



ASSOCIATED
ENVIRONMENTAL SYSTEMS

LH & LHE Series | Stability & Cycling | Specifications



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LH/LHE Series

Model	LH-1.5	LH-6	LH-10	LH-36
Inside Dimensions (in)	14W x 13D x 13H	20W x 18D x 24H	24W x 24D x 30H	33W x 37D x 49H
Inside Dimensions (cm)	35.5W x 33D x 33H	51W x 45.5D x 61H	61W x 61D x 76H	84W x 94D x 124.5H
Overall Dimensions (in)	27.5W x 31D x 34H	33.5W x 36D x 47H	38W x 43D x 53H	50W x 81D x 48H
Overall Dimensions (cm)	70W x 78.5D x 86.5H	85W x 91.5D x 119.5H	96.5W x 109D x 134.5H	127W x 205.5D x 122H
Working Volume	1.369 cu. ft.	5 cu. ft.	10 cu. ft.	34.623 cu. ft.
Approx. Weight	300lbs (137kg)	480lbs (218kg)	550lbs (250kg)	135lbs (62kg)
Temperature Range*	5°C to 94°C (41°F to 201.2°F)	5°C to 94°C (41°F to 201.2°F)	5°C to 94°C (41°F to 201.2°F)	5°C to 94°C (41°F to 201.2°F)
Temperature Stability*	+/- 0.5°C (+/-1°F)	+/- 0.5°C (+/-1°F)	+/- 0.5°C (+/-1°F)	+/- 0.5°C (+/-1°F)
Humidity Range*	10% to 98% RH	10% to 98% RH	10% to 98% RH	10% to 98% RH
Humidity Fluctuation*	+/- 2% RH	+/- 2% RH	+/- 2% RH	+/- 2% RH
Electrical Supply	110V, 1Ph, 60Hz, 15A	110V, 1Ph, 60Hz, 20A	110V, 1Ph, 60Hz, 20A	208 or 230V, 1Ph, 50 or 60Hz
Full Load Amps	15A	20A	20A	30A
Power Requirements	NEMA 5-15	NEMA 5-20	NEMA 5-20	Hardwired
Refrigeration System	Single Stage	Single Stage	Single Stage	Single Stage

*Temperature stability at sensor

* Humidity fluctuation at sensor
LH-36 is not TUV Rheinland certified

Model	LHE-1.5	LHE-6	LHE-10	LHE-36
Inside Dimensions (in)	14W x 13D x 13H	20W x 18D x 24H	24W x 24D x 30H	33W x 37D x 49H
Inside Dimensions (cm)	35.5W x 33D x 33H	51W x 45.5D x 61H	61W x 61D x 76H	84W x 94D x 124.5H
Overall Dimensions (in)	27.5W x 31D x 34H	33.5W x 36D x 47H	38W x 43D x 53H	50W x 81D x 48H
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Working Volume	1.369 cu. ft.	5 cu. ft.	10 cu. ft.	34.623 cu. ft.
Approx. Weight	300lbs (137kg)	480lbs (218kg)	550lbs (250kg)	135lbs (62kg)
Temperature Range*	-20°C to 94°C (-4°F to 201.2°F)	-20°C to 94°C (-4°F to 201.2°F)	-20°C to 94°C (-4°F to 201.2°F)	-20°C to 94°C (-4°F to 201.2°F)
Temperature Stability*	+/- 0.5°C (+/-1°F)	+/- 0.5°C (+/-1°F)	+/- 0.5°C (+/-1°F)	+/- 0.5°C (+/-1°F)
Humidity Range*	10% to 98% RH	10% to 98% RH	10% to 98% RH	10% to 98% RH
Humidity Fluctuation*	+/- 2% RH	+/- 2% RH	+/- 2% RH	+/- 2% RH
Electrical Supply	110V, 1Ph, 60Hz, 20A	110V, 1Ph, 60Hz, 30A	110V, 1Ph, 60Hz, 30A	208 or 230V, 1Ph, 50 or 60Hz
Full Load Amps	20A	30A	30A	30A
Power Requirements	NEMA 5-20	NEMA L5-30	NEMA L5-30	Hardwired
Refrigeration System	Single Stage	Single Stage	Single Stage	Single Stage

