THERMO KING

E-COOLPAC

— Battery solution for guaranteed power —

PLATFORM-INDEPENDENT POWER FOR SUSTAINABLE TRUCK AND CONTAINER REFRIGERATION UNITS

TRANE TECHNOLOGIES

Switch to E-COOLPAC to power your unit

CONTENTS

THE E-COOLPAC INDEPENDENT BATTERY BRINGS INNOVATION AND SUSTAINABILITY TO YOUR FLEET

When it comes to refrigerated reefers, diesel powered refrigeration units offer the reliability you need to maintain the quality of your cargo. However, they don't deliver the sustainability you require.

Combining the best of both worlds, the E-COOLPAC is an independent battery solution that reduces your fuel consumption, noise levels, and CO_2 emissions. The result is an environmentally friendly and extremely reliable source of power with low operational costs.

The E-COOLPAC is zero emission battery power technology that electrifies your refrigerated trucks and a battery genset solution for refrigerated marine containers.

The E-COOLPAC battery was tailor-made for transport and withstands the most rugged outdoor conditions with its custom design. It can be fitted or retrofitted to any hybrid, LNG, electric, or diesel-powered truck. It can also fit on any marine container chassis where a genset can currently fit.

Compact, powerful, and reliable

The E-COOLPAC delivers everything you need – and more. From its compact dimensions, this surprisingly powerful battery solution opens up new delivery possibilities while boosting your environmentally friendliness.

100% EMISSION FREE
Boosts your efforts to reach your sustainability goals and gives you **access to ultra-low and zero emission zones.**

LOW NOISE
Quiet operation ensures **day and night access to city** centers (PIEK areas).

LONGER REFRIGERATION
More power means **longer refrigeration times**.

PERMANENT BACK-UP
Sufficient battery capacity to ensure cooling at any time.

FAST, LOW-COST CHARGING
Quick charging on grid power thanks to its powerful 22 kW on-board charger, using a standard CEE 32 A 400 V AC 3-Phase 50/60 Hz plug or an IEC 61851 compliant mode 2 cable.

MORE UPTIME
State-of-the-art lithium-ion technology and innovative power electronics mean less maintenance.

SMART MODULAR DESIGN
A low initial cost combined with a modular design empower you to **future-proof your investment**, delivering an attractive ROI and cost savings in the medium term.

SAFETY
Designed to comply with **strictest regulation and standards**.

COST SAVING
With E-COOLPAC as a full permanent back-up, you reduce the chance of spoilt loads. Electrifying your unit can save you **up to €10K of fuel per vehicle per annum**.

Your modular power solution

How much power does your application need? The E-COOLPAC offers a range of battery modules, as well as extension packs to deliver power ranging from 15 kWh to 105 kWh.

BASE UNIT

The compact dimensions of the E-COOLPAC include all power electronics, controls, and battery modules inside the same pack whether it is the 15 kWh, 20 kWh, 25 kWh, or 35 kWh model. All have the same robust external enclosure and share component modularity, only the amount of battery cells varies from one model to the next.

BATTERY EXTENSION MODULE(S)

The base unit can be coupled with a battery extension module at any time. If you have underestimated your power needs or need to extend the battery range for any reason, you can easily add a battery extension module to extend your battery range. Battery extension module(s) deliver either an additional 35 kWh or 70 kWh on top of your base of 35 kWh, boosting power to 70 kWh or a maximum of 105 kWh. Battery extension modules only contain the battery cells and a BMS as they use the base unit's controls and power electronics. These battery extension modules are plug & play retrofittable into your vehicle.

Highly modular
control and storage system with simple electrical and mechanical interfaces.

Plug & Play
installation with all required components included.

Easy to customize
and configure (capacity); platform independent.

State of charge
accuracy allows better control over autonomy.

Choose a charging method that suits you

The E-COOLPAC is specified for ambient temperatures ranging from -20°C to +40°C. For optimal high ambient temperature operation, the unit uses water-cooled closed circuits and robust electronic protection. To ensure highest performance in low ambient temperatures, the E-COOLPAC is designed with an IP66K enclosure and electric heating for the battery. Together, these measures ensure reliability and performance regardless of the temperature.

E-COOLPAC CAN BE CHARGED OPTIONALLY ON TRUCK DRIVE VIA THE AW FRIGOBLOCK ALTERNATOR OR STANDARD AS FOLLOWS:

MODE 2

ICCB CABLE WITH CEE PLUG

CEE CONNECTOR
32 Amp

MODE 3

TYPE 2 CABLE WITH TYPE 2 PLUG

CHARGING STATION

How to configure your E-COOLPAC

What's the best way to configure the E-COOLPAC for your truck? Discover the options here.

