



# SEEDING, FERTILIZER & TILLAGE TOOLS

PRODUCT CATALOGUE 2020

# DISCOVER THE BTT DIFFERENCE

When you succeed, we succeed. At Bourgault Tillage Tools (BTT), we think you should expect a lot, and we strive to deliver that with exceptional Customer Service, high-quality Canadian made products, and the best Warranty and Performance Guarantee in the market. We call this The BTT Difference and these are just a few of the ways we go the extra mile to keep your operation growing.

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## PERFORMANCE GUARANTEE

BTT guarantees the product you purchase will perform to its designed specification under normal conditions. Under some adverse conditions the performance of the product may be affected. If the product does not perform its designed task within the first season of use, please inform us of the issue immediately and grant us the opportunity to visit your field

to assess the situation. If we cannot correct the situation, we will guarantee you a 100% refund.

**Failure to follow our recommendations will render the Performance Guarantee void. To learn more about adverse seeding conditions please refer to page 16.**

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## WARRANTY

Warranty is limited to the replacement of the failed part and does not cover any consequential damages. To obtain warranty, the part must be returned to the dealer to complete the warranty claim form.

All products (with the exception of harrow tines) are warranted from the date of purchase at our discretion as follows:

- 1st year prorated to a maximum of 100%
- 2nd year prorated to a maximum of 70%
- 3rd year prorated to a maximum of 40%

Warranty expires 3 years from the date of purchase. Invoice must be provided. Warranty will not be provided on ANY of our parts that have been used with non-original BTT replacement parts or tips.

Warranty only covers defects in materials and workmanship. Carbide is warranted for loss only. Chipping of carbide is normal. If the brazing fails and the carbide falls off, return the part to the dealer.

Harrow tines are warranted from the date of purchase against breakage for 1 year prorated to a maximum of 100%.

### Trip Strength Considerations

At BTT, we build products that last. Our seed openers need to perform in some challenging conditions, and we design our products with durability in mind. The end user has the responsibility to make sure the machine is best suited to the operating conditions. Trip strength is an important consideration.

When it comes to trips, heavier is not necessarily better! Buying a seeding machine with heavier trips than required for proper penetration may result in:

- broken or damaged seed openers
- broken or bent shanks
- more rocks being pulled to the surface

Proper trip strength will save you time and money. When determining the appropriate trip strength, some factors to consider are: soil type, amount of rock and type of seed opener used. Some people believe a heavy trip is a "one size fits all" scenario. This is simply not true. Take the time and make sure you get a machine with appropriate trip strength for your farming operation.

BTT reserves the right to limit warranty claims on trip strengths greater than 400 pounds.

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**NEW!**

## PRODUCTS ADDED FOR 2020



**BLUE ARMOUR SWEEPS** (PG 83)



**MAX LIFE™ HARROW TINES** (PG 93)



**DISK BLADES FOR**  
**AMITY & CONCORD** (PG 97)  
**JOHN DEERE & NORWOOD** (PG 98)  
**YETTER & AGPRO** (PG 100)



**410-QCA-5080 SPEED-LOC™**  
**ADAPTER FOR JOHN DEERE** (PG 77)

# THE #1 ORIGINAL CARBIDE TIPS

## HIGH CHROME MATERIAL

All of our replaceable tips are made in North America, giving you the superior wear resistance you have come to expect from us. They are cast with high chrome material, increasing the life span of the tip.



600-BNC-5000

# QUALITY YOU CAN TRUST

## NORTH AMERICAN MADE

All of our primary wearing tips are made in North America, giving you the superior wear resistance you have come to expect.

## TUNGSTEN CARBIDE INSERTS

The highest quality tungsten carbide is placed on our tips in-house ensuring long wear. Extra-long carbide is used in extremely abrasive conditions ensuring the longevity of the tip while maximizing seed bed utilization.



LETH IRON HAS OVER 100 YEARS OF EXPERIENCE IN WEAR RESISTANT MATERIALS.

LOOK FOR THEIR MARK ON BTT PRODUCTS.



## EASY INSTALLATION

Quickly & easily install new tips with bolt & nut combo 200-BNC-3100, proven to work when roll pins won't.



# TIMELESS PRINCIPLES. CONTINUOUS IMPROVEMENTS & INNOVATIONS.

Important timeless principles never change, however innovations & continuous improvements to our BTT products & services are essential to better serve our Farm Customers, Dealers, Distributors & OEM Customers.

At Bourgault Tillage Tools our Farm Customers are always foremost in our Vision, Mission, Core Values & Principles. We maintain our laser like focus first, by listening to feedback from our Farm Customers and second, by doing our best to look ahead into the future to help our Farm Customers meet and conquer any challenges they may be faced with.

Over the past 30 years BTT has been working diligently to design and develop the most innovative and best quality seeding openers and fertilizer knives possible. We keep in close touch with the soil science of seeding and fertilization along with our Farm Customer's seeding and fertilizer demands. BTT opener's do an excellent job of strategically placing seed and fertilizers to minimize harm to the seed, while making it as efficient as possible for Farmers to place the appropriate amounts of fertilizer at proper depths and separations during the seeding operation.

Also over the past 5 years BTT has been working continuously to create much longer wearing tillage and seeding tools. For example we have pioneered our *MAX LIFE™* Carbide Edge product line which has expanded from fall tillage spikes and narrow openers to include harrow tines. Our testing demonstrates an increase in the useful life of harrow tines by 6X to 8X times compared to a normal harrow tine! Also in 2019 we introduced the new Blue Armour™ 200 & 400 Series Sweeps – the best sweeps we've ever produced. Our own field testing and 3rd party testing show Blue Armour™ sweeps increase the wear life of our sweeps by 24% to 40%.

Since 1969 when my father, Frank Bourgault invented the Bourgault Multi-Purpose, I worked alongside him as a 13 year old. As of 2019 we've been in the tillage business - which means weed control and straw management - for 50 years. In 1980 we expanded into air seeding technology as the Bourgault Multi-Purpose Cultivator was at the time regarded by farmers as a high precision tillage implement. This led to the founding of F.P. Bourgault Tillage Tools Ltd. in 1991 to develop the most innovative, highest quality, tillage and seeding openers for Air Seeders.

Looking forward to the future, there is a growing problem of chemical weed resistance along with a growing number of health conscious consumers resistant to chemical residues on their foods, BTT has continued to develop practical solutions for all farmers, conventional and organic, to be able to eliminate and minimize weeds while reducing the use of chemicals. In 2019 BTT introduced the 30' and 50' BTT Weed Clipper machines which allow any farmer to drive into any seeded crop at any crop height to quickly and efficiently cut and mulch weeds growing above the seeded crop. You can read more about this innovation at [weedclipper.com](http://weedclipper.com).

In 2019 our Future Leadership Team expanded when Ryan Olson came on board as Co-General Manager. Ryan grew up near Estevan and continues to help his parents, Marvin and Brenda Olson, with the family farm. Ryan has 14 years of Leadership and Management experience with an excellent track record in all of his previous endeavors working for a successful American company. Ryan decided to come back to his roots to be a part of the family business having married Lise Bourgault-Olson. Ryan and Lise have two young children, daughter Emmerly and son Liam. We welcome Ryan and Lise to our Bourgault Tillage Tools Leadership Team!

Sincerely,

**Joseph Bourgault,**  
President & Co-General Manager



**Ryan Olson, B.Com.**  
Co-General Manager



# THE HISTORY & PRINCIPLES BEHIND THE COMPANY

Bourgault Tillage Tools Ltd. is located in the small industrious and agricultural community of St. Brieux in North Central Saskatchewan (Western Canada).

Originally part of F.P. Bourgault Industries - Cultivator Division Ltd., the development of ground engaging tools began in 1988. In the summer of 1991, the Cultivator Division sold the large equipment product line to the Air Seeder Division to focus exclusively on the tillage tools line, establishing ourselves as an independent business with separate ownership and management from Bourgault Industries Ltd. The new company was called F.P. Bourgault Tillage Tools Ltd. As an autonomous company, Bourgault Tillage Tools (BTT) is entirely responsible for all of its business decisions and activities.

We became the main provider of tillage tools for Bourgault Industries Ltd. cultivator line while simultaneously producing tillage tools for other equipment lines. Since its formation in 1991, BTT has greatly expanded its product lines and market area, becoming a world leader in field opener technology.

We manufacture ground engaging tools, not the equipment they go on. Our product lines include a wide range for tillage, seeding and fertilizing applications. Most products are available in bolt-on or in our patented *Speed-Loc™* quick change system. We understand the diversity of farming methods and we endeavor to build products to meet those needs.

We believe that by listening to our customers and understanding their needs, we will continue to develop products that help them compete in this ever challenging agricultural economy.

We respect and value the relationship we have with all whom we do business including our customers, dealers, distributors, OEMs and suppliers. We strive to provide products that are of excellent value and high quality. We endeavor to establish a helpful and knowledgeable sales team to provide prompt delivery on orders, reliable service and support.

We believe that our employees are our most important asset. We encourage a work environment of mutual respect, regardless of one's job or title and believe in compensation systems that pay fair and competitive wages, while also rewarding extra efforts. Our Productivity Bonus system in our production areas rewards steady and consistent effort, and in turn helps keep production costs down. Our Profit Share plan pays out a portion of the company profit each year to all employees. We encourage continued skills and personal development to help our people reach their goals, and in turn the company benefits from a higher skilled, better balanced work force.

Acting as a responsible corporate citizen is very important to us at BTT. We believe that everyone has a responsibility to help build a world that is sustainable, and we endeavor to operate our business in that way. One example of this is our participation in the "green power" program offered by our electrical supplier. We are also moving to cleaner production processes within our plant, to ensure minimum pollution to the environment. In tune with our principles of sustainability, we support agricultural practices that will leave the land and the environment intact for future generations.

As our market expands globally, we continue to stay in touch with the needs of our domestic markets, and we are excited by the challenge to supply our tillage and seeding tools to agricultural markets around the world. In getting to know who we are, the company behind the product and the principles behind the company, we hope that you will be comfortable in dealing with us now and into the future.

