

# KOMATSU

## Surface feeder breakers

Product overview



## Surface feeder breakers

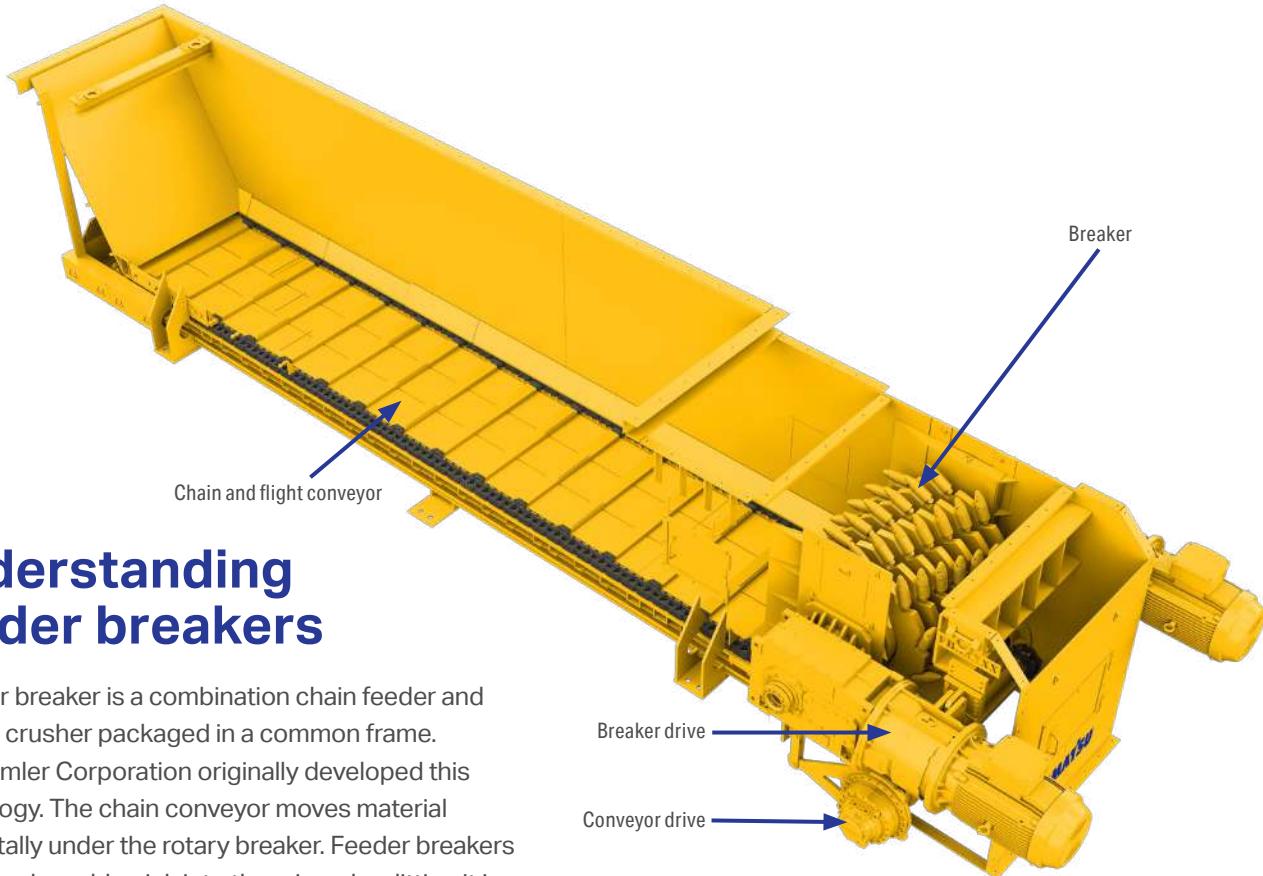


You move the minerals.

# We make the machines.

The essential minerals you produce power modern technology, facilitate community growth and move society forward. But these minerals are hard to find and tougher to mine. Your customers trust you to deliver these resources, so you need an equipment, service and technology provider you can rely on to help keep your operation productive and efficient. Together we can focus on operating safely, productively and responsibly.





