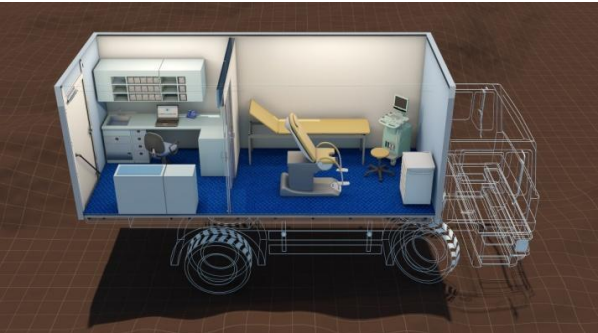


Technical Specification of a Mobile Clinic Fleet for Nomads



-----X-RAY-----AMBULANCE-----GYNAECOLOGY-----DENTAL-----



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1. In General

The latter on described mobile clinic serves for a better medical treatment and precautional treatment of the population. It is especially dedicated to the group of the population which lives out of the reach of the already existing medical treatment centers. The basic model of these mobile clinics consists of different interior equipments, which in the end - guided and used by a medically well-trained personell - delivers a sufficient basis of medical care. In line with the just said, the following description is to be interpreted:

1.1 Description of the Mobile Clinic and its task

These mobile clinics are designed in a way, which takes into consideration the dedicated surroundings and circumstances, the existing infrastructure in order to fulfill the specific requirements.

These are:

Full functionality in between a temperature range from -40°C up to $+40^{\circ}\text{C}$

Storage temperature range from -50°C up to $+65^{\circ}\text{C}$ without causing damage to the equipment

The equipment shall be resistant to fungal infestation and other biological influences. The general level of hygiene and cleanliness shall be reached. Surfaces shall be even and resistant to cleaners and medical fluids.

The cleaning process shall be enabled to be easy, quick and simple. Everything shall be designed without dirt traps etc.

The longelivity of the materials applied shall last at le least 20 years under the given maintainance intervalls and guidelines of the supplier.

The used medical devices shall fulfill the special requirements in terms of mobility.

The temperature level in the box body compartment shall be fixed between $+18^{\circ}\text{C}$ and $+25^{\circ}\text{C}$ during usage, under the above mentioned circumstances.

All used materials shall be recyclable after their 20years long usage, to enable their re-use.

Every mobile clinic shall operate as a single autark unit. Dependencies among each other are forbidden.

Anyhow a connections and interfaces to the public energy network are required.

1.2 Description of the elements of a Mobile Clinic

This mobile clinic fleet consists of four similar modules with specific medical equipments.

These are:

- Ambulance with surgical facility
- X-Ray Clinic with digital X-Ray equipment
- Dental Clinic with integrated DR- System (digital X-Ray)
- Gynecology Clinic with complete equipment

2. Description of the concept and its general structure

The concept of the mobile clinic fleet is designed in the way, that the basic structure of each one is the same. The main differences are to be found in the equipment of medical devices and in the layout of the treatment compartment.

The chassis is the same, the box body structure and the supply-systems are identical in any of the clinics. A refurbishment in order to fulfill another medical task shall be possible anytime.

2.1 Description of the Chassis

The Chassis shall fulfill the following special conditions:

- Gross Vehicle Weight (GVW) of 12.500kg
- 4-Wheel-Drive with a fordability of up to 700mm
- Shaft with a gear lock management
- differential lock on front and rear axle
- max. wheelbase of 4200mm
- max. overhang 2125mm
- Engine with appr. 250PS/184W
- velocity of 90km/h
- min. exhaust gas norm: Euro 3
- Radio CD 24V
- left hand drive
- fuel tank with a capacity of at least 150 liters
- integration of a radio communication device
- electrical breaking system
- ABS
- central locking
- seats in driver cabin with air suspension, heated and incl. a lumbar support
- double seat bench on the co-driver side
- additional air heater
- automatic air conditioning system
- batteries 2x12V 155Ah
- generator 28V 80A 2240W

2.2 Description of the Box Body

The box body which is to be integrated to the chassis is the most important element of the mobile clinic, which has to fulfill 2 criterias: conformity with the requirements of DIN EN 1789 as well as offroad ability.

As the mobile clinics are ambulance- comparable medical vehicles, this box body has to apply the security guidelines of EN 1789 and shall have passed all security related tests for ambulances. For example this includes a certificate of a passed frontal crash with 2,5g, a rollover test, an electromagnetic conformity test. Hereby the solidity of the box body is to be proven as well as the integration of interior components. (Installation of EN 1789 tested devices incl. tested holders or alternatively holders, which are equally designed to the ones tested). After the test all interior parts must have stayed at their original position. It is not allowed for any devices or interior component to get loose. In case of accidents of the mobile clinic, any involved person shall not be harmed.

In addition the box body shall proof offroad ability. This means in details, that the box body shall withstand the extreme requirements of torsion and quake in the offroad scenery and shall not be harmed in its functionality and stability during a usage time of 10 years. The offroad ability is to be proven by the bidder in an adequate documentation.

The Box Body shall be designed as a self-carrying sandwich construction as well as a changeable box, in order to be displaced from one chassis to another one.

The production of sandwich panels includes aluminium square tube profile reinforcements wherever they are needed. The insulation shall be given in using a Poly-Urethane foam with a density of 40kg/m³. Foam and cover layers (as well as probably needed tubes and reinforcements) shall be pressed together in a compound manner under vacuum condition. Only this process guarantees the highest values in terms of solidity, reliability and longevity. Square tubes are only to be made from aluminum or a an aluminum alloy. Reinforcements are to be made either of waterproof construction woods or from aluminum. The inner and outer cover layers are to be made from high value glassfiber reinforces plastic (GRP). The GRP has a thickness of 1.4mm and is covered with a strong and even gelcoat lining. Optical criteria as well as to withstand aggressive chemical cleaners used in the medical field shall be considered hereby. The wall thickness shall be appr. 47mm. The cover layers's colours are free of choice. The maximum allowed heat transfer coefficient shall be smaller than 0,4 (W/m²C°).

