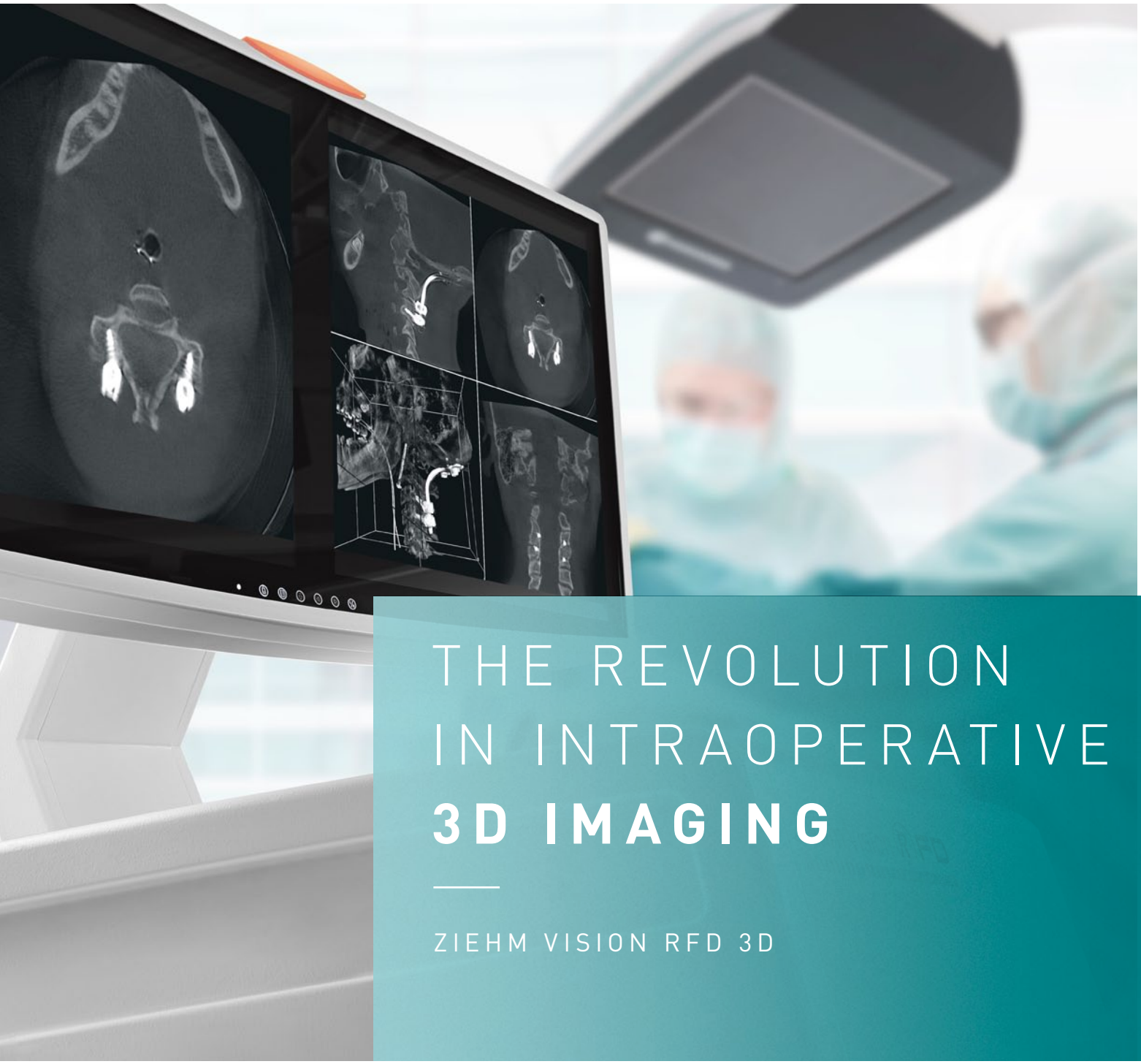
ziehmimaging



THE REVOLUTION IN INTRAOPERATIVE **3D IMAGING**

ZIEHM VISION RFD 3D

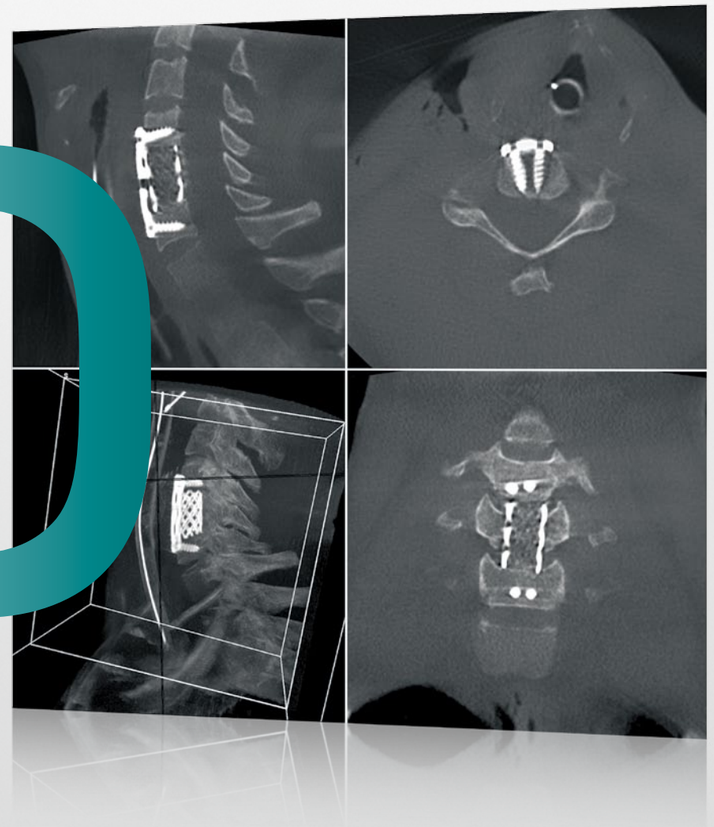
THE NEW STANDARD IN **3D IMAGING**

Ziehm Imaging has more than 10 years of experience in 3D imaging solutions. Our C-arms offer 2D and 3D functionality in one device enabling comprehensive, intraoperative control that reduces the need for post-operative CT. This makes it possible to raise quality levels and gives peace of mind even in demanding procedures. Rates of cost-intensive revisions can be reduced significantly. Surgeons and hospitals can benefit from better surgical outcomes and therefore a larger number of satisfied patients.

The revolutionary Ziehm Vision RFD 3D has been specifically developed for high-end 3D procedures in orthopedics, trauma and spinal applications. Thanks to our groundbreaking technology, SmartScan, it is possible to generate a complete 3D cubical dataset with 16 cm edge length, while keeping the design of a conventional C-arm, and the advantages of a variable isocenter.

The Ziehm Vision RFD 3D is the first mobile C-arm on the market that works with 30 cm x 30 cm flat-panel technology and provides this level of outstanding 2D imaging as well as the complete 3D information during clinical interventions.

COMPLETE **3D** INFORMATION



REMOTE CONTROL

Position Control Center and Remote Vision Center: full control of the procedure directly from the sterile field.

19" TFT MONITORS

bright, high-contrast images and cine loops, displayed with a wide viewing angle.

ITERATIVE 3D ALGORITHM

CT-like reconstructions with Ziehm Iterative Reconstruction (ZIR).

COMPLETE 3D INFORMATION

for full intraoperative control in the OR.

30 x 30 FLAT-PANEL

30 cm x 30 cm flat-panel detector for distortion-free imaging.

4 AXES MOTORIZATION

for surgeon's full control and maximum precision for C-arm positioning.

SMART SCAN

Patented scan enables 180° image acquisition.

ADVANCED ACTIVE COOLING

for extended fluoroscopy time in the most demanding procedures.

