



Catalog Number:

Notes:

Type of Fan:

Supplied By America!

Invertek Controller Made In England
Controller Made Overseas - Final Assembly In US
Blade Raw Material US or Canadian

FEATURES & SPECIFICATIONS

Z-Chill™ Fan & Diffuser System Intended Use: Breakthrough, patented system designed to effectively spot cool the unconditioned space within a facility by distributing tempered air and provide companies an economical tempered cooling solution to keep business operating at their highest level. Applications include, transportation maintenance, aviation hangars, agriculture, education, commercial and retail spaces, government, manufacturing, recreational, warehousing and other indoor spaces where comfort and energy are required with minimum 20' ceiling

NUMBER & TYPE OF BLADES: (5) patented Z-Tech™ blades with 20° plus pitch.

BLADE CONSTRUCTION: Two-piece extruded anodized aluminum blade with ABS leading edge and end caps with UV inhibitors. Frame is powder coated steel with a cast aluminum hub. Leading edge blade is riveted to the primary blade with stainless steel rivets.

DIFFUSER CONSTRUCTION: Constructed of cold rolled steel and protected with powder coated paint and feature a closed cell thermal insulation design to prevent/minimize condensation on the outside of the entire unit. with bottom perforations to equally distribute tempered air over the blades.

ELECTRICAL (MOTOR): IP 55; 208/230/460V 3 phase. Built specifically for VividAir applications.

ELECTRICAL (CONTROLLER): Premium control with hardware flexibility, programmability, and scalability for an optimal solution. ABB™ Variable Frequency Drive – Nema 4X, IP66 ESFR relay ready to connect to existing fire suppression systems, integral lock out, tag out (LOTO) disconnect ships standard. ROHS compliant. Available voltages are 100-120V 1 phase, 200-240V 1 phase, 200-240V 3 phase, 380-480V 3 phase.

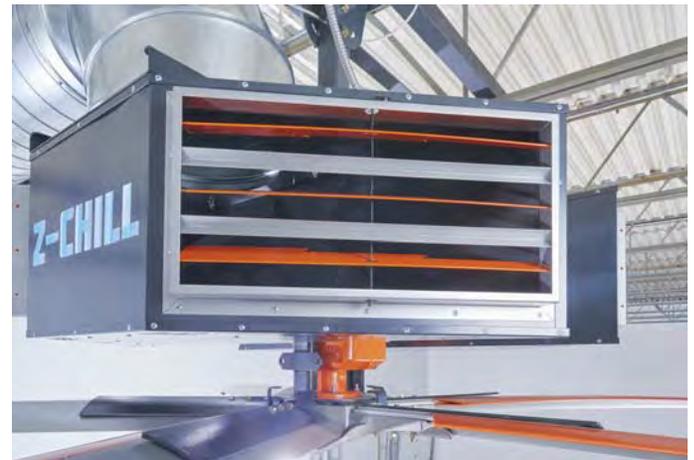
INSTALLATION: Suitable for mounting by I-Beam, Top Chord angle iron, Bottom Chord angle iron, L-Bracket, and Wood Beam. Standard mount is used for 6"-10" I-beams, XL mount is used for 12"-15" I-beams. 3 foot down tube is standard with Z-Chill system (optional 2ft down tube available).

SAFETY: Z-Tech™ SS safety system includes (2) straps with a break strength of 16,000lbs each easily exceeding the break strength of the industry standard steel cable, Safety ring (1/4" powder coated steel)

DESIGNER COLOR: Optional color combinations & designs available.

OPERATING TEMPERATURES: Motor & Gearbox Class F (20°F to 122°F), Class H (20°F to 140°F); Controller (20°F to 122°F).

WARRANTY: Lifetime warranty on blades, hub and mounting system. 15-year warranty on motor, gearbox and controller.



ORDERING INFORMATION

Example: GFY - Z-CHILL - 5 - 24 - NMSTD - 460 - 3 - 2 - STD - T - ABBSTD

Family	Style	Blades	Diameter	Motor	Voltage	Phase	Down Tube	Mount	Mounting Kit	Controller	Options
GFY	Z-Chill	5	16 18 20 22 24	NMSTD	230 ¹ 460 ¹	1 (Single) 3 (Three)	2 (2FT) ² 3 (3FT) ³	STD ⁴ XL ⁵	T ⁶ CB ¹² WB ¹²	ABBSTD	DS ^{7,8} RK ⁹ CP ¹⁰ FM ¹¹

