



ZEISS VoluMax

Specifications

Version: November 2019



System description

Operating mode	VAST scan mode; measure in the image
Measurement principle	Analysis of the attenuation of X-ray radiation when penetrating parts depending on the material density and geometry
Sensor design	Semiconductor surface detector
Beam generation	Micro-focus tube, vario-focus tube, dual-focus tube
Software	ZEISS CT user and analysis software; accessory: ZEISS quality software for the Smart Factory
Applications	High speed tomography for light-metal or plastic parts; capture and reconstruction of a 3D volume data set in 10 to 120 seconds (depending on the application)

Beam generation

ZEISS system beam spacing			VoluMax 400	VoluMax 800			VoluMax F1500
X-Ray tube	Max. tube voltage	in kV	130	130	225	225	225
	Max. tube current	in μ A	300	300	3900	8000	8000
	Max. target performance	in W	39	39	1600	800 or 1800	800 or 1800
	Min. focal spot size	in mm	0.005	0.005	0.25	0.4 or 1.0	0.4 or 1.0
Beam generation			Micro-focus	Micro-focus	Vario-focus	Dual-focus	Dual-focus

Sensors

The values correspond to the maximum resolution. The precise values depend on the specific application.

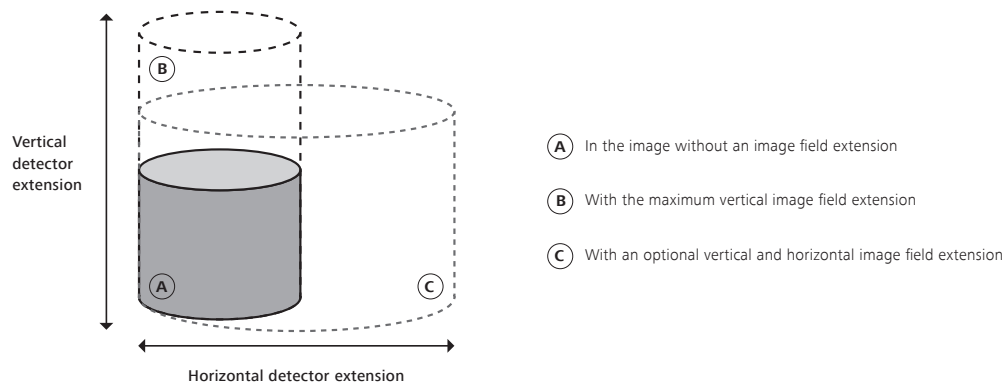
ZEISS system beam spacing			VoluMax 400	VoluMax 800			VoluMax F1500
Surface detector	No. of pixels:		1536 x 1920	1536 x 1920	1024 x 1024	1024 x 1024	2048 x 2048
	Pixel size	in μ m	127 x 127	127 x 127	200 x 200	200 x 200	200 x 200

Maximum 3D resolution ¹⁾

			VoluMax 400	VoluMax 800			VoluMax F1500	
			in μ m	25	3.5	150	150	400

Measuring range (all values are maximum values in mm)

ZEISS system beam spacing			VoluMax 400	VoluMax 800			VoluMax F1500
A) In the image without image field extension	Max. diameter	in mm	130 - 160	150 - 170	170		305
	Max. height	in mm	95 - 135	170 - 115	150		260
B) With maximum vertical image field extension	Max. diameter	in mm	130 - 160	150 - 170	170		305
	Max. height	in mm	365 - 410	360 - 405	420		860
C) With optional vertical and horizontal image field extension	Max. diameter	in mm	220 - 260	275 - 300	310		570
	Max. height	in mm	320 - 360	360 - 390	390		780