25 kW GENERATOR

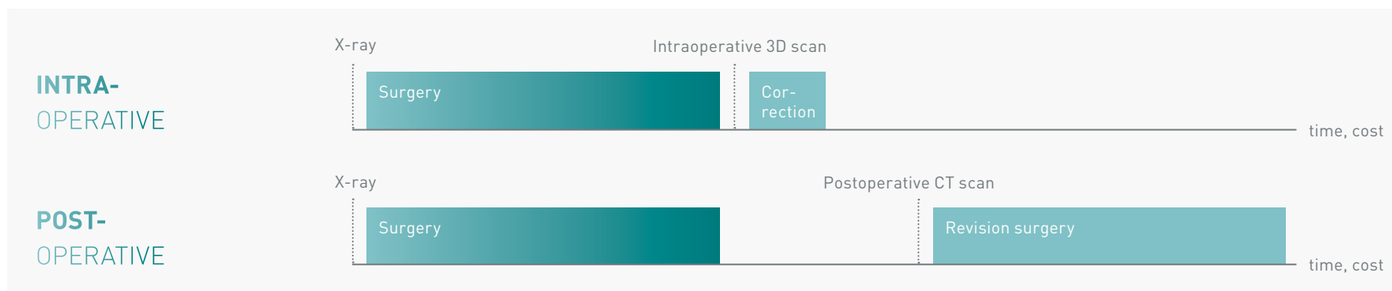
Powerful generator with up to 25 kW nominal power for improved penetration of dense anatomy – such as obese patients in lumbar spine surgeries.

COMPLETE INFORMATION RIGHT IN TIME

Multiple studies prove that calcaneus and spinal implants are not placed in the optimal position in most cases. This strains the health care systems and is a clear disadvantage to the affected patients.* With Ziehm Imaging's C-arms, detail-rich 2D images give precise information from any angle during a procedure. In combination with complete 3D information in CT-like quality, surgeons can intraoperatively control the clinical outcome of their intervention and check the results of their surgical strategy. They can react immediately and don't have to wait for results of a postoperative CT scan. This helps to avoid unnecessary revisions.

MORE EFFICIENCY IN CLINICAL WORKFLOWS

Multiple studies show that pedicle screw misplacements can be detected and corrected intraoperatively** with 3D C-arm imaging – providing a great opportunity to raise efficiency in clinical workflows.

