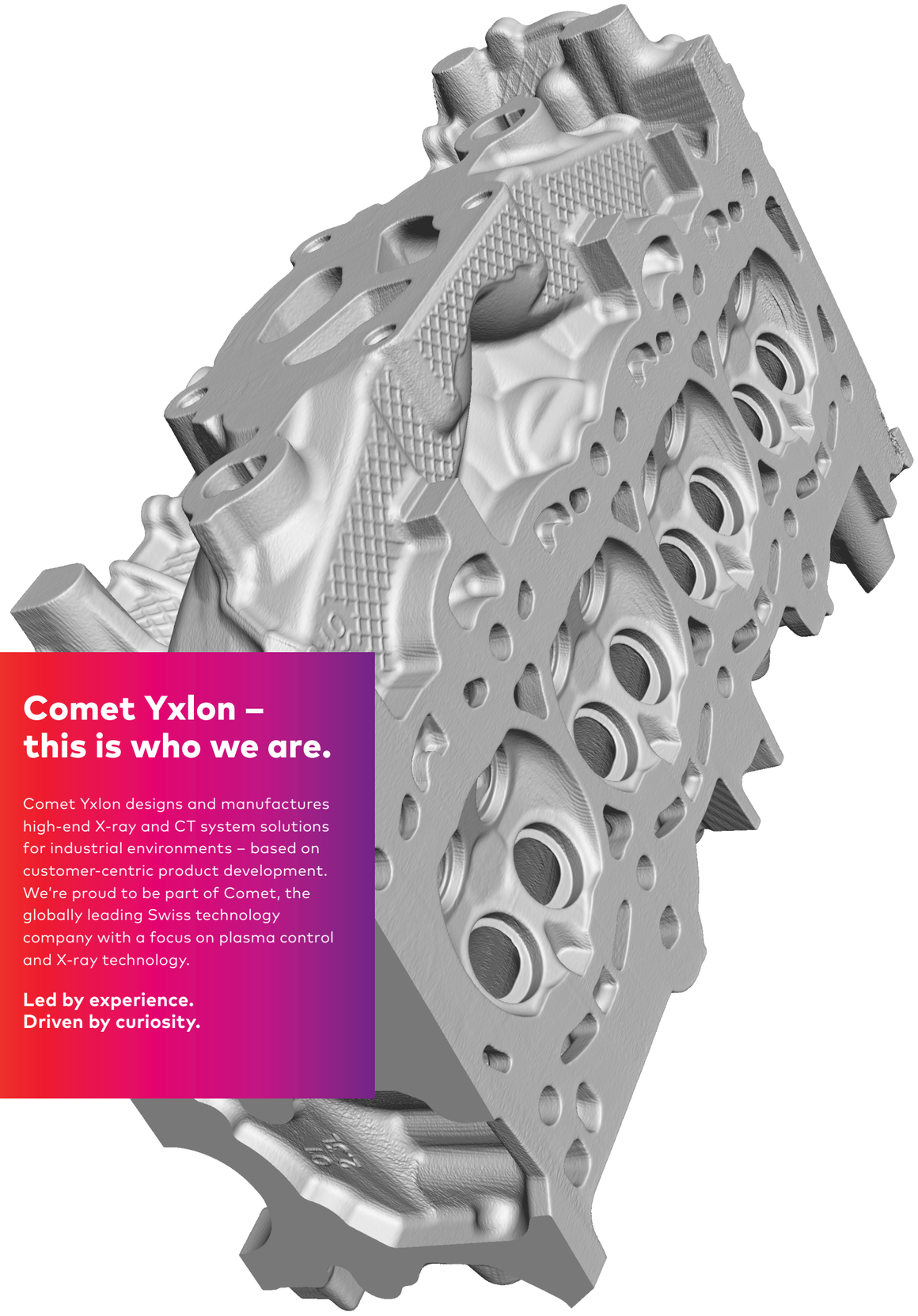
Led by experience. Driven by curiosity.

FF85 CT

High resolution and ultimate inspection versatility for science & research.

comet
yxlon



Deeper insights.

Looking beyond the surface is our core competency at Comet Yxlon – but not only in a technical way.

Zooming in on your industry, applications and business challenges allows us to develop innovative and relevant solutions that help you shape future markets. Faster time to market? Avoiding production downtimes? The perfect image with the highest resolution, as fast and easy as possible? Whatever your goal – let's talk about it!

Comet Yxlon – this is who we are.

