



DC Sputtering Power Supplies

Service Bulletin

Discontinued service & repair of Gen 1 water cooled DC sputtering power supplies 6 kW & 12 kW installed in Varian's 3290's & M-2000 sputtering tools prior to 1991.

Service Bulletin No: SB97DCSPS01, October 31, 1997

Systems Affected: GEN 1: 6kW & 12kW (Water Cooled) DC Sputtering Power Supplies

Reference: None

Service Bulletin Type: Service Note

1.0 Introduction

The Gen 1 Water cooled 6kW & 12kW power supplies have been discontinued from production since 1990, and we have continued to service and support this product. At this point in time, our last supplier of the main switching device (ASCR's) has discontinued this part and therefore we can no longer service this product. We have purchased a last buy of this part which will carry us (we estimate) to the end of 1997. We cannot service Gen 1 power supplies after that point in time.

In order to continue to support "Gen 1 based machines", we have developed power supply replacement units derived from our present production models. These replacement units will be offered when a Gen 1 power supply requires repair or the customer wants to change to the new unit. We have designated these replacement units:

Input Voltage	Existing Gen 1	CPI Replacement Kit #		Novellus replacement kit # (reference only)
		Name	Model	
200/208	6kW VPW2870A1 (Varian # 00-683726-03)	CPW 6/208	VPW2870A4	04-722791-04
200/208	12kW VPW2870B1 (Varian # 00-683726-06)	CPW 12/208	VPW2870B5	04-722791-03
200/208	12kW FLEX VPW2870B1 (Varian # 04-714466-04)	CPW 12/208	VPW2870B5	04-722791-03
460/480	6kW VPW2870A1 (Varian # 00-681049-01)	CPW 6/480	VPW2870A3	04-722791-02
460/480	12kW VPW2870B1 (Varian # 00-681049-03)	CPW 12/480	VPW2870B4	04-722791-01
460/480	12kW FLEX VPW2870B1 (Varian # 00-714466-01)	CPW 12/480	VPW2870B4	04-722791-01

The following advantages will be realized when a Gen 1 power supply is replaced by a replacement unit (similar to our current Gen 2.5 production versions):

2.0 Reliability:

At present, the MTBF of the Gen 1 water-cooled power supply is approx. 25,000 hours. The new supplies have experienced 280,000 hours MTBF in the field to date based upon 7 years of production, therefore reducing the "Cost of Ownership" to the end user.

No more water condensation problems. The replacement power supply is air-cooled.

Manufactured with full E.S.S. (Environmental Stress Screening) in production (random vibration and rapid temperature cycling) to screen out infant mortality defects.

Arc tolerant (new location of internal current sensor).

No more tap changes. Separate families of power supplies are now available are offered, one for 200/208V applications and one for 460/480V applications.

3.0 Performance Improvements:

1. More accurate power supply: Interface monitors (power demand and output voltage, current, and power monitors) and digital front panel display.
2. Process improvement in repeatability. Higher accuracy, less thermal drift and sensitivity to noise.
3. Higher ignition voltage (1500V) and higher current output

Gen 1 power supply: 6kW - 1400V - 8.5A
Replacement unit: 6kW - 1000V - 10A with 1500V ignition

Gen 1 power supply: 12kW - 900V - 22.5A
Replacement unit: 12kW - 900V - 22.5A / 25A (selectable) with 1500V ignition

4. Much better "AT POWER" circuit - reduce S.O.O.R.'s (Source Out Of Regulation error's). New circuit can now measure "AT POWER" status well below 5% output power.
5. Improved arc response: arc sense & arc recovery.
6. Able to interface with the new Arc Suppression Devices (A.S.D.'s) developed recently along with Arc Counters.
7. Floating output capability allows the positive output power terminal of the supply not to be connected to ground inside the power supply (reduces ground currents and noise).

4.0 Other Advantages

- Lower ground leakage currents (<1ma)
- Higher efficiency (less heat generated)
 - requires 44.5A versus 48A of input current for 12kW @ 180VAC input
 - requires 20A versus 22A of input current for 12kW @ 414VAC input
- Takes up less rack space (7" height versus 8.25")
- More robust input / output power cable strain reliefs on 208V version.
- Input and output power connectors on 480V version.
- 12kW replacement unit are all multi-range power supplies (equivalent to the flex 12kW Gen 1 option: 2.5kW, 6kW, & 12kW setting)
- Weight reduction (120 lbs reduced to 67 lbs)
- Fast, reliable turn around on any repairs required.