


GULMAY



X-RAY

GENERATORS • CONTROLLERS • TUBES

GULMAY IS THE PERFECT
PARTNER FOR WHERE HIGH
QUALITY, STABILITY, RELIABILITY
AND INGENUITY OF DESIGN
ARE CRITICAL





WHY GULMAY?

Gulmay has been at the forefront of x-ray generator design for over 35 years. We are one of the world's leading manufacturers of high-frequency, high-voltage power supplies and controllers for use in industrial x-ray applications.

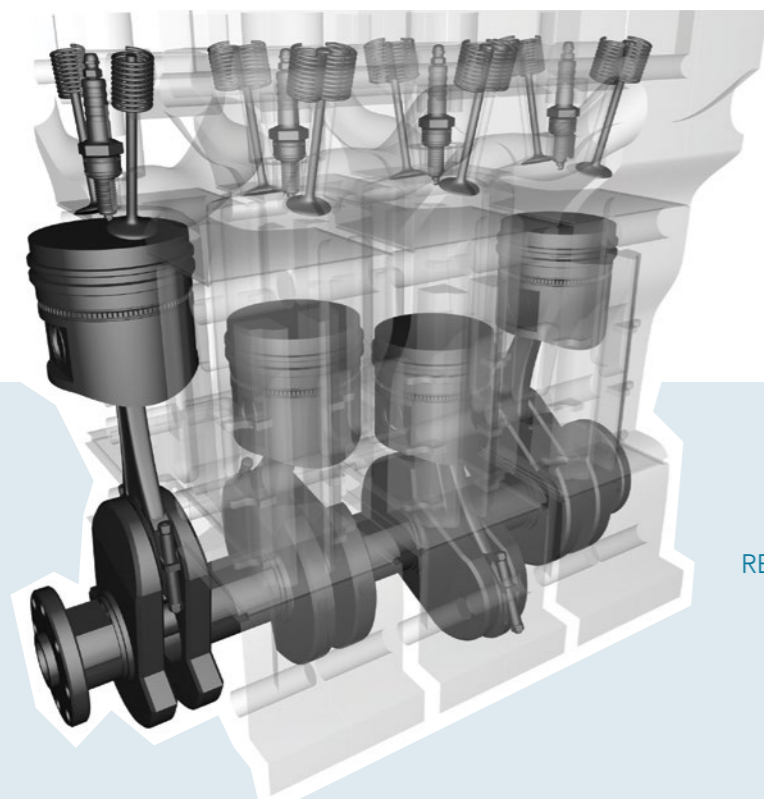
The company's long and proven track record offers reassurance and confidence to customers, yet at the same time Gulmay has excelled in keeping flexible and agile in a changing market. We offer a substantial edge over any competitors because of our ability to produce customised and cost-effective solutions to match customers' specific requirements.

Gulmay is the perfect partner for where high quality, stability, reliability and ingenuity of design are critical. That's why our products are used to test the world's most critical components in the aerospace, automotive and security and defence industries. Gulmay has continually broadened its diverse product range and is now supporting customers globally in key growth markets.

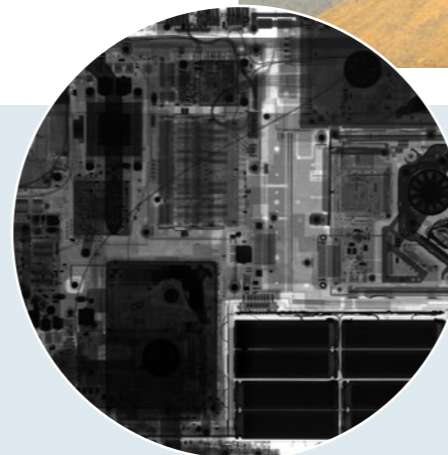
SOME OF THOSE INCLUDE

- Security and defence
- Steel gauging
- Non-Destructive testing
- Mineral sorting
- Electronics assembly inspection
- Food packaging inspection
- Medical therapeutic application and research
- Tyre inspection
- Electron beam welding
- Sterilisation and irradiation
- Neutron beam power sources
- CT inspection systems

Gulmay's experience combines with innovative design, customised solutions and high-quality performance to lead the way in industrial x-ray generation. And we'll be here for generations to come.



GULMAY IS THE PERFECT PARTNER FOR WHERE HIGH QUALITY, STABILITY, RELIABILITY AND INGENUITY OF DESIGN ARE CRITICAL



SECURITY

Gulmay's range of high-voltage generators has an unparalleled reputation for reliability. We have worked ceaselessly over many years to develop products that meet the rigours and uncompromising requirements of security sensitive applications. This reliability has resulted in Gulmay products becoming the generator of choice for many of the world's leading manufacturers of cargo inspection systems.

Above: For obvious reasons, all material coming in to the military base in Hawaii has to be security checked by x-ray – naturally, the US Navy chose Gulmay.

US NAVY PHOTO, RYAN C. MCGINLEY



WHY GULMAY?

MICROFOCUS

Gulmay has earned a unique place in the development of the microfocus inspection technique. In 1982, Gulmay became the world's first generator manufacturer to provide a dedicated power supply solution specifically to meet the unique requirements posed by demountable microfocus x-ray tubes. Working closely with microfocus tube manufacturers throughout the world, Gulmay developed the microfocus product line which continues to be the industry leader today. The line-up has grown to include generators ranging in output voltage from 50kV to 550kV.

SORTING

Gulmay's generators power the x-ray fluorescence systems that sort virtually all of the world's diamonds. At the same time, bespoke Gulmay power supplies successfully meet the growing demands of the industrial recycling and product recovery industries.



These are just two of the applications that demonstrate Gulmay's flexible design philosophy, offering tailor-made responses to customers' unique requirements.

