



FRAMES AND STRUCTURE

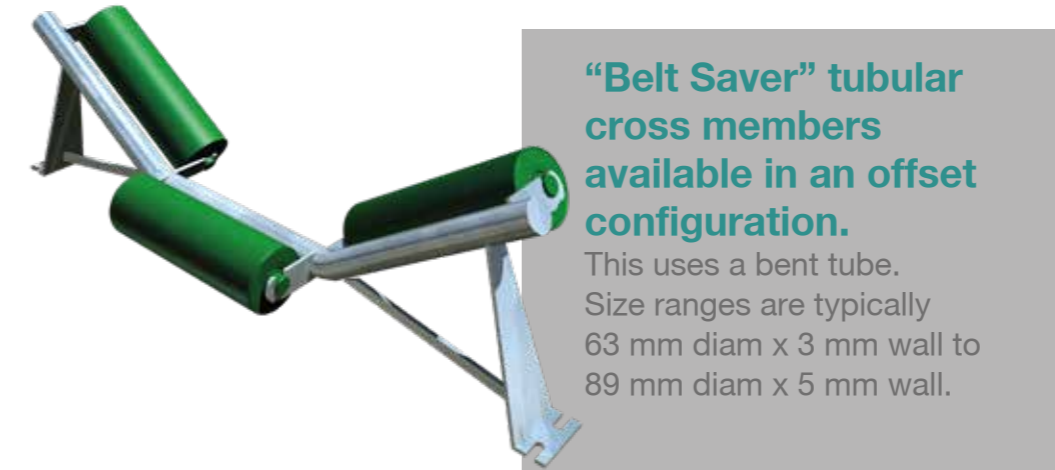
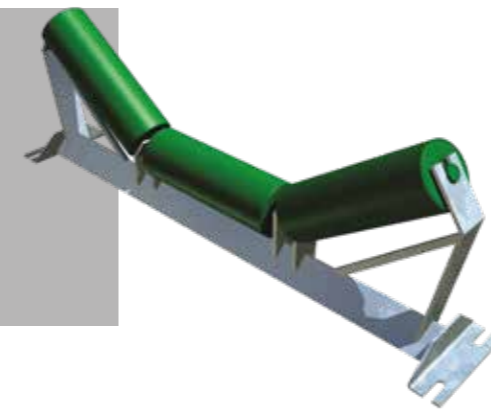
Melco manufactures a large variety of conveyor idler frames, according to conveyor design standards such as SANS 1313, PROK, DIN or other. Belt widths range from 450 mm to 2400 mm or more.

Frame configuration can be as per standards or customized to meet client specific needs. Frames are engineered to ensure deflection and load limitation, optimal price and ease of use.

Frames are manufactured in dedicated factories, using advanced machinery such as plasma cutters, bend press brake and robotic welding machines, to ensure high quality products in large volumes.

Slimline angle-iron section for the cross member.

This is available in inline and offset configurations. Channel sections can also be used in this configuration for larger belt widths.



"Belt Saver" tubular cross members available in an offset configuration.

This uses a bent tube. Size ranges are typically 63 mm diam x 3 mm wall to 89 mm diam x 5 mm wall.

Solutions for loading zones.

Changing of conveyor rollers in loading areas and skirted areas is difficult due to the inability to lift the belt sufficiently due to the presence of chutes and skirts. An idler frame is required to simply and safely solve this problem.

The Melco Jack Down idler allows for the replacement of the rollers by lowering the frame below the belt using 2 standard Bottle Jacks.

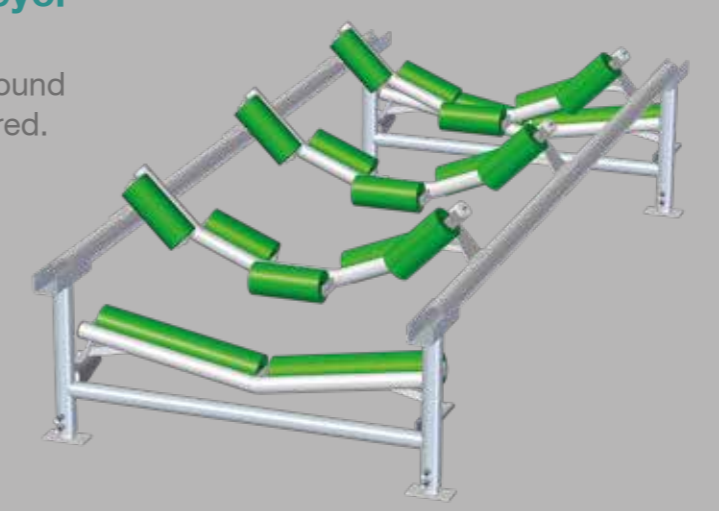


The Melco Retractable Idler allows for the replacement of rollers by the splitting of the idler frame into 2 sections which can then be retracted to allow for access to the rollers.



Underground modular conveyor structure.

A variety of configurations of underground conveyor modules can be manufactured. These modular systems are ideal for rapidly extending or retracting conveyors typical in gold, platinum and coal mines.



The modules can be supplied

Stringers: Tubular or channel sectioned. Module lengths vary typically from 3000 mm to 4500 mm.

Stools: Supplied with extendable legs for adjustment for uneven flooring. Can be fitted with flat or v-return brackets.

Idlers: Can be supplied as fixed frame or garland type.

