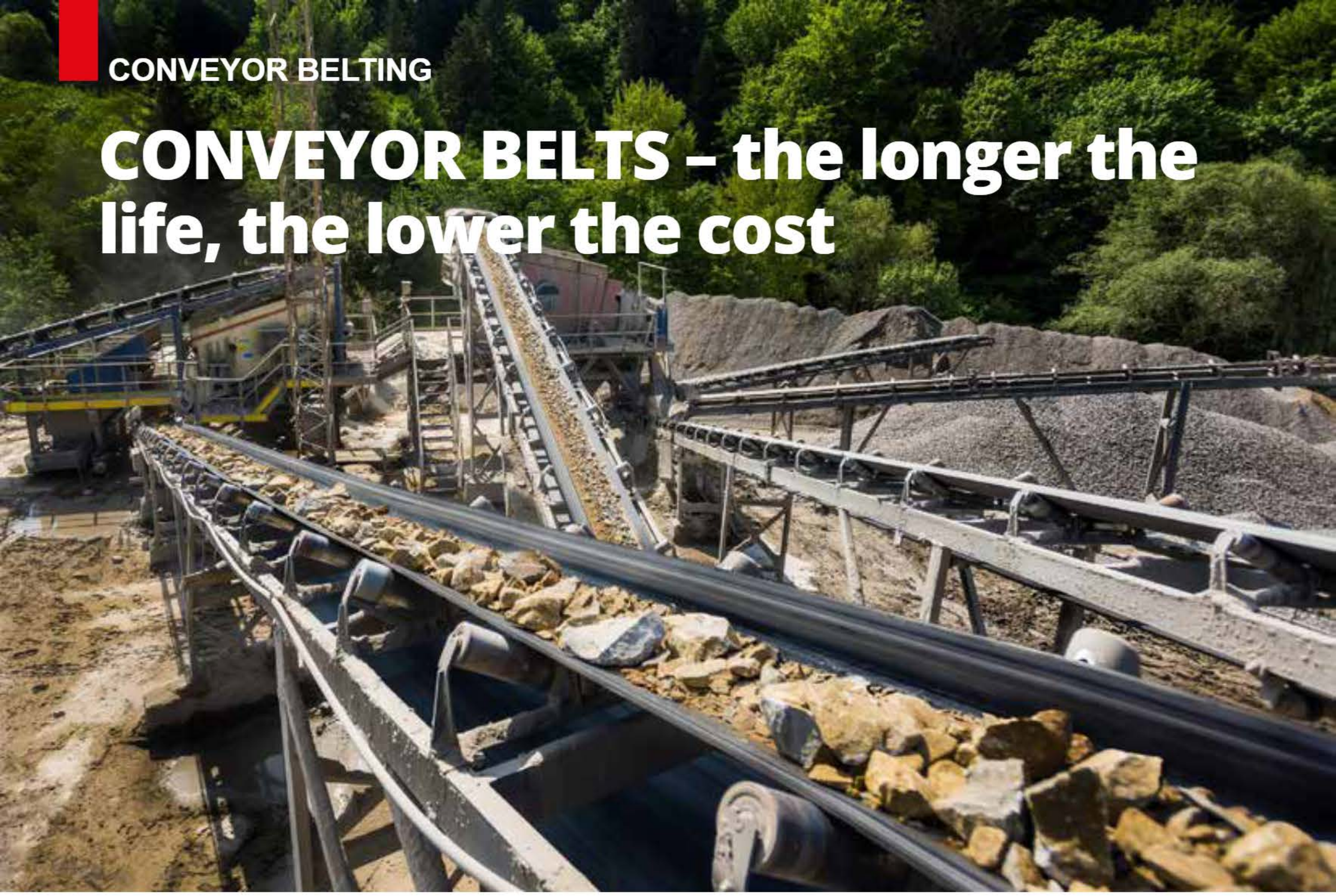
CONVEYOR BELTS – the longer the life, the lower the cost



Conveyors play an integral role in mining and quarrying, where reliability is paramount because time really is money. The conveyor belts used on them are also a significant overhead and therefore a prime target for the bean counters. The conveyor belt market is hugely competitive, as evidenced by the often huge variations in the price of belts of supposedly the identical specification. However, regardless of the price, it is the reliability and ultimate longevity that actually dictates their true cost. So, are you getting the best value for money?

"PRICE IS WHAT YOU PAY. COST IS WHAT YOU SPEND"

The selling price is usually the biggest influence on the purchasing decisions we make. In business it is usually budgetary constraints that take priority. However, buying something because it is 'competitively priced' but then proves to be unreliable or needs replacing after a very short period can be very costly.

