



Ziehm Vision RFD

The mobile interventional suite



18" TFT monitors provide a bright, high-contrast image with a wide viewing angle

➤ 06

11.8" x 11.8" (30 cm x 30 cm) flat-panel detector for distortion-free imaging

➤ 04

A larger 33" (83.5 cm) free space and extended 165° orbital rotation for simplified positioning

➤ 10

Easy integration into existing networks

➤ 12

Advanced Active Cooling for extended fluoroscopy time during challenging procedures

➤ 12

Powerful monoblock generator with up to 20 kW for improved penetration of dense anatomy

➤ 06

Ziehm Vision RFD. Revolutionary concept in the OR: The full flexibility of a mobile C-arm combined with fixed room imaging capabilities.

- Increased clinical confidence thanks to distortion-free image quality from flat-panel technology
- Expanded anatomical visualization with 11.8" x 11.8" (30 cm x 30 cm) panel compared with conventional 12" image intensifier
- Unique liquid cooling system, Advanced Active Cooling, for extended performance in demanding procedures
- Optimal anatomic penetration with minimal dose thanks to high-power pulsed fluoroscopy monoblock generator
- Substantial cost savings eliminating expensive installations
- Well suited for demanding procedures in:
 - Cardiovascular Surgery
 - Endovascular Surgery
 - Interventional Cardiology
 - Interventional Radiology
 - Neuro and Spine Surgery
 - Coronary Angioplasty

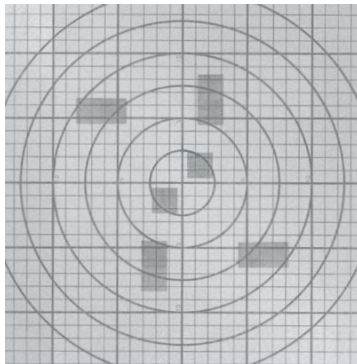
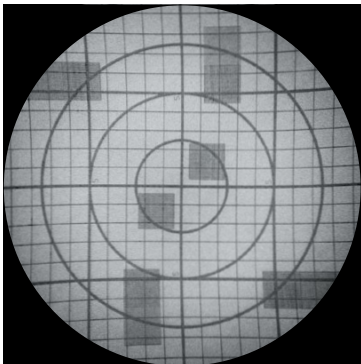
01 / Expect more. Fixed room performance in a mobile solution.

Get the full picture

Ziehm Vision RFD raises the bar in mobile imaging. Traditionally, only fixed interventional suites provided a wide field of view. Now that same range can be found in a mobile suite thanks to the 11.8" x 11.8" (30 cm x 30 cm) flat panel detector. The square shape of the flat-panel increases the field of view almost 2.5 times compared to a conventional 9" image intensifier expanding the clinical data captured.

Distortion-free imaging

Historically only fixed interventional suites offered distortion-free imaging. This limitation has changed with the Ziehm Vision RFD. Its exceptional precision makes this mobile interventional suite ideal for challenging procedures such as endovascular and interventional cardiac surgery. The Ziehm Vision RFD brings exceptional precision to mobile interventional procedures, eliminating distortion found with image intensifier systems.



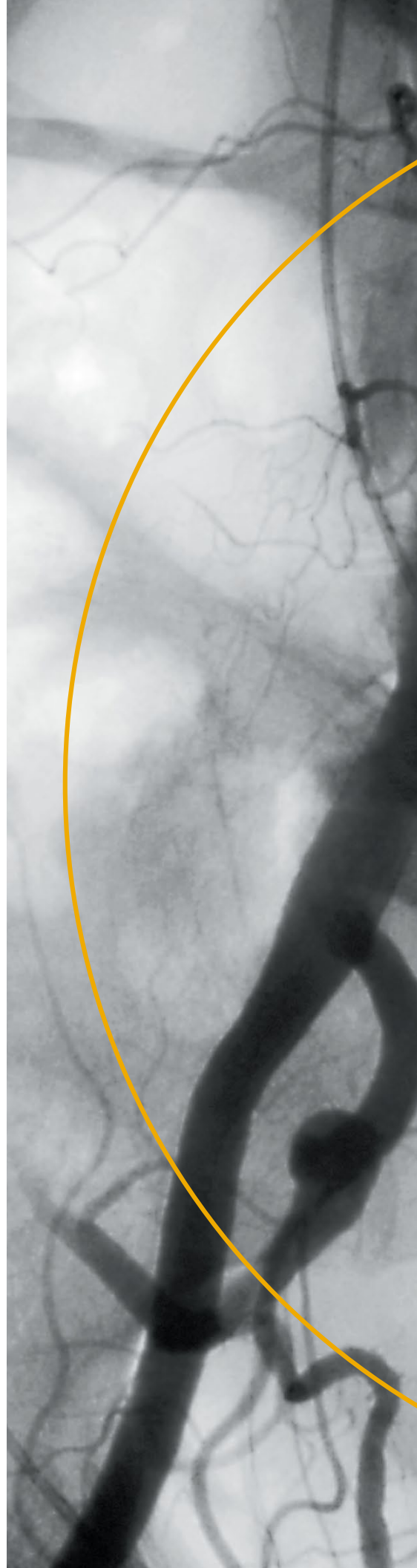
S-shaped and pin-cushion distortion (left) compared with flat-panel with distortion-free imaging (right)

