



## Ziehm Vision FD

The new imaging standard  
for surgery

CMOSLINE



Ziehm Vision FD. Hospitals and outpatient surgery centers around the world are challenged to increase cost efficiency and extend their case mix to include demanding procedures, such as vascular interventions. The Ziehm Vision FD is the right answer. The C-arm with flat-panel detector has proven itself in the market for over a decade. In the upgraded CMOSline<sup>3</sup> version, it features the latest technology for excellent image quality and – thanks to its liquid cooling system – is designed for continuous use. In addition, finely tuned workflows and software features help optimize patient outcomes and increase productivity further. And the enhanced SmartDose Concept optimizes safety for surgeons, staff and patients.

## 01 / Trust in over a decade of flat-panel performance – enhanced with latest imaging technology

In 2006, Ziehm Imaging presented the first-to-market mobile flat-panel C-arm. The Ziehm Vision FD marked a paradigm shift in innovative detector technologies to support surgery. Building on over a decade of experience and proven performance, Ziehm Imaging is pushing the boundaries even further by integrating CMOS technology into this system. This new standard for state-of-the-art intra-operative visualization delivers excellent image quality while increasing surgical safety and efficiency.

### → CMOS flat-panel technology

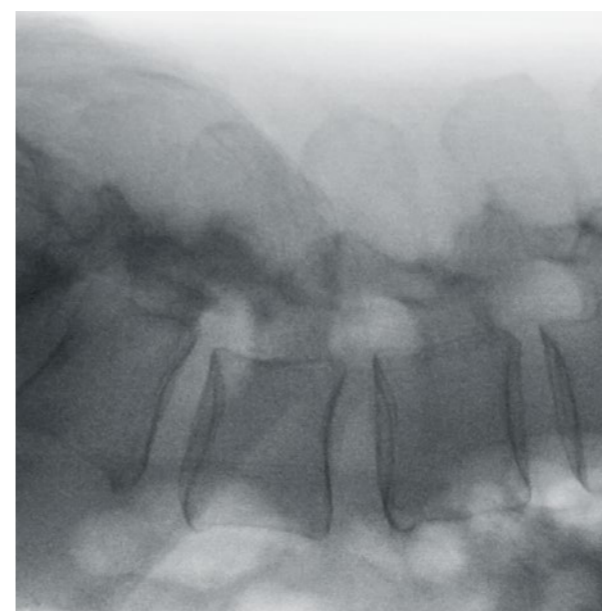
The latest flat-panel technology on the market, CMOS combines the cost efficiencies of image intensifier systems with the image quality of conventional FD technologies. Highlights include lower noise levels and enhanced dose management – all of which help surgeons to improve image quality and overall performance compared with conventional C-arms. The high resolution images make interpolation in magnification modes unnecessary and improve overall efficiency.

### → Bigger flat-panel detector as an option

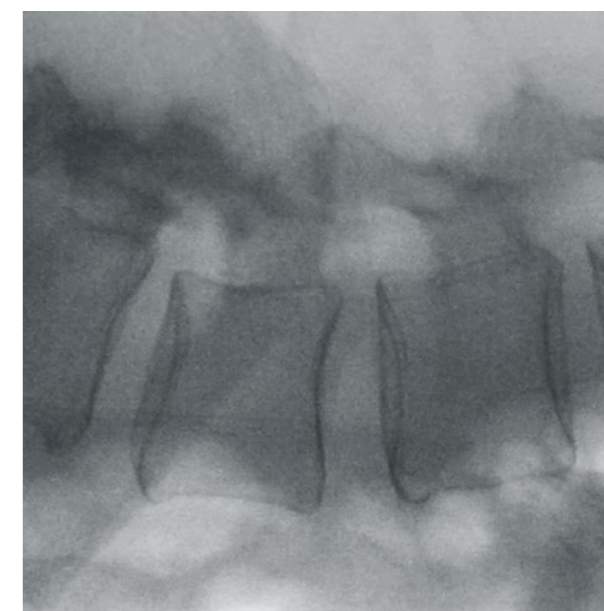
While the Ziehm Vision FD comes in the standard version with a 21 cm x 21 cm detector, the system is also available with a 31 cm x 31 cm a-Si flat-panel. The bigger detector size allows to cover larger anatomical regions in orthopedic and vascular surgery.



