

**PHILIPS**

**Surgery**

**BV Pulsera**



Making the difference  
**with Live Image Guidance**

Surgical imaging powerhouse

# Making the difference with Live Image Guidance

Together we make the difference in surgical procedures to improve patient outcomes and save lives. With our Live Image Guidance we aim to remove barriers to safer, effective, and reproducible treatments, delivering relevant clinical value where it's needed most – at the point of patient care.

Intelligent and intuitive integration of multi-modality imaging, patient information, and procedure-based applications deliver critical information to optimize real-time guidance through complex vasculature and dense anatomy. Our BV Pulsera mobile C-arm solution gives you the power and superb visualizations to support a variety of challenging interventions. From open to minimally invasive, from Abdominal Aortic Aneurysms (AAA) to ICD. From spinal to hip surgery. This counter-balanced system can be positioned quickly and easily. It provides the extra power you need for obese patients or technically difficult projections.

Together, we open doors to new procedures and techniques that truly make a difference in people's lives.



## When you need extra power

When you are performing long and complex minimally invasive procedures, the BV Pulsera has the power to get the job done. Highly efficient X-ray resources and exceptional heat management capabilities provide uninterrupted imaging for long surgical interventions. Its rotating anode technology and automatic high penetration mode give you the power to see through technically challenging patients and dense anatomy. You're able to see fine clinical details in steep projections and observe fast moving anatomy without motion artifacts.

This system comes with a 9" or 12" image intensifier and can be used in surgery, intensive care, and in the emergency room. It can handle a full range of applications:

- Orthopedic surgery
- Vascular surgery
- Cardiac procedures
- Pain management procedures
- Abdominal procedures
- Thoracic surgery
- General surgery

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# Greater insight and confidence

in finding and treating the problem

## Clear visualization of dense anatomy and complex vasculature

- **High Power Pulsed Exposure** visualizes fast moving anatomy with outstanding image quality for a virtually unlimited amount of time
- **Unique BodySmart software** promotes first time right imaging and dose efficiency. It delivers consistently superb image contrast by adapting the measuring field to the area of interest.
- **Automatic contrast and brightness** - single touch adjustment of contrast/brightness to the ROI to enhance details in real time
- **High Definition Fluoroscopy** provides full contrast for the steepest projections, like lateral hip exams
- **Digital Exposure (Sharp Shot) mode** allows a single high quality image to be taken for archiving and printing
- **Ortho Plus** - applies extra X-ray power to visualize challenging regions of interest with normal or obese patients.

## Supports challenging patients and anatomy

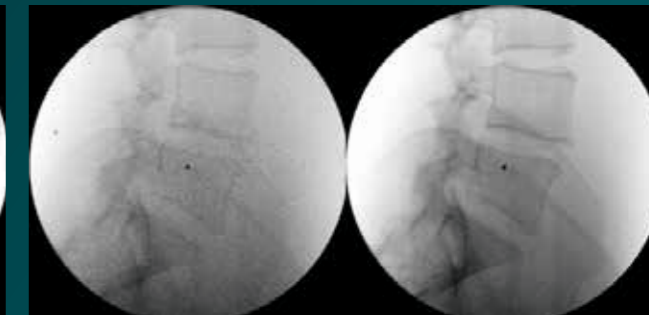
Our full digital 1K<sup>2</sup> imaging chain enhances the visibility of fine anatomical details with our patented high resolution technology. It can capture up to 30 frames per second to image dynamic cardiac anatomy. Powerful image processing functions, such as advanced noise reduction, BodySmart, and 2D edge enhancement, provide high quality images time after time. High Definition Fluoroscopy, subtraction runs, and roadmap guidance are available to support complex orthopedic, vascular, and cardiac surgical procedures.



**Asymmetric shutters**  
Help you collimate anatomy outside the region of interest.



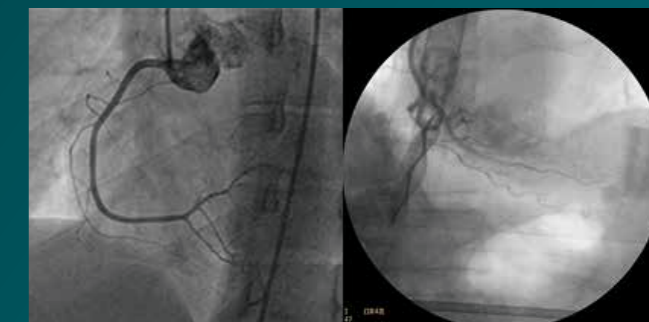
**Hip fracture repair**  
Ortho Plus enhances visualization of obese patients to support precise positioning of hip prosthetics in dense anatomy.