*Temperature stability at sensor

* Humidity fluctuation at sensor
LHE-36 is not TUV Rheinland certified

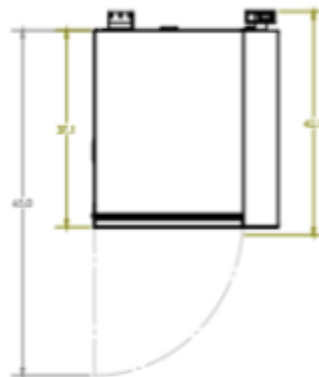
Dimensions

Model	Inside Dimensions (in)	Inside Dimensions (cm)	Overall Dimensions (in)	Overall Dimensions (cm)	Working Volume
LH-1.5	14W x 13D x 13H	35.5W x 33D x 33H	27.5W x 31D x 34H	70W x 78.5D x 86.5H	1.369 cu. ft.
LH-6	20W x 18D x 24H	51W x 45.5D x 61H	33.5W x 36D x 47H	85W x 91.5D x 119.5H	5 cu. ft.
LH-10	24W x 24D x 30H	61W x 61D x 76H	38W x 43D x 53H	96.5W x 109D x 134.5H	10 cu. ft.
LH-36	33W x 37D x 49H	84W x 94D x 124.5H	50W x 81D x 48H	127W x 205.5D x 122H	34.623 cu. ft.

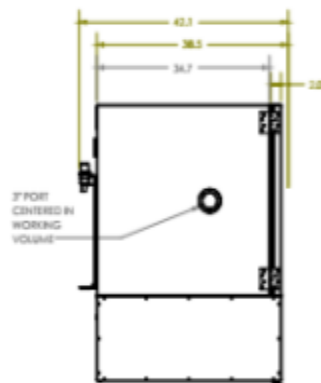
Model	Inside Dimensions (in)	Inside Dimensions (cm)	Overall Dimensions (in)	Overall Dimensions (cm)	Working Volume
LHE-1.5	14W x 13D x 13H	35.5W x 33D x 33H	27.5W x 31D x 34H	70W x 78.5D x 86.5H	1.369 cu. ft.
LHE-6	20W x 18D x 24H	51W x 45.5D x 61H	33.5W x 36D x 47H	85W x 91.5D x 119.5H	5 cu. ft.
LHE-10	24W x 24D x 30H	61W x 61D x 76H	38W x 43D x 53H	96.5W x 109D x 134.5H	10 cu. ft.
LHE-36	33W x 37D x 49H	84W x 94D x 124.5H	50W x 81D x 48H	127W x 205.5D x 122H	34.623 cu. ft.

