Elekta

Product Data

Elekta Synergy® Platform

Proven technology for everyone, everywhere

Contents

About Elekta Synergy®

Clinics are required to deliver high-quality, high-volume treatments with increasingly challenging access to capital and resources.

Synergy® Series is the perfect foundation. Establish your pathway to innovations that have revolutionized cancer care around the world.

Synergy consists of:

Advanced digital linac

Synergy is designed to be a simple and accessible radiation therapy solution, providing confidence in simple or complex treatment for everyone, everywhere.

- Dynamic full field size designed for IMRT and VMAT treatment
- Intelligent seventh-generation digital control with 3 tiers of safety
- Wide range of energies including up to 3 photon and up to 9 electron energies
- Active leakage control dynamically auto-tracks the X and Y jaws to the outermost MLC edges providing additional shielding to organs at risk (OAR)
- Traveling waveguide technology—designed to last the lifetime of the system

Green Beam Technology

Green Beam Technology on Elekta digital accelerators minimizes energy consumption and operational costs.

- 30% less energy consumption than other typical klystron-based dual-energy systems
- Efficient magnetron technology for low and high energies

Elekta IntelliBeam

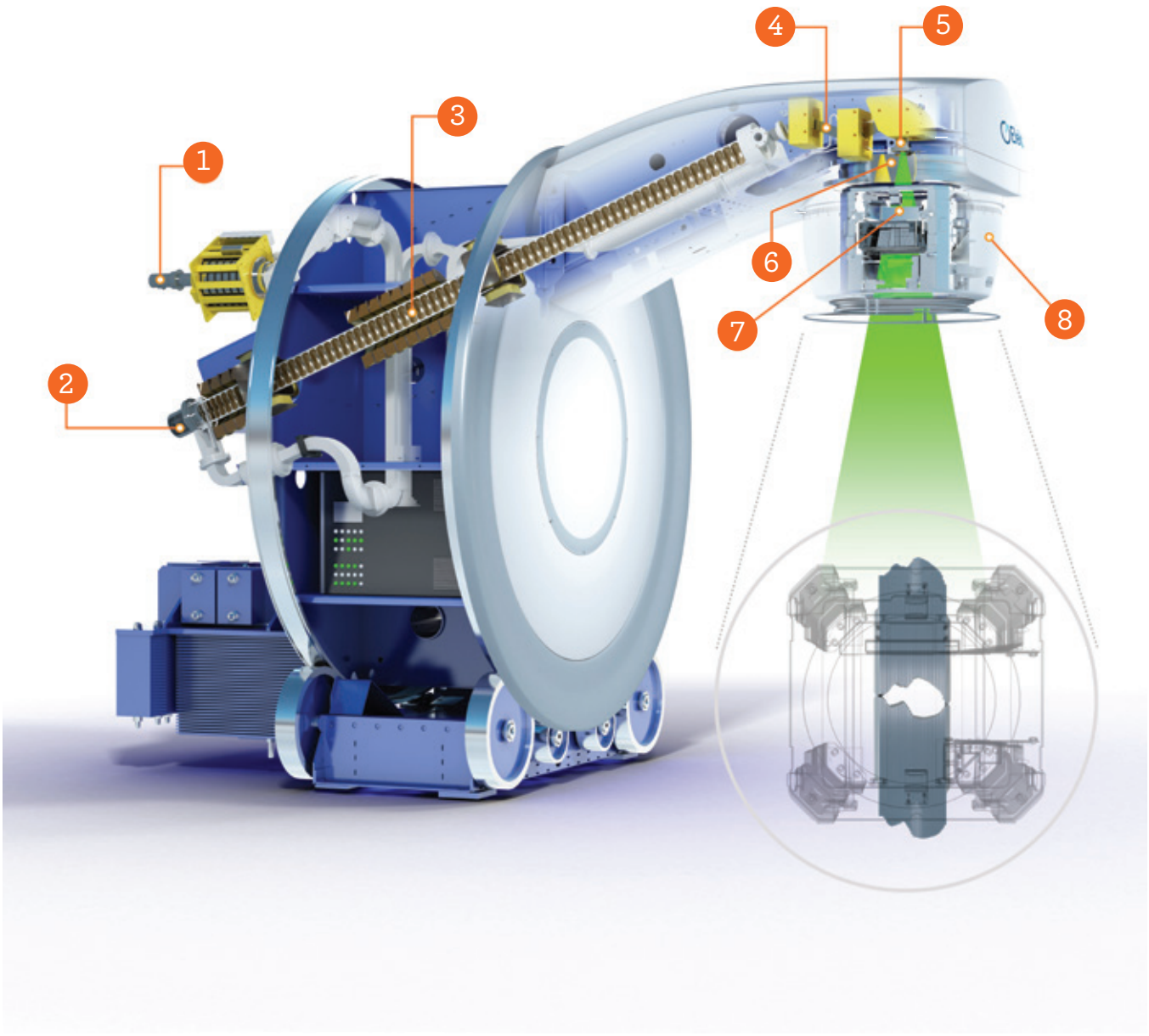
With the highest modulation capability, IntelliBeam is a unique combination of Elekta digital accelerators and Monaco® treatment planning—allowing intelligent, high-definition and high-speed modulated treatment delivery.

