

Automated Deep-Freeze Logistics



How to put the biggest challenges on ice.

ssi-schaefer.com

Frozen Food Is Booming!

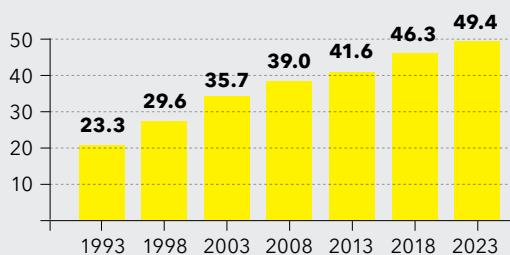
With a global market size of USD 297.47 billion in 2023 to a projected growth from USD 310.77 billion in 2024 to USD 441.11 billion by 2032 the frozen food market broke all records. The trend of recent years is therefore continuing. Europe dominated the frozen food market with a market share of 39.23% in 2023.

\$ 297.47 Billion

Market size breaks all records.*

Per capita consumption of frozen products in Germany**

(in kilograms, excluding ice cream)

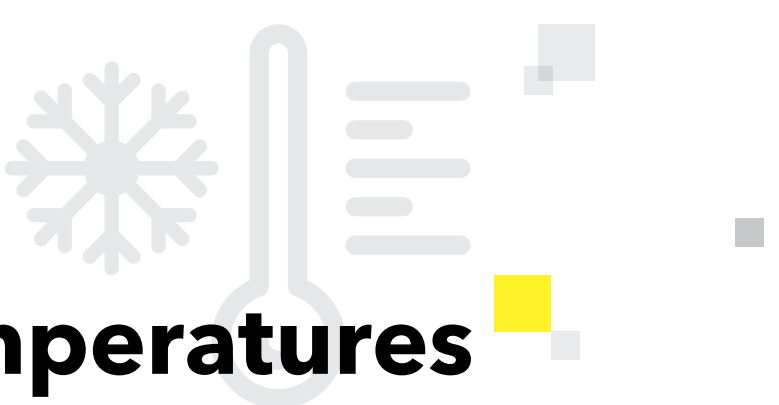


Long-term development
30 years in 5-year increments

* Fortune Business Insights: <https://www.fortunebusinessinsights.com/frozen-food-market-104138>

** Deutsches Tiefkühlinstitut e.V.: <https://www.tiefkuehlkost.de/tk-fuer-handel/marktueberblick-1/infografiken-fuer-handel>

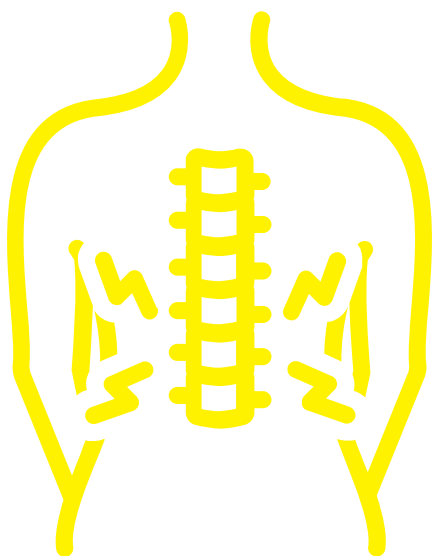
Logistics In Sub-Zero Temperatures



Despite inflation and a tense economic situation, frozen food remains on course for success. But this is precisely what poses challenges for logistics: **A lack of space, cost pressure and rising expectations in terms of quality and delivery times** are affecting both manufacturing companies and the food retailers, where temperature-sensitive products are handled. The high energy requirements of warehouses and the demanding conditions prevailing there further exacerbate the situation.

Too Few Staff?

The shortage of skilled labor can be felt everywhere in the industry. Especially in the deep-freeze sector: there are not enough qualified employees and: **fewer and fewer people** are willing to **work in freezing temperatures**. As the **physically demanding tasks at often unergonomic workstations** are only possible with extensive break times, this shortage is becoming a real risk for process reliability. In your deep-freeze warehouse too?



28%

of the causes of occupational disability are due to accidents and diseases of the skeletal and musculoskeletal system.

