



WHITE PAPER

KEEP HOME DELIVERY FRESH

From meal kits to grocery delivery, the online grocery market is going through a technology-driven evolution. Consumer adoption of home delivery was on the rise before the COVID-19 pandemic. However, there were still many people who enjoyed in-person grocery shopping and were not interested in using e-commerce to buy their groceries.

COVID-19 caused a rapid change in this mindset as people found themselves needing a safe and convenient way to purchase food and other essential items. As a result, the adoption of grocery delivery services has rapidly increased. The online grocery delivery and pickup market is five times larger than a year ago. In addition, the number of active customers has grown from 16.1 million to 37.5 million per month, and orders have significantly increased from 16.1 million per month to 59.5 million.

With demand for home delivery increasing practically overnight, many retailers are adapting or changing their business model to meet consumer demand and grow their business.

Whether you want to get your home delivery service off the ground or need to expand, there are four key things to think about in order to make the process quick and seamless:

1. Vehicle selection, insulation, and shelving
2. Refrigeration unit selection
3. Food safety best practices
4. Technology advances

The number of active home delivery customers has grown from

16.1M in 2019 to
37.5M in 2020*

The number of online grocery delivery & pickup numbers has increased from

16.1M in 2019 to
59.5M in 2020*

VEHICLE SELECTION, INSULATION, AND SHELVING: ONE SIZE DOES NOT FIT ALL

Not all vehicles can accommodate refrigeration units, and there are many variables that need to be considered when selecting a truck or van for your home delivery service. When you're hauling fresh and frozen products, it's important that your vehicle is able to maintain the desired temperature. If food is not properly handled and kept at the right temperature, you run the risk of negatively impacting public health or reducing product shelf life. Either of these situations will increase your operating costs and negatively impact your reputation.

Selecting the right vehicle for your business is vital to your success. These are the three things you need to think about:

1. Vehicle size. To help determine the size of van your business requires, you need to estimate the average weight and volume of the products you will be delivering. Alongside weight and volume, knowing how much product you deliver in a day and the number of deliveries you make will help you determine the best vehicle size.

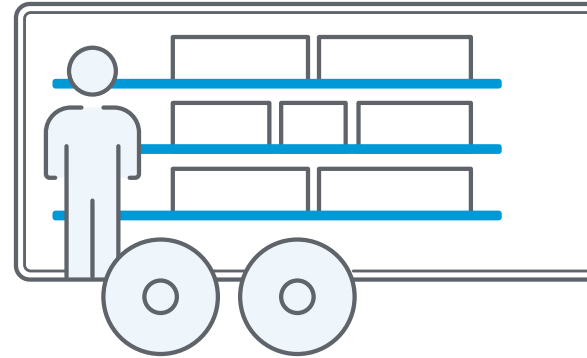
It's also important to think about the road profile. Are you driving around the densely populated streets of Chicago or New York City and need to be able to make tight corners and park in congested streets? Or are you traveling longer distances and driving in more suburban areas where a larger vehicle can more easily maneuver?

2. Insulation. The biggest factor in determining the type and thickness of insulation is the products you will be hauling. The temperature required to transport fresh flowers is different than the temperature needed to transport ice cream. It can be tempting to cut corners to save money upfront, but this won't necessarily translate into a positive ROI in the long run. For example, installing three inches of insulation instead of four will save you money while you're upfitting your vehicle. But if three inches of insulation isn't the correct specification for the type of products you are transporting, food safety and product degradation will be impacted.

3. Shelving. When upfitting your vehicle, installing shelves in the back can help keep products stored properly so they are not damaged in transport. Shelving also supports easy loading and unloading.

CHECKLIST OF WHAT TO THINK ABOUT WHEN SELECTING A VAN AND REFRIGERATION UNIT:

- What type of product will I be hauling?
- How much product do I deliver in one day?
- How many deliveries do I make in one day?
- What is my average drive time each day?
- Where will I be delivering — in cities or in surrounding areas?
- Do I need to add shelving to ensure that products are stored properly during transport?
- Are there noise requirements in the neighborhoods where my deliveries will be made?



CUSTOMER STORY: MILK MAN

While the coronavirus pandemic has pushed everyone to the limit in many ways, one Thermo King customer — **Maple View Mobile** in Chapel Hill, North Carolina — was literally stretched to the near breaking point during the height of local quarantines and social distancing.

Before COVID-19, Jerry Richardson, owner of Maple View Mobile, was servicing 100–125 customers. In a peak 30-day window during the pandemic, that number grew to 540 customers. As Jerry's milk routes expanded, so did his working hours. And so did the hours logged on his Thermo King V-520 SmartPower electric standby refrigeration unit, which performed like a champ.

"The unit was running nearly nonstop, cycling on and off and over again with the many stops, and it did not let me or my customers down," said Jerry.

"I didn't know much starting out, but I knew that if we were going to be successful delivering fresh, organic milk, my first priority should be finding a dependable refrigeration system on my yet-to-be-determined vehicle."

Jerry Richardson,
Owner, Maple View Mobile

[CLICK HERE](#) to read more about this modern day milkman's story.