Sincerely,

**Board of Directors & All Company Associates  
Bourgault Tillage Tools (BTT)**

# REPLACEABLE TIPS

All of our primary wearing replaceable tips are made in North America, giving you the superior wear resistance you have come to expect from us. They are cast by Leth Iron in Lethbridge, Alberta, Canada using only the best materials available, so we can offer you the highest quality tips on the market. All carbide inserts used on our tips are North American made and attached in-house ensuring the highest standards of quality are met.



Look for the Leth Iron logo for over 100 years of experience in wear resistant materials.





# SINGLE SHOOT TIPS

ALL TIPS ON THIS PAGE USE BOLT & NUT COMBO 200-BNC-3100



**200-TIP-0511**  
**CARBIDE TIP**

1/2" (13 mm) tip with carbide insert on the nose. **Not recommended in highly abrasive conditions.**



**200-TIP-0800**  
**CHROME TIP**

3/4" (19 mm) tip. **Not recommended in highly abrasive conditions.**



**200-TIP-0801**  
**CARBIDE TIP**

3/4" (19 mm) tip with carbide insert on the nose.



**200-TIP-0802**  
**CARBIDE TIP**

3/4" (19 mm) tip with extra long carbide on the nose for highly abrasive conditions.



**200-TIP-0803**  
**CARBIDE TIP**

3/4" (19 mm) tip with extra long carbide on the nose and sides for highly abrasive conditions. The same as **200-TIP-0802**, but with the addition of the side carbide inserts.



**200-TIP-0811**  
**VERTICAL CARBIDE TIP**

3/4" (19 mm) vertical tip with extra long carbide on the nose for highly abrasive conditions.



**200-TIP-1011**

**VERTICAL CARBIDE TIP**

1" (25 mm) vertical tip with double carbide insert. Recommended for rocky and highly abrasive conditions.



**200-TIP-2011**

**CARBIDE SPREAD TIP**

2" (51 mm) tip with carbide insert on the nose to fracture the ground. Carbide inserts on the underside of the wings to maintain a sharp cutting edge.



**200-TIP-3000**

**CHROME SPREAD TIP**

3" (76 mm) tip. **Not recommended in highly abrasive conditions.**



**200-TIP-3001**

**CARBIDE SPREAD TIP**

3" (76 mm) tip with carbide insert on the nose and hard facing on the underside of the wings.



**200-TIP-3011**

**CARBIDE SPREAD TIP**

3" (76 mm) tip with carbide insert on the nose to fracture the ground. Carbide inserts on the underside of the wings to maintain a sharp cutting edge.



**200-TIP-4011**

**CARBIDE SPREAD TIP**

4" (102 mm) tip with carbide insert on the nose to fracture the ground. Carbide inserts on the underside of the wings to maintain a sharp cutting edge.



**610-TIP-0802**

**CARBIDE SPREAD TIP**

3/4" (19 mm) long-wearing single shoot tip extra long carbide on the nose for highly abrasive conditions. Used for seeding or fertilizing (not for double shooting).

**Fits VOS (Versatile Opener System).** See pages 54-55 for more details.



**200-BNC-3100**

**BOLT & NUT COMBO**

It is important not to over tighten the **bolt (200-BLT-3102)**. The bolt should be turned in by hand until the shoulder of the bolt makes contact with the **nut (200-NUT-3101)** before torquing to 84 in/lbs or 7 ft/lbs (9.5Nm). It is recommended the bolt and nut be changed when changing the tip.

**Over torquing will result in difficulty when removing.**

# PAIRED ROW TIPS

ALL TIPS ON THIS PAGE USE BOLT & NUT COMBO 200-BNC-3100



**610-TIP-3500**

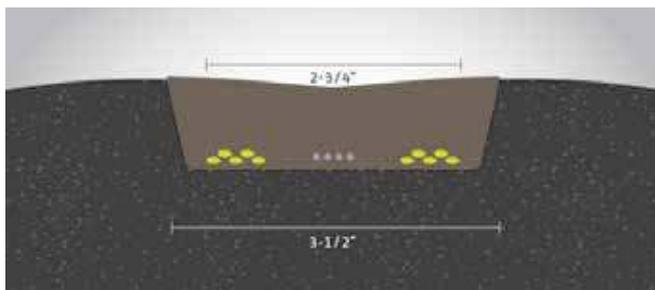
**CARBIDE TIP**

3-1/2" (89 mm) cast chrome tip with carbide insert on the nose for excellent penetration and wear resistance. Carbide inserts on the underside of the wing maintain a sharp cutting edge.

Single shoot Paired Row tip with no vertical separation used on Seed Hawk Inc. **686-ASY-3500**. See page 48 for more information.

**Paired Row liquid option only tip.** This double shoot tip has no vertical seed/fertilizer separation.

**Fits VOS (Versatile Opener System).** See pages 54-55 for more details.



●●●● seed      ●●●● fertilizer

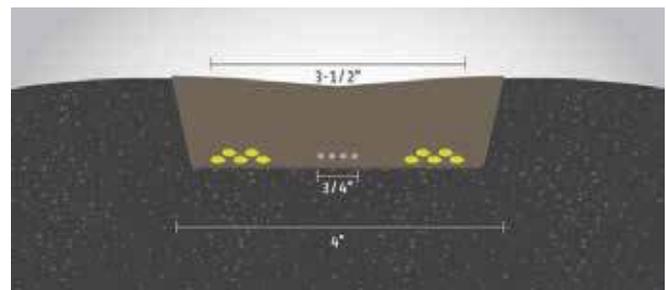


**610-TIP-4041**

**CARBIDE TIP**

4" (102 mm) cast chrome tip with carbide insert on the nose for excellent penetration and wear resistance. Carbide inserts on the underside the wing to maintain a sharp cutting edge.

This Paired Row, liquid or granular, double shoot tip has no vertical seed/fertilizer separation.



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.



610-TIP-4030

CARBIDE TIP

4" (102 mm) Paired Row tip with extra long carbide on the nose and narrow carbide on the cutting edges of the wings for excellent penetration. Two carbide pieces on the bottom firm the trench for seed placement.

**Fits VOS (Versatile Opener System).** See pages 54-55 for more details.

This tip also fits any holders that use the Paired Row tip **610-TIP-4041**.



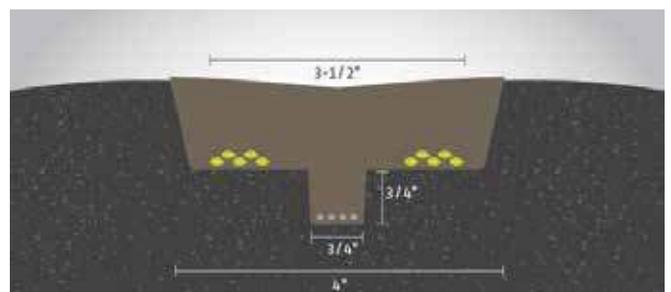
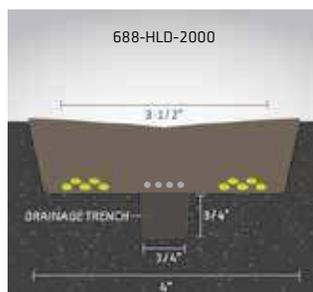
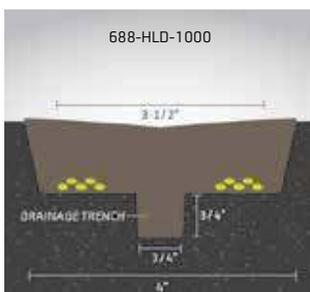
610-TIP-4081 / 610-TIP-4082

CARBIDE TIP

4" (102 mm) cast chrome tip with carbide insert on the nose for excellent penetration and wear resistance. Carbide inserts on the underside of the wing maintain a sharp cutting edge. Carbide inserts at the back of the underside of the wings seals up fertilizer trench prior to seed placement. These Paired Row tips have 3/4" (19 mm) vertical separation of liquid, granular, or NH3 fertilizer.

**610-TIP-4082** has additional carbide along the sides of the fertilizer trench, below the wings, to provide extra-wear life.

**Fits VOS (Versatile Opener System).** See pages 54-55 for more details.



●●●● seed ●●●● fertilizer

Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.

# SIDE BAND TIPS

ALL TIPS ON THIS PAGE USE BOLT & NUT COMBO 200-BNC-3100

(LEFT WING)



**610-TIP-1711 (LEFT WING)**  
**610-TIP-1712 (RIGHT WING)**

**CARBIDE TIP**

Cast chrome tip with carbide inserts on the nose and the wing for excellent penetration and wear resistance.

The seed is placed in a 3/4" (19 mm) band onto a firm, unfractured seedbed. Fertilizer is delivered in a band off to the side (right or left) on the same level as the seedbed.

**Fits VOS (Versatile Opener System).**  
See pages 54-55 for more details.

(LEFT WING)



**612-TIP-0711 (LEFT WING)**  
**612-TIP-0712 (RIGHT WING)**

**CHROME TIP**

Cast chrome tip with carbide inserts on the nose and the wing for excellent penetration and wear resistance.

The seed is placed in a 3/4" (19 mm) band onto a firm, unfractured seedbed. Fertilizer is delivered in a band off to the side (right or left) on the same level as the seedbed.

(LEFT WING)



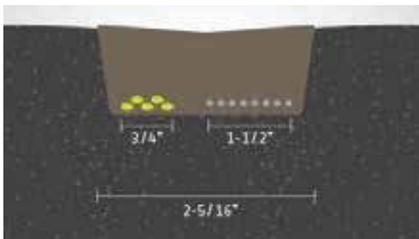
**614-TIP-2711 (LEFT WING)**  
**614-TIP-2712 (RIGHT WING)**

**CARBIDE TIP**

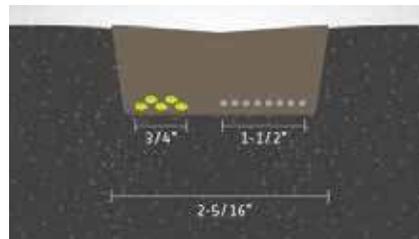
Cast chrome tip with carbide inserts on the nose and the wing for excellent penetration and wear resistance. A carbide wafer on the bottom of the fertilizer trough prevents bottom wear and keeps the fertilizer trench open. A carbide wafer under the wing seals the fertilizer trench, and firms the seed bed prior to seed placement.

