

Y.MG325/452 Universal bipolar constant potential X-ray systems



The high energy and high dose rates of the bipolar 4.5 kW systems detailed below can be used for a wide variety of applications ranging from light alloys and thin walled materials of low density to thick walled materials of high density such as 115 mm iron.

The bipolar 40 kHz X-ray systems feature very high output stability, precise energy setting and extremely fast change over to any selected new value. Any fluctuation or deviation of set values is controlled and corrected within microseconds.

These features make the system an excellent candidate not only for radiographic and radiosopic applications but also for scanning methods like tomography and even in the field of dosimetry.

In addition these features reduce inspection times considerably, an important economic aspect.

The wide range of use calls for a universal, easy to use control system realized in the MGC41. The setup modes are menu driven. All signals, operating mode and fault diagnosis of internal or external errors are displayed in clear text which can be easily displayed in a number of optional languages. Additional error indications are given by numerical codes. Furthermore, 100 technique programs can be stored for future use, and when connected through the serial port interface, an infinite number of programs may be stored on the host computer.

All system components are protected against the influence of dust and water. H.V Generators and Power supplies meet the requirements of IP54.

YXLON. The reason why.

- high output stability
- short inspection times
- high reliability
- easy to use

Operation

Constant potential with Isowatt-feature – fully automated monitoring of power limits and tube head specifications.

Menu-driven system information input

- Language selection: English, German, French, Spanish
- Serial interface
- Tube head selection
- Prewarning time
- Display contrast
- Hour counter
- Service menu
- History register (last 99 cycles)

Mains supply (single-phase)

- 230 V +10%-15%, 50/60 Hz
- Protection MGP 41: 50 A

Exposure timer (four-digit LED display)

Input range

- Special ∞ setting for radioscopic application
- In 1 second steps up to 10 minutes
- In 10 second steps up to 99 minutes and 50 seconds

Pre-warning

- Adjustable from 1 to 30 seconds
- Menu-driven selection
- Input through touch keypad

Tube head selection

- Menu-driven through keypad entry (see table for recommended tube head)

Programmed operation

- 100 technique capacity (kV, mA, time, focal spot, programmable through numeric keypad)
- 3-level program for automated tube conditioning

Environment

- Duty cycle: 100 % at +40 °C max. ambient temperature in non-convective air
- Operation temperature: 0 °C bis +40 °C, relative humidity 90% at +40 °C
- Storage temperature: -25 °C bis +70 °C, relative humidity 95% at +40 °C

Additional components

- RS232C serial port for MGC41
- MGC41 PC-Software
- Range selector: MG452: 30 mA
MG352: 45 mA
- Mobile tripod
- Beam centering devices and sets of diaphragms
- Tube mount
- Additional options available on request

YXLON-SYSTEM	MG325	MG452
Max. Power:		4,500 W
High voltage:		
Adjustment range (four-digit LED display)	15-320 kV	20-450 kV
Adjustment increments (minimum step)		0.2 kV / step
Accuracy		± 1 % of demand value ± 0.2 kV
Reproducibility		± 0.01 % of maximum kV-value at a constant temperature
H.V. ripple (with 10 m H.V. cable)		10 V/mA, min. 40 V
Temperature induced drift		80 ppm/°C based on demand value
with compensation*		40 ppm/°C based on demand value (on request 30 ppm/°C possible)
Tube current:		
Adjustment range (four-digit LED display)	0-22.5 mA	0-15 mA
Adjustment: Standard range		in 0.05 mA steps from 0.5 mA to maximum value
High resolution range (recommended)		in 0.01 mA steps from 0.0 mA to maximum value
Accuracy (at constant temperature)		± 0.2 % of demand value ± 0.01 mA
Reproducibility (at constant temperature)		± 2 µA
Temperature drift		50 ppm/°C of demand value (on request: 30 ppm/°C possible)
Focal spot selection:		Keypad selected: selection indicated by large and small symbols on display panel
Individual components:		
Control unit: Dimensions (WxHxD); Weight		MGC41: 483 mm x 133 mm x 300 mm; 12.5 kg
Power supply: Dimensions (WxHxD); Weight		MGP41: 340 mm x 350 mm x 628 mm; 45 kg
H.V. generator (oil insulated)	MGG42 (-) / MGG43 (+)	MGG46 (-) / MGG47 (+)
Dimensions (WxHxD)	375 mm x 335 mm x 625 mm	514 mm x 364 mm x 624 mm
Weight	80 kg	125 kg
Metal-ceramic tube head (recommended)	Y.TU 320-D01, Y.TU 320-D03	Y.TU 450-D07, Y.TU 450-D08, Y.TU 450-F02
Oil cooler: oil to air heat exchanging system		OL4502: Dimensions (WxHxD) : 770 mm x 535 mm x 340 mm; Weight: 60.3 kg
oil to water heat exchanging system*		OW4501: Dimensions (WxHxD) : 621 mm x 560 mm x 350 mm; Weight: 65 kg
Chiller*		OLK50: Dimensions (WxHxD) : 1120 mm x 980 mm x 750 mm; Weight: approx. 191 kg
Additional components		High voltage cable and cooling hoses: standard length: 5 m, optional 10 m / 15 m / 20 m