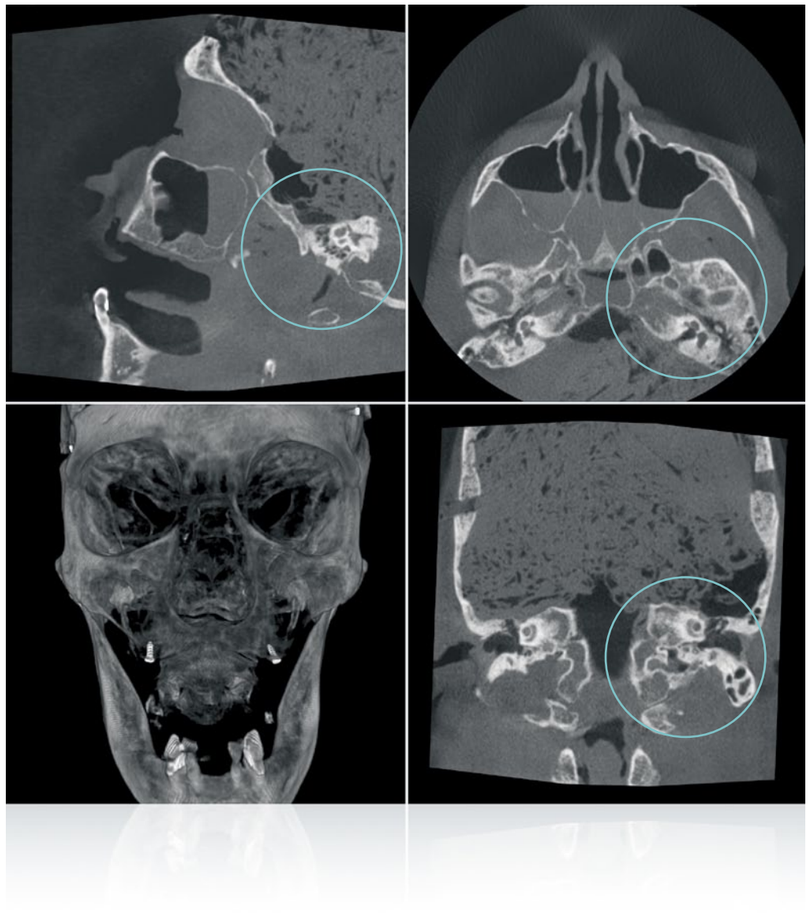


* J. von Recum, K. Wendl, B. Vock, P. A. Grützner, J. Franke, "Intraoperative 3D C-arm Imaging. State of the art." Der Unfallchirurg, 3 / 2012, Page 196 – 201.

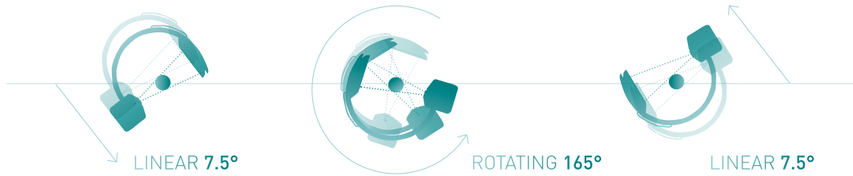
** M. Beck, K. Moritz, P. Gierer, G. Gradl, C. Harms, T. Mittlmeier, "Intraoperative Control of Pedicle Screw Position using Three-Dimensional Fluoroscopy. A Prospective Study in Thoracolumbar Fractures." Zeitschrift für Orthopädie und Unfallchirurgie, 2009, Page 37 – 42.

COMPLETE 3D INFORMATION WITH FLAT-PANEL TECHNOLOGY.

Powerful generator performance combined with flat-panel technology provides exceptional 3D information. Due to Ziehm Imaging's unique scanning technique and iterative reconstruction, the Ziehm Vision RFD 3D offers anatomical information in CT-like reconstructions.

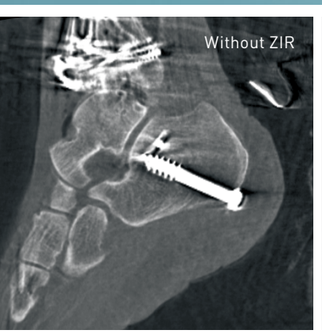


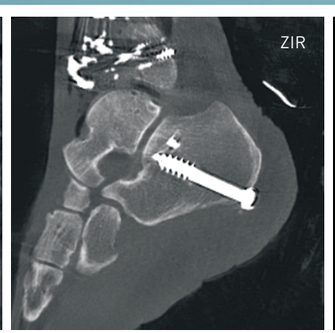
180° SCAN FOR COMPLETE 3D INFORMATION

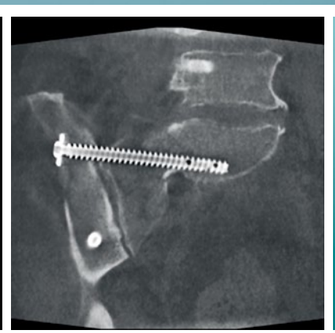


PATENTED SMARTSCAN. 180 degree scan is required to create a complete, informative 3D dataset. Ziehm Imaging's SmartScan is a revolutionary concept that enables the Ziehm Vision RFD 3D to generate the complete 3D information of even the smallest anatomical structures while keeping the geometry of a conventional 2D C-arm. The intelligent combination of linear and rotating movements enables 180 degrees of scanned information – at every point in the field of view. With this dataset, procedures can be assessed intraoperatively: Fine details, like cortical rims, pedicle diameters or even orbital floor, are optimally visualized.

