ELCA 8000 (12000) A 22 Vdc Pulse Rectifier

Sorry, this machine is no longer available

We might be able to meet your requirements with other Rectifiers & DC Power machines.

Stock No	RU714
Model	Type N
Year of Manufacture	1991
Serial	50991
Voltage	22v output
Amps	12000 max / 8000 nominal
Weight (kgs)	2192
External Dimensions (WxDxH mm)	1100 x 1700 x 2000

Description

ELCA 8000 (12000) A 22 Vdc PRP Pulse Rectifier

PULSE PLATING

In the typical electroplating process, power is supplied to the plating bath as direct current (DC). In pulse plating, the DC

power arrives in the bath in a series of short pulses. These pulse cycles can be regulated at predetermined rates to over 10,000 times per second.

Precise changes in the regulation of these cycles provide different benefits to plated deposits, depending on the metal being plated.

Typical advantages of pulse plating include better distribution, lower porosity, higher density, greater throwing power, improved hardness and less metal usage.

Advantages of Pulse Plating

The advantages of pulse current output in electrochemical processes are numerous, including:

Metallurgical
Denser deposit
Lower porosity
Finer grain deposit
Higher tensile strength
Higher elongation
Reduced stress
Reduced hydrogen embrittlement

Electrical
Higher conductivity
Lower contact resistance
Better bondability

Physical
Improved adhesion of deposit
Increased throwing power
More uniform thickness
Fills sub-micron trenches
Reduced stress on photo resists
Better control of alloy composition
Better color control

General
Reduced process limitations
More flexibility of metal content in bath
Reduction/elimination of additives
Reduced process (plating) time

Electroplating is not the only area where pulsed current output is used. Elca has designed and built many pulse power supplies for other applications as well.

The following are just a few of the many potential applications using DC pulse Supplies:

- Electrowinning (Electroextraction)
- Electrocoagulation
- Electrochlorination
- Electrochemical Deburring
- Ultraviolet (UV) Curing
- Spark Plasma Sintering
- Cathodic Protection
- Xenon Short-Arc Lamps
- Lasers
- Electrolytic Metal Powders

Pulse rectifiers have the following features:

- Positive pulses can be superimposed on the base level (adjustable between 0-50% of the base level).
- Longer period (some seconds) of direct current are followed by very short (some milliseconds) polarity reversals.

Thanks to the positive pulses superimposed on the base level the deposition rate and the throwing power are increased.

Thanks to the periodic reversing polarity, the uniformity is increased and, with regards hard-chromium deposition, a crack-free deposit can be obtained

In ELCA pulse rectifiers the pulse current value can reach 1.5 times the base value. Moreover if pulse rectifier works without any pulses the continuous working current is 1.35 times the base current.

Technical features

Rectifier circuit:
Six-phase provided with interphase transformer,

Main transformer: according to IEC 742 standard "Safety isolating transformers"

Mains switch:
Magnetothermic (automatic) type.

Cooling:
Air cooling: by means of axial fan and air filters (max ambient temperature: 45°C). Protection IP20

Protection:
- Max current: by means of electronic device and automatic mains switch
- Max temperature: by means of thermostats inside the main transformer windings and on the diode cases.

Voltage/current control:
Constant current and (or) constant voltage control
Accuracy: ±1% against ±10% network variation and load variation from 10% to 100%

Photographs taken prior refurbishment. Our refurbishment service is not available on all machines.