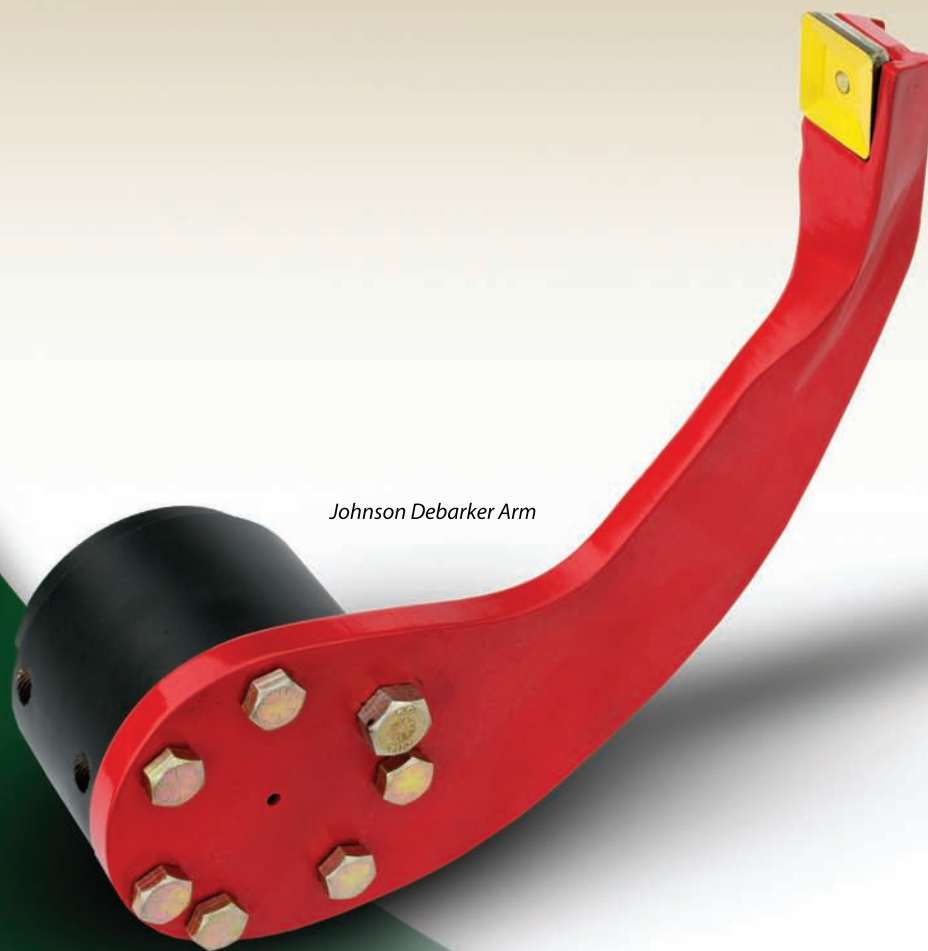


Johnson Debarker Arms



Johnson Debarker Arm



...We will save you money.

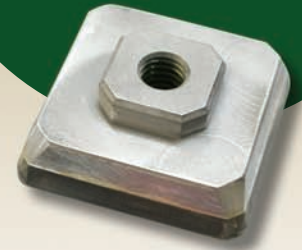
Johnson Carbide Tip

*Long lasting tips,
reducing the need for
frequent replacements.*



The patented lip on the side of the arm:

- It has better log engaging.
- Controls penetration into the logs during the debarking process.
- The bark is better removed, and the fiber on the log remains untouched.
- Involves less pressure due to the sharp debarking tip edge.
- The engaged log never hits the side of the tip, due to the lip on the side of the arm.
- The Johnson tips are used on all four sides.



Johnson Pro tools that fit onto specific 18" debarkers

- Arms 18" for tip 18"
- Arms 18" for tip 2"
- Arms 18" for tip 26"



Debarker arms that fit onto any type of ring debarker

- Standard or custom made according to your specific needs.
- We manufacture debarker arms of various lengths to better suit specific debarker requirements.



