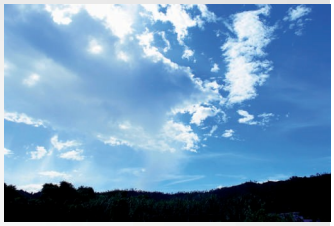
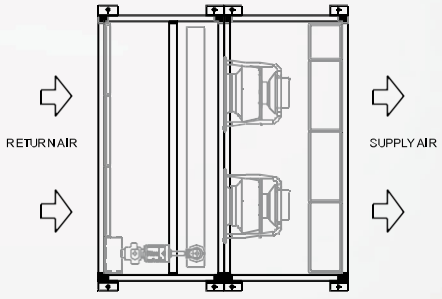
DB-FANWALL

DB Fan Wall 50Hz

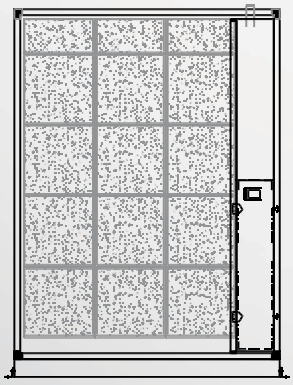
Computer Room Air Handling (CRAH)

Nominal Cooling Capacity : 225kW / 310kW

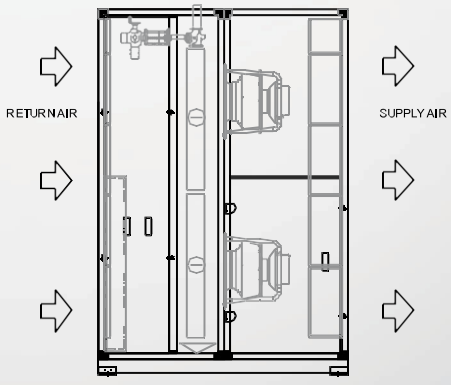




TOP VIEW



REAL VIEW



SIDE VIEW

DB-FANWALL

Computer Room Air Handling (CRAH)
For Data Center Cooling

Today's technology rooms require precise, stable environments and design in order for sensitive electronics to operate optimally. Fan Wall is designed for high reliability operation with the ease of service, system flexibility and redundancy necessary to keep the electronic equipments up and running 24 hours a day, 365 days a year.

Fan Wall another milestone offers mechanical PUE less than 1.2 as part of a system, and EC Fan for lower motor power usage. A black themed attractive furniture grade cabinets in Horizontal Flow configuration to provide roomr based cooling, control of perfect humidification and air filtration.

GENERAL INFORMATION

Fan Wall units are Computer Room Air Handling (CRAH)
that bring a new standard of compact, flexibility and reliable performance to the computer room.

COMPUTER COMFORT

Computer rooms require air which is clean and properly distributed with precisely controlled temperatures and humidity. Building HVAC systems simply are not designed to meet these demands. But, Fan Wall units easily accomplish these goals with toprrated efficiency, 24 hours per day 7 days a week! Fan Wall units have been designed to meet the demanding requirements of the most advanced computer room.

Although building HVAC systems cool your staff, they fall short of your computer's comfort need. And they are unable to provide the close control required in a modern data processing centre.

DESIGN FEATURES – STANDARD

- Compact cabinet with anodized aluminum frame, beige colour powder coated panels of 45mm thickness with double skinned PU insulation.
- EC fan motor with high efficiency and variable speed modulation.
- Large faced area evaporator coil with hydrophilic fins.
- Deep pleated disposable filter of MERV8 (ASHRAE 52.2).
- 3rway modulating valve provides accurate temperature control and dehumidification.
- Integrated control system within the unit with panel mounting LCD screen for temperature/ humidity/alarm control and monitoring.
- Supply & Return temperature & RH sensor for control & monitoring.
- Vision 2020i connectivity to BMS for telemonitoring.