THERMO KING TRUCK AND MARINE UNITS***

REFERENCE	MODEL	INPUT/OUTPUT	CATEGORY
T01-00002215	E-COOLPAC 15 kWh	STD / AC	1
T01-00002220	E-COOLPAC 20 kWh	STD / AC	
T01-00002225	E-COOLPAC 25 kWh	STD / AC	
T01-0002235e	**E-COOLPAC 35 kWh**	**STD / AC (Ext)**	

FRIGOBLOCK FKi/HKi

REFERENCE	MODEL	INPUT/OUTPUT	CATEGORY
T01-0i002215	E-COOLPAC 15 kWh	STD / DC	2
T01-0i002220	E-COOLPAC 20 kWh	STD / DC	
T01-0i002225	E-COOLPAC 25 kWh	STD / DC	
T01-i002235e	**E-COOLPAC 35 kWh**	**STD / DC (Ext)**	
T01-0iAW2215	E-COOLPAC 15 kWh	STD + AW / DC	3
T01-0iAW2220	E-COOLPAC 20 kWh	STD + AW / DC	
T01-0iAW2225	E-COOLPAC 25 kWh	STD + AW / DC	
T01-0iAW2235	E-COOLPAC 35 kWh	STD + AW / DC	

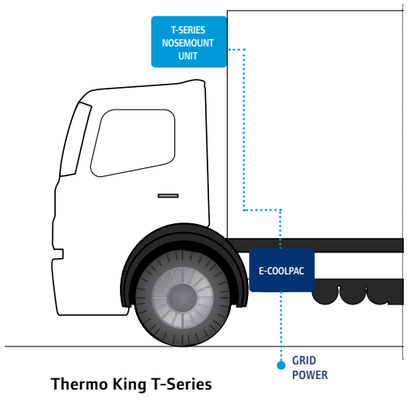
REFERENCE	MODEL	CATEGORY
T01-0000035e	BATTERY EXTENSION MODULE 35 kWh	4
T01-0000070e	BATTERY EXTENSION MODULE 70 kWh	

NOMENCLATURE

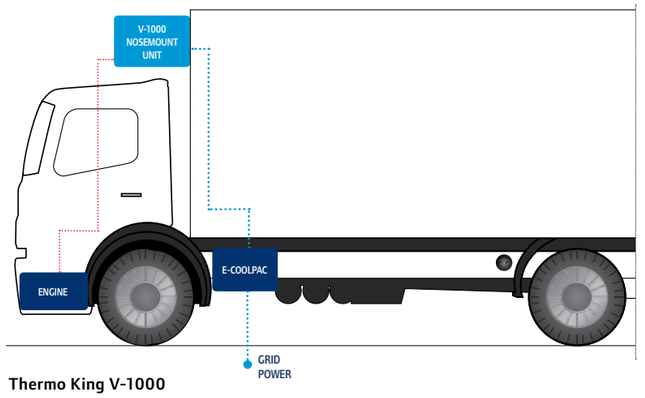
STD	400/3/50-60 grid power (standby)
AW	AW30 Frigoblock alternator
AC	400/3/50-60 grid power
DC	800 V DC power
(Ext)	Prepared for battery extension modules

***Frigoblock R units not available. Please consult with your commercial representative.

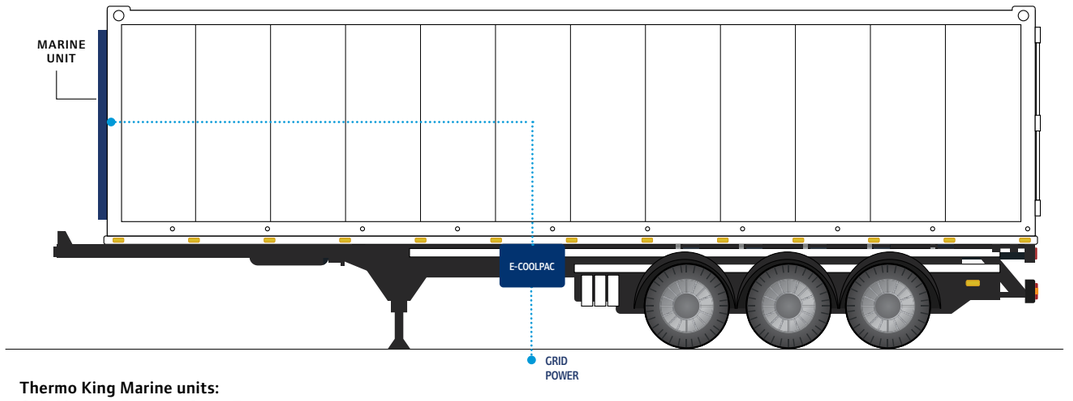
1 E-COOLPAC STANDARD / AC
FOR THERMO KING TRUCK AND MARINE UNITS



