

## Digital X-ray with familiar cassette handling

**Divario CR-T2** for X-ray imaging and **Divario CR-Tm** with mammography compatibility (to  $50 \mu$ m) for practices and clinics

Extremely fast desktop unit with a maximum throughput of 73 cassettes per hour



厊 Divario CR-T2

厊 Divario CR-Tm

## Compact desktop units with high throughput for excellent X-ray images

The **Divario CR-T2** and **Divario CR-Tm** are CR desktop systems with a maximum processing capacity of 73 cassettes per hour. In this high-speed mode (5 pixel/mm), the throughput is increased by almost 70 % compared to previous CR systems. The **Divario** is easy to operate, reduces patients' waiting time and increases the efficiency of the examination process. The desktop system, available in an unobtrusive compact design, can be placed wherever space is limited – on a desk or a shelf. In addition the **Divario CR-Tm** version offers mammography images with a superb resolution of 50  $\mu$ m.

Together with the professional image acquisition software *dicomPACS*<sup>®</sup>*DX-R*, the CR system offers all necessary image processing tools. The solution can be adapted to fit specific clinical purposes. It is also ideal as a secondary or backup system where there is already a DR or CR in place.

The *dicomPACS*<sup>®</sup>*DX-R* software in particular allows quick and easy working. Special emphasis was placed on maximum image quality and maximum flexibility. For example, the included professional image processing software *dicomPACS*<sup>®</sup>*DX-R* can be adapted very easily to the doctor's specific wishes or requirements for each X-ray examination. The user is not limited to the selection of "pre-set" standards. This functionality provides the best possible image quality in accordance with the doctor's needs.

The creation of the best possible images, however, also requires the correct setup of the X-ray unit and the correct positioning of the patient. To help the X-ray assistant with this task, a multimedia radiographic positioning guide for each examination has been integrated directly into the system. It allows the user to verify, prior to taking the X-ray how to correctly set up the X-ray image. Even videos on the positoning of a patient etc. are included. This guide removes the need for radiographers to consult tables, reference books or external software programmes.

# Highlights All the benefits of the Divario CR-T at a glance



- Space-saving desktop unit, for shelf space and shelves (floor space 0.30 m<sup>2</sup>)
- Stable high-quality images
- Very high resolution of 50 μm for mammograms
  (Divario CR-Tm version)
- Maximum processing capacity of 73 cassettes (18 x 24cm) per hour
- Also for mobile use

## Image plate cassettes for high image quality



IP cassette type CH:

- 24 x 30 cm (10" x 12")
- 18 x 24 cm (8" x 10")

IP cassette type CC:

- 35 x 43 cm (14" x 17")
- 35 x 35 cm (14" x 14")
- 24 x 30 cm (10" x 12")
- 18 x 24 cm (8" x 10")
- 15 x 30 cm (6" x 12")