All wall elements shall be cased in an extremely stiff powder coated aluminum hollow profile force-fit and form-fit. Every profile cased 2 wall elements. In the box body corners the three hollow profile are to be connected with so called star-connectors made from plastic or aluminum, which are important for the force-transmission to neighbored panels in case of a crash and which deliver - together with the aluminum hollow profile and the vacuum pressed sandwich panels the needed stiffness and solidity.

The floor panel consists of a 47mm strong construction. The insulation is out of minimum 44mm and is made out of extruded foam (at least a density of 80kg/m³) with high stiffness. Additional aluminum tubes shall be integrated for rigidity. The inner floor panel is coated with a highly resistant, 2mm strong 2K- liquid, which fulfills all criteria as there are hygiene, anti-slippery and anti-crack.

The Poly-Urethane foam insulation shall fulfill the antifire class B2 according to DIN 4102. The construction shall be easily repairable locally through standard workshops, which shall be enabled to repair the box body in terms of functionality and optical requirements as it was when newly delivered.

The doors shall be fitted out with double latch locks for highest possible security, and also with door rest.

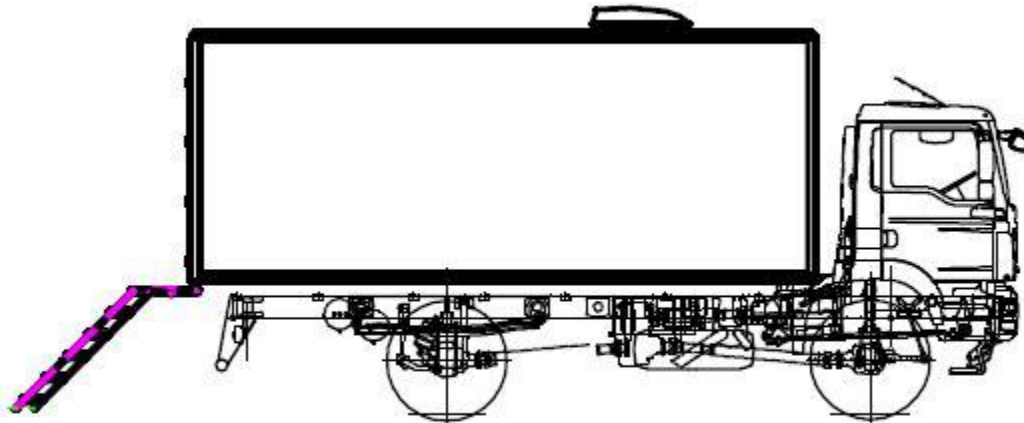
The underneath side of the box body shall be treated with a Teroson underfloor protection. The wheel houses shall be treated with a stone chip protection of minimum 2-3mm thickness.

Inside the treatment compartment the maximum allowed sound pressure level of 78 db(A) shall not be exceeded at any time.

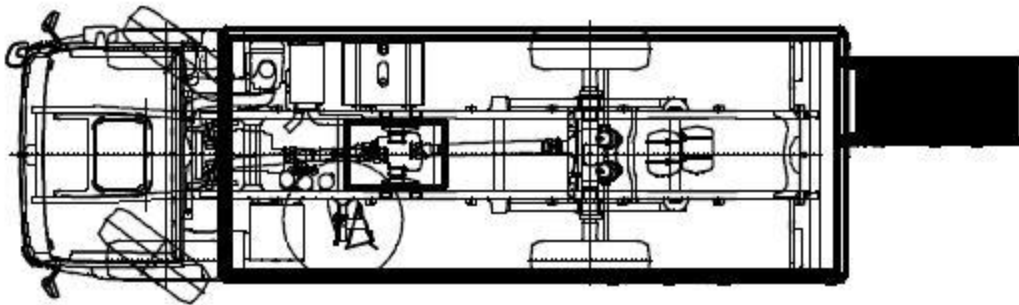
The intermediate frame which is necessary due to the needed chassis is to be designed according to the vehicle manufacturer guidelines as well as a welded, hot-dip-zinc coated steel construction.

The integration of all interior parts and medical devices shall be possible in the box body panels without any changes.

Mobile Clinic - right hand side view



Mobile Clinic - upside down view



2.3 Description of the integrated generator

The needed generator has to cover all the electrical power needs of the mobile clinic, especially those of the mobile X-RAY clinic.

The generator shall be a diesel driven 1(3)- Phase generator, 230 (400)V, 50Hz. The diesel supply is to be designed from the chassis tank. The control and automatic surveillance is to be done on a display mounted in the treatment compartment. In addition a landline power supply connection is to be fitted.

The generator shall have following technical data:

- power: 8kW at 1.500rpm
- number of cylinders: 3
- rpm: 1.500
- frequency: 50Hz
- Voltage: 230 (400) V
- water cooled, brushless, synchron alternator
- engine cooled with water
- sound level of 54 dB(A)
- fuel consumption of max. 3l/h

- alternator: 12V
- starter: 12V
- starter battery

Dimensions: LxWxH 900x570x640mm

Dry Weight: 350kg

Sound Pressure Level max.: 54dB(A) according DIN

These technical data monitor the minimum requirements of a generator which is to be fitted to a mobile clinic.

