

SEIFERT

# ERESCO MF4

Reliable, lightweight, portable X-ray Generator



# ERESCO MF4 – For the toughest of tasks

## Radiation unit including Generator and X-ray tube

The robust, transportable construction of the ERESKO MF4 x-ray units enable reliable use under the toughest application conditions in the world.

Special power electronics enable an alternative power supply in the field as well the easy integration into crawlers.

The compact power electronics and the robust metal-ceramic X-ray tube enable the ERESKO MF4 to generate high output power with extremely low ripple and high radiation dose.

This results in the shortest exposure times and thus higher productivity.

## Advantages at a glance

- Highest power output, with best image definition in its class
- High X-ray dose permitting short exposure times with associated increases in productivity
- Operation with 100% Duty Cycle at 30°C at 1 hour operation time
- Light weighted and compact design
- Robust construction for hostile environments (IP65)
- Wide range of accessories to facilitate positioning

## A glance at the benefits

The **metal/ceramic technology** ensures both **continuous operation and a long operating life.**

Operation starts from 5 kV to enable **optimized exposure** of low-density materials (such as aluminum, composites and plastics) **resulting in high-contrast images.**



**Optimized for maximum cooling effect** MF4 cooling system **supports continuous operation.**

The ERESKO MF technology allows the X-ray generator to be **operated in power mode.** It can drive high tube currents resulting in **continuous power ratings of up to 900 W** and high currents ensure best image definition in the 200 kV to 300 kV class.

The power electronics of ERESKO units provide extremely **low power consumption** between 1 to 2 kW/h.

## Control

With the portable ERESKO digital control unit every X-ray generator of the MF4 series can be operated.

## Advantages at a glance

- Integrated real time clock, enabling intelligent and automatic warm-up of the generating unit, taking past operational intervals into account
- Robust and ergonomic design for operation in different working position
- Easily adapts to different main supplies, including portable generators and batteries
- Built-in fail-safe warning lamp
- Emergency stop button, in compliance with international standards



A modern microprocessor platform enables **faster and safer device control with intelligent functions** like automatic tube detection, operation with recording of events, multilingual user interface (around 20 languages) and different exposure programs (including freely configurable exposure programming mode and offline administration).

A **full graphic, transreflective and backlit display for contrast-optimized indoor and outdoor operations** combined with an intuitive user interface, ensure simple and logical operation.

A **built-in exposure computer is used to determine the optimal exposure settings and the further reduction in exposure time** with the unique ERESKO power operation function\*.

Several programming and administration functions shorten preparation and evaluation work.

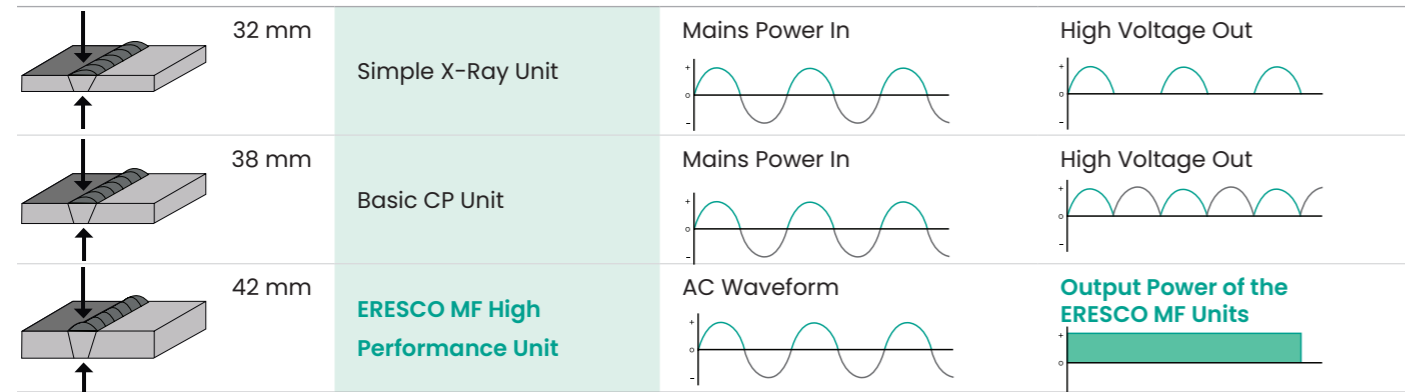
In addition to interfaces for warning lights, safety circuits and pumps the MF4-Control also has a **serial interface for external control or communication with PC-based tools** and is compatible with **Waygate Technologies Software Rhythm Insight RT.**

\* In power operation, the maximum tube current is calculated and set in order to minimize the exposure times.