Thermo King T-Series



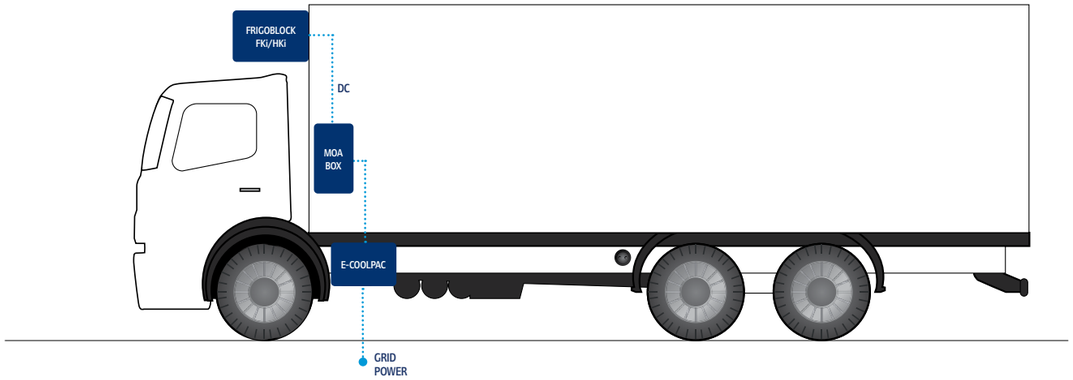
Thermo King V-1000



Thermo King Marine units:
CFF, MagnumPlus and SuperFreezer

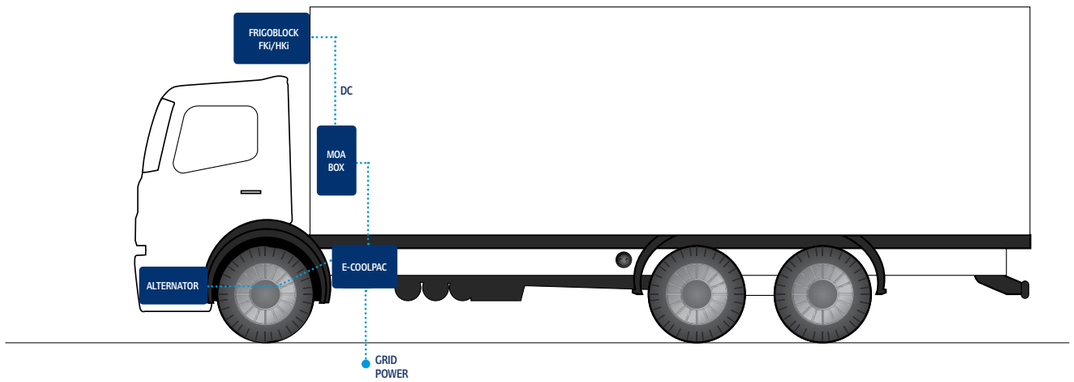
AC VOLTAGE CONFIGURATION:
The E-COOLPAC delivers an AC output and powers the refrigeration unit on stand-by mode. The E-COOLPAC is charged by grid power. Compatible with Thermo King SP truck, VP truck, and Marine units.

