

## Supplied By America!

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

Catalog Number:

Notes:

Type of Fan:

## FEATURES & SPECIFICATIONS

**Z-Tech3™ Intended Use:** Industrial high-volume, low-speed fan that is ideal for spaces in need of an energy efficient air movement solution. Applications include automotive dealerships, 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 14' ceiling height.

**NUMBER & TYPE OF BLADES:** (3) 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.

**ELECTRICAL (MOTOR):** IP55; Built specifically for VividAir fan applications

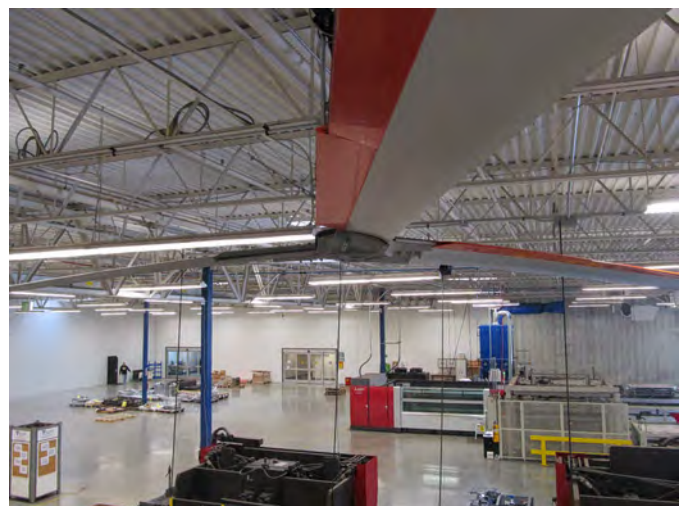
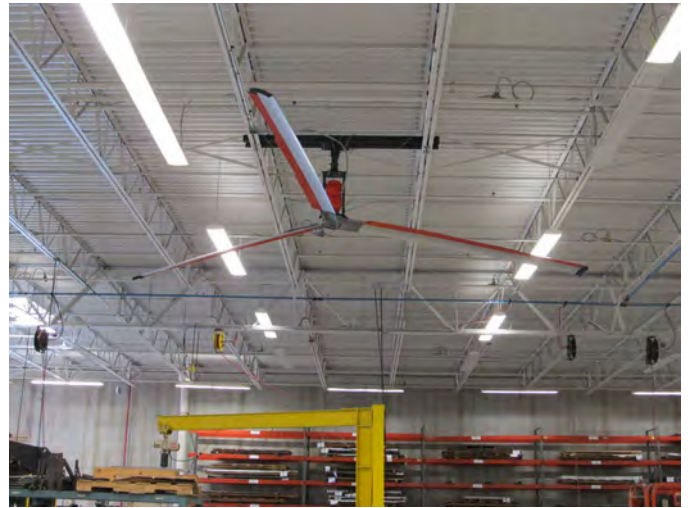
**ELECTRICAL (CONTROLLER):** Premium control with hardware flexibility, programmability, and scalability for an optimal solution. ABB™ Variable Frequency Drive – Nema 4X, IP66. ESFR relay ready to connect to existing fire suppression systems, integral lock out, tag out (LOTO) disconnect ships standard.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

**INSTALLATION:** Suitable for mounting by I-Beam, Top Chord angle iron, Bottom Chord angle iron, L-Bracket, Z-Purlin and Wood Beam. Standard mount is used for 6"-10" I-beams, XL mount is used for 12"-15" I-beams. 1 foot down tube is standard.

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

**OPERATING TEMPERATURES:** Motor & Gearbox (20°F to 122°F); Controller (20°F to 122°F).

**WARRANTY:** Lifetime warranty on blades, hub and mounting system. 12-year warranty on motor, gearbox and controller with VividAir certified installation.



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Z-Tech3™ Example Part Number: GFY - Z - 3 - 24 - 460 - 3 - 1 - STD - T

Family	Style	Blades	Diameter	Voltage	Phase	DownTube	Mount	Mounting Kit	Options
GFY	Z	3	8 10 12 16 20 24	230 <sup>1</sup> 460 <sup>1</sup>	1 (Single) 3 (Three)	1 (1FT) <sup>2,12</sup> 2 (2FT) <sup>12</sup> 3 (3FT) 4 (4FT) X (XFT) <sup>3</sup>	STD (6"-10" Beam) <sup>4</sup> XL (12"-15" Beam) <sup>5</sup>	T (Truss/I-Beam) <sup>6</sup> Z (Z-Purlin) <sup>6,9</sup> WB (Wood Beam) <sup>10</sup> (Concrete Beam) <sup>10</sup>	WM <sup>7</sup> (Wall Mount Keypad) CP <sup>8</sup> (Custom Programming) FM <sup>11</sup> (VFD Field Mounted to Fan Frame)

