

# Huestis•Cascade NT™

Radiographic & Fluoroscopic  
Radiotherapy Simulator



Huestis•Cascade NT™  
specifications



# Accurate, reliable and very affordable offers unmatched quality, performance



## Easy to Use Operator Controls

Easy to use controls feature international symbols, convenient color coding and an ergonomically designed layout.



## Operator Friendly

Controls feature simultaneous motions, ramped speeds and anti-collision systems. Crisp fluoro imaging includes auto-brightness, noise reduction and last image hold.



## WindowsNT® Operating System

WindowsNT based system allows easy access to network communication. Built-in calibration software helps expedite set-up, maintenance and future upgrades.

*Specifications subject to change without notice. WindowsNT® is a registered trademark of Microsoft Corporation.*

The Huestis•Cascade NT™ simulator is world renowned for accurate, reliable and very affordable simulation. Easily installed, its freestanding design eliminates the need for an expensive floor pit and major room modification. Driven by WindowsNT®, it combines versatility with an impressive array of features. Our easy to use operator control station coupled with the hand pendant puts flexibility at the user's fingertips. An easily read LCD screen displays position feedback and operational status. Asymmetrical or symmetrical field wires offer selectable, precise positioning while calibration software facilitates set-up and maintenance.

## Features

### System Highlights

- WindowsNT® operating system.
- Asymmetrical/ symmetrical field wires.
- Compact console and LCD display offers precise positioning feedback.
- Easy to use, ergonomic hand pendant.
- Built-in diagnostic/ calibration software.
- Local Area Network (LAN) capability.
- Freestanding design does not require an expensive floor pit.

### Included Custom Features

- Crisp fluoroscopic capability.
- Four (4) total alignment lasers: (2 lateral, 1 sagittal, 1 overhead)
- Custom block tray adapter: (matches your treatment unit)
- Two (2) grid trays: (80 & 100 cm)
- 17" flat panel room display with easily read, instantly maximized windows.

### Rigid Gantry

- Isocentric accuracy:  $\pm 1$  mm (at 100 cm)
- Rotation:  $\pm 185^\circ$  (at SAD  $\leq 100$  cm) ( $\pm 145^\circ$  at SAD  $> 100$  cm  $\leq 120$  cm in order to avoid tube collision with floor)
- Speed: ramp up to 360°/ min.
- Anti-collision systems.
- Isocenter height: 126 cm
- Controls/ display: local and remote.
  - Digital readout resolution: 0.1°
  - Digital accuracy:  $\pm 0.2^\circ$
  - Mechanical resolution: 1.0°

### Source to Axis Distance (SAD)

- Variable SAD: 80 - 120 cm
- Speed: ramp up to 50 cm/ min.
- Controls/ display: local and remote.
  - Digital readout resolution: 1.0 mm
  - Digital accuracy:  $\pm 1.0$  mm
  - Mechanical resolution: 1.0 cm

### Source to Skin Distance (SSD)

- Range: 60 - 200 cm
- Pre-programmed switch-off time.

- Controls/ display: local/ optical.
  - Optical readout resolution: 1.0 cm
  - Accuracy:  $\pm 2.0$  mm

### Source to Image Distance (SID)

- Range: 87.5 - 181 cm
- Controls/ display: local and remote.
  - Digital readout resolution: 1.0 mm
  - Digital accuracy:  $\pm 1.0$  mm

### Precision Collimator

- Motorized rotation:  $\pm 95^\circ$ 
  - Speed: ramp up to 490°/ min.
- Controls/ display: local and remote.
  - Digital readout resolution: 0.1°
  - Digital accuracy:  $\pm 0.2^\circ$
  - Mechanical resolution: 1.0°
- Motorized collimator blades.
  - Speed: ramp up to 690 cm/min.
- X-ray field size: 0 x 0 cm - 55 x 55 cm (at 100 cm SAD)
- Integral safety touch guard on collimator and mounted blocking tray.

### Asymmetrical and Symmetrical Field Wires

- Motorized, independent treatment field wires offer selectable, precise positioning flexibility compatible with treatment planning systems.
- Treatment field size: 0 x 0 cm - 45 x 45 cm (at 100 cm SAD)
- Speed: ramp up to 100 cm/ min.
- Controls/ display: local and remote.
  - Digital readout resolution: 1.0 mm
  - Digital accuracy:  $\pm 1.0$  mm

### Field Indicator Light

- Halogen bulb is easily replaced by operator without realignment.
- High intensity, fiber-optic light source.

### High Resolution Image Intensifier

- Tri-field: 9",6",4.5" (22.8,15.2,11.4 cm) Optional: 12",9",6" (30.4, 22.8,15.2 cm)
- Image intensifier coverage:
  - 62.8 x 62.8 cm with 9" (22.8 cm) II.
  - 70.4 x 70.4 cm with 12" (30.4 cm) II.

- Output field size: 20 mm
- "S" distortion correction.
- Automatic brightness for fluoro.
- Noise reduction in fluoro: 4x sampling.
- Central resolution: 4.6 lp/ mm (9")
- Contrast ratio: 23:1 (16:1 at 10 mm)
- DQE: 65% (IEC standard)
- Conversion factor: 240 cdm<sup>2</sup>/mRs

### Image Intensifier Movement

- Motorized movement: x, y, z axes.
- Auto-centering: lateral/ longitudinal.
- Controls: local and remote.
- Lateral range:  $\pm 20$  cm
- Lateral speed: ramp up to 63 cm/ min.
- Long. range:  $\pm 20$  cm
- Long. speed: ramp up to 63 cm/min.
- Vertical range: 50 cm
- Vertical speed: ramp up to 81 cm/ min.
  - Mechanical resolution (vertical): 1 cm

### Radiographic Cassette Holder

- Easily accessed, manually rotating ( $\pm 90^\circ$ )
- Film size: 35 cm x 43 cm (14" x 17")
- Anti-collision touch guard.
- Accepts radiation grid. (absorbs scatter)
- Safety lock for grid and film holder.