FOOTNOTES

- 1) Available voltages: 3 Phase Applications: 200-240VAC | 380-480VAC; Single Phase Applications: 200-240VAC
- 2) 2 FT down tube is minimum required with the Z-Chill™ Fan & Diffuser System. Order this option only when ducting requires it.
- 3) 3 FT down tube ships standard with all Z-Chill orders. Longer down tubes are not available with Z-Chill equipped fans.
- 4) Use STD mount (6-10" beams) for optional Truss Mount and Concrete Beam Mounts.
- 5) XL Mount is only used for 12"-15" I-beam
- 6) Truss Mount require contractor supplied 3"x3"x1/4" steel angles cut to size. See **Z-Tech™ Installation and Technical Operations Guide**.
- 7) Designer Series Options (refer to pages 12 & 13):
 - Option #1 - Motor and all (5) Z-Tech™ leading edges a standard RAL color. Customer logo to replace Go Fan Yourself® logo on hub.
 - Option #2 - Motor and (3) Z-Tech™ leading edges one standard RAL color, (2) Z-Tech™ leading edges another standard RAL color. Customer logo to replace Go Fan Yourself® hub logo.
 - Option #3 - Motor and all (5) Z-Tech™ leading edges a standard RAL color. Aluminum Blades one standard RAL color. Customer logo to replace Go Fan Yourself® logo on hub.
 - Option #4 - Motor and (3) Z-Tech™ leading edges one standard RAL color, (2) Z-Tech™ leading edges another standard RAL color. Aluminum Blades one standard RAL color. Customer logo to replace Go Fan Yourself® hub logo.
 - Option #5 - Custom - Motor MUST be a standard RAL color. Z-Tech™ leading edges and aluminum blades may be a custom color. Customer logo to replace Go Fan Yourself® hub logo.
- 8) Designer Series fans have custom lead times. Consult the factory to receive a lead-time quote for your desired option.
- 9) Keypad mounts inside a VividAir custom mounting bracket. Kit ships complete with 100FT CAT6 data cable. Max. cable length is 300FT. Longer CAT6 data cables to be supplied by installing contractor.
- 10) Consult the factory. ABB control's protocol compatibility adapts to the customers existing building management software. Not all programming options may be available on every control.
- 11) Optional fan mounted VFD. ABB VFD control ships mounted directly to the fan on an engineered bracket. Contractor needs only to run power to the fan location and connect it to the controller. Remote Keypad Kit ships automatically with a 100' CAT6 data cable. Max. cable length is 300 FT.
- 12) Contact a local structural engineer for all concrete and wood beam applications to verify the structure will support the fan with the prescribed mounting system.

Fan Diameter	16FT	18FT	20FT	22FT	24FT
Fan Weight with Z-Chill	495 lbs.	525 lbs.	555 lbs.	565 lbs.	575 lbs.
Nominal Motor	2 HP				
Nominal RPM	76	76	66	56	56
Max. De-stratification Coverage	160 FT	180 FT	200 FT	220 FT	240 FT
Max. Cooling Diameter	135 FT	150 FT	160 FT	165 FT	180 FT
Nominal Amperage (240V Single Phase)	240v / 110	240v / 140	240v / 140	240v / 140	240v / 140
Nominal Amperage (208v)	5.8	7.5	7.5	7.5	7.5
Nominal Amperage (230v)	5.3	7.0	7.0	7.0	7.0
Nominal Amperage (460v)	2.65	3.5	3.5	3.5	3.5

NOTE:

If the installation is in a seismic zone, contact a local structural engineer to verify fan mount requirements.

Number & Type of Blades: 5 patented Z-Tech™ blades with 20° plus pitch

Blade Construction: Extruded anodized aluminum blade with ABS leading edge and end caps with UV inhibitors

Diffuser Construction: Constructed of cold rolled steel and protected with powder coated paint and feature a closed cell thermal insulation designed to prevent/minimize condensation on the outside of the entire unit.

Standard or Optional XL Mount: Universal I-beam clamps; Down tubes 2ft or 3ft in length only.