With the ground-breaking SmartScan Technology, surgeons can create full 3D datasets while retaining the benefits of our C-arms: the most compact 3D devices with a 30 cm x 30 cm flat-panel, generous C-arm opening and the advantages of a variable isocenter.







ZIR

REDUCING ARTIFACTS

THE NEW STANDARD IN IMAGE QUALITY. With an edge length of 16 cm the Ziehm Vision RFD 3D currently offers the largest 3D scan volume on the mobile C-arm market. Up to 7 cervical vertebrae can be displayed, for example, in vertebral fusions over several levels. With our CT-like image quality of up to 320 voxels, our Ziehm Vision RFD 3D can visualize even the finest anatomical details of bone structures. The Ziehm Vision RFD 3D is thus ideally suited to demanding orthopedic, trauma or spinal procedures.

MINIMIZED ARTIFACTS BY ITERATIVE RECONSTRUCTION. The specially developed algorithm ZIR (Ziehm Iterative Reconstruction) optimally minimizes fan and metal artifacts in 3D reconstructions. Additionally, this new technology leads to significantly more distinguishable anatomy, defined bone crests and optimum slice views in the coronal, axial, sagittal and individually adjustable planes.

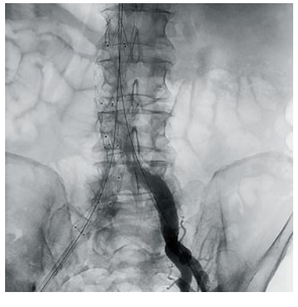
REDUCED NOISE AND ARTIFACTS
Imaging in applications with an increased amount of metal implants, e. g. shoulder or calcaneus fractures, can be displayed in high quality with significantly reduced metal artifacts.

UNIQUE 2D VISUALIZATION. The Ziehm Vision RFD 3D generates high-quality 2D images that support not only orthopedic, trauma or spinal procedures, but also most demanding interdisciplinary applications – giving you great clinical versatility.

HIGH DYNAMIC IMAGING. With over 65,000 shades of gray and the unique Ziehm Adaptive Image Processing (ZAIP), the system provides a highly dynamic image quality that has previously only been available from fixed installed systems. Equipped with a 30 cm x 30 cm flat-panel, the Ziehm Vision RFD 3D is a unique imaging solution for highly demanding clinical procedures.

POWERFUL PENETRATION. With power reserves of up to 25 kW, the Ziehm Vision RFD 3D's unique true-pulsing, monoblock generator offers superior image quality even in demanding regions like the cervical-thoracal transition.

MULTIDISCIPLINARY ADAPTABILITY. By configuring the C-arm with additional visualization tools and options, like the Advanced SmartVascular Package with DSA, MSA and RSA (road-mapping), the Ziehm Vision RFD 3D is even more prepared for interdisciplinary use, especially in hybrid room applications or demanding multi-trauma cases.



16 TIMES MORE SHADES OF GRAY with Ziehm Imaging's flat-panel technology

4,096

Conventional image intensifier

65,536 shades of gray

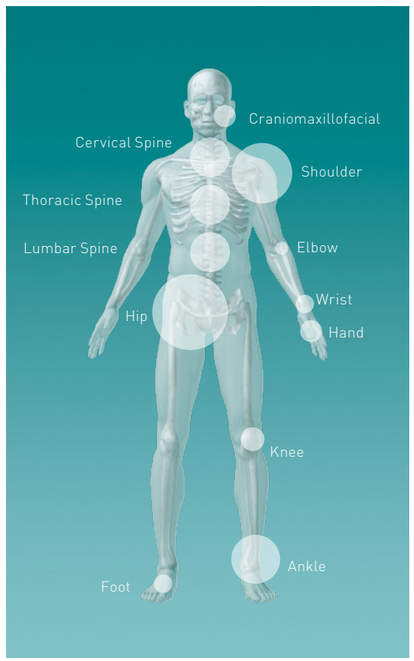
Ziehm Vision RFD 3D with flat-panel technology, see 2D X-rays on the right.

