

DUCTLESS SYSTEMS

The Ductless Difference



Carrier offers a complete line of ductless HVAC systems designed to make any space more comfortable. Our Carrier ductless systems are compact, not to mention easy on the eyes. When it comes to creating comfort, one size or system may not fit all, but one name does: Carrier.

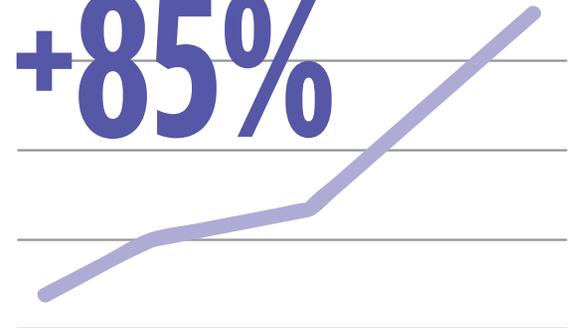


33%

As much as one third of conditioned air never reaches its final destination. Plus, ductwork can trap mold and other volatile organic compounds.

Ductless system sales have increased 85 percent from 2009-2013.

+85%



19

With 19 products, Carrier has a full line of ductless offerings to choose from.

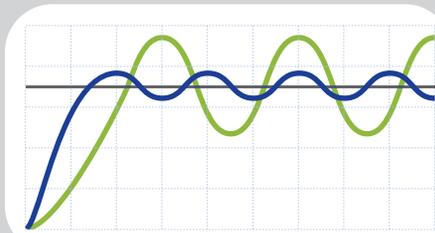


16 of those products are ENERGY STAR® qualified models.

Carrier Inverter Technology

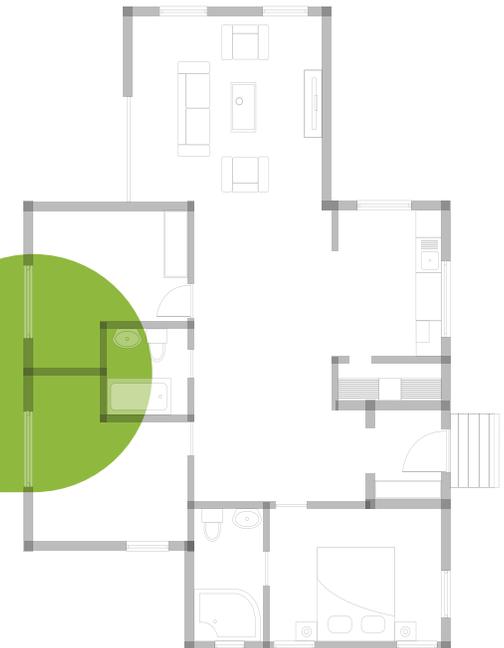
Air-to-air heat pumps can offer undesirable heat performance. Inverter technology will supply constant and comfortable temperature with quieter operation and no untimely start-ups. Compressor speed adjusts to heating or cooling needs.

Variable speed equals savings since the compressor does not operate continuously at maximum capacity.



- Ductless Inverter
- Non-Inverter Ductless
- Setpoint Temperature

Don't waste energy and money by heating or cooling an unoccupied room.



Carrier Ductless products featured on *Graveyard Carz* television series



**Contractors are using Carrier ductless products
to increase their market share**



Explore how Marshall's applied Carrier Ductless to solve a unique heating problem



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Ductless Systems Making a Positive Impact in U.S. Market

Ductless HVAC units — commonly referred to as ductless, multi-split, or mini-splits heat pump systems — are immensely popular in Asia and Europe, where smaller living space leaves less room for ductwork.

Ductless technology is relatively new in the U.S., first gaining widespread commercial appeal in the early 2000s. But their ultra-efficient operation, small equipment size, simple installation practices, zoning capabilities, and clean air delivery are making ductless heat pumps highly desirable in the states.

Ductless heat pump sales increased 85 percent from 2009 to 2013, according to Navigant Research's 2014 HVAC Market Update. The sector is poised for sustained double-digit growth as the technology continues to penetrate American residences and buildings.

Carrier's® 19 ductless product offerings, including its Toshiba Series, Infinity® Series, Performance™ Series, and Comfort™ Series systems, set the standard in the American market, as contractors and customers look to replace



antiquated boiler systems or provide spot heating/cooling or zoning solutions.

