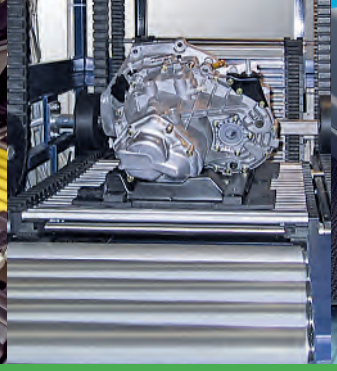
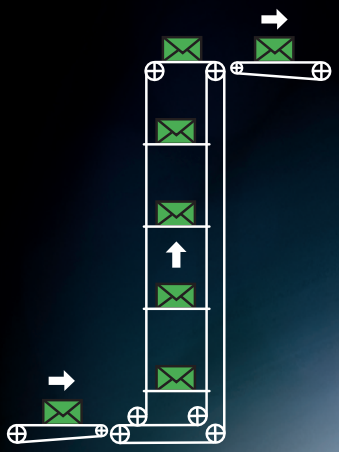



NERAK Unit Handling Equipment
Vertical Conveyors

NERAK



NERAK Vertical Conveyors

|| **As experts in vertical conveying technology we offer the right solution for each individual application. And that means a cost-effective design as well as reliability and durability in operation.**

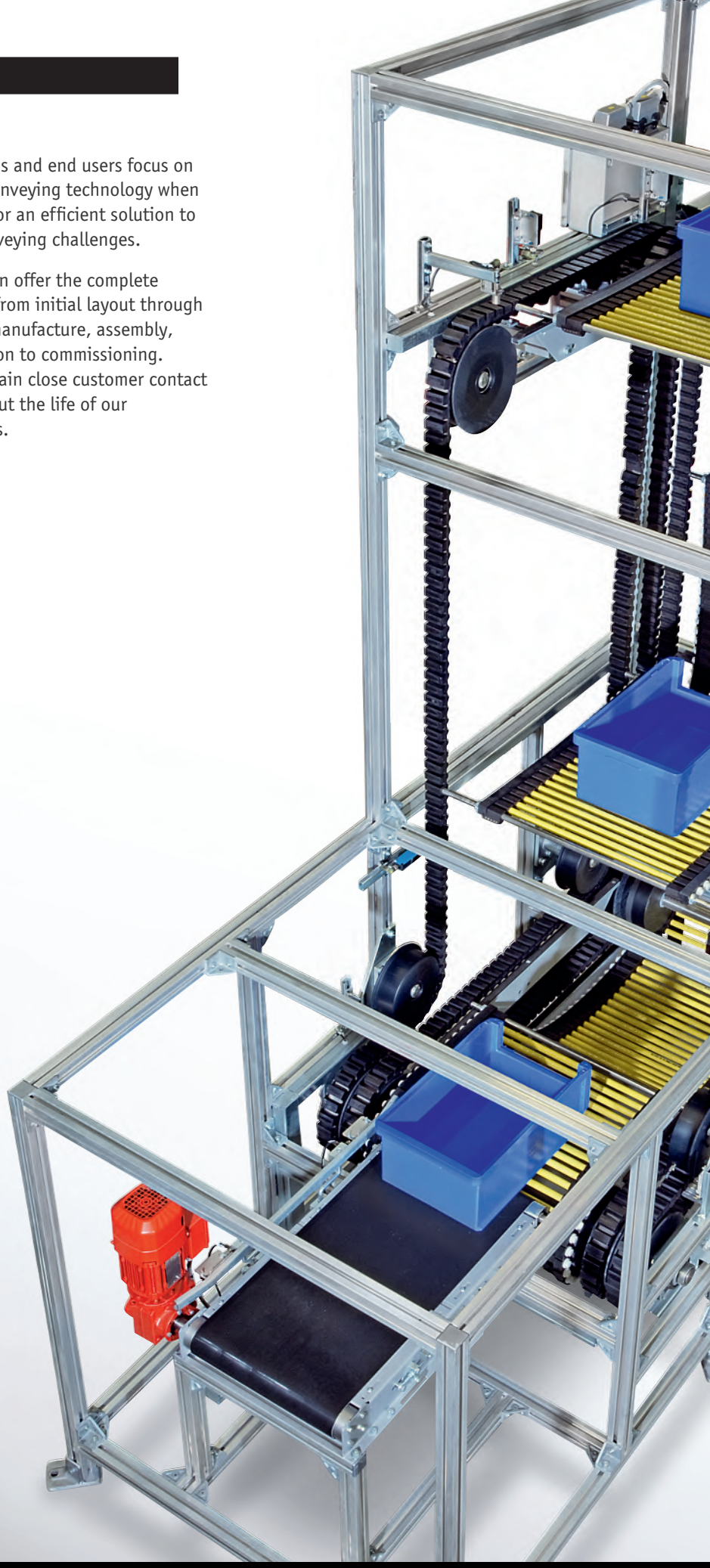
Whenever vertical conveying is the topic of conversation, the name NERAK springs to mind. Innovation and reliability of our vertical conveyors have made us a market and technology leader world-wide.