More detail, more anatomy

- More than 16,000 shades of gray for greater contrast
- Expanded dynamic range: 84 dB
- Improved vessel resolution and soft tissue definition
- 1.5k x 1.5k image matrix



Conventional image intensifier: 4,096 shades of gray (1)
Ziehm Vision RFD: 16,384 shades of gray (4 times more) (2)



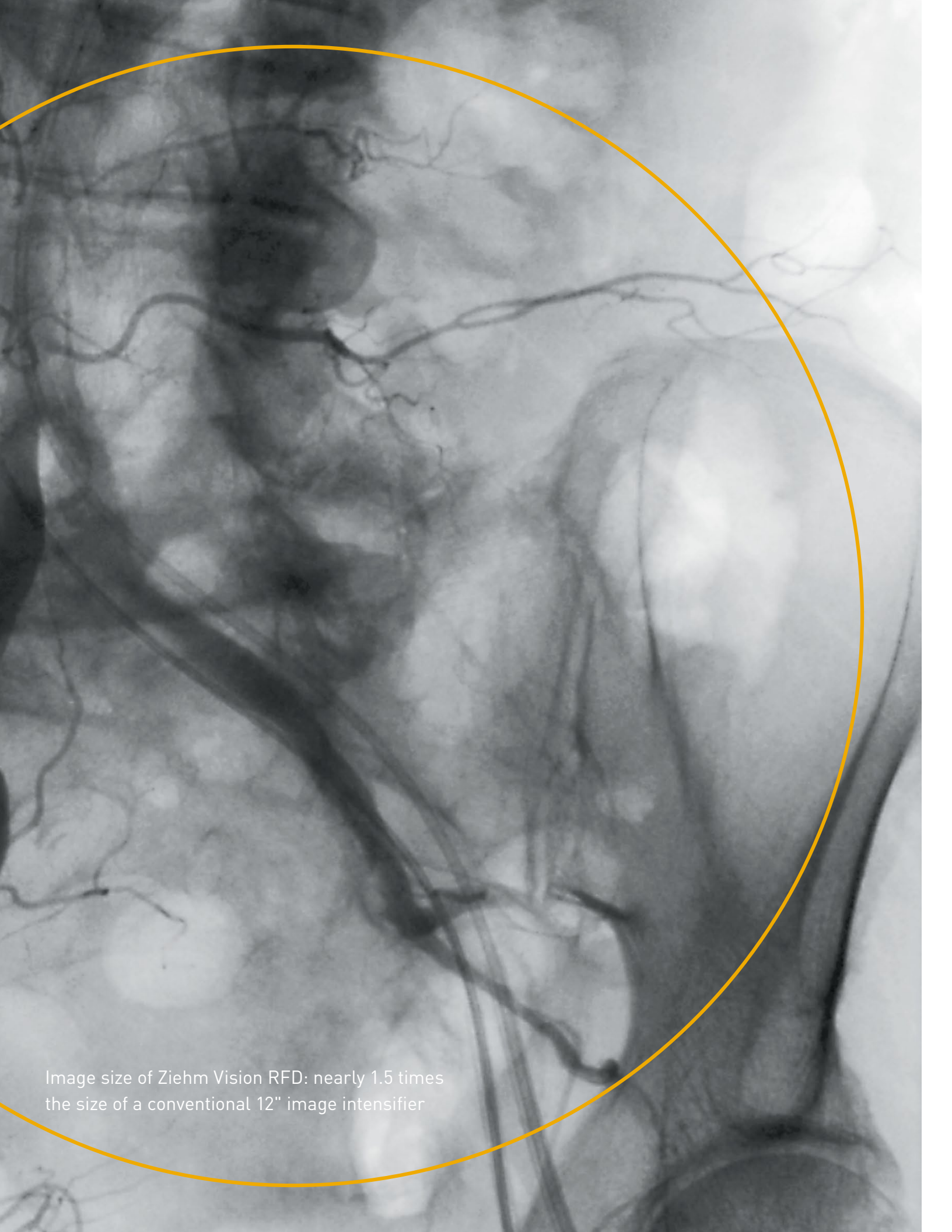
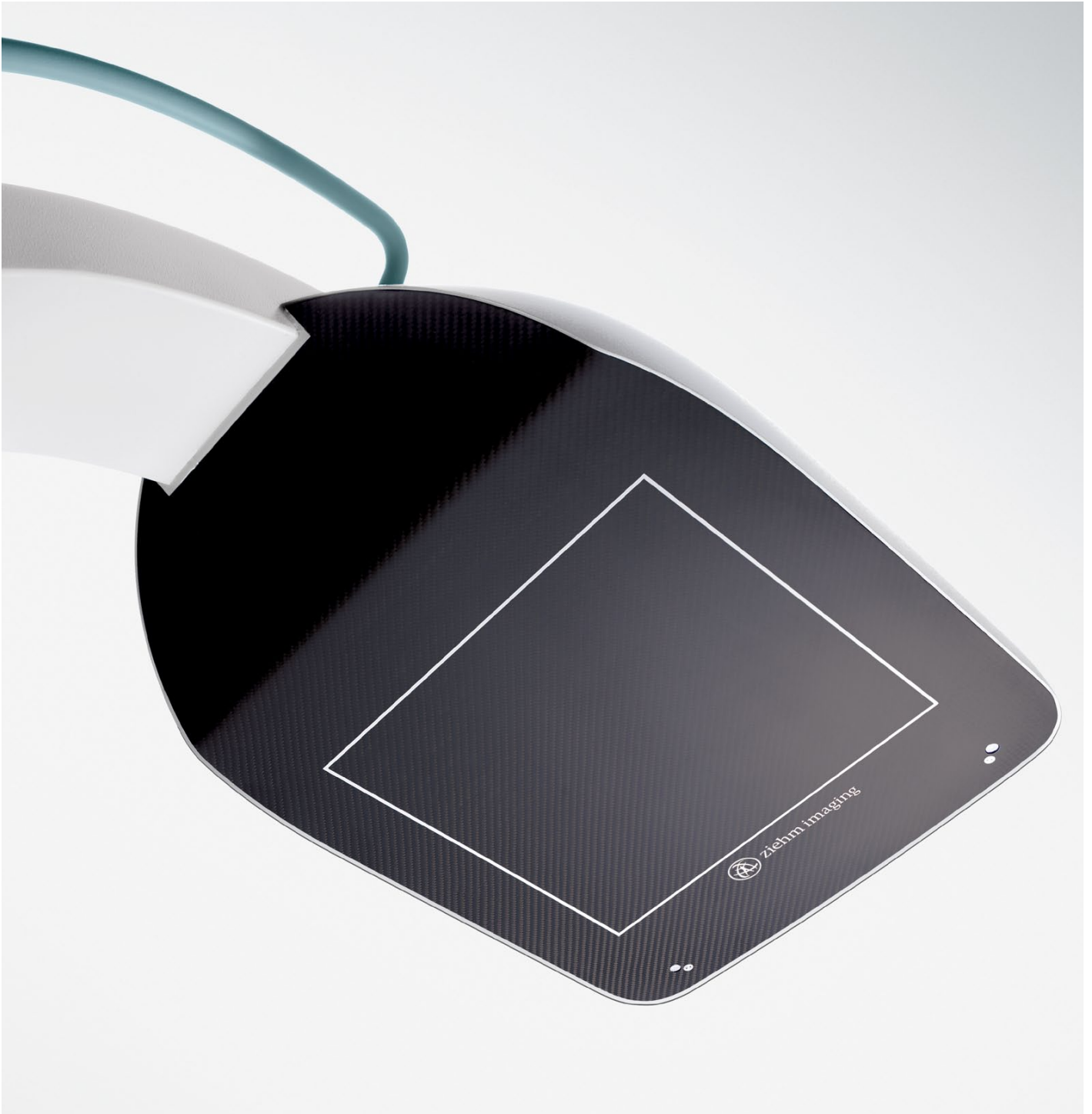


