

Ziehm Vision FD
Technical Specifications

C-ARM MOBILE STAND

Dimensions and Mechanics

- Motor-driven vertical travel: 16.5" [42 cm]
- Horizontal travel: 9" [22 cm]
- Orbital rotation: -120° / +45°
- Angulation: ± 225°
- Swiveling (panning): ± 10°
- Source-image receptor distance: 43" [109 cm]
- C-arm vertical free space: 34.3" [87 cm]
- C-arm depth: 27" [68 cm]
- Width: 31.5" [80 cm]
- Length: 68.5" / 77" [174 cm / 196 cm]
- Height: 61" / 78" [155 cm / 197 cm]
- Weight C-arm mobile stand (weight can vary depending on balancing and configuration): 707.7 lbs [321 kg] ± 5 %
- Handrail on the FD
- Additional handrails on the C for orbital rotation support

Brakes

- Steering & braking lever, with parallel movement of the mobile stand in all directions
- Color-coded brake handles for all movements

X-Ray Generator

- X-ray tube: stationary anode
- Single focus: 0.6 (IEC 60336)
- Max. anode heat content: 85 kHU / 60 kJ
- Max. anode heat dissipation: 600 W / 51 kHU/min
- Powered by integrated Advanced Active Cooling and heat management system
- Skin Cone for the generator: A removable mechanical extension of the generator cap in order to avoid a focal spot to skin distances smaller than 30 cm.
- 5 million HU system heat capacity
- 400 W / 34 kHU/min continuous heat dissipation in clinical performance
- Generator type:
 - monoblock
 - high-frequency generator
 - frequency: 40 kHz
 - microprocessor-controlled
- Nominal output (100 kV): 2.0 kW
- Maximum output: 2.4 kW

Filtration

- Total filtration: ≥ 4.3 mm Al + 0.1 mm Cu

Collimator System

- Dedicated pre-collimator for FPD
- Collimator rotation: ± 90°
- Iris collimator: 2"-8.2" [50-207 mm] diameter
- Asymmetric slot collimator: 2"-8.2" [50-207 mm] opening
- Virtual collimation without radiation

Operating Values

- Continuous fluoroscopy:
 - kV range: 40-120 kV
 - mA range: 1.7-11 mA
- Pulsed fluoroscopy:
 - kV range: 40-120 kV
 - mA range: 0.2-20 mA (100-120 V)
 - pulse width: 10-40 ms (60 Hz)
 - pulse rate: 1, 2, 4, 8, 12.5, 25 pulses/s
- Digital radiography (snapshot):
 - kV range: 40-120 kV
 - mA: up to 24 mA

Flat-Panel Detector System

- Type: IGZO technology
- Scintillator: cesium iodide
- Pixel size: 135 µm
- Grayscale: 65,536 gray scale values (16 bit)
- System resolution (Nyquist): 3.7 lp/mm
- Anti-scatter grid: 70 lines/cm; grid ratio 8:1
- Laser positioning device integrated in detector housing
- Auto calibration
- Removable grid (option)
- DQE: @ 0 lp/mm: 79 %
- MTF:
 - 0.5 lp/mm: 80%
 - 1 lp/mm: 57 %
 - 2 lp/mm: 26 %
- Dynamic range: 95 dB
- Frame rate: max. 30 frames/s

Flat-Panel 2121

- Detector matrix:
 - overview format: 1,536 x 1,536 pixels
 - o 2.5 lp/mm
 - Mag. mode 1: 1,024 x 1,024 pixels
 - o 3.1 lp/mm
 - Mag. mode 2: 768 x 768 pixels
 - o 3.4 lp/mm

Monitor Cart

User Interface

Vision Center - TFT Touchscreens on C-arm Stand and Monitor Cart

- Synchronized
- Intuitive icons for ease of use
- Resolution: 640 x 480 pixels
- Multi-lingual user interface
- Ziehm SmartEye live fluoro screen with SmartControl
- SmartArchive

Vision Center - TFT Touchscreen on C-arm Stand

- Emergency stop button
- X-ray button
- X-ray indication lamp

Remote Vision Center – Synchronized Touchscreen for Table Side Control (Option):

