



## Ziehm Vision FD

The new imaging standard  
for surgery



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 ten years. Now, in the upgraded version, it features the latest CMOS technology for excellent image quality and – thanks to its liquid cooling system – is designed for continuous use. In addition, finely tuned workflows and new 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 10 years of flat-panel performance – now enhanced with CMOS imaging excellence

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. Now, building on over ten years 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, crystal-clear magnifications and enhanced dose management – all of which help surgeons to improve image quality and overall performance compared with conventional C-arms.

### → Contrast-rich visualization

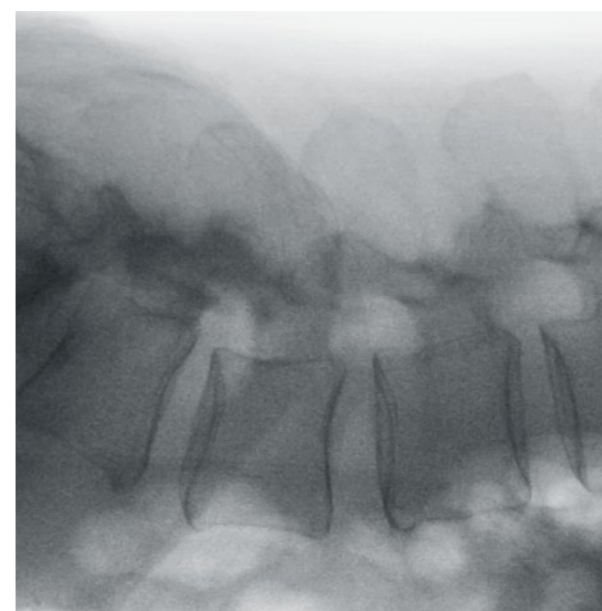
Ziehm Imaging's dual 19" TFT color flatscreens outperform conventional monitors with their exceptional brightness and contrast. Even at a distance, these high-end monitors provide the physician with optimal insights by visualizing the finest details – from every angle.

4,096

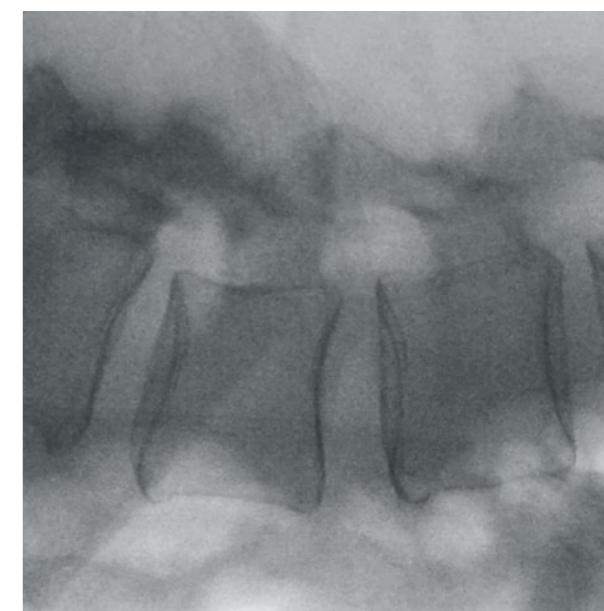
Conventional image intensifier

65,536 shades of gray

Ziehm Vision FD with flat-panel technology



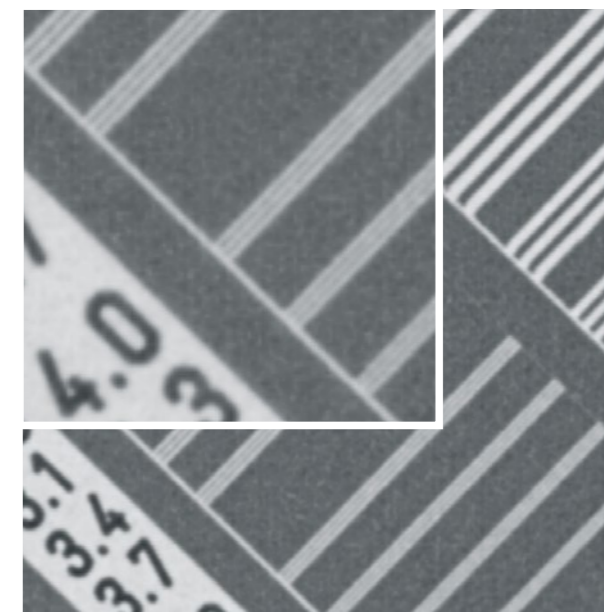
Full size (20 cm x 20 cm)



Magnification mode 1 (15 cm x 15 cm)



Magnification mode 2 (10 cm x 10 cm)