2.4 Description of the Climate Control System

The Climate Control System consists of two independent subsystems: the air conditioning system and the heating system.

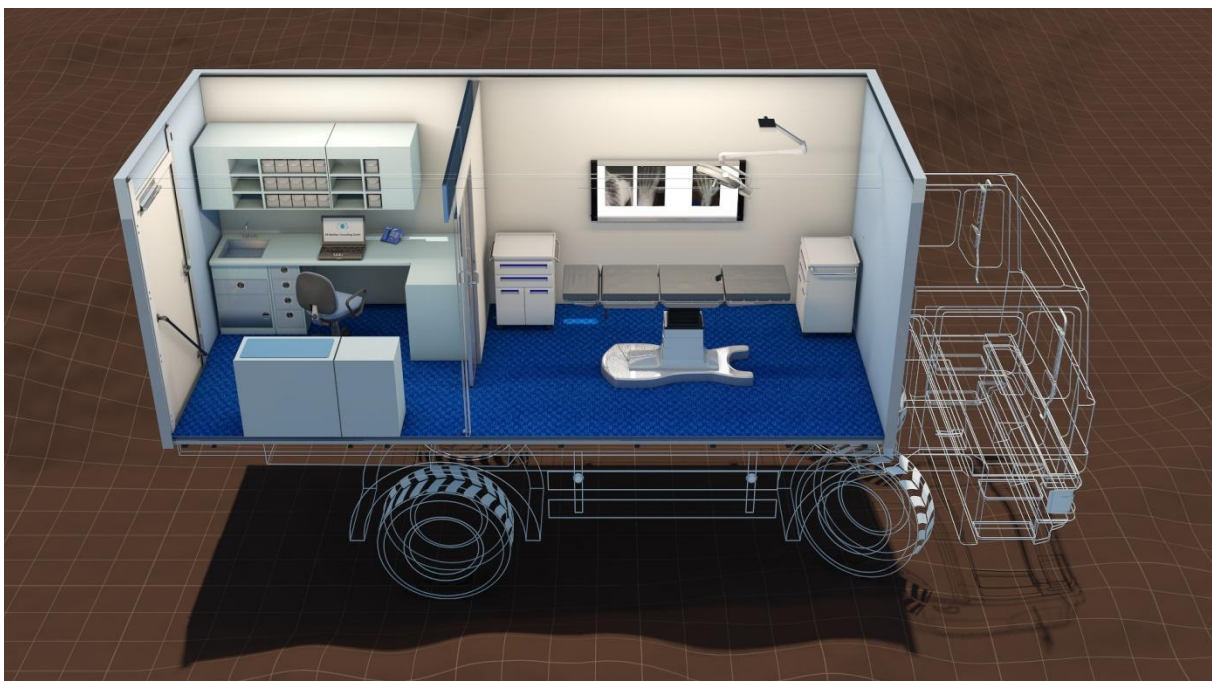
The AC system has a cooling power of max. 6KW/12V (2,7KW/230V) and in addition a heating power of 1,6KW as is driven either by a compressor near the shaft or by the generator (point 2.3). The standard heating system uses the thermal energy of the generator's water cooling system up to a maximum of 6KW and is ducted into the patient compartment using a radiator, controlled by a thermostat. The devices are maintenance free and underlie the current standards (cooling liquid R 134A) or better. The devices are to be used both in the generator mode (inspite of the radiator) or in the land line power mode. In addition there are mounted two electrical heaters with a min. power of 4KW.

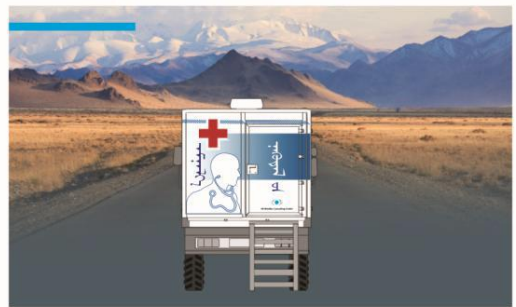
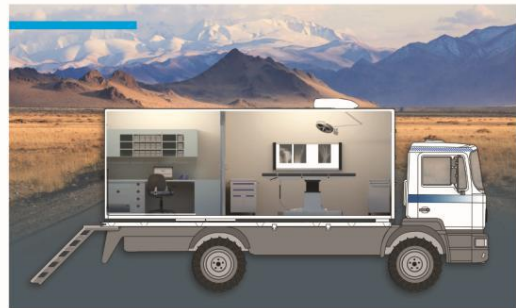
2.5 Description of the Interior of the Box Body

The interior consists of a basic module, as follows:

- a high-valued furniture installation, which considers the specific requirements in terms of hygiene and cleanability. The furniture panels consist of a waterproof constructive wood, covered with a rigid 0,8mm HPL cover layer on both sides. Even surfaces, transport lockers for doors and drawers, rugged construction for heavy use are to be incorporated. The edges of the furniture panels are to be seamlessly joint with a PVC-edge using a hotmelt glue. Edges which are open towards the floor section are to be sealed with the above mentioned 2K flooring liquid. For biological and chemical influences there shall be a minimum amount of chances to cause harm.
- for the alternatively allowed installation of PVC hard foam or PVC integral foam panels the bidder has to proof in documentation, that these panels would withstand the heavy quakes in offroad conditions as well as the high temperatures above 50°C (the material shall not de-form).
- metal materials shall not be used. They are considered to be too heavy.
- a refrigerator 12V, designated for mobile use.
- stainless steel sink with a water tap, hot and cold water, boiler 5liters, soap dispenser, paper towel dispenser, disinfection liquid dispenser, OT handglove holder

- electrical distribution installed in a distribution cabinet including the generator control panel, AC control panel, residual circuit breaker and fuses installation as well as an electrical network surveillance
- lights installation incl. 4 roof lamps place on the left hand and right hand side each below the ceiling.
- 6 electrical power sockets 230V
- Main Switch for the main lamps
- emergency lamp, 12V, with one switch
- installation fixations for medical devicesm designed in respect to the special transport needs
- working lamps above the desk 2x
- waste bin made of stainless steel, incl. transport holder
- interior layout as shown in the sketch
- a curved curtain in the entry are





2.6 Description of the of the vehicle's accessories

Following accessories a part of the mobile clinic as well as mounted to the chassis.