The seed is placed in a 1-1/2" (38 mm) band 3/4" (19 mm) above and to the side of the fertilizer row after the fertilizer trench has been sealed and seed bed has been firmed up.

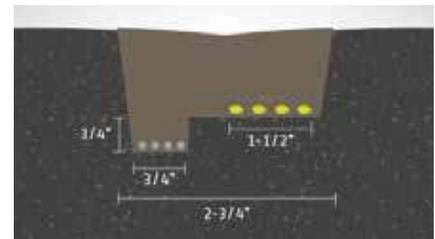
**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMERS SHOULD ORDER HALF LEFT AND HALF RIGHT WING OPENER.**



●●●● seed      ●●●● fertilizer



●●●● seed      ●●●● fertilizer



●●●● seed      ●●●● fertilizer

Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.

# FERTILIZER TIPS

ALL TIPS ON THIS PAGE USE BOLT & NUT COMBO 600-BNC-5000



**600-TIP-7500**

**CHROME TIP**

3/4" (19 mm) chrome tip. This tip fits **410, 599, 600 & 602** Series knife holders.



**600-TIP-7501**

**CARBIDE TIP**

3/4" (19 mm) chrome tip with carbide on the nose. This tip fits **410, 599, 600 & 602** Series knife holders.



**600-TIP-7502**

**CARBIDE TIP**

3/4" (19 mm) chrome tip with extra long carbide on the nose. This tip fits **410, 599, 600 & 602** Series knife holders.



**600-TIP-7507**

**CARBIDE TIP & WING**

3/4" (19 mm) carbide tip and wing for liquid application. This allows vertical and horizontal separation when double-shooting with liquid.

**Only used with 600-KNH-7562.** For more information see page 23.



**600-TIP-3011**

**CARBIDE TIP**

3" (76 mm) chrome tip with extra long carbide on the nose to fracture the ground. Carbide pieces on the underside of the wings to maintain a sharp cutting edge. This tip fits **410, 599, 600 & 602** Series knife holders.



**600-BNC-5000**

**BOLT & NUT COMBO**

This bolt and nut combination is used to secure **600** series tips onto the **410, 599, 600 & 602** Series knife holders. It is recommended the bolt and nut be changed when changing the tip to maintain locking ability of the nut. The nut, **600-NUT-3754**, and bolt, **600-BLT-5004**, can be ordered separately.

# PRECAUTIONS & RISK FACTORS\*

With the development and increased use of multi-shoot knives for one-pass seed and fertilizer placement, the following question is often asked:

## “How much fertilizer can I place with the seed without causing germination problems or seedling damage?”

The answer to this question is very complex. In less than ideal conditions, mixing between seed and fertilizer may occur. **Consider these factors when using any products between pages 32 to 43.**

**FERTILIZER SOURCE:** Depending on the type of fertilizer used, damage can occur either through NH<sub>3</sub> toxicity or salt effects or a combination of both as in the case with blended fertilizer.

**FERTILIZER RATES:** Typically, the risk of crop seedling injury increases with higher rates of fertilizer.

**CROP TYPE:** Crops vary in their ability to tolerate seed-placed fertilizer, with cereals being able to withstand more than oilseeds and pulses falling somewhere in between.

**SEED QUALITY:** With everything else equal, seed with poor vigor will suffer more damage from seed-placed fertilizer than seeds with high vigor. If seed vigor is questionable, have it tested.

**SOIL MOISTURE:** With soil at or near saturation point, the toxic effects of fertilizer are diluted so seeds can germinate and develop with few problems. If conditions are very dry, reduce the amount of fertilizer placed near the seed.

**SOIL TEXTURE:** Fine textured soils such as clay or clay loam tend to also reduce these toxic effects over coarse or sandy soils because of their ability to hold more water and absorb toxic free NH<sub>3</sub>.

**ORGANIC MATTER:** Higher levels of organic matter (OM) in a soil also lessen the risk of damage. For example, reduced levels of OM on dry, eroded hilltops seedlings are more prone to injury.

**SEEDBED UTILIZATION (SBU):** Is the proportion of the seedbed used for seed and fertilizer placement. Ex: 2" openers on 10" row spacing have a SBU of 20%. As SBU increases, the crops tolerance to higher rates of seed-placed fertilizer increases.

**SEEDING DEPTH, PACKING AND SPEED:** These points are also factors to take into consideration as they may compromise seed and fertilizer placement as well as the overall quality of the seeding operation.

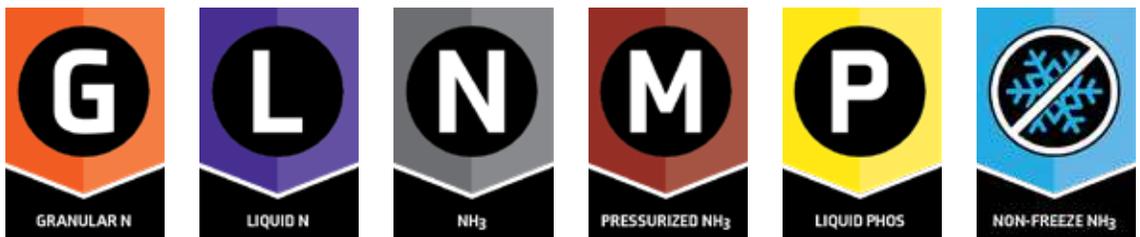
**ADVERSE SEEDING CONDITIONS:** Excessively wet or dry soil at time of seeding can cause erratic seed placement, poor seed-to-soil contact and poor separation, which will also affect the amounts of seed placed fertilizer you can apply.

**EXCESS AIR VOLUME:** Higher air volumes can result in seed and fertilizer being blown out of the trench or mixing of seed and fertilizer in the trench.

**IF ANY OF THE ABOVE CONDITIONS ARE LESS THAN IDEAL, IT IS ADVISABLE TO REDUCE YOUR FERTILIZER RATE ACCORDINGLY.**

\*It is our company's policy not to recommend or endorse specific "safe" rates of fertilizer for multi-shoot openers due to the wide variance in the precautions and risk factors listed above. Most of our knives are tested at independent research facilities to verify only the placement of seed and fertilizer. We suggest that producers consult their local agronomist to establish acceptable fertilizer rates for their unique seeding conditions.

## FERTILIZER TYPES



# **BTT** | *FITS ANY COLOR*

As the direct seeding industry evolves, unique shank styles and configurations are being developed by air drill manufacturers. BTT is dedicated to providing openers to fit these shank designs and configurations. You can be assured that the quality you have come to trust in our products will be available in an opener for your choice of air drill and soil conditions.



# SINGLE SHOOT OPENERS TO FIT C-SHANK



**047-ASY-1000**  
**047-KNH-1000**

**FITS:** 47° and 50° C-Shank

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only

**TUBE SIZE:** 1-1/4" (32 mm) O.D.

**BOLT HOLE SPACING:** N/A

**TIP OPTIONS:** Any 200 Series Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** Seed is delivered through the precision funnel opening. The front delivery provides precise seed delivery and reduces plugging with better soil flow. Extra hard surfacing on critical wear areas increases the life of the holder.

**NOTES:** **Installation bolts sold separately.** **047-ASY-1000** uses Grade 8 carriage bolts. See page 106 for more details. **047-KNH-1000** uses plow bolts. See page 107 for more details.

**047-KNH-1000** is only used directly beside the Bourgault MRBs for improved trash clearance. **Not sold as a complete set, must be ordered separately.**

Customers must look at the machine to determine what quantity of shanks are directly beside the MRBs.

50° shanks require either the **880-WDG-0300** or **880-WDG-0301**. See page 102 for more information.

For an expanded view of this opener see page 112.



**047-ASY-1005P**



**FITS:** 47° and 50° C-Shank

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D.

**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with **880-ASY-1010**. See page 102 for more details.

**BOLT HOLE SPACING:** N/A

**TIP OPTIONS:** Any 200 Series Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** Liquid Phos is delivered onto the seed bed, below the seed. The seed is delivered through the precision funnel opening. Front delivery provides precise seed delivery and reduces plugging with better soil flow. Extra hard surfacing on critical wear areas increases the life of the holder.

**NOTES:** **Installation bolts sold separately.** Use Grade 8 carriage bolts. See page 106 for more details.

50° shanks require either the **880-WDG-0300** or **880-WDG-0301**. See page 102 for more information.

For an expanded view of this opener see page 112.



**047-VRT-1040**

**FITS:** 47° C-Shank

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only

**TUBE SIZE:** 1-1/4" (32 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" (44 mm)

**TIP OPTIONS:** Comes with 1" (25 mm) welded tip with extra carbide for long-lasting wear life.

**OVERVIEW:** The vertical approach of this opener reduces rock pulling and soil throw.

**NOTES:** **Installation bolts sold separately.** Uses plow bolts. See page 107 for more details.



**050-KNH-0812**

**FITS:** 47° and 50° C-Shank

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only

**TUBE SIZE:** 1-1/4" (32 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 - 64 mm) slotted bolt hole spacing provides the ability to fit many different makes and models.

**TIP OPTIONS:** Any 200 Series Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** The rear delivery of this opener provides extra trash clearance.

**NOTES:** **Installation bolts sold separately.** Use Grade 8 Hex Head bolts. See page 110 for more details.

**Due to plugging, this opener is not recommended with the following tips:**

- 200-TIP-0511
- 200-TIP-0800
- 200-TIP-0801
- 200-TIP-0802
- 200-TIP-0803
- 200-TIP-0811



**599-KNH-7540**

**FITS:** 47° C-Shank

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only

**TUBE SIZE:** 1-1/4" (32 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" (44 mm)

**TIP OPTIONS:**

3/4" (19 mm) tips:

- 600-TIP-7500 (cast chrome)
- 600-TIP-7501 (regular carbide)
- 600-TIP-7502 (extra-long nose carbide)

3" (76 mm) tip:

- 600-TIP-3011 (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** This opener is designed for a better fit on the Bourgault Shank. The larger tip provides extra long wear while reducing wear on the holder.

