4.2 FEEDERS

Feeders are used to meter the flow of material to meet the specified flow rate of the crushing system or process system. They play an important role in material handling in many mining, aggregate and other industrial applications.

Types of Feeders

There are several different types of feeders, including

- Apron Feeders
- Belt Feeders
- Drag and Reclaim Feeders
- Reciprocating / Plate Feeders
- Scalper Feeders
- Wobbler Feeders
- Vibrating Pan Feeders
- Vibrating Grizzly Feeders

APRON FEEDERS

Apron Feeders are robust feeders used for handling many types of materials, suchas aggregates, minerals and recycled materials. Used for both small and large capacities, they can withstand extreme impact loading. Apron Feeders consist ofcast manganese pans bolted to a dozer-style chain that wraps around a head shaftand tail idler.

The chain and pan assembly rides on dozer-style carry rollers, andthe movement of the flights provides a metered flow of material. This type of feeder is higher on capital investment but is also high on investment returns. Apron Feeders are a favourite in the mining industry because they can operate 24/7 and go years between maintenance periods.

Apron Feeder Fast Facts

- Used for small and large capacities
- Can handle extreme impact loading
- Provide uniform feed rates
- Can be used for many types of materials
- Offer long service life with low maintenance
- Designed for each application and installation
- Accept very hard, abrasive, and tough materials, as well as lumps of larger dimensions and those which are beyond the scope of other feeders

BELT FEEDERS

Belt Feeders are generally used for fine material applications, typically for handling material 6” or less. They feature a flat belt that is supported by closely spaced idlers and driven at the head pulley.

Belt Feeder Fast Facts

- Accept smaller sized material
- Used with smaller hoppers
- Commonly used in secondary or tertiary applications
- Should not be used for very hard and tough materials or materials with sharp edges

DRAG AND RECLAIM FEEDERS

Both Drag Feeders and Reclaim Feeders consist of strands of chain with connecting flight bars designed to pull material. They are typically tied into the operation of a downstream conveyor, so they do not require an operator.

Drag Feeders are well suited for moving free-flowing materials, such as coal, lignite, salt, copper and other minerals, while Reclaim Feeders are typically used for moving stockpiled materials.

Drag Feeder Fast Facts

- Ideal for free-flowing materials
- Does not require an operator

Reclaim Feeder Fast Facts

- Ideal for moving stockpiled materials
- Does not require an operator

RECIPROCATING/ PLATE FEEDERS

Reciprocating/Plate Feeders are a reciprocating tray type feeder. Mechanical models feature a crank or eccentric and connecting rod to produce the reciprocating motion needed to move the material toward the discharge end. Hydraulically operated designs use a hydraulic cylinder to produce this motion. The feeder discharges on the backstroke of the plate; no material is discharged in the forward stroke.

Reciprocating/Plate Feeders Fast Facts

- Accept small and large capacities
- Generally located under a bin
- Ideal for cyclic feed rates
- Offer long service life with low maintenance Designed for each application or installation

VIBRATING GRIZZLY FEEDERS

Vibrating Grizzly Feeders provide the functions of feeding and scalping. Used inmany types of applications to supply a continuous feed rate, Vibrating Grizzly

Feeders feature a pan section at the feed end and a grizzly section at the dischargeend that allows undersized material to bypass the crusher.

The vibration of the pan and grizzly sections moves the material toward the

discharge end, while allowing fines to pass through to the bottom. Pre-sorting the fines before a crusher in this way reduces the required capacity of the crusher as well as wear and tear on the crusher.

Vibrating Grizzly Feeders are lower on capital investment and lower on investment returns.

Vibrating Grizzly Feeder Fast Facts

- Used for small and medium capacities
- Smaller in size than Apron Feeders
- Ideal where pre-sorting is required before a crusher
- Offer close to uniform feed rates
- Can be used for many types of materials
- Designed for each application or installation

VIBRATING PAN FEEDERS

Vibrating Pan Feeders are generally used to feed primary crushers in aggregate, mining and recycling applications, but they can also be used to feed grizzly feeders for removing material ahead of a crusher. These types of feeders feature pan sections along the deck of the feeder. As the feeder vibrates, the material moves forward along the pan sections toward the discharge end.

Vibrating Pan Feeder Fast Facts

- Ideal for feeding primary crushers and grizzly feeders
- Accepts a variety of aggregate, mining and recycle material

WOBBLER FEEDERS

Wobbler Feeders offer the dual benefits of feeding material at a controlled rate and scalping fines from the feed. Rotating elliptical bars on the deck of the feedercause the lumps of material to move up and down, scrubbing against each other as they advance toward the discharge end. This removes sticky material, such asclay, from the lumps and allows it to pass through the openings between

the bars.

Though high in capital cost, Wobbler Feeders may be necessary for scrubbing fines from sticky types of material, saving wear and tear on downstream equipment.

Wobbler Feeders Fast Facts

- Accept small and medium capacities
- Ideal where pre-sorting is required before a crusher
- Offer uniform feed rates – dependent of homogenous feed gradation
- Generally used for sticky types of materials to scrub the fines off
- Not used for handling any round or slick material such as gravel and coal.