- Emergency stop button
- X-ray button
- X-ray indication lamp

Dimensions and Mechanics

- Width: 28" [71 cm]
- Depth: 27.6" [70 cm]
- Height: 68.9" [175 cm]
- Monitor Cart basic weight: 344 lbs [156 kg] ± 10 % (up to 136.7 lbs [62 kg] additional weight depending on the configuration)

With Articulating Monitor Arm (Option):

- Monitor rotation: ± 40°
- Rotation of the arm: ± 115°
- Adjustment height: +9" [23 cm], -6.3" [16 cm]
- Max. reach: 32.7" [83 cm]

Monitor

- High-resolution and high-brightness 32" UHD monitor:
 - screen size: 31.5" [80 cm]
 - native resolution: 3,840 x 2,160 pixels
 - viewing angle (horizontal and vertical): typ. 178° (with contrast ratio ≥ 10:1)
 - tilt range: ± 10°
 - contrast ratio: typ. 1,700:1
 - brightness (panel): ≥ 700 cd/m²
 - brightness (calibrated): typ. 550 cd/m²
 - dimensions: 28.3" x 18.5" x 2.5" [72 cm x 47 cm x 8 cm]
- High-brightness and high-contrast 19" DUO monitor (option):
 - screen size: 2 x 19" [2 x 48 cm]
 - native resolution: 1,280 x 1,024 pixels
 - viewing angle (horizontal and vertical): 178° (with contrast ratio ≥ 10:1)

- tilt range: ± 10°
- contrast ratio: typ. 1,000:1
- brightness (panel): typ. 1,000 cd/m²
- brightness (calibrated): ≥ 550 cd/m²
- dimensions: 26.8" x 17.7" x 3.5" [68 cm x 45 cm x 9 cm]

Digital Image Processing

Real-Time Processing Functions

- Last Image Hold
- Recursive filter: 4 levels (out of 16)
- Edge enhancement filter: 5 levels
- Windowing and step windowing
- Digital image rotation and reversal without radiation
- Grayscale inversion
- Digital collimators
- Ziehm Adaptive Image Processing (ZAIP)

Application-Oriented Anatomical Programs

- Bone: Extremities, Trunk
- Heart, Abdomen, Soft
- Vascular (option): Extremities, Trunk, Bolus
- Endo (option)

Additional Functions

- Metal
- Reposition
- High Quality
- Pediatric

Object Detected Dose Control (ODDC)

- Automatic object detection
- Automatic motion detection
- Automatic dose reduction
- Automatic metal correction

Image Acquisition

- Resolution: (max.) 4 lp/mm
- Autosave
- Cine loop with auto-playback (option):
 - sequential image storage and display: 1-8 frames/s
 - 1-12.5 frames/s (option)
 - 1-25 frames/s (option)
- start, stop and replay rate controls

Postprocessing Functions

- Edge enhancement: 5 levels
- Zoom: 3 levels
- Image rotation
- Windowing and step windowing
- Grayscale inversion
- Image cropping (digital collimators)
- Digital measurement functions: distance/angle (option)

SmartVascular Plus Package (Option)

- Smart Vascular workflow
 - DSA real-time subtraction with re-masking capability
 - MSA max. opacification sequence
 - Single frame, Multiframe RSA (roadmapping)
- Pixel shift / landmarking
- Wireless Dual Plus footswitch
- Cine Loop 1-12.5 frames/s
- 2 video connectors for external DVI display, for left and right monitor in landscape mode
- Anatomical Marking Tool

SmartVascular Advance Package (Option)

- Smart Vascular workflow
 - DSA real-time subtraction with re-masking capability
 - MSA max. opacification sequence
 - Single frame, Multiframe RSA (roadmapping)
- Pixel shift / landmarking
- Wireless Dual Plus footswitch
- Cine Loop 1-25 frames/s
- 2 video connectors for external DVI display, for left and right monitor in landscape mode
- Measurement functions
- Anatomical Marking Tool
- CO₂ Package

Anatomical Marking Tool - AMT (Option)

- Mark anatomical structures
- Indicate side of body
- Line and connected line

Measurement Function (Option)

