

ISOVOLT Lynx 160 / 320

New Generation Stationary X-ray Generator

The ISOVOLT Lynx is the first in a new generation of stationary X-ray machines from Inspection Technologies.

It represents a major advance in X-ray generator technology, incorporating the latest electronics and digital concepts to allow greater performance and reliability. It has been designed to align with the optimized performance of other components in the X-ray inspection imaging chain for a wide range of applications including the automotive, aerospace and metals manufacturing sectors, for tasks such as the inspection of welds, composites and castings, as well as in 3D computed tomography and metrology. It will be of particular interest to system integrators working in both the industrial and scientific sectors.



ISOVOLT Lynx Generator



The journey has just begun ...

GE introduces the next generation of stationary X-ray machines with the new ISOVOLT Lynx, which is one of the most significant innovations in X-ray generation for the past 10 years.

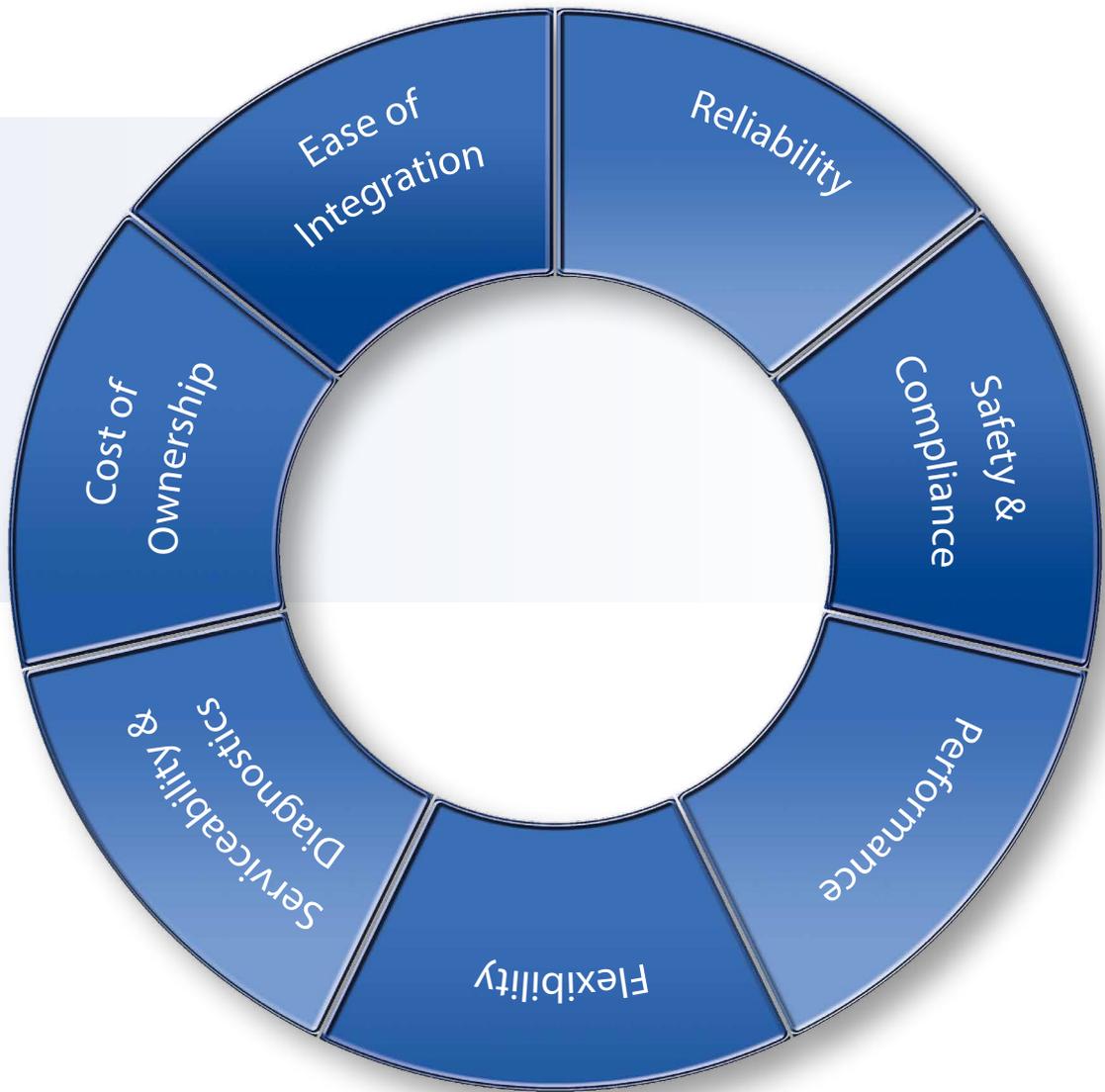
There have been enormous strides in imaging and tube technology over the past decade but the generator technology has been pretty static. By leveraging many of the concepts employed in the GE healthcare business, using their latest state-of-the-art technology, we have been able to develop this new industrialized version for industrial customers. This development has required us to create an application map for each potential generator application and then define the generator specifications needed to meet and optimize the tube, imaging and inspection standard requirements for that application.