## **Software** Benefits of the professional *dicomPACS®DX-R* X-ray acquisition software

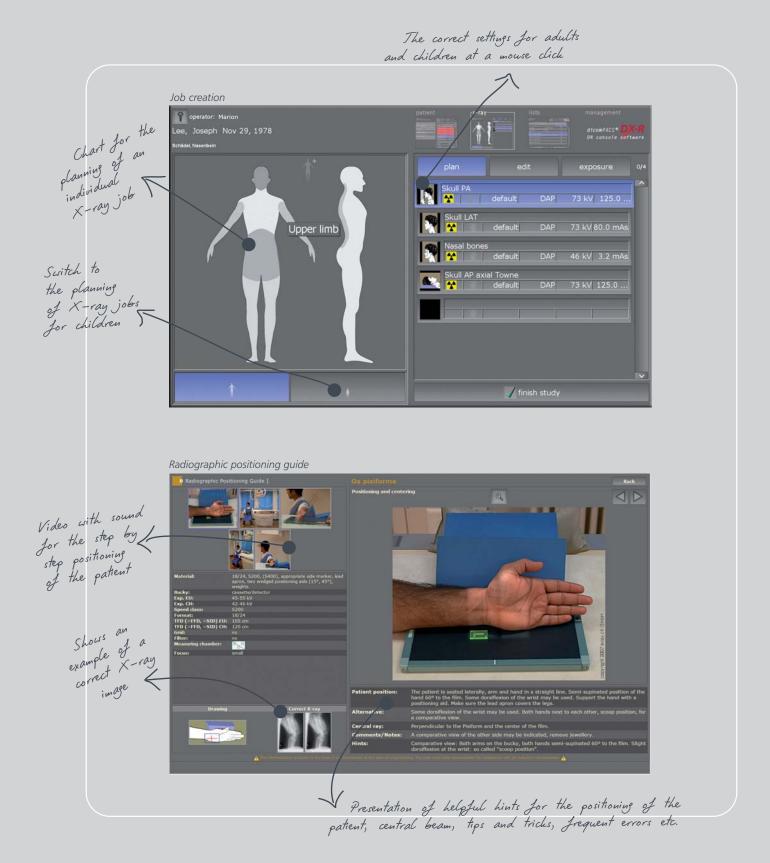
- Modern graphical user interface (GUI) adaptable to almost any language
- Touchscreen operation to ensure quick and efficient work and a smooth workflow
- Capture of patient data via DICOM Worklist, BDT/GDT, HL7 or other protocols - data may also be captured manually
- Use of **DICOM Procedure Codes** for the transfer of all relevant examination data directly from the connected patient management system (HIS/RIS)
- Freely configurable body parts with more than 200 projections and numerous possible adjustments in already included
- Safe and fast registration of emergency patients
- Allows the user to switch between examinations of a patient, for instance to avoid having to re-position the patient frequently
- Allows the user to subsequently add images to an examination, even after that examination has already been completed
- Integrated measurement, special image filter and various other tools for measurement and image optimisation
- Registration of recurrent examination procedures as macro, e.g. thorax screenings or BG-examinations
- Fully integrated radiographic positioning guide for each examination incl. comprehensive notes, videos, photos and correct X-ray images
- The digital X-ray system can be controlled via wireless remote control including display of the work list, image preview and much more

### Benefits of flexible image acquisition

- The configurable generator interface enables the user to control X-ray generators or X-ray systems by different manufacturers, delivering the generator settings directly from the software
- Option for the parallel operation of a flat panel and a CR system included in the standard package. The user has the choice to take the next image with either the flat panel or the integrated CR system. This flexibility also provides an excellent emergency concept in case of a defect flat panel.
- Integration of dose area product meters (DAP) the readings are saved directly to the relevant image
- AEC (Automatic Exposure Control) and ARP (Anatomical Programmed Radiography) allow the user to automatically adjust all X-ray options for each projection with an option to subsequently edit the image manually
- Electronic X-ray log



# Operation of the acquisition software





operator: Steve Miller Seagal, Isabella Sep 23, 1994. Toes do + Hallux ap + lat (inft hand) dicomPACS DX-P DR console softwar <u>₽</u> Ľ<sup>0</sup> 😵 😤 ∰ 000 Toes DP 3.2 ~~ wrong position V default DAP 46 kV 2.5 mAs 23 X  $\triangle$  $\nabla \Delta$  $\nabla \Delta$ The generator panel displays all values and settings (UVp, mAs, Jocus etc.) recommended Jor a specific examination Hallux AP Hallux LAT 1  $\triangle$  $\nabla$ Forefoot DP Ankle AP X 4.4 52 kV 4.0 mAs 5 Ankle LAT Calibration 🧹 finish study

# Image processing for optimal quality

- Perfect images at all times generally no adjustment required
- Integrated software for automatic image optimisation
- Professional, adaptable image processing for each individual examination to obtain best possible image settings for the needs of each customer
- Due to specially developed processes, the image processing allows the user to vary the X-ray settings on a large scale while the image quality remains virtually the same (possibility of reducing the dosage)
- Bones and soft tissue in one image this enables the user to significantly improve his diagnosis
- Details of bones and microstructures are very easy to recognise
- Noise suppression
- Black mask (automatic shutters)
- Automatic removal of grid lines when using fixed grids



Exposure with standard image processing



Exposure with dicomPACS<sup>®</sup>DX-R image processing

## Image diagnostic at the highest stage

- Completely integrated *dicomPACS*<sup>®</sup> Viewer for image diagnosis, further processing and storage of images in an SQL database incl. image manipulations, export options, layout adjustments, freely configurable user interface and much more
- Stepless zoom, PAN, magnifyer, ROI, crop, rotate, mirror etc.
- Insertion of image annotations, e.g. free texts, arrows, ellipses etc.
- Measuring of distances, angles, areas and density



