

DB SERIES INCUBATOR

DB Series Overview

The DB series incubators are used for a variety of research applications. The DB series laboratory incubators include heating and cooling. These units have lower temperature capabilities than our thermoelectrically cooled units, have associated greater heat removal capabilities, and are ideal for locations where the ambient conditions cannot be controlled very well.

DB011

The DB011 is a bench top incubator designed to fit on 24" benchtops or stacked with optional racking.

DB030

The DB030 is a single-door incubator.

DB034

The DB034 is a single-door incubator designed for maximum capacity while still allowing passage through most commercial doorways.

DB055

The DB055 is a 2-door incubator.

DB068

The DB068 is a larger 2-door incubator.

DB084

The DB084 is a 3-door incubator.



DB SERIES: INCUBATOR

The DB series incubators include heating capabilities and cooling capabilities. These units excel as general all-round incubators. They have lower temperature specifications than our thermoelectrically cooled units and have greater heat removal capabilities. These units are ideal for locations where the ambient conditions cannot be controlled very well or there is a live heat load - such as for HPLCs, shakers, or other laboratory equipment. These units will also outperform our thermoelectric units where specifications call for fast "open door" recovery times.

Control System

All DB series models come standard with a Fuji PXF4 (PID – Fuzzy Logic) controller providing a readout of actual and set-point values. This chamber comes with audible and visual alarms, ramp/soak, remote alarm monitoring, and hexadecimal password protection. Plenty of alternative customized options are available.

Options Available

Extended Temperature Range**
Chart Recorders
Data Loggers
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., CO₂.
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.*

Services and Warranties

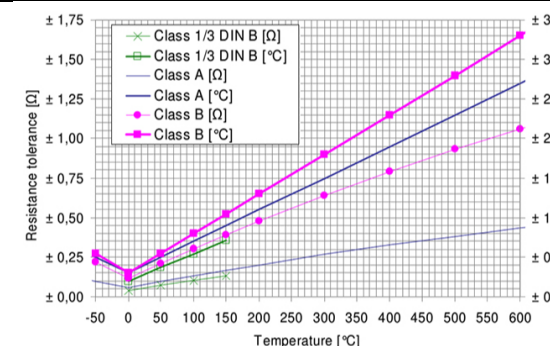
Darwin Chambers Company offers 24-hour technical support throughout the lifetime of your chamber. In addition to standard warranties, we also offer extended warranties for cooling components, parts, and labor. We also provide qualifications, validations, and preventive maintenance services at an additional cost. Please ask for a quote.

DB Series Environmental Chamber Specifications (ambient 23° C)


Temperature		
Performance	Standard	Optional
Temperature Range	2° C to 50° C	-5° C to 70° C with Optional Defrost
Ambient Temperature	21° C ± 3° C	
Temperature Control	± 0.2° C	
*Temperature Uniformity	± 0.7° C	
Control Resolution	0.1° C	
Temperature Sensor Type	3 wire PT100 Class A RTD	

The graph plots Resistance tolerance in Ohms (Ω) on the y-axis (ranging from ±0.00 to ±1.75) against Temperature in degrees Celsius (°C) on the x-axis (ranging from -50 to 600). It compares the performance of Class 1/3 DIN B, Class A, and Class B sensors. Class B sensors show the highest tolerance, followed by Class A, and then Class 1/3 DIN B. The tolerance for all classes increases with temperature.

