

Temescal FC-1800 Electron Beam
Evaporator System
Refurbished by TES

Temescal FC-1800 Electron Beam evaporator system

SYSTEM DESCRIPTION

- 18" diameter water cooled stainless steel chamber.
- 18" diameter x 8" high stainless steel collar for the lower source tray to extend the source to substrate distance. Please note: Source to water-cooled table distance is 30", source to rotating flip fixture is 26".
- One (1) 20" stainless steel expansion plate.
- One (1) 20" diameter X 10" high stainless steel collar with a substrate fixture assembly consisting of a 14" ID ring that can rotate from 1 to 80 RPM. This ring can also be manually rotated or can be set at any fixed angle.
- This system is configured with a low volume load lock mounted on top of the 20" diameter collar. The load lock consists of a gate valve, adapter flange, and motorized liner motion assembly. The system has one 7.5" diameter water cooled rotating substrate stage capable of 5 to 100 RPM.
- Capacity to hold one (1) 6" diameter wafer or small pieces using standard spring clips to hold the substrates. The substrate table assembly is mounted within this low volume adapter.

FC-1800 detailed system description

- The process chamber is fully shielded and flame sprayed.
- Lower source tray swings out for maintenance.
- Two (2) view ports - lower viewing port has a wide-angle shuttered viewing port with film advance capability.
- CTI cryo pump model CTI-8 and compressor.
- One (1) pneumatically operated throttle valve.
- One (1) new Granville-Phillips full range mini-gauge for process chamber pressure monitoring.
- Inficon deposition controller model IC-5 with sensor.
- Temescal electron beam power supply model CV-14 (14-KW) configured for single gun operation, interfaced to the deposition controller.
- One (1) programmable electron gun X-Y sweep controller.
- One (1) Temescal electron beam source model STIH -270 with three 15 cc and three 7 cc pockets.
- 2-kw substrate heat lamp assembly with a Eurotherm proportional controller. The proportional temperature controller has the ability to (learn) profile the substrate temperature and system to optimize temperature control.