DESIGN FEATURES – OPTIONAL

- Builtrin ATS for dual power incoming.
- Pressure Differential Transmittal for Hot Aisle / Cold Aisle pressure control.
- Deep pleated disposable filter of MERV11 (ASHRAE 52.2).
- Supply Air Damper c/w actuator to control air short circuiting when there is one of the EC Fan failure.
- Sensing cable type water detection system.
- Point type water detection sensor.
- Pressure Independence Balancing Control Valve (PIBCV) for high precision control of water flow.
- Base Frame for the Fan Wall unit.
- Modbus RTU RS 485/ Lonworks FTT10/ Bacnet/ Webgate/ DB Web/ SNMP high level interfacing card link to building BMS system.
- Steam Humidifier for the humidification mode.
- Moisture Eliminator
- Electric reheat for artificial heat load during dehumidification mode & low temperature mode.

DB-FANWALL MONITORING/ CONTROL

VISION2020i CONTROLLER AND INTERFACE

Vision 2020i controller is equipped with a user friendly 132x64 pixels backrlit graphic display terminal. It is connected with controller through telephone cable. This terminal allows carrying out all program operations. The user terminal allows displaying the unit working conditions, compressor run times, alarm history at any time and modifying the parameters. The terminal also has an automatically selfrtest of the controller on system startrup. Multiple messages will be displayed by automatically scrolling from each message to the next. All of these messages are spelled out in English language on the LCD screen.

PROGRAMMABLE FUNCTIONS/ MONITORING

The userrfriendly LCD screen display permits steprbyr step programming and display of the following functions:

- Temperature Set Point
- Temperature Alarm Set points

Normal functions are monitored and displayed on the display panel and include, in addition to the above set points, the following:

- Current Temperature (°C or °F)
- Cooling Stages 1, 2 as applicable
- 3 way valve opening %
- EC fan running speed %

ALARMS

Alarm conditions are also monitored on the display panel and are enunciated by an audible alarm. The alarm silence button will quiet the audible alarm but the display will continue to indicate the alarm condition until the problem is corrected.

The following alarms are standard:

- No Airflow
- Filters Blocked
- Power Failure Restart
- Temperature Sensor Error
- Local Alarm Customer Input Alarm
- Maintenance Due

With addron optional sensors, the following alarm status can be monitored:

- Under the floor water detection
- No water flows
- Smoke alarm and etc.

In addition, incomparable control settings will be identified on the display panel.

HISTORICAL DATA

In order to facilitate maintenance and service, component run times for fan motor operation can be recalled and displayed on the display panel. The current temperature, with the minimum and maximum readings for the last 24 hours of operation, can be recalled and displayed. The last 99 alarms and hours since occurrence can also be recalled and displayed. The historical data base is stored in FLASHrMEMORY which does not require backup battery in the event of power failure.

DIAGNOSTICS

Automatic and manual diagnostic sequences simplify troubleshooting.

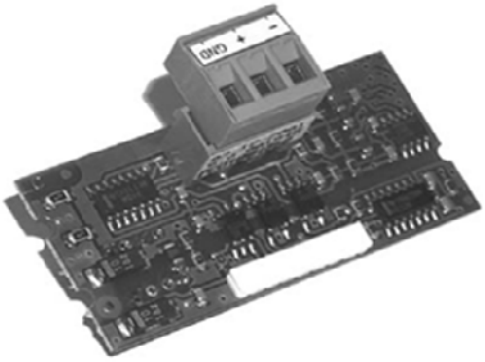
PROGRAMMING KEY

The programming keys for the Vision 2020i controllers provide easy software updates during both endrof production testing and maintenance procedures.

VISION 2020i COMMUNICATION INTERFACES (Optional)

Below are the available communication features of the DB6 controller:

1.) BMS interface
MODBUS RS485 Serial Card



Optional Modbus RS485 addron card allows Vision 2020i Controller to interface to Modbus Slave, RTU mode, RS485 network. The maximum rate is 19200 and it is set via software.

DB-FANWALL MONITORING/ CONTROL

DB1 LONWORKS FTT10 Card

The optional Lonworks serial card allows Vision 2020i controller to interface to LonWorks® network FTTr10A 78 kbs (TP/FTr10).

