

Reducing maintenance costs of gin lint cleaners

By Kevin Bagshaw, Technical Officer, CSIRO Textile and Fibre Technology

The use of interlocking wire on lint cleaner saws may provide significant savings in gin maintenance costs and downtime. This is basically an adaptation of technology which has been used in the textile industry for over 20 years.

The currently accepted method of attaching wire to the lint cleaner saw cylinder is to tightly wind it into grooves that have been cut into the lint cleaner cylinder. The metal between the grooves is then swaged to hold the wire tightly in place.

This prevents the wire from unravelling and springing off the cylinder surface, also known as “bird nesting”, when it breaks as a result of large objects, particularly metal contamination, entering the system.

The textile industry uses similar wire types, predominantly on carding machines, which also must allow for wire breakage from heavy objects entering the system. But the textile industry does not use the same grooving method as the ginning industry for laying the wire onto cylinders.

Instead, for at least the past 20 years, it has used a wire that tightly inter-locks along the heel of the wire to hold the strands firmly in place. The inter-lock mechanism ensures that it does not unravel or “bird nest” as a

Unlike conventional saw wire, once interlocking wire is applied, the saw cylinder no longer needs to be machined when the wire is replaced. Further, the cylinder diameter does not change meaning that it does not need to be replaced after three or four re-wirings. Inter-lock wire is used widely in more aggressive textile applications such as the rag ripping industry.

result of a break after heavy objects come into contact with the wire.

Think of the wire like tongue and groove floor boards, each one holding the opposing board in position. You can't just lift one out without firstly removing the boards from the end until you reach the board of concern. Interlocking wire is no different.

Wire manufacturers make heavy interlocking wires specifically for the rag ripping industry, which is a more aggressive application of the inter-lock mechanism. One wire manufacturer has designed an interlocking wire specifically for lint cleaning in ginning.

In terms of cost, traditional and interlocking wires are comparable.

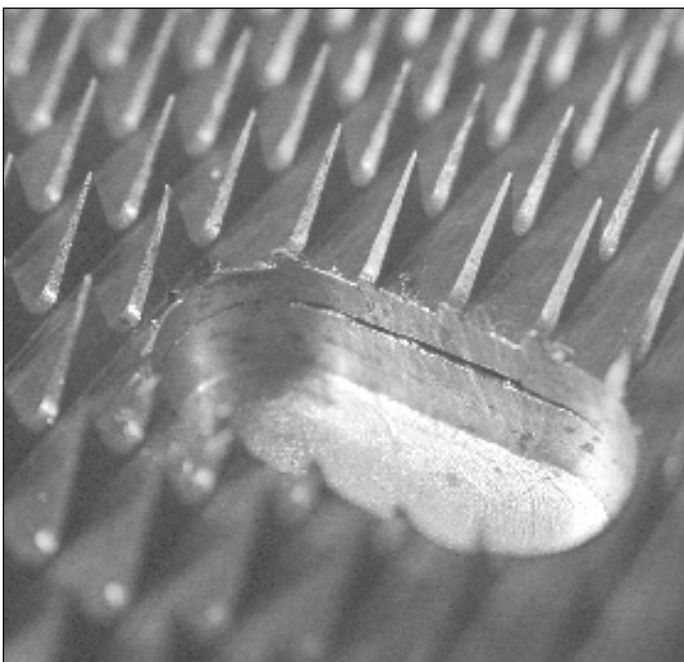
The advantages of inter-lock wire are significant. They include:

- Minimal resetting of the saw in the lint cleaner even after repeat wire rewinds because the cylinder circumference has not been altered;
- All spare saw cylinders will be exactly the same size making them interchangeable and allowing for quick fitting during the season; and,
- Potentially large savings in maintenance costs. Instead of getting three or four rewinds from a cylinder before it needs replacing, the cylinder will now last indefinitely. The current price of a lint cleaner saw cylinder is around \$20,000.

The ECC interlock wire specifically designed for the lint cleaner has the designation V8B/4.23/60.

Other manufacturers of inter-locking wire may also have suitable products for the ginning industry.

The ECC wire manufacturers web site is <http://www.ecc-cardclothing.com> and the agent for ECC in Australia is Ramsay McDonald. Their web address is <http://www.ramsaymcdonald.com.au>



Even after machining a slot through at least four rows of inter-lock wire and into the cylinder, the saw wire remains intact.



Shows a cross sectional magnified view of the inter-locking mechanism of the wire wound onto the saw cylinder.