Comet Yxlon designs and manufactures high-end X-ray and CT system solutions for industrial environments – based on customer-centric product development. We're proud to be part of Comet, the globally leading Swiss technology company with a focus on plasma control and X-ray technology.

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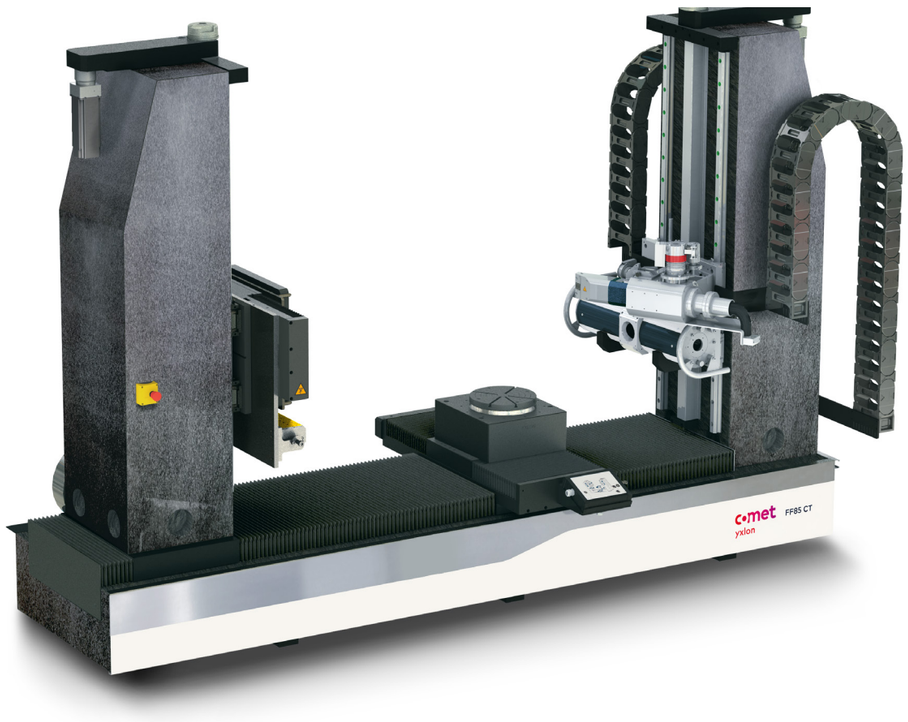
You can switch between the different tubes in one CT sequence.

Your benefits with the FF85 CT:

- Extensive range of applications due to dual-tube configuration, flat-panel and line detector
- Large inspection envelope: FOV extensions, multiple trajectories
- Precise manipulation and temperature stability
- Maximum versatility through up to 7 manipulation axes
- Intuitive Geminy user interface

As versatile as your applications.

A new level of flexibility: Thanks to its dual-tube configuration and the choice of two detectors, the high-energy, high-resolution FF85 CT covers a wide variety of applications.



Small parts, large parts, dense materials – with its possible combination of two X-ray tubes, a spacious flat-panel detector and/or the CTScan 3 line detector, the FF85 CT is up for almost everything. Seamless switches between 2D radioscopy, 3D cone-beam, and fan-beam CT provide outstanding flexibility and allow for individual inspection processes.

You choose: micro-focus or mini-focus

While the mini-focus tube, with its high energy of up to 600 kV, is the right solution for large and dense parts, the directional micro-focus tube (up to 300 kV) provides detailed insights into the inner structures of small components.

Flat-panel detector, line detector – or both?

The optional equipment with a large flat-panel detector optimized for high energies and the Comet Yxlon CTScan 3 line detector for challenging applications enables an above-average range of use for the FF85 CT. With its unprecedented signal-to-noise ratio and a pixel pitch of 254 µm, the CTScan 3 is the no-alternative solution for the crystal-clear inspection of large and/or dense components. It is designed for up to 600 kV operation reducing unwanted scatter radiation, providing low-noise electronics and highly efficient scintillators.

The granite-based manipulator

Another building block that contributes to the premium performance of FF85 CT is the rock-solid granite-based manipulator with seven axes. It guarantees temperature stability and smallest thermal expansion for maximum precision and accuracy.

Which items can be inspected with the FF35 CT?

- Aluminum, steel and super alloy components
- Additively manufactured parts
- Battery cells, modules and systems
- Fiber-reinforced composites
- Plastic injection molded parts
- Cultural assets, historical art and archeological objects
- Geological, paleontological and biological samples
- Mechatronic modules

Which applications is it designed for?