- fresh water tank 100l made from PolyEthylen (PE) incl. electrical pump, manual refilling, lockable, additional insulation and a temperature control and liquid level indicator
- waster water tank 100l made from PolyEthylen (PE) incl. manually lockable drain, drain pipe with 5m length, temperature control and liquid level indicator
- AC compressor
- Diesel Generator as described above
- air compressor if necessary (see Dental Clinic)
- rear entry step incl. rails and transport locking
- 4 telescopic supports, hydraulically and manually operated, in order to avoid staggering
- fixations for add. fuel canisters
- small accessories

3. Medical Equipment and Installation

3.1 Description of the medical devices - X-RAY Clinic

The digital X-RAY device shall fulfill following technical criteria in order to be integrated into the Box Body and in order to fulfill its dedication.

- The digital X-RAY device shall consist of following components:

Pillarsystem

- consisting of 2 pillars

(1st pillar to carry the Buggy System and

2nd pillar to carry the X-RAY generator)

incl. synchronization

Dockingstation for CANAN CXDI-501G

Detector left / including adapter plate

Multi-Line-Grid CNX-1 (right)

FFA 150 cm, Ratio 10:1, 40 l/cm

AEC Measuring Chamber

X-RAY generator

DAP-Chamber incl. manual trigger and conformity with Canon DR System

Guarantee:

- 3 years for the X-RAY tube

- incl. spare manual trigger

- incl. light target lamp 12V/50W

Rating

Power requirement

AC, Single phase 200-260 V; 50/60Hz

Mains fuse

16 A / 230 V

Protection against shock

Type B, Class I

Electromagnetic compatibility (EMC)

Complies with IEC 60601-1-2, 2002

Mode of operation

Continuous operation with intermittent loading

Duty cycle

1: 60 (1 sec. ON, 60 sec OFF)

Protection against ingress of water

Splash proof (IEC Publication 529)

Safety notice Equipment

not suitable for use in the presence of flammable anesthetics, oxygen or nitrous oxide

Fuse

30 A / 230 V

X-Ray Generator

Construction

Mono-Block - High frequency technique
full bridge inverter system

Output

6 kW at 120 kV

Output range in 2-kV steps

40 to 50 kV = 100 mA (max.)

52 to 60 kV = 80 mA (max.)

62 to 80 kV = 70 mA (max.)

82 to 100 kV = 60 mA (max.)

	102 to 120 kV = 50 mA (max.)
mAs	0,4 - 143 mAs
Focus	1,2 x 1,2 mm
Timer range	0,01 - 2,00 Sec.
X-ray tube	XD4-120
Total filtration	3,2 mm Al equivalent (with collimator)
Line adjustment	fully automatic
Overload protection	for X-ray generator and X-ray tube
Collimator	with pivot function, 100 Lux at SID 100 cm
Dose area product meter	ionization chamber, dose indicator display

X-RAY Table DR-501G

for CANON Detector CXDI - 501G
 Measurements: 2000x800x730mm
 Weight: 54 Kg
 Carry Load: 150 Kg
 Equipped with: Detector Carriers for CANAN CXDI-501G

Multi-Line-Grid CNX-1 (incl. fix installation)
 FFA 150 cm, Ratio 10:1, 40 l/cm

Package CANON CXDI - 501G

Components:
 - CXDI- 501G Flat Panel Detector (35cmx43cm with 7m cable)
 - CANON Power Box
 - CANON Software

Technical Data:
 Detector: CANON CXDI- 501G
 Szintillator: GOS
 picture size: 35x43cm
 pixel size: 2800x3408 Pixel (9,5 Mega Pixel)
 Preview Pic: 3-5 seconds
 DICOM: DICOM 3.0 compatible
 Dimensions: 460x424x15mm
 Weight: 3,1 kg
 Temperature range: 5-35°C, 30-50%rF

Exposure automat "console"

All-In-One Touchscreen Panel PC

PC

NEC MD212MC 2MP 54 cm Color
 High Brightness Diagnosis Monitor
 - colour monitor
 - 54cm diagonal screen

- contrast relation: 1050:1
- max. brightness: 850 cd/m²
- native resolution: 2 mega pixel (1200x1600)
- 3 years warranty for the background illumination

dicomPACS basic package

This software module consists of:

- dicomPACS diagnosis module standard (L-100)
- dicomPACS receiver/archive (N-3001)
- dicomPACS patient CD Module (G-2003)
- dicomPACS Scan module (G-2011)

