

DAIKIN



Daikin

LXE10E Reefer Machine

Carry your temperature-controlled container cargo confident in the knowledge it is receiving the ultimate care and attention from a Daikin machine.

Quality

Performance

Reliability

Quality Performance Reliability - Daikin consistently delivers all three essential ingredients for transportation of your refrigerated cargo

About the LXE10E

Daikin introduced the LXE10E to the industry in 2001. It was developed with close co-operation of shipping lines and operators to provide a product tailor-made to fit their requirements and specifications and was designed to surpass competitors in these three areas: *Quality, Performance and Reliability.*

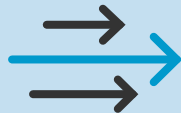
From design and development right through to the final manufacturing process, these are the three fundamental cornerstones of Daikin's philosophy.

Quality

Performance

Reliability

Advanced design



Daikin's commitment to manufacturing the best reefer unit in the market is characterised by listening closely to and understanding the needs of the industry, using a strong focus on design and technology coupled with the best tradition of the Japanese manufacturing industry.



The LXE10E advanced design features include:

- ▶ Inside temp range $-30/+30$ deg. C
- ▶ Ambient temp range $-30/+50$ deg. C
- ▶ Digital temperature control software to reduce power consumption
- ▶ Reliability in all weather conditions
- ▶ Low maintenance and Operational costs
- ▶ Environmentally friendly refrigerant
- ▶ Compliance with industry environmental regulations and forward looking design to comply with future legislation
- ▶ Sensitive temperature control - to protect fresh produce from freeze damage
- ▶ Hot gas defrost system – providing the most efficient and fastest defrost available

The majority of parts in a Daikin unit are designed and manufactured in-house, ensuring that components are purpose-designed and built to give the best possible performance in container refrigeration applications. It also enables Daikin to apply the most rigorous quality controls throughout the entire manufacturing process.

The LXE10E uses a single scroll compressor specifically designed for the demanding container industry. Both the refrigeration and electronic systems incorporated into the unit are modern and robust to ensure the best in performance, quality and reliability.

The standard Daikin machine operates in all conditions without the need for any additional equipment. Our competitors need to fit additional equipment to operate in all conditions.

With this machine Daikin are still leading the way, and with its continuous improvement processes, Daikin ensures that it remains a leader in design and technology within the industry. The market has recognised the exceptional value and performance provided by Daikin's LXE10E with the majority of the world's leading shipping lines now benefiting from the use of Daikin's machine in their fleets.



Scroll compressor



Scroll compressors offer superior performance in nearly all air conditioning and refrigeration applications. Daikin's 20 year history in the manufacture of scroll compressors, manufacturing over 1.2 million compressors every year means they can bring their expertise in this area to the container refrigeration industry. Daikin is the number one supplier of scroll reefer machines since 2003.

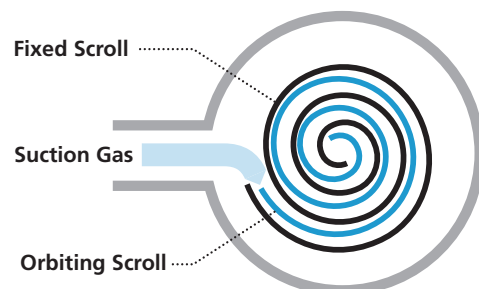
Scroll Compressors have already been adopted in the majority of air conditioning and refrigeration applications due to their superior performance compared with alternative technologies

Daikin has been designing and manufacturing scroll compressors for over 20 years. The company is one of the largest producers of scroll compressors in the world today, manufacturing over 1.2 million compressors every year for a wide variety of refrigeration and air conditioning products.

The scroll compressor used in the LXE10E machine was developed specifically for container applications, drawing on Daikin's extensive technological expertise, it is the only manufacturer of container refrigeration machinery that can offer this level of experience and expertise in scroll compressor technology.

This is reflected in real benefits to the refrigeration industry, Higher Reliability as a result of:

- ▶ Fewer components
 - Easier to manufacture*
 - High durability against shock and vibration*
 - Anti corrosive two-coat paint system to protect the compressor against severe environmental conditions.*
- ▶ Lower power consumption (more details overleaf)
- ▶ Greater cooling Capacity
- ▶ Higher co-efficient of performance (COP +10%)
- ▶ Lower weight (-50%)
- ▶ Lower Noise Levels



Low operating cost



The reliability of Daikin's LXE10E sets an industry standard for reliability, a factor which together with its lower power consumption translates in savings to owners and operators of the units.

