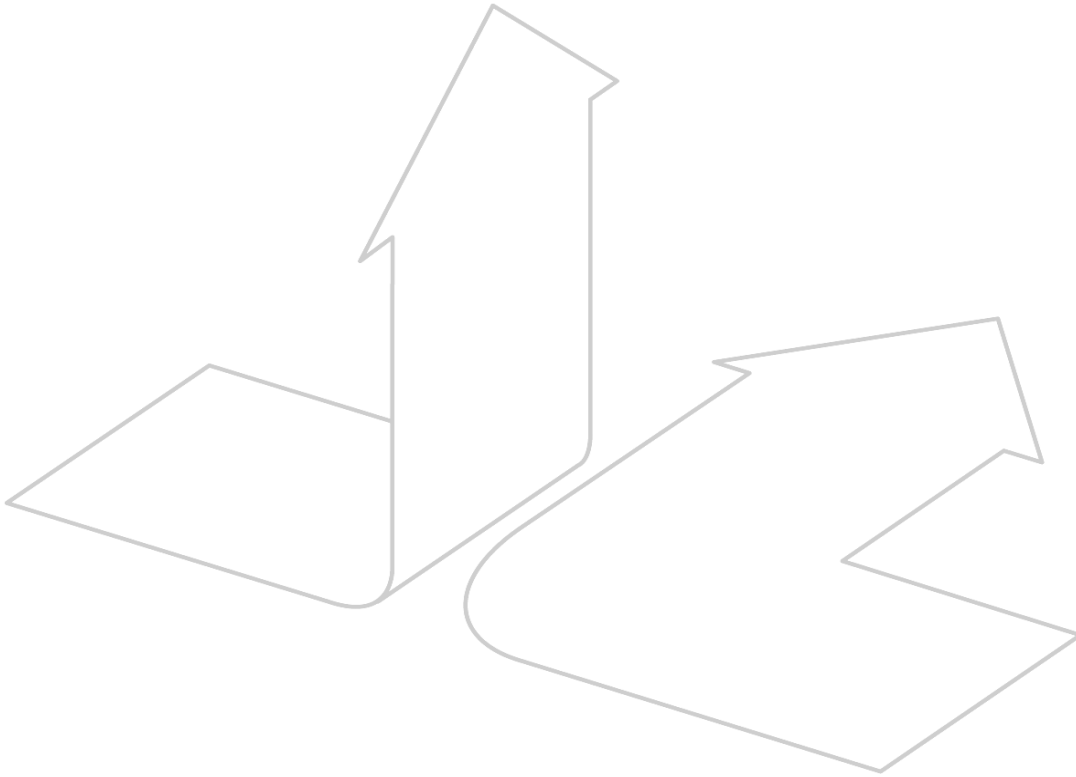


- **Tensioning of a conveyor belt**
- **The running direction of a conveyor belt**
- **Slippage of a conveyor belt on the driving drum**
- **Tracking of a conveyor belt**



Tensioning of a conveyor belt

To drive a conveyor belt without slippage and to track it in a proper way, a certain belt tension is necessary. The tension applied has to be such that there is no slippage on the driving drum when the belt is started at full load.

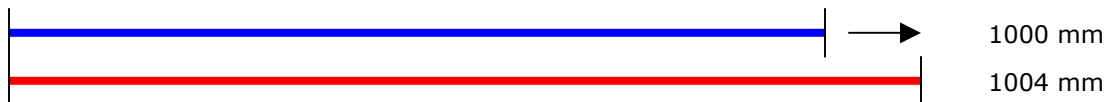
Pollution or a wet sliderbed will increase the friction strongly. Therefore it is very important to clean your conveyor properly. For this we refer to our cleaning instructions.

Tensioning a conveyor belt in practice:

- Put marks on the untensioned belt on exactly 1000 mm;
- This has to be done on the left as well as the right side of the conveyor belt;
- Tension the belt and let it turn a few times to equally divide the belt tension over the belt;
- Then measure the elongation;
- Adjust the belt tension, if necessary;
- In case of applications with a medium load an elongation of 0.3 to 0.4% should be sufficient.

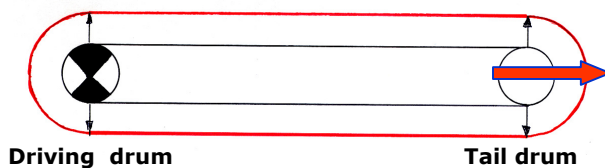
With regard to the tracking behaviour of a belt a minimum stretch of approx. 0.2% is necessary.

In case of a heavier load a higher belt tension is necessary (maximum approx. 0.7%).



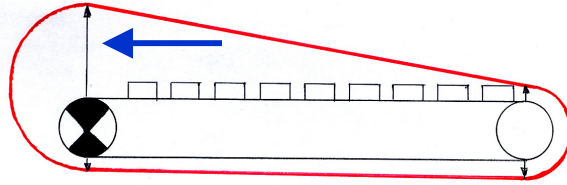
The running direction of a conveyor belt

The red line indicates the level of tension in the belt.



Pretensioned conveyor in a **standstill** situation.
The belt tension on the whole belt is at the same level.

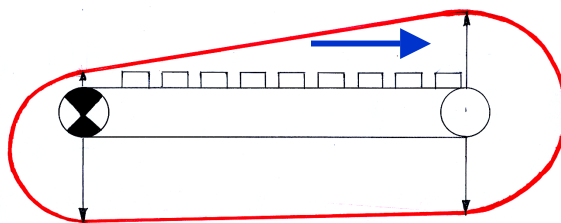
In case of a **pulling configuration** the belt on the upper part moves towards the driving drum.