LH-10

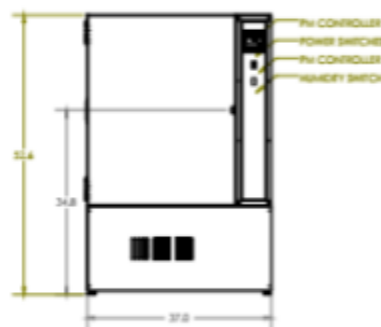
TOP



LH-1.5 with Watlow F4 optional controller



LEFT



FRONT



LH-36 with Watlow EZ-ZONE controllers & optional high temp safety limit

Temperature & Humidity

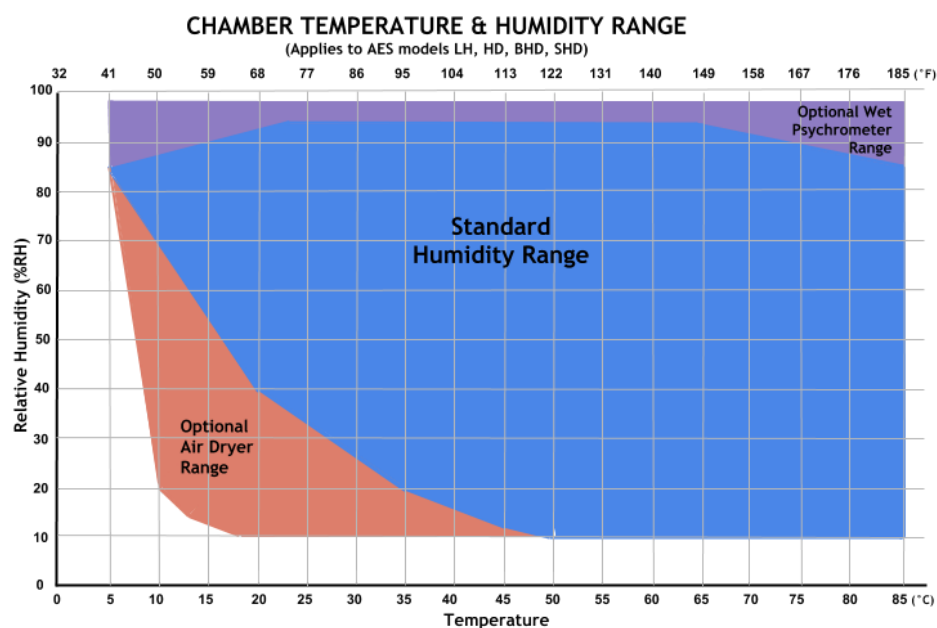
Model	Working Volume	Temperature Range*	Temperature Stability*
LH-1.5	1.369 cu. ft.	5°C to 94°C (41°F to 201.2°F)	+/- 0.5°C (+/-1°F)
LH-6	5 cu. ft.	5°C to 94°C (41°F to 201.2°F)	+/- 0.5°C (+/-1°F)
LH-10	10 cu. ft.	5°C to 94°C (41°F to 201.2°F)	+/- 0.5°C (+/-1°F)
LH-36	34.623 cu. ft.	5°C to 94°C (41°F to 201.2°F)	+/- 0.5°C (+/-1°F)
Model	Working Volume	Temperature Range*	Temperature Stability*
LHE-1.5	1.369 cu. ft.	-20°C to 94°C (-4°F to 201.2°F)	+/- 0.5°C (+/-1°F)
LHE-6	5 cu. ft.	-20°C to 94°C (-4°F to 201.2°F)	+/- 0.5°C (+/-1°F)
LHE-10	10 cu. ft.	-20°C to 94°C (-4°F to 201.2°F)	+/- 0.5°C (+/-1°F)
LHE-36	34.623 cu. ft.	-20°C to 94°C (-4°F to 201.2°F)	+/- 0.5°C (+/-1°F)

*Temperature stability at sensor

Relative Humidity

	Humidity Range	Humidity Fluctuation
Humidity Chambers	10% to 98%, at 4°C dew point	+/-2% RH

*Humidity fluctuation at sensor



Water Requirement

Demineralized or deionized water

0.05-1ΩOhm, 50,000 and 1,000,000 Ohms/cm resistivity

Standard Chamber Features

Interior Cabinet

Stainless steel type 304 with 2B finish
 3" access port and plug, placement on left
 Full opening door, with manual door latch
 Fully-adjustable, stainless steel, wire-grid shelf

Exterior Cabinet

Color: Bone, powder coat finish
 Exterior heavy-gauge, cold rolled steel
 Window blank, no window provided

Electrical

 Power Requirements		Plug AES Provided	Receptacle Provided by Customer
LH-1.5	110V, 1Ph, 60Hz, 15A	 NEMA 5-15P	 NEMA 5-15R
LH-6 LH-10 LHE-1.5	110V, 1Ph, 60Hz, 20A	 NEMA 5-20P	 NEMA 5-20R
LHE-6 LHE-10	110V, 1Ph, 60Hz, 30A	 NEMA L5-30P	 NEMA 5-30R
LH-36 LHE-36	208V, 1Ph, 50Hz or 230V, 1Ph, 60Hz	Hardwired (No plug, not TUV)	Hardwired (No receptacle)
LH/LHE-1.5, -6, -10 includes 6 Foot Power Cable and Plug <i>Optional power configurations available</i>			

Refrigeration

Single-stage, air-cooled mechanical refrigeration conditioning unit

Safety

High-temperature limit switch
 Low water steam generator over temperature circuit
 Refrigeration system overpressure safety circuit

Quality Control

Pre-ship test
 Final-design drawings (*Custom chambers*)
 Electronic Manuals (*Hard copy on request*)
 Startup installation guide (*Optional AES service on-sit startup*)
 Factory calibration (*Optional ilac-a2La calibration*)
 TUV CSA/UL 61010-1 Certified (*except LH/LHE-36*)

Standard Features: Instrumentation



Watlow EZ-ZONE PM

Two push-button controllers with segmented displays allow programming to a specific setpoint. These controllers allow for independent control of temperature and humidity.