Digital temperature control software

Developed for use with the LXE10E, DTMS (Daikin Temperature Management System) is a newly developed control logic that significantly reduces power consumption and provides the optimum airflow for chilled cargo.

DTMS significantly improves refrigeration performance by continually monitoring both supply-air and return-air temperatures, together with their rate of change. It works by automatically adjusting the cargo environment inside the container based on actual ambient conditions and cargo respiration rates allowing more accurate control and responding to real time conditions.

DTMS is the only product on the market to monitor all three of these parameters.

This enables the unit to operate at optimum efficiency, using the minimum amount of power necessary. Automatic adjustment of fan speeds also reduces produce dehydration, particularly for chilled cargoes with a higher water concentration.

Powerful cooling capacity

For non pre-cooled cargo: The LXE10E has excellent cooling capacity at temperature pull down, which can prevent chilled cargo from ripening.

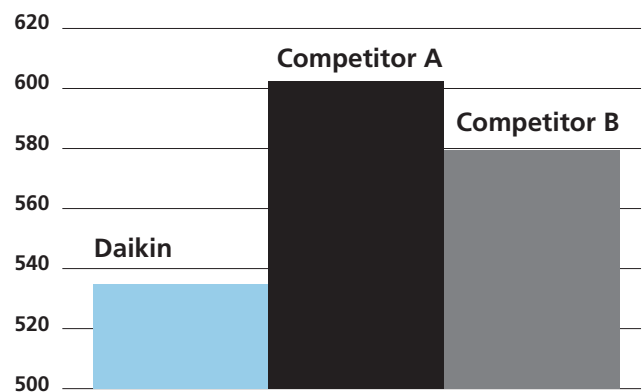
For deep frozen cargoes the LXE10E can reliably maintain lower temperatures and can prolong container life, reducing the impact of insulation deterioration.

It is capable of maintaining low temperatures (-29°C) in a 40ft hi-cube with high ambient (+50°C) conditions.

Latest independent test results provided by Cambridge Reefer Technologies:

- ▶ -29°C/+38°C: 4,000 watts
- ▶ -18°C/+38°C: 6,300 watts
- ▶ +2°C/+38°C: 10,600 watts

Total Cost Of Ownership (USD per year)



Superior reliability

By using the best materials and engineering know-how the LXE10E machine continues to provide the highest reliability in machinery for the container refrigeration industry, operational feed-back from our Customers confirms this.

Lowest Spare Parts costs

Daikin spare parts are approximately half the cost of any competitor. With the highest reliability and lowest cost of spares, Daikin Customers benefit from the lowest operational and M&R costs.

User friendly interface



The DECOS III controller fitted to the LXE10E has been designed for ease and simplicity of use. It is the only controller in the refrigerated unit market that comprises a graphical display, eliminating the need to fit and maintain a separate temperature chart plotter.

Clear and easy to use software

The LED/LCD displays, provide access to all sensor data and a graphical display of the recorded temperature. This function enables the unit to be operated without a separate temperature chart recorder, whilst the full trip data is also stored in the controller memory for two years.

Daikin's DCCS software has many advantages, providing operational data control, the generation of reports and analysing machine operation:

- ▶ Fast controller data downloads to personal computer.
- ▶ Easy analysis of live operational conditions with simplified piping diagram and actual sensor data
- ▶ Easy preparation of Trip/USDA/PTI reports etc. Quick and easy data uploads from your laptop

Twin Display monitor

A combination of LED and LCD displays means that various modes can be operated and monitored easily by the user:

- ▶ Continuous monitoring of temperature, alarm etc at ship's deck
- ▶ Monitoring for maintenance work at terminals
- ▶ All sensor data can be checked (HP/LP pressure/current/voltage etc)

Click touch keyboard

The control panel switches provide feedback to the operator to confirm successful operation:

- ▶ Selection of each mode (setting temperature/defrost interval etc)
- ▶ Altering initial settings (calendar, internal time etc) Automatic PTI function (short PTI/ full PTI/ manual check)
- ▶ Energy saving operation/automatic pump down
- ▶ Manual defrost
- ▶ Sensor data display



Service & after sales



Daikin is committed to the long-term success of our customers by providing high quality equipment together with the after-sales network required to support the global refrigerated container industry today and in the future.

To provide a high quality of after-sales care, Daikin has also continued to expand its Service and After Sales Network. A network of regional Daikin service managers and a comprehensive service dealership to provide full support and quality of service to satisfy and support customers' needs, no matter where they are in the world.

