

SPECIFICATION

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Planmeca ProMax 2D S3 panoramic X-ray unit

Introduction

Planmeca ProMax X-ray unit provides a wide range of extraoral imaging modalities:

- panoramic imaging for dental arch
- maxillary sinus imaging
- temporomandibular joint imaging
- 2D linear tomography
- cephalometry

Features

Open positioning and easy use

- Free view to the patient from all directions. The patient can be seated or standing.
- Three laser positioning laser beams
- Easy access also for wheelchair patients
- Motorized patient positioning and temple supports
- Autofocus feature makes the positioning of the focal layer automatically. Autofocus system takes first a short, low-dose scout image for searching landmarks and calculating the focal layer with the help of a special neural network algorithm. The user can monitor the suggested focal layer adjustment both on the control panel and on the image acquisition preview. The focal layer adjustments can be amended, or the user can simply accept the adjustments and continue to the final exposure.
- Automatic Dynamic Exposure Control (DEC) adapts the whole imaging chain individually for each patient's physio-anatomical characteristics to produce the optimal contrast and density. Both the X-ray source and the image receptor are automatically adjusted to produce the optimum image quality.
- Built in quality assurance program in Planmeca Romexis (X-ray quality Value) monitors the image quality continuously for image consistency.
- Interactive, informative and intuitive colour 10" graphic user interface (GUI). Clear illustrative guidance for the user.

Optimised image geometry and constant magnification

- Optimised image geometry to produce truthful images, eliminate redundant shadows and constant magnification
- Adjustable shape and size of focal trough
- Automatic compensation for the cervical vertebrae shadow by reducing the rotation speed

Full digital control

- Re-programmable flash EEPROM



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- Microprocessor controlled self-diagnostic control system with clear help guiding to correct use and error messages announcing hardware or software problems

Constant potential, microprocessor controlled resonance mode generator

- Very high operating frequency 80 – 150 kHz
- Maximum ripple 670 Vpp (0.4%, 84 kV)
- Ultra short rise time, < 3 ms
- Wide exposure parameters range, 1 – 16mA / 60 – 84 kV
- Low patient dose
- Universal power input including Power Factor Corrector, mains voltage fluctuations automatically compensated

Reliable mechanical construction

- Small size and light weight, total weight 113 kg (249 lbs)
- Unique 3 joint SCARA (Selectively Compliant Articulated Robot Arm) technology enables complicated movements and versatile imaging geometries, smooth and quiet micro-step motors
- Telescopic body column without counterweight. Maximum height adjustable.
- Automatic four blade primary collimator
- Available as wall-mounted or free standing

Selectable feature modules

2D Imaging modes:	Basic panoramic programs (including Autofocus) Horizontal and Vertical segmenting Bitewing panoramic program Advanced panoramic programs Digital linear tomography Child mode in all imaging programs to reduce the dose and to optimise the imaging geometry
Cephalostat	Planmeca ProCeph "one shot" cephalostat Digital Ceph Dimax4 (2 fixed sensors or 1 movable sensor)
Imaging aids	DEC (Dynamic Exposure Control): Panoramic DEC Cephalostat DEC
Additional features:	Accessory cabinet

Versatile imaging programs

Basic panoramic programs:	• Standard panoramic program • Double lateral TMJ program • Double PA TMJ program • PA Sinus program
Optional	Horizontal and Vertical segmenting
Optional	True extraoral bitewing program
Optional Advanced panoramic programs:	• Interproximal panoramic program: The beam is parallel to the interproximal teeth angulation. No overlapping of the teeth. • Orthogonal panoramic program: The beam is orthogonal to the jaw bone. Offers advantages in implantology and traumatology and in periodontal disease diagnosis. • Double Lateral-PA TMJ program • Three angles lateral TMJ program, left and right • Three angles PA TMJ program, left and right • PA linear sinus program • Lateral sinus program

