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INTEGRATED AUTOMATION AND ROBOTIZATION
OF WAREHOUSE AND PRODUCTION LOGISTICS

RACK STRUCTURES, SELF-SUPPORTING WAREHOUSES

OWN SOFTWARE, LOGISTICS AND PROCESS DESIGN

CATALOGUE OF PRODUCTS AND SERVICES

IMPLEMENTED SOLUTIONS
GALLERY

AUTOMATING AND ROBOTISATION OF THE STORAGE AND MOVEMENT OF GOODS

COMITAS is the first full-service system integrator who, in addition to logistics/technology design and equipment, also develops automation and robotisation software for warehouse and production logistics by itself and customises it according to individual customer needs.
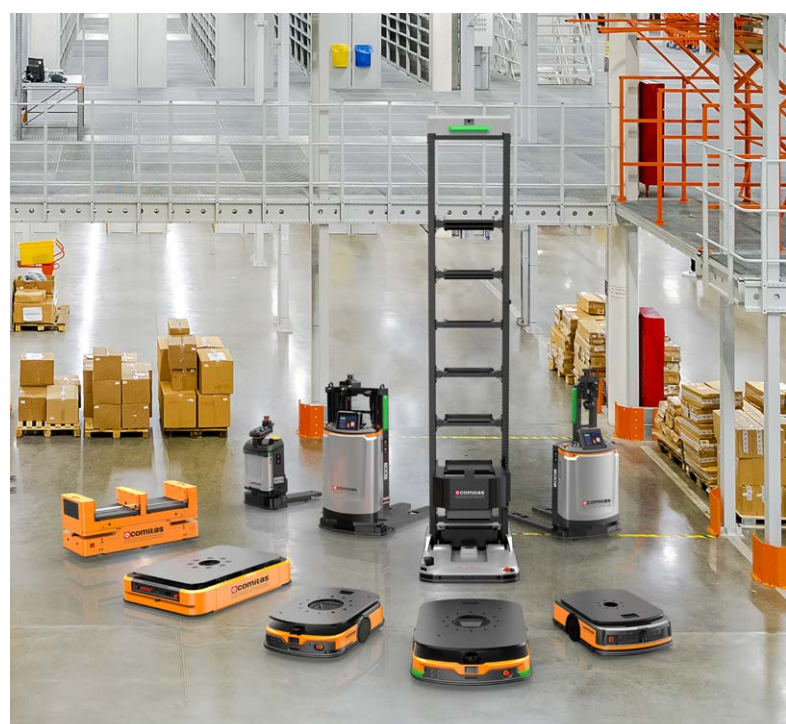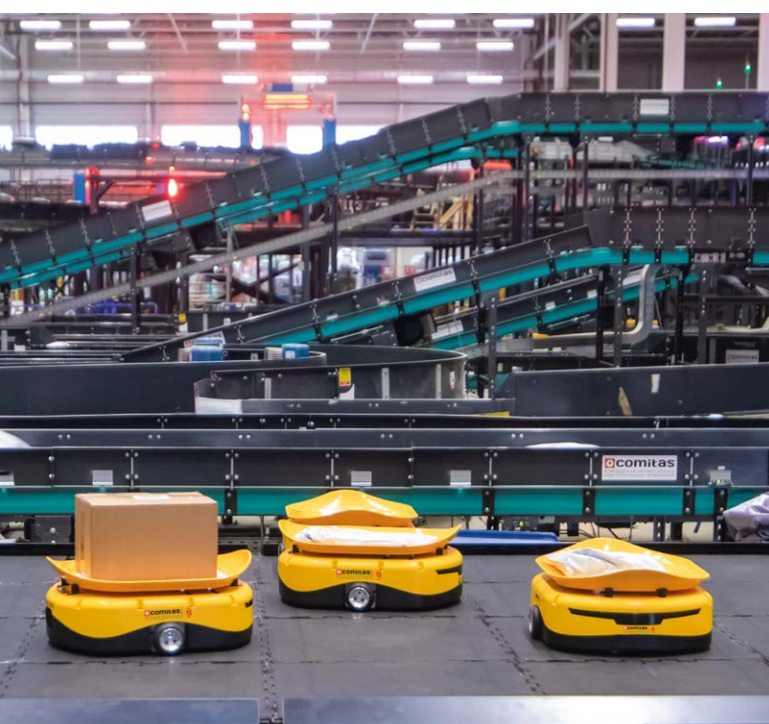
COMITAS has been present on the Russian and CIS markets for more than 15 years, implementing, among other things, large-scale projects in the field of complex automation and robotisation of storage and movement of goods inside warehouse terminals.

By providing its clients with modern solutions including high-quality hardware, software and the following 24/7 maintenance of the entire system, **COMITAS** helps companies to perform significant reduction of their fixed costs and to increase their productivity and recoup their investments in view of several years.

The **COMITAS** system integrator attracts and continually educates the best specialists in the industry - engineers, programmers, planners, assemblers; it accumulates competence, knowledge, skills and experience in all areas of warehouse logistics automation. The company leads the way in developing and implementing innovations, making them more accessible to Russian businesses.
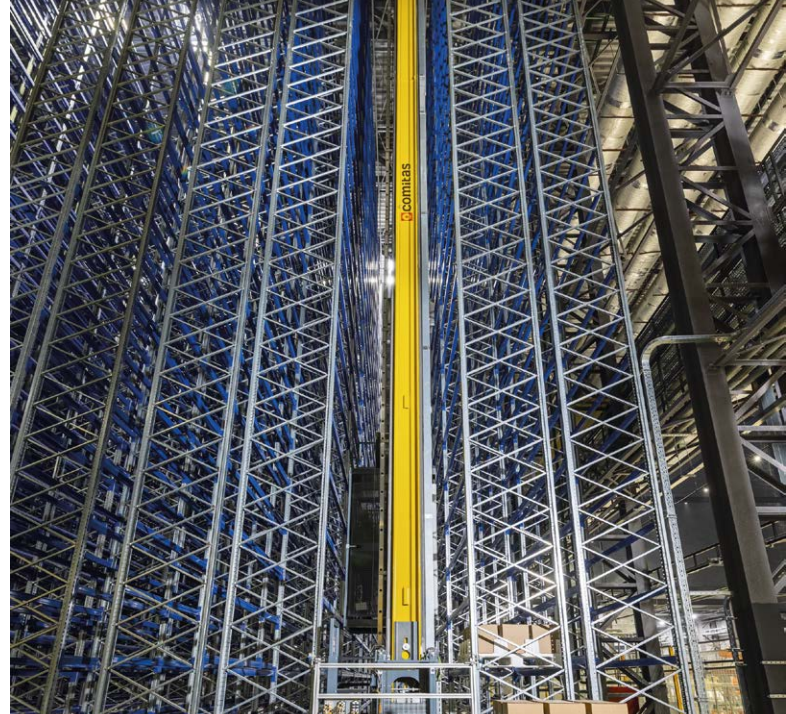
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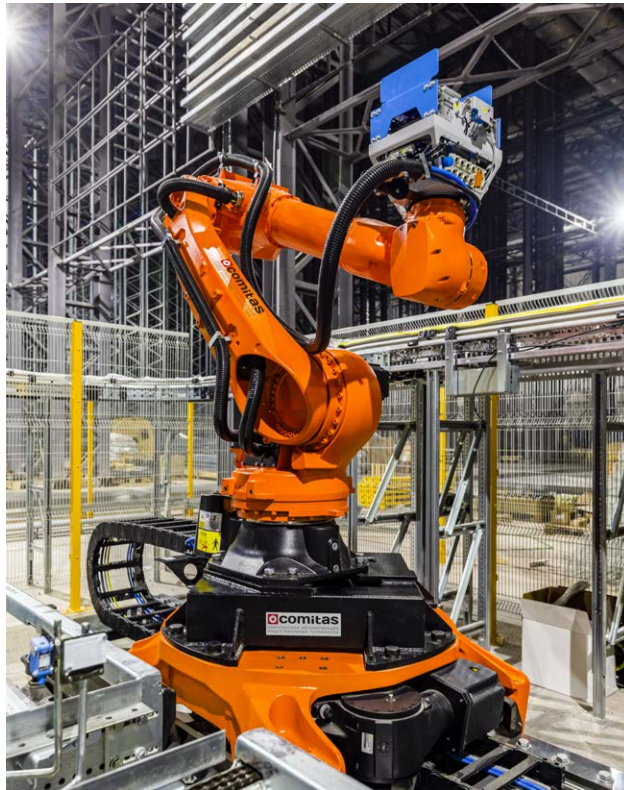
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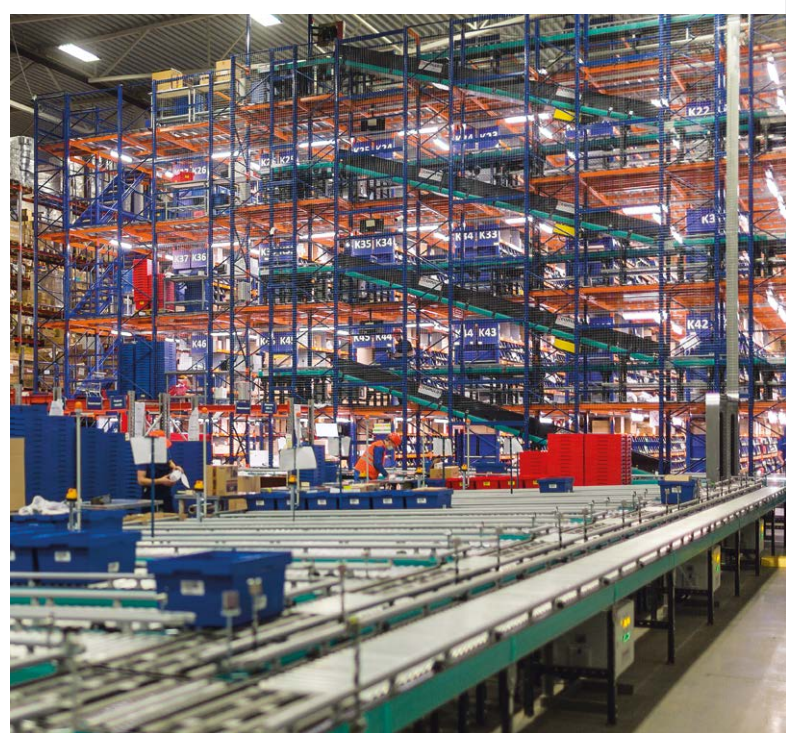
INTEGRATED AUTOMATION OF WAREHOUSE AND PRODUCTION TERMINALS

