

## TE SERIES LAB INCUBATOR

### TE Series Overview

The TE series chambers offer thermoelectric cooling that provides a much more stable temperature control than other refrigeration systems. All the TE Series incubators incorporate inherent cooling redundancy, quiet operation, simple serviceability, and excellent reliability.

#### TE03

The TE03 is an undercounter lab incubator.

#### TE011

The TE011 is a bench top lab incubator designed to fit on 24" benchtops or stacked with optional racking.

#### TE030

The TE030 is a single-door lab incubator.

#### TE034

The TE034 is a single-door lab incubator.

#### TE055

The TE055 is a 2-door lab incubator.

#### TE068

The TE068 is a larger 2-door lab incubator.

#### TE084

The TE084 is a 3-door lab incubator.



## TE SERIES: LAB INCUBATOR

### Reliable Cooling Redundancy

Each TE series incubators include multiple, independent thermoelectric cooling units. The 7-year warranty on cooling components and the ability of our chambers to maintain temperature, even if the chamber suffers multiple failures, is unmatched by any other refrigeration-based chamber.

### Quiet Operation

The TE series incubators utilize quiet, highly efficient DC fans.

### Simple Serviceability

Due to the omission of all refrigeration equipment on these models, refrigeration technicians are not required during incubator servicing. Refrigerated incubators are not only costly to service but can require days to service properly. Nearly every component of thermoelectric-based chambers can be serviced within minutes with basic tools.

### Superior Control and Uniformity

Thermoelectric cooling and automatic switching systems from cooling to heating control provide consistent results throughout the available temperature range. Standard control at the sensor in these chambers is  $\pm 0.2^{\circ}\text{C}$ .

### 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 models)
- 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, power loss alarm

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

### Greatly Reduced Direct and Indirect Energy Loads

The TE Series incubators utilize less energy than comparable incubators and introduce less impact upon building cooling systems. This efficiency “dual benefit” allows our chambers to be in spaces unsuitable for other chambers.

### Widely Proven, Non-Proprietary Controllers

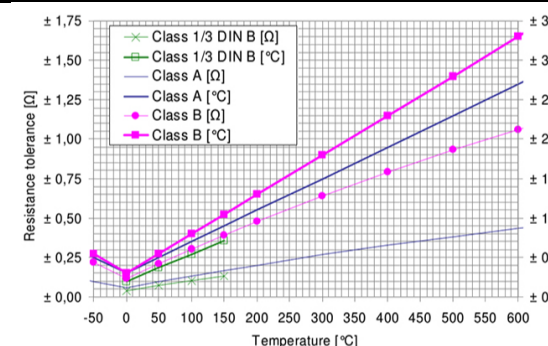
Standard controllers for the TE Series are manufactured by Fuji Electric and are ideal for laboratory incubators. Unlike many proprietary controllers, this controller is commercially available and proven in tens of thousands of installations. Standard functions include: autotuning, fuzzy logic, PID control, programmable alarms, calibration capability, ramp/soak, 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 incubator. 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. Please ask for a quote.


## TE Series Lab Incubators Specifications (ambient 23° C)

Temperature		
Performance	Standard	Optional
Temperature Range	(TE011 12° C to 50° C) (TE030 and TE034 18° C to 50° C) (TE055 and TE084 20° C to 50° C)	Available
Ambient Temperature	21° C $\pm$ 3° C	
Temperature Control	$\pm$ 0.2° C	
*Temperature Uniformity	$\pm$ 0.7° C	
Control Resolution	0.1° C	
Temperature Sensor Type	3 wire PT100 Class A RTD	






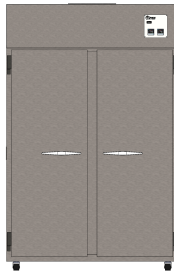


\* We place 5 sensors in the chamber, one in each corner (vertically) and one in the center. We log it overnight and look at the min to max across all points.






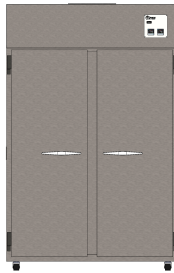

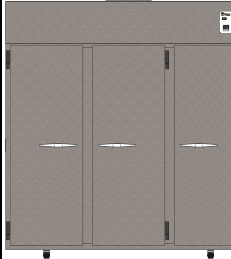
Control System	Standard	Optional
Controller	Fuji PXF4	VTS (Virtual Touchscreen), Gefran 650, Future Design Controls CM and MCT4 + More
Control Readout	Actual and Set-Point Values 	Trending, Duty Cycle
Indication Accuracy	RTD input: $\pm 0.2\%$ of indication value $\pm 1$ digit or $\pm 0.5^\circ\text{C} \pm 1$ 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.