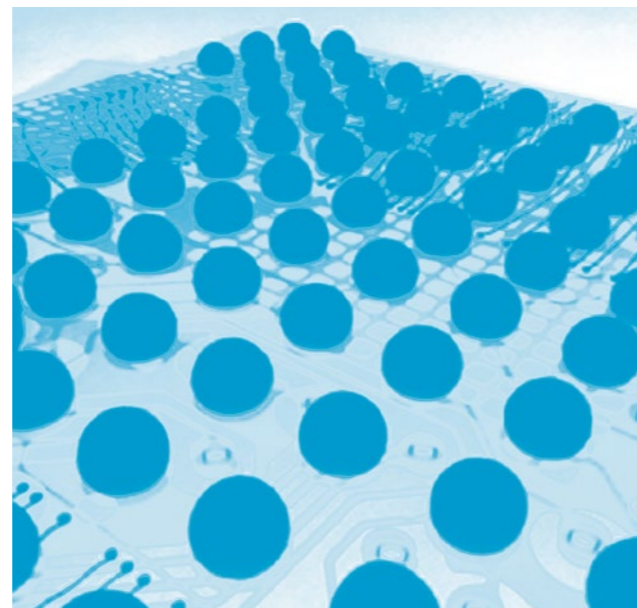
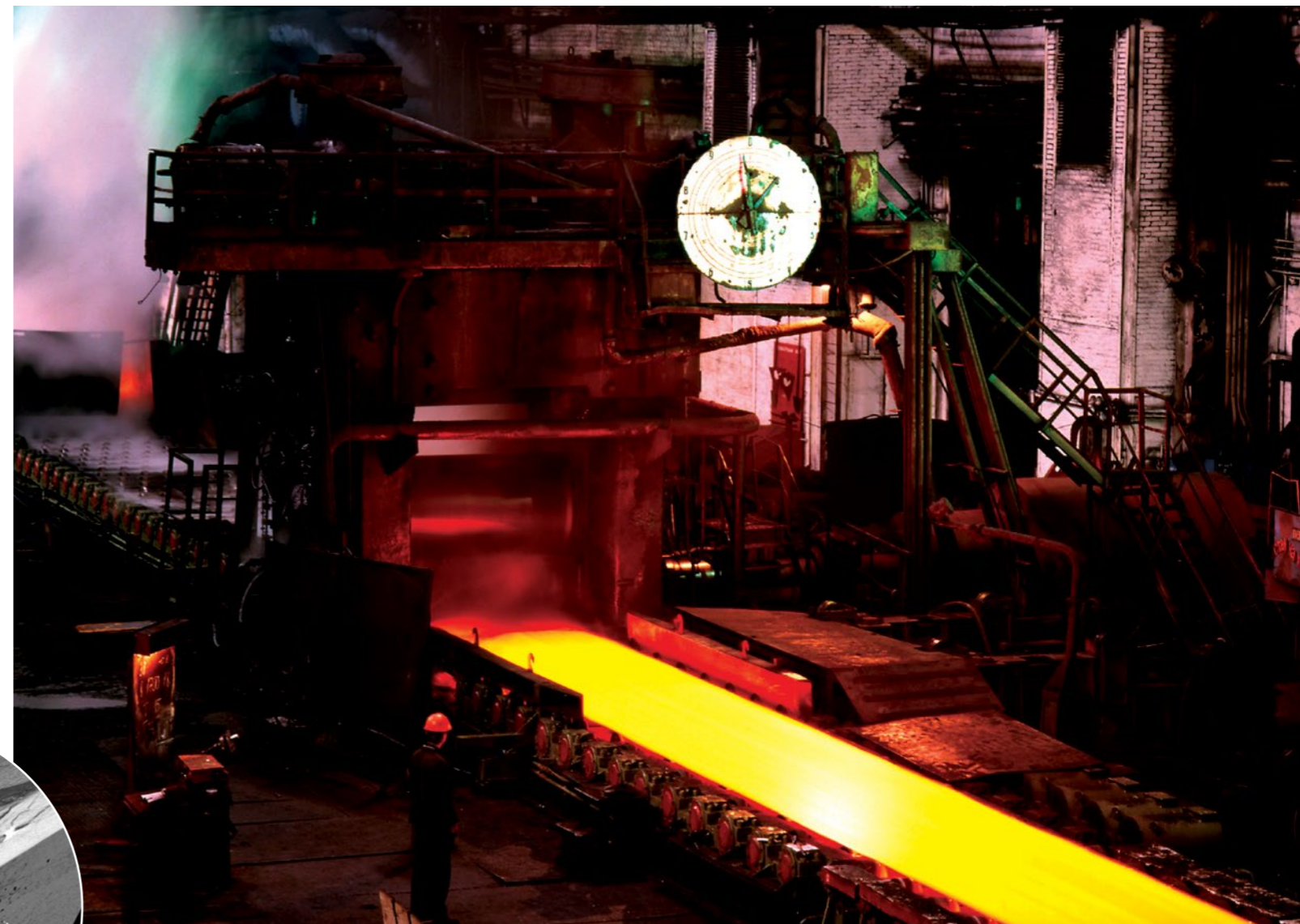
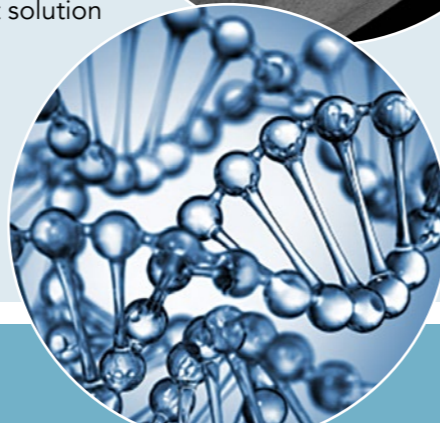
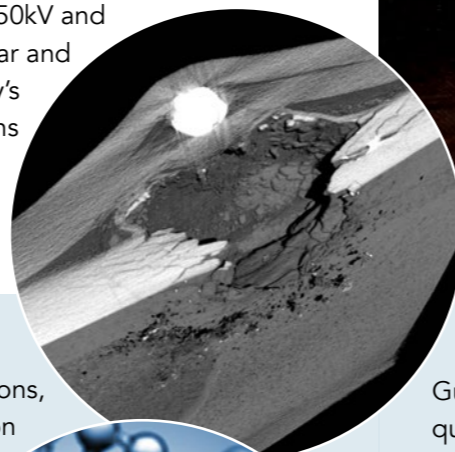


PHOTO CREDIT: NIKON METROLOGY

NON-DESTRUCTIVE TESTING (NDT)

Gulmay generators are used extensively for applications which come under the broad heading of non-destructive testing and examination. With output power ranging from 50kV to 550kV and 640W to 7.5kW in both unipolar and bipolar configurations, Gulmay's unique product flexibility means there is a generator ideally suited to any x-ray inspection demand. From low-powered tyre inspection generators to the latest in fast rise and slew rate generators for high-speed digital and CT applications, Gulmay has the perfect solution to meet every possible non-destructive testing requirement.



LIFE SCIENCES

Gulmay's uncompromising commitment to quality has resulted in the world's largest manufacturer of therapeutic x-ray equipment using Gulmay high-voltage products exclusively. In this demanding and sensitive application, the ultra-high stability and repeatability provided by Gulmay are critical in the successful delivery of treatments in hospitals throughout the world.

STEEL GAUGING

Steel gauging applications are notoriously demanding. They require power supplies with both high power and high stability to work reliably over a wide range of operating conditions. Gulmay, working in partnership with the leading manufacturers of steel gauging systems, has developed a range of products with the ruggedness and durability needed to operate reliably in the harshest of environments. With their unique design features, Gulmay products are found in many steel manufacturing plants around the world.

