

## FZ SERIES LABORATORY FREEZER

### FZ Series Overview

The FZ series laboratory freezer chamber is a reliable, commercial-grade freezer designed for general laboratory use.

#### FZ011

The FZ011 is bench top laboratory freezer chamber designed to fit on 24" benchtops or stacked with optional racking.

#### FZ030

The FZ030 is a single-door laboratory freezer chamber.

#### FZ055

The FZ055 is a two-door laboratory freezer chamber.

#### FZ068

The FZ068 is a larger two-door laboratory freezer chamber.

#### FZ084

The FZ084 is a three-door laboratory freezer chamber.



## FZ SERIES: LABORATORY FREEZER

### Refrigeration System

The FZ Series provides an oversized and balanced, environmentally friendly R404A refrigeration system, epoxy coated evaporator, large evaporator and coil heater permit for a short defrost cycle. Along with an automatic evaporator fan motor to delay frost during defrost.

### Quiet Operation

Features solid state control of temperature, auto-cycle defrost with short temperature rise, possible to 0C (dependent upon chamber loading).

### Options Available

Extended Temperature Range\*\*  
Chart Recorders  
Data Loggers  
Pneumatic & Desiccant Wheel Dryers\*\*  
Window or Glass door. \*\*  
Full swinging interior glass door  
Magnetic latch door handle with lock and two keys (011 and 034)  
Touch Screen interface  
Headless interface (Virtual Touch Screen VTS)  
Other control Options or monitoring i.e., CO<sub>2</sub>.  
Adjustable Fan Speeds. \*\*  
Air exchanges filtered or non-filtered with ambient space. \*\*  
Condensate drain pumps.  
Interior or exterior electrical outlets. (Limited power) \*\*  
Stainless Steel Exterior (030, 055 and 084)  
Door ajar alarm

*\*\*Some Options may limit chamber performance less or greater than specified here.*

### Greatly Reduced Direct and Indirect Energy Loads

The FZ Series freezers utilize less energy than comparable freezers and introduce less impact upon building cooling systems.

### Widely Proven, Non-Proprietary Controllers

Standard controllers are manufactured by Fuji Electric and are ideal for stability testing chambers. Unlike many proprietary controllers, this controller is commercially available and proven in tens of thousands of installations. Standard functions include: autotuning, fuzzy logic, PID control, programmable alarms, calibration correction capability, ramp/soak, uniformity offset capability, etc. A touchscreen control interface is optional. Other controller manufacturers are also supported (Watlow, Allen Bradley etc.)

### Services and Warranties

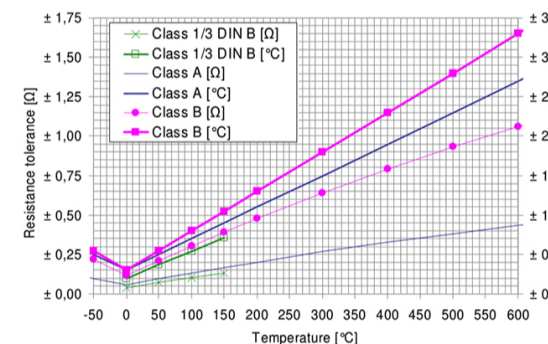
We offer 24-hour technical support throughout the lifetime of your freezer. In addition to standard warranties, we also offer extended warranties for cooling components, parts, and labor. We also provide qualifications, validations, and preventive maintenance services at an additional cost.


## FZ Series Laboratory Freezer Chamber Specifications (ambient 23° C)

Temperature		
Performance	Standard	Optional
Temperature Range	-25° C to -5° C	Available
Ambient Temperature	21° C ± 3° C	
Temperature Control	± 3.0° C	
Control Resolution	0.1° C	
Temperature Sensor Type	3 wire PT100 Class A RTD	

The graph plots Resistance tolerance [Ω] on the y-axis (ranging from ±0,00 to ±1,75) against Temperature [°C] on the x-axis (ranging from -50 to 600). It compares the performance of three RTD classes: Class 1/3 DIN B, Class A, and Class B. For each class, both resistance tolerance (solid line) and temperature tolerance (dashed line) are shown. Class B shows the highest tolerances, followed by Class A, and then Class 1/3 DIN B.

