576 x 576 x 8 bits			
	Video signal output	2 - interlaced 100Hz (50Hz) or 120Hz (60Hz)			
	Monitor number	2			
	Video output aux	1 - interlaced 50Hz (50Hz) or 60Hz (60Hz)			
	Type of signal	1 Vpp, sync - 300mV, aspect ratio 4/3			
MEMORY SYSTEM	Type VDM 110 *				
	RAM memory	110			
	Matrix acquisition	576 x 576 x 8 bits			
	Video signal output	2 - interlaced 100Hz (50Hz) or 120Hz (60Hz)			
	Monitor number	2			
	Video output aux	1 - interlaced 50Hz (50Hz) or 60Hz (60Hz)			
	Type of signal	1 Vpp, sync - 300mV, aspect ratio 4/3			
MEMORY SYSTEM	Type VDP140 S *				
	RAM memory	48			
	Matrix acquisition	576 x 576 x 10 bits			
	Video signal output	2 - interlaced 100Hz (50Hz) or 120Hz (60Hz)			
	Monitor number	2			
	Video output aux	1 - interlaced 50Hz (50Hz) or 60Hz (60Hz)			
	Type of signal	1 Vpp, sync - 300mV, aspect ratio 4/3			
MEMORY SYSTEM	Type VDP140 HD *				
	RAM memory	48			
	HD	18 GB – 36.000 i			
	Matrix acquisition	576 x 576 x 10 bits			
	Video signal output	2 - interlaced 100Hz (50Hz) or 120Hz (60Hz)			
	Monitor number	2			
Video output aux	1 - interlaced 50Hz (50Hz) or 60Hz (60Hz)				
	Type of signal	1 Vpp, sync - 300mV, aspect ratio 4/3			
MEMORY SYSTEM	Type VDP140 *				
	RAM memory	48			
	HD	18 GB – 36.000 i			
	Matrix acquisition	576 x 576 x 10 bits			
	Video signal output	2 - interlaced 100Hz (50Hz) or 120Hz (60Hz)			
	Monitor number	2			
Video output aux	1 - interlaced 50Hz (50Hz) or 60Hz (60Hz)				
	Type of signal	1 Vpp, sync - 300mV, aspect ratio 4/3			

THERMAL PRINTER	Type SONY UP 960 *	Available	Available	Available	Available
	Type SONY UP 980 *	Available	Available	Available	Available
VIDEO RECORDER	Type n.a. *	Available	Available	Available	Available
X-RAY CASSETTE HOLDER for 24 x 30 Format cassettes		Available	Available	Available	Available

Some particular of Carmex



The x-ray cassette holder with an easy image intensifier fixed system, allow the traditional film use. This optional are available for all models.

The laser localizer and the tree different size of image intensifier.



Other particulars of Carmex "C" Arm.

The unlock handle for arm extension and for wheels rotation

monoblock cooling system



DIGITAL MEMORY CONFIGURATION

	VDM1	VDM 4+1	VDM 110	VDP 140S	VDP140HD	VDP140
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L.I.H. Last Image Hold						
Recursive filter						
Edge enhancement *						
RAM Images	1	4	110	48	48	48
Date & time display	N/A	N/A	N/A			
Patient annotation	N/A	N/A	N/A			
Virtual collimator overlay *	N/A	N/A	N/A			
Image zoom (x2)	N/A	N/A	N/A			
4x, 16x multi image display	N/A	N/A	N/A			
Acquisition speed (i/s) *	N/A	N/A	N/A	1, 3, 6	1, 3, 6	1, 3, 6
DICOM interface	N/A	N/A	N/A			
Cine-loop	N/A	N/A	N/A			
Windowing		N/A		N/A		N/A
Grey scale reverse			N/A	N/A		N/A
Boost fluoroscopy	N/A	N/A	N/A			
HD (images)	N/A	N/A	N/A	N/A	18GB, 36.000	18GB, 36.000
DSA *	N/A	N/A	N/A	N/A	N/A	
Road mapping/Remasking (max op.) *	N/A	N/A	N/A	N/A	N/A	
Floppy driver	N/A	N/A	N/A	N/A		
Remote control	N/A	N/A	N/A			

= standard

* = real time / post processing

N/A not available

On request, Socimed can provide the DICOM pc unit to storage (by a CD rom writer) and visualise the DICOM image downloaded from Carmex.

