



SIEMENS

Environmental Product Declaration

# Artis Q/Artis Q.zen

Product Families

[siemens.com/healthcare](https://www.siemens.com/healthcare)

# Impressive progress Ecological advantages of Artis Q and Artis Q.zen

- The new GIGALIX X-ray tube of Artis Q/ Artis Q.zen was designed around flat-emitter technology, and the X-ray pulse spectrum optimized to lower dose by up to 60 % at equal image quality.\*
- Artis Q.zen uses crystalline silicon detector technology enabling ultra-low-dose imaging with as little as 6 nGy per pulse in fluoroscopy\*\*.
- Artis Large Display stand-by mode saves up to 80 % energy when compared to operation mode.
- Full documentation of all substances used in system and system packaging.
- Plastics are labeled for recycling. Disassembly instructions for high-quality recycling are available.
- Artis Q and Artis Q.zen fulfill the EU-directive RoHS 2011/65/EU.
- Complete Artis Q/Artis Q.zen systems and their components are taken back and refurbished. More than 95 % of the material used can be returned to the flow of recyclable materials.

\* Compared to previous X-ray tube technology

\*\* Available with the Artis Q.zen



Artis Q and Artis Q.zen, our new product lines for interventional imaging.

Both systems offer unparalleled performance with a new X-ray tube entirely developed around the unique flat emitter technology.

What's more, with the Artis Q.zen we introduce the crystalline silicon detector, a groundbreaking new detector technology that results in enhanced sensitivity at ultra-low-dose levels.

In the fight against the most threatening diseases like coronary artery disease, stroke, and cancer, the Artis Q and Artis Q.zen come with innovative applications to support precise guidance during interventional procedures.

**Artis Q and Artis Q.zen – experience the future of interventional imaging.**

## Environmental Management System

Our environmental, health and safety management system conforms with ISO 14001 and helps us put our policy into practice.

You can find further information about our environmental, health and safety management system at [www.siemens.com/healthcare-ehs](http://www.siemens.com/healthcare-ehs).

## Environmental Product Design



**Material supply:**  
From natural resources to delivery of semi-finished products



**Production/delivery:**  
From production of components to operation startup by the customer



**Use/maintenance:**  
Includes daily use by our customers as well as maintenance



**End of life:**  
From disassembly at the customer site to material and energy recycling

Siemens Healthcare considers environmental aspects in all phases of the product life cycle, including material supply, production/delivery, use/maintenance and end of life.

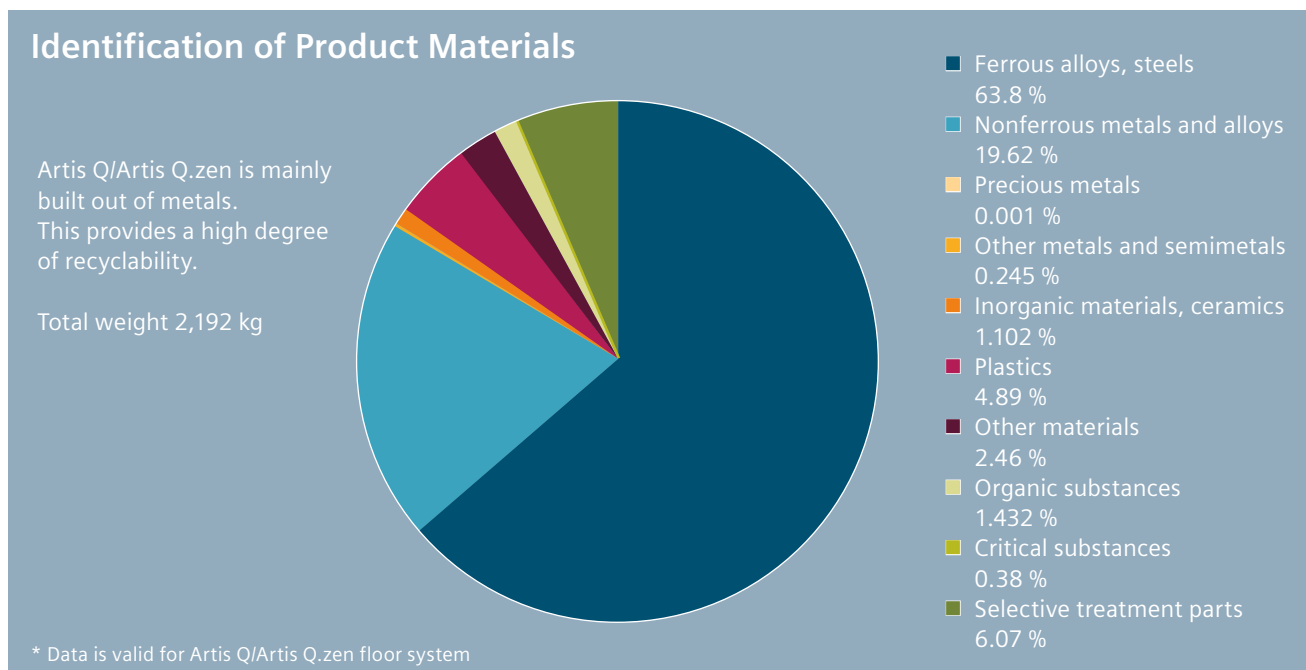
Our product design procedure fulfills the requirements of IEC 60601-1-9 "Environmental product design for medical electrical equipment".