**Spinal column of obese patient**  
Ortho Plus provides more power to obtain high quality, low noise images even with challenging dense anatomy or steep projections as shown in these spinal column images.



**Vascular surgery**  
Various vascular processing features can be applied to enhance critical details: Subtraction, Trace, Roadmap with SmartMask, and Remasking.



**Cardiac surgery**  
Mobile C-arms are being used more frequently for cardiac applications, such as pacemaker implants. The BV Pulsera's rotating anode X-ray tube provides well defined X-ray pulses with decreased motion blur of fast moving anatomy.

## Adaptive measuring field



**Standard exposure**  
• Measuring field adapts to region of interest



**Conventional field adaption**  
• Shutter is placed  
• Measuring field adapts to region of interest  
• Object moves out of measuring field



**Adaptive measuring field**  
• Shutter is placed  
• Measuring field remains in place  
• Object remains correctly exposed

### Clinical value

Adaptive measuring field means always getting the right exposure and image each time



**Pain management**  
Even at low dose, the BV Pulsera produces sharp images of the spine to guide precise needle placement.



# Better user experience

to promote consistency and efficiency

### Ergonomic viewing from different positions

Every procedure has its own challenges, whether you are delicately placing a pedicle screw or deploying a stent in a difficult position. The Mobile View Station with rotatable and height adjustable monitors gives you the flexibility to handle it all. Thanks to its compact size, this system can be easily moved around even in small operating rooms. Its small footprint allows it to be brought as close to the operating table as desired. The unique design also enables easy cleaning of the equipment.

### Enhanced viewing for operators

The 12" monitor on the stand displays the clinical image to the operator so they can see the C-arm position in relation to the anatomy of interest. They can view the image where needed to support fast and easy positioning. The monitor can be tilted and rotated to a comfortable working position. Lower and fold the monitors for convenient transport.

### Efficient workflow

To promote efficient workflow, the BV Pulsera is compatible with major brands of surgical navigation systems. The system has a fully integrated DICOM connectivity solution and is IHE compliant. An intuitive user-interface, with buttons exactly where you need and expect them to be, makes working with the BV Pulsera easy and fast. With a touchscreen on the left monitor, patient administration and post-processing on acquired images is literally at your fingertips.

### Smart time savers

- Automatic shutter positioning – push the button and the collimator automatically finds the anatomy and moves into position to save time and enhance image quality.
- During preparation, you can boot-up the system in less than 70 seconds and bring it into the OR – ready to go. That can save start-up time per case. Start imaging immediately after the system is up and add patient data later when it's convenient.
- Between cases, quickly move the C-arm to another location without having to shut down and re-boot the system.



Stand monitor can be rotated and tilted to improve the viewing position



**Broad vascular support**  
We offer a wide range of vascular options with different fluoroscopy and exposure frame rates and optional acquisition modes, like CO<sub>2</sub>, to enhance visualization during demanding vascular procedures. The single user concept allows clinicians to use a footswitch and remote control to control various imaging functions from the table. Tap the footswitch once to perform Subtraction, Trace, or Roadmap. Park the mask image for the Roadmap on the right monitor for easy re-use. Press the left pedal after Trace to use the Trace image as a Roadmap mask without switching modes. For landmarking, select the background (mask) information for a subtracted image in four steps.



