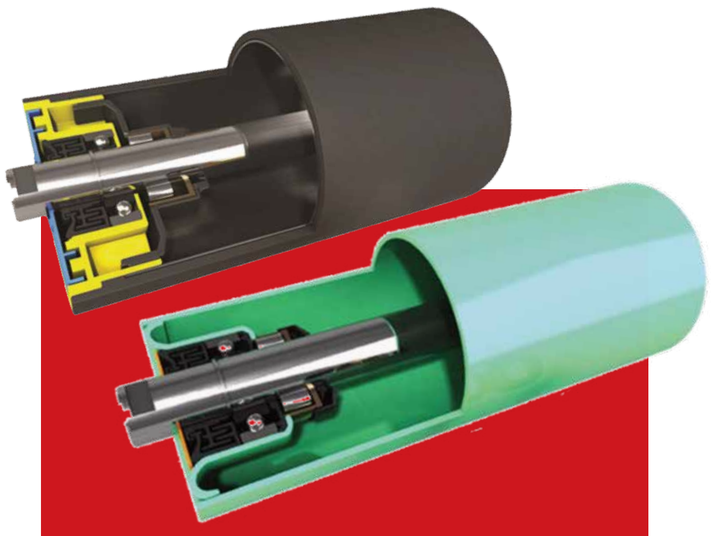
MELCO

CONVEYOR EQUIPMENT

ANTI-RUNBACK ROLLERS



UNI-DIRECTIONAL ROLLER

PREVENTS BELT RUNAWAY

MECHANISM INSIDE STANDARD ROLLERS

IDENTICALLY SIZED TO CONVENTIONAL ROLLERS

South African Mine Health and Safety Act 1996

Regulations relating to Machinery and Equipment – Chapter 8 (1 Feb 2008)

8.9(1) (d) The employer must ensure that the driving machinery of the conveyor belt installation is stopped should the belt break, jam or slip excessively;

8.9(1) (j) The belt of any conveyor belt installation cannot run away.

8.9(3) The employer must take reasonably practicable measures to prevent persons from being injured by material or mineral falling from a conveyor belt installation, which measures must include the fitting and use of one or more devices to prevent run-back or run-on; when such conveyor belt installation is stopped.

8.9(5) The employer must take reasonably practical measures to prevent persons from being injured as a result of the breaking, misalignment or damage of a conveyor belting due to any mineral, material or coal dust accumulating on or around the moving parts of any conveyor belt installation.

What is an Anti-Runback roller?

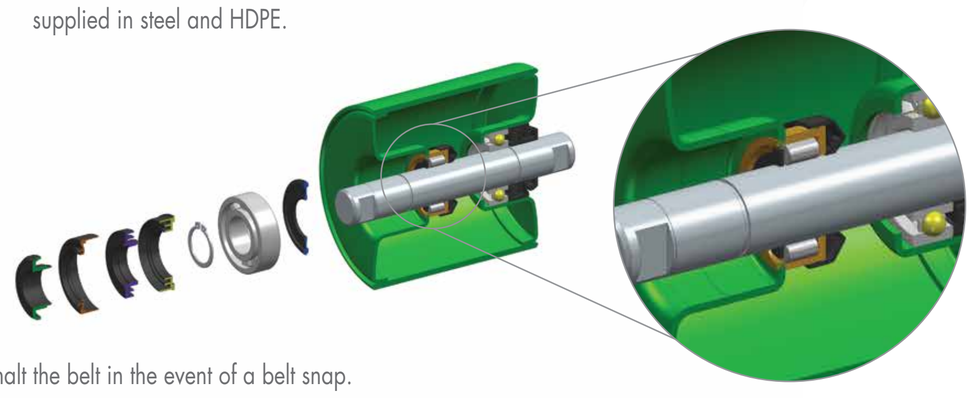
The Melco Anti-Runback roller is a uni-directional roller for conveyors that enhance safety by preventing belt run-back in the event of a belt break.

When a conveyor is running in the forward direction, the anti-runback is disengaged and therefore does not wear.

When a belt snap occurs, the reverse action of the roller results in an immediate locking of the mechanism. The friction between the belt and the roller ensure the stopping of the conveyor. Anti-runback rollers cannot be used on the return side of a conveyor as a snapped belt will continue to run in the same direction.

