

How much are your conveyor belts really costing you?



For most mines and quarries, conveyors play an indispensable role in which reliability is paramount. They can also be a considerable overhead. The conveyor belt market is extremely competitive, something often signified by huge variations in the selling price of belts that are supposedly the same specification. No matter what price you pay, it is the reliability and longevity of your conveyor belts that actually dictates how much they cost. So, are you getting the best value for money and are you losing output due to unplanned stoppages? In this special feature, conveyor belt specialist Leslie David explains the most effective way of evaluating conveyor belt cost-efficiency.

“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 both in our business and personal lives. In our private life, it is usually simply a question of “Can I afford it?” but in business it is most often budgetary constraints that come first followed by a number of other considerations. However, buying something because it is ‘competitively priced’ but which then proves to be unreliable and/or wears out too quickly can be a very costly mistake.

To calculate the true cost to a business, and certainly when buying complex and vitally important components such as conveyor 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 the perhaps less obvious ‘below the line’, costs are what your company will actually spend. People who are responsible for conveyors will probably know how much has been lost in terms of volume when there is an unplanned stoppage

but is the cost of that lost output being measured and used to make buying decisions?

NOT ALL CONVEYOR BELTS ARE CREATED EQUAL.

Although they may outwardly look the same, there often huge differences between the performance of one conveyor belt and another, even when they both claim to meet a certain specification and international standards of quality. Compared to other industries, quarries and mines place arguably the toughest demands on rubber conveyor belts, especially when they are conveying sharp, abrasive, often heavy lumps of rock and stone. There are numerous, well-documented reasons for these huge differences in performance and longevity but they are not always easy to spot at the buying stage.



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



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

Ironically, one of the best warning signs are the prices. The biggest source of rubber belting imported into Europe 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.

It is not uncommon to see belts manufactured in South East Asia that are half the price of those being offered by European manufacturers. However, as with virtually any product, price ultimately determines the quality. In the



The price ultimately determines the quality and longevity.

case of imported conveyor belts, the difference in quality is invariably reflected in the need for repeated repairs, a general lack of resistance to wear and ultimately, much shorter operational lifetimes. 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.

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 top of the 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 'higher priced', higher 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.

CALCULATING 'WHOLE LIFE' COST

The principal of 'whole life cost' is simply the sum total cost (excluding VAT) of the conveyor belt itself plus the cost of its installation including splicing. Added to that should be the time spent removing and replacing the old belt before normal service can be resumed, which should be included as part of the 'lost output' calculations. The final part of the cost calculations are the labour and material costs incurred in repairing the belt (including the splice joints) during its lifetime plus the estimated costs of the production lost while those running repairs are 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

A quick word here regarding outside contractors because many operators outsource routine conveyor 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 different belt or belt supplier. However, although it helps to reduce fixed overhead costs, outsourcing arrangements can also expose the site owners to potential waste and inefficiency.

If a contractor is charging for carrying out 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 they are effectively being 'rewarded' for every repair, failed component and prematurely replaced conveyor belt. Supplying imported belting provides a much greater profit margin compared to higher grade, European-made belts with the added benefit of a much faster replacement cycle. In fact, 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. Ironically, this makes the case for making purchasing decisions based on whole life cost even stronger.



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

TIME OR TONNAGE?

Having collated the various elements of cost, the final step is simply to divide the total. This can either be done 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 are usually running non-stop during the day then time is usually the best measure. However, if the conveyor only operates intermittently then using tonnage as the basis for the calculation may prove 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. It may well be that you are shocked by the high level of costs involved, in which case it becomes easier to make the decision to try something different. Either way, there is little or no point in making the calculation unless you have something to compare it against. This, of course, means trialing a higher grade of belt or a different type of belt entirely, perhaps both.

Although manufacturers at the bottom end of the market are plentiful, there are relatively few premium-grade European manufacturers to choose from. However, even at the 'top end' you still need to tread carefully because surprisingly, with only one exception, European manufacturers are now supplementing their production with imported belting. This means that you may inadvertently replace under-performing imported belt with a similarly poor standard imported belt, albeit from a different supplier. At the very least, always insist on a certificate of origin from the manufacturer when requesting quotations. A little research is also a good idea, especially checking a potential new supplier's website for product data, specific performance claims, testimonials and case studies. Sometimes it is very easy to identify the true source of the product. For example, I recently found this statement on the website of a European-based conveyor belt 'manufacturer' - "XXXXXXXXXXXXX represents its partner, located in China and one of the biggest factories in the industry".

PREDICTING THE LIFESPAN

Without doubt, 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 type or supplier that you may 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 before needing to be replaced. There are simply too many influencing factors. Do not let this put you off. Although there is inevitably some degree of risk in any business decision, if you choose a tried and trusted manufacturer, especially one actually manufacturing in Europe, then the potential gains can be considerable. As the old saying goes, "If you never try something different then you will always get what you already have".

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 manager in Scotland, "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 high-grade belt would have an appreciably bigger price tag. However, it is highly unlikely that it would have been 300 or 400% more expensive 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 are dramatic to say the least.

In my experience, the best approach is to select the conveyor that places the toughest demands on the conveyor belts or, in other words, has the highest frequency of repairs and replacements. The next step would then be to discuss the application and your requirements with an experienced representative of each potential supplier. If the conveyor you have chosen is





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

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.

For conveyors where rip, tear and impact damage is a problem, fitting a conveyor belt that has been specifically engineered for the task is invariably the most cost-effective solution. Specialist belts such as Dunlop UsFlex and Dunlop Ultra X will provide much longer lifetimes because that is exactly what they have been designed to do.



Cheaper in the long run –quality belts help maximize productivity.

STANDING THE TEST OF TIME

Thanks to technological advances, the effectiveness and value of modern-day conveyor belts should be measured over several years rather than just a year or two. In fact, in the mining and quarry industry we are seeing more and more examples of belts that only last a few months and, in some cases, only a matter of weeks before needing to be replaced. My message to all conveyor operators is that you should never accept that it is not possible for a belt to last many times longer than is currently being achieved.

The 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 ‘headline’ price. Although there will always be a desire to reduce expenditure, belts that need frequent replacement have exactly the opposite effect. Conveyor belts that will stand the test of time will invariably prove cheaper in the long run.



Leslie David