Temperature [°C]	Class 1/3 DIN B [Ω]	Class 1/3 DIN B [°C]	Class A [Ω]	Class A [°C]	Class B [Ω]	Class B [°C]
-50	±0,05	±0,05	±0,10	±0,10	±0,20	±0,20
0	±0,05	±0,05	±0,10	±0,10	±0,15	±0,15
50	±0,05	±0,05	±0,15	±0,15	±0,25	±0,25
100	±0,05	±0,05	±0,20	±0,20	±0,35	±0,35
150	±0,05	±0,05	±0,25	±0,25	±0,45	±0,45
200	±0,05	±0,05	±0,30	±0,30	±0,55	±0,55
250	±0,05	±0,05	±0,35	±0,35	±0,65	±0,65
300	±0,05	±0,05	±0,40	±0,40	±0,75	±0,75
350	±0,05	±0,05	±0,45	±0,45	±0,85	±0,85
400	±0,05	±0,05	±0,50	±0,50	±0,95	±0,95
450	±0,05	±0,05	±0,55	±0,55	±1,05	±1,05
500	±0,05	±0,05	±0,60	±0,60	±1,15	±1,15
550	±0,05	±0,05	±0,65	±0,65	±1,25	±1,25
600	±0,05	±0,05	±0,70	±0,70	±1,35	±1,35



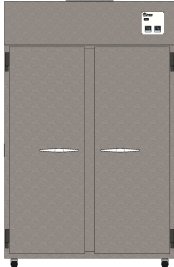

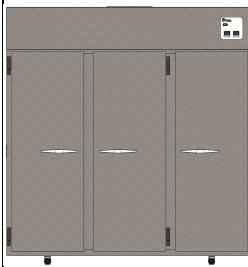


Control System	Standard	Optional
Controller	Fuji PXF4	VTS (Virtual Touchscreen), Gefran 650, Future Design Controls CM and MCT4 + More
Control Readout	Actual and Set-Point Values 	Trending, Duty Cycle
Indication Accuracy	RTD input: $\pm 0.2\%$ of indication value $\pm 1$ digit or $\pm 0.5^\circ\text{C} \pm 1$ digit, whichever is larger	Dependent on optional Controller
Sample Rate	Fast as 50 ms	Dependent on optional Controller
Control Speed	Fast as 100 ms	Dependent on optional Controller
Control Type	PID - Fuzzy Logic (9 types available)	Dependent on optional Controller
Auto Tuning	YES	Dependent on optional Controller
Calibration Correction Capability	$\pm 0.1$ lower and upper scale	Dependent on optional Controller
Uniformity Off Set	$\pm 0.1$ Resolution Linear adjustment	$\pm 0.1$ Resolution
Alarm	High / Low Audible and Visual	Text, Email, Web Server, Remote Access
Alarm Type	High / Low Deviation in 0.1 resolution with adjustable Delay. Control audible alarm enable or disable components.	Absolute & Deviation 0.1 Resolution with Delay
Remote Monitoring / BMS connection	Double throw Dry Contact Alarm, RS 485 MODBUS RTU / ASCII**	Ethernet & Analog Output (Specify voltage or mA)
Password Protection	Hexadecimal	Numeric, Alpha Numeric
Audit Trail	Not Standard*	Dependent on optional Controller
Universal Power Supply for Monitoring	Not Standard	Available. Controllers and sensors powered during outage for data logging. Chamber operation not supported.
Ramp Soak Function	Up to 64 steps. A Step includes a ramp and soak. Up to 8 patterns / programs (recipes).	Dependent on optional Controller




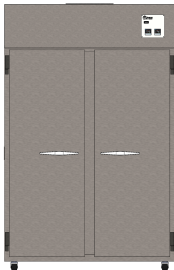

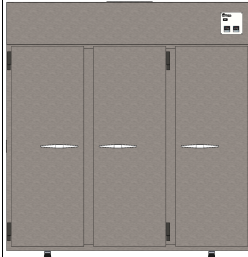
\*Applies with touchscreen or VTS option.