### CCD T.V. Camera (20 mhz)

- Chip size: 1/2", active pixels: 768 x 494.
- Auto gain, dynamic contrast compensation.
- Scanning system: EIA 525/ 60.
- Last image hold, image reversal.

### Main Room Display Monitor

- 17", 15 mhz ( $\pm 3$  dB), 1:1 aspect ratio.

### Versatile Patient Couch

- Carbon-fiber top (274.3 x 51 x 4 cm)
- Transmission: 1.0 mm alum. equivalent.
- Couch capacity: 500 Lbs. (226 kg)
- Easy access: couch lowers to 70 cm.
- Ergonomic floor lock/ emergency switches.

# ordable, Huestis•Cascade NT™ ormance and value.



### Independent Field Wires

Asymmetrical and symmetrical field wires offer selectable, precise positioning flexibility compatible with treatment planning systems. Built-in calibration software facilitates set-up.



### Low Maintenance Costs

Normal maintenance items are easily accessible. Changing a field light bulb can be done in only a few minutes without realignment of the machine.



### Block Tray Adapter Matches Your Treatment Machine

Included custom block tray adapter matches your source-to-tray distance. This snap-in, positive locking design is lightweight and will hold the same trays as your treatment machine.

### Couch Movement

- Motorized movement: x, y, z, axes.
- Free float of lateral/ longitudinal motions.
- Vertical range: 70 -136 cm
- Vertical speed: ramp up to 66 cm/ min.
- Lateral range:  $\pm 19$  cm
- Lateral speed: ramp up to 150 cm/ min.
- Longitudinal range: 61 cm
- Long. speed: ramp up to 150 cm/ min.
- Controls/ display: local and remote.
  - Digital readout resolution: 1.0 mm
  - Digital accuracy:  $\pm 2.0$  mm

### Couch Floor Rotation

- Floor rotation range:  $> \pm 95^\circ$  (manual)
- Controls/ display: local.
  - Mechanical resolution:  $1.0^\circ$
  - Digital readout resolution:  $0.1^\circ$
  - Digital accuracy:  $\pm 5^\circ$

### High Frequency, Constant Potential Generator

- 50 kW three-phase input power (Optional: 65 or 80 kW three-phase)
- Self-diagnostic circuitry.
- Multiple microprocessor control.
- Automatic line voltage compensation.
- Three point console (kV, mA, time)
- Radiographic output:
  - 320 mA at 150 kVp
  - 400 mA at 125 kVp
  - 500 mA at 100 kVp.
  - kVp range: 40 - 150 kVp in 1 kVp steps
  - mAs range: 0.5 - 1000
  - Exposure time range: 0.002 - 6.3 sec.
- Fluoroscopic output:
  - 40 -125 kVp in 1 kVp steps.
  - mA range: 0.5 - 14 (20 mA optional)
- Input power: 380 - 480 VAC (three-phase, 10%)
- Frequency: 50/ 60 Hz.

### X-Ray Tube

- Focal spot size:
  - 0.6 mm (small), 1.2 mm (large)
  - 0.6 mm (small), 1.0 mm (large) optional
- Target angle:  $12^\circ$
- Anode heat storage: 400,000 HU
- Max. anode dissipation rate: 100,200 HU/ min.
- Anode diameter: 4"
- Anode speed: 60 Hz, 3,200/10,000 RPM
- Material: Rhenium, Tungsten, Molybdenum.
- Electrical rating: anode to cathode: 150 kVp, anode/ cathode to ground: 75 kVp

### Tube Housing

- Heat storage capacity: 1,500,000 HU
- Cooling rate: 36,000 HU/ min (air circulator)

### Simulator Mechanical Specifications

- Power: 208 (single), 380/480 (3-phase)
- Weight: 5000 Lbs. (2267 kg), (approximate)
- Btu Output: 4000 Btu/ hr: (approximate)

# Versatile Options



## Rigid Construction, Reliable Components

Huestis•Cascade's rigid gantry and pedestal construction maintain alignment accuracy. Reliable, components and easily adjusted controls are built for years of trouble free service.



## High Frequency Generator

Self-diagnostics and multiple microprocessors contribute to Huestis•Cascade's consistent and repeatable X-ray operation. This high performance, high-frequency generator also features an auto-brightness system for fluoro.



## Indexing Table Top with Accessory Bar

For accurate and repeatable patient set-up. Compatible with most patient positioning systems for precise treatment from the simulator to the treatment machine.



## Rugged Scissor-Drive Couch

Radiolucent, carbon-fiber couch elevates and holds up to 500lbs. (226 kg) and can be lowered to 69cm for easy patient access. Includes strategically placed emergency switches, mounted hand control pendant and "free-float" capability.



## Sim Remote DICOM

A DICOM PC Workstation on a Windows® Operating System Platform that facilitates the viewing and sending of fluoroscopic image and patient information to other DICOM compatible modalities. This will connect the Huestis-Cascade Simulator with an existing hospital or clinic information system or treatment planning system.

## Couch Rotation Independent of Isocenter up to 180°

The couch top rotation will allow for easier access to the table top for patient loading, set-up and off loading. The rotated position allows for QC tests without couch top interference.

**Note:** In rotated position maximum patient weight limit is reduced to 325 lbs. (148 kgs.)

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