No Need for Ducts

Like standard air-source heat pumps, ductless systems have two main components — an outdoor compressor/con-



denser and an indoor air-handling unit. A conduit, housing the power cable, refrigerant tubing, suction tubing, and a condensate drain, links the outdoor and indoor units. Multi-zone systems can have as many as four indoor air-handling units (for four zones or rooms) connected to one outdoor unit. The number depends on how much heating or cooling is required for the building or each zone. Insulation levels drive the heating or cooling requirements. Occupants save energy and money by only heating or cooling an occupied room.

Ductless systems offer solutions in building situations where ductwork is lacking. They also provide a practical solution where structural barriers prohibit installing ductwork.

“A lot of homes in our area were equipped with boilers and there is really no good way to run ductwork throughout the house,” said Mark Amsdill, vice president, Koch & White, Ann Arbor, Michigan. “Lots of tenants are looking for more heat than what was planned for in a specific area and ductless units offer a viable solution. They’re nice, quiet, heating and cooling sources.”

According to research courtesy of the U.S. Department of Energy’s (DOE’s) Office of Energy Efficiency and Renewable Energy, as much as one-third of conditioned air never reaches its final destination due to leaky ductwork.

“You don’t have to worry about leaky ductwork with duct-



less units,” said Jeff Baumann, president, Baumann & DeGroot, Holland, Michigan.

“The air comes directly from the air handler and never travels through dirty ductwork. You can heat or cool a specific area or room, so you’re not wasting energy heating or cooling interior space you’re not using.”

Jerry Woodberry Jr., owner, Jerry’s Air Conditioning and Heating in Florence, South Carolina, said ductwork — no matter how well maintained it is — serves as a breeding ground for IAQ issues.

“Ductwork is chock full of mold and other volatile organic compounds [VOCs], especially in the cooling season,” said Woodberry. “This is very problematic for those dealing with allergies. There’s no better fix than to eliminate the ductwork altogether.”



Alternate Applications

Amsdill said ductless heat pumps are versatile comfort solutions. This is especially true in unconventional applications and rooms where comfort systems were once considered a luxury.

“As companies grow their technology needs, a lot of people are converting extra offices into data or server rooms,” Amsdill said. “This is a major trend that has been growing exponentially for the last 15 years. Ductless is the most popular choice to keep these areas and devices cool.”

In addition to keeping data secure, Amsdill said ductless systems are effective in keeping kitchen workers cool and jewelry stores quiet.

“Consider a 1,200-square-foot commercial build out. The owner may have envisioned this space as a jewelry



store, where a ductless unit could be used to provide a cool, comfortable, quiet climate. Residential Carrier Toshiba Series units don't exceed 31 dB, which is the equivalent of a whisper in a library," he said.

"What happens if a pizza parlor rents the building? The kitchen is crammed and the heat is insurmountable. Ductless units provide comfort for the cooks and help keep the kitchen equipment cool."

Jerry's Air Conditioning and Heating has installed ductless systems in historical residences, server rooms, mechanical rooms, elevator rooms, and even behind the scenes at a

local television station. Woodberry Jr. said ductless offers contractors and occupants a variety of options.

"In historical homes, the structure or wood composition must remain intact. Ductless units allow you to hide the majority of the line sets and not significantly alter the home," he said. "Mechanical rooms and data-sensitive spaces continually create heat. Ductless systems do a better job cooling this equipment than traditional residential and commercial units."

In Michigan, residents are eager to sit in the sun, regardless of the outside temperature. Baumann said ductless units offer a comfortable way for Michiganders to enjoy the crisp autumn and spring sunshine.

"People are itching to get outside any time the sun is out. To accomplish this, many are building sun porches or all-season rooms. If someone builds a 300-square-foot sun porch, their existing HVAC system is probably not adequate enough to handle that extra load. Rather than zone one particular room in a house, ductless offers an easier, more affordable solution, in a lot of cases."

Kent Tong, president, Tong's Air Conditioning, Heating, and Plumbing Inc., Tiffin, Ohio, said he's installed ductless units in five churches over the last several years.

"We designed a very interesting system for St. Paul's United Methodist Church, which was the first building in the U.S.



designed solely with electricity from the very start,” he said. “Thomas Edison even donated the electric chandelier for the building. The ductless units were a perfect fit for the space.”