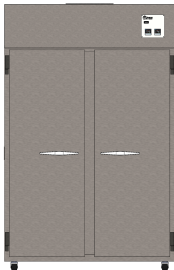

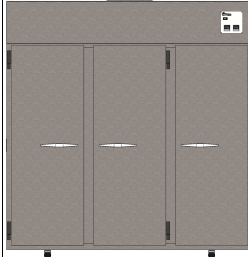
\*\*For BACNET or MODBUS TCP (Ethernet) please contact your BMS vendor about using a gateway to interface with controllers via the RS485.



	FZ011	FZ030	FZ034	FZ055	FZ068	FZ084
<b>FZ</b>						
Construction						
<b>Exterior</b>	Powder Coated Finish	Stainless Steel Front continuous coil coated steel sides	Powder Coated Finish	Stainless Steel Front continuous coil coated steel sides	Powder Coated Finish	Stainless Steel Front continuous coil coated steel sides
<b>Exterior Material Thickness</b>	Heavy Gauge	Medium Gauge	Heavy Gauge	Medium Gauge	Heavy Gauge	Medium Gauge
<b>Interior</b>	304 Stainless Steel	Coated Aluminum	304 Stainless Steel	Coated Aluminum	304 Stainless Steel	Coated Aluminum
<b>Interior Material Thickness</b>	.036"	Medium Gauge	.036"	Medium Gauge	.036"	Medium Gauge
<b>Door QTY</b>	1	1	1	2	2	3
<b>Door Lock</b>	Optional	Tumbler Cam Key Lock	Optional	Tumbler Cam Key Lock	Optional	Tumbler Cam Key Lock
<b>Door Swing</b>	+180°	120° Stay Open Feature	+180°	120° Stay Open Feature	+180°	120° Stay Open Feature
<b>Door Gasket</b>	Magnetic Gasket	Snap in Magnetic Gasket	Magnetic Gasket	Snap in Magnetic Gasket	Magnetic Gasket	Snap in Magnetic Gasket
<b>Shelving Material</b>	304 Stainless Steel	Epoxy Coated	304 Stainless Steel	Epoxy Coated	304 Stainless Steel	Epoxy Coated
<b>Shelf Quantity per Door</b>	2	3	3	3	3	3
<b>Casters Height</b>	2.75"	3"	2.75"	3"	2.75"	3"
<b>Caster QTY</b>	4	4	4	4	5	4
<b>Caster Locking Brakes</b>	2	2	2	2	2	2
<b>Access Port Qty</b>	2	2	2	2	2	2
<b>Multi-Purpose ports</b>	YES	YES	YES	YES	YES	YES

*Continuous coil coated is treated metal before it is cut and formed, the entire surface is cleaned and treated, providing tightly bonded finish. Formed sides have holes, valleys, recessed areas, and hidden areas that make it difficult to clean and uniformly coat. Coil coated metal is often considered more durable and corrosion resistant than most painted metal as it is treated before shaped.*

	FZ011	FZ030	FZ034	FZ055	FZ068	FZ084
<b>FZ</b>						
Capacity & Dimensions						
<b>NET Capacity*</b>	9.2 ft <sup>3</sup>	22.1 ft <sup>3</sup>	29.0 ft <sup>3</sup>	48.2 ft <sup>3</sup>	62.6 ft <sup>3</sup>	74.3 ft <sup>3</sup>
<b>Conditioned Space</b>	11.6 ft <sup>3</sup>	23.9 ft <sup>3</sup>	32.1 ft <sup>3</sup>	50.0 ft <sup>3</sup>	69.3 ft <sup>3</sup>	76.2 ft <sup>3</sup>
<b>External Dimensions</b>	36.2W x 27.4D x 47.1H	26W x 32D x 78.75H	35.7W x 33.8D x 80.8H	52W x 32D x 78.75H	68.4W x 34.2D x 81.8H	78W x 32D x 78.75H
<b>Internal Dimensions</b>	29.7W x 23.6H x 22.6D	22W x 28D x 62H	29.4W x 29.0D x 57.3H	48W x 28D x 62H	64.2W x 29.4D x 57.3H	74W x 28D x 62H
<b>Access Port Dimensions</b>	2" ID with Foam Insert	2" ID with Foam Insert	2" ID with Foam Insert	2" ID with Foam Insert	2" ID with Foam Insert	2" ID with Foam Insert
<b>Recommended Clearance</b>	Top 12"	Top 12"	Top 12"	Top 12"	Top 12"	Top 12"
	Rear 6"	Rear 6"	Rear 6"	Rear 6"	Rear 6"	Rear 6"
	Sides 6"	Sides 6"	Sides 6"	Sides 6"	Sides 6"	Sides 6"
<b>Shelf Dimensions</b>	28.9W x 20.4D	21.25W x 24.6D	28.75W x 26D	22.75W x 22.75D	31.4W x 24.25D	24W x 22.75D
<b>Shelf Weight Capacity</b>	150 lbs.	90 lbs.	150 lbs.	90 lbs.	150 lbs.	90 lbs.
<b>Approx. Max Storage weight</b>	600	500	700	1000	1000	1500
<b>Approx. Crated Weight</b>	470 lbs.	526 lbs.	765 lbs.	740 lbs.	1100lbs	1100 lbs.

