Huestis•Cascade™
Radiographic & Fluoroscopic
Radiotherapy Simulator

The Huestis•Cascade™ 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 the latest operating system, 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 17 in flat panel monitor displays position feedback and operational status. Asymmetrical or symmetrical field wires offer selectable, precise positioning, while calibration software facilitates set up and maintenance. The Huestis•Cascade™ Simulator is FDA registered and CE certified.

Radiotherapy teams worldwide have come to depend on Huestis Medical for quality and cost-effective radiotherapy products. The Huestis•Cascade™ Simulator is CE certified.

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Accurate, reliable and very affordable, Huestis•Cascade™ offers unmatched quality, performance and value

System Highlights
- Current Windows® operating system
- Asymmetrical/symmetrical field wires
- Compact console and 17 in Flat Panel Monitor 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
- Three (3) total alignment lasers: 2 lateral, 1 sagittal
- Custom block tray adapter: matches your treatment unit
- Two (2) grid trays: 80 & 100 cm
- 17 in Flat Panel Room Display with easily read, instantly maximized windows
- Scatter grid

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: ±1.0 mm

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: ±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: ±1.0 mm

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: ±1.0 mm
  - Mechanical resolution: 1.0 cm

Rigid Gantry
- Isocentric accuracy: ±1 mm (at 100 cm)
- Rotation: ±185˚ (at SAD ≤ 100 cm) (±145˚ at SAD > 100 cm ≤ 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: ±0.2˚
  - Mechanical resolution: 1.0˚

Radiographic Cassette Holder
- Easily accessed, manually rotating (±90˚)
- Film size: 35 cm x 43 cm (14 in x 17 in)
- Anti-collision touch guard
- Accepts radiation grid (absorbs scatter)
- Safety lock for grid and film holder

Field Indicator Light
- Type FCS halogen bulb
- Light field Illumination 100 lux at 1 m from source

Precision Collimator
- Motorized rotation: ±95˚
  - Speed: ramp up to 420˚/min
- Controls/display: local and remote
  - Digital readout resolution: 0.1˚
  - Digital accuracy: ±0.2˚
  - Mechanical resolution: 1.0˚
- Motorized collimator blades
  - Speed: ramp up to 600 cm/min
- X-ray field size: 0 x 0 cm – 55 x 55 cm (at 100 cm SAD)
- Independent collimator blades track the movement of the image intensifier
- Integral safety touch guard on collimator and mounted blocking tray

High Resolution Image Intensifier
- Tri-field: 12 in, 9 in, 6 in (30.4 cm, 22.8 cm, 15.2 cm), 14 in, 12 in, 9 in (35.4 cm, 30.4 cm, 22.8 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.
- "S" distortion correction
- Automatic brightness for fluoro
- Noise reduction in fluoro: 4x sampling
- Central resolution: 4.6 lp/mm (9 in)
- Contrast ratio: 23:1 (16:1 at 10 mm)
- DQE: 65% (IEC standard)
- Conversion factor: 240 cdm2/mRs
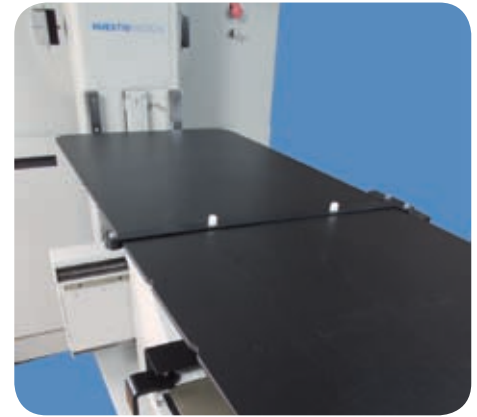
Indexing Table Top with Accessory Bar
For accurate and repeatable patient set-up. Compatible with most patient positioning systems for precise treatment from the simulator to the treatment machine.

Operator Friendly Controls
Operator friendly controls feature simultaneous motions, variable, ramped speeds and anti-collision systems. Crisp fluoro imaging includes auto-brightness, noise reduction and last image hold.
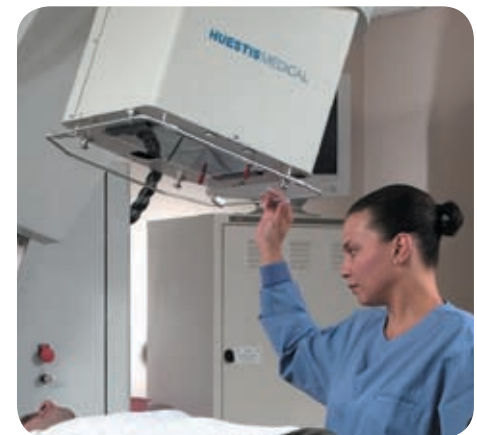
Independent Field Wires
Asymmetrical and symmetrical field wires offer selectable, precise positioning flexibility compatible with treatment planning systems. Built-in calibration software facilitates set up.

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Image Intensifier Movement

- Motorized movement: x, y, z axes
- Auto-centering: lateral/longitudinal
- Controls: local and remote
- Lateral range: ±20 cm
- Lateral speed: ramp up to 63 cm/min
- Long. range: ±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

CCD T.V. Camera (20 mhz)

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

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.

Easy to Use Operator Controls

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

Optional Digital Imaging System

- 1024 x 1024 (pixels) progressive scan camera
- High resolution 19 in medical grade LCD monochrome monitor
- 1049/60 Hz video
- Last image hold and reversal
- Radiographic and fluoroscopic capabilities

Versatile Patient Couch

- Carbon-fiber top (274.3 cm x 51 cm 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
- Indexing tabletop w/access bar

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: ±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: ±2.0 mm

Couch Floor Rotation

- Floor rotation range: > ±95° (manual)
- Controls/display: local
  - Mechanical resolution: 1.0°
  - Digital readout resolution: 0.1°
  - Digital accuracy: ±5°

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)
- Target angle: 12°
- Anode heat storage: 400,000 HU
- Max. anode dissipation rate: 100,200 HU/min
- Anode diameter: 4 in
- 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)

Rugged Scissor-Drive Couch

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

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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

The couch rotation is 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 kg).

Very Affordable

The Huestis•Cascade™ Simulator is designed to be installed with minimal modification to an existing facility. Huestis•Cascade™ Simulator's freestanding design is quick and easy to install because there is no pit required as with other models. Installation time is also drastically shortened with an average one week setup. Huestis•Cascade™ Simulator combines quick and economical installation with impressive features for unmatched performance and value.

Accurate

Radiation therapy teams depend on accurate tumor volume definition and precise patient positioning for simulation. Huestis•Cascade™ Simulator's included diode line lasers, custom block tray adapter, and the highest quality imaging components ensure positioning accuracy. Its unique balance of smooth, precise controls contributes to ease of use, quick setups, and patient accessibility. Huestis•Cascade™ Simulator provides precision replication of patient positioning matched to common radiotherapy treatment requirements.

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.

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.

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