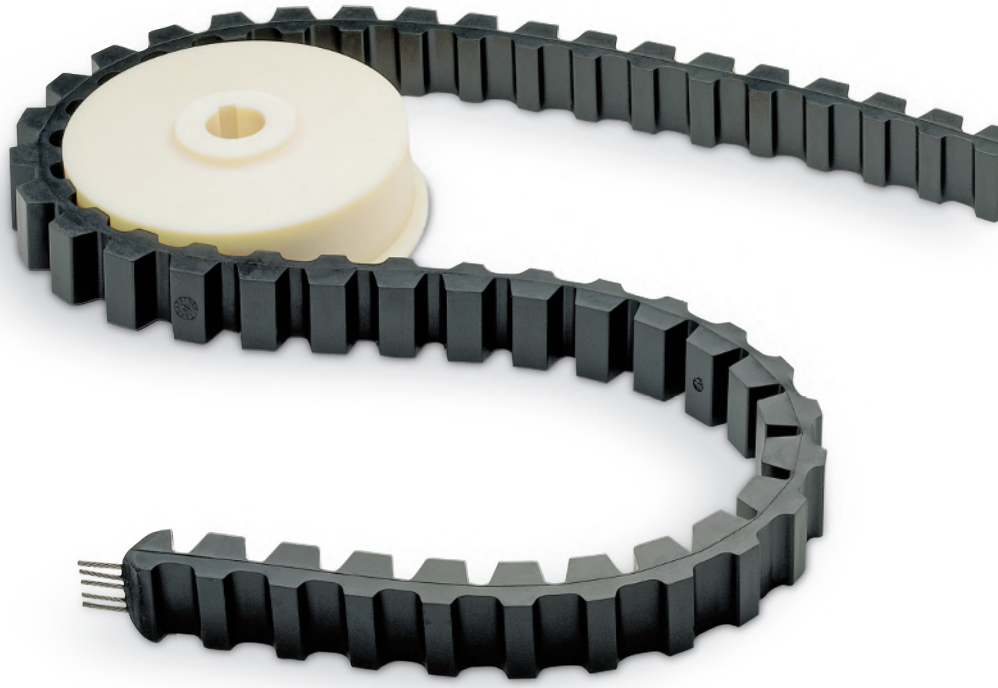
NERAK is on the scene where any type of unit good needs to be moved up or down on a 24/7 basis - no matter whether you need to convey boxes or parcels, bags or bales, tubs or totes, barrels or tires, luggage or ICS trays, or even fully loaded skids or pallets.

Detailed design and material selection ensure low maintenance and long life for all components in the system. This, together with in-house production, ensures constant high quality as well as fast and flexible reaction times.

Both OEMs and end users focus on NERAK conveying technology when looking for an efficient solution to their conveying challenges.

NERAK can offer the complete package from initial layout through design, manufacture, assembly, installation to commissioning. We maintain close customer contact throughout the life of our conveyors.





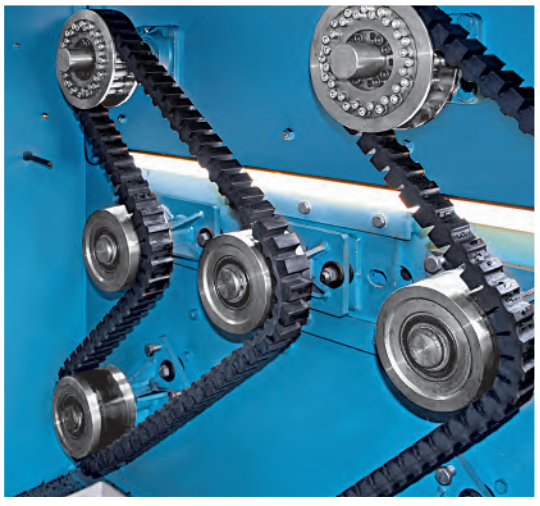
|| Our strengths lie in quality, flexibility and our rubber block chain.

At the heart of every NERAK conveyor drive system is the heavy-duty rubber block chain. The rubber block chain gets its high tensile strength from embedded vulcanized steel cables.

The outstanding features of this chain are that it has no links, is silent-running, wear-resistant and virtually maintenance free. All these excellent qualities are further enhanced by its corrosion resistant design.

Due to the silent operation design, noise levels at workstations in the immediate vicinity of the conveyor are minimized.

Moreover, operation with the rubber block chain is extremely cost-effective as there is no need for lubrication, regular adjustment and re-tensioning. Maintenance costs are thus reduced to a minimum.



NERAK endurance test rig used for quality control of the Rubber Block Chain

NERAK S- and C-Conveyors for Continuous Horizontal and Vertical Transport

|| In the world of vertical conveying technology today, the term S-conveyor is synonymous with NERAK. By combining innovative technology with all-round reliability, NERAK has succeeded in developing a classic solution that has become well established on the market.

NERAK conveyors can be found in many facilities where differences in elevation have to be overcome at high production rates and throughputs - particularly in time-critical processes, e. g. in the automotive industry, in distribution centers, and at airports.

NERAK vertical conveyors offer gentle, efficient and effective transport of goods. Items of different shapes and sizes can be handled without the need to pre-sort.

S-Conveyor in a Distribution Center

Design

NERAK's conveyors are designed with components that are selected to best suit your requirements - rubber block chains, platforms, wheels, frame structures and most other components are available in a variety of designs. The result is a perfect conveyor solution for your application.

