

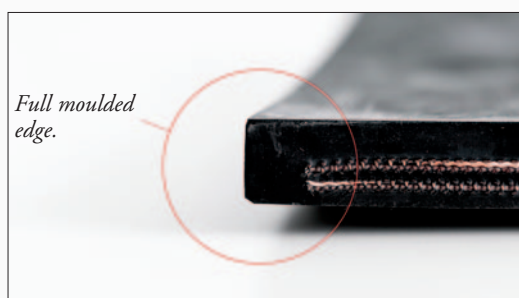
Conveyor belt selection — how choosing the right type of belt edge can avoid unnecessary cost and delay

CONVEYING ADVICE

When requesting a quotation for a conveyor belt, over-specifying the type of belt edge can have an enormous impact on belt costs, repairs, maintenance and lost production. Despite the enormous advances in technology and the types of materials used to manufacture rubber multi-ply conveyor belts, many conveyor operators and their buying departments seem to retain outdated beliefs. Although there are only three basic types of belt edge, the importance of which type to use is often underrated.

Moulded edges: many years ago, moulded edges were the standard because cotton was used as the reinforcing fabric in multi-ply belts. A moulded edge (fully covered in rubber) was therefore essential to prevent moisture penetrating the cotton fabric and causing it to rot. However, since the introduction of synthetic ply fabrics using polyester and polyamide, this problem effectively no longer exists.

Moulded edges can only be created when a belt is manufactured to an exact width. During the calendaring* of the belt, a small strip of unreinforced rubber is attached to the side of the carcass. This becomes an integral part of the belt during the vulcanizing process, creating between 5mm to 15mm of unreinforced rubber on the belt edge. Moulded edges do not provide any structural advantage and can be susceptible to damage if the belt wanders off-track for any reason.



Full moulded edge.



Sealed edge.

Sealed edges: the most often used type of belt edge is the 'cut & sealed edge' or simply 'sealed edge'. To maximize efficiency of production and minimize cost and environmental impact, these standard width stock belts are usually made as wide as the manufacturing machinery will allow. These are known as 'slabs', which are then cut and sealed to create a variety of narrower widths. For example, 400m of 2,200mm-wide belt would be manufactured and then be slit (cut) to produce 400m of 1,000mm-wide belt and 400m of 1,200mm-wide. This is why vast majority of rubber multi-ply belting held in stock by manufacturers, distributors and traders has sealed edges.

At Fenner Dunlop, the sealed edges are automatically created during the slitting process using special cutting knives that rotate at an extremely high speed. The heat created by the friction of the rotating knives melts the carcass fibres and a small amount of the rubber on the edge of the belt, creating a very effective seal.

Having a sealed edge means that moisture is prevented from being drawn into the carcass from the edge by capillary forces. Although the synthetic fibre plies are hardly affected, moisture can ultimately cause vulcanizing problems when making splice joints. Having a sealed edge also enables a belt to be used in very wet conditions and makes it better suited to long-term storage outdoors. For these reasons, the use of unsealed (raw) cut belt edges, which are produced using conventional cutting knives, is not recommended.



Unsealed (raw) cut belt edge.

Steelcord and steel reinforced belts: in the case of steelcord and steel reinforced ply belting, it is necessary to use moulded edges to prevent moisture penetrating the carcass and corroding the steel. In Fenner Dunlop, all steel cord belts are made to order and manufactured to a specific set of specifications that fully embed the steel cords so for these reasons they are always supplied with moulded edges. Multi-ply belts that are 'made to order,' usually those with specialized cover grades such as fire resistant for example, or simply in a non-standard width requested by the customer, will automatically have full moulded edges.

Avoiding unnecessary cost and delay: specifying moulded edges when they are not entirely necessary can have a very negative impact on the you price because, as previously explained, manufacturers need to make belts at the optimum width and length for cost and environmental efficiency. Having a belt be made to order rather than supplied from stock (especially for lengths shorter than 200m/full roll) significantly increases the price and the delivery lead time.

Les Williams

(* Calendaring - when fabric plies and rubber is passed through a series of rollers to flatten, smooth and integrate the two materials).