

□ Benefits of Variable Frequency Control

When tuning a vibrating feeder bowl, traditional SCR or triac-based controllers limit the range of available drive frequencies to a multiple of the power line; usually 60 Hz in the case of unidirectional coils (120 Hz in the case of bi-directional). This is due to the fact that the controller is only capable of limiting **the amplitude** (in the case of variable transformers) or **percentage** (in the case of triac / SCR controllers) of the line waveform that excites the feeder. As such, it has no control over the actual frequency of the drive signal.

The **ATAC (Active Tuning Amplitude Controller)** from **TS Engineering, Inc.** removes these restrictions from the bowl builder, and enables them to tune their feeder to any of a wide range of frequencies. Drive frequencies can be chosen based upon desired part feed rate, the expected operating environment, or even noise considerations. This is because the **ATAC** generates its own true sinusoidal output, independent of the line voltage or frequency. Combined with its intelligent motion sensing feedback (in closed-loop mode), the **ATAC** can drive a bowl at any frequency between **40 Hz** and **160 Hz**.

There are some immediately recognizable benefits associated with using the **ATAC** as a standard OEM controller, such as removing the necessity to meticulously tune every bowl to a specific frequency. For example, if production tolerances cause one bowl's resonance to fall at 62.0 Hz and the next at 57.3 Hz, the **ATAC** will automatically find the optimal drive frequency of each, guaranteeing identical feeder performance without labor intensive re-tuning. However, this freedom goes much further by presenting new opportunities for bowl design that enables your company to really stand out.

A good example of this is designing for noise considerations. Generally speaking, higher-frequency bowls sound louder. Their range also falls into the more sensitive spectrum of the human ear, and may be more irritating to the operator. Pick the resonant frequency for your feeder that best fits the environment, and the **ATAC** will guarantee maximum performance from it.

Such a scenario could be expanded to include a situation where multiple feeders are operating at a very close frequency, producing additive noise and vibration that may be aurally uncomfortable, or even mechanically problematic if the total vibration energy is sufficient to disturb nearby equipment. The **ATAC** again provides a simple solution by allowing the builder/installer to simply retune each feeder to a slightly different frequency. Specifics may not be important, just as long as they are different, and maximum performance can be obtained without the additive properties of a single rate of vibration.

As these examples demonstrate, the variable-frequency capabilities of the **ATAC** remove most of the usual restrictions from bowl builders. Feeders can be driven with maximum motion and efficiency and without the labor-intensive tuning required when a fixed-frequency excitation voltage is used. For more information on how you can **ATTACK** your feeder operational needs with the **ATAC**, contact **TS ENGINEERING, INC.** today.