



Advanced Test Equipment Corp.

www.atecorp.com 800-404-ATEC (2832)



ZPH-16-3.5-3.5-SC/AC Z-Plus Temperature & Humidity



FEATURES

Cabinet Items:

- One (1) 17.75" (451 mm) high x 12.75" (324 mm) wide fog-free heated viewing window
- Single-handed, lockable door latch
- Heavy duty casters, 3" wheel and leveling legs
- Chamber pressure relief/equalization vent
- Two (2) 4" (102 mm) circular access ports, centered on the right-hand side and left hand-side of the chamber (additional ports optional)
- One (1) adjustable, slide-out stainless steel shelf with two (2) support brackets on 2" centers (additional shelves optional)
- Liquid filled refrigeration gauges and refrigeration service taps for ease of servicing
- Stainless steel interior and BLUE/BEIGE powder-coated exterior

Electrical Items:

- Safety relay to protect your device under test by removing power to it when the chamber is not running
- UL-508A listed sub-panel
- Interior Chamber Light

Refrigeration Items:

- 3.5HP R-404A, 3.5HP R-508B Cascade Refrigeration System
- Scroll Compressor, Integral Air-Cooled Condenser

Instrument Items:

- EZT-570 7" touch screen controller. View Video: https://youtu.be/CXoYiOzw_TE
- Solid state humidity sensor

Other:

- CSZ Manuals downloadable online; documents, parts lists, and drawings ship with the chamber
- NIST Traceable Instrumentation Calibration Report
- Watch the Z-Plus Product Feature Video: <https://youtu.be/4gU9Vn8Ac9k>
- View the Z-Plus Chamber Brochure: <https://sales.cszproducts.com/literature/ZPlusBrochure.pdf>

DIMENSIONAL DATA

Test Space Volume	16 Cubic Ft (453 L)
Test Space Dimensions <i>(clear usable workspace)</i>	30"W x 30"D x 30"H (762mm x 762mm x 762mm)
Shelving Information	Distributed shelf load capacity is 100 lbs. (45 kg) and concentrated load is 50 lbs. (28 kg); maximum number of shelves is nine (9) with maximum total weight of 250 lbs. (113kg)
Floor Rating	Maximum floor load per chamber is 200 lbs (91 kg), evenly distributed, including shelves with 32 lbs/ft ² ; maximum total weight in the chamber is 450 lbs (204 kg)
Overall Exterior Dimensions <i>(approximate)</i>	41"W x 66"D x 82.5"H (1041mm x 1676mm x 2096mm)
Shipping Dimensions <i>(approximate)</i>	Domestic: 48"W x 72"D x 84"H (1219mm x 1829mm x 2134mm) International: 51"W x 76"D x 94"H (1295mm x 1930mm x 2387mm)
Shipping Weight <i>(Approximate. Certain options can increase these values)</i>	Approximately 1,550 lbs (680 kg)

PERFORMANCE DATA – TEMPERATURE

Temperature Range:	-70°C to +190°C (-94°F to +375°F)	
Control & Stability:	±0.5°C (±1°F); ±3% relative humidity at steady state conditions after stabilization. Note: Humidity control will be affected by the addition of live load.	
Chamber Airflow:	530 CFM	
Temperature Performance	Pull-Down Performance:	Heat-Up Performance:
<u>60 Hertz:</u> Performance is based on 240V, 60 hertz operation, measured at air control sensor	+24°C (+75°F) to -65°C (-85°F) in 23 minutes +85°C (+185°F) to -40°C (-40°F) in 23 minutes +24°C (+75°F) to -40°C (-40°F) in 11 minutes +24°C (+75°F) to -54°C (-65°F) in 16 minutes	-68°C (-90°F) to +24°C (+75°F) in 12 minutes -34°C (-30°F) to +24°C (+75°F) in 6 minutes +24°C (+75°F) to +190°C (+375°F) in 30 minutes +24°C (+75°F) to +93°C (+200°F) in 10 minutes
Live Load Capacity:	1,000 watts at -68°C (-90°F) 1,600 watts at -54°C (-65°F) 2,000 watts at -40°C (-40°F)	

Notes: The above performance is based on 240V, 60 Hz. operation. Lower voltages will extend heating performance. Designed to operate in a commercial environment with a temperature of +24°C ± 6°C (+75°F ± 10°F), maximum dew point of +12.8°C (+55°F) and a maximum altitude of 7,000ft (2,133.6 M). Performance at average (non-linear) transition rates, non-humidity operation and empty chamber. This product is intended for indoor use only. If you are planning to place this in a location which does not meet these criteria, please consult factory so the proper product can be quoted. Note: Condensation on exterior surfaces is normal when operating at cold temperatures for an extended period of time. Certain options will affect performance.

