

*Following on from last month's overview of the 1998 Filtration & Separation Product Achievement Awards, we now focus in more detail on some of the winners and highly commended products and services.*

## Filtration & Separation Product Achievement Awards 1998

A customer complaint several year's ago was the spark that lead George Gil, President of Chase Machine & Engineering Inc., USA to develop an alternative method to string-stitching and gluing synthetic pocket air filters. "One morning I just woke up at about 4.00am and sketched up an idea," said Gil. Several CADD drawings later and the first prototype ultrasonic bonding machine appeared on the scene in 1995.

The machine would offer an alternative to the cumbersome stitching and gluing production method. String stitched filters traditionally have the needle holes sealed with hot glue, a method that could lead to considerable downtime due to the heating requirement for glue and frequent replacement of broken sewing needles.

### Product of the Year: The Ultrasonic Bonding Machine

Gil worked on developing an ultrasonic process to produce filters over the next year with other Chase design engineers and insisted on developing a manufacturing process that would create the interior pockets or channels as well as cut and seal the outside edges in one operation.



**Figure 1: George Gil (left), Chase Machine & Engineering being presented with the Product of the Year award by Paul Spencer, Editor of Filtration & Separation. The award ceremony took place during Filtration 98, Atlantic City, USA in December.**

Other challenges lay ahead after the first prototype was produced. The non-woven filter material commonly used at that time had inconsistencies in the media, causing problems with the new ultrasonic process. "We contacted the non-wovens manufacturers, and companies like Lydall and Veratec worked with us to improve the non-woven materials. This not only allowed us to use ultrasonic bonding to produce the filters, but the improvement of the media resulted in an improve-

ment in the overall quality and efficiency of the filters," said Gil.

The ultrasonic bonding machine that has evolved from this design process operates at an average of 60' per minute, allowing larger pay-offs and supply rolls. Six Branson Ultrasonic 900 series 1000 watt sonic units are used, and an FS-90 ultrasonic sewing machine can be used in-line for manual sealing of the filter bottom, or an online attachment can be used.

Chase Machine & Engineering, Inc., has now received a patent on the machine, the manufacturing process and the filter bag and production units sold to several Chase Machine customers have been in use over a year. Looking to the future, Gil predicts, "Within five years, 90% of the pocket air filter market will be using ultrasonics instead of string stitches for these filters. String stitching will only be used for fibreglass filters, which can't be produced with ultrasonics". So the future looks bright for ultrasonics in filtration and for filtration as a whole. As Gil concludes "the ultrasonic bonding machine has helped us to create a machine that answers the problems our customers asked us to solve, and allowed us to expand into the filtration market, a market that is growing by leaps and bounds." (Figure 1)

### 400 year old company overall runners-up

**BHS Sonthofen GmbH, Germany** was overall runners-up taking the Product of the Year (Runner Up) award for the **BHS-Autopress** (Figure 2). The Auto-press is a fully automatic filter press designed to replace existing filter presses that contravene European and International regulations on