The ability of anti-runback to stop a snapped conveyor belt is dependant on installation of the correct number of rollers in the correct pattern as specified for the conveyor.

- Anti-runback mechanism is incorporated into the idler roller on the inside of the bearing housing.
- Rollers are identically sized to conventional rollers and fit into the same idler frames making changeout simple.
- Anti-runback rollers can be supplied in steel and HDPE.



Specifying anti-runback for your conveyor

Conveyors with an incline angle > 6° will require anti-runback rollers to halt the belt in the event of a belt snap.

Inputs

Information should be gathered on the conveyor including incline angle, belt speed, capacity and idler spacing which is assessed considering design principles and testing of anti-runback rollers.

Outputs

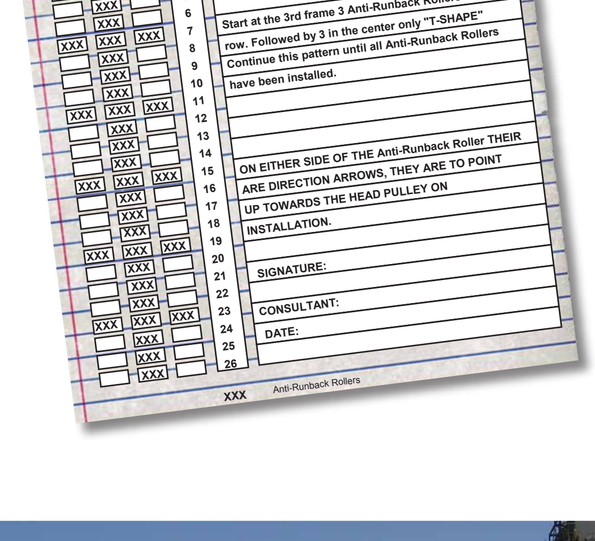
Recommendations are provided on quantity of rollers required and installation pattern.

Rollers are purchased from Melco that are equivalent size to existing rollers. There is no need for new or modified frames.

Installation

Installation of rollers must be done ensuring that the rollers are installed in the correct direction. Rollers have identification tags (Blue – Right, Red – Left) to aid installation. After installation, only a single colour tag should be seen when viewing the conveyor from the side.

Installation patterns should be archived by clients and installations periodically verified to ensure that the correct minimum number of rollers are installed.



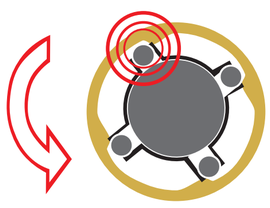
Design and quality

Melco Anti-runback rollers are designed using the same principals as conventional rollers to ensure that the shaft and bearing design meets the operational requirements of shaft deflection limits and L10 bearing life.

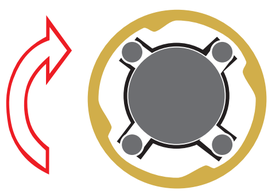
The Anti-runback mechanism is rated at 250 Nm to ensure effective locking when rollers begin turning in the reverse direction.

How it works

The internal mechanism consists of 4 needle rollers running in an internal cam. When the roller is running in the direction of normal belt operation, the needles inside the cam are disengaged.



When running in forward direction - mechanism disengaged



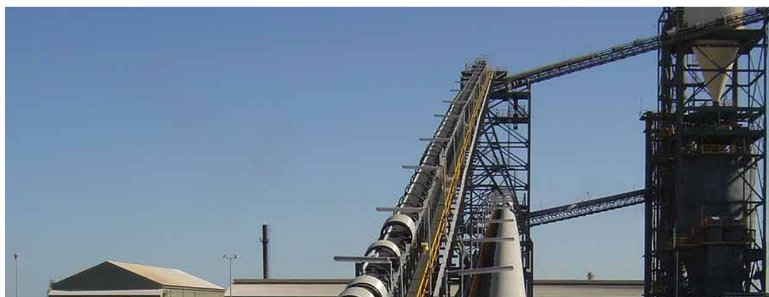
Reverse motion results in locking

When a belt snaps, the rollers begin to turn in the reverse direction, forcing the needles into the wedge caused between the cam and the shaft, effectively locking the roll. The friction between the roll and the belt will stop the belt

Lake Lindsay Australia (Coal)

Sasol Syferfontein South Africa (Coal)

Ravensthorpe Australia (Nickel)


Hismelt Australia (Iron Ore)

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