1. ISOVOLT Lynx Generator

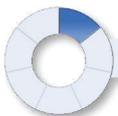
The result is a flexible and versatile generator platform which offers high reliability and performance across a very broad application spectrum. It is also a very scalable platform, which will allow us to meet future integration and monitoring requirements and the needs for higher energies, even up to 600 kV. In a first stage the ISOVOLT Lynx will be available as 160 kV and 320 kV version.



Both generators offer enhanced maintenance free options: maintenance free high voltage plugs on the generator side and new maintenance free bipolar tube housing for the 320 kV version. The integration into fully automated systems for in-line operation has also been optimized. The optional ISOVOLT Lynx Remote Control or the ISOVOLT Lynx Control ensure a simple configuration, control and operation.



Features & Benefits



Reliability



Safety & Compliance



Performance

Feature	Benefits
State-of-the art scalable, high-frequency MOS-FET driven, power electronics designed & dimensioned for industrial operations	High duty cycle and intermittent operations, fast reaction, recognizes tube performance hick-ups and protects electronics
Multi-stage, multi-core high voltage elements	Scalable high voltage design with space optimized high voltage elements
Modular design	Reduced interaction between power electronics / high voltage elements; lower risk of shut-downs
Tube response monitoring	Monitors and records all high voltage events (arcs, flash-over)
Fast digital controller	Supports fast detection of abnormal events and instantly cuts off to protect tube and generators

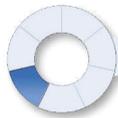
Feature	Benefits
Integrates all safety relevant mechanisms	Inherent primary safety features, fail-safe design of primary safety circuit, secondary safety features configurable for region specific standards
Clear visualization and unmistakable control & guidance for user controlled operation	Large wide color screen, touch-resistive display, immediate display and easy interpretation of critical messages Operation with gloves possible

Feature	Benefits
Nominal power 45 mA*, 4500 W*	Drives all known "sealed" industrial X-ray macro-focus and mini-focus tubes, including high power tubes
Nominal energy 160 kV / 320 kV	Extends the range to high energy applications for penetration of thick-walled materials
Fast ramp up time	Power electronics is capable to change settings in milliseconds, which allows fast inspection cycles in inline production environment
Fast switching time	Supports modes for dual energy operation
Fast digital controller	Keeps key X-ray parameters stable: reproducibility, accuracy and dose stability, fast reaction on system entries and system abnormalities
High performance air cooling of power electronics	No need to have water cooled generator option, simplifies installation Supports 24/7 operation at controlled conditions



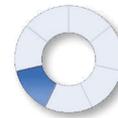
Flexibility

Feature	Benefits
Maintenance free option	No need for periodic high voltage plug maintenance
Sealed high voltage tank	No spillage, transport and operation independent from orientation
Weight reduction (50% of comparable X-ray generators)	Simplified handling



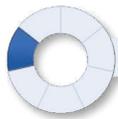
Serviceability

Feature	Benefits
Field Replaceable Units (FRU) Concept	Quick replacement of main modules, short downtimes (for simplified spare parts management, fast turn-around-time)
Simplified troubleshooting	Quick determination of system status and immediate recovery activities



