# COUNTING THE COST : How much are your conveyor belts really costing you?

**For a great many industrial operations throughout Africa, conveyors play a role that keeps material moving and therefore directly influences productivity. At the same time, the conveyor belt market is extremely competitive, something signified by huge variations in the selling price of belts that are supposedly of the same specification. No matter what price you pay, it is the reliability and longevity of your conveyor belts that actually dictates their true cost. So, are your conveyor costs higher than they should be? In this special feature for *Minerals & Exploration Africa Journal*, conveyor belt specialist Leslie David explains the most effective way to make sure that your conveyor belts are giving you the best value for money.**

**"Price is what you pay. Cost is what you spend"**

It is fair to say that the 'headline price' of an item usually has the biggest influence on the purchasing decisions we make. In business it is most often budgetary constraints and/or gaining CAPEX approval from senior management that come first. However, it can be a very expensive mistake to buy a conveyor belt because it is more 'competitively priced' rather than buying a belt that is likely to require a much lower level of repair and maintenance and provide the longest possible operational lifetime.

*At a standstill – stopping for repairs cost time and money*

To calculate the *true* cost to a business, and certainly when buying complex and vitally important components such as conveyer belts, it is first necessary to include as many other directly related costs as possible. The 'above the line' price that you pay for a conveyor belt is one thing but perhaps the less obvious'below the line', costs are what your company will actually spend. Those who are responsible for conveyors will probably know how much has been lost in terms of output when there is an unplanned stoppage but is the *cost* of that lost output being measured and used to make future buying decisions?

**Not all conveyor belts are created equal.**

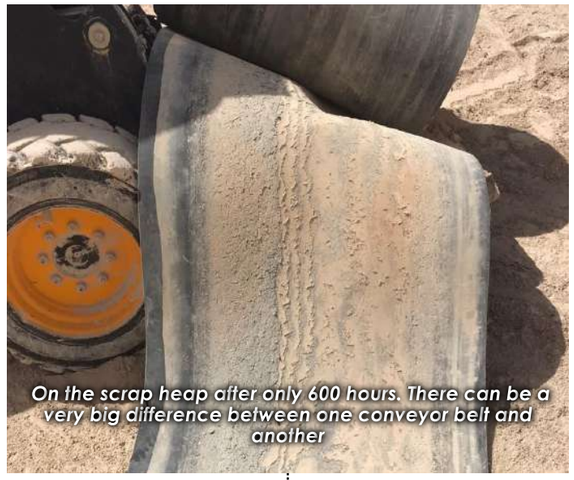
Although they may look the same from the outside, there are often huge differences between the performance of one conveyor belt and another, even when they both claim to meet certain specifications and international standards of quality. There are numerous, well-documented reasons for these huge differences in performance and longevity but they are not always easy to identify at the buying stage.

**The best indicator of poor quality**

Ironically, one of the best indicators of potential differences in quality and performance are where there are big differences in price. The biggest source of rubber belting imported into Africa is from China, who now dominate the market. The approach they use for the conveyor belt market is the same as they use for virtually every other industrial market, which is mass volume manufacturing at barely acceptable (and often unacceptable) standards of quality at hugely subsidised prices.

To make things even more confusing, almost all Europe and Africa-based belt manufacturers (with the exception of Netherlands-based Dunlop Conveyor Belting*) import from Asia and re-sell under their own brand. This practice enables them to compete at the low-price end of the market, which would otherwise not be a viable proposition.

It is not uncommon to see belts manufactured in Southeast Asia that are literally half the price of those genuinely being manufactured in Europe. However, as with virtually any product, price ultimately determines the quality. In the case of imported conveyor belts, the difference in quality is invariably reflected in the need for frequent repairs and premature replacement. Indeed, all the evidence points to top quality European-made belts being able to provide up to four or five times longer operational life compared to their Asian counterparts. Their cost over their working life is therefore appreciably less.



*On the scrap heap after only 600 hours. There can be a very big difference between one conveyor belt and another*

Unfortunately, it is extremely rare for those who are responsible for purchasing and capital expenditure to understand the technical differences associated with the performance and longevity of a conveyor belt. Consequently, price is usually the number one buying criteria. To be fair, purchasing professionals cannot be an expert on every product they are required to source. Trying to convince them and the company accountants that you want to use more reliable but 'higher priced', premier quality belts can be extremely difficult. However, it becomes a whole lot easier if you speak a language they understand by presenting them with an argument that is based on factual, 'whole life' cost.

**(*AUTHORS NOTE: Dunlop Conveyor Belting (Fenner Dunlop BV) in The Netherlands should not be confused with Dunlop Belting Products PTY, who are based in Johannesburg, South Africa, which is an entirely separate and unrelated company)**

**Calculating 'whole life' cost**

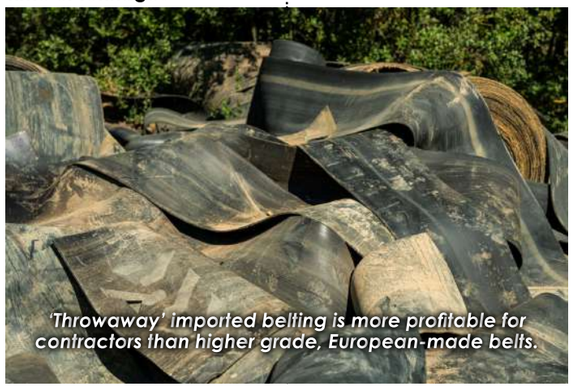
The principal of calculating the 'whole life cost' of a conveyor belt is to add the purchase cost of the conveyor belt to the cost of its installation including splicing. Added to this figure should be the cost of lost output caused by the removal and replacement of the old belt. The final part of the cost calculation is the labour and material costs incurred in repairing the belt during its lifetime (including the splice joint repairs) plus the estimated costs of the output lost while those running repairs were carried out. These calculations are easier to make if conveyor maintenance and repair is contracted out to a vulcanizing company. However, if these functions are performed 'in house' then it is important that accurate maintenance records are kept.

