

Celsius® FT33|66|100

Modular Freeze-Thaw System



Benefits

- Stabilize Drug Substances
- Scalable Process from 1 L to 100 L
- Maximize Process Efficiency and Process Reliability
- Reproducible Freeze-Thaw Operations
- Complete Logistical Solution
- Minimize Operation Handling
- GMP Compliant

Product Information

Celsius® FT33|66|100 is a controlled-rate freezing and thawing system designed to minimize the adverse effects of the cryoconcentration in your biopharmaceutical products. This robust and reliable platform gives flexibility by processing up to 100 L of solution in single-use containers, the Celsius® Paks.

Description

The Celsius® FT33|66|100 modular system is designed for the freezing and thawing of 1 L, 2 L, 8.3 L and 16.6 L Celsius® Paks.

- The system is equipped with:
- a FT module for Celsius® Paks holding
 - a Temperature Control Unit (TCU)
 - a Control Cabinet with HMI & the process relevant sensors

Technical Data

FT Module, a Smart Equipment with Ergonomic Design and Maximum Flexibility



Because of its modular design, the basic FT module (Celsius® FT33) is extendable with up to two additional modules (Celsius® FT66 for 2 modules and Celsius® FT100 for 3 modules).

The Heat Transfer Fluid (HTF) circulates inside heat transfer plates mounted on each module. Once a freeze or thaw cycle is initiated, the plates close over the Celsius® Paks ensuring good contact between the plates and the Celsius® Pak surface optimizing the heat transfer.

Conceived to minimize the operator efforts, each module has a docking locator to align the Transfer Cart or the Storage Module to simplify the transfer of the Celsius® Paks to and from each module.

The Celsius® FT33|66|100 is mounted on rockers that allow the module to rock back and forward during thawing processes. This rocking movement optimizes the mixing of the liquid and solid phases of the product, improving thawing time and ensuring product homogeneity.

Dimensions (W×D×H) [mm]	
Celsius® FT33 Basic module	approx. 800 × 1718 × 1835
Celsius® FT66	approx. 1600 × 1718 × 1835
Celsius® FT100	approx. 2400 × 1718 × 1835

Weight	
Celsius® FT33 Basic module	approx. 950 kg
Celsius® FT66	approx. 1650 kg
Celsius® FT100	approx. 2430 kg

Power Supply Celsius® FT33 66 100 (will be supplied via the control cabinet)	
Voltage available	400 V; 3~N; 50 Hz
	480 V; 3~N; 60 Hz
	According Customer Requirement

Material	
Covers	Stainless steel 1.4301 surface grinded

Temperature Control Unit (TCU)



The Temperature Control Unit (TCU) allows robust and reproducible freeze and thaw cycles.

Sartorius is offering 2 sizes of TCU depending if you are running simple or multiple modules:

- TCU 630w for Celsius® FT33 (i.e. 1 module)
- TCU 635w for Celsius® FT66 and Celsius® FT100 (i.e. 2 and 3 modules)

The TCU controls the freeze-thaw process by supervising the temperature and flow rate of the heat transfer fluid according to predefined profiles.

The TCU operates with HTF temperature varying from -60°C to +35°C.

Dimensions (W×D×H) [mm]		
	TCU 630w	TCU 635w
	approx. 950 × 1005 × 1650	approx. 950 × 1005 × 1650
Weight		
Net. weight	approx. 734 kg	approx. 728 kg
Weight incl HTF Water	approx. 800 kg	approx. 800 kg
Power Supply (will be supplied via the control cabinet)		
	400 V; 3~N; 50 Hz	400 V; 3~N; 50 Hz
	460 V; 3~N; 60 Hz	460 V; 3~N; 60 Hz
	According Customer Requirement	
Material		
Covers	Stainless steel 1.4301 surface grinded	
Electrical cabinet cover	Painted steel	

Control Cabinet: Simple, User-Friendly and Secure



The entire automatic freeze, thaw and hold operations are processed through the Control Cabinet. It is linked to the Temperature Control Unit and the FT module via Profinet. The critical parameters of all processes are commanded, monitored and stored in an automatic manner with minimal operator intervention.

The Human Machine Interface (HMI) is a touch screen panel PC connected to a Siemens PLC. All relevant process values are recorded with the WINCC software:

- HTF-Flow
- HTF-Supply and -Return Temperatures
- HTF-Supply and -Return Pressures
- Product Temperatures
(2 or 4 Sensors for each module)

Dimensions (W×D×H) [mm]
approx. 800 × 600 × 1785

Weight
approx. 300 kg

Power Supply
400 V; 3~N; 50 Hz
480 V; 3~N; 60 Hz
According Customer Requirement

Material
Covers
Stainless steel 1.4301 surface grinded

The software is based on the Sartorius SBC Standard Library which consists of:

