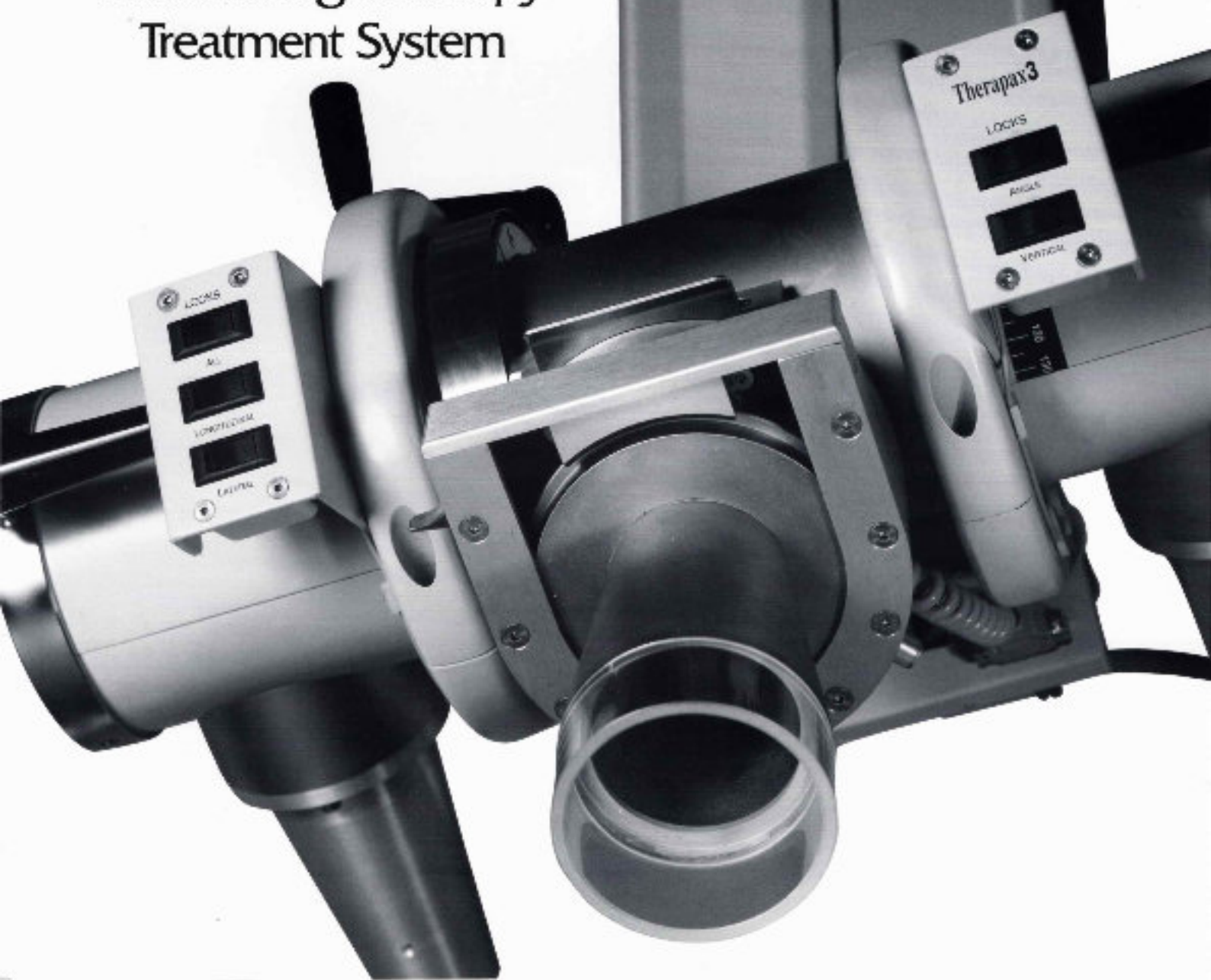


Therapax DXT 300

Microprocessor-Controlled
Orthovoltage Therapy
Treatment System



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The Pantak Therapax DXT 300, the world's only microprocessor controlled orthovoltage system, offers safety and ease-of-use while it completes your radiation oncology department's range of treatment equipment. Using the DXT 300, the radiation therapist can offer treatment without interrupting patient throughput on expensive and often over-booked accelerators.

A Range of Filters and Applicators. Eight easy-to-install filters determine the correct kV and mA settings automatically. A complete selection of fixed aperture applicator cones up to 20x20cm and a adjustable collimator are available options.

One button control activates the automatic warm-up.



Using the Therapax DXT 300, a radiation therapist can provide treatment easily and efficiently. Additionally, the solid-state electronics and built-in software controlled fail-safe features provide backup protection during treatment.

Easy to Position. The five-motion, easy-to-position tube head reduces setup time and provides excellent positioning mobility.

Electromechanical locks, mechanical rotation of the tube barrel and easy-to-see scale settings allows precise positioning. The scales indicate the tube position, which reduces setup time for repeat treatments.

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A full array of applicator cones are available options with the Therapax DXT 300. An optional cabinet is available to safely house and protect applicators, including the adjustable collimator.

Pantak's policy is one of continuous product improvement. Therefore, all designs and specifications are subject to change without notice.



Message center displays continuous information on system status.

Filter confirmation keys for increased patient safety.

Built-in, pre-programmed warm-up mode saves operator's time.