PERFORMANCE DATA – HUMIDITY

Humidity Range:

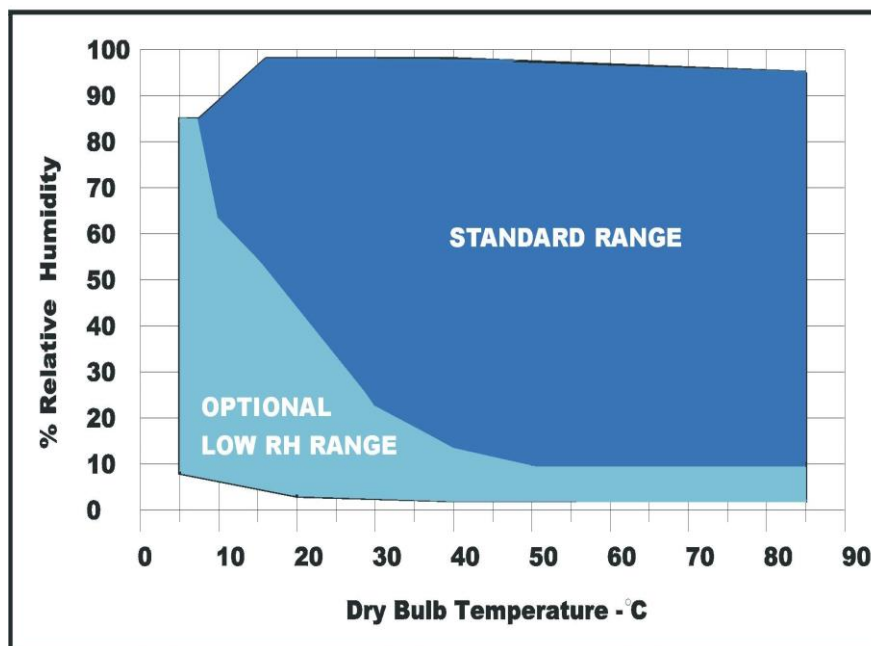
10% to 98% relative humidity as limited by a +85°C (+185°F) maximum dry bulb and a +7°C (+45°F) minimum dewpoint. Approximate humidity consumption: .5 gallon of water per hour dependent upon live load.

Control & Stability:

±3% relative humidity at steady state conditions after stabilization

Note: Humidity control will be affected by the addition of live load

Std. Humidity Performance



FACILITIES & UTILITIES DATA

Humidity Water Requirements & Information:

- De-ionized (DI) water is recommended for use with our humidity systems
- Water should be provided within 0.05 to 2 megaohms resistivity
- Distilled water or reverse osmosis (RO) water outside of these limits may cause corrosion
- Tap water may be used with the optional *Demineralizer Filtration System
- A Recirculating Humidity Water Supply System is also available (see options)
- Inlet water pressure should be 25 PSI, use Water Pressure Regulator (see options)
- Connection Size: 0.25" (6.35mm) N.P.T.
- Drain Size: 0.5" (12.7mm)
- Water Consumption: Approximately 0.5 GPH (1.9 LPH) of water (dependent upon live load)

Note: When operating at high temperature and humidity etching of the glass may occur and is a normal occurrence

Heat Rejection: (into your building's room)

Approximately 9085 watts (31,000 BTU/hr) maximum during cooling operation

Heat Rejection Note:

Integral air-cooled models require an ambient temperature range between +21.1°C (+70°F) to +29.4°C (+85°F) for proper operation and performance.

Operational Sound Level (Front):

≤74dBA

Operational Sound Level (Rear):

≤78dBA

Electrical Information: (±5%)

