

Store-Age, Vertical warehouse for E-Commerce (New York)

Les grandes villes du monde font face à une nouvelle demande, l'E-commerce. L'ensemble des magasins se réinvente pour vendre via internet, derrière le rideau se passe alors une réorganisation logistique pour approvisionner la ville: nourriture, habil, électronique, moto, voiture même des avions ou simplement un tournevis tout est achetable via internet. Mais ce qu'on achète n'apparaît pas par magie, des hubs de marchandises complexes, trient, emballent et envoient nos commandes. Ce flux avant immatériel devient alors physique et se matérialisent dans nos villes. Au cœur des échanges, l'entrepôt de stockage actuel est la plateforme nécessaire pour une bonne redistribution. Connaissant une croissance continue dans le domaine de la vente à distance, à 37 milliard de dollar entre 2014 et 2015 aux USA, les infrastructures de stockage supportant l'E-économie vont connaître une congestion croissante. C'est pourquoi le projet propose un nouveau modèle d'entrepôt de stockage.

Store-Age est un gratte-ciel New-Yorkais qui utilise son noyau comme emplacement idéal de stockage et offre des planchers lumineux pour des activités standards. Le gratte-ciel devient alors une pièce technique dans le bon fonctionnement de la ville.

Cette verticalisation du stockage est rendue possible grâce à un assemblage de technologies existantes (produite par Swisslog) ainsi que quelques innovations et la capacité accrue de gestion des stocks par un traitement numérique.

La robotique implique plusieurs avantages et changements pour le stockage

- Une accélération du temps de livraison, la commande peut être traitée instantanément et directement emballée. Cela indépendamment de l'heure de commande
- Une réduction des erreurs, l'utilisation robotique permet une utilisation massive de données sans avoir d'erreurs. Ce qui implique aussi une réduction de logistique inverse, la remise en place d'articles issu d'erreurs.
- Un changement des travailleurs, si les stockages ne demandaient pas des compétences à la main d'œuvre, celle-ci nécessite maintenant des ingénieurs en robotique et des informaticiens pour maintenir le système.
- Le traitement des données prendra en compte les conditions nécessaires aux livraisons (métro, trafic, départ des envois pour réduire la congestion en métropole).

Today the big cities of the world are facing the new demand, e-commerce. The totality of the shops was reinvented to sell via the internet - the reorganisation of the logistics to supply the city happens behind the scenes. Food, clothes, electronics, motorcycles, cars, planes or simply a screwdriver can all be bought on the internet. However, what we buy doesn't appear magically - the hubs of merchandise are complex, sorting, packing and sending out our orders. Therefore, the flows, appearing to be immaterial, become physical and materialise in our cities. At the core of the exchanges, the current storage warehouse is necessary for a good redistribution. The domain of the of sales in a distance has known a continuous growth, for example, more than 37 billion dollars between 2014 and 2015 in the USA. This growth implies that the storage infrastructure supporting the e-economy is facing the increase in congestion. Consequently, the project proposes a new model of warehouse.

Store-age is a New-York skyscraper which uses its core as an ideal placement for storage as well as proposing the luminous floors for the standard activities. As a result, the skyscraper becomes a technical puzzle piece in the urban well-functioning.

The assembly of the existing technologies (produced by Swisslog), as well as some innovations and the current capacity of stock management by numeric treatment, makes possible the storage verticalisation.

- The robotics imply many advantages and changes for the storage handling:
 - Accelerating the delivery: the command may be treated instantly and be directly packed. This would be done independently from the time of order;
 - The minimization of the errors: using the robotics illuminates the human error. This would also mean a reduction of the inverted logistics - the handling back of articles issued by a mistake.
 - A change of the workforce: the storage wouldn't require physical effort anymore - now it will need robotic and computer engineers to maintain the system.
 - Implementing delivery constraints: the data treatment will take into the account the necessary conditions for delivery (metro, traffic, parcel dispatch) to reduce the congestion in the metropole.