- Adjustment of window/level options and gamma correction, sharpening filters, noise suppression
- Many additional functions such as Chiro Tools, calculation of Cobb's angle, pelvic obliquity measurements, integrated capturing of diagnostic reports etc.
- Creation of DICOM patient CDs with free WEB viewer
- Export of images to JPEG, TIFF, BMP and DICOM format
- Image transmission via integrated e-mail function no external e-mail program required
- Easily upgradable to the professional, integrated image management system (PACS)

### Integrated viewer



Completely integrated *dicom*PACS<sup>®</sup> viewer for image diagnosis

An integrated prosthesis documentation module provides preoperative planning (optional).

The system enables fast and easy customisation of the operating interface for individual customer preferences

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Useful tools such as the configurable measuring magnifier make diagnosis much easier.

The stitching module merges a number of separate digital X-ray images into a single image.

Comprehensive search tools enable the comparison of X-ray examinations of one or more patients.

# Mobile

Web-based viewer *dicomPACS*<sup>®</sup>*MobileView* for mobile and stationary devices (optional)

The web-based viewer **dicom**PACS<sup>®</sup>**MobileView** counts among the many extension modules of **dicom**PACS<sup>®</sup> diagnostic software. As a virtually independent browser, it allows the viewing of image material on mobile devices also outside a clinic or a practice. The doctor or the nursing staff can access all image material from the **dicom**PACS<sup>®</sup> system worldwide via a network connection.

In addition to mere diagnostic evaluation of images, the *dicomPACS*<sup>®</sup>*MobileView* viewer allows diagnostic reports to be captured and exported. Documents may be attached and exchanged. All diagnostic reports of a patient are always displayed. Individual diagnostic reports of a patient may be selected for exporting and formatted.

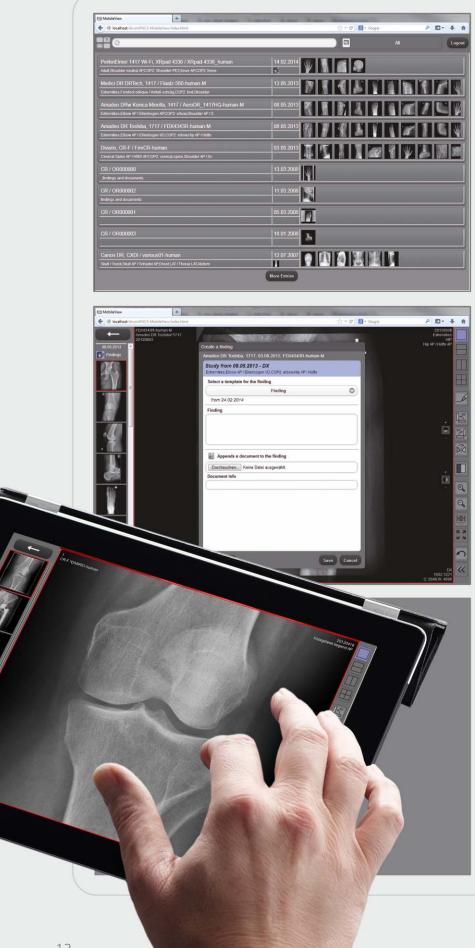
There are many applications. On-call hospital doctors can promptly make a first diagnostic thanks to *dicomPACS*<sup>®</sup>*MobileView*. This saves the patient a lot of time and additional visits. But also during a ward round, further treatment can be discussed together with the patient or colleagues directly at the bedside using a mobile device.

*dicomPACS*<sup>®</sup>*MobileView* can be installed in addition to existing *dicomPACS*<sup>®</sup> diagnostic modules (diagnostic workstations). It is irrelevant whether the *dicomPACS*<sup>®</sup>*MobileView* software is used on a network PC (pure viewing workstation) or/ and on a mobile device.

Worldwide access to all image material is available via a network connection, e.g. VPN access via the internet, of the used mobile device to the central *dicomPACS*<sup>®</sup> system in the office or clinic.