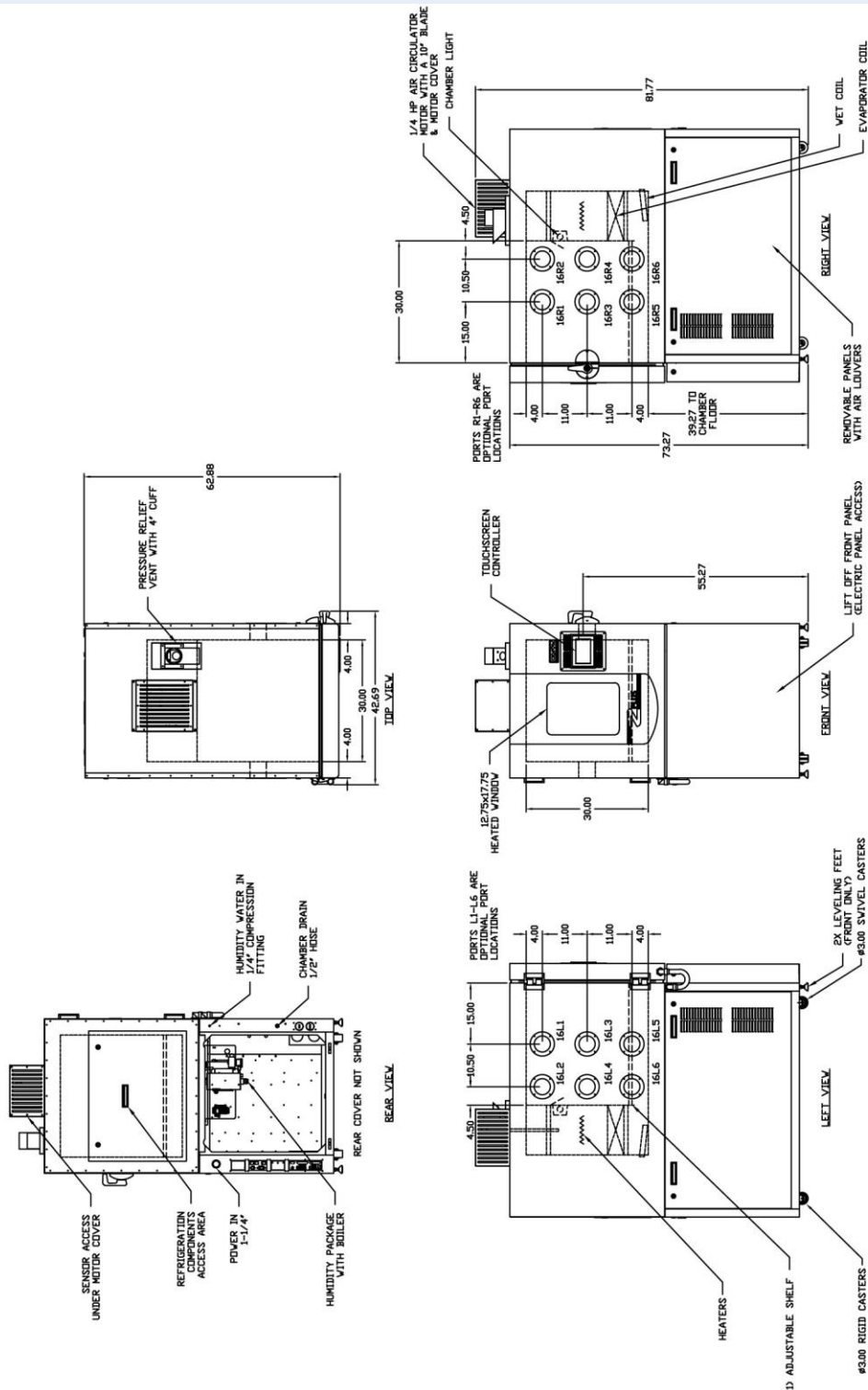
- 380-415 volt (±5%), 50 hertz (customer to provide power cord and plug)
- 3 phase, 30 FLA, 40 amp minimum service
- 208 or 240 volt (±5%), 60 hertz (customer to provide power cord and plug)
- 3 phase, 48 FLA, 60 amp minimum service
- 480 volt (±5%)60 hertz (customer to provide power cord and plug)
- 3 phase, 29 FLA, 40 amp minimum service

****Refer to option list other available standard input voltages**

Notes:

- All values are approximate (if provided)
- Please contact factory for final values when determining your required utilities or refer to chamber's layout/approval drawing
- 50 hertz also available, contact factory for details

GENERAL ARRANGEMENT



CONTROLLER



The Next Generation Controller with Smartphone Technology

Includes trend graphing, data logging, data file access with USB, Ethernet control and monitoring, email alarm notifications and/or text message, data file backup system, full system security, audit trail, digital signatures, power recovery options & more.

Touch Panel	7" (178mm) Ergonomic height.
Program Controller	Start parameters for programs: start, stop, pause, delayed autostart, Program ramp steps entering time or °C/min, 99 steps, 1,000 cycles maximum. Profile status view.
PID controller	Special control algorithms, define/change per output demands.
Data-Logging	Custom file names, batch/lot numbers, operator notes & digital signatures.
File Management/Email	Easily download profiles, alarm files, audit trail files and data files to USB stick. Also import profiles for easy transfer among multiple chambers. Email data, alarm history & audit trail files directly from the controller with a touch of a button.
Switch Inputs (Digital)	(Optional) 8 inputs for configuring controller functions.
Switch Outputs (Digital)	(Optional) 15 event outputs with connection panel & plug connectors.
Product Control	Accelerates temperature cycling of the device under test.
Password Protection	3 levels of security.
Diagnostic System	Fully configurable alarm settings and maintenance alerts (optional).
Communication	Control by Ethernet TCP/IP and EIA-232 (optional EIA-485) Modbus communication.
Ethernet Interface	Remotely monitor and control with VNC Server.
Multi-Language Display	Configurable for 10+ different languages.