Debarker arms refurbished program

- We rebuild debarker arms of all sizes. Also we can rebuild competitive arms to Johnson technology. Hard surfacing process is applied to enhance climbing edge endurance.
- The link arm is fabricated at Johnson Enterprises with a special alloy which makes it more durable than what is currently offered on the market.



A Cut Above The Rest

High-Performance Metal Debarker Tips

Johnson manufactures their high-performance metal debarker tips to suit their clients' debarking requirements. They are machined to a variety of different angles from 0 to 40 degrees, to ensure that the logs are properly debarked with a minimum of wood fibre loss.

The lower angles of 0 to 23 degrees are usually used during the summer months where the log is green, in which the bark is easily removed from the log with less debarking pressure.

The most common angle would be the 27 degrees, in which most of our clients use all year long under normal conditions.

The higher angles of 30 to 40 degrees are mostly used for the challenging conditions, where the logs would be frozen, dried, or burnt.



...We have the right tips for the job.



High-Performance Winter Debarker Tips

Johnson manufactures high-performance metal debarker tips for the winter climate. By being narrower, it enables you to lower air pressure and allowing for a much better debarking process, although, it is suggested to reduce the in feed speed (feet/minute) to ensure proper debarking with no barber poling effect.



Different Pattern of Debarker Tips

As well, Johnson manufactures their high-performance metal debarker tips for many different sizes and styles of debarker arms on the market. This will also enable you to get the best required cutting angle for an efficient debarking process with less wood fibre loss.



High-Performance Bark Cutter Tips

Johnson manufactures special high-performance bark cutters designed for eliminating stringy bark in a debarker. These bark cutters are made with a very sharp cutting edge varying from 1/8" to 1/4" to cut through the bark thickness without damaging the wood fibre.

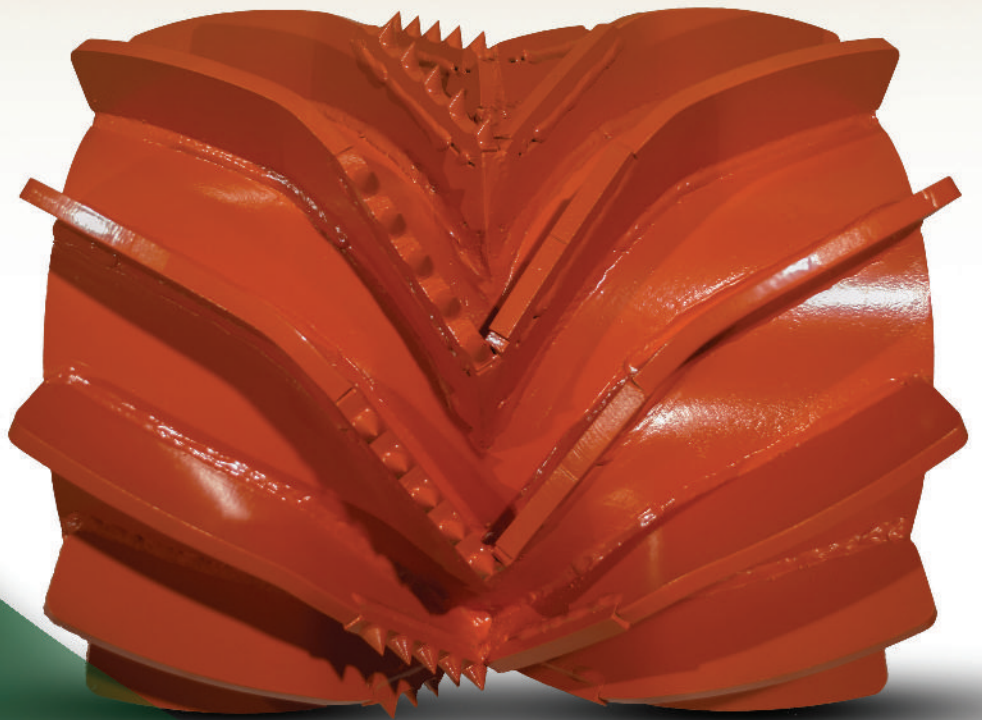


High-Performance Carbide Debarker Tips

Johnson manufactures high-performance carbide debarker tips. We use only the best premium grade of carbide available, combine with our new state of the art induction welding unit ensures that our carbides are perfectly brazed allowing for the longest lasting debarker tip on the market.