#### The main advantages at a glance:

- High flexibility through the use within various internet browsers, including Microsoft Internet Explorer, Mozilla Firefox, Google Chrome, Safari 5, Safari for iPad and Android browser
- Intuitive operation
- Supports the multi-touch operating technology (e.g. zoom in and out with two-fingers)
- Supports full screen mode
- Allows accessing the *dicomPACS*<sup>®</sup>DX-R or *dicomPACS*<sup>®</sup> database without any additional modules
- Allows playing series (e.g. ultrasound)
- High loading speed with modern streaming technology



#### Features of

*dicomPACS*<sup>®</sup>*MobileView* The web-based viewer offers an important range of functions of a professional PACS viewer:

- Draw annotations
- Measurements
- Registration of diagnostic findings
- Attach documents
- Draw lines and arrows (multicoloured)
- Compare images in different grids
- Adjust brightness/ contrast
- Flip and rotate images
- Adjust brightness / contrast
- Invert, zoom in / out
- Full screen, fit image
- PAN
- Scroll through image series
- Cine loop for multi frame series and CT/ MRI
- Export images and documents
- Print images and documents

# Cloud-based

Cloud-based telecommunication solution and data archiving for images, documents and diagnostic evaluations for stationary and mobile applications

Even for state-of-the-art practices and hospitals, the rapidly rising data flood of digital images, diagnostic reports and other documents is becoming increasingly challenging. Current legislation demands safe and long-term storage of patient data which generally requires investing in expensive hardware infrastructure as well as maintenance and corresponding staff costs.

To this end, we developed the **ORCA** Cloud archiving solution, thus paving the way for cost-effective and safe Cloud-based data archiving in practices and clinics. **ORCA** offers two application options:

- $\rightarrow$  Archive function: Safe, long-term archiving of patient data with intelligent usage of internal databases
- → Share function: Communication platform (exchange of images and diagnostic reports) with colleagues and specialists or as an easy way to forward image data to patients (an alternative to creating patient CDs)

Data is **exclusively** archived on European servers with the relevant safety certificates.



#### Benefits of Cloud archiving through ORCA

Minimal expenditure: ORCA does not require investing in expensive infrastructure such as server and data cables.

Scalability: The amount of memory required when using ORCA is determined by the demand.

**Long-term security:** *ORCA* archives data on many individual European servers in professional and air-conditioned data centres. Server technology is continuously updated.

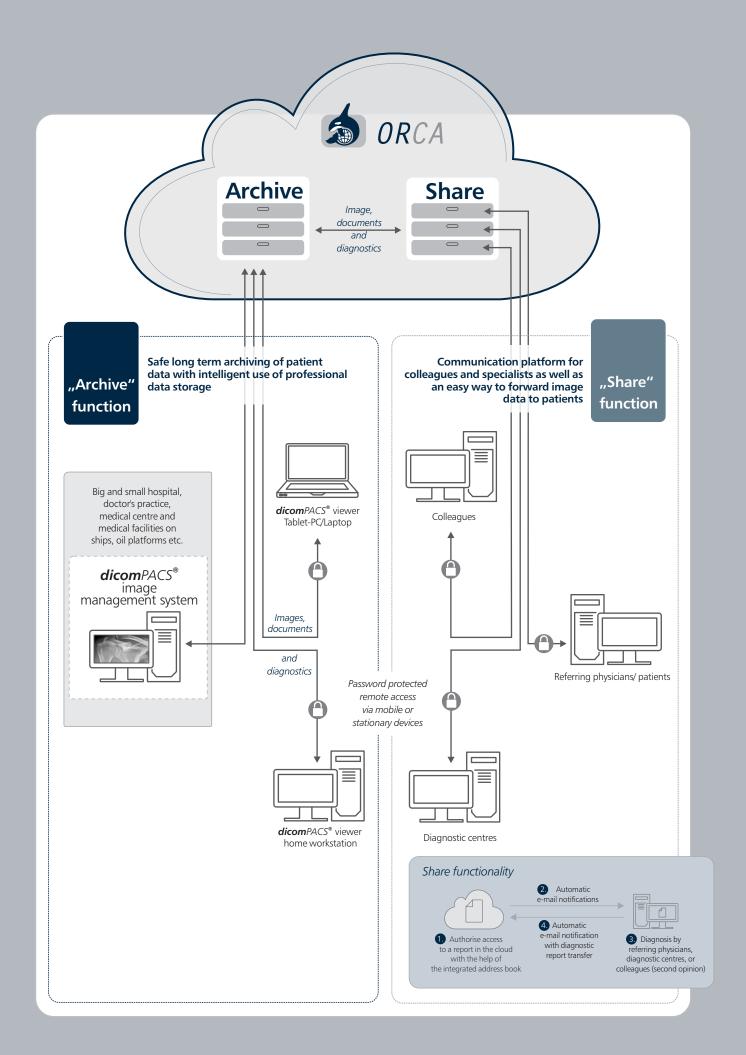
Accessibility: ORCA stands out by being highly accessible. Since data is saved with multiple redundancy, ORCA guarantees more continuity than a mere server solution.