| **Elbow robots**

Nowadays, robots are increasingly being used in the fields of warehouse logistics and automated production. Some of the most popular are **elbow robots**, which can replace humans in difficult and dangerous terrain.

Elbow robots are capable of performing various functions such as moving and sorting loads, forming and unstacking pallets. At the same time, the machines ensure uninterrupted operation 24/7.

A wide range of lifting capacities makes it possible to choose the optimal robot model, while the high variability of the gripping system makes it possible to handle almost any type of load.

The rail system provides mobility for each robot, allowing it to work in several areas.

| **Monorail transportation systems**

The monorail system is applicable for high-speed movement of pre-installed cargo on the pallet. Movement of pallets is carried out on carts moving on a rail track (rails) attached to the flooring.

The monorail carts can be equipped with a variety of load-carrying mechanisms, making it possible to handle a wide range of goods with a variety of weight and size characteristics.

The monorail system is adaptable and easily scalable to the customer's needs; if necessary, additional transport carts can be added to or removed from the load handling process without stopping the process. Automated mode ensures uninterrupted operation with the specified performance and avoids errors.
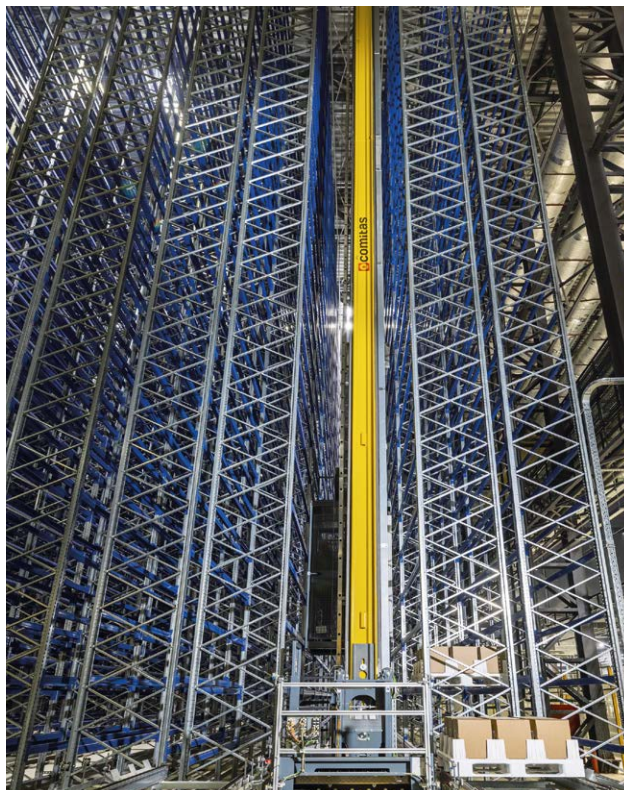

| **Stacker cranes**

A high racking system using **stacker cranes** can reduce the cost of storage and handling by increasing storage capacity in a small footprint.

Stacker cranes are available in different versions: mono or multi gang stacker (to allow operations in multiple gangways); single or double mast; single or double depth with shuttles or telescopic forks.

The solution features are: automation of work at heights beyond the reach of mechanical means, high productivity and. The growing demand for the technology is due to the increasing cost of land and labour. The average recoupment period for projects is between 5 and 8 years.
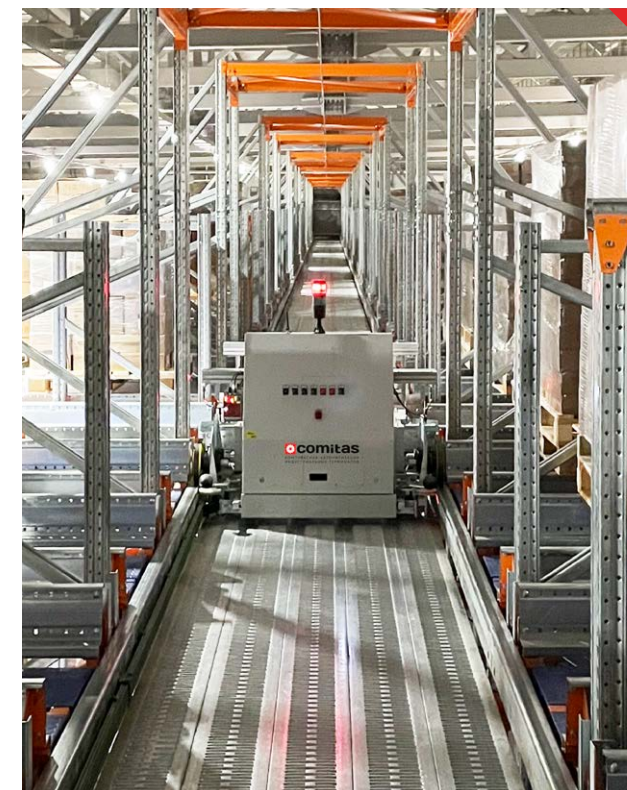
| **Satellite shuttle systems**

The satellite shuttle system is one of the most functional and modern solutions in automated storage and handling that can be applied in most existing warehouses.

In combination with the depth-type racking, **the satellite shuttle system** is able to ensure the highest possible occupancy of usable floor space and optimum cost per pallet space.

The satellite shuttle system is characterised by high speeds in deep channels, with storage heights of more than 30 m.

In these cases, it is possible to serve several levels with a single **satellite shuttle**.

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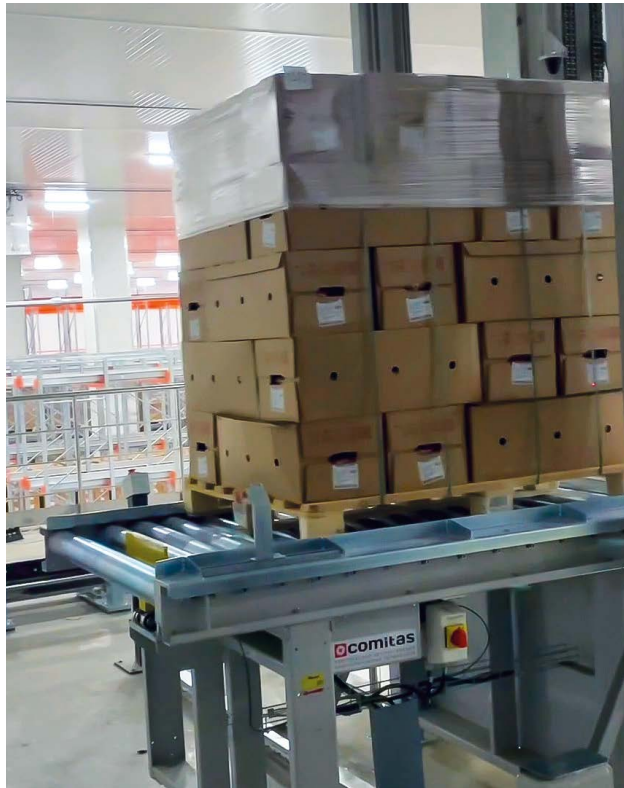
| Pallet conveyor systems

Conveyor equipment is widely used in the transport, handling and movement of goods in warehouse and production areas.

