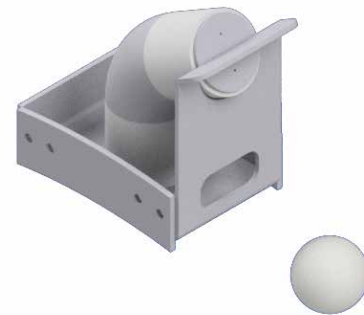
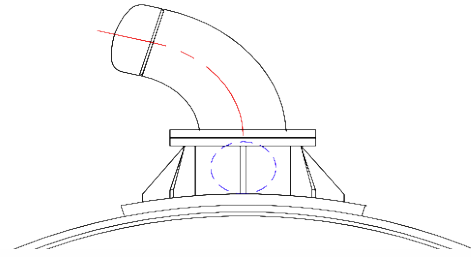


BALL AND TUBE KNOCKING SYSTEM

When it comes to controlling build-up in a drum, the Ball and Tube knocking system is often the preferred choice among rotary drum owners. Aside from being highly effective, this system has less moving parts, meaning it requires less maintenance. Ball chambers are lined with reinforced bands to withstand ball movement in both directions. This option is also favored due to the fact that it is self-contained.

Key Features:

- Heavy impact force for effective removal of material buildup.
- Bolt on design allows for easy installation to an existing drum.
- Modular design allows individual knocker assemblies to be removed without having to remove the entire band.
- Self-contained knocker assemblies require little to no maintenance.
- Impact plates are not fixed to drum shell, which prevents damage to drum shell.
- Bands can be added or removed as needed.
- Easy to index knocker bands to each other to achieve maximum buildup removal.



From top to bottom: Drawing and 3D rendering of ball and tube knocker; 3D rendering of ball and tube knockers on mounting bands.



Ball and tube knockers ready for mounting



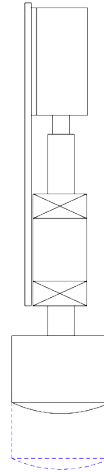
Mounting bands

PNEUMATIC HAMMER KNOCKING SYSTEM

The pneumatic hammer is a solenoid activated hammer that offers extreme flexibility. Mounted above a strike plate on the drum, this hammer delivers an adjustable amount of force, as set by the operator. Force, frequency, and strike intervals can be easily adjusted to custom variables.

Key Features:

- Variable force allows you to customize the amount of force the drum receives for optimal buildup removal.
- Variable frequency enables the drum to be knocked in a different location with each strike as the drum rotates.
- Can be easily retrofitted onto any existing drum.
- Knockers can be turned off for noise reduction when not needed.
- Multiple knocking assemblies can be run off of a single control point.



Above: Drawing and photo of pneumatic hammer

Common factors to consider when deciding on a knocking system:

- Adjust Impact Force
- Adjust Impact Location
- Adjust Frequency of Impacts
- Ease of Inspection
- Space (Swing) Requirements
- Simplicity of Design
- Power/Control Requirements
- Ease of Retrofit to Existing Drum
- Rolling Wear
- Quantity of Wear Items
- Safety/External Parts
- Applicable to Dusty/Corrosive Environments
- Applicable to High Temps
- Ease of Temp Stopping Impact
- Integrity to Drum Shell
- Noise