A pulling configuration is preferred!

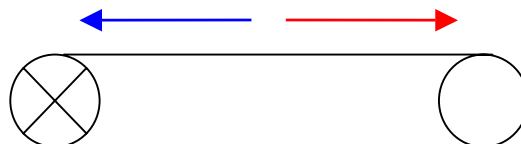
- The tension peak is of short duration only;
- There is little tension in the return, tracking idler, tensioning idler, etc.
- A relatively low pretension is necessary;
- In a pulling configuration a conveyor belt will have better tracking properties.

In case of a **pushing configuration** the upper part moves towards the tail drum.



- The whole belt is under high tension, so also on all parts in the return part of the conveyor;
- A longer pretensioning device is necessary;
- A high pretension is necessary;
- In a pushing configuration belt tracking is less favourable.

Pulling tracking is good Pushing tracking is poor



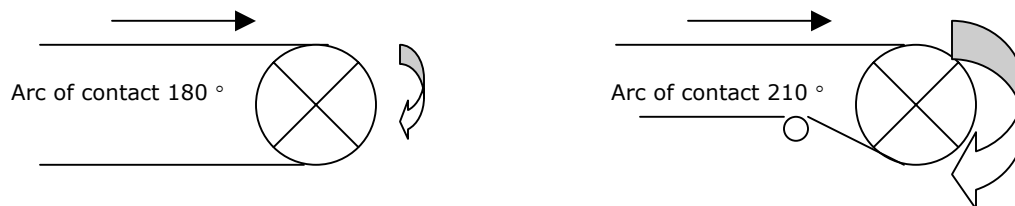
Slippage of a conveyor belt on the driving drum

All parts, which are in contact with the conveyor belt, cause friction. Pollution of rolls, layers, the sliderbed and the belt itself will increase friction. Running without slippage is a.o. dependent on the following factors:

- The friction the belt will experience while running;
- The belt tension; for example in case of a high belt tension the bearings turn heavier;
- The load on a conveyor belt.

To prevent slippage on the driving drum the following parameters can be influenced:

- Increase the belt tension. Note: a too high belt tension can cause excessive wear of the belt and other parts of your conveyor.
- Increase the friction between belt and surface of the driving drum; check if the drum lagging has worn out or has hardened.
- To increase the arc of belt contact for example by applying a snub pulley.



Tracking of a conveyor belt

Mistracking of a conveyor belt can cause damages to the belt, like fraying edges (see picture). Pieces of the conveyor belt could pollute your product. This is one of the most important reasons to seriously pay attention to tensioning and tracking of conveyor belts. Possible causes of mistracking are the conveyor belt itself or the application.



The belt as the cause of mistracking

- The length of the belt is left and right not equal, for example caused by a splice which is not straight;
- Difference in wear on the left and right side of the belt;
- An incorrect fabric construction (not twisted S/Z);
- A belt tension that is either too high or too low:
 - If the tension is too low the belt will not react to corrections you make.
 - If the tension is too high there is no more stretch and therefore the drums will bend and small mistrackings will become more serious.

The conveyor as the cause of mistracking

- End drums which are not parallel, or not at a 90 degrees angle with the running direction or not horizontal;
- Difference in circumference due to for example wear;
- Worn out bearings or shafts;
- Bent drums, for example caused by too high a belt tension;
- Differences in friction on the slider bed caused by pollution or wear of the coating of the slider bed;
- Belt scrapers or brush cleaners with an unequal pressure to the left surface;
- Side seals can give difference in friction left and right;
- Knife-edge transfers have to be straight and square;
- Drum motor could have has a difference in temperature L/R.

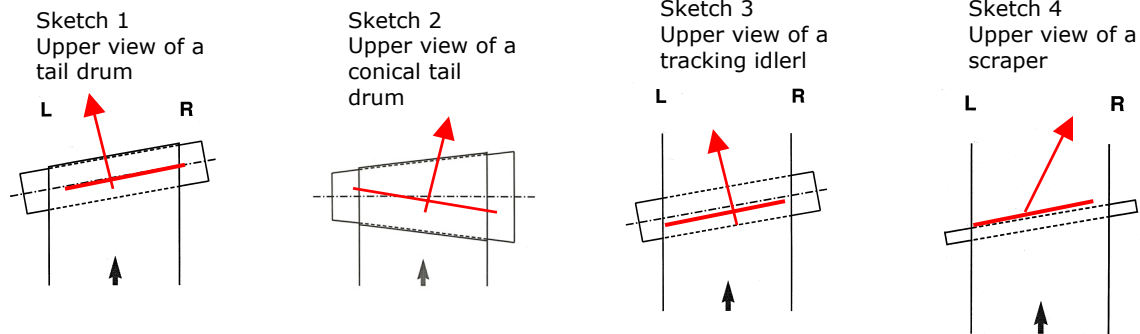
The application as the cause of mistracking

- Pollution of the drums; a difference in circumference L/R can therefore occur;
- An asymmetrical product load;
- Loading and unloading sideways;
- If there is a process taking place on the conveyor belt, like cutting or sanding.

Explanation of mistracking

You can use the following rule:

- The belt moves to the direction where it first touches the drum. In case of a scraper or a drum, which does not turn, the belt will move to exactly the opposite side.



Prejudice:

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