- Unique flexibility to simultaneously apply dynamic digital control to all treatment parameters
- Faster arcs: 1,024 control points per arc minimizes the need for multiple arcs
- Enabling higher patient throughput and departmental efficiency

Upgradable platform

A wide variety of upgrade options allows you to advance your system's capabilities as your clinical needs increase.

- Fully upgradable to kV-based 3D volumetric imaging with advanced image-guided registration tools
- Upgradable to multiple intensity modulated delivery techniques such as IMRT and VMAT
- Active Breathing Coordinator™ (ABC) motion management solution
- MV IGRT workflow management options



System overview

1. Magnetron
2. Electron Gun
3. Accelerating waveguide and beam steering system
4. Beam bending system
5. Tungsten target/electron window
6. Primary collimator
7. Ion chamber
8. MLCi2 multileaf collimator

Beam overview

X-ray beams

Synergy includes 6 and 10MV x-ray energy beams and offers the addition of a third energy.

Beam quality

Nominal energy, MV	6	10	15	18
D_{max} (cm)[1]	1.5	2.1	2.6	3.0
D_{80}, ±0.3 cm (cm)[2]	6.4	7.6	8.4	9.0
D_{10}, ±1% (%)[3]	67.5	73.0	76.5	78.5
Quality index, TPR20,10[4]	0.68	0.73	0.76	0.78
Minimum Dose Rate[5] (MU/min)	30	30	40	40
Maximum Dose Rate[5] (MU/min)	500	500	600	600

[1] Depth of maximum absorbed dose for a 10 cm x 10 cm field at SSD = 90 cm (Ref. IEC 60976)

[2] Depth of 80% of maximum absorbed dose for a 10 cm x 10 cm field at SSD = 90 cm (Ref. IEC 60976)

[3] Percent absorbed dose at the depth of 10 cm for a 10 cm x 10 cm field at SSD = 100 cm, relative to the maximum dose (Reference BJR Supplement 25)

[4] The ratio of the absorbed doses at depths of 20 cm and 10 cm, measured with a constant SDD of 100 cm for a 10 cm x 10 cm field, at the plane of the detector (Ref. IAEA TSR 398, IEC 60976)

[5] Dose rate applies at Dmax for a 10 cm x10 cm field at SSD = 100 cm—the dose rate units of MU/min are equivalent to cGy/min as the accelerator is typically calibrated to provide 1 cGy per MU

Uniformity of square x-ray fields

Uniformity is measured in the plane perpendicular to the beam axis, 100 cm from the target (SDD) and at the standard measurement depth of 10 cm with an SSD of 90 cm for 6MV and above. (Ref IEC 60976)

