EDH & BDH Precision Humidity/ Temperature Chambers - %RH, DP, AT

APPLICATION: Edgetech Instruments EDH & BDH Temperature/Humidity Chambers are an extension of the budget ELH chamber range. The EDH range provides a larger range of floor-mount chamber sizes and more sophisticated options. The BDH is a new range of bench-mount chambers
Both the EDH & BDH are also available in a wider range of tightly controlled conditions of combined temperature and relative humidity.
Edgetech Instruments Chambers differ from most because at the heart of the chamber control is the **chilled mirror** dew point sensor. Most humidity chambers rely on polymer sensors to measure and ultimately control the relative humidity of the chamber environment. In contrast the chilled mirror hygrometer (DewMaster) within the EDH & BDH system provides:

- Excellent accuracy (down to ± 0.5% RH)
- Low dew point /RH% measurement/ control
- Low maintenance
- Drift-free, self-calibrating with the ABC function
- NIST traceable
- Long life
- Primary measurement technique

Because of the chilled mirror sensor technique, the EDH & BDH offer equivalent performance to many high-end, more expensive humidity chambers. The chilled mirror hygrometer (Dewmaster) is provided with a NIST traceable calibration certificate, or (optional ISO 17025:2005 certification) products being tested within the chamber are also NIST traceable.

Applications include

- product reliability/durability testing
- conformance testing to international standards
- quality testing
- resilience and durability of packaging materials
- product research and development
- humidity/temperature sensor calibration/performance testing
- humidity data logger validation
- storage of humidity sensitive materials
- PCB testing

Industries include:

- Metrology labs
- Physical research labs
- Quality labs
- Calibration houses
- Calibration centers within Pharma/Bio pharm facilities
- R&D centers within manufacturing facilities
- Chemical/pharmaceutical storage
- Aerospace testing
- PCB quality labs
- Product reliability departments

Whether the requirement is for safety testing, reliability testing, accelerated aging, or product packaging tests, all chamber components offer maximum resistance to the corrosive effects of moisture combined with extreme conditions. Consult the ETI design engineering services for special temperature and humidity conditions.

DESCRIPTION: ***The Model BDH Series*** is a **bench-top** mount humidity chamber integrated with a primary standard-chilled mirror and platinum RTD as part of the **DewMaster** (included in base system). A self-contained Recirculating Humidity System with 6 Gallon Reservoir (optional) or customer supplied water connection (standard) is used in the generation of a controlled RH environment within the chamber. The water system runs through a demineralization system (standard). The internal construction of the chamber is vapor tight welded 304 stainless steel with #4 finish. The external construction is powder coated steel with stainless steel door drain tray and door locking system. The system includes a 3" access port and plug seal in the side of the chamber. Each unit is supplied as standard with an adjustable digital limit controller with high-temperature safety trip, 8x8 multi-pane window (not available on 2 ft^3 chamber) with internal light and external switch. A Watlow F4SH ramp and soak controller with RS232 connection, a demineralization cartridge system, instruction manual & 1-year warranty.

DESCRIPTION: ***The Model EDH Series*** is a **floor-mount** humidity chamber integrated with a primary standard- chilled mirror and platinum RTD as part of the **DewMaster** (included in base system). A self-contained Recirculating Humidity System with 6 Gallon Reservoir (optional) or customer supplied water connection (standard) is used in the generation of a controlled RH environment within the chamber. The water system runs through a demineralization system (standard). The internal construction of the chamber is vapor tight welded 304 stainless steel with #4 finish. The external construction is powder coated steel with stainless steel door drain tray, door locking system and mounted on integral castors. The system includes a 3" access port and plug seal in the side of the chamber. Each unit is supplied as standard with an adjustable digital limit controller with high-temperature safety trip, 8x8 multi-pane window (not available on 2 ft^3 chamber) from EHD 10, and larger window is 12 x 12 with internal light and external switch. A Watlow F4SH programmable ramp and soak controller with RS232 connection, a demineralization cartridge system, instruction manual & 1-year warranty.

All chambers utilize an environmentally safe non-ozone depleting refrigerant. Chambers are fitted for fully adjustable shelving (1 standard, additional sold separately), feature forced air circulation and an indicating controller. Available power connections include 110VAC/60Hz, or 220 VAC/60 Hz, or 100VAC/50Hz.

The system is complete w/integral mounted Chilled Mirror Hygrometer, *Model DM-DS2*, a programmable controller for **temperature** and **dew point** or **humidity** control. The system is NIST Traceable with the following accuracies: relative humidity (±0.5%), temperature (±0.1°C), dew point (±0.2°C) (at the sensors).

