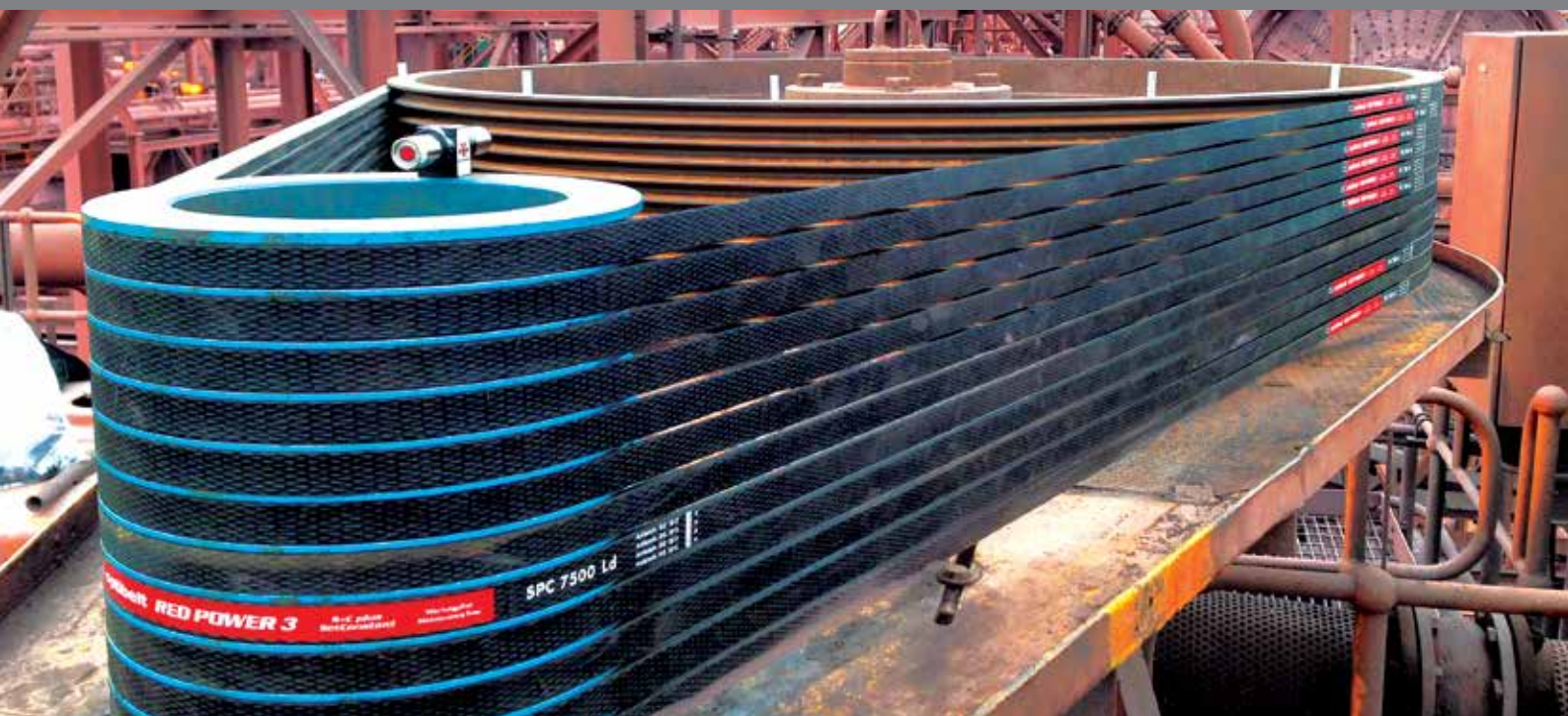


OPTIBELT RED POWER 3: MAINTENANCE-FREE V-BELTS THAT CLOSE THE DOOR ON RE-TENSIONING



Optibelt is making waves with its Red Power 3 v-belt – Optibelt general manager Matthew Robinson explains why.



Low stretch and maintenance free, Optibelt's latest product brings a host of benefits over standard v-belt drives. Crucially, Red Power 3 is designed so that once correctly tensioned the first time, they don't require re-tensioning again, a valuable saver of time and money.