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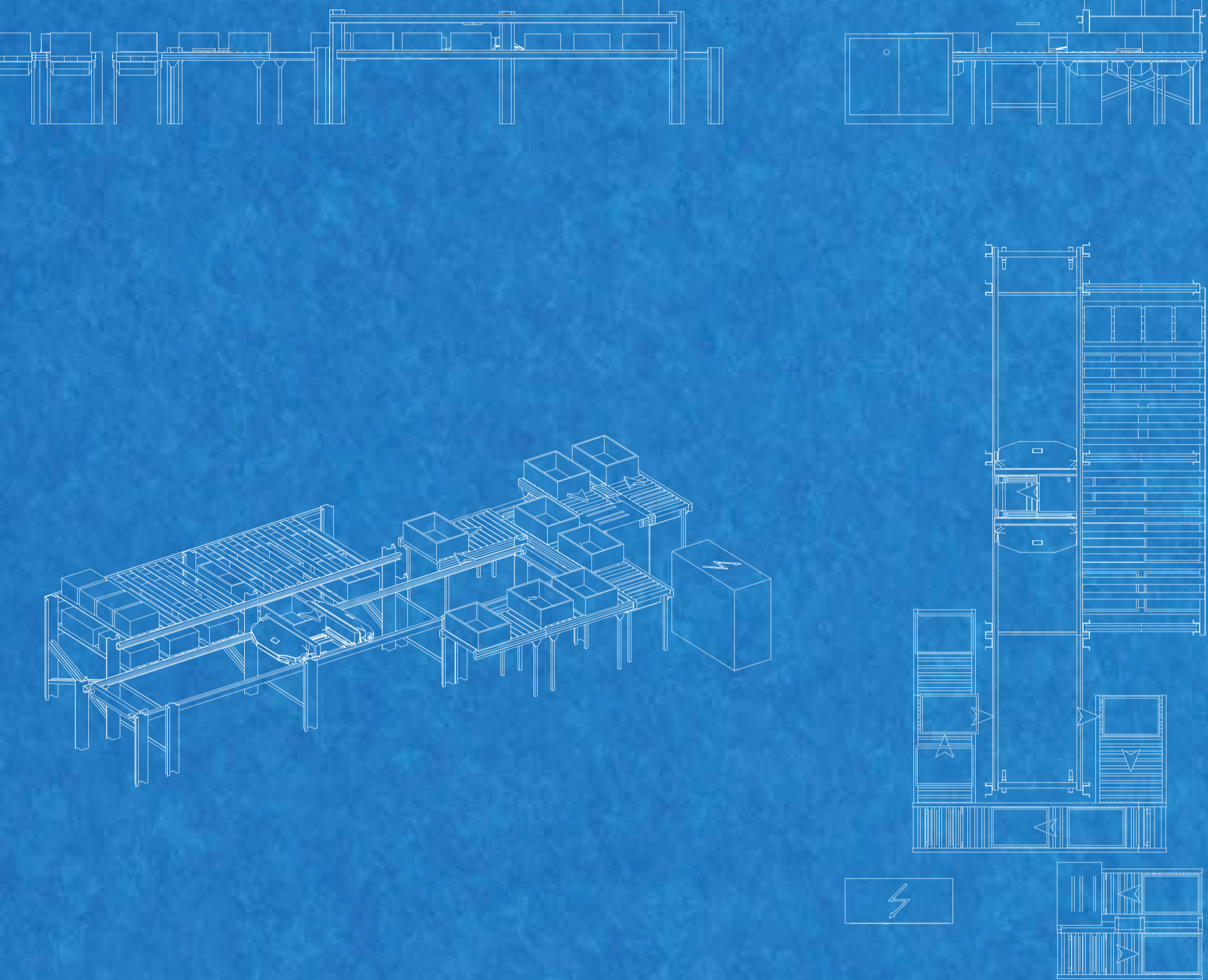
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2 CycloneCarrier:

Shuttle System for Dynamic Storage and Retrieval of Light Goods

The CycloneCarrier shuttle storage and transport system moves cases quickly and safely for improved warehouse efficiency. The shuttle system is particularly well-suited for the requirements of the e-commerce, pharmacies and fresh food industry.