Diagnostics

Feature	Benefits
Improved CPU platform, Online monitoring and data recording of relevant system parameter	Better fault interpretation Data collection Outlook for future: statistical data analysis and predictive monitoring



Cost of Ownership

Feature	Benefits
Less or zero maintenance for X-ray tube / cable setup with maintenance free designs generator, cable and X-ray tubes	To minimize preventive maintenance efforts, reduce downtimes to minimum
Assisted X-ray tube characteristics recognition and digital parameter adjustments	Quick installation procedure



Ease of Integration

Feature	Benefits
Low weight / small footprint	Support integration in inline or offline production machines
Classic mode	Backwards compatibility of interfaces and electrical connections; reuse of existing accessories
Power factor correction	Simplified installation conditions. Less power consumption, high efficiency of power usage, single phase mains input, wide range of supply voltage acceptable
Tube database	All known standard tubes, with individual characteristics and operating instructions are stored and selectable via menu / via interface



2. ISOVOLT Lynx Control

A user-friendly, multi-language control features a clear full-colour graphical display with touch screen, that allows simultaneous readings of set and actual operating parameters. Embedded in an ergonomic and rugged desktop or optional 19" rack mounting housing, full control of X-ray operation features, service and system configuration features, online monitoring of relevant system parameters is established. Intuitive guidance through diverse menus as well as unmistakable messages for clear interventions are provided with this module.

Features such as free configurable exposure programs, or special programs for constant power, constant current and manual operation cater for individual demands for radiographic or radioscopic inspections. The multi-lingual user display with 16 different languages and extended character sets for Japanese, Cyrillic and Chinese enables comprehensible and simple interaction.

ISOVOLT Lynx provides automatic and manual warm-up modes for optimized tube conditioning. A special extended warm-up mode safeguards tube performance under severe conditions and setups.

3. ISOVOLT Lynx Remote Control

Designed for the needs of system integrators this PC based tool provides full control over all ISOVOLT Lynx operation, service and diagnostics features.

It can be installed on every WIN 7 or WIN XP PC and can be connected via a USB/RS-232 cable with the ISOVOLT Lynx generator.

Alongside with the optional fail-safe E-Stop Control Box, ISOVOLT Lynx Remote Control establishes a full PC based generator control and management platform.



X-ray Tubes

ISOVOLT Lynx supports a comprehensive portfolio of monopolar and bipolar X-ray tubes from different suppliers.

Please contact your sales representative for consultation on X-ray tube selection.

Accessories

Safety devices

- Primary interlock switch
- Alarm box
- Switch box
- Flash- and warning lamps
- Country specific safety kits

HV cables

- In different standard lengths, with quick-lock or flange connections with rubbercone plugs or maintenance free plugs.