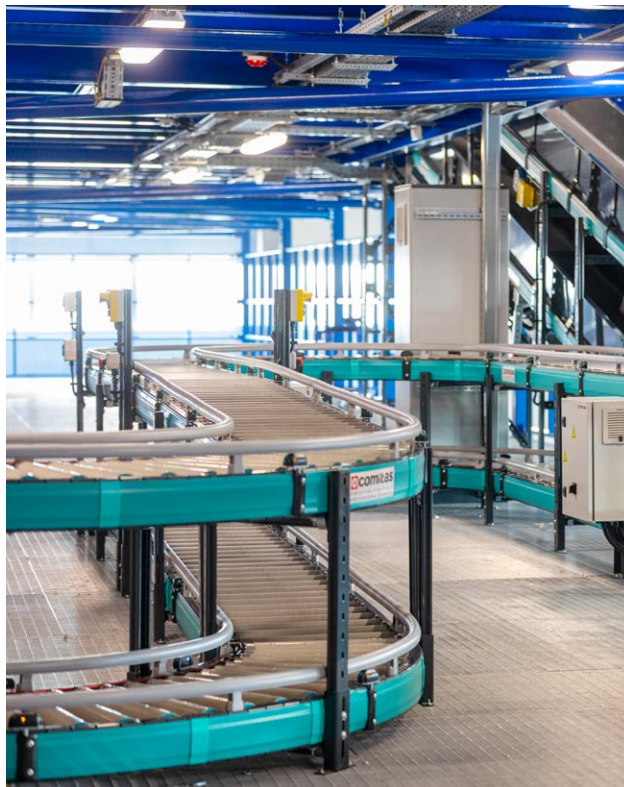The conveyor system consists of different types of modules, each of which performs a WCS-defined task: straight line movement; accumulation; changing direction of movement; feeding/unloading into the system and others.

Conveyor equipment can be provided with a barcode reading frame, modules for pallet weight and quality inspection, height limitation and other options.
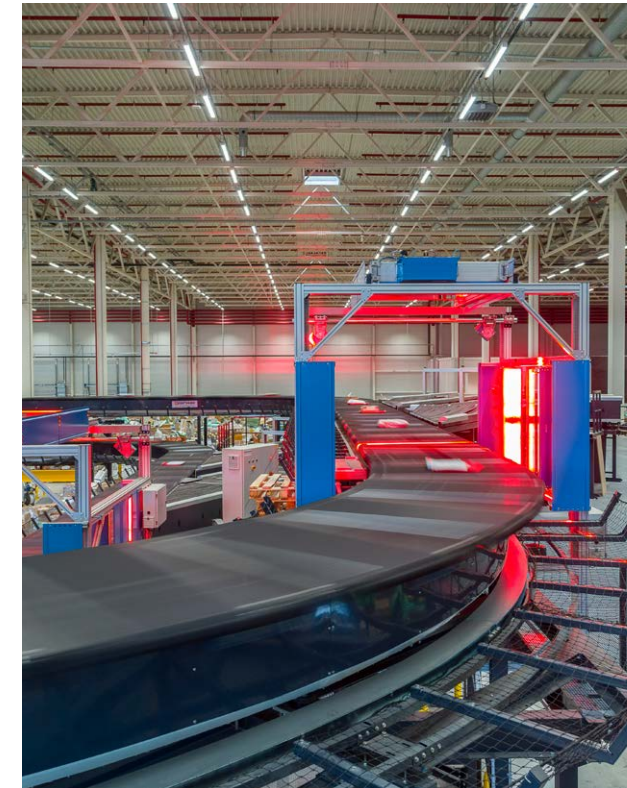
The wide range of applications for conveyor systems makes it possible to integrate them into complex production processes using stacker cranes, satellite shuttles, robots or other technological solutions.

| High-speed sorters

High-speed sorters are used in various intralogistics processes, such as receiving, processing and shipping goods. COMITAS offers a complete range of solutions for the reliable and cost-effective sorting of a wide variety of cargo units: boxes, parcels, packaged food, etc. The high-speed Cross-belt Sorter consists of a large number of conveyor belts running perpendicular to the main direction of travel. The sorting system itself includes feed areas (automatic or manual), sorting, parcel identification, sorting unit, exit areas, control unit, etc.

The sorting solutions offered by **COMITAS** are well proven in various areas such as e-commerce, courier services, retailers, and logistics centers.

| Box conveyor systems

Box conveyor systems are designed to handle pieces such as boxes and/or trays, with modularity of segments and sections, so that the configuration and operating logic can be changed. They can be used as a stand-alone solution or be a part of more complex systems consisting of several types of equipment.

The box conveyor systems solve many problems: from moving, descending and lifting to direct use in the technological process in picking, sorting and other warehouse operations. Such versatility is achieved by a large selection of modular segments: roller and belt conveyors, hoists, high-performance diverters and spiral hoists, etc., as well as the ability to be used in a variety of industries.

| A-Frame

The Automated Picking Machine (A-Frame) is a complete solution for distribution centres which enables fast and automatic picking of products with specific characteristics and accelerates the turnover of inventories. In particular, these are goods typical of the pharmaceutical and cosmetics wholesale trade.

The main advantage of the solution is the separation of the replenishment and picking processes.

A-Frame is replenished during off-peak periods and performs fully automatic picking during peak periods. The use of this technology eases the impact of peak loads, makes efficient use of off-peak periods and enables optimum use of resources.

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ROBOTISATION OF WAREHOUSE AND PRODUCTION TERMINALS

SR-robots (sorters) enable the sorting of piece goods by order or by direction, depending on requirements. The sorting of the goods on the robotised sorting line is carried out by a control system, which assigns each item to a sorting address. The only requirement for incoming goods is the presence of a barcode on the package or an RFID tag.

Depending on the model, **the robotic sorters** are able to carry different types of goods, ranging from a few grams up to 50 kg.

The key advantages of this solution are the portability of the sorting system, the scalability and the short implementation time, which allows this sorting method to be used on small areas with the prospect of further growth.

| SR-robots (sorters)

The automation of intra-warehouse movement of goods can start immediately at the unloading dock. **FMR-robots** are replacing forklifts with drivers.

FMR is an autonomous forklift truck that operates in automatic mode, carrying out tasks according to WMS commands. The reliable gripper system allows loads of up to 3 tonnes packed on pallets to be handled gently. Precise navigation and obstacle detection sensors ensure a safe and trouble-free workflow.

The forklift's on-board computer not only allows you to get the goods precisely into the right slot and avoid obstacles, but also allows you to choose the best route yourself. The autonomous forklifts have a charging time of 2 hours, after which they operate autonomously for 6–8 hours.

| FMR-роботы

AMR-robots are vehicles that use sensors, processors and navigation algorithms to move around a warehouse or facility without the need for physical guidance. Intelligent **AMR** navigation is provided by maps that are either constructed by on-board systems and software or downloaded already prepared in advance.

AMR is easy to adjust even while working, with the flexibility to rearrange the route and actions on the route available to them. When an obstacle appears on the path, the robot looks for ways around it and does not wait for the obstacle to be removed.

AMR-robots are characterised by high precision navigation, safety and versatility.

| AMR-robots

CTU-robots are a mobile system for servicing shelf racks. This type of robotics is used to feed «goods to person» with a selection from the storage area in automatic mode and for the reverse process of placing the goods into the specified storage cells. **CTU-robots** use QR code tags for navigation.

High performance is achieved by moving up to 9 boxes of up to 50 kg each at the same time, with a maximum working height of 8 metres.

The main advantages of **CTU-robots** are:

- high accuracy
- efficiency
- safety
- reliability

| CTU-роботы

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COMITAS SOFTWARE
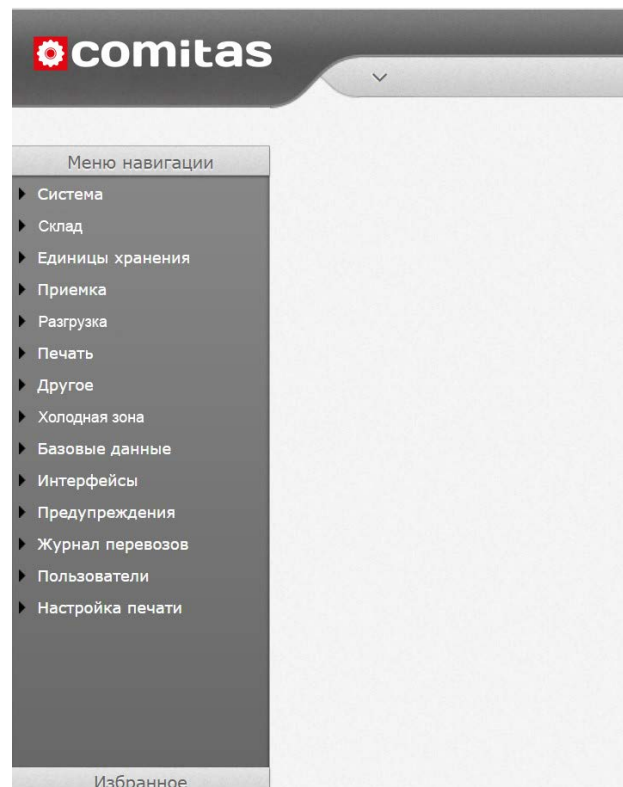
| WMS

A Warehouse Management System (WMS) is a software application that enables an organisation to handle most processes, such as incoming materials, storage, shipping and picking, quality control, inventory management and more. The WMS serves as a very important tool for supply chain management, with the aim of optimising processes to facilitate the routine operations of a warehouse or distribution centre.

