Leonardo DR Systems
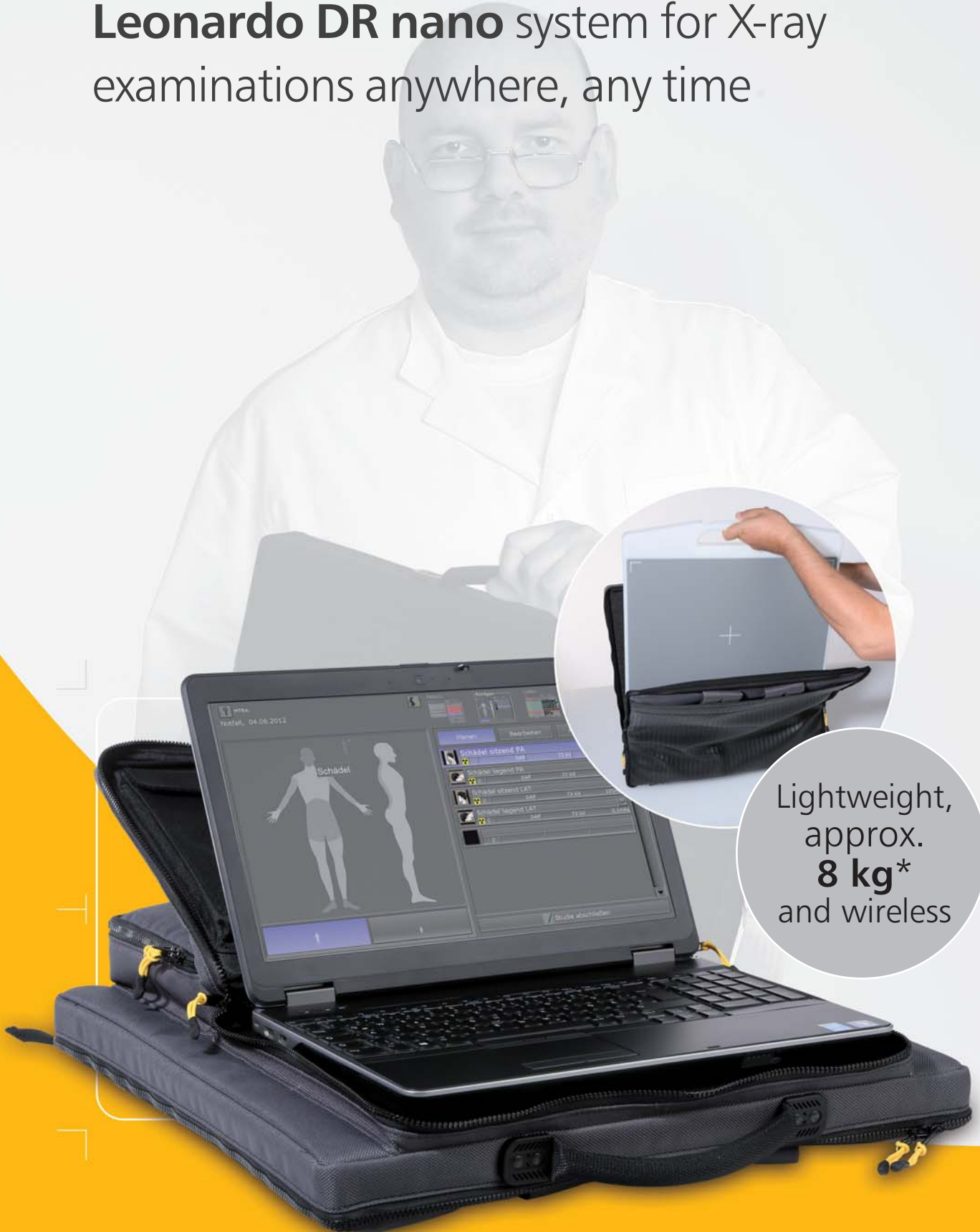
The wonderfully lightweight, portable **Leonardo DR nano** system for X-ray examinations anywhere, any time

Lightweight, approx. **8 kg*** and wireless

The portable, lightweight DR system for X-ray examinations

Weight incl. notebook, accessories and 12" x 10" flat panel detector

Perfectly suited for portable X-ray examinations

Portable X-ray imaging:
Superlight - only with X-ray detector and tablet PC

Just sling the lightweight **Leonardo** backpack over your shoulder and you are perfectly equipped for your next X-ray examination.