GULMAY'S UNIQUE PRODUCT FLEXIBILITY MEANS THERE IS A GENERATOR IDEALLY SUITED TO ANY X-RAY INSPECTION DEMAND

FC SERIES

X-RAY GENERATORS

640W – 1000W TECHNICAL SPECIFICATION

	FC65	FC100	FC101	FC160	FC225	FC65HP	FC100HP	FC160HP	FC225HP	FC320
Max. Power	640W					1000W				
KV Range	5 - 65	5 - 100	5 - 100	5 - 160	5 - 225	5 - 65	5 - 100	5 - 160	5 - 225	10 - 320
KV Accuracy	± 1% of Demand Value					± 1% of Demand Value				
KV Reproducibility	Better Than ± 0.05KV					Better Than ± 0.05KV				
High Voltage Ripple	Less Than 5.0V/mA with 10M High Voltage Cable					Less Than 10.0V/mA with 10M High Voltage Cable				
mA Range	0 - 12	0 - 12	0 - 12	0 - 10	0 - 7	0 - 20	0 - 16	0 - 16	0 - 10	0 - 8
mA Accuracy	± 0.5% of Demand Value					± 0.5% of Demand Value				
mA Reproducibility	Better Than 2µA					Better Than 2µA				
Input Voltage	220 ± 10% 47 - 63 Hz					220 ± 10% 47 - 63 Hz				
Input Current	6.8A at 220V					10.6A at 220V				
Output Connector	R10	R10/R24	R10	R24	R30	R10	R10/R24	R24	R30	R30
Dimensions Cathode mm (W x H x D)	340 x 473 x 436	360 x 482 x 613	340 x 473 x 436	360 x 482 x 613	415 x 545 x 830	340 x 473 x 436	360 x 482 x 613	360 x 482 x 613	415 x 545 x 830	360 x 480 x 630
Dimensions Anode mm (W x H x D)	N/A					N/A				
Weight (kg)	98	102	98	102	160	98	102	102	160	199 (combined)
Storage Temperature	-40° C to + 70° C					-40° C to + 70° C				
Operational Temperature	0° C to + 40° C					0° C to + 40° C				
Relative Humidity	95%					95%				
Duty Cycle	100%					100%				
Comms	Analogue / RS232 / RS422 / Ethernet									

Specifications and configurations can be tailored to meet individual requirements. Please contact Gulmay for further information. Specifications subject to change without notice.



The FC Series of x-ray high-voltage generators is available in either standard 640W or a high-power 1000W option. Both the standard and high-power options are available in a wide range of output voltage configurations including a bipolar 320 KV version.

FC series generators are the ideal power supply when using traditional and high power series x-ray tubes for a variety of imaging techniques including analogue real-time imaging, digital flat panel imaging and linear imaging detectors. The FC series is used extensively in tyre inspection applications. Other ideal applications include food inspection, casting and welded assemblies, small parcel security, and a wide range of real-time NDT inspection applications. The FC series incorporates an accurate feedback system that constantly monitors the x-ray tube mA and kV to ensure precise and stable output. The generator status is monitored by the internal electronics to maintain safe and reliable operation. A choice of analogue or digital controls is available to facilitate simple integration into automated inspection systems. The digital control supports RS232, RS422 and Ethernet interface protocols. The oil-filled high-voltage system provides greater thermal dissipation than resin-filled designs, increasing reliability and ensuring both a 100% duty cycle and full field serviceability.

The FC Series is compatible with x-ray tubes from all leading manufacturers.



THE FC SERIES IS USED EXTENSIVELY IN TYRE INSPECTION APPLICATIONS – FROM ROAD TYRES UP TO FORMULA ONE LEVEL



CF SERIES

X-RAY GENERATORS 1250W – 1800W TECHNICAL SPECIFICATION

	CF50	CF100	CF160	CF225	CF320	CF450
Max. Power	1250W	1800W			1800W	
KV Range	5 - 50	5 - 100	5 - 160	5 - 225	10 - 320	10 - 450
KV Accuracy	± 1% of Demand Value			± 1% of Demand Value		
KV Reproducibility	Better Than ± 0.05KV			Better Than ± 0.05KV		
High Voltage Ripple	Less Than 5.0V/mA with 10M High Voltage Cable			Less Than 10.0V/mA with 10M High Voltage Cable		
mA Range	0 - 25	0 - 40	0 - 25	0 - 18	0 - 15	0 - 10
mA Accuracy	± 0.5% of Demand Value			± 0.5% of Demand Value		
mA Reproducibility	Better Than 2µA			Better Than 2µA		
Input Voltage	220V ±10% 47 - 63 Hz			220V ±10% 47 - 63 Hz		
Input Current	13A at 220V			13A at 220V		
Output Connector	R10	R24	R24	R30	R24	R30
Dimensions Cathode mm (W x H x D)	360 x 422 x 610	364 x 565 x 613	364 x 565 x 613	418 x 630 x 830	364 x 565 x 613	418 x 630 x 830
Dimensions Anode mm (W x H x D)	N/A			364 x 565 x 613	418 x 630 x 830	
Weight (kg)	85	105	105	180	185 (combined)	310 (combined)
Storage Temperature	-40° C to + 70° C			-40° C to + 70° C		
Operational Temperature	0° C to + 40° C			0° C to + 40° C		
Relative Humidity	95%			95%		
Duty Cycle	100%			100%		
Comms	Analogue / RS232 / RS422 / Ethernet					

Specifications and configurations can be tailored to meet individual requirements.
Please contact Gulmay for further information Specifications subject to change without notice.



The Gulmay CF Series series of high-voltage x-ray generators was designed to partner the 1800W range of high-power, small focal spot x-ray tubes. The CF series is available in a wide range of output voltage configurations from 50KV to 450KV.

CF series generators are designed to offer a cost effective solution to powering high-power small focal spot x-ray tubes by perfectly marrying the 1800W power output of the tube. Operating at 45KHz and using Gulmay's variable frequency technology, the CF is an efficient and versatile generator ideal for a broad array of applications including gauging, precision calibration and a range of real time NDT inspection.

The CF series incorporates an accurate feedback system that constantly monitors the x-ray tube mA and kV to ensure precise and stable output. The generator status is monitored by the internal electronics to maintain safe and reliable operation. A choice of analogue or digital controls is available to facilitate simple integration into automated inspection systems. The digital control supports RS232, RS422 and Ethernet interface protocols. The oil-filled high-voltage system provides greater thermal dissipation than resin-filled designs, increasing reliability and ensuring both a 100% duty cycle and full field serviceability.

In addition to the high power range of x-ray tubes the CF Series is compatible with x-ray tubes from all leading manufacturers.