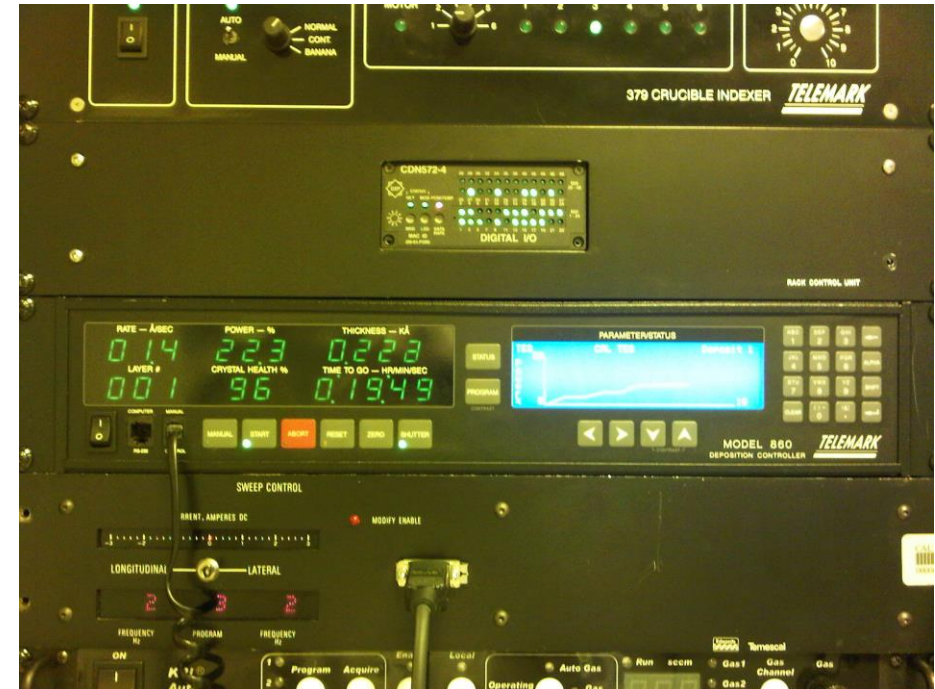
FC-1800 detailed system description

- Electron gun shutter assembly interfaced to the deposition controller.
- Leybold Heraeus Model D-30 20.9 CFM Mechanical Pump or equivalent.
- Full Set of Manuals
- Demonstration, training and maintenance CD with video and audio instruction
- Software license to allow customer complete access to source code
- Spare parts list
- System will have a base pressure of better than 1×10^{-7} torr.
- New wiring.
- New pneumatics using SMC air distribution manifold and solenoids.
- New plumbing and flow sensors.
- New safety system.
- New seals and o-rings.

FC-1800 controls description

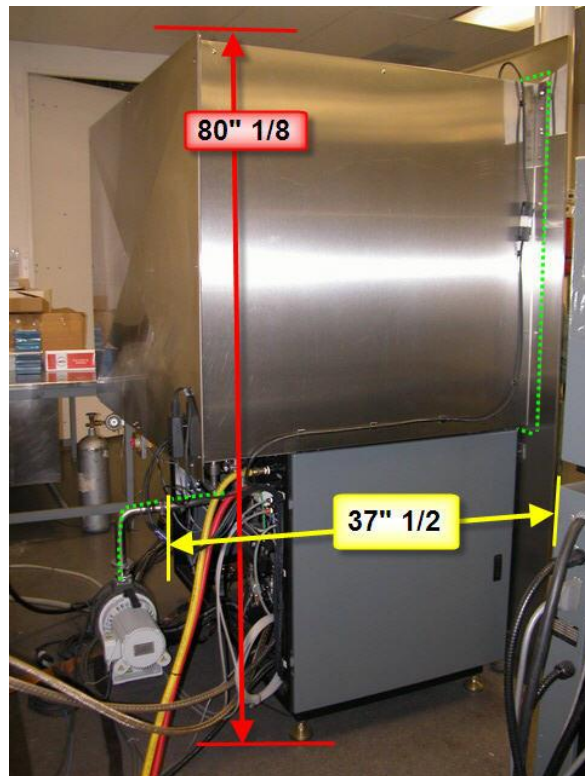
- DeviceNet™ communication network. This allows us to communicate with all vacuum gauging, pneumatically operated equipment, mass flow controllers, capacitance manometers, and other system components. DeviceNet™ uses a five-wire bus cable system. Each off-the-shelf cable is pre-molded and tested for reliability to meet the exacting standards of the industry. DeviceNet™ cabling improves appearance, reduces down time, simplifies troubleshooting and allows the addition of components, without powering down or introducing new wiring requirements or complications. Remote surveillance and operation capabilities allow your own maintenance staff to monitor, upgrade, enhance, and troubleshoot system performance from any PC, in real time.
- System automation is achieved, using a touch screen computer and GE “Cimplicity™” software. The software uses object-oriented graphics and provides a wide range of automation capabilities, to make system operation uniquely user-friendly.
- Benefits of this configuration are that it is easy to learn and set automatic system configuration and process parameters, and the control of automatic and manual operation is simple. For security, passwords are required to access different levels of the program, such as operator, process engineer, maintenance, etc.