DICOM Basis Printmodule (SCU)

delivers picture via DICOM Basic Print to DICOM-compatible printers

Printer Filmstation

DICOM Printer

- Printing process: direct thermal print
 - appr. 64 films/h (film 14x17")
 - 2 film cassettes each 125 sheets
- incl. each 1 package of 125 sheets format 8x10 inch
and format 14x17 inch

external drive 3,5" 1TB

- backup drive for securing picture data

ray protection skirt Pb 0,35

60x120 cm/blue

ray protection skirt Pb 0,5

60x120 cm/green

X-Ray protection gloves Pb 0,35, uni-size

Thyroid protection skirt Pb 0,35, medium, colour blue

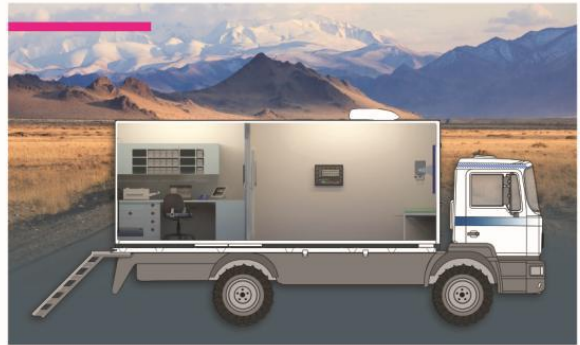
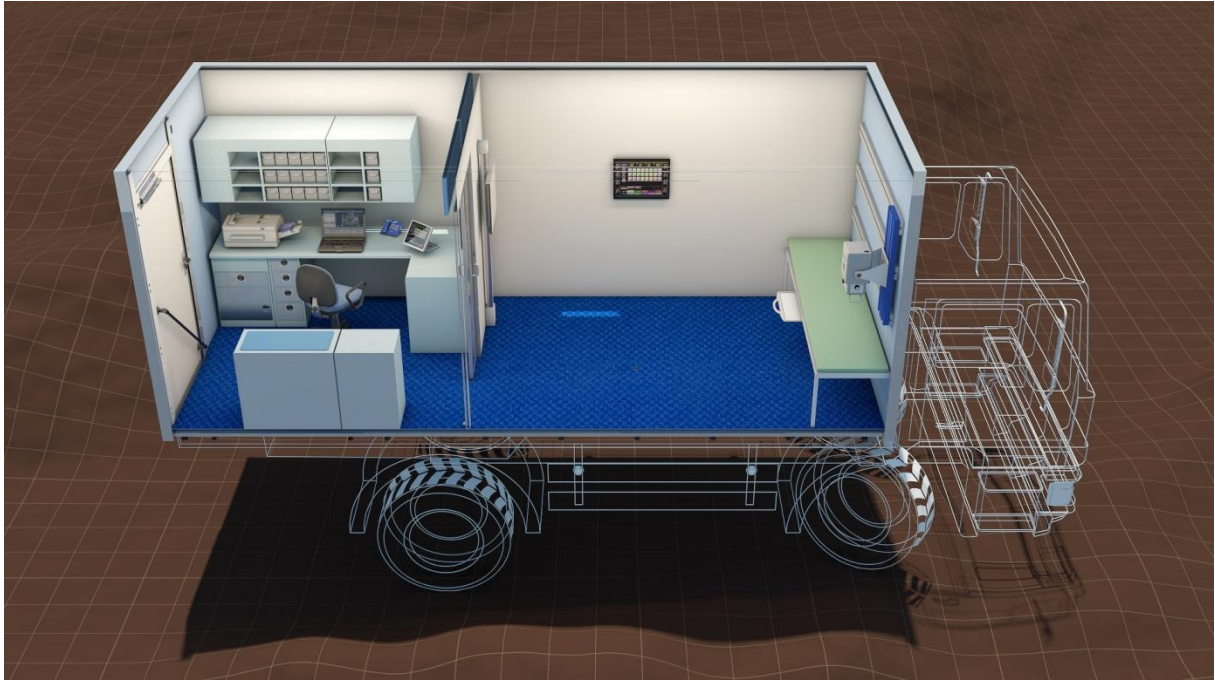
T-Shield gonad protector (flexible) 3fold set, for male patients Pb 1mm

Hygiene-Set for T-Shield, 3 sizes(150 pcs)

Storage set 10 pcs (PU-K-coated in plastic box)

