

# *projection welding* Pulsar Series RP3000 Rotary Welder

## Capacitive Discharge Welding Systems

- Short duration weld pulse enables low energy welding and repeatable precise results
- Ultra-fast rise times for high throughput weld cycles over a broad range of applications
- High value price/performance ratio
- Simple intuitive user interface

The Pulsar power supply and high-efficiency matched weld transformers can be combined with a KN Weld Head for single station production or a RP3000 Rotary System for high volume production. Production proven in industrial environments around the world, these systems are dependable workhorses of the industry. Whether hermetically sealing microelectronic packages or joining a variety of metal parts, Pulsar's broad range of precision power choices provide technically advanced process solutions. The Pulsar Series can be easily integrated into atmospheric enclosures to insure high yield hermetic sealing results.

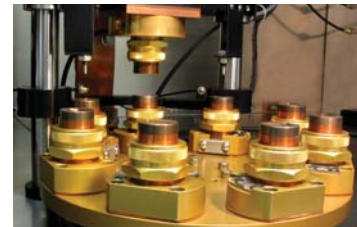
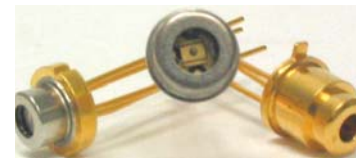


- Unitek Benchmark's low input power requirement guarantees weld stability and a weld pulse of short duration and concentrated high energy. Output weld energy is discharged from capacitor storage banks which are independent of the main AC power input. A Unitek Benchmark system requires only 3.5-50 amperes, compared to AC power systems requiring 100-800 amperes.
- Hermetically seals diverse microelectronic packages, ranging from the smallest TO, UM and HC styles to hybrids up to nine linear inches (230mm), depending on package design.
- Pulsar's short, high energy weld pulse, localizes heat in the weld zone, reducing heat build-up in sensitive micro-electronic packages.



- Accommodates a variety of metal joining requirements, including sensors, frequency devices, filaments, heating elements, photonics packages, strain gauges, transducers, and more.
- The solid state weld controller produces an adjustable series of steps that initiate weld firing.
- Pulsar capacitive discharge power supplies are the most efficient available, configured in a variety of models, from 200 – 9000 joules.
- Weld energy is discharged to the part only after proper charge is verified. This ensures a consistent weld pulse.
- A weld inhibit function accepts input from atmospheric enclosure instruments, such as oxygen analyzer and moisture monitors, for integrated process control.
- All systems have been extensively field proven, producing millions of welds.
- Designed to operate as either manual or automatic welding equipment, or can be retrofitted to an existing welding system.

### TYPICAL APPLICATIONS



# Projection Welding System – Design and Operations

**The Pulsar's operation and control are extremely straightforward – easy to learn and understand.**

- Diagnostic controls monitor the power supply status and prevent weld firing if power levels differ from the desired set point. Digital control of charging and discharging produces rapid charging rates for decreased cycle times.
- Provides fast weld follow-up, allowing complete metal fusion without weld splatter. Electrode holders accept custom designed electrodes to your application. One-inch diameter (25.4 mm) electrodes as standard. Two-inch diameter (50.8 mm) electrodes are available as options on the KN Weld Head.

## KN Weld Head Operation

- All weld parameters are accessed, set, and displayed on front panel of the Pulsar weld controller.

- Two palm switches initiate the weld cycle (footswitch optional).
- Both the electrode approach pressure and speed are adjustable to guarantee safe handling and avoid damage to fragile parts. Solid state controller applies low pressure air to the air cylinder, closing the electrodes. Once electrodes are closed, high pressure air is released to the cylinder until the preset weld (forge) pressure is reached. Weld pressure, forge time, and hold time are adjustable over a wide range of settings. When the specified pressure is reached, the welding power supply is activated initiating weld pulse. Hold time is activated when weld pulse is fired.

## RP3000 Rotary Operation

- Rotation is initiated by automatic mode or manually with a standard footswitch. Optional single palm button is available.



- Pre- and post-weld station part sensors and head retract sensor verify part presence and head position, inhibiting rotation and welding if error condition exists. If pre-weld station senses missing part, that position will be skipped.