	Percentage
Flatness (5 cm x 5 cm to 30 cm x 30 cm)[1]	≤ 106%
Flatness (> 30 cm x 30 cm)[1]	≤ 110%
Symmetry (≥ 5 cm x 5 cm)[2]	≤ 103%
Max ratio of absorbed dose (5 cm x 5 cm to 30 cm x 30 cm)[3]	≤ 107%
Max ratio of absorbed dose (> 30 cm x 30 cm to max square 35 cm x 35 cm)[3]	≤ 109%
Dose deviation of square fields with angular positions[4]	≤ 3%

[1] Field flatness—maximum ratio of the maximum absorbed dose to the minimum absorbed dose

[2] Symmetry—maximum ratio of absorbed doses at points symmetrically displaced from the axis of the beam and within the flattened area

[3] For all energies the maximum ratio of absorbed dose in the radiation field to absorbed dose on the radiation beam axis in the plane at the depth of dose maximum

[4] Maximum variation in the ratio of absorbed dose at any point in the flattened area to the absorbed dose on the radiation beam axis at the standard measurement depth for all angular positions of the gantry and beam limiting system

Electrons

Synergy can be configured with up to 9 electron energies and a range of applicators to enable efficient delivery of superficial tumors.

Beam quality

Nominal energy (MeV)[1]	4	6	8	9	10	12	15	18	20	22
R80, cm[2]	1.33	2.0	2.67	3.0	3.33	4.0	5.0	6.0	6.67	7.33
Dmax, cm[2]	0.9	1.3	1.7	1.90	2.1	2.5	2.7	2.9	2.5	2.4
Rp, cm[2]	2.2	3.1	4.1	4.5	4.9	5.9	7.2	8.7	10.0	11.1
Minimum dose rate[3] (cGy/min)	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5	37.5
Maximum dose rate[3] (cGy/min)	600	600	600	600	600	600	600	600	600	600

[1] The nominal electron beam energies in this table are calculated as: E(MeV) = 3 x R80 (cm)—the variation of R80 does not exceed ±1 mm from the values listed in this table

[2] The penetrative qualities are measured along the beam axis at SSD = 95 cm, for a 10 cm x 10 cm field—the parameters listed are (IEC 60976 and BJR-25 definition):

a. R80—depth of the 80% relative dose

b. Dmax—depth of the maximum dose

c. Rp—practical range of electrons

[3] Electron dose rate is adjustable in five fixed steps from 37.5 cGy/min up to 600 cGy/min for all energies—dose rate is measured with a 10 cm x 10 cm field at SSD = 95 cm, at Dmax in a water phantom

Note: Only one energy from either 9 or 10 MeV can be included in configuration

Field sizes

All square and rectangular electron applicators have removable end frames, which are coded and interlocked for enhanced patient safety. These end frames can be replaced by bespoke end frames, custom made with the electron beam-shaping mold to match the shape of the treatment area.

Standard Set[1]

- Set of four square applicators: 6 cm x 6 cm, 10 cm x 10 cm, 14 cm x 14 cm, 20 cm x 20 cm

Optional Sets[1]

- Square and rectangular applicators: 25 cm x 25 cm, 20 cm x 10 cm, 16 cm x 8 cm[2], 14 cm x 6 cm, 10 cm x 6 cm
- Set of four cone applicators: 2 cm, 3 cm, 4 cm and 5 cm diameter
- Electron arc therapy applicator: 20 cm x 6 cm, SSD = 82 cm
- Optional electron beam-shaping mold

[1] Electron field sizes are defined with electron applicators at SSD = 95 cm, unless otherwise stated

[2] Not available with USA flatness

Uniformity (IEC 60976/60977)

	Distance / Percentage
Flatness (major axes of field)[1]	≤ 10 mm
Flatness (diagonal axes of field)[1]	≤ 20 mm
Symmetry[2]	≤ 103%
Max ratio of absorbed dose[3]	≤ 103%

