

# TK FRESH+

— advanced fresh air management —



AIR QUALITY MANAGEMENT SYSTEM FOR  
MARINE TRANSPORT REFRIGERATION UNITS

# TK FRESH+ takes the guesswork out of fresh air exchange

Every product has an optimal shipping environment. Maintaining those conditions will allow it to be delivered in its freshest and most desirable state.

Due to the gas exchange of perishable products, high levels of oxygen and carbon dioxide may develop in the container. In order to deliver high quality products, it is essential to manage these products. This results in:

- Superior cargo protection
- More consistent product quality
- Precise fresh air settings
- Longer shelf life
- Energy savings, fuel savings
- Less cargo weight loss

Previously, managing the fresh air exchange for refrigerated containers was a manual operation that involved some guesswork.

**WITH TK FRESH+ IT IS A BREEZE.**

MICROPROCESSOR CONTROLLED FRESH AIR EXCHANGE DELIVERS SUPERIOR TEMPERATURE CONTROL AND CARGO PROTECTION.

- Advanced fresh air exchange system
- Up to 50% faster temperature pull down
- Microprocessor precisely controls rate of fresh air exchange
- Records and documents air exchange rate and events



# Full control with TK FRESH+

## MICROPROCESSOR CONTROLS THE FRESH AIR EXCHANGE RATE

Setting the desired exchange rate couldn't be easier. Instead of a manual operation, the rate is programmed through the refrigerated container's microprocessor in either cfm or m<sup>3</sup>/hr. Once set, the microprocessor positions the vent opening to provide the desired airflow rate.

## PROGRAMMABLE DELAYED VENT OPENING

The microprocessor also allows you to delay opening of the fresh air vent for up to 72 hours. This helps the container's interior temperature get to the proper set point, before initiating an exchange of fresh air.

## UP TO 50% FASTER PULL DOWN

Because the vent can be programmed to remain closed for up to 72 hours, product temperature pull down to the desired set point can be reached in half the time it would otherwise require with the vent open. The hours saved pulling down equates to days gained in shelf life.

## AUTO LOCKOUT FOR FROZEN

When the set point is programmed for frozen cargo, the microprocessor automatically locks out the fresh air exchange by closing the vent.

## PREVENTS INJURY FROM CHILLING

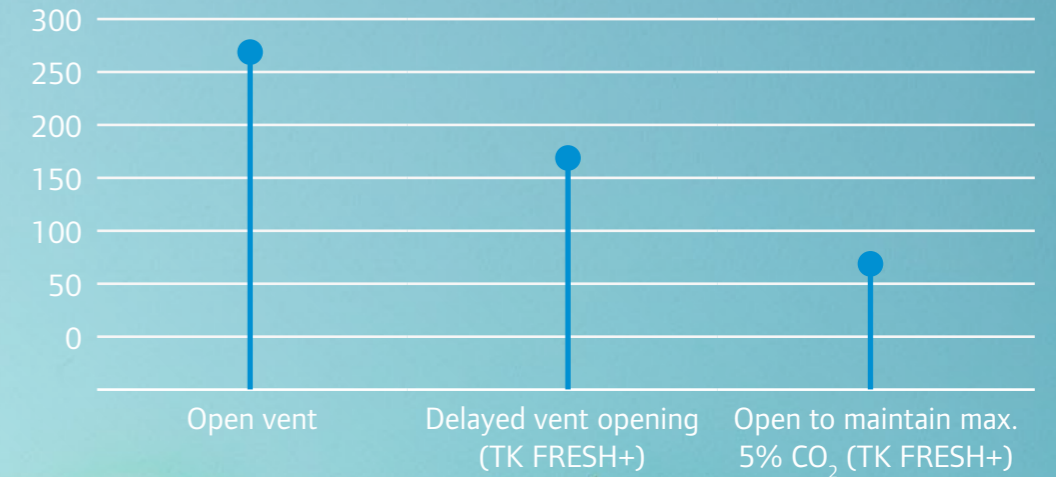
The TK FRESH+ also features built-in frost protection. Should the ambient temperature fall far below the selected set point, the TK FRESH+ automatically closes the air exchange vent to prevent product injury due to chilling.