- Load weight per transport unit: up to 35 kg, standard application
- Transport unit dimensions: min. 200 x 80 x 50 mm / max. 450 x 650 x 500 mm
- CycloneCarrier vehicle speed: up to 4.0 m/s
- CycloneCarrier vehicle acceleration: up to 2.0 m/s²
- Lift speed: up to 6.0 m/s
- Lift acceleration: up to 3.0 m/s²
- Throughput, single-deck version: up to 700 infeeds and outfeeds per hour
- Throughput, double-deck version: up to 1.000 infeeds and outfeeds per hour
- Lift height: max. 25 m
- Temperature range: min. 0 °C, max. 45 °C

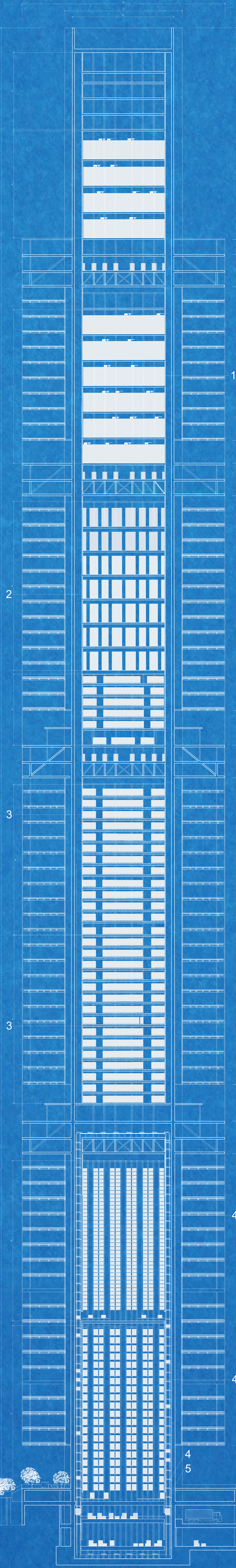
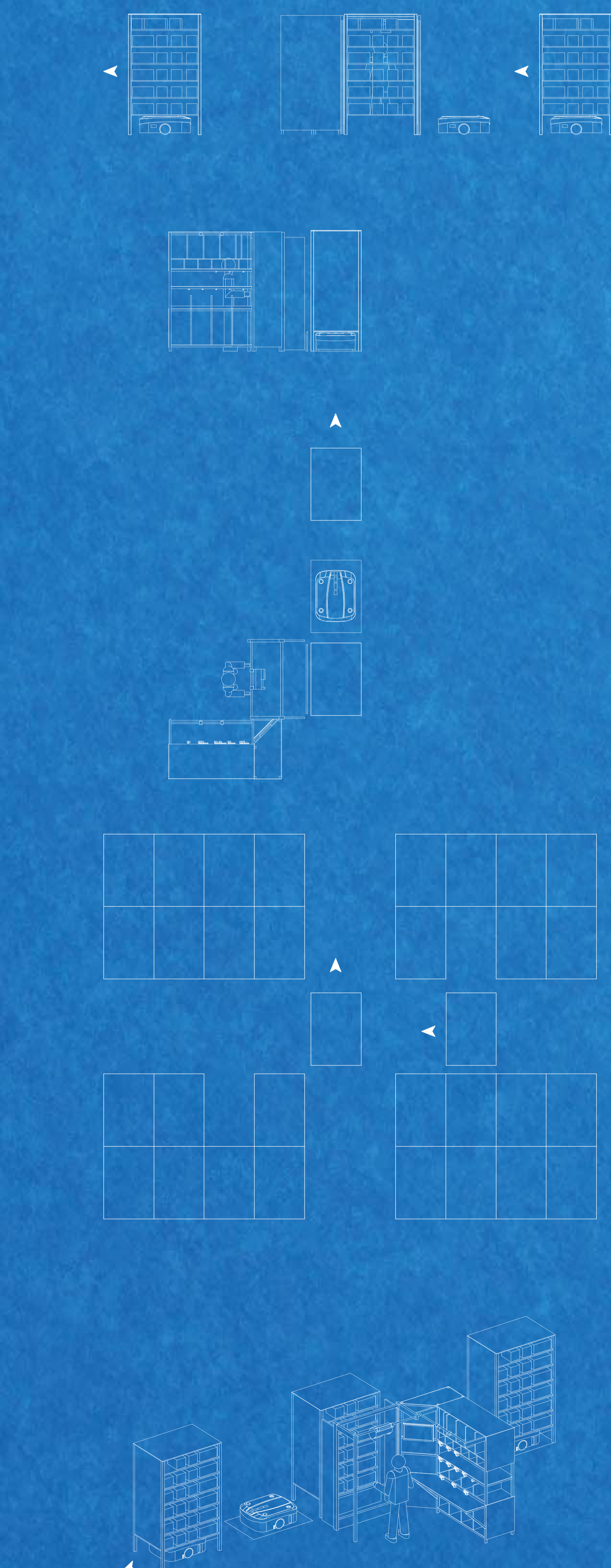