[1] Maximum distance between the 90% isodose contour (at the standard measurement depth) and the edge of the geometric field

[2] Symmetry—the maximum ratio of the maximum to minimum absorbed doses (averaged over less than 1 cm^2 of area) at any two points symmetrical about the central axis of the beam and within the area confined by a line 1 cm inside the 90% isodose contour at the standard measurement depth

[3] Maximum variation in the ratio of absorbed dose at a point in the flattened area to absorbed dose on the radiation beam axis, both at standard measurement depth, for all angular positions of the gantry and beam limiting system

X-ray contamination in the electron beam (IEC60601-2-1:2009+AMD1:2014 Clause 201.10.1.2.102.1)

Nominal energy (MeV)	4	6	8	9	10	12	15	18	20	22
X-ray contamination (%)[1]	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 3.0	< 5.0	< 5.0	< 5.0

[1] The percentage absorbed dose at a depth 10 cm beyond the practical range of the electron beam

Electron beams—High Dose Rate Mode (optional)

High Dose Rate Electron (HDRE) energies allow the electron dose rate to be significantly increased allowing HDRE dose rates of 3000 MU/min at isocenter.

Energy range	4 MeV to 10 MeV
X-ray contamination (at 3 to 4 meters from isocenter)	≤ 2%
Symmetry at isocenter	± 3%

Mechanical performance specifications

Isocenter

	Distance (cm)
Target to isocenter	100 ±0.2 cm
Isocenter height above floor	124 cm
Horizontal distance from gantry fascia to isocenter	120 cm
Maximum variation of the table isocenter rotation axis from the radiation center	≤ 2.0 mm[1]
Maximum displacement of the radiation beam axis from the isocenter	2 mm[1]
MV isocenter and kV imaging isocenter coincidence	≤ 1.0 mm

[1] As defined in IEC 60976/60977

Rotation

	Gantry	Collimator
Range	±182.0°	±182.5°
Rotation speed (continuously adjustable)	0 to 1 rpm	0 to 2 rpm
Accuracy of angle indicators	Digital scale ±0.5°	
Resolution of angle indicators	Digital scale 0.1°	

Light field-indicator (field defining light)

A light field is provided that defines the position of the radiation field in both x-rays and electron modes. Crosswires projected in the light field indicate the position of beam central axis. The integrated wedge filter orientation is also displayed.

Crosswire accuracy (walk-out) at isocenter		≤ 1 mm
X-rays	5 cm x 5 cm to 20 cm x 20 cm[1]	≤ 1 mm
Light field edge to radiation field edge coincidence	greater than 20 cm x 20 cm[1]	≤ 2 mm or 1% of field size

[1] Radiation field is defined as the distance between the 50% dose points on the major axis of the field in the plane of the isocenter (SDD = 100 cm) with 10 cm of build-up (only for flattened beams)

Optical distance meter

The optical distance meter indicates the distance from target (source) to patient surface on the central axis.

Range	75 cm to 170 cm
Accuracy	±1 mm at 100 cm at gantry 0°
	±3 mm at 75 cm and 125 cm gantry 0°
Resolution	5 mm

Mechanical front pointer

The mechanical front pointer indicates the distance from target (source) to patient surface on the central axis.

Range	85 cm to 100 cm
Accuracy	±1 mm at 100 cm
Resolution	5 mm

Anti-collision protection

The head of the digital accelerator and both imaging detectors are fitted with a positive action touch guard that protects against a collision between the detectors or radiation head with the patient on the table or any other object. If activated, the interlock chain will stop and inhibit any movements of the gantry, head and table. Temporary override action is available to allow removing the collision conditions. The patient clearance aperture is 90 cm for imaging and treatment delivery.