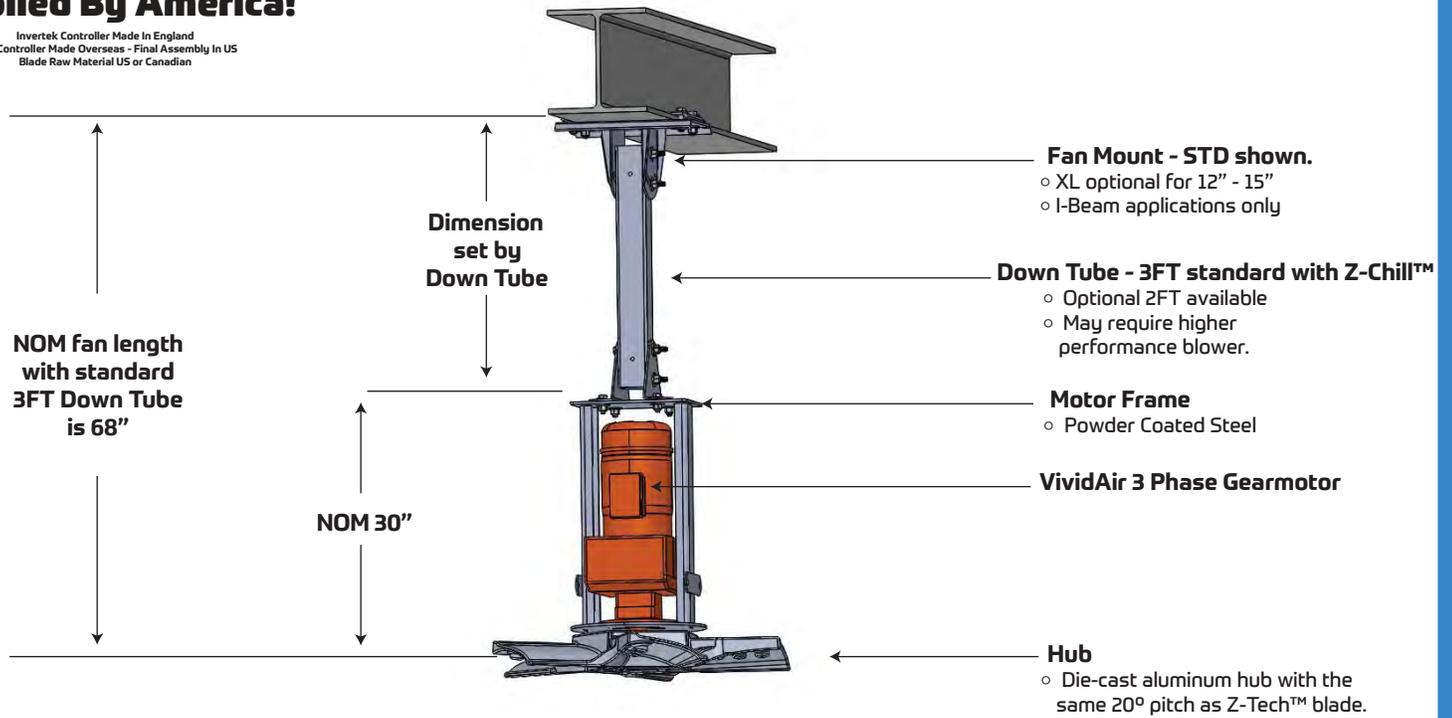
ABB VFD Controller: NEMA 4X, IP66. Premium motor control w/ hardware flexibility, programmability & scalability for an optional solution. ROHS compliant, ESFR relay ready, integral LOTO disconnect

Safety Features: Z-Tech™ SS safety system (4 straps with a break strength of 16,000lbs each), Safety ring (1/4" powder coated steel)

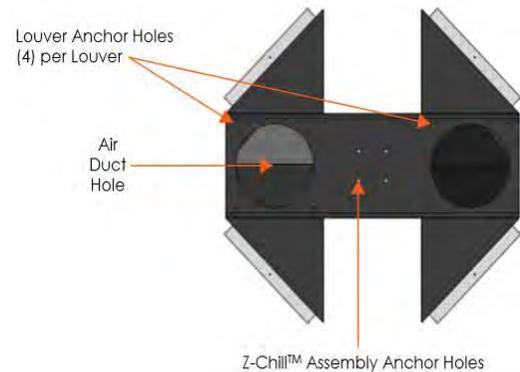
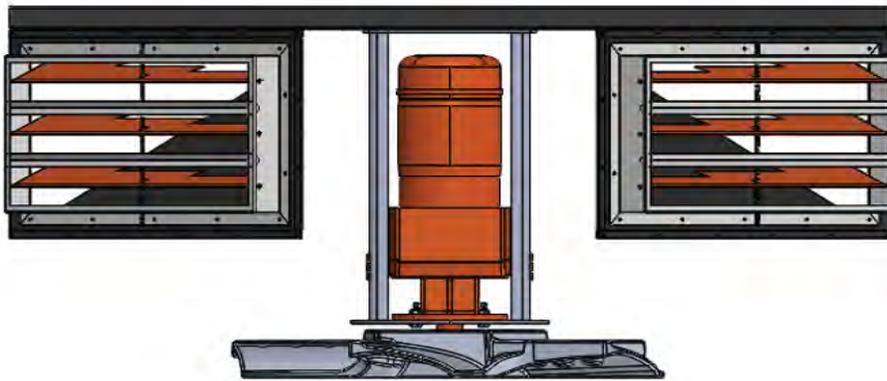
Warranty: 15-year: motor, gearbox, and control panel
Lifetime: blades, hub, and mounting system. HVAC components are not warrantied by VividAir. Refer to **Installation & Technical Operations Guide** for warranty specifications/exclusion All warranty for HVAC components by others.