Johnson Patented Feed Rollers

Johnson's unique patented design of feed rollers enables to lower your debarker pressure, preventing log fibre damage and a better log centering, while maintaining a solid grip in the debarking process. All our feed rollers are fabricated to the original manufactures specifications. Johnson can manufacture feed rollers to all your requirements or specifications.



Spike Rolls, Press Rolls and Spike Bars



Spike Rolls

Johnson's unique patented design of pyramid rollers enables to lower your debarker pressure, preventing log fibre damage and a better log centering, while maintaining a solid grip in the debarking process. These special rollers will also lower your maintenance cost due to our quick-change spike bars.

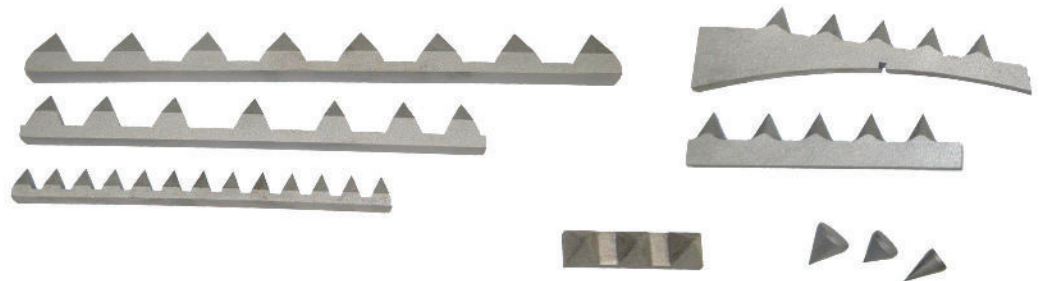


Press Rolls

Johnson manufactures many different styles of press rolls to the original manufactures specifications.

Spike Bars

Johnson's unique patented design of spike bars allows you to refurbish your feed roller with a breeze. The pyramid design allows you to lower your debarker pressure, while maintaining a solid grip in the debarking process. Our clients used them for many more different applications.

