

ROCKBREAKER SYSTEMS



POWER YOUR PRODUCTIVITY



www.rockbreaker.com



WE OFFER DECADES OF EXPERIENCE & CUSTOMER SERVICE

Breaker Technology (BTI) is the rockbreaking expert in the mining and quarrying industries. For 60 years, BTI has been helping companies power their productivity and break into profitability. We offer over a dozen different rockbreaker system models for breaking oversize at large gyratories, grizzlies, jaw and impact crushers in stationary and portable applications. All rockbreaker systems are custom fitted to your application for maximum endurance.

Experience has taught us that communication and partnerships combined with high quality equipment provide excellent results. Breaker Technology works with you to fine-tune your model selection, reach, breaker size and option selection. We conduct on-site visits, engineering application analysis, installation drawings and more, providing cost effective solutions including mechanical, electrical and control integration.

YOUR ROCKBREAKING EXPERT & PARTNER



YOUR SAFETY STARTS WITH BTI

At Breaker Technology, we are passionate about safety. We know that safety is a number one concern for everyone in our community: employees, customers, partners, suppliers and stakeholders. As an OHSAS 18001-2007 certified company, we operate our business to the highest safety standards. Our priority for safety doesn't end at our facilities; we care about the safety of our customers and partners too. That's why we work to stay innovative with our processes, products and services by constantly looking for ways to improve the safety of everyone in our community.

AN ASTEC INDUSTRIES COMPANY

BTI is part of the Astec brand family with a high-level reputation for safety, quality and productivity Astec customers expect and trust.



A COMPLETE ROCKBREAKING PACKAGE

BTI'S ROCKBREAKER SYSTEMS

With over 2,000 successful installations, Breaker Technology powers your productivity in underground and surface mining and aggregate quarries worldwide. Designed to integrate into your mobile, portable or stationary crushing plant, or at grizzly ore-pass sites, BTI's Rockbreaker Systems include boom mounting systems, automatic greasing packages, motor starter panel, joystick control and plant integration. BTI's Rockbreaker Systems are engineered for maximum life using finite element analysis (FEA) software in all raking and breaking functions.

BTI's integration team works with you and your engineering team to ensure the correct rockbreaker system is selected to meet your productivity goals. BTI provides an engineering drawing package with each machine, providing details for proper installation.

FEATURES THAT KEEP YOU PROFITABLE

+ SUPERIOR STRENGTH

Oversize hardened alloy pins, aluminum bronze bushings, and thrust washers deliver maximum service under adverse conditions. Our induction-hardened chrome cylinder rods resist damage from fly rock. Four plate variable cross-section booms are specifically designed to minimize stress concentrations that typically lead to fatigue cracks.

+ LONGER LIFE SPAN

BTI implements many design features that contribute to the overall life of the rockbreaker. Clevis-type, high-pressure hydraulic cylinders equipped with high tensile steel-cast cylinder lugs provide maximum strength in rockbreaking applications. The cylinder's self-aligning spherical ball bushings keep the equipment properly aligned and flexible during production hours throughout its lifespan.

+ HIGH PRODUCTION

For high production applications, BTI combines enhanced motion control and boom position feedback for continuous speed giving the highest level of controllability while minimizing cycle times, improving operator fatigue and production.

+ PEDESTAL DESIGN

BTI offers two pedestal designs, swing post or turntable. The cost-effective swing-post design provides 170-degrees of swivel action. On limited models, BTI supplies a hybrid 170-degree slew bearing with cylinder drive, for maximum service life on grizzly applications. The turntable design offers a 330-degree full rotation with a hydraulic-driven slew-bearing drive producing a constant swing torque for consistent force during operation. All models are fitted with relief functions and back drive capability to absorb shock loading from the crusher without damaging the rockbreaker system.

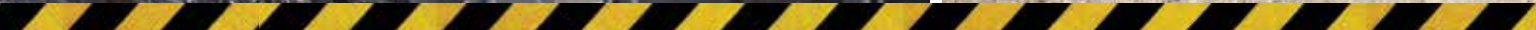
+ PREMIUM CONTROLS

The Breaker Intel Control System, BTI's premium controls, provides long-distance controls for single or multiple rockbreaker operations, enhanced motion control and position feedback with collision avoidance, and programmable ramp generation and flow sharing that easily integrate into your current plant. The system also provides monitoring and diagnostics. Our standard proportional control comes with your choice of game-style or joysticks controller.