Coded shadow tray assembly short (optional)

The shadow tray assembly for beam shaping with shielding blocks is supplied as standard with two slots for removable shadow trays. The outermost tray can be uniquely identified by means of cutouts at the edge. The digital accelerator recognizes up to 110 tray codes that can be verified as part of the prescription.

Maximum field size	40 cm x 40 cm
Maximum shielding block height	94 mm
Distance shielding block to isocenter	35.6 cm

Assisted Setup (ASU)

ASU moves the gantry, collimator, beam geometric parameters and table isocentric rotation to the positions specified in the field prescription. The user can configure the digital accelerator so that the ASU function operates remotely from the control room and from the handheld controllers inside the treatment room.

Precision

- Angular positions < 0.5°
- Linear positions < 0.5 mm

Treatment control system

Built on over 30 years of experience, Integrity™ is Elekta's seventh-generation integrated digital control system that controls and monitors Elekta's digital treatment system and integrated MLC. Acting as guardian of treatment delivery and the cornerstone of digital efficiency, it provides the confidence and flexibility to deliver a wide variety of treatment techniques for conventional and stereotactic applications.

Three tiers of safety

Integrity offers three tiers of safety with Guardian technology, providing confidence to safely deliver radiation with even the most advanced treatments:

Tier 1. Checks parameters of prescription and ensures correct setup

Tier 2. Continuously verifies parameters and checks correct position during delivery

Tier 3. Supervises and checks all systems and provides an automatic safety stop

All parameters are constantly monitored and adjusted to meet the correct prescribed dose distribution required.

Hardware

The control system cabinet is a small profile cabinet housing dual processors that control the linear accelerator and the MLC.

Software

Integrity software supports two user modes of operation designed to meet the needs of the clinical and service user.

Clinical mode

Clinical Mode provides all the tools required by the clinical user to support and monitor treatment delivery.

The following functionality is currently available:

- Receive External Prescription—this connects with MOSAIQ® or a third-party V&R, and also enables copying of beams into Service Mode to allow QA checks on the beams without affecting the patient treatment history record in MOSAIQ
- View Item Parts (performance of selected linac components can be monitored during clinical use)
- Assisted Setup (ASU)
- System Administration
- Support for Image Acquisition (start angle and gantry speed configuration for imaging)

Service mode

Provides all the tools necessary to support routine machine maintenance and calibration and supports fault-finding activities.

The following functionality is currently available:

- IntelliMax® Connect
- Service QA tools
- VMAT test beams
- Configuration Utility
- Diagnostic Utility

Treatment delivery techniques

Synergy supports the following licensed treatment delivery techniques:

- **Static**—Square or irregular shaped beams delivered with a static gantry
- **Wedged**—Supports delivery of wedged fields using an automatic, integrated wedge with angles continuously variable in the range 0° to 60° (by combining an open field with a 60° wedged field)
- **Arc**—Gantry rotation during delivery with a fixed-field shape, constant gantry speed and dose rate
- **PreciseBEAM Segmental**—This option enables the digital accelerator to deliver IMRT in segmental (Step-and-Shoot) mode; accurate and stable beam control ensures an accuracy of ≤ 1% or 0.1 MU (whichever is greater), which is vital during the sequential delivery of low dose IMRT fields
- **PreciseBEAM Dynamic**—With the same excellent dose and geometric accuracy and functionalities as Segmental, this option enables continuous dynamic movement of diaphragms and MLC leaves during irradiation; support for popular techniques such as "sliding windows"
- **PreciseBEAM Dynamic Arc**—In this arc therapy, the linear accelerator delivers a constant number of MU per degree of movement; during delivery, simultaneous gantry rotation and motion of diaphragm and MLC leaves is permitted; dose rate and gantry speed can change along the arc and are automatically selected by the control system to achieve the prescribed dose/degree; multiple and continuous arcs in CW and CCW direction can be delivered
- **PreciseBEAM VMAT**—This license enables Elekta volumetric intensity modulated arc therapy (VMAT) treatment delivery; VMAT is capable of simultaneous dynamic control of MLC, diaphragms, gantry and collimator—it allows continuously variable MU per degree along the arc and, as in dynamic arc, the control system automatically adjusts all linear and angular speeds as well as dose rate; multiple and continuous arcs in CW and CCW direction can be delivered