IN ADDITION TO THE HIGH POWER RANGE OF X-RAY TUBES THE CF SERIES IS COMPATIBLE WITH X-RAY TUBES FROM ALL LEADING MANUFACTURERS

CP SERIES

X-RAY GENERATORS 3200W – 4500W TECHNICAL SPECIFICATION

	CP100	CP101	CP104	CP160	CP225	CP320	CP450
Max. Power	3200W					4200W	4500W
KV Range	10 - 100	10 - 100	10 - 100	10 - 160	20 - 225	30 - 320	40 - 450
KV Accuracy	± 1% of Demand Value					± 1% of Demand Value	
KV Reproducibility	Better Than ± 0.05KV					Better Than ± 0.05KV	
High Voltage Ripple	< 5.0V/mA with 10M High Voltage Cable					< 10.0V/mA with 10M High Voltage Cable	
mA Range	0 - 30	0 - 45	0 - 75	0 - 30	0 - 30	0 - 30	0 - 20
mA Accuracy	± 0.5% of Demand Value					± 0.5% of Demand Value	
mA Reproducibility	Better Than 2µA					Better Than 2µA	
Input Voltage	220V ±10% 47 - 63 Hz					220V ±10% 47 - 63 Hz	
Input Current	27A at 220V					27A at 220V	
Output Connector	R10/R24	R10/R24	R24	R24	R30	R24	R30
Dimensions Cathode mm (W x H x D)	435 x 729 x 667	435 x 729 x 667	435 x 729 x 667	435 x 729 x 667	435 x 780 x 818	435 x 729 x 667	435 x 780 x 818
Dimensions Anode mm (W x H x D)	N/A					406 x 729 x 638	528 x 780 x 813
Weight (kg)	220	220	220	220	240	380 (combined)	430 (combined)
Storage Temperature	-40° C to + 70° C					-40° C to + 70° C	
Operational Temperature	0° C to + 40° C					0° C to + 40° C	
Relative Humidity	95%					95%	
Duty Cycle	100%					100%	
Comms	Analogue / RS232 / RS422 / Ethernet						

Specifications and configurations can be tailored to meet individual requirements.
Please contact Gulmay for further information. Specifications subject to change without notice.



The Gulmay CP Series combines high power with unparalleled reliability through a broad x-ray power and energy spectrum. The CP series operates up to 4500W and is available in a wide range of output voltage configurations from 50KV to 450KV. High mA CP models are available where applications call for a particularly high dose rate.

CP series generators can be used to power small focal spot x-ray tubes for imaging and high-power tubes for higher density materials. CP series high-power generators are the ideal choice for aerospace film radiographic applications and demanding, long duration tomography scanning techniques. In addition to a wide range of traditional imaging radiography, the CP series is widely used in critical areas of security and medical radiotherapy where accuracy and reliability are essential.

The CP series incorporates an accurate feedback system that constantly monitors the x-ray tube mA and kV to ensure precise and stable output. The generator status is monitored by the internal electronics to maintain safe and reliable operation. A choice of analogue or digital controls is available to facilitate simple integration into automated inspection systems. The digital control supports RS232, RS422 and Ethernet interface protocols. The oil-filled high-voltage system provides greater thermal dissipation than resin-filled designs, increasing reliability and ensuring both a 100% duty cycle and full field serviceability.

The CP series of generators is compatible with x-ray tubes from all leading manufacturers.

PL1



FS4



1AT

FS5



CP SERIES HIGH-POWER GENERATORS ARE IDEAL FOR AEROSPACE FILM RADIOGRAPHIC APPLICATIONS AND LONG DURATION TOMOGRAPHY SCANNING TECHNIQUES

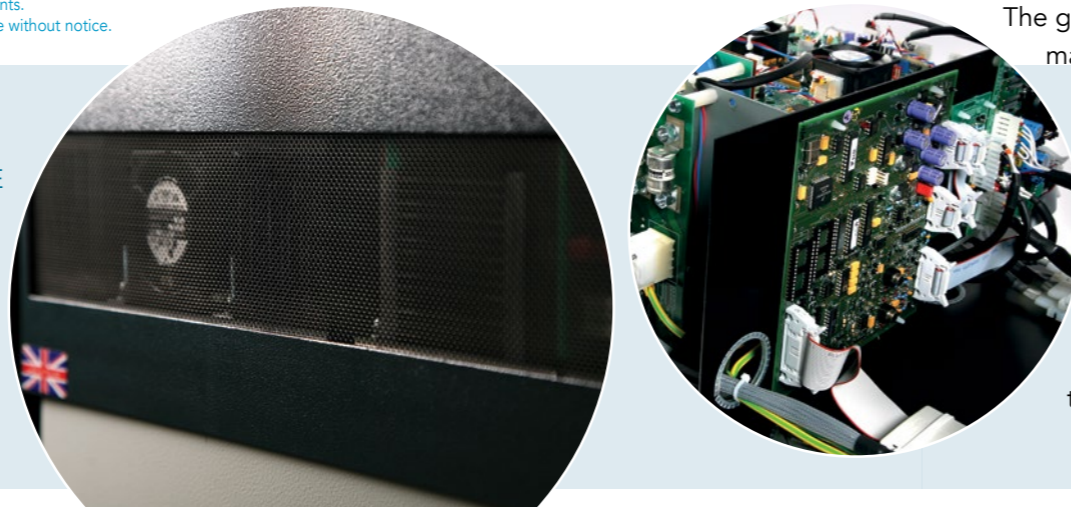
GX SERIES

X-RAY GENERATORS 3025W – 7500W TECHNICAL SPECIFICATION

	GX65	GX100	GX160	GX225	GX320	GX450	GXH100	GXH180
Max. Power	3025W	4000W		4500W	4200W	4500W	6000W	7500W
KV Range	5 - 65	5 - 100	5 - 160	5 - 225	10 - 320	10-450	5 - 100	5 - 180
KV Accuracy	± 1% of Demand Value			± 1% of Demand Value			± 1% of Demand Value	
KV Reproducibility	Better Than ± 0.01KV			Better Than ± 0.01KV			Better Than ± 0.01KV	
mA Range	0 - 75	0 - 40	0 - 30	0 - 30	0 - 25	0 - 20	0 - 60	0 - 60
mA Accuracy	± 0.5% of Demand Value			± 0.5% of Demand Value			± 0.5% of Demand Value	
mA Reproducibility	Better Than 2µA			Better Than 2µA			Better Than 2µA	
Line Regulation	± 0.005%			± 0.005%			± 0.005%	
Load Regulation	± 0.05%			± 0.05%			± 0.05%	
High Voltage Ripple	< 5.0V/mA with 10M High Voltage Cable			< 10.0V/mA with 10M High Voltage Cable			< 5.0V/mA with 10M High Voltage Cable	
Input Voltage	220V ± 10%, 47 - 63 Hz			220V ± 10%, 47 - 63 Hz			220V ± 10%, 47 - 63 Hz	
Input Current	25A at 220V			25A at 220V			25A at 220V	
Power Factor	Active PFC Better Than 0.98			Active PFC Better Than 0.98			Active PFC Better Than 0.98	
Output Connector	R10/R24	R24	R24	R24	R24	R28	R24	R24
Dimensions Cathode mm (W x H x D)	422 x 511 x 610	400 x 613 x 586	400 x 613 x 586	412 x 663 x 805	400 x 613 x 586	412 x 663 x 805	Tank: 340 x 390 x 810	
Dimensions Anode mm (W x H x D)	N/A			400 x 613 x 586	412 x 663 x 805	Chassis: 454 x 222 x 850		
Weight (kg)	75	130	130	165	240 (combined)	305 (combined)	156 (combined)	
Storage Temperature	-40° C to + 70° C			-40° C to + 70° C			-40° C to + 70° C	
Operational Temperature	0° C to + 40° C			0° C to + 40° C			0° C to + 40° C	
Relative Humidity	95%			95%			95%	
Duty Cycle	100%			100%			100%	
Comms	Analogue / RS232 / RS422 / Ethernet							

Specifications and configurations can be tailored to meet individual requirements. Please contact Gulmay for further information. Specifications subject to change without notice.