## RECORD OF FRESH AIR EXCHANGE DATA

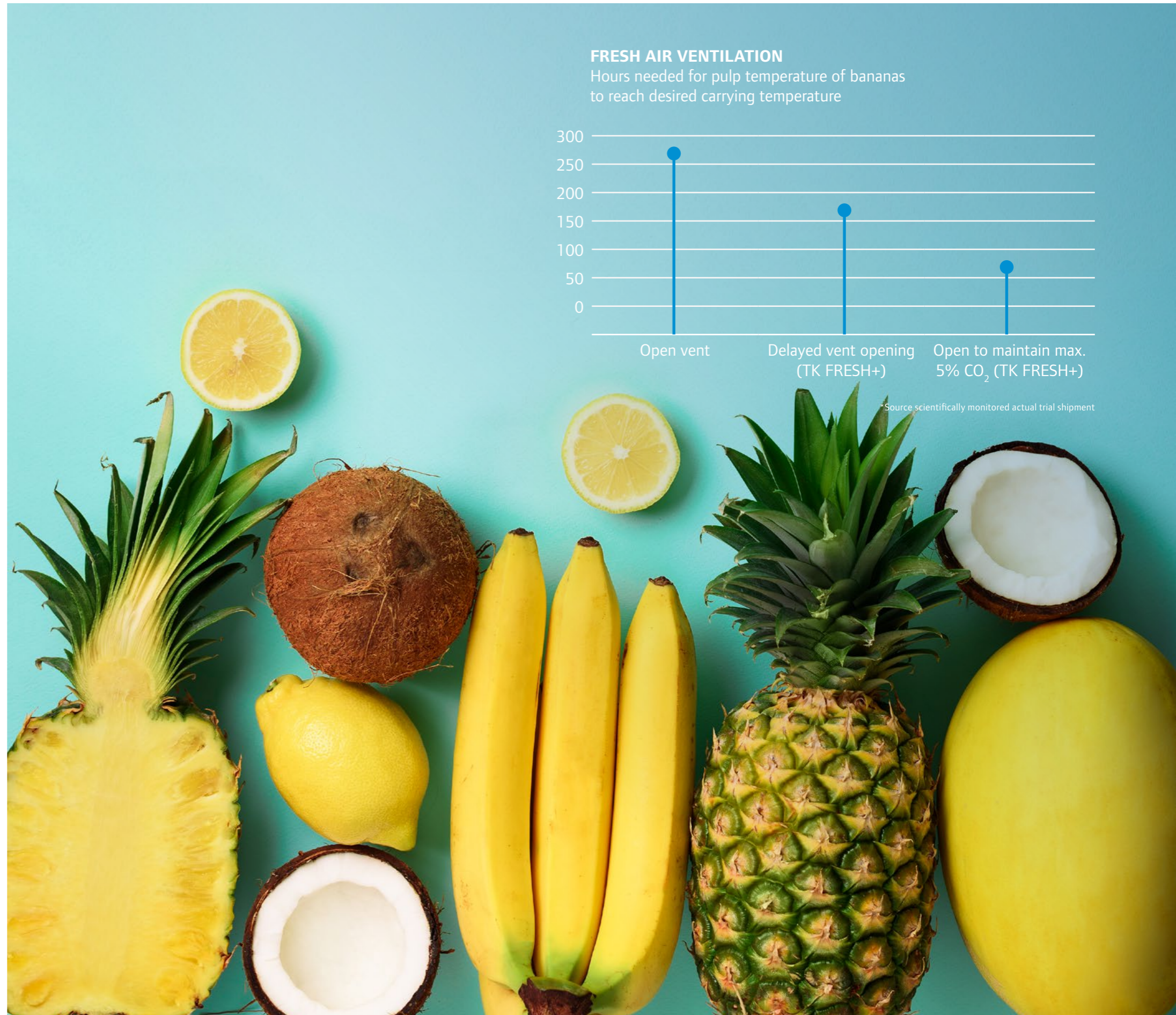
User-selected air exchange rates, time-delay intervals, and any changes made to these settings are automatically stored in the microprocessor's memory where they can be retrieved for analysis along with pertinent temperature and unit operation data.

## FRESH AIR VENTILATION

Hours needed for pulp temperature of bananas to reach desired carrying temperature



\*Source scientifically monitored actual trial shipment



# TK FRESH+ responds to individual product gas exchange

**SENSORS MEASURE THE O<sub>2</sub> AND CO<sub>2</sub> LEVELS ALLOWING THE MICROPROCESSOR TO ADJUST TO CHANGING CONDITIONS.**