VOLTAGE OPTIONS AVAILABLE

MUST SELECT OPTION FOR YOUR ORDER

☐ 208 or 240 volt ($\pm 5\%$), 60 hertz (customer to provide power cord and plug) -3 phase, 48 FLA, 60 amp minimum service	☐ 380-415 volt ($\pm 5\%$), 50 hertz (customer to provide power cord and plug) -3 phase, 30 FLA, 40 amp minimum service
☐ 480 volt ($\pm 5\%$) 60 hertz (customer to provide power cord and plug) -3 phase, 29 FLA, 40 amp minimum service	

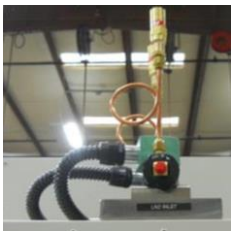
CHAMBER OPTIONS

☐		3" (76mm) additional circular feed-through port with plug (if port intersects with the standard port additional charges may occur)
☐		4" (102mm) additional circular feed-through port with plug (if port intersects with the standard port additional charges may occur)
☐		6" (152mm) additional circular feed-through port with plug (if port intersects with the standard port additional charges may occur)
☐		ZP-16 Adjustable Slide-Out Shelf, Stainless Steel Welded Wire, each (distributed load capacity 110 lbs. (50Kg))

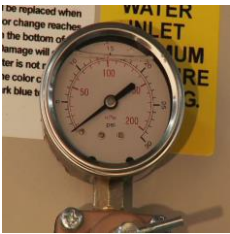
CHAMBER OPTIONS

☐		Customer Event Option, for EZT Controller, includes fifteen (15) event outputs with connection panel & removable plug connectors. Designed to turn customer's electronic DUT's (devices under test) ON or OFF at various stages of the customer programmed test profile. Each output may also be configured to perform other operations including alarm or profile status indicators
☐		Cable Notch, 2" x 6" (51mm x 152mm) at door edge for ease of pre-wired DUT placement
☐		Honeywell DR-4500 Truline 1-Channel Recorder (draws own chart) (Note: Standard location is on the lower front panel, optional side mount box available for additional charge)
☐		Honeywell DR-4500 Truline 2-Channel Recorder (draws own chart) (Note: Standard location is on the lower front panel, optional side mount box available for additional charge)
☐		Honeywell DR-4500 Truline 3-Channel Recorder (draws own chart) (Note: Standard location is on the lower front panel, optional side mount box available for additional charge)
☐		Running Time Meter

CHAMBER OPTIONS

☐		LN2 Boost Cooling System for rapid cooling transitions. For ultimate low temperature range, please refer to the quoted temperature range for your chamber. Option includes automatic demand control from chamber instrument with delay timer, solenoid, and vent port. LN2 must be ducted outdoors to prevent asphyxiation. The LN2 tank should have a maximum supply pressure of 25 psi. Note: Customer is responsible for supply & exhaust piping. Vacuum jacket piping is recommended.
☐		GN2 Purge with flow meter (20 to 200 SCFH range)
☐		Dry Air Purge System, 3 CFM with flow meter (20 to 200 SCFH). Customer must provide ≥ 5 SCFM (+10°C dewpoint) compressed air that is free of oil and entrained water. Requires connection to customer's compressed air source at 90 psig. Note: This option adds approximately 6" (15cm) to the chamber width.
☐		Low RH Option to obtain 5% RH at 11°C or 8% RH at 4.4°C (lowest dew point -27°C). Option includes Dry Air Purge flow meter (20 to 200 SCFH) and Frozen Coil. Note: Requires connection to customer's compressed air source (5SCFM, ~90psig). This option adds approximately 6" (15cm) to the chamber width.
☐		Humidity Water Demineralizer Filtration System (this option adds approximately 4.75" (121mm) to the chamber width (this is not needed for those customers that already have a de-ionized or RO water supply)
☐		Spare Humidity Demineralizer Cartridge