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PATENTED Z-CHILL™ DIFFUSER



- Dual Z-Chill™ diffusers are specifically designed to equally distribute both filtered, conditioned and or forced heat into the designed air distribution pattern of the Z-Tech™ (16 - 24ft) fans. Includes a closed cell thermal insulation design to prevent/minimize condensation on the outside of the entire unit.
- Z-Chill™ diffusers incorporate stepped Z-Tech™ internal prisms to equally split the incoming conditioned air and the adjustable stepped Z-Tech™ vented louvers are designed to equally distribute the air across the entire circumference of the 5-blade Z-Tech™ stepped fan blade design. The diffusers include bottom perforations that are designed to disperse air spread in the center.
- The system is direct mounted between the down tube and weldment and motor/hub mounting yoke hardware and requires no additional support. The incoming spiral insulated ducting (provided by others) will need support prior to final connections. Dual Z-Tech™ diffusers feature 16-inch round HVAC ducting receptacles. Receptacles are rated for 5-10 ton HVAC capacity each (supplied by others). It is recommended all attached spiral inlet ducting be wrapped and insulated.
- Z-Chill™ works the same with tempered forced air (HVAC systems) for both cooling and heating. Roof top (industrial & commercial) units as well as split systems incorporate energy efficient heat pumps that can disperse the heat through the Z-Chill™ dual diffusers.
- True reversibility is achieved because of the symmetrical Z-Tech™ blades including the engineered pitch, rake and cup. Applying forced heat and stratifying several thousand square feet without creating uncomfortable wind chills make this superior patented technology the only chameleon to properly solve conditioned air movement in large spaces at a low operating cost.

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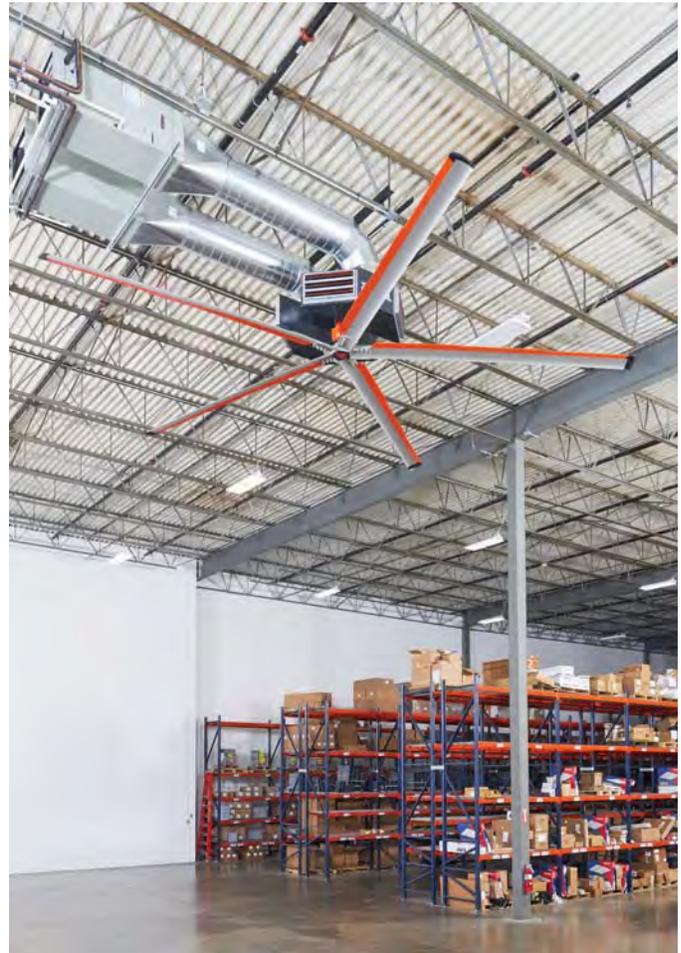
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FLEXIBLE CLOSED CELL SHEET INSULATION

- INSUL-SHEET® insulation is an environmentally friendly, CFC-free, flexible elastomeric thermal insulation.
- Non-porous, non-fibrous and resists mold growth. An EPA registered antimicrobial agent is incorporated into the product providing additional protection against mold, fungal and bacterial growth.
- Retards heat gain and prevent condensation or frost formation on cold equipment, tanks, vessels, ducts, or large O.D. pipes.
- Tough skin which withstands tearing, rough handling, and severe environmental conditions, and yet is quite flexible for easy installation and has superior cold weather flexibility.
- K-Flex USA elastomeric insulation products are GREENGUARD® certified as low VOC materials, meeting the requirements of the “Children and Schools” classification, the most stringent requirements. Additionally, all K-Flex USA elastomeric insulation products are GREENGUARD® listed for mold resistance and meet the “mold resistant” criteria.
- INSUL-SHEET® thickness has been calculated to control condensation on cold surfaces.
- The closed-cell structure and unique formulation of INSUL-SHEET® effectively retards the flow of moisture vapor, and is considered a low transmittance vapor retarder.
- INSUL-SHEET® insulation in thicknesses of 1 1/2" (38 mm) and below has a flame spread rating of 25 or less and a smoke development rating of 50 or less as tested by ASTM E 84 Method of Testing entitled: “Surface Burning Characteristics of Building Materials.”
- Acceptable for use in duct/plenum applications meeting the requirements of NFPA 90A
- MADE IN USA