Standard Internetworking Protocols: SNMP v1, HTTP, FTP Memory: 128KB RAM, 1MB Flash (400KB available for web pages and user data).

Interfaces: Serial RS485, Serial RS232 DTE interface and Ethernet interface RJr45 connector.

2.) DB-Web

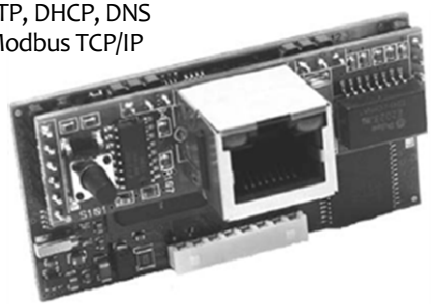
The optional DBrWeb board is used to interface all of the Vision 2020i series controllers to a 10 Mbps Ethernet network and consequently perform the following functions:

- Access the information on the controller (network variables and parameters) using an Internet browser, such as Internet Explorer™ installed on a PC and connected to the DBrWeb via TCP/IP.
- Connection to a supervisory network that uses one of the following standard protocols:
  - SNMP v1 & v2c
  - BACnet Ethernet ISO8802r2/8802r3
  - BACnet/IP
- DBrWeb is supplied with the DHCP function already active. Therefore, in a network served by a DHCP server, DBrWeb will automatically acquire the necessary parameters without requiring configuration, while, in the case of a network without DHCP, the parameters need to be configured manually.

Ethernet interface: RJ45 connector for Ethernet 10BaseT; use a class 5 shielded cable, max 100 meters. Protocols managed: HTTP, FTP, SNMP v1, v2c, DHCP, DNS, BACnet Ethernet ISO8802r 2/8802r 3, BACnet/IP.

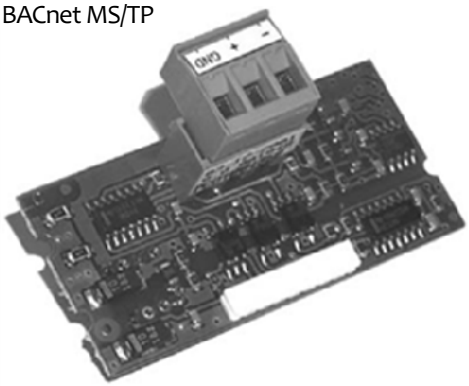
There are two types of interfaces for DBrWeb: ETHERNET interface for:

- BACnet Ethernet
- BACnet over IP
- SNMP v1, v2.c, v3
- HTTP (web server)
- FTP, DHCP, DNS
- Modbus TCP/IP



EIA 485 interface for:

- BACnet MS/TP



3.) SNMP

SNMP (Simple Network Management Protocol) is a protocol for the management of TCP/IP networks (the Internet protocol), established in 1988 based on the specifications of the IAB (Internet Administration Board), the body that supervises the internet protocol.

All Vision 2020i controllers can be connected Web Gate or DBrWeb to a 10 Mbps Ethernet™ network via gateway or DBrweb, and communicate with systems that use the SNMP Protocol.

4.) SMS, short message service (with GSM Modem)

DunhamrBush has pay great attention to fitting the Vision 2020i controllers with the ability to communicate important information directly by SMS message.

In fact, this is the best communication system for sending data wherever and promptly.

By simply connecting a GSM modem, the DB5 controllers not limited to send alarms and information only, but also receive commands via SMS that service personnel can use to reset any alarm or perform the necessary operations, without having to travel to the installation.

NETWORK REMOTE MONITORING (OPTIONAL)

NETVISOR PRO

NetVisor is the DunhamrBush webrserver based monitoring and telermaintenance system server that features flexibility of use and easy access to information and alarm management functions.

DunhamrBush has responded to the requirements for local monitoring and remote management by supplying solutions at all levels: from controllers in the field to supervisory systems.

In this way, the user can be constantly kept uprtordate on the status of the installation. Tailorrmade teler maintenance solutions!