This standard supports the effort to improve the environmental performance of our products.

## Reduction of Critical Substances

Siemens has made progress in reducing materials in our Artis Q/Artis Q.zen system which are environmentally harmful or not easily recyclable. One example is the recent elimination of beryllium (Be4) in our X-ray tube manufacture and of the softener Diethylhexylphthalat (DEHP).

Siemens has made very good progress in reducing non-recyclable materials. We are continually making improvements to reduce the environmental impact of Siemens products.



## Cumulative Energy Demand

Energy consumption is the most important environmental characteristic of medical devices. This is why we use Cumulative Energy Demand to assess environmental performance. Cumulative Energy Demand is the total primary energy\* required to produce, operate and dispose of a device – including all transportation.

Our systems can be recycled almost completely. With an appropriate end-of-life treatment it is possible to return 22 MWh in the form of secondary raw materials or thermal energy to the economic cycle.

\* Primary energy is the energy contained in natural resources prior to undergoing any man-made conversions (e.g. oil, solar).

## Packaging

Our angiography systems are shipped as “open packaging” within Europe and to the USA. This translates to more than 40 % of our total shipments.

The individual system parts are only wrapped in dust protective covers. They are then mounted into special transport frames, which will be returned for reuse. “Closed packaging” is only used for tropical countries or where it’s required by law. The wooden crates or sealed packaging can then be used for material, or to some extent, thermal recycling.

### Total Weight

Open packaging approx. 1,070 kg  
Closed packaging approx. 2,010 kg

## Product return and refurbishment

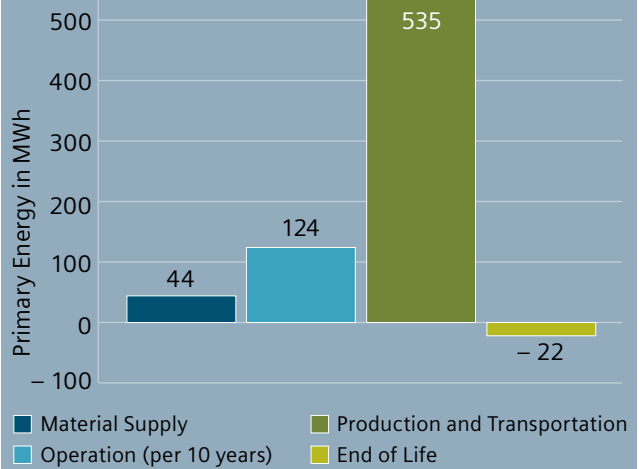
96 % of the materials used to produce an Artis Q/Artis Q.zen system are recyclable.

As part of the Siemens product disposal program, angiography systems are refurbished and components and replacement parts re-used whenever possible.