WMS systems developed by **COMITAS** specialists can include the following functions: inbound delivery, storage, inventory management, outbound delivery, quality control support.

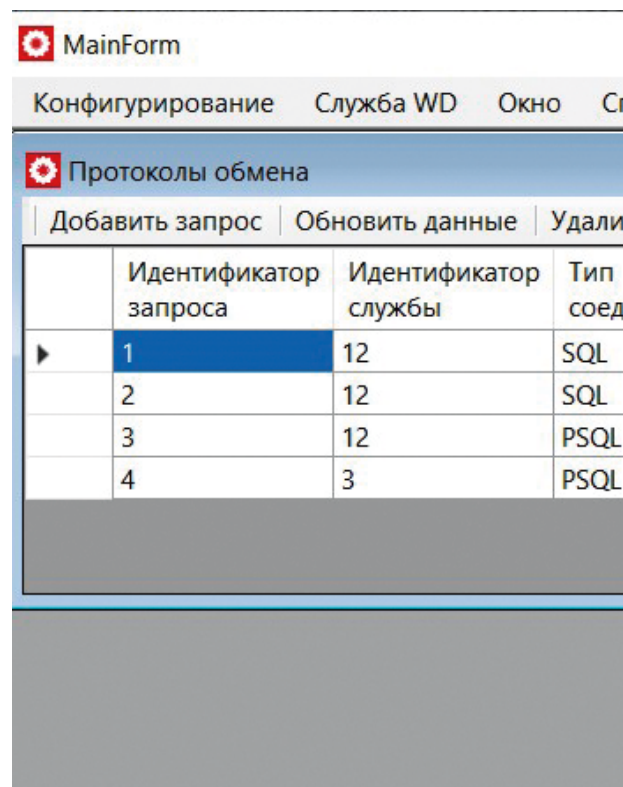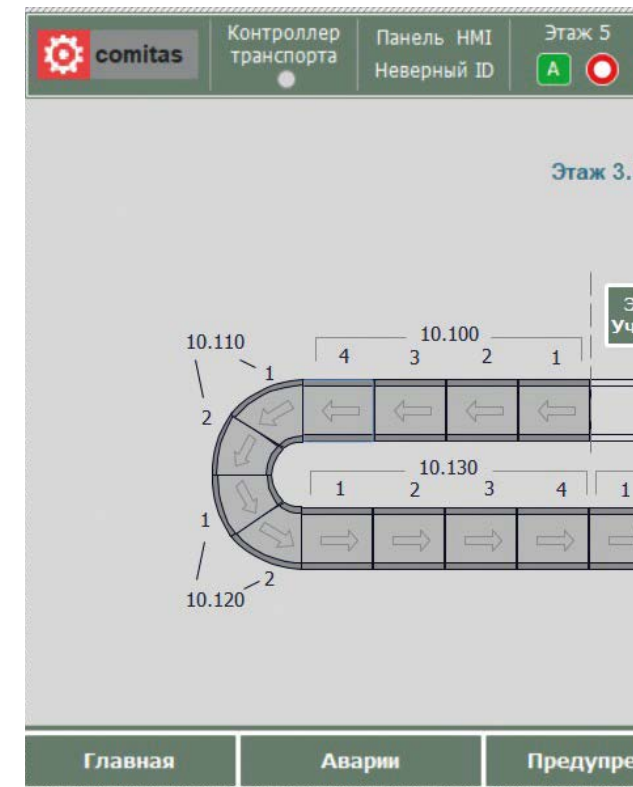A **WMS** is a vital ally of supply chain management, as it improves business agility and flexibility.

| PLC

The programmable logic controller, or PLC, is now commonly used in all kinds of technological processes and manufacturing industries. It makes possible to replace electromechanical relay systems by quick loading from a PC or programmer and thus change the control logic in seconds.

PLCs are based on the same technology as the computers and smart devices that most people use in everyday life.

COMITAS engineers develop the basic mechanisms of **PLC**. Programmes can include advanced functions such as mathematical operations, synchronisation, counting and exchange of information via modern network protocols. Every development is individually designed for each customer.

| WCS

The **WCS system is a top-level control system**, which is a hardware and software system designed to organize the interaction of various subsystems and components of the conveyor complex, as well as the interaction with **warehouse management systems (WMS). The WCS system** consists of several components: the exchange gateway, the database server and the visualisation subsystem. It can also be supplemented with various options to fulfil additional customer tasks.

The WCS system can perform the following functions: organisation of interaction with **production or warehouse management systems (WMS)**; calculation and adjustment of the route of cargo units for warehouse or production complexes; data archiving and collection of statistics.

| HMI (SCADA)

HMIs are hardware devices with software running on them that enable humans to interact with machines and robots.

The software developed by **COMITAS** engineers makes it possible to automate any customer task. It has a user-friendly interface, animated units, storage and alarm systems, self-adjusts various system parameters, and enables manual operation and differentiates access rights.

It is also possible for staff to use additional mobile tablets, which act as «thin clients» for the operator panel and thus provide full redundancy for the panel.

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STORAGE RACKS STRUCTURES

| **Front storage racks**

Front storage racks are the most common way of storing goods in pallets, on decks, in other packages and in pieces.

The uprights made from **S-355MC** steel, have a complex geometric profile which, together with additional horizontal and vertical stiffening ribs and specially shaped perforations, ensures maximum load-bearing capacity.

The closed cross-section beam consists of 2 nested C-profiles, which provides increased resistance to static and dynamic loads.

The special design of the support gives extra load-bearing capacity as well as distributing the load evenly on the floor. Front and side bumpers provide protection for the frames against mechanical damage.


| **Deep (packed) racks**

The deep (packed) racks are used to provide more storage capacity in a small area. They consist of a series of vertical frames on which the horizontal trays are mounted. Pallets are placed on the floor and on the pallet trays.

The complex geometry of the **S-355MC** steel profile with additional stiffening ribs and specially shaped perforations provides maximum load-bearing capacity.

The tray is a rolled delta profile made of galvanised steel and a delta tray bracket. Horizontal and vertical struts give the structure stability.

The bumpers serve to protect the frame from mechanical damage. The main section is designed to give rigidity and stability to the structure.
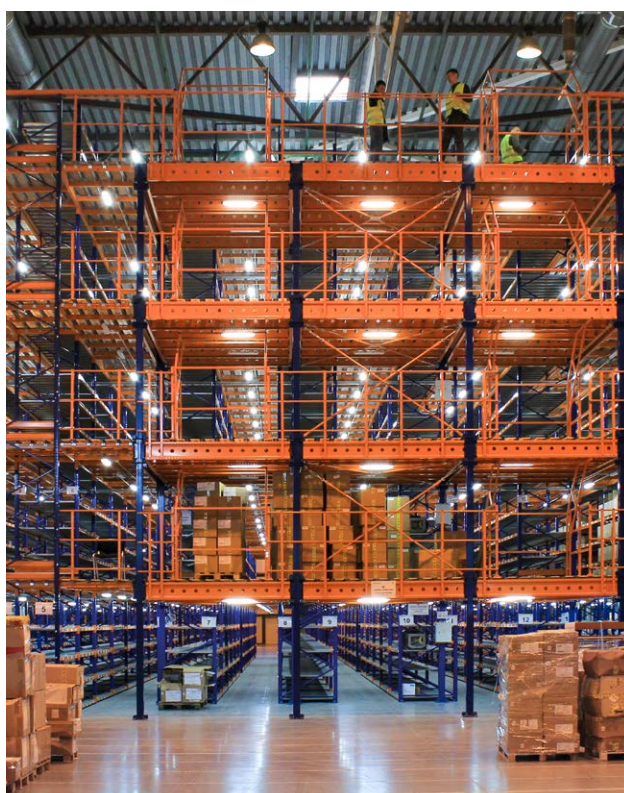
| **Mezzanines**

When warehouse space is limited and the range of goods continues to grow, the need arises for piece, box and pallet types of storage to be implemented in the same warehouse. In such cases, a mezzanine from **COMITAS** may be the best solution.

The convenience of this multi-level construction lies in the ability to use the full height of the room for storage and handling of goods, increasing the efficiency of the storage area several times over.

Mezzanine types:

- on shelf racks
- on SMK 50 lightweight shelf racks
- on pillars
- combined

| **Shelf and storage racks SMK 50**

Shelf racks of the medium load type are suitable for goods handled without the use of storage machinery. They consist of vertical frames assembled from uprights connected by a system of horizontal and diagonal profiles. The reliable frame construction also makes this type of racks suitable for multi-level and multi-storey shelving systems. Each level can be equipped with dividers for cellular storage of goods.

SMK 50 shelf storage racks are a lightweight self-supporting shelving system for light loads, which can be transformed into multi-level and multi-storey storage systems. Allows access to any item at any time. Each level can be equipped with dividers for cellular storage of goods.