The solutions proposed by DunhamrBush differ according to the type of installation:

- NetVisor PRO Basic, a pcrbased solution for local and remote monitoring system. it can monitor up to 90 units of instruments and log 1400 variables. this solution includes a computer system unit but excludes keyboard, mouse and monitor.
- NetVisor PRO Touch Hyper is a complete solution for local and remote monitoring system that can monitor up to 300 units of instruments and log up to 3500 variables. This solution includes a computer system unit with touch screen.

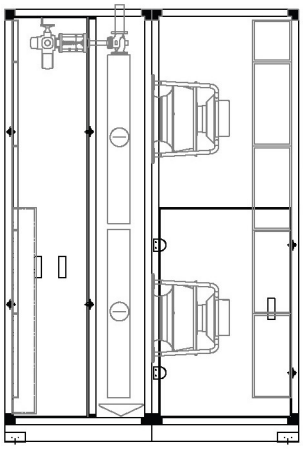
1.) NetVisor PRO can be accessed within a LAN Network, the information from the NetVisor PRO computer can be accessed by other PCs on the same network via Internet Explorer. NetVisor PRO can also be published on the web if a permanent internet connection and static IP is available.

2.) NetVisor PRO has equipped with 2 digital inputs (5V max) and 3 relay (24V max) outputs, the relay contacts can be scheduled to provide control over equipments or in response to alarm or events.

DB-FANWALL DESIGN FEATURES

FRAME AND CABINET

Double Skin "Sandwich" panel construction has smooth inner surfaces for easy and effective cleaning to reduce risk of dirt and bacteria accumulation. The sandwich panels are injected with Polyurethane Foam of 40kg/m³ density. Panel of nominal 25mm and 45mm thickness is available. The external surface of all panels with 0.5mm high strength prer painted and 0.5mm galvanized steel (GI) as internal skin.



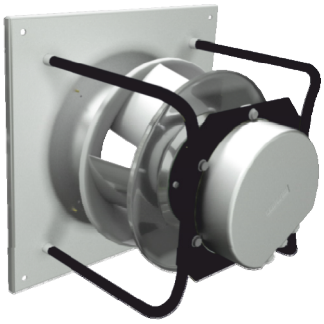
COOLING COIL

Computer selected coil design, using interwoven coil surface increases unit efficiency at low loads. Air is drawn through the coil at low velocity providing effective surface exposure with minimum turbulence. This provides greater efficiency in the cooling and dehumidification process.

FAN SECTION

The indoor unit are equipped with an electronically commutated (EC) plug fans to make sure the system are driven with 30% lesser energy compare to the conventional AC type. Capability to give higher part load efficiency due to the ability to precisely regulate the airflow according to the load demand makes EC fan is the right choice.

The EC fan's impellers were welded with 7 backward curved blades made of aluminium to minimize the bearing load and at the same time maximizing the durability especially when work at high circumferential velocity.



FILTERS

The system shall be provided with 2 inches (50mm) deep (for model 02r05) or 4 inches (100mm) deep (for model 07r26) extended surface pleated disposable type filters rated for MERV8 efficiency to ASHRAE 52.2 standard (equivalent to EU4). Filters shall be withdrawable from the front of the unit.

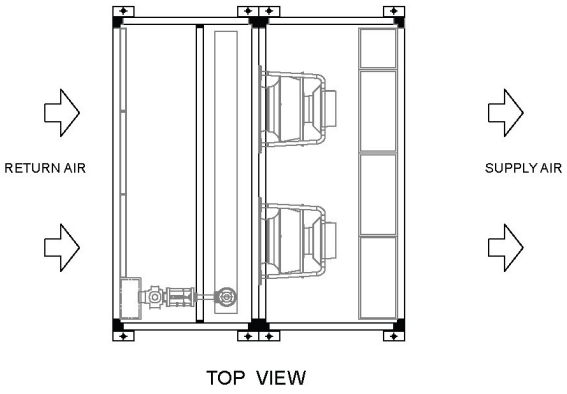
3-WAY MODULATING VALVE

The 3rway modulating valve control the cooling & dehumidification mode through supply temperature sensor signal sense.