OVER 2,000
SUCCESSFUL
INSTALLATIONS
WORLDWIDE





START WITH A SOLID FOUNDATION

SIZING YOUR ROCKBREAKER SYSTEM

A great foundation begins with proper sizing. BTI addresses many variables when sizing a rockbreaker system: reach, application, coverage, structure, and proximity to the crusher. Considering all these combinations helps BTI create a strong foundation for you to operate from. It's vital to consider several important factors when choosing your next BTI Rockbreaker System.

1. Breaker Size

The size of the hydraulic breaker depends on the application, material hardness, size and amount of oversize material. Considering current and future requirements is recommended.

3. Power Packs

The minimum horsepower requirement of the complete system is based on the hydraulic breaker size and boom model. Often in high-duty cycles, larger hydraulic power units will be supplied to increase boom speed and reduce cycle times to increase production.

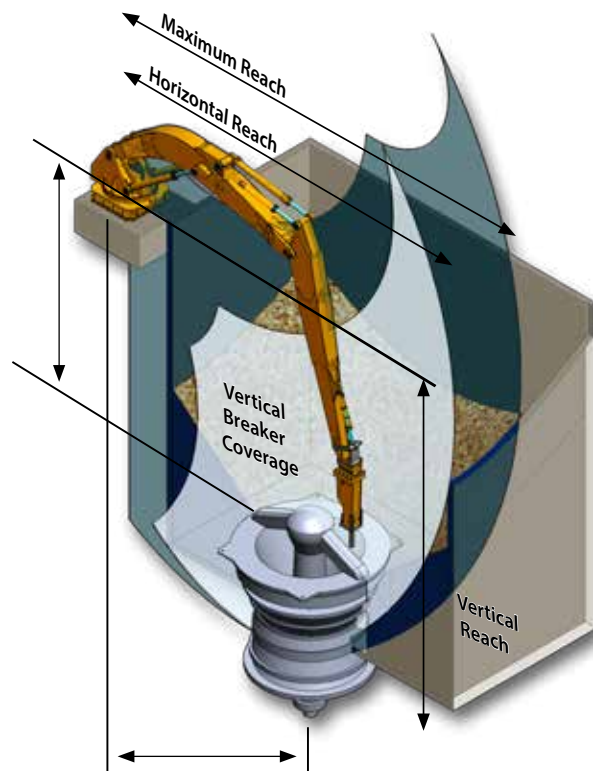
2. Boom Model

The boom model is selected based on the breaker size, reach requirements, slewing angle, duty cycle and application. Proper positioning of the boom relative to the breaking area is of prime importance.

4. Controls

Our systems offer flexibility that allows for safe, effective operation from almost anywhere:

- Electric-hydraulic controls: 200 ft. (60 M)
- Radio remote control: 325 ft. (100 m)
- Camera assisted coaxial cable: up to 1,500 ft. (457 m)
- Fiber optics: unlimited



MOBILE



MBS // PB

Track and portable crushers are designed for quick transportation from site to site. Breaker Technology's lightweight Rockbreaker Systems are designed to integrate directly to the crushing plant and transported without dismantling. Optional structural interface brackets, electrical and hydraulic interface kits are provided.

JAW // IMPACT



**MBS // PB // NT // NTTE
MRH // MRHT**

Small and medium-sized jaw and impact crushing stations are fed from a rock box with a vibrating feeder. Breaker Technology's Stationary Rockbreaker Systems are positioned to assist in the proper material flow as well as breaking oversize at the crusher.

GRIZZLY



**PB // NT // NTTE // MRH
MRHT // MRHT-LP // MRST**

Grizzly applications are incredibly harsh by nature. The booms are subject to high levels of stress from raking and breaking oversize on the grizzly. Breaker Technology's Rockbreaker Systems for grizzlies are designed with extra-wide cross sections and oversized pins to handle the stress of the application.

GYRATORY



**MRH // MRHT // MRSTE
TTX // TRX**

Big jobs need big booms and breakers. Breaker Technology's wide range of gyratory specific booms provide full coverage in the rock box and deep into the mouth of the gyratory crusher, quickly eliminating bridging and clogging to maintain constant material flow and production rates.



PUT POWER INTO PRODUCTIVITY

POWER TO KEEP YOU RUNNING

Your BTI Rockbreaker System's speed and hydraulic breaker requirements determine the size and horsepower of the hydraulic power unit. BTI's hydraulic power units are engineered for maximum performance in high vibration, dusty environments, and extreme climates and altitudes.