* Die Versicherer: <https://www.dieversicherer.de/versicherer/beruf/news/berufsunfaehigkeit-ursachen-143186>


Low Temperatures - High Prices



Although energy prices have recovered compared to the crisis year 2022, they are currently still at a high level. According to the Federal Ministry for Economic Affairs and Climate Protection, experts expect further increases in the coming years. **For the energy-intensive frozen food industry in particular, these costs can become a problem that threatens the existence of the company.**

Average electricity price for new contracts in industry compared to 2020*:

+138%



2023

24,46 ct/kWh



Future-Proof Solutions for Top Performance

As the intralogistics market leader, we not only know the challenges facing your industry. We also know how you can meet them: With **automated logistics systems**, we make your deep-freeze warehouse fit for today and tomorrow! Together, we plan and implement your ideal solution - for maximum performance with minimum energy and personnel costs:



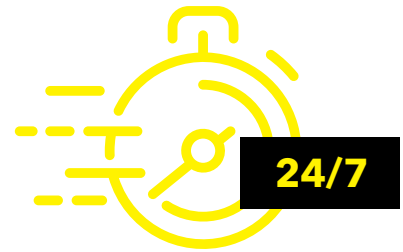
Save costs

Compact storage reduces your energy costs by up to 30%.



Less personnel required

Reduced staffing requirements not only reduce your costs, but also the risk of downtime and process-related errors.



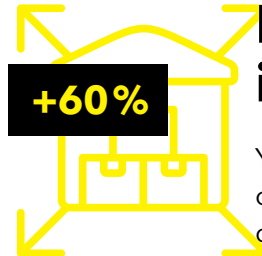
Speed up processes

Speed up your processes and even set up a 24/7 material flow if required.



Act sustainably

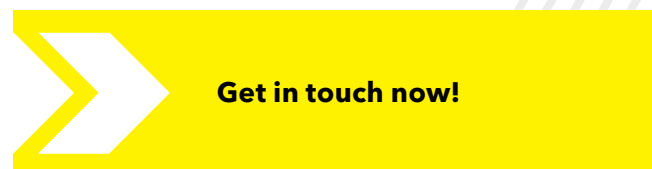
The optimum energy efficiency of state-of-the-art logistics and cooling systems is an important step towards a sustainable future.



More capacity in less space

You benefit from space savings of up to 60% thanks to multi-deep storage.

Whether in retail, production or logistics services, more and more companies are turning to automation in the cold chain. **Would you also like to take your deep-freeze logistics to the next level with us? Get in touch with us!**



Ice-Cold Success Stories: Our Customers' Projects

Automated solutions not only ensure smooth processes in complex deep-freeze warehouses, but also enable you to save costs in key areas. Whether semi- or fully automated: **We will consult you personally and put together the best system components for you from our portfolio.** What can this look like? The example of our satisfied customer [ASKO OSLOFJORD AS](#):

ASKO is Norway's largest food retailer. In order to meet the increasing demand for frozen products as well as its own sustainability goals, the company decided to build **a new, highly automated warehouse.** Together with SSI SCHAEFER, a new logistics center with high-bay and shuttle warehouses as well as robot technology in two different temperature ranges was built south of Oslo. Almost 90% of all processes were automated to optimize the material flow.



Customized Logistics Concept

On an area of 27,700m², ASKO uses the latest warehouse automation and software technologies for top performance and future growth.



High Density Storage

Maximum capacity thanks to double-deep storage. SSI Exyz storage-retrieval machines ensure maximum energy and cost efficiency - even in deep-freeze warehouses down to -28°C.



Highly Dynamic Small Parts Storage

The scalable single-level shuttle system ensures excellent space utilization and the best throughput rates for storage and retrieval. And perfectly meets ASKO's sustainability requirements: the unique technology with supercapacitors offers maximum energy efficiency.



Highest Delivery Quality

Automatic depalletizing relieves employees, enables ASKO to optimise staff deployment and ensures reliable delivery quality.



Optimized Capacity Utilization

The seamless connection of the various functional areas ensures the flow of materials, perfectly coordinated by the WAMAS logistics software.



Do You Already Know WAMAS?