**NOTES:** **Installation bolts sold separately.** Use Grade 8 carriage bolts. See page 110 for more details.



**600-KNH-7540  
600-KNH-7640**

**FITS:** 47° and 50° C-Shank

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only

**TUBE SIZE:** 7540: 1-1/4" (32 mm) O.D., 7640: 1-1/2" (38 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 - 64 mm) slotted bolt hole spacing provides the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- 600-TIP-7500 (cast chrome)
- 600-TIP-7501 (regular carbide)
- 600-TIP-7502 (extra-long nose carbide)

3" (76 mm) tip:

- 600-TIP-3011 (carbide)

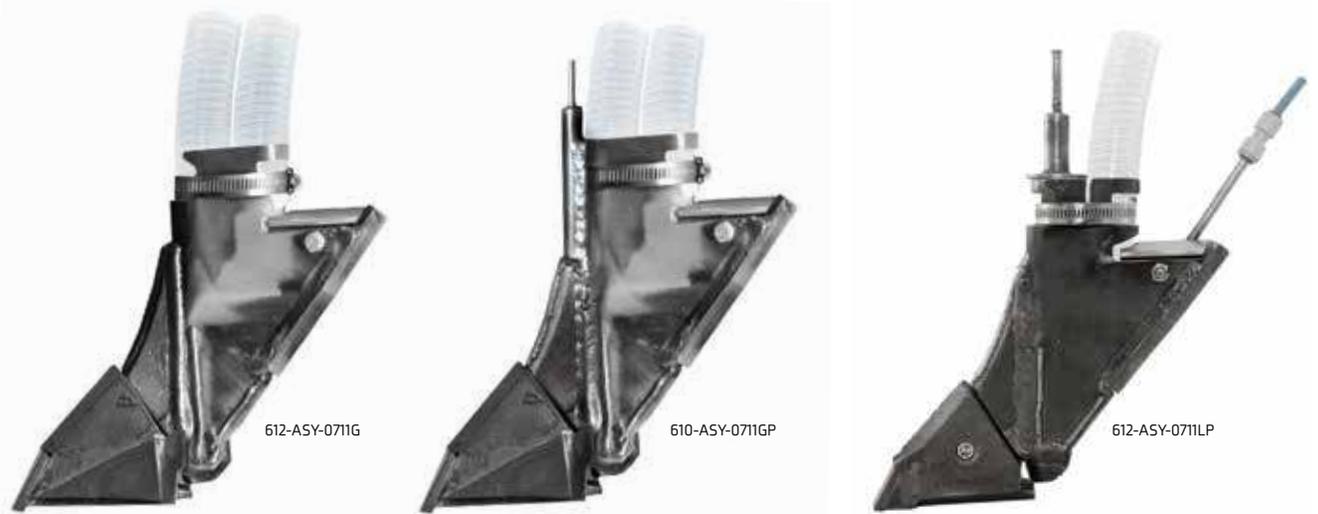
**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** The larger tip on these holders provides extra long wear while reducing wear on the holder.

**410-KNH-7540** is also available to fit the 410 Series *Speed-Loc™*. See page 63 for more details.

**NOTES:** **Installation bolts sold separately.** Use Grade 8 carriage bolts. See page 110 for more details.

# MULTI-SHOOT OPENERS TO FIT C-SHANK



THESE SIDE BAND OPENERS FIT:	<b>G</b> Granular N	<b>G P</b> Granular N + Liquid Phos	<b>L</b> Liquid N	<b>L P</b> Liquid N + Liquid Phos
<b>C-SHANK</b>		<b>610-ASY-0711GP</b> <b>610-ASY-0712GP</b>		<b>610-ASY-0711LP</b> <b>610-ASY-0712LP</b>
<b>C-SHANK</b>	<b>612-ASY-0711G</b> <b>612-ASY-0712G</b>	<b>612-ASY-0711GP</b> <b>612-ASY-0712GP</b>	<b>612-ASY-0711L</b> <b>612-ASY-0712L</b>	<b>612-ASY-0711LP</b> <b>612-ASY-0712LP</b>

**SEED PLACEMENT:** The seed is placed in a 3/4" (19 mm) band onto a firm, unfractured seedbed. The **610 GP & LP** openers deliver the liquid phos **below the seed**. The **612 GP & LP** openers deliver the liquid phos **on top of the seed**.

**FERTILIZER PLACEMENT:** Fertilizer is delivered in a band off to the side (right or left) on the same level as the seed. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions & risk factors on page 16.**

**DISTURBANCE:** Unique design of the tip provides low disturbance, low draft and smoother fields.

**REPLACEABLE TIPS:** Cast chrome tip with carbide inserts on the nose of the tip and the wing for excellent penetration and wear resistance. Narrow carbide cutting edge on the wing for exceptional penetration. **Assemblies on this page include the tip.**

**PACKER RECOMMENDATIONS:** 2-1/4" (57mm) or wider.

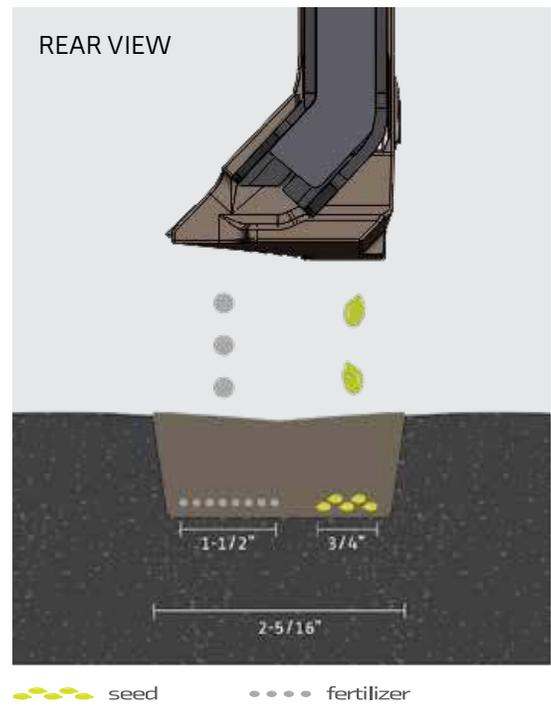
**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder and proper seed placement. The streamlined holder design reduces plugging and allows for better trash clearance. Designed for use with 1-1/4" (32 mm) O.D. hose. Bushings available for smaller hoses.

**NOTES:** **Installation bolts sold separately.** Use Grade 8 carriage bolts. See page 106 for more details.

When installing on 50° shanks other than Bourgault or Ezee-On use wedge **880-WDG-0300** or **880-WDG-0301**. See page 102 for more information.

For an expanded view of these openers see page 114.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMERS SHOULD ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.



610-ASY-2711G



610-ASY-2711LP

THESE SIDE BAND OPENERS FIT:	<b>G</b> Granular N	<b>G P</b> Granular N + Liquid Phos	<b>L</b> Liquid N	<b>L P</b> Liquid N + Liquid Phos
<b>C-SHANK</b>	<b>610-ASY-2711G</b> <b>610-ASY-2712G</b>	<b>610-ASY-2711GP</b> <b>610-ASY-2712GP</b>	<b>610-ASY-2711L</b> <b>610-ASY-2712L</b>	<b>610-ASY-2711LP</b> <b>610-ASY-2712LP</b>

**SEED PLACEMENT:** The seed is placed 3/4" (19 mm) above and to the side of the fertilizer row, after the carbide wafer under the tip's wing seals the fertilizer trench and firms up the seed bed. The GP & LP openers deliver the phos onto the seed bed on top of the seed.

**FERTILIZER PLACEMENT:** Fertilizer is placed in the center 3/4" (19 mm) below the seed bed. The carbide wafer under the wing seals the fertilizer trench before the seed is placed. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions & risk factors on page 16.**

**REPLACEABLE TIP:** Cast chrome tip with extra long carbide inserts on the nose of the tip for excellent penetration and wear resistance. Top face of wing is covered with two carbide inserts providing excellent wear resistance. Carbide wafer under the wing to seal fertilizer trench, and firm the seed bed prior to seed placement. **Assemblies on this page include the tip.**

**PACKER RECOMMENDATION:** 3" (76 mm) or wider. **V-Packer not recommended with these openers.**

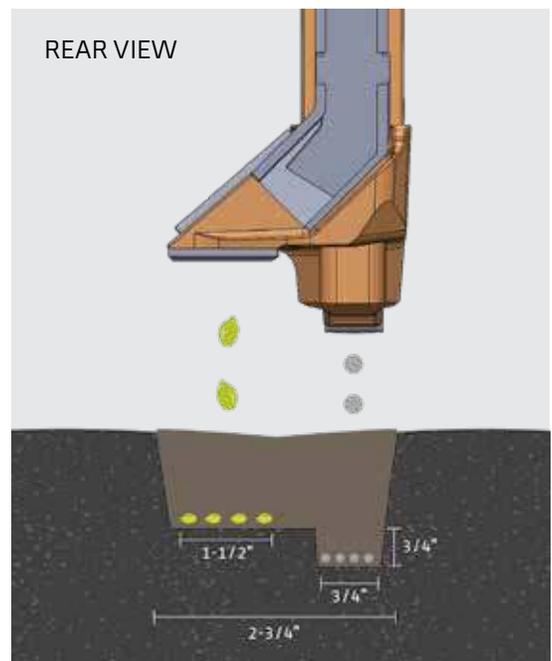
**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder and proper seed placement. The streamlined holder design reduces plugging and allows for better trash clearance. Designed for use with 1-1/4" (32 mm) O.D. hose. Bushings available for smaller hoses.

**NOTES:** **Installation bolts sold separately.** Use Grade 8 carriage bolts. See page 106 for more details.

When installing on 50° shanks other than Bourgault or Ezee-On use wedge **880-WDG-0300** or **880-WDG-0301**. See page 102 for more information.

For an expanded view of these openers see page 116.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMERS SHOULD ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**



●●●● seed      ●●●● fertilizer

Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.

# MULTI-SHOOT OPENERS TO FIT C-SHANK



610-ASY-4020



610-ASY-4026

THESE **PAIRED ROW** OPENERS FIT:



Granular N



Liquid N

**C-SHANK**

**610-ASY-4020**

**610-ASY-4026**

**SEED PLACEMENT:** Seed is directed rearward through the tip which places the seed in two rows onto a firm, unfractured seedbed.

**FERTILIZER PLACEMENT:** Fertilizer is delivered on the same level, between the rows of seed. In less than ideal conditions, mixing between seed and fertilizer may occur.