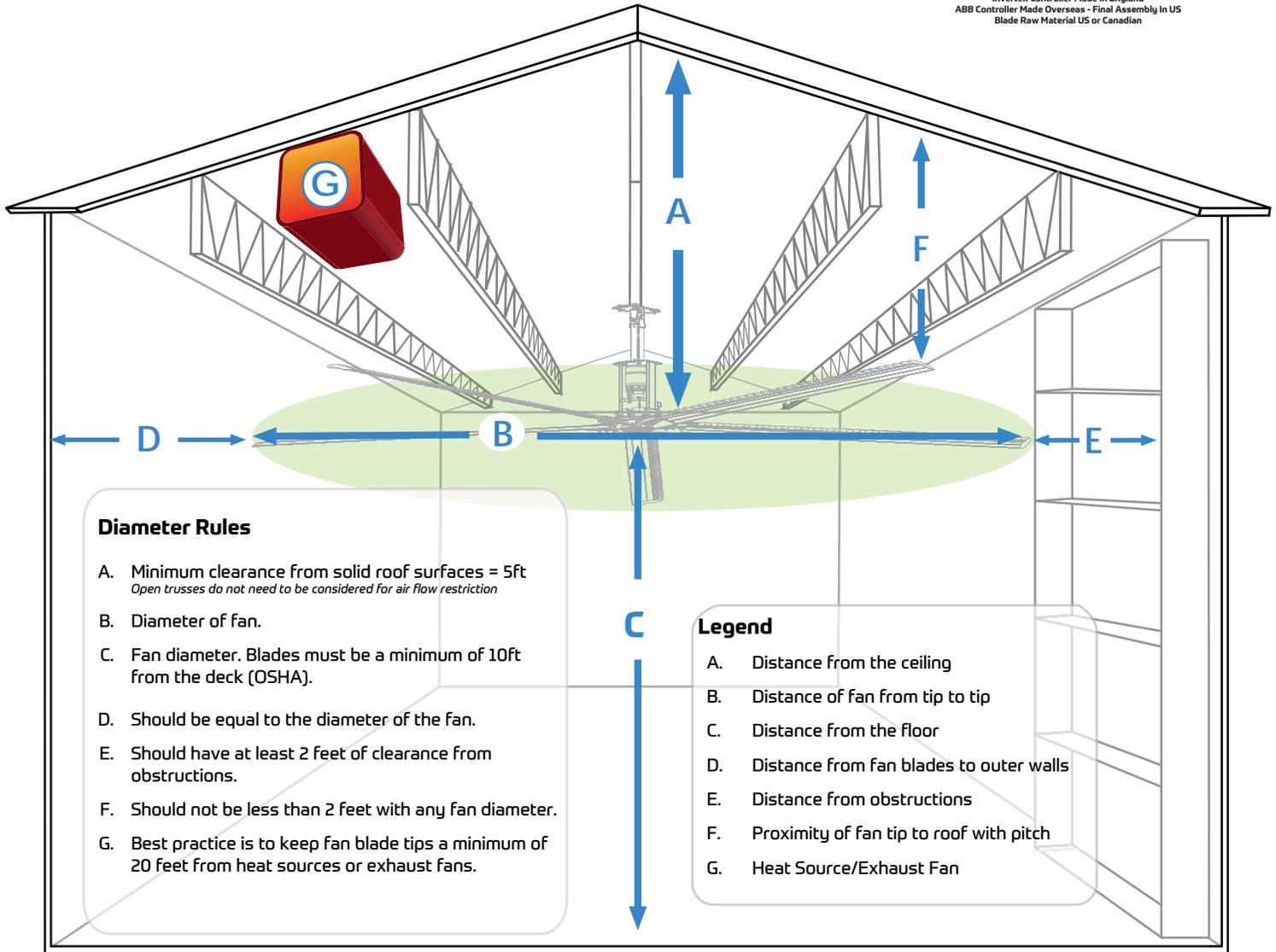
SPECIFICATION COMPLIANCE

- ASTM C 534 Type 2 (Sheet), Grade 1 ASTM D 1056-00-2C1
New York City MEA 186-86-M Vol. IV USDA Requirements
STC = 17 per ASTM E 90
- UL 94-5V Flammability Classification
(Recognition No. E300774)
ASTM E 84 1 1/2" 25/50-tested according to UL 723 and
NFPA 255
Complies with requirements of
CAN/ULC S102-03
- NFPA No. 101 Class A Rating
Meets requirements of NFPA 90A/B Sect. 2.3.3 for
Supplementary
Materials for Air Distribution Systems
- Meets requirements of UL 181
sections 11.0 and 16.0
(Mold Growth/Air Erosion)
- Meets requirements of ASTM C 411
(Test Method for Hot Surface Performance of High
Temperature Thermal Insulation)
MIL-P-15280, Form S (Sheet)
- R8 Sheet meets R-value requirements of the International
Energy Conservation Code for Outdoor Ductwork.