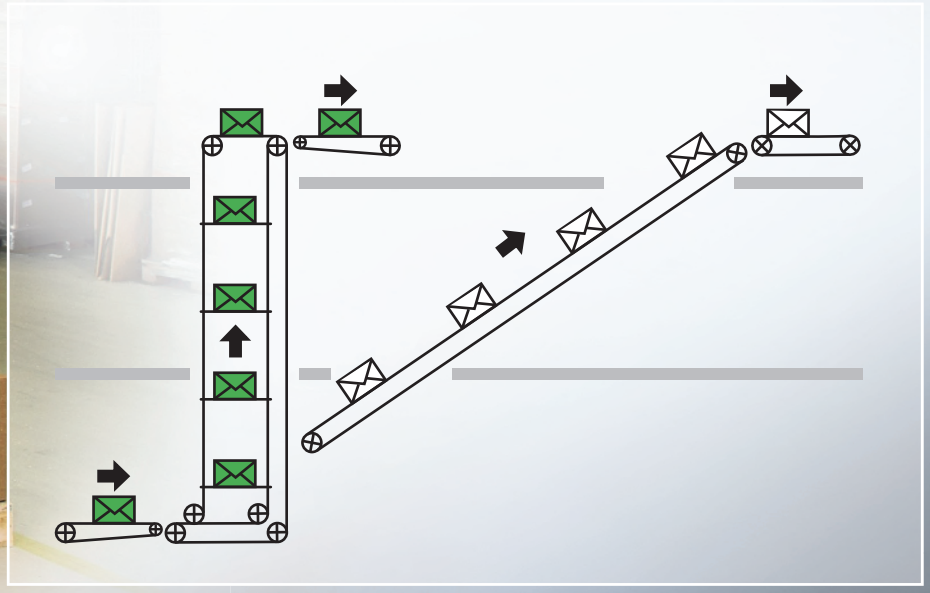
Designs range from elevators for light-weight food trays used in cafeterias to heavy-duty pallet lifts with payloads of up to 1.5 t (3,300 lbs). Frame structures can be built from aluminum profiles or steel/stainless steel. Where necessary, the conveyors can be enclosed with protective cladding. Generously sized doors allow access for maintenance and cleaning.

The continuously circulating rubber block chain system developed by NERAK ensures vibration-free and quiet operation with high throughputs, conveying up to 2,800 items per hour (47 per min) with the S-conveyor, up to 300 items per hour (5 per min) for the heavy-duty S-conveyor, and up to 1,300 items per hour (22 per min) with the C-conveyor, depending on the nature of the product to be handled.

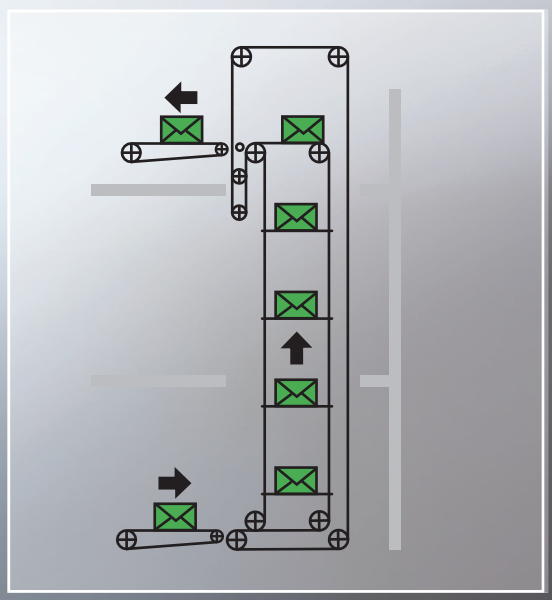
Typical Applications

- Tubs & Trays
- Boxes & Cartons
- Pallets & ULDs
- Shrink-Wrapped Packages
- Soft Packages
- Bags & Bales
- Baggage & ICS
- Kitting & Assembly Units
- Tires & Rims
- Newspapers & Magazines
- and many other items

C-Conveyor in a Postal Distribution Center



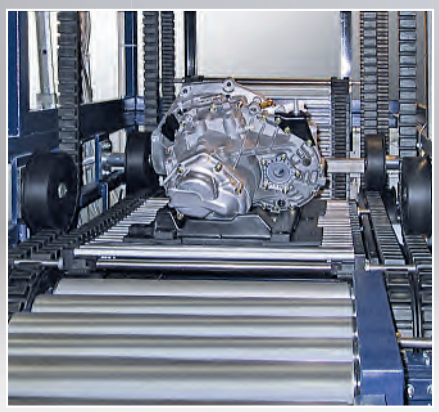
S-Conveyor: the compact design creates an optimum layout for upward and downward transport as compared with inclined belt conveyors.



C-Conveyors have infeed and discharge on the same side. At the discharge, items exit through the gap between two consecutive platforms.

NERAK S-Conveyor and C-Conveyor

Whatever the job - NERAK has the right platform



Gearbox

Pallets

Barrels

Luggage

|| Feed section

At the feed section, the singulated goods are transferred smoothly from the indexing horizontal conveyor onto the platform of the conveyor, moving at synchronized speed. In horizontal position, the platforms form a solid surface to carry the items.

Photoelectric sensors detect approaching goods and stop the infeed conveyor until the next platform is approaching. The infeed conveyor then restarts, transferring the goods smoothly onto the platform.

Infeed of the items onto the platform can be customized as required. The indexing process can be designed to meet throughput and product requirements.

|| Platforms

The conveyor platforms are normally constructed of polyester rods. They are secured to the carrying chains by means of specially designed holders, thus making it possible to safely convey heavy loads.

To prevent slipping, the rods can be covered with PVC tubing. For special applications, the platforms are made from steel, aluminium or materials to form a solid surface.

Where heavy items need to be transported, the platforms are made from steel profile sections.

|| Discharge section

At the point of discharge the platforms travel around the idler wheels, transferring the goods smoothly onto the downstream conveyor.