Bigger field of view with the 31 cm x 31 cm a-Si flat-panel



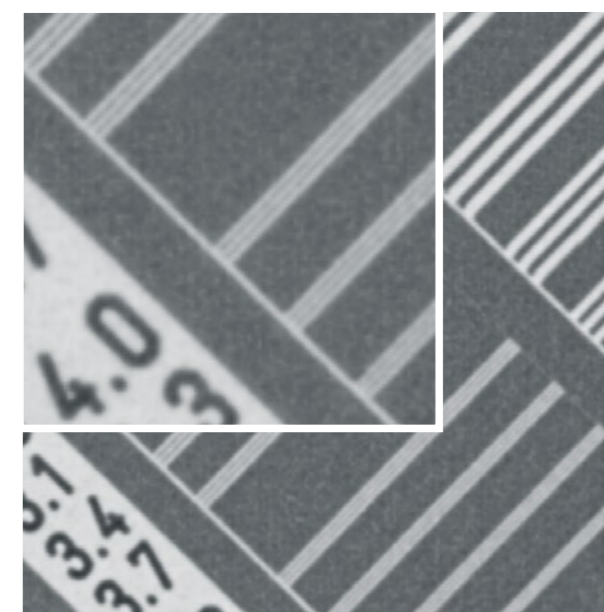
Full size (21 cm x 21 cm)



Magnification mode 1 (15 cm x 15 cm)



Magnification mode 2 (10 cm x 10 cm)



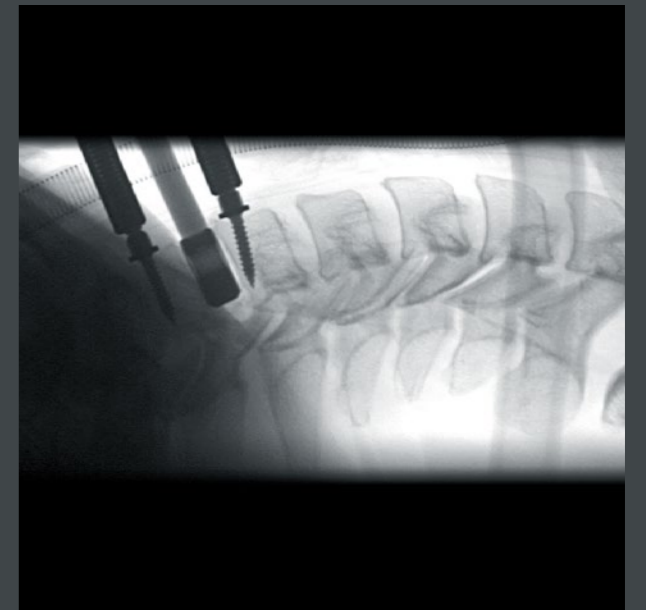
Spatial resolution phantom with more than 4.0 lp/mm visible



Stent implantation



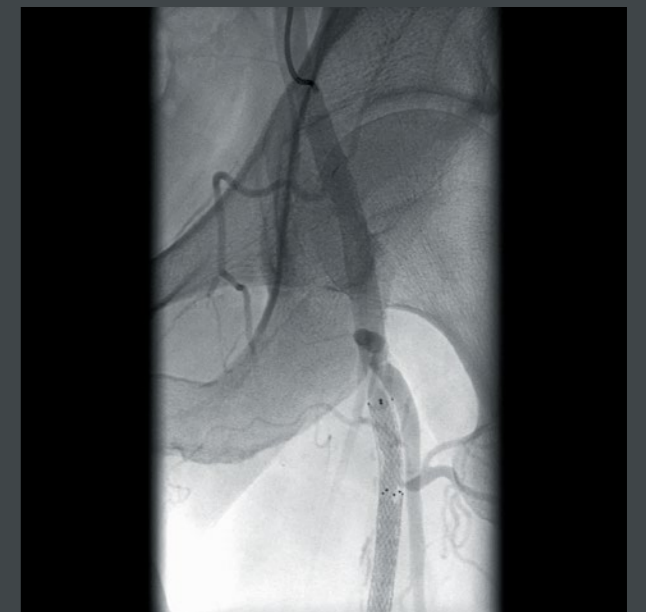
DSA



Cervical spine



Peripheral revascularization



PTA

## 02/Extend the clinical case mix with enhanced cooling capabilities

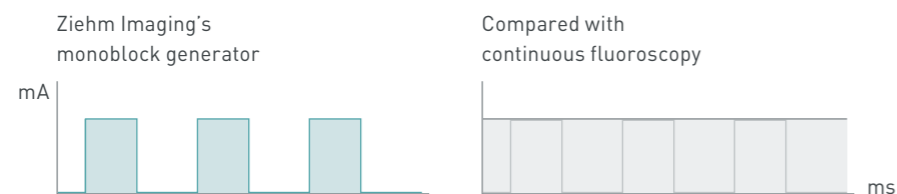
A variety of patient needs and growing competition between hospitals call for increasingly innovative imaging functionality, capable of supporting a wide range of procedures. Featuring advanced pulse and cooling technologies, the Ziehm Vision FD is designed for a broad application spectrum, while ensuring excellent image quality even in demanding interventions. These advanced capabilities allow hospitals to successfully extend their clinical capabilities.