wall hook WMH for 1 skirt and 1 pair of gloves

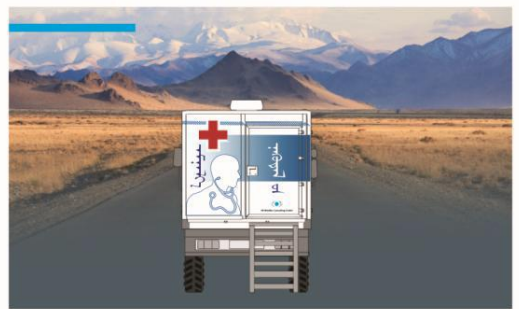
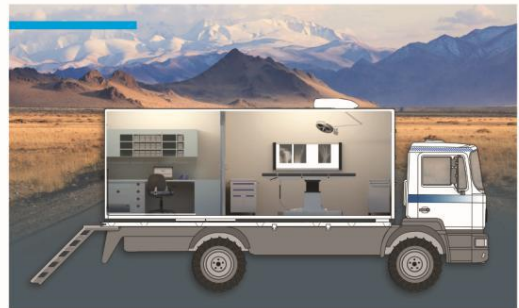
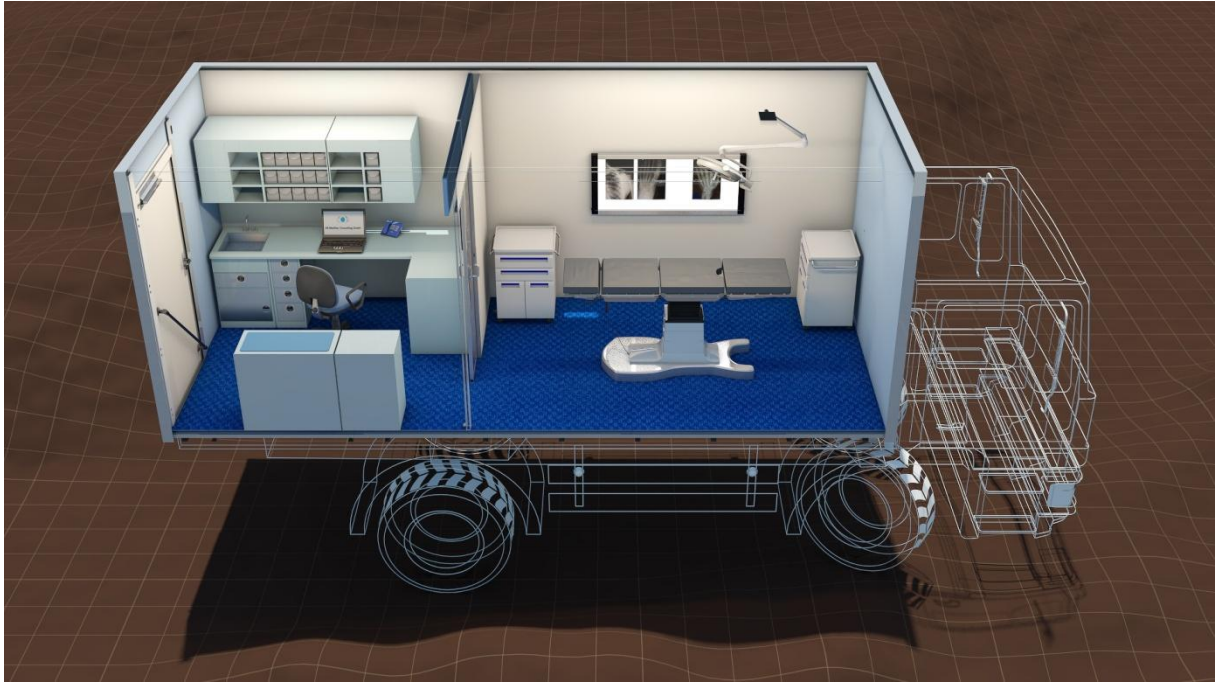
CD-blanks 50fold 700MB, 52x rewritable



3.2 Description of the medical devices - Ambulance incl. surgical facility

Following medical devices are elements of the equipment:

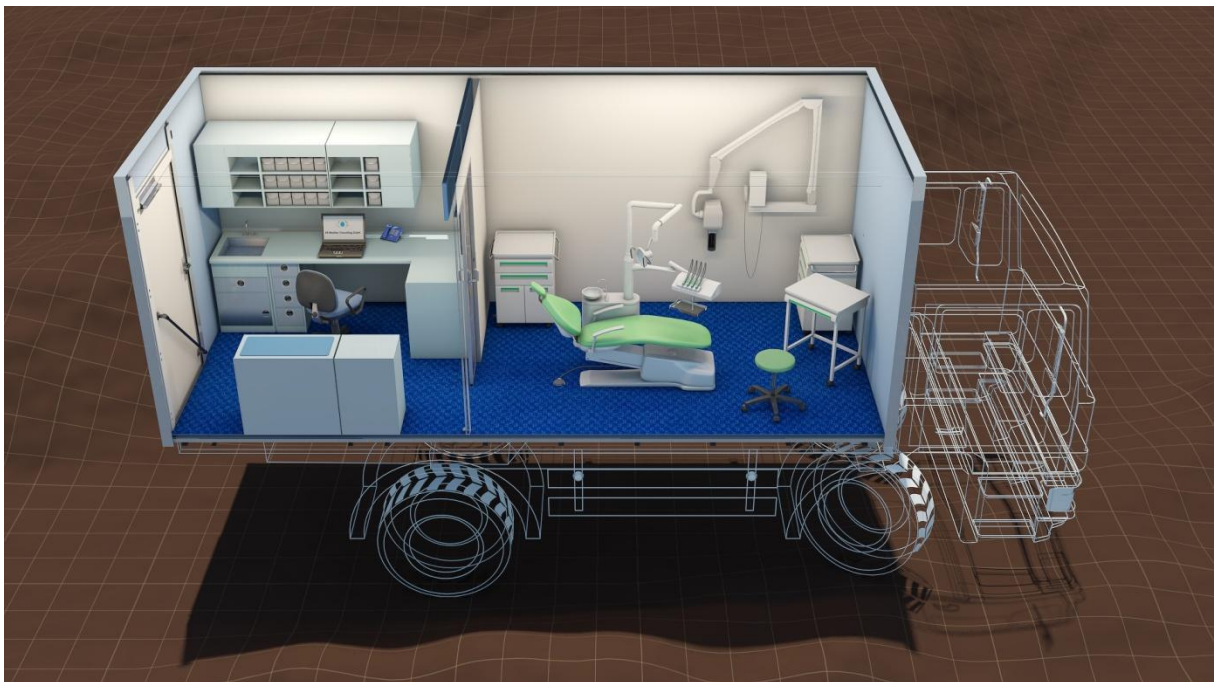
- 1x surgical instruments
- 10x dressing kit
- 1x OT lamp, roof mounted
- 1x Protoscope
- 1x Sphygomanometer
- 1x Stethoscope
- 1x height adjustable chair
- 1x inspection couch/table, adjustable head- and feet pieces, also usable as OT- table
- 1x X-Ray picture display Dilos
- 1x oxygen supply, 2x 10l bottles with pressure minimizer and distribution with 2 oxygen wall connectors
- 1x ultra sound device
 - compact and fully digital device for mobile use
 - 15" TFT LCD Monitor
 - USB- connection, Hard Drive
 - 2 plus 1 electrical tube connectors
 - B-, M-, CF-, PW- and CW Module
 - digital archive BioLab for securing pictures and clips
 - CE branding acc. to medical products law
 - general imaging module
 - tissue enhancement imaging
 - X View Module
 - M View Module
 - Autoadjust for B-Mode doppler - automatic gain- and TGC optimization
 - trapezoid module (TP-View)
 - B-Mode Steering for LA-Tubes
 - MyLabDesk
 - Linear and High Frequency License
 - Phase Array&TEE License
 - Convex and Endocavitary License
 - colour doppler (CFM)
 - doppler (PWD/CWD)
 - Cardio Module
 - ECG- Cable IEC
 - ECG Clamps
 - Phased Array Tubes
 - Convex Tubes
- 1x sterilization device
- 1x infusion holder, roof mounted, designed to carry up to 4 infusions
- 1x kit of consumables