3 CarryPick Mobile System

Efficient Storage and Order Picking

CarryPick is flexible, scalable and quickly adjustable to changing demands in warehousing. The automated storage and goods-to-person order picking system is specifically designed for the intralogistics requirements fulfilling e-commerce business where product variability, delivery time and cost efficiency are daily challenges.

- Mobile racks - dimensions (L x W x H): 1.300 mm x 900 mm x 2.500 mm
- Mobile racks - types: Carrians, hanging goods, returns
- 'Carry' robots - load: max. 600 kg
- 'Carry' robots - power supply: inductive, charging mats

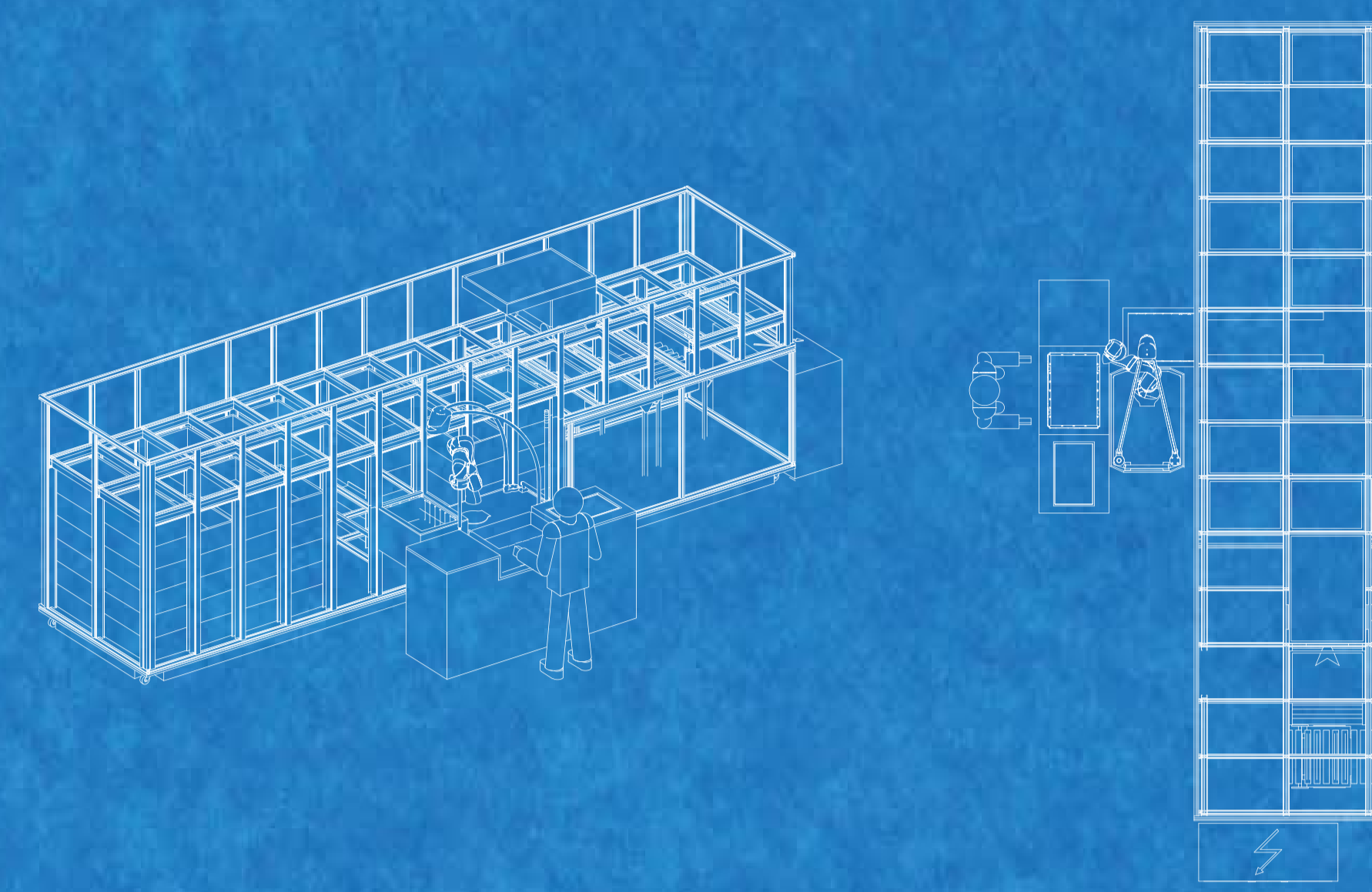


1 Autostore

Small Parts Storage System

The automated small parts storage system, AutoStore, efficiently picks and stores single items and small cases to make better use of available space and increases efficiency at integrated goods-to-person workstations.

- Height of grid: max. 5.4 m
- Load: max. 30 kg
- Robot travel speed: 3.1 m/s
- Robot lift speed: 1.6 m/s
- Robot acceleration: 0.8 m/s²
- Throughput - bins typically retrieved, per robot: 25 bins/h
- Throughput - bins typically retrieved, per port: 120 - 500 bins/h
- Storage capacity (inventory), typically: 5.000 - 100.000 bins/system
- Inner measurement bins: 601 mm x 401 mm x 200 mm/310 mm