INSTALLATION AND WARRANTY

CARMEX mobile x-ray units need only the installation of the monitors up to the monitor unit, the connection of the two parts (C-arm and monitor unit) and the power supply connection with single phase 230 Vac, earthen.

All SOCIMED device has one year factory warranty, from delivery date. The customer can extend the warranty by subscription of technical service agreement.

DIMENSION AND ENCUMBERANCE

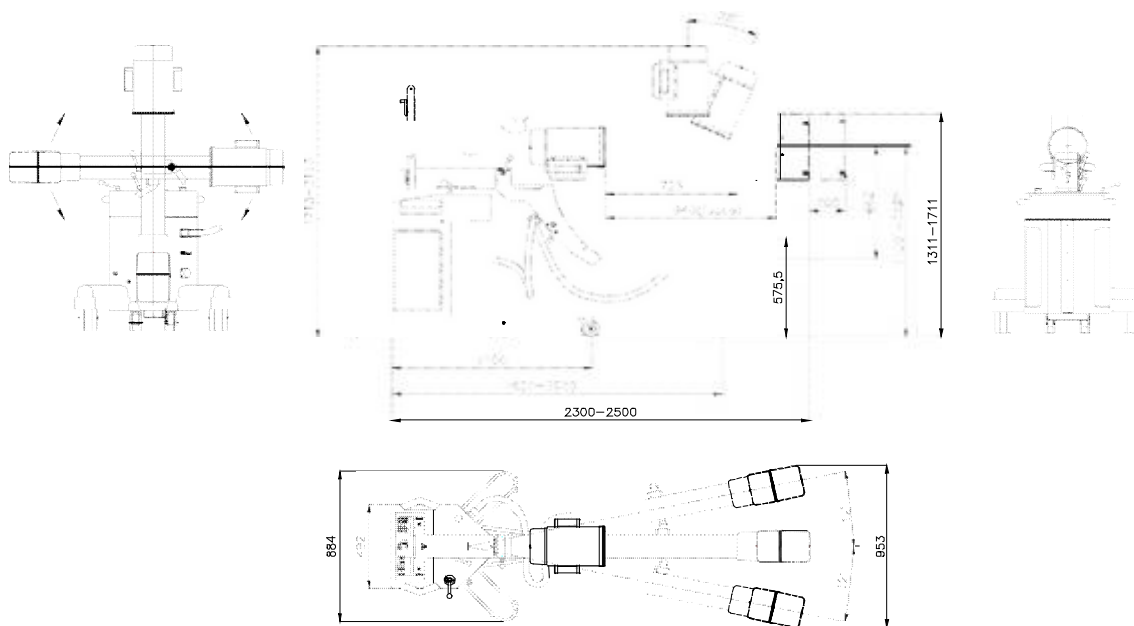
Monitor unit dimension.

