



Welltech Instrument Company Ltd

ATHLETIC - CHAMBER



CLIMATIC →

HYPOXIC →

CO2 →

SOLAR →

WIND →

RAIN →

SNOW →

Web: www.athleticchamber.com

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Athletic Chamber

Welltech Athletic Environmental Chamber is specifically designed for athletic training which requests the control of CO₂, O₂, solar and wind inside the chamber. It is suitable for sports and science investigation and human performance training.

The chamber can stimulate different kinds of weather for athletic to do the training & exercise inside, with temperature range from -40 to 50C and humidity from 10 to 98%RH.

With option control up to -40 to 80C & 5 to 98%RH.



Chamber Material / Dimension

- ▶ **Panel:** Polyurethane sandwich panel, any size
- ▶ **Material:** Stainless steel interior and exterior or g. steel with coating
- ▶ **Floor:** Non-slipping epoxy floor

Control

- ▶ Temperature & humidity control
- ▶ CO₂ control (by CO₂ scrubber)
- ▶ O₂ control (by hypoxic system)
- ▶ Light control (by solar lamp)
- ▶ Wind speed control (by wind simulator)

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Custom Design

- ▶ Custom size
- ▶ 2D and 3D Layout design before production
- ▶ Custom design of program and LCD touch panel
- ▶ Integration with other equipment such as hypoxic system, solar simulator or wind simulator, ice bath, CO2 scrubber etc
- ▶ Upgradable



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Features

Temperature		Humidity
0 to 50C	0 to 80C	10 ~ 98%RH
-20 to 50C	-20 to 80C	
-40 to 50C	-40 to 80C	

- ▶ **Accuracy:** +/-0.5C, +/-3%RH
- ▶ **Fluctuation:** +/-0.5C, +/-3%RH
- ▶ **Uniformity:** +/-0.5C, +/-3%RH
- ▶ **Stability:** +/-0.5C, +/-3%RH
- ▶ **Temperature ramp:** 0.7C per minute
- ▶ **Horizontal air flow:** 0.2 to 0.5 m/s



Features

Control panel

- ▶ LCD touch screen controller
- ▶ Operation: fix & program mode
- ▶ SD card / USB flash memory data storage
- ▶ Interface: Ethernet
- ▶ Microsoft Window software
- ▶ Datalogger
- ▶ With 43" TV display outside the chamber
- ▶ With 15" display unit inside the chamber
- ▶ Remote control & monitoring



Features

Control panel

- ▶ PT100
- ▶ Digital humidity probe
- ▶ CO2 transmitter
- ▶ Non-drift O2 transmitter
- ▶ Differential pressure sensor

Control panel

- ▶ 100mm panel with tongue & groove joints fastened with camlock, exterior 304 S.S., interior white coating steel, B1 grade standard
- ▶ Doors: double door with heated multi-glazed window
- ▶ Sample transfer door: 450x450mm access hatch
- ▶ Heated multi-glazed window
- ▶ Anti-slip epoxy floor
- ▶ Power sockets & plug
- ▶ Cable access with bung
- ▶ Ramp
- ▶ Emergency stops
- ▶ LED lamp (dimmable in color and intensity)
- ▶ With water tower / chiller



Features

Door

- ▶ Double-wing door with 3 point locking system & quick push bar



Features

Ventilation

- ▶ V-shaped ventilation with waterproof acoustic absorbent

Noise Level

- ▶ Noise level < 55dB



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Can Intergrate with Following Equipment

Hypoxic System

Wind Simulator

Solar Simulator

Ice Bath

Rain Drop

Snow Gun

CO2 Scrubber

etc



Solar Simulator



Hypoxic System



Wind Simulator



CO2 Scrubber



Rain Drop System



Ice Bath

Hypoxic System

Model:HS-5000

- ▶ O₂ range: 20.9% to 11% ± 0.1% (or +/- 40m)
- ▶ Altitude: up to 5000m or 17000ft (option 9000m)