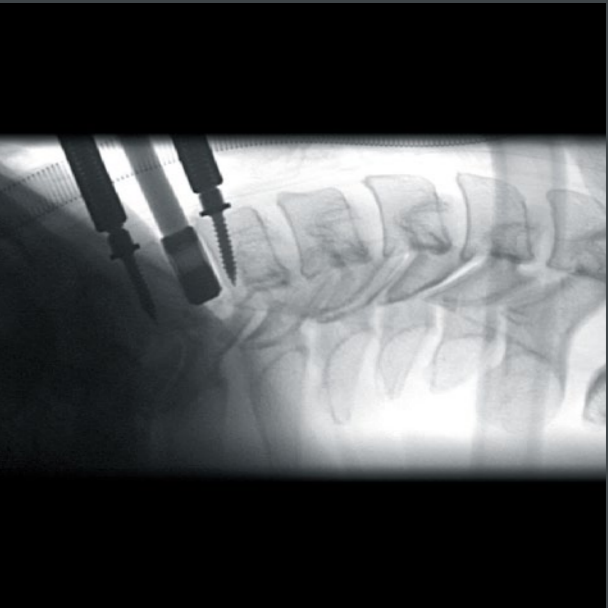
Spatial resolution phantom with more than 4.0 lp/mm visible



Stent implantation



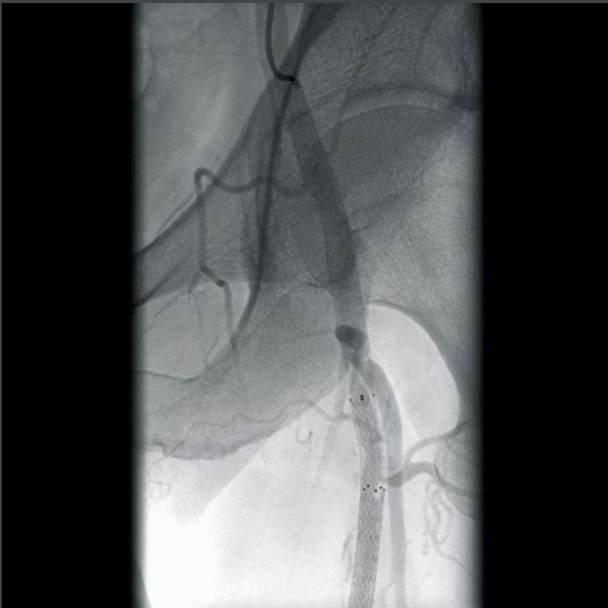
DSA



Cervical spine



Peripheral revascularization



PTA

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

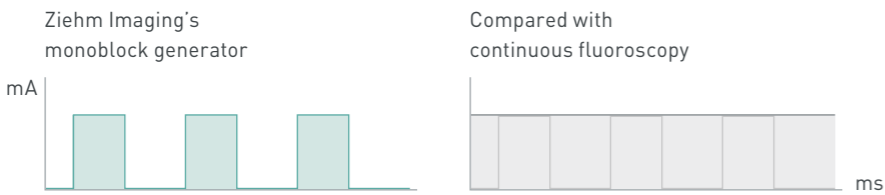
A variety of patient needs and growing competition between hospitals call for increasingly innovative imaging functionality, capable of supporting a wide range of procedures. Featuring advanced pulse and cooling technologies, the Ziehm Vision FD is designed for a broad application spectrum, while ensuring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

### → 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 temperatures down through automatic adaptation of the pulse rate combined with a powerful liquid cooling system.

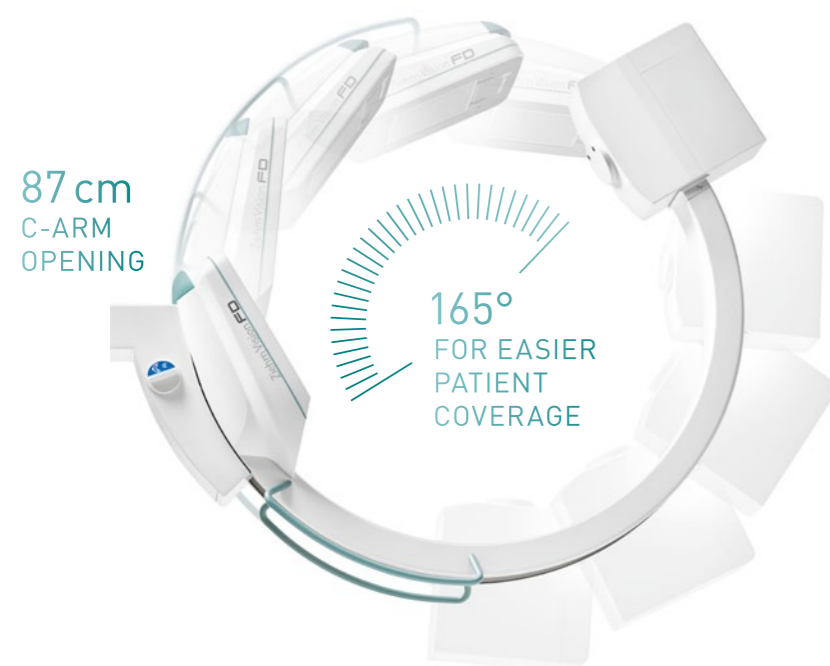


### 03/ Benefit from seamless integration with finely tuned workflows

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. Its compact design and easy-drive system with a three-wheel mobile stand mean it can be maneuvered with minimal effort during procedures. 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