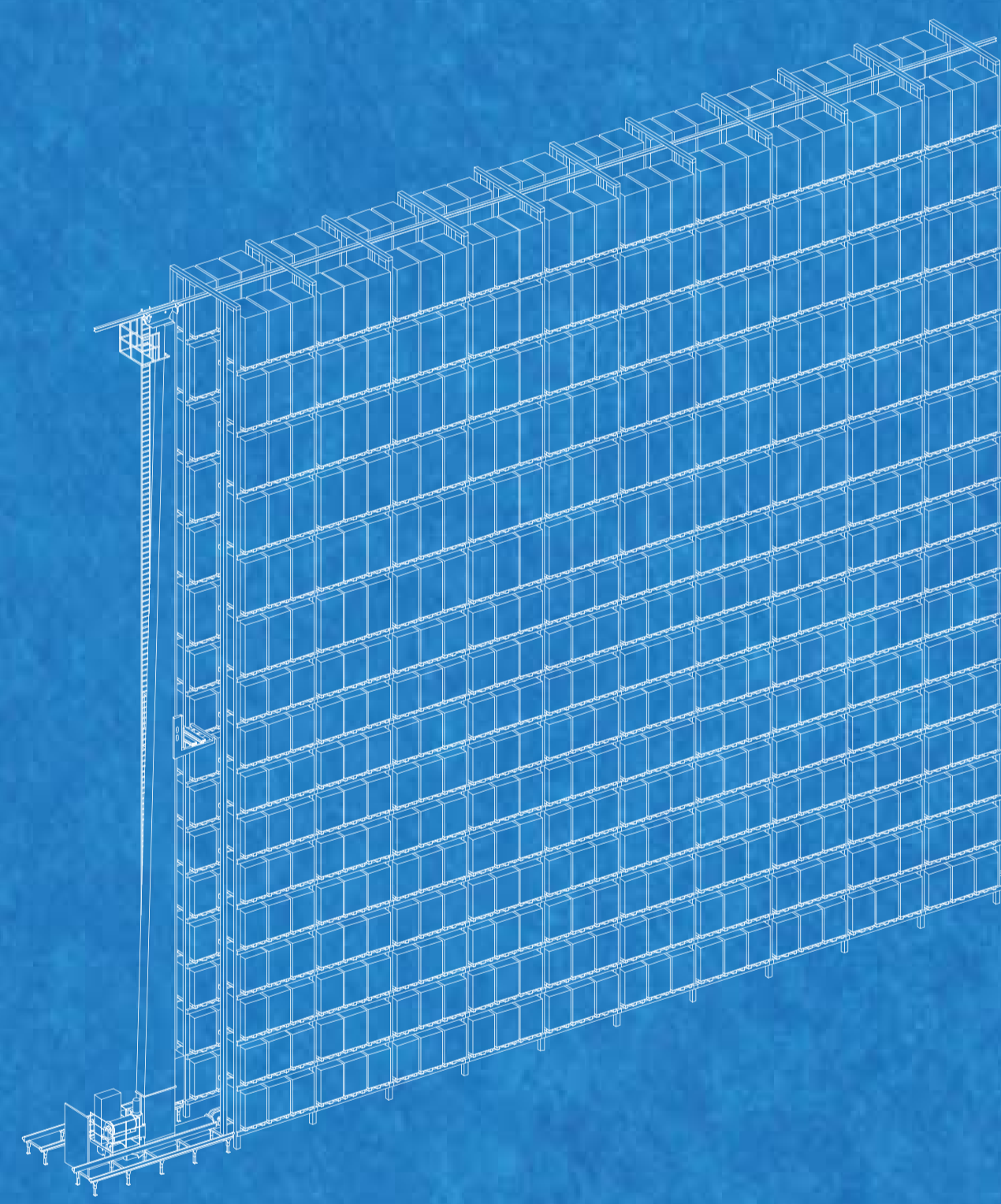
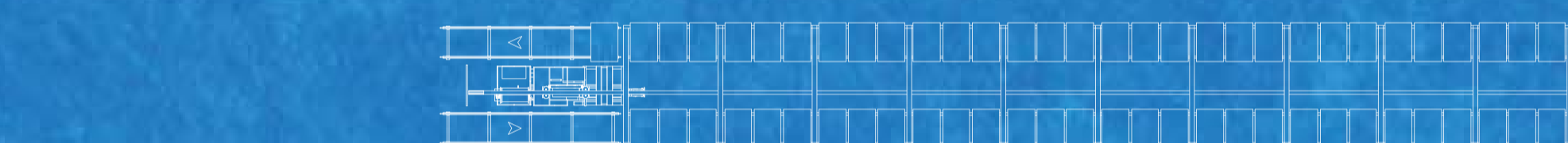
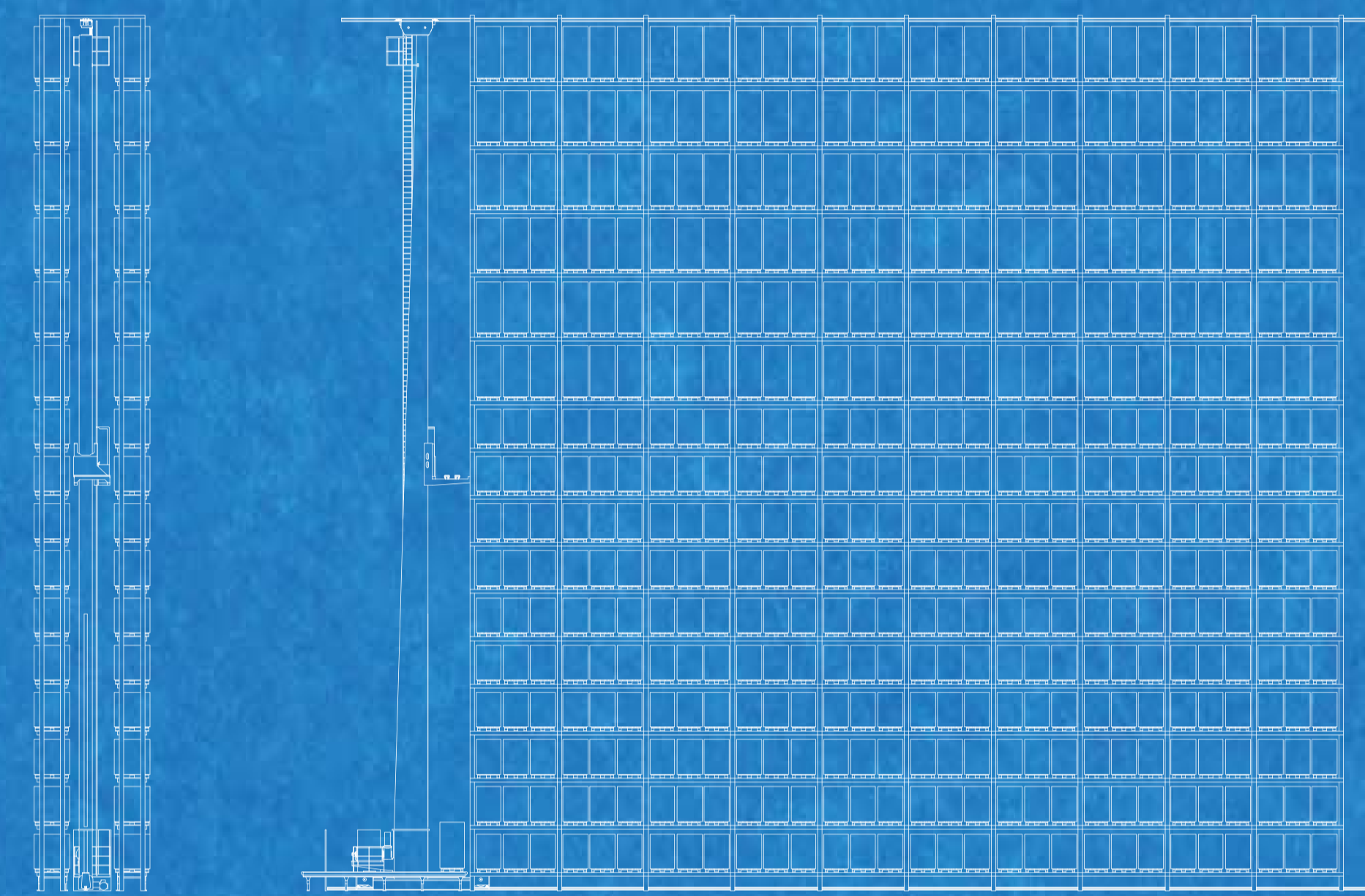


4 Vectura

Pallet Stacker Crane

With its proven technology and flexible design, Swisslog's Vectura Pallet Stacker Crane accommodates a wide variety of pallet configurations in high-bay warehouses and distribution centers.

- Load range: 200 - 3.500 kg
- Height: 48 m
- Throughput: 20 - 45 double cycles/h
- Speed of operation: up to 5 m/s
- Vertical speeds: up to 1.5 m/s
- Product range: single and double mast
- Storage density: single to multi-deep
- Temperature range: from -28° c to +45° c



5 Ouragan

Vertical pallet distribution

Answering new challenge for vertical storage, ouragan relative system deliver and collect pallet to different level. Compact and energy efficient it allows new perspectives for delivering in warehouses. Easy load and unload with adaptive speed maintain efficiency all day long. Circle Fonctionnement assure perpetual Flow 24h/24.

- Max speed 4m/s
- Max dimension : L 2000 / D 1200 / H 2000 mm
- Max use : 150 Pallet per hour