100Ω Platinum RTD Temperature Sensor

Platinum resistance temperature detector (RTD) based on the din curve. The RTD sensor can operate from -200°C to +200°C (-328°F to -392°F). Platinum resistance elements are specially designed to ensure precise and repeatable temperature measurement. RTDs and thermistors are accurate, sensitive, standardized and interchangeable.



Rotronics Solid State Humidity Sensor

Sensor measures temperature, relative humidity, and the dew or frost point. The transmitter consists of a probe that is hard wired to a small open board with a 2m (6.5ft) cable. This sensor offers fast response and exceptional stability, even in high humidity environments. Sensor durability has proven to be excellent in a wide range of applications.

Optional Chamber Features: Space Saving & Scalability

Stand Model \$1,365.00

Configuration optimizes lab space

Add ship wt. 156-175lbs (70.8-79.4kg)

LH-1.5 shown with Watlow EZ-ZONE independent temperature and humidity controllers



Stackable Stand Model \$1875.00

Configuration that optimizes lab space and creates double the independent test workspace

Add ship wt. 200lbs (90.7kg)

LH-1.5 shown with Watlow F4T Dual Controller with AES|XCHANGE for chamber operation and data management



Optional Features: Chamber Configurations

Additional Shelf

Model-1.5 \$138.00

Model-6 \$171.00

Model-10 \$182.00



Add ship wt. 4lbs (1.8 kg) ea.

Window in Door

8" x 8" \$720.00

12" x 12" \$815.00

(6ft³ & 10ft³ only)

20" x 20" \$990.00

(10ft³ only)

Window Heater \$250.00



Add ship wt. 6-12lbs (2.7-5.4kg)

Access Ports & Plugs

Left side access

3/4" Dia. \$110.00

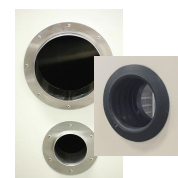
2" Dia. \$140.00

3" Dia. \$200.00

4" Dia. \$260.00

5" Dia. \$300.00

6" Dia. \$320.00



Available in stainless steel or silicone

Add ship wt. 1.5lbs (0.7kg) ea.

Optional Features: Water Conditioning

Water Demineralizer System \$335.00

Mounted on back \$120.00

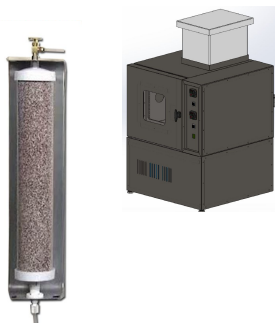
Extra Cartridge

Add ship wt. 30lb (13.6kg)

Psychrometer \$850.00

For measuring wet and dry-bulb temperature allowing testing at higher relative humidity ranges up to 98%

Add ship wt. 0.3lb (0.14kg)



Self-Contained Recirculating Humidity System \$1,035.00

- 6-gallon top-mount reservoir
- Back-mount demineralizer
- Recirculation pump mounted internally to frame base

Add ship wt. 15lb (6.8kg)

Dry Nitrogen Purge \$710.00

Air dryer for lower relative humidity range

Add ship wt. 10lb (4.5kg)

Optional Features: Instrumentation

Watlow F4T Controller

\$1,995.00



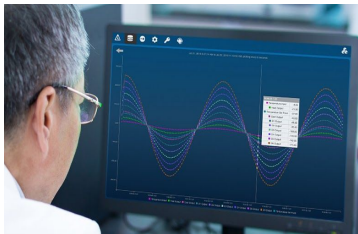
The F4T features a 4.3" capacitive touchscreen minimizing the chance for error. Ethernet communication supported by AES|XCHANGE

Retro Legacy F4 Controller

\$1,995.00



- 4-line, 20-character high-definition LCD interface display
- Information key that enables easy setup & control operation
- Easy integration with AES|XChange,
- Controller connects to AES|XCHANGE, but can also be used with computer-based software like SpecView and LabView
- Direct Serial Communication to Serial Toggles between RS-232 or RS-485 (*please specify at time of order*) and has optional adapter board for Modbus or TCP Ethernet or GPIB IEEE-488



* F4T- AES|XCHANGE combination only
Not available with F4

DASHBOARD. Operate and program the controller at the chamber, at a desktop, or remotely via laptop or tablet. Graph and analyze test data right from your browser

PROFILE BUILDER* Drag & drop profile builder from a web-browser to create, edit, save and move between profiles.