- Material and structural analysis in research & development
- First article inspection
- Dimensional measurement
- Small series inspection
- Failure analysis
- Assembly checks
- Digitization
- Segmentation

Easy operation. Ultimate flexibility.

Our Geminy software helps users perform inspections as easily as possible – and boasts some highly potent CT techniques for maximum image quality and diverse field-of-view extensions.

As the single user interface for all workflows, Geminy uses automation, wizards and presets to guide users of different skill levels smoothly through the inspection process. In addition, its powerful CT techniques facilitate the optimum part size spectrum, speed, and image quality.

Geminy's Healthmonitor shows the current system condition.

Circular and helical scan trajectories

- QuickScan® – continuous rotation image acquisition
- QualityScan – start-stop image acquisition, also for ring-artifact reduction
- HeliExtend – to avoid cone-beam artifacts
- HeliExtend Dual – combined offset and helical CT scan for very large parts

Your ROI is our center

No matter where your region of interest (ROI) is, you can easily keep your part lined up with FlexCenter, our virtual rotation axis.

Scan extensions

- 1.8 times horizontal field-of-view extension
- Vertical field-of-view extension
- Combination of horizontal and vertical field-of-view extensions

Image quality optimizations.

ScatterFix 2.0

The innovative ScatterFix 2.0 functionality developed by Comet Yxlon reduces scatter radiation to improve the quality of the CT data, e.g. for optimized surface determination.

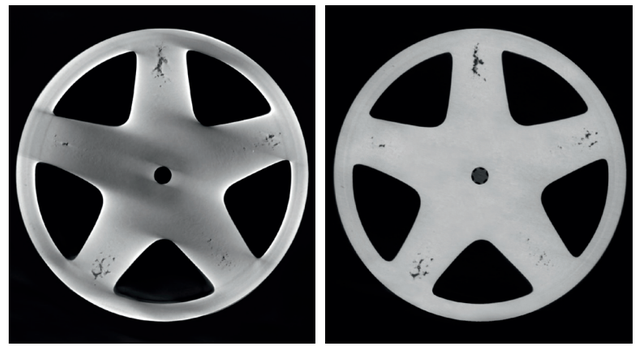
Beam hardening correction (BHC)

It allows the correction of unwanted gray-value gradients in otherwise homogeneous materials, e.g. in order to reliably carry out a pore analysis.

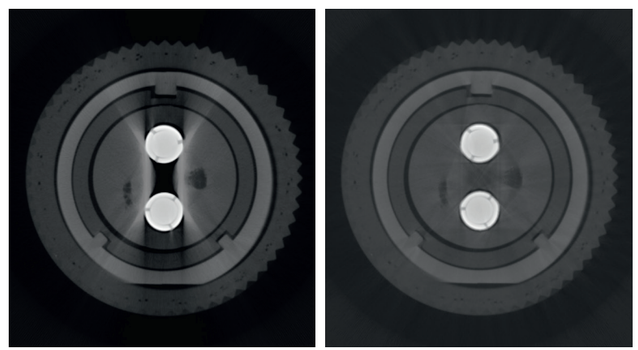
Metal artifact reduction (MAR)

With complex components consisting of plastics and metals, MAR significantly reduces the interfering effects causing the less dense material to 'disappear'.

Improving image quality: Cone-beam CT without (left) and with ScatterFix 2.0 (right).

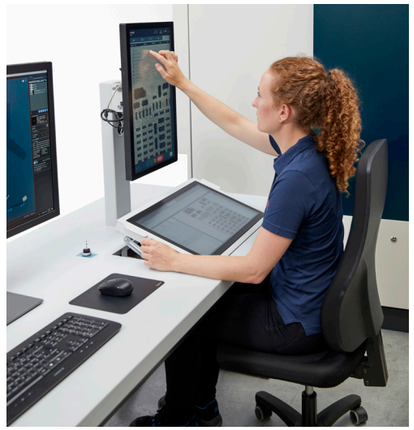


Eliminating unwanted gray-value gradients: Cone-beam CT without (left) and with Beam Hardening Correction (right).