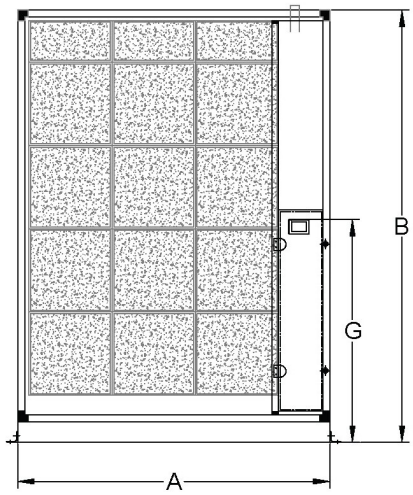
PERFORMANCE AND TECHNICAL DATA

Specifications	
Model	CRAH-225/310
Sensible Cooling Capacity (kW)	Air On Coil 38C 35%RH
- Water In/Out 6.67C/12.22C	310.0kW
- Water In/Out 15.00C/22.00C	225.8kW
Air Side	
Air Volume (cmh)	46,000cmh
Face Velocity (m/s)	2.93m/s
Air Pressure Drop (Pa)	135Pa
Supply Air Temperature @ Air On Coil 38C 35%RH	23C
Water Side	
Flow Rate (cmh)	27.8cmh
Pressure Drop (psi)	1.6psi
Header Connection (mm)	63mm
Connection Type	MBSP
Control	3-way Modulating Valve
Row of Coil	4 rows
Coil Fin Per In	12 fpi
Tube/ Fin Material	Copper/ Aluminium
Filter Section	
Filter Type	Pleated Disposable
Filter Grade	G4/ MERV8
Filter Size/ Quantity	600mmx600mmx50mm Thick/ 4 nos 600mmx508mmx50mm Thick/ 8 nos 508mmx508mmx50mm Thick/ 4 nos
Fan Section	
Fan Type	EC
Quantity of Fan	4
Fan Code	450-EC(380-415/3/50)
Efficiency Type	IE4
Current Draw (A)	14.8A
External Static Pressure (Pa)	100Pa
Sound Pressure Level @ 1m (dBA)	68.7dBA
Physical Specification	
Unit Width (mm)	2,250mm
Unit Length (mm)	2,100mm
Unit Height (mm)	3,085mm
Unit Thickness (mm)	48mm
Insulation Type	PU
Panel Type	GI Painted
Control	
Controller	Microprocessor Controller
Display Terminal	LCD Display Terminal
Temperature & RH Sensor	Supply & Return Side
Electrical Data – Standard EC Fan	
Power Supply (V/Ph/Hz)	380-415Vac/3Ph/50Hz
Power Consumption (kW)	9.3kW
Current (A)	14.8A

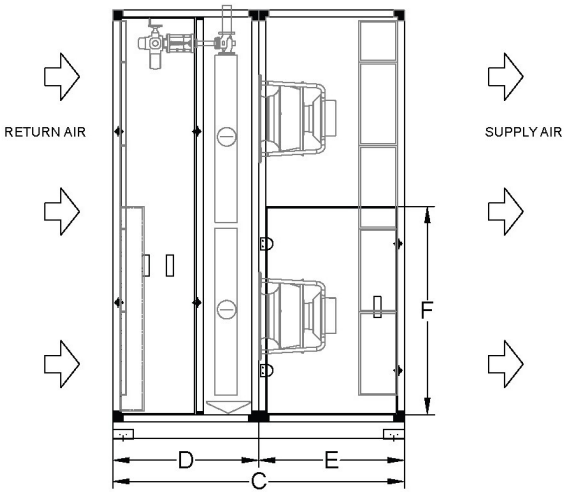
PHYSICAL DIMENSION



TOP VIEW



REAL VIEW



SIDE VIEW

Dimension (mm)	A	B	C	D	E	F	G
CRAH-225/310	2,250	3,085	2,100	1,050	1,050	1,500	1,670

DB-FANWALL

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