Pictures of FC-1800 E-Beam system

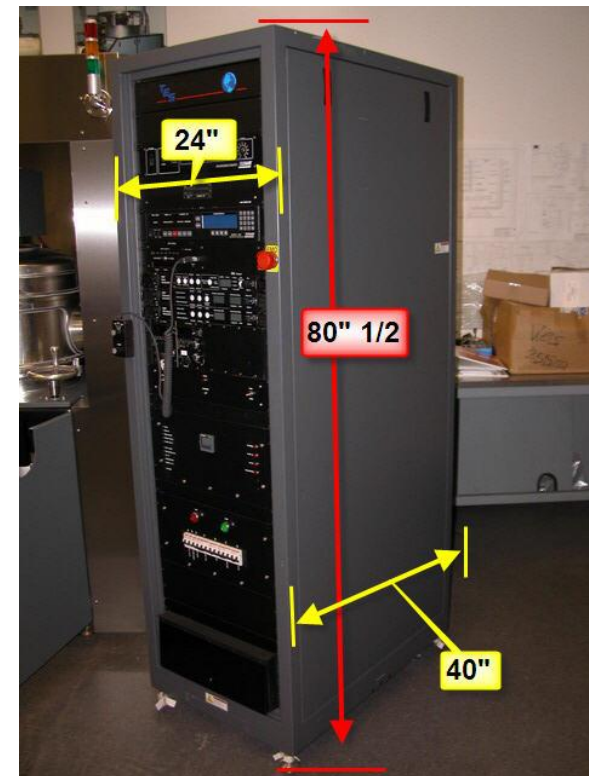


Pictures of FC-1800 E-Beam system

Back side of frame with dimensions

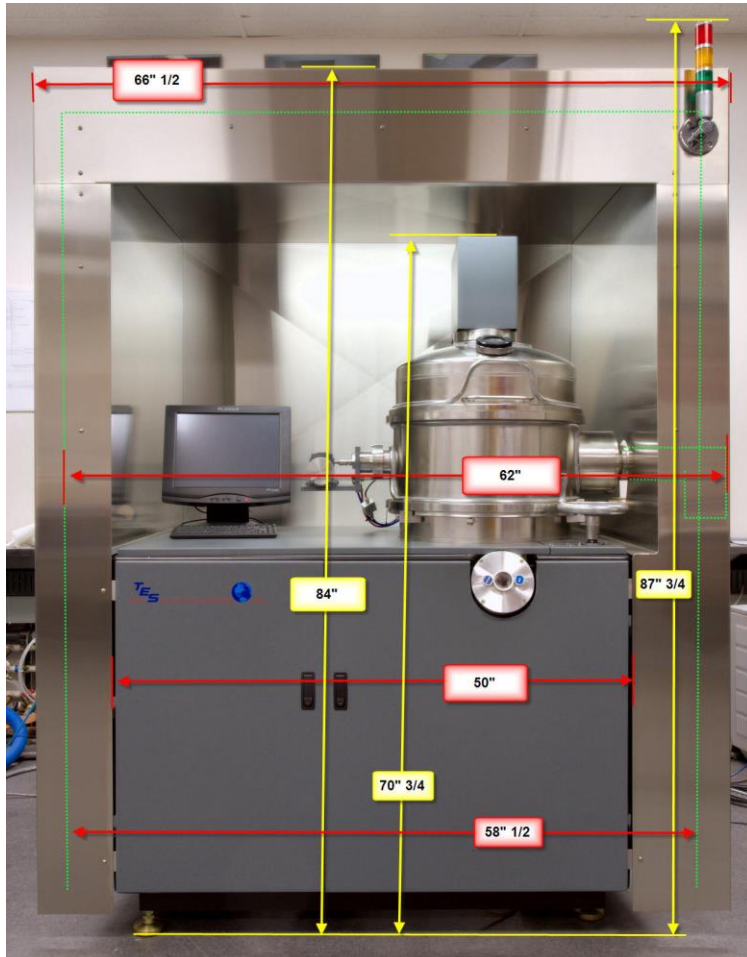


Control Rack with dimensions

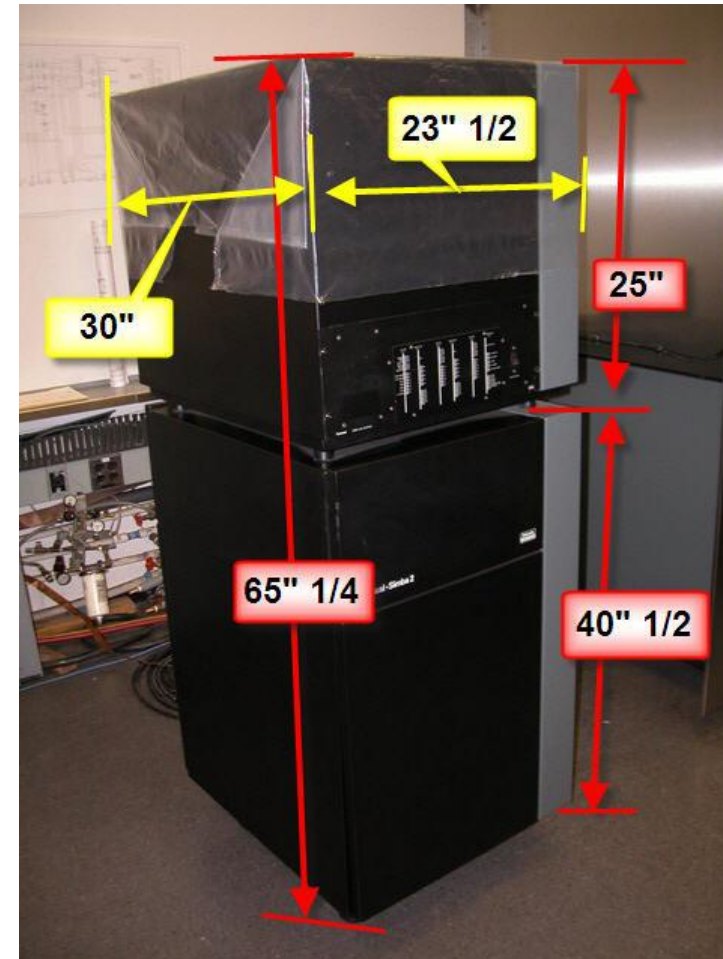