Specification table for VMAT	
MU per step	Minimum 0.1 MU
MU per segment	Minimum 1.0 MU
Immediate creation of finish field	Yes, can be delivered immediately or at a later date
Rotation movements	Minimum 0.1 MU/degree
Linear movements	Minimum 0.3 MU/cm
Maximum jaw speed	3.5 cm/second
Bi-directional arcs	Yes
Multiple superimposing arcs	Yes

Gated delivery

Synergy supports the delivery of gated radiation treatments through the Response™ interface.

Gating Mode	Supported
Manual gating	Yes
Automated gating	Yes
Breath-hold gating	Yes
Free-breathing gating[1]	Yes
Exception gating	Yes

[1] With beam-on time ≥ 2 seconds

Beam shaping

MLCi2

The MLCi2 uses 80 leaves (40 pairs) with 1.0 cm resolution at isocenter, each one traveling independently up to 32.5 cm (12.5 cm beyond the central axis) covering a full 40 cm x 40 cm field. Active leakage control dynamically auto-tracks the X and Y jaws to the outermost MLC edges, providing additional shielding to organs at risk.

Mechanical

Interdigitation capable	Interdigitation for every leaf over the full leaf travel*
Number of leaves	80
Normal leaf width projection at isocenter (mm)	10
Maximum field size (cm x cm)[1]	40 x 40
Minimum field size (cm x cm)	0.5 x 0.5
Maximum distance between leaves on same leaf guide (cm)	32.5
Leaf travel over central axis (cm)	12.5
Leaf nominal height (mm)	79
Leaf positioning mechanism	Video
Head to isocenter clearance (cm)	45

*Requires Treatment Control System license—please contact your local Elekta representatives or authorized distributor for details on availability

[1] Fields larger than 35 cm x 35 cm are limited in the corners by a circle of 50 cm diameter (defined by the primary collimator)

Dimensions, weight, speed

Head rotation	365°
Head weight	380 kg
Radiation head diameter	62 cm
Head rotation speed for setup	12°/sec continuously variable
Head rotation speed for dynamic	6°/sec continuously variable
Leaf speed for dynamic	0 to 2 cm/continuously variable
Diaphragm speed for dynamic	0 to 1.5 cm/continuously variable

Integrated wedge

Wedge size	Large integrated auto-wedge 0° to 60°
Wedge field size	40 cm (X_{IEC}) x 30 cm (Y_{IEC})

Physics performance

Active leakage reduction	Motorized tungsten diaphragms automatically collimate on the outermost leaf position to dynamically shield leakage dose outside of the area
X-ray to light coincidence	Maximum distance along the major axes between the light field edge and the radiation field edge for centered fields at normal treatment distance: 5 cm x 5 cm to 20 cm x 20 cm = 1 mm; 20 cm x 20 cm to maximum square = 1%
X-ray penumbra	For centered fields < 7 mm for field sizes 5 cm x 5 cm to 15 cm x 15 cm all energies < 8 mm for field sizes greater than 15 cm x 15 cm to maximum square all energies
X-radiation leakage (leaves)	< 1% (max); 0.5% (average)
X-radiation leakage (leaves with backup diaphragms)	< 0.2% (max); 0.1% (average)
X-radiation leakage in patient plane outside primary collimator cone	< 0.2% (max); 0.1% (average)
X-radiation leakage outside patient plane	< 0.5%

Data according to IEC radiation leakage requirements—IEC60601-2-1: 2009 +A1 2014

Image guidance

For precise and accurate dose placement, imaging at the time of treatment is crucial. The ability to have positional information on the location of the target and critical structures gives confidence that the original plan objectives are being maintained.

