

How We Reduced: The Cost of Ownership

At Price, we asked the question: *how does one lower the cost of ownership of a DX Outdoor Air Conditioning System?* To answer this simple question requires a complex solution.

To start, the cost of ownership (sometimes called life cycle costs) has multiple stages of costs. **Choosing a component to best reduce the cost of one life cycle stage does not mean it will lower the cost of the other stages. In fact, many times it can increase the cost of the other stages.**

In addition, there are often different parties benefiting from the reduction of costs at one life cycle vs another, leading to a competition of interests. For example, a contractor will only benefit from a lower first cost whereas as an occupying tenant will benefit from a reduction of costs over the entire life cycle.

These factors led to our understanding that the DX system and all of its components must therefore be evaluated as whole. This all-inclusive methodology was then used in evaluating outdoor air conditioning systems' designs, giving us the knowledge to choose the best ones to answer our question. This is how our premium outdoor air conditioning system was created.

CHALLENGE:

Reducing First and Last Costs

There are several costs that add up before and after a unit is operational: the purchase price of the product, the costs associated with installation and finally the cost of removing the product at the end of its life.

SOLUTIONS:

- + Most outdoor units can be shipped from the factory with a fully installed, fully tested refrigeration system, eliminating the risk and labor of on-site piping and charging.
- + Split units come with plugs and sockets on loose electrical connections for quick, hassle-free and error-free installation.
- + Designed to provide a premium product at a highly competitive price.
- + Available with the Thermoshield cabinet that is designed to reduce installation time and costs:
 - The lightweight, marine grade aluminum design can reduce the cost of structural bracing for rooftop units and makes it easier to lift during installation and removal.
 - Construction from recycled content and recyclable materials can benefit LEED projects and provides great salvage value at the end of its life.





Low fin per inch evaporating coils

CHALLENGE:

Reducing Maintenance and Repair Costs

Maintenance and repair is mandatory in order to keep a cooling system operating at peak efficiency. Frequent maintenance can drive up costs, and equipment breakdowns are costly to repair, disrupting regular building operations. These problems can be compounded by local mechanics' lack of familiarity with the ever-increasing complexity of modern equipment.

SOLUTIONS:

- + Low fin per inch coils allow faster, easier and more thorough cleaning, which can lead to increased coil longevity.
- + Electronic expansion valves don't require recalibration. Drivers can be replaced without entering the refrigerant circuit. The system alarms on a faulty valve, speeding diagnosis.
- + Our Detect + Protect™ warning system provides refrigerant charge, electronic expansion valve, VFD motor and discharge temperature monitoring. A warning is issued if one of the monitored components is operating abnormally, allowing the problem to be assessed before catastrophic failure occurs.
 - A virtual network interface provides full remote operability. Technicians can view real time data and download past logged data to assess performance and diagnose issues without connecting any other gauges or sensors.
- + High temperature rated condenser motors resist heat stress better than standard rated motors, reducing the likelihood of failure in extreme temperature conditions.
- + Available VFD-controlled direct drive plenum fans (see image below) result in the elimination of belt and bearing inspection and replacement and significantly reduces blower energy usage.
- + Available Thermoshield cabinet improves longevity and can reduce repair and maintenance costs.
 - Marine grade aluminum cabinet and components are highly resistant to corrosion; the unpainted cabinet will look immaculate for years. Minimizing the use of dissimilar metals will reduce the effects of galvanic corrosion within the unit.
 - The reflective all-aluminum cabinet is constructed using our patented double thermal break design in order to reduce heat transfer between the outdoor environment and indoor conditions.

CHALLENGE:

Reducing Operating Costs

Operating at the highest possible efficiency will bring down operating costs. Since the majority of all air conditioning systems will be operating at part load 97.5% to 99% of the time, it is essential to optimize efficiency for that range.

SOLUTIONS:

- + Standard electronic expansion valves improve part load operating efficiency by reacting quickly to temperature changes and providing precise operation over a broad range.
- + Multi-stage capacity control comes as standard for reduced energy consumption at part loads. Optional full-variable capacity control is available for high precision cooling output.
- + Standardized low fin per inch coils reduces year round blower power consumption
- + Available direct drive plenum fans with VFDs optimize operating efficiency.



Available direct drive plenum fans with VFDs