

The fight against low-quality belts

DUNLOP ULTRA X — HOW DUNLOP CONVEYOR BELTING HAS HARNESSED TECHNOLOGY TO TURN THE TABLES ON LOW-PRICED RIVALS

Today's conveyor belt market is dominated by low grade 'economy' belting imported from Southeast Asia. In fact, it is now common practice for some European belt manufacturers to supplement their own production by importing from Asia and re-selling under their own brand in order to compete at the low-price end of the belting market. The resultant decline in prices has been accompanied by an alarming decline in performance and longevity standards.

Despite this trend, one major European manufacturer, Dunlop Conveyor Belting in the Netherlands, part of the Fenner Dunlop Group, consistently refuses to follow this downward spiral. The company insists on making every belt itself and, instead of competing on lowest selling price, its market strategy continues to be based on only supplying belts that provide the longest possible operational lifetime and therefore the lowest lifetime cost. Although this strategy has served it well, Dunlop also continues to pursue another integral part of its DNA makeup, which is the search for new, ground-breaking products, that have superior durability, greater affordability and reduced environmental impact.

Dunlop had already developed extremely hard-wearing rubber compounds, which meant that its engineers and technicians could focus purely on the design of the carcass. The big advantage was having an in-house

fabric weaving facility located in the USA. It was thanks to their creation of an amazingly tough patented woven fabric that enabled the engineers to design a unique, super-strength 'breaker weft construction' single-ply belt. Launched some three years ago in Europe, Dunlop named its new ground-breaker Ultra X.

HOW IT WORKS

The science behind the specially woven fabric is that it uses crimped warp polyester yarns to provide high strength and low stretch. These combine with very strong 'binder' and 'filler' yarns to create a super-strength 'breaker weft construction' that is used to produce a single-ply belt carcass with exceptional strength and stability under load characteristics.

Throughout its development, sections of belt carcass were repeatedly tested to destruction, including measuring the tear resistance according to the international EN ISO 505 standard. The tests revealed that the (Ultra X) fabric possessed more than three times greater longitudinal rip resistance, up to five times better tear resistance and a far superior resistance to impact compared to traditional three-ply or even four-ply belting. There was also no question about the overall strength.

The unique Ultra X fabric is able to withstand the kind of punishment that would destroy a normal belt. Ultra X also has amazing tensile strength. For example, the longitudinal tensile strength of the X1 is 330N/mm and the X3 has a longitudinal strength of 550N/mm and is

capable of pulling up to 56 tonnes in weight. The single-ply construction requires a finger-splice joint to be made and the enormous advantage of finger splice joints is that they retain up to 90% of the belt's tensile strength. By comparison, a two-ply step splice only retains a maximum of 50% of a belt's tensile strength and a three-ply step joint only retains a maximum of 67%. This superior strength and durability means that the need to repair and re-splice joints is almost non-existent compared to step splices.

IMPROVED SUSTAINABILITY

Ultra X also provides several very significant advantages in terms of reduced environmental impact. Having a single-ply construction rather than the usual multiple layers of polyester and nylon fabric means that there is much less non-biodegradable material used. Having no rubber skim between the plies also means that less synthetic rubber, including the use of chemicals used to produce it. Another environmental advantage is that it helps to maximize efficiency of production (use of energy) because there are fewer calender (layering) runs.

A SINGLE-PLY FUTURE

For some terminal operators, the very idea that a single-ply construction belt can provide the necessary tensile strength as well as considerably more resistance to accidental damage compared to a belt with multiple plies is difficult to comprehend. However, since its introduction to the market some three years ago, the evidence of its success is now overwhelming with Ultra X becoming the belt of choice in a rapidly growing number of operations across a wide cross-section of industry. Dunlop will shortly be extending the range by adding versions that can replace multi-ply belts up to 1,000N/mm. Thanks to their belief in new technology and their commitment to develop increasingly stronger, more resilient products, Dunlop's management certainly regard single-ply belts as being the way forward.

Leslie David

The key to success — a super strength 'breaker weft construction' fabric invented and made only by Fenner Dunlop.