STANDARD FEATURES

- ⊕ Elevated reservoirs/flooded pump inlets
- ⊕ Heavy plate steel construction with integrated legs and base frame
- ⊕ Compact footprint
- ⊕ 60, 100 and 200 gallons (227, 378 and 756 liters) hydraulic reservoirs
- ⊕ Clean out cover
- ⊕ Drain
- ⊕ Premium efficiency TEFC Electric motors 30 to 300 horsepower
- ⊕ Variable displacement swash plate piston pumps with load sense control
- ⊕ Suction strainer
- ⊕ In line full flow pressure and return filters
- ⊕ Oil level sight glass
- ⊕ Low level switch
- ⊕ High/low hydraulic oil temperature gauge
- ⊕ High/low hydraulic oil temperature interlocks for warning and shutdown

- ⊕ All steel full flow air over oil coolers
- ⊕ Continuous oil circulation circuit power pack-to-pedestal hoses

POWER PACK OPTIONS

- ⊕ Drip tray/spill containment system
- ⊕ Hand pump filling through return filter
- ⊕ Immersion heater
- ⊕ Impeller charged piston pump for high altitude applications
- ⊕ High flow/high horsepower pump motor assemblies
- ⊕ Fire suppression systems
- ⊕ RTD temperature and oil level indication
- ⊕ Electric motor deration for altitude
- ⊕ Electric motor space heaters
- ⊕ Electric motor IEEE certification
- ⊕ Customer specific motor specifications
- ⊕ Stainless steel electric motor starter panels
- ⊕ Cold weather oil circulation packages

GET SMART WITH CONTROLS

BRAINS OF THE OPERATION

BTI Rockbreaker systems aren't all brawn. It's the brains that really make them shine. Controlling your rockbreaker can be done manually or remotely, or gain ultimate control with our **Breaker Intel Control System**.

BTI'S STANDARD CONTROLS

BTI RockBreaker Systems come standard with dual joysticks, offering fully proportional electro-hydraulic control combined with fully proportional, load-sensing directional control valve for precise and variable control of all boom and breaker functions. The basic system can be modified to suit your need, including additional radio control pendants for maintenance operations to ethernet video/long-distance remote and plant integration.

YOUR BASIC CONTROL OPTIONS

- ⊕ Danfoss proportional control valve and joysticks
- ⊕ Parker proportional control valves and joysticks with I-QAN
- ⊕ Game-style controllers
- ⊕ Primary or secondary radio control to distances up to 1,500 feet
- ⊕ Primary or secondary portable joystick controls with cable
- ⊕ Ergonomic swivel seats with arm-rest mounted joystick



- ⊕ Human-machine interface (HMI) on Parker I-QAN systems
- ⊕ Load drop counterbalance valves
- ⊕ Boom anti-lunge interlocks.
- ⊕ High flow valves and high flow hydraulic power units equipped with constant horsepower control for increased speed

GAIN MAXIMUM CONTROL WITH THE BREAKER INTEL CONTROL SYSTEM



Upgrade your control to BTI's **Breaker Intel Control System**. Maximize rockbreaking operations and create a secure ergonomic working environment while easily connecting to your existing mining process control system.

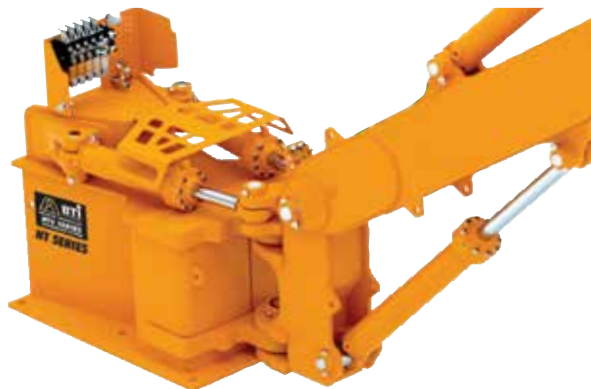
FEATURES

- ⊕ Plant Integration
- ⊕ Perimeter Control
- ⊕ Long Distance Control
- ⊕ Force and Speed Control
- ⊕ Monitoring and Diagnostics
- ⊕ Camera & Display Monitors



DETERMINE YOUR RANGE OF MOTION

**SIMPLE DESIGN. SIMPLE TO SERVICE.
SIMPLE ECONOMICS.**



Breaker Technology's cost-effective and easy to maintain pedestal swing post provides 170 degrees of swing rotation from twin hydraulic cylinders, ideal for most small and medium-sized applications.

MORE RANGE. MORE CONTROL. MORE POWER.

BTI's turntable design offers 330-degree rotation, providing constant swing torque and rotation speed over its full range of motion. This means your control and power is evenly distributed anywhere within the rockbreaker's vertical coverage area.