The **Leonardo DR nano** consists of two components only, a wireless X-ray detector and a tablet PC. Weighing only approx. 8 kg (complete package, bag incl. tablet PC/notebook, accessories and 12" x 10" flat panel detektor), the system is one of the lightest portable X-ray solutions worldwide. It supports users in outpatient digital radiography.

Due to its low weight and volume, the compact **Leonardo DR nano** system can be used almost anywhere – in **home care, disaster control, for medical emergencies on ships, yachts and oil rigs** as well as for **medical services**.

The tablet PC complies with the latest standards and is equipped with state of the art **Leonardo** X-ray software. The display offers a resolution of 1.920 x 1.080 pixels.

The portable wireless X-ray detector, based on amorphous silicon (a-Si) with caesium iodide (CsI) scintillator, guarantees ultimate image quality, even at low radiation doses.

The portable, lightweight DR system for X-ray examinations

Benefits

Digital X-ray imaging with **Leonardo DR nano**

Wireless X-ray imaging

The wireless X-ray detector is available in two sizes: 10 x 12 inches and
14 x 17 inches. If you use it with a battery powered HF X-ray generator, X-ray
imaging will be completely wireless and portable.
<u>Your benefit:</u> Ready for operation in no time and no more tripping over cables.

The smallest and lightest DR system

The very compact **Leonardo DR nano** is housed in a well designed sturdy
backpack (also usable as carrying bag). Weighing only about approx. 8 kg in total
(including notebook, accessories and 12"x10" detector) it can easily be transported
anywhere. Battery operated portable X-ray generators with a total weight of as little
as 6.8 kg complete the system. The X-ray solution can be assembled quickly and
easily on site.
<u>Your benefit:</u> Easy to transport, quick to set up.

Perfect storage

In the lightweight backpack all components are stored in their own custom-fitted
compartments with separate closure. The framing robust insulation offers shock
protection for the flat panel detector and notebook.
<u>Your benefit:</u> Tidiness and safe transport.

Excellent image quality

The wireless detector boasts unbeatable image quality, based on a high
resolution of approx. 5 lp/mm (100 μm pixel resolution).
<u>Your benefit:</u> Fantastic images as a result of the latest know-how.

Fast

The X-ray image is ready for viewing and diagnostic evaluation as early as
6 to 8 seconds (at flat panel detektor 10" x 12") after the shot has been taken.
<u>Your benefit:</u> Fast workflow with optimal documentation.

User friendly

The professional *dicomPACS®DX-R* acquisition software features an intuitive and state of the art graphic user interface. Examinations can be performed conveniently at the monitor.
Your benefit: Easy operation even if staff changes.

Well thought through

An integrated X-ray positioning guide provides information on the correct adjustment technique for each examination, including videos, photos, and sample X-ray images as well as many hints and tips.
Your benefit: Correct positioning and adjusting made easy.

Constant availability

The integrated diagnostic evaluation software offers worldwide, fast and cost efficient exchange of information (via Cloud and web based viewer solutions), considering and adhering to safety provisions for telemedical solutions or e-mail - all that is required is internet access.
Your benefit: The fastest possible diagnosis by a specialist in emergency situations.
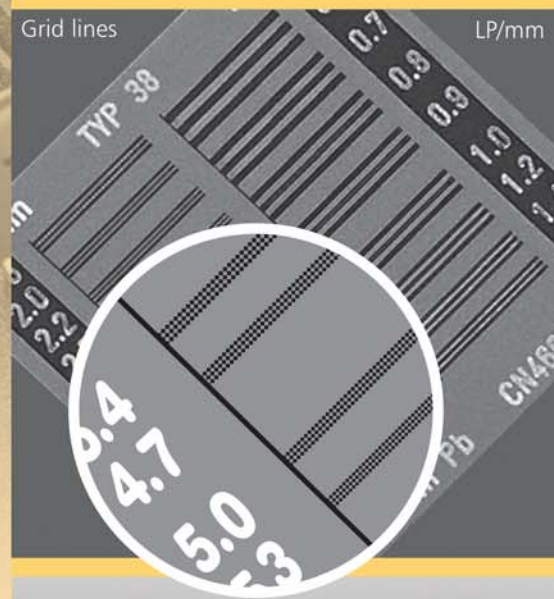
only approx.
8 kg

Comfortably
Take X-rays wirelessly from now on

Restricted freedom of movement and tangled cables are now a thing of the past.
The **Leonardo DR nano** system allows you to work comfortably even in difficult
terrain or in small rooms.

