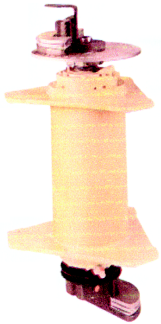Energy and media/part unload adjustments for bowl vibratory machines

We have a number of self unload bowl vibratory machines. How do we adjust the machines to increase their energy as well as getting them to unload faster?

The bowl vibratory machine has weights attached to the top and bottom of a vertical shaft mounted to the center column of the bowl.

Weights can be added and subtracted from the top and bottom weight carriage. As weights are added the energy increases (measured by mm of amplitude between 1 and 9 with 9 being higher energy) and as weights are subtracted energy is decreased.

The top weights, and the positioning of the top weight carriage will affect the medias forward feed. Increasing the weights and positioning the top weight carriage 90 degrees behind the bottom weight carriage is a good starting point for faster unload.

When adjusting the top weight carriage to follow the bottom carriage by 90 degree, note; the shaft rotation should be opposite of the media feed direction. So if the media travels counterclockwise to climb the unload gate, the shaft rotates clockwise, therefore, the top weight carriage should be set 90 degree counterclockwise of the bottom weight carriage.

Increasing the bottom weight will increase the media roll and energy (amplitude). Machine manufacturers have amplitude measurement stickers that are attached to the outside of the bowl, allowing measurement of the energy and forward feed.

Bowl machines generally are set up with more weights on the bottom weight carriage than the top. Start with twice as many weights on the bottom as the top and adjust from there. When adjusting, change only one variable at a time.

A self unload bowl vibratory system is primarily set up for unload efficiency. When the screen opening size is much larger than the media, forward feed can be increased. If the openings are tight, compared to the size of the media, forward feed needs to be reduced to eliminate media carryout over the screen deck.

Make notes of the starting point before changing weight settings. Document the amplitude and unload time before adjusting weights so you can measure improvements and get back to a known process if required.