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How to size a Z-Chill™ fan & diffuser system for your facility

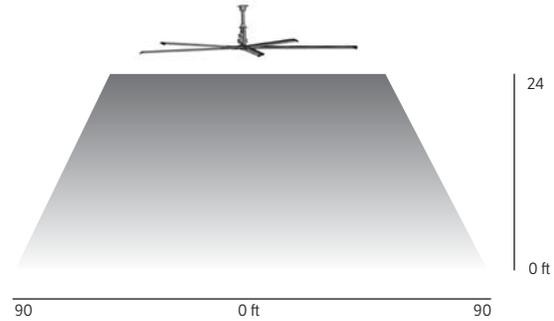
Nominal Fan Diameter	Maximum Coverage Area (Cooling)	Maximum Coverage Area (Destratification)	Maximum Spacing Between Fans	Minimum Spacing From Wall	Clearance Needed From Ceiling	Minimum Blade Height
16 FOOT	135 FT	160 FT	120 FT	16 FT	5 FT	16 FT
18 FOOT	150 FT	180 FT	135 FT	18 FT	5 FT	18 FT
20 FOOT	160 FT	200 FT	145 FT	20 FT	5 FT	20 FT
22 FOOT	165 FT	220 FT	150 FT	22 FT	5 FT	22 FT
24 FOOT	180 FT	240 FT	165 FT	24 FT	5 FT	24 FT

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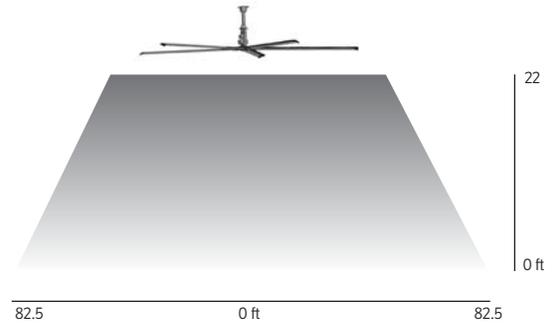
24' Diameter Fan

- Number of Blades: 5 Patented Z-Tech™
- Blade Pitch: 20° plus
- Minimum Blade Height: 24 FT (blade from floor)
- Maximum Cooling Diameter: 180 FT
- Maximum Destratification Coverage: 240 FT
- Nominal Blade Rotations Per Minute: 56 RPM
- Nominal Motor: 2 HP (2.2kw)
- Nominal Amps: 3.5 amps @ 460v
- System Weight: 575 lbs
- Maximum Mounting Distance Between Fans: 165 FT
- Nominal Clearance From Solid Roof Surfaces: 6 FT



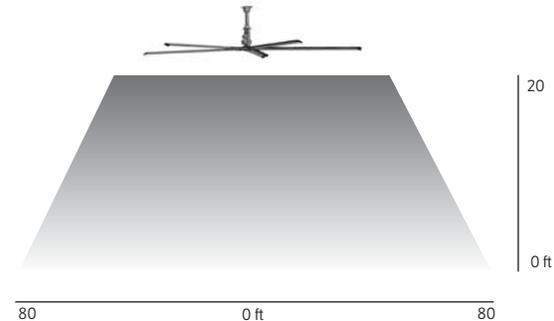
22' Diameter Fan

- Number of Blades: 5 Patented Z-Tech™
- Blade Pitch: 20° plus
- Minimum Blade Height: 22 FT (blade from floor)
- Maximum Cooling Diameter: 165 FT
- Maximum Destratification Coverage: 220 FT
- Nominal Blade Rotations Per Minute: 56 RPM
- Nominal Motor: 2 HP (2.2kw)
- Nominal Amps: 3.5 amps @ 460v
- System Weight: 565 lbs
- Maximum Mounting Distance Between Fans: 150 FT
- Nominal Clearance From Solid Roof Surfaces: 6 FT



20' Diameter Fan

- Number of Blades: 5 Patented Z-Tech™
- Blade Pitch: 20° plus
- Minimum Blade Height: 20 FT (blade from floor)
- Maximum Cooling Diameter: 160 FT
- Maximum Destratification Coverage: 200 FT
- Nominal Blade Rotations Per Minute: 70 RPM
- Nominal Motor: 2 HP (2.2kw)
- Nominal Amps: 3.5 amps @ 460v
- System Weight: 555 lbs
- Maximum Mounting Distance Between Fans: 145 FT
- Nominal Clearance From Solid Roof Surfaces: 6 FT



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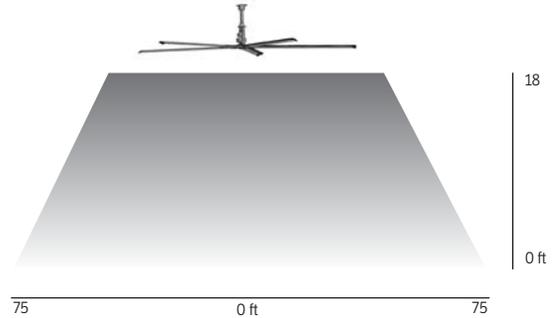
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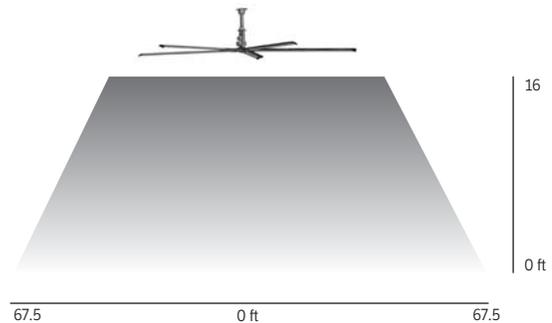
18' Diameter Fan

