
Find out how these technical specifications revolutionize your cardiac imaging.

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**CT Cardiology Benefits – SOMATOM Definition Flash**

**www.siemens.com/somatom-definition-flash**

# Multiply Your Potential in CT Cardiology

## Generation Flash

**Answers for life.**

### Unique Innovations

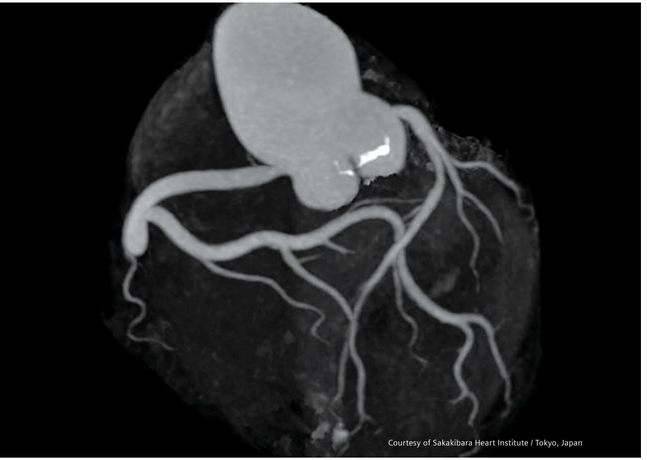
Heart-rate indepenent temporal resolution of 75 ms
Tube power: 30 MHU, 7.3 MHU/min
Focal spot size: Small: 0.7 x 0.7 mm / Large: 0.9 x 1.1 mm
Generator power: 200 kW
kV settings: 70/80/100/120/140 kV
3D voxel size: 0.24 mm / 0.33 mm
Bore size: 78 cm
Max. table load: Up to 307 kg / 676 lbs
Reconstruction performance:
Up to 50 ips (1 oncology staging exam with 1000 images in up to 20 sec.)
SAFIRE*
Dual Energy
Adaptive Dose Shield for any spiral CT examination
X-CARE
Pediatric CT protocols
Adaptive ECG-Pulsing including MinDose
Selective Photon Shield
Flash Spiral with 458 mm/s scan speed
1 kW Scan room heat dissipation
Tube Guard
Siemens Remote Services
FAST Planning
FAST Cardio Wizard
FAST Scan Assistant
FAST Adjust
CARE kV
CARE Child
CARE Configurator
CARE Contrast III
CARE Profile
CARE Dashboard

*The information about this product is being provided for planning purposes. The product is pending 510(k) review, and is not yet commercially available in the U.S.

The SOMATOM Definition Flash, Siemens' latest high-end scanner, was especially designed to make CT exams much healthier for your patients.

Its core innovation – the revolutionary Flash Spiral – can be summarized in four words: Flash speed. Lowest dose.

# Sub-mSv Heart



Courtesy of Sakakibara Heart Institute / Tokyo, Japan

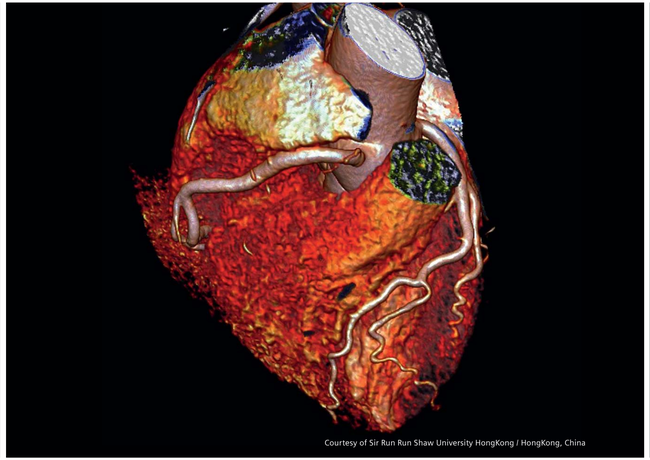
Discussions regarding dose in cardiac scanning have changed because dose values below 1 mSv are so frequent that sub-mSv heart can be considered routine for Siemens SOMATOM® Definition Flash owners. Even under unfavorable conditions, the patient exposure with the SOMATOM Definition Flash is less than usual for diagnostic cardiac cath.

*"[…] prospectively ECG-triggered high-pitch spiral coronary CTA [CT Angiography] provides excellent image quality at a consistent dose below 1.0 mSv."*

Achenbach S et al. Coronary computed tomography angiography with a consistent dose below 1 mSv using prospectively electrocardiogram-triggered high-pitch spiral acquisition. Eur Heart J. 2010 Feb;31(3):340-6.

collimation: 128 x 0.6 mm
spatial resolution: 0.33 mm
temp resolution: 75 ms
scan time: 0.29 s
scan length: 130 mm
rotation time: 0.28 s
100/100 kV, 370 mAs/rotation
eff. dose: 0.97 mSv

# All Heart Rates



Courtesy of Sir Run Run Shaw University HongKong / HongKong, China

The SOMATOM Definition Flash's rotation speed of 0.28 s, together with the two X-ray tubes and detectors, allow for an unmatched temporal resolution of down to 75 ms. It reliably freezes cardiac motion so that even patients with high and irregular heart rates above 80 bpm can now get a reliable diagnosis.