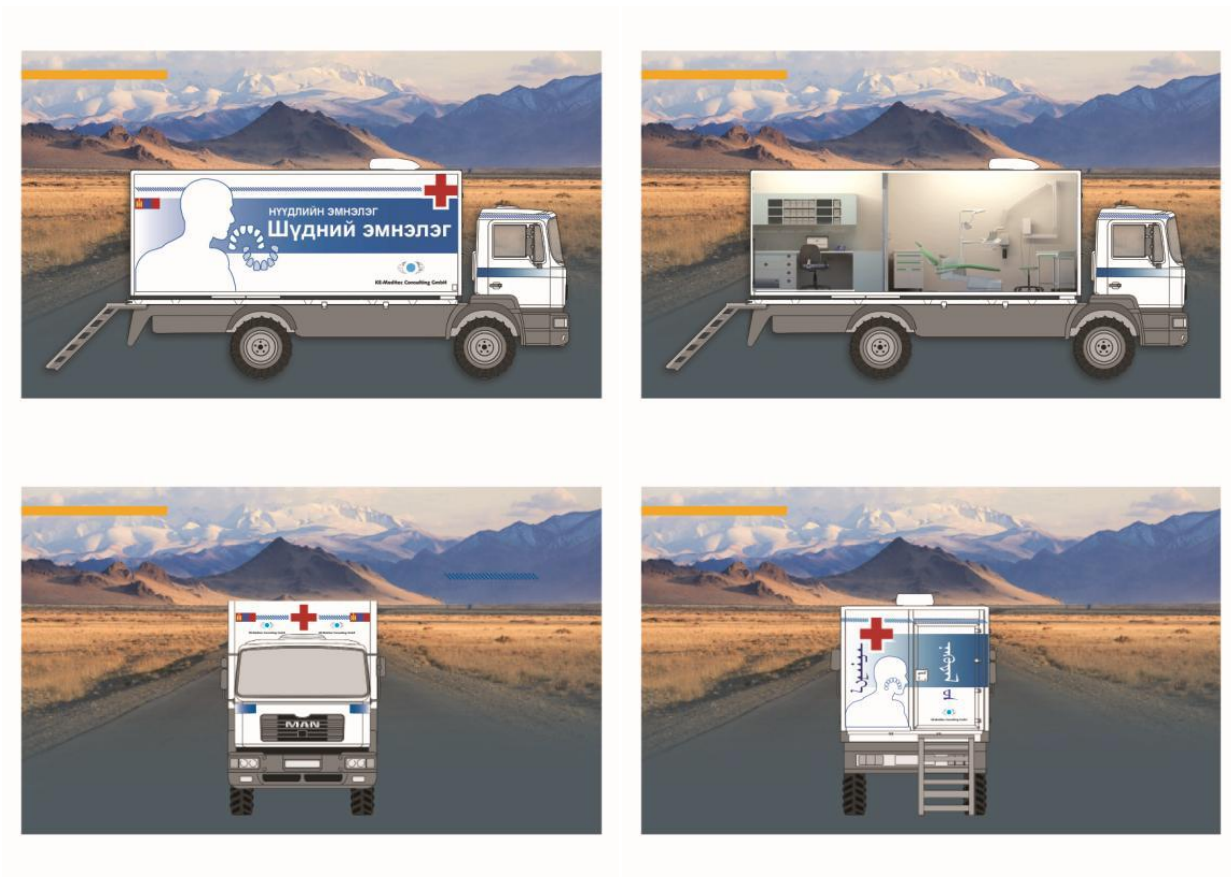


3.3 Description of the medical devices - Dental Clinic

Following medical devices are elements of the equipment:

- Dental Chair incl. electrical positioning of the patient
- foot control
- Dentist Chair
- Carrier for treatment devices, pivotable
- air pressure supply
- water supply
- dental OT lamp, pivotable
- 3 x power turbines incl. accessories and drill sets
- 1x X-Ray device digital incl. monitor
- 1x compressor, oil-free
- water supply from the main tank incl. heating and liquid level indicator
- waste water tank 100l incl. heating and liquid level indicator
- sterilization device
- 1x amalgator
- 20x sets of dental instruments
- 1x light cure device
- 1x laptop
- 1x set of consumables