## Understanding feeder breakers

A feeder breaker is a combination chain feeder and primary crusher packaged in a common frame. The Stamler Corporation originally developed this technology. The chain conveyor moves material horizontally under the rotary breaker. Feeder breakers drive a replaceable pick into the mineral, splitting it in tension. The tensile strength of most minerals is less than 10% of its compressive strength, making feeder breakers highly effective and efficient in breaking down the size of materials.

### Feeder breakers perform three important functions:

**Surge capacity:** A surge hopper at the intake end of the feeder breaker allows trucks or other haulage equipment to discharge material at the maximum rate.

**Rationing/feeding:** As the product moves through the feeder breaker, the material flow is discharged onto the conveyor at a steady rate determined by belt capacity, virtually eliminating spillage, reducing wear and significantly increasing belt life.

**Size reduction:** A powerful rotary pick breaker reduces material to a consistent size easily handled by conveyor belts and secondary crushing operations.

### Loading methods

- Truck dump
- Dozer trap
- Wheel loader
- Reclaiming and sizing a stockpile
- Clamshell buckets

### Applications

- **Energy:** Coal, Petroleum Coke, Lignite
- **Construction:** Limestone, Aggregates, Cement Additives
- **Industrial Minerals:** Potash, Phosphate, Salt
- **Hard Rock and Metal:** Copper, Gold, Silver, Lead, Zinc, Frozen Pellets and Stockpiles

## Gain big advantages to your surface operation

We've worked with our surface mining customers to understand the challenges and goals of their mineral crushing processes. This collaboration has continuously improved a family of proven feeder breakers that can bring cost-effective and productive crushing to your operation.

### Benefits

- Feeder breakers feature a low, horizontal profile that operates without eccentric motion for the lowest installation height of **any** crusher arrangement available, minimizing **civil and foundation costs**
- The low total height makes feeder breakers **easier to direct load** with wheel loaders and excavators
- Specific material output size is achieved and modified by adjusting the height of the rotary breaker above the conveyor deck and selecting the pick pattern — a solution that can help **meet your specific production needs**
- Combining the feeder and crusher in a single unit makes relocating easier
- Crawler, wheel or skid mounting options provide **mobility to help reduce haulage cycle time and increase productivity**
- Tensile breaking reduces **energy requirement and results in lower machine stresses**
- The rotary breaker passes undersized material with little effect, **minimizing fines generation and lowering energy consumption**
- High crushing ratios help ensure that your operations can get the materials mined to the desired product size in fewer stages, making your **crushing more efficient and productive**
- High-strength engineered conveyor chain with hardened link pins is specially manufactured for **long life, low maintenance and superior dependability**; the chain conveyor can be reversed to help remove any material or tramp metal accidentally fed into the system



# How feeder breakers can help lower total cost of ownership (TCO)

We understand that costs have a direct impact on your bottom line. There are several advantages to installing a feeder breaker at your surface mine site that can help decrease your operational costs.

## Surge capacity control

We've listened to our customers to understand the challenges of haul truck, wheel loader and dozer operations. Feeder breakers are designed with a surge hopper to match the loading tool, minimize cycle time and maximize productivity. While some equipment requires the loader to meter its discharge to avoid overloading the feeder, feeder breakers eliminate this wasted time. With a strategically-designed surge hopper at the intake end of the feeder breaker, your trucks and other haulage equipment can discharge material at the maximum rate, resulting in improved cycle times and enhanced productivity.

## Consistency counts

The feeder breaker contributes to a lower TCO with a powerful rotary pick breaker that fractures material to near-uniform pieces with minimal fines generation. These pieces are then rationed onto the conveyor at a steady rate. Consistency in material size and discharge virtually eliminates spillage, reduces belt wear, increases belt life, decreases maintenance costs and creates a cleaner operation.