### FOOTNOTES

- Available Voltages: 3 Phase: 200-240VAC | 380-480VAC | 1 Phase: 200-240VAC
- 1 FT down tube is standard with Z-Tech3™ fan.
- Consult the factory for down tubes longer than 4 FT.
- Use STD mount (6-10" beams) for optional Truss Mount, Z-Purlin Mount and Wood/Concrete Beam Mounts.
- XL Mount is only used for 12"-15" I-beam applications.
- Truss Mount and Z-Purlin Mounts require contractor supplied 3"x3"x1/4" steel angles cut to size. See **Installation and Technical Operations Guide**.
- Allows the control keypad to be mounted up to 24 FT from the ABB controller. Keypad mounts inside a VividAir custom mounting bracket. Kit ships complete with 25 FT CAT6 data cable. Maximum cable length is 300 FT. Longer CAT6 data cables to be supplied by installing contractor.
- Consult the factory. ABB communication protocol compatibility adapts to the customers existing building management software. Not all programming options may be available on every control.
- Z-Purlin applications require a 2 FT down tube for all Z-Tech3™ fans 20 FT and larger to provide the fan the required 5 FT of clearance above the blades.
- Contact a local structural engineer for all concrete and wood beam applications to verify the beam will support the fan with the prescribed mounting system.
- Optional fan mounted VFD. ABB VFD control mounting bracket and hardware ships with fan to be field installed by the contractor. Contractor needs only run power to the fan location, mount the bracket to the fan, mount the controller to the bracket and make the motor and power connections inside the controller. Remote Keypad Kit ships automatically with a 100 FT CAT 6 data cable. Longer cable supplied by the installing contractor.
- A 2 FT down tube is required for 24 FT and 20 FT fans when Top Chord truss mounted to provide the 5 FT of clearance for the fan. 2 FT down tubes are also required when mounting with the optional Z-Purlin Kit.

Nominal Fan Diameter	8 FT	10 FT	12 FT	16 FT	20 FT	24 FT
Fan Weight	230 lbs	240 lbs	250 lbs	270 lbs	285 lbs	305 lbs
Nominal Motor	1.5 hp	1.5 hp	1.5 hp	1.5 hp	1.5 hp	1.5 hp
Nominal RPM	90	90	90	63	51	51
Max. Destratification Coverage	75 FT	85 FT	95 FT	125 FT	155 FT	185 FT
Max. Cooling Diameter	50 FT	65 FT	80 FT	100 FT	120 FT	140 FT
Nominal Amperage (208v 1 Ph)	8.1a	8.1a	8.1a	8.1a	8.1a	8.1a
Nominal Amperage (208v 3 Ph)	4.5a	4.5a	4.5a	4.5a	4.5a	4.5a
Nominal Amperage (230v 3 Ph)	4.0a	4.0a	4.0a	4.0a	4.0a	4.0a
Nominal Amperage (460v 3 Ph)	2.0a	2.0a	2.0a	2.0a	2.0a	2.0a

Number & Type of Blades: 3 patented Z-Tech™ blades with 20° plus pitch

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

Standard or Optional XL Mount: Universal I-beam clamps; Down tubes from 1-10FT in length

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 includes (4) straps with a break strength of 16,000lbs each, Safety ring (1/4" powder coated steel)

