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NEW IN THE WEB

Everything You Always Wanted to Know About Cone Beam Computed Tomography: 3D-Roentgen.ch

C. Ozdoba

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Cone Beam Computed Tomography (CBCT; in German "Digitale Volumentomographie"; digital volume tomography) has become a standard tool in ear, nose, and throat (ENT) [1], maxillofacial [2], and dental X-ray in recent years [3]. Although its merits and potential are sometimes overestimated [4, 5], radiology departments increasingly add such a device to their equipment pool to satisfy their clientele's demands.

The website that I present in this issue is based in Switzerland; the text is in German only (Fig. 1), but the tabular overviews should be understandable for the English speaking readers as well.

The site is run by a company that specializes in IT tools and equipment for dental surgery; the information is an independent collection of information gathered from the various manufacturers.

"3D-Roentgen" lists technical data (Fig. 2) for all CBCT machines currently available in Switzerland. Furthermore, the data sheets/brochures for all these systems are available by direct links to the manufacturers' websites.

I was positively astonished to see that, although the site is maintained by a commercial company, it is completely free of any advertising. "3D-Roentgen" provides the data but does neither display banners or any other kind of advertising nor does it give recommendations for specific devices.

Therefore, I can recommend this site as a good overview if you are interested in getting a CBCT machine for your practice or clinical department.

All screenshots are from www.3d-roentgen.ch (taken in June 2013).

C. Ozdoba (✉)
Bern, Switzerland
e-mail: christoph.ozdoba@insel.ch

References

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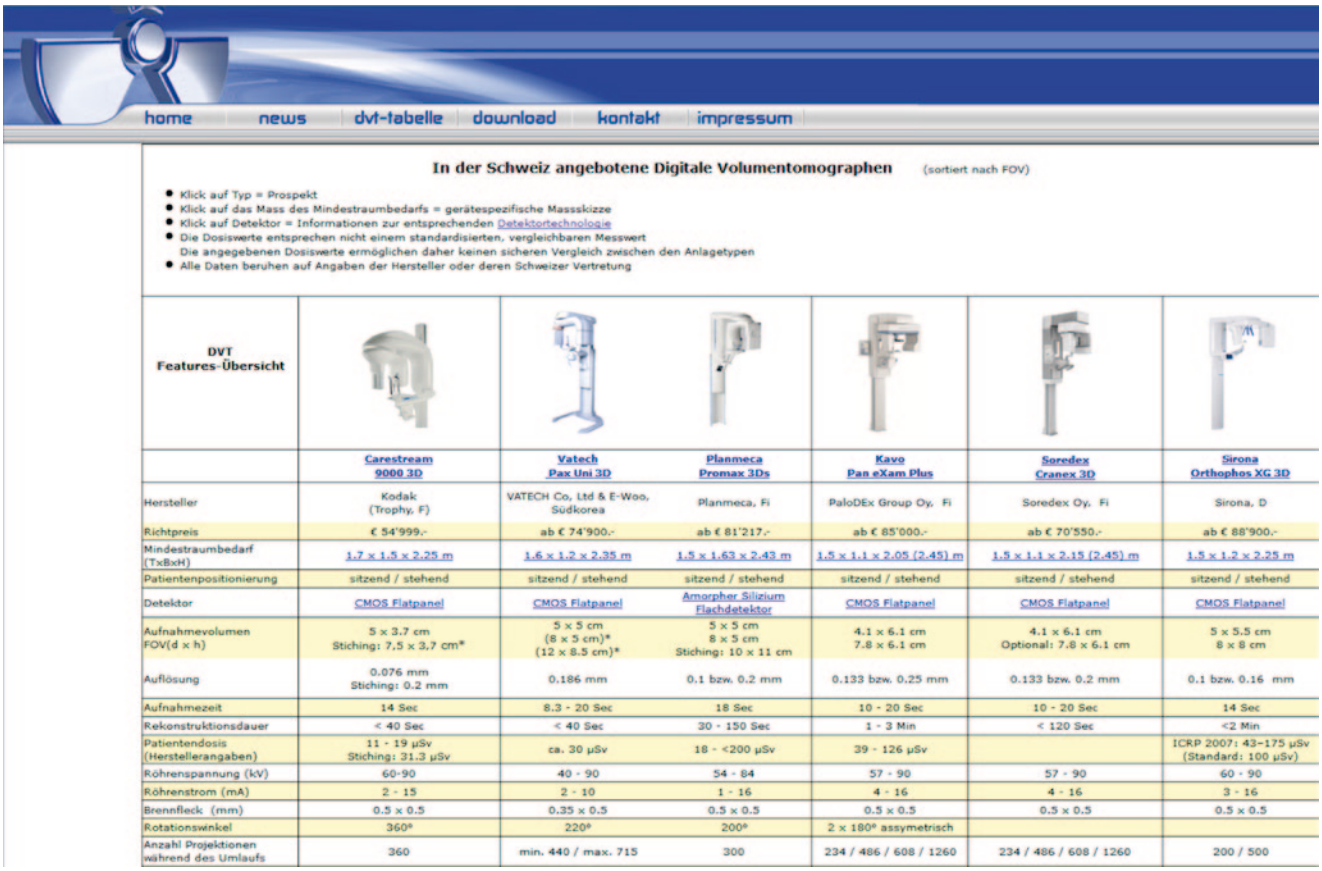
Fig. 1 Digital volume tomography website