Depending on the rockbreaker system model, BTI provides a single or multiple hydraulic motor-driven gear reduction pinion drive with parking brake, crossover relief/shock valves and back drive capability.

The turntable pedestal offers a compact operating area, providing a safe working environment for operators and maintenance personnel by removing the boom out of the working area during maintenance routines.

In confined spaces where movement is restricted, on the surface or underground, BTI's heavy-duty twin hydraulic cylinder driven slew ring bearing provides excellent durability and minimal maintenance. This configuration offers 170-degrees rotation and is ideal for grizzly applications where high levels of side raking under load are required.







MAXIMIZE OPERATIONS, IMPROVE SAFETY AND COMFORT

EASY GREASING

When it comes to maintaining your rockbreaker system, keeping it lubricated is key to a long, productive life. Multiple lubrication points are easily serviced from one of BTI's optional lubrication systems.

- ⊕ Central manual lubrication system includes individual grease lines located at a common location and routed to each individual grease point.
- ⊕ Automatic lubrication for the hydraulic breaker is accomplished with a dedicated 24 VDC grease pump and integrated reservoir. Plumbing goes directly into the breaker remote grease port.
- ⊕ Automatic lubrication for the boom is done with a parallel system of centro-matic injectors for each individual grease point. The system is powered by your choice of 24 VDC or hydraulic driven pumps with reservoir/containers ranging from eight liters to 400 pounds.



OPERATOR COMFORT

BTI's basic operator cabin has one door, three windows and a remote cab base with a standard operator's chair. It's constructed from heavy-gauge steel, impact-resistant windows, and polyurethane insulation.

- ⊕ Options: explosion proof window covers, ergonomic operator seat, air pressurization system, HVAC, heating, and air conditioning.



IMPACT PROTECTION

Improving your boom's functionality increases the life of your rockbreaker system, offering enhanced impact protection from the system's movements.

- ⊕ Breaker anti-blank fire hydraulic and electrical interlocks
- ⊕ Breaker fire/boom anti-lunge interlocks
- ⊕ Load drop counterbalance valves
- ⊕ Severe duty kit for the hydraulic breaker
- ⊕ Wear bar kit for the hydraulic breaker
- ⊕ Perimeter Control

PROTECT EQUIPMENT FROM HARSH CONDITIONS

COLD WEATHER PACKAGES

As a leader in rockbreaking technology, BTI has sold thousands of rockbreaker systems around the world, including in some of the coldest environments. BTI's cold weather package allows improved performance in arctic conditions.

- ⊕ Arctic-grade hosing to negative 70 °C
- ⊕ Continuous oil circulation to the main control valve and hydraulic breaker
- ⊕ Heat tracing on power pack-to-pedestal hoses and related equipment
- ⊕ Heat blankets for gear oil and gearboxes (if equipped)
- ⊕ Additional shrouding and insulation for valving and turret components
- ⊕ Space heaters in electric cabinets and electric motors
- ⊕ Cold weather steel designed for use in Arctic temperatures and is supplied as optional equipment in cold weather conditions. BTI offers two grades:
 - CAT3 tested to negative 20 °C
 - CAT4 tested to negative 40 °C
- ⊕ An optional cold weather circulation pump keeps warm oil going through the valve and breaker when the main pump is shut down, making startup quicker once operation continues.

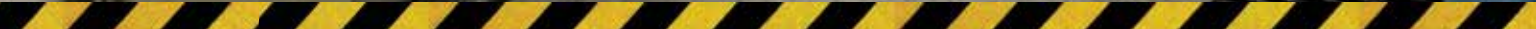
HYDRAULIC POWER UNIT

Protecting your rockbreaker system from harsh conditions will increase the lifespan of your equipment. BTI offers customized enclosures for the hydraulic power unit, electric equipment, and related support equipment.

- ⊕ All steel construction
- ⊕ Enclosure insulation
- ⊕ Fireproofing
- ⊕ Fire suppression systems
- ⊕ Spill containment systems
- ⊕ Main access and separate maintenance doors
- ⊕ Filtration and air pressurization packages
- ⊕ Integrated plumbing and wiring internally and to the stationary rockbreaker

DRAWING PACKAGES, QUALITY ASSURANCE & FINAL TESTING

- ⊕ Complete vendor drawing and data packages for engineering projects on new and refurbished equipment.
- ⊕ Full assembly and testing before shipping. Testing is optional on small systems MBS to MRHT and standard on larger systems MRST to TRX.
- ⊕ An optional quality assurance package is available.





ASTE
NASDAQ
LISTED



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