Image size of Ziehm Vision RFD: nearly 1.5 times
the size of a conventional 12" image intensifier



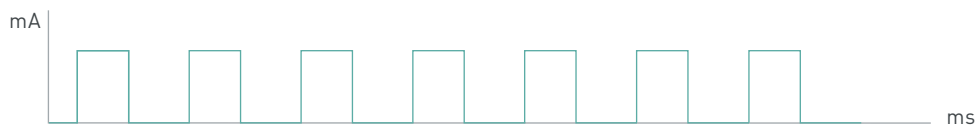
02/Innovative technology. Premium components provide the highest image quality.

Powerful generator for highest quality images

- Compact and powerful monoblock generator with up to 20 kW
- Rotating anode
- 4 ms – 50 ms high frequency pulse width
- Pulse up to 25 frames per second
- Delivers optimal images during endovascular and interventional cardiology procedures

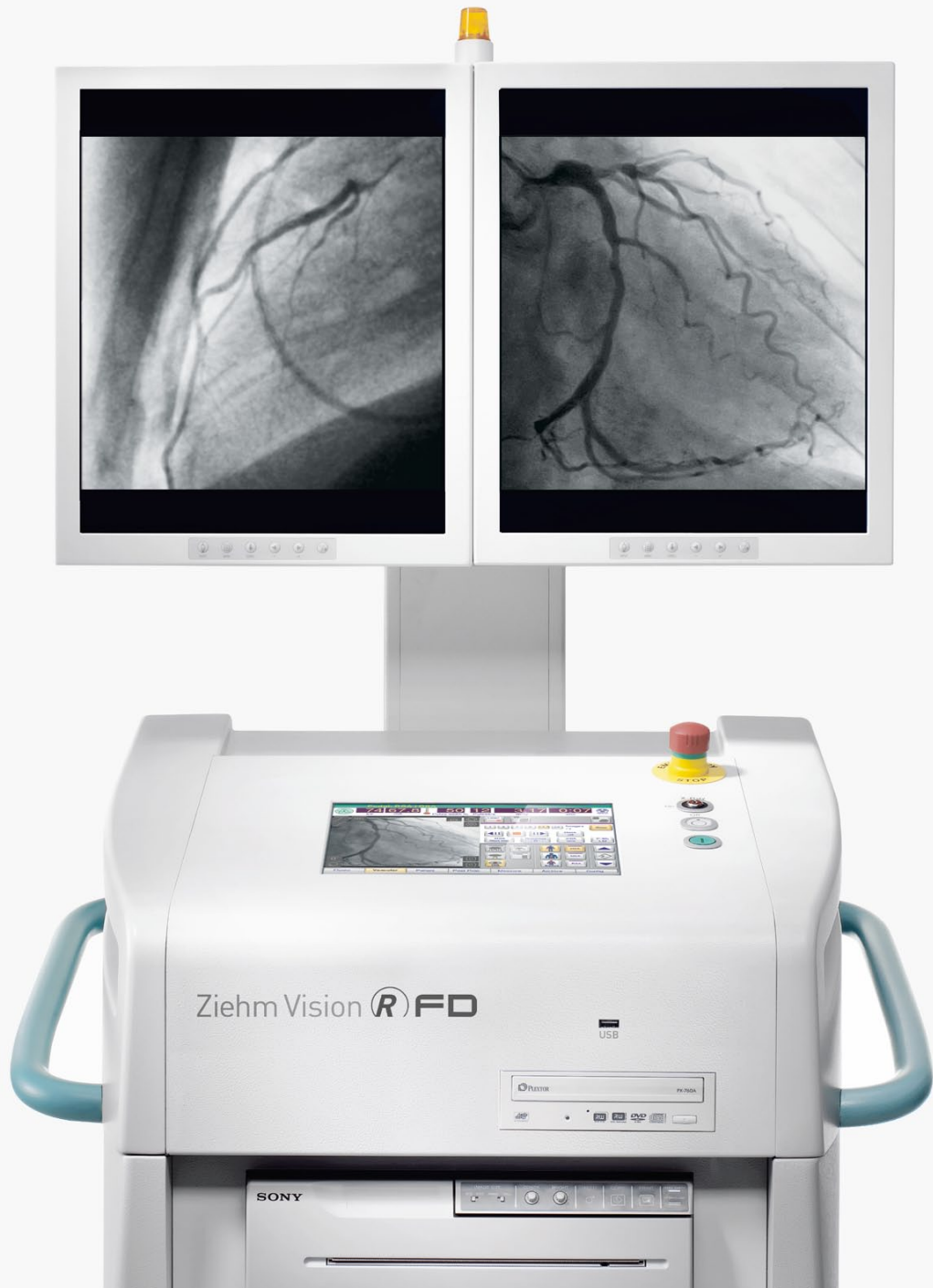
Contrast-rich display

- Two 18.1" TFT monitors
- High range of contrast and brightness
- Optimal viewing from any angle



Intelligent pulse technology based on short, sharp pulses minimizes radiation exposure and maximizes image quality.





03/Automatic adjustment. ODDC provides superb image quality while systematically reducing dose levels without additional effort.

Easy positioning

Ziehm Vision RFD greatly simplifies patient positioning and dose control. ODDC technology (object detected dose control) creates a matrix over the entire scan field and uses 256 measurement cells to scan the region of interest in real time. All settings, including the dose level and noise filters, are automatically adapted to the patient's position.

Real-time motion detection

ODDC's measurement cells detect motion in patient anatomy. This means that the pulse frequency can be automatically lowered if the patient is stationary. If, however, motion is detected in the region of interest, the pulse frequency automatically increases to a maximum of 25 frames per second, eliminating motion artifacts.

Automatic metal correction

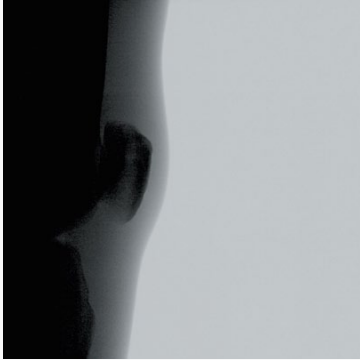
ODDC reduces patient dose and overexposure. The system detects metal parts in the scanned zone (e.g. plates, pins, instruments or implants) and automatically adjusts generator output and video levels to reduce metal distortion and improve image quality.