DATA LOGGING. On-board multi-year data logging abilities. Collect and manage live and historical data while chamber is operating

COMMUNICATION & CONTROL. Standard and well-documented JSON API for easy communication and integration into existing test platforms. Python template scripts available

SECURITY. Control user access with 3 authentication methods and 6 permission levels. Ability to lock out chamber to prevent test interference

Go to [AES|XCHANGE](#) for detailed product specifications.



High/Low Temperature Limit

\$1,365.00

- Shuts down chamber operation in the event of an over/under temperature limit is reached
- User programmable high and low-temperature limits

Add ship wt. 0.25lb (0.1kg)

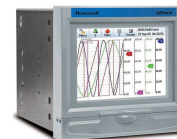


Honeywell Truline Chart Recorder

- 2-channel temperature & humidity
- Top-mount in enclosure
- Thermal Paper Recorder

Add ship wt. 13.2lb (6 kg)

\$2500.00
\$1850.00



EZ Trend Digital Chart Recorder

\$2,500.00

- 5" LCD
- Top-mount in enclosure

Add ship wt. 5.3lb (2.3kg)

Facility & Utility Requirements

Power Input

 Power Requirements		Plug AES Provided	Receptacle Provided by Customer
LH-1.5	110V, 1Ph, 60Hz, 15A	 NEMA 5-15P	 NEMA 5-15R
LH-6 LH-10 LHE-1.5	110V, 1Ph, 60Hz, 20A	 NEMA 5-20P	 NEMA 5-20R
LHE-6 LHE-10	110V, 1Ph, 60Hz, 30A	 NEMA L5-30P	 NEMA 5-30R
LH-36 LHE-36	208V, 1Ph, 50Hz or 230V, 1Ph, 60Hz	Hardwired (No plug, not TUV)	Hardwired (No receptacle)
LH/LHE-1.5, -6, -10 includes 6 Foot Power Cable and Plug <i>Optional power configurations available</i>			

Water Requirement

Demineralized or deionized water
0.05-1ΩOhm, 50,000 and 1,000,000
Ohms/cm resistivity

Drainage Connection

3/8" diameter copper drain connection

Ambient Room Temperature

20 °C (68 °F) for optimal performance
15°C to 30°C (60°F to 85°F) acceptable range

Clearance

18" in front and rear of chamber

Optional Power

Inputs **\$850.00**

230 or 208V, 1Ph, 60Hz, 20A
or
220 or 240V, 1Ph, 50Hz, 20A

Approximate Base-Model Weights & Shipping Dimension

Model	Unpacked Weight	Crated Weight	Crated Dimensions
LH/LHE-1.5 with stand	220 lbs (97.8 kg) +156/200 lbs (70.8/90.7 kg)	320 lbs (145.2 kg) +156/200 lbs (70.8/90.7 kg)	48 x 48 x 54 in 121.9 X 121.9 X 137.2 cm
LH/LHE-6 with stand	300 lbs (136.1 kg) +157/200 lbs (71.2/90.7 kg)	410 lbs (185.97 kg) +157/200 lbs (71.2/90.7 kg)	62x48x61 in 157.5 X 121.9 X 154.94 cm
LH/LHE-10 with stand	510 lbs (231.3 kg) +175 lbs (79.4 kg)	625 lbs (283.5 kg) +175 lbs (79.4 kg)	
LH/LHE-36	1235 lbs (560.2 kg)	1345 lbs (610.1 kg)	90 X 100 X 130 in 228.6 X 254 X 330.2 cm

AES environmental test chambers make your products stronger, faster, safer, and longer-lasting.



LHLHE-1.5, 6, 10 are certified by TÜV Rheinland to meet UL 61010-1 standard.
LHLHE-36 is not currently certified.



AES lean manufacturing processes allow for continuous improvement in product design and construction. Associated Environmental Systems reserves the right to make improvements without notice or obligation.

All dimensions are theoretical and may not include ancillary required or optional equipment attached to a chamber.

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