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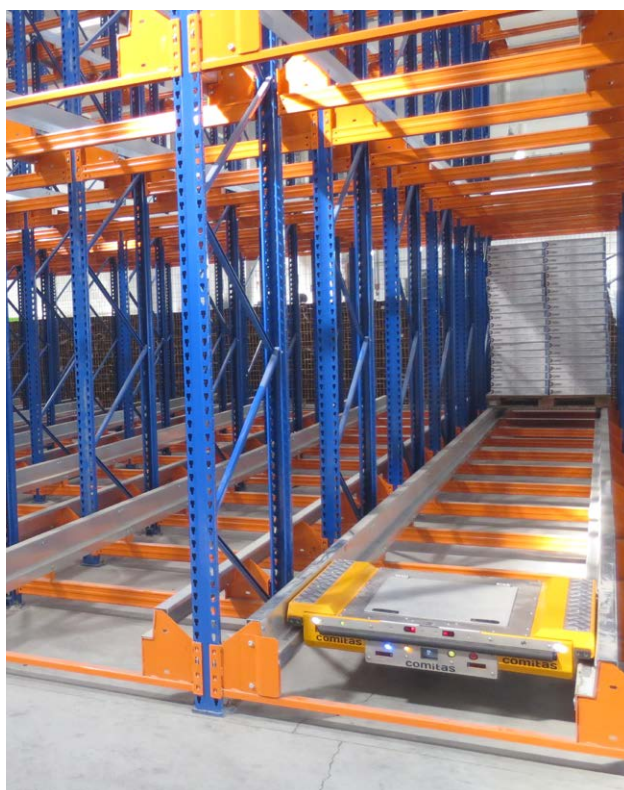FULL-SERVICE
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| **Cantilever racks**

Cantilever storage racks help to solve the problem of storing long goods. The storage system can be single or double sided (placed against a wall or in the middle of a hall).

The profile of the vertical racks is selected on the basis of the total load acting on the storage levels, the total number of tiers, and the storage depth.

The maximum height of the uprights can be up to 12 m; the profile of the uprights, made of 2 welded C-shaped elements, has a special side perforation for attaching consoles at 0.1 m intervals.

The base profiles ensure the stability of the rack and provide sufficient support even with high heights and total loads on the structure.

| **Pallet and shelf gravity systems**

Gravity racks ensure picking continuity by means of the inline storage principle, where a new batch of goods from dynamic stockpiling is placed on an empty position.

The solution is characterised by a design in which the storage areas for boxes or pallets are positioned at a slight angle of 4° to 5°. One side of the rack is for loading and the opposite side is for unloading. Due to the sloping surface, each successive box or pallet, after the previous ones have been removed from the rack, descends to the unloading point by itself.

These structures save warehouse space, reduce handling times, streamline storage, operate without energy consumption, and combine with other storage technologies.

| **Semi-automated shuttles
(radio shuttles)**

To maximise the use of warehouse space in the storage area, a system of deep racking and **remotely controlled trolleys — radio shuttles** — is used.

Radio shuttles allow you to move palletised goods inside a canal without the use of storage machinery.

Thanks to the wide range of functions built into the **radio shuttle** control system, cargo handling is significantly accelerated and the accounting of goods in the warehouse is made easier.

The depth of storage is almost unlimited and can be several tens of pallets, and with a **shuttle system**, storage heights of up to 12–14 metres can be achieved.

| **Self-supporting warehouses**

COMITAS presents the technology for building warehouses based on reinforced metal racks that become the carcass and are able to bear the load of the building and external natural factors. **Self-supporting warehouses** are a cost-effective, user-friendly, quick and easy-to-build option. A warehouse can be either a capital or a non-capital building. It can be built on the basis of any type of racking.

The V. A. Kucherenko Central Research and Development Institute recommends the use of **COMITAS** load-bearing steel structures in the construction of capital and industrial buildings.

From **FGBU VNIIPO of the Ministry of Emergency Situations of Russia** data was received on fire tests (determination of fire resistance limit) — **fire resistance limit is R-15 A self-supporting warehouse** can be put into cadastral register.

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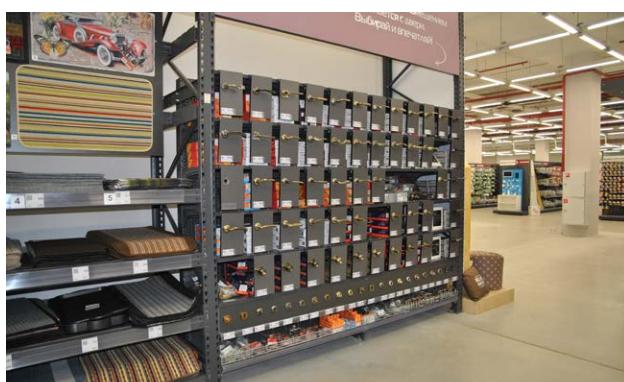OF WAREHOUSE AND PRODUCTION LOGISTICS

RETAIL STORAGE RACKS AND ACCESSORIES

Retail storage racks is a versatile equipment that allows you to display the goods and their effective demonstration to potential customers.

Retail storage racks can be wall, island, island with direct or semi-circular end, and can be designed for groceries, vegetables, fruits, alcoholic beverages, books, magazines, perfumes, tableware, clothing, shoes, flowers, sports goods, household appliances, tools, DIY-products and other types of goods.

Racks can be up to 4 m high. The design of the shelving allows you to assemble a set of any number of sections, change the slope and height of the shelves in steps of 25 mm.

Racks manufacturing technology is patented and certified according to international quality standards ISO 9001:2000, TÜV Rheinland, Rosstandart

| Retail storage racks

Shopping and cargo carts are a mandatory element for supermarket regardless of its business profile.

Their availability provides comfortable conditions for goods buying, increases clients loyalty and contributes to the growth of efficiency of the trading enterprise. Unlike baskets, shopping carts are designed to purchase large batches of different goods at once.

Specialised equipment is made to suit individual product characteristics. The main varieties: racks for fruit and vegetables, bakery products, bulk products, CD- and DVD-ROMs, books and magazines, household appliances, crockery, textiles, bicycles, exhibitors for mixers, glass display cases, multistands for carpets and linoleum.

| Carts and specialised equipment

Combined systems are specially developed for self-service stores — supermarkets and hypermarkets of DIY format. The efficiency of these systems lies in the fact that stores do not need to maintain a large warehouse — most of the stock is stored directly on the sales floor.

The upper shelf tiers are used to store goods, packed on pallets, the lower tiers — to demonstrate the goods to the customer. This solution allows the optimal use of space and provides maximum convenience for both customers and personnel.

Integration F25: combination of front storage rack and sales equipment.

Integration P25: combination of shelf storage rack and sales equipment.

| Combined systems

Retail accessories can significantly increase a shop's sales and make it stand out from many other retail outlets. Thus, the professional application of retail accessories takes the business to a higher level and retains a buying audience.

**Retail accessories are** used to rationalise the display of merchandise. In addition to standard designs, our specialists are ready to develop custom products. All accessories can be finished in chrome, zinc or any RAL color.

The right **retail accessory** not only makes the product on offer stand out and promotes its sale, but collectively makes the shop unique and different from the competitors.

| Retail accessories

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LOGISTICS AND PROCESS DESIGN

2. Double placement, single extraction:
a) simultaneous

	X	Y		Sx	Sy	tx	ty	T
Transfer from goods acceptance point Z2	0	2						20,00
Movement to delivery point (X1/5-Y2/3)	26,4	16,66666667		26,40	14,67	16,81	12,12	16,81
Placement of Z2 loads at the delivery point (X1/5-Y2/3)	26,4	16,66666667						20,00
Movement to pick-up point (X2/3-Y 1/5)	88,00	5		61,60	11,67	30,89	10,92	30,89
Pick-up of load Z1 at the pick-up point (X2/3-Y 1/5)	88,00	5						10,00
Moving to the transfer point	0	2		88,00	3,00	41,45	7,45	41,45
Unloading of Z1 at the load transfer point	0	2						10,00
								149,15
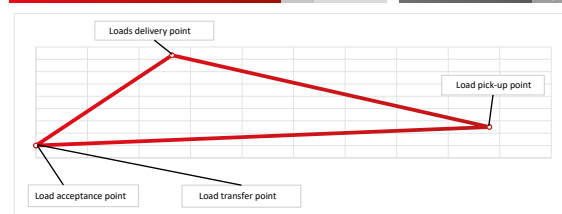
b) separate consecutive

	X	Y		Sx	Sy	tx	ty	T
Transfer from goods acceptance point Z1	0	2						20,00
Movement to delivery point 1 (X1/5-Y2/3)	26,4	16,66666667		26,40	14,67	16,81	12,12	16,81
Placement of Z1 load at the delivery point 1 (X1/5-Y2/3)	26,4	16,66666667						10,00
Movement to delivery point 2 (X2/3-Y2/3)	88,00	16,66666667		61,60	0,00	30,89	0,00	30,89
Placement of Z1 load at the delivery point 2 (X2/3-Y2/3)	88,00	16,66666667						10,00
Movement to pick-up point (X2/3-Y1/5)	88,00	5		0,00	11,67	0,00	10,92	10,92
Pick-up of load Z1 at the pick-up point (X2/3-Y1/5)	88,00	5						10,00
Moving to the transfer point	0	2		88,00	3,00	41,45	7,45	41,45
Unloading of Z1 at the load transfer point	0	2						10,00
								160,07
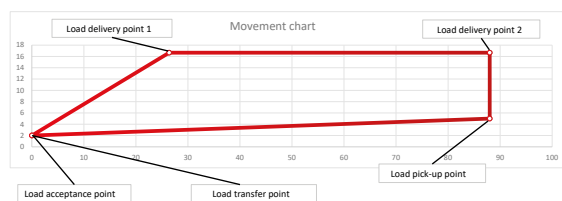
The need for **logistics and process design** occurs when the existing warehouse infrastructure no longer meets the requirements of business.

