

Product Details - Hot Air Leveling Line

HAL5224 Hot Air Leveler



The HAL5224 Hot Air Solder Leveling System is designed to provide the highest quality solder leveling at high throughput rates while preserving the highest reliability and serviceability standards available. Argus International has been designing, building and operating HASL systems for over a decade. The experience earned in a decade of dedication to engineering the HASL process is evident by the high quality work produced.

Key Benefits:

- Stainless steel construction, integrated exhaust hood ducting, complete solder pot accessibility, high speed DC motor driven vertical arm, and fixed angle air knives are just a few of the features that are standard on the HAL5224.
- Also available are a variety of 'quick-change' clamping mechanisms, remote control console and solder refinement systems. These features combine to produce 200 panels an hour average, 350 panels an hour maximum.
- The clamp/knife arrangements most commonly used are the "Pressure" and "Pin" type. The "Pressure" type clamp utilizes air pressure to apply a finger type force to the panel. The "Pin" type clamp uses two tooling pins to 'hang' the board, and air pressure forces the board upward and locks it into place.
- Flexible Circuit clamp/knife arrangement uses a series of pins across the top and bottom of the flex circuit, air pressure forces the flex circuit taut, and locks it into place.
- Upon customer's request, two-hand safety operation or two-hand safety operation with door shielding.
- Machine can be CE compliant upon customer's request.

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Lead Free by Argus International

HAL5224 and Retrofit Kits for HAL5124 and HAL5224

With the increasing use by the PCB Industry of lead free solders in mass production, Argus is pleased to inform our customers that our lead free compatible hot air leveler unit, Model HAL5224, is available. Also available for our existing hot air leveler customers are new retrofit kits for Model HAL5124 as well as for HAL5224. These retrofit kits are based on tests done on the existing Argus HAL5124 models at Cleveland Circuits, OH; ROHS Compliant, IL; Midwest Printed Circuits, IL.

The two widely used lead free solder alloys tested on the ARGUS retrofitted machines are:

1. Sn/Cu with nominal composition of 99.3% Sn, 0.6% Cu and 0.1% of other inhibitors and proprietary components. As an example: SN100CL (<http://www.floridacirtech.com/products.html>).
2. SAC alloy with nominal composition of 96.5% Sn, 3.1% Ag and 0.5% Cu.

All Argus HAL equipment is built from Type 316 stainless steel. This material is stable for erosion of the above alloys.

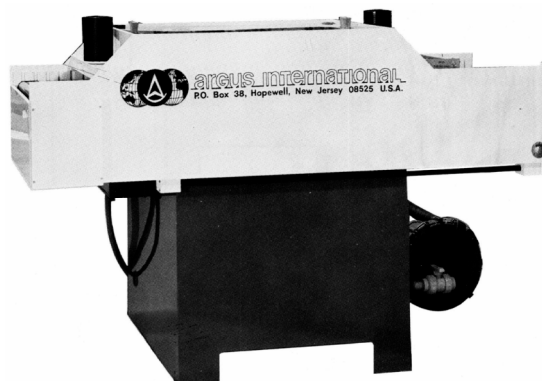
Operating temperature range was from 255°C up to 280°C with the dwell time from 4 seconds up to 6.5 seconds. This test shows acceptable results with full solder thickness control and solderability test, as well as consistent uniformity and flatness on the pads as was previously designed and confirmed on our units. The test was done by using standard chemistry on currently used precleaners and fluxing applicators.

In order to decide which retrofit kit you need, it is necessary for you to contact the Argus service department to determine what equipment must be added to your existing unit; it can be as simple as new temperature control cards, extra heat capacity option, or even a new solder tank.

We are continually in contact with major solder alloy suppliers to assist you in obtaining the proper materials for lead free HAL application and to help you with the lead free HAL process.

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PC5500 Precleaners Series



The PC5500 Series precleaning systems were designed to precede Argus the HAL5000 Series Argus Hot Air Solder Leveling systems. The machine is designed to provide a vigorous spray cleaning, fresh water rinse and turbo air dry.

Key Benefits:

- The importance of starting a process with a clean surface cannot be stressed enough. This system provides excellent board cleanliness prior to fusing and/or HASL processes. To maintain machine cleanliness all controls are mounted on a NEMA-rated control console that may be placed up to 10 feet from the machine.

PC3800 Triple Fluxer Series



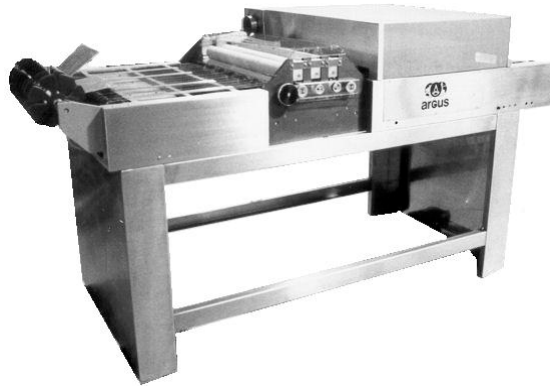
The PC3800 Series flux application systems are designed to support the Argus HAL5224 Hot Air Solder Leveling system by applying flux to circuit boards prior to the HASL process. The PC3800 employs three sets of nappy type rollers to provide complete flux coverage while minimizing flux usage. The first roller applies flux to the entire board surface. The second roller forces flux into the barrels and removes excess flux from the board surface. The third roller serves as a squeegee to remove all excess flux coverage. Excess flux is filtered and recycled providing a significant cost savings.

Key Benefits:

- The PC3800 has an optional mini-accumulator that enables the operator to make minor system adjustments without stopping production.
- The PC3800 has an optional 24 inch entrance extension to ease board loading when precleaning is not in-line.