The X-ray unit and the detector communicate wirelessly with the acquisition
software of the tablet PC. For safe operation the distance between the X-ray
detector and the tablet PC may be up to 10 m!

After taking the X-ray you can view the images instantly on the tablet PC or
forward them to a specialist (via Cloud or e-mail).

Wireless sync or using the detector's AED function*

Wireless))))))) *image transfer*

up to 10 m for trouble-free connections

**Automatic synchronising of detector and generator by means of AED – no need
to modify the X-ray system or adjust the system or the cable connections*

We have taken a closer look at the transport bag for you:

Accessories bag for chargers

The lightweight backpack storing all important components is complemented by a small accessories bag. The accessories bag contains the charger for the notebook and the batteries of the X-ray detector. This is why it usually stays in the car and is not necessary for the active use of the X-ray system.

The high-resolution notebook is held securely in the backpack but can be taken out to work with it.

The flat panel detector is stored securely in a separate well-padded compartment.

All important accesories have their own custom-fit compartments with separate closure.

The framing robust insulation offers shock protection for the flat panel detector and notebook.

The flat panel detector batteries are also stored in a padded compartment.

The backpack can be turned into a handle bag --> The shoulder straps can be hidden quickly and easily.

Leonardo DR Systems

Lightweight

Portable X-ray detector bracket **VersariX**

In addition to the **Leonardo DR nano** X-ray solution OR Technology has developed a portable and compact detector bracket **VersariX** for room or wardrobe doors, walls etc. Especially suitable for use in old-age homes, nursing care wards and in home care, this detector bracket offers enormous benefits. The normal heavy thorax stand is no longer required and will no longer need to be carried to the patient's bed. A room door is sufficient for taking almost any X-ray images of standing or sitting patients – while observing the relevant radiation protection regulations.

Benefits of the portable X-ray detector bracket:

- Height adjustable, suitable for taking almost any X-ray images of standing and sitting patients
- The X-ray detector, placed in its protective cover, can be safely attached to the mounting bracket
- The detector bracket, folded up to save space, fits into the **Leonardo DR nano** backpack

adjustable for height

Functionality

Accessories for portable X-ray imaging

Collapsible mobile stand for portable X-ray units

The collapsible mobile stand can be assembled in less than 10 seconds. It is approved for use in human medicine, it can be swivelled left and right and is height adjustable. The mobile stand is suitable for taking almost any X-ray images of persons in a standing or prone position.

Specifications:

- Swivel arm 750 mm
- Swivel range of the arm 5 degrees to the left, 5 degrees to the right
- Height adjustable up to 1.71 m
- For X-ray units of 5.0 to 15.0 kg
- Dimensions 30 x 35 x 105 cm (folded up)
- Weight approx. 15 kg

Protective housing for the detector
for perfect stress X-rays of patients in a standing position

- Protective housing for 14" x 17" detectors
- Maximum surface load of 1,040 kg on the entire imaging area
- Maximum point load of 146 kg per mm

Safe and sound

Transport bag for the **Leonardo DR nano** system

ca. 49 cm

ca. 50 cm

ca. 12 cm

- Sufficient space for the 14" x 17" flat panel detector with or without a protective cover and tablet PC

- Weight: only approx. 8 kg (complete with notebook, accessories and 12" x 10" flat panel detector; with a 14" x 17" detector the total weight is approx. 9.8 kg)

- External dimensions 50 x 49 x 12 cm

- Padded and fitted with a sturdy protective frame

- Water repellant – safe in rainy conditions

- Many additional compartments to store the detector's battery charger, power cable of the tablet PC and other accessories

- Including shoulder strap (can be used as handle bag – the straps can be stored)

Software

Advantages of the professional *dicomPACS®DX-R*
X-ray acquisition software

- Modern graphic user interface (GUI) adaptable to almost **any language**

- 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

- 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

- Integrated **measuring, special image filters and many other tools**
  for measuring and image optimisation

- Allows the user to **subsequently add images** to an examination, even after
  that examination has already been completed