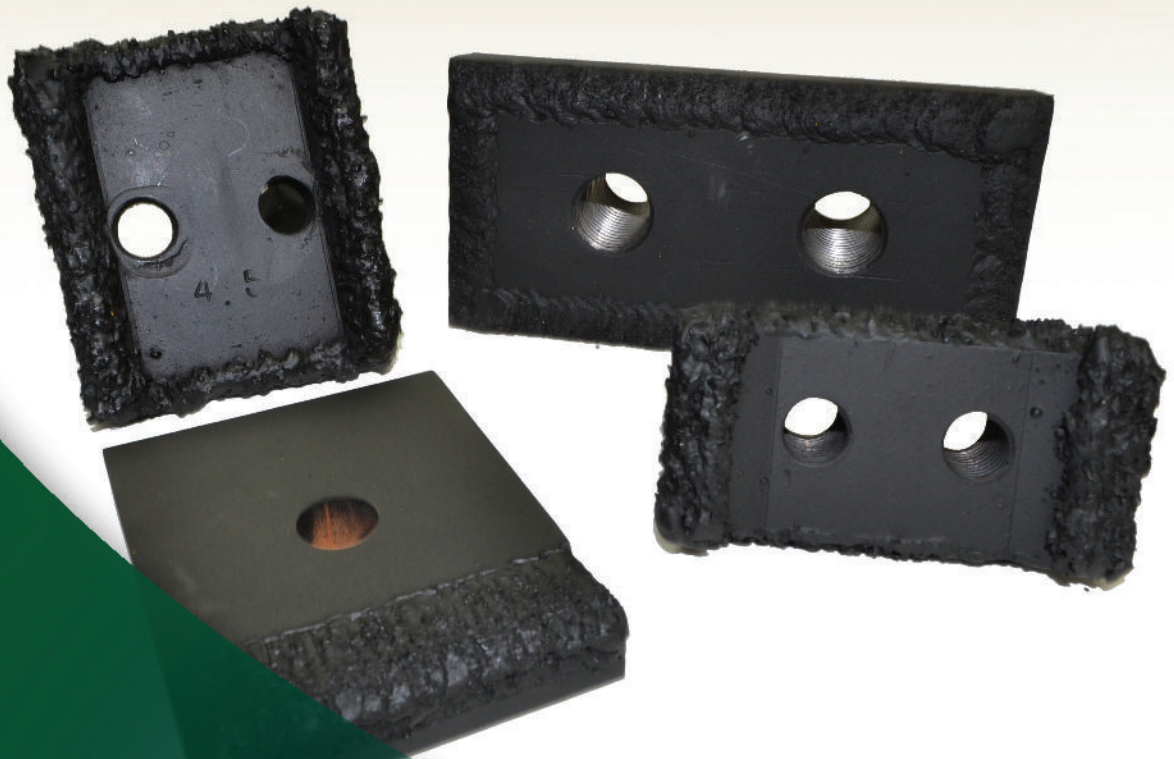


*The new spikes and
new rolls are now available.*

*For more information, don't hesitate
to contact your representative or our
customer service*

Johnson Hog Hammers

Johnson manufactures and refurbishes various types and styles of hog hammers, by applying our extreme carbide process. It drastically improves their performance and endurance. Depending on your application, we are able to select the proper Carbide Gains size to suit your requirements.



...We can save you money.



Hard Surface Processing

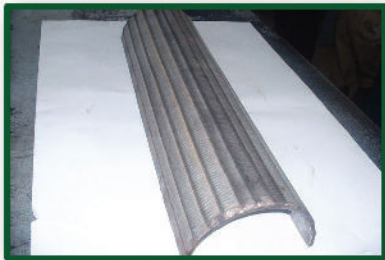
Johnson manufactures and refurbishes various wear components for the forestry industries, by offering many different methods of Hard surfacing such as: HVOF (Jet Kote), Robotic PTA Welding, Spray Fusion and the extreme carbide process. Johnson qualified team will ensure that the parts will be prepared to your requirements and to the original manufactures specifications.

HVOF (High Velocity Oxygen Fuel)

HVOF is today's standard for applying carbide and metals coatings. High velocity coatings process produces the highest quality carbide and metals coatings available in the industry today!

Jet Kote System (Cold Process)

Our experience with this process has proven to have a superior bond compared to chrome (25 thousands of an inch of thickness compared to 10 thousands). The process for Jet Kote is to apply special powders for hard surfacing and build up application. Due to the extreme pressure, it impregnates the powder into the material. It is a cold process, allowing no distortion whatsoever. Some typical applications are hard surfacing pumps, pump castings, chipper parts, planner rolls, built up stainless steel shafting, bearing journals, and many more.



Robotic PTA Welding (Hot Process)

This specialized Plasma Transfer Arc welding unit is used in the application of a hard surfacing with a variety of different powders. The ID torch enables us to weld inside bushings of all types to increase endurance and acid resistance. Some typical applications are spiral rollers, anvils, pump castings, pump covers, hardface inside housings, piping, valve stem, valve seats, and many more.

Extreme Carbide

This Carbide system is applied by the use of a mig welder hooked up to a carbide canister vibrator. This allows us to rebuild worn parts and at the same time overlay with carbide particles, at desired thickness. These particles come in different sizes from fine to extra coarse, which allow us to apply the size that is needed for the application. This system is applied where there is a lot of abrasive wear. It can be applied on hog hammers, auger blades, etc.

Spray Fusion Welding

Johnson Enterprises uses a specially designed Oxy Acetylene torch for powder welding. The work piece is heated with the torch. The powder is introduced into the gas stream from the integral powder hopper and then transferred to the work piece through a flame.