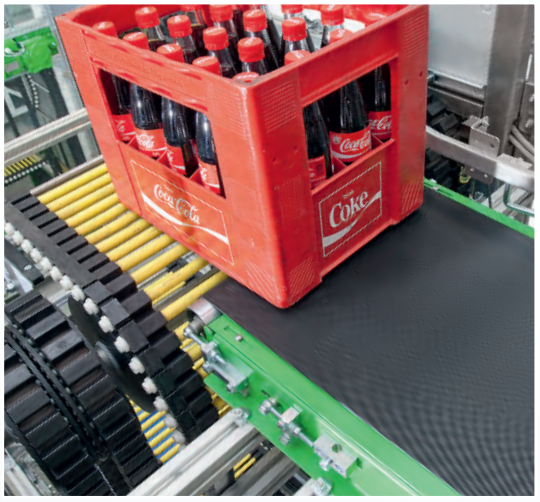
|| Sensors and Controls

The control functions are very basic and can easily be integrated into the controls of any material handling system.

Sensors and motors are supplied pre-wired to terminal boxes.

If S-conveyor and infeed are to operate stand-alone, a control panel with control and power section is available as an option.

Feed section



Discharge section

Shrink-Wrapped Packages and Bales

Books and Catalogs

Infusion Kits and IV Supplies

Large Appliances

NERAK Circulating Conveyors for Continuous Vertical Transport

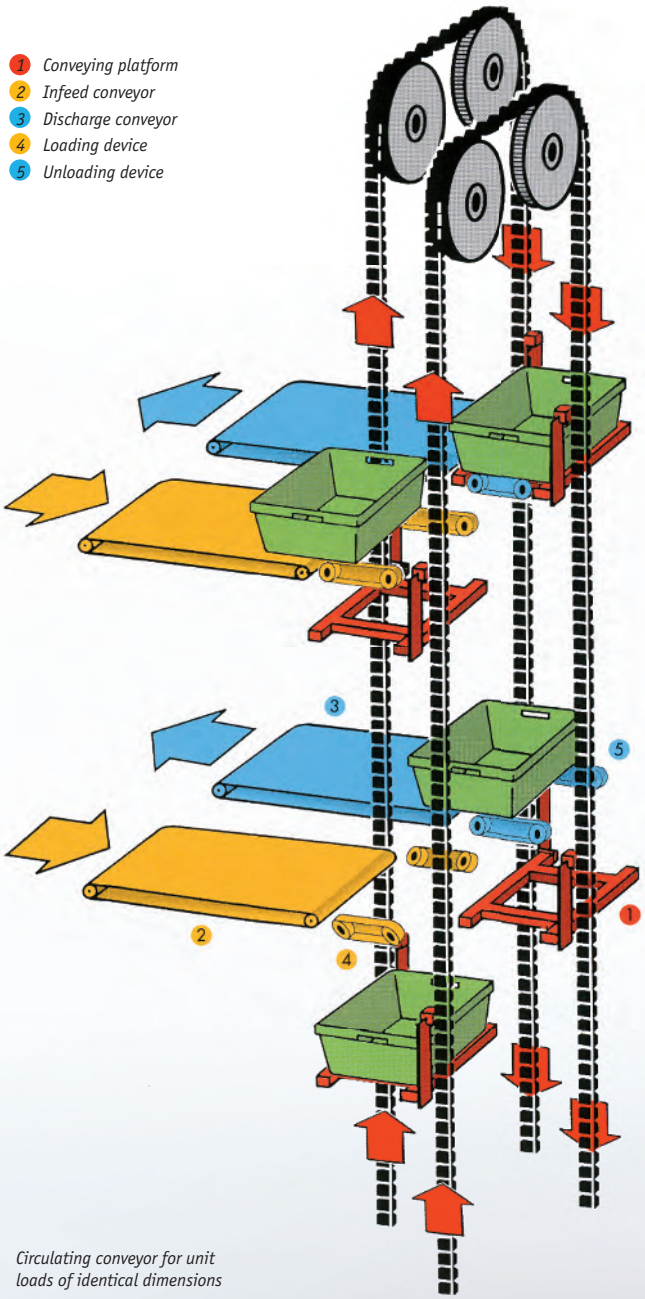
|| NERAK circulating conveyors are designed for the continuous vertical handling of unit loads with loading and unloading points at various levels (paternoster principle). These systems are often used in distribution centers with multiple infeed and discharge levels.

The continuously circulating system uses the NERAK rubber block chain from which platforms are suspended. The load is inducted on the way up and discharged on the way down.

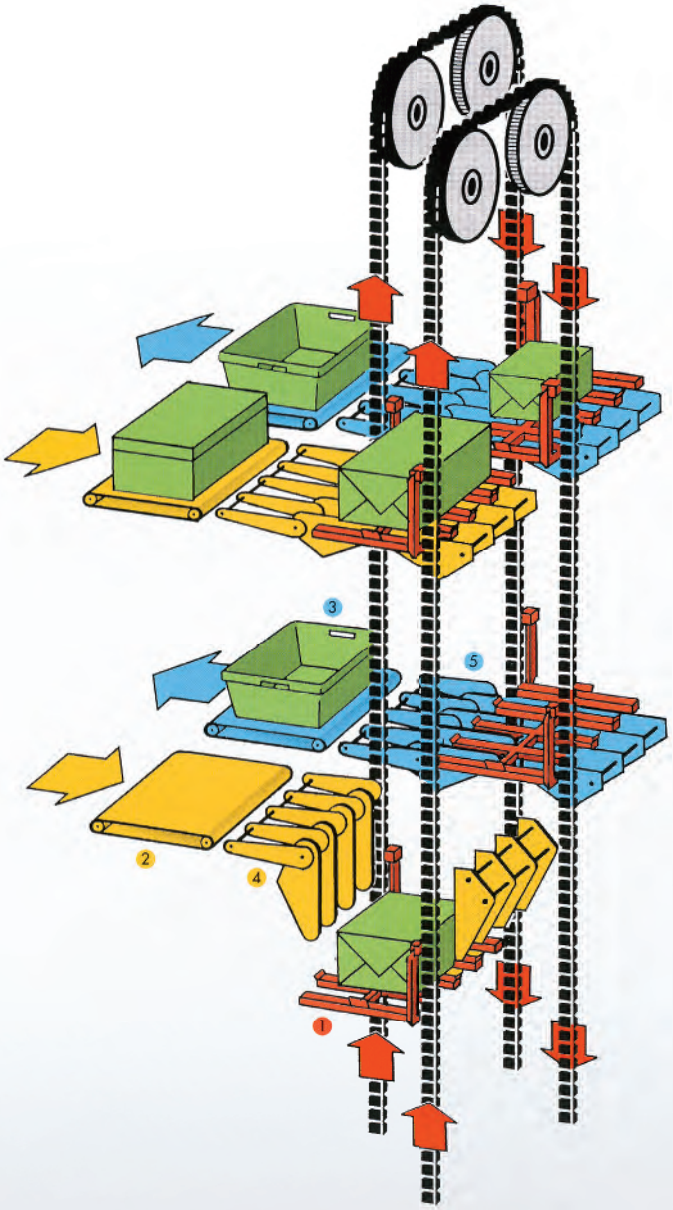
There are two distinct types of system, depending on whether the unit loads have identical or varying dimensions.