THE SUB 800MS RISE TIME FROM ZERO TO FULL POWER MAKES THE GX THE IDEAL GENERATOR FOR CT AND LINEAR IMAGING APPLICATIONS



The Gulmay GX Series is a high-specification range of x-ray high-voltage generators ranging in output power from 3025W to 7500W. Designed for a wide range of applications, GX generators are available in output voltage configurations from 50KV up to 450KV.

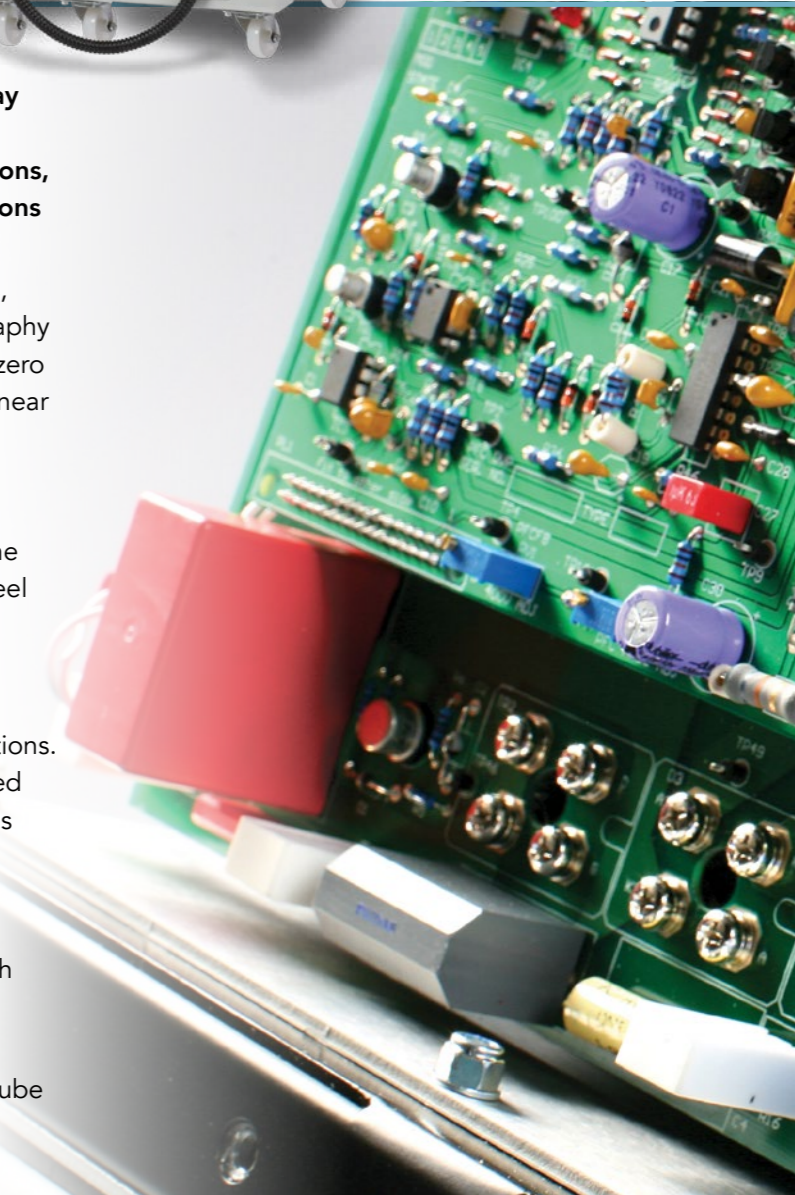
GX series generators power a broad spectrum of x-ray tubes, making them the ideal choice for both general NDT radiography and specialised applications. The sub 800mS rise time from zero to full power makes the GX the ideal generator for CT and linear imaging applications. The GX's broad high-power spectrum makes it suitable for everything from film radiography of high-density materials to low-density composite materials. The highest levels of accuracy and repeatability also make the GX the perfect choice for demanding and critical areas of steel gauging and medical radiotherapy.

Gulmay's customer-focused design philosophy has seen customised 7500W solutions delivered for electron beam welding, sterilisation, irradiation and neutron source applications. In all cases, Gulmay's high-powered GXH supply has delivered ultra-stable, reliable and efficient performance. The GX series incorporates a number of unique and advanced features including Variable Frequency, Active PFC technology and Dynamic Tube Arc Management®. Variable drive frequency up to 45KHz has enabled Gulmay to significantly reduce both the size and weight of the generators without compromising performance or reliability.

An accurate feedback system constantly monitors the x-ray tube mA and kV, ensuring precise and stable output at all times.

The generator status is monitored by internal electronics to maintain safe and reliable operation. A choice of analogue or digital controls is available to facilitate simple integration into automated inspection systems, supporting RS232, RS422 and Ethernet interface protocols. The oil-filled high voltage system provides greater thermal dissipation than resin-filled designs, increasing reliability and ensuring both a 100% duty cycle and full field serviceability.

The GX series of generators is compatible with x-ray tubes from all leading manufacturers.



CONTROLLERS

MP1 CONTROLLER TECHNICAL SPECIFICATIONS

PHYSICAL	
No. of storable program techniques	600
X-Ray Tube programs	> 110
kV Resolution	1kV (0.2kV with VMP1)
mA Resolution	0.1mA (0.01mA with VMP1)
Input Voltage	220 VAC ± 10%
Input Current	0.5 A
Rack Mount Dimensions (W x L x H)	482 x 240 x 183 mm
Weight (kgs)	5.3 kgs
Enclosure Dimensions (W x L x H)	520 x 300 x 190 mm
Weight (including enclosure)	7.5 kgs
ENVIRONMENTAL	
Storage Temperature	-30° C to +70° C
Operational Temperature	0° C to +40° C
Relative Humidity	85%
Duty Cycle	100%
CONNECTIONS	
Generator I/O	25 way D socket
Earthing	6mm stud
LAB I/O	Burndy UTG0 18-23P
RS232 Comms	9 way D plug

THE GULMAY MP1 CONTROLLER is a microprocessor-based controller designed for use with Gulmay high voltage X-ray generators. Available as a 19" rack-mount unit or as a stand-alone controller, the MP1 is factory programmed for use with over 110 x-ray tubes.

The MP1 provides dedicated control of all generator functions through a rugged front panel designed to withstand the harshest of operating conditions. Large, bright LEDs provide clear indication of kV, mA, time and system status in both light and dark ambient environments. An RS232 interface provides constant system monitoring and PC control.