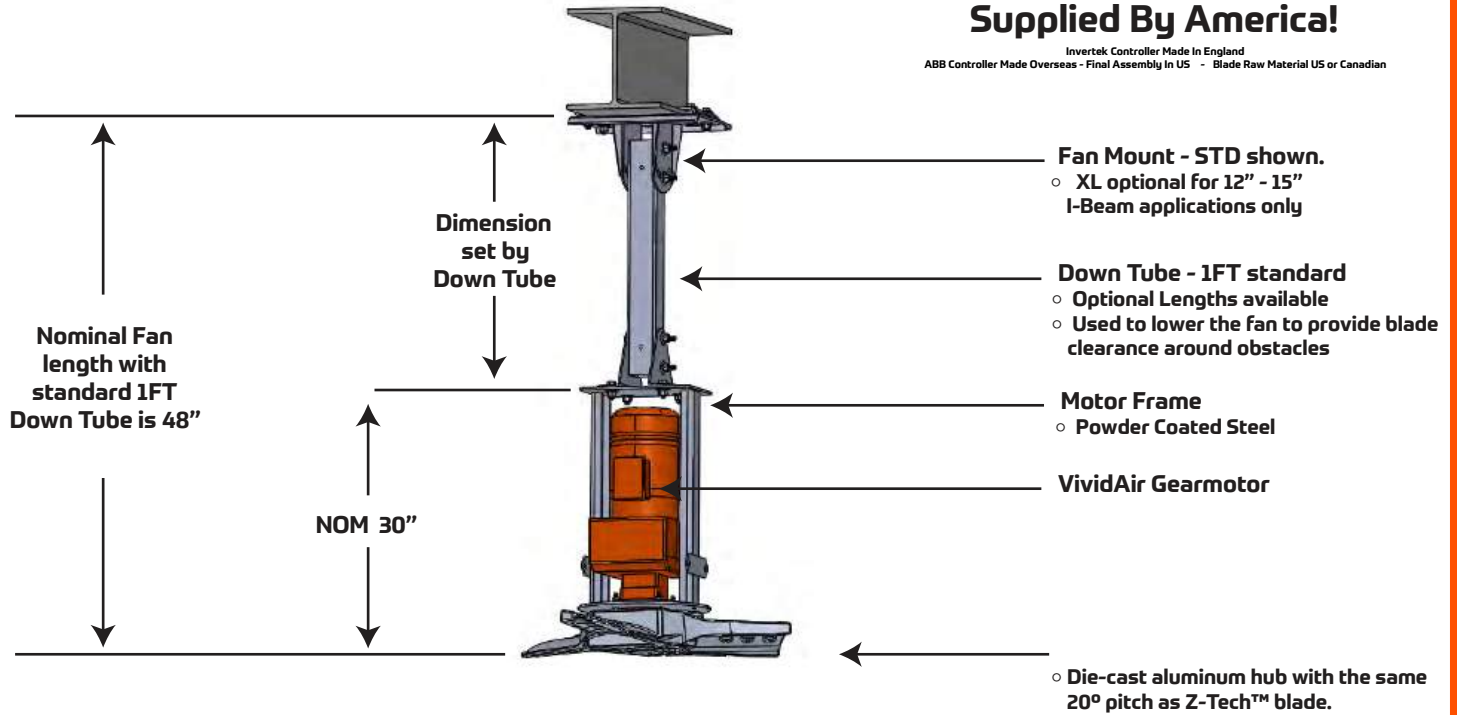
Warranty: 12-year: motor, gearbox, and control panel  
Lifetime: blades, hub, and mounting system

Refer to **Installation & Technical Operations Guide** for warranty specifications/exclusion