The type of conveyor determines the design of the loading and unloading stations and thus the throughput. For example, for loads of identical dimensions it is possible to achieve throughputs of up to 1,200 units per hour (20 per min).

1 *Conveying platform*
2 *Infeed conveyor*
3 *Discharge conveyor*
4 *Loading device*
5 *Unloading device*



Circulating conveyor for unit loads of identical dimensions



Circulating conveyor for unit loads of varying dimensions

|| Design

The circulating vertical conveyors are fabricated in welded sections to facilitate ease of transport and assembly on site.

The structure is designed to be self-supporting, including the drive and all feed and discharge stations.

In general, the conveyor is completely enclosed with perforated sheet cladding, with maintenance doors at the feed and discharge stations.

|| Circulating conveyor for unit loads of identical dimensions, such as plastic boxes 24 x 16 x 16 inches

These conveyors are designed for unit loads of identical dimensions. The items are loaded and unloaded by pivoting belt conveyors which transfer the items to and from the loading position.

The platforms, tailored to each individual system, take the items from the transfer conveyors on the way up, and discharge them onto the transfer conveyors on the way down.

|| Circulating vertical conveyors for unit loads of varying dimensions, such as containers, trays, cardboard boxes and parcels

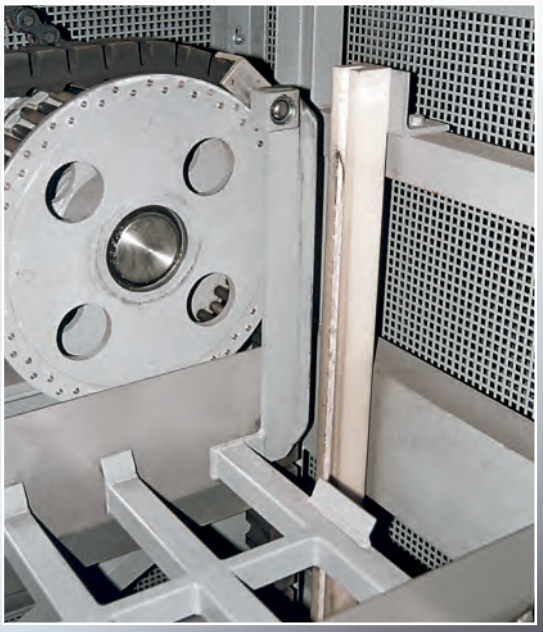
With this type of conveyor the items are loaded and unloaded by hinged chain conveyors which pick up and support items of varying size.

These loading and unloading stations consist of:

- A hinged, motor-driven multi-strand chain conveyor which reaches between the fingers of the platform.
- A hinged, non-driven set of rollers which are swivelled into the working position from the opposite side to support the loads.

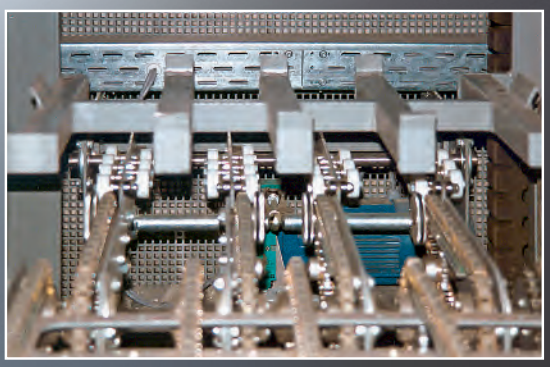
The platforms are designed in the form of a rake, consisting of a series of open fingers from a central rib in order to allow items of varying dimensions to be loaded and unloaded.

Head segment



Driven wheel, plastic guide rail and platform of a circulating vertical conveyor for unit loads of varying dimensions.

For unit loads of identical dimensions, the platforms are suspended from the rubber block chain and run in plastic guide rails for the entire circuit. This ensures smooth vibration-free running.



For unit loads of varying dimensions the platforms are designed in the form of a rake.

NERAK Portal Lifter for Unit Loads of up to 440 lbs

|| The NERAK portal lifter has been designed to transport individual loads up to 200 kg (440 lbs). A hoist carriage suspended on two rubber block chains is moved up and down guide rails by a frequency-controlled geared brake motor, stopping at any number of feed stations required.

The electrical components mounted on the lifting carriage are supplied with power by a flexible power cable.