Environmentally friendly: ORCA is sustainable – through the optimised use of resources and their distribution.

Location-independent: ORCA guarantees access to archived patient data - worldwide.

**Simplicity:** ORCA allows easy access to data from any computer – from your place of work, from the comfort of your home or from any other computer or tablet PC.

**Stress-free:** *ORCA* deals with everything – no need to struggle with loose network cables, removed hard drives or software problems.



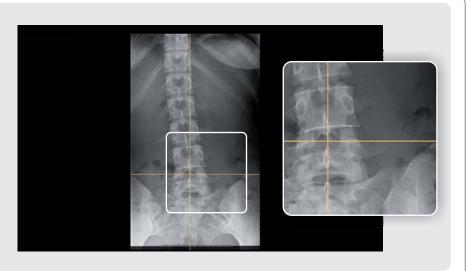
# Special Chiro Tools Diagnostic tools for optimal diagnosis

The Chiro Tools have been developed in cooperation with experts from the USA and Canada and offer great possibilities for diagnosing accurately as well as for planning further treatment. According to the tool used, automated center lines and points, defined curves, angle measurements etc., are generated after the manual selection of the points of interest.

Of course all the standard tools (like distance measurement, angle and Cobb angle, mark spots etc.) are also included.

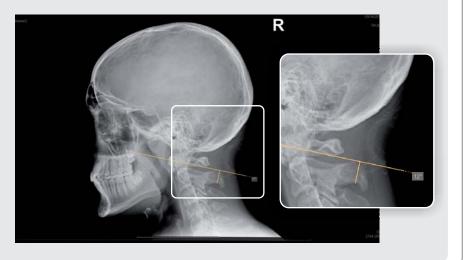
#### Axis line

The tool creates a vertical or horizontal axis by holding down the left mouse button, depending on the direction, in which the mouse pointer is moved.



#### **Orthogonal line**

This tool is used to mark perpendicular lines on existing or yet to be drawn baselines. Furthermore the aberrancy of the x/y-axis (nearer axis) is displayed by default.





### Chiro tools

#### George's line

This tool is used to draw vertical lines on each vertebra along the spine in a lateral view and to calculate their distances (in mm or inch).



## Horizontal or vertical aberrancy

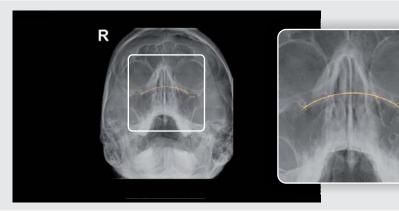
This tool calculates the horizontal or vertical aberrancy to the horizontal or vertical axis. By default the nearer axis is used for the calculation of the aberrancy.





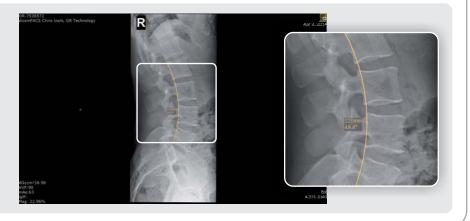
#### Circumscale

An arc is drawn through three defining points and the diameter of the corresponding circle is displayed by default.



#### Spinal curve

This tool is used to draw an arc in the lateral view of the spine. The annotation uses a fixed radius set by default to 220 mm. Radius or degree can be adjusted manually.

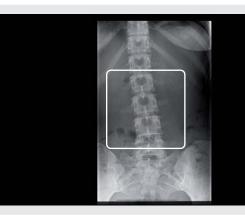


#### Vertebrae line

This tool generates a vertical line of six points (2x3) along the spinal canal and displays the lateral aberration and side of laterality in degrees.