Includes:

- ▶ Hypoxic system
- ▶ Hypoxic hollow fiber membrane system
- ▶ SPX four step filters
- ▶ Control valve system
- ▶ Control panel
- ▶ Dual display
- ▶ Feedthrough
- ▶ Safety fresh air inlet

Hypoxic system

- ▶ Rotary screw type compressor (10 bar working pressure)
- ▶ Refrigerated dryer
- ▶ Pressure vessel
- ▶ Sound reducing silencer

Hypoxic hollow fiber membrane system

- ▶ Flow rate: 10m³/hr @10bar
- ▶ Material: ABS
- ▶ Inlet: 3/8" thread with pressure gauge
- ▶ Outlet: 3/8" thread
- ▶ High O₂ outlet: 3/8" thread

SPX four step filters

- ▶ Ultra oil filter x 2, air filter and water filter

Control valve system

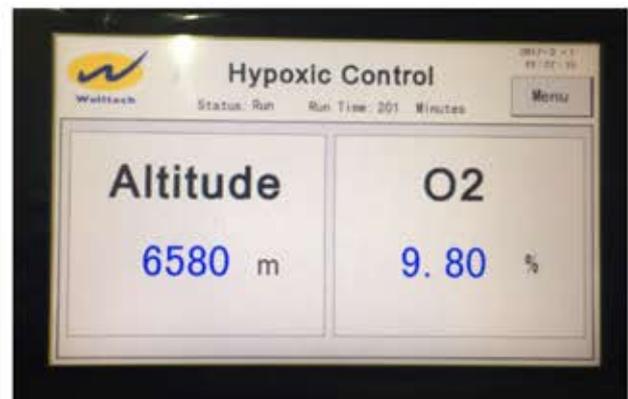
- ▶ SMC control valve module
- ▶ Maximum working pressure: 20 bar
- ▶ Inlet: 3/8" thread
- ▶ Outlet: 3/8" thread

Control panel

- ▶ LCD touch screen controller
- ▶ PLC: Siemens
- ▶ With altitude (m/ft) and O₂ (%) display
- ▶ Control setting: by meter/feet or O₂ (%)
- ▶ Data storage of time O₂ CO₂ temp and humidity
- ▶ 8 pieces bias calibration of each sensors
- ▶ Time reserve function
- ▶ Fresh air purging control
- ▶ User name and password access (option)
- ▶ History record of any alarm
- ▶ Alarm system
- ▶ Emergency stop with cover
- ▶ Material: Stainless steel or g.steel with coating

Non drift oxygen sensor

- ▶ Range: 0-25%, accuracy: +/-0.1%



CO2 Scrubber

Model: CS-1000

- ▶ Function: Direct CO2 absorption
- ▶ Keep the CO2 in low level
- ▶ Controller: LCD touch screen digital display
- ▶ Multi-scrubbers control
- ▶ PLC: Siemens SR30-AE04
- ▶ Sensor: CO2 transmitter, 0-20000ppm, +/-40ppm
- ▶ Operation mode: manual, time, CO2 control mode
- ▶ Filter: CO2 catalyst, activated carbon, Hepa filter
- ▶ Filtering flow rate: 150m3/h
- ▶ Regeneration mode: manual or time
- ▶ Regeneration time: 2-4 hours
- ▶ Interface: Ethernet
- ▶ Data storage: USB memory flash
- ▶ Remote control & monitoring (option)
- ▶ Casing: Stainless steel or g. steel with coating
- ▶ Power supply: 1P 240Vac 20A ,110Vac 35A or 277Vac 20A



