

# Ziehm Vision



ziehm imaging

*... dedicated to clinical innovation*

TECHNICAL SPECIFICATIONS

# C-Arm Mobile Stand

## Dimensions & Mechanics

- Motor-driven vertical travel: 43 cm
- Horizontal travel: 22 cm
- Orbital rotation:
  - 90° / +45° (23 cm i.i.) / +25° (31 cm i.i.)
- Angulation:  $\pm 225^\circ$
- Swiveling (panning):  $\pm 10^\circ$
- Source/image receptor distance: 97 cm
- C-arm vertical free space: 76 cm
- C-arm depth: 68 cm
- Width: 80 cm
- Length: 160 cm / 182 cm
- Height: 170 cm / 214 cm

### Brakes

- Patented steering & braking lever, with parallel movement of the mobile stand in all directions

## X-Ray Generator

- X-ray tube: stationary anode
- Single focus: 0.6 (IEC 336)
- Max. anode heat content: 45 kHU/34 kJ
- Max. anode heat dissipation: 600 W
- Generator type:
  - monoblock
  - 40 kHz high frequency
  - microprocessor-controlled

### Operating Values

- Nominal output (100 kV): 2,000 W
- Maximum output: 2,020 W
- Pulsed fluoroscopy:
  - kV range: 40 -110 kV
  - mA range: 0.2 -20 mA
  - pulse width: 10-30 ms
  - pulse rate: 1, 2, 4, 8, 12.5, 25 pulses/s (50 Hz)  
1, 2, 5, 10, 15, 30 pulses/s (60 Hz)
- Digital radiography (snapshot):
  - kV range: 40 -110 kV
  - mA: up to 20 mA
- Radiography:
  - kV range: 40 -110 kV
  - mA: up to 20 mA

### Filtering

- Total filtering:  $\geq 4$  mm Al equivalent
- Additional filtering: 0.1 mm Cu

## Output

- Pulsed fluoroscopy: 2,000 W
- Digital radiography (snapshot): 2,000 W
- Tube housing heat capacity:
  - powered by integrated Advanced Active Cooling and heat management system
  - 5 million HU system heat capacity
  - 400 W continuous dissipation in clinical performance

## Collimator System

- Collimator rotation:  $\pm 90^\circ$
- Iris collimator:
  - 23 cm i.i.: 50-230 mm diameter
  - 31 cm i.i.: 50-310 mm diameter
- Slot collimator:
  - 23 cm i.i.: 50-230 mm diameter
  - 31 cm i.i.: 50-310 mm diameter
- Virtual collimation without radiation

## Image Intensifier

- Type: cesium iodide
- DQE (IEC): 65 %
- Conversion factor: 240 Cd m<sup>-2</sup>/mR s<sup>-1</sup>
- Anti-scatter grid: Pb 8/40, f<sub>0</sub> 90

### 23 cm I.I.

- Central resolution 23-15-10 cm: 52-58-68 lp/cm
- Contrast ratio: 30:1

### 31 cm I.I.

- Central resolution 31-23-15 cm: 44-50-56 lp/cm
- Contrast ratio: 22:1

## Digital Video Chain

### Digital Video Camera (high contrast, non-interlaced)

- Active pixels: 1,048,576
- Camera matrix: 1024 x 1024 pixels
- Bandwidth of video signal: 20 MHz
- Bandwidth of video amplifier: 50 MHz
- Video (monitor): 1,125 lines
- Signal-to-noise ratio: 68 dB
- Control: ADR / AVR

# Monitor Cart

## Monitors

- Super-high-resolution and high-brightness twin flat-screen monitors
  - screen size: 18.1" (46 cm)
  - native resolution: 1280 x 1024 pixels
  - viewing angle (horizontal & vertical): 170°
  - contrast ratio: 600:1
  - dimensions: 41 x 34 x 7 cm

## User Interface

- TFT touchscreens on C-arm stand and monitor cart:
  - synchronized
  - intuitive icons for easy use
  - multi-lingual user interface

## Digital Image Processing

### Real-Time Processing Functions

- Recursive filter: 4 levels
- Stack filter ('Last Image Hold'): 5 levels
- Edge enhancement filter: 5 levels
- Windowing and step windowing
- Digital image rotation and reversal without radiation
- Grayscale inversion
- Digital shutters

### Application-Oriented Anatomical Programs

- Bone, Heart, Abdomen, Endo
- Soft, Large Patient
- Automatic motion detection, automatic metal correction

### Image Acquisition

- Autosave
- Cine loop with auto-playback (option)
  - sequential image storage and display:
    - 1-8/1-10 frames/s (50/60 Hz)
    - 1-12.5/1-15 frames/s (50/60 Hz)
    - 1-25/1-30 frames/s (50/60 Hz)
  - start, stop and replay rate controls

### DSA Package (Option)

- DSA real-time subtraction with re-masking capability
- MSA max. opacification sequence
- RSA roadmapping
- Pixel shift / landmarking
- Digital measurement functions (distance/angle)

## Cine Loop

- Sequential image storage and display
  - 1-8 frames/s (standard)
  - 12.5 and 25 frames/s (option)
- Cine loop start, stop and replay rate controls

## CO<sub>2</sub> Package (Option)

- Automatic image optimization when using negative contrast medium in DSA modes

## Postprocessing Functions

- Edge enhancement: 5 levels
- Zoom: 7 levels
- Image rotation
- Windowing
- Grayscale inversion
- Image cropping (digital shutters)

## Digital Memory

- Storage capacity: up to 55,000 images
- Memory matrix: 1024 x 1024 pixels
- Image matrix: 1024 x 1024 pixels
- Digital image processing: up to 32 bit
- Grayscale: 1024 shades of gray (10 bit)