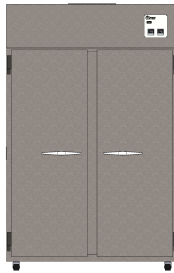


\*\*For BACNET or MODBUS TCP (Ethernet) please contact your BMS vendor about using a gateway to interface with controllers via the RS485.



	TE011	TE030	TE034	TE055	TE068	TE084
TE						
Construction						
Exterior	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
Exterior Material Thickness	Heavy Gauge	Medium Gauge	Heavy Gauge	Medium Gauge	Heavy Gauge	Medium Gauge
Interior	304 Stainless Steel	Coated Aluminum	304 Stainless Steel	Coated Aluminum	304 Stainless Steel	Coated Aluminum
Interior Material Thickness	.036"	Medium Gauge	.036"	Medium Gauge	.036"	Medium Gauge
Door QTY	1	1	1	2	2	3
Door Lock	Optional	Tumbler Cam Key Lock	Optional	Tumbler Cam Key Lock	Optional	Tumbler Cam Key Lock
Door Swing	+180°	120° Stay Open Feature	+180°	120° Stay Open Feature	+180°	120° Stay Open Feature
Door Gasket	Magnetic Gasket	Snap in Magnetic Gasket	Magnetic Gasket	Snap in Magnetic Gasket	Magnetic Gasket	Snap in Magnetic Gasket
Shelving Material	304 Stainless Steel	Epoxy Coated	304 Stainless Steel	Epoxy Coated	304 Stainless Steel	Epoxy Coated
Shelf Quantity per Door	2	3	3	3	3	3
Casters Height	2.75"	3"	2.75"	3"	2.75"	3"
Caster QTY	4	4	4	4	5	4
Caster Locking Brakes	2	2	2	2	2	2
Access Port Qty	2	2	2	2	2	2
Multi-Purpose ports	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.

	TE011	TE030	TE034	TE055	TE068	TE084
TE						
Capacity & Dimensions						
NET Capacity*	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>
Conditioned Space	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>
External Dimensions	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
Internal Dimensions	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
Access Port Dimensions	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
Recommended Clearance	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"
Shelf Dimensions	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
Shelf Weight Capacity	150 lbs.	90 lbs.	150 lbs.	90 lbs.	150 lbs.	90 lbs.
Approx. Max Storage weight	600	500	700	1000	1000	1500
Approx. Crated Weight	470 lbs.	526 lbs.	765 lbs.	740 lbs.	1100lbs	1100 lbs.



	TE011	TE030	TE034	TE055	TE068	TE084
TE						
Components						
Thermoelectric Assembly QTY	2	2	2	3	4	4
Heater Watt Size	350	500	350	500	500	500 (1000)
Heater Qty	1	1	1	1	1	2
Perimeter Heater	Optional	Optional	Optional	Optional	Optional	Optional
Air flow direction	Front to Back	Front to Back	Front to Back	Front to Back	Front to Back	Front to Back
Fan Count	3	1	3	1	6	1
Fan CFM per fan	125	Up to 600	125	Up to 600	125	Up to 600
Variable Speed	Manual Adjust	Manual Adjust	Manual Adjust	Manual Adjust	Manual Adjust	Manual Adjust

TE	TE011		TE030		TE034		TE055		TE068		TE084	
												
	Electrical North America											
	Voltage		115 VAC/ 60 Hz									
RLA	3.9		4.1		4.1		7.5		7.8		7.8	
Heat Rejection	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
	1023 Btu/h	1500 Btu/h	1023 Btu/h	1500 Btu/h	1023 Btu/h	1500 Btu/h	1405 Btu/h	2160 Btu/h	1405 Btu/h	2160 Btu/h	2046 Btu/h	2822 Btu/h
Cord Length	9 ft		9 ft		9 ft		9 ft		9 ft		9 ft	
Dedicated Circuit	15 A		15 A		15 A		15 A		15 A		15 A	
Electrical International via Buck Boost Transformer												
Voltage	230 VAC/ 50 Hz											
RLA	2.0		2.0		2.0		3.7		3.8		3.8	
Heat Rejection	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
	1023 Btu/h	1500 Btu/h	1023 Btu/h	1500 Btu/h	1023 Btu/h	1500 Btu/h	1405 Btu/h	2160 Btu/h	1405 Btu/h	2160 Btu/h	2046 Btu/h	2822 Btu/h
Cord Length	2.74 m		2.74 m		2.74 m		2.74 m		2.74 m		2.74 m	
Accessory connections												
BMS Dry Contact	Screw terminal 3 position Common / Normally Closed / Normally Open											
RS485 MODBUS	1/8" or 2.5mm stereo input jack											
Optional Re transmission	Screw terminal											
Aux 24VDC output (500 mA limit)	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 casters installed.

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