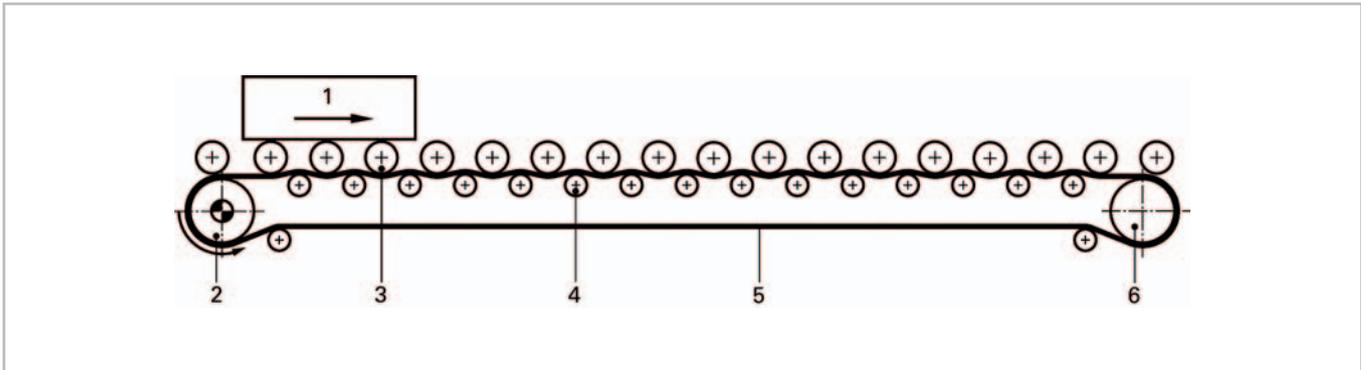


Live Roller Conveyor Drive

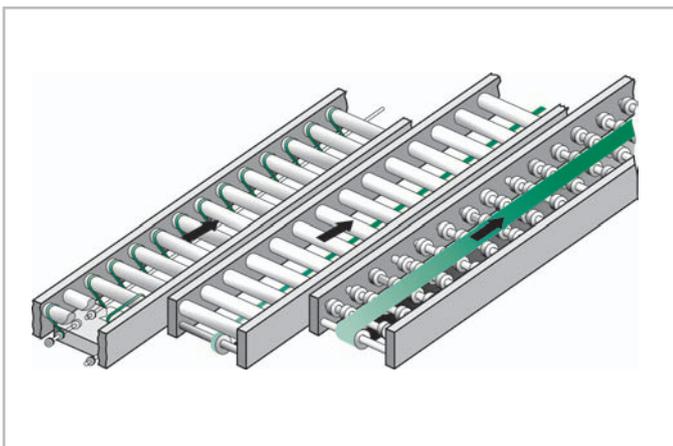
Introduction

Live roller conveyors (LRC) play an important role in modern materials handling engineering. Piece goods in a broad range of sizes can be carried over shorter or longer distances, in a straight line as well as through curves, with relatively low energy consumption. Transport usually takes place horizontally, although slight inclines are also possible.