COMITAS is asked by customers with requests to design technologies both for existing facilities and for new warehousing and sorting facilities.

In the course of the work, the **COMITAS** technologists, together with the customer's representatives, select the technology options, work out the warehouse concept in detail, carry out zoning and calculate the required storage space, equipment, machinery and personnel. At the same time, a cost-benefit assessment is carried out and a detailed description of the storage processes is made.
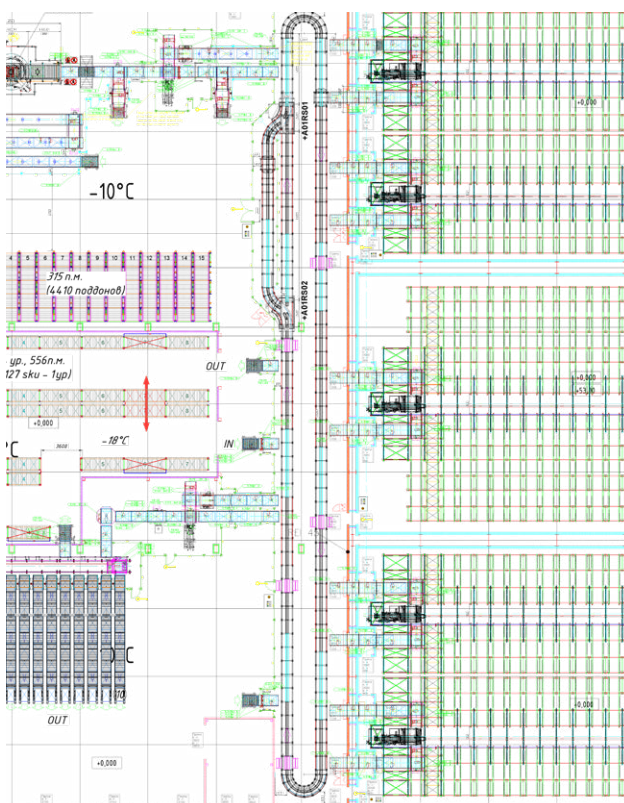
The solutions offered by **COMITAS** allow for a gradual increase in capacity and a smooth transition between different technologies. The company does not offer box solutions as every warehouse is unique.

The work may include the following modules: audit of existing goods handling technology; logistics expertise of the development site; development of warehouse organisation schemes for the site; analysis of goods flows in view of logistics system development; logistics design of warehouse facilities; development and description of business processes for rational warehouse technology; implementation of the developed business processes.

Depending on the needs of the customer, logistics design can include both the full range of work «turnkey», and individual blocks.

24/7 COMITAS CUSTOMER SERVICE TEST LABORATORY

For **COMITAS** it is very important to not only provide integration solutions for warehouse automation and robotisation, but also to ensure their 24/7 operability in the future. The company's customer service is available 24 hours a day, 7 days a week.

COMITAS remote technical support specialists will advise the customer and help to resolve the problem with the equipment remotely. If this is not possible, mobile engineers are on hand to help, ready to come out and fix the problem at any moment.

If a sufficiently serious breakdown is detected on the site, the company's other dedicated specialists get involved.
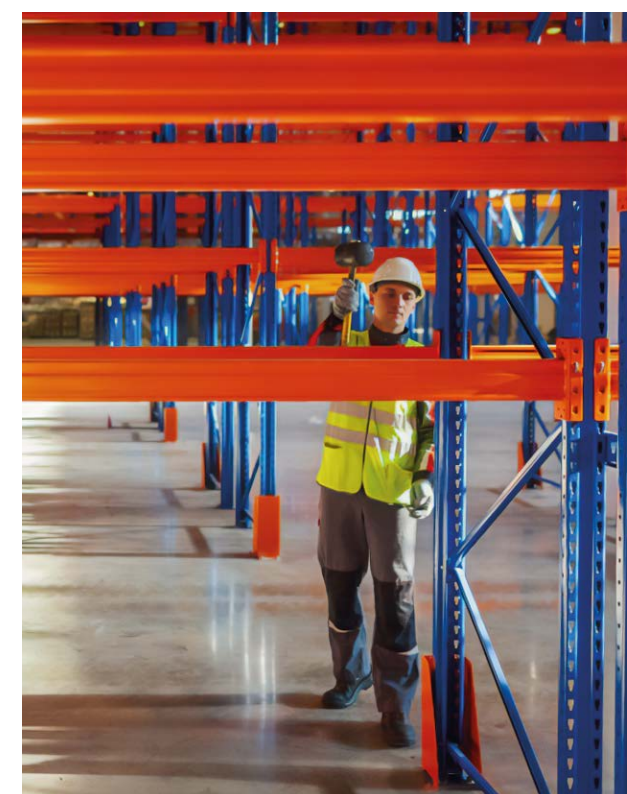
The requirements for racking structures are formulated and codified in 2 basic standards: GOST R 55525–2017 and GOST R 57381–2017.

The main functions of the **COMITAS** test laboratory are to provide partial and complete technical certification of steel structures for customers who have all types of racks described in Russian industry and national standards, acceptance services for racks after assembly and installation and static tests.

The **COMITAS** test laboratory is accredited by the Rosaccreditation system (RA.RU.21NS09). The laboratory specialists are qualified to carry out non-destructive testing using the VMC method and have the necessary certificates, training and experience.

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OF WAREHOUSE AND PRODUCTION LOGISTICS

COMITAS IMPLEMENTED
SOLUTIONS GALLERY

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TASK: Optimise the storage of archive documents and increase the speed of retrieval

The area for the racking structure of the automated storage system is 53,000 m².

The racking structure height (24 storage tiers) is 22.6 metres.

The storage capacity (storage volume) of the warehouse is 533,000 pallets.

The capacity (throughput) of the automated storage system:

- for unloading - at least 170 pallets per hour, not more than 200 pallets per hour
- for loading - at least 170 pallets per hour, not more than 200 pallets per hour

SOLUTION: Robotics and automation of the storage and movement of archive documents

- 15 stacker cranes: rated load 190 kg, crane height 22.6 m, passage width 1.6 m
- Pallet racks (Double deep technology): maximum weight is 190 kg number of storage levels is 24

- Monoflex system (20 trolleys and rails): payload/load capacity 190 kg, driving speed 120 m/min
- 4 robotic arms
- 2 spiral conveyors
- Driven box conveyor and pallet conveyor

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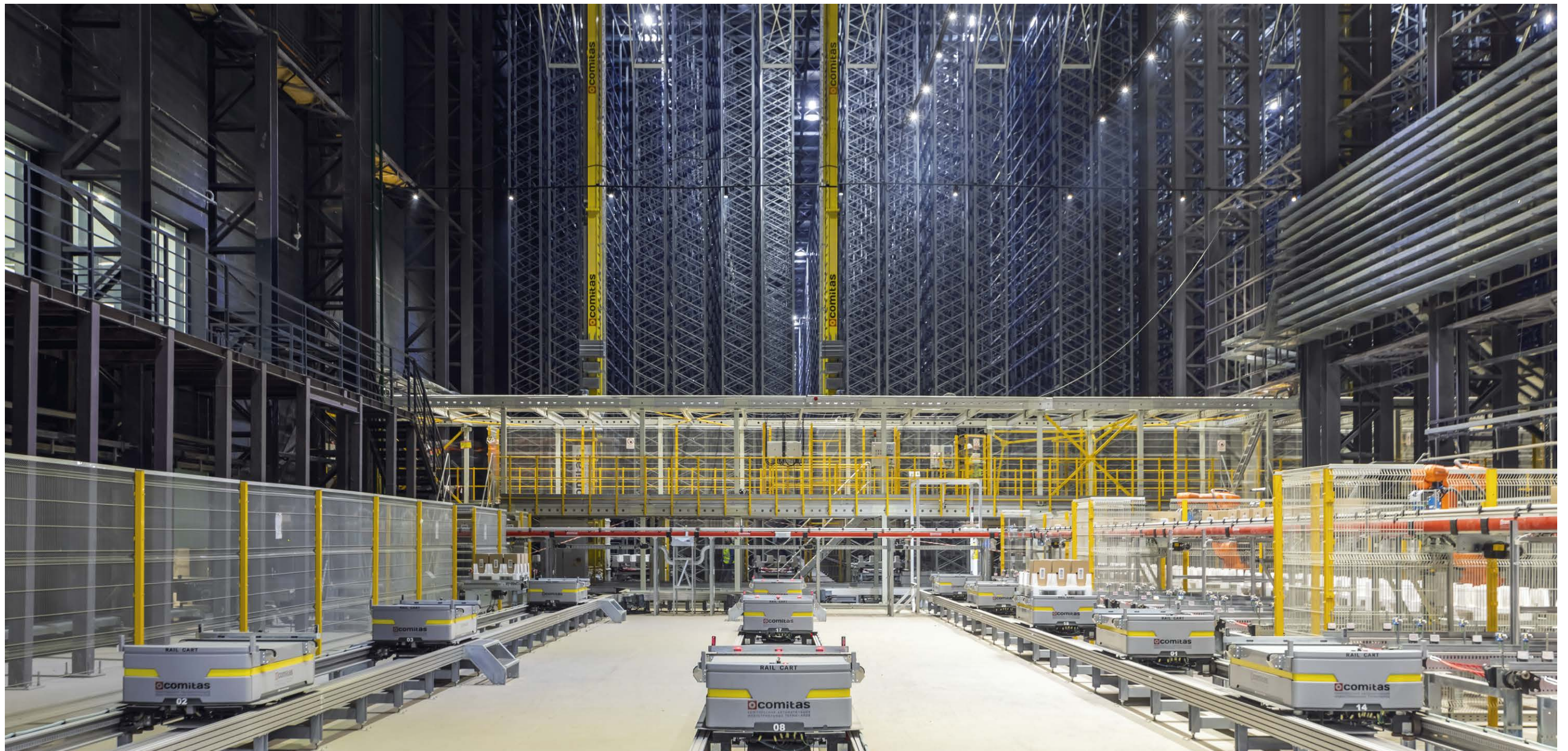
TASK: Applying robotic sorting technology

