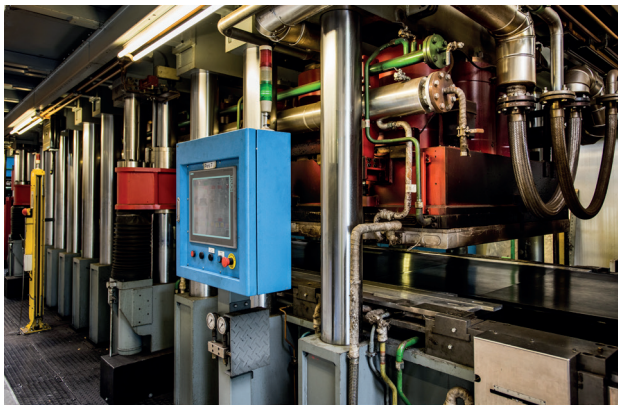
Are you paying for the name?

When comparing the cost of belts bearing the name of a major European brand against unbranded imported belting, some may believe that this is simply an example of 'paying for the name'. But is this really the case? Conveyor belt specialist Leslie David explains how the gulf in pricing is actually being achieved.

Although fashionable brand names in the form of 'designer labels' may come and go, building a brand image in the industrial world that is automatically associated with trust and quality takes many years. In the case of conveyor belt manufacturers, to build a reputable brand name that withstands the test of time can only be achieved by consistently producing belts with much higher quality standards and lowest 'whole life cost' compared to those at the middle and bottom end of the market.

Big brand companies should be applauded for being prepared to be held accountable for their products. They are brave enough to have their names on them whereas cheap import goods with no name have little or no accountability at all. When unbranded products fail or simply disappoint, there is nowhere to seek recompense. Where there is no name, there is no shame.

In reality, there are numerous reasons why some suppliers are able to dramatically undercut their competitors. However, before explaining those reasons it is important to first deal with one of the most common misconceptions of all, which is that products imported from Asia are of a similar quality but simply cost less because labour costs are much lower.



Conveyor belt production is highly automated.

Cost-cutting target – Rubber represents 70% of the volume and 50% of the cost.

Delamination – the layers of the belt detach themselves.

The fact is that, certainly in the case of conveyor belts, the very high level of automation nowadays means that labour costs do not make a significant difference to the ultimate selling price. As a rule, the labour element represents around 5% of the total cost whereas the materials used to make a conveyor belt constitute some 75% of the ultimate cost.

It is of course impossible to tell by visual inspection what a conveyor belt contains and how well it is likely to perform. Based on the principle of 'what the eye cannot see', the following are just some of the favourite methods, tricks and deceptions that many conveyor belt manufacturers use in order to undercut the competition.

What goes in must come out

Only a limited number of genuine conveyor belt companies actually manufacture belts in Europe. Apart from one exception, Netherlands based Dunlop Conveyor Belting, virtually all European manufacturers import belting from outside of Europe in order to supplement their own production. The vast majority of such imports are from South East Asia, primarily China. The significance of this is best explained by understanding the difference in the standard of the raw materials that are used.

Use of low-grade raw materials

As mentioned earlier, raw materials constitute between 70 – 75% of the total cost of producing a conveyor belt, all of which are available on the global market. As with just about any product, the price ultimately determines the quality. Logically, this means that if there is a big difference in price then there must be a comparable difference in the quality of the materials used.

Poor quality rubber

It is the quality of the rubber covers, in particular the ability to resist wear and tear, that has the biggest influence on the durability and operational lifetime of a conveyor belt. Rubber usually forms at least 70% of the volume mass of a conveyor belt and more than 50% of the cost. It is therefore the single biggest cost-cutting opportunity for manufacturers.

Because of its adaptability, most of the rubber used to make conveyor belts is synthetic. Dozens of different chemical components and substances are used to create the numerous different synthetic rubber compounds needed to cope with the different demands that may be placed upon them. These chemical components and additives are very costly, so a combination of using low-grade chemicals at the absolute minimum levels all

helps to contribute towards the manufacturer's 'lowest possible price' objective.

Not made to last

As far as the cement industry is concerned, a common example of this minimal use of essential components when making the rubber compound can often be found in heat resistant belts. Although the belt might seem to be coping with the high temperatures in the early weeks and months of its life, what is actually happening is that the rubber is prematurely ageing. This is because heat causes a rapid acceleration in the ageing process of the rubber, causing it to harden and crack. As rubber becomes harder and less elastic, its tensile strength and elongation (stretch) can be reduced by as much as 80%. This effectively destroys the operational strength and flexibility of the belt, including a serious weakening of the splice joints. At the same time, the surface covers of the belt begin to wear much faster than they would under normal circumstances because the resistance to abrasive wear diminishes by as much as 40% or more.

High temperatures also have a seriously detrimental effect on the inner carcass of the belt because it damages the adhesion between the covers on the top and bottom of the carcass and between the inner plies contained within it.

