# Экспертные цифровые рентген-аппараты DRGEM серии DIAMOND

Технические характеристики


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# DIAMOND DR SYSTEM

***Go filmless - the easy way!***

***Take advantage of all the features digital system can offer!!***

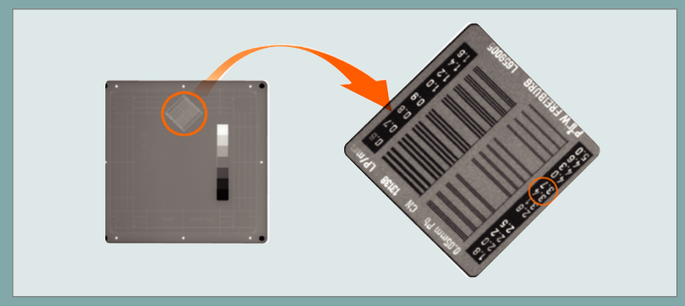
## Fully Automatic Operation

The DIAMOND DR System is a fully automatic digital radiographic system providing state-of-the-art image quality, image processing and user interface; making the system easy to use and reliable while providing high quality digital radiographic images with reduced dose.

Selection of an anatomical study on the imaging software automatically sets up the x-ray generator's preprogrammed exposure technique setting, motorized radiographic stand positioning, x-ray collimation and post image processing for selected study. Also, removable high resolution grids which have 100 and 180cm (40 and 72 inch) focal distance supplies excellent image quality per each SID.

## Outstanding Image Quality

Digital radiography via flat panel detector improves your workflow, exam speed and comfort with efficiency. Digital flat panel detector wirh CsI screen provides excellent spatial resolution, MTF, DQE and stability based on fine pixel pitch.
A 3-field ion-chamber is provided for AEC function.



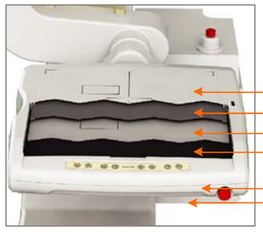
(Spatial Resolution Chart: PTW Normi-13)

The **DIAMOND** DR System has been specially developed for moderate budgets and small spaces. A fully digital workflow, convenient auto-positioning, and advanced image processing, make this versatile system a sensible choice.

Experience the quality and value in a DIAMOND digital radiography system for all common applications!
The DIAMOND DR system will serve you to achieve the big performance with small effort.

### Removable High Resolution Grids

- Two removable grids are provided : SID 100/180cm (40/72 inch)
- System will sense the focal distance of each grid when it is inserted
- False grid insertion will be warned by software when usable range of grid's focal distance is not suitable with SID
- Each removable grid are protected by aluminum frame with handle



### Digital Detector Assembly

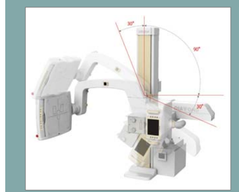
- **Front Cover**
- **Removable Grid**
- **AEC Ion Chamber**
- **Digital Flat Panel Detector**
- **Detector Case** (Aluminum Casting)
- **Spare Grid Holder**

# Automatic Positioning

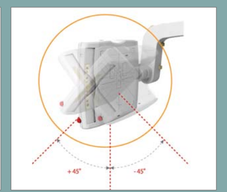
Radiographic stand has four motorized joints, and automatic positioning can be accomplished by pre-programmed data which can be easily reprogrammed by operator.
Total of seven safety sensors are located over U-arm, detector and tube side to protect against collision with patient or obstacles to control the speed or stop the positioning.
Also, a mobile patient table with heavy patient load is provided for radiographic study which needs table.
A remote-control is provided for remote motorized control of stand, and the movement stops as soon as you lift your finger from the key by dead-man control type.

**Motorized Radiographic Stand**

- Fully automatic motorized movement
- Ergonomic and convenient handling
- Automatic move to pre-defined positions for the most frequent applications
- Safety features protect against collision with patient and obstacles
- Supports forced air cooling for tube assembly and manual tube rotation








**Mobile Patient Table**

- Mobile table designed for conventional radiography applications
- Freely revolving castors with brakes
- Max. Patient weight: 250 kg (550 lbs)

**Automatic Collimation**

- Motorized collimator with dual leaf
- Automatic x-ray field size control corresponds to varying SID
- User adjustable lamp timer with on/off switch (supports software control)

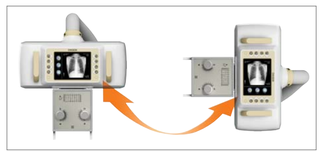
# Trustworthy X-ray Source

The core part of x-ray source adopts high quality tube assembly (VARIAN, SIEMENS, TOSHIBA), motorized x-ray collimator, HV cable assembly and DRGEM's high frequency x-ray generator which has worldwide reputation on excellent performance, lifetime and stability. Touch screen x-ray control console provides user-friendly interface and easy technique selection. Automatic collimator supports high accuracy for selected x-ray field size over any SID.

- Micro Processor Controlled High Frequency Switching
- Real-time Monitoring Self Diagnosis, Tube Overload and Anode Heat Unit Protection
- User programmable APR
- Full-Auto mA Calibration, Adaptive mA Calibration for long-term tube usage
- Automatic Exposure Control (AEC)
- Touch Screen Control Console


# Integrated Touch Screen Console

Thanks to the integrated touch screen console located in tube side, operator can easily controls the radiographic techniques and stand positioning. Furthermore, operator can verify the digital x-ray image on this screen.



