

# ELECTRON BEAM WELDING SYSTEMS



PTR-Precision Technologies manufactures Electron Beam Welding Systems that are easy to use and easy to service. Continuous improvements and customer feedback are the basis for PTR's designs, which incorporate today's most advanced features. Industry standard components and modular construction, along with extensive tooling and fixturing options, result in custom solutions with "off the shelf" reliability.



- 60 kV and 150 kV
- Automatic Seam Tracking
- Automatic Beam Alignment and Focus
- Fixed and Mobile Generator Systems
- Data Collection of All Welding Parameters
- Manual, Semiautomatic and Fully Automatic Operating Modes
- Universal and Dedicated Mass Production Systems
- Optical and Electron Optical Viewing and Recording



30" x 18" x 27" | 15"



20" x 20" x 24"



70" x 36" x 50"



40" x 46" x 130"



10" Ø x 15"



70" x 40" x 40"



120" x 36" x 50"



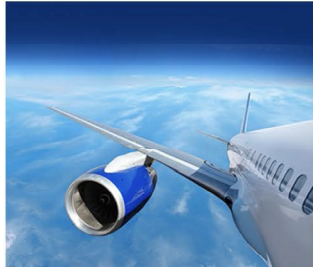
302" x 48" x 48"



*Examples of components welded on PTR Electron Beam Welding equipment include:*

## AEROSPACE

Rotors, Vanes, Blades  
Nozzles, Air Frames,  
Cases, Combustors,  
Disks, Sensors



## DEFENSE

Turbine Components,  
Weapon Systems,  
Missiles, Rocket Engines,  
Transmission Gears



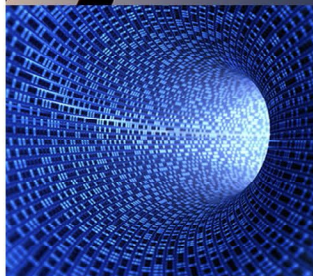
## OIL & GAS

Compressors, Impellers,  
Valves, Drill Repair, Drill Head  
Assemblies, Subsea Valves,  
Downhole Gauges, Sensors



## RESEARCH

Vacuum Equipment,  
Niobium & Copper Cavities,  
Targets, Plasma  
Generators, RF Cavities,  
Superconductors



## POWER GENERATION

Gas & Steam Turbines, Blades,  
Vanes, Buckets, Nozzles,  
Diaphragms, Combustors, Nuclear  
Fuel Assemblies

## TRANSPORTATION

Speed Gears, Torque Converters,  
Shaft Assemblies, Differential  
Gears, Fuel Injectors, Planet  
Carriers, Turbocharger Impellers

## ELECTRONICS

Semiconductor Fab Equipment,  
Sensors, Cooling Plates,  
Electronic Packaging, Batteries

## MEDICAL

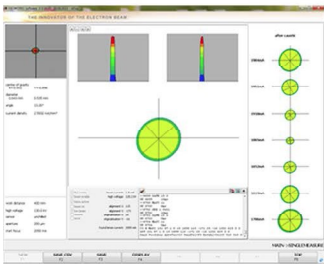
Medical Instruments,  
Orthopedic Implants,  
Surgical Tools





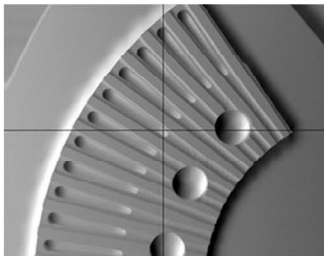
### EBO Jump

High speed beam deflection and focus allows multi-pool processing



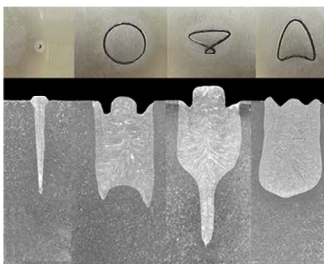
### EBO Set

Automatic beam alignment, focus and stigmatization



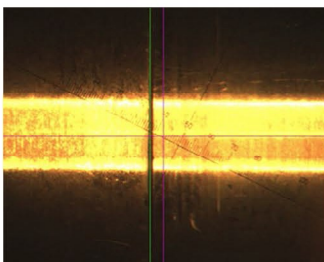
### EBO View

Scanning electron microscope view as well as magnified optical view of the workpiece



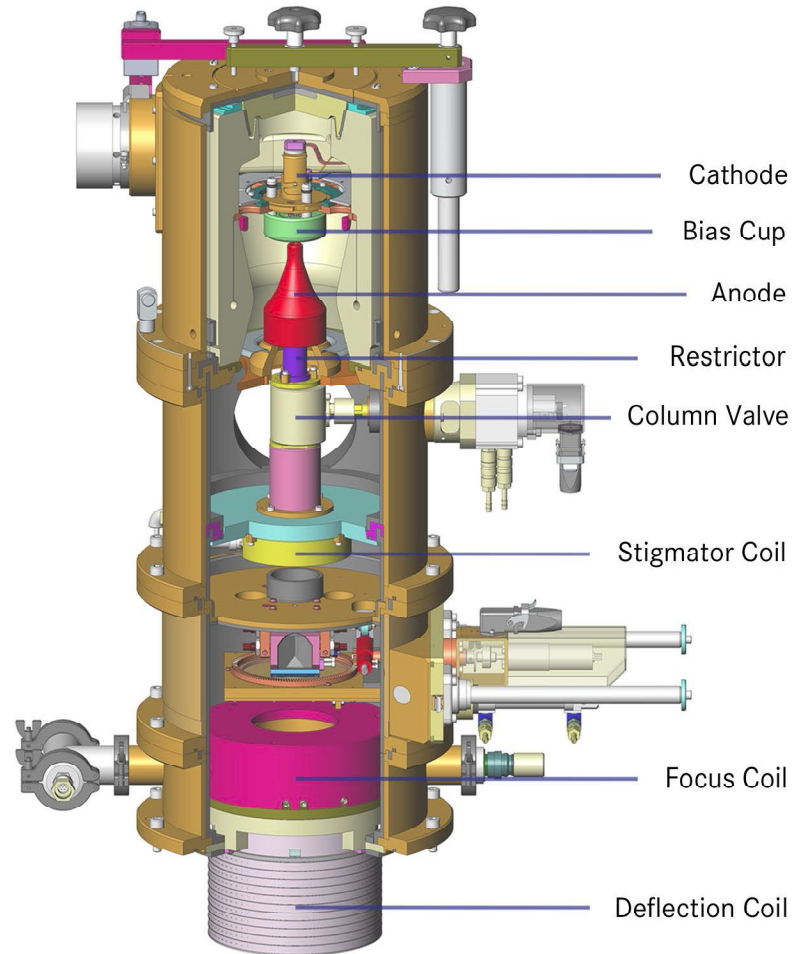
### EBO Pat

Programmable deflection patterns for welding, heating and surface treatment



### EBO Scan

Automatic weld joint locating and tracking



PTR-Precision Technologies' EBO Gen line of Electron Beam generators are available in 60kV or 150kV versions with up to 60kW of power. Switch mode high voltage power supplies with advanced arc suppression technologies ensure stable performance and consistent weld quality. EBO Jump high speed deflection capabilities include multi-beam processing, back scattered electron analysis for viewing, automatic beam adjustment, joint detection and tracking.