With only one monitor: length 645 x width 570 x height 1600 mm

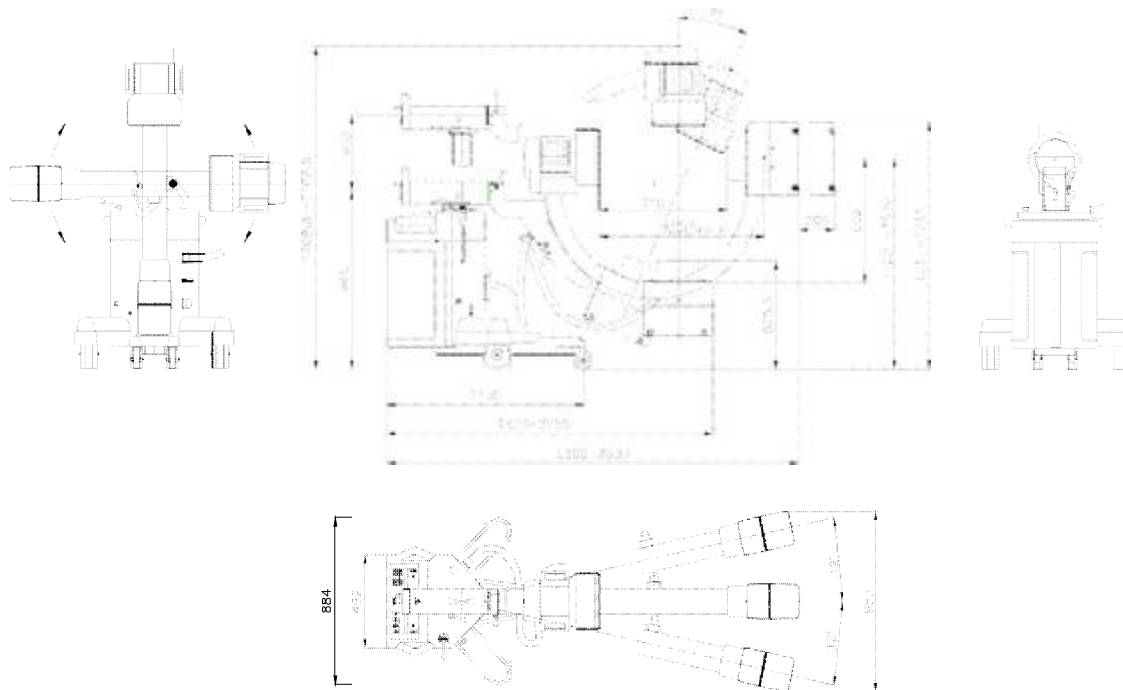
With two monitors: length 645 x width 845 height 1600 mm

WEIGHT		
Basic version (VDM1 digital memory, only one monitor)		150 Kg
Option:	VDP digital memory	8 Kg
	Video recorder	13 Kg
	Thermal printer	8 Kg
	DICOM inteface	6 Kg

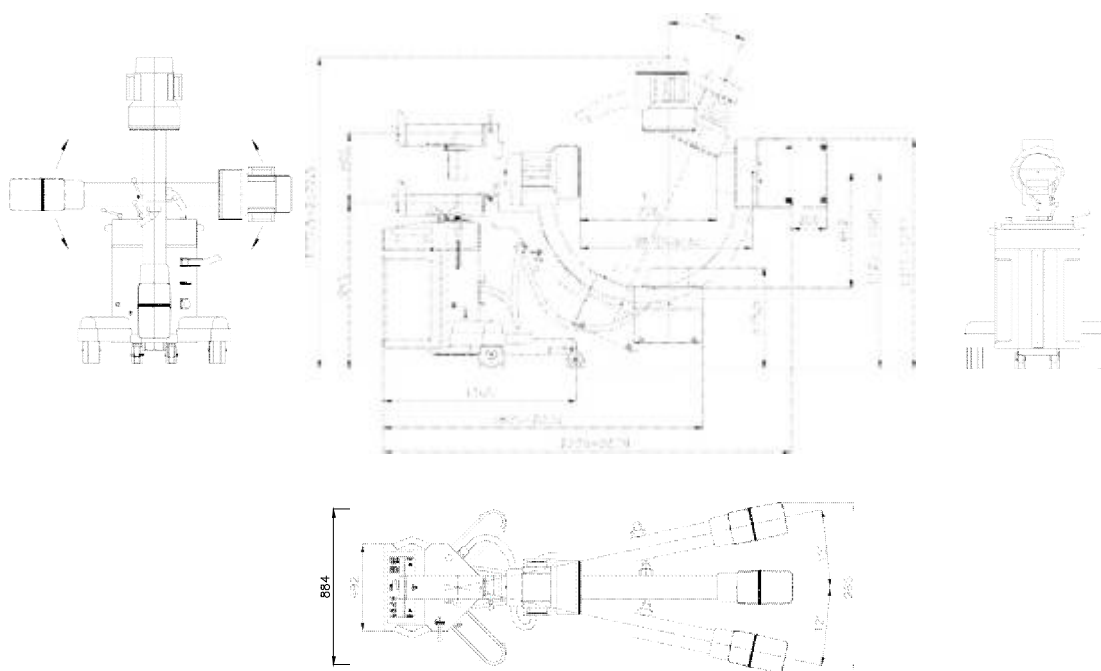
C-ARM **CARMEX 7 F** dimension, weight 230 Kg.