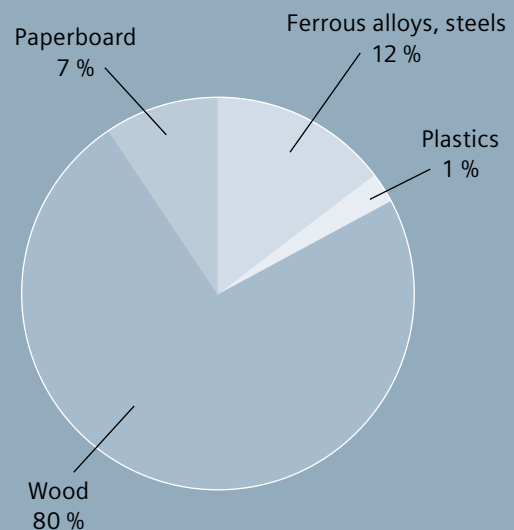
Not only are whole systems designed for refurbishment, but the components of the GIGALIX high-performance X-ray tube are designed to reuse as many parts as possible after refurbishment once the tube is returned after replacement.

To ensure proper disassembly, disposal and recycling, respective instructions are available for all our products.

Cumulative Energy Demand of Artis Q / Artis Q.zen systems



Average material composition of Artis Q / Artis Q.zen packaging



Operating Data	
Heat emissions of the device	
– typical load <sup>1</sup>	3.8 kW
– acquisition (max)	8.1 kW
<b>Allowed ambient temperature<sup>3</sup></b>	15 °C – 30 °C
<b>Allowed relative humidity</b>	20 % – 75 %
<b>Power consumption<sup>6</sup>:</b>	
– system off	1.4 kVA
– stand-by <sup>1</sup>	5 kVA
– full load <sup>2</sup>	8.1 kW
– maximum load	176 kVA
<b>Power-on time<sup>4</sup></b>	ca. 4 min.
<b>Power-off time<sup>5</sup></b>	ca. 1.5 min.
Noise level	55 dB (A) 50 Hz
	59 dB (A) 60 Hz

Technical Specifications	
Interface for heat recovery	no
Possible type of cooling	water/oil cooling
Complete switch-off is possible	no
Device is height-adjustable for the user	yes
Uniform operating symbols for device families	yes

Radiation	
Means / technologies employed to minimize ionizing radiation exposure	yes
Means / technologies employed to minimize the exposure to electromagnetic radiation	n.a.
Minimization compared to the limit value for users	yes



<sup>1</sup> Device is in operation but no patient examination is taking place  
<sup>2</sup> Average value on examination of patients (abdomen routine mode)  
<sup>3</sup> Within examination room  
<sup>4</sup> From off-mode to operating state  
<sup>5</sup> From operating state to off-mode  
<sup>6</sup> Artis Q floor system



#### Replacement Parts and Consumables

Life cycle UPS battery	up to 5 years (25 °C)
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#### Disposal / Substance Information

End of life concept	yes
Recycling information	yes
List of hazardous substances (not contained in the device)	yes

#### Cleaning\*

Incompatible cleaning processes	
– total device	no
– restrictions for particular device components	yes

#### List of incompatible substance classes

– total device	For cleaning use only water or lukewarm diluted household cleaning agent solution
– restrictions for particular device components	yes

#### Suitability of the device for sterile areas

Size of the surface to be cleaned**	approx. 5 m <sup>2</sup>
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#### Further Ecologically Relevant Information\*

Elements of instruction are:

– recommendations for saving energy	yes
– recommendations for efficient cleaning	yes
– recommendations for appropriate use of consumables	yes

\* More detailed information available in the user manual

\*\* C-arm and stand, patient table, control console, monitor suspension

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Some/All of the features and products described herein may not be available in the United States or other countries.

The information in this document contains general technical descriptions of specifications and options as well as standard and optional features that do not always have to be present in individual cases.

Siemens reserves the right to modify the design, packaging, specifications and options described herein without prior notice.

Please contact your local Siemens sales representative for the most current information.

In the interest of complying with legal requirements concerning the environmental compatibility of our products (protection of natural resources and waste conservation), we recycle certain components. Using the same extensive quality assurance measures as for factory-new components, we guarantee the quality of these recycled components.

Note: Any technical data contained in this document may vary within defined tolerances. Original images always lose a certain amount of detail when reproduced.

Caution: Federal law restricts this device to sale by or on the order of a physician.

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