Tong said his company purchased a portion of the Tiffin Edison Electric building and now operates its office within the space.

“We constructed our own working Carrier® Ductless show room there. Customers can walk around the ductless display and feel it, hear it, and truly experience everything it has to offer. Many times they question if the system’s even running because of how quiet it is.”

A Trusted Name

Koch & White has been providing customers Carrier products since the 1960s. While the company has trialed other brands since then, Amsdill and crew have always returned to the Carrier name.

“Carrier’s research and development trumps everyone else’s. They invented Puron. When everyone else was struggling to get on the bandwagon, they led the charge,” Amsdill said. “It’s a good organization with good training that offers a time-tested and customer-trusted product.”

Baumann said Carrier’s Ductless products have grown immensely over the last five years. “We’ve seen improvements in nearly every aspect of the Carrier unit,” he said.

Woodberry Jr. termed the Carrier Ductless systems efficient and accessible. “The equipment — much like all ductless equipment — may be a touch more expensive, but the labor cost is less expensive,” he said. “Nine times out of ten, our customers are very happy with this investment.”

The Road Ahead

Tong, who boasts 20 years of ductless experience, traveled to Europe to learn more about ductless operability.

“We jumped on the Carrier Ductless bandwagon as soon as they were available and we’ve found them to be very mar-

ketable,” he said. “They’ve been a great addition to our business. Without a doubt, this is one of the fastest-growing sectors of the HVAC industry.”

Amsdill also anticipates immense ductless growth over the next several years.

“We have a lot of space here in our Michigan basements, but that isn’t the case in Japan and in other areas across the world,” he said. “As American living quarters become smaller, more efficient, and more economical, these units will become more practical.”

The advent of inverter compressor technology will propel ductless HVAC’s reach, said Amsdill.

“Inverter technology is going to usher in the biggest change, as far as our industry goes. Air-to-air heat pumps, in residential settings, offered undesirable heat performance factors. The inverter will speed the pressure up and offer performance that competes with geothermal units. I believe the government may take notice and begin offering tax credits, which could help spur sales as well. It’s an exciting time to be involved with ductless in the U.S.”

Woodberry Jr. agrees that inverter technology may help ductless gain mainstream appeal.

“Most ductless systems are rated to go down to 0°F. Most residential systems stop at about 35°F because of



compressor slugging, which causes the refrigerant to get too cold, causing reliability issues,” he said. “The inverter helps overcome that and helps get the oil back to where it needs to be. This is the cutting-edge technology that will drive the market demand for these systems. As energy prices go up, inverter technology will help keep prices down.”

Baumann agreed, “If you’re interested in ductless; there is no better time than now. When we first got involved, five years ago, we were sort of the guinea pigs. Now is the perfect time to jump in with both feet.” ■

Training Essential for Contractors Employing Ductless

Carrier® has experienced double digit increases in ductless market share nationwide. The ductless industry is also experiencing continued robust growth.

Contractors like Travis Henzler, co-owner, **Rite Temp Heating and Air**, Pelion, S.C., are see the ductless market growing every day.

He cites a 10 percent increase in ductless applications every year for the past four or five years.

Recognizing the market's growth potential, **Carrier** expanded its ductless offerings at the start of 2014 to include many ENERGY STAR®-qualified models in both heat pump and cooling-only Carrier Ductless systems.

With the improved product offerings, proper training is vital for contractors.

"I would highly recommend to anyone that before you touch one [ductless product], you better get trained," said Henzler, who, along with 10 of his employees, has completed ductless training, courtesy of Carrier. "It was a very informative, hands-on training. At the beginning, it is a little





intimidating because it's new, but once you see what's going on and put your hands on it, it's not that bad."

Rite Temp's 26 years of installing ductless speaks volumes. Henzler said the units' easy installation saves money on labor.

"Ductless is the future of heating and air," he said. "I don't think it's going to happen in the next year by any

means, but, if we're growing that rapidly, we feel the industry will, too. So, my advice to other contractors: make sure you get training."

Training On Demand

Mike Leyrer, technical support specialist, **Carrier® Ductless & VRF** division, travels around the country offering ductless installation, service, and application training. He applies that knowledge developing training for Carrier's newest product line.

