



Progress Supply Inc.

The

Progress Report

Helpful Information for HVAC/R & Controls Contractors from Progress Supply Inc.

PROGRESS SUPPLY MOVES TO NEW DAYTON LOCATION

Here's a Press Release to Key Publications in our Marketing Area Announcing our New Store Location

For Immediate Release

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Cincinnati, Ohio. . . Progress Supply Inc., headquartered in Cincinnati, and a leading Southwest Ohio refrigeration, air conditioning and controls wholesaler, has moved their Dayton store to a new location. The new office, showroom and warehouse is now located at 4509 North Dixie Drive just three miles north of downtown Dayton.

Mark Faessler, Progress Supply President, said, "This is our third move in the Dayton market and is due to a 25% compounded growth rate over the past several years. We have 5,000 sq. ft. of showroom and counter space in the new store, which is more than twice the size of the space we had in the old store at 1345 Stanley Avenue. We've also added additional parking for up to 25 vehicles, a conference center and training facility, and easier customer loading with an under roof, drive-in pick up area, as well as a full semi trailer height dock. This provides much easier access to our 10,000 sq. ft. warehouse."

The new facility officially opened for business May 21, 2007, and is located just one mile north of the previous store, with easy access to Interstate 75 by the Needmore and Wagner Ford Road exits.

Progress Supply has wholesale operations in Cincinnati and Columbus, and provides HVAC/R products to customers in over 60 counties in Ohio, Indiana, Kentucky and West Virginia.

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Karen Voxbrunner, Dayton store Branch Manager, and Mark Faessler, President, Progress Supply Inc., in front of the new Counter Sales entrance at 4509 North Dixie Drive.

MORE ABOUT THE DAYTON STORE ON PAGE 3.



THERMAL EXPANSION VALVES REVISITED

In our last issue we highlighted the increased importance of **Thermal Expansion Valves (TXV)** and provided five valuable technical tips concerning their use. Here are three more tips to add to your knowledge of TXV's increasing importance in today's realm of cooling and refrigeration.

TIP 6

Superheat

Q: What is 'superheat'?

Superheat refers to the number of degrees a vapor is above its saturation temperature (boiling point) at a particular pressure.

Q: How do I measure superheat?

Superheat is determined by taking the low side pressure gauge reading, converting that pressure to temperature using a PT chart, and then subtracting that temperature from the actual temperature measured (using an accurate thermometer or thermocouple) at the same point the pressure was taken.

Q: Why is it important to know the superheat of a system?

Superheat gives an indication if the amount of refrigerant flowing into the evaporator is appropriate for the load. If the superheat is too high, then not enough refrigerant is being fed, resulting in poor refrigeration and excess energy use. If the superheat is too low then too much refrigerant is being fed, possibly resulting in liquid getting back to the compressor and causing compressor damage.

Q: When should I check the superheat?

The superheat should be checked whenever any of the following take place:

- ◆ System appears not to be refrigerating properly
- ◆ Compressor is replaced
- ◆ TXV is replaced
- ◆ Refrigerant is changed or added to the system

Note: The superheat should be checked with the system running at a full load, steady state condition.

Q: How do I change the superheat?

Turning the adjustment stem on the TXV changes the superheat.

Clockwise Increases the superheat
Counterclockwise Decreases the superheat

| Valve Family | Total Turns | Degrees of SH Per Turn | | | | | |
|--------------|-------------|------------------------|------|--------|------------|------|--------|
| | | R-22 | | R-134a | R-404A/507 | | R-410A |
| | | +20F | -20F | +20F | +20F | -20F | +40F |
| TCLE | 32 | 0.8 | 1.5 | 1.0 | 0.5 | 1.0 | N/A |
| HF | 10 | 2.2 | 4.2 | 3.8 | 1.8 | 3.2 | N/A |
| A | 8 | 3.0 | 5.0 | 4.5 | 2.0 | 4.0 | 2.0 |
| TRAE | 10 | 2.2 | 4.2 | 3.8 | 1.8 | 3.2 | N/A |

Note: To return to approximate original factory setting, turn adjustment stem counterclockwise until the spring is completely unloaded (reaches stop or starts to 'ratchet'). Then turn it back in 1/2 the 'Total Turns' shown on the chart.

TIP 7

Quick Facts — Checking Power Elements of TXV

Q: How can I determine if a TXV still has the proper charge in the power element?

A valve with a low charge (or no charge) in the power element will tend to starve the evaporator. This is because the pressure on top of the diaphragm (opening force) is reduced.

To check for this, the following procedure is recommended:

1. On a valve with an external superheat adjustment, turn the adjustment nut to the full counterclockwise position. Verify that the superheat is still too high before proceeding to the next step.
2. Remove the bulb from the suction line and hold it in your hand for several minutes to warm it up. Observe the suction pressure. If the valve has charge, you should see an increase in suction pressure.
3. If no change in suction pressure occurs, it is reasonable to conclude the valve has lost its charge and must be replaced.