Rain Drop System

- ▶ Controller: HMI LCD touch screen, digital display and programmable
- ▶ Interface: USB
- ▶ Data storage: USB memory flash
- ▶ PLC: Siemens
- ▶ Rain drop area: ~1000x1000mm
- ▶ Mode: fix mode or program mode
- ▶ With time control
- ▶ Mounting method: ceiling mounted, fix mounting
- ▶ Material: All 304 S.S./aluminum
- ▶ Dropping speed: 3-5mm/min
- ▶ Testing time: 1s~99hr99min, adjustable
- ▶ Power supply: 1P 220ac 3A or 110Vac 6A
- ▶ Water pumping system with flow control
- ▶ Automatic water refill valve
- ▶ Water overflow protection
- ▶ With water level indicator



Wind Simulator

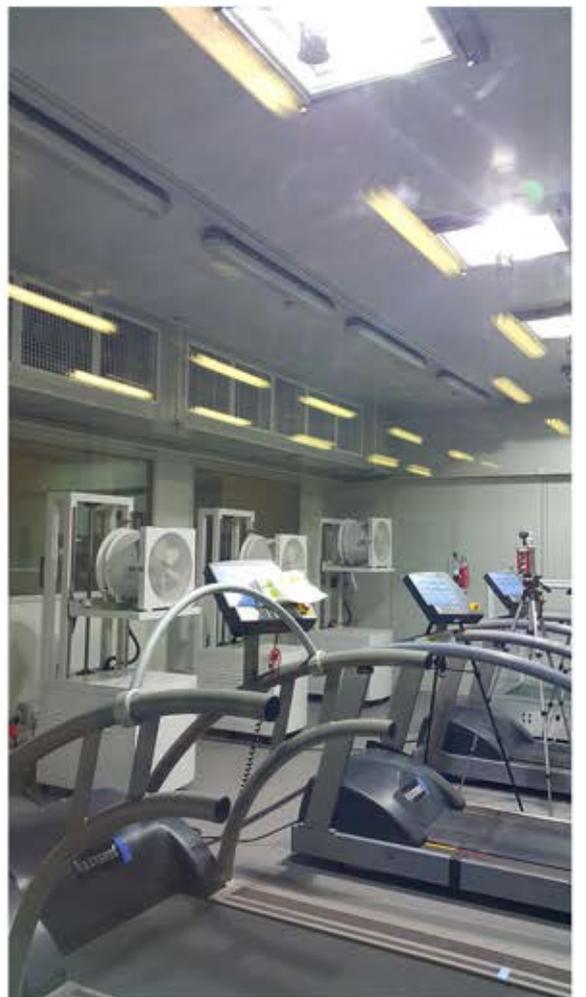
- ▶ Controller: HMI LCD touch screen, digital display and programmable
- ▶ PLC: Siemens
- ▶ Wind speed: 0-15m/s
- ▶ Mode: fix mode or program mode
- ▶ Blade diameter: 350mm
- ▶ Height adjustable up to 1500mm
- ▶ Angle adjustable
- ▶ Interface: USB
- ▶ Data storage: USB memory flash
- ▶ With bias adjustment
- ▶ Material: 304 S.S. with coating
- ▶ Dimension: 1800x550x750mm (HxWxD)
- ▶ Portable anemometer
- ▶ Synchronize mode with treadmill speed
- ▶ With castors
- ▶ Power supply: 3P 380Vac or 480Vac 3A



Solar Simulator

Model:HMI4000

- ▶ Lamp: Metal halide lamp
- ▶ Range: 400 to 1200W/m²
- ▶ UV index <1
- ▶ Controller: LCD touch screen, dimmable
- ▶ Operation mode: fix or program mode, programm.
- ▶ Interface: Ethernet
- ▶ Data storage: USB memory flash
- ▶ PLC: Siemens
- ▶ Casing: aluminum casing with UV filter
- ▶ Air cool lamp
- ▶ Radiation flux:
 - 400-750 nm:4%
 - 750- 1400 nm: 43%
 - 1400- 3000 nm: 32%
 - Above 3000 nm: 15%
- ▶ Calibration: with bias setting for correction
- ▶ Electronic ballast power supply
- ▶ Power supply: 1P 240Vac 20A or 1P277Vac 20A



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