"The average dose reduction when using 25 pulses/sec resulting from object detection and automatic down-pulsing was 21 %, and the maximum dose reduction was 60%."

(Gosch D. et al. "Influence of Grid and Object Detection on Radiation Exposure and Image Quality using Mobile C-Arms – First Results", RöFo, 09/2007, page 896 onwards)



ODDC highlights



Conventional image quality



ODDC: Grid-controlled adjustment of dose levels, filters and pulse frequency



ODDC: crystal-clear images achieved with minimal dose-rates

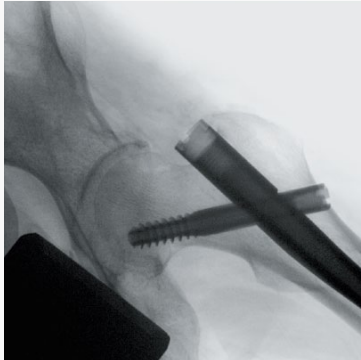
Application examples



Sharp images are possible even during trauma surgery with frequent patient motion



Optimum quality when region of interest is not centered



Automatic metal correction for optimum sharpness

04/Ease of Use. Intuitive usability provides improved clinical workflows.

Best-in-class system positioning

- Small footprint (8.6 sqft/0.8m²)
- Easy-drive system for easy maneuverability
- Single lever steering and braking
- Deeper C-arm opening
- 165° rotation with counterbalanced C-arm

Vision Center – Intuitive user interface

- Touchscreen control panel mounted on C-arm stand that duplicates controls found on the monitor cart
- Vision Center tilts and rotates for easy access to all pre and post imaging functions
- Clear, easy to follow icon based menu system
- Ziehm SmartEye live fluoro view on the Vision Center allows the technologist to see what the surgeon is seeing
- SmartVascular software revolutionizes the clinical workflow in vascular procedures
- With SmartArchive it has never been easier or faster to access the current patient data at any time



Left: Ziehm SmartEye displays the live X-ray image on the user interface. SmartControl enables the user to intuitively manipulate the x-ray image directly from the touchscreen.

Right: 165° orbital rotation makes it easier to position the patient.



