

# PSI Phoenix Scientific Industries



High performance process solutions

## RO QUENCH 1000

The Ro Quench 1000 has been developed for the production of amorphous metallic ribbons from a wide range of metallic alloys supplied in the form of rods or small pieces.

It is designed to be a state-of-the-art melt spinner capable of producing research-scale quantities of rapidly quenched spun product under a range of different process conditions in a wide variety of alloys. Cooling rates of  $10^6 \text{ Ks}^{-1}$  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 design incorporates several novel features that contribute to the performance, reliability and utility of the system.

- Latest generation induction heating system provides greater efficiency and minimizes the overall power consumption.
- 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.

See overleaf



### RO QUENCH 1000

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

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### Typical System Data

Melting Method:	Latest generation induction heating system
Melt Capacity:	1000g 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 <sup>-1</sup> max
Melt Chamber:	Front opening, 304L stainless steel, 750 mm $\phi$
Casting Temperature:	Up to 1600°C regulated to $\pm 5^\circ\text{C}$
Vacuum:	10 <sup>-2</sup> mbar within 40 minutes (optional upgrade available)
Ribbon Handling:	Dedicated collection bin
Precision Gap Control:	2 $\mu\text{m}$ resolution with option of optical system
Water Requirement:	Approx. 20 litres/min, 5 bar
Gas Requirement:	Air or Inert gas operation
Systems Size (W x D x H):	2.0m (door open) x 1.52m x 2.43m
System Weight:	1150 kg

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