The MP1 constantly monitors generator status and interlocks to provide the highest degree of system safety and reliability. Tube software data is fully controlled by Gulmay, ensuring quick and straightforward integration of new and modified x-ray tube specifications.

8 OPERATING MODES

- Manual
- Warm Up
- Radiographic
- Fluoroscopic
- Auto Watt
- Fluoro Auto Watt
- RS232 controlled Fluoroscopic
- RS232 controlled Radiographic

5 WARM-UP MODES

- Manufacturer default
- Linear warm up with normal ramp down
- Exponential warm up with normal ramp down
- Linear warm up with ceramic tube ramp down
- Exponential warm up with ceramic tube ramp down

FEATURES & BENEFITS

- Optimal tube conditioning via fully automated warm-up routines safeguards operation and maximises tube lifespan
- Over 110 x-ray tubes currently available. Additional tube programs can be added by the factory as required
- Warm-up, error and operator activity logging allows for efficient system diagnosis
- kV and mA waveforms prior to an error occurrence are stored graphically in the log to aid system fault diagnosis
- Special start options for dose control systems

THE VIRTUAL MP2 is a Windows based software controller designed for use with RS232-controlled Gulmay high-voltage X-ray generators.

The VMP2 controller allows users to define operating parameters for radiographic exposure such as kV and mA settings and exposure duration.

Fluoroscopic inspection can be accomplished in constant source mode, and production mode applications can be simply achieved using preset exposure information so that exposure conditions may be easily repeated.

A library of over 110 x-ray tubes and the complete selection of Gulmay generators are accessible from simple to use drop-down menus. The built in Auto Watt feature provides total operational x-ray tube protection, while dual warm-up modes help to maintain optimal x-ray tube conditioning and maximise tube lifespan.



EMBEDDED CONTROL

ALL GULMAY GENERATORS are available with embedded control using RS232/RS422 interface protocols. Gulmay's policy of open software architecture offers ease of system integration. Embedded controls incorporate extensive features including:

- X-Ray tube selection from the full tube library
- Wide range of auto warm-up programmes based on manufacturers recommended cycles
- Stored data techniques
- Full data logging



SYSTEMS

THE KEY COMPONENTS

SYSTEM DATA TABLE

GENERATOR TYPE	MAX KV	MAX MA	W	TERMINAL TYPE	X-RAY TUBE TYPE	MAX KV	CONTINUOUS RATING W SMALL/LARGE FILAMENT	FOCAL SPOT EN12543 SMALL/LARGE	FILTRATION MM BE	SOCKET TYPE	HT CABLE TYPE	COOLER TYPE	LAB I/O TYPE* (OPTIONAL)
FC100	100	12	640	R10/R24	100/25	100	640	1.0	1.0	R24	HT100/XM	1000WA	3KVA/XM
CF100	100	16	1800	R24	100/24	100	1500	3.0	1.0	R24	HT100/XM	1000WA	5KVA/XM
CP100	100	30	3200	R24	160/22	160	640/3000	1.0/5.5	0.8	R24	HT160/XM	3200WA	8KVA/XM
CP101	100	45	3200	R24	160/22	160	640/3000	1.0/5.5	0.8	R24	HT160/XM	3200WA	8KVA/XM
CP104	100	75	3200	R24	161	160	3000	7.5	0.8	R24	HT160/XM	3200WA	8KVA/XM
FC160	160	16	640	R24	160/20	160	640/640	1.0/1.0	0.8	R24	HT160/XM	1000WA	3KVA/XM
FC160HP	160	16	1000	R24	HP160/20	160	1000/1000	1.0/1.0	0.8	R24	HT160/XM	1000WA	3KVA/XM
CF160	160	25	1800	R24	160/21	160	640/1600	1.0/3.0	0.8	R24	HT160/XM	3200WA	5KVA/XM
CF160	160	25	1800	R24	HP160/11	160	800/1800	0.4/1.0	0.8	R24	HT160/XM	3200WA	5KVA/XM
CP160	160	30	3200	R24	160/22	160	640/3000	1.0/5.5	0.8	R24	HT160/XM	3200WA	8KVA/XM
GX160	160	30	4000	R24	160/22	160	640/3000	1.0/5.5	0.8	R24	160/XM	3200WA	8KVA/XM
GX160	160	30	4000	R24	161	160	3000	7.5	0.8	R24	160/XM	3200WA	8KVA/XM
FC225	225	7	640	R30	225/20	225	640/640	1.0/1.0	0.8	R24	HT250/XM	1000WA	3KVA/XM
FC225HP	225	12	1000	R30	HP225/20	225	1000/1000	1.0/1.0	0.8	R24	HT250/XM	1000WA	3KVA/XM
CF225	225	18	1800	R30	225/21	225	640/1600	1.0/3.0	0.8	R24	HT250/XM	3200WA	5KVA/XM
CF225	225	18	1800	R30	HP225/11	225	800/1800	0.4/1.0	0.8	R24	HT250/XM	3200WA	5KVA/XM
CP225	225	30	3200	R30	225/22	225	640/3000	1.0/5.5	0.8	R24	HT250/XM	3200WA	8KVA/XM
CP225	225	30	3200	R30	225FBBE	225	3000	7.5	0.8	R24	HT250/XM	3200WA	8KVA/XM
GX225	225	30	4500	R24	225/22	225	640/3000	1.0/5.5	0.8	R24	250/XM	3200WA	8KVA/XM
GX225	225	30	4500	R24	226	225	3000	7.5	0.8	R24	250/XM	3200WA	8KVA/XM
GX225	225	30	4500	R24	225/26	225	640/4500	1.0/7.5	0.8	R24	250/XM	3200WA	8KVA/XM
CF320	320	15	1800	R24	320/23	320	640/1600	1.9/3.6	3.0	R24	HT160/2/XM	4500OA	5KVA/XM
CF320	320	15	1800	R24	HP320/11	320	800/1800	0.4/1.0	3.0	R24	HT160/2/XM	4500OA	5KVA/XM
CP320	320	30	4500	R24	320/26	320	1500/4200	3.0/5.5	3.0	R24	HT160/2/XM	4500OA	8KVA/XM
CP320	320	30	4500	R24	321	320	4000	8.0	3.0	R24	HT160/2/XM	4500OA	8KVA/XM
GX320	320	25	4500	R24	320/26	320	1500/4200	3.0/5.5	3.0	R24	160/2/XM	4500OA	8KVA/XM
GX320	320	25	4500	R24	321	320	4000	8.0	3.0	R24	160/2/XM	4500OA	8KVA/XM
CF450	450	15	1800	R30	HP450/HP11	450	700/1500	0.4/1.0	5.0	R30	HT250/2/XM	4500OA	5KVA/XM
CP450	450	20	4500	R30	451	450	900/4500	2.5/5.5	2.3MMFE + 1.0MMCU	R28	HT250/2/XM	4500OA	8KVA/XM
GX450	450	20	4500	R28	451	450	900/4500	2.5/5.5	2.3MMFE + 1.0MMCU	R28	250/2/XM	4500OA	8KVA/XM

This table shows only a limited number of generator and tube combinations. Please contact Gulmay to discover the full range of system options and to discuss your requirements in detail. Gulmay x-ray generators are fully compatible with x-ray tubes from all of the world's x-ray tube manufacturers.