Fit for the future

- Open architecture
- Upgradable software
- Expandable as needed

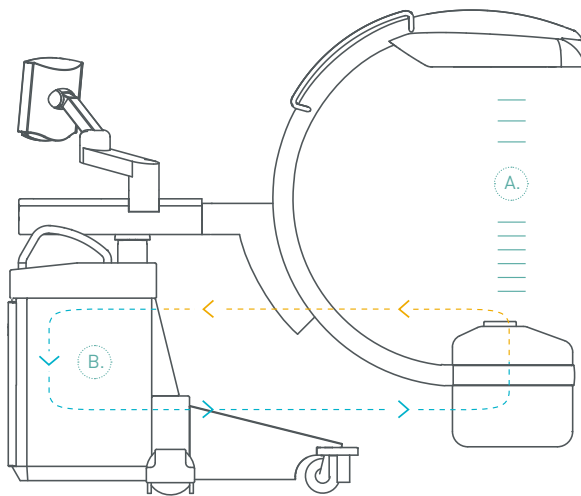
Unique reliability

- The liquid cooling system, Advanced Active Cooling, provides greater reliability and extended performance in demanding procedures
- When system temperature rises, Advanced Active Cooling lowers the pulse rate one step at a time until system temperature drops

Seamless integration

- NetPort interface enables easy integration into existing IT networks
- Patient data transferred to PACS or HIS/RIS in DICOM 3.0 format
- Retrieve and display archived images on monitor cart
- Multiple options to save (DVD, USB) or print

Advanced Active Cooling keeps generator temperatures down and automatically adapts the pulse rate



A.

Automatic pulse regulation ensures continuous imaging

B.

Liquid cooling cycle, heat exchanger



05/Broadest application spectrum. Engineered for the widest range of clinical applications.

Best image quality for demanding interventions

Ziehm Vision RFD has been engineered for the highest levels of flexibility. Distortion-free imaging and a high dynamic range make it the mobile interventional suite of choice for even the most challenging of interventions. It delivers excellent, high-precision results in interventional radiology, neurosurgery, vascular and cardiac surgery and interventional procedures, including EVAR, Percutaneous Transluminal Coronary Angioplasty (PTCA) and hybrid room applications like aortic heart valve implantation.

→ Wide range of applications

Ziehm Vision RFD provides superb image quality in all standard applications like orthopedics, traumatology, spine or neurosurgery. (Image 01)

→ Vascular surgery

The high dynamic range and the clear resolution of Ziehm Vision RFD enable the visualization of even the smallest vessels. Special tailored vascular packages and settings help to provide superb image quality in all vascular procedures. Furthermore, the revolutionizing SmartVascular software sets new standards in intuitive handling in vascular procedures. (Image 02 & 03)

→ Interventional radiology, cardiology and hybrid room applications

Short, powerful pulses and the outstanding power reserves of up to 20 kW ensure superior visualization of moving objects as needed in cardiac procedures. In combination with the high dynamic range of the flat-panel detector, the Ziehm Vision RFD provides images previously not available on a mobile system. The Advanced Active Cooling System ensures extended performance even in lengthy or back-to-back procedures. (Image 04)