- For precise measurement of distances, angles and vessel lumen

Endo package (Option)

- Wireless multifunctional footswitch
- 26" color monitor
- S-video or DVI/HDMI interface
- Anatomical Marking Tool
- Endo APR
- Measurement functions
- Cine loop 8-25 f/s

CO₂ Package (Option)

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

Digital Memory

- Storage capacity: 100,000 images
- Image storage: up to 16 bit
- Digital image processing: up to 32 bit

Data Organization

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

- Calculated Dose Area Product (DAP)
- DAP value tagged to stored image
- Air Kerma dose display
- Air Kerma value tagged to stored image
- HIPAA security package (option)

Video Output

- Full HD SDI (split display), 1920 x 1080p, 60Hz
- Video connectors for external monitors:
 - DVI
 - analog

Archiving

- Printer (option): paper
- USB port:
 - storage capacity depends on storage medium
 - formats: DICOM, TIFF, Multimedia (AVI)
 - downsized formats: DICOM, JPG
- DVD-RW drive (option):
 - 4.7 GB storage capacity
 - formats: DICOM, TIFF, Multimedia (AVI)
 - downsized formats: DICOM, JPG

Networking

- Ziehm NetPort (option): DICOM 3.0 interface (LAN interface or WLAN connection) for digital network integration
- DICOM viewer software for DVD and USB 3.0 device
- 'Primary Capture' mode
- Available DICOM Classes:
 - Storage Class incl. multiframe capability and Storage Commitment
 - Print Class (option)
 - Media Class
 - Worklist Class incl. Modality Performed Procedure Step (MPPS)
 - Query Class
 - Retrieve Class
 - Verification Class
- Radiation Dose Structured Report (RDSR)
- WLAN interface for wireless data transfer (option)

Electrical Requirements

- Power supply: 120 V_{AC} (± 10 %), 60 Hz
- Current consumption: 10 A continuous (100-120 V)
- Max. impedance: ≤ 0.3 Ω (100-200 V)
- Installation fuse: 100-200 V: C 20 A or C 32 A (release characteristic compliant to VDE 0641, Part 11; EN 60898 & IEC 60898):

Safety Features

- Electrical Protection Class I equipment, Type B (IEC 60601-1)
- Security key switch (X-ray)

- Emergency stop button on the C-arm

Options

- Laser positioning device integrated in generator housing
- Measured dose area product (DAP) with digital display
- Emergency stop button on monitor cart
- Video connectors for external monitors:
 - DVI
 - analog
- Connector for external radiation lamp
- Additional handrails on the C for orbital rotation support
- Wireless Video Package: wireless transmission of the left/right image from the Monitor Cart to external monitors
- Power-on key switch

Accessories

- Disposable sterile covers
- Remote Vision Center TFT touchscreen
- Wired Dual Plus footswitch (standard option) with rail for repositioning
- Wireless multifunctional footswitch Dual Plus with programmable configuration, also available with rail for repositioning (option)
- Mobile Cart for Remote Vision Center