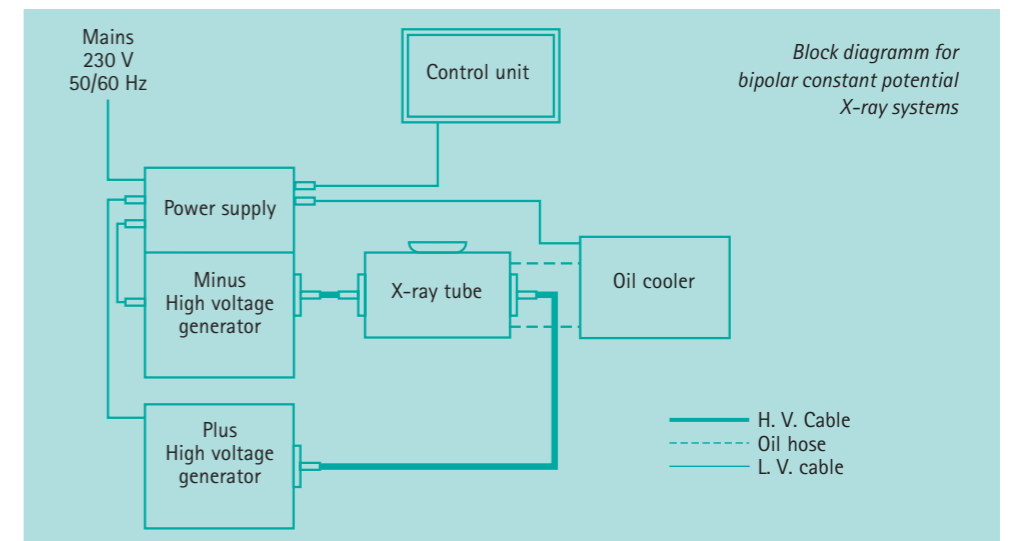
*optional

Compliance

YXLON International products are manufactured according to strict safety and quality standards and in compliance with the following standards:

- DIN 54113 (radiation shielding and safety circuits)
- EN 12543 (focal spot measurement standards)
- German radiation regulations of 2002
- DIN EN 60204/DIN EN 50178
- EN 50082-2/EN 55011
- USA: 21 CFR § 1020.40
47 CFR § 15 (FCC)

Das Qualitätssicherungssystem der YXLON International X-Ray GmbH ist nach DIN EN ISO 9001 zertifiziert.