As a pioneer in image guided radiotherapy (IGRT), Elekta provides multiple solutions that enable you to select the best solution for your patient.

MV IGRT

The MV imaging solution includes an amorphous silicon (a-Si) detector, combined with fully automated image acquisition. Multiple acquisition modes are available, including single-, double-, multiple- or movie-image exposures.

Real-time imaging of IMRT segments is enabled using continuous imaging in single-, double-, multiple-, or movie-loop mode. Real-time imaging of VMAT delivery is enabled using continuous imaging in movie-loop mode. High Dose Rate Mode is supported with real-time imaging.

A comprehensive suite of analysis and data management tools are available. Images can be manipulated within MOSAIQ® image management software for additional image registration features and trend analysis including stereoscopic imaging.

MV product performance

Retractable system

- Retractable to 25 cm
- Offset field 11.5 cm in any direction
- Fixed SSD at 60 cm from isocenter

Weight

- Detector 22 kg
- Detector + arm 143 kg

Amorphous Silicon (a-Si) detector

- 410 mm x 410 mm
- Image matrix 1,024 x 1,024 x 16 bits
- MV system enabled for 2.6 FPS*
- Pixel size at isocenter: 0.25 mm
- Pixel size at detector: 0.4 mm

*iViewGT combines the acquisition frames from 7.7 FPS to 2.6 FPS to achieve optimal system performance

Field size

- Isocenter field size: 26 cm x 26 cm (long. x lat.) with head at 0°

MV image quality

Images typically require 1 to 2 MU for image acquisition. iViewGT™ waits for the linear accelerator to reach optimum dose rate before triggering image capture. This ensures consistent and repeatable image quality.

Specifications are applicable to x-rays in the energy range 4 to 18MV.

Contrast-to-Noise Ratio (CNR)

Dose	Energy		
	6MV	10MV	15MV
1	> 90	> 90	> 90
3	> 110	> 110	> 110
100	> 800	> 800	> 800

Measured with Standard Imaging QC3 phantom (PIPSPro)
Maximum frame averaging

Spatial resolution

Quantitative measurements of MTF at 30% and 50% using the QC3 phantom (Standard Imaging PIPSPro), placed on the EPID, with 6MV flat beam:

Dose	MTF30		MTF50	
	Despeckle Filter OFF	Despeckle Filter ON	Despeckle Filter OFF	Despeckle Filter ON
1	0.7	0.6	0.4	0.35
3	0.7	0.6	0.4	0.35
100	0.7	0.7	0.3	0.35

DICOM

See elekta.com for latest DICOM conformance statement.

Patient support system

The patient positioning system is designed for modern treatment techniques where a high degree of precision is required. It provides high standards of stability and repeatability demanded by highly conformal image-guided and stereotactic techniques.

Motion ranges

	Control	Range	Speed
Vertical	Motorized	iBEAM® evo Couchtop > 630 mm to < 1730 mm	2 mm to 45 mm/sec continuously adjustable
Lateral	Manual and motorized	±250 mm (500 mm)	
Longitudinal	Manual and motorized	1000 mm	
Isaocenter rotation	Manual and motorized	±95°	0.3°/sec to 5°/sec, continuously variable
Column rotation	Manual with electomagnetic brake	360° with indent at 0°	

Table position indicators

	Accuracy	Resolution
Translational and vertical	±1 mm	1 mm
Rotation	±0.5°	0.1°

Maximum patient load

250kg (550lb)

Couchtops

iBEAM evo

The iBEAM evo couchtop includes a unique homogenous sandwich design, containing no metal in the treatment area, and offers improved radio translucency with a minimized attenuation spread across the range of beam entry angles, providing the perfect solution for IMRT, VMAT and IGRT.

The construction provides high rigidity and strength, eliminating local patient sagging and permitting increased patient load.