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PC3600 Preheater Triple Fluxer Series



The PC3600 Series flux application systems are designed to support the Argus HAL5224 Hot Air Solder Leveling system by applying flux to circuit boards prior to the HASL process. The PC3600 employs three sets of nappy type rollers to provide complete flux coverage while minimizing flux usage. The first roller applies flux to the entire board surface. The second roller forces flux into the barrels and removes excess flux from the board surface. The third roller serves as a squeegee to remove all excess flux coverage. Excess flux is filtered and recycled providing a significant cost savings.

Key Benefits:

- The PC3600 has an optional mini-accumulator that enables the operator to make minor system adjustments without stopping production.
- The PC3600 includes a preheat stage which allows the panel to enter the HASL system warm, this reduces the heat loading in the solder pot and can make some fluxes more active. Preheating of high-mass circuit boards enables increased HASL production by minimizing solder pot dwell times.

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PC3400 Fluxer Preheater Series



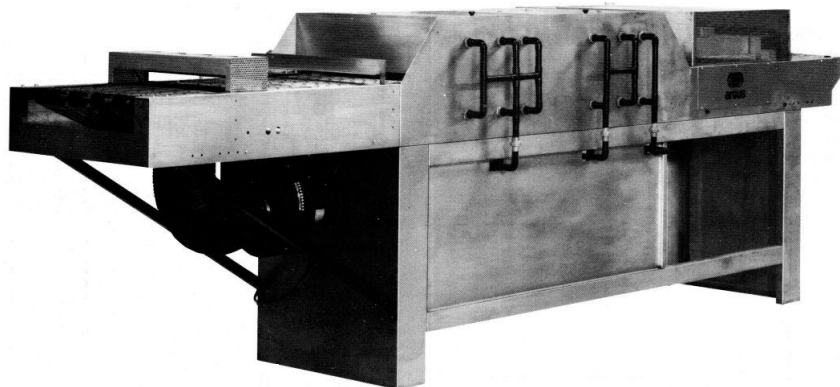
The PC3400 Series flux application systems are designed to support the Argus HAL5224 Hot Air Solder Leveling system by applying flux to circuit boards prior to the HASL process. The PC3400 employs one set of nappy type rollers to provide complete flux coverage. The top roller applies flux to the entire board surface. The bottom roller forces flux into the barrels providing complete surface coverage. Excess flux is filtered and recycled proving a significant cost savings.

Key Benefits:

- The PC3400 includes a preheat stage which allows the panel to enter the HASL system warm, this reduces the heat loading in the solder pot and can make some fluxes more active. Preheating of high-mass circuit boards enables increased HASL production by minimizing solder pot dwell times.

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HL2400 Postcleaners Series



The HL2400 series post cleaning systems were designed to follow the Argus HAL5224 series Hot Air Leveling systems. The machine is designed to provide a flux removal with two stages of vigorous spray cleaning, mild brushing action followed by a fresh water rinse and turbo air drying. Board cleanliness is critical to quality PCB fabrication and the HA2400 series equipment is designed to deliver.

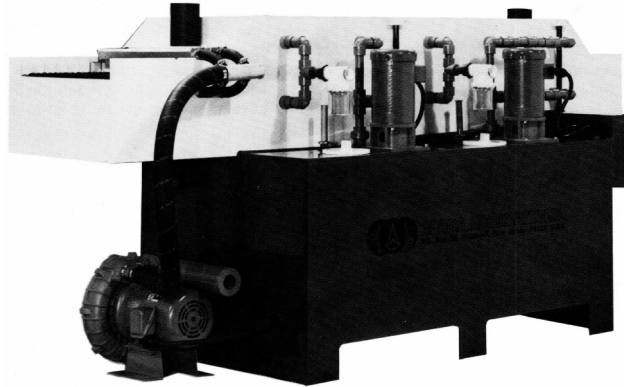
The first stage of the HL2400 post clean system provides cooling zone conveyor to allow enough time for the circuit board to cool before it enters a recirculated spray cleaning and a mild brushing action that removes the most of the surface flux residue left over from the fusing process. The second recirculation chamber provides a recirculation of cleaner spray and mild brushing action and a final clean water rinse. The drain off of the second chamber feed and bleeds into the first chamber to minimize water usage. The drying system may have a turbo air knife to remove any puddle water and an infrared drying section to complete the drying process. A variety of brushing and drying options are available to maximize the effectiveness of the post cleaning system.

Key Benefits:

- **Entrance Cooling Zone Conveyor:** Allows time for the circuit boards to cool before entering the cleaning section of the machine.
- **Postcleaner Injection System:** Provides the ability to inject post cleaning chemistry directly into the recirculating spray manifold. Post cleaning solutions can significantly improve the effectiveness of the HL2400.
- **Antifoam Injection System:** Provides the ability to inject antifoam solution into the HL2400 drain. The antifoam solution normally is used when either the flux or the post cleaning solution generates large amounts of foam.
- **Turbo Air Knife Drying:** Adds increased drying capability by employing high velocity air to remove puddle water on exit from the HL2400. This option makes the IR drying more effective by reducing drying requirements.
- **Recirculating Sump Heating:** Provides a sump heating system. Flux residues are more easily removed with modest increases in spray temperature.

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PC6600 Solder Strippers Series



The PC6600 Series solder stripping systems were designed to precede Argus HAL5224 Hot Air Leveler systems. The machine is designed to strip plated tin or tin lead printed circuit boards, then passivate the surface for future processing.

Key Benefits:

- This system can also be used as a solder strip system only if an exothermic chemistry is used, sump cooling may be a necessary option.

PC3100 Dryer Series



The PC3100 Series dryer systems are designed to support the Argus HAL5224 Hot Air Leveler systems by drying wet circuit boards after the hot air leveling process.