Measurements are available to the user in $^0C/^0F$ or %RH, voltage & current outputs, and RS232. Temperature range -17 to 180°C, RH range 20-95% @ a temperature range from 50°C to 85°C, 20%RH @ 35°C. For lower RH consult factory.

Description of Options:

Shelves: Each chamber is provided with 1 SS wire shelf. The interior of the chamber is fitted with adjustable links to mount shelves at various heights. We recommend that you mount no more than 4 at a time since over-loading of shelves with equipment to be tested may interfere with the air flow within the chamber.
Access Ports: Each chamber comes standard w/ one 3-inch access port for routing of test cables into the chamber. The port comes with a temperature insulating polymer plug that will seal the cable entry into the chamber. Additional ports are available, and each comes with the appropriate sealing plug. Unless specified, the factory will determine location.
Desiccant De-Humidification System (Low RH% option): When operating at lower RH% levels, you can choose the desiccant dryer option. This takes a compressed air input to an on-board desiccant dryer. Generally, the BDH chambers dry air to lower RH values with the use of the on-board refrigeration system. But for lower RH control, the Desiccant dryer option is recommended. The Desiccant dryer system consists of two desiccant chambers (one operates while system is in use and the other is in dry-down mode). For lower RH control, you can also introduce Nitrogen or dry air input to the desiccant dryer if desired. As an alternative, you can omit the desiccant dryer and directly input your own source of nitrogen or dry air into the chamber. Input and output ports will be required in this instance (and control of the input pressure and flow). Please inquire when ordering.
SCS is a 6 Gallon water recirculation system with a plastic storage container mounted at the top of the chamber with an integral drain tank and pump to recirculate the demineralized water.
Replaceable Water Demineralizer cartridge is used to remove minerals from water source. (one is supplied standard)
IEEE 488 Communications Port: Computer interface for remote integration or data logging capability
Window heater (for -65C unit) A window heater is mounted inside the multi-pane windows to keep window clear.
WCC Replace air cooled condenser on the refrigeration system with a Water cooled condenser for lower noise levels and no hot air being exhausted to testing area.
LN2 Connection for liquid nitrogen cooling port.
CO2 There are a number of options for connection of CO2 for cooling; Please contact factory

To order the EDH or BDH,

FIRST choose the Chamber size: BENCH-top units

Chamber	Chamber size	Temperature Range	List Price USD
BDH-2	2feet^3 (0.057m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**22,240.00**
BDH-2	2feet^3 (0.057m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**22,620.00**
BDH-2	2feet^3 (0.057m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**25,670.00**
BDH-3	3feet^3 (0.085m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**25,250.00**
BDH-3	3feet^3 (0.085m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**25,460.00**
BDH-3	3feet^3 (0.085m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**30,040.00**
BDH-5	5feet^3 (0.142m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**25,460.00**
BDH-5	5feet^3 (0.142m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**25,930.00**
BDH-5	5feet^3 (0.142m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**30,192.00**
BDH-8	8feet^3 (0.227m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**26,198.00**
BDH-8	8feet^3 (0.227m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**27,440.00**
BDH-8	8feet^3 (0.227m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**30,218.00**

Edgetech Instruments

2018 PRICE LIST

Rev 1 December, 2017

FLOOR-mount units

Chamber	Chamber size	Temperature Range	List Price USD
EDH-2	2feet^3 (0.057m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**23,240.00**
EDH-2	2feet^3 (0.057m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**26,100.00**
EDH-2	2feet^3 (0.057m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**27,800.00**
EDH-5	5feet^3 (0.142m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**27,240.00**
EDH-5	5feet^3 (0.142m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**27,760.00**
EDH-5	5feet^3 (0.142m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**29,660.00**
EDH-8	8feet^3 (0.227m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**29,098.00**
EDH-8	8feet^3 (0.227m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**29,396.00**
EDH-8	8feet^3 (0.227m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**32,960.00**
EDH-10	10feet^3 (0.283m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**29,220.00**
EDH-10	10feet^3 (0.283m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**31,428.00**
EDH-10	10feet^3 (0.283m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**37,600.00**
EDH-13	13feet^3 (0.368m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**34,718.00**
EDH-13	13feet^3 (0.368m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**35,200.00**
EDH-13	13feet^3 (0.368m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**38,996.00**
EDH-21	21feet^3 (0.595m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**49,200.00**
EDH-21	21feet^3 (0.595m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**49,990.00**
EDH-21	21feet^3 (0.595m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**60,240.00**
EDH-27	27feet^3 (0.765m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**53,978.00**
EDH-27	27feet^3 (0.765m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**55,838.00**
EDH-27	27feet^3 (0.765m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**62,480.00**
EDH-32	32feet^3 (0.906m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**57,498.00**
EDH-32	32feet^3 (0.906m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**59,644.00**
EDH-32	32feet^3 (0.906m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**65,982.00**
EDH-49	49feet^3 (1.388m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**64,840.00**
EDH-49	49feet^3 (1.388m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**73,600.00**
EDH-49	49feet^3 (1.388m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**89,720.00**
EDH-64	64feet^3 (1.812m^3)	-17ºC to 180 ºC (1.4 ºF to 356 ºF)	**73,790.00**
EDH-64	64feet^3 (1.812m^3)	-37ºC to 180 ºC (-34.6 ºF to 356 ºF)	**76,600.00**
EDH-64	64feet^3 (1.812m^3)	-65ºC to 180 ºC (-85 ºF to 356 ºF)	**89,720.00**