CHAMBER OPTIONS

☐		Recirculating Humidity Water Supply System, 5 U.S. gallons (18.9 liters); Note: Includes Humidity Water Demineralizer Filtration System. This option adds appropriately 8" (203mm) to the chamber width.
☐		Water Regulator to regulate incoming water to 25 psig (not required with Recirculating Water Option). Note: This is not required with recirculating water option.
☐		Digital High/Low Temperature Limit and Alarm (Model L-91) both Independent from chamber's controller. Designed to shut down chamber if temperature exceeds customer limit set points
☐		IEEE-488 (GPIB) Interface (Note that serial communications can not be used at same time with GPIB interface)
☐		ZP-16 Sound Deadening Quiet Package (consult factory for specific sound levels)
☐		ZP-16, IPPC closed crate (non-ocean)

CHAMBER OPTIONS

☐		CSZ EZ-View Software (for use with customer provided computer with RS-232 port). Designed to allow you to monitor, control and create profiles through the chamber RS-232 port. One copy can be used with multiple CSZ EZT controllers when using an RS-485 connection with converter. A PC-E converter at the computer is needed to use Ethernet.
☐		RS/EIA-485 to USB Converter with Cable
☐		Digital input option includes connection panel and eight (8) inputs that can be configured to perform various controller functions (i.e. start, hold, resume or terminate a profile, advance steps, control customer event outputs, etc.)
☐		Model 100, Reverse Osmosis Water System. This option is shipped separate. Customer is responsible for installation. Contact Factory for more detailed information. Please note: For use with city/tap water. Do not use this option in conjunction with Demineralizer filter systems.
☐		Designed to consist of eight (8) "T" type thermocouples (TC's) for temperature readout with individual alarms, displays, and data logging for each input that can be monitored by the EZT-570 and the EZ-View software. Option will be mounted to the rear side of the chamber and the eight TC's will pass through one of the existing side ports. These are TC's only (no RH sensors or PT100-RTD's) and are used for product temperature monitoring or temperature uniformity check within the chamber. (For monitoring only, no control.)
☐		Hard copy manual, printed & bound in addition to digital media. Printed manual includes Installation, Operation, and Maintenance manual along with all printed controller manuals, including parts lists, diagrams and calibration report.

CHAMBER OPTIONS

☐		Main Power Disconnect Switch
☐		Main Power Disconnect Switch
☐		Estimated Shipping Cost - Final shipping cost to be provided at actual shipment - Customer must have loading dock & forklift to properly receive chamber - Shipping terms are F.O.B. Origin, Cincinnati, OH - Freight prepaid and add or (Air-Ride Equipped, LTL Service) - Sales tax is not included Note: Customer is responsible to check the condition of the shipment and make written notation on the transport document before accepting the shipment. Failure to make notations on the carrier's Bill of Lading will limit your claim. The title to this equipment has been transfer to you from the CSZ Products and the shipper (CSZ Products) is not responsible for filing of damage claims with the carrier.
☐		Chamber built to pass on-site CSA inspection (inspection not included) -Adds "S" to the end of the model prefix (i.e. ZPHS) -Please add two (2) weeks to lead time Note: CSZ models are not CSA, UL-C or Ontario Hydro marked. Please budget appropriately and obtain local inspection if required. Add appropriate electrical devices and disconnects if required. If planning on a local CSA Inspection, CSZ recommends that QPS Evaluation Services, Inc. performs the CSA Inspection. To schedule an inspection, please contact QPS Evaluation Services, Inc. at customerservice@qps.ca; customer responsible for any additional charges to pass on-site CSA inspection.
☐		Emergency stop button

CHAMBER OPTIONS

☐		ZP-16, IPPC closed crate
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QUALITY

The quality design and engineering of our products are known throughout the industry. We ensure the quality and reliability of every product we manufacture with design review meetings, incoming and in-process inspections, vendor auditing, and validation testing. Our ISO-9001:2015 certification, combined with our quality processes ensures you are purchasing the most reliable chamber in the industry.



This certifies that the Quality Management System of

Weiss Technik North America, Inc.

12011 Mosteller Road
Cincinnati, Ohio, 45241, United States

has been assessed by NSF-ISR and found to be in conformance to the following standard(s):

ISO 9001:2015

Scope of Certification:

The design, manufacture, distribution and service of mechanically refrigerated production chilling chambers, calibration baths, thermal shock, temperature cycling units and environmental stress screening systems as well as customized production, test equipment, fabricated products, and OEM replacement parts.



Sameer Vachani
Senior Director, NSF-ISR

Certificate Number: C0554509-IS2
Certificate Decision Date: 09-NOV-2022
Certificate Issue Date: 09-NOV-2022
Cycle Effective Date: 17-DEC-2022
Certificate Expiration Date: 16-DEC-2025

Issued by:
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