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	±0.10	±0.10	±0.10	±0.10	±0.20	±0.20
0	±0.05	±0.05	±0.05	±0.05	±0.10	±0.10
50	±0.10	±0.10	±0.10	±0.10	±0.20	±0.20
100	±0.15	±0.15	±0.15	±0.15	±0.30	±0.30
150	±0.20	±0.20	±0.20	±0.20	±0.40	±0.40
200	±0.25	±0.25	±0.25	±0.25	±0.50	±0.50
300	±0.35	±0.35	±0.35	±0.35	±0.70	±0.70
400	±0.45	±0.45	±0.45	±0.45	±0.90	±0.90
500	±0.55	±0.55	±0.55	±0.55	±1.10	±1.10
600	±0.65	±0.65	±0.65	±0.65	±1.30	±1.30




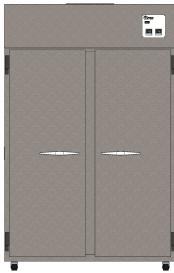

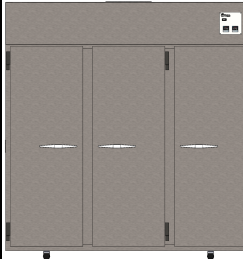


* We place 5 sensors in the chamber, one in each corner (vertically) and one in the center. We log it overnight and look at the min to max across all points.




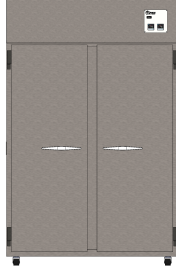

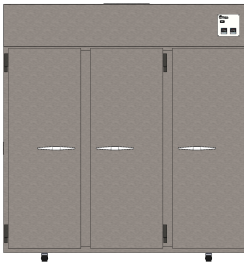
Control System	Standard	Optional
Controller	Fuji PXF4	VTS (Virtual Touchscreen), Gefran 650, Future Design Controls CM and MCT4 + More
Control Readout	<p>Actual and Set-Point Values</p> 	Trending, Duty Cycle
Indication Accuracy	RTD input: $\pm 0.2\%$ of indication value ± 1 digit or $\pm 0.5^\circ\text{C} \pm 1$ 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	± 0.1 lower and upper scale	Dependent on optional Controller
Uniformity Off Set	± 0.1 Resolution Linear adjustment	± 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.

	DB011	DB030	DB034	DB055	DB068	DB084
DB						
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.

	DB011	DB030	DB034	DB055	DB068	DB084
DB						
Capacity & Dimensions						
NET Capacity*	9.2 ft ³	22.1 ft ³	29.0 ft ³	48.2 ft ³	62.6 ft ³	74.3 ft ³
Conditioned Space	11.6 ft ³	23.9 ft ³	32.1 ft ³	50.0 ft ³	69.3 ft ³	76.2 ft ³
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.

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DB						
Components						
Compressor Size	1/3 hp	1/3 hp	1/3 hp	½ hp	½ hp	2 * 1/3 hp
Refrigerant	134a	134a	134a	134a	134a	134a
Charge (oz)	13.5 oz	13.5 oz	13.5 oz	18.5 oz	18.5 oz	13.5 oz
Defrost	Optional	Optional	Optional	Optional	Optional	Optional
Heater Watt Size	350	500	350	500	500	500 (1000)
Heater Qty	1	1	1	1	1	2
Perimeter Heater	YES	YES	YES	YES	YES	YES
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

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DB												
	Electrical North America											
	Voltage	115 VAC/ 60 Hz										115/208-230 VAC /60HZ Chamber & 115 VAC /60Hz Dryer NEMA L14-20P
RLA	8.0		9.0		8.0		12.0		12.0		12.0	
Heat Rejection	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
	1073 Btu/h	4307 Btu/h	1073 Btu/h	4307 Btu/h	1073 Btu/h	4307 Btu/h	1405 Btu/h	6037 Btu/h	1405 Btu/h	6037 Btu/h	2046 Btu/h	8614 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	4.0		4.5		4.0		6.0		6.0		6.0	
Heat Rejection	Low	High	Low	High	Low	High	Low	High	Low	High	Low	High
	1073 Btu/h	4307 Btu/h	1073 Btu/h	4307 Btu/h	1073 Btu/h	4307 Btu/h	1405 Btu/h	6037 Btu/h	1405 Btu/h	6037 Btu/h	2046 Btu/h	8614 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 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.