Note: Some valve types have removable power elements which can be replaced in lieu of replacing the entire valve. If the power element can be removed, the bulb charge can be checked by trying to depress the diaphragm with your thumb. You should NOT be able to depress this by hand. If you can, the valve has lost its charge.

TIP 8

Quick Facts — TXVs and SEER

Q: What increase in SEER rating is achieved going from a flow-rater (fixed metering device) to an expansion valve, provided all else stays the same?

To explain why a system's SEER rating is improved by using a Thermal Expansion Valve (TXV) instead of a fixed orifice device we need to first understand how the SEER is determined. The SEER (Seasonal Energy Efficiency Ratio) is a measure of how efficiently an Air Conditioner or Heat Pump will operate over an entire cooling season instead of only a single operating condition.

For single speed systems, the SEER is calculated as follows:

$$SEER = SEER_b * (1 - C_d / 2)$$

Where: EER_b = Energy Efficiency Ratio at 95/75F (DB/WB)
 Outdoor Temp and 80/67F Indoor Temp

C_d = Cyclic Degradation Coefficient determined through two dry coil tests (one steady state, the other cyclic). This factor quantifies the Part Load (cycling) efficiency of the system.

In order to improve SEER, it is important to keep the C_d as low as possible. This can be achieved by minimizing the amount of refrigerant entering the evaporator during the 'off' cycle. With a fixed orifice device, the high and low sides of the system equalize during the off cycle, resulting in a high C_d . In comparison, a non-bleed TXV closes tightly when the compressor shuts off, preventing equalization and, thereby, minimizing the C_d . It is for this reason that TXVs will typically increase the rating of a HVAC system by approximately 0.5 SEER. It should be noted that a system can be designed with a fixed orifice and liquid line solenoid to achieve a SEER rating equal to that with a TXV. However, such a system would not be as efficient over the entire operating range of the equipment as it would with a TXV. The TXV regulates the flow of refrigerant to maximize the efficiency of the evaporator at all operating conditions, whereas a fixed orifice can only be optimized at one particular condition. For this reason, if energy efficiency is the goal, a system incorporating a TXV should be specified.

NEW DAYTON STORE OPEN FOR BUSINESS



The third time is a charm. Karen and Mark are smiling because this is the third move in the Dayton market and is due to a 25% compounded growth rate over the past several years.



Counter sales staff ready to serve a customer in the spacious new showroom. There is more than twice the space we had in the old store at 1345 Stanley Avenue.



5000 square feet of showroom and counter space await customers so they can get in and out faster than ever before. Our new location has easy access to Interstate 75 by the Needmore and Wagner Ford Road exits.



In addition to the added showroom space, plans are underway for a new conference center and training facility to be added in the future.



A 10,000 square foot warehouse means products in stock when you need them.



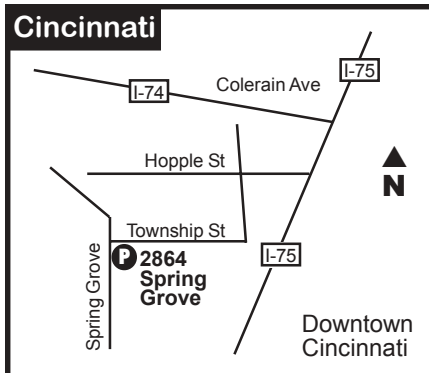
Easier customer loading with an under roof, drive-in pick up area, as well as a full semi trailer height dock.

Progress Supply Inc.

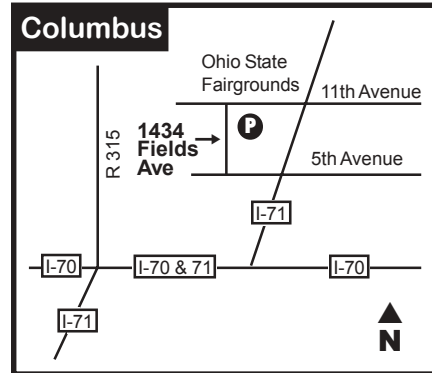
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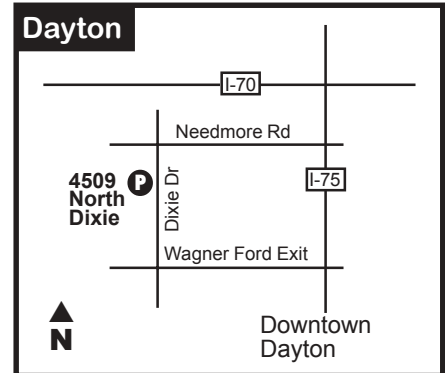
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