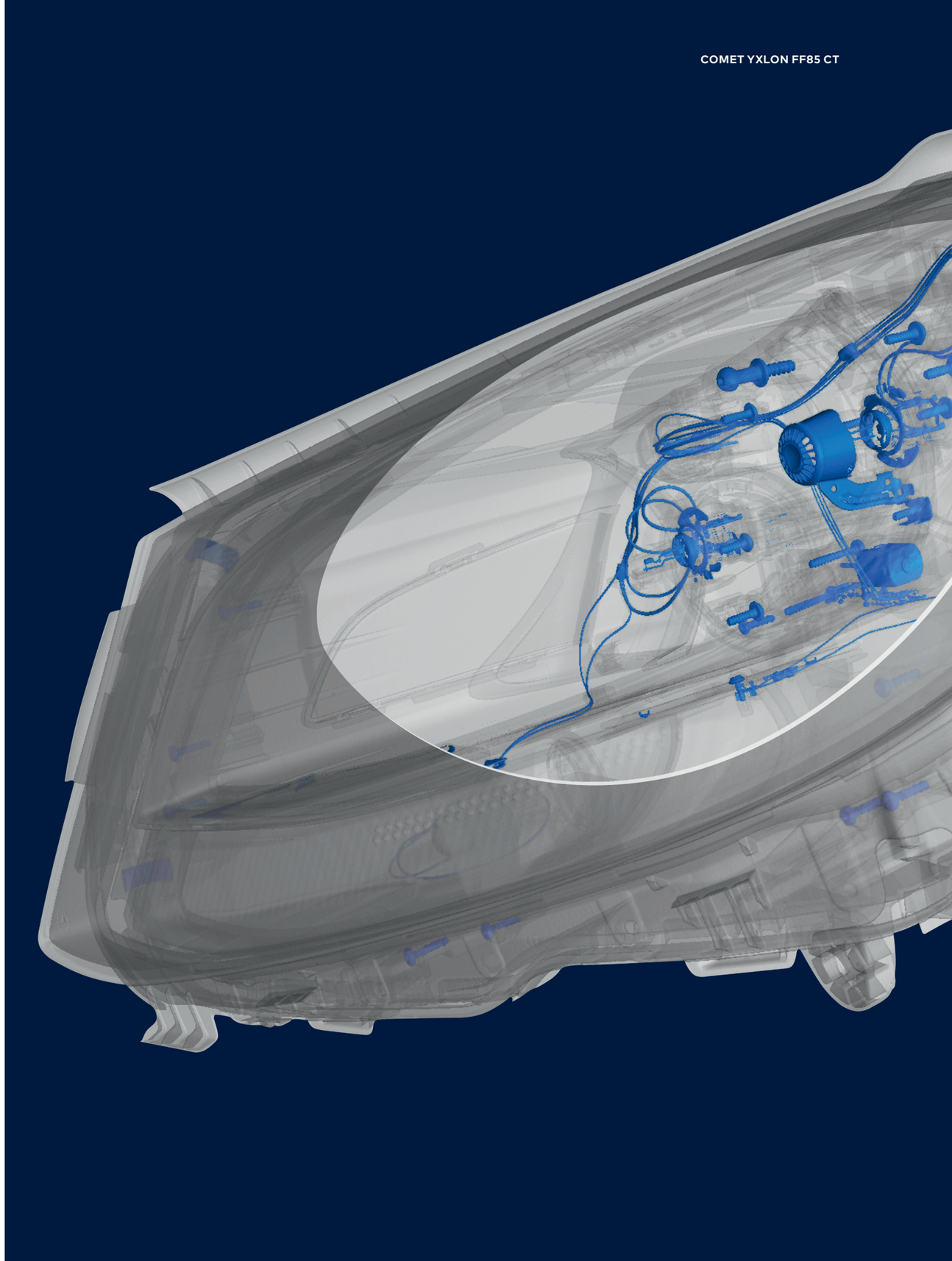


Reducing interferences: Cone-beam CT without (left) and with Metal Artifact Reduction (right).

Ergonomic.
Intuitive.
Accessible.



In the FF85 CT, software and hardware work hand in hand to make system operation as easy as possible. The clean layout of the operator desk with tiltable touchscreens allows users to stay focused on the inspection task. The height of the desk can be adjusted, facilitating operation from a sitting or standing position. Healthmonitor and push messages keep the user informed about system status and inspection progress at all times.



Service Engine 4.0: taking customer care to the next level.

First-class technical problem solving combined with high economic efficiency – that's what we call Service Engine 4.0. It drives our service, processes and partners to detect and correct failures quickly and reliably by remote access and during on-site visits. Feel free to contact our service centers and partners world-wide by phone, e-mail or via our website.