2 E-COOLPAC STANDARD/DC
FOR ALL FRIGOBLOCK FKi/HKi UNITS



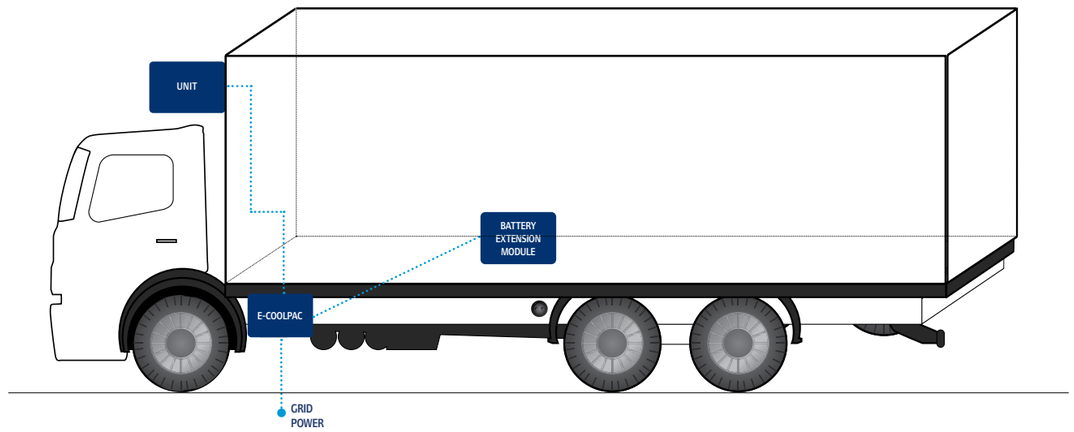
DC VOLTAGE CONFIGURATION:
The E-COOLPAC delivers a DC output and powers the FKi/HKi Frigoblock refrigeration unit. The E-COOLPAC is charged by grid power.

3 E-COOLPAC STANDARD + AW30 FRIGOBLOCK ALTERNATOR/DC
FOR ALL FRIGOBLOCK FKi/HKi UNITS

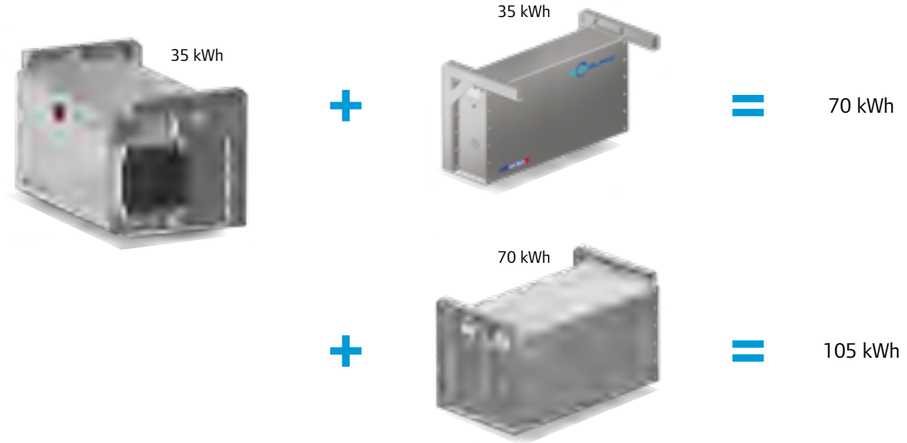


DC VOLTAGE CONFIGURATION:
The E-COOLPAC delivers a DC output and powers the FKi/HKi Frigoblock refrigeration unit. The E-COOLPAC is charged by grid power or Frigoblock AW30 alternator on drive.

4 BATTERY EXTENSION MODULE



BASIC PACKAGE | **BATTERY EXTENSION MODULE(S)**



Maximum flexibility for easy adaption to customer needs,including up to two retrofittable battery extension modules

E-COOLPAC

T01-0002235e E-COOLPAC 35 kWh STD / AC (TK UNITS)
T01-i002235e E-COOLPAC 35 kWh STD / DC (FKi/HKi)

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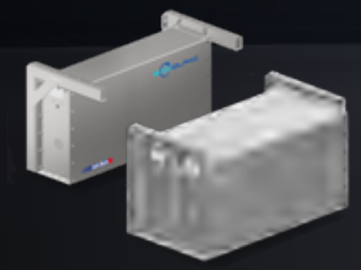


BATTERY EXTENSION MODULE(S)

T01-0000035e EXTENSION 35 kWh BATTERY EXTENSION MODULE
T01-0000070e EXTENSION 70 kWh BATTERY EXTENSION MODULE

=

TOTAL CAPACITY

T01-0002235e	+	T01-0000035e	=	70 kWh	(TK UNITS)
T01-0002235e	+	T01-0000070e	=	105 kWh	(TK UNITS)
T01-i002235e	+	T01-0000035e	=	70 kWh	(FKi/HKi)
T01-i002235e	+	T01-0000070e	=	105 kWh	(FKi/HKi)

BATTERY GENSET FOR MARINE CONTAINERS

Versatile power for your refrigerated containers

Maintaining consistent temperature during marine transport is crucial for protecting valuable cargo, like seafood, pharmaceutics, proteins, fruit and vegetables.