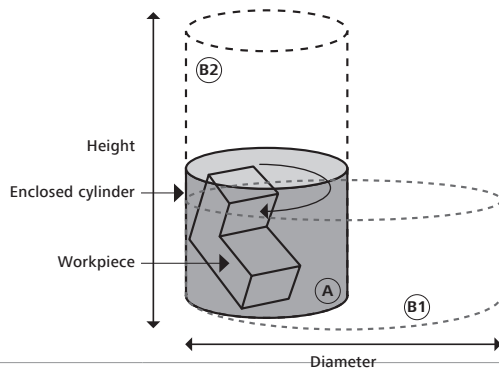
Travel path

ZEISS system beam spacing			VoluMax 400	VoluMax 800			VoluMax F1500
X axis	in mm		270	480			690
Y axis	in mm		270	270			300
Z axis	in mm		270	270			600

1) Structure width at 10% contrast transmission in accordance with ISO 15708

Workpiece size ¹⁾

ZEISS system beam spacing			VoluMax 400	VoluMax 800	VoluMax F1500
Max. workpiece weight		in kg	5	5	50
A) Max. workpiece size (without limiting travel paths)	Diameter	in mm	155	155	430
	Height	in mm	430	430	800
Max. fittable workpieces sizes with restricted travel and measurement possibilities					
B1) Optimized for max. diameter	Diameter	in mm	340	580	750
	Height	in mm	460	380	850
B2) Optimized for max. height	Diameter	in mm	155	155	520
	Height	in mm	890	890	1200



- Ⓐ Max. workpiece size (without limiting travel paths)
- Ⓑ1 Max. fittable workpieces size optimized for maximum diameter (with restricted travel and measurement possibilities)
- Ⓑ2 Max. fittable workpieces size optimized for maximum height (with restricted travel and measurement possibilities)


Technical features

Positioning system	ZEISS VoluMax high-speed CT systems can be equipped with manual or automatic loading.
Length measuring system	Electro-optical reflected light system resolution 0.2 µm on ZEISS VoluMax 400 and ZEISS VoluMax 800 Electro-optical reflected light system resolution 0.1 µm on ZEISS VoluMax F1500
Protective enclosure	All ZEISS VoluMax systems meet the requirements stipulated in Appendix 2, item 3 of the German X-ray ordinance (RöV). Thus they meet the requirements for a fully protected device.

Requirements for operational readiness

ZEISS system beam spacing	VoluMax 400	VoluMax 800	VoluMax F1500
Relative humidity	40% - 80%	40% - 80%	40% - 80%
Ambient temperature	15°C - 35°C	15°C - 35°C	15°C - 35°C
Power rating	Control cabinet: 3/N/PE/400/230 V ~ (±10%), 50-60 Hz, power consumption: max. 15 k VA Data station: 1/N/PE/230~ (±10%) or local current, 50-60 Hz, power consumption: max. 2000 VA		
Typical power consumption	1 kW	3,5 - 7 kW	3,5 - 7 kW
	3,5-7 kW depending on beam generation, computer configuration and air conditioner for the controller cabinet.		

Approvals

Regulations	The ZEISS VoluMax 400, ZEISS VoluMax 800 and ZEISS VoluMax F1500 comply with EC Machinery Directive 2006/42/EC and EMC Directive 2014/30/EU, IEC/EN 61010-2-091, CFR 1020.40.
	

Disposal	ZEISS products and packaging returned to us are disposed of in accordance with applicable legal provisions.
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Certification/accreditation

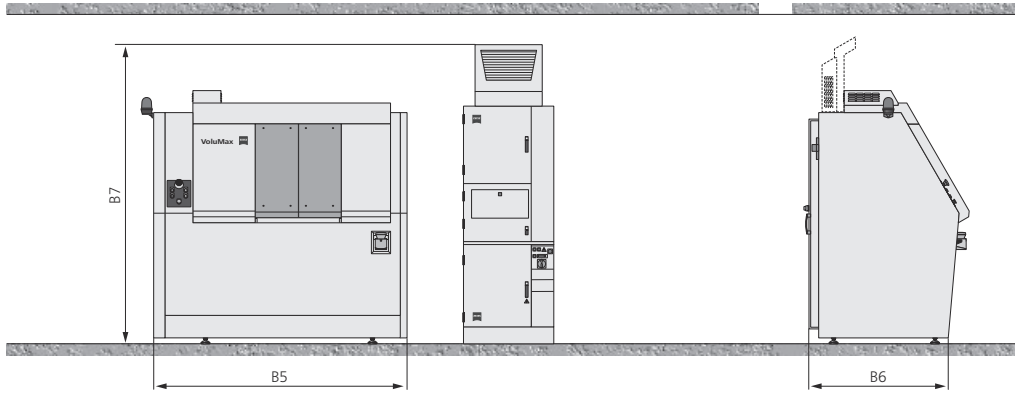
Quality management system	ISO 9001:2015; VDA 6, parts 4, 3. Version 2017
Environmental management system	ISO 14001:2015
Occupational health & safety management systems	BS OHSAS 18001:2007
Accredited	ISO/IEC 17025:2005