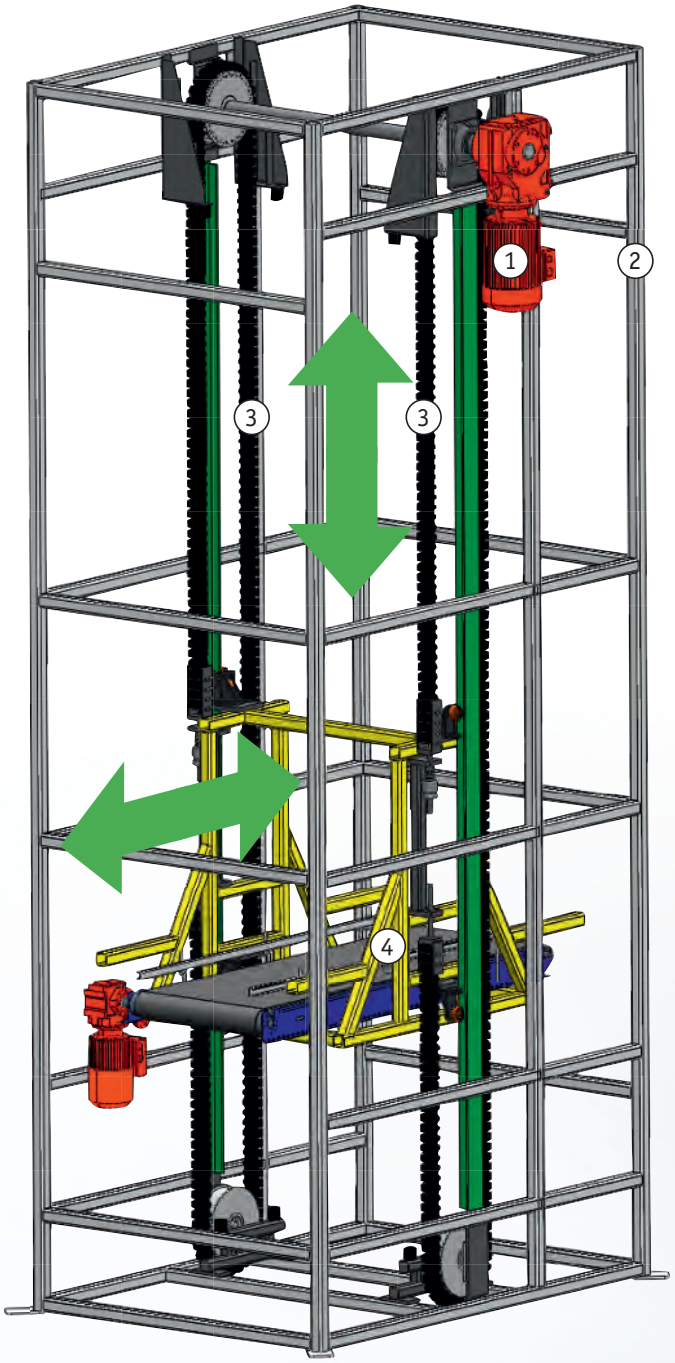
The hoist system operates with or without a counterweight, depending on the required cycle times. The hoist carriage can be fitted with different types of horizontal conveyors.

As a standard, the frame of the portal lifter is made from aluminum profiles, although mild steel or stainless steel can be used as an alternative. The frame supports the guiding elements, the protective cladding and the idler units.

Perforated aluminum sheet is used for cladding, but painted perforated steel or transparent polycarbonate can also be supplied.

Up to a height of 3 m (10'), the portal lifter can be anchored to the floor.
For greater heights, a stabilizer connection needs to made to suitable ceilings or walls.

Feed station of a portal lifter with transfer onto the pivoting infeed conveyor which also singulates the items.



1 Direct drive with shaft-mounted gear motor and toothed drive wheels. The lifting speed can be up to 2.0 m/s (400 FPM). Depending on the lift height, as many as 200 cycles per hour (or 3.4 cycles per min) can be achieved.

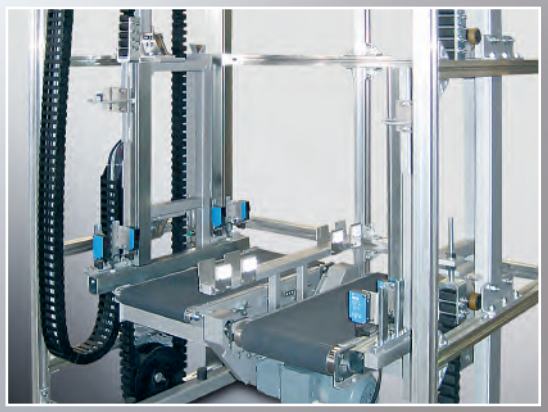
2 Frame structure, supporting functional elements and cladding

3 NERAK rubber block chain with embedded steel cable as the drive system

4 Hoist carriage with horizontal conveyor

Transfer from the belt conveyor on the hoist carriage to the take-away roller conveyor

Transfer station



Twin belt conveyors can be supplied as an option for higher throughputs

NERAK Reciprocating Lifts

|| While S-conveyors are suitable for high throughputs, a Vertical Reciprocating Conveyor (VRC) is the classic choice for smaller throughputs. This type of lift is available in a number of designs and is used to transport material between two or more levels.

With the reciprocating lift, a horizontal conveyor such as a belt conveyor or roller conveyor is mounted on a hoist carriage. This hoist carriage is guided by rollers and can serve any number of levels.

Lifting is performed by a gear motor with brake which may be pole-changing or frequency controlled (VFD), depending on the particular application.

|| Light-weight series (for payloads up to 80 kg/175 lbs)

These light-weight reciprocating lifts complete the NERAK range of conveyors at the bottom end of the scale. The following features make this series particularly cost-effective:

- Modular design
- Lifting is achieved by an individual rubber block chain
- No counterweight
- The aluminum profile frame accommodates not only the drive, idler and guide rails but also the protective cladding of aluminum perforated sheeting.
- The guide rails are used to attach the end stops.
- Up to a lifting height of 3 m (10'), the lift can be anchored to the floor.