## COMPONENT DESCRIPTIONS NOMINAL DIMENSIONS MOUNTING/MOTOR DETAILS

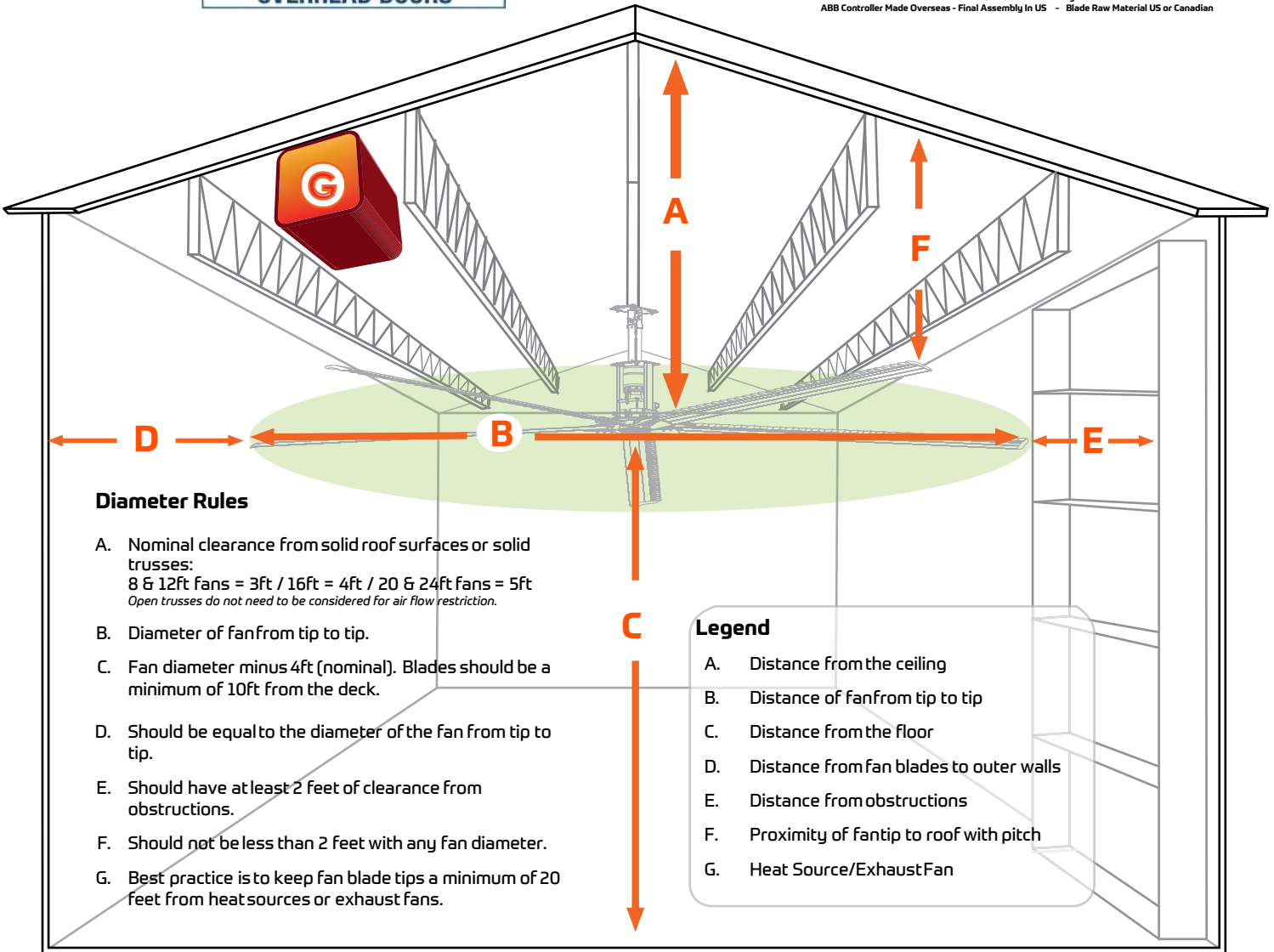
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### Diameter Rules

- A. Nominal clearance from solid roof surfaces or solid trusses:  
8 & 12ft fans = 3ft / 16ft = 4ft / 20 & 24ft fans = 5ft  
*Open trusses do not need to be considered for air flow restriction.*
- B. Diameter of fan from tip to tip.
- C. Fan diameter minus 4ft (nominal). Blades should be a minimum of 10ft from the deck.
- D. Should be equal to the diameter of the fan from tip to tip.
- E. Should have at least 2 feet of clearance from obstructions.
- F. Should not be less than 2 feet with any fan diameter.
- G. Best practice is to keep fan blade tips a minimum of 20 feet from heat sources or exhaust fans.

### Legend

- A. Distance from the ceiling
- B. Distance of fan from tip to tip
- C. Distance from the floor
- D. Distance from fan blades to outer walls
- E. Distance from obstructions
- F. Proximity of fan tip to roof with pitch
- G. Heat Source/Exhaust Fan

## HOW TO SIZE A Z-TECH3™ FAN FOR YOUR FACILITY

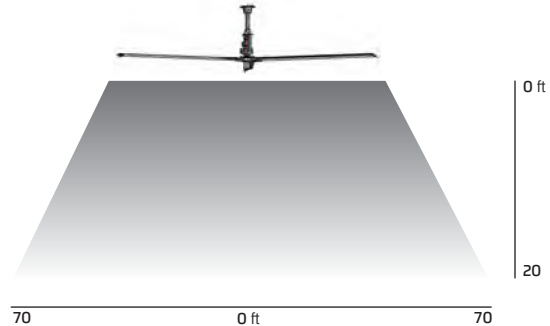
NOM Fan Diameter	Max Coverage Area (Cooling)	Max Coverage Area (Destratification)	Max Spacing Between Fans	Minimum Spacing From Wall	NOM Clearance Needed From Ceiling	Minimum Blade Height
8 FOOT	55 FT	75 FT	45 FT	8 FT	3 FT	10 FT
10 FOOT	65 FT	85 FT	55 FT	10 FT	3 FT	10 FT
12 FOOT	75 FT	95 FT	65 FT	12 FT	3 FT	10 FT
16 FOOT	100 FT	125 FT	90 FT	16 FT	4 FT	12 FT
20 FOOT	120 FT	155 FT	110 FT	20 FT	5 FT	16 FT
24 FOOT	140 FT	185 FT	130 FT	24 FT	5 FT	20 FT