"Anybody who needs training in the field, we'll go out and teach them about a new product or an existing product," he said. "Some of our distributors have labs and we'll go out and do hands-on training with contractors. We travel and offer training all over the U.S. and Canada. We have fixed trainings four or five times a year for service managers for each region, but a lot of it is by request, which is pretty convenient for our customers."

Training is on demand and customized to the customers' needs with sessions running between four hours and a full day. Additionally, some of Carrier's programs offer continuing education credits, which contractors will see more of in the future, according to Leyrer.

"Ductless is such a growing market, it's used in new con-

struction and existing homes, so it's really no different than installing a regular residential system," Leyrer said. "You still have your outdoor unit, your piping, your control wiring, your power wiring in the indoor unit — there's really nothing to be afraid of with these products. It's all very user-friendly.

"If somebody is intimidated by a product, we have no problem coming out and conducting training for a group of people or individual dealers. We try to make customers feel as comfortable as possible when installing our products. That's what we want in the field. We want somebody who is knowledgeable about the product and feels comfortable installing it, that's our main goal."

To help contractors feel comfortable with the product, Carrier® Ductless & VRF has a sales team as well as a technical service team for the West coast, Southeast, and Northeast. The manufacturer also offers in-house product support.

Dependable Product

Carrier's product support is the reason Kenny Wardlaw, owner, **Cool Care Heating & Air Inc.**, Columbia, South Carolina, works with the manufacturer.

"I've never had to wait more than a day for something from Carrier. They also have a live person answering the help line who will walk you right through the diagnostics."



Wardlaw started his business 15 years ago with his wife and sold his first ductless system in 2004. Since then, he's installed hundreds of ductless systems and has been through ductless training with multiple manufacturers.

"Carrier had one class on how to design and how to sell



the product and another on how to repair it. I thought it was good to separate those because they're two completely different things. If you have a problem with it not working, that's completely different. The most important thing is to get them designed and set up right. If you do that, then they work great. We've had very little trouble with them."

Contractors may initially find ductless products intimidating, Wardlaw acknowledged, but the training is designed to create installation and repair experts. Five of his service technicians and two installers have completed ductless training.

"Some of those units have four circuit boards in them.

As soon as I saw the first one, I thought, 'Oh my goodness, what will you do if you walk up and it's not doing anything? Where do you start?' The board is actually very simple. And, usually, they're very dependable, unless they were struck by lightning or encountered a power surge or something. We don't really have problems with the electronics on them. Most of the problems are due to refrigerant leaks from the flares or not pulling a good vacuum — just not getting a good refrigerant flow — that's the most common problem. And they show you exactly how to do all of that in the training."

Wardlaw said HVAC contractors should not let a lack of familiarity with ductless systems deter them from integrating the products into their portfolios.

"Don't miss the boat. These things are here to stay. There is a great market for them. One of the things I like best is they can be used for any kind of thing — it's really just up to your imagination on what you can design... These units are super-efficient, quiet, and dependable. They work great. Everyone we've put in, the people end up loving them. It's really a good product."

Carrier's ductless training programs are coordinated through its distributors. For more information, visit www.carrierductless.com. ■

Versatility, Customer Awareness Boost Ductless Sales

Over the past few years, ductless technology advancements have yielded incredibly efficient, extremely quiet, and very versatile products. These technological improvements, coupled with increased consumer awareness of the technology, have propelled the market in recent years. HVAC contractors that have added ductless services consent that mini splits have proven to be a lucrative complement to their businesses that increases their bottom lines and boosts their reputations as top-tier contractors on the forefront of HVAC technology.

Filling a Need

For many contractors, ductless systems provide affordable, effective solutions to their residential customers' most common problems. Sam Smith, sales manager, **Carolina Cool Inc.**, Surfside Beach, S.C., pointed to the challenging task of conditioning Carolina rooms — enclosed multi-purpose porches that can be occupied throughout the year — as an area where ductless can be an effective option.





“The ductless systems we put in are the Carrier® Toshiba Series,” Smith said. “Years ago, we partnered with a builder who made Carolina rooms, and, instead of trying to pull ductwork off the existing system — which would make [the unit] too small — the ductless systems were very economical and easy to install in that application.”

Smith added that ductless can condition just that one room, which saves a homeowner money in energy costs.