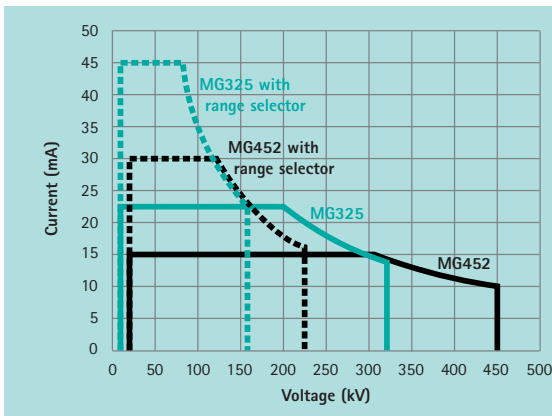
Safety provisions

General

- Two independent, independently monitored safety-circuits (fail-safe, 24 V)
- Continuous system functional monitoring with fully automated system shut-down and failure indication
- Automated filament post-heating H.V. capacitor discharge upon termination
- X-ray ON warning lamp monitoring provided (fail-safe)

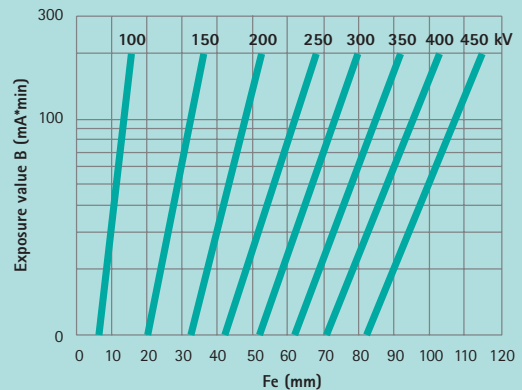
Provided connections for:

- External safety circuit for automated systems (24 V)
- H.V. primary circuit interruption for CDRH switch [US-Standard]
- Monitored door lock feature
- External coolant monitoring



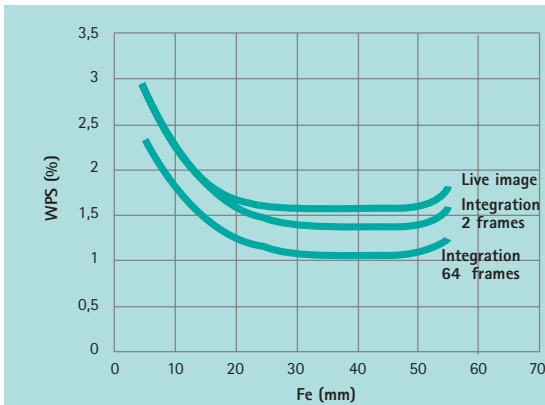
Maximum load characteristics for the systems MG325 / MG452 with and without range selector

The values of voltage and current are conditioned on the preprogrammed tube and will be adjusted by the MGC41



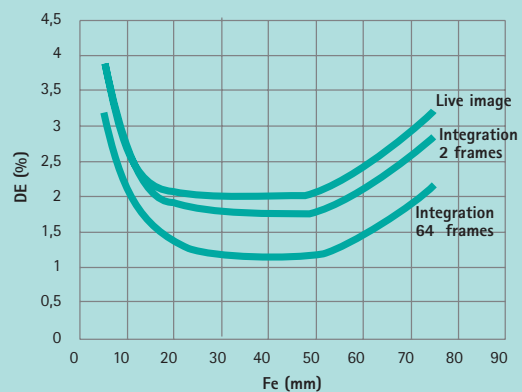
Film exposure chart for Fe up to 450 kV

FFD=700 mm;
Film System Class C5 acc. EN 584-1;
Pb-screen 0.02 mm; Density 2.0



Radioscopic wire penetrameter sensitivity (WPS) for Fe [%]

MG325 with Y.TU 320-D01,
focal spot: 1.9 mm acc. EN 12543 (0.8 acc. IEC336);
Distance focal spot - image intensifier: FDD = 800 mm;
Distance focal spot - object: FOD = 400 mm;
XRS 232: 7" size



Radioscopic wire penetrameter sensitivity (WPS) for Fe [%]

MG452 with Y.TU 450-D08,
focal spot: 2.5 mm acc. EN 12543 (1.2 acc. IEC336);
Distance focal spot - image intensifier: FDD = 800 mm;
Distance focal spot - object: FOD = 500 mm;
XRS 232: 7" size

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