In order to provide customers with the best service possible there is a specially dedicated service and after sales website providing:

- ▶ 24 Hour technical support
- ▶ Training Seminars by qualified engineers
- ▶ online ordering of spare parts and parts search along with prices
- ▶ On-line warranty Claims applications
- ▶ Latest service related news
- ▶ Software downloads for the controller
- ▶ Download tools programme that allows customers to check the data history of controllers



Parts Centers



Authorized Repairers



Visit the Daikin After Sales and Service website at www.daikinreefer.com/service-and-after-sales

About Daikin



Daikin Transportation and Refrigeration Systems Division is a wholly owned division of Daikin Industries Ltd. Founded in 1934 and headquartered in Japan, Daikin Industries Ltd has grown into a world-leading producer of air-conditioning and refrigeration systems and fluoro-chemical products.

Our history in container refrigeration

Daikin was one of the first major manufacturers to enter the refrigerated container market back in 1968 and became the leading supplier of container refrigeration equipment throughout the 1980s.

In 1997, Daikin introduced the LXE10D, its first machine running on R134a. This was followed in 2001 by the launch of the ground-breaking LXE10E, a scroll compressor refrigeration unit also running on R134a.

The Daikin LXE10E was extremely well-received by the industry and has helped the company re-establish its role as a major global supplier of container refrigeration equipment. By the end of 2006, over 80,000 units had been delivered and in the five years since the introduction of the LXE10E, Daikin's customer base has increased by 1000%.

Today, Daikin is the largest global supplier of container refrigeration machines using scroll compressor technology. The company supplies equipment to over 50 liner shipping and leasing companies and continues to grow its customer base year-on-year in both the operating and leasing sectors.

Daikin manufactures its LXE10E units at a dedicated facility in Osaka, Japan, using the latest manufacturing techniques and equipment to ensure every machine attains the required high quality standards

The future

Daikin aims to continue strengthening its role as a long-term major global supplier to the refrigerated container industry by providing the best performing (quality & reliability) machines at realistic, economical prices. The company will continue growing its refrigerated container business while also expanding into the total refrigeration field to ensure a long-term supply of high quality machines with exceptional reliability.

Environment

Developing a series of energy-efficient products that exceed legal requirements and proactively developing initiatives to sustain and improve the environment, starting with design and development of products, through to materials procurement, production, and sales, and finally to product disposal and recycling, Daikin works to an environmental action plan which is strictly adhered to.

**In all of us,
a green heart**



For further information on our environmental policy visit
www.daikinreefer.com/environment



Daikin LXE10E Reefer Machine

Specifications

	LXE10E-A15	LXE10E-A5	LXE10E-A21	LXE10E-1
Multi functional electronic controller (DECOSIIIId) with integrated data recorder	Standard	Standard	Standard	Standard
Rechargeable back-up battery	Option	Option	Option	Standard
Dry battery	Standard	Standard	Standard	Not available
R134A refrigerant (non-CFC)	Standard	Standard	Standard	Standard
5.5kW Scroll compressor	Standard	Standard	Standard	Standard
Power supply 380 - 460V class (50/60Hz) power plug and 18m cable	Standard	Standard	Standard	Standard
Condenser Air-cooled condensing type, anti-corrosive copper fin & tube	Standard	Standard	Standard	Standard
Water-cooled condenser	Not available	Not available	Not available	Standard
Evaporator Pre-coated aluminium fin & copper tubes	Standard	Standard	Standard	Standard
Dual speed evaporator fan motors	Standard	Standard	Standard	Standard
Dehumidification control	Standard	Standard	Standard	Standard
USDA sensor receptacles	Standard (A)	Option (B)	Standard (B)	Standard (A)
High grade stainless steel back panels	Standard	Option	Standard	Standard
Aluminium back panels	Option	Standard	Option	Option
Inside temperature range: -30/+30 deg. C	Standard	Standard	Standard	Standard
Ambient temperature range: -30/+50 deg. C	Standard	Standard	Standard	Standard
Machine colour: Ceramic White (Daikin standard colour)	Standard	Standard	Standard	Standard

Options The Daikin LXE10E machine can be provided with the following options:

	LXE10E-A15	LXE10E-A5	LXE10E-A21	LXE10E-1
Fresh Air Vent Position Logging	Available	Available	Available	Standard
Dehumidification	Standard	Not available	Not available	Standard
USDA	Standard	Standard	Standard	Standard
Remote Monitoring Modem	Available	Available	Available	Available
Daikin Temperature Management System (DTMS)	Available	Available	Available	Available
Water-cooled condenser	Not available	Not available	Not available	Standard
Electronic Chart Recorder	Available	Available	Available	

For more information and news visit

www.daikinreefer.com