

Considerations for Remote Condensers in Horizontal Airflow Applications

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An essential component of any refrigeration system, the air-cooled condenser, removes heat using one or more propeller-like fans. First, it cools superheated refrigerant from the compressor. Then, it condenses the refrigerant into a liquid, subcools the liquid and returns it to the system.

Like most commercial air-conditioning condensers, the remote air-cooled condenser is typically placed outside on racks, and may be placed on the same base as the compressor. These systems are designed for vertical- and horizontal-airflow applications. When installing a condenser in a horizontal application, there are several factors that should be considered, including unit orientation, air clearance, noise, weather and electrical safety.

Orientation

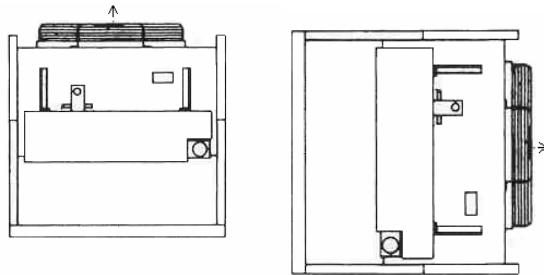


Fig. 1 Standard unit rotation

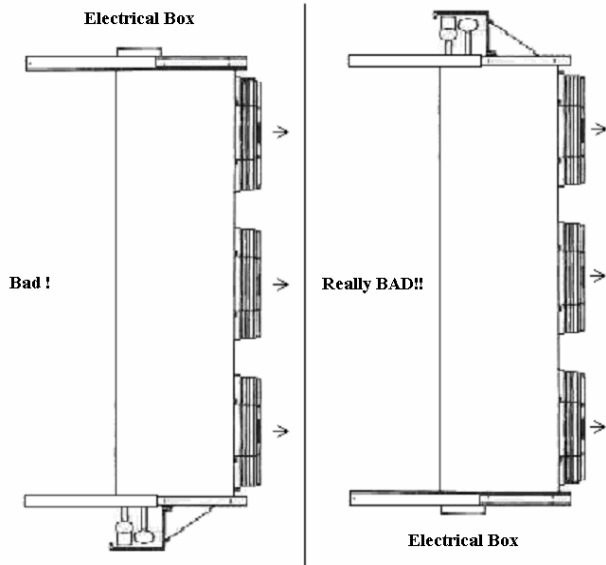


Fig. 2 Improper orientation

To ensure proper draining of refrigerant and oil, follow these steps:

1. Position the condenser in the direction of the flow. (For instance, when the unit is viewed from the header end, the condenser fan should be rotated 90 degrees clockwise, as seen in Fig. 1).
2. Make sure the electrical control box is not too close to the ground or positioned too high.
3. Make sure all tubing connected to the condenser is as close to the unit as possible.

IMPORTANT: Never use the coil headers or return bends for moving or lifting the condenser. Instead, use the unit's lifting lugs and follow the manufacturer's recommended lifting procedures.

Clearance

To ensure optimal system performance:

1. Place the condenser on a structural base that's strong enough to support the unit's operating weight. Do not place the condenser directly on the ground or roof surface.
2. Make sure walls, fences and other surrounding structures are no taller than the height of the unit.

3. Make sure there's plenty of space for discharge air to exit the unit. In order to avoid short cycling of the discharge air, walls or fences should not be any closer than 10 feet to the unit.
4. Maintain a minimum clearance of three feet behind the air-intake side of the unit.
5. Allow sufficient room for maintenance of wiring and brazing components.

Noise and Energy Savings

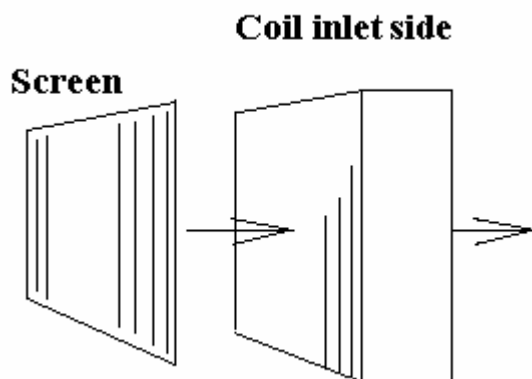
You can avoid potential noise disturbances and save money on energy costs when you:

1. Make sure the unit is not located in close proximity to windows of adjacent buildings. If the unit must be placed near a neighboring building due to spatial or other constraints, you should take measure to control noise, such as installing a barrier wall.
2. Make sure unit is installed in compliance with local noise ordinances.
3. Consult a building code authority or acoustical expert when noise is a particular concern.
4. Choose condenser options such as variable speed motors and specialized fan blades for quiet operation and increased energy savings.

Weather/Electrical Safety

Ways to protect the condenser from extreme weather conditions include:

1. Use hardware cloth or chicken wire to cover the airside of the coil, but make sure the screen can be easily removed for routine maintenance.



2. Consider reinforcing small single fan units (which are vulnerable to high winds) with additional strapping or supports. (When designing mountings, be sure to consult an engineer familiar with local building codes.)
3. Remove the electrical box from the unit and mount it to a surface with a normal, or up orientation. Alternatively, create a rain shield that can be placed over the entire length of the box.