- Number of Blades: 5 Patented Z-Tech™
- Blade Pitch: Blades 20° plus
- Minimum Blade Height: 18 FT (blade from floor)
- Maximum Cooling Diameter: 150 FT
- Maximum Destratification Coverage: 180 FT
- Nominal Blade Rotations Per Minute: 76 RPM
- Nominal Motor: 2 HP (2.2kw)
- Nominal Amps: 3.5 amps @ 460v
- System Weight: 525 lbs
- Maximum Mounting Distance Between Fans: 135 FT
- Nominal Clearance From Solid Roof Surfaces: 6 FT



16' Diameter Fan

- Number of Blades: 5 Patented Z-Tech™
- Blade Pitch: Blades 20° plus
- Minimum Blade Height: 16 FT (blade from floor)
- Maximum Cooling Diameter: 135 FT
- Maximum Destratification Coverage: 160 FT
- Nominal Blade Rotations Per Minute: 76 RPM
- Nominal Motor: 1.5 HP (1.5kw)
- Nominal Amps: 2.15 amps @ 460v
- System Weight: 495 lbs
- Maximum Mounting Distance Between Fans: 120 FT
- Nominal Clearance From Solid Roof Surfaces: 6 FT



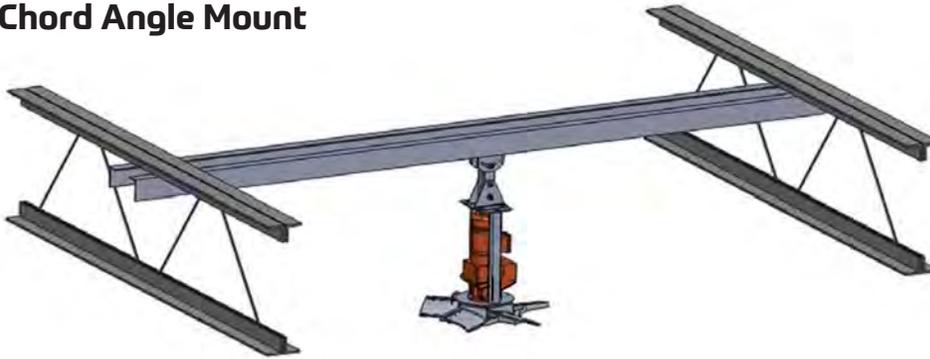
ADDITIONAL SPECIFICATIONS See VividAir FAN LOCATION GUIDELINES in this spec sheet for additional details.

1. Minimum 2 FT of clearance from obstructions.
2. Minimum 2 FT below truss with any fan diameter.
3. Should be at least one fan diameter away from a heat source.
4. Should be at least one fan diameter away from any exhaust fan(s).
5. Should be at least one fan diameter away from any wall.
6. Fan should be approximately centered between 4 sprinkler heads (observe local codes) where applicable.
7. Lights may need to be spaced 2 FT or greater away from the tip of the fan blade to prevent shadowing.

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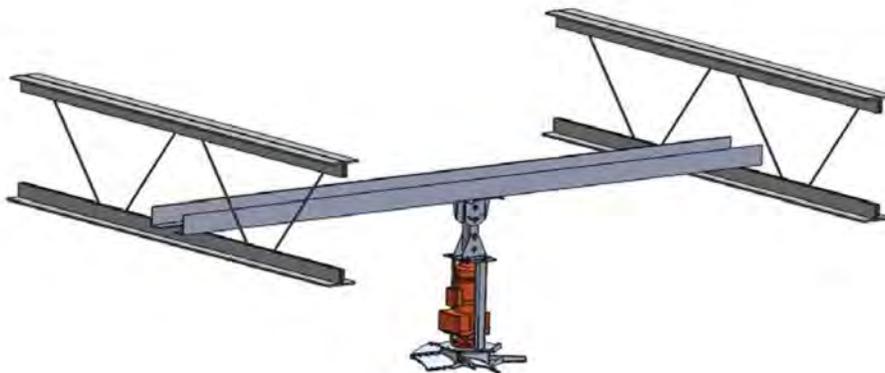
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Top Chord Angle Mount

