

# Advanced Tungsten Reduction System



*Spark the future.™*

This revolutionary system concept facilitates high production rate in a single installation with the lowest cost of production and the greatest flexibility to alter material grain size and morphology.

## About Harper International

Harper International is a global leader in complete thermal processing solutions and technical services essential for the production of advanced materials. From concept to commercialization, from research scale to full production line operations, Harper is perpetually on the cutting edge.

For additional information, visit [harperintl.com](http://harperintl.com) or email [info@harperintl.com](mailto:info@harperintl.com)

## Key Specifications

- Pusher-style system with single muffle, externally heated by natural gas or electric
- Maximum temperature: 1100°C.
- Production rate: up to 100 kg/hr (at maximum bed depth and velocity)
- Low Mass Alloy Trays: dimensions 40cm x 7cm (16" x 60")

## Carrier Specifications

- Tray filling: 390mm x 752 mm x 1-12mm
- Pushing velocity: 527 cm/hr to 30 cm/hr (208 in./hr to 12 in./hr)
- Automatic tray filling  $\pm$  5% by weight precision, operator can select the weight
- Cast high temperature alloy material
- Exceptionally low mass design

## H<sub>2</sub> Gas System Specifications

- Double door tray and product entry and exit system to reduce gas losses
- Designed to allow gas dew point control at multiple locations inside the high temperature section
- Two inlets with electric pre-heaters and two vents inside heated section
- Hydrogen recycling system rated for 650 m<sup>3</sup>/hr, -65°C dew point