The E-COOLPAC provides a low emission and ultra-reliable power source for reefers when they are not connected to grid- or vessel-power. It is compatible with Thermo King marine refrigeration units including CFF, Magnum Plus, and SuperFreezer, as well as other brands of ISO1496-2 reefer units.

The power supply can be used for more than just trucks. It is a proven alternative to the gensets currently on the market and fits on both an EU flexi-chassis and an EU skeleton chassis (either side-mount or center-mount).

UP TO **24 HRS**

OPERATING TIME

IDEAL FOR

- Port to distribution center transport
- Daily reefer container transport

0 CO_2

EMISSIONS

IDEAL FOR

- ULEZ, LEZ, and zero emission zones
- Diesel ban areas
- Low noise (PIEK) areas

Real time tracking for business optimization

Reliable data is essential for making good business decisions that support your operations and enable your future growth. E-COOLPAC utilizes several digital tools to empower your organization.

1

MYPAC DIGITAL PLATFORM
Using a telematics system, E-COOLPAC seamlessly integrates with the MYPAC digital platform empowering you to view and analyze real time data on vehicle location, operation of the E-COOLPAC unit, battery SOC and much more. The resulting insights will empower you to monitor your assets and optimize your operations.

MYPAC also gives you access to product information, including meaningful and easy-to-understand manuals in multiple languages.

2

ONBOARD OPERATOR PANEL
The E-COOLPAC can be monitored and controlled on the road thanks to its intuitive operator panel. This enables the driver to check the battery status, limit the charging current, change the operating frequency between 50 Hz and 60 Hz, and receive operating alarms.

Technical specifications

The E-COOLPAC delivers versatile power from a compact, ultra-reliable, and robust unit.

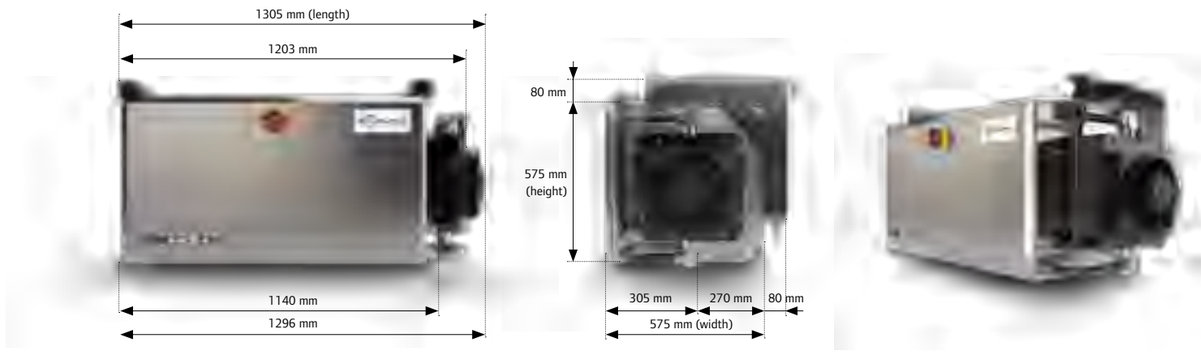
E-COOLPAC BASIC PACKAGE	
BATTERY MODULE	15 kWh, 20 kWh, 25 kWh, and 35 kWh
CHARGING CAPACITY	22 kW (can be reduced)
OUTPUT VOLTAGE	AC: 400 V AC, 3 phases, 50 Hz or 60 Hz DC: 700 V DC (nominal); 800 V DC (maximum)
OPERATING AMBIENT TEMPERATURE	-20 °C to +40 °C
CONFORMITY AND SAFETY	CE and ECE R10
BATTERY COMPOSITION	Lithium-ion
CHARGING OPTIONS	Grid power (onboard charger): • CEE 32 A 400 V AC, 3-Phase, 50 Hz or 60 Hz • IEC 61851 mode 2 compliant cable Frigoblock alternator (optional)
INSTALLATION REQUIREMENTS	3 x 400 V AC, 50 Hz, 5-pole 16/32 A CEE-standard socket
CASE	Stainless steel
WEIGHT	300 - 420 kg (including controller module)
DIMENSIONS	1140 x 575 x 575 mm (excluding cooler fan)
E-COOLPAC BATTERY EXTENSION MODULE	
BATTERY EXTENSION MODULE	35 kWh per module
MAXIMUM NUMBER OF BATTERY EXTENSION MODULES POSSIBLE	2
CASE	Stainless steel
WEIGHT	260 kg per module
DIMENSIONS	1140 x 270 x 575 mm

The E-COOLPAC basic package (controller module with battery module) and the battery extension modules are attached to the vehicle using uniform standard brackets.
All specifications are subject to change without prior notice.