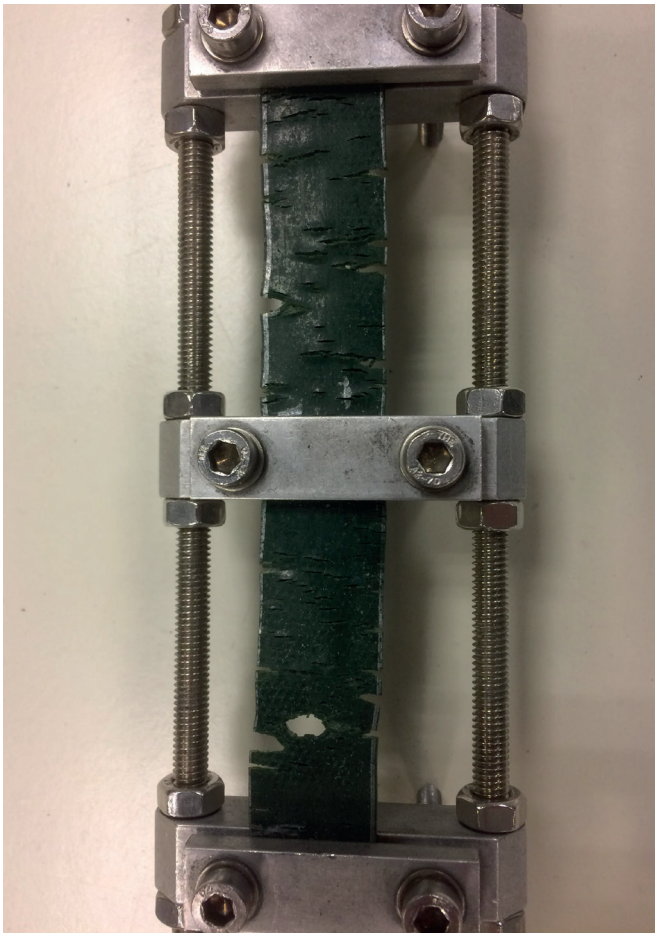
The result, known as 'de-lamination', is that the layers of the belt literally detach from one another. Good quality heat-resistant rubber acts as a barrier to prevent too much heat reaching the inner carcass but cheap, poor grade rubber will not provide the necessary protection. In short, unless the rubber has been deliberately engineered to resist heat over a long period of time, then the life expectancy of the belt will be significantly shorter than it should be.

Missing basic protection

Protecting rubber against the serious damage caused by exposure to ground level ozone and ultraviolet light (both sunlight and fluorescent light) is achieved by adding special anti-oxidant additives during the mixing process of the rubber. Although the additives are an essential ingredient in any belt of reasonable quality, anti-ozonants are not used in the vast majority of conveyor belts purely because they are seen as an 'avoidable' cost. Visible degradation of the rubber usually takes weeks and months before it becomes evident, by which time the belt has been delivered and fitted. The unfortunate user mistakenly believes that the rubber covers beginning to crack and break up is caused by normal wear and tear and is sadly unaware that it is easily preventable.

Use of unregulated and unsafe raw materials

Non-EU and UK based manufacturers are not subject to REACH regulation or EU regulations concerning the use of potentially hazardous



Rubber degrades prematurely if not resistant to ozone and ultra violet.

Cheap, low-grade carbon black is created by burning scrap tyres.

chemicals that pose risks to human health and the environment.

This includes those that may have category 2 carcinogenic classifications as well as Persistent Organic Pollutants. This means that they are free to use unregulated raw materials that cost much less on the global market compared to their regulated counterparts, even though they may be prohibited or have strict usage limitations within Europe.

Not what they seem – The use of totally polyester (EE) fabric instead of polyester/ nylon mix (EP) in order to cut costs can cause significant problems.

Recycled and reject rubber compounds

Other methods used to minimise rubber costs include the use of recycled rubber of highly questionable origin and the use of reject rubber compounds. Cheap 'bulking' fillers such as chalk are also used to replace part of the more expensive rubber polymers.

Low-grade carbon black

A key component contained in every black rubber conveyor belt is carbon black. It makes up around 20% of a typical rubber compound. The important role that it plays should not be underestimated. For example, it prolongs belt life by helping to conduct heat away from the surface area of the belt, thereby reducing thermal damage. It also acts as a reinforcing compound. Belts offered with significantly lower prices are almost certain to contain carbon black that is of a much lower quality that has been produced much more cheaply by burning scrap car tyres.

Outsourced rubber

Many manufacturers outsource the manufacturing of their rubber to large-scale rubber compound manufacturers.
Not surprisingly, most are located outside of Europe. Apart from making quality control

virtually impossible, it is equally impossible to ensure compliance with European safety and environmental regulations.

Low quality fabric plies

Although they may be the same basic specification, there are often huge differences in the quality of the fabric plies between one belt and another. This is because cheaper, lower quality fabrics are used where the more costly nylon transversal weft material is kept to a minimum. Although the required tensile strength may be achieved, rip and tear resistance is noticeably reduced and the elongation is too low.

Another and even more blatant deception that involves the carcass is the use of totally polyester (EE) fabric plies in a carcass that has been sold as having the much more common EP carcass (polyester/nylon mix) construction. The whole basis of using fabrics that contain a mix of polyester and nylon fabric (EP) is that it has the best balance of mechanical properties.

The fabric plies are a major cost component in any multiple ply conveyor belt. However, polyester (EE) fabrics cost around 30% less than EP, so using cheaper polyester fabric is a big help when trying to achieve the perception of a lower 'like for like' price.

As far as the manufacturer using these underhand tactics is concerned, they know that it is highly unlikely that the end-user will ever have laboratory tests carried out that would reveal their dishonesty.

Alarm bells

It is an inescapable truth that for products to be comparable in quality they must at least contain raw materials of a comparable quality. If there is a significant difference in price then the alarm bells should start to ring. This is because the methods used to create the illusion of a big difference in price will almost certainly result in expensive stoppages, repeated repairs and ultimately, premature replacement of the complete belt. When thinking about it, conveyor belts that provide a much longer, trouble-free operational life are not good business for the intermediaries who supply, repair and replace them. As the old saying goes: "Price is what you pay, but the cost is what you spend." ■

About the author

After spending 23 years in logistics management, Leslie David has specialised in conveyor belting for over 16 years. During that time, he has become one of the most published authors on conveyor belt technology in the world.