# Lower barriers for minimally invasive interventions

Manage radiation exposure and increase awareness  
with our comprehensive DoseWise program

## Comprehensive X-ray dose management

With the BV Pulsera, you benefit from highly evolved X-ray technology with comprehensive dose management features. Philips was the first company to market the mobile C-arm and has over half a century of experience in developing mobile C-arm systems for the surgical environment. That translates into a full range of radiation management features that allow low X-ray dose for lengthy surgical procedures, while providing exceptional quality images:

- Philips unique beam filters with an additional 0.1 millimeter of copper and 1 millimeter of aluminum increase the quality of the X-ray beam and manage the patient skin dose by 40%<sup>1</sup>
- Pulsed Fluoroscopy enhances imaging of dense and complex anatomy to support you in managing dose
- Two Low Dose Fluoroscopy (LDF) modes<sup>2</sup> apply  $\frac{1}{2}$  and  $\frac{1}{4}$  the dose of continuous fluoroscopy to reduce exposure dose without affecting image quality
- Unique asymmetric shutters increase collimation flexibility and help you collimate the anatomy outside your field of interest
- Shutters and image orientation can be adjusted while on the last image hold, without using radiation

## Other features to increase dose awareness

All our mobile C-arms provide radiation dose awareness features which aid in the documentation, analysis, and awareness of radiation dose in the OR. These include DICOM Radiation Dose Structured Reporting, dose indication during the procedure, and a dose alert when the examination dose exceeds a preprogrammed level. We support you in keeping dose management top of mind for your operating room staff by providing comprehensive and easy to understand training materials on dose awareness topics.

## DoseAware real-time dose feedback (option)

The DoseAware dose monitoring system provides real-time X-ray dose feedback that is displayed during a procedure, so staff can immediately adjust working habits to support radiation exposure management<sup>3</sup>. A time-stamped record of where and when X-ray dose was acquired is created.



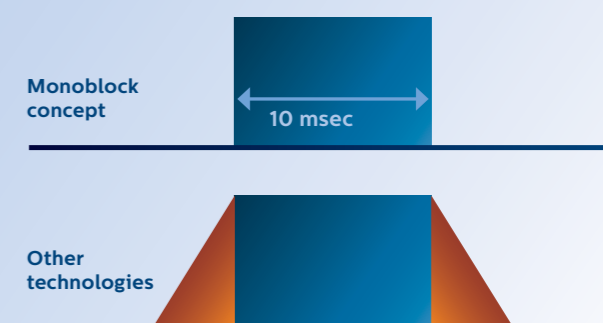
DoseAware Base Station and dose badge

1. Compared to conventional filtration of 3 millimeters aluminium as required by IEC 60601-2-43, 2010.  
2. May not be available in all countries.  
3. DoseAware is not a replacement for the thermoluminescent dosimeter (TLD) as a legal dose meter.



## Monoblock concept – decreases blurring and soft radiation

Philips Monoblock concept provides excellent image quality at low dose compared to conventional generator technologies which use high voltage cables which can cause ramping up and trailing edges. Philips Monoblock concept produces an immediate pulse rise so all radiation is in the useful spectrum. The result is excellent quality images with less soft radiation and long fluoro times.



# Increased economic value

We are committed to working with you to reduce re-admissions, streamline workflow, and increase patient volume by opening the door to new procedures and techniques. By supporting a wide range of procedures and improving workflow efficiency for challenging procedures and patients, the BV Pulsera may help you increase system utilization and reduce the total cost of ownership.

#### The versatile imaging solution

Get the economical choice with the BV Pulsera. You can perform a wide variety of procedures using one imaging solution: a full range of general surgical procedures, as well as dedicated vascular, thoracic, abdominal, pain management, and orthopedic surgery.

#### Count on us as your patients count on you

Staying on top of today's complex and ever changing healthcare environment is challenging enough. The last thing you need to be concerned with is keeping your care systems up and running smoothly.

At Philips, we work as one with your teams. We share their dedication to solve issues before they start and their drive to keep going day and night until the job is done. With us taking care of your systems you can focus on what really matters – delivering better care, to more people, at lower cost. Together we can create a healthier future.

#### Philips Remote Services

Our worldwide Remote Services is an advanced, virtual private network that links your Philips Healthcare equipment to our global Remote Services Customer Care Centers. Services that formerly required onsite visits are now available by connecting to our remote experts.

This includes system error identification, diagnosis, and troubleshooting, as well as immediate remote repair online. Equipment remains more reliable through proactive monitoring, remote diagnoses, and remote repair

- Increases uptime
- Reduces interruptions to care
- Peace of mind that equipment is operating at peak performance





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[www.philips.com/bvpulsera](http://www.philips.com/bvpulsera)  
[healthcare@philips.com](mailto:healthcare@philips.com)