# MF Technology for constant potential high dose output

A medium frequency output (around 20 kHz) can be used to produce a high power output with extremely low ripple.



## Applications

The ERESCO MF4 range of X-ray generators finds application throughout the industrial spectrum in the inspection of welds and in the examinations for structural integrity.



Standard radiographic inspections, such as those carried out in fabrication yards in the oil and gas segment, in power plants, in the automotive sector and in general engineering.



Oil and Gas segments require inspections in extreme conditions, such as pipeline inspections – both offshore and land-based applications – where equipment have to withstand hostile environment like very low or very high ambient temperature or permanent exposure to salt-water, sand or dirt.



Structural integrity testing in the aerospace segment, where special materials, honeycomb sections and composites demand exceptional tube performance.

With direct and panoramic emission models as well as small focal spot radioscopy units, the ERESCO MF4 range offers a comprehensive solution to meet virtually all customer portable X-ray generation needs.

## Accessories

A wide range of accessories complements the ERESCO MF4 generators.



Four legged stands for tube heads to ensure stability



Laser centring device



Lead plug for the tube window



Remote warning flash lamp



Exchangeable lead diaphragms



Aluminium transport boxes



Remote control



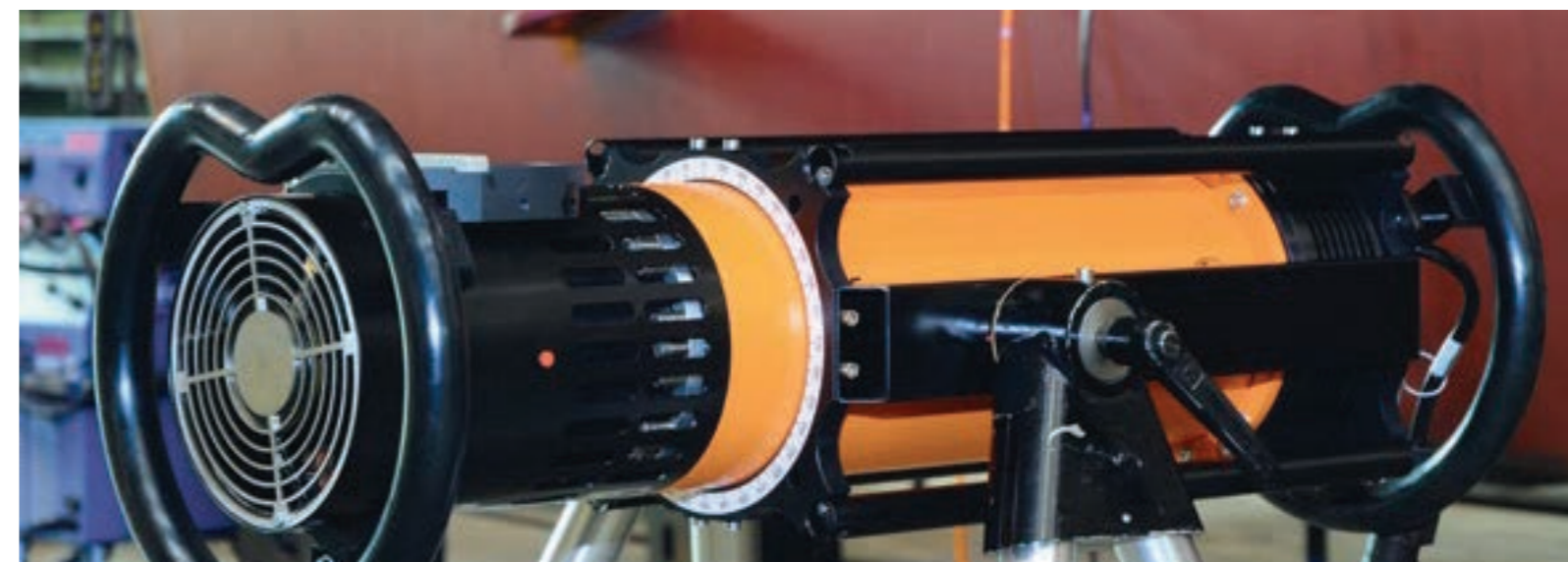
Adapter cables



Transport and Positioning Cart







### Other available accessories

- Carrying cradle
- Door contact cable
- Bracing belts
- Interface cables
- Diaphragm caps for panoramic units
- 20 m extension cable
- PC based exposure calculator
- MF4 Administrator Kit (Serial Interface cable and SW CD-ROM)
- Pipe inspection carriage to facilitate transport and set-up



