

PSI Phoenix Scientific Industries



High performance process solutions

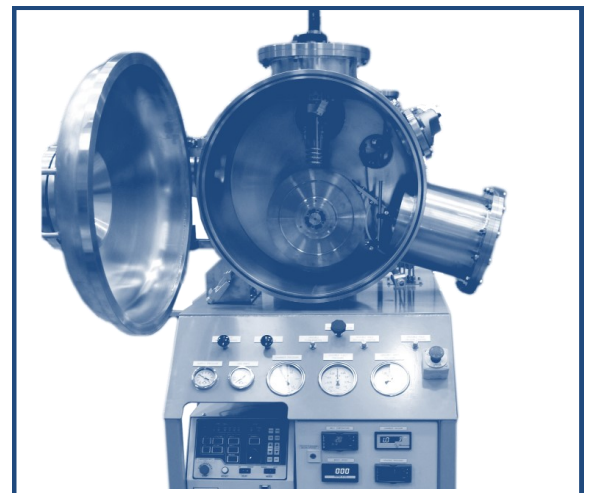
RO-QUENCH 100

The Ro-Quench 100 has been developed for the fabrication of amorphous metallic ribbons produced from a wide range of metallic alloys in the form of rods or small pieces.

It is designed as a state-of-the-art research-scale melt spinner capable of producing rapidly quenched spun product under a range of different process conditions in a wide variety of alloys. Cooling rates of 10^6 Ks^{-1} are typical.

The design has evolved from experience contributed by researchers in the field of melt spinning in addition to PSI's in house development work. The latest design incorporates several novel features that contribute to the performance, reliability and utility of the system. These include a touchscreen HMI control panel and the option of a sophisticated data logging, oxygen monitoring and metal casting systems.

- Latest generation induction heating provides greater efficiency and reduces overall power consumption compared with other systems.
- High precision crucible positioning system ensures accuracy and repeatability.
- Direct temperature measurement provides the fastest response.
- Advanced wheel bearing design reduces vibration.
- A range of crucible slit widths and materials available.
- High vacuum options available for processing oxygen sensitive materials.
- Touchscreen HMI and datalogging control system.



RO-QUENCH 100

High performance laboratory scale melt spinner for producing amorphous ribbon and rapidly quenched flake material.

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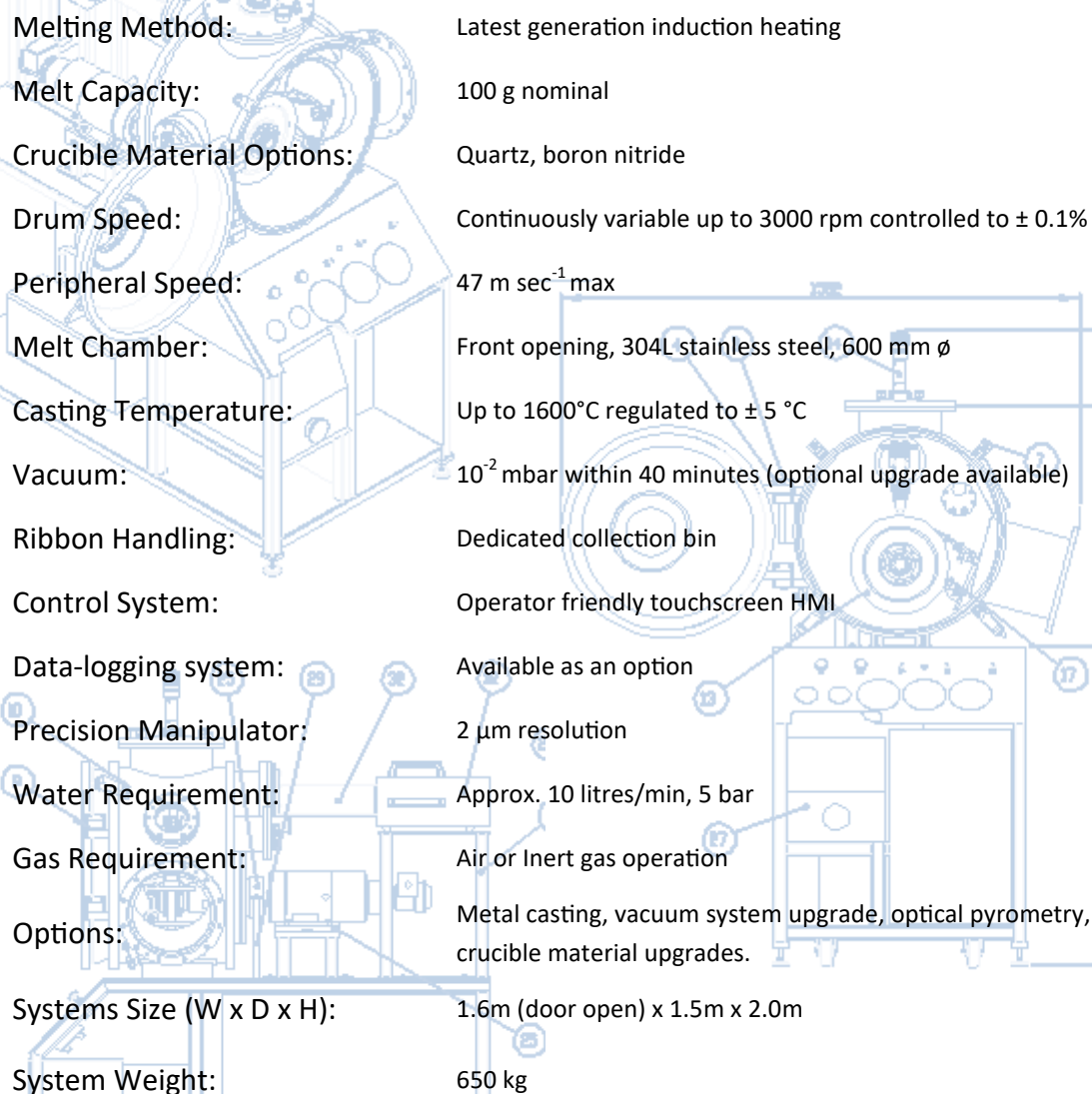
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RO-QUENCH 100

Typical System Data



Melting Method:	Latest generation induction heating
Melt Capacity:	100 g nominal
Crucible Material Options:	Quartz, boron nitride
Drum Speed:	Continuously variable up to 3000 rpm controlled to $\pm 0.1\%$
Peripheral Speed:	47 m sec ⁻¹ max
Melt Chamber:	Front opening, 304L stainless steel, 600 mm ϕ
Casting Temperature:	Up to 1600°C regulated to $\pm 5^\circ\text{C}$
Vacuum:	10 ⁻² mbar within 40 minutes (optional upgrade available)
Ribbon Handling:	Dedicated collection bin
Control System:	Operator friendly touchscreen HMI
Data-logging system:	Available as an option
Precision Manipulator:	2 μm resolution
Water Requirement:	Approx. 10 litres/min, 5 bar
Gas Requirement:	Air or Inert gas operation
Options:	Metal casting, vacuum system upgrade, optical pyrometry, crucible material upgrades.
Systems Size (W x D x H):	1.6m (door open) x 1.5m x 2.0m
System Weight:	650 kg

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