01



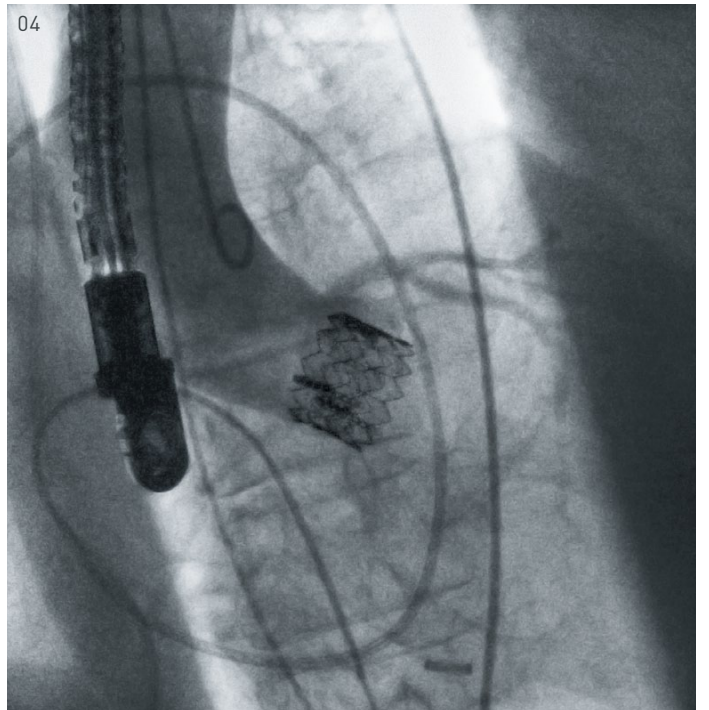
02



03



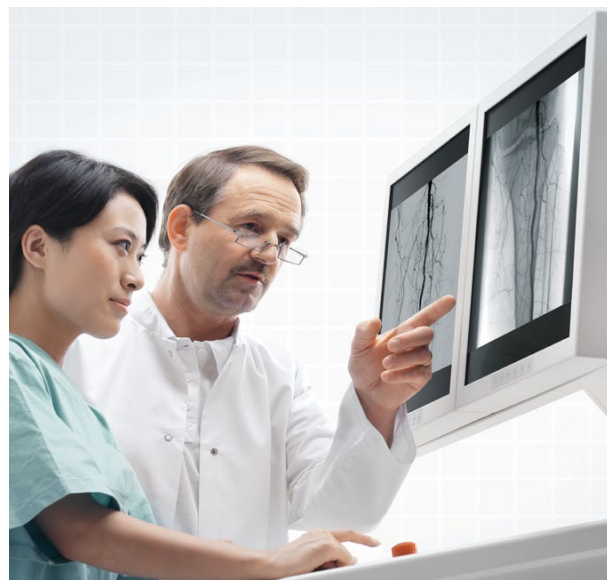
04



06 / The complete solution. Bringing you the best of both worlds.

With Ziehm Vision RFD, Ziehm Imaging sets a new benchmark for C-arm functionality. Not only is this the first system to bring fixed room image quality to the mobile world. It also bundles the full range of mobility benefits into an exceptionally compact footprint, outperforming even hybrid rooms in terms of flexibility and maneuverability. In addition, it is extremely easy to deploy. Unlike fixed system installations, Ziehm Vision RFD is up and running in the shortest possible time.

Ziehm Vision RFD offers the superior quality that until now would have been expected only from fixed imaging systems.



| Feature | Ziehm Vision RFD |
|---|--------------------------------------|
| 1.5k x 1.5k technology | • |
| Shades of gray | 16,384 |
| Distortion-free imaging | • |
| Fully digital imaging | • |
| Pulsed monoblock generator | • |
| Performance | 7.5kW/20kW |
| ODDC | • |
| DICOM 3.0 | • |
| WLAN | optional |
| Advanced Active Cooling | • |
| C-arm opening | 33" (83.5cm) |
| Field of view 11.8" x 11.8" (30cm x 30cm) | 139.5 sq in (~ 900 cm ²) |
| SmartVascular | optional |
| SmartArchive | • |

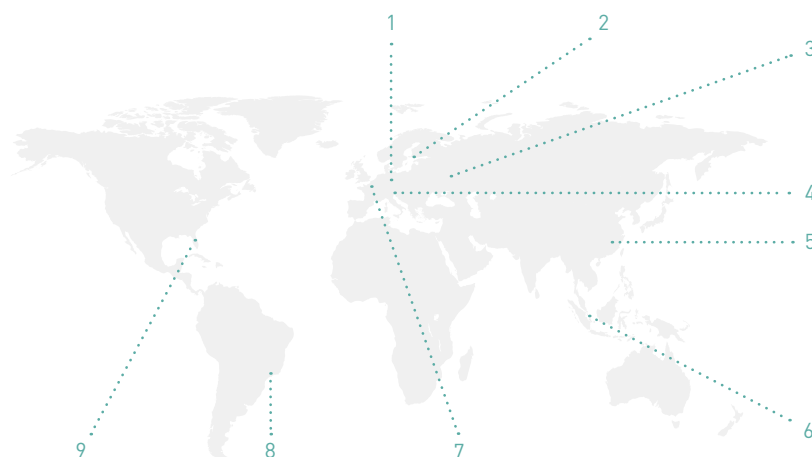
07/Service. We make sure you get the best results from the best products.

Close to you

Regardless of your needs, our experts are on hand. Thanks to our worldwide network of service centers, you can always rely on Ziehm Imaging for flexible and fast service.