### → Sharp pulses for sharper images

The Ziehm Vision FD comes with a highly compact monoblock generator. It produces short, sharp pulses for crystal-clear images even if the patient is moving. This intelligent pulse technology allows to reduce the pulse rate while minimizing dose (as illustrated below).

### → Prolonged use

C-arms need to be in continuous use during lengthy, demanding procedures such as vascular interventions. The Ziehm Vision FD is ideal for these applications. Its Advanced Active Cooling (AAC) system keeps the generator at an optimum operating temperature. In the event of a temperature increase, the pulse frequency is automatically reduced until the generator's temperature has cooled down.



Short, sharp pulses minimize dose and maximize image quality

### Sophisticated system to avoid generator overheating

Advanced Active Cooling keeps generator temperature down through automatic adaptation of the pulse rate combined with a powerful liquid cooling system.

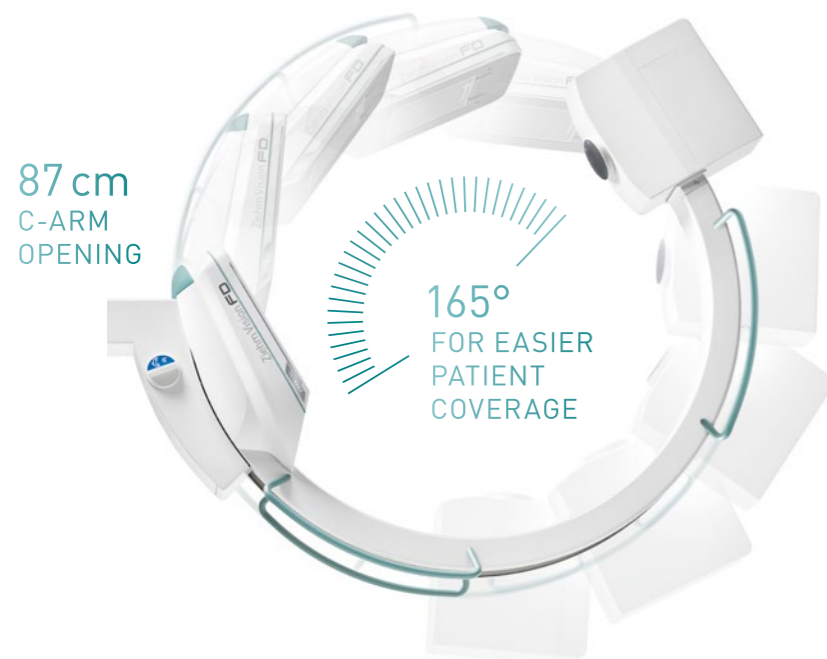


### 03/ Benefit from seamless integration with finely tuned workflows

Heavy case loads and a large number of different users call for a highly standardized operating concept. The Ziehm Vision FD offers a number of hardware enhancements that support handling and improve ergonomics further. Seamlessly integrated workflows ensure consistently high and predictable quality levels, thus ensuring optimal patient outcomes.

#### → Best-in-class ergonomics

With a footprint of 0.8 m<sup>2</sup>, the Ziehm Vision FD is one of the smallest C-arms on the market. The big C-arm opening and 165 degrees of orbital movement ideally support the workflow and provide easier patient coverage. In addition, different-colored scales and handles allow the surgeon and staff to quickly and simply select the desired function.



#### Easy handling

165 degrees of orbital movement and an 87 cm C-arm opening provide ideal support for clinical workflows.

#### → Intuitive workflow

The Ziehm Vision Center is a rotating and tilting touchscreen control panel mounted on the mobile stand and the monitor cart. It provides access to the same, synchronized controls found on both units. Additionally, the SmartArchive function gives surgeons instant, simple access to the latest patient data.

#### → Fit for the future

The Ziehm Vision Center features a modular software architecture, ensuring maximum flexibility. This interface can be easily upgraded and expanded with additional software modules without the need for hardware changes.