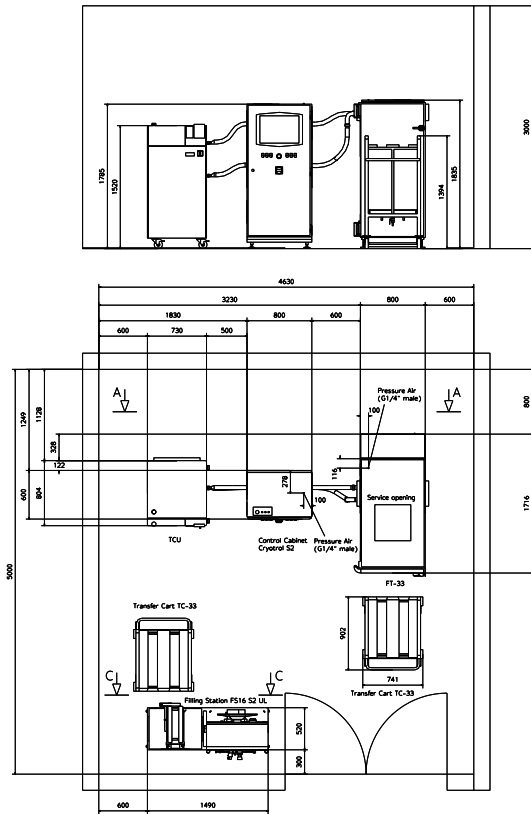
- Industrial Automation based on Siemens Hardware and Software components
- System design based on ISA S88 Standard
- Validated software modules
- Integrated User Management
- 21CFR Part 11 compliant
- Audit-Trail

The software supports:

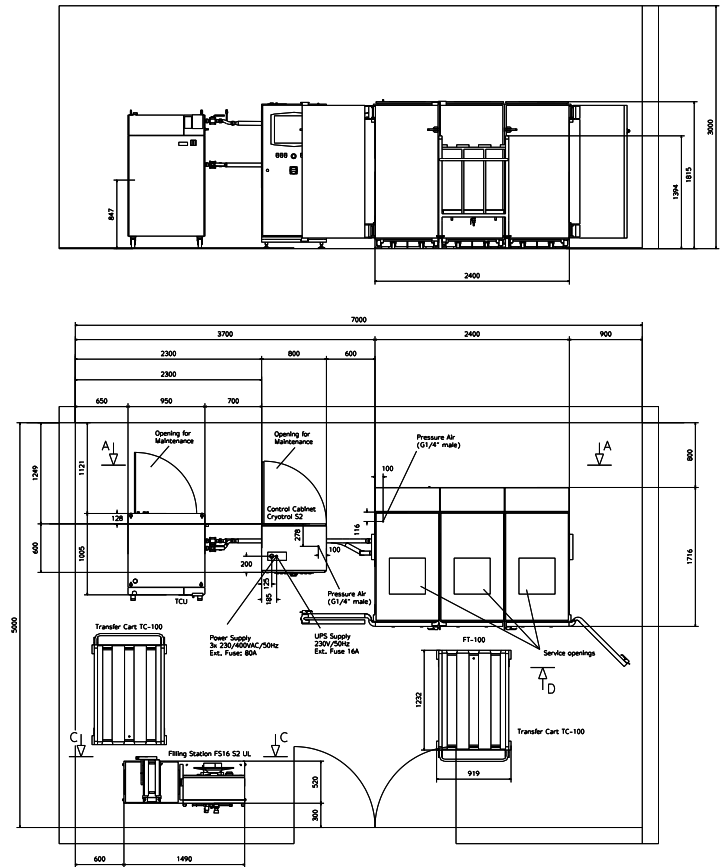
- Process Visualization
- Batch Management and Reports
- Trends
- Message System
- Programming of different phases for controlled HTF-supply temperature and time values
- Opening and closing the Heat Transfer Plates
- Programming the mixing speed
- Recording the process values

Layout of Celsius® Systems

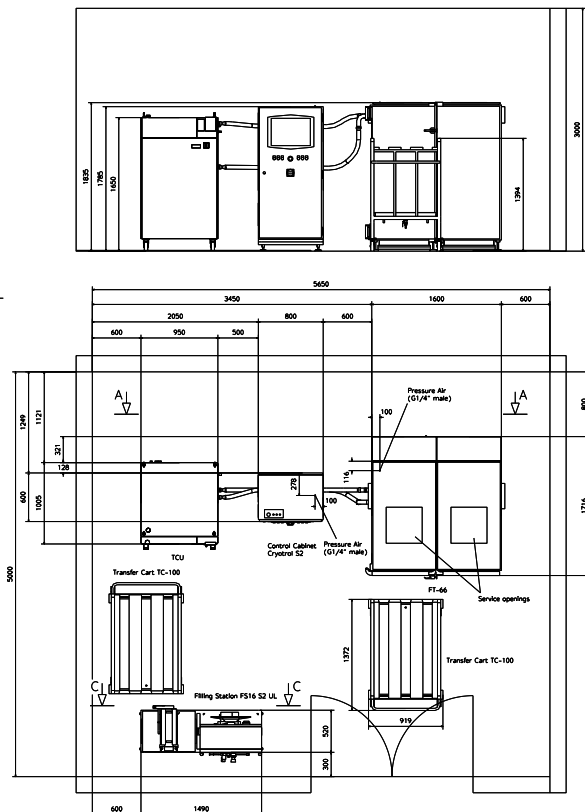
Layout of Celsius® FT33 with TCU 630w



Layout of Celsius® FT100 with TCU 635w



Layout of Celsius® FT66 with TCU 635w



Ordering Information

Equipment is customized according to process specifications. Please consult your Sartorius Sales representative for any additional information.

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