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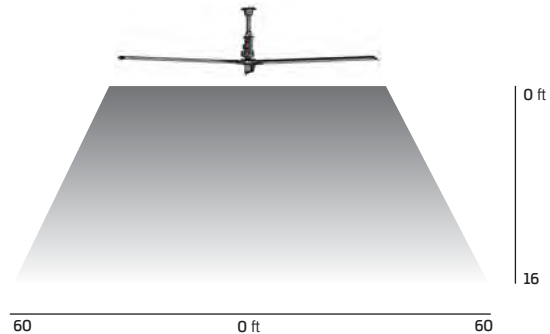
### 24' Diameter Fan

Number of Blades: 3 patented Z-Tech™  
 Blade Pitch: 20° plus  
 Minimum Blade Height: 20 FT (blade from floor)  
 Maximum Cooling Diameter: 140 FT  
 Maximum Destratification Coverage: 185 FT  
 Nominal Blade Rotations Per Minute: 51  
 Nominal Motor: 1.5 hp  
 Nominal Amps: 2.0  
 System Weight: 305 lbs  
 Maximum Spacing Between Fans: 130 FT  
 Nominal Clearance Above Fan: 5 FT



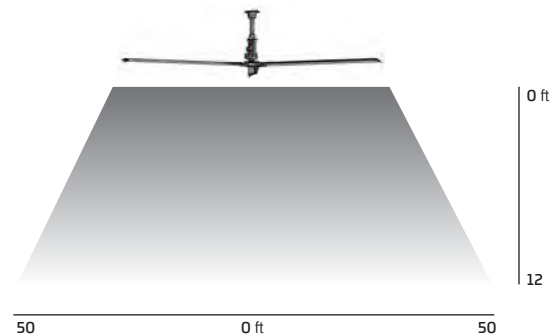
### 20' Diameter Fan

Number of Blades: 3 patented Z-Tech™  
 Blade Pitch: 20° plus  
 Minimum Blade Height: 16 FT (blade from floor)  
 Maximum Cooling Diameter: 120 FT  
 Maximum Destratification Coverage: 155 FT  
 Nominal Blade Rotations Per Minute: 51  
 Nominal Motor: 1.5 hp  
 Nominal Amps: 2.0a  
 System Weight: 285 lbs  
 Maximum Spacing Between Fans: 110 FT  
 Nominal Clearance Above Fan: 5 FT



### 16' Diameter Fan

Number of Blades: 3 patented Z-Tech™  
 Blade Pitch: 20° plus  
 Minimum Blade Height: 12 FT (blade from floor)  
 Maximum Cooling Diameter: 100 FT  
 Maximum Destratification Coverage: 125 FT  
 Nominal Blade Rotations Per Minute: 63  
 Nominal Motor: 1.5 hp  
 Nominal Amps: 2.0a  
 System Weight: 270 lbs  
 Maximum Spacing Between Fans: 90 FT  
 Nominal Clearance Above Fan: 4 FT



#### FOOTNOTE:

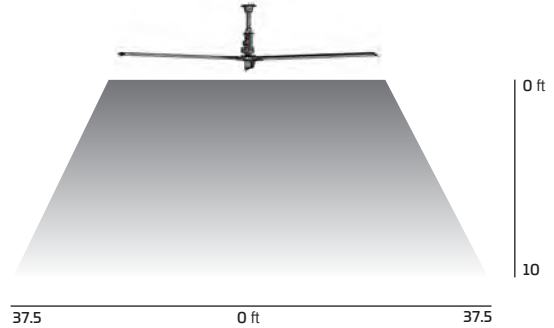
1.) Actual amps will vary depending on building power

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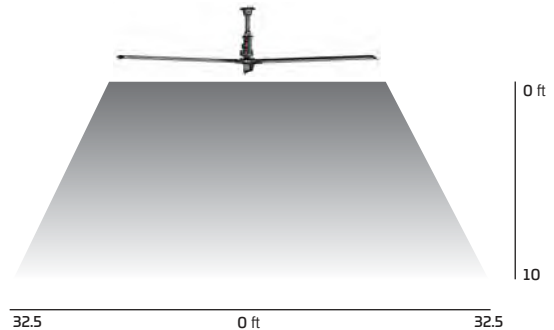
### 12' Diameter Fan