Regulatory Compliance

Device Classification

- MDR (EU) 2017/745 Annex VIII: IIb
- U.S. 21CFR: II

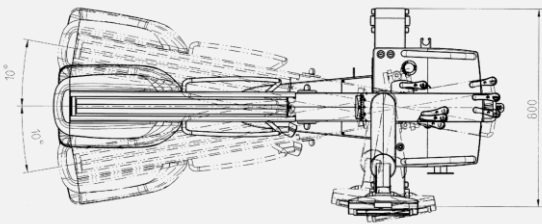
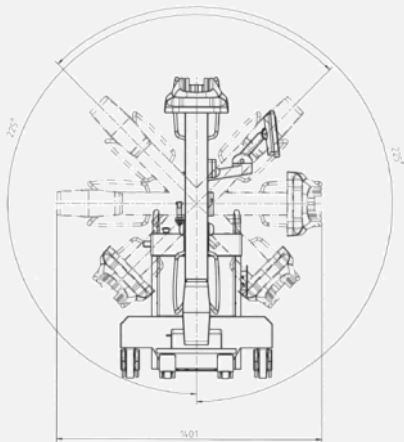
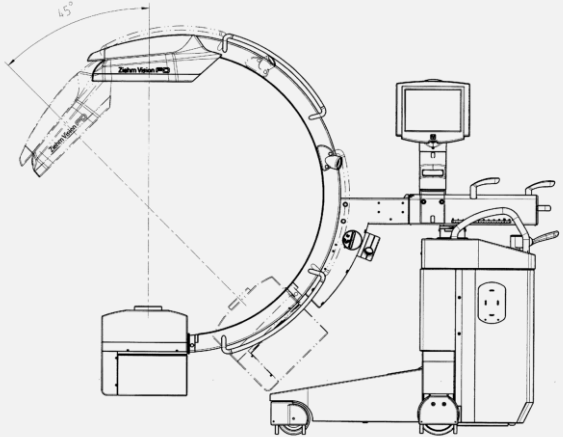
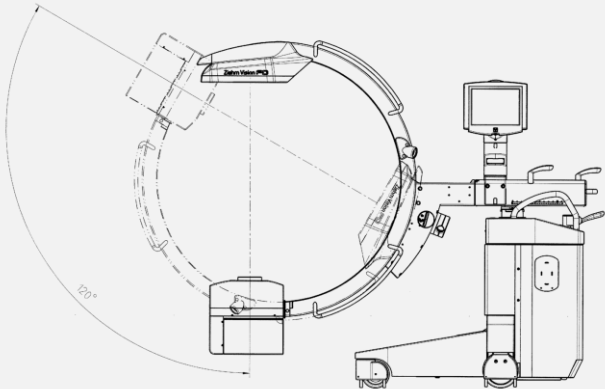
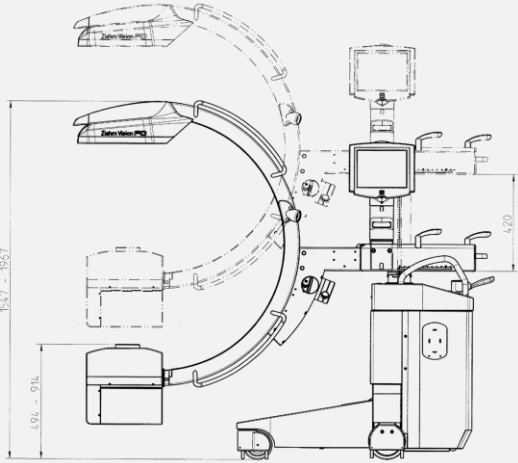
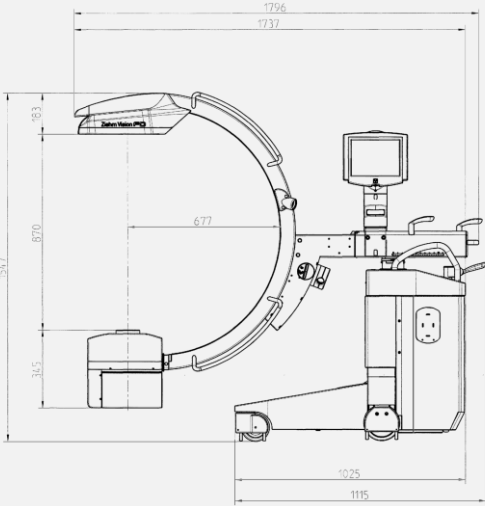
Compliance to QM Requirements

- EN ISO 13485 certified
- MDR (EU) 2017/745 Annex IX certified
- MDSAP certified
 - Australian Therapeutic Good Regulation
 - Brazil RDC ANVISA n. 16/2013, RDC ANVISA n. 23/2013, RDC ANVISA n. 67/2009
 - Canada Medical Device Regulations Part 1 – SOR 98/282
 - Japan MHLW Ministerial Ordinance 169
 - United States 21 CFR 820
- ISO 14971
- IEC 62304
- IEC 62366

Product Compliance

- IEC 60601-1 and relevant collateral and particular standards
- U.S. 21CFR subchapter J