A major mining client called on Optibelt to fit Red Power 3 belts to an agitator drive on the flotation circuit at a large copper-gold mine in South Australia. The client was so impressed with the performance, says Matthew Robinson, Optibelt general manager, that it updated its bill of materials to include Red Power 3 as its required v-belt for agitators on the A and B train of its flotation circuit.

"They have been very impressed with the performance," he explains.

"Red Power 3 is perfectly suited to these agitators because they can transmit the required power and will also not need to be re-tensioned for the life of the drive. No other wrapped v-belt on the market has the capability to one-shot tension and installation and become a 'fit-and-forget' drive."

Red Power 3 belts use a high modulus polyester tension cord that does not continually stretch over time, which is what gives it its ability to hold tension. In this capacity, it even goes beyond similarly strong aramid tension cord v-belts, including Optibelt's own aramid tension cord Blue Power v-belts, which, while capable of higher overall power ratings than Red Power 3, was not the beneficial belt for the flotation cell drives in this instance.



"Other aramid cord v-belts will work in this drive but will not have the advantages of the Red Power 3," explains Robinson.

"In agitator (i.e. flotation cell drive) applications, the Red Power 3's power rating was capable of transmitting the required power while the Blue Power led to overdesign and was subsequently not as efficient for this application as it created higher shaft loads on the bearings."

Use of Red Power 3 v-belts can increase the mean time between repair (MTBR) on belt-driven applications considerably, compounding cost savings and reduced downtime for the operator.

Made of high-modulus polyester cord, Red Power 3 v-belts offer S=C Plus 'SetConstant' length tolerances — $\pm 2\text{mm}$ for belts under 5000mm and $\pm 6\text{mm}$ for belts under 10,000mm — resulting in the tightest tolerance v-belt on the market. For point of comparison, a typical DIN/ISO maximum permitted length tolerance (i.e. allowed deviation of datum length) is 1% the nominal length.

Blue Power and other aramid cord v-belts do not have the same narrow length tolerance as Red Power 3 and are not match free. They are required to be used in sets and this can have a negative effect on the levels of inventory required. It also provides another challenge for fitters insuring they have v-belts from the same match set prior to installation.

In a typical v-belt, the elastomer transfers forces from the pulley groove walls to the tension cords designed to carry loads, which are generally made from either polyester or aramid, a strong synthetic fibre used in Kevlar® and Nomex®.

Over time, these are prone to stretching and loosening under load even under perfect operating conditions.



These repetitive stresses on the v-belt and increased temperatures cause both polyester or aramid tension member to elongate and subsequently require re-tensioning.

Tensioning v-belts too far one way or the other can cause problems, too. Undertension can cause wear and abrasion of belts and pulleys while overtension can lead to bearing failure on the driver, so it is important that a balance is maintained for optimum performance.

"For proper power transmission and for achieving an acceptable v-belt service life, the correct v-belt tension is of the utmost importance," explains Robinson. "Too-low or too-high v-belt tension will lead to the premature failure of the v-belts."

Pulleys in the drive arrangement can also be aligned with the use of Optibelt's Laser Pointer II. The pointer is attached via a magnetised plate to one side of the pulley and its beam is lined up with three target magnets on the other side that are placed at 0 degrees, 90 degrees and 270 degrees.

When aligned correctly the laser intersects all three target magnets at the same length, making measurement easier and more precise. This saves time and effort should adjustment of both parallel and angular misalignments be required. Belt misalignment can be one of the most common causes of premature belt failure, reducing drive performance, service life and accelerating wear; an incorrect alignment can lead to failure within days of installation.

This makes Optibelt's Laser Pointer II an excellent solution to bring peace of mind to belt drive operators, as it is easy to set up, use and remove from pulleys.

Overall, Optibelt's selection of belts and belt drive-related systems are making things easier not just for installers, site managers and companies, but the machines too, helping to extend mechanical life, save costs and reduce maintenance.

Red Power 3 is a proven performer in a long line of engineering excellence from Optibelt and Robinson and the rest of the company are proud of the benefits it is delivering to clients.

As Robinson explains, "Laboratory and field tests prove that the Optibelt Red Power 3 has an exceptionally long service life and thus represents a real revolution in the world of power transmission."