

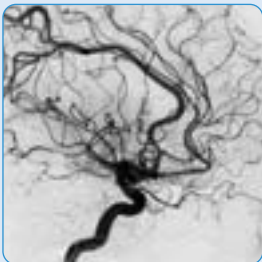


Inside Philips Cardio/Vascular X-Ray

DoseWise

Perfect image. Perfect sense.

PHILIPS



Crisp contours, bright contrast, and high resolution: these are the attributes that make perfect images. With DoseWise they're also made with less patient dose, and that makes perfect sense.

DoseWise

founded upon three strategic areas

DoseWise is a set of techniques, programs and practices that ensures optimal image quality, while protecting people in X-ray environments. It is based on the ALARA (As Low As Reasonably Achievable) principle, but is so much more. It is a philosophy that is active at every level of new product design and development. And it includes creative thinking and smart solutions in three areas:

- Smart Beam
- Less Time
- More Awareness

This integrated, system-wide approach makes DoseWise a powerful example of the Philips mission to improve the quality of healthcare anywhere, anytime.

DoseWise

Perfect image. Perfect sense.

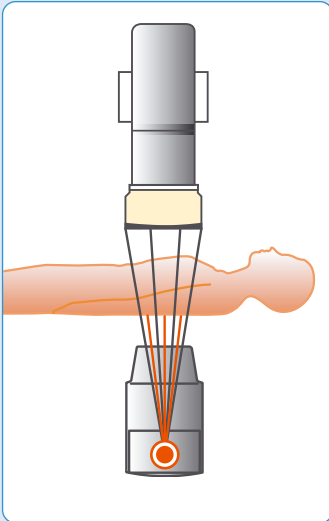
How does DoseWise

It filters out 'soft' radiation

The Philips Allura uses special SpectraBeam filters in fluoro and exposures to remove unwanted 'soft' radiation, i.e. those X-rays that hit the patient but do not have enough energy to reach the image detector. In this way, filtering significantly reduces patient dose and scattered radiation for the staff while maintaining a high image quality.

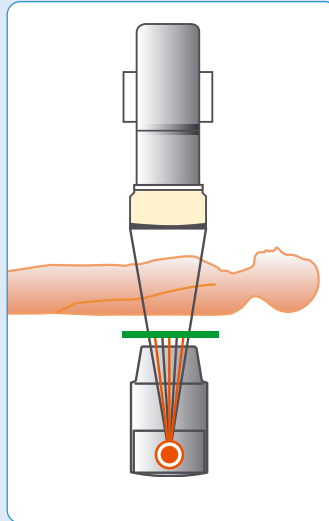
However, because the SpectraBeam filters are such strong barriers, conventional X-ray tubes cannot sustain the high output and heat load that's necessary to drive enough useful X-rays through the filter. Fortunately, Allura's MRC tubes were specially designed for such high-powered performance, for example they offer a cooling capacity of up to 11,000 kHu/min.

Unfiltered X-ray spectrum



The spectrum of a conventional X-ray tube contains unwanted 'soft' radiation, which increases patient dose without contributing to the image.

Conventional filtering



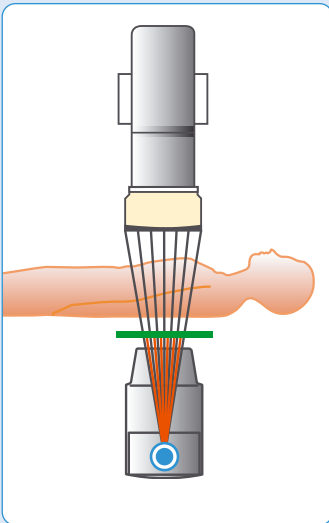
Spectral filtering with a conventional tube reduces the patient dose, but the residual beam strength is then insufficient for effective imaging.

create a Smart Beam?

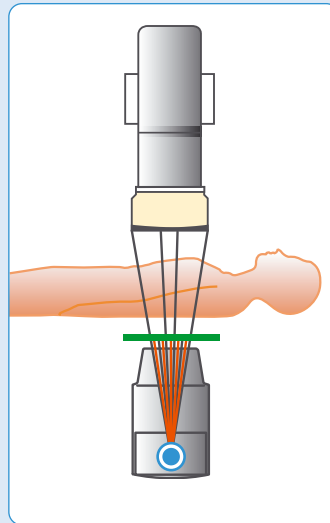
It replaces soft with useful-radiation

By applying a light SpectraBeam filter and increasing the X-ray beam's energy, the soft radiation is replaced by higher energy radiation. This significantly improves image quality. Alternatively, you can 'trade off' some of this improved quality to reduce dose, by applying an even thicker SpectraBeam filter.

SpectraBeam with MRC



With the high performance MRC tube and light SpectraBeam filter, improved image quality is achieved with a patient dose no higher than the unfiltered beam from a conventional tube.