## Digital Image Processing

### Data Organization

- Patient-based data management with 16-image mosaic display
- Pre-registration via DICOM Worklist
- Manual input or emergency registration

## Archiving

- Video printer (option): paper and film
- USB port:
  - storage capacity depends on storage medium
  - formats: DICOM, TIFF
  - downsized formats: DICOM, JPG
- DVD-RW drive:
  - 4.7 GB storage capacity
  - formats: DICOM, TIFF, Multimedia (AVI)
  - downsized formats: DICOM, JPG
- DICOM viewer software for DVD and USB device

### Networking

- Ziehm NetPort (option): DICOM 3.0 interface (RJ45 or WLAN connection) for digital network integration
- 'Primary Capture' mode
- Available DICOM Classes:
  - Storage Class incl. multiframe capability and Storage Commitment
  - Print Class
  - Media Class
  - Worklist Class incl. Modality Performed Procedure Step (MPPS)
  - Query/Retrieve Class
  - Verification Class

## Options

- Laser positioning device, mounted on image intensifier and/or generator
- Dose area product with digital display
- Emergency stop button
- Video output for external documentation
- 4-pedal foot switch

## Weight

- C-arm mobile stand: 260 kg
- Monitor cart: 160 kg (without printer and other options)

## Electrical Requirements

- Power supply: 230 V<sub>AC</sub>, 50 Hz
- Current consumption:
  - 8 A continuous
  - 15 A short-time
- Max. impedance: ≤ 0.6 Ω
- Class I equipment, Type B applied parts
- Security key switch (x-ray)

## Accessories

- Disposable sterile covers for all sizes
- Hand surgery table
- Universal film cassette holder

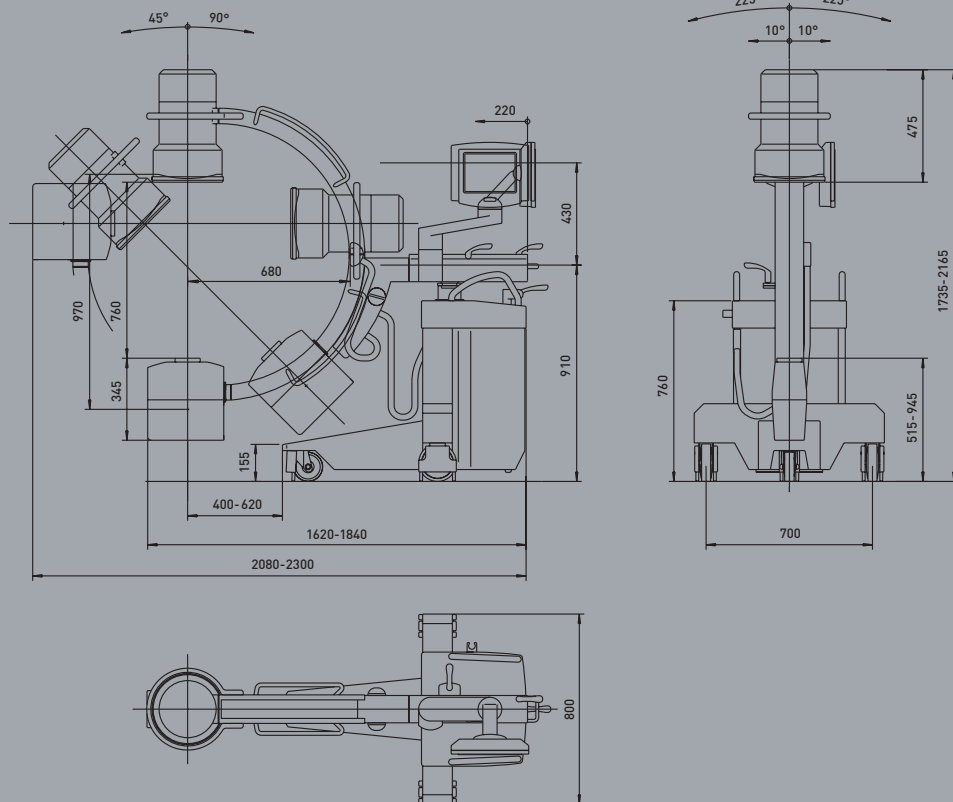
## Approvals

- U.S. 21 CFR subchapter J
- CE mark in accordance with MDD 93/42/EEC: IEC 60601-1 ff
- UL 60601-1

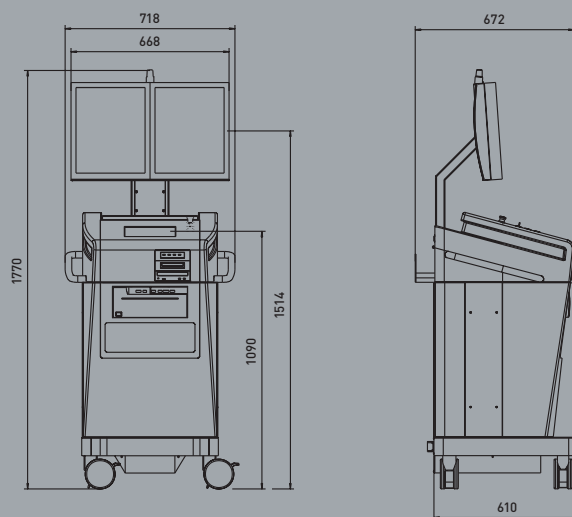


# Vision

*Ziehm Vision  
(C-Arm Mobile Stand)  
Dimensions*



*Ziehm Vision  
(Monitor Cart)  
Dimensions*



All dimensions in mm.

*Head Quarter*

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Manufacturing complies with DIN EN ISO 9001:2000 and ISO 13485:2003.

Ziehm Imaging is constantly improving its products and reserves the right to change these specifications without notice.



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