Dosimetry and calibration kits

- Voltage divider

Pumps and coolers

See pictures on this page



WL 5000 RE



OW 4002



OL 4503



OLK 50



Voltage divider



Maintenance free
tube housing



Junction kits and
safety devices



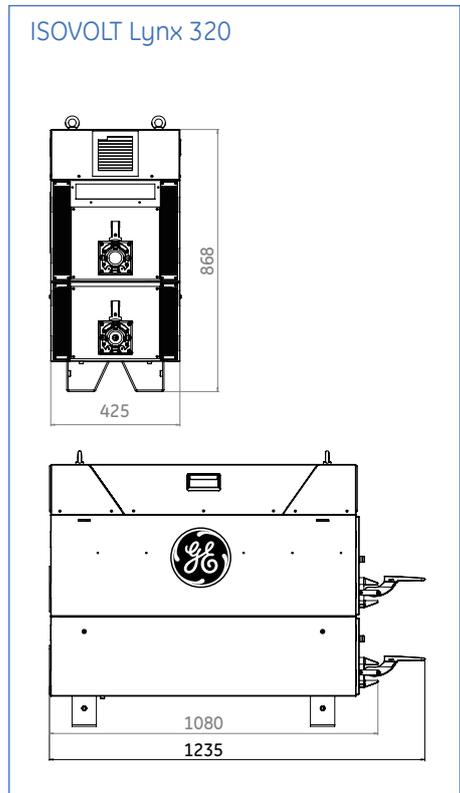
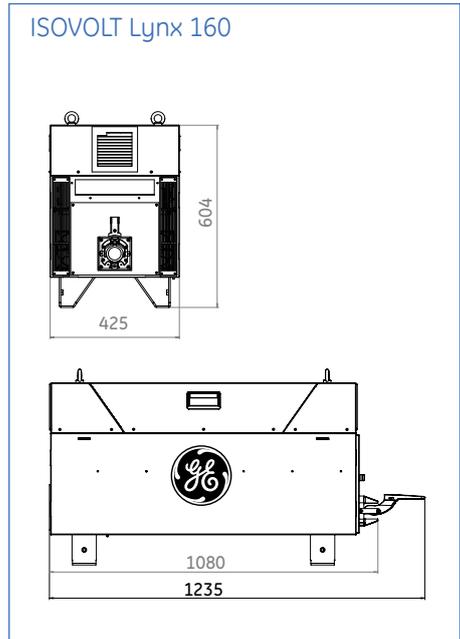
Diaphragms



Column stand

Technical Specifications

	ISOVOLT Lynx 160	ISOVOLT Lynx 320
High Voltage Generator		
Performance		
Max. Output Voltage	160 kV	320 kV
Tube Voltage	from 25 kV to 160 kV	From 50 kV to 320 kV
Max. Output Current	45 mA	45 mA*
Tube Current	1 mA - 45 mA*	1 mA - 45 mA*
Max. Output Power	4 kW**	4.5 kW**
Resolution (Voltage / Current)	0.1 kV / 0.01 mA	0.1 kV / 0.01 mA
Absolute Accuracy (Voltage / Current)	±1,5% / < 1%	±1,5 % / < 1%
Stability (Voltage / Current)	< 0,01% / < 0,01% ***	< 0,01% / < 0,01% ***
Insulation	Oil (sealed high voltage tank)	Oil (sealed high voltage tank)
Interfaces		
High Voltage Connections	R24 Quick Release Flat Socket maintenance free (optional)	R24 Quick Release Flat Socket maintenance free (optional)
Signal	Door contacts, interlock, external E-stop, additional potential-free contacts, standard connections for warning lamp, warning light and cooler/chiller	Door contacts, interlock, external E-stop, additional potential-free contacts, standard connections for warning lamp, warning light and cooler/chiller
Data	RS-232 USB Ethernet	RS-232 USB Ethernet
Dimensions		
Dimensions (W x D x H)	1080 x 425 x 605 mm (42,52" x 17,7" x 23,82")	1080 x 425 x 870 mm (42,52" x 17,7" x 34,25")
Weight	120 kg (265 lb)	200 kg (441 lb)
Electrical Connection		
Mains	1N PE 230V ± 10%, 50/60 Hz	1N PE 230 V ± 10%, 50/60 Hz
Installation Conditions	TN-S or TN-C according EN 32 / UL 35, power requirement 6,7 kVA, cos Phi = 0.9-1.0	TN-S or TN-C according EN 32 / UL 35, power requirement 6,7 kVA, cos Phi = 0.9-1.0
Environmental		
Operating Temperature Range	0°C to +40°C	0°C to +40°C
Storage Temperature Range	-30°C to +70°C	-30°C to +70°C
Certification		
Certification	CE, cETLus , NFC 74100	CE, cETLus , NFC 74100
Control Module		
Features	Touch-resistive, color display Desk-top housing X-ray on/off, E-Stop, 3-position key switch	
Dimensions	390 x 240 x 120 mm (15,35" x 9,45" x 4,72") 1.2 kg (2.64 lb)	
Remote Control		
Features	PC application X-ray control and service (Win 7, Win XP) USB to RS232 converter Fail-Safe E-Stop Box (optional)	



* 40 mA permanent operation, limited to peak operation
 ** Limited to tube specification, temperature and operating mode
 *** At constant temperature level

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GE Sensing & Inspection Technologies has sales and service offices all over the world. Below are some of our locations. Visit www.geit.com for a complete listing.

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