

Conveying systems made to measure



Approved conveying systems according to original KETTNER design

Pallet transport



Overview

Preserving transport of pallets using components of the approved modular KETTNER design

Basic modules for linear transport:

Roller conveyors, chain conveyors, accumulating conveyors, 4- to 6-way feed and discharge station

Basic modules for turnaround:

Pallet transfer unit Turntable station with roller conveyors 90°/180° Turntable station with chain segments 90°/180° Combined turning station Turning corner station Empty pallet hub Vertical conveyor Lifting platform

Rail-bound modules:

Pallet trolley (longitudinal and transverse)

Modules for process improvement:

Pallet checking device 2- and 4-sided pallet centring Pallet changing device (empties, full products) Box adjustment station Pallet stacking device KEG/barrel adjustment station Multi-pallet magazine Loading and unloading technology / Super loader



Conveying systems made to measure



Transport modules



Chain conveyor

Depending on transport goods we offer chain conveyors in different designs: double-tracked for empty pallets and empty pallet pile, three-tracked for empties and full pallets, four- and five-tracked for special pallets, for example 800 x 600 mm. A duplex chain with small division ensures a smooth run and soft segment transitions. Through plastic slide strips the chains run more easily and with less wear. The drive located at the centre with chain adjuster offers the following options: frequency control, reversing operation, pole changing, soft start.



Roller conveyors / pick-up and removal segment

The basic components consist of an unitary modular concept of varying roller divisions and working width. The roller change is very simple through an edged U-shaped section. The rugged carrying rollers warrant a long service life. The drive is via chain wheels with a combing chain. The chain adjuster can be easily operated. The drive is optionally frequency-regulated and designed for reversing operation. It has a soft start so that problematic material such as PET new bottles can be conveyed.



Conveying systems made to measure



Transport modules



Accumulating conveyors

The three-track pile-up roller table consists of two outer tracks with gravity rollers and a driven, continuous running centre chain track. It operates at very low noise level through plastic-damped bearing of the control lever enabling a high switching safety. The entry slants prevent hooking of pallets during entry. The outer profiles are used for accommodating rollers and act simultaneously as lateral guide. The pallet transport takes place through lifting off the middle chain track Which results in friction between transport chain and pallet. The design can be delivered for longitudinal and transverse pallet run.



Conveying systems made to measure



Transport modules



Pallet transfer unit with lifting chain section

The pallet transfer unit with lifting chain segment can be delivered with two or multitrack chain conveyors on request in two length 1400/1800 mm. The motor-driven pallet lifting equipment of the chain segment ensures an optimum composition of the pallet. The pallets have an unchecked passage possibility. Very compact, space-saving design.



Pallet transfer unit with lifting roller section

The pallet transfer unit with lifting roller segment can be delivered with two or multitrack chain conveyors on request in different lengths starting with 1400 mm. The motor-driven pallet lifting equipment of the roller segment ensures an optimum composition of the pallet. The pallets have an unchecked passage possibility. Very compact, space-saving design.



Conveying systems made to measure



Transport modules



Turning corner station

The rotating corner composer has a rotating combination unit with roller lifting offset and chain haulages for optional transport with longitudinal or transverse run during processing different pallet sizes and shapes. It offers an absolutely safe entry and exit even for extremely bent pallets and projecting foreign bodies through increased lift. The chain is tensible by spindles. The rotating corner composer has a secured, fixed limit switch position through a fixed, vibrationless sensor holding device.



Turntable station

Turntables with roller conveyors and chain segments connect paths located rectangular to each other. The possibility for longitudinal and transverse pallet run is given. The rotating frames hare mounted on rolling bearings. The load distribution is circular via four carrying rollers. Switch gear, sinusoidal 90° rotations ensure exact stops through a slider-crank drive. A central drive on the path segment can be delivered for a rotation angle up to 270°, on request.





Conveying systems made to measure



Transport modules



Combined turning station

Rotating station for longitudinal and transverse pallet run. It has a rotating connection between 15° and 270°. An easy rotation via a friction wheel enables exact holding positions. The circular load distribution is via four plastic rollers on a stable base frame with central mounting on rolling bearings. The safety aprons located around prevent any inadvertent access. Due to this, additional protective gratings are omitted.



The pallet trolley is used for providing empty pallets and for disposal of loaded pallets in case of several palletizing automats located side by side. Similarly, a moving vehicle can be used for moving pallets in extensive distribution levels with several parallel conveyors (warehouse). The travelling mechanism is optionally possible as frequency regulation. Power supply is realized either via trailing cable or through a current supply bar. The thresholds and running rails can be lain at floor level if the route must be covered by stacker. Individual stops are approached under positioning operation whereby the stop is exactly reached.



Conveying systems made to measure





Transport modules



4- to 6-point tasks / removals

The charging or acceptance stations which can be operated from top or laterally are chosen for the requirements of the customer and its stacking stock. The 4-point task / acceptance processes a 4 pallet diagram in longitudinal or transverse run with empty or full, the 6-point design a 6 pallet diagram. The exit and entry of double blocks (pallets) can be realised. An exact positioning and easy processing of the pallets as well as the optimum block arrangement are possible.High system performance and the mixed pallet operation are realised by control technique.