## Reduced fines improve efficiency

Tensile breaking (instead of compression crushing) material can improve recovery rates and increase the efficiencies of downstream processes. This makes it possible to move various materials — including wet, dry, sticky or a combination — through a single piece of equipment.

## Mobility matters

Experience the flexibility of moving your feeder breaker quickly and easily with one of three mounting options:

- **Crawler mounted** feeder breakers are self propelled.
- **Wheel-mounted** can be easily relocated with in operations with a firm floor.
- **Skid mounting** allows the machine to be dragged into a new position by dozers.



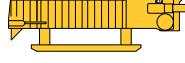
## Far reaching impact

More than 4,000 feeder breakers have been supplied, supporting operations worldwide.



## Surface feeder breakers

# Meet the surface feeder breaker models designed for crushing performance

Model	Typical applications <sup>1</sup>	Capacity <sup>2</sup>		Machine weight		Chain pitch		Mineral hardness	Maximum feed size <sup>2</sup>		Minimum product size <sup>2</sup>		
		MTPH	TPH	Tonnes	Tons	mm	in		mm	in	mm	in	
SFB-29		Coal, salt, gypsum, potash, lignite	Up to 1,500	Up to 1,655	20-30	22-33	89.0	3.5	Soft and medium	800	31.5	0-50	0-2
SFB-31		Limestone, aggregates, phosphate rock	Up to 2,500	Up to 2,755	40-60	44-66	114.3	4.5	Medium	1,000	39.4	0-100	0-4
SFB-40		Harder limestone, phosphate rock	Up to 3,000	Up to 3,307	70-80	77-89	139.7	5.5	Medium	1,200	47.2	0-200	0-8
SFB-38		Hard rock and overburden	Up to 4,000	Up to 4,410	> 100	> 100	152.4	6	Hard	1,500	59.0	0-200	0-8
SFB-43		Hard rock and overburden	Up to 6,000	Up to 6,613	> 200	> 220	190.5	7.5	Hard	1,500	59.0	0-250	0-10

Note 1: Larger surface feeder breakers are often used to crush softer minerals due to required capacity or feed size.

Note 2: The rated capacity, maximum mineral compressive strength, and feed/product size of a feeder breaker are interdependent.



# Surface feeder breakers

Depending on the application, feeder breakers are available in horizontal, inclined and upswept configurations as shown below.

## SFB-29

Ideal for crushing applications with a throughput of up to 1,500 MTPH (1,655 TPH), the SFB-29 is a proven workhorse for smaller or moderate surface mining operations.



## SFB-31

Engineered for coal and industrial minerals, this feeder breaker has a throughput of up to 2,500 MTPH (2,755 TPH). Upswept configuration shown below.



## SFB-40

This feed breaker is engineered to perform with crushing coal and industrial minerals, and features a throughput of up to 3,000 MTPH (3,307 TPH). Inclined configuration shown.



## SFB-38

Designed for hard rock and industrial minerals with a throughput of up to 4,000 MTPH (4,410 TPH). Horizontal configuration shown which allows maximum output.



## SFB-43

The SFB-43 feeder breaker is designed for hard rock and overburden applications.



# Customize your feeder breakers for peak results

We understand that every application is different, which is why we offer our valued customers multiple upgrades and options for your surface feeder breaker. These components and features add to the value and capabilities of your equipment for a comprehensive, customized solution to your operation's unique needs.

## Advanced tail shaft design

High-strength alloy steel shafting and conveyor chain sprockets, heavy-duty, spherical roller bearings, and an enclosed tail shaft bearing design result in several benefits:

- Extends bearing life — **up to four times longer**
- Reduces downtime
- Increases productivity

Also, improved contact seals provide three degrees of separation from water and contaminants. Field retrofit kits are available to upgrade existing machines with only slight frame modifications.

## Hydraulic conveyor chain tensioning system

Chain take-up can easily be adjusted without requiring shims or needing to remove covers on the intake end. Under normal conditions, **chain adjustment time is reduced from two hours to two minutes**, putting the machine back into service more quickly. You'll also find that tensioning is more accurate, leading to **improved machine performance and increased component life**.



