

# APPLICATION NOTE - 1016

Topic: UNIQUE POWER SUPPLY USED  
FOR COATING DISC DRIVES

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## INTRODUCTION

HDR Power Systems has always been eager to design and build custom Power Control equipment for unique applications. In 2003 Intevac, Inc. came to HDR for a unique power supply application. They are the industry leader for Thin Film Disk Sputtering Equipment and had recently developed their new "Lean 200" thin film disk sputtering system. Intevac had experience using HDR's SCR Power Controllers for their prototypes, was happy with the performance but needed a power supply designed specifically for their application.



Figure 1 - Intevac Power Supply manufactured by HDR Power Systems

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According to Intevac, the HDR power supply is used on hard disc sputtering deposition systems, which deposit specifically structured thin-films of magnetic, non-magnetic material and diamond-like carbon onto a disk substrate. The machine can deposit on both sides of the disc at the same time.

### **HDR's SOLUTION**

Intevac's requirements included small size, digital meters, remote/local control and readback signals for output DC Voltage, Current and Power as well as alarms. The readback signals had to have very low common mode voltage.

HDR's solution was a "rack mount" power supply that included all of the features Intevac required. See Figure 1.

In addition to the required electrical features the power supply had to be easy to install. HDR installed "barrel" connectors for the load connections, a high density "D" connector for all signal leads and a normal line cord for the 120 Vac control power. A three-phase terminal block was used for the incoming 208Vac, 3ph, 50/60 hertz power. Figure 2 shows a back view of the power supply. A line contactor is included internal to the Power Supply.



**Figure 2 - Back view of the Power Supply**  
(Shown without the power terminal's cover installed)

## **WHY A CUSTOM POWER SUPPLY?**

Intevac had experience with SCR Power Controls coupled with rectifiers and miscellaneous other equipment. This method required more space and additional assembly time for Intevac and didn't give them the results they were really looking for. HDR designed and built the power supply to their specifications and the result is a power supply that works well and is easy for them to install. The power supply is already tested and calibrated prior to arrival at Intevac so it minimizes their testing time. They now send the orders and HDR ships within a few weeks.