# Technical Data

## ERESCO MF4 – Series

ERESCO-Type	200 MF4-R	300 MF4-R	32 MF4-C	42 MF4	52 MF4-CL	65 MF4
						
<b>Description</b>	Radioscopic applications that require geometric magnification	Radioscopic applications that require geometric magnification or short exposure times	Panoramic exposure unit designed for pipeline and butt-weld inspection	Weld inspection, Aluminum casting and also composite materials	Panoramic exposure unit designed for pipeline and butt-weld inspection where high penetration power is demanded	Weld inspection, Aluminum casting and composite materials, especially where high penetration power is demanded
<b>Emergent Beam</b>	Direct Emission	Direct Emission	Direct Emission	Direct Emission	Panoramic Emission	Direct Emission
<b>Penetration of Steel in 10 min</b>	-	65 mm (2.55")	32 mm (1.26")	42 mm (1.65")	52 mm (2.04")	65 mm (2.55")
<b>High Voltage Range</b>	10 – 200 kV	10 – 300 kV	5 – 200 kV	5 – 200 kV	5 – 300 kV	5 – 300 kV
<b>Tube Current Range</b>	0.5 – 10 mA	0.5 – 6 mA	0.5 – 10 mA	0.5 – 10 mA	0.5 – 6 mA	0.5 – 6 mA
<b>Tube Current at U max</b>	3.0 mA / 200 kV	3.0 mA / 300 kV	3.0 mA / 200 kV	4.5 mA / 200 kV	2.0 mA / 300 kV	3.0 mA / 300 kV
<b>Continous Rating</b>	600 W	900 W	600 W	900 W	600 W	900 W
<b>Nominal Focus Spot Value</b>	1.0 mm (EN 12 543) 0.5 (IEC 336)	1 mm ( EN 12543)	0.4 x 4.0 mm (EN 12543)	3.0 mm (EN 12543) 1.5 (IEC 336)	0.5 x 5.5 mm (EN 12543)	3.0 mm (EN 12543) 1.5 (IEC 336)
<b>Anode Material</b>	Tungsten (W)	Tungsten (W)	Tungsten (W)	Tungsten (W)	Tungsten (W)	Tungsten (W)
<b>Target Angle</b>	20°	15°	22°	20°	22°	20°
<b>Emergent Beam Range</b>	Elliptical, 40° x 60°	Elliptical, 30° x 60°	40° x 360°	Elliptical, 40° x 60°	38° x 360°	Elliptical, 40° x 60°
<b>Inherent Filtration</b>	0.8 ± 0.1 mm, Be	0.8 mm ± 0.1 mm, Be	0.4 mm Fe/Ni/Co + 2.0 mm, Al	0.8 mm ± 0.1 mm, Be	0.4 mm Fe/Ni/Co + 3.0 mm, Al	0.8 mm ± 0.1 mm, Be
<b>Cooling</b>	Air-cooled			Air-cooled		
<b>Duty Cycle (1 h operation time)</b>	100 %			100 %		
<b>Current and Voltage Stability</b>	± 1 %			± 1 %		
<b>Power Supply Requirements</b>	160 V – 253 V AC, 80 V – 127 V AC, 50/60 Hz *			160 V – 253 V AC, 80 V – 127 V AC, 50/60 Hz *		
<b>Weight of Tube Head</b>	26.8 kg (59.1 lbs)	40.0 kg (88.2 lbs)	31.0 kg (68.3 lbs)	26.8 kg (59.1 lbs)	36.0 kg (79 lbs)	40.0 kg (88.2 lbs)
<b>Certifications</b>	CE Conformity, NFC 74100 **, BfS Certification (PTB Approval) **			CE Conformity, NFC 74100 **, BfS Certification (PTB Approval)**		

\* Operation with reduced output is possible at main voltages below 205 V and 108 V respectively

\*\* Available for selected models

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