Dimensions & weights

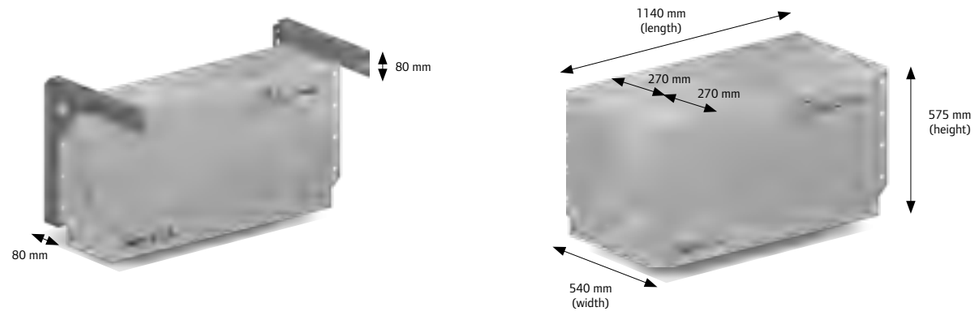
E-COOLPAC BASIC PACKAGE	LENGTH	WIDTH	HEIGHT	WEIGHT *
E-COOLPAC 15 kWh	1203mm (+102mm cooling fan)	575 mm	575 mm	320 kg
E-COOLPAC 20 kWh	1203mm (+102mm cooling fan)	575 mm	575 mm	340 kg
E-COOLPAC 25 kWh	1203mm (+102mm cooling fan)	575 mm	575 mm	370 kg
E-COOLPAC 35 kWh	1203mm (+102mm cooling fan)	575 mm	575 mm	420 kg

* Includes 2 support brackets for chassis



BATTERY EXTENSION MODULE	LENGTH	WIDTH	HEIGHT	WEIGHT *
35 KWH BATTERY EXTENSION MODULE	1140 mm	270 mm	575 mm	280 kg
70 KWH BATTERY EXTENSION MODULE	1140 mm	540 mm	575 mm	540 kg

* Includes 2 support brackets for chassis



THERMO KING & AKSA: an exclusive partnership of experts

The increased demand for electric solutions created the perfect opportunity for a collaboration between AKSA, Thermo King, and Frigoblock.

THERMO KING AND FRIGOBLOCK
Thermo King and Frigoblock are the electrification experts, offering an extensive portfolio of innovative, sustainable cooling solutions.

AKSA
AKSA Würenlos AG plans, supplies and installs grid replacement systems, combined heat and power plants, and transport refrigeration machines with its own specialized staff.

ADVANCED TECHNOLOGY
Decades of industry insights combined with innovation empowered this partnership to create a highly efficient solution for transport refrigeration.

COMPATIBILITY GUARANTEED
Hybrid, LNG, and electric trucks can all utilize this advanced modular battery solution and enjoy the peace of mind that comes from reliable equipment. This is your opportunity to replace your diesel genset powered refrigerated containers with a zero emissions future-proof battery powered genset to reduce your emissions and comply with your local regulations. It is ideal for port to distribution center transport or your daily reefer container transport.

The E-COOLPAC is your best ally to electrify transport refrigeration and other industries thanks to its modular and compact design.

SUSTAINABLE SOLUTION
Low noise, reduced fuel consumption, fewer CO_2 emissions: decades of experience have helped this partnership to find the most sustainable solution. Compliant with ultra low and zero emission zones, diesel ban areas, and low noise (PIEK) areas.

Professional support 24/7

The combination of Thermo King's international dealer network and AKSA's extensive electric experience ensures you are going to be on the road in no time, with availability of service, consumables, and spare parts at all times.

THERMO KING DEALERS DELIVER:
— Service points open every day of the year – find your closest at: dealers.thermoking.com
— A flexible range of service contracts that provide everything from administrative tasks to 24/7 real-time monitoring of your fleet.

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.

For further information
europe.thermoking.com

Find your nearest dealer on
dealers.thermoking.com

TRANE TECHNOLOGIES

Thermo King Europe – Lenneke Marelaan 6, B-1932 Sint-Stevens-Woluwe, Belgium