COMITAS, together with the customer, has developed several applications for robotic sorting technology:

- sorting loads from envelopes to items up to 500 × 500 mm and weighing up to 5 kg
- certain robot models can actually handle loads up to 600 × 600 mm and weighing up to 50 kg

SOLUTION: Automated sorting by robots

- improving the quality of loads handling, reducing the number of errors
- speed up loads handling processes
- increasing the volume that can be handled at a given site
- various options for scaling up the proposed solutions

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TASK: Automation of a warehouse for frozen semi-finished products

Construction of an automated low-temperature warehouse, which must have the following characteristics:

- temperature –24 °C
- total capacity: 20,405 pallets with products (70% euro and 30% industrial)

- number of SKU: up to 1000
- capacity: 120 pallets per hour
- the new warehouse for frozen products must be connected to the production area and to the goods dispatch area

SOLUTION: Automation of storage and handling of goods in a low-temperature warehouse

- 12 automatic shuttles ISAT and IMASTER (6 per block)
- 2 product pick-up lifts, 2 product drop-off lifts and 2 lifts for transferring IMASTER and ISAT to the -5°C service area
- 7 SLS trolleys on a monorail

- quality control system: on each of the 3 incoming conveyors the pallet with the goods is identified by checking the shape, weight, dimensional deviations and pallet identification code
- SLS trolley service area
- conveyor system for movement of pallets

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TASK: Creation of an automated complex for storing finished products

The land area for the automated complex is 10,440 m².

Creation of an automated storage system based on different technologies using the LIFO principle and the possibility of in-channel FIFO shipments.

- storage capacity: 24,614 pallets
- temperature range:
  storage area -27 °C,
  pallet formation area -10 °C,
  manual picking area -18 °C
- number of SKU: 11
- capacity: 83 pallets per hour for input and 125 pallets per hour for output

SOLUTION: Assembly of an automatic system for product sorting, handling, assembly and transportation

- box type conveyor, conveyor transport system
- elbow robot with load-handling mechanism - 4 pcs.
- pallet wrapper
- 3 frames of dimensional measurement
- labeler

- system for automatically inserting a category A pallet under a category B pallet
- Monoflex induction transport system
- 5 stacker cranes
- 3 racking structure blocks
- 5 DCS shuttles

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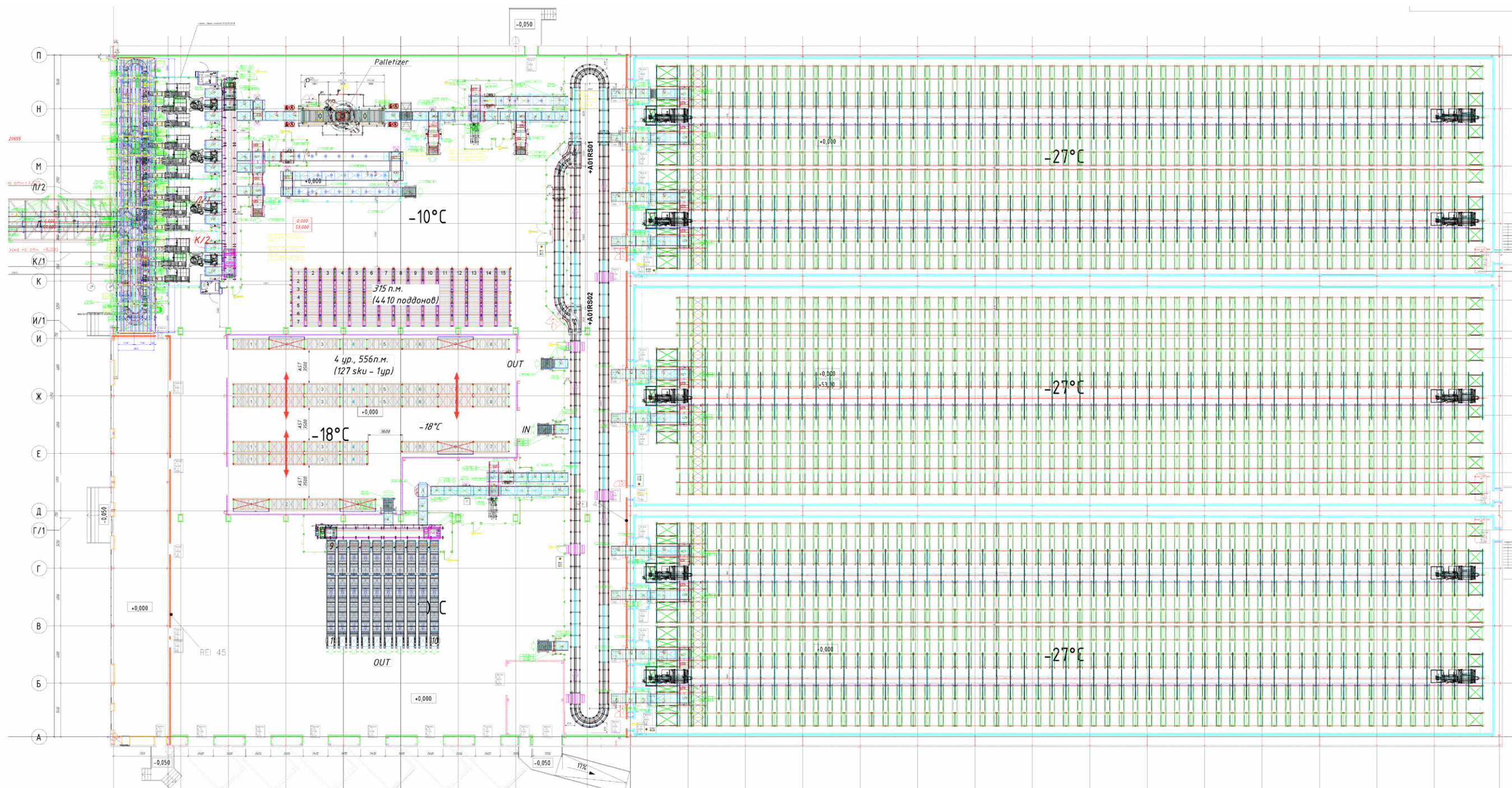
TASK: High-speed sorting of deliveries

Logistics complex, Moscow region.

Design, delivery, assembly and commissioning have been completed.

- occupied area: 730 м²
- compact solution
- 24/7 customer service

SOLUTION: Automated sorting facility

A high-speed sorting system with Cross-belt Sorter technology was designed, delivered, assembled and commissioned.

- automatic load sorting to 43 destinations
- capacity: 7,500 dispatches per hour
- automated barcode scanning of dispatches

- automated weighing and dimensional measurement of loads
- variable sorting scenarios by product attributes and properties
- effective operation at low and high speeds

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TASK: Sorting centre with high capacity and a large number of sorting addresses

Warehouse complex, Moscow region.

Design, delivery, assembly and commissioning have been completed.

Implementation period - 12 months

SOLUTION: Automated sorting centre with double-level Cross-belt Sorter

The design, delivery, assembly and commissioning of a high-speed sorting system have been completed

- feeding conveyor system: 243 conveyors

- automated barcode scanning of shipments, weighing and measurement of load dimensions

- automated introscope zone

- 2 independent sorter levels

- automatic load sorting to 300 destinations

- capacity: 480,000 loads per day

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TASK: High-speed cargo handling on a limited area

Sorting centre with a total area of 2,500 m² and 24/7 opening hours.

