XK pallet system

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System information

Pallet handling components for conveyor system XK

The pallet handling components for conveyor system XK satisfy the demands for a sturdy pallet conveyor for medium to heavy loads in demanding environments. Heavy-duty conveyor beams, sturdy product carriers (pallets), and a strong chain permits item weights up to 30 kg. The maximum size of the products on the pallets depends on the shape of the products and the location of their centre of gravity. Robust side support components permit accumulation up to 200 kg per stop device, even in wheel bends.

Divert/merge devices

Divert/merge devices are used for routing products by dividing or combining flows of products.

RFID functions

All pallets are equipped with sockets for RFID chips. System components for automatic pallet handling are available. Please contact FlexLink Systems for more information.

Chain for XK pallet handling

A special chain type XKTP 5 K was developed for use with the XK pallet handling system. Since XKTP 5 K can also be used in non-pallet systems, it is listed under "Conveyor chains" in catalogue section “Conveyor system XK”.

The standard plain chain XKTP 5 cannot be used.

Examples of application areas

Transport and assembly of pistons, water taps, connecting rods, ball and roller bearings, gear wheels, crankshafts, and hydraulic pumps.

Function modules

Several pre-designed function modules, including merge, divert and locate functions, can be ordered using the online configuration tool. Please contact FlexLink Systems for more information.

Pallet loading

Centre of gravity must be within the rectangle. See figure.

Technical characteristics

Pallet sizes (W×L×H)
200 mm × 150 mm × 53 mm
250 mm × 225 mm × 53 mm
300 mm × 300 mm × 53 mm

Max. load on pallet: 30 kg (including pallet and fixture)
Pallets

**Pallet 200×150 with RFID socket**

Pallet 200 mm × 150 mm  **XKPP 200×150 A**

Fully assembled unit, including two guide discs and RFID socket.

Weight: 1.4 kg.

Pallet plate: cast aluminium.

Guide disc: acetal resin POM.

See page 257 for detailed pallet dimension, specification and allowed load distribution.

**Pallet 250×225 with RFID socket**

Pallet 250 mm × 225 mm  **XKPP 250×225 A**

Fully assembled unit, including two guide discs and RFID socket.

Weight: 1.8 kg.

Pallet plate: cast aluminium.

Guide disc: acetal resin POM.

See page 257 for detailed pallet dimensions, specification and allowed load distribution.

**Pallet 300×300 with RFID socket**

Pallet 300 mm × 300 mm  **XKPP 300×300 A**

Note. This pallet cannot be accumulated through 180° bends.

Fully assembled unit, including two guide discs and RFID socket.

Weight: 2.3 kg.

Pallet plate: cast aluminium.

Guide disc: acetal resin POM.

See page 258 for detailed pallet dimensions, specification and allowed load distribution.
Pallet accessories/spare parts

Damped guide disc XKPG D105 A is particularly useful:

- for conveyor speeds ≥10 m/min to reduce noise from collisions between pallets
- to reduce shock for sensitive products
- to reduce the total queue pressure that arises when stopping longer, heavier pallet queues

...and includes guidance towards the pallet plate and to be more wear resistant it also includes a steel insert, placed where the stop arm acts.

Ordering information
Damped guide discs have to be ordered as a complement. Standard pallets (XKPP) cannot be ordered including damped guide discs. However, standard pallets can easily be rebuilt according to below.

Mounting methods
The damped guide discs can be mounted in two different ways:

Method 1 – Only front disc replaced to damped version

Function:
- Shock reduction between pallets.

Method 2 – Both front and rear disc replaced to damped versions.

Function:
- Further improved shock reduction between pallets compared to method 1.
- Reduction of the total queue pressure that arises when stopping a longer, heavier pallet queues.

When a pallet hits another pallet the nose will be pressed into the guide disc, thereby transmitting the force perpendicular towards the guide rails.

Note!
Use optical sensors for max. queue indication instead of a proximity sensor toward a pallet sensor plate.
RFID components

RFID tag
The RFID tag can be read reliably at speeds up to 30 m/min. The tag has an M5 grub screw like design and is mounted in a plastic holder.

<table>
<thead>
<tr>
<th>Threaded type</th>
<th>M5x16,5mm</th>
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</thead>
<tbody>
<tr>
<td>Operating frequency</td>
<td>125 kHz</td>
</tr>
<tr>
<td>Memory [BIT]</td>
<td>224 (7 pages with 32 bits each)</td>
</tr>
</tbody>
</table>

1) The RFID tag holder is included in all pallets

Read/write head
The read/write heads exchange data with the passive RFID tags at a maximum distance of 20 mm. The read/write head has an M12 connector. The M12 cable is connected to an M12 ASi socket. Up to 31 read/write heads can be connected to one ASi system.

Read/write head bracket

<table>
<thead>
<tr>
<th>Read/write head bracket</th>
<th>505872</th>
</tr>
</thead>
<tbody>
<tr>
<td>for pallet XKPP 200x150 A</td>
<td>505872</td>
</tr>
<tr>
<td>for pallet XKPP 250x225 A</td>
<td>505873</td>
</tr>
<tr>
<td>for pallet XKPP 300x300 A</td>
<td>505874</td>
</tr>
</tbody>
</table>

Including mounting details.
Pallets XKPP 200×150 A, XKPP 250×225 A
**Slide rails**

**Guide rails (dry applications)**

**Guide rails for pallets in bends 30°**

Guide rail for pallets in bends
Outer guide rail, 30°
Inner guide rail, 30°

*Including connecting strips*

Guide rails for pallets in bends 45°

Guide rail for pallets in bends
Outer guide rail, 45°
Inner guide rail, 45°

*Including connecting strips*
Guide rails (dry applications, continued)

Guide rails for pallets in bends 90°

Guide rails for pallets in bends 180°

Drip catchers (wet applications)

Drip catcher for wheel bend 30°

Drip catcher for wheel bend 45°

Straight guide rail with drip catcher

Guide rail with drip catcher

Guide rail bracket: see page 261.
Drip catchers (wet applications, continued)

**Drip catcher for wheel bend 90°**

Drip catcher kit for 90° bend
ABS plastic. Including screw kit

**Drip catcher for wheel bend 180°**

Drip catcher kit for 180° bend
ABS plastic. Including screw kit

**Drip catcher for wheel bend 180°**

Drip catcher kit for 180° bend
ABS plastic. Including screw kit

**Drip trays**

Drip tray
Length 3 m

See page 249 for more information.

