

# **HANSON**

## **WELDING MACHINES**

### **Series 2000 RESISTANCE WELDING & SOLDERING MACHINES 30 TO 100 KVA Model AB-6**

This floor-type resistance welding machine is available in ratings from 30 KVA to 200 KVA. A variety of optional features, special tooling fixtures and accessories are available to customize the basic AB-6 to meet specific application requirements.

#### **Features/Benefits**

##### **Series 2000 Control**

Microprocessor-based controller stores programmable pre-selected weld schedules. Schedules are programmed and recalled through a removable hand-held terminal which prevents unauthorized changes, or through an optional face-mounted keyboard.

Unique approaches to voltage compensation and phase shift heat control eliminate variables that cause inconsistent welding performance. No other controller can match the degree of precision and consistency provided by the Series 2000.

##### **Head Assembly Designed for Durability and Consistent Performance.**

Low-inertia linear cross roller slide head assembly assures continued smooth operation and repeatable performance. Rugged construction for long, trouble-free service.

##### **Head Force System Guarantees Precision Weld Performance.**

The head force system is in direct alignment with electrodes. This enables follow-up response not available in cantilever-type heads and assures precision weld performance.

##### **Special Head Firing Switch Insures Repeatability and Reliability of Welds.**

A special feature on all Hanson welders. It allows the welding control to be fired only when the predetermined force range has been reached by measuring the displacement of the head force system.

##### **Water Cooled Transformer**

All transformers have water-cooled secondaries. Stacked core, multi-tapped design, using high-grade silicone steel minimizes the possibility of saturation.



##### **Built-In Versatility to Handle a Variety of Jobs.**

Force system, stroke, electrode opening, squeeze and hold times are all fully adjustable to accommodate a wide variety of parts sizes, materials and fixturing.

##### **Modular Construction Permits Equipment Modification in the Field.**

If requirements change, a welder can be modified by changing transformer and/or force control springs and indicators.

##### **Convenient, No Heat/No Weld Switches for Safer, Easier Set-Up.**

Minimizes chance of operator injury. Set-up times are reduced.

#### **Applications**

The basic versatility of the AB-6 welder and the many options and accessories available make it suitable for welding a wide range of medium to large parts. These machines are widely used in electrical/electronics, automotive, appliance, aerospace, and metal-working industries in metal-joining applications where precision is essential.

## Specifications

### Welding Head

Air Operated. Low-Inertia linear cross roller slide head assembly.

### INITIATION CIRCUIT

#### Standard

Foot Switch.

#### Options

Two hand anti-tie-down with locking key selector that enables foot switch operation.

### HEAD ASSEMBLY

#### Standard

Air Operated Single-Ram Head.

Air-Operated Dual-Ram Head.

### FORCE SYSTEM, FULLY ADJUSTABLE

With Built-In Force Indicators.

Three Standard Ranges Available. Specify One.

0-100 lbs

0-250 lbs

0-500 lbs

### WATER-COOLED SAFETY-CIRCUIT ELECTRODE

#### HOLDERS

##### Standard

RWMA #1 Taper

RWMA #2 Taper

Platen type holders

##### Options

Special design electrode holders, custom electrodes and tooling. Consult factory for quotation.

### FULLY ADJUSTABLE LOWER TOOL HOLDER

Provides up to 6" electrode opening.

### STROKE ADJUSTMENT CONTROL

#### Standard

Control over head stroke from 0-3".

#### Option

Head strokes up to 6" on special order. Consult factory for details.

## Transformer

With series-parallel and multiple-step tap switches.

### RATINGS

Specify One

30 KVA  125 KVA

50 KVA  150 KVA

75 KVA  175 KVA

100 KVA  200 KVA

### PRIMARY VOLTAGE

Standard Voltages Available (AC Single Phase).

Specify One.

208 volts.

240 volts.

480 volts.

#### Options

Special voltages available on request.

### FREQUENCY

Standard Frequencies Available. Specify One.

50 hz.

60 hz.

### COOLING

#### Standard

Water Cooled Secondary.

## Welding and Soldering Controls

### Series 2000 Microprocessor-based, Programmable Weld Controller:

- Stores pre-selected weld schedules. Automatically controls Percent Heat, Squeeze Time, Weld Time, Hold Time.
- Heat Time Range: 1/2 to 100 cycles.
- Schedules are programmed and recalled through a hand-held programming terminal which prevents unauthorized weld schedule changes.
- Automatic line voltage compensation every 1/2 cycle of weld, starting with first 1/2 cycle.
- Unique phase shift control provides true under-the-curve adjustment for consistent welds.
- Battery back-up to protect memory
- RS232 port provides input/output interface
- Polarity selection switch and half-cycle control.
- Semi-automatic and automatic mode selector.
- Heat/no heat selector switch. Used for set-up and dry cycling.
- Back-to-back SCR firing circuits.
- Head Firing Switch. Allows welding control to be fired only when the predetermined force range has been sensed through the displacement of the head force system.
- Up slope-down slope option. For applications requiring gentle heat-up prior to full weld energy or controlled cool down.
- Preheat/post-heat (quench and temper) option. Selectable in straight line steps. Preheat useful for brazing flux activation; post heat as an annealing function.
- Electronic cycle counter.

### Options

#### Weld Monitor

Weld monitors have been available for many years. Unfortunately, most of these devices are either current, or milli-volt second monitors, neither of which satisfy the basic requirement. To properly evaluate a weld, we must establish a correlation with what is happening electronically, and the mechanical test results. To do this we must have weld monitoring instrumentation capable of providing the necessary information. To properly monitor a weld, the equipment must measure current and area under the curve on each half cycle in A.C. applications, and measure current and area under the curve for each weld in D.C. applications. Further, it must be capable of calculating the product of these and reporting in half cycle increments, for A.C. applications. This product is called the weld energy, which is expressed in watt-seconds or joules.

H is the heat energy developed in each weld.

I is the current in amperes.

R is the resistance in ohms.

T is the time in milliseconds, or microseconds.

Finally, the weld monitor must be capable of accepting both upper and lower control limits with alarms to alert, or shut down the process.

Only Hanson Welding Machines, Inc. offers such a device. The optional weld monitor is an integral part of the Series 2000 Weld Control, and measures energy in real time, unlike remote add on monitors. It is fully programmable for upper and lower process control limits. The weld monitor audits every half cycle of weld, capturing the readings for current (in amperes) and milli-volt seconds (area under the curve). The product of these is expressed in joules of energy for each half cycle. The weld monitor protects against process shifts caused by dirty or worn electrodes, dirty or inconsistent product, equipment malfunctions, and countless other variables. The weld monitor stores the readings in memory for downloading to SPC packages for process capability analysis, or to printers for charting and evaluation.

## Other Options

Automatic parts eject.

Work lights.

Tooling and fixturing for your particular application are available from our engineering department.

## Weight and Size

Weight: Approximately 1,200 lbs. (Varies with transformer size.)

Size: Depth 41". Width 44". Height 68".