



SILAC

Benefits

- Optimal mechanical degrees of freedom with movable X-ray head
- Compact design and optimized weight for easy installation
- Flexible and reliable operation thanks to full digital control
- Enhanced material detection capability in dual-energy operation mode
- Suitable for a wide range of applications thanks to continuously adjustable photon energy levels
- High flexibility with adjustable operation schemes

Siemens Healthineers Industrial Linear Accelerator

The SILAC linear accelerator system is designed for non-destructive testing (NDT) and use in scanning devices for cargo and vehicles in the security sector.

It allows for stationary installation in bunkers or controlled areas as well as mobile setups on trucks. The movable X-ray head can be used in a versatile range of applications.

The SILAC system comprises all necessary components, including the linear accelerator itself, shielding, magnetron, modulator, power supplies and interfaces, as well as an external cooling unit for hot or cold environments. Collimators and shielding modifications are also available.

Possible applications:

- Cargo inspection: trucks, ships, rolling stock
- Non-destructive testing
- Quality control in casting technology
- Metrology in complex assemblies
- Various research fields

Please note that the product SILAC is not commercially available in all countries. Due to regulatory and legal reasons the future availability cannot be guaranteed. Please contact your local Siemens Healthineers organization for further details.

Technical Data



Technical Data		SILAC c
Dimensions (H x W x D) mm	X-ray head (rotatable)	1250 x 1010 x 1110
	control cabinet	1710 x 940 x 790
	cooling unit	710 x 1250 x 1060
Weight (kg)	X-ray head	1900
	control cabinet	600
	cooling unit	356
Maximum dose rates at specific energy (absorbed dose H ₂ O, p = 1)	3 MeV	2.5 Gy/min
	4 MeV	4 Gy/min
	5 MeV	6.5 Gy/min
	6 MeV	9 Gy/min
	7 MeV	2 Gy/min
Leakage radiation*		≤2 x 10 ⁻⁶ from >60°
Photon spot size diameter (mm)**		1.2 - 2.0
Dose stability***		<1%
Energy stability***		<1%
Variable pulse adjustment	pulse repetition rate	20 - 600 Hz
	pulse length	1 - 4 μs
Interlaced dual energy	pulse to pulse switching	yes

Technical Data		SILAC c
Aperture (others on request) primary beam opening	vertical slit	70° x 1°
	cone	40°x40°
Electrical power requirements		3 phase AC
	voltage / frequency	400 V / 50 - 60 Hz
	fuse	35 A
Communication	ethernet	yes
Status control	24V PLC	yes
External trigger control	RS-485	yes option internal detector synchronization
Human machine interface in 3 levels		system monitoring and system adjustment (energy/dose)
Cooling unit	external cooling medium	air
	maximum ambient temperature range	-40 to +60°C
Protection class	X-ray head	IP66
	control cabinet	IP66
	cooling unit	IP56

* Ratio of leakage radiation to primary radiation measured in 1m from housing at angles 60° and greater