Double infeed and removal station (lifting chain segment)

This compact station is made for infeed or removal of 2 pallets and operates with a lifting of the chain segment (length of track 2100 mm). The motor-driven lifting guarantees an optimal transfer of the pallets, in this way prepared for the forklifts. Processing of euro-pallets and industrial pallets (full products and empties) is possible. This module is characterised by a very compact construction.



Conveying systems made to measure



Transport modules



Pallet lifting platform

The pallet lifting platform is used for transporting empties, full or pallet stacks up to 4.5 m lifting height as vertical transporting means for several stops with small and medium transport level differences. The design can be realised as L or U shape in a two-column design. The lifting cage for the U shape can be equipped with roller conveyors or chain segments and the L shape with roller conveyor rotating segment, chain rotating segment as well as corner composer. By this, the direction of the material to be transported can be changed. The drives can be mounted at top or bottom. Depending on design, the weight equalisation for lifting platforms is established with or without counterweight. The drive operates with pole changing or frequency regulation depending on the performance desired.



Conveying systems made to measure



Transport modules



Pallet elevator

The elevator is used as vertical transporting means for several stops. The entry and exit of the pallets can take place from all sides with the same axial direction. The case components may optionally include roller segment, chain segment or turning corner station. The cage weight is by far compensated by counterweights. At elevator top the lifting drive is installed with the fine motion gear-box. This gearbox ensures an exact positioning of the cage at the individual stops. The frame of the lift is in galvanised design and lined with woven mesh. The design as double elevator enables the simultaneous transport of two pallets one after another. The lifting device as chain design is single or double conveyor depending on performance.



Conveying systems made to measure



Centring modules



2-sided pallet centring

The centring acting on two sides is used for centric alignment of empty pallets and fully loaded pallets. It is used ahead of the unloader, loader or other transport segments for exact centric delivery of the transport goods. The compact design enables to integrate this centring subsequently in standard roller conveyor segments.



4-sided pallet centring

The centring acting on 4 sides is used for the load alignment on all sides on the pallet. It is used before the unloader at high plant capacity and during excess or lower loading of the pallet. By this, the damage on bottles through the hooks of the head of grab is prevented. By the centring the box stack is positively aligned on the outer box edge.



Conveying systems made to measure



Centring modules



KEG/Barrel adjustment station

is used for alignment of empty KEG pallets which are charged to a plant. The characterising feature of this adjustment station is that the pallet is aligned with KEG barrels centric to the roller conveyor and for further optimum transport – for example – by means of KEG unloaders. This prevents an offset of the stack appearance, projecting ends and interfering edges are omitted and the stability of the pile appearance increases.



Box adjustment station

is used for alignment of empty pallets which are led to a plant. Characterising feature of this adjustment station is that the pallet with the empty boxes is aligned centric to the roller conveyor and for further optimum transport by unloader, for example. No offset of the stack appearance on the pallet. Can also be designed as full centring if an exact pallet appearance without projecting ends is required for feeding high-bay warehouses.



Conveying systems made to measure



Control modules



Pallet ckecking device

During empty pallet check, floor running boards and floor transverse boards are checked. By this, missing blocks can also be identified. Cover boards are arranged longitudinal or crosswise. The test pressure for the cover and floor boards is variably adjustable. A tension control is also possible by an additional device. Even for loaded pallets, the floor running boards and floor transverse boards including blocks can be checked provided the minimum weight of the load is ensured for the required counter-pressure.



Pallet changing device

Empty pallets with defective running boards (identification by preceding pallet control) are stopped before entering the plant. Clamping and lifting of empties from a defective pallet. After that, run-out of the defective pallet and entry of the good pallet. Later, the empty is lowered and the clamp released for further transport to the plant. The defective pallet is transferred outward.



Conveying systems made to measure



Magazine / Stacking device



Electrically adjustable multi-pallet magazine

This station can be functionally designed as stacking magazine, as destacking magazine or as warehouse magazine for stacking or destacking. The motor-driven grappler adjustment enables processing of all standard pallet types as well as special pallets. It is possible to fit the known transport segments.



Pallet stacking device

This machine is used to stack two semi pallets onto one support pallet (e.g. euro pallet). Another application is stacking respectively destacking of KEG pallets. Lift movement is performed by a gear motor equipped with a holding brake, robust hoist chains raise the lift cage. The massive drive shafts are supported by four pillow block bearings. Fork lifts move into the free space of the pallet horizontally driven by double-acting pneumatic cylinders.



Conveying systems made to measure



Loading and unloading systems





Loader

Our loading technology makes the automatic unloading and loading of trucks and train wagons profitable. Depending on the loading performance, two or four pallets can be simultaneously loaded by the gantry crane system with forks. The fork system enables to store the pallets longitudinal or crosswise. This loading system is suitable for lateral loading and unloading of trucks.

Superloader

Ten times faster than before complete loads can now be loaded in the truck by our rugged pallet transport system Super Loader. The core of the Super Loader is a 4-track chain conveyor. The special design prevents by far contamination and protects the system against foreign matters. Prior to loading and unloading, the rotating conveyor chains are lifted by a pneumatic device. After that, the pallets are placed one after another on the conveyor chain and automatically moved.



Conveying systems made to measure