In der Schweiz angebotene Digitale Volumentomographen (sortiert nach FOV)

- Klick auf Typ = Prospekt
- Klick auf das Mass des Mindestraumbedarfs = gerätespezifische Massskizze
- Klick auf Detektor = Informationen zur entsprechenden Detektortechnologie
- Die Dosiswerte entsprechen nicht einem standardisierten, vergleichbaren Messwert
  Die angegebenen Dosiswerte ermöglichen daher keinen sicheren Vergleich zwischen den Anlagetypen
- Alle Daten beruhen auf Angaben der Hersteller oder deren Schweizer Vertretung

DVT Features-Übersicht	Carestream 9000 3D	Vatech Pax Uni 3D	Planmeca Promax 3Ds	Kavo Pan eXam Plus	Soredex Cranex 3D	Sirona Orthophos XG 3D
Hersteller	Kodak (Trophy, F)	VATECH Co, Ltd & E-Woo, Südkorea	Planmeca, Fi	PaloDEx Group Oy, Fi	Soredex Oy, Fi	Sirona, D
Richtpreis	€ 54'999.-	ab € 74'900.-	ab € 81'217.-	ab € 85'000.-	ab € 70'550.-	ab € 88'900.-
Mindestraumbedarf (TxBxH)	1.7 x 1.5 x 2.25 m	1.6 x 1.2 x 2.35 m	1.5 x 1.63 x 2.43 m	1.5 x 1.1 x 2.05 (2.45) m	1.5 x 1.1 x 2.15 (2.45) m	1.5 x 1.2 x 2.25 m
Patientenpositionierung	sitzend / stehend	sitzend / stehend	sitzend / stehend	sitzend / stehend	sitzend / stehend	sitzend / stehend
Detektor	CMOS Flatpanel	CMOS Flatpanel	Amorpher Silizium Flachdetektor	CMOS Flatpanel	CMOS Flatpanel	CMOS Flatpanel
Aufnahmevolumen FOV(d x h)	5 x 3.7 cm Stiching: 7.5 x 3.7 cm*	5 x 5 cm (8 x 5 cm)* (12 x 8.5 cm)*	5 x 5 cm 8 x 5 cm Stiching: 10 x 11 cm	4.1 x 6.1 cm 7.8 x 6.1 cm	4.1 x 6.1 cm Optional: 7.8 x 6.1 cm	5 x 5.5 cm 8 x 8 cm
Auflösung	0.076 mm Stiching: 0.2 mm	0.186 mm	0.1 bzw. 0.2 mm	0.133 bzw. 0.25 mm	0.133 bzw. 0.2 mm	0.1 bzw. 0.16 mm
Aufnahmezeit	14 Sec	8.3 - 20 Sec	18 Sec	10 - 20 Sec	10 - 20 Sec	14 Sec
Rekonstruktionsdauer	< 40 Sec	< 40 Sec	30 - 150 Sec	1 - 3 Min	< 120 Sec	<2 Min
Patientendosis (Herstellerangaben)	11 - 19 µSv Stiching: 31.3 µSv	ca. 30 µSv	18 - <200 µSv	39 - 126 µSv		ICRP 2007: 43–175 µSv (Standard: 100 µSv)
Röhrenspannung (kV)	60-90	40 - 90	54 - 84	57 - 90	57 - 90	60 - 90
Röhrenstrom (mA)	2 - 15	2 - 10	1 - 16	4 - 16	4 - 16	3 - 16
Brennfleck (mm)	0.5 x 0.5	0.35 x 0.5	0.5 x 0.5	0.5 x 0.5	0.5 x 0.5	0.5 x 0.5
Rotationswinkel	360°	220°	200°	2 x 180° assymetrisch		
Anzahl Projektionen während des Umlaufs	360	min. 440 / max. 715	300	234 / 486 / 608 / 1260	234 / 486 / 608 / 1260	200 / 500

Fig. 2 Features of cone beam computed tomography machines currently available in Switzerland