To calculate the true cost of vitally important components such as a conveyer belts, it is essential not to look at the price in isolation but to include as many other directly connected costs as possible. The 'above the line' price that you pay is just the tip of the iceberg because it is the less obvious 'below the line' costs are what is actually spent. Managers who are directly responsible for conveyors will almost certainly know the cost in terms of lost output when there is a stoppage. If they do not, then they should! However, the key question is whether or not the cost of that lost output is being measured and recorded and used to help make buying decisions.

NOT ALL CONVEYOR BELTS ARE CREATED EQUAL.

Even though they may both claim to meet a certain specification and international quality standards, there are frequently huge differences between the durability and longevity of the belt when fitted and running. There are numerous, well-documented reasons for these huge differences, but they are not necessarily obvious at the selection stage.

Time is money – stopping for repairs costs 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 being offered. It is not uncommon to see belts being offered by traders, suppliers and sourcing companies that are half the price (or less) than those being offered by quality-brand manufacturers.

As with almost any product, price ultimately determines the quality of performance, the need for ongoing repairs and the length of useable life. In the case of so-called 'economy' conveyor belts, all the evidence points to the big name quality brands having a significantly lower 'whole life cost' because they provide up to 400% longer operational life compared and considerably less downtime thanks to far fewer unplanned stoppages for repairs. Unfortunately for those who manage the day-to-day running of conveyors, it is extremely rare for those who ultimately make the purchasing decisions to understand the technical differences associated with the performance and longevity of a conveyor belt. Consequently, price is the number one buying criteria. To be fair, purchasing managers 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 seemingly 'higher priced', premier quality belts can be difficult. Fortunately, it becomes much easier if you 'speak their language' by presenting an argument based on factual, whole-life cost calculations.

CALCULATING 'WHOLE LIFE' COST

The principal of 'whole life cost', also referred to as 'total cost of ownership (TCO) is simply the cost of the conveyor belt itself plus the cost of removing the old belt and the installation (including splicing) of the replacement plus the cost of the downtime. The final part of the cost calculations are the labour and material costs incurred in repairing the belt (including the splice repairs) during its lifetime plus the estimated costs of the production 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.

TIME OR TONNAGE?

Having added together the various elements of cost, the final step is simply to divide the total. This can either be done by either the length of time that the belt has been operational or, if known, the total weight of material conveyed during its lifetime. 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. You can, of course, calculate using both time *and* tonnage.

The price ultimately determines the quality and longevity.

Having calculated the lifetime cost of a belt you are replacing, the question then becomes one of comparison. There is little or no point in making the calculation unless you have something to compare it against. This, of course, can mean trialing a higher grade of belt or a different type of belt entirely, perhaps both. Maintaining individual life data can also be a huge help, as happened in one case I came across recently. The on-site conveyor managers were perfectly happy with the premier European brand belts they had been using. Unfortunately, senior management insisted that they buy a "much cheaper" belt of the 'same' specification but made in India. The result was that the Indian import belt lasted less than four weeks, some 95% less the quality brand.

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

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

PREDICTING THE LIFESPAN

Understandably, manufacturers of conveyor belts, regardless of their reputation for quality, can never guarantee how long a belt will last before needing to be replaced because there are simply too many influencing factors. Do not let this put you off. There is inevitably some degree of risk in any business decision but if you choose a tried and trusted manufacturer with a reputation for quality then the rewards can be considerable. As the old saying goes, *"If you never try something different then you will always get what you already have"*.

In my experience, the best approach is to select a conveyor that has the highest frequency of belt repairs and replacements. The next step is to discuss the application and your requirements with an experienced representative or application engineer representing each potential new supplier. 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 for that particular conveyor by using a belt calculation program. If necessary, have the process overseen by a professional conveyor belt engineer.

For conveyors where damage caused by trapped foreign objects can be a problem, the most cost-effective solution is to fit a belt that has been specifically engineered to resist such damage. Specialist belts such as Fenner Dunlop's X Series range will provide much longer lifetimes because that is exactly what they are designed to do.

STANDING THE TEST OF TIME

Never accept that belts cannot last many times longer than is currently being achieved. Thanks to huge technological advances, the cost-effectiveness of modern-day conveyor belts should be measured over several years rather than just a year or two. Worryingly, we are seeing more and more examples of belts that only last a few months and, as in the example I gave earlier, only a matter of weeks.

This actually strengthens the case for selecting belts based on 'whole life' calculations rather than simply the buying price. There will always be a natural desire to reduce expenditure but conveyor belts that provide a longer operational life invariably prove much cheaper in the long run.

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ABOUT THE AUTHOR

After spending 23 years in logistics management, Leslie David has specialised in conveyor belting for over 19 years. During that time, he has become the most published author on conveyor belt technology in the world.