**For more information please refer to precautions & risk factors on page 16.**

**DISTURBANCE:** Ultra-low draft, low disturbance and smoother fields.

**REPLACEABLE TIP:** Cast chrome tip with carbide inserts on the nose and narrow carbide on the cutting edges of the wings for great penetration. **Assemblies on this page include the tip.**

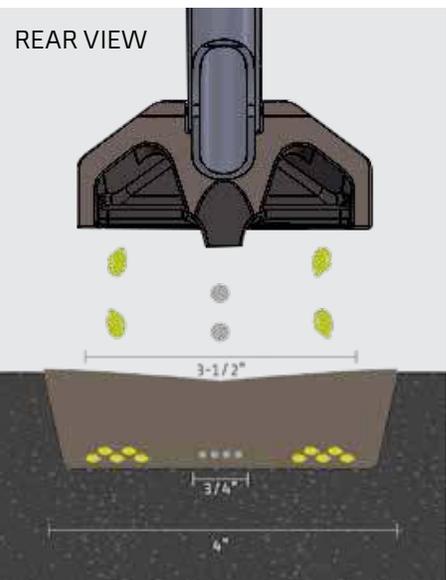
**PACKER RECOMMENDATION:** 4" (102 mm) or wider.

**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder. The streamlined holder design reduces plugging and allows for better trash clearance. Designed for use with 1-1/4" (32 mm) O.D. hose. Bushings available for smaller hoses. These openers provide the flexibility to easily switch between Granular and Liquid fertilizer. The above openers are available with Liquid Phos options. Please call the factory for more information.

**NOTES:** **Installation bolts sold separately.** Use Grade 8 carriage bolts. See page 106 for more details.

When installing on 50° shanks other than Bourgault or Ezee-On use wedge **880-WDG-0300** or **880-WDG-0301**. See page 102 for more information.

For an expanded view of these openers see page 119.



●●●● seed      ●●●● fertilizer

Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.



**600-KNH-7562**



**FITS:** 47° and 50° C-Shank

**FERTILIZER TYPE:** Liquid N

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D.

**Liquid:** 1/4" (6 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:** Used with the replaceable tip **600-TIP-7507**. The high-chrome tip is protected with a carbide insert on the nose and a solid carbide wing. The carbide placement provides sharp cutting edges for excellent penetration. **Tips sold separately.** See page 15 for more details.

**OVERVIEW:** These unique Side Band openers provide good horizontal separation with a slight vertical seed/fertilizer separation. They work well when used with a pressurized liquid system. They are used with a replaceable tip to ensure high-wear points can be replaced at a lower cost.

**NOTES:** **Installation bolts sold separately.** Use 1/2" Hex Head Grade 8 bolts. See page 110 for more details.



**610-HLD-2080**  
SHOWN W/ 610-TIP-4081

**FITS:** 47° and 50° C-Shank

**FERTILIZER TYPE:** Multiple options. See page 54-55 for more details.

**OVERVIEW:** This holder is part of the **VOS (Versatile Opener System)** which gives you the flexibility to choose the right tip and fertilizer tubes for your needs. Shown with **610-TIP-4081** and **880-TUB-1003**.

**NOTES:** **Installation bolts sold separately.** Use Grade 8 carriage bolts. See page 106 for more details.

When installing on 50° shanks other than Bourgault or Ezee-On you will require either the **880-WDG-0300** or **880-WDG-0301**. See page 102 for more information.

**Components sold separately.** See page 54-55 for more details.



**620-HLD-5000**  
SHOWN W/ 620-TIP-0510

**FITS:** 47° and 50° C-Shank

**FERTILIZER TYPE:** Multiple options. See page 51-53 for more details.

**OVERVIEW:** This holder is part of the **Titan Opener System**, an innovative system giving you the most horizontal and vertical seed separation. This system gives you the flexibility to choose the right tip, seed shoe and fertilizer tubes for your needs. Shown with **620-TIP-0510** and **620-SSH-1000**.

**Components sold separately.** See page 51-53 for more details.

**NOTES:** **Installation bolts sold separately.** Use 1/2" x 2-1/4" Hex Head Grade 8 bolts. See page 110 for more details.



680-ASY-1000

**680-ASY-1000**  
**680-HLD-1000 (NO BUSHING)**

### SINGLE SHOOT OPENER

**FITS:** Bourgault PHD

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only

**TUBE SIZE:** 1-1/4" (32 mm) O.D.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** Seed is delivered through the precision funnel opening. Front delivery provides precise seed delivery and reduces plugging with better soil flow. Extra hard surfacing on critical wear areas increases the life of the holder and reduces breakage in rocky conditions.

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details.

When installing use bolt holes pictured in Fig. 1.

For an expanded view of this opener see page 113.

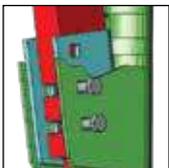


FIG. 1



680-ASY-1000P

**680-ASY-1000P**  
**680-HLD-1000P (NO BUSHING)**



### SINGLE SHOOT OPENER

**FITS:** Bourgault PHD

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D.

**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with **880-ASY-1010**. See page 102 for more details.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** Liquid Phos is delivered onto the seed bed, **below the seed.** Seed is delivered through the precision funnel opening. Front delivery provides precise seed delivery and reduces plugging with better soil flow. Extra hard surfacing on critical wear areas increases the life of the holder and reduces breakage in rocky conditions.

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details.

When installing use bolt holes pictured in Fig. 1.

For an expanded view of this opener see page 113.



680-ASY-0711GP



680-ASY-0711LP

THESE <b>SIDE BAND</b> OPENERS FIT:	<b>G</b> Granular N	<b>G P</b> Granular N + Liquid Phos	<b>L</b> Liquid N	<b>L P</b> Liquid N + Liquid Phos
<b>BOURGAULT PHD</b>	<b>680-ASY-0711G</b> <b>680-ASY-0712G</b>	<b>680-ASY-0711GP</b> <b>680-ASY-0712GP</b>	<b>680-ASY-0711L</b> <b>680-ASY-0712L</b>	<b>680-ASY-0711LP</b> <b>680-ASY-0712LP</b>

**SEED PLACEMENT:** Seed is placed in a 3/4" (19 mm) band onto a firm, unfractured seedbed. The GP & LP openers deliver the liquid phos below the seed.

**FERTILIZER PLACEMENT:** Fertilizer is delivered in a band off to the side (right or left) on the same level as the seed. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions and risk factors on page 16.**

**DISTURBANCE:** Unique design of the tip provides low disturbance, low draft and smoother fields.

**REPLACEABLE TIPS:** Cast chrome tip with carbide inserts on the nose and the wing for excellent penetration and wear resistance. Narrow carbide cutting edge on the wing for exceptional penetration. **Assemblies on this page include the tip.**

**PACKER RECOMMENDATIONS:** 2-1/4" (57mm) or wider.

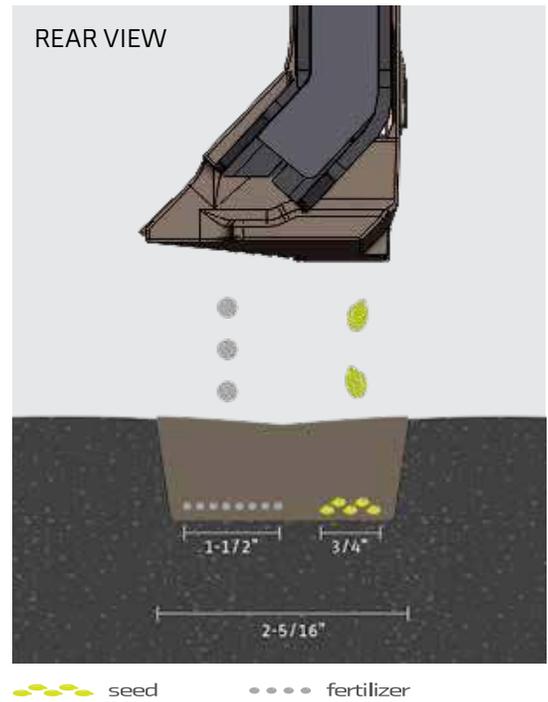
**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder and proper seed placement. The streamlined holder design reduces plugging and allows for better trash clearance.

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details.

When installing use bolt holes pictured in Fig. 1 on page 24.

For an expanded view of these openers see page 114.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMERS SHOULD ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.



680-ASY-2711G



680-ASY-2711LP

THESE SIDE BAND OPENERS FIT:	<b>G</b>	<b>G P</b>	<b>L</b>	<b>L P</b>
	Granular N	Granular N + Liquid Phos	Liquid N	Liquid N + Liquid Phos
<b>BOURGAULT PHD</b>	<b>680-ASY-2711G</b> <b>680-ASY-2712G</b>	<b>680-ASY-2711GP</b> <b>680-ASY-2712GP</b>	<b>680-ASY-2711L</b> <b>680-ASY-2712L</b>	<b>680-ASY-2711LP</b> <b>680-ASY-2712LP</b>

**SEED PLACEMENT:** The seed is placed 3/4" (19 mm) above and to the side of the fertilizer row, after the carbide wafer under the tip's wing seals the fertilizer trench and firms up the seed bed. The GP & LP openers deliver the liquid phos on top of the seed.

