SIPA BREAKS THROUGH BARRIERS OF PREFORM MOLD DESIGN WITH ADVANCED HOT RUNNER TECHNOLOGY

PET processing technology specialist SIPA is using its advanced expertise in hot runners to create new preform molds that exploit the potential of existing injection molding machines well beyond current limits.

"We all know that there are more-or-less standard levels of cavitation for PET preform molds running on regular injection molding machines: 72, 96, 128, 144," says Stefano Baldassar, Global Sales Manager – Preform Systems & Tooling. "These numbers were arrived at in order to stay within the design limitations of traditional hot runners. In fact, whenever anybody has tried to introduce molds with different levels of cavitation – 56, 64 or 112 for example – they have failed. The molds simply do not perform well enough."

That is why SIPA developed the new GEN4 hot runner design concept. It overcomes those limitations and provides best-in-class balance, long maintenance intervals, and excellent ease of access when intervention is finally required.

This new GEN4 hot runner design allowed SIPA to engineer and manufacture the first 180-cavity preform tooling in the world.

"The geometry of the new mold provides excellent balance in melt

flow," says Stefano Baldassar. "No, it's not the biggest preform mold in the world, but the filling characteristics are excellent, so the customer isn't gaining quantity at the price of quality. There are no penalties to pay in terms of cycle time and weight distribution."

Preform producers can now use molds with non-standard cavity lay-outs to substantially raise output without putting extra stress on their machines. SIPA has just produced this 180-cavity mold that fits on a regular 500-tonne machine that would normally run with molds having no more than 144 cavities – providing potential to raise productivity by 25 percent. More non-standard molds are in the pipeline, for use on smaller machines.

Users of this new tooling can chose to increase output from their 500-tonne machine, rather than running a smaller-cavitation mold at extremely fast cycle times that significantly stresses the machine, increasing maintenance costs and reducing its lifetime. SIPA achieved this while taking no compromises on mold robustness: in fact, thanks to features like the SmartLock™ stack design (which delivers excellent component life), XGuidance™ (which guarantees perfect mold alignment) and its superior LongLife™ treatment, the expected life of this mold will exceed industry standards.

"We are using open and available technology that can be mounted not only on SIPA XFORM GEN3 500-tonne production systems but also on other compatible platforms on the market, as long as they do not incorporate special protective software," says Baldassar. SIPA expects a high level of interest from key advanced markets, especially North America and China.