

POWER-BURR 720 ECD

Versatile, highly productive dual station/dual power supply electrolytic deburring workstation.

MACHINE SPECIFICATIONS

1. Machine Frame: The machine frame is of open construction and made from 300 series stainless steel and equipped with stainless steel leveling feet. Dimensions are approximately 72 inches wide x 24 inches deep x 36 inch worktable height. At the rear and sides, the frame extends approximately 30 inches above work level to support the side and backsplash panels.

2. Worktable/sink: the sink is approximately 72 inches wide x 24 inches deep and made from welded polypropylene. A heavy duty worktable for mounting fixtures/tooling is mounted into the sink and made from a polyvinylchloride plate.

The worktable is divided into two "sides", each of which can be operated separately with individual tooling and ECD operating programs.

Backsplash and sidesplash panels: are mounted to the frame and made from polypropylene. Busbars for electrical current, manifolds for electrolyte, compressed air, and rinse water are mounted onto the backsplash for convenient access.

Skirts: polypropylene panels are mounted to the front and sides of the frame.

3. Electrolyte Tanks: Two identical interconnected tanks (for clean and dirty electrolyte) sit under the frame, extending out in the rear. Tanks are made from welded polypropylene and have a capacity of approximately 40 gallons (each). Each tank is supported by a stainless steel frame.

4. Electrolyte Filtration: the standard filter is either a high capacity bag filter in a stainless steel housing or high capacity cartridge filters in stainless steel housings (customer specified). Electrolyte is circulated continuously (when the machine is running) by a stainless steel centrifugal pump from the dirty tank through the filter and into the clean tank. Connections from the clean to dirty tank will prevent overflow.

An optional nanofiltration system (membrane filter) for electrolyte is described in Machine Accessories.

5. Electrolyte Cooling: is either by a portable 3 ton self-contained refrigeration chiller or a stainless steel heat exchanger and control valve when factory chilled water is available. Electrolyte is circulated continuously to maintain the specified temperature for good process control.

6. Electrolyte Delivery: a stainless steel centrifugal pump will supply clean electrolyte to a manifold mounted to the frame behind the back splash. Electrolyte pressure will be limited by a relief valve. Four (4) needle valve type flow controllers (two per side) will be manually set to control flow.

An optional electrolyte delivery system is described in Machine Accessories. This system is capable of setting electrolyte flow rates for the tooling under program control by the PLC.

7. pH Controller & Conductivity Monitor: the pH of the electrolyte will be monitored by a pH probe in the clean electrolyte tank. A preset pH value will be maintained by pumping a mildly acidic solution, such as citric acid solution, from a reservoir mounted to the machine frame. A conductivity sensor will be mounted in the clean electrolyte tank and will display electrolyte conductivity on the controller's touch screen panel to insure that the electrolyte is at the correct concentration.

8. Air & Water Guns: each side of the machine has a compressed air gun (with its own regulator/filter assembly) connected to the main air manifold and a water rinse gun connected to a factory fresh water line.

9. Fixture Clamping: each side of the machine has two (2) pneumatic 4-way directional valves (for a total of 4 valves) under control of the PLC mounted on the frame and connected to quick disconnect fittings on the backsplash to control fixture clamping/ cathode movement.

10. Power Supplies: each side has a separate 30 VDC switching type power supply. The power supply provides excellent quality DC with less than 3% ripple. Pulsed output can be provided down to 50 millisecond pulse width. Power supply cooling can be either by forced air or factory cooling water (when factory chilled water is available). Power supplies from 100 Amps to 500 Amps can be specified.

The power supplies include the following protections:

- Over-temperature protection
- DC over-current limitation
- DC short-circuit current limitation
- Input current limitation

11. Control Cabinet and PLC: The machine control unit will be enclosed in a stainless steel NEMA 4X cabinet mounted by the side of the machine frame. All operator controls will be located on this cabinet except for the cycle start pushbuttons (for both the left and right sides) and a 2nd emergency stop pushbutton which will be located at the front of the sink.

Electrical power will be by a single 230 or 460 VAC 3 Ph connection to this cabinet.

The two power supplies may be mounted in the main cabinet or in a second cabinet.

An Allen Bradley CompactLogix® programmable logic controller will be used together with an Allen Bradley Panel View® 10 inch color touch screen operator interface. The PLC program will control the power supplies, electrolyte filtration, electrolyte delivery, electrolyte cooling, and clamping pneumatics. Multiple part programs can be entered on the Operator Interface, stored, and simply selected by the machine operator.

Note: ECD equipment must be firmly and effectively grounded.