**FERTILIZER PLACEMENT:** Fertilizer is placed in the center 3/4" (19 mm) below the seed bed. The carbide wafer under the wing seals the fertilizer trench before the seed is placed. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions & risk factors on page 16.**

**REPLACEABLE TIP:** Cast chrome tip with extra long carbide inserts on the nose of the tip for excellent penetration and wear resistance. Top face of wing is covered with two carbide inserts providing excellent wear resistance. Carbide wafer under the wing to seal fertilizer trench, and firm the seed bed prior to seed placement. **Assemblies on this page include the tip.**

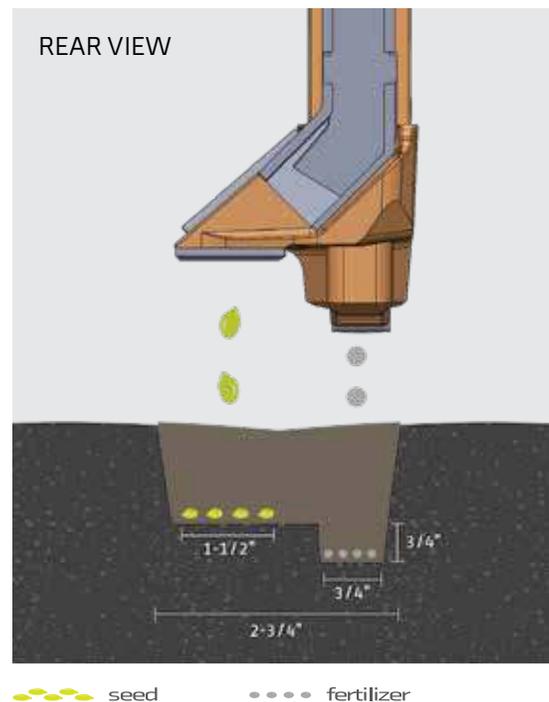
**PACKER RECOMMENDATION:** 4-1/2" (114 mm) Semi-Pneumatic Packer recommended. **V-Packer not recommended with these openers.**

**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder, proper seed placement. The streamlined holder design reduces plugging and allows for better trash clearance.

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details. When installing use bolt holes pictured in Fig. 2 on page 27.

For an expanded view of these openers see page 116.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMER MUST ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.



THESE <b>SIDE BAND</b> OPENERS FIT:	<b>L</b> DOUBLE SHOOT Liquid N	<b>L P</b> TRIPLE SHOOT Liquid N + Liquid Phos
<b>BOURGAULT PHD</b>	<b>682-ASY-2063</b> <b>682-ASY-2064</b>	<b>682-ASY-2063P</b> <b>682-ASY-2064P</b>

**\*For Pressurized NH3 please see your pressurized system dealer for more information on tube sizing and inserts.**

**SEED PLACEMENT:** The slim body provides a low draft and low soil disturbance for better trash clearance, while ensuring great seed placement. The seed is placed in a 3/4" (19mm) band onto a firm, unfractured seedbed.

**TIP:** Cast chrome tip with extra long carbide inserts on the nose of the tip provides excellent penetration and wear resistance. Top face of the wing is covered with two carbide inserts providing excellent wear resistance. The tip is non-replaceable and welded to the seed boot.

**FERTILIZER PLACEMENT:** Liquid N or Pressurized NH3 openers are fitted with a 1/4" (6 mm) OD. stainless steel tube which places fertilizer behind the wing and 1-1/2" outward to the side away from the seed band, providing increased separation of seed and fertilizer. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions & risk factors on page 16.**

**PACKER RECOMMENDATIONS:** 2-1/4" (57 mm) or wider.

**LIQUID PHOS OPTIONS:** The P openers deliver the liquid phos. on top of the seed row. A 1/4" (6mm) stainless steel tube is welded to the back of the seed boot.

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details. When installing on a Bourgaault PHD use bolt holes pictured in Fig. 2

For an expanded view of these openers see page 125.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMER MUST ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**

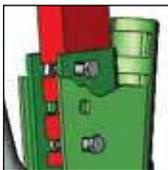


FIG. 2



THESE **PAIRED ROW** OPENERS FIT:



Granular N



Liquid N

**BOURGAULT PHD (EXCEPT XTC)**

**680-ASY-4020\***

**680-ASY-4026\*\***

**SEED PLACEMENT:** Seed is directed rearward through the tip which places the seed in two rows onto a firm, unfractured seedbed.

**FERTILIZER PLACEMENT:** Fertilizer is delivered on the same level, between the rows of seed. In less than ideal conditions, mixing between seed and fertilizer may occur.

**For more information please refer to precautions & risk factors on page 16.**

**DISTURBANCE:** Ultra-low draft, low disturbance and smoother fields.

**REPLACEABLE TIP:** Cast chrome tip with carbide inserts on the nose and narrow carbide on the cutting edges of the wings for great penetration. **Assemblies on this page include the tip.**

**PACKER RECOMMENDATION:** 4" (102 mm) or wider.

**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder. The streamlined holder design reduces plugging and allows for better trash clearance. Designed for use with 1-1/4" (32 mm) O.D. hose. Bushings available for smaller hoses. See page 105 for more information. These openers provide the flexibility to easily switch between Granular and Liquid fertilizer. The above openers are available with Liquid Phos options. Please call the factory for more information.

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details.

**When installing on Bourgault 3310 & 3320 PHD drills** use bolt holes shown in Fig.3.

This opener can be converted to a single shoot opener by using the conversion tab **680-ACC-0004**. See page 102 for more details.

For an expanded view of these openers see page 119.

**\*When installing on a Bourgault 3310 & 3320 PHD Drill spacer 680-ACC-0003 is required. See page 102 for more details.**

**\*\*When installing on a Bourgault 3310 & 3320 PHD Drill spacer 680-ACC-0002 is required. See page 102 for more details.**

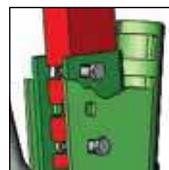
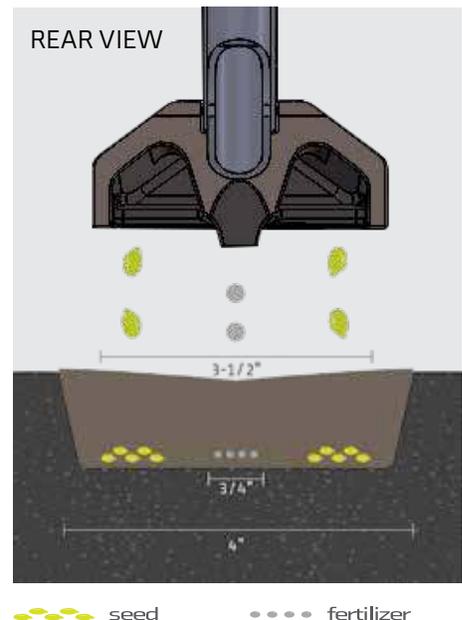


FIG. 3



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.



**673-HLD-2080**  
SHOWN W/ 610-TIP-0802

**FITS:** Bourgault PHD & Morris Edge-On Shank

**FERTILIZER TYPE:** Multiple options. See page 54-55 for more details.

**OVERVIEW:** This holder is part of the **VOS (Versatile Opener System)** which gives you the flexibility to choose the right tip and fertilizer tubes for your needs. **Shown with 610-TIP-0802. Tips sold separately.**

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details.

Use bolt holes shown below in Fig. 4 when installing on Bourgault 3310 & 3320 PHD Drills.

**Components sold separately.** See page 54-55 for more details.

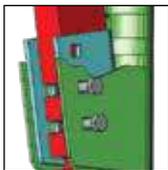


FIG. 4



**628-HLD-5000**  
SHOWN W/ 620-TIP-0510

**FITS:** Bourgault PHD (Except XTC)

**FERTILIZER TYPE:** Multiple options. See page 51-53 for more details.

**OVERVIEW:** This holder is part of the **Titan Opener System**, an innovative system giving you the most horizontal and vertical seed separation. This system gives you the flexibility to choose the right tip, seed shoe and fertilizer tubes for your needs. **Shown with 620-TIP-0510 and 620-SSH-1000. Tips sold separately.**

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details.

**Components sold separately.** See page 51-53 for more details.

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# OPENERS TO FIT CASE IH, NEW HOLLAND & FLEXI-COIL



**684-HLD-2080**  
SHOWN W/ 610-TIP-1711

**FITS:**

- Case IH 800/900
- New Holland P2070/2075
- Flexi-Coil PD5700 & 7200

**FERTILIZER TYPE:** Multiple options. See page 54-55 for more details.

**OVERVIEW:** This holder is part of the **VOS (Versatile Opener System)** which gives you the flexibility to choose the right tip and fertilizer tubes for your needs. **Shown with 610-TIP-1711 and 880-TUB-1003.**

**Components sold separately.** See page 54-55 for more details.

**NOTES: Installation bolts sold separately.** Use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.



**694-HLD-2080**  
SHOWN W/ 610-TIP-4081

**FITS: (84° Shanks Only)**

- Case IH ATX 700
- New Holland P2060
- Flexi-Coil 5500
- Concord

**FERTILIZER TYPE:** Multiple options. See page 54-55 for more details.

**OVERVIEW:** This holder is part of the **VOS (Versatile Opener System)** which gives you the flexibility to choose the right tip and fertilizer tubes for your needs. **Shown with 610-TIP-4081.**

**Components sold separately.** See page 54-55 for more details.

**NOTES: Installation bolts sold separately.** Use 1/2" x 2-1/4" Grade 8 Hex Head bolts. See page 110 for more details.



**694-HLD-5000**  
SHOWN W/ 620-TIP-0510

**FITS: (84° Shanks Only)**

- Case IH ATX 700
- New Holland P2060
- Flexi-Coil 5500
- Concord

**FERTILIZER TYPE:** Multiple options. See page 51-53 for more details.

**OVERVIEW:** This holder is part of the **Titan Opener System**, an innovative system giving you the most horizontal and vertical seed separation. This system gives you the flexibility to choose the right tip, seed shoe and fertilizer tubes for your needs. **Shown with 620-TIP-0510 and 620-SSH-1000.**

**Components sold separately.** See page 51-53 for more details.

**NOTES: Installation bolts sold separately.** Use 1/2" x 2-12" Grade 8 Hex Head bolts. See page 110 for more details.

# OPENERS TO FIT CASE IH, NEW HOLLAND & FLEXI-COIL



694-ASY-0711G



684-ASY-0711L

THESE SIDE BAND OPENERS FIT:	<b>G</b> Granular N	<b>G P</b> Granular N + Liquid Phos	<b>L</b> Liquid N	<b>L P</b> Liquid N + Liquid Phos
<b>CASE IH ATX 700</b>				
<b>NH P2060</b>				
<b>FLEXI-COIL 5500</b>	694-ASY-0711G	694-ASY-0711GP	694-ASY-0711L	694-ASY-0711LP
<b>CONCORD</b> (84° SHANKS ONLY)	694-ASY-0712G	694-ASY-0712GP	694-ASY-0712L	694-ASY-0712LP
<b>CASE IH 800/900</b>				
<b>NH P2070/2075</b>				
<b>FLEXI-COIL PD5700</b>	684-ASY-0711G	684-ASY-0711GP	684-ASY-0711L	684-ASY-0711LP
<b>&amp; 7200</b>	684-ASY-0712G	684-ASY-0712GP	684-ASY-0712L	684-ASY-0712LP

**SEED PLACEMENT:** Seed is placed in a 3/4" (19 mm) band onto a firm, unfractured seedbed. The GP & LP openers deliver the liquid phos on top of the seed.

