



Although often overlooked, selecting the correct belt edge type can have a significant impact, particularly on overall cost

Over The Edge

From reducing premature wear to cutting downtime and extending belt life, the correct belt edge choice can deliver tangible cost savings over time. Fenner Dunlop conveyor belt specialist Steven Kidd explains why getting this seemingly small detail right can make a huge difference to both operational efficiency and the bottom line

Considering the vast amounts of money spent on conveyors and conveyor belting, and the numerous challenges they can present, deciding exactly what type of edge a conveyor belt should have may not sound particularly important. Although it may seem like a small detail, choosing the right type of belt edge can have a major impact – especially on overall cost.

Over the past two decades, driven largely by leading manufacturers in Europe and North America, conveyor belt construction and rubber technology have advanced significantly. Yet despite these innovations, one area still seems stuck in outdated thinking: belt edge types.

There are three basic types of belt edge, but only two – moulded and sealed – are truly practical, workable options. Choosing the wrong type still costs many operators heavily, through higher purchase prices, repairs, downtime, lost production, and unnecessarily long lead times.

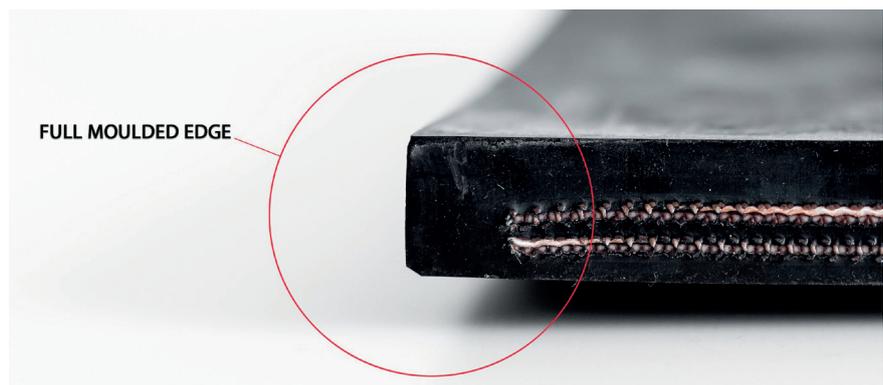
Moulded edges

Moulded edges are formed during the belt's calendaring process. A small strip of unreinforced rubber is added to the side of the carcass, becoming an integral part of the belt

during vulcanization. This typically produces 5–15mm of unreinforced rubber along the belt edge.

More than 40 years ago, moulded edges were essential because cotton was used as

Full moulded edge



the reinforcing fabric in multi-ply belts. They prevented moisture from penetrating the cotton and causing rot. Today, apart from steel-cord belts and steel-reinforced belts, the introduction of synthetic ply fabrics using polyester and polyamide has made this issue largely obsolete. Yet many conveyor operators – and their purchasing and procurement teams – still specify moulded edges, even though they offer no structural advantage and can be easily torn if the belt drifts off track.

Cost impact

Specifying moulded edges unnecessarily can significantly increase production costs. Moulded edges must be formed during belt manufacture, requiring the belt to be assembled and vulcanized to an exact width. To keep costs low, minimize waste and environmental impact, and offer competitive pricing, manufacturers prefer to produce belts as wide as their machinery allows and in the longest possible production runs.

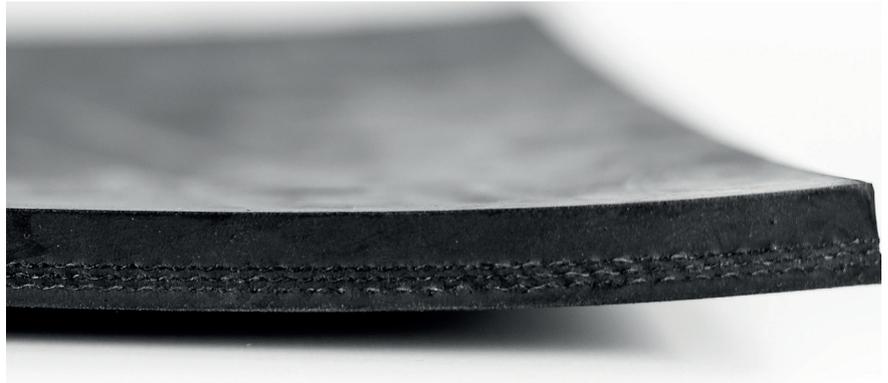
Common stock widths are 650mm, 800mm, 1,000mm, and 1,200mm. A belt can be produced as a wide 2,000mm 'slab' and then cut (slit) into smaller rolls, for example, one 800mm and one 1,200mm roll, or two 1,000mm rolls with the edges sealed during this process. Production setup costs are similar regardless of roll width, which is why a 100m roll can be far more expensive per metre than a 400m roll.

Sealed edges

Today, the most used option is the cut and sealed edge – or simply sealed edge, which prevents moisture from being drawn into the carcass by capillary action. While synthetic fibre plies are largely unaffected, moisture can still cause issues when vulcanizing splice joints. A sealed edge, combined with resistance to ozone and ultraviolet light*, allows belts to perform reliably in wet conditions and makes them suitable for long-term outdoor storage.

Ultraviolet light from sunlight and fluorescent lighting has a similar effect,

* At low altitudes, ozone (O₃) becomes a pollutant that can attack the molecular structure of rubber in a process called ozonolysis. Cracks first appear on the surface, then progressively deepen and spread, eventually forming a complete circuit that leads to belt failure.



Sealed edges are often perfectly adequate



The first signs are when small cracks appear on the surface of the rubber

triggering photochemical reactions that oxidize the rubber surface. This surface cracking allows moisture to penetrate the carcass. Although easily preventable, surveys show that around 90% of belts sold in Europe, the Middle East and Africa, particularly those manufactured in South and East Asia, lack this protection due to the cost of essential anti-ozonants.

One industry leader – Fenner Dunlop in the Netherlands – produce belts with sealed edges using high-speed rotating knives. The friction heat fuses the synthetic carcass fibres with a

thin layer of rubber at the belt edge, forming a highly effective seal. While technically a 'cut and sealed edge', it is universally referred to simply as a 'sealed edge'.

Steel cord belts

For steel cord and steel-reinforced fabric-ply belts, moulded edges are essential to prevent moisture from penetrating the carcass, which could lead to steel corrosion over time. Because these belts are typically manufactured to highly specific requirements that fully embed the steel cords, they are always supplied with moulded edges.

Made-to-order

Conveyor belts manufactured specifically for an end-user will typically feature moulded edges. These are usually specialized cover grades, high-performance carcass constructions such as steel-reinforced fabric ply, or non-standard widths requested by the customer.

Avoiding unnecessary costs

When a belt cannot be produced at the most cost-efficient width and length, both price and lead times are affected. Using a pre-cut roll from stock is far quicker than scheduling a bespoke production run. Specifying moulded edges without a practical or technical need can, therefore, be a costly waste of time and money.

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Conveyor belts that are 'made to order' for the end-user will typically have moulded edges