Carolina rooms are just one application where ductless shines. It is also a good solution “in many different applica-

tions, such as three- or four-season additions, rooms over unheated garages, man/woman caves, computer rooms, and homes with hot water heat systems,” said Luke Vanderhill, co-owner, **Nieboer Heating and Cooling Inc.**, Parchment, Michigan. And, due to its ability to both heat and cool, Vanderhill said ductless is “good in all areas” and climates.

“You can use a combination of a high wall mount or an in-the-ceiling cassette if you have glass on all three sides and don’t have any wall space,” Smith added. “They truly are a good option.”

Homeowners who have boiler heat also often choose ductless to replace or supplement their existing systems, said Michael Copp, comfort specialist, **AAA Service Network Inc.**, Howell, Michigan. “They have the choice of installing an air handler with an air conditioner and a bunch of ductwork, which is typically in the attic. We’d have to put registers in every room and provide them another system. A ductless system is often a better choice.”

Advantages of Ductless Technology

One of the biggest advantages of ductless technology is its versatility. A lack of ductwork makes it a strong option for additions and porches. Plus, installation is typically faster and less involved than other systems.

“As a contractor, it is very easy to install,” Copp said. “It’s easier than ductwork or an attic system. It saves a lot in labor, and it is very profitable.”

Installation doesn’t take a large crew, either. “Typically, we can do an installation with two guys,” Copp added.

Additionally, the electrical aspect of installation is simplified, Smith said. “You only need to power the outdoor unit because the indoor unit gets its power from the outdoor unit.”

Energy efficiency is also a major selling point for contractors. Smith pointed to an installation his company did

at a ballpark in Myrtle Beach, South Carolina. “We did the restroom and concession stand with one outdoor unit and multiple indoor units, and when they’re not using it, they don’t turn it on,” he said, adding that homeowners can do the same in their homes.

Still, for some customers, the biggest advantage is the peace and quiet that comes with ductless products.

“The outdoor units are very quiet, and so are the indoor units,” Smith said. “You don’t even hear them. It’s been a great option for us. And they run up to 20+ SEER.”

“Years ago, when I did service, I remember going to a retired couple’s home,” Copp said. “When I was doing a tune-up, I noticed streamers were taped to the ductless indoor unit. I said, ‘Hey, someone had a birthday!’ He looked at me like something was wrong with me, and said, ‘no, that’s so I know when it’s on.’”

Finally, falling prices in recent years have made ductless an affordable option for more customers than ever before. “When they first came out, they were \$4,000-\$5,000,” Smith said. “Now, you can get them for \$2,500, including installation.”

How to Sell It

Selling ductless has become easier over the years as efficiency has improved, prices have fallen, and “customers have

become more and more familiar,” Vanderhill said. “Thanks to the Internet, many customers are coming directly to the contractors asking about ductless.”

“Today’s customers are much more educated, and they do a lot of research to make sure they’re getting the best value,” Copp said. “They’ll ask us how we’re sizing it. ... When they say that, I know they’ve done a lot of research.”

For customers not yet familiar with ductless, Copp said the key to selling it is to emphasize its versatility and numerous advantages. “The selling points are that they’re small, extremely quiet, and variable, so they modulate their output, whether it is heating or cooling,” he said.

And for contractors who haven’t yet added ductless to their product and service repertoire, Smith suggested starting small to get the word out. “Even just something as simple as their service techs leaving behind a brochure or a flyer saying they now offer ductless systems will help,” he said.

Smith also suggested training for the contractors just getting into the market. “Carrier® offers a lot of training for the sales guys. We go to the Carrier University and they run through an entire program dedicated on how to sell them,” he said.

One of the best things a contractor can do to increase ductless sales is to let the work speak for itself. “This year,



my coworker’s ductless sales were associated with a church where he had installed a ductless system,” Copp said. “Quite a few people who attended that church asked for ductless in a specific brand and style after that.”

Ductless is “a great business opportunity,” Smith reiterated. “We have a Carrier Ductless system in our service room here. The installation and the time that it takes to install one — it’s a one-day job.” ■

Your Spaces. Our Solutions. A Perfect Match.

FLEXIBLE
SOLUTIONS

LOW
AMBIENT
OPERATION

INDIVIDUAL
COMFORT

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