#### Easy access even from the sterile field

Ziehm SmartEye technology mirrors the live image on the touchscreen, enabling the operator to keep track of orientation and object position.



### → Seamless integration

The interface, Ziehm NetPort, enables easy integration into existing IT networks. X-ray images saved in DICOM 3.0 format are transferred to the PACS, and patient data can be exchanged with HIS/RIS. X-ray images can be retrieved at any time. They can also be backed up to DVD or USB stick and printed on transparencies or paper.

### → Wireless freedom

Ziehm Imaging's Wireless Freedom Concept bundles three different opportunities to increase efficiency and safety in the OR. Firstly, WLAN allows operators to transfer images wirelessly to the PACS from any location. Secondly, with the Ziehm Wireless Video option, live images can be transferred to wall- or ceiling-mounted monitors in real time for even greater flexibility. Thirdly, key functions such as X-rays can be actuated with the wireless dual-plus footswitch. The footswitch has the added bonus of increasing safety by reducing cables on the OR floor.



## 04 / Reduce exposure significantly with the next-generation SmartDose Concept

The Ziehm Vision FD is designed to meet growing demand among surgeons and their staff for minimized dose exposure without compromising on image quality. Optimal filtration and advanced anatomical programs deliver on these demands, making this device perfect for dose-sensitive applications.

### → Best image quality. Minimized dose.

The comprehensive concept consists of a broad, clinically proven application portfolio to address daily challenges of low dose and high image quality. With significant dose savings, Ziehm Imaging sets the benchmark in user-friendly adjustments of dose exposure. SmartDose<sup>2</sup> helps display even the smallest details of complex anatomical areas and reduce dose with intelligent pulse regulation and optimized anatomical programs. Furthermore, dedicated SmartDose functions significantly reduce exposure in pediatric surgery<sup>4</sup>.

### → Beam Filtration for reduced skin entrance dose

Our feature-rich SmartDose concept comes with the groundbreaking Beam Filtration<sup>1</sup> technology. Dose reduction techniques for an optimized X-ray spectrum support our enhanced CMOS imaging chain. Beam Filtration enables an exceptional reduction in the skin entrance dose for Ziehm Imaging flat-detector systems in comparison to systems with conventional filtration technology.



**SmartDose**  
Best image quality. Minimized dose.

- 
**LASER POSITIONING DEVICE**  
integrated in flat-panel or I.I. and generator housing for accurate and dose-free positioning of C-arm
- 
**REDUCTION OF PULSE FREQUENCY**  
manually or fully automatically to lower the accumulated dose
- 
**OBJECT DETECTED DOSE CONTROL (ODDC)**  
to automatically analyze the area of interest and minimize dose while optimizing image quality
- 
**ANATOMICAL PROGRAMS**  
with automatic optimization of dose and image quality for best results
- 
**HIGH-SPEED ADR**  
for intelligent, fast regulation of pulse rate to lower the dose level
- 
**ZAIP ALGORITHM AND FILTERS**  
to display fast-moving objects like guide wires and even the smallest vessels in razor-sharp image quality
- 
**LOW DOSE MODE**  
in all anatomical programs for particularly dose-sensitive procedures, e.g. in pediatrics
- 
**PREMAG**  
for exposure-free magnification of X-ray images
- 
**AUTOMATIC ADJUSTMENT**  
for large patients – with no additional increase in dose
- 
**REMOVABLE GRID**  
to reduce dose in pediatric and other dose-sensitive procedures
- 
**VIRTUAL COLLIMATORS**  
for exposure-free positioning of collimators
- 
**BEAM FILTRATION**  
for reduced skin entrance dose without compromising on image quality