**Center point** This tool calculates the center point between two points.





#### **Distance comparison**

This tool compares the distances between three set points (between point 1 and point 2 and between point 2 and point 3) and shows the larger distance.



#### **Pelvic obliquity**

This tool is a measurement that is calculated automatically after two simple clicks which generate two horizontal lines showing the distance between these two parallels.





# Special NUCCA Tools

### Diagnostic tools for optimal treatment

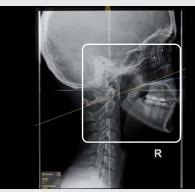
The NUCCA tool set has been created in cooperation with leading NUCCA experts from the US and Canada. It offers a variety of ways to reach a fast and accurate diagnosis. Templates like the Cephalometer, grid, Circumscale, and Relatoscope enable you to continue working as you are used to.

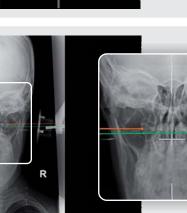
#### S-Line and Hard Palate Line and Raw Data Box

You simply set two points each on C1 and the hard palate to create the S-Line and the Hard Palate Line. We will show you the horizontal aberrancies. All measured values will be shown in the raw data box. You can also show and hide values manually.

#### Atlas Plane Line and Atlas Check Line

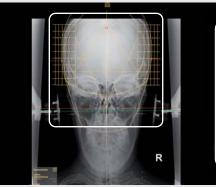
The horizontal aberrancy and the angle between Atlas Plane Line and Atlas Check Line will be shown in the raw data box.

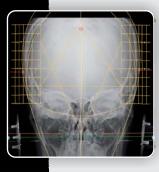


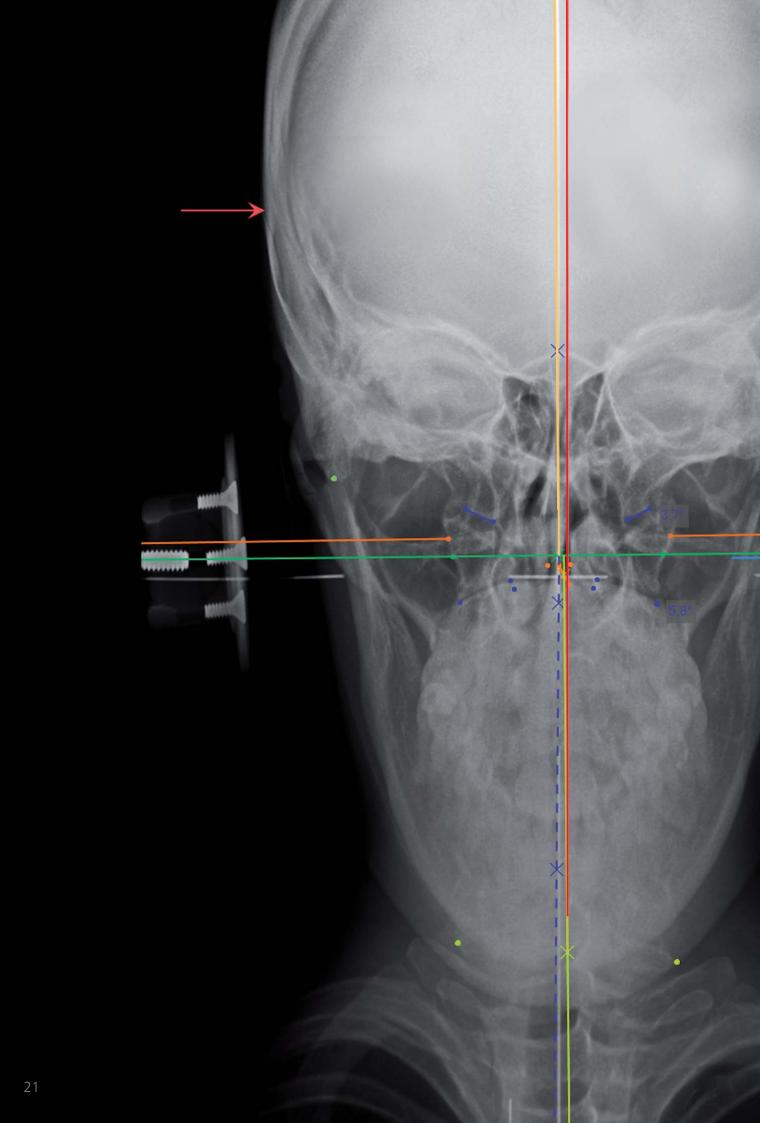


#### Cephalometer and Central Skull Line

Use the Cephalometer to draw the Central Skull Line. Laterality and Skull Tippage will be calculated automatically. The Four Elements and Listing Information will be inserted and are completely editable.