- Entry of recurring **examination procedures as macros**,
  e.g. thorax screenings

- **Fully integrated radiographic positioning guide** for each examination in
  human and veterinary medicine incl. comprehensive notes, photos, videos and
  correct X-ray images

- A single work station with installed *dicomPACS®DX-R* software may be
  upgraded by the following options (selection):
    - Tools for taking images of an entire leg (full spine) or an entire spine
      (image stitching)
    - Planning and working with **digital prostheses templates/
      operation planning**
    - Connection of several diagnostic monitors
    - Capturing additional patient and examination data and their freely
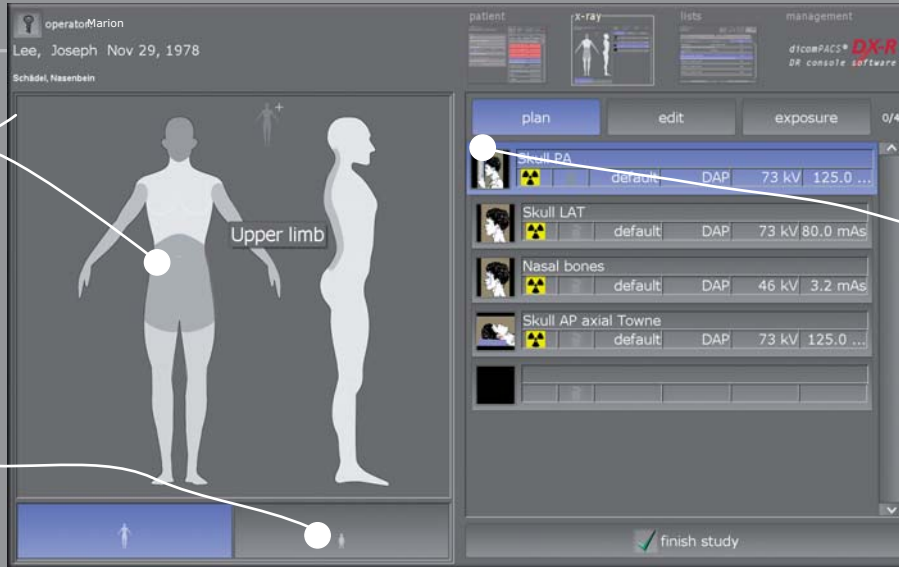   configurable statistical evaluation

Chart for the planning of an individual X-ray job

Switch to the planning of X-ray jobs for children

Video with sound for the step by step positioning of the patient

Shows an example of a correct X-ray image

Preview of the current X-ray image

The correct settings for adults and children at a mouse click

Presentation of helpful hints for the positioning of the patient, central beam, tips and tricks, frequent errors etc.

Opens examples of inaccurate X-ray images with comments

operator: Marion
Lee, Joseph Nov 29, 1978
Schädel, Nasenbein

patient   x-ray   lists   management
dicomPACS® DX-R
DR console software

| plan | edit | exposure | 0/4 |

Upper limb

Skull PA | default | DAP | 73 kV | 125.0 ...
Skull LAT | default | DAP | 73 kV | 80.0 mAs
Nasal bones | default | DAP | 46 kV | 3.2 mAs
Skull AP axial Towne | default | DAP | 73 kV | 125.0 ...

✓ finish study

dicomPACS®DX-R job creation

Radiographic Positioning Guide]   Os pisiforme   Back
Positioning and centering

Material: 18/24, S200, (S400), appropriate side marker, lead apron, two wedged positioning aids (15°, 45°), weights.
Bucky: cassette/detector
Exp. EU: 45-55 kV
Exp. CH: 42-46 kV
Speed class: S200
Format: 18/24
TFD (=FFD, =SID) EU: 105 cm
TFD (=FFD, =SID) CH: 120 cm
Grid: no
Filter: no
Measuring chamber:
Focus: small

Drawing   Correct X-ray

Patient position: The patient is seated laterally, arm and hand in a straight line. Semi-supinated position of the hand 60° to the film. Some dorsiflexion of the wrist may be used. Support the hand with a positioning aid. Make sure the lead apron covers the legs.
Alternative: Some dorsiflexion of the wrist may be used. Both hands next to each other, scoop position, for a comparative view.
Central ray: Perpendicular to the Pisiform and the center of the film.
Comments/Notes: A comparative view of the other side may be indicated, remove Jewellery.
Hints: Comparative view: Both arms on the bucky, both hands semi-supinated 60° to the film. Slight dorsiflexion at the wrist: so called "scoop position".