	FZ011	FZ030	FZ034	FZ055	FZ068	FZ084
<b>FZ</b>						
Components						
<b>Compressor Size</b>	1/2 hp	1/2 hp	1/2 hp	1 hp	1 hp	2* 1/2 hp
<b>Refrigerant</b>	R404a	R404a	R404a	R404a	R404a	R404a
<b>Charge (oz)</b>	13.5 oz	13.5 oz	13.5 oz	13.5 oz	13.5 oz	13.5 oz
<b>Defrost</b>	Standard – adjustable duration and frequency	Standard – adjustable duration and frequency	Standard – adjustable duration and frequency	Standard – adjustable duration and frequency	Standard – adjustable duration and frequency	Standard – adjustable duration and frequency
<b>Defrost Heater Watt Size</b>	350	290	350	290	600	290
<b>Heater Qty</b>	1	1	1	1	1	2
<b>Perimeter Heater</b>	YES	YES	YES	YES	YES	YES
<b>Air flow direction</b>	Front to Back	Front to Back	Front to Back	Front to Back	Front to Back	Front to Back
<b>Fan Count</b>	3	1	3	1	6	1
<b>Fan CFM per fan</b>	125	Up to 600	125	Up to 600	125	Up to 600
<b>Variable Speed</b>	Manual Adjust	Manual Adjust	Manual Adjust	Manual Adjust	Manual Adjust	Manual Adjust



	FZ011	FZ030	FZ034	FZ055	FZ068	FZ084
<b>FZ</b>						
<b>Electrical North America</b>						
<b>Voltage</b>	115 VAC/ 60 Hz					115/208-230 VAC /60HZ Chamber & 115 VAC /60Hz Dryer NEMA L14-20P
<b>RLA</b>	8.0	6.5	8.0	12.0	12.0	8.0/8.0
<b>Heat Rejection</b>	2253 Btu/h	2253 Btu/h	2253 Btu/h	3841 Btu/h	3841 Btu/h	7682 Btu/h
<b>Cord Length</b>	9 ft	9 ft	9 ft	9 ft	9 ft	9 ft
<b>Dedicated Circuit</b>	15 A	15 A	15 A	20 A	20 A	20 A
<b>Electrical International via Buck Boost Transformer</b>						
<b>Voltage</b>	230 VAC/ 50 Hz					
<b>RLA</b>	4.0	3.3	4.0	6.0	6.0	6.0
<b>Heat Rejection</b>	2253 Btu/h	2253 Btu/h	2253 Btu/h	3841 Btu/h	3841 Btu/h	7682 Btu/h
<b>Cord Length</b>	2.74 m	2.74 m	2.74 m	2.74 m	2.74 m	2.74 m
<b>Accessory connections</b>						
<b>BMS Dry Contact</b>	Screw terminal 3 position Common / Normally Closed / Normally Open					
<b>RS485 MODBUS</b>	1/8" or 2.5mm stereo input jack					
<b>Optional Re transmission</b>	Screw terminal					
<b>Aux 24VDC output (500 mA limit)</b>	5.2 mm Barrel Connector					

\*Interior Capacity includes the 2" spacing from interior walls to allow for best air flow performance.

\*\*Include width with handle and height with castors installed.

RLA and heat rejection is based on a controlled operation temperature of 30C and 65% RH. Value may change on operating set points.