** Penumbra of tungsten edge under high magnification (similar to EN 12543-5)

*** <1% stability and drift are for max. 600Hz pulse repetition rate and single energy mode

Technical Data

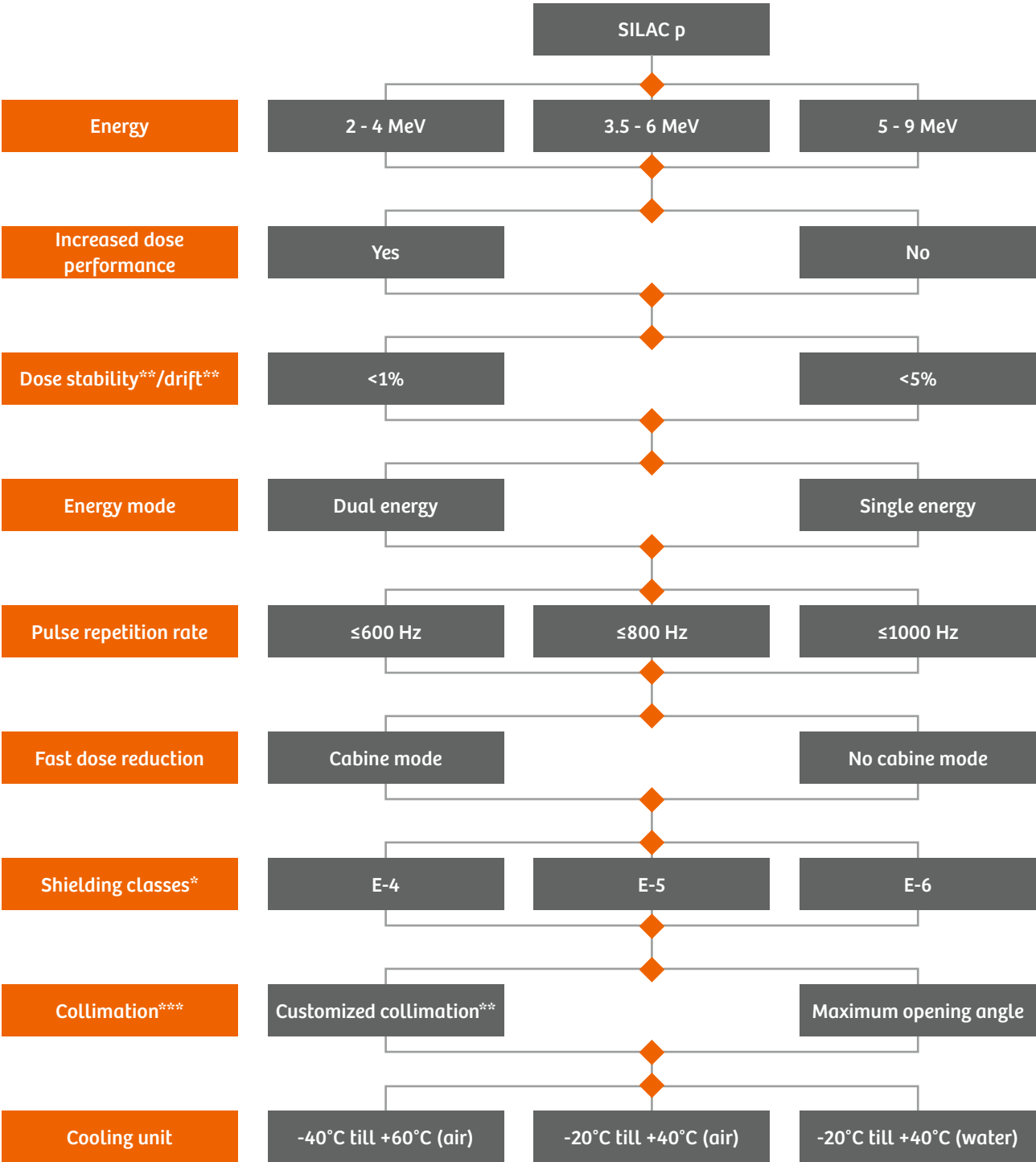
Technical Data		SILAC p 6 MeV	SILAC p 9 MeV
Dimensions (H x W x D) mm	X-ray head (rotatable)	1210 x 890 x 1180	1210 x 890 x 1684
	control cabinet	1710 x 940 x 790	
	cooling unit	710 x 1250 x 1060	
Weight (kg)	X-ray head	1720	2000
	control cabinet	600	
	cooling unit	356	
Maximum dose rates at (Gy/min) absorbed dose H ₂ O (p = 1)	2 MeV (HVL=2 cm)	1 Gy/min	-
	3 MeV (HVL=2.3 cm)	2 Gy/min	-
	4 MeV (HVL=2.5 cm)	5 Gy/min	-
	5 MeV (HVL=2.6 cm)	8 Gy/min	2 Gy/min
	6 MeV (HVL=2.7 cm)	10 Gy/min	12 Gy/min
	7 MeV (HVL=2.8 cm)	3 Gy/min	18 Gy/min
	8 MeV (HVL=2.9 cm)	-	32 Gy/min
	9 MeV (HVL=3 cm)	-	24 Gy/min
Leakage radiation*		$\leq 2 \times 10^{-6}$ from $>60^\circ$	
Photon spot size diameter (mm)**		1.2 - 2.0	1.5 - 2.5
Dose stability***		<1% or <5%	
Energy stability***		<1% or <5%	
Variable pulse adjustment	pulse repetition rate	20 - 600 Hz (option: 1000 Hz)	
	pulse length	1 - 4 μ s	
Interlaced dual energy	pulse to pulse switching	optional	
Aperture (others on request) primary beam opening	vertical slit	70° x 1°	
	cone	40°x40°	
Electrical power requirements		3 phase AC	
	voltage / frequency	400 V / 50 - 60 Hz	
	fuse	35 A	
Communication	ethernet	yes	
Status control	24V PLC	yes	
External trigger control	RS-485	yes option internal detector synchronization	
Human machine interface in 3 levels		system monitoring and system adjustment (energy/dose)	
Cooling unit	external cooling medium	air	
	maximum ambient temperature range	-40 to +60°C	
Protection class	X-ray head	IP66	
	control cabinet	IP66	
	cooling unit	IP56	

* Ratio of leakage radiation to primary radiation measured in 1m from housing at angles 60° and greater

** Penumbra of tungsten edge under high magnification (similar to EN 12543-5)

*** <1% stability and drift are for max. 600Hz pulse repetition rate and single energy mode

Work in Progress: product diversity



* Ratio of leakage radiation to primary radiation measured in 1m from housing at angles 60° and greater
 ** <1% stability and drift are for max. 600Hz pulse repetition rate and single energy mode
 *** Shape customized

This document is not considered to be a contractual specification. Kindly contact Siemens Healthcare GmbH prior to using this information for equipment design.

These components and configurations are not finished medical devices. Compliance with all laws and regulations that are applicable to finished medical devices are the responsibility of the manufacturer of the finished medical device.

The information in this document contains general descriptions of the technical options available, which do not always have to be present in individual cases. The required features should therefore be specified in each individual case at the time of closing the contract.

This document shall not be made available to healthcare professionals or to the general public.

The Technology Centers of Siemens Healthcare GmbH (TCs) are ISO 13485 certified. Components and products are manufactured in accordance with the Quality System Regulations (QSR) as defined by the U.S. Food and Drug Administration (FDA). The TCs endeavor to comply with legal requirements concerning the environmental compatibility of their products.

The reproduction, transmission or use of this document or its contents is not permitted without express written consent. Offenders will be liable for damages.

Siemens Healthineers reserves the right to modify the design and specifications contained herein without prior notice. All rights reserved, particularly in connection with patent applications or registrations of utility model or design.

Siemens Healthineers Headquarters

Siemens Healthcare GmbH
Henkestr. 127
91052 Erlangen, Germany
Phone: +49 913184-0
siemens-healthineers.com

Legal Manufacturer

Siemens Healthcare GmbH
Henkestr. 127
91052 Erlangen, Germany

Local Contact Information

Siemens Healthcare GmbH
Power & Vacuum Products
Allee am Roethelheimpark 2
91052 Erlangen
Germany
Phone: +49 9131 84-6911
oem-xray-components.siemens.com

Publisher for USA

Siemens Medical Solutions USA, Inc.
40 Liberty Boulevard
Malvern, PA 19355
United States of America