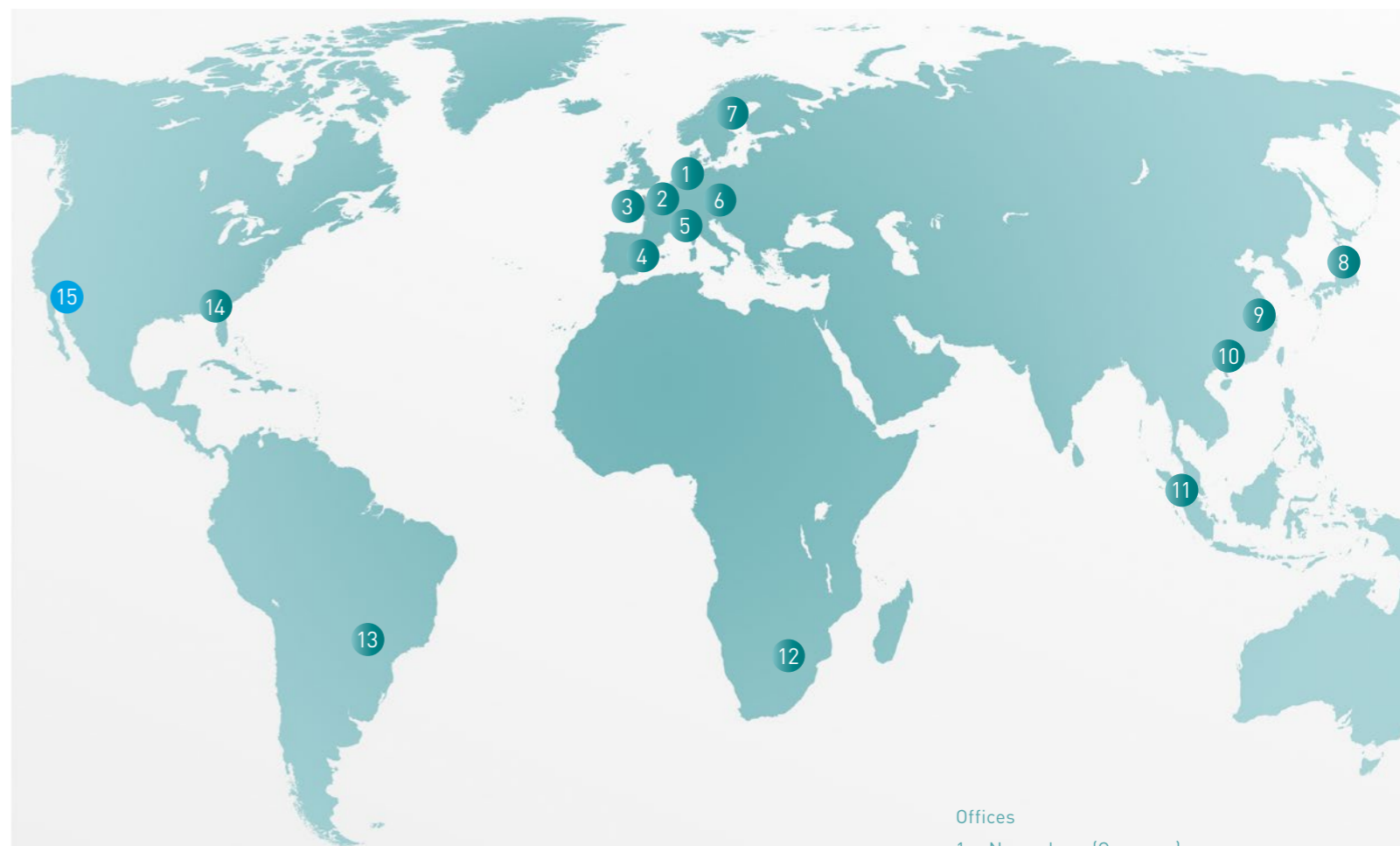




**FEATURES**

Imaging technology	IGZO, flat-panel, 21 cm x 21 cm a-Si, flat-panel, 31 cm x 31 cm	CMOS, flat-panel, 21 cm x 21 cm
Detector resolution	IGZO, 1.5k x 1.5k a-Si, 2k x 2k	2k x 2k
Power generator	2.4kW, pulsed monoblock generator	2.4kW, pulsed monoblock generator
Ziehm Usability Concept	■	■
SmartDose	■	■
Advanced Active Cooling (AAC)	■	■
Orbital movement	165 degrees	165 degrees

available ■ | not available –



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## MAXIMIZE YOUR UPTIME



**Make sure to get the best service for your daily business.**

Rely on Ziehm Imaging for flexible and fast service to stay on the cutting edge of technology. Tailored service packages, remote service and individual upgrade paths keep you competitive in your daily hospital routine.

- <sup>1</sup> The technology Beam Filtration reduces dose exposure for Ziehm Imaging flat-detector systems in comparison with conventional filtration techniques. Data on File. Results may vary.
- <sup>2</sup> The SmartDose Concept includes a variety of hard- and software features. Due to regulatory reasons the availability of each feature may vary. Please contact your local Ziehm Imaging sales representative for detailed information.
- <sup>3</sup> CMOSline represents a system configuration that is based on a Ziehm Imaging CMOS flat-panel detector.
- <sup>4</sup> Gosch D. et al. "Influence of grid and ODDC on radiation exposure and image quality using mobile C-arms – First results," RöFo, 09/07

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