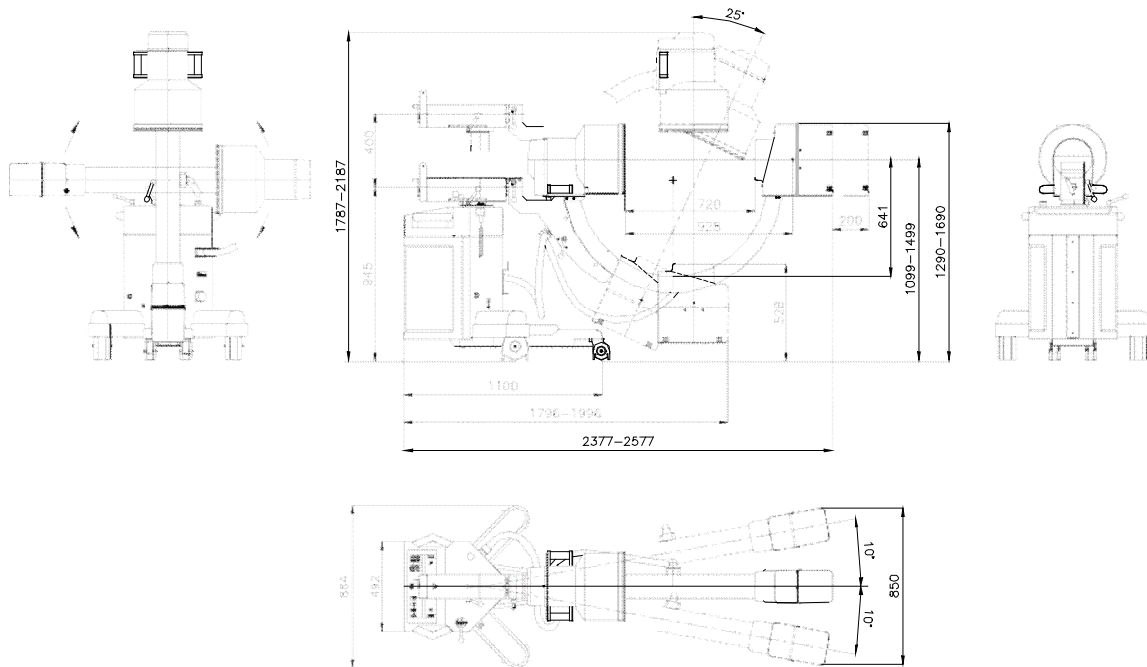
C- ARM **CARMEX 9 F** dimension, weight 230 Kg.



C- ARM **CARMEX 9 R** dimension, weight 237 Kg.



C-ARM **CARMEX 12 R** dimension, weight 250 Kg.



PACKING AND TRANSPORT

The C-Arm CARMEX can be packed in two different ways. For sea transport: wooden case with barrier bag.

For normal transport: wooden case.

Wooden case dimension

width 123 x length 268 x height 178 cm.

SOCIMED reserves the right to make modifications without any prior notice