Lift Carriage with Belt Conveyor

Rubber Block Chain fastened securely to the Lift Carriage

|| Medium-range (payloads up to 300 kg/660 lbs) and heavy-duty pallet lifter (max. payload 2.5 t/5500 lbs)

A hoist carriage suspended on two parallel rubber block chains (medium-range) or steel reinforced belts (heavy-duty pallet lifter) is moved up and down along guide rails by means of polyurethane or steel rollers. The hoist system operates with a counterweight inside the lift frame to minimize power requirements.

The conveyor stand comprises two square tubes, the base plate, and a number of attached components. The head plates at the top support the frame of the drive unit. The base plate has a concrete base and is securely anchored to the floor with bolts. For greater stability, the conveyor must also be fastened to suitable walls or mezzanines.

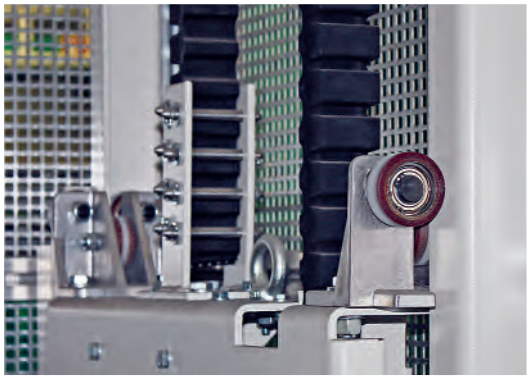
The drive unit comprises a helical geared motor, coupling, shaft bearings and drum. Two flat belts transmit the driving torque, causing the hoist carriage and counter-weight to travel up and down. The load is evenly distributed between the two belts by means of a see-saw lever. As a fail-safe feature, each belt is sized to carry the whole load on its own if the other belt should break. In this event, a limit switch signals a malfunction.

The safety lock used during maintenance and repairs mechanically locks the conveyor, making it impossible for the hoist carriage to move even if it has been electrically actuated. This mechanical lock consists of bolts that are manually slotted into a perforated disc on the main driving shaft. This bolt is then electrically secured.

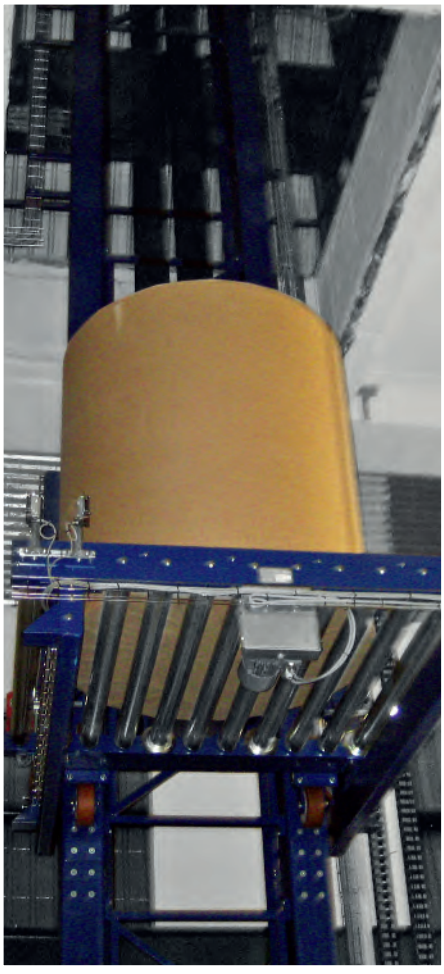
|| Sensors

The proximity switches provided are adjustably mounted on C-shaped profiles.

Wiring to terminal strips is available as an option. The electrical components on the hoist carriage are supplied with power by means of a flexible power cable.



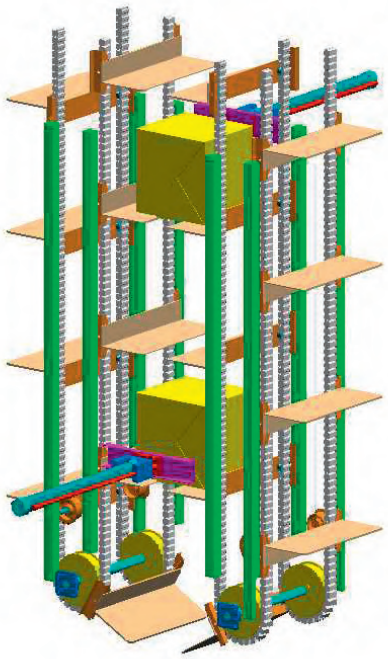
Vulkollan Rollers guiding the Carriage



Hoist Carriage for Newspaper Rolls

Drive Station of a Heavy-Duty Reciprocating Lift with Gear Motor, Flexible Coupling, Drive Pulley, and Safety Locking Mechanism

NERAK Vertically Indexing Conveyors (Accumulators)



In response to customer demand for intermittent indexing conveyors with an integrated storage function, NERAK has developed the vertical lift and the indexing conveyor.