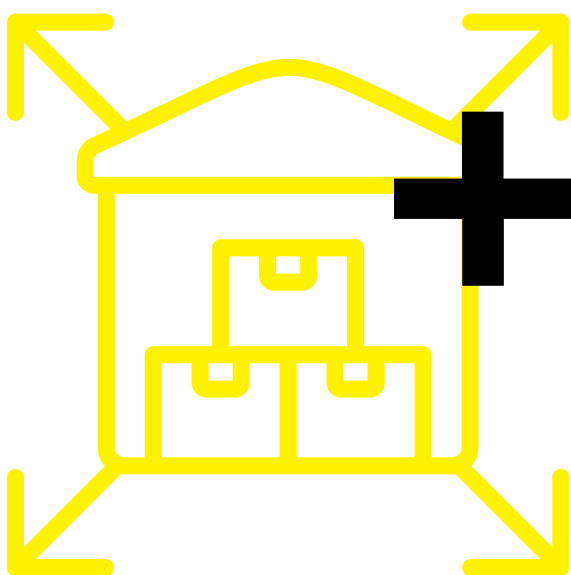
Our intelligent logistics software manages, controls, and optimizes all processes in your warehouse. The 360-degree modular software system can be used regardless of the degree of automation and can be individually adapted to your needs. Receive status information, collect relevant data for your lifecycle management - and fully exploit the potential of your refrigerated logistics!

[WAMAS® Software Solutions | SSI SCHÄFER \(ssi-schaefer.com\)](https://www.ssi-schaefer.com)

A Success Story Rarely Comes Alone

But SSI SCHAEFER solutions are not only setting standards in the food industry. In collaboration with the end-to-end logistics service provider [Noatum Logistics Middle East](#), the **largest mobile racking system** for deep-freeze rooms in the United Arab Emirates was installed in the KEZAD logistics center between Dubai and Abu Dhabi.

The use of the **heavy-duty mobile racking** not only increased cooling efficiency and storage density, but also improved the security of the warehouse.



+90%

**more storage capacity
with mobile pallet racking.**

**Discover more
in the Best Practice Guide!**



Frozen Food Talk: What Will the Logistics of The Future Look Like?

What really matters in deep-freeze logistics? Dirk Werthmann, Senior Project Engineer Logistics, Market Sector Production Logistics at SSI SCHAEFER, told us:

Question

How long have you been with **SSI SCHAEFER**?

Dirk Werthmann

I've been working at SSI SCHAEFER since **2017**.

Question

Since when have you been working in **deep-freeze logistics**?

Dirk Werthmann

I have been working on deep-freeze projects since **I joined SSI SCHAEFER**.

Question

In which countries do you work on projects?

Dirk Werthmann

Deep-freeze logistics is a **global business**, and many of our customers are active all over the world, so I've been able to develop solutions for our customers **on almost every continent**.

Question

Which product **fascinates you the most** and why?

Dirk Werthmann

Robots for fully automated layer picking, as the aim here is to transfer the sometimes complex picking processes into an efficient layout in conjunction with **lean Software**.



Question

In your opinion, what are the **biggest challenges in frozen food logistics?**

Dirk Werthmann

There are several. The **high operating costs** for refrigeration and warehousing in particular, but also the **shortage of skilled workers** are typical pain points. **Ensuring product quality** is also very important, especially in the food sector. Here it is important that all logistics processes are perfectly interlinked and that the goods can be tracked throughout the entire cold chain. Fortunately, **automation** allows us to make all the necessary adjustments.

Question

But don't **automation solutions** require a lot of energy - and are therefore **more expensive than manual systems?**

Dirk Werthmann

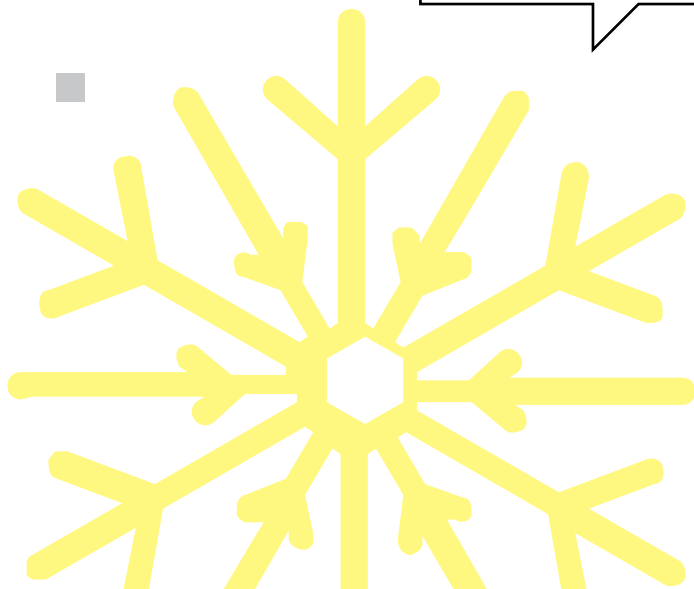
No, that's a **misconception**. On the contrary: a lot of space can be saved through consolidation, for example with high-bay warehouses. Less space to be cooled also means less energy consumption and therefore lower costs.