Your benefits with Service Engine 4.0

- Guaranteed operational safety
- Maximized system availability
- Minimized repair times
- Full cost control of life-cycle costs
- Extended product lifetime
- Maintaining the measuring capability of metrology systems [FF20/35 CT Metrology]

Our module-based approach with performance and feature upgrades enables you to adapt to future requirements and safeguard your initial investment by extending the product lifetime. Service Engine 4.0 does not only provide fast support now, but is predictive of your future needs.

The Comet Yxlon Lifecycle Services

Academy – full performance from day one through tailored training solutions

SmartExchange – direct replacement of defective or worn-out components to minimize unscheduled system downtime

SpareParts – 100% compatibility and safety through Comet Yxlon qualified spare parts

WarrantyPass – full cost control through our customizable warranty extension program

ServicePass – predictive maintenance and servicing, tailored to your requirements

SmartPass – maximum system uptime for customers with particularly high demands

LifeCyclePass – all-inclusive concept for full cost control over the entire product lifetime

Support – fully digitalized 1st-line support organized in a worldwide expert network, available remote or on-site

Upgrades – performance increase and new features for your Comet Yxlon system portfolio

X-ray source

	Micro-focus 225 kV	Micro-focus 300 kV	Mini-focus 450 kV	Mini-focus 600 kV
X-ray tube type	Open, unipolar		Sealed, bipolar, metal-ceramic	
Max. energy	225 kV	300 kV	450 kV	600 kV
Max. power	320 W	350 W	700 W / 1500 W	
Target type	Reflection target		Reflection target	
Detail visibility | focal spots	≥ 4 µm[1)]		0.4 mm / 1.0 mm	0.7 mm / 2.0 mm

Detector

	Flat-panel detector		Line detector	
	4343HE	4343N	CTScan 3-620	CTScan 3-780
Scintillator	Gadox	Gadox, CsI	CdWO4	
Max. energy	16,000 kV	450 kV	600 kV	
Active area	427 x 427 mm	432 x 432 mm	620 mm	780 mm
Pixel pitch	139 µm	150 µm	254 µm	
Pixel matrix	3,072 x 3,072	2,880 x 2,880	2,432	3,072
Max. frame rate	25 fps (3x3 binning)	60 fps (4x4 binning)	100 fps	
Dynamic range	16 bit	16 bit	16 bit	

Manipulator

Configurations	Micro-focus – Flat-panel detector	Mini-focus – Flat-panel detector	Mini-focus – Line detector array
Max. FDD (Focus-Detector-Distance)[2)]	2,000 mm or larger on request		
Max. magnification[2)]	300	10	10
Max. part size (Ø x h)[2)]	1,000 mm (collision protected) x 2,000 mm or larger on request		
Max. part weight	400 kg		
Manipulator dimensions (l x w x h)[2)]	3,600 l x 1,450 x 2,550 mm (or more for larger manipulators)		
Manipulator weight[2)]	9,000 kg (or more for larger manipulators)		

CT parameter

Circular scan trajectories	Continuous rotation "QuickScan", start/stop scan "QualityScan"		
Helical scan trajectories	Standard helical CT "HeliExtend", dual helical CT "HeliExtend Dual"[3)]		
Further trajectories	Horizontal and/or vertical scan-field extension, virtual rotation axis "FlexCenter"[3)]		
Configurations	Micro-focus – Flat-panel detector	Mini-focus – Flat-panel detector	Mini-focus – Line detector [4)]
CT field of view (circular, Ø x h)[5)]	355 x 305 mm	365 x 325 mm	605 x 990 mm[2)]
CT field of view (vertical & horizontal scan-field extension, Ø x h)[5)]	680 x 1,300 mm[2)]	710 x 1,085 mm[2)]	980 x 990 mm[2)]

Enclosure data

Max. shielded energy	450 kV	600 kV
Enclosure dimensions (l x w x h)[2,5)]	5,150 x 2,650 x 2,880 mm	
Enclosure weight[2,5)]	31,000 kg	52,000 kg
Loading door size (w x h)[2,5)]	1,000 x 2,200 mm	
Internal crane	Optional, max. load 250 kg	

Operator desk

Width x depth	~ 1,800 mm x ~ 800 mm
Height	~ 700 mm – ~ 1,200 mm, motorized
Weight	~ 175 kg
Monitor	2 pcs, capactive touchscreen, 1,920 x 1,080 pixel, 21", as well as separate reconstruction and evaluation station with 30" monitor

[1)] With JIMA resolution test pattern for 2D at minimal focal spot size [2)] approximate values [3)] all available in "QuickScan" and "QualityScan" mode [4)] Line detector array CTScan 3-780 [5)] larger values for larger manipulators

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