**SECTION 23 34 00**

**HVAC Fans**

**PART 1 GENERAL**

**1.1 SUMMARY**

1. Section Includes
	1. The fan is the model scheduled with the capacities indicated. The fan shall be furnished with mounting hardware, a power cord, Ion Technology, and an infinitely variable speed controller or the Automation and Multi-Fan Kit and BAFCon digital controller.
2. Summary of Work
	1. Installation of the fan, miscellaneous or structural work (if required), field electrical wiring, cable, conduit, fuses and disconnect switches, other than those addressed in the installation scope of work, shall be provided by others. Factory installation services are available through Big Ass Fans. Consult the appropriate installation scope of work for information on the available factory installation options, overview of customer and installer responsibilities, and details on installation site requirements.

**1.2 RELATED SECTIONS**

1. 23 00 00 Heating, Ventilating, and Air Conditioning (HVAC)
2. 26 00 00 Electrical

**1.3 REFERENCES**

1. National Fire Protection Association (NFPA)
2. Underwriters Laboratories (UL)
3. Canadian Standards Association (CSA)
4. National Electrical Code (NEC)
5. International Organization for Standardization (ISO)
6. European Community (CE)
7. UK Conformity Assessed (UKCA)
8. Nationally Recognized Testing Laboratory (NRTL)

**1.4 SUBMITTALS**

1. Product Data Sheets
2. Revit Files
3. Installation Instructions
4. Schedule

**1.5 QUALITY ASSURANCE**

1. Certifications
2. The fan assembly, as a system, shall be Nationally Recognized Testing Laboratory (NRTL)-certified and built pursuant to the guidelines set forth by UL standard 507 and CSA standards 22.2 No. 60335-1 and 22.2 No. 113.
3. The fan assembly, as a system, shall be CE- and UKCA-compliant.
4. Controllers shall comply with National Electrical Code (NEC) and Underwriters Laboratories (UL) standards and shall be labeled where required by code.
5. Manufacturer Qualifications
6. The fan and all accessories shall be supplied by Big Ass Fans, which has a minimum of twenty (20) years of product experience.
7. The manufacturer shall be ISO 9001-compliant.

**1.6 DELIVERY, STORAGE, AND HANDLING**

1. The product shall be delivered in original, undamaged packaging with identification labels intact. The fan shall be new, free from defects, and factory tested.
2. The fan and its components shall be stored in a safe, dry location.
3. The control components shall be new, free from defects, and factory tested.

**1.7 WARRANTY**

1. The manufacturer shall replace any products or components defective in material or workmanship for the customer free of charge (including transportation charges within the USA, FOB Lexington, KY), pursuant to the complete terms and conditions of the Big Ass Fans Warranty in accordance to the following schedule:

|  |  |
| --- | --- |
|  Main Fan Unit | 5 years |
| † All reasonable costs of repair or replacement will be paid or reimbursed provided customer obtains pre-approval.†† The Warranty period for any manufacturer defects or flaws to surface finishes is limited to 1 year.††† All products are considered for indoor use only unless specifically specified on the product label.†††† The warranty period for ion technology parts and hardware, when incorporated into the fan system, is limited to the duration of the fan warranty period.††††† See the complete warranty for more details. |

**PART 2 PRODUCT**

**2.1 MANUFACTURER**

1. Delta T LLC, dba Big Ass Fans, PO Box 11307, Lexington, Kentucky 40575.
Phone (877) 244-3267. Fax (859) 233-0139. Website: www.bigassfans.com

**2.2 DESCRIPTION**

1. Complete Unit
	1. Regulatory Requirements: The entire fan assembly shall be NRTL-certified and built pursuant to the construction guidelines set forth by UL standard 507 and CSA standards 22.2 No. 60335-1 and 22.2 No. 113.
	2. Function: The fan shall be designed for portable use or adaptable mounting in tight industrial spaces requiring localized air movement.
	3. Air Velocity: The fan shall be capable of delivering up to 627 fpm (191 mpm).
	4. Quality: Good workmanship shall be evident in all aspects of construction. Field balancing of the airfoils shall not be necessary.
	5. Sizes: The fan shall be available in four sizes: 20 inches (508 mm), 24 inches (610 mm), 30 inches (762 mm), and 36 inches (914 mm).
	6. Color Options
		1. Black and Yellow: The fan cage shall be black, and the motor and blades shall be high-visibility yellow applied using a two-coat painting process of E-coat primer followed by industrial-grade powder coat.
		2. Midnight Black: The fan cage, motor, and blades shall be Midnight Black applied using a two-coat painting process of E-coat primer followed by industrial-grade powder coat.
	7. Electrical Input
		1. 20-inch (508-mm), 24-inch (610-mm), and 30-inch (762-mm) fans
			1. 100–120 VAC, 50/60 Hz, 1 Φ or 200–240 VAC, 50/60 Hz, 1 Φ
		2. 36-inch (914-mm) fans
			1. 110–120 VAC, 50/60 Hz, 1 Φ or 200–240 VAC, 50/60 Hz, 1 Φ
2. Motor
	1. Motor Size
		1. 20-inch (508-mm), 24-inch (610-mm), and 30-inch (762-mm) fans
			1. The fan motor shall be a 1/3 hp electronically commutated motor with electrical input of 100–120 VAC, 50/60 Hz, 1 Φ or 200–240 VAC, 50/60 Hz, 1 Φ.
		2. 36-inch (914-mm) fans
			1. The fan motor shall be a 2/3 hp electronically commutated motor with electrical input of 110–120 VAC, 50/60 Hz, 1 Φ or 200–240 VAC, 50/60 Hz, 1 Φ.
	2. The motor shall be rated IP65 for washdown cleaning.
	3. The motor shall be equipped with an 18 ft (5.5 m) cord that plugs into a standard wall outlet.
3. Blades and Cage Assembly
	1. The cage shall be available in four sizes: 25.8 inches (655 mm), 32 inches (813 mm), 38.2 inches (970 mm), and 43.2 inches (1097 mm).
	2. The blades and cage assembly shall be of washdown construction.
	3. The cage shall be OSHA-compliant and shall consist of two sections that are removable for cleaning and servicing.
	4. The fan shall be equipped with three steel blades available in four size options to correspond with the cage sizing: 20.5 inches (521 mm), 24.5 inches (622 mm), 30.5 inches (775 mm), and 36.5 inches (927 mm).
4. Mounting System
	1. The fan shall allow for multiple mounting methods to accommodate a wide variety of airflow needs and building structures.
	2. All mounts shall be made from steel.
	3. Hardware used to mount the fan must be of sufficient strength and quantity to support the weight of the fan and its method of attachment. Consult the installation guide for details. For mounting hardware supplied by Big Ass Fans, no hardware substitutions are acceptable.
		1. I-Beam Mount Kit: The I-Beam kit shall be suitable for horizontal and vertical I-beams and shall be equipped with mounting hardware, conduit, conduit clamps, a motor adapter, and a safety cable kit.
		2. C-Channel Mount: The C-Channel Mount kit shall be suitable for mounting horizontally or vertically and shall be equipped with mounting hardware, conduit, a motor adapter, and a safety cable kit.
		3. Swivel Mount: The Swivel Mount kit shall be suitable for mounting to a wall and shall be equipped with a swing arm, L-brackets, and mounting hardware.
		4. Wall Mount: The Wall Mount kit shall be suitable for mounting the fan to a wall using the provided hardware and customer-supplied mechanical anchors. The kit shall be equipped with a wall mount, swivel bracket, hardware, and a safety cable kit.
		5. Pedestal Mount: The Pedestal Mount kit shall be suitable for portable use and shall be equipped with a mount, base, hardware, and an optional wheel kit and handle to allow for safe relocation of the fan.
5. Controller
	1. The fan shall be available with either an infinitely variable speed controller or the Automation and Multi-Fan Kit and BAFCon digital controller.
		1. Infinitely Variable Speed Controller
			1. The controller shall include a rotary dial for controlling the fan’s speed.
			2. The controller cable shall be attached to the motor cable with a cord retainer to ensure a secure connection.
			3. The controller shall be rated IP55.
		2. Automation and Multi-Fan Kit
			1. The Automation and Multi-Fan Kit shall include a wiring connections box for connecting the fan to a building automation system, BAFCon controller, or both.
			2. The kit shall provide multi-fan control of up to eight fans per BAFCon controller.
			3. One connections box shall be provided for each fan that will be connected to the system.
			4. The connections box cable shall be attached to the motor cable with a cord retainer to ensure a secure connection.
			5. Each connections box shall be wired into the system using installer-supplied 18–22 AWG two-conductor shielded cable.
			6. Zip ties and an adhesive strip shall be provided for securing each connections box to a flat surface.
	2. AirEye Occupancy Sensor (AEOS) (Optional)
		1. AEOS uses a passive infrared detection to run the fan only when a space is occupied.
		2. The sensor has an effective range of up to 40 ft (12.2 m) within a 90-degree radius.
		3. LEDs display if the fan is powered on and if motion is detected.
		4. An adjustable lock knob allows for easy positioning of sensor.
		5. Fan shuts off five minutes after occupants exit space.
6. Ion Technology
	1. The fan shall be equipped with Ion Technology and shall be able to generate ions and circulate them throughout the space.
	2. The fan shall be provided with an ion generator, mounting hardware, and an electrical connections box.
	3. The ion generator shall be mounted on the inside of the front guard in the location where the most air will pass over the ion generating brushes. The specific guard rings for mounting the ion generator shall be called out in the installation instructions for each fan size.
	4. The ion generator shall include an indicator light that illuminates when the fan is connected to power to indicate the generator is powered on and producing ions.

**PART 3 EXECUTION**

**3.1 PREPARATION**

1. The fan location shall meet the electrical requirements listed in the product installation guide.
2. The fan location shall be free from obstacles such as lights, cables, and other building components.

**3.2 INSTALLATION**

1. The fan shall be installed and operated according to the installation instructions.
2. The fan cord shall not be run under carpeting or covered with rugs, runners, or similar coverings. The cord shall not be routed under furniture or appliances.
3. The fan shall not be located where it will be continuously subjected to wind gusts or in close proximity to the output of HVAC systems or radiant heaters.

END OF SECTION