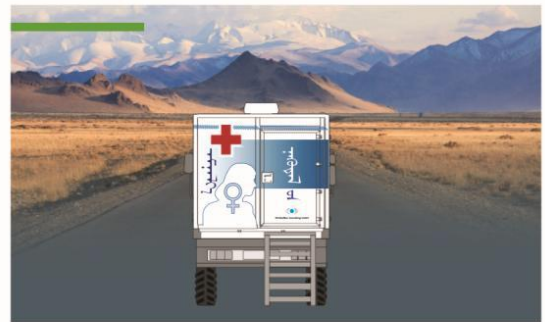
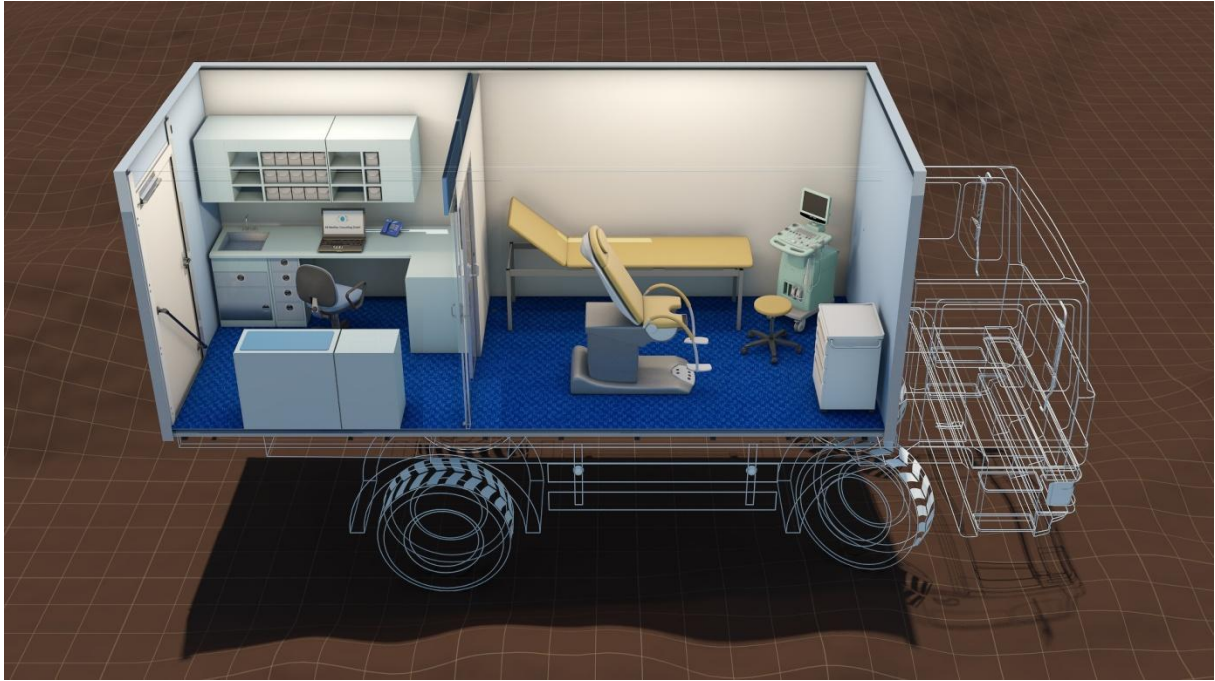


3.4 Description of the medical devices - Gynaecology Clinic

Following medical devices are elements of the equipment:

- petri dishes
- biopsic forceps
- specula (glass)
- dressing forceps
- vaginal speculum (small)
- Wertheim scissor
- Inspection and treatment couch/table
 - round shaped corners, reinforces, seamless
 - levelling feet
 - artificial leather upholstery
 - head part arrestable in 2 positions
- Chair:
 - simple and quick height adjustment with anatomic-lift-function
 - braked double rollers, plastic, non colouring
- Thermal Cabinet:
 - special cabinet to pre-warm the gynaecologic instruments
 - high hygenic standard
 - seamlessly glued
 - high-valued worktop
- Inspection- and Treatment Chair for Gynaecology
 - electrical levelling feet

- electrical adjustment of height, pelvis height and back part, using foot controller
- memory function and simultaneous movement of the positioning engines
- leg positioning systems dismountable
- closed and even surfaces for easy cleanability
- carriable weight: 200 Kg
- Video- Colposcope
 - binocular with convergent beam path and exact focus
 - direct view
 - extremely bright, adjustable LED-lights
 - working distance 30cm
 - turning pin with green filter on the colposcope
 - measuring circles in the left ocular to identify the size of a lesion
 - ametropia compensation for both eyes +7up to -7
 - incl. ColpoSoft DVD
 - integrated video camera with USB- interface for photo and video documentation
 - 2 hand grabs with fine-adjustables for sharpness and height, for tending and swiveling
 - LED- illumination 18W
 - LED- longevity appr. 20000h
 - LED- net connector integrated into tripod frame with continuous brightness regulation using turning pin
- Ultra Sound Device
 - compact and fully digital device for mobile use
 - 15" TFT LCD Monitor
 - USB- connection, Hard Drive
 - 2 plus 1 electrical tube connectors
 - B-, M-, CF-, PW- and CW Module
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 - B-Mode Steering for LA-Tubes
 - MyLabDesk
 - Linear and High Frequency License
 - Phase Array&TEE License
 - Convex and Endocavitary License
 - colour doppler (CFM)
 - doppler (PWD/CWD)
 - Convex Tubes
 - endocavitary tubes



4. Warranty Conditions

A minimum warranty period of 24 months is requested for all supplied elements. In addition only elements shall be supplied, which are provided with a local service station or for which a service can be guaranteed. Also every article is requested to have a CE branding and approval according to the medical products law.

5. Further Requirements

5.1 Training

An adequate training for each and every technical and medical article is to be offered.

The training consists of:

For each Mobile Clinic Vehicle three trainings (Medicine technique, Doctor, Driver) in order to teach the handling and use of the Mobile Clinic.

These trainings shall last one week and shall be conducted at the suppliers facilities. These training costs shall be borne by the bidder.