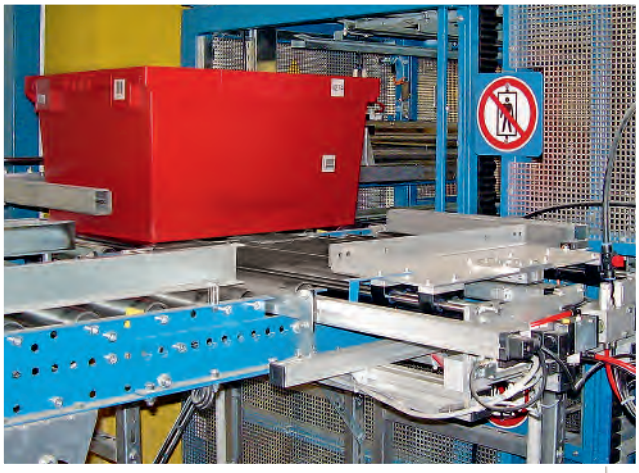
These have been specially designed to convey packages of identical size with individual loads of up to approx. 50 kg (110 lbs).

Lifting heights of up to 20 m (65') are possible with conveying capacities of up to 750 cycles/hour (12.5 per min).

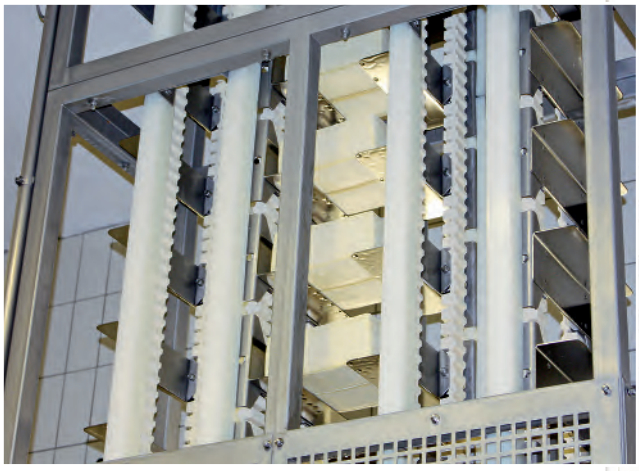
Vertical lift

Angled brackets are attached to two pairs of rubber block chains circulating synchronously. The material is fed onto these brackets from a roller conveyor running between the brackets, or by a pneumatic pusher that transfers the singulated material from a roller conveyor or belt conveyor. The material is discharged by a pneumatic pusher on the way up, and by a discharge roller conveyor or belt conveyor on the way down. Feeding and discharging can be at any number of levels, as required.

Indexing conveyor in a distribution warehouse



Feed station of an indexing conveyor for plastic boxes



Sturdy guide units ensure reliable operation

Indexing conveyor

The design of the indexing conveyor is similar to that of the vertical lift, using only one pair of chains instead of two, however. The hoist carriages fastened to the rubber block chains can be loaded and unloaded by means of pushers when moving upwards or downwards.

Up to a height of 3 m (10'), vertical lifts can be anchored to the floor.
At greater heights, they must be secured to the building or structural steelwork.

The angled brackets or hoist carriages are securely mounted to the rubber block chain. The loaded chain strands are guided.

Sensors and motors are wired to terminal boxes. PLC controls as well as infeed and discharge conveyors are available as optional equipment.

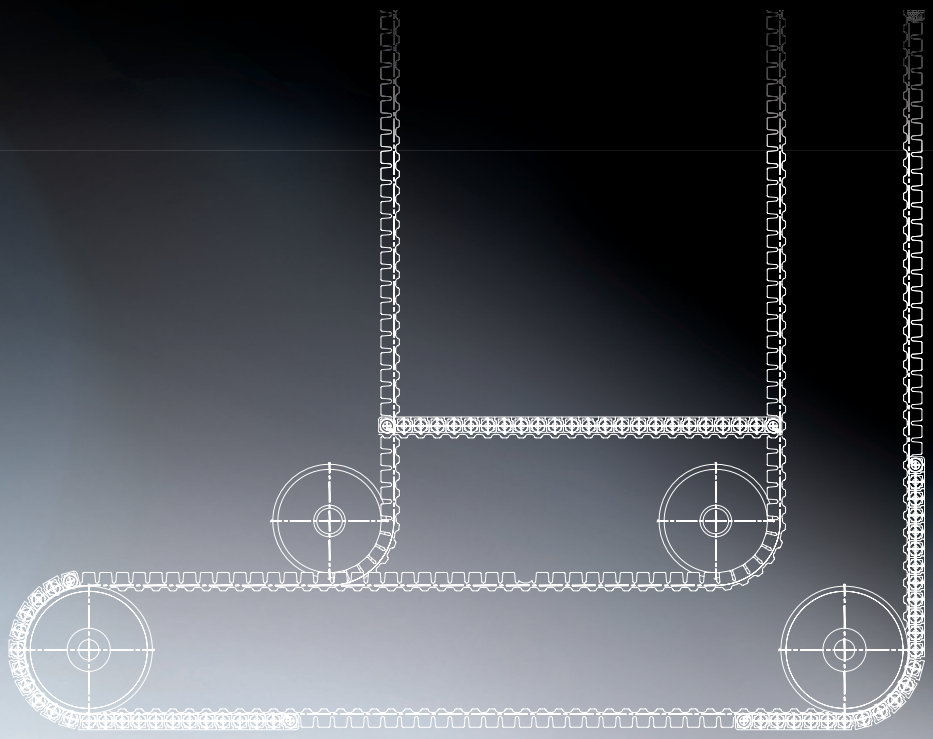
Design

The supporting frame of this conveyor is a robust construction made from aluminum profile sections that are bolted together. To meet safety requirements, it is covered with protective cladding made from perforated aluminum sheets.

As an option, the frame and cladding are also available in standard steel or stainless steel. Generously sized doors allow easy access for maintenance and cleaning.

Vertical lift for cheese blocks in a dairy production facilty

NERAK Headquarters in Hambühren, Germany



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