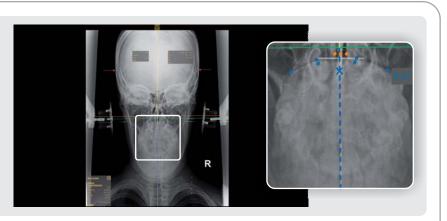






#### Axial Circle

The Body Center Line will be set automatically and the Axial Circle will be calculated and shown on the side of laterality. You can set the calculated measurement manually to the value you prefer.

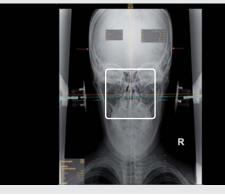


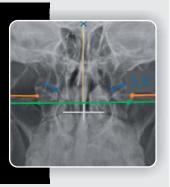
#### Condylar Circle

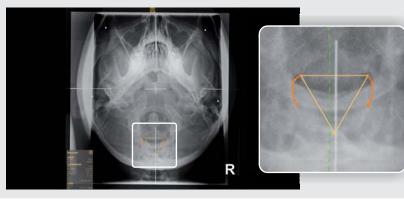
Choose between the three point and four point Condylar Circle. The middle point will be shown. You can set the calculated measurement manually to the value you prefer. The Relatoscope will use the shown value.



Mark the lateral aspects of the dens and the Odontoid Center Line will be inserted. After marking the C2 canal, the Vertex Square will be inserted and the Spinous value will be calculated depending on the Condylar Circle.

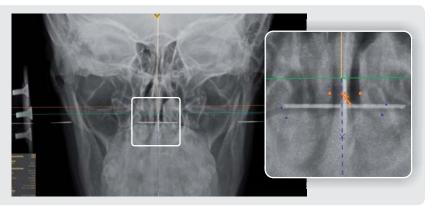






#### Odontoid, Spinous and Relatoscope

Use the Relatoscope to apply the Spinous value from Vertex to Nasium View. Mark the lateral aspects of the dens and the (corrected) Odontoid will be inserted automatically.



#### Vertex Skull Line

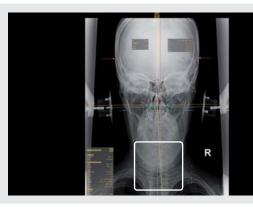
After marking the nasal structures, click the Inferior Point button. The point will be set automatically depending on the Listing Information value and the Vertex Skull Line will be inserted. Atlas Rotation will be calcuated.





Lower Angle and Angular Rotation

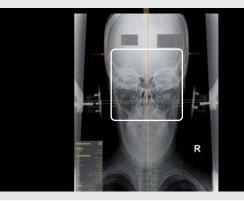
The Lower Angle and Angular Rotation will be calculated automatically after setting the Inferior Point. You can also set a corrected Inferior Point.





#### Intermastoid Line

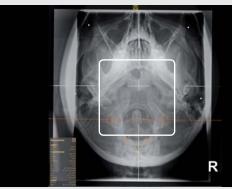
Mark the inferior tips of the mastoid processes. The measured value, its aberrancy to the Central Skull Line, will also appear in the raw data box.





#### Vertex Atlas Line

After marking the transverse foramina of the atlas with three points each, we will draw the Vertex Atlas Line and show the convergence of C1 and C2.