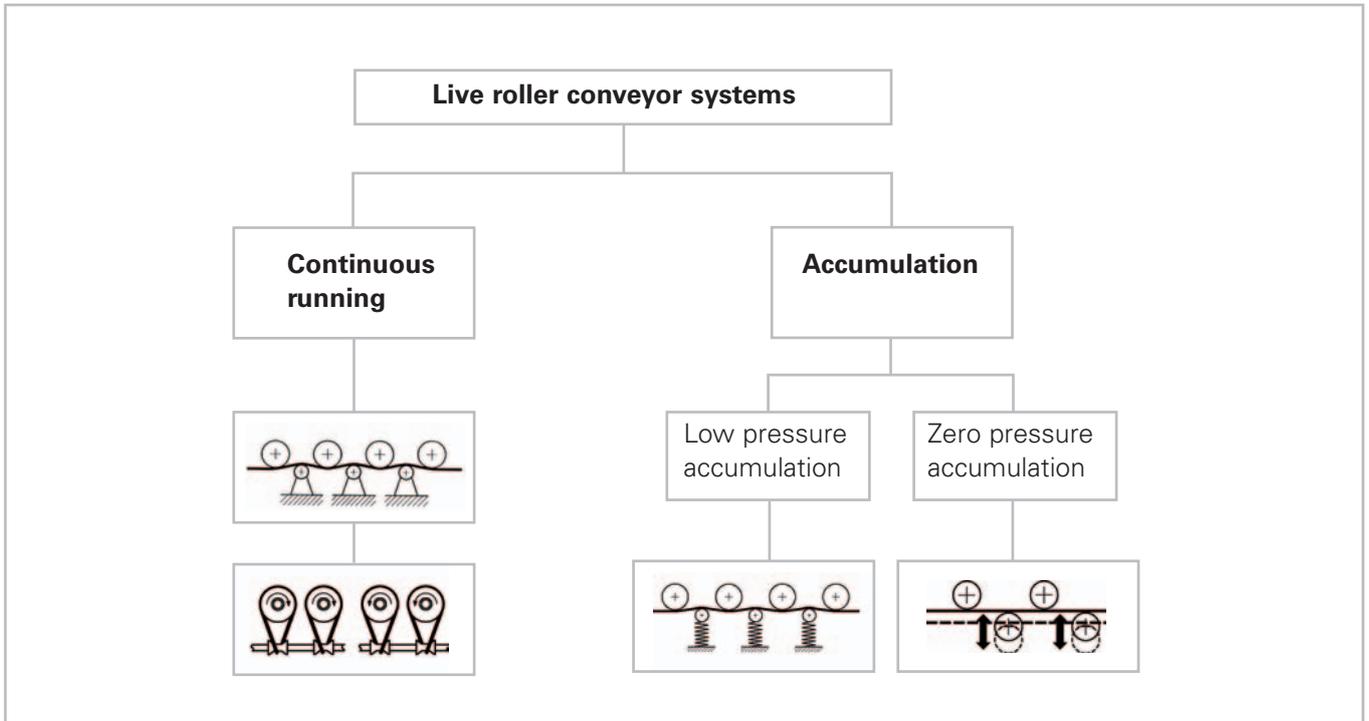
The goods are transported by a roller conveyor. The rollers are driven by a strong and therefore relatively narrow flat belt. The power transmission between belt and rollers is accomplished by the use of pressure rollers. The transported goods move in the opposite direction to that of the drive belt.

- 1 Transported piece good
- 2 Driving pulley
- 3 Carrying rollers
- 4 Pressure rollers
- 5 Driving belt
- 6 Return pulley



Live Roller Conveyor Drive

Flat belt driven LRC are particularly well suited for goods accumulation and subsequent singulation processes. For the selection of the flat belt it is important to know exactly which LRC system will be used.



Continuous running system

In a continuous running system, the carrying rollers are driven continually. There is no accumulation of goods and thus no stopping of the rollers. Pressure rollers can be fitted therefore in a fixed position. Flat belts with friction covers (NBR) on both sides are used as driving element. Rollers in continuous running systems may also be driven by Polycord round belts – a solution that is particularly suited for curves.

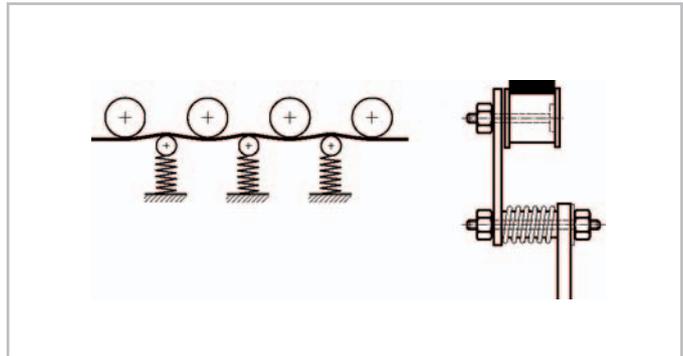
Accumulation system

Where products need to be accumulated on the LRC for subsequent controlled retrieval, a distinction is made between systems where the continuous running belt remains in contact with the rollers while they are blocked by the accumulated goods (low pressure accumulation), and systems where the belt is separated from the rollers (zero pressure accumulation).

Live Roller Conveyor Drive

• Low pressure accumulation

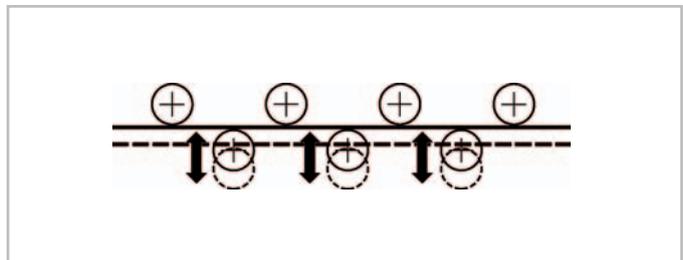
On the relatively simple low pressure accumulation system, the belt is pressed against the rollers by a spring-loaded mechanism. If the carried goods are accumulated, e.g. by means of a mechanical stop or gate, the rollers in question stop while the belt continues to run. The surface touching the carrying rollers must be formed so that it can slip with minimum resistance on the stationary rollers, but at the same time have sufficient friction to continue driving the other carrying rollers reliably. On the driving pulley side, the belt must have a high coefficient of friction (preferably NBR rubber cover).