SECOND choose Chamber options (Dewmaster is included in base system)**:**

Suffix	DESCRIPTION	2ft^3-5ft^3	8ft^3-13ft^3	21ft^3-32ft^3	49ft^3-64ft^3
SS	Additional SS Shelf (Base unit includes 1 already)	**$280**	**$350**	**$450**	**$990**
DP7/8	3/4 inch (19.05mm) diameter port and plug	**$200**			
DP2	2 inch (50.8mm) diameter port and plug	**$280**			
DP3	3 inch (76.2mm) diameter port and plug	**$400**			
DP4	4 inch (101.6mm) diameter port and plug	**$500**			
DP5	5 inch (127mm) diameter port and plug	**$600**			
DP6	6 inch (152.4mm) diameter port and plug	**$600**			

THIRD choose Control options**:**

Suffix	DESCRIPTION	2ft³-64ft³
CI	IEEE 488 Computer Interface	**$990**
DS	Digital Set: Digital Indicating Hi/Lo Temp Safety	Included
WDT	Watlow F4 touch screen Programmable Controller	**$2900**
SCS	Self-contained Recirculating Humidity System w/ 6-Gallon (22.7 Liters) Reservoir	**$2,000**
DDH	Desiccant De-Humidification drier system (for lower humidity range)	**Contact factory**

* Watlow F4 Programmable Controller allows setting of multiple Ramps/Soaks
* Serial Port Software for programming and data acquisition is available at Watlow Website

FOURTH choose

DESCRIPTION	2ft³-13ft³	21ft³-27ft³	32ft³	49ft³-64ft³
Water cooled Condenser (EDH only)	**$750**	**$980**	**$1240**	**$1460**
Noise reduction kit	**$1790**	**$1790**	**$1790**	**$1790**

FIFTH Identify your VAC voltage/ cycles; for example 230VAC/ 50Hz
SIXTH Identify the country where the product will be used; example USA

List as separate line items choose Accessories or Spare Parts**:**

Suffix	DESCRIPTION	ELH1.5	ELH6	ELH10
CR	Honeywell Trueline 2 pen/12inch (304.8mm) Diameter Chart Recorder	**$3,400**		
DR	EZ Trend Digital Chart Recorder w/ 5-inch (127mm) LCD	**$3,400**		
DCX	Spare De-Mineralizer Cartridge	**$240**		

Heating System: Heating systems are all-electric and pass air over fast-response low watt density resistance heaters with a ceramic core insuring a long reliable life with no down time. The combination of airflow, instrument response and these fast reacting heaters give very accurate and straight-line control of temperatures. Heating systems are in a plenum so that test items are not subject to direct radiation.

Cooling System: Chambers are either built with a single stage, self-contained mechanical refrigeration system [-17°C (-35°F)], or a two-stage, cascade mechanical refrigeration system [-65°C (-85°F)]. Depending on the size of the cooling system needed, more than one compressor will be included, or a small scroll compressor will be used to save space. Both refrigeration systems also come with an option for water cooling. **Cascaded systems will have higher load requirements than listed above.**

Humidity Generation System: A vapor generator system is used to control the humidity within test chambers. The vapor generator is a closed steam generator that can be sized to fit any chamber which offers quicker steam generation, but also can result in built up sediment. The humidity range on most test chambers is 20% to 98% +/-2% RH (Relative Humidity). The range can be lowered to roughly 5% RH with the use of a dry air purge.

Dry Air Purge/ Dry Nitrogen Purge: The dry air purge features a desiccant dehumidifier which pulls moisture from the air using an active desiccant material, a hygroscopic substance that induces dryness in its vicinity. As the ultra-dry nitrogen, which typically has a dewpoint of -70 degrees or lower, is introduced into the enclosed cavity, it expands and places the test item under pressure, removing residual moisture from the test product and internal test chamber environment.