Size	2000 mm x 530 mm x 50 mm
Weight	12 kg
Aluminum equivalence according to 21 CFR 1020.30	Mean value 0.64 mm Al
Indexing	BodyFIX® 14 indexing
Compatibility	Compatible with Elekta Precise Table
Rigidity	The maximum permissible patient load distributed evenly on iBEAM evo couchtop is 250kg (550lb). The maximum load at the cranial end of the iBEAM evo couchtop (no extension attached) is 100 kg (220 lb).

Site requirements

This list includes only some relevant site requirements in general terms. For detailed site planning information, please refer to Site Planning Reference documentation.

Electrical
Electrical supply for linear accelerator: Peak power 30 kVA, Radiating 18 kVA; Three-phase, neutral and earth; Nominal voltage 380 to 420V, Nominal frequency 50 or 60Hz.

Water cooling
A supply of cooling water is required that can be configured as a one-pass system or a closed loop. If the hospital is not ordering an Elekta water cooler, the client is required to supply the linear accelerator with cooled water to the following specification:

- Temperature of water at input to the linear accelerator between 12° and 20°C
- Maximum flow 30 liters/minute
- Maximum (absolute) pressure at the input to the linear accelerator should not exceed 4 bar

Maximum heat input into the hospital water is approximately 12kW, so temperature gain of hospital water at 30 liters/minute flow is approximately 6°C.

Lighting
There should be no lighting on the ceiling or walls within 500 mm either side of the isocenter.

Cable ducting
Cable ducts are required to run from the rear of the accelerator to the control room. Ducting should be set into the concrete floor for this. Smaller ducts are required to run from the linear accelerator gantry to the water cooler (if used) and to the Client Interface Terminal.

Lifting equipment
An I-section girder with a safe working load (SWL) of 2,200 kg should be mounted on to the concrete ceiling directly above and parallel to the rotation axis of the gantry (end stops must be fitted if girder is open-ended).

Room safety and radiation protection
It should be noted that before constructing or modifying any treatment room, the design must have the approval of the National Radiological Protection Authority. Interlocks must be provided by the customer to interface the treatment room with the linear accelerator. These include emergency off switches, room door switches, radiation warning lights and a time delay switch. Connection to these and other customer interfaces is via an interface PCB. The PCB is provided by Elekta.

Elekta Care™ remote services

Elekta provides remote services dedicated to ensuring that customers derive ongoing value from their cancer management solutions allowing them to use their assets efficiently and effectively to treat patients by maintaining peak operational performance to optimize clinical availability.

Remote services for Synergy is provided by Elekta IntelliMax™—a technology platform that allows data to be transferred between Elekta and the clinic as well as allowing Elekta to remotely access the linear accelerator.

Confidentiality and system security are maintained at all times as remote access can only be undertaken with an approved customer representative present at the site during the connection.

By having Elekta IntelliMax support in place, customers enjoy enhanced clinical availability, quicker response times, speedier trouble shooting and access to Elekta's global team of technical experts and engineers throughout the working week regardless of linear accelerator location.

Learn more at elekta.com/elektacare

Appendix

Applicable international standards

The specifications declared in this document are based on the recommendations of the International Electrical Commission for the declaration of functional performance characteristics:

- IEC 60976:2007 Medical Electron Accelerators—Functional performance characteristics
- IEC 60977:2008 Medical Electron Accelerators—Guidelines for functional performance characteristics

The coordinate system convention applied in this document is:

- IEC 61217:2011 Radiotherapy equipment—Coordinates, movements and scales

Radiation leakage and other safety specifications comply with:

- IEC 60601-2-1:2009+A1:2014—Part 2-1: Particular requirements for the safety of electron accelerators in the range of 1 MeV to 50 MeV

For almost five decades, Elekta has been a leader in precision radiation medicine.

Our more than 4,000 employees worldwide are committed to ensuring everyone in the world with cancer has access to—and benefits from—more precise, personalized radiotherapy treatments.

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