



HCV Mobile 3000/4000
Technical Description

TECHNICAL DESCRIPTION FOR HCV- MOBILE 3,8 MEV



1.1 Scope of Work

⇒ **Item 1: One Single-View x-ray system, including:**

- ◆ **Item 1.1:** One x-ray emission unit operating at approximately 3,8 MeV and Collimation subsystem.
- ◆ **Item 1.2:** One Detection subsystem, offering a truck scanning height of 4.70 meters starting at 0.45 meter from the floor (clearance 4.80 meters), and its associated data acquisition electronics.
- ◆ **Item 1.3:** One computer system for image acquisition, storage in hard disk and archiving unit, inclusive of software licenses, with:
 - ◇ Two (2) Image Operator Workstations with each one (1) high-definition 17" flat screen monitor for image examination,
 - ◇ One (1) Control and Data Base System Workstation (DBW) for computer system status supervision of data flow and management, image export function with Zip reader (conversion of HCV images in BMP, JPG, TIFF images),
 - ◇ One 72 GB RAID hard disk pile,
 - ◇ One (1) DVD archiving unit,
 - ◇ One (1) high-definition A4 color laser Image Printer.
- ◆ **Item 1.4:** One Facility Control System, for automatic control and monitoring of the whole facility, including the Radiation Safety System, the CCTV System and the Intercom system.

⇒ **Item 2: One Vehicle, comprising:**

- ◆ One (1) Mercedes ATEGO 279 HP, 3 axles, supporting the x-ray equipment, the driver's cabin and the operators' cabin. The driver's cabin, fully air conditioned, includes one seat for the driver and two passenger seats.
- ◆ One (1) operators' cabin (image operators), fully air conditioned, with two (2) seats for Image Operators. This cabin also includes a technical compartment housing electrical and computer cabinets.
- ◆ One (1) system operator and driver's cabin with one seat for the driver and two passenger seats
- ◆ One (1) hydraulic boom supporting the x-ray emission unit and detection system

- ◆ One (1) diesel power generator of approximately 44 kVA for scanning process which supplies energy to the radioscopic system and also to the electrical motor used for the movement of the HCV-Mobile while scanning (note: it is also possible to power-up the radioscopic system and also the movement of the truck while scanning using an external 400 V, 50 Hz, 3 phases, power source. Power sockets located on the body are adequately protected and comply with outside use).

⇒ **Item 3: The Training and Documentation at the Site, comprising:**

- ◆ The Operators documentation in English or Arabic language
- ◆ The Technical documentation in English language
- ◆ The System Operator training (one session) in English or Arabic language
- ◆ The Image Operator / Receptionist training (one session) in English or Arabic language

⇒ **Item 4: One year warranty and maintenance on all items supplied by SMITHS HEIMANN, comprising:**

- ◆ Full labor and parts warranty
- ◆ Scheduled preventative maintenance
- ◆ One set of spare parts

⇒ **Item 5: Project management, installation and commissioning of the Heimann CargoVision at the Site, including:**

- ◆ Transport (sea freight) and freight insurance to the site
- ◆ Radiation safety documentation and statutory controls
- ◆ Labor costs and expenses

1.2 Options

In option, the following items can be quoted upon request:

- 3rd RIW on board
- Additional RIW
- Storage capacity
- Database customization

- RCW
- Remote maintenance (satellite communication)
- Various options available on the Mercedes ATEGO truck
- Customized painting
- 90-85° scanning
- Assistance to the beginning of the HCV operation after commissioning
- Additional year(s) of warranty

1.3 Limits of Supply

This offer is limited to the terms expressly mentioned in this document. The following terms are a non-restrictive list of excluded terms of the proposal:

- a. The purchase or the renting of the parcel(s) of land on which the HCV-Mobile system will be used.
- b. Any cost related to the preparation and site fitting out of the operational site(s).
- c. Any cost related to the possible environmental permit application (and its application itself).
- d. Application for license to use x-ray systems in Yemen and any costs or expenses in relation thereto as well as any costs regarding the registration of the HCV-Mobile in Yemen.
- e. The use of consumables (electricity, diesel, water, telephone, etc.) at the HCV Site(s) for the needs of its operation.
- f. Taxes, fees, levies, etc related to the vehicle authorization to be imported and operated in Yemen.
- g. Mandatory training for the operators (driving license, radiation safety license, etc.).
- h. All options not expressly retained by the Client in the Scope of Work.

Should the Client require to include any one of these items in the offer or modify our proposal in any manner, SMITHS HEIMANN will revise its prices accordingly and the offer shall also be modified.

Software license

SMITHS HEIMANN remains the owner of all software included in the Heimann CargoVision and shall grant the Client a non-exclusive and non-transferable, royalty free license for the use of such software in the installed system.