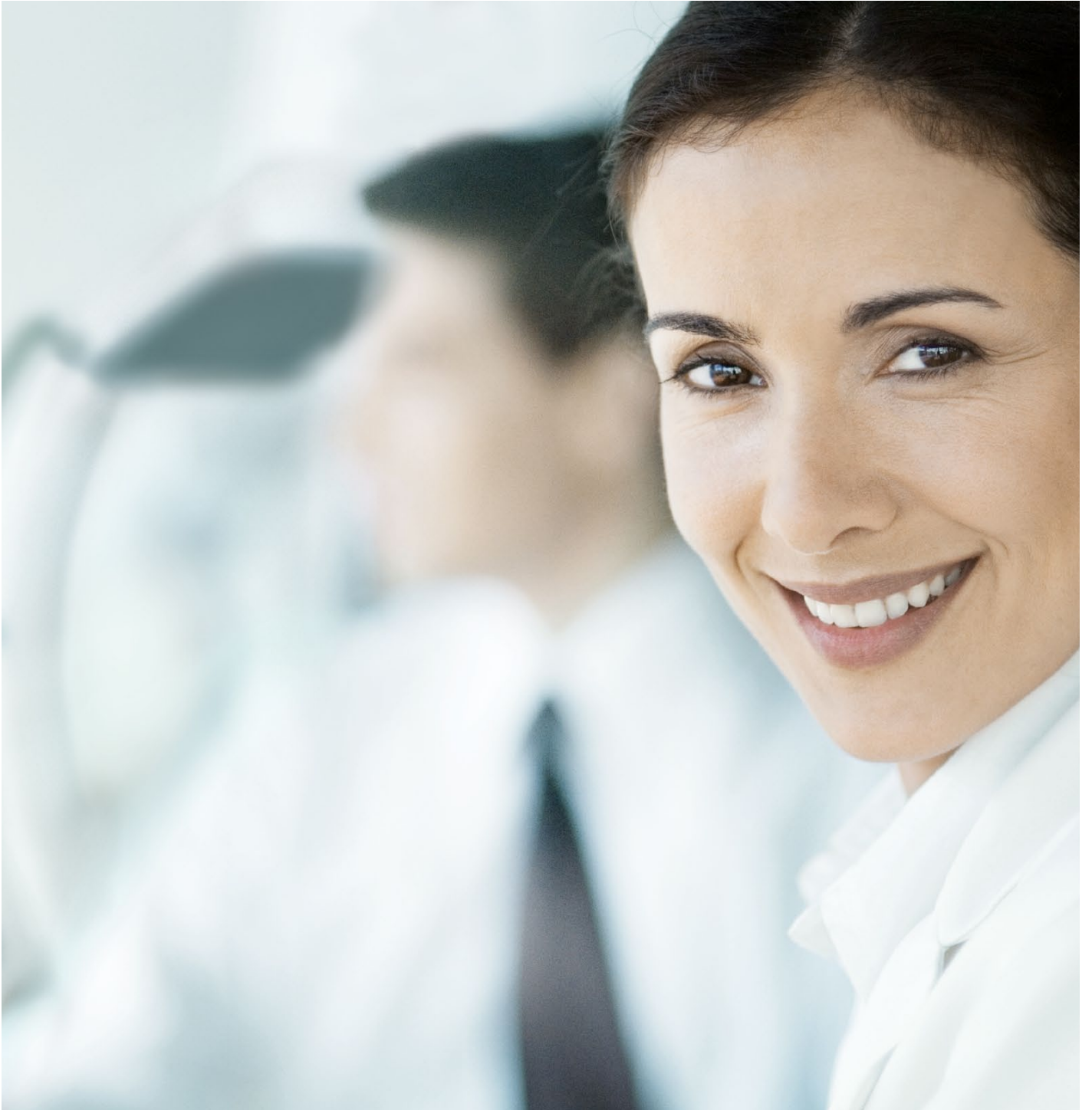
Keeping you at the cutting edge

With Ziehm Academy you can enhance your clinical knowledge, find out more about mobile C-arms and receive custom trainings. The courses cover the full clinical spectrum, from general operator training and technical workshops through to high-level training sessions.



Offices

- | | |
|-------------------------|-------------------------|
| 1 Nuremberg (Germany) | 6 Singapore (Singapore) |
| 2 Kareva (Finland) | 7 Paris (France) |
| 3 Moscow (Russia) | 8 São Paulo (Brazil) |
| 4 Reggio Emilia (Italy) | 9 Orlando, FL (USA) |
| 5 Shanghai (China) | |



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