1) Structure width at 10% contrast transmission in accordance with ISO 15708

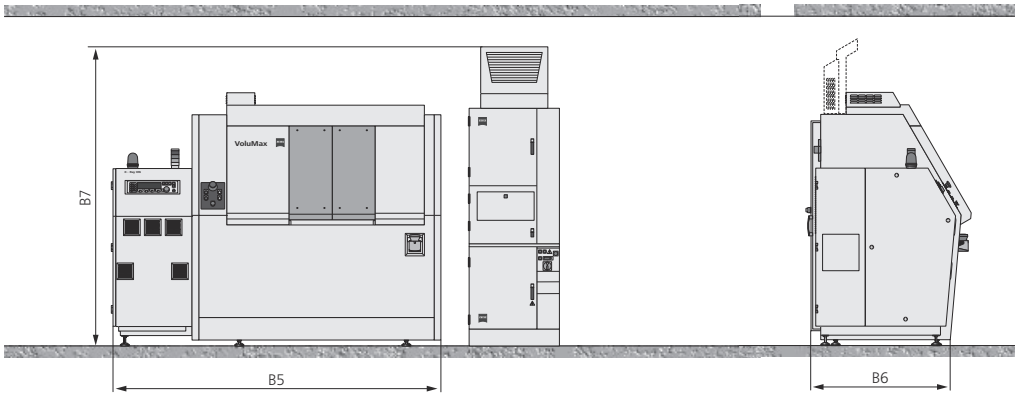
ZEISS VoluMax Machine sizes	Dimensions in mm			Weight in kg
	Overall machine dimensions (without a computer cabinet)			
	Width	Length	Height	
	B6	B5	B7	
VoluMax 400	1420	2245	2243	3700
VoluMax 800	1420	2905	2243	4100
VoluMax F1500	1920	4156	2680	8200 ¹⁾

1) Without a controller cabinet

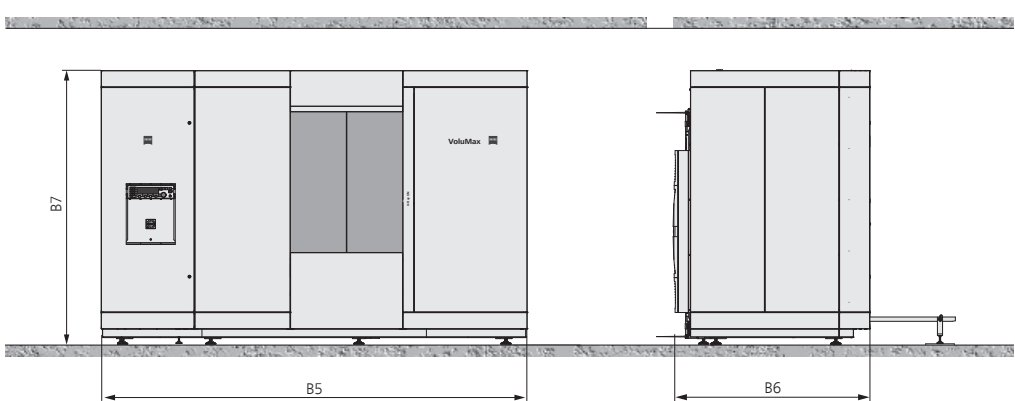
VoluMax 400



VoluMax 800



VoluMax F1500



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