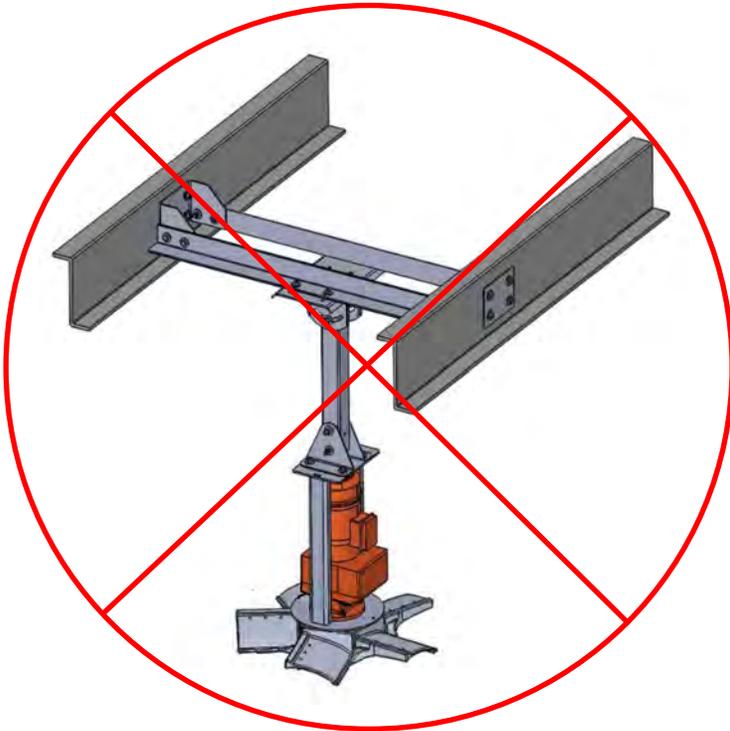


- If the installation is in a seismic zone, contact a local structural engineer to verify fan mount requirements.
- A longer down tube will be necessary to give Z-Chill™ the required clearance for the duct work. The down tube dimension should be calculated as follows: Truss height + 2 FT
- The 3" x 3" x 1/4" steel angles must be supplied by the installing contractor. Hardware used to secure the angles to the mounting structure is not included
- If the truss span is wider than 8FT, four steel angles are required. Reference the **Installation & Technical Operations Guide** or contact VividAir for additional instructions

Bottom Chord Angle Mount

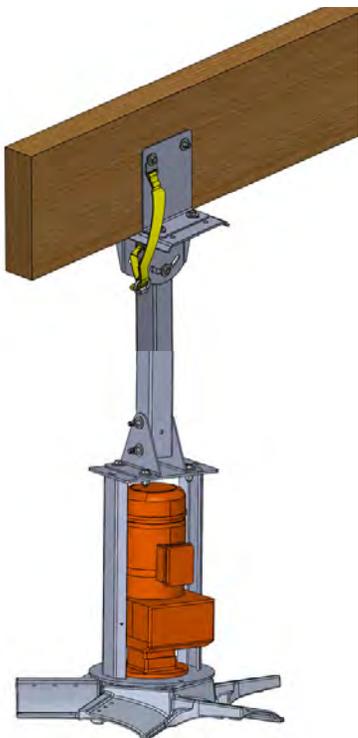


- The 3" x 3" x 1/4" steel angles must be supplied by the installing contractor. Hardware used to secure the angles to the mounting structure is not included
- If the truss span is wider than 8FT, four steel angles are required. Reference the **Installation & Technical Operations Guide** or contact VividAir for additional instructions
- If the installation is in a seismic zone, contact a local structural engineer to verify fan mount requirements.



**Z-Purlin Mount is not allowed with Z-Chill™.
Z-Chill™ must mount directly to the I-Beams.**

Wood Beam Mount



Wood Beam Requirements

- Contact a local structural engineer for all beam mount projects. The beam will need to be calculated and the method of anchoring the brackets to the beam must be verified.
- Installing contractor must supply L-bracket anchor hardware as described below:
 - (2) 1/2" - 13 x 1 1/2" longer than the support structure Grade 8 Hex Cap Screw
 - (4) 1/2" ASTM F436 Type 1 Grade 8 Galvanized Steel Structural Flat Washer
 - (2) 1/2" - 13 Grade 8 Steel Nylock Nut
- If the installation is in a seismic zone, contact a local structural engineer to verify fan mount requirements.

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VividAir VFD Controller

200-240V 1 Phase
200-240V 3 Phase
280-480V 3 Phase



Wall Mount Keypad



Wall Mount Keypad
Adapter Plate



ABB ACS255 VFD Controller

200-240V 1 Phase



Wall Mount Keypad



Wall Mount Keypad
Adapter Plate



ABB ASC355 VFD Controller

200-240V 3 Phase
380-480V 3 Phase



Keypad
relocated to
4x4 electrical
box



Shown with
customer
supplied
lockable /
slotted cover



Fan Controls **ROHS** COMPLIANT

- ABB Variable Frequency Drive Enclosure - Nema 4X (IP66).
- Special Wiring (Thermostats, Fire Alarm Interface, Networking, Etc.) (Optional) Consult Factory.
- 50 / 60 Hz Operation.
- All VividAir Z-Tech™ Controls ship standard with an Early Suppression Fast Response Relay ready to connect to existing fire suppression systems.
- VividAir Z-Tech™ Fan Controls ship standard with an integral Lock Out Tag Out Disconnect.
- All fans require their own VFD Controller but multiple fans may be controlled from a single keypad (additional wiring required)

Custom Programming

There will be a minimum charge placed on any order (this is a per order charge, not per fan) when custom programming is involved. Lead time will be increased.

Custom Programming includes:

- Controlling multiple fans from a single keypad
- Connecting to building management systems or other software/hardware packages
- Any customer requests beyond the standard one drive controls one fan

The wall or column mount keypad option is not considered custom programming.