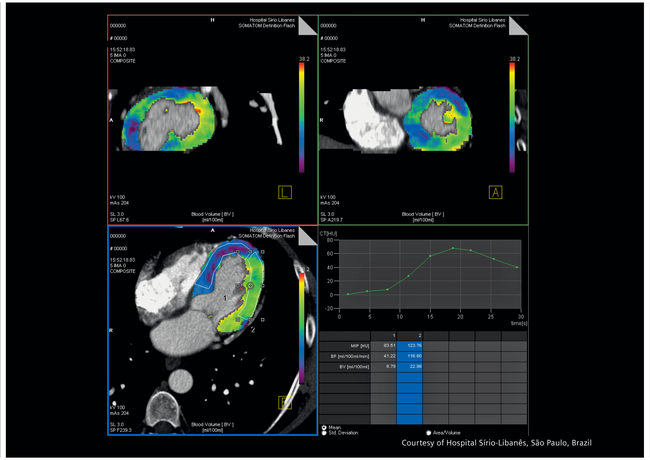
*"High-pitch protocols lead to […] optimal contrast enhancement in patients with heart rates below 65 bpm. In patients with higher heart rates […] or in case of irregular heart rates, prospectively triggered or retrospectively gated protocols will still be the methods of choice."*

Sommer WH et al. Feasibility and radiation dose of high-pitch acquisition protocols in patients undergoing dual-source cardiac CT. AJR Am J Roentgenol. 2010 Dec;195(6):1306-12.

collimation: 128 x 0.6 mm
spatial resolution: 0.33 mm
temp resolution: 75 msec
scan time: 4 s
scan length: 96 mm
rotation time: 0.28 s
100/100 kV, 265 mAs/rotation
CTDIvol: 26.9 mGy
DLP: 258 mGycm
eff. dose: 3.6 mSv

no beta blocker administration
heartrate: 57 - 153 bpm
average heartrate: 90 bpm

# Myocardial Perfusion




Courtesy of Hospital Sírio-Libanês, São Paulo, Brazil

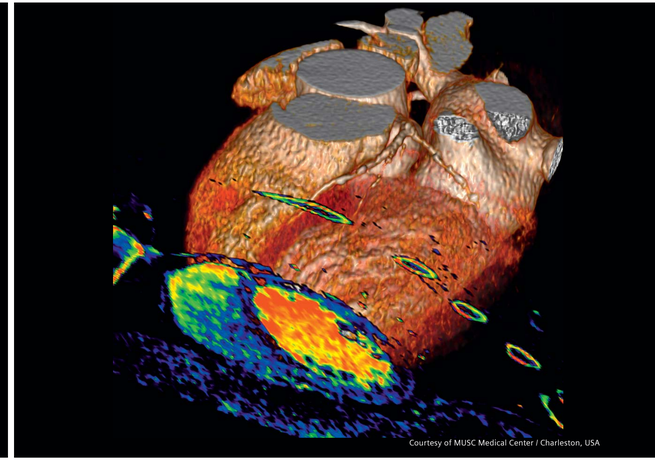
The SOMATOM Definition Flash has everything necessary in cardiac CT imaging and much more. With access to dynamic myocardial stress perfusion imaging, hemodynamic relevance of the stenosis can be evaluated by using *syngo* VPCT myocardium.

*"The ability to obtain accurate perfusion information, in addition to morphologic information from CT coronary angiography imaging, has significant implications […]."*

Ho KT et al. Stress and rest dynamic myocardial perfusion imaging by evaluation of complete time-attenuation curves with dual-source CT. JACC Cardiovasc Imaging. 2010 Aug;3(8):811-20.

collimation: 128 x 0.6 mm
spatial resolution: 0.33 mm
scan time: 31 s
scan length: 66 mm
rotation time: 0.35 s
100/100 kV, 176 mAs/rotation
DLP: 604 mGycm
CTDIvol: 90,17 mGy
eff. dose: 8.5mSv

# Dose-neutral Dual Energy



Courtesy of MUSC Medical Center / Charleston, USA

With Siemens' unique Dual Source based Dual Energy (DE), it is now possible to accurately quantify iodine content to visualize organ perfusion. The *syngo* DE Heart PBV software color codes myocardial perfusion, so that both coronary artery morphology and myocardial perfusion can be assessed in a single CT scan.

*"Our study results indicate that cardiac DECT [Dual Energy CT] imaging has a high sensitivity […] and a good specificity […] for the qualitative assessment of myocardial perfusion."*

Meyer M et al. Cost-effectiveness of substituting dual-energy CT for SPECT in the assessment of myocardial perfusion for the workup of coronary artery disease. Eur J Radiol. 2011 Jan 27. [Epub ahead of print]

collimation: 64 x 0.6 mm
spatial resolution: 0.33 mm
scan time: 9 s
scan length: 142 mm
rotation time: 0.28 s
100/Sn140 kV, 165/140 mAs/rotation
heart rate: 103 bpm
DLP: 339.38 mGycm
CTDIvol: 23.9 mGy
eff. dose: 4.75 mSv