Typical Idler Configurations



Troughing idler : 3 Roll, top mounted, offset, Belt Saver



Troughing idler : 3 Roll underslung, offset, Belt Saver



Troughing idler : 5 Roll top mounted, offset, Belt Saver



Troughing idler : 3 Roll, top mounted, inline, Slimline



Impact idler : 3 Roll top mounted, offset, Slimline



Troughing idler : Adjustable, 3 roll, inline



Picking idler



V-Return idler : 2 roll, Belt Saver



Troughing training idler

INTERNATIONAL STANDARDS

SANS 1313, PROK, DIN

STANDARD AND INNOVATIVE

TUBULAR AND ANGLE SECTIONS

5-Roll Idler configuration.

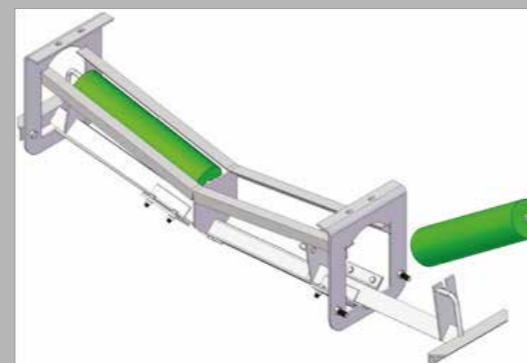
The 5-Roll carry configuration uses rollers that are shorter in length and therefore the required shaft diameter/bearing is less in order to achieve the same design life.



The rollers are lighter and cheaper which makes maintenance easier and cheaper and safer for the maintenance personnel. The initial cost of a 5 and 3 roll idler configurations are similar, however when considering the ongoing maintenance costs, the 5 roll system is cheaper to maintain as the center roll is usually changed more frequently and this is cheaper on the 5 roll system. It is common to consider a 5-roll configuration for belt widths > 1350 mm Belt Width.

Retractable V-Return idlers.

The retractable V-return idlers improves safety and ease of changing V-Return rollers on elevated gantries. This eliminates the need for scaffolding or work platforms and difficulty handling heavy rollers beneath the conveyor.



The idler splits into two sections which retract into the walkway where the rollers are replaced before sliding the frame back into place.

Banked overland conveyor idlers.

Long overland conveyors frequently need to negotiate horizontal curves.

In order to ensure that the conveyor is able to follow these curves, banked idlers are often employed on both trough and



Tubular straight cross members.

The cross member on idler frames is a critical part of design and a large contributor to the cost of a frame. The load applied to the frame results in stress and deflection which must both be limited according to conveyor design and material standards.



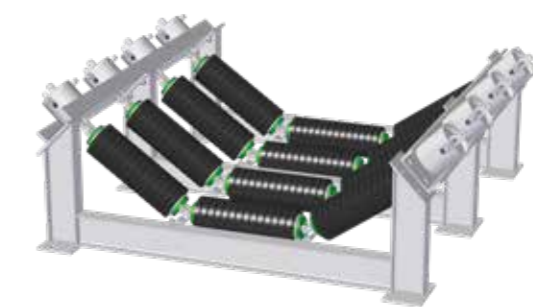
Typically, idler frames are manufactured using inverted angle iron sections.



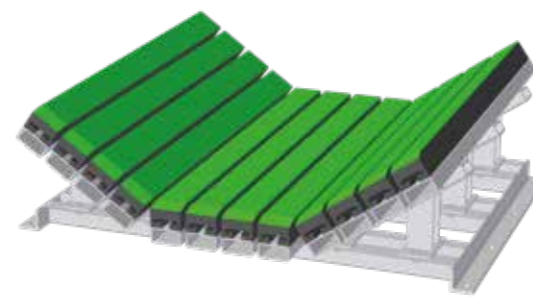
Changing these sections to tubular will result in a mass and cost saving. Applied loading and I and Z values of steel sections will determine the most optimal section to use. Melco manufactures frames with bent tubes considering 63, 76 and 89 mm tube. A further consideration is to use a straight cross member, which increases the possibilities available in tubular sections.

Impact beds.

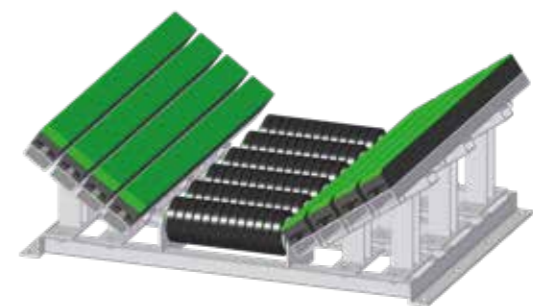
In order to limit belt damage at loading areas, impact beds are used to ensure that the impact from falling material is cushioned when making contact with the belt.



Slider bed (Skeega) – for low impact and small lump size. Compact design.



High Impact bed – for high impact and larger lump sizes. Linked garland strings are mounted on shock absorbing rubbers.



Unequal roller idlers for overland conveyors.

On a typical idler design, the center roller carries in excess of 60% of the idler load. By using a shorter roller on the center roll the shaft series and bearing size can often be reduced as the roller load is lower and the deflection length less. This results in a decreased idler cost, most applicable on long overland conveyors where cost efficiency is important.

This can be used in combination with a larger diameter roller on the center roll compared to the wing rollers.



The larger diameter roller decreases the belt drag due to belt indentation reducing the power requirements on the conveyor.

Specifications. Steel used: 355 WA (Mild Steel), Welding standards: AWS D1.1 is used as a general reference for welding standards. **Corrosion protection:** Melco uses painting primer or galvanizing. In corrosive or marine applications special paint systems can be used as required.



Sasol Syferfontein South Africa (Coal)



Jacobs Ranch USA (Coal)



Foundation USA (Coal)



Sasol Syferfontein South Africa (Coal)