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Optional Tomography:	• Constant magnification 1.5x maximizes the diagnostic value and provides excellent details. • Cross-Sectional imaging programs: • 1-4 cross-sectional images • 3 angles cross-sectional. Images can be viewed as stereo pairs • Longitudinal imaging programs: • 1-4 cross-sectional • 3 angles longitudinal. Images can be viewed as stereo pairs • Combined imaging programs: • 1 cross-sectional + 1 longitudinal • 3 cross-sectional + 1 longitudinal • 3 angles cross-sectional + 1 longitudinal
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Planmeca Dimax4 sensor system

- One single sensor for both panoramic and cephalometric imaging or two dedicated sensors.
- Easy and fast change between imaging modalities
- Very small and adjustable pixel size, high-resolution imaging, minimised movement unsharpness
- Very sensitive capture -> low radiation dose
- Automatic Gain Control (AGC) optimizes digital sensor sensitivity to produce excellent image quality regardless the patient's tissue and bone thickness
- Dental Image Contrast Enhancement (DICE) adjusts and optimizes the contrast of the image automatically and brings out image details on the entire grey scale.
- Radiation hardened long life sensor
- Fast Ethernet connection to computer

Planmeca ProCeph or ProMax Digital Cephalostat (optional)

- Factory installed or retrofitted
- Steady and stable construction.
- Automatic alignment of radiation source
- Functionally designed and easy-to use head positioner, swivelling nasal support, low absorption carbon fibre ear posts.
- No mechanical soft tissue filter, soft tissue filtering in imaging software.
- Image size from 18×24 cm to 30×27 cm Dimax, 18×24 cm to 30×25 cm ProCeph
- All projections possible: Lateral, AP/PA, Oblique, Submento-vertex, Hand & wrist

Technical Specifications

Generator	Constant potential, microprocessor controlled, resonance mode, operating frequency 80 -150 kHz, Power Factor Corrector, complies with the standard IEC 60601-2-7
X-ray tube	Toshiba D-054SB
Focal spot size	0.5×0.5mm, according to IEC 60336
Total filtration	min. 2.5 mm Al eq
Anode voltage	Panoramics 60 – 84 kV Cephalometry 60 – 84 kV Tomography 60 – 80 kV
Anode current	Panoramics 1 – 16 mA Cephalometry 1 – 16 mA Tomography 1 – 16 mA

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Exposure time	Panoramics 2.5 -16 s Cephalostat scanning 6 – 9s ProCeph cephalostat 0.1 - 0.8 s Tomography 3 – 12 s
SID	Panoramics and tomography 500 mm (20") Cephalometry 1700 mm (67")
Focus to skin distance	Panoramics min. 150 mm Cephalometry 1500 mm
Magnification	Panoramics constant 1.2 Tomography constant 1.5 Cephalometry 1.13
Line voltage	100 – 240 V~ ±10 %, 50 or 60 Hz Power Factor Corrector
Line current	8 – 15 A
Electrical classification	Class I, type B
Weight	119 kg (263 lbs) 26 kg (57 lbs) scanning cephalostat 20 kg (44 lbs) ProCeph cephalostat
Chin rest level	96 – 178 cm
Cephalostat ear post level	97 – 179 cm
Cooling period	Automatically controlled

Dimax sensor specifications

CCD pixel size	48 µm
Image pixel size	48/96/142 µm (selectable)
CCD active surface	6×146 mm, panoramic 6×292 mm, cephalometric
Resolution	max. 12.5 lp/mm, pan (Nyquist limit) max. 5,9 lp/mm, ceph (Nyquist limit)

ProCeph sensor specifications

Pixel size	139 µm
Active surface	300 x 250 mm
Resolution	max. 4.1 lp/mm, (Nyquist limit)

Dimensions

Physical space requirements				
		Width	Deep	Height*
Panoramic	cm	96	125	156-239
	in	38	48	61 – 94
Panoramic with cephalostat	cm	197	125	156-239
	in	76	48	61-94
Minimum operational space requirements				
Panoramic	cm	150	163	239
	in	59	64	94
Panoramic with cephalostat	cm	215	163	239
	in	85	64	94

* maximum height is adjustable