

2.1 System Description

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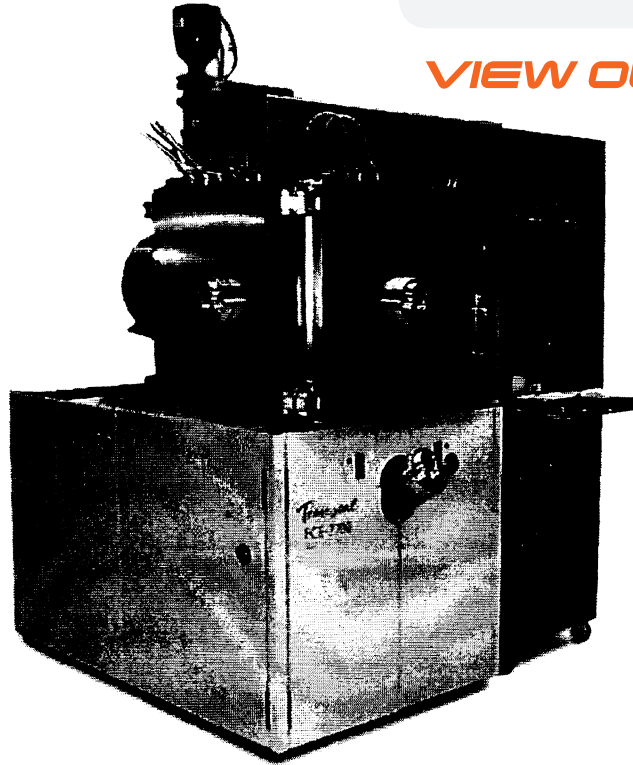
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Figure 2-1 FCE-2500 and FCE-2700 Systems

The Temescal FCE-2500 or FCE-2700 Fast-Cycle Evaporation System is a clean room compatible system, with a load-lock system and fully automated or manual touch-screen control. The system combines high-throughput capability with lift-off compatibility. It can be configured for either freestanding or through-the-wall clean room installation, and supports numerous combinations of deposition sources, substrate fixturing, and substrate heating and cleaning devices.

This F&I Guide is applicable to both FCE-2500 and FCE-2700 systems. The only operational difference is that the FCE-2700 has a larger Product Chamber and the capacity to handle the high speed planetary fixture.

The FCE-2500/2700 features both front and side access to the product chamber as well as the source tray, facilitating operation and servicing in through-the-wall installations.

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Wide-angle four-inch viewports on both product chamber doors allow the substrates to be viewed from either the service area or the clean room in such installations, and an additional wide-angle viewport on the front of the system enables the operator to view the source.

The Temescal Control system (TCS) enables the user to control the FCE-2500/2700 in any of three modes via its color touchscreen. The Service mode provides direct control over any of the system's valves, motors, and power supplies. The Manual mode enables the user to set process parameters, initiate a process, and control any phase of that process. The Automatic mode allows the execution of user-programmed recipes, which can consist of up to twenty different process steps. In addition, the TCS provides automatic cryogenic ("cryo") pump regeneration and full abort diagnostics.

The main modules of the FCE-2500 and 2700 systems include:

- Vacuum Cubicle
- Control Cabinet
- Power Supply Module
- Power Distribution Box with hand-held Remote
- Compressor for the Cryogenic pump
- Rough Vacuum Pump

For more specific information concerning the various major modules and/or components of this system, see the Operations Manual or the other manuals on the various components.

2.2 System Specifications

2.2.1 Dimensions:

Vacuum Cubicle

Width: 41.0 inches (1054 mm)
Depth: 66.0 inches (1680 mm)
Height: 81.0 inches (2060 mm)
Weight: 3300 lbs (1500 kg) [2500]
4200 lbs (1905 kg) [2700]

Vacuum Product Chamber

Width: 28 inches (711 mm)
Depth: 28 inches (711 mm)
Height: 18 inches (457 mm) [2500]
28 inches (711 mm) [2700]
Volume: 231 liters [2500]
368 liters [2700]

Vacuum Source Chamber

Diam: 18 inches (457 mm)
Volume: 169 liters [2500]
134 liters [2700 – with no lower source well]
169 liters [2700 – with 8.6" lower source well]

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Control Cabinet

Width: 24.0 inches (610 mm)
Depth: 35.5 inches (902 mm)
Height: 79.5 inches (2019 mm)
Weight: 800 lbs (363 kg) [2500]
900 lbs (408 kg) [2700]

Power Supply Cabinet

Width: 25.3 inches (643 mm)
Depth: 27.0 inches (686 mm)
Height: 72.0 inches (1828 mm)
Weight: 1100 lbs (500 kg)

Power Distribution Box (wall mounted)

Width: 31.5 inches (800 mm)
Depth: 12.0 inches (305 mm)
Height: 39.5 inches (1004 mm)
Weight: 176 lbs (80 kg) for 208-240 VAC systems
300 lbs (136 kg) for 380+ VAC systems

2.2.2 Facility Requirements:

Environment: Ambient Air Temperature: 55°F to 90°F (12°C to 32°C)
Relative Humidity: 50% maximum

Cold Water: 100 psig (6.89 bar) maximum inlet pressure
50 psig (3.45 bar) minimum delta pressure
68°F (20°C) maximum inlet temperature

Flow rate requirements:

Basic System: 6.0 to 9.0 gpm (22.7 to 34.1 l/min)
Each Source 3.0 to 5.0 gpm (11.4 to 18.9 l/min)
Each Crystal monitor 0.5 gpm (1.89 l/min)
PC compressor [2500+2700] 2.75 gpm (10.4 l/min)
SC compressor 2.5 gpm (9.46 l/min)

Hot Water (Optional):

5 gpm (18.9 l/min)
90 psig (6.21 bar) maximum inlet pressure
50 psig (3.44 bar) minimum delta pressure
140°F (60°C) approximate temperature

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Vent Gas: (for process and/or purge):
Clean Dry Air (CDA) or Nitrogen (N₂)
90 to 120 psig (6.21-8.27 bar)

Pneumatic Air: (for valve activation):
90 to 120 psig (6.21 to 8.27 bar)

Helium: [see section 5.3]
One bottle 99.999% pure

Electrical Power:

Drop #1:

Main System :

200 / 220 VAC, 60 Hz, 3-phase 5-wire wye, 150A
or
380 / 415 VAC, 50 Hz, 3-phase 5-wire wye, 100A

Additional Requirements for Options:

Substrate Heat	8 kVA
Each Resistance Source	5 kVA
Roots-type Blower	1.5 to 4.0 kVA
Ion Beam Source	4.0 kVA

Drop #2:

Simba 2[®] power supply:

208-240 VAC, 50/60 Hz, 3-phase 4-wire delta, 90A
or
380-415 VAC, 50/60 Hz, 3-phase 5-wire wye, 70A

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