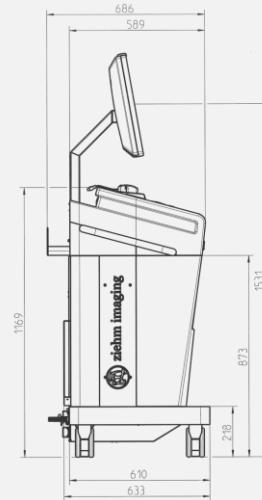
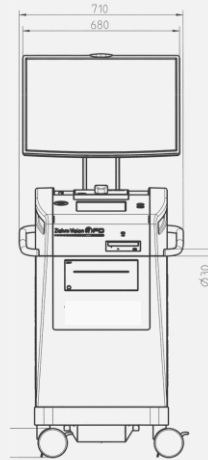
Ziehm Vision FD



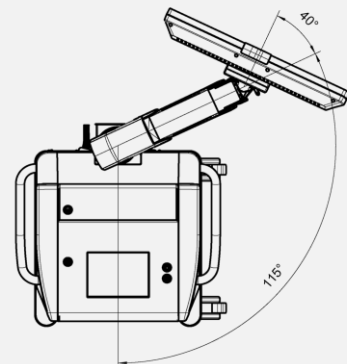
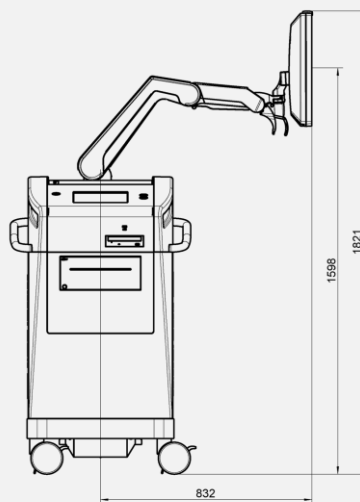
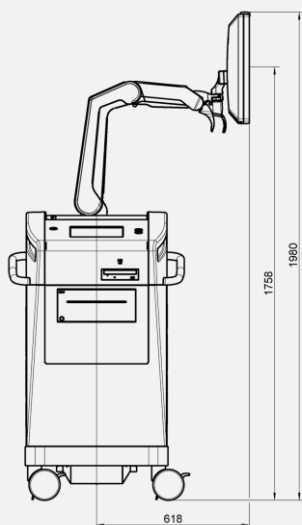
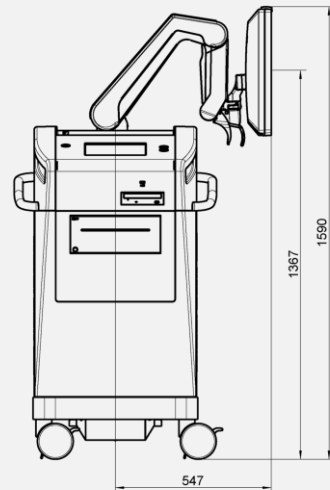
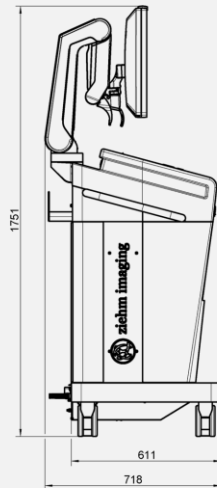
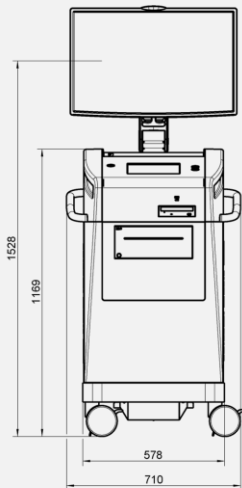
All dimensions in mm.

Metric Conversion: 1 mm = 0.039 inch / 1 cm = 0.39 inch

**Ziehm Vision FD
(Monitor Cart)**



**Ziehm Vision FD
(Monitor Cart with Articulating Monitor Arm)**



All dimensions in mm.

Metric Conversion: 1mm = 0.039 inch / 1 cm = 0.39 inch

* Specification may vary depending on the device configuration and the status of the regulatory registration.

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