SUPER DUTY FANS

SUPER DUTY HVLS FANS

User's Manual

Installation, Operations & Maintenance

Welcome and thank you for choosing the Super Duty HVLS Fan. This fan brings cutting-edge technology to the HVLS industry for superior performance and safety. It also offers features to make the installation and maintenance of the fan convenient.

Most parts and hardware are provided to install the fan, with the exception of the 14/4 wire which runs from the fan to the wall controller VFD. This wire must be sourced elsewhere.

This User's Manual contains basic information to help you safely install, operate, and maintain your fan.

Please read and keep this User's Manual for reference.

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IMPORTANT SAFETY PRACTICES

READ & SAVE THESE INSTRUCTIONS

Observe the following points to reduce fire hazard, electric shock or personal injury:

1. Before repairing or cleaning unit, turn off the power to the control unit and lock the repair cutoff device in order to prevent accidental power-on. If the repair cut-off device cannot be locked, place a warning sign on control unit (refer to label).
2. Turn off power to the fan before repairing or cleaning.
3. Stay alert and use common sense during installation. Do not install fan if fatigued or under the influence of drugs, alcohol or medicine. Any carelessness during installation will cause serious personal injury.
4. This unit is not suitable for persons (including children) with reduced physical, sensory or mental capabilities or lack of relevant experience and knowledge, unless they have been given supervision or instruction concerning use of the appliance in a safe way by those who are responsible for their safety. Children should be supervised at all times to ensure they will not misuse the unit.
5. If the unit swings unnaturally, stop the fan immediately and contact your dealer or manufacturer.
6. Only trained and authorized technician(s) should replace the safety suspension system and/or any installation fixture. Contact your dealer or manufacturer if you are concerned about your unit.
7. All installation procedures must be conducted by trained and authorized technician(s) in accordance with local safety construction regulations.
8. Do not use this unit in conditions where there is exposure to harmful chemicals, salt water, acid rain or other corrosive elements, excessive humidity, snow, sleet, and/or strong winds.

IMPORTANT SAFETY PRACTICES [CONTINUED]

All installations and wire connections must be conducted by qualified personnel in accordance with national regulations and standards.

1. The unit must allow a space of at least 10 feet (3.05m) from the edge of the fan blades to the ground.
2. When cutting or drilling holes in the ceiling, do not damage wires or other hidden electrical wiring.
3. Use this unit only in a manner instructed by the manufacturer. If you have any questions, contact your dealer or manufacturer.
4. Installation of large fan must be in accordance with requirements specified by this installation guide and abide by the requirements of National Electrical Code (NEC) and all local regulations. Finally, guaranteeing compliance is the users' responsibility. Not abiding by relevant regulations may cause injury to people or property.
5. Use caution and common sense when powering the unit on. Do not connect the fan to any unsafe or dangerous power supply. Do not try to resolve circuit issues by unauthorized technicians. Contact your dealer or manufacturer concerning issues about installation.
6. Any safety equipment that needs to be dismantled or cut during maintenance or component replacement, must be reassembled and returned to its original position.
7. Do not bend the fan blades during installation, maintenance, and/or repair procedures! Do not insert any obstruction that may prevent the unit from operating normally.
8. Some power tools will be required during installation. Follow the safety regulations for every tool. Do not use the tools for any purpose other than those specified by the manufacturer.
9. Warranty of HVLS fan does not cover equipment damage caused by improper installation.
10. If the unit is to be used in the United States of America, it must be installed in accordance with the following National Fire Protection Association (NFPA) guidelines:

    - The unit must be located in the center of 4 fire sprinklers
    - The vertical distance from the fan to the fire sprinklers should be at least 3 feet (91 .4 cm)
    - The unit must be integrated with the fire alarm system so that the fan is automatically shut down when fire sprinklers are activated

KEEP THIS MANUAL!

INSTALLATION CONSIDERATIONS

READ & SAVE THESE INSTRUCTIONS

1. Do not mount the fan directly under or near an HVAC supply discharge vent.
2. Ensure that fan blades are a minimum of 10' from any manned working surface and floor.
3. Ensure fan blades are safely clear of obstacles hanging from the ceiling such as lighting.
4. Avoid mounting fans directly under lights or skylights to avoid visual strobing affect.
5. Be certain to comply with all local and national codes during installation.
6. Position fan to minimize high cross winds and exposure to the weather elements.
7. Plan to mount the VFD on a wall near the electrical source you wish to use. Must be non-GFCI.

INSTALLATION

The Super Duty HVLS Fan is designed to be easy to install, and includes a universal ceiling mount. This universal ceiling mount is able to accept numerous types of ceiling mounts, including I-Beams, Purlins, Unistruts, flat surfaces, and others.

The purpose of the mount is to allow for a safe and simple installation by offering numerous hole configurations to match with standard industrial ceiling mount practices. It is the responsibility of the installer to ensure that the ceiling mount is secured to the ceiling in a robust manner, to withstand high levels of torque and vibration for many years, as well as the heavy weight of the fan itself. Torque all nuts to appropriate levels, including the I-Beam sandwich plate nuts to 20-28 ft-lbs.

HVLS SERIES

SD7
SD10

HVLS HO SERIES

SD10HO
SD15HO
SD20HO

STEP 1

MOUNT THE UNIVERSAL CEILING MOUNT.

Attach the Universal Ceiling Mount to the ceiling structure. Because of the numerous types of ceiling structures, you will need to adapt the Universal Ceiling Mount to the type of ceiling structure for the application. The weight of our largest HVLS fan is approximately 150 lbs., and the torque created by the motor is very high, so take this into consideration when deciding how to best attach the mount to the ceiling. It must be extremely robust and safe.

For applications where the down rod may protrude up through the Universal Ceiling Mount, such as for vertical spacing considerations with an open area above the mount, then position the mount to allow room for the down rod to extend through the mount and into the ceiling area above.

INSTALLATION [CONTINUED]

STEP 2
PREPARE THE MOTOR AND DOWN ROD ASSEMBLY.

On a clean flat surface, set the motor flat with the mount arm extending upwards. Run the electrical wires through the smaller inner telescoping down rod and position the down rod onto the motor mount so that the two holes are aligned. Attach the two bolts (provided) through the holes and firm up the nuts (provided), using washers (provided) on each side of the bolt and nut. Ensure the down rod is exactly perpendicular to the motor, and tighten the nuts to 20-28 ft-lbs.

Run the electrical wires through the larger outer telescoping down rod and position the down rod onto the inner down rod. Align the two holes which correspond to the desired down rod length for the application, and attach the two bolts through the down rod and affix the Nyloc nuts with washers on both sides of the down rod. Torque the nuts enough to firmly secure the down rod pieces together, but not so much as to smash the aluminum structure. It is important to use two bolts to secure the down rod connection.

STEP 3
ATTACH THE MOTOR AND DOWN ROD TO THE UNIVERSAL CEILING MOUNT.

Lift the motor and down rod assembly up to the ceiling mount, running the electrical wires up through the mount hole, and position the two down rod holes with the two holes on the ceiling mount. Put a bolt through each hole and secure with the Nyloc nuts and washers. Assure that the fan is hanging level, and tighten the nuts to 20-28 ft-lbs.

STEP 4
RUN THE ELECTRICAL WIRE FROM THE FAN.

Attach the electrical wires protruding through the ceiling mount to a 14/4 wire to run to the wall-mounted VFD. Normally a 14/4 wire is sufficient for most runs under 50 feet in length, but for longer runs a 12/4 wire is recommended. Secure the wire to the ceiling and the wall to prevent any loose wires from making contact with the fan, or any other obstacle which may damage the wire. Observe all applicable codes.

STEP 5
ATTACH THE BLADES TO THE MOTOR HUB. SEE FIGURE 2.

The blade attach arms, and the motor hub, are previously installed at the factory. Lift one blade to the hub and set the attach arm on top of the hub arm, aligning the 4 bolt holes. Install one bolt facing upwards, and start the Nyloc nut and washer until the vinyl insert engages the threads. Repeat this for the other 3 bolts, ensure the arms are aligned with each other and then tighten each nut to 20-28 ft-lbs. Attach two more blades to the same hub, in the same manner. If you have a 6-bladed fan model, then continue attaching the remaining 3 blades to the lower hub in the same manner. Spin the blade assembly slowly to check for proper operation and clearances. Double check the fan to make sure it is still level, and all nuts are securely tightened.

FIGURE 2

INSTALLATION [CONTINUED]

STEP 6
ATTACH SAFETY CABLES. SEE FIGURE 3.

A safety cable is attached to each fan to join all the blades together in case of a hub failure. The safety cable is factory installed on either the hub or the blades. For cables factory-installed on a blade bolt run the cable over the hub and attach it to the next blade using the first bolt. For cables factory-installed to the hub with a cable clamp, attach one cable eye to a blade bolt and the other eye to the next blade's bolt, then repeat for all blades to be secured to form one unit.

The guy wire cables will serve as a secondary safety cable system in case of a ceiling mount or down rod failure. If your fan does not have a guy wire set included, then a single guy wire is provided to serve as the vertical safety wire. Run this wire through the down rod and attach it to one of the guy wire loops on the top of the motor, then attach the other end to the ceiling structure in a secure manner.

FIGURE 3

STEP 7
ATTACH THE GUY WIRES.

The guy wires are provided with our HO series of fans, and are optional on the 7' and 10' models. The guy wires also serve as safety cables to secure the fan to the ceiling in case of a component failure. Should you choose to not install a guy wire system, then use one of the guy wires, or the one wire provided with the 7' and 10' fans, to act as a safety cable from a single guy wire loop to the ceiling structure, by running the cable inside the down rod to connect the motor to the ceiling structure.

Each motor assembly has a pre-installed guy wire connector just below the down rod attach area, with 4 loops. The guy wire kit includes 4 lengths of ¼" cable with a length of 10' each. Attach each guy wire to a loop on the motor connector using a quick link and turnbuckle provided. Run the cable to the ceiling at no more than a 45 degree angle, and attach securely using the cable clamps to set the cable length. Make the tension on each guy wire firm but not overly tight, which may cause the fan to become unleveled. Use the turnbuckles to tighten each wire snugly after all 4 have been secured, but do not overtighten them and raise the fan. Recheck the fan making sure it is still level, and that the cables are clear of the blades.

STEP 8
ATTACH THE HUB EMBLEM.

The Hub Emblem is the circular chrome disc with the Super Duty Fans logo on it. There is a previously-installed bolt in the center of the disc. Add the two large spacer washers to the bolt and then screw the bolt into the center hole in the motor shaft. There has been a thread lock applied at the factory to prevent this bolt from loosening, so be sure to allow for this friction when tightening the bolt securely. Check the rear clearance between the emblem and the motor for adequate space to avoid noise during fan operation.

STEP 9
ATTACHING THE VFD WALL CONTROLLER.

The VFD mounts onto a wall using the 4 mounting holes on the corners of the VFD. Securely mount the unit away from obstacles and sources of contamination like sinks, discharges, etc. and high-traffic areas where an impact could damage the unit. Remove the lower cover housing from the VFD with the screws in each corner. Connect the fan electrical wires...

INSTALLATION [CONTINUED]

STEP 9
ATTACHING THE VFD WALL CONTROLLER. [CONTINUED]

...to the VFD output panel, and replace the cover housing. If your fan uses an input of 110V, then there is already an input power cord attached to the VFD to plug into the 110V outlet (non GFCI). Connect the VFD to the input power. The display panel should light up showing that it has power. The VFD has been programmed at the factory for your fan and should not be altered in any way. Any changes to the settings will void your warranty and possibly damage the fan unit, or cause an unsafe operating condition.

PLANNED MAINTENANCE

OBSERVE THE FOLLOWING TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY

1. Maintenance must not be done on the fan, mount or guy wires while it is in operation or powered.
2. Maintenance must not be done on the fan controller while powered unless the task involves reprogramming or troubleshooting the electrical system.
3. Maintenance must not be done within a 20ft (6m) horizontal radius of the fan and 4ft (1.2m) below and none above the blade level while it is in operation.
4. While doing maintenance on the fan, mount, or guy wires, a safety barrier shall be erected at a radius of 20ft (6m) from the center of the fan.
5. The fan controller must be locked out while maintenance is ongoing on the fan, mount or guy wires.
6. All personnel working on the fan, mount, or guy wires, must wear the appropriate personal safety equipment as mandated by local, provincial and national regulations.

SAFETY PRECAUTIONS

OBSERVE THE FOLLOWING TO REDUCE THE RISK OF FIRE, ELECTRIC SHOCK OR INJURY

1. Safety cable installed as per pg. 7 in this manual.
2. Guy wire installed as per pg. 7 in this manual.
3. If installed in storage facility between racks, signs must be installed identifying fan locations.
4. The variable frequency drive has several safety devices such as current limit, motor overload, minimum and maximum speed control. The controller also features a STOP button for emergency stoppage.

HVLS TECHNICAL SPECIFICATIONS

	DIAMETER	# OF BLADES	OVERALL WEIGHT	MAX. RPM	MIN. INPUT POWER	MOTOR HP	MINIMUM CLEARANCES	COVERAGE AREA	RADIUS
SD7	7′	3	77 lbs	150	110V & 5.8A	.75	2′ Drop	9,500 ft²	45′
SD10	10′	3	93 lbs	120	110V & 6.2A	.75	3′ Drop	11,300 ft²	55′
SD10HO	10′	6	124 lbs	150	110V & 16.1A	1.0	3′ Drop	13,250 ft²	65′
SD15HO	15′	6	141 lbs	120	110V & 17.6A	1.0	3′ Drop	17,650 ft²	75′
SD20HO	20′	6	178 lbs	110	110V & 18.3A	1.75	3′ Drop	22,650 ft²	85′

STD. TELESCOPING DOWN RODS

	MIN. LENGTH	MAX. LENGTH	INCREMENTS	MATERIAL	CEILING MOUNT	STRENGTH CERTIFIED
SD7	2′	3.5′	4″	Aluminum 6063	Steel C Mount	Yes
SD10	2′	3.5′	4″	Aluminum 6063	Steel C Mount	Yes
SD10HO	3′	5.5′	4″	Aluminum 6063	Steel Universal Mount (with through hole)	Yes
SD15HO	3′	5.5′	4″	Aluminum 6063	Steel Universal Mount (with through hole)	Yes
SD20HO	3′	5.5′	4″	Aluminum 6063	Steel Universal Mount (with through hole)	Yes

OPERATING INSTRUCTIONS

PERFORM A SAFETY CHECK

1. Verify power is supplied to the VFD. The panel should show power.
2. Check for obstructions and appropriate clearances.
3. Check safety cables for proper installation.
4. Check that all fasteners are securely torqued.

STARTING THE FAN

Depending on the VFD model included with your fan, the start button is either a green button or a single vertical line button. Pressing this button will start the fan.

Adjust the speed by pressing the up or down arrows. Reverse direction by pressing the R-F button.

STOPPING THE FAN

Push the red button to stop the fan.

POWER UNIT

MOTOR

Our motor manufacturers supply us with motors built for our application. They're designed for use with variable frequency drives.

MAINTENANCE SCHEDULE

Initial Six Months

- Check for hot spots
- Re-tighten all loose electrical connections

Repeat every 6 months, or earlier if used in a highly-contaminated area.

BLADES

MAINTENANCE SCHEDULE

Initial Six Months

- Ensure blades are intact, level and clean as required

Repeat every 6 months, or earlier if used in a highly-contaminated area.

DROP/MOUNTING

The drop and mounting system is designed to prevent vibration or horizontal movement from being transferred back into the building structure. The system is easily installed in almost any building and allows fans to hang level from beams.

MAINTENANCE SCHEDULE

Initial Six Months

- Physical check of fan guy wires, re-tightening of clamps if required
- Check all nuts/bolts/clamps (missing/loose/damaged)
- Physical check of safety cable, re-tightening of clamps if required

Repeat every 6 months, or earlier if used in a highly-contaminated area.

CONTROL PANEL

Variable frequency drives provide soft start/stop, variable speed control and overload protection for the motors. The VFD also allows fan control to be automated and/or integrated with other systems. The controls come with a one year limited warranty.

MAINTENANCE SCHEDULE

Initial Twelve Months

- Check for loose/discolored wires
- Check for hot spots
- Re-tighten all loose electrical connections

Repeat every 6 months, or earlier if used in a highly-contaminated area.

NOTE Maintenance schedule is based on running 5,000 hrs/ year and is a guideline to ensure safe and continuous operation of the fan(s). In case of extreme operating (e.g. high humidity, aggressive environment or large temperature variations), shorter intervals between service is recommended. Blades must be kept clean to prevent an off-balance condition which will reduce the blade life expectancy. Contaminated areas such as Laundry and Auto Body shops require more frequent blade cleaning.

WARRANTY

THIS LIMITED WARRANTY IS SUPER DUTY FANS SOLE AND EXCLUSIVE WARRANTY WITH RESPECT TO THE HVLS FAN AND IS IN LIEU OF ANY OTHER GUARANTEES OR WARRANTIES, EXPRESS OR IMPLIED. THIS LIMITED WARRANTY APPLIES ONLY TO THE ORIGINAL PURCHASER OF THE HVLS FAN AND CANNOT BE TRANSFERRED.

Super Duty Fans warrants that this HVLS FAN will be free from flaws in material and workmanship under normal use as follows: Structural Components for 15 years, the motor for 10 years, and the VFD for 1 year, provided that the owner maintains and operates the HVLS FAN in accordance with this User's Manual. In the event that this HVLS FAN proves deficient in material or workmanship within the applicable Limited Warranty period, owner shall so notify Super Duty Fans who will provide replacement parts. Labor is not included in this warranty. This Limited Warranty does not cover any failure caused by improper installation, abuse, improper operation, negligence, or failure to maintain and adjust the HVLS FAN properly. Parts requiring replacement due to damage resulting from impact, abuse, or improper operation are not covered by this warranty. Super Duty fans DISCLAIMS ANY RESPONSIBILITY OR LIABILITY FOR ANY LOSS OR DAMAGE OF ANY KIND (INCLUDING WITHOUT LIMITATION, DIRECT, INDIRECT, CONSEQUENTIAL OR PUNITIVE DAMAGES, OR LOST PROFITS OR LOST PRODUCTION) arising out of or related to the use, installation or maintenance of the HVLS FAN (including premature product wear, product failure, property damage or bodily injury resulting from use of unauthorized replacement parts or modification of the HVLS FAN). Super Duty Fans' sole obligation with regard to a HVLS FAN that is claimed to be deficient in material or workmanship shall be as set forth in this Limited Warranty. This Limited Warranty will be null and void if the original purchaser does not notify Super Duty Fans warranty department within ninety (90) days after the product deficiency is discovered. THERE ARE NO WARRANTIES, EXPRESS OR IMPLIED, WHICH EXTEND BEYOND THE DESCRIPTION ON THE FACE HEREOF, INCLUDING, BUT NOT LIMITED TO, A WARRANTY OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE, ALL OF WHICH SUPER DUTY FANS HEREBY DISCLAIMS.

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