Pictures of FC-1800 E-Beam system

Front view with dimensions



Simba 2 power supply

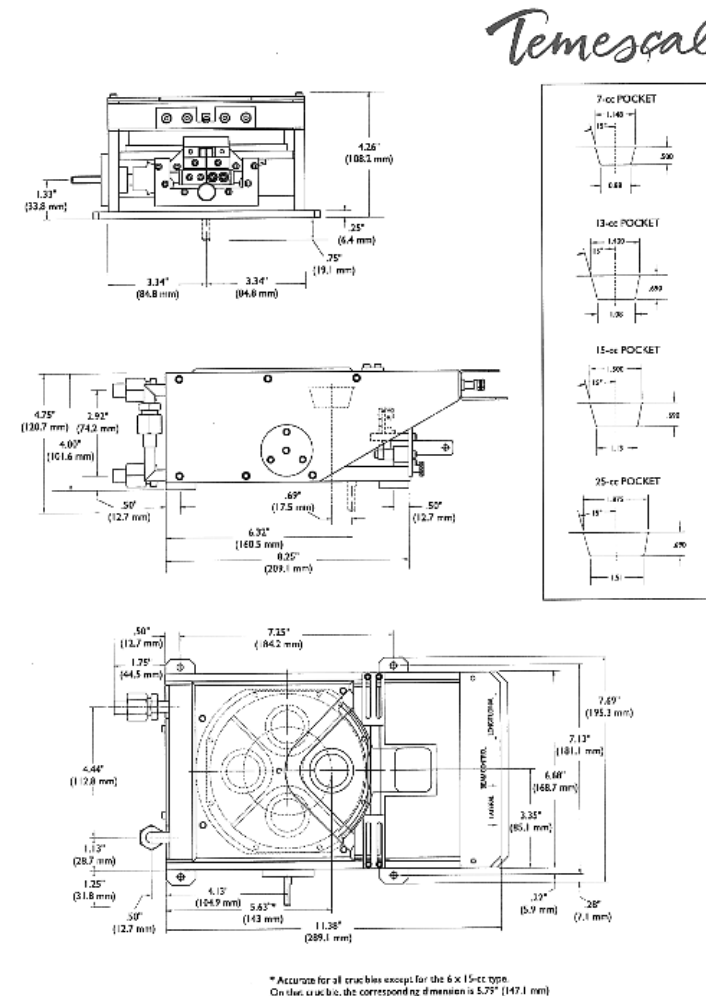


Pictures of FC-1800 E-beam system

Temescal E-beam gun

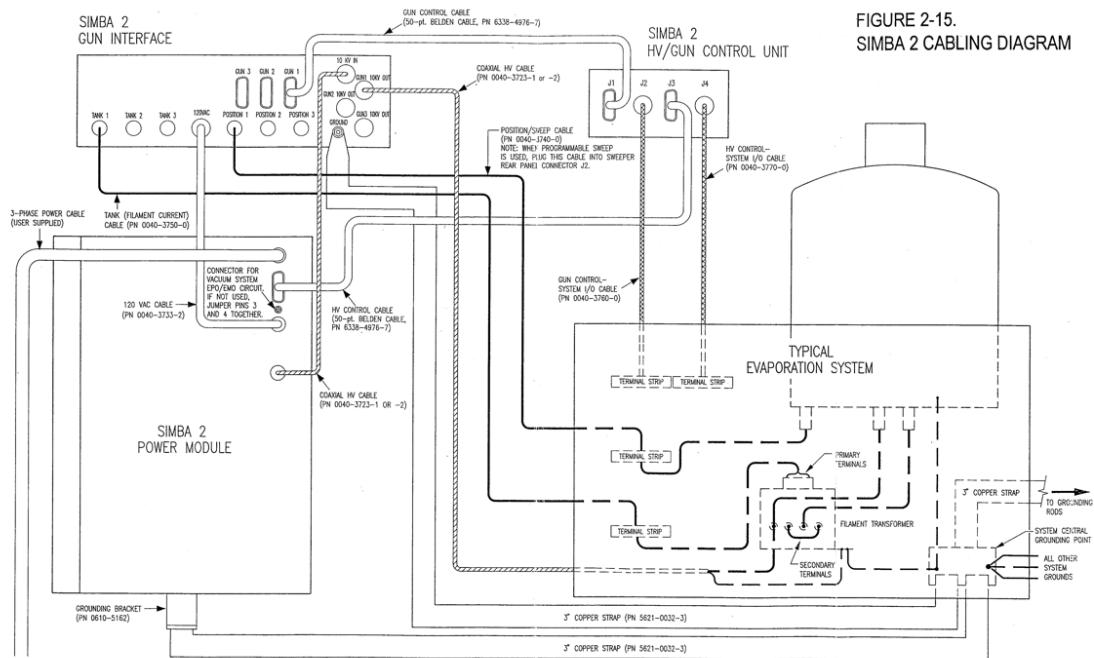


E-beam gun drawings



FC-1800 E-beam system

