Jerhen Industries, Inc.
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VIBRATORY FEEDERS
NEED-TO-KNOW DEFINITIONS:

BACK PRESSURE
: The action of parts pushing against the parts ahead of them when the feeder bowl is turned on.

BOWL BASIC
: The bowl with interior tooling and drive base, assembled and tuned for most efficient performance. Does not include all custom tooling required to orient and sort parts.

CONTROLLER
: Contains the on/off switch and amplitude (speed) adjustment of the bowl. Digital controllers may also include a frequency adjustment. The controller may also have power and speed controls for other pieces of the system, such as the inline track or storage hopper.

DRIVE BASE (Assembly)
: The assembly that drives the stainless-steel bowl and tooling. It includes the heavy steel plate, rubber isolation feet, electro-magnetic coils, pole-faces, springs, weldments, armatures, and cross arms.

DISCHARGE (Discharge chute)
: The exterior tooling that maintains the part in the desired orientation and delivers it to the next step in the system. The discharge may be flat or have a down angle.

FEEDER BOWL (Vibratory feeder bowl)
: The complete assembly of the bowl basic with all the custom interior and exterior tooling and controller. If required, back-pressure relief, air assist, quick dump, or other options to meet customer specifications.

OUT-OF-TUNE
: When the feeder bowl does not feed parts at the rate set by the factory due to mechanical reasons or fatigue of the springs on the drive.

TRACK
: Refers to any running surface the parts travel on inside or outside of the bowl prior to the fan or rails.

TOOLING
: Any metal additions to the interior or exterior of the bowl basic needed to sort, separate, orientate, recirculate, or assist feeding parts through the feeder bowl. May be fixed, adjustable or interchangeable.

TUNE
: The act of adjusting springs, coils, tooling, or controller of a vibratory feeder for maximum efficiency.

MORE SPECIFIC DEFINITIONS:

ADJUSTABLE TOOLING

Any tooling that can be repositioned to run similar parts of different size through the same feeder bowl.

AIR JET

Small diameter tubing used to assist in moving or orienting parts. The tooler determines if air is needed during the design and fabrication of the feeder. The air is adjusted using a regulator supplied by the factory.

AMPLITUDE

The level of voltage applied to the electromagnetic coils required to vibrate the feeder enough to move the parts at the required rate. This is usually expressed as a percentage.

AMPLITUDE CONTROL

Adjustment of the voltage input to change the vibration intensity of the feeder bowl, thus changing the speed the parts move. This can be adjusted using a dial or buttons on the controller.

BACK PRESSURE RELIEF DEVICE (BLOW OFF)

A sensor activated solenoid controls an air jet to remove parts from the tooling. Used to regulate the number of parts at the discharge or prevent jamming.

BACK PRESSURE RELIEF (BUBBLE-OFF)

A section of tooling just prior to the bowl discharge that, when the discharge is full, allows parts to fall from the tooling into the return pan to be recirculated.

BACK PRESSURE RELIEF TOOLING

An area prior to a confinement that allows the parts to buckle and bubble-off if there is a jam. The parts fall from the tooling back into the feeder.

BAFFLE

A piece of tooling welded to the bottom of the bowl allowing the parts from the return pan to enter the bowl evenly.

BOWL BASIC

The drive base and bowl, with interior tooling, assembled and tuned for most efficient performance. May not include all custom tooling required to orient and sort parts.

CHANGE TOOLING

The term given to any interchangeable tooling for a vibratory feeder. When a vibratory feeder bowl is designed to run multiple parts, tooling is changed to accommodate a specific part or parts of a certain shape or size.

CORD SECTION

A straight and flat section of tooling used to select or orient parts. May be located inside or outside of the feeder.

CONFINEMENT

Tooling added to control parts through a selector or the discharge chute. Confinements include removeable, bolt-on tooling to allow access to parts.

COUNTER-BALANCE WEIGHT

A piece of metal of predetermined size and weight that is mounted to the exterior of the feeder to off-set the weight of the external tooling.

DIRT CHUTE / DIRT RELIEF

An opening to remove small particles of foreign material from the feeder.

DOWN ANGLE DISCHARGE CHUTE

The exterior tooling that maintains the part in the desired orientation and delivers it to the next step in the system, typically a gravity track.

ESCAPEMENT

A mechanism used to regulate the delivery of parts into the next operation.

EXTERNAL TOOLING

Any construction outside of the cylindrical, vertical band. This tooling selects, separates, orients, and relieves pressure build-up as the parts are being fed.

FAN

Angled exterior tooling to orientate parts to hang from head, shoulder, or other feature.

FAN BLADE

Tooling attached to the fan, typically adjustable, that keeps hanging parts from falling off the fan.

FINAL SELECTOR

Tooling that ensures all parts past that point will pass into the discharge chute in the proper orientation.

FREQUENCY

The rate at which the electromagnetic coils of a vibratory feeder are energized and de-energized measured in Hertz (Hz). If equipped, the frequency can be changed through the controller.

FULL TRACK SHUT-OFF

Use of a sensor device to turn the feeder bowl on and off when a specific area of tooling is full of parts.

GRAVITY TRACKS

Located after the discharge chute, gravity tracks are angled tooling that allows the parts to slide down to the next operation while keeping proper orientation of parts.

HORIZONTAL CAM

Internal or external tooling placed a specific height above the track to remove parts that are stacked or oriented improperly.

INLINE VIBRATORY TRACK/FEEDER

A horizontal track mounted to a vibratory drive unit used to move parts at a specified rate after leaving the feeder bowl discharge chute.

INTERNAL TOOLING

Any construction inside of the cylindrical, vertical band (the bowl). This tooling selects, separates, orients, and relieves pressure build-up as parts are being fed.

MAGAZINE

Custom tooling located after the discharge chute where oriented parts are stacked prior to the next operation.

ORIENTATION

The customer specified presentation of the part as it leaves the discharge chute.

PRE-ORIENTOR

Tooling created to put a part into a specific position prior to a selector.

QUICK DUMP CHUTE

An opening that allows for rapid removal of parts.

RATE

The amount of properly orientated parts discharged within a given time. Rate per minute is typically specified by the customer.

RETURN PAN

Exterior tooling to catch and recirculate parts that have been removed from the feeding process due to orientation, blow off, or back pressure relief. The parts enter the bowl through the pan opening at the bottom of the vertical band.

RUNNING SURFACE

The portion of the tooling at the discharge that the part rides on. It can be the track, a rail, or adjustable tooling.

SELECTOR

Tooling that only allows acceptable parts through to the next step of orientation. A selector may be interchangeable or adjustable when a feeder bowl is designed to run a variety of similar parts.

SMART AIR

Compressed air used on a vibratory feeder for the sole purpose of orienting the parts properly.

STORAGE HOPPER

A piece of equipment that stores and feeds parts into a feeder bowl. A storage hopper is turned on and off using a sensor to detect the parts level within the feeder bowl, so parts are only added as needed.

SWEEP

A moveable piece of inside tooling used to regulate the flow of parts out of the feeder bowl. Often used on feeder bowls designed to run multiple sizes of a similar part.

VERTICAL BAND

The cylinder that makes the wall of the bowl.

VIBRATORY PARTS FEEDER BOWL

See *Feeder Bowl*, under Need-To-Know terms.