ENHANCING YOUR CLINICAL PROCEDURES

The Ziehm Vision RFD 3D enhances your daily OR routine. With the guided workflow and the intuitive user interface, the system will easily lead you through your imaging procedures and help you to save valuable OR time.

UNRIVALED FLEXIBILITY. The Ziehm Vision RFD 3D is significantly smaller than fixed C-arms and around 60 % lighter than mobile CTs. The Ziehm Vision RFD 3D can be easily positioned during all kinds of procedures and can effortlessly be brought from one room to another. The mobility keeps you flexible in planning your OR schedule and reacting to unforeseen situations. With OR personnel constantly changing, the surgeon can now work completely independently as he can operate the Ziehm Vision RFD 3D by himself directly from the sterile field using the Position Control Center and Remote Vision Center.

EASY POSITIONING. With the compact profile of Ziehm Imaging's flat-panel detector, the large C-arm opening simplifies positioning the system at the table. Intelligent scan paths combined with a collision check and variable isocenter, enables a collision-free scan around the patient on the OR table.



PRECISE AND TIMESAVING. The C-arm, including control of the 4 motorized axes, can be operated entirely in the sterile field. Operators can use either the Position Control Center or the Remote Vision Center to move the C-arm into the exact position desired. They can easily save and recall up to 3 positions, for example to switch between the AP, lateral and oblique position. This saves time and increases precision.

PATIENT SAFETY. Patient safety is always top priority. The Ziehm Vision RFD 3D can be configured with Distance Control – an assistance system supporting non-contact collision protection. In the patient's proximity, the motorized movement is slowed down. The movement stops immediately before entering a defined safety zone.

WIRELESS FREEDOM. The optional wireless footswitch further increases safety as there are fewer cables on the OR floor.

WIDE RANGE OF APPLICATIONS.
The Ziehm Vision RFD 3D offers game-changing 3D imaging and is ideally suited for orthopedics, trauma and spinal surgery. The variable isocenter can be freely adjusted to different patient positions by operators, ensuring more flexible image capture and a wider range of applications, such as shoulder scans.

BEST IMAGE QUALITY. MINIMIZED DOSE.

SmartDose is a comprehensive concept for dose reduction. With a number of intelligent hardware and software solutions, the dose can be significantly lowered while keeping the same high image quality.

LASER POSITIONING DEVICE
integrated in flat-panel and generator housing (option) and remotely operable.

ORGAN PROGRAM
anatomically adjusted and dose-optimized for best results.

LOW DOSE MODE
pediatric key for all organ programs.

REMOVABLE GRID
for pediatric and further dose-sensitive procedures.

REDUCTION OF PULSE FREQUENCY
from 1 – 25 pulses per second manually or automatically.

PREMAG
exposure-free display of magnified X-ray image.

VIRTUAL COLLIMATORS
exposure-free positioning of collimators.

MOTION AND OBJECT DETECTION
automatically with ODDC.

AUTOMATICALLY ADJUSTED COLLIMATORS
positioning of collimators during 3D Scan.

AUTOMATIC ADJUSTMENT OF SETTINGS. The Ziehm Vision RFD 3D greatly simplifies patient positioning and dose control. ODDC (Object Detected Dose Control) places a matrix over the entire field of view and uses 256 measurement cells to analyze the position of the anatomy. All settings are automatically adjusted in real time – from dose to noise reduction.

ODDC's measurement cells detect motion and adapt pulse frequency automatically. If the patient is not moving, the pulse frequency can be lowered significantly. Furthermore, the system detects metal objects in the field of view and automatically adjusts generator output and video levels to reduce metal distortion and therefore significantly improves image quality.

* 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.

We would be pleased to consult with you personally. Please scan to give us a call.

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