GULMAY OFFERS A complete range of systems designed to ensure an integrated, turn-key solution for every x-ray imaging requirement. To simplify system integration, all generators, x-ray tubes, coolers and high-voltage cables are supplied fully tested and optimised, ready for immediate use out of the box.

X-RAY GENERATORS

Our ultra-stable, precise and reliable x-ray generators lie at the heart of our systems and enable us to deliver an unbeatable package with complete component flexibility.

X-RAY TUBES

Gulmay can offer a complete range of metal ceramic x-ray tubes from all of the world's leading manufacturers. A wide range of focal spot sizes and power outputs includes the following tubes: small focal spot high-powered; fan beam; and cool filament for use in applications that demand a high tube current.

X-ray tube software is maintained by Gulmay to ensure fast and accurate integration of new and modified x-ray tube specifications. All systems are pre-programmed with full warm-up and safety limiting in place to ensure optimum tube performance and longevity.

X-RAY COOLERS

A full range of x-ray tube coolers is available to suit every x-ray system package and environmental situation. Coolers are optimised to suit all Gulmay systems, from our low-power 640W system right through to our high-power 4.5kW bi-polar oil-cooled systems.

High-performance chillers are also available for use in high ambient conditions. Systems are supplied with hose assemblies and power and cabling for straightforward system integration. High quality oil hoses are available in standard and quick-release configurations to further assist in simple system integration.

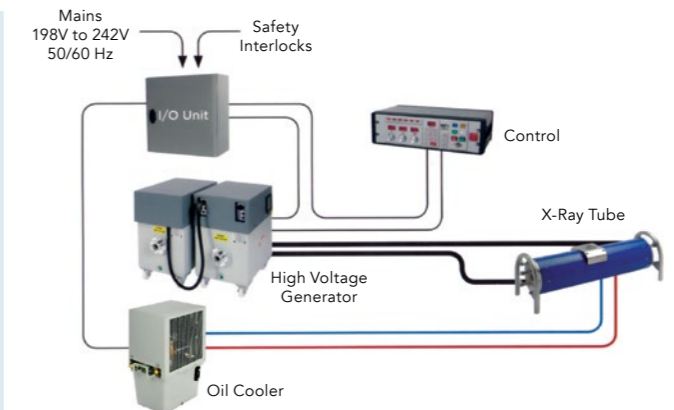


ELECTRICAL I/O BOX (OPTIONAL)

Gulmay offers system component power distribution and safety interlocks for doors, cooler and warning lights in one convenient IP65 rated enclosure.

HIGH VOLTAGE CABLES AND FLANGES

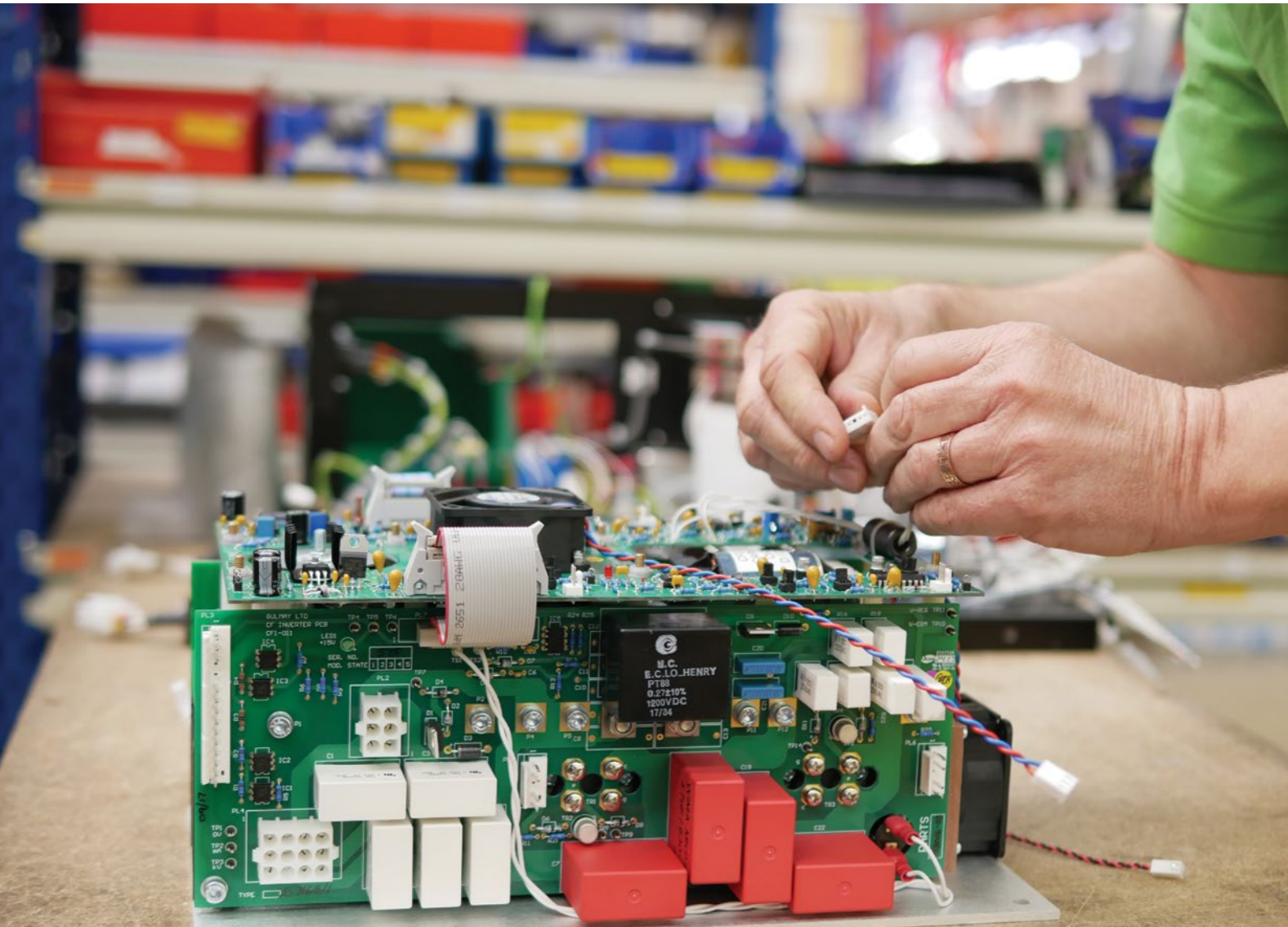
These are available in standard and spring-loaded designs to offer the widest choice of high-voltage cabling available.