Cargo handling for Moscow, St. Petersburg and the central sorting centre.

After installation the site should have space for operational needs.

A large volume of orders are processed during the night shift and there are peak loads.

SOLUTION: Automated sorting complex located on the platform

All cargo handling has been lifted onto the platform; this leaves 2,000 m² of floor surface area for operational needs.

- the capacity of the sorting facility is 7,000 items per hour

- automatic barcode scanning from 5 sides, automatic weight and dimension measurement

- number of sorting addresses: on platform - 35, with floor level access - 7, total number of final sorting addresses - 700+

- addresses of additional sorting are equipped with a Pick to Light system for increased productivity

- control system from **COMITAS**

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TASK: Equip the fulfillment area with a storage and sorting system for goods

- warehouse area: 9,200 m^2
- warehouse height: 12 m
- round-the-clock warehouse operation, 2 shifts of 10.5 hours, 7 days a week

SOLUTION: Mezzanine with automated system of replenishment, selection and sorting of goods

- front racks in the pallet area - for 2,283 pallets
- mezzanine of 5,500 m2 on the floor: a platform with 3 levels of shelf storage made it possible to place workplaces and automation under the mezzanine without allocating additional space
- storage capacity: 34,300 SKU/2,066,760 pcs.

- 14,976 shelf levels
- volume of all orders per shift - 28,800
- equipping the warehouse with automated equipment for moving, sorting and accumulating goods
- the number of sorting directions is 6, the branch of the direction to the customs area

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TASK: Design and equip a pharmaceutical warehouse

Designing a warehouse «from scratch».

The number of SKU in warehouse is 20,000.

Total area — 4,000 m².

It's necessary to collect up to 50,000 orders per shift.

Shipment of drugs to its own pharmacy network (more than 650 pharmacies).

SOLUTION: Pharmaceutical warehouse automation

- equipping with front racks around the perimeter

- conveyor and order pick-up area - on 3 floors of the mezzanine

- special shelves for drugs allow you to store goods in an orderly manner and quickly form an order

- reversible plastic containers with pre-applied barcodes descend on gravity shelves

- fast and accurate movement of containers

- all containers are routed to the sorting area, where they are distributed in 11 directions in accordance with the WMS task

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TASK: Streamline and rationalize the work of employees on the mezzanine without disrupting daily processes

- over 68,000 m² of floor space, 24,000 SKU, including 18,000 SKU on the mezzanine

- 30 vehicles unloaded at once

SOLUTION: Automation of the mezzanine

Design, delivery, assembly and commissioning have been completed.

- a box conveyor with a sorting area inside a 5-level mezzanine

- possibility of commission from 5 levels of the mezzanine

- error-free automatic sorting of orders into 16 destinations

- **COMITAS** conveyor control system handles 800 boxes per hour

- control of collected orders by means of dynamic scales

- boxes that do not comply with the parameters are transported to the control area

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TASK: Handling of 2.4 million goods items at the largest DC in the Urals region

SOLUTION: 5-level shelf mezzanine

Largest DC in the Urals region
Implemented — 09.2021–05.2022

Mezzanine is 11.5 metres high,

5 storeys with 5 levels of box storage on each floor: combined mezzanine module

with shelf storage and platform design.

The system is divided into 3 areas: a platform area for receiving, sorting and distributing goods on pallets, a platform area on the first mezzanine level for organising workstations, an area for storing goods on shelves in boxes.

Design, delivery, assembly and commissioning have been completed.

- 5-level shelf mezzanine with a total area of more than 65,000 m^2
- more than 320,000 storage cells

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TASK: Construction of a warehouse for finished products, raw materials and supplies in a short
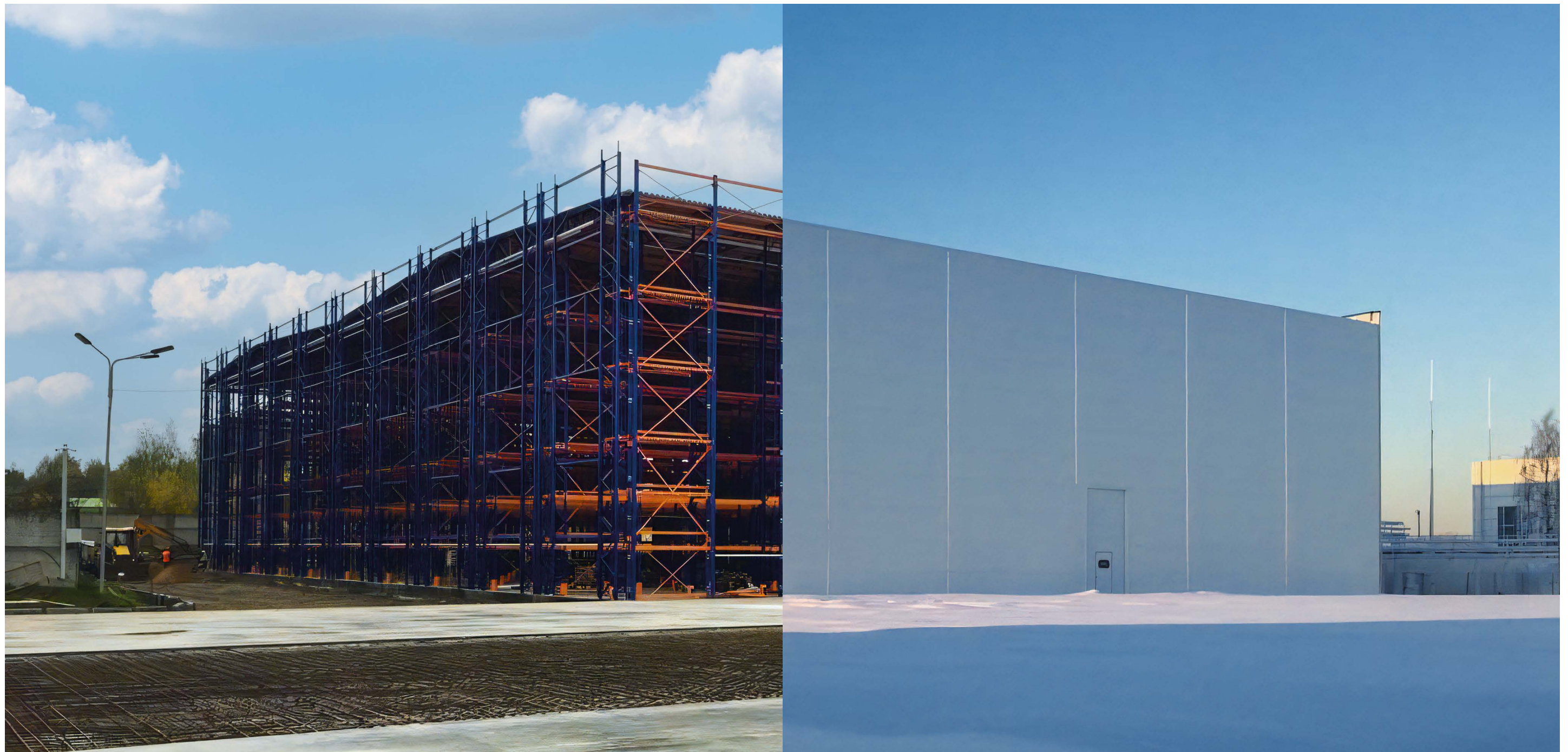
Moscow region.

- area — 2 800 м²

SOLUTION: Construction of a self-supporting warehouse with frontal storage system

Construction of a self-supporting warehouse with frontal storage system

- capacity - 5,445 pallet places
- height to truss bottom - 12 m
- floor load - 7 t/m²

- 5 years warranty
- loading capacity - at least 170 pallets per hour, no more than 200 pallets per hour

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We offer unique racking «Kifato MK» **CERTIFIED by German TÜV RHEINLAND** shelving equipment «Kifato MK» in our market

Own **LOGISTIC AND TECHNOLOGICAL DESIGN** Department

Many years of **PARTNERSHIP WITH LEADING MANUFACTURERS OF EQUIPMENT** for warehouse automation and robotization

OWN STAFF OF PROGRAMMERS for the development of our **OWN SOFTWARE** that we are **READY TO MODIFY ACCORDING TO THE NEEDS OF THE CUSTOMER** and keep maintained in the Russian currency

COMITAS CUSTOMER SERVICE and active rapid response **HOTLINE** to support its customers **24/7**

TEST LABORATORY certified by Rosaccreditation that allows to provide the **STRICT QUALITY CONTROL** of metal structures

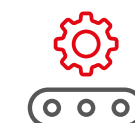**SPARE PARTS WAREHOUSE** for automated equipment with a constant stock of products

Collaboration with **INTERNATIONAL SPECIALISTS** to provide modern and innovative solutions and technologies in the sphere of warehouse and production logistics to our customers

Willingness and availability to **INVEST** in our own development and that of our clients

COMITAS – IT COMPANY
Registered **SOFTWARE**

COMITAS OWN PRODUCTION:
conveyor equipment

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