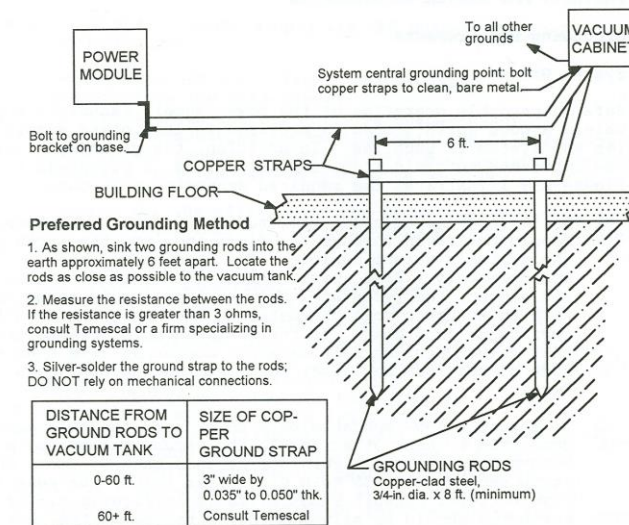
Simba 2 cabling diagram



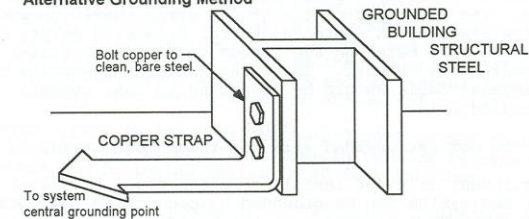
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Simba 2 grounding requirements

INSTALLATION



Alternative Grounding Method



SIM-2-02.PM3

Figure 2-1. System Grounding