## Optional upgrades

You can enhance the capabilities and features to make a feeder breaker the ideal machine for your specific goals. Available components include:

- Auto lubrication system
- PLC Controls with HMI diagnostic display
- Instrumentation and sensors to support remote health monitoring
- Colored beacon for machine status

- Plugged chute switch
- Pull-cord switch
- Maintenance platform around discharge end
- Tail shaft speed sensor
- CCO deck plate

Contact your Komatsu account representative for more information about these upgrades or other equipment needs.



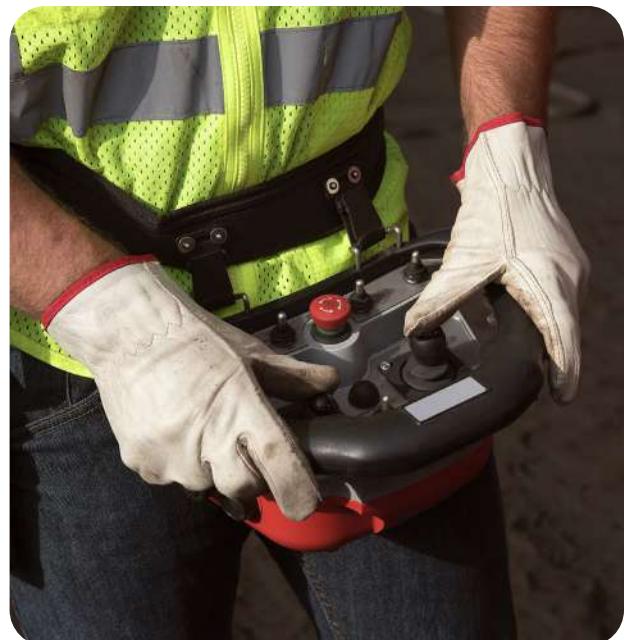
## Surface feeder breakers



### The VFD effect

A popular upgrade, the variable frequency drive (VFD) system allows the conveyor to deliver constant torque at various speeds. The controlled conveyor acceleration reduces stress on the electric motor and mechanical components. The machine's soft start capabilities also minimize stress on the electric motor, as well as the local power supply grid. The variable conveyor speed can be easily controlled with remote input or by interfacing with other equipment.

Enabling consistent flow with various materials throughout the mining cycle reduces equipment wear, which is another way the feeder breaker contributes to a lower cost of ownership.



## We've got your back

Our service for hire teams provide maintenance and repairs at your shop or mining location. These rapid response teams can perform OEM quality service for our machines and mining equipment from major manufacturers. At your request, safety focused mechanics, welders and electricians can arrive at your site with completely tooled trucks for fast service.



## Efficient pick technology

We've served our valued customers worldwide to supply over 10,000 continuous miners, longwall shears, sizers and feeder breakers that efficiently break minerals using picks. We have a variety of pick designs for given applications — whether hard or abrasive — and we'll work one-on-one with you to ensure your feeder breaker meets your unique needs. Feeder breaker picks use proven tungsten carbide inserts, alloy steel construction, and abrasion-resistant weld overlays for consistent performance.



## Equipping the world to empower a sustainable future together

For the last century, the companies that power society and develop the world's infrastructure have relied on Komatsu to empower them. Through manufacturing, technology and service innovation with unmatched quality, reliability, insights and support, we work as your partner to create lasting value for your business.

Committed to enhancing your entire ownership experience, we leverage the intelligence of big data to deliver actionable insights and provide the technology needed to make sure you have the service, tech tools and parts you need to reduce downtime.

## Your global partner

Tomorrow's mining demands ever-evolving technology to lower costs, raise productivity and drive zero harm. With virtual work sites throughout the world, we're able to develop and deploy the right technology at the right time.

## A clear path forward

Scalable, sustainable solutions that prioritize safety and optimize your mining operations at every level. Contact your local Komatsu account representative today.

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