Presentation of results

Johnson improved the overall debarking process by 20% which represents a net saving of over \$200,000 for a mill that consumes a volume of 400,000 cubic meters of logs on a yearly basis.

Evaluations	Existing Debarker	Johnson Tools	J vs ED Var(%)
Loss volume on logs (%)	5.36	4.28	-20.10%
Remaining Bark (%)	0.6	0.4	-33.30%
Fiber in bark (%)	23.3	12.2	-47.60%
Bark in chips (%)	1.19	1.21	-1.70%

Evaluations	Existing Debarker	Johnson Tools	J vs ED Var(%)
Loss volume on logs (%)	3.43	2.08	-39.40%
Remaining Bark (%)	11.5	4.0	-65.20%
Fiber in bark (%)	21.8	15.8	-27.50%
Bark in chips (%)	1.18	0.68	-42.40%

Forintek Canada Evaluation

Johnson Enterprises Inc. contracted Forintek Canada Inc. for the purpose of evaluating the performance on their debarking tools at a high profile sawmill in Quebec.

This study aimed mainly at quantifying - by the means of debarking chosen log - the samples - the percentage of fibre in bark - the percentage of bark in chips - and the losses of revenues directly linked to the loss of fibre during the debarking process.

This comparison test was performed under winter conditions, involving dry and frozen wood using the debarker at the mill which had been equipped with the tools of a competitor. The same exercise was repeated on the same debarker with the tools of Johnson Enterprises Inc.



Abundance of Bark in woodchips impact financial outcome

Fiber loss impact financial outcome



Competition Tools



Johnson Tools

Bark remaining on logs during the debarking process

Financial impacts, caused by an abundance of bark in woodchips

Level of tolerance of bark in woodchips according to a reputable paper mill during summer: 0.50%
 Level of tolerance of bark in woodchips according to a reputable paper mill during winter: 0.75%

1% bark content in woodchips represents a penalty of 0.5% of 19 bone dry ton (BDT)
 Payable to sawmill: 18.91 bone dry tons loss: \$1900 - \$1891 = \$9.00
 Supply of 10,000 BDT = 10,000 / 19 BDT per trailer x penalty \$9.00 \$4,736.84 (loss)

2% bark content in woodchips represents a penalty of 1.5% of 19 BDT
 Payable to sawmill: 18.91 BDT loss: \$1900 - \$1875 = \$25.00
 Supply of 10,000 BDT = 10,000 / 19 BDT per trailer x penalty \$25.00 \$13,157.89 (loss)

5% bark content in woodchips represents a penalty of 4.5% of 19 BDT (risk of losing the contract)
 Payable to sawmill: 18.15 BDT loss: \$1900 - \$1815 = \$85.00
 Supply of 10,000 BDT = 10,000 / 19 BDT per trailer x penalty \$85.00 \$44,736.84 (loss)

Financial impact, caused by the loss of fiber in bark and fiber damage during the debarking process:

- The cost per bone dry ton of 1 trailer load of woodchips approximates \$100
- 1 trailer load contains 19 bone dry tons
- The value of 1 Woodchip trailer load equals to \$1900.00

An improved debarking process at a sawmill equipped with three debarkers would generate important financial gain in decreasing fibre content in bark content.

Parameters: 4 winter months 4 weeks per month
 5 days of production per week \$1900 per trailer loaded with Woodchips



Results of an added volume of two truck loads of Woodchips per day
 Result: 2 x 4 x 4 x 5 x \$1900 Gain \$304,000.00

Results of an added volume of one truck load of Woodchips per day
 Result: 1 x 4 x 4 x 5 x \$1900 Gain \$152,000.00

Results of an added volume of three truck loads of Woodchips per week
 Result: 3 x 4 x 4 x \$1900 Gain \$91,200.00

Results of an added volume of two truck loads of Woodchips per week
 Result: 1 x 4 x 4 x \$1900 Gain \$30,400.00