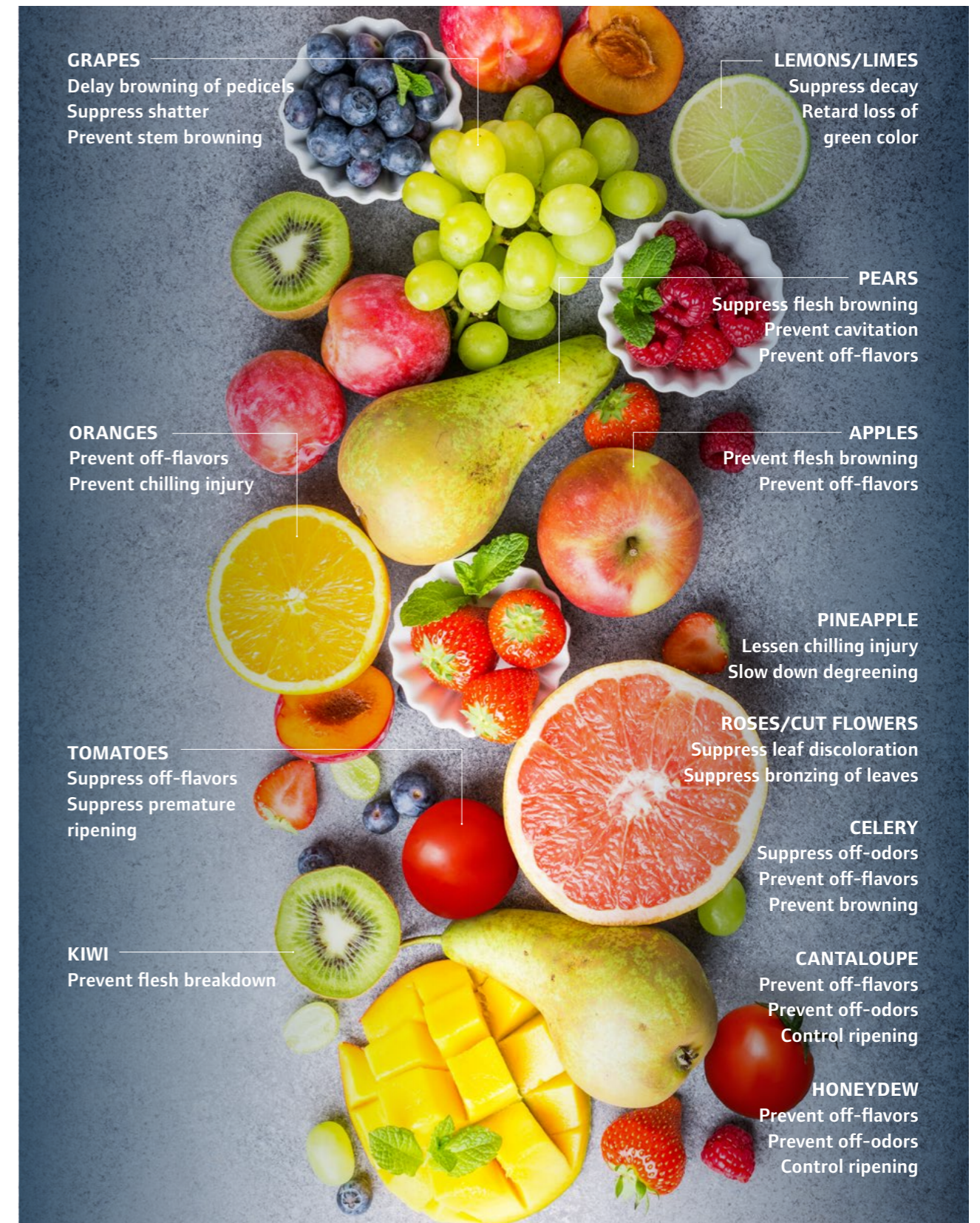
The desired oxygen and carbon dioxide levels are determined when the container is pre-tripped or the temperature parameters are set. When the levels exceed this programmed range, the microprocessor automatically adjusts the fresh air exchange rate to manage the pre-set levels of oxygen and carbon dioxide. Thermo King's TK FRESH+ provides 'ventilation on demand', providing perishable cargo with the ultimate protection thanks to venting in response to continuing changes in respiratory gases. This means that when either the oxygen or carbon dioxide limits are reached, the vent automatically opens to allow fresh air in and closes again when the desired gas levels are reached.



## TK FRESH+ ADVANCED PROTECTION IS EASY, SAFE AND COST EFFECTIVE.

TK FRESH+ is available on Thermo King CFF and Magnum Plus units. These units are equipped with an advanced controller designed to protect your valuable cargo:

- ① Maximizes the refrigeration system's efficiency through intelligent monitoring and control
- ② Continuously ventilates on demand (as required by product gas exchange) to maintain safe O<sub>2</sub> and CO<sub>2</sub> levels
- ③ Protects product against high, damaging CO<sub>2</sub> levels
- ④ Protects product against low, dangerous levels of O<sub>2</sub>
- ⑤ Helps assure consistent product quality
- ⑥ Responds throughout the container's useful life (even older models) as leak rates vary



**DISCOVER OUR COMPREHENSIVE DATABASE OF OPTIMAL TEMPERATURE SETTINGS FOR ANY TYPE OF FRESH CARGO ON THERMOKINGFRESH.COM**





 **THERMO KING**

Thermo King – by Trane Technologies (NYSE: TT), a global climate innovator – is a worldwide leader in sustainable transport temperature control solutions. Thermo King has been providing transport temperature control solutions for a variety of applications, including trailers, truck bodies, buses, air, shipboard containers and railway cars since 1938.

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