**FERTILIZER PLACEMENT:** Fertilizer is delivered in a band off to the side (right or left) on the same level as the seed. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions & risk factors on page 16.**

**DISTURBANCE:** Unique design of the tip provides low disturbance, low draft and smoother fields.

**REPLACEABLE TIPS:** Cast chrome tip with carbide inserts on the nose of the tip and the wing for excellent penetration and wear resistance. Narrow carbide cutting edge on the wing for exceptional penetration. **Assemblies on this page include the tip.**

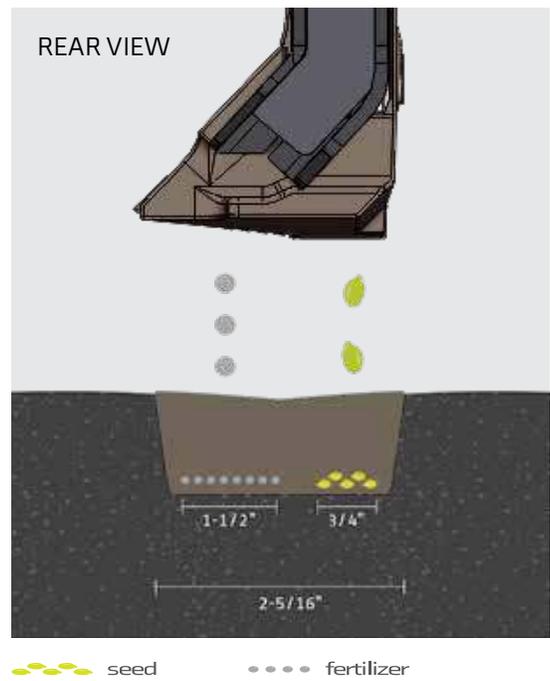
**PACKER RECOMMENDATIONS:** 2-1/4" (57mm) or wider.

**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder and proper seed placement. The streamlined holder design reduces plugging and allows for better trash clearance.

**NOTES:** **Installation bolts sold separately.** **684 openers** use 1/2" x 2" Grade 8 Hex Head bolts. **694 openers** use 1/2" x 2-1/4" Grade 8 Hex Head bolts. See page 110 for more details.

For an expanded view of these openers see page 115.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMER MUST ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.

# OPENERS TO FIT CASE IH, NEW HOLLAND & FLEXI-COIL



694-ASY-2711LP



684-ASY-2711L

THESE SIDE BAND OPENERS FIT:	<b>G</b> Granular N	<b>G P</b> Granular N + Liquid Phos	<b>L</b> Liquid N	<b>L P</b> Liquid N + Liquid Phos
<b>CASE IH ATX 700</b>				
<b>NH P2060</b>				
<b>FLEXI-COIL 5500</b>	<b>694-ASY-2711G</b>	<b>694-ASY-2711GP</b>	<b>694-ASY-2711L</b>	<b>694-ASY-2711LP</b>
<b>CONCORD</b>	<b>694-ASY-2712G</b>	<b>694-ASY-2712GP</b>	<b>694-ASY-2712L</b>	<b>694-ASY-2712LP</b>
(84° SHANKS ONLY)				
<b>CASE IH 800/900</b>				
<b>NH P2070/2075</b>	<b>NOT OFFERED FOR GRANULAR</b>		<b>684-ASY-2711L*</b>	<b>684-ASY-2711LP*</b>
<b>FLEXI-COIL PD5700 &amp; 7200</b>			<b>684-ASY-2712L*</b>	<b>684-ASY-2712LP*</b>

**SEED PLACEMENT:** The seed is placed 3/4" (19 mm) above and to the side of the fertilizer row, after the carbide wafer under the tip's wing seals the fertilizer trench and firms up the seed bed. The GP & LP openers deliver the liquid phos on top of the seed.

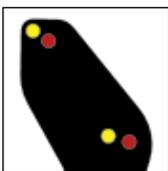
**FERTILIZER PLACEMENT:** Fertilizer is placed in the center 3/4" (19 mm) below the seed bed. The carbide wafer under the wing seals the fertilizer trench before the seed is placed. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions & risk factors on page 16.**

**REPLACEABLE TIP:** Cast chrome tip with extra long carbide inserts on the nose of the tip for excellent penetration and wear resistance. Top face of wing is covered with two carbide inserts providing excellent wear resistance. Carbide wafer under the wing to seal fertilizer trench, and firm the seed bed prior to seed placement. **Assemblies on this page include the tip.**

**PACKER RECOMMENDATION:** 3" (76 mm) or wider. **V-Packer not recommended.**

**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder and proper seed placement. The streamlined holder design reduces plugging and allows for better trash clearance.

**NOTES:** **Installation bolts sold separately.** **684 openers** use 1/2" x 2" Grade 8 Hex Head bolts. **694 openers** use 1/2" x 2-1/4" Grade 8 Hex Head bolts. See page 110 for more details.



\*When installing 684 openers use bottom holes for standard installation (pictured red in Fig. 5). Use top holes to add 3° more pitch (pictured yellow in Fig. 5).

For an expanded view of these openers see page 117.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMER MUST ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**

FIG. 5



694-ASY-4020G



694-ASY-4020L

THESE PAIRED ROW  
OPENERS FIT:



Granular N + Liquid Phos



Liquid N

**CASE IH ATX 700**  
**NH P2060**  
**FLEXI-COIL 5500**  
**CONCORD**  
(84° SHANKS ONLY)

**694-ASY-4020G**

**694-ASY-4020L**

**SEED PLACEMENT:** Seed is directed rearward through the tip which places the seed in two rows onto a firm, unfractured seedbed.

**FERTILIZER PLACEMENT:** Fertilizer is delivered on the same level, between the rows of seed. In less than ideal conditions, mixing between seed and fertilizer may occur.

**For more information please refer to precautions and risk factors on page 16.**

**DISTURBANCE:** Ultra-low draft, low disturbance and smoother fields.

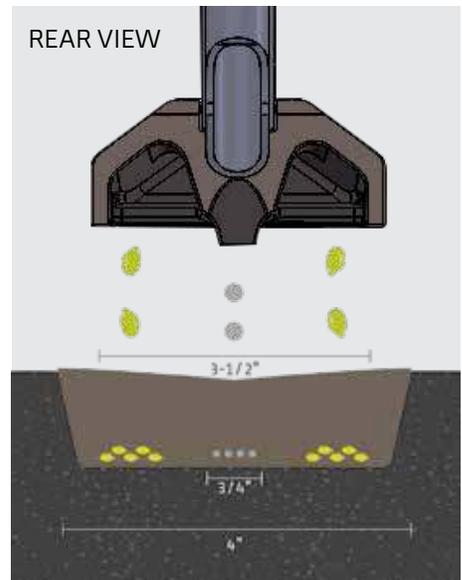
**REPLACEABLE TIP:** Cast chrome tip with carbide inserts on the nose and narrow carbide on the cutting edges of the wings for great penetration. **Assemblies on this page include the tip.**

**PACKER RECOMMENDATION:** 4" (102 mm) or wider.

**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder. The streamlined holder design reduces plugging and allows for better trash clearance. Designed for use with 1-1/4" (32 mm) O.D. hose. These openers provide the flexibility to easily switch between Granular and Liquid fertilizer. The above openers are available with Liquid Phos options. Please call the factory for more information.

**NOTES:** **Installation bolts sold separately.** Use 1/2" x 2-1/4" Grade 8 Hex Head bolts. See page 110 for more details.

For an expanded view of these openers see page 118.



● ● ● ● seed      ● ● ● ● fertilizer

Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.



684-ASY-1000P



694-ASY-1000P

**684-ASY-1000P**  
**684-KNH-1000**



### SINGLE SHOOT OPENER

**FITS:**

- Case IH 800/900
- New Holland P2070/2075
- Flexi-Coil PD5700 & 7200

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D.  
**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with 880-ASY-1010. See page 102 for more details.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** This single shoot opener applies Liquid Phos on top of the seed, the narrow design allows for more accurate seed placement behind the tip. Extra hard surfacing on critical wear areas increases the life of the holder. 684-KNH-1000 is available without the liquid phos tube.

**NOTES:** **Installation bolts sold separately.** Use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

**684-KNH-1010**

### SINGLE SHOOT OPENER

**FITS:**

- Case IH 800/900
- New Holland P2070/2075
- Flexi-Coil PD5700 & 7200

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only

**TUBE SIZE:** 1-1/4" (32 mm) O.D.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** This single shoot opener is designed to clear heavy trash build up, the narrow design allows for more accurate seed placement behind the tip. Extra hard surfacing on critical wear areas increases the life of the holder. This holder has an extra set of bolt holes on the body for deeper seed placement where required.

**NOTES:** **Installation bolts sold separately.** Use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

Standard installation uses the bottom holes (pictured red in Fig. 6). For 1.5" more depth use the top holes (pictured yellow in Fig. 6).

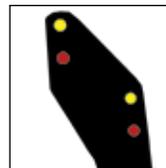


FIG. 6

**694-ASY-1000P**  
**694-KNH-1000**



### SINGLE SHOOT OPENER

**FITS:** (84° Shanks Only)

- Case IH ATX 700
- New Holland P2060
- Flexi-Coil 5500

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D.  
**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with 880-ASY-1010. See page 102 for more details.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** This single shoot opener applies Liquid Phos on top of the seed, the narrow design allows for more accurate seed placement behind the tip. Extra hard surfacing on critical wear areas increases the life of the holder. 694-KNH-1000 is available without the liquid phos tube.

**NOTES:** **Installation bolts sold separately.** Use 1/2" x 2-1/4" Grade 8 Hex Head bolts. See page 110 for more details.