With the MRC tube and heavy SpectraBeam filter, unwanted 'soft' radiation is removed from the X-ray spectrum, while maintaining dose to image detector and thus avoiding any fall-off in image quality.

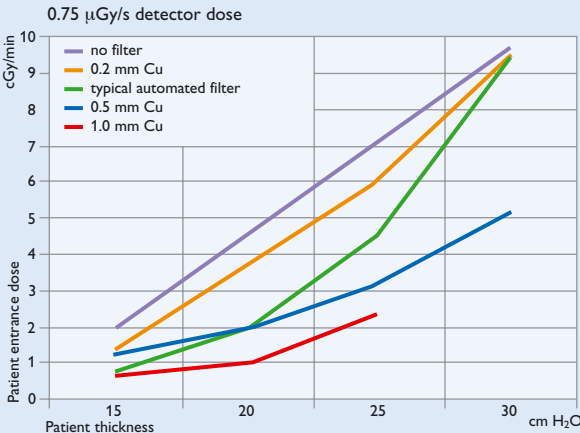
How does DoseWise create a Smart Beam?

By giving you a choice

Unlike other X-ray filtration systems, DoseWise's SpectraBeam filters are automatically set to your choice. Which means that you can decide when and how much filtration you use. The example below shows how DoseWise can offer four ways to create a detector dose of $0.75\mu\text{Gy/s}$ – with automatic filtration there is no choice. DoseWise makes perfect sense because ultimately you decide on the balance between image quality and dose. Even the four options below can be reset to your preferred filtration strengths.

By being automatic when you choose

If you do not set the SpectraBeam filters and the detector dose to your preferred strengths the Allura will automatically choose the lowest possible dose for a diagnostically relevant image – which can also be re-set at any time.



Application	cm of H ₂ O
Cardiac adult	25-30
Cardiac pediatric	15-25
Cerebral	20
Thoracal	20
Abdominal	20-30
Peripheral	10-20



Easy-to-use protection

Allura comes with a wide range of protective screens, drapes and aprons. But again,

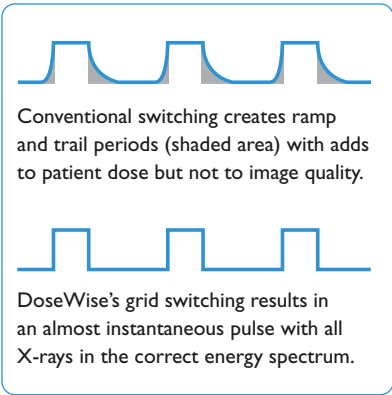
DoseWise goes further: the protection is integrated into the total system design for optimum ease of use. For example, both the monitors and shielding can be suspended from the ceiling, thus ensuring maximum flexibility for the shielding architecture, and therefore maximum use of the protection.



How does DoseWise create a Smart Beam?

By generating true square wave pulses

Conventional low tube-current switching X-ray tubes have unavoidable ramp and trail periods. These produce soft radiation that adds to patient dose but does not add to image quality. DoseWise's electronically controlled, in-tube grid switching creates a virtually instant pulse rise, so that all the radiation is in the useful high-energy spectrum.

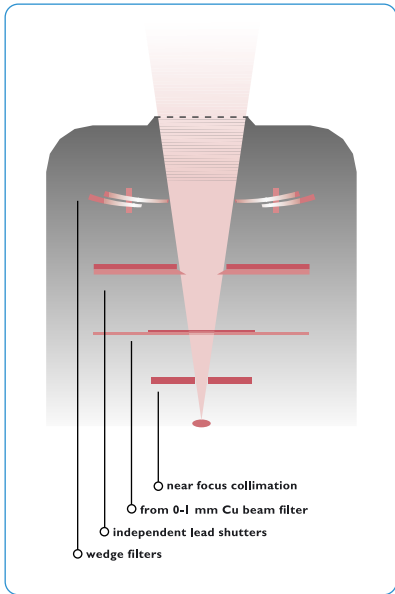


By customizing the beam shape

The Allura collimation system is the most advanced system of its kind, with four different steps to manipulate beam shape. As you can see in the diagram, near focus collimation starts the process and independent lead shutters and wedge filters fine-tune the beam.

By using an automatic iris shutter

Switching to a smaller image detector field usually means having to double the X-ray dose to maintain the same intensity of light output. In Philips systems, however, the wedge filter is opened slightly to compensate for the light output reduction (similar to photography). This means that the Philips system requires only a slightly increased dose for a smaller image detector field, whereas conventional systems often need to approximately double the dose.





Especially for children

DoseWise incorporates special APRs for pediatric examinations. In effect, the beam adapts itself to these special case needs. Just what you would expect from a Smart Beam.