Question

Interesting! Does **sustainability** also play a role here?

Dirk Werthmann

Absolutely! Sustainability is becoming increasingly important for many of our customers. **Energy-efficient automation solutions** can also impress in this respect. If a warehouse is built upwards, this also saves floor space, and we have less impact on the environment.



Question

Automation can therefore help to save energy and reduce costs. Are there any **other advantages?**

Dirk Werthmann

Many, in fact! For one thing, automation can speed up processes and increase the **throughput of the warehouse**. On the other hand, product safety is also improved as the **risk of damage and errors is reduced**. The frequent touching of goods and condensation caused by many people in the deep-freeze warehouse can lead to more rejects. Finding **employees** to work at sub-zero temperatures is becoming increasingly difficult anyway - fully or semi-automated solutions can also help here.

Question

So, it **doesn't necessarily have to be a fully automated warehouse?**

Dirk Werthmann

No, that depends entirely on the customer's needs. We therefore always take a close look at the individual order profiles to find out which concepts make the most sense from an economic point of view. The advantage of **semi-automatic solutions** is that they offer much better working conditions than manual ones. This means better ergonomics, greater flexibility and better throughput values. **Fully automated solutions** and the use of robots then make companies completely independent and enable maximum efficiency, even 24/7.

Question

What is the difference between a conventional warehouse and a deep-freeze warehouse? And what should be considered when choosing components?

Dirk Werthmann

The systems in a deep-freeze warehouse **must be able to withstand extreme temperatures and high humidity**. We are talking about values between **-18°C und -28°C!** This requires special materials and processes that prevent condensation, corrosion, frost and ice formation and also function reliably under these harsh conditions. At SSI SCHAEFER, we offer a proven deep-freeze solution for almost all our products - both for shelving and for pallet or small parts systems.

Question

In your experience, **what is decisive for the success of a deep-freeze project?**

Dirk Werthmann

It is important to really think about **all interfaces**. That's why SSI SCHAEFER starts the project with a comprehensive planning and consulting phase. Together with the customer, we not only define the technical components and the software, but also **consider the entire system**: you need cooling systems that are normally built into the shelves, you have to work with airlocks that separate **different temperature zones** from each other, and the **fire protection systems** also have to be different in deep-freeze rooms than at ambient temperature. All of this must be taken into account and coordinated when building a deep-freeze warehouse.



„It is important that all logistics processes are perfectly interlinked and that the goods can be tracked throughout the entire cold chain.“



Dirk Werthmann

Senior Project Engineer Logistics,
Market Sector Production Logistics at SSI SCHÄFER

Our Expertise for Your Industry

From individual components to turnkey systems: we support you with **individual solutions** that can be flexibly adapted to new conditions and future growth. We analyze your needs precisely, advise you personally and accompany you step by step on the way to automating your deep-freeze logistics!



7 Advantages for Your Company

We offer you automated system solutions for maximum availability that can be implemented successively and within a short time - both for new buildings and in existing properties.

1



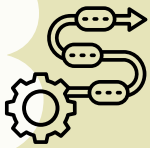
**Save space,
energy, and
costs**

2



**Increase
storage
capacity**

3



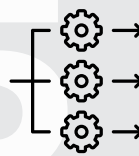
**Guarantee
seamless
processes**

4



**Achieve
better
throughput**

5



**Eliminate
redundant
processes**

6



**Enable
scalable
growth**

7



**Create
attractive
jobs**

When Will You Take the First Step With Us?

Do you have any questions or would you like to talk to us about your entry into automation? We look forward to hearing from you!

„We chose SSI SCHAEFER because of their reputation in the market and received a **customized service** right from the start. They advised us on the choice of layout and technology based on our process design. **The experts at SSI SCHAEFER have supported us from day one until today.**“

Magnús Óli Ólafsson
CEO Innnes Ltd.

Get in touch now!