## TECHNICAL SPECIFICATIONS: PULSAR POWER SUPPLIES

	P-200	P-500	P-1500	P-3000	P-6000	P-9000
<b>Energy range:</b>	1-200 joules	1-500 joules	100-1500 joules	100-3000 joules	100-6000 joules	100-9000 joules
<b>Capacitance:</b>	650 uF	1550 uF	4650 uF	9300 uF	18600 uF	27,900 uF
<b>Maximum potential:</b>	50-800 VDC	50-800 VDC	50-800 VDC	50-800 VDC	50-800 VDC	50-800 VDC
<b>Weld pulse:</b>	5-10 msec	5-10 msec	5-10 msec	5-15 msec	5-15 msec	5-15 msec
<b>Input voltage:</b>	120VAC 50/60Hz			208/240/480 VAC 50/60 Hz Single Phase		
<b>Input current:</b>	adjustable between 3.5-15 amperes			adjustable between 10-40 amperes 50/60 Hz		
<b>Dimensions inches (cm):</b>	17.0 x 5.5 x 16.0 (43 x 13 x 41)			34.0 x 22.0 x 16.0 (86 x 56 x 41)		
<b>Circuitry:</b>	All solid-state/charge and discharge					
<b>Control circuit protection:</b>	Zener-referenced closed-loop circuit					
<b>Weld transformer:</b>	High-efficiency matched weld transformer					
<b>Energy repeatability:</b>	5% of energy set point					

## RP3000 ROTARY WELDING SYSTEM

<b>Forge force:</b>	120-1200 lbs.(534-5340 newtons)
<b>Rotary table:</b>	8-station, counter-clockwise rotation, 10" (254 mm) dia.
<b>Drive system:</b>	Mechanical Sine Cam System, variable speed
<b>Index accuracy:</b>	±75 arc seconds (±0.0014" (0.035mm) @ weld zone)
<b>Index time:</b>	0.5 seconds
<b>System drive:</b>	Induction Motor with clutch and brake
<b>Upper electrode/lower electrode contact:</b>	Easy removal, water cooled
<b>Controls:</b>	Automatic and Manual with foot or palm switch
<b>Input air:</b>	80-100 psi (552-689 KPa)
<b>Remote control:</b>	Remote control of energy, weld, and ready/wait functions
<b>Top electrode eject (optional):</b>	Prevents parts from sticking after weld
<b>Part collection (optional):</b>	Collection box external to enclosure with automatic feed tube seal
<b>Part hold-down fixture (Optional):</b>	Part hold down for stations before and after weld station

## KN WELD HEAD AND CONTROLLER

<b>Forge force:</b>	Adjustable between 120-1200 lbs. (534-5340 newtons)
<b>Single range:</b>	Adjustable between 120-4000 lbs. (534-18000 newtons)
<b>Dual range:</b>	Adjustable between 120-4000 lbs. (534-18000 newtons)
<b>Stroke:</b>	47.6 mm (1.875 inches) or longer as special option
<b>Electrode holders:</b>	Quick change
<b>Alignment:</b>	Zero alignment die set
<b>Kinetic expander:</b>	Expansion >6.4 mm (0.25 Inches)
<b>Die set design:</b>	Zero weld zone flexure
<b>Dimensions (LxDxH) Inches (cm):</b>	12 L x 15 D x 24 H (30.5 x 38.0 x 61.0)
<b>Approach time:</b>	Adjustable from 50 msecs to 3 seconds
<b>Forge time:</b>	Adjustable from 50 msecs to 3 seconds
<b>Hold time:</b>	Adjustable from 50 msecs to 3 seconds
<b>Weld initiate circuit:</b>	Automatic
<b>Locking regulators:</b>	Adjustable from 10 psi (72 kpa) to 120 psi (827 kpa)
<b>Cycle status:</b>	Visual illuminated indicators

Your Local Representative



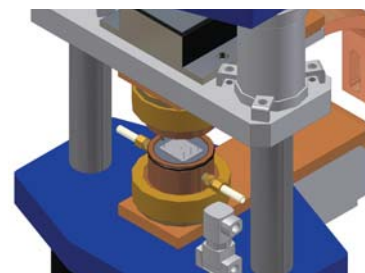
### Benchmark Division

1820 S. Myrtle Ave. • P.O. Box 5033  
Monrovia, CA 91017-7133 USA

Tel: (626) 303-5676 • FAX: (626) 359-7930

E-Mail: sales@unitekbenchmark.com

Internet http://www.unitekbenchmark.com



Optional Electrode Holder Assembly provides a vacuum or specialty gas inside part after welding.

Specifications subject to change without notice.

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