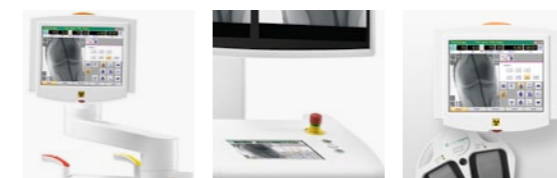
165 degrees of orbital movement and an 87 cm C-arm opening provide ideal support for clinical workflows.

#### → Intuitive workflow

The 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 Vision Center features an open, 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 open interface, Ziehm NetPort, enables easy integration into existing IT networks. Patient data saved in DICOM 3.0 format is transferred – via WLAN for example – to PACS or HIS/RIS. Data can be retrieved from the monitor cart at any time. Data can also be backed up to DVD or USB and be 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

Minimizing dose while maintaining image quality is an important goal worldwide for surgeons, their staff and patients. Ziehm Imaging supports this through further improvements to SmartDose<sup>1</sup> for different 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 adjustment of dose exposure. Our latest improvements in SmartDose help to 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>2</sup>.

<sup>1</sup> In clinical practice, the use of SmartDose may reduce patient dose depending on the clinical task, patient size, anatomical location, and clinical practice. A consultation with a radiologist and a physicist should be made to determine the appropriate dose to obtain diagnostic image quality for the particular clinical task.

<sup>2</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



**LASER POSITIONING DEVICE**  
integrated in flat-panel 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



**ZAIIP 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 obese patients – with no additional increase in dose



**REMOVABLE GRID**  
to reduce dose in pediatric and other dose-sensitive procedures

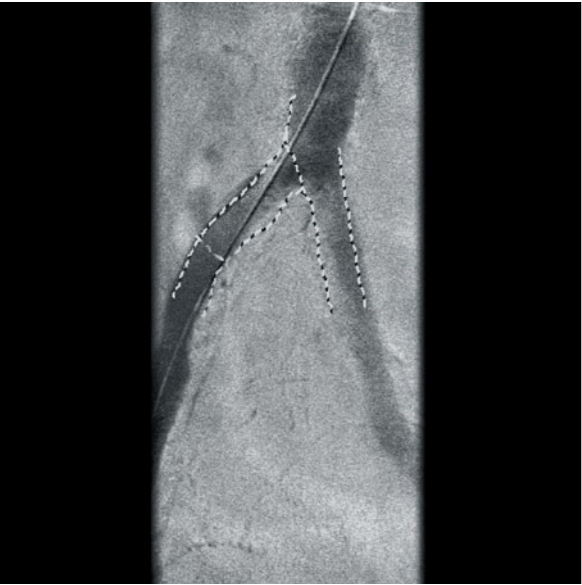


**VIRTUAL COLLIMATORS**  
for exposure-free positioning of collimators

## 05/Features at a glance

In a challenging healthcare environment, where space and cost are at a premium, the Ziehm Vision FD meets evolving needs with support for a wide range of applications and a host of individualized options.

Footprint	0.8 m <sup>2</sup>	Anatomical Marking Tool (AMT)	optional
C-arm opening	87 cm	SmartVascular	optional
2k x 2k CMOS technology	<ul style="list-style-type: none"><li>•</li></ul>	Remote Vision Center	optional
Touchscreen user interface	<ul style="list-style-type: none"><li>•</li></ul>	Interface to 2D navigation systems	optional
Ziehm SmartEye with SmartControl	<ul style="list-style-type: none"><li>•</li></ul>	Printer / DVD	optional
SmartArchive	<ul style="list-style-type: none"><li>•</li></ul>	Cineloop	<ul style="list-style-type: none"><li>•</li></ul>
Color-coded scales and handles	<ul style="list-style-type: none"><li>•</li></ul>	DSA	optional
Pulsed monoblock generator	<ul style="list-style-type: none"><li>•</li></ul>	Wireless Freedom Concept integration (WLAN, Wireless Footswitch and Wireless Video)	optional
Advanced Active Cooling	<ul style="list-style-type: none"><li>•</li></ul>		



Exemplary use of the Anatomical Marking Tool (AMT)



Remote Vision Center

WORLDWIDE SERVICE

**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 at the cutting edge of technology. Tailored service packages, remote service and individual upgrade paths keep you competitive in your daily hospital routine.

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- 2 Orlando, FL (USA)
- 3 São Paulo (Brazil)
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