



Pyrolyser-6 Trio

Raddec Pyrolyser-Trio Furnace System

Efficient and rapid extraction of tritium and ^{14}C from any material

The Pyrolyser-6 Trio & Pyrolyser-2 Trio furnace systems have been scientifically designed and evaluated to provide a safe and efficient means of extracting ^3H and ^{14}C (and other volatile radionuclides) from almost any type of sample (foodstuffs, biota, soil, sediment, concrete and other building materials, metals and bioassay samples)

Overall mass:
 Pyrolyser-6 Trio: Approx. 120 kg
 Pyrolyser-2 Trio: Approx. 60 kg

Power demand at 200V [N. American option available]
 Pyrolyser-6 Trio: 7 kW 32A 1-phase electrical supply
 Pyrolyser-2 Trio: 5 kW 24A 1-phase electrical supply

Working footprint (w h d):
 Pyrolyser-6 Trio: 3300mm 1000mm 700 mm
 Pyrolyser-2 Trio: 3300mm 820mm 500 mm



Key features

- Unique multi-tube thermal extraction system
- Fully integrated and designed for efficiency and compactness
- Internationally established and widely adopted by nuclear, environmental, defence, research and other sectors
- Rigorously tested and evaluated through scientific research and intercomparison

Specifications & system requirements

General	Pyrolyser-2 Trio	Pyrolyser-6 Trio
Number of independent furnace zones	3	3
Number of independent sample work-tubes	2	6
Minimum sample throughput	2 samples/day	6 samples/day
Maximum sample size per tube	Up to 20g (dry) but depends on combustibility	
Typical catalyst lifetime per work-tube	10 g loading lasts about 20 determinations	
Typical lifetime of silica liners and work-tubes	2 years is typical if care is taken; repairs are quite feasible	
Time for thermally cleaning silica work tube	3 hours or overnight	
Overall mass	Approx. 60 kg	Approx 120 kg
Overall instrument dimensions (w d h) Overall working space required (w d h)	1000 x 400 x 620 mm 3300 x 500 x 820 mm	1000 x 600 x 800 mm 3300 x 700 x 1000 mm
Power demand (North American option also available)	5 kW 24A 1-phase electrical supply	7 kW 32A 1-phase electrical supply
System cooling to aid new cycle of sample loading	Via a sliding damper	Fan-assisted cooling
Controllers		
Sample zone temperature control	Eurotherm 2416	Eurotherm 3504
Mid zone temperature control	Eurotherm 2216e	Eurotherm 3504
Catalyst zone temperature control	Eurotherm 2216e	Eurotherm Nanodac (with datalogging)
Over-temperature protection	Yes (3 policemen)	Yes (3 policemen)
Number of user-defined programs	4	10 (expandable to 50)
PC-based programming possible	No	Yes
Data logging (with USB output)	No	Yes
Gas supplies	Oxygen compressed gas at 1 Bar Laboratory compressed air at 1 bar	Oxygen compressed gas at 1 Bar Laboratory compressed air at 1 bar
Automatic gas switching	No	Yes
Trapping media for HTO and CO ₂	1% Nitric acid in water and Carbosorb™	
Bubbler trapping efficiencies	>95% for ³ H and 95% ¹⁴ C	
Typical detection limits (2s) - ³ H and ¹⁴ C	Nominally 0.010 Bq/g sample (for a 5 g sample and a 2 hour count)	

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