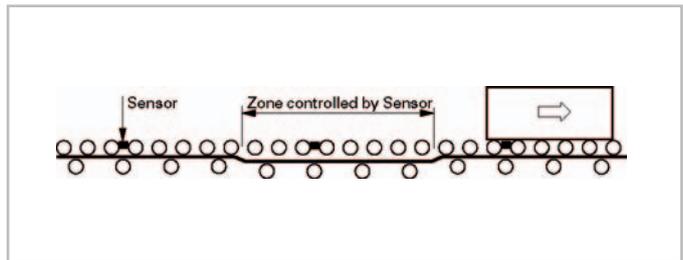
• Zero pressure accumulation

On the more sophisticated zero pressure accumulation system, the pressure rollers are separated from the carrying rollers by mechanical devices during the accumulation process.

The goods being carried will stop moving once the rollers are disconnected from the drive. However, if they are to be conveyed further, the pressure rollers are simply returned to their operating position, pressing the drive belt back onto the rollers.



In this fashion, different sections of the roller conveyor can be engaged and disengaged from the drive completely independently of each other. The pressure roller lifting device itself can be mechanically, pneumatically or electromechanically operated, while the control sensors are mechanical, electrical, pneumatic or optical.



Since in the zero pressure accumulation system there is absolutely no contact between the driving belt and the carrying rollers during accumulation, drive belts with friction covers on both sides (NBR rubber) can be used. This results in increased transport reliability and belt service, and reduced power consumption compared with the low pressure system.

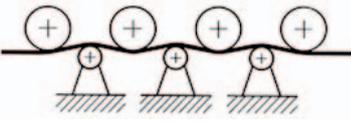
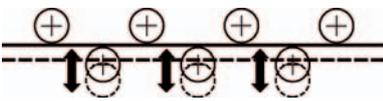
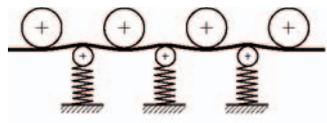
Live Roller Conveyor Drive

Technical requirements on live roller driving belts

Due to their relatively low belt speeds, the demands regarding running properties are relatively low. However, the belts still have to be robust, because they are often exposed to strong mechanical loads, e.g. due to start-stop operation, relative movement on stationary rollers, lateral contact on flanged pulleys, etc.

Belt selection

Habasit can provide the optimal belt type for every LRC system:

LRC system	Required belt design	Belt recommendations
<p>Continuous running system</p>  <p>Zero pressure accumulation</p> 	<p>Carrying roller side: Adhesive surface *</p>  <p>Driving pulley side: Adhesive surface *</p>	<p>HabaDRIVE® power transmission belts: TC-range TCF-20H, TCF-50H TF-range S-range</p> <p>Other possibilities (examples): MAM-5E CM-18/30F</p>
<p>Low pressure accumulation</p> 	<p>Carrying roller side: Non-adhesive surface</p>  <p>Driving pulley side: Adhesive surface *</p>	<p>HabaDRIVE® power transmission belts: TF-75TE</p> <p>Other possibilities (examples): MAM-5P FAB-xxE EMB-12EMCH ENU-20EXBD EMB-27EHBT</p>

* NBR rubber by preference.

Live Roller Conveyor Drive

Further belt types are available for special requirements, such as use in cold environments, etc. As an alternative to flat belts, LRC are often equipped with round belts (Polycord®, Habicord). For further information please contact your Habasit partner.

Calculation aids

For driving belt calculations for special requests please contact your Habasit partner.

Design recommendations

The general statements in the chapter on “Design guidelines” should be observed.

Belt installation and maintenance

The general statements in these chapters should be observed.

Alternative: HabasitLINK® modular belt conveyor

As an alternative to the belt driven live roller conveyor system, the HabasitLINK® modular belt conveyor can be considered for new installations. For further information see www.habasitlink.com or contact your Habasit partner.