dicomPACS®DX-R radiographic positioning guide

operator:
Steve Miller
Yabara, Olivia Apr 11, 1990
Shoulder L, Abdomen, Pelvis

patient   x-ray   lists   management
dicomPACS® DX-R
DR console software

| plan | edit | exposure | 3/6 |

Shoulder AP | 1 | default | DAP | 66 kV | 20.0 mAs
| wrong position |
| default | DAP | 66 kV | 20 mAs
Clavicle PA | default | DAP | 63 kV | 16.0 mAs
Abdomen AP upright | default | DAP | 85 kV | 125.0 ...
Pelvis AP | default | DAP | 81 kV | 320.0 ...
Hip joint AP | default | DAP | 77 kV | 200.0 ...
Sacroiliac joint (Barsony) | default | DAP | 81 kV | 200.0 ...

100 %

✓ finish study

Preview of the X-ray image and worklist in dicomPACS®DX-R

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Software

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:

→ Safe, long-term archiving of patient data with intelligent usage of internal
databases
→ 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.
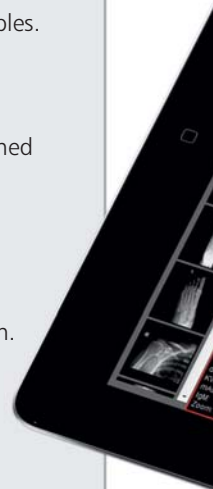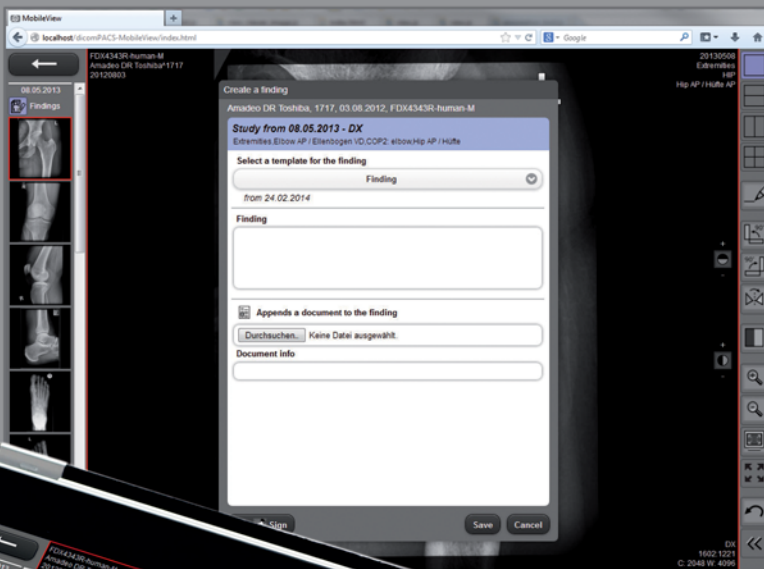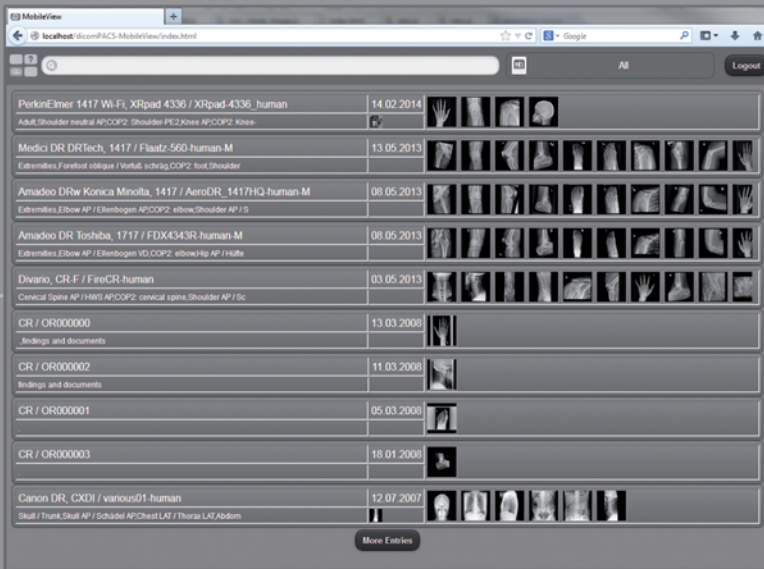
Features of *ORCA* online viewer:
The web-based viewer offers an important range of functions of a professional PACS viewer:

- Draw annotations

- Measurements

- Registration of diagnostic findings

- Attach documents

- Draw lines and arrows (multi-coloured)

- Compare images in different grids

- Adjust brightness/ contrast

- Flip and rotate images

- 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

Software

Automatic image processing for optimal quality
with *dicomPACS*®*DX-R* image processing

- 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*

Perfect X-ray images anywhere, any time

Alternative

Amadeo M-DR mini: The portable and fully digital X-ray system

Do you need a wireless digital X-ray imaging with a lightweight and portable allround solution for ambulatory and inpatient carewhich combines all the components in one unit?

The advanced design of the new **Amadeo M mini** series is characterised by a sophisticated reduction to essential components and functional operating elements. The system is designed for portable use and can easily be transported due to its low overall weight and compact build. Our modern X-ray system is attractive wherever it is not possible to transfer patients to a hospital for diagnostic radiology.

The **Amadeo M mini** system includes all necessary components such as X-ray detector, X-ray generator and image processing workstation. The latter is delivered with a globally proven software package that includes a convenient X-ray positioning guide for fine adjustments (except for the AX-Version).

The **Amadeo M mini** was specifically developed for doctors and first aid services in remote and inaccessible locations, medically oriented aid organisations, as well as ships and oil rigs. The lightweight system can easily be pulled over steps and swivelled in all directions – a huge advantage in confined spaces and elevators – and does not tip over on uneven terrain. Its large, sturdy wheels permit effortless movement.

The system has the CE mark and is certified for all human X-ray applications. The **Amadeo M mini** system fits in a standard hatchback car and can be stored in a special shockproof case during flight.*

For more details visit www.or-technology.com or www.or-technology.com/amadeo-m-mini-video

* depending on the tube head

The **Amadeo M-DR mini** system is:

- a complete mobile X-ray system utilising tethered and wireless DR detectors

- CE certified and approved for any human X-ray examinations

- unrivalled on the global market in terms of efficiency, size, weight and compact design, providing excellent X-ray images under the most varied conditions

- lightweight, mobile and highly versatile (only about 68 kg)

- dimensions: 56,5 x 136,5 cm; with maximum height positioning: 124,6 x 195,5 cm

- advanced industrial design, all parts are made and assembled in Germany

- uninterrupted workflow after brief power outage or relocation

- very easy to clean since all electronic components are sealed to ensure safe transport

- elegant design with UV resistant and sturdy outer shell, protects notebook and X-ray detector from surroundings (splash water etc.)

- a reliable partner even under extreme climatic conditions such as high humidity or large temperature fluctuations
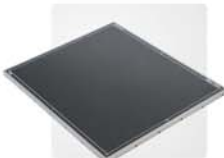
All
components
are combined
in one unit.

Scope of delivery

The standard **Leonardo DR nano** system contains the following components:

Components	Leonardo DRw nano 1210 mobile system with **wireless** flat panel	Leonardo DRw nano 1417 mobile system with **wireless** flat panel
Transport backpack incl. accessories bag for chargers • For 14" x 17" detectors with or without protective cover • External dimensions 50 x 49 x 12 cm • Padded and fitted with a sturdy protective frame including shoulder strap • All important accesories have their own custom-fit compartments with separate closure	✓	✓
Tablet PC or notebook *CPU Intel®, 8 GB RAM, 256 GB hard drive, 1920 x 1080 resolution, 15,6" display, USB 3.0, wireless LAN 802.11 b/g/n*	✓	✓
Direct radiography detector 24 x 30 cm (10" x 12") wireless *Wireless X-ray imaging!* • fits into the existing bucky tray without any modifications (same size as X-ray film cassettes) • Pixel pitch 148 μm, Pixel matrix 1,500 x 1,920 pixel • Active area 23 x 28,4 cm (9,1" x 11,2") • Resolution > 4.0 lp/mm, Dynamic range (DQE) >66%	✓	–
Direct radiography detector 35 x 43 cm (14" x 17") wireless *Wireless X-ray imaging!* • fits into the existing bucky tray without any modifications (same size as X-ray film cassettes) • pixel distance/microns: 100 μm • resolution/pixels: 3556 x 4320, exposure area: 432 x 355 mm	–	✓
Battery charger including batteries • fast charging, long-life batteries, including battery charger • charging time of battery: 3 hours	✓	✓
Leonardo DR nano software package *with **dicomPACS®DX-R**, professional console software with modern graphic user interface including basic software package and integrated radiographic positioning guide for each examination, including:* • **dicomPACS®DX-R** DICOM Send SCU • **dicomPACS®DX-R** DICOM Patient CD • **dicomPACS®DX-R** Cognition Optimised Processing	✓	✓