Number of Blades:	3 patented Z-Tech™ blades
Blade Pitch:	20° plus
Minimum Blade Height:	10 FT (blade from floor)
Maximum Cooling Diameter:	75 FT
Maximum Destratification Coverage:	95 FT
Nominal Blade Rotations Per Minute:	90
Nominal Motor:	1.5 hp
Nominal Amps:	2.0a
System Weight:	250 lbs
Maximum Spacing Between Fans:	65 FT
Nominal Clearance Above Fan:	3 FT



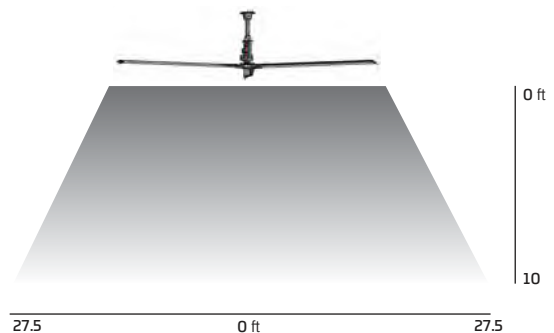
### 10' Diameter Fan

Number of Blades:	3 patented Z-Tech™ blades
Blade Pitch:	20° plus
Minimum Blade Height:	10 FT (blade from floor)
Maximum Cooling Diameter:	65 FT
Maximum Destratification Coverage:	85 FT
Nominal Blade Rotations Per Minute:	90
Nominal Motor:	1.5 hp
Nominal Amps:	2.0a
System Weight:	240 lbs
Maximum Spacing Between Fans:	55 FT
Nominal Clearance Above Fan:	3 FT



### 8' Diameter Fan

Number of Blades:	3 patented Z-Tech™ blades
Blade Pitch:	20° plus
Minimum Blade Height:	10 FT (blade from floor)
Maximum Cooling Diameter:	55 FT
Maximum Destratification Coverage:	75 FT
Nominal Blade Rotations Per Minute:	90
Nominal Motor:	1.5 hp
Nominal Amps:	2.0a
System Weight:	230 lbs
Maximum Spacing Between Fans:	45 FT
Nominal Clearance Above Fan:	3 FT



**ADDITIONAL SPECIFICATION NOTES:** 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 no closer than 3ft to sprinkler heads (observe local codes).
7. Lights may need to be spaced 2 FT or greater away from the tip of the fan blade to prevent shadowing.

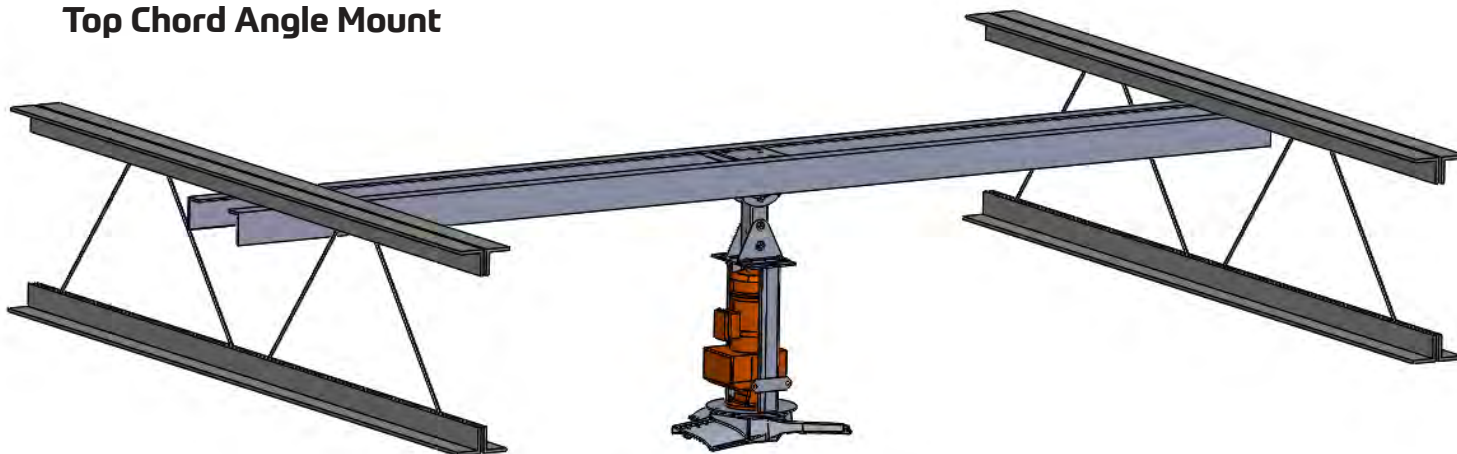
**FOOTNOTE:**

- 1.) Actual amps will vary depending on building power

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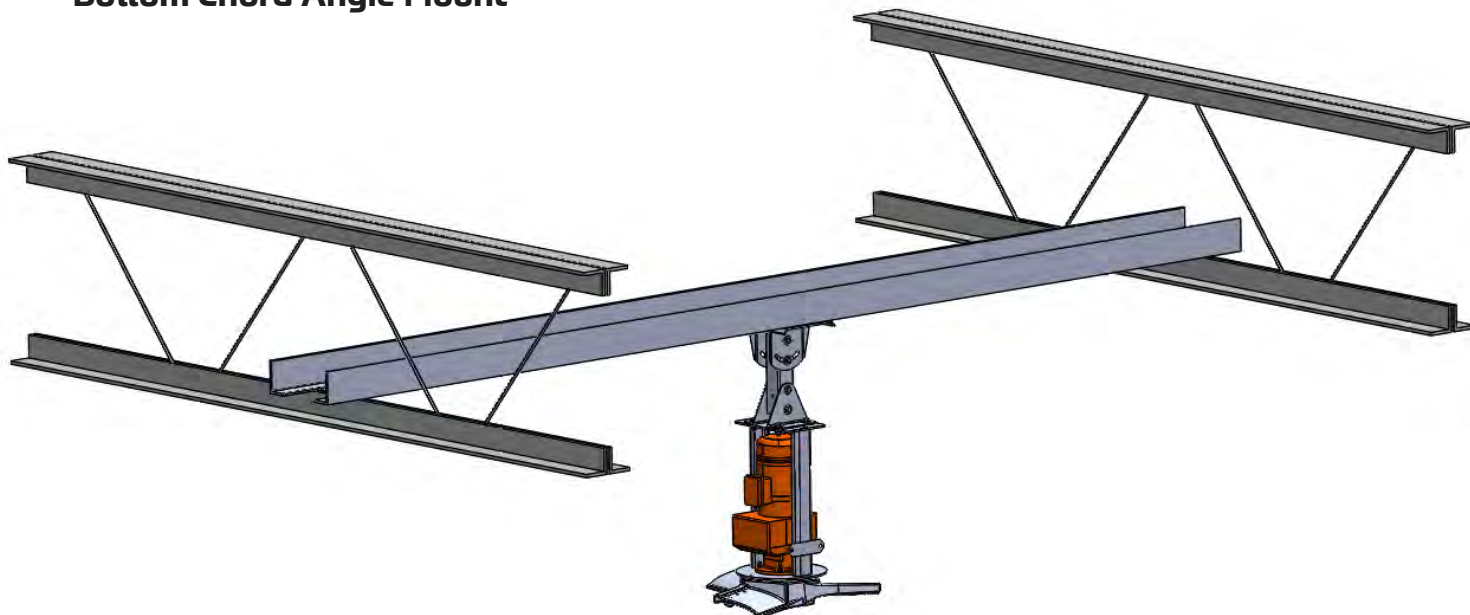
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#### Top Chord Angle Mount



- 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
- 2 FT Down Tube is required for 20 FT and 24 FT fans to achieve the 5 FT of space required above the fan.
- Required Guy Wire Kit is not shown in this drawing
- If the truss span is wider than 8 FT, four steel angles are required. Reference the **Installation & Technical Operations Guide** or contact VividAir for additional instructions

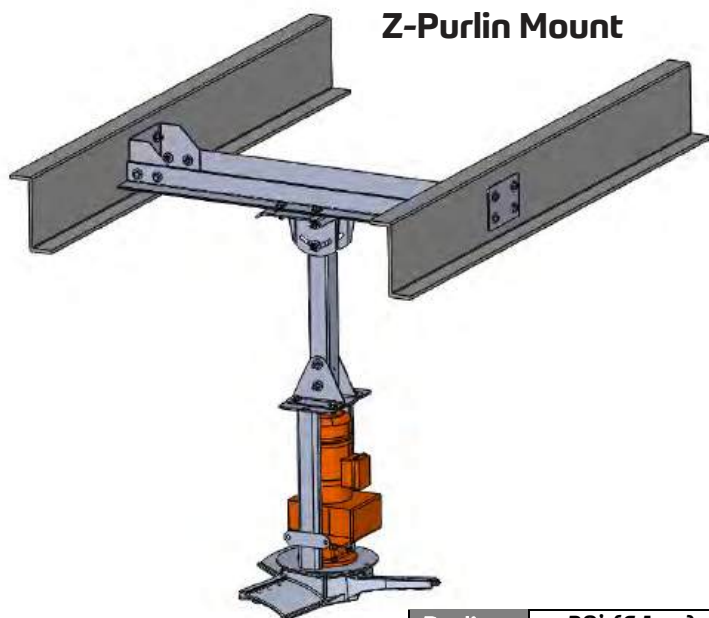
#### Bottom Chord Angle Mount



- 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
- Required Guy Wire Kit is not shown in this drawing
- If the truss span is wider than 8 FT, four steel angles are required. Reference the **Installation & Technical Operations Guide** or contact VividAir for additional instructions

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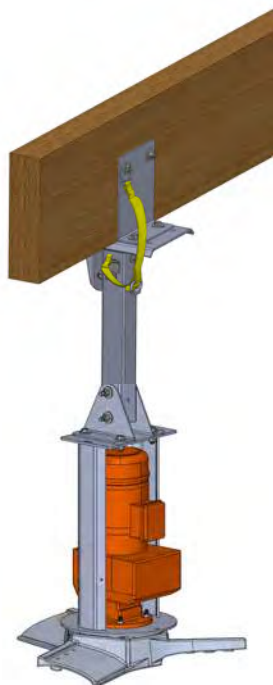
### Z-Purlin Mount

#### Z-Purlin Requirements

- The 3" x 3" x 1/4" steel angles must be supplied by the installing contractor
- Maximum unsupported length (see chart below)
- Spacing between Z-Purlins must be 5 FT or less
- Z-Purlins must be a minimum of 14 gauge steel
- Required Guy Wire Kit is not shown in this drawing.
- This mounting system may also be required to span concrete beams. Consult a local structural engineer for any concrete beam applications.

		Purlin Height		
		8" (20.3 cm)	9" (22.9 cm)	10" (25.4 cm)
Purlin Length	<20' (6.1 m)	Intended Use	Intended Use	Intended Use
	<25' (7.6 m)	N/A	Intended Use	Intended Use
	<30' (9.1 m)	N/A	N/A	Intended Use

### Wood Beam Mount



#### Wood or Beam Requirements

- 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 Mechanical Galvanized Steel Structural Flat Washer
  - (2) 1/2" - 13 Grade 8 Steel Nylock Nut
- Contact a local structural engineer for all concrete or wood beam applications.
- Required Guy Wire Kit is not shown in this drawing.

#### 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

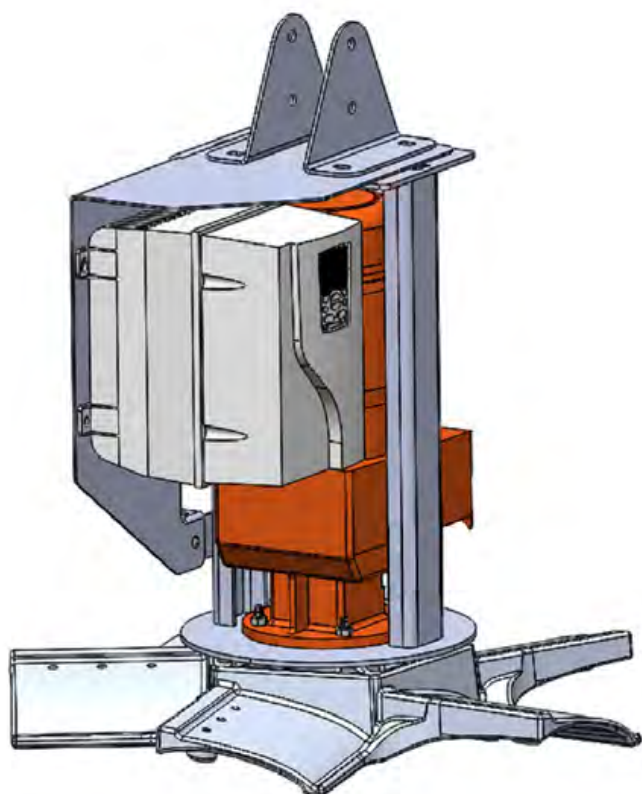


## Fan Controls **ROHS** COMPLIANT

- 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)

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- Available for an additional charge with all VividAir VFD Controllers
- Fan Mounted Control option locates the VFD Controller on a bracket mounting directly to the fan frame.
  - VividAir - Access to the VFD is available without fan disassembly.
  - 8-10 airfoil fans - One airfoil must be removed to access the VFD for service work.
- The Wall Mount Keypad option is included in the cost of this option.
- VividAir provides a 10 FT and a 100 FT data cable to connect the Wall Mount Keypad option. Longer cable is installing contractor provided.