



 **McLanahan**
FEEDER-BREAKERS

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Since McLanahan's first venture into the manufacture of Feeder-Breakers for the salt industry in 1984, the company has strived to improve its designs by using cutting-edge features and concepts. McLanahan eliminated chain drives and shear pins and incorporated the use of direct drive reducers and hydraulic motors to power the breaker and chain conveyor system. With a focus on maintenance, access panels with hinges were designed and components were placed strategically so that shaft assemblies can be removed in one piece.

Product Size

Feeder-Breakers are primary crushers designed to break material against the deck and chain conveyor system. Product sizes range from 6" to 12" (150 to 300mm) in one dimension only depending on breaker roll height setting. The crushed product is expected to be "conveyable", limiting damage to belt conveyors. Further processing equipment downstream should be designed to handle the occasional slab or elongated pieces associated with Feeder-Breaker product.

Trouble-Free Design

Because each mining application is different, your unit is designed to meet specific requirements. However, you can be assured that your unit will have the same trouble-free design and structural integrity as all McLanahan Feeder-Breakers operating around the world, producing at the highest, most efficient levels.

Superior Service

Behind every well-built McLanahan Feeder-Breaker is a team to help you keep your unit in optimum running condition to maximize your return on investment. McLanahan's experienced Field Service Department will ensure that your unit is up and running as quickly as possible after installation and normal maintenance periods. Years down the road, McLanahan's Parts Department will be available with expert assistance and advice on maintaining the unit to perform at its best.



Tight Pick Pattern



Coal being crushed using a Feeder-Breaker

STANDARD FEATURES

Frame

A solid frame is essential to a long-lasting, trouble-free unit. All Feeder-Breakers are constructed with a heavy-duty fabricated steel plate that is substantially reinforced and gusseted to provide a foundation capable of enduring years of punishment and heavy shock loading. Replaceable A.R. wear liners cover the top deck, the sides of chains and areas in contact with material flow. Liner plates are either plug welded or bolted, depending upon frequency of required change-out.

Sprocket & Head/Tail Shafts

Head and tail shafts are designed to be removed for maintenance as a one-piece unit through access panels. Shafts are designed using alloy quenched, tempered and stress relieved steel. Bushings are used for take-up. The sprockets are either one piece flame hardened steel or split steel design that provides additional maintenance options. Both the head and tail shaft area use split liners to protect the shaft from excessive wear. Where the shafting passes through a frame opening, a grease purge lip seal is used to prevent leakage. Under-speed sensors are used to protect the shaft against high torque situations.

Chain Conveyor

McLanahan Feeder-Breakers are available with either a single or dual drag. Determining which one to use is almost solely based upon desired process capacity, as dual drag systems are recommended for higher capacity requirements or when the Feeder-Breaker is utilized under a large hopper. Solid steel flight bars are connected to an engineering class chain with various pinning methods.

Conveyor Drive

Drag chain conveyors are available in either hydraulic or electro-mechanical drive. Hydraulic drives offer variable speed and a cushioning effect that helps combat shock loading. The electro-mechanical drive utilizes a torque-controlled coupling located between the motor and reducer to provide protection to the conveyor drive and related components if the conveyor stalls or is jammed. As an added feature, McLanahan provides an automatic reversing system that clears blockages or assists in recovering tramp material. Under a blockage situation, the conveyor drive reverses automatically, then starts forward again. This process continues until either the blockage is eliminated or the number of attempts "times-out".

Hydraulic Power Units

When using a hydraulically-driven chain conveyor, a power unit is required. A variable volume, axial piston pump is used along with an electrical control signal to vary the speed of the conveyor. System gauges are provided and tests ports are available for troubleshooting.

Pick Roll/Breaker

McLanahan pick rolls are designed to fracture or break material, rather than crush or pulverize. Because the pick roll rotates in the same direction as material flow, each piece is simultaneously subjected to the force of one or more pick points in order to break it along inherent fracture planes. Breaker Rolls use replaceable carbide tip picks, held in place by snap rings/retaining rings and arranged in a spiral lacing pattern. Pick patterns and disk spacing are varied for each application. In addition, a flywheel creates additional breaking power to crush harder material and reduce the likelihood of stalling in tough applications.



Frame



Chain Conveyor



Chain Conveyor and Breaker



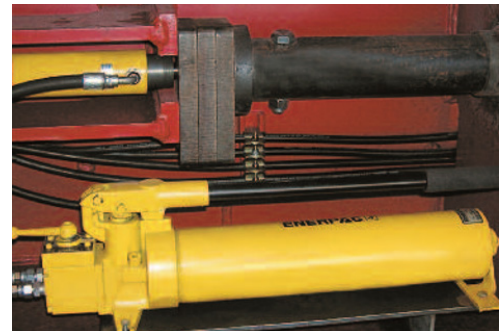
Conveyor Drive

Chain Take-Up

“Simple” – that one word describes our approach to adjusting chain conveyor tension. Even if the feed end of the machine is buried in “muck”, the adjustment mechanism is located towards the center of the frame to afford easy access. Each take-up cylinder uses a hand pump to adjust the chain tension, and then steel shims are used to hold the setting in place.

Breaker Drive

The pick roll or breaker is driven by an electro-mechanical method that includes a motor and shaftmounted reducer. A torque-limiting coupling is used between the motor and reducer to eliminate damage to the breaker drive and shaft assembly. This drive method eliminates drive chains and is alignment free. The flange block bearing housings are bolted to the side of the frame in an adjustable pattern that provides 2” (50mm) increments of product size adjustment.



Chain Take-Up

OPTIONAL DESIGN FEATURES

Electronics

McLanahan uses PLC logic, designed by in-house electrical engineering group, to control every function of the Feeder-Breaker. Panels are rated for either non-hazardous or hazardous areas. The PLC easily interfaces with the plant control software giving you maximum flexibility and control. Standard panel arrangement includes push button controls; however, an optional touch screen panel can be utilized. The electrical package is designed to provide optimum capacity while minimizing downtime.

Lube Systems

As a standard, lubrication lines on each side of the machine are banked to a common manifold and labeled to ensure your maintenance is made easier. Optional automatic lubrication systems are modular, consisting of a pump and reservoir that feeds divider valves. Whether using the standard manifold or the modular auto-lube system, each is strategically placed on the unit for easy access.

Structures

Flexibility in design. That is what McLanahan provides. Optional structures are only limited by the imagination, but, more importantly, they are driven by the mine plan. Based upon experience, McLanahan can accommodate your requirements whether the mine plan calls for a simple support structure or a fully mobile unit.

Additional Features

McLanahan can provide a variety of support systems, including dust suppression, water sprays, fire suppression systems, alarms, lighting packages, horns, power take offs for electrical and hydraulic equipment, welding outlets, interlocks on access doors and so much more. Safety is paramount on all McLanahan equipment, and at a minimum, E-stops are provided on both sides of every Feeder-Breaker.