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# DISK BLADES TO FIT YOUR BRAND

A red CNH tractor pulling a large red disk blade implement in a field. The tractor is on the left, and the implement is in the center, kicking up dust. The background shows a clear sky and a field.

CNH

A green John Deere tractor pulling a large green disk blade implement in a field. The tractor is on the right, and the implement is in the center, kicking up dust. The background shows a clear sky and a field.

JOHN DEERE

A red Salford tractor pulling a large red disk blade implement in a field. The tractor is on the right, and the implement is in the center, kicking up dust. The background shows a clear sky and a field.

SALFORD

See pages 96-100 for our full line up and more details.



**688-HLD-1000**

### SINGLE SHOOT OPENER

**FITS:** Horsch 84° Shank

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only

**TUBE SIZE:** 1-1/4" (32 mm) O.D.

**TIP OPTIONS:** Any 200 Series Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** This single shoot opener has a narrow design allowing for more accurate seed placement behind the tip. Extra hard surfacing on critical wear areas increases the life of the holder. This holder comes with a second set of holes allowing you to adjust the pitch by 3° when required.

**NOTES:** **Installation bolts sold separately.** Use M16 x 55 10.9 Hex Head bolts.

**Hose clamps used to secure seed hoses from drill are sold separately.**

Standard installation uses the bottom holes (pictured red in Fig. 7), for 4° more pitch use the top holes (pictured yellow in Fig. 7).

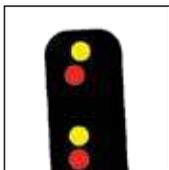


FIG. 7



**688-ASY-4020G**  
**688-ASY-4020L**



### PAIRED ROW OPENER

**FITS:** Horsch 84° Shank

**SEED PLACEMENT:** Seed is directed rearward through the tip which places the seed in two rows onto a firm, unfractured seedbed.

**FERTILIZER PLACEMENT:** Fertilizer is delivered on the same level, between the rows of seed. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions & risk factors on page 16.**

**DISTURBANCE:** Ultra-low draft, low disturbance and smoother fields.

**REPLACEABLE TIP:** Cast chrome tip with carbide inserts on the nose and narrow carbide on the cutting edges of the wings for great penetration. **Assemblies include the tip.**

**PACKER RECOMMENDATION:** 4" (102 mm) or wider.

**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder. The streamlined holder design reduces plugging and allows for better trash clearance. Designed for use with 1-1/4" (32 mm) O.D. hose. These openers provide the flexibility to easily switch between Granular and Liquid fertilizer.

**NOTES:** **Installation bolts sold separately.** Use M16 x 55 10.9 Hex Head bolts. **Hose clamps used to secure seed hoses from drill are sold separately.**

For an expanded view of these openers see page 118.



**688-HLD-5000**

### TITAN OPENER SYSTEM

**FITS:** Horsch 84° Shank

**FERTILIZER TYPE:** Multiple options. See page 51-53 for more details.

**OVERVIEW:** This holder is part of the **Titan Opener System**, an innovative system giving you the most horizontal and vertical seed separation. This system gives you the flexibility to choose the right tip, seed shoe and fertilizer tubes for your needs. **Shown with 620-TIP-0510 and 620-SSH-1000.**

**Components sold separately.** See page 51-53 for more details.

**NOTES:** **Installation bolts sold separately.** Use M16 x 55 10.9 Hex Head bolts.

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**688-HLD-1000 W/ 610-TIP 4030**

**VOS (VERSATILE OPENER SYSTEM)**

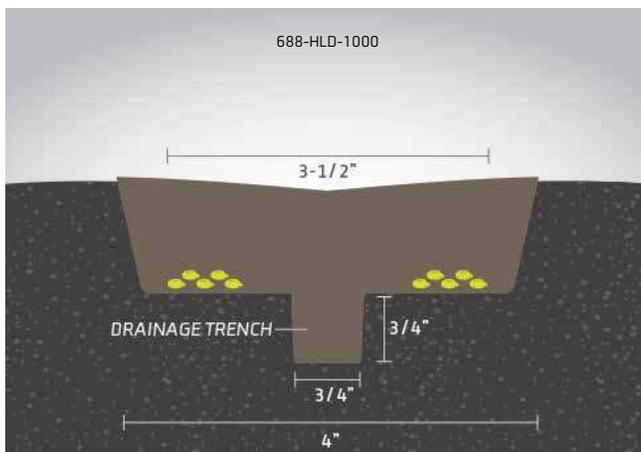
**FITS:** Horsch 84° Shank

**FERTILIZER TYPE:** Multiple options. See page 54-55 for more details.

**OVERVIEW:** This holder is part of the **VOS (Versatile Opener System)** which gives you the flexibility to choose the right tip and fertilizer tubes for your needs. **Shown with 610-TIP-4081.** This holder comes with a second set of holes allowing you to adjust the pitch by 3° when required.

**Components sold separately.** See page 54-55 for more details.

**NOTES:** **Installation bolts sold separately.** Use M16 x 55 10.9 Hex Head bolts. Standard installation uses the bottom holes (pictured red in Fig. 7), for 4° more pitch use the top holes (pictured yellow in Fig. 7).



●●●● seed      ●●●● fertilizer



**688-HLD-2080 W/ 610-TIP 4082**

**VOS (VERSATILE OPENER SYSTEM)**

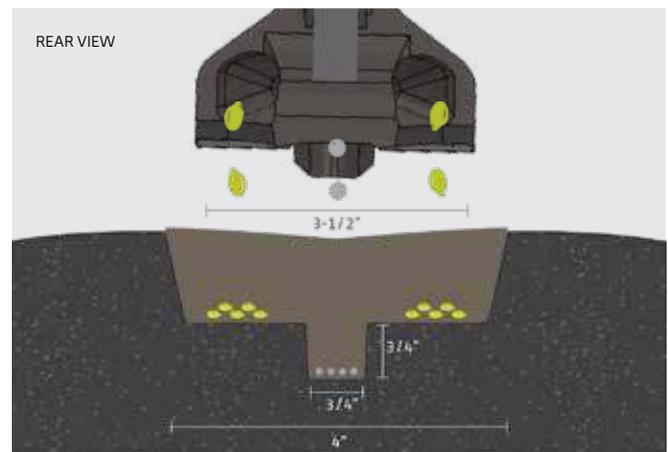
**FITS:** Horsch 84° Shank

**FERTILIZER TYPE:** Multiple options. See page 54-55 for more details.

**OVERVIEW:** This holder is part of the **VOS (Versatile Opener System)** which gives you the flexibility to choose the right tip and fertilizer tubes for your needs. **Shown with 610-TIP-4081.** This holder comes with a second set of holes allowing you to adjust the pitch by 3° when required.

**Components sold separately.** See page 54-55 for more details.

**NOTES:** **Installation bolts sold separately.** Use M16 x 55 10.9 Hex Head bolts. Standard installation uses the bottom holes (pictured red in Fig. 7), for 4° more pitch use the top holes (pictured yellow in Fig. 7).



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.

# OPENERS TO FIT JOHN DEERE



650-ASY-0711  
(LEFT WING SHOWN)



650-ASY-0711  
650-ASY-0712

650-ASY-0711P  
650-ASY-0712P



## SIDE BAND OPENER

**FITS:** John Deere 1870 Conserva Pak

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D.

**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with 880-ASY-1010. See page 102 for more details.

**TIP OPTIONS:** Cast chrome tip with carbide inserts on the nose and the wing for excellent penetration and wear resistance. The seed is placed in a 3/4" (19 mm) band onto a firm, unfractured seed bed. **Assemblies includes the tip.**

**OVERVIEW:** The seed is directed rearward through the holder which places the seed in one row off to the side on a firm, unfractured seed bed. Extra hard surfacing on critical wear areas increases the life of the holder. **For Liquid Phos option order 650-ASY-0711P (left) and 650-ASY-0712P (right).**

**NOTES:** **Installation bolts sold separately.** Use M8x30 Class 10.9 Carriage Head bolts. Must be purchased through your John Deere dealer.

For an expanded view of this opener see page 121.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMER MUST ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**



650-ASY-3011  
650-ASY-3011P



## PAIRED ROW OPENER

**FITS:** John Deere 1870 Conserva Pak

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D.

**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with 880-ASY-1010. See page 102 for more details.

**TIP OPTIONS:** 3" (76 mm) cast chrome tip with carbide insert on the nose to fracture the ground. Carbide inserts on the underside of the wings maintain a sharp cutting edge. **Assembly includes the tip.**

**OVERVIEW:** The seed is directed rearward through the holder which places the seed in two rows onto a firm, unfractured seed bed. Extra hard surfacing on critical wear areas increases the life of the holder. **For Liquid Phos option order 650-ASY-3011P.**

**NOTES:** **Installation bolts sold separately.** Use M8x30 Class 10.9 Carriage Head bolts. Must be purchased through your John Deere dealer.

For an expanded view of this opener see page 121.

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**650-HLD-1000L**

**TUBE SIZE:** 0.25" O.D. stainless steel pipe

**NOTE:** Use with 650-ACC-1000



**650-HLD-1000N**

**TUBE SIZE:** 0.5" O.D. NH3 pipe

**NOTE:** Use with 650-ACC-1000



**650-HLD-1000GL**

**TUBE SIZE:** 0.25" O.D. stainless steel pipe

**NOTE:** Use with 650-ACC-1010



**650-HLD-1000GN**

**TUBE SIZE:** 0.5" O.D. NH3 pipe

**NOTE:** Use with 650-ACC-1010



**650-HLD-1001**

SHOWN WITH 200-TIP-0802

**TUBE SIZE:** 0.4" O.D. stainless steel pipe

**NOTE:** Use with 650-ACC-1000 or 650-ACC-1010.



**650-HLD-1000G**

SHOWN WITH 200-TIP-0802

**NOTE:** Use with 650-ACC-1000



**650-ACC-1000**



**650-ACC-1010**

**NOTE:** Required on units prior to 2017.

## THESE FERTILIZER KNIVES FIT: JD 1870 CONSERVA PAK

### FERTILIZER OPTIONS:

**G** Granular 1-1/4" (32 mm) O.D.

**L** Liquid 1/4" (6 mm) O.D.

**N** NH3 1/2" (12 mm) O.D.

**G L** Granular & Liquid

**G N** Granular & NH3

### TIP OