**SECTION 23 34 00**

**HVAC Fans**

**PART 1 GENERAL**

**1.1 SUMMARY**

1. Section Includes
	1. The ceiling-mounted small diameter destratification fan is the model scheduled with the capacities indicated. The fan shall be furnished with mounting hardware, a power cord, and on/off switch control or the Automation and Multi-Fan Kit and BAFCon digital controller.
2. Summary of Work
	1. Installation of the fan, miscellaneous or structural metal 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. Underwriters Laboratories (UL)
2. Canadian Standards Association (CSA)
3. National Electrical Code (NEC)
4. International Organization for Standardization (ISO)
5. Nationally Recognized Testing Laboratory (NRTL)

**1.4 SUBMITTALS**

1. Shop Drawings: Drawings detailing product dimensions, weight, and attachment methods.
2. Product Data: Specification sheets on the ceiling-mounted fan, specifying electrical and installation requirements, features and benefits, and controller information.
3. Revit Files: Files provided for architectural design.
4. Installation Guide: The manufacturer shall furnish a copy of all installation, operation, and maintenance instructions for the fan. All data is subject to change without notice.
5. 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. 60335-2-80.
3. Controllers shall comply with National Electrical Code (NEC) and Underwriters Laboratories (UL) standards and shall be labeled where required by code.
4. Manufacturer Qualifications
5. The fan and any accessories shall be supplied by Big Ass Fans, which has a minimum of twenty (20) years of product experience.
6. ISO 9001 compliant

**1.6 DELIVERY, STORAGE, AND HANDLING**

1. Deliver product 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 must be stored in a safe, dry location until installation.
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.†††† 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 BIG ASS FANS® HORNET**

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. 60335-2-80.
	2. Function: The fan shall be designed for ceiling mounting in tight or low clearance industrial and commercial spaces requiring destratification.
	3. Sustainability Characteristics: The fan shall be designed to move an effective amount of air for destratification in a variety of applications (including industrial and commercial) over an extended life.
	4. Airflow: The fan shall be capable of delivering up to 5,796 CFM (120 V) or 5,820 CFM (240 V).
	5. Quality: Good workmanship shall be evident in all aspects of construction. Field balancing of the airfoils shall not be necessary.
	6. Size: The fan housing shall have a diameter of 38 inches (965 mm) and a height of 20.7 inches (526 mm).
	7. Color: The fan housing and motor shall be black, and the blades and guard shall be high-visibility yellow. The motor, blade, and guard color shall be applied using a two-coat painting process of E-coat primer followed by industrial-grade powder coat.
	8. IP Rating: The fan shall have a rating of IP55.
	9. Environment: The fan shall be suitable for installation in indoor locations only.
	10. Electrical Input
		1. 100–120 VAC, 50/60 Hz, 1 Φ
		2. 200–240 VAC, 50/60 Hz, 1 Φ
2. Motor
	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. The motor shall be capable of continuous operation in up to 104oF (40oC) ambient conditions.
	3. The motor shall be equipped with a 10 ft (3 m) power cord.
3. Blades and Guard Assembly
	1. The fan shall be equipped with a rugged housing and bottom guard to protect both the fan and users during operation.
	2. An optional top guard shall be available for installation on top of the fan housing.
	3. Fan guards shall be of welded wire construction using steel no less than 1/8 in. (3 mm) thick and shall be easily removable for servicing and cleaning of the fan.
	4. The fan housing shall be constructed of vibration damping high-density polyethylene.
	5. The fan shall be equipped with two aluminum blades with a diameter of 28.6 inches (726 mm).
4. Mounting System
	1. The fan shall be provided with two #4 galvanized steel mounting cables for suspending the fan from bar joists or from I-beams with clearance between the top of the beam and the ceiling deck.
	2. An optional Stability Kit consisting of two additional mounting cables shall be available.
	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, including cast aluminum, are acceptable.
5. Controller
	1. The fan shall be available with either on/off switch control or the optional Automation and Multi-Fan Kit and BAFCon digital controller.
		1. On/Off Switch Control
			1. The provided speed controller shall include a rotary dial for setting the fan’s recommended speed setpoint for its mounting height and occupancy profile before mounting the controller at ceiling level.
			2. The fan shall be wired to and turned on/off with a standard wall switch.
			3. The speed controller cable shall be attached to the motor cable with a cord retainer to ensure a secure connection.
			4. The speed controller shall be rated IP55.
		2. Automation and Multi-Fan Kit and BAFCon Controller (Optional)
			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.

**PART 3 EXECUTION**

**3.1 PREPARATION**

1. Fan location shall have a typical bar joist or existing I-beam structure from which to mount the fan. Additional mounting options may be available.
2. Mounting structure shall be able to support weight of fan. Consult structural engineer if necessary.
3. Fan location shall be free from obstacles such as lights, cables, or other building components.
4. Check fan location for proper electrical requirements. Consult installation guide for appropriate circuit requirements.
5. Two installation personnel may be required, along with a scissor lift or other suitable means for lifting the weight of the fan.

**3.2 INSTALLATION**

1. The fan shall be installed according to the manufacturer’s Installation Guide. Big Ass Fans recommends consulting a structural engineer for installation methods outside the manufacturer’s recommendation and a certification, in the form of a stamped print or letter, submitted prior to installation.
2. Minimum Distances

The bottom of the fan shall be at least 8 ft (2.4 m) above the floor.

The top of the fan shall be between 2 ft (0.6 m) and 5 ft (1.5 m) below the ceiling deck.

The fan shall be at least 5 ft (1.5 m) from walls.

The fan shall be at least 10 ft (3 m) from the discharge/intake of HVAC systems and exhaust fans.

Multiple fans shall be at least 10 ft (3 m) from each other when measured from center to center.

The fan shall be at least 1x the HVLS fan diameter from HVLS fans.

Installation area shall be free of obstructions such as lights, cables, sprinklers, or other building structures with the fan at least 2 ft (0.6 m) clear of all obstructions.

1. The fan shall not be located where it will be continuously subjected to wind gusts or in close proximity to the outputs of HVAC systems or radiant heaters. Additional details are in the Big Ass Fans Installation Manual.

END OF SECTION