



Automated production

Slitter rewinders

Unwinds, rewinds

Trim winders

Spooling



How narrow can you rewind?

By Simon King, Managing Director, Alpha Converting Equipment Limited

Linear rewinding of slit webs becomes increasingly difficult with reducing slit widths severely limiting the lengths that can be rewound without risk of collapse. Increasingly narrow slit webs, often referred to as tapes, are spooled in similar ways to yarn and fibres. There is no minimum limit to the width of a tape that can be spool wound and the smaller it is then the more metres can be wound on to a spool.

The limiting factors now become the slitting system and the ability to control the tension in the web through the process. This ability to wind both very narrow tapes while increasing the length of the tape has led to a wide range of products being spool wound.

Some products, such as double sided adhesive foam or nonwoven tapes, are spooled for ease of handling or to increase the running time of a subsequent process. Other products such as string, cable and tear tape are spooled out of necessity; there is just no other way to handle the product. Spooling configuration can basically be split into three types – in line, roll to spool and slit spooling.

In line spooling

Many spoolers are supplied for operation in line where the 'make' machine and the spooler are required to run without stopping day after day. Spooling

in line can easily result in a continuous length of 100,000 metres without a single splice.

In these applications, the spooler is normally supplied singly or in a bank of two or four heads. Unless the line is very slow running, the spooler is supplied complete with an accumulator, as on the **ALPHASPOOL SPD** (below), allowing the spool to be unloaded and a new core or bobbin loaded for the next spool without affecting the make line.

These machines require good access to the spooling head, while larger spools may need integrated spool ejecting and mechanical spool handling for a quick change.

The **ALPHASPOOL SPD**, designed for in line spooling, not only offers non-stop production, but also has multiple tension zones for optimum performance of the tape handling throughout the process.



Alpha Converting supplies slitting and spooling equipment for a very wide range of products, with each machine engineered to optimise the efficiency and quality of the process. All its spoolers have an easy operator interface for selection of the spooling pattern, with computer control of the pattern for accurate and repeatable lay down of the tape or yarn.

The **ALPHASPOOL SPD** with accumulator for continuous running. Accumulators allow a full spool to be replaced without stopping production.

Roll to spool

In other applications, such as adhesive coated foam, it is often more appropriate to take a slit roll either off a slitter rewinder or from a single knife slitter and to

spool this. The finished spool will hold up to twenty slit rolls, thereby greatly increasing the productivity of downstream processes.

For these applications, there are no benefits in fitting accumulators since the machine can be easily stopped, but quick changing of the unwind roll with accurate splicing is important.



The **ALPHASPOOL RSM** (left), can be supplied for roll to roll conversion of both adhesive coated products and non-coated products.

Precise stopping at the end of an unwind roll eases the running of the machine for the operator and ensures minimum loss of product in the conversion process, while the integrated splice table and cantilevered construction ease roll change.

Slit spooling

The simplest spooling concept is slitting and spooling on one machine. The machine is in two parts, the unwind/slitter and the spooler. In the first part, the master roll is loaded into the unwind with the web passing through a slitting station where it is slit to the final width and fanned out to multiple spooling stations arranged in one or two banks, depending on the quantity of stations installed.

Slitting and spooling in one process eliminates the extra

handling necessary when slitting first and then spooling as a separate operation and is the preferred method for higher volume operations.

Even here, there is a wide range of machine sizes with tape widths from 0.5 to 100 mm and materials ranging from 10 µm polyester to 10 gauge steel.

The standard **ALPHASPOOL M** (below) has the spoolers arranged in banks of up to 36 heads, with each station operating with its own closed loop tension control and with its own computer controlled winding pattern.

Every station is cantilevered with full access and the possibility to change any spool at any time.

It is even possible to wind with different web widths and different spooling patterns on every individual winder, although in practice a machine will normally be set up with the same slitting width across the web and the same cores or spools will be used on all stations.

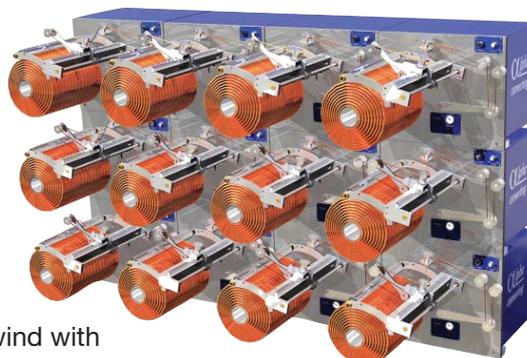
The **ALPHASPOOL SPS** also works directly in line with the slitting station but is designed for spooling heavy duty products such as brass and steel strip. Accurate lay down of the strip is still important, but the tension requirement is only to have enough!

The 'SPS' can wind up to six spools on every shaft with a common spool pattern across the shaft, which keeps the

machine much more compact.

The future

The spooling industry will continue to see growth as companies look for ways to improve productivity and yields. With its wide range of experience across many industries, Alpha Converting sees itself as being in a strong position to meet the varied needs of customers – and as we like a challenge, we are always ready to look at any serious requirements, however unusual.



The multi-head ALPHASPOOL M. The spooler section, shown here, can be arranged in banks of up to 36 heads.