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**Accessories and tools**

**Guide rail bracket**

Guide rail bracket for XK pallets

![Guide rail bracket](image)

XKRB 30×74 A

Note. Designed for use with chain XKTP 5 K. Chain XKTP 5 cannot be used for XK pallet handling. All fasteners included.

**Connecting strip for XK guide rails**

![Connecting strip](image)

Connecting strip for XK guide rails

3924731

**Mounting toolkit for guide rail**

Mounting toolkit for guide rail

3926757

Use the kit to ensure that the guide rails are attached with a correct and consistent spacing. Including assembly instructions

**Set screw (used as guide pin)**

Set screw, ISO 7436: 1983 M4× 20

SK6SS 4×20

Note. Must be ordered in multiples of 50
Pallet locating station

Pneumatic locating station

(A) = located, (B) = non-located.

Note. Designed for use with chain XKTP 5 K. Chain XKTP 5 cannot be used for XK pallet handling.


Locating accuracy: ±0,1 mm. Maximum vertical force per ruler at 0,6 MPa: 600 N including pallet weight.
The locating station should be installed on a separate support which is not rigidly connected to the conveyor beam.

Specify the locating station with guide rails with or without drip catcher.

Proximity switches are not supplied by FlexLink Systems. To indicate “pallet ready to lift”, a SICK proximity switch (IQ 10 series, sensing range 6 mm) or similar can be used. See figure below.
Locating station accessories

About proximity switches

The proximity switch (not supplied by FlexLink) must have a minimum effective sensing distance of 3.5 mm to the steel initiator plate.

Example: the effective sensing distance for SICK (IM12 sensing range 6 mm) is 4.86 mm. This is calculated as follows: 6 mm × 0.81* = 4.86 mm.

*Useful sensing range = 0.81 × nominal sensing range.

Bracket for horizontal proximity switch

Bracket for horizontal proximity switch Ø18 mm  XKPB 18 H

Acetal resin. Including screw, T-slot nut and washer

Pneumatic stop for pallet locating station

Housing: anodized aluminium. Cover: stainless steel. For use with cylinder position sensor. Including Ø6 pipe connections and the necessary mounting hardware.

The stop is double-acting, but also includes an integrated spring for stop out if air supply is cut off.

Note. Designed for use with chain XKTP 5 K. Chain XKTP 5 cannot be used for XK pallet handling.
The diagram shows the maximum permissible weight of a group of pallets (product weight + pallet weight) that the stop device is capable of stopping, as a function of the conveyor speed.

**Pneumatic stop**

**XKPD 32x15 C**

**Housing**: anodized aluminium. **Cover**: stainless steel. For use with cylinder position sensor. Including 6 pipe connections and the necessary mounting hardware. The stop is double-acting, but also includes an integrated spring for stop out if air supply is cut off. **Connection**: G 1/8". **Stroke**: 15 mm. **Locating accuracy**: ±1 mm.

**Note.** Designed for use with chain XKTP 5 K. Chain XKTP 5 cannot be used for XK pallet handling.
Diverting and Merging modules – introduction

Divert modules
Divert modules are used to guide selected pallets from one conveyor to another.

Merge modules
Merge devices are used to guide pallets back from a satellite conveyor into the main conveyor (highway).

Divert and Merge modules
A combined divert/merge device is used to guide selected pallets from a main conveyor (highway) into a satellite conveyor and back. The combination also permits recirculating the pallets on the satellite until the pallet is ready to return to the highway.

Configurator tool
The divert/merge/combination modules can be individually configured to the right pallet size using the configurator tool. The configurator tool will create a geometrically correct 3D CAD-model that can be inserted in the layout. The configured module will include the function, stops, conveyor beams, wheel bends and guide rails.

Configurable options include:
- Specific pallet size
- Sensors
- RFID readers and brackets
- Photo eyes and brackets
Divert modules

Divert module 45°

Figure shows type L (divert to left)
*Use online configurator when ordering
Effective track length: 2,02 m 1-way (4,04 m 2-way)

Divert module 90°

Figure shows type L (divert to left)
*Use online configurator when ordering
Effective track length: 2,2 m 1-way (4,4 m 2-way)

Merge modules

Merge module 45°

Figure shows type L (merge from left)
*Use online configurator when ordering
Effective track length: 2,02 m 1-way (4,04 m 2-way)

Merge module 90°

Figure shows type L (merge from left)
*Use online configurator when ordering
Effective track length: 2,2 m 1-way (4,4 m 2-way)
Divert and merge modules

Divert and merge module 45°

Figure shows type L (divert to left, merge from left)
*Use online configurator when ordering
Effective track length: 1.94 m 1-way (3.9 m 2-way)

Divert and merge module 90°

Figure shows type L (divert to left, merge from left)
*Use online configurator when ordering
Effective track length: 2.0 m 1-way (4.0 m 2-way)