How does DoseWise

By using smart interventional tools....

Integris 3D-RA

The Allura and Integris 3D-RA interventional tool are built for speed from acquisition through viewing. The Allura completes a 240 degrees rotational scan in only four seconds, considerably reducing contrast dose. 3D-RA reduces exam time, X-ray dose, and contrast medium by eliminating the need for multiple DSA/Fluoro exposures.

StentBoost

Exclusive to Philips, this innovative interventional tool produces a high resolution image of a deployed stent in

coronary arteries – while the catheter is still in place. It allows the clinician to take immediately any corrective action required while the patient is still in the examination room, without the need for additional runs and fluoroscopy and therefore extra radiation.

Rotational scan

Philips' Rotational Scan provides real-time, 3D impressions of complex vasculature/coronary artery tree. Rotational Scan acquires multiple projections with just one single contrast injection. Rotational Scan can save considerable time, contrast and dose, while providing the image detail required for informed diagnostic and therapeutic decisions.



do it in Less Time?

**By the getting the
excellent image...**

Xres

Philips' award-winning image processor Xres enhances non-subtracted fluoroscopy and exposure, setting a new standard in cardiac and vascular image quality. Xres processes images in real time by reducing noise. This allows the cath lab team to make well-informed decisions more quickly, shortening procedure times and the use of extra radiation and contrast.

**By getting it right 1st time...
every time**

DoseWise gives you a range of automatic exposure controls to maximize dose efficiency.

These include the customizable programs that automatically select the correct fine-tuned parameters for your exam type, so you get the right exposure the first time.



By saving images during Interventions...

You can instantly capture fluoroscopic images without interrupting the procedure. This is ideal for 'proof-of-procedure' documentation and avoids setting up a separate image acquisition procedure.

The 'Last Image Hold' function freezes the last acquired image on the monitor, so that you can switch off the X-Rays and study images without further radiating your patient and staff.

The Xper systems offer the Xper Fluoro Storage this holds the fluoroloop of the last 10 seconds.

By auto-positioning ...

Wedge filters

You simply place the semi-transparent wedge filter over the relevant area once, and it positions itself automatically with each new projection. With Xper beam shaping, there is no radiation needed, since the wedges are positioned "virtually".

Stand position

You can automatically return to a previous projection position at the press of a button. Rather than having to switch on fluoroscopy, you can use the automatic positioning controller to regain a previous view.

Due to the increasing complexity and duration of electrophysiology cases, staff and patients are exposed to lengthening fluoroscopic screening times. The Allura Xper FD series have specific fluoro protocols for electrophysiology. The excellent image quality allows more precise guidance of interventional devices, while keeping the dose as low as possible.



How does DoseWise create More awareness?

By showing information clearly

There are many ways you as a clinician can have a direct impact on dose, simply by turning X-Rays off, or lowering them whenever possible. That's why DoseWise enables you to obtain clear, real-time information, so you can make an optimal balance between image quality and radiation exposure.

The Allura shows you the Cu filter thickness used, the related dose levels and accumulated dose in the modern unit Dose Area Product (DAP). Moreover, you instantly see the effect of actions such as changing fluoro mode, reducing collimator aperture and the use of SpectraBeam filters.

With simple controls - SyncraTouch

In addition to all the advanced parameter controls that you would expect from Allura, there is also a simple three-button pad for setting the fluoromode at the table side to LOW, MEDIUM or HIGH. This is called SyncraTouch control and is usually configured to 5, 10 or 20 cGy/min patient dose, but can be set as low as 2.5 or the levels you prefer.

With advisory literature

All Philips X-ray systems come with literature on how your staff can best avoid scatter radiation. There's also advice on which shields and/or aprons you should use and where they should be positioned in the room.



More than dose management

DoseWise is active at every level of new product design and development – and of course during every exam. The result? Peace of mind for patients and clinicians alike.

DoseWise

Tailored to Allura

Just as you'd expect from the Philips Allura Systems, DoseWise enables excellent image quality at the lowest possible dose for your interventional practice.

For example, with a choice of changeable image detectors, Allura offers you solutions that are focused on your current case mix but can be adapted to your future needs. And DoseWise is also focused, tailor-making each X-ray beam for each exam. But as always with Philips, you remain in full control, with real time information and easy-to-use controls so you can also adapt, fine-tune, and focus the beam as you need.

With Philips' 35 years of leadership in cardio/vascular labs, leading edge image technology and numerous design awards, Allura is a proven system concept worldwide. And DoseWise too comes proven, with documented field tests showing optimized image quality at reduced dose levels.

Finally, your Allura is packed with smart technology, scalable options and optimized comfort for patient and clinician.



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To order the folder containing only the general brochure: 4522 981 94581

All DoseWise modality brochures can be ordered separately:

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