TO SIMPLIFY SYSTEM INTEGRATION, ALL GENERATORS, X-RAY TUBES, COOLERS AND HIGH-VOLTAGE CABLES ARE SUPPLIED FULLY TESTED AND OPTIMISED, READY FOR IMMEDIATE USE OUT OF THE BOX



SERVICE AND SUPPORT



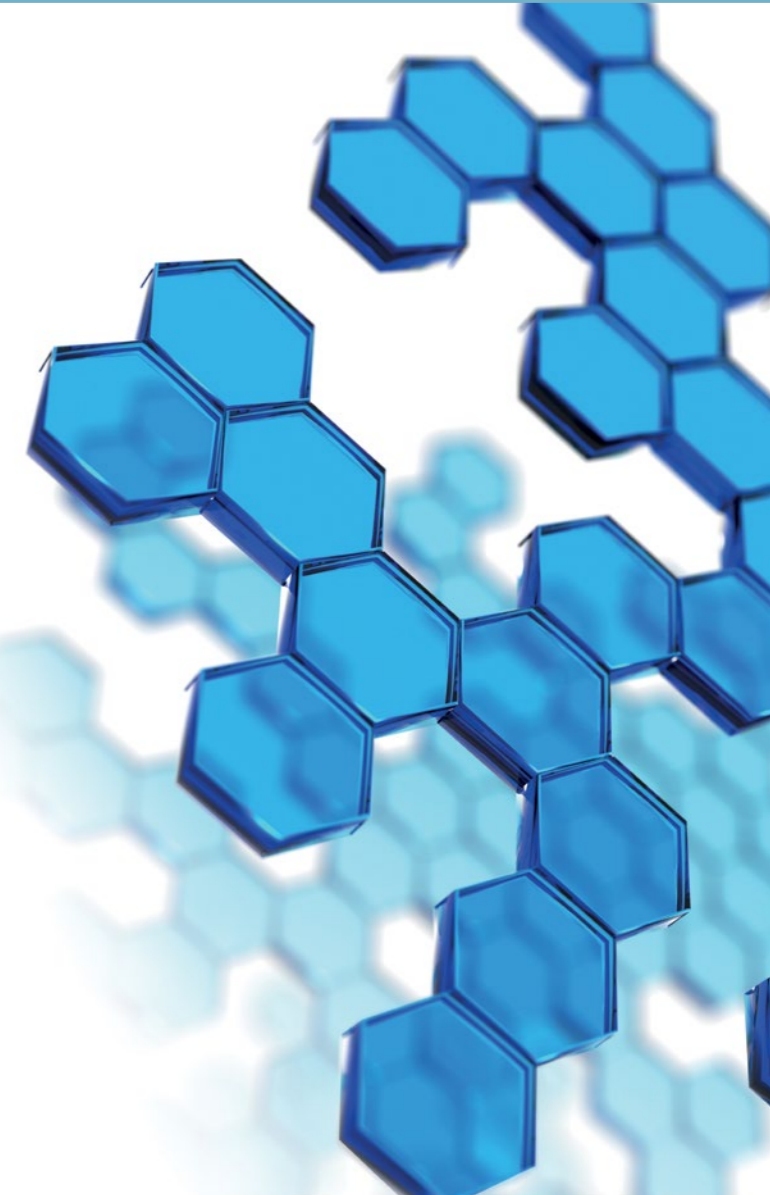
WORLD-CLASS PRODUCTS demand world-class back-up in an ever-changing world. That's why Gulmay has built a dedicated customer-focused team committed to the continued success of its products in an increasingly-demanding global environment. We strive to provide a highly efficient service with rapid response times.

Our customer-focused team operates from our headquarters in the United Kingdom and also from our service and repair centres in the United States and China. The frontline support provided via the telephone and email is backed up by a full return-to-base service and repair facility when required.

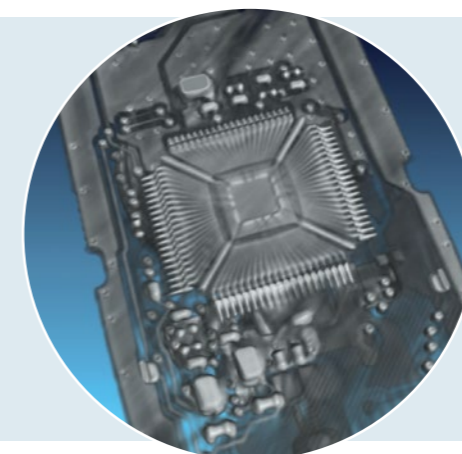
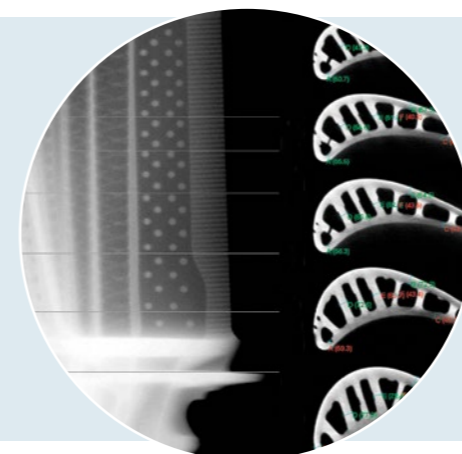
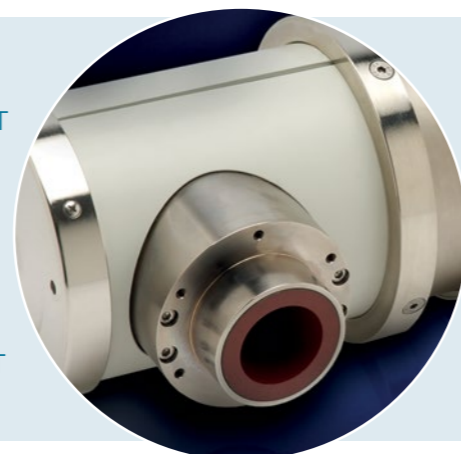
First-class service and support is also delivered through our worldwide network of distributors who are trained extensively in Gulmay's technical service and repair processes. This professional network delivers the same levels of quality and expertise that you would expect from Gulmay service engineers.

The unique Gulmay design philosophy enables localised repair as opposed to factory-only repair, meaning that response can be provided more quickly when needed to ensure maximum system working time.

We ensure an upgrade path is available for all of our products that are no longer in production. This means that when you invest in a Gulmay based x-ray system you can be truly confident of our continued support over many years. After 30 years of continuous production using the latest technologies, Gulmay offers peace of mind for both the purchase and the long life of all its products.



GULMAY HAS BUILT A DEDICATED CUSTOMERFOCUSED TEAM COMMITTED TO THE CONTINUED SUCCESS OF ITS PRODUCTS IN AN INCREASINGLY DEMANDING GLOBAL ENVIRONMENT



GULMAY



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