Digital keypad for setting treatment time.



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Therapax™ DXT 300

world's most advanced
orthovoltage Radiation
Treatment System



50cm SSD
Adjustable
Collimator

Microprocessor Control. The radiation therapist enters filter and applied dose into the microprocessor control. A safety dose limit and backup timer are automatically set by the computer. Treatment is initiated with a single button control.

Clear and precise digital readouts give the operator dose rate and integrated dose information at all times during treatment. If the integrated dose reaches the safety dose limit, or the backup timer reaches its preset time limit, the treatment is automatically terminated. Automatic termination also occurs in the event of a malfunction of the primary system.

Constant Potential. The constant potential X-ray generator maintains high stability, while the microprocessor controlled system automatically monitors integrated dose and safety time limits.

The state-of-the-art Therapax DXT 300 can increase patient throughput while enhancing the ease and safety of your orthovoltage treatment. No other system offers this combination of safety features and ease-of-use benefits.



Components of the DXT 300,
showing a floor-mounted
tubestand.

Therapax DXT 300

ORTHOVOLTAGE THERAPY TREATMENT SYSTEM

Features

- Microprocessor-based control console
- Automatic X-ray tube warm-up
- Clinical, Physics and Service operating modes
- Treatments are either dose or time controlled
- Backup timer safety system
- Encoded filters automatically select kV and mA
- Beryllium window, metal ceramic X-ray tube operates from 20kV to 300kV
- System status continually monitored
- Digital displays of all operating parameters
- Printer output for permanent record of treatment

Operating Parameters

- Tube Voltage:** Adjustable and displayed in 0.1kV increments
- Tube Voltage Range:** 20 – 300kV
- Tube Voltage Accuracy:** To within $\pm 1\%$
- Tube Voltage Ripple:** Less than 0.15%
- Tube Voltage Repeatability:** Better than 0.03%
- Tube Current:** Adjustable and displayed in 0.01mA increments
- Tube Current Range:** 1 – 30mA
- Tube Current Accuracy:** Better than $\pm 1\%$
- Tube Current Repeatability:** Better than 0.03%
- Exposure Timer:** 0 – 90 minutes, in 0.01 minute increments
- Generators (bipolar):** High frequency Cockcroft-Walton circuitry
- Filament Supply:** Transformer in cathode (neg.) generator supply is DC
- System Protection:** is provided for
- excess kV
 - excess mA
 - excess watts
 - excess temperature
 - coolant flow

Power Specifications

- Line Voltage:** 208 – 480V, single-phase or phase-to-phase $\pm 10\%$ fluctuation
- Line Frequency:** 47 – 63Hz
- Input Power:** 10kVA maximum
- Output Power:** 3kW

Control Console Displays

- Dose Rate:** Delivered monitor units per min.
- Set Dose:** Prescribed monitor units
- Dose:** Accumulated monitor units
- Set Time:** Prescribed treatment time
- Time:** Elapsed treatment time
- kV:** X-ray tube potential
- mA:** X-ray tube current

Internal Safety Controls

- Backup Timer:** Stops treatment if elapsed time exceeds set time by 5%
- Watchdog Timer:** Terminates operation if a fault occurs in the microprocessor

Standard Tube Specifications

The extremely rugged X-ray tube is a state-of-the-art metal ceramic unit consisting of a central metal cylinder with ceramic insulators at each end which support the anode and cathode assemblies. The anode is cooled by oil circulated through an oil-to-water or oil-to-air heat exchanger. The tube, rated at 320kV, is considerably smaller than tubes made from glass, which makes for a lighter and more user friendly tube head.

- Focal Spot Size:** 5mm x 5mm
- Anode Angle:** 30°
- Beam Emission Angle:** 40°
- Anode Power Dissipation:** 3.2kW maximum
- Tube Dimension:** 54.6cm long, 15.2cm dia
- Operating Parameters:** 20kV – 100kV, 30mA
150kV, 20mA
200kV, 15mA
300kV, 10mA

Standard Treatment Filter Set*

Filter	kV	mA	Material
1	75	29.5	1.65 Al
2	90	28.1	2.40 Al
3	100	28.8	3.10 Al
4	135	22.5	2.5 Al + 0.1 Cu
5	180	16.1	1.5 Al + 0.35 Cu
6	225	13.4	1.0 Al + 0.9 Cu
7	270	10.5	1.5 Al + 0.5 Cu + 0.3 Sn
8	300	10.0	1.5 Al + 0.25 Cu + 0.8 Sn
w.u.	300	10.0	7.0 Pb

*Other HVL values and applicators are available options.

Typical Beam Qualities and Dose Rates

kV	mA	HVL (mm)	Dose Rates (cGy/min)*	
			20cm FSD	50cm FSD
300	10	3.0 Cu	230	80
300	10	2.0 Cu	330	120
300	10	1.0 Cu	550	200
150	20	0.5 Cu	190	65
120	25	4.0 Al	300	105
120	25	3.0 Al	440	160
120	25	2.0 Al	550	200
80	30	1.0 Al	520	180
80	30	0.7 Al	610	
50	30	0.4 Al	230	
50	30	0.2 Al	380	
30	20	0.1 Al	650	

*Air kerma. These data are only approximate. The Therapax DXT 300 must be calibrated by a qualified expert before being put into clinical service.

PANTAK



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