- The GUI of integrated touch screen console is automatically rotates corresponds to rotation angle of U-arm

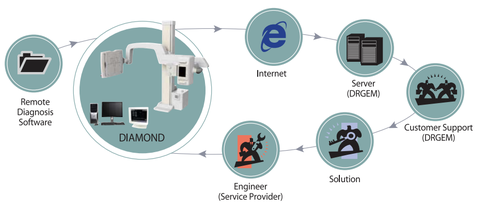
# Full Featured Imaging Software & Excellent Digital Image Processing

A high performance imaging workstation and software serves you a convenient interface and easy operation. Anatomical view-based digital image processing automatically optimizes and enhances the quality of the captured images. Automatic image storage and print with DICOM 3.0 networking capability increases exam throughput and decreases examination time.

- Provides convenient user interface and easy operation
- Included anatomical view-based digital image processing automatically optimizes and enhances the quality of the captured image for the imaged anatomy
- Radiographic stand & automatic collimator control function
- DICOM 3.0 networking interface includes Worklist, Print, Store, Query for integration with any PACS or RIS

# Remote Diagnosis

Remote diagnosis function enables fast and accurate diagnosis on problems and saves service cost and system downtime.



# Specification

## Digital Flat Panel Detector

| | |
|---|---|
| Imaging Area | 43x43cm(17x17inch) |
| Pixel Matrix | 9 Mega pixels (3,072x3,072pixels) |
| Pixel Pitch | 139㎛ |
| Scintillator Material | CsI |
| Limiting Spatial Resolution | 3.6 lp/mm |
| MTF | 0.60 at 1 lp/mm, 0.29 at 2 lp/mm, 0.14 at 3 lp/mm |
| DQE | 0.57 at 1 lp/mm, 0.40 at 2 lp/mm, 0.24 at 3 lp/mm |

## High Frequency X-ray Generator

| System Model | DIAMOND-5A | DIAMOND-6A | DIAMOND-8A |
|---|---|---|---|
| Model | GXR-52 | GXR-68 | GXR-82 |
| Output Rating | 52kW | 68kW | 82kW |
| Line Power | 400/480VAC, 3 Phase, 50/60Hz, ±10% Voltage Range | | |
| kV Range | 40~150kV, 1kV step | | |
| mA Range | 10~640mA, 19 steps | 10~800mA, 20 steps | 10~1,000mA, 21 steps |
| Max. Output | 640mA/81kV<br>500mA/104kV<br>400mA/130kV<br>320mA/150kV | 800mA/85kV<br>640mA/106kV<br>500mA/136kV<br>400mA/150kV | 1,000mA/82kV<br>800mA/102kV<br>640mA/128kV<br>500mA/150kV |
| Timer Range | 0.001~10 sec, 38 steps | | |
| mAs Range | 0.1~500mAs | | |
| Rotor Supply | Low Speed<br>(Optional Dual Speed) | Dual Speed | |
| Reproducibility | Coefficient of Variation: kV < 0.005, Time < 0.005, mAs < 0.01 | | |
| Accuracy | kV< ±(1%+1kV), mA< ±(3%+1mA), Time< ±(1%+0.5ms), mAs< ±(3%+0.1mAs) | | |
| Linearity | Coefficient of Linearity < 0.01 : CL = (X1-X2)/(X1+X2), where X is mR/mAs | | |

## X-ray Tube Assembly

| Model | RAY-12 | E7252X | RAD-14 | RAD-21 |
|---|---|---|---|---|
| Maker | SIEMENS | TOSHIBA | VARIAN | VARIAN |
| Maximum Tube Voltage | 150kV | 150kV | 150kV | 150kV |
| Anode Heat Storage Capacity | 230kHU | 300kHU | 300kHU | 300kHU |
| Focal Spot Size | 0.6 / 1.2 mm | 0.6 / 1.2 mm | 0.6 / 1.2 mm | 0.6 / 1.2 mm |
| Maximum Input Energy at 0.1sec | 22 / 54kW | 27 / 75kW | 32 / 77kW | 36 / 100kW |

## Imaging Workstation

| | |
|---|---|
| CPU | Intel(R) Core2 Duo E7500 (2.93GHz, 1066MHz FSB, 3MB L2 Cache) |
| Memory | 2GB DDR2 800MHz SDRAM |
| Display | Intel GMA 4500 |
| Storage | 250GB x 2, 7200RPM SATA HDD |
| Monitor | 20.1 inch Color LCD, Display resolution: 1600 x 1200 pixels |
| Maker | DELL International |

## Options

- PACS Software
- DAP(Dose Area Product) Function with Sensor
- UPS for Imaging Workstation

## Radiographic Stand

| | |
|---|---|
| Vertical Movement | Max. 110cm (43.3inch) |
| U-arm Rotation | +120°(CW) ~ -30°(CCW) |
| SID Movement | 100 ~ 180cm (40~72inch) |
| Detector Rotation | +45° ~ -45° |

## Ion-Chamber and Preamplifier for AEC

| | |
|---|---|
| Field | 3 Fields |
| X-ray Energy Range | 40~150kV |

## Removable High Resolution Grids

| | |
|---|---|
| Size | 17 x 17 inch |
| Resolution | 200 line/inch |
| Ratio | 12:1 |
| Focal Distance | 100 / 180cm (40 / 72inch) |
| Cover Material | Carbon Fiber |

## Motorized X-ray Collimator

| | |
|---|---|
| Rated X-ray Shielding | 150kV max. |
| X-ray Field Coverage | Max. 48 x 48cm at 100cm SID<br>(Max. 18.9 x 18.9inch at 40inch SID) |
| Luminosity | Over 160 Lux |
| X-ray Field Precision | < 2% SID |
| Leakage Radiation | < 40mRh at 150kVp / 4mA,<br>100cm(40inch) SID |

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