FOOD SAFETY BEST PRACTICES

When it comes to home delivery, the safe transportation of refrigerated foods is of the highest priority. Each year, one in six people in the U.S. get sick from foodborne illnesses. To safeguard the integrity of your load, follow best practices for loading procedures, cargo handling, and delivery.

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[CLICK HERE](#) to watch how Thermo King can help you choose the best refrigeration unit for your business.

REFRIGERATION UNIT SELECTION

Having the right refrigeration unit on your delivery vehicle will ensure safe delivery at just the right temperature. The type of refrigeration unit you select will depend on your application. For example, hauling fresh and frozen food requires a multi-temp vehicle; delivering fresh flowers only requires a single-temp vehicle. The refrigeration unit can also affect the efficiency of your vehicle and how sustainably it operates.

Here are three key things to consider when selecting a refrigeration unit:

1. **Right-sizing your refrigeration unit.** Just like in your home, if you purchase a refrigeration unit that is too big or too small for your vehicle size and application, it won't run efficiently — especially if you live in a region that experiences extreme heat and humidity. When the refrigeration unit isn't sized correctly, the system won't have enough capacity to pull and/or hold the desired temperature needed.

There are a few important variables that will help determine the size of refrigeration unit your business needs.

- Regional ambient temperature
- Temperature set point needed for the type of product you're hauling
- The number of times the vehicle doors are opened throughout the day and how long the doors remain open
- Type and thickness of insulation

2. **Efficiency levels.** Select high efficiency refrigeration equipment that will help reduce costs by optimizing performance according to the capacity demand and reduce fuel consumption.
3. **Precooling the vehicle.** In order to operate your fleet as efficiently as possible, it's important to precool your vehicle. There are two ways this can be done; using electric standby power or through the vehicle engine using fuel. The most sustainable option is to precool your vehicle with electric power. This allows you to run the vehicle the least amount of time and helps the van recover faster. Not only will this save on fuel costs, but it will also decrease emissions. Using electric standby also removes the need to have your vehicle idling during the precool process, which is harder on the engine.



FOOD TRANSPORTATION BEST PRACTICES

- 1. Packaging and staging.** Packaging is critical to ensuring product protection. Packaging should be crush-resistant, have solid sides for frozen products, and be vented for fresh products. Avoid intermingling dry and refrigerated product in order to lower the risk of dry products becoming wet from condensation. When staging product, you want to store cargo at the desired temp for transport before loading. It's also important to minimize the staging time in an unrefrigerated environment while cargo is being moved between cold storage and the vehicle. It's also during this stage in the delivery process that you should begin precooling the vehicle.
- 2. Loading procedures.** Did you know that a loading procedure has a profound effect on product quality and food safety? Follow the loading checklist procedures to mitigate risk of food being mishandled and losing its shelf life.
- 3. Ensuring proper airflow.** Inadequate air circulation is the primary cause of product deterioration — even with adequate unit capacity. Obstructions due to improper loading cause poor airflow and product hot spots. There are various configurations that improve airflow within the vehicle and help the refrigeration unit work as efficiently as possible to maintain tight temperature control.
- 4. Delivery procedures.** As with loading procedures, your delivery procedures can have an impact on product quality. Our recommended best practices include these steps:
 - Use door switches for automatically turning unit off when doors are open.
 - Make sure both the product and cargo area are at the desire temp before unloading.
 - Unload product quickly and efficiently to reduce time with doors open.
 - Give the unit time to recover temperature from when doors were open.

THE FUTURE OF HOME DELIVERY

There's no doubt that the popularity of online grocery delivery and pickup will only continue to rise. As consumers move toward adopting home delivery as part of their purchasing behavior, businesses not only need to have the right equipment, but they need an understanding of how to safely transport food to their customers.

Whether you're delivering fresh produce straight from the farm, frozen products or home-cooked meals, having the right refrigeration unit on your vehicle will help you safely deliver your products on time and at the right temperature.



LOADING CHECK LIST:

- Make sure your packaging is:
 - Protected against other cargo shifting during transit
 - Non-vented for frozen products
 - Vented for fresh products
- Confirm product is at desired temperature before loading
- Set unit controller to the desired temperature
- Ensure correct mode selection
 - Choose continuous run or cycle sentry
- Pre-cool vehicle to desired temperature
- Verify product temperature to confirm it is at the desired temperature
- Turn unit off while loading
- Load cargo quickly and efficiently
- Stabilize the load to minimize load shift risk and resulting cargo physical damage
- Initiate defrost cycle to clear evaporator coil

TIPS FOR PROPER AIRFLOW:

DO NOT:

- Block unit evaporator air inlet (return air)
- Load product tight against unit, walls or doors
- Load product to ceiling - it causes air to short cycle
- Obstruct floor under cargo
- Use slip sheets or hand stacking

TECHNOLOGY ADVANCES

Telematics solutions keep your products, people, and assets safe – remotely.



The information provided in this white paper is for general informational purposes only. If you have any questions about this information, you should consult with industry professionals to provide you with the applicable or appropriate guidance for your particular refrigerated transportation needs. The information is provided "as is" with no representations or warranties with respect to the accuracy of the information to a specific situation.

* <https://www.brickmeetsclick.com/tracking-online-grocery-s-growth->

** <https://www.cdc.gov/foodsafety/index.html>

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