1.4 HCV-Mobile Performances

IMAGE QUALITY (given for operational speed = 24m / min)	
Ultimate Penetration	Minimum 270 mm of steel, depending on safety area size/x-ray power
Image Quality Indicator (I.Q.I.)	Better than 5 % at the minimum I.Q.I.
Wire Detection Capability (no screen)	0.8 mm
Contrast sensitivity	Better than 1 % (steel plate of 2.5mm behind 100mm steel screen)

Conditions of test according to standard SMITHS HEIMANN procedures

THROUGHPUT AND SIZE OF SCANNED OBJECTS	
Practical Scanning Throughput of 18 m long vehicles	25 vehicles / hour
Vehicle Maximum Size (overall)	Maximum clearance size of inspected object: 2,8 m x 4,8 m (W x H) for trucks 18 m to 27 m length – according to safety area requirement

RADIATION DOSES	
Maximum Absorbed Dose per Scanning	Less than 10 μ Sv /Scan (typical 2 μ Sv) Note: maximum allowed by World Health Organization: 500 000 μ Gy
Maximum Dose Rate in Operators Working Areas	Less than 1 mSv/year
Maximum Dose Rate outside the restricted area	Less than 1 mSv/year
Size of Mechanical and Radiation Safety area for a 18-meter-long truck	Less than 28 m wide x 50 m long for 0.5 μ Sv/hour in average, incompliance with ICRP 60)

MOBILITY & OPERATION	
Transportable system's parts	Fully mobile
Set up time	Less than 30 minutes
Radios frequencies used	Talkie Walkie: 444.55 to 444.65 MHz Safety system POR (emergency stop): 433.1 to 434.75 MHz Safety system Beacons (zone integrity): 433.1 to 434.1 MHz Wireless network system: 2.45 – 2.48 GHz
Wind resistance:	Scanning: 72 km/h (45 miles/h) Deployment: 95 km/h (60 miles/h)
Overall road driving dimensions	12 x 2.5 x 4 m (Length x Width x Height)
Max. Height during:	Scanning: 5,5 m approx. Deployment: 6 m approx.
Max. Width deployed	8.9 m.
Standard range of operation	-15 +45°C; up to 100% humidity
Performance	Maximum speed: 80 km/h (50 mph)
Fuel consumption	30 liters / 100 km while driving (> 1000 km) 6 liters / hour at full scanning operation - 25 trucks/h with A/C (100 hours of continuous operation)
Total weight	About 23 tons on 3 axles, 5 tons on front axles and 9 tons per rear axle

All given data are subject to evolution and require confirmation by SH

1.5 HEIMANN CARGOVISION CHARACTERISTICS

X-RAY EMISSION UNIT	
Electron Beam Nominal Energy	Approx. 3.8 MeV Note: maximum allowed by World Health Organization: 10 MeV

X-RAY DETECTION SUBSYSTEM	
Number of detectors elements	1216 – L-shaped line sensor
Scanned Height	From about 0.4 m to 4.7 m
Dynamics (Grey Levels)	1,048,576 (20 bits)

COMPUTER SYSTEM	
Data Base Storage Capacity	More than 7,000 Images (72 GB)
Archiving Capacity	Approx. 400 data per DVD-Rom (4.7 GB), manual archiving, USB keys.
Review Image Workstations	2 with - 1x 17" screens (for image and manifest) - User friendly operation with mouse
Screen Definition	17" LCD flat type, 1,280 x 1,024 pixels, 16.7 million colors possible
Image Data Format	16 Bits
Image Size - Side View	More than 5 million pixels: height 1,286 Pixels, length 5000 pixels for 18 m long truck
Image Processing Tools	Numerous tools available on friendly and ergonomic man/machine interface
Image Network	Approx. 15 Mbytes/s
Data Base workstation	Based on SQL data base, screen shared with CSW and RIW
Color Image Printer	Laser type, A4 prints, 256 colors among 16.7 million
Check-In Workstation (option)	Workstation with one 17" flat type screen 1,280 x 1,024 pixels, one A3 flatbed scanner

VEHICLE	
Chassis	Mercedes ATEGO 2528 (3 axles)
Color	White
Engine	Mercedes OM 906 LA, 6 cylinders turbo diesel (EURO3 compliant) 279 HP (205 kW) Maximum torque 1,100 N/m at 1,600 rpm
Transmission	2 x 6 gear box
Axles	3 axles differential lock
Suspension	pneumatic suspension
Tires type	315/60R 22,5 Michelin
Direction	Power assisted steering 11,5 m turning curve(between external wheels))
Braking	ABS
Cab (Driver)	3-seater cab (1 driver & 2 passengers), Air conditioned, Heated, On-board computer
Fuel tanks	2 separated fuel tanks (one of 300 liters for the main truck engine and one of 590 liters for the diesel power generator). Non taxed diesel can be used for the diesel power generator

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or would like to discuss a specific requirement or project, please contact us at:

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