**In their best interests**

Many companies in Africa who use conveyors outsource routine maintenance, repairs, splicing and belt fitting to external vulcanizing and maintenance companies. Such contracts usually include the supply of replacement components such as rollers and the conveyor belts themselves. Consequently, these contractors can have considerable influence on technical decisions including trialing a belt made by a different supplier. However, although it may help to reduce fixed overhead costs, outsourcing can also lead to waste and inefficiency.

If a contractor is charging for repairs and supplying replacement components then it is fair to argue that it is not necessarily in the best interests of that contractor to provide the most reliable and longest lasting equipment. This is because the contractor is effectively being 'rewarded' for every repair, failed component and prematurely replaced conveyor belt. Supplying imported belting with a much shorter replacement cycle is much more profitable compared to fitting higher quality, longer-lasting European-made belts. There are many, myself included, who feel that this has been a key driver behind the ever-increasing use of low-priced, 'throwaway' imported belting, which makes the case for making purchasing decisions based on whole life cost even stronger.

**Time or tonnage?**



*'Throwaway' imported belting is more profitable for contractors than higher grade, European-made belts.*

Having collated the various elements of cost, the final step is simply to divide the total either by the period of time that the belt has run or, if known, the amount of material conveyed during its operational life. On conveyors that usually run non-stop during the day then time is normally the best measure. However, if the conveyor only operates intermittently then using tonnage as the basis for the calculation usually proves to be more accurate.

**Choosing a different supplier**

Having calculated the cost of a belt you are using or have finished using, the question then becomes one of comparison. If you have been surprised by the high level of costs involved then it becomes easier to make the decision to try something better. There is no point in making the whole life cost calculation unless you have something to compare it against, which therefore means trialing a higher grade of belt or a different specification or type of belt entirely.

As mentioned earlier, most European manufacturers supplement their production with imported belting. This means that you may inadvertently replace poor performing belt with a similarly poor standard imported belt, albeit from a different


The price ultimately determines the quality and longevity

supplier. At the very least, when requesting quotations it is always a good idea to insist on a certificate of origin from the manufacturer that confirms where the belt you are buying was actually manufactured. It is also a good idea to check a potential new supplier's website to look for testimonials and case studies.

**Predicting the lifespan**

The most challenging aspect of selecting conveyor belts based on whole life cost is that it can be difficult to accurately predict the lifespan of a belt of a belt that you have never have used before. As you would expect, suppliers of conveyor belts, regardless of their reputation for quality or otherwise, can never guarantee how long a belt will last. There are simply too many influencing factors. Do not let this put you off because the potential gains can be considerable. There is inevitably some degree of risk in any business decision but if you choose a tried and trusted manufacturer, especially one that actually manufactures all of its products in Europe, the 'risk' is minimal plus you have the added advantage of accountability in terms of the warranty.



Good quality European-made belts can provide up to four or five times longer operational lifetime

Again, as I mentioned earlier, it is not uncommon to see good quality European-made belts provide up to four or five times longer operational life. For example, to quote one quarry operations manager, "*We used to replace our belts every three to six months. Now it can be four or five years before we need to fit a replacement*". No doubt that the higher grade belt would have a higher price tag but it is highly unlikely that it would have been 300 or 400% higher than its low-grade predecessor. When you add in the costs of regular repairs and replacements and the lost output that are also avoided then the savings can be dramatic.

In my experience, the best approach is to select a conveyor that has the highest frequency of belt repairs and replacements for the trial of a premium grade belt. If the conveyor you have chosen is particularly problematic then it is often a good idea to make absolutely sure that the specification of the belt is correct by using a belt calculation program overseen by a professional conveyor belt engineer. The next step is to discuss the application and your requirements with an experienced representative of each potential supplier.

**Standing the test of time**

Thanks to technological advances and the investment in R&D by leading manufacturers such as Dunlop in The Netherlands and their sister company in the USA, the cost-effectiveness of modern-day conveyor belts should be measured over several years rather than just a year or two. Sadly, we are seeing an increasing number of examples in Africa of belts that have to be replaced after only a few months and, in some cases, only a matter of weeks. It is no coincidence that this decline in operational lifetime has been accompanied by the increased use of low-grade imported belting.

Ironically, this actually strengthens the case for calculating the cost of conveyor belts on a 'whole life' basis rather than simply the sales price. Although there will always be a desire to reduce expenditure, conveyor belts that stand the test of time and provide the lowest lifetime cost will invariably prove cheaper in the long run.

**Leslie David**

**About the author**

After spending 23 years in logistics management, Leslie David has specialised in conveyor belting for over 17 years. During that time, he has become one of the most published authors on conveyor belt technology in the world.