Optional components to upgrade the Leonardo DR nano system

Components		DRw nano 1210	DRw nano 1417
Portable X-ray detector bracket • Height adjustable, suitable for taking almost any X-ray images of standing and sitting patients • The X-ray detector, placed in its protective cover, can be safely attached to the mounting bracket • The detector bracket, folded up to save space, fits into the Leonardo carry bag (optional)		●	●
Protective housing for the detector (for patients in a standing position) • Protective housing for 14" x 17" detectors • Maximum surface load of 1,040 kg on the entire imaging area • Maximum point load of 146 kg per mm		●	●

Protection case
 • Available in various sizes
    - for detectors 35 x 43 cm (14" x 17")
    - for detectors 24 x 30 cm (10" x 12")
 • Including or excluding grid
		●	●

High frequency X-ray unit TR 90/20 Battery • Battery operated HF X-ray unit with pulse frequency modulation • 40 - 90 kV • Dimensions: approx. 26.5 cm x 22.0 cm x 18.0 cm • Weight: 6.8 kg		●	●
High frequency generator Amadeo P-110/100H • 5 kW, 110 kV / 100 mA • High-performance capacitor for stable and reliable power supply • Equipped with remote control functions by hand switch • Flat touch panel, digital display, LED display reverse • Constant X-ray output without influence of line power fluctuation		●	●
High frequency generator Amadeo P-100/35HB • Max. power requirement 2,4 kW, kV range in 1 kV steps: 40 to 100 kV • mAs range 0.4 - 100 mAs, Focus 1.2 x 1.2 mm • Power 130 - 260 V (automatic power adjustment) • Dimensions 250 x 214 x 349 mm, Weight 14.2 kg (including battery)		●	●
High frequency X-ray unit Amadeo P-200/ 400 • Monoblock units with fully automatic adaptation to different voltage networks • Effective output of 6 kW at 100 kV (QUANTpower 400 up to 120 kV) • Dimensions: approx. 37.0 cm x 24.5 x 2.15 cm, weight: 11.5 kg		●	●
Mobile X-ray tables and stands Large selection of X-ray stands and new generation portable systems to make your work easier and more comfortable. Please ask us!		●	●
Mobile stand for portable X-ray units • Swivel arm 750 mm, weight approx. 15 kg • Swivel range of the arm 5 degrees to the left, 5 degrees to the right • Height adjustable up to 1.71 m • For X-ray units of 5.0 to 15.0 kg • Dimensions 30 x 35 x 105 cm (folded up)		●	●

Portfolio

Overview - products of OR Technology

Medici DR Systems

DR retrofits - digital upgrade set for existing X-ray systems incl. *dicomPACS®DX-R* acquisition software, also available for stationary and mobile X-ray machines

Leonardo DR Systems

DR suitcases - compact suitcase solutions for portable X-ray incl. *dicomPACS®DX-R* acquisition software

Amadeo X-ray Systems

Complete digital X-ray systems (incl. stand, bucky, generator, flat panel incl. *dicomPACS®DX-R* acquisition software etc.) as well as mobile and portable X-ray solutions

Divario CR Systems

CR solutions - CR systems for digital X-ray with cassettes incl. *dicomPACS®DX-R* acquisition software

X-ray Accessories

Accessories for X-ray (e.g. radiation protection walls, gloves etc.)

dicomPACS®

Image management (PACS) - comprises acquisition, processing, diagnosis, transfer and archiving of image material

ORCA

Cloud-based archive solution - 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®DX-R
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

OR Technology
Digital X-ray and
Imaging Solutions

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