USF Vacu-Blast has developed a variant of its proven "Ventus 150 AXT" automatic cabinet machine, specifically for the controlled steel shot, glass or ceramic bead peening of blade aerofoils and similar parts from aeroengines and other gas turbines, for fatigue life enhancement. It can also be used for precision abrasive blasting applications requiring the selective processing of complex components.

The machine achieves production rates of up to 120 components an hour and has been designed for use by a single operator working within a manufacturing cell or dedicated engine repair and overhaul facility. Special features have been included to minimize noise, prevent the escape of peening media and dust, and simplify operator involvement. No special machine operator training is necessary, beyond straightforward machine familiarization.

The parts to be peened are precisely retained in purpose-designed polyurethane masks which locate, grip and mask the area to be processed. These can be loaded in a cassette to streamline batch production. All processing parameters, peening duration, media flow rate and pressure, are easily adjusted via a reliable PLC and its associated controls, which are mounted on a user-friendly console. Audible and visual alarms notify the operator when the process is complete.

Peening media is recovered and recycled automatically and continuously during the process via an in-cycle regrading system. This ensures that only good quality media is reused, in order to maintain process integrity and consistency. There is also the option of in-cycle peening media size-and-shape classification.

The Ventus 150 AXT machine is robustly constructed, incorporates special acoustic materials to minimize noise and a high performance dust collector with after-filtration optimizes dust collector performance and minimizes dust emission. The peening enclosure dimensions are 1500mm x 1400mm x 1000mm high. Pressure- or suction-fed versions of the machine are available.

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Al Gross, the corporation’s president, is well-qualified. He holds a B.S. in Mechanical Engineering and an M.S. in Metallurgy. He is a registered Professional Engineer, a Fellow of ASM, and holds a teaching credential in California. He is experienced in both design and manufacturing. Prior to forming his company in 1990, he was Manager of Materials Engineering at the Autonetics Division of Rockwell International (now Boeing).

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