# Scope of delivery

#### The Divario CR-T include the following components as standard:

#### Components

#### CR unit for table Cassette sizes type CC:

Processing Capacity Reading Specification: Dimensions (H x W x D): Weight: Operating conditions: 35 x 43cm (14" x 17"), 35 x 35cm (14" x 14"), 24 x 30cm (10" x 12"), 18 x 24cm (8" x 10"), 15 x 30cm (6" x 12") Up to 73 IPs/hr. (18 x 24 cm) 10 Pixel/mm, 5 Pixel/mm 560 x 540 x 392mm (22"x 21"x 15") 39 kg (861lbs.) • Temperature: 15-30°C • Humidity: 15 -80%RH (No dew condensation) • Atmospheric pressure: 750-1060 hPa

Power Supply Conditions: Single phase 50-60Hz AC120-240V ±10% 1.9A (max)

Additional specifications for **Divario CR-Tm** with mammography compatibility: Resolution: 50 µm

In addition to the standard cassettes are available for **Divario CR-Tm** following IP cassettes type CH: 24 x 30 cm (10" x 12") 18 x 24 cm (8" x 10")

CR cassettes

All common cassette sizes are available:

- included for Divario CR-T2: 1 x 35 cm x 43 cm
- included for Divario CR-Tm: 1 x 35 cm x 43 cm

Other formats and quantities available optionally

#### Divario CR-T software package

with **dicom**PACS®**DX-R**, the professional console software with modern graphic user interface with generator control, integrated X-ray positioning guide and basic software modules:

- dicomPACS<sup>®</sup>DX-R DICOM Send SCU incl. MPPS and Storage Commitment
- dicomPACS<sup>®</sup>DX-R DICOM Send Set Inc., With Send Storage Community
  dicomPACS<sup>®</sup>DX-R DICOM Worklist SCU + dicomPACS<sup>®</sup> Connect
- dicomPACS<sup>®</sup>DX-R DICOM Patient CD
- dicomPACS<sup>®</sup>DX-R Cognition Optimised Processing

#### **Optional components:**

#### dicomPACS<sup>®</sup>DX-R controle console

Operating console (two options available), MS Windows 8 Professional, hardware stress test, software pre-installation, system checked and ready to use

• Option 1: Archive and diagnostic station\*

• Option 2: Notebook\*



No.

🖵 Divario CR-T2

🖵 Divario CR-Tm



### Investment protection

If you wish to create your X-ray images with a flat panel system (DR = direct radiography) at a later stage, you only have to exchange the **Divario** CR system for a flat panel. *dicomPACS®DX-R* is already designed to implement such a connection. You will not need to purchase new software or to get used to a new user interface. **This is what we call investment protection**.

### Built-in flexibility!

The **dicom**PACS®**DX-R** software already includes all functions necessary to store X-ray images and provide them to other workstations as a standard feature. Other workstations in your practice's network may load these images directly and display them. This requires just one "**dicom**PACS® Diagnostic Module Standard" (optional extra) per workstation. Of course, the images can also be sent to an existing PACS system.

Portfolio Overview - products of OR Technology	
🗐 Medici DR Systems	<b>DR retrofits</b> - digital upgrade set for existing X-ray systems incl. <i>dicomPACS®DX-R</i> acquisition software, also available for stationary and mobile X-ray machines
Leonardo DR Systems	<b>DR suitcases</b> - compact suitcase solutions for portable X-ray incl. <i>dicomPACS®DX-R</i> acquisition software
🛃 Amadeo X-raySystems	<b>Complete digital X-ray systems</b> (incl. stand, bucky, generator, flat panel incl. <i>dicomPACS®DX-R</i> acquisition software etc.) as well as mobile and portable X-ray solutions
戸 Divario CR Systems	<b>CR solutions -</b> CR systems for digital X-ray with cassettes incl. <i>dicomPACS</i> * <b>DX-R</b> acquisition software
X-ray Accessories	Accessories for X-ray (e.g. radiation protection walls, gloves etc.)
<b>∂</b> dicomPACS®	Image management (PACS) - comprises acquisition, processing, diagnosis, transfer and archiving of image material
DRCA	<b>Cloud-based archive solution</b> - safe, long-term archiving of patient data with intelligent usage of internal databases, communication platform with colleagues and specialists and transfer of image data to patients
dicomPACS® <b>DX-R</b> X-ray Acquisition Software	X-ray acquisition software [only for OEMs] - acquisition and diagnostic software for X-ray images from flat panels or CR systems
IDigital X-ray and IImaging Solutions	
Info hotline: +49 381 36 600 60	0
OR Technology (Oehm und Rehbein GmbH) 18057 Rostock, Germany, Neptunallee 7c Tel. +49 381 36 600 500, Fax +49 381 36 600 www.or-technology.com, info@or-technology.com	