DUCTLESS MINIS

A 21ST CENTURY SOLUTION TO COMFORT CHALLENGES

Ductless Minis: A 21st Century Solution to Comfort Challenges

Modern Options for HVAC with Old Fashioned Comfort and Savings

With rising demand for energy efficient HVAC and precise customization options, pundits will tell you these versatile units are the right solution for many office, residential or outbuilding settings. For security kiosks, manufactured buildings, or any other outbuilding not accessible to centralized, ducted systems, they are also seen as a lifesaver.

However, there are real pros and cons to these systems. They're built to appliance standards rather than as structural elements, and their designs change so frequently that spare parts soon are hard to obtain. They're very "21st century;" efficient and flexible, but expensive and disposable. Let's take a closer look at their possible benefits and potential drawbacks, below.

Pros of Ductless Mini Splits

1 Installation Is a Cinch

As you probably already know, traditional HVAC systems require extensive ductwork. For older residences or buildings, this can present significant problems when it comes to installation. In contrast, ductless mini splits only need a small hole about 3 inches in diameter to connect their indoor and outdoor units. This simple fact makes these systems extremely attractive for structures without existing ductwork, or ones that feature older or even non-traditional architecture. And in a residential addition or commercial building renovation where extending ductwork is impractical, it's a no- brainer. With less labor required and little disruption to your workday, mini splits do not require major structural changes in order to install.

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2 Energy Efficient to the Max

Ductless mini splits have a reputation for superior energy efficiency when compared with traditional HVAC systems. Why? The answer is in three parts. First, with mini splits, there are obviously no air leaks or breaches in any ductwork, problems that can result in up to a 30% energy loss in traditional heating and air conditioning setups. Mini splits eliminate this issue entirely.

Secondly, many ductless mini splits use inverter compressors. This kind of compressor adjusts its speed to maintain a consistent temperature. It slows down and speeds up in response to how much cold air is needed. This translates into far less energy waste, and thus less cost for its operation.

Finally, with its simple design, each indoor unit of a ductless mini split can be controlled independently. A room's occupant uses it to cool or heat only the space they are occupying. Again, this means less energy waste and ...you guessed it, lower utility bills as a result.

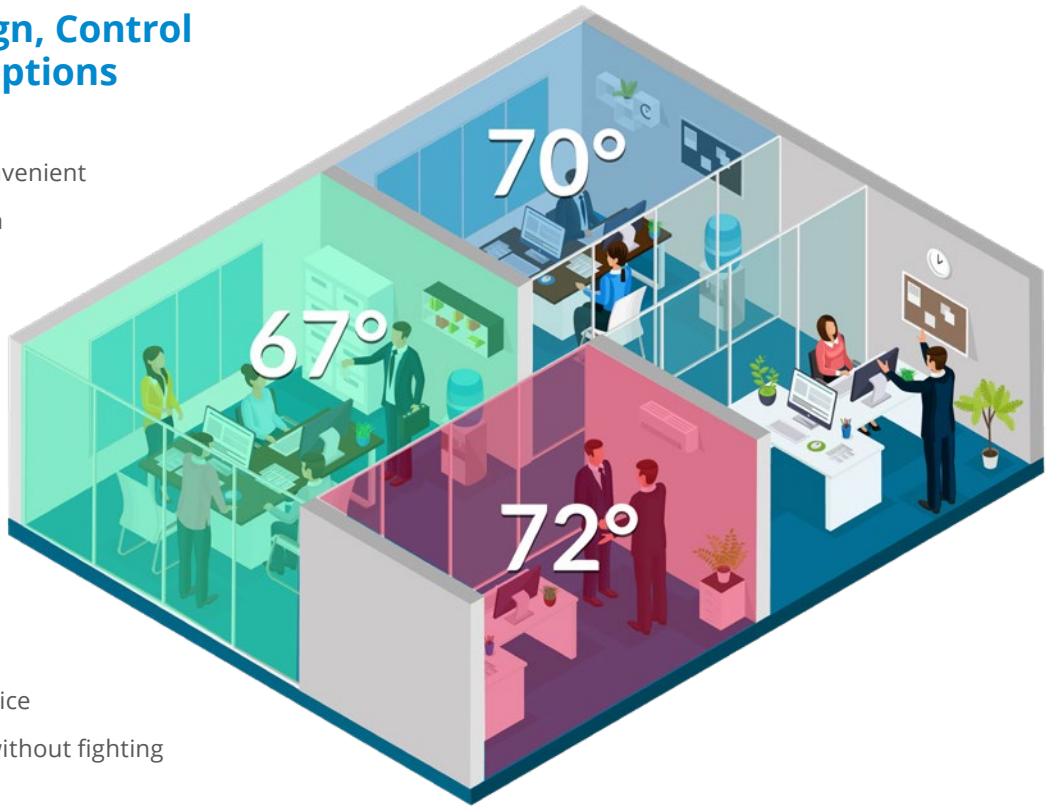
3 Air Quality Improvements

Without ductwork, these systems eliminate the risk of dust, allergens, and other irritants getting into your equipment and subsequently being blown around inside your building or residence. Many mini split systems offer filtration options that can effectively remove particulates and even some organic material from your air. With dehumidification features too, this translates into major benefits to individuals with allergies or respiratory issues.

4 Quiet Indoor Comfort

Ductless mini splits are usually very quiet. With an outdoor compressor that makes far less noise than a traditional one and no ductwork to clank or whoosh, these systems run almost silently within your commercial building or residence.

5 Flexible Design, Control and Zoning Options



Mini splits are obviously quite convenient when it comes to placement. Each indoor unit comes with its own thermostat, allowing for precise temperature control without wasting energy on areas of your office or commercial building that no one is occupying. One employee may prefer warmer temperatures, while someone down the hall prefers it ice cold. Both can stay comfortable without fighting over a single thermostat.

Mini splits also are perfect for residential additions, as well as converted warehouse or work spaces where extending ductwork would be far too costly and impractical. Without the bulk and design demands of a conventional heating and cooling system, mini splits can be placed in rooms where space comes at a premium. They can be placed on a wall, ceiling or even flush mounted into a drop ceiling.

Mini-split systems also offer Wi-Fi options, allowing for remote control through smartphones or other smart technology systems. As with a regular smart thermostat, this feature allows users to adjust temperature settings remotely, reducing energy use and ensuring comfort upon arrival.

So What Are the Cons? There Are a Few.

Given all these advantages, you may be wondering why we don't recommend ductless mini splits for every commercial client or residential customer. In reality, these work really well for some situations, but not in all. Let's take a look at some of the reasons why ductless mini splits may not be for you.

1 More Expensive Initial Purchase

There's no way around it. Ductless mini splits are more expensive to purchase when compared to traditional HVAC systems. On average, initial costs can in fact be up to 30% more than conventional heating and air conditioning equipment. However, there is no ductwork to buy, nor to pay to be installed. Additionally, there are some major tax credits and incentives now offered for both commercial building and homeowners, so check with your tax professional to find out more. You'll also notice long term energy savings from using a ductless mini split system, which can mitigate your initial investment.

2 Maintenance Is an Issue

Let's cut to the chase. Ductless mini splits tend to wear out sooner than conventional HVAC systems. With changing designs, it can sometimes be difficult to find the right replacement parts, too. They also require significant maintenance to function well. The reusable filters inside the mini split must be cleaned monthly to avoid breakdowns or a decrease in air quality. Professional servicing is also required periodically to ensure all components are in good working order.

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3 Refrigerant Leak Issues

Ductless mini splits use long refrigerant lines connecting the indoor unit to the outdoor compressor. These can develop leaks over time. For potential commercial or residential customers interested in multiple units, this is a future expense to be considered when evaluating system benefits.

4 Limited Heat Capacity in Extreme Cold

While there are plenty of ductless mini splits installed around Lake Tahoe or any other California ski resort, it is important to note that these systems sometimes have reduced heating capacity in areas with severe cold. Those living in North Dakota or Alaska should thus have a backup system in place, but here in Southern California, it is less likely to be an issue.

5 Drainage Is Important

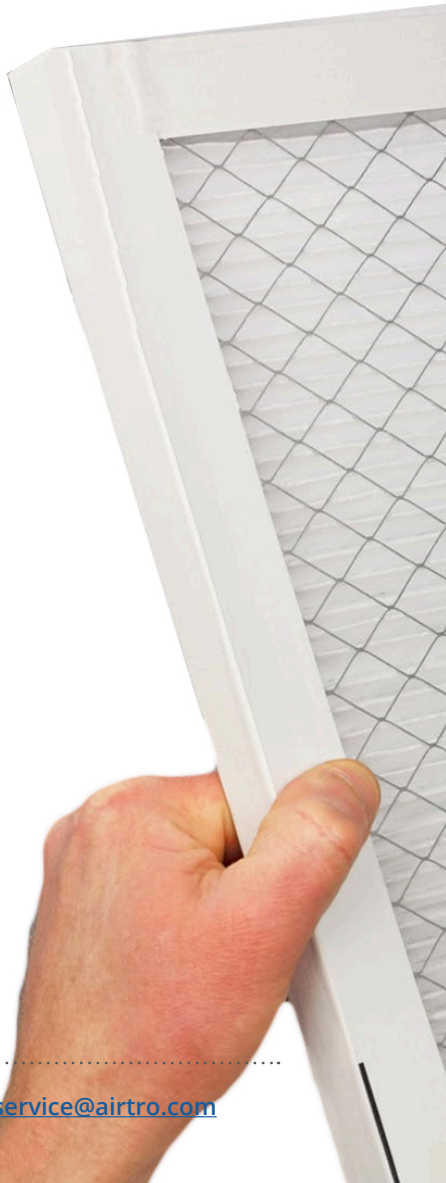
Mini-split systems produce condensate during operation, which obviously needs to be drained correctly. This may require installing a condensate pump in some situations, adding to the complexity and cost of the installation. Consult your HVAC professional for more information.

6 Air Filtration Options

Compared to central HVAC systems, mini-splits have fewer options for advanced air filtration. While they do offer significant air cleaning capabilities, these systems may not be as effective as whole-building air purification options that can be integrated into central HVAC equipment.

7 Long Term Viability

There's no way around it: ductless mini splits wear out more quickly than conventional systems. They're built to appliance standards rather than as structural elements, and their designs change so frequently that spare parts are difficult to find. Efficient and offering greater flexibility in many ways, they are also expensive, and disposable.



Comparing Mini Splits to Traditional HVAC

Ductless Mini Splits		Traditional HVAC
		
Easy, minimal disruption	INSTALLATION	May not be practical depending on home or building design, may require extensive ductwork repairs or renovation
Excellent, no ductwork leakage or energy loss	ENERGY EFFICIENCY	Moderate; potential ductwork leaks
Ideal customization, zoning options	DESIGN AND ZONING OPTIONS	Possible but may require additional equipment
More expensive	INITIAL COST	Less Expensive (excluding ductwork)
Monthly filter cleaning, regular system maintenance required	MAINTENANCE	Less frequent filter changes, regular system maintenance required
Good, but limited options	AIR FILTRATION	More advanced options available
May struggle in very cold climates	HEATING IN EXTREME COLD	Generally more effective

In summary, the ductless mini split system is here to stay. With multiple, clear advantages for certain situations, their limitations also present challenges for others. Consider your residence or commercial building's layout, your budget and overall system needs before moving forward. As always, the HVAC specialists at Air-Tro are here to help. Air-Tro is always committed to finding you the best solutions for energy efficiency, peak performance and total indoor comfort.

Robert Helbing, PE
President, Air-Tro, Inc.
1630 S. Myrtle Ave., Monrovia, CA 91016
626.357.3535 | airtro.com
service@airtro.com

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Robert Helbing, PE, is President of Air-Tro Heating and Air Conditioning Company. He is a Caltech-degreed aeronautical engineer (yes – a rocket scientist!), as well as a 4th generation contractor and 3rd generation engineer. He is a past-president of the Institute of Heating and Air Conditioning Industries (IHACI); Air Conditioning Contractors of America (ACCA) Contractor of the Year, 2011; and a 15-year member of Excellence Alliance Industries, a membership organization committed to the development and improvement of HVACR companies nationwide. Bob is also a founding member and past committee chair for the Western HVAC Performance Alliance, a council of stakeholders in the Energy industry which includes utilities, regulators, manufacturers and contractors. He currently serves on two committees for the WHPA: Commercial Quality Installation and the Existing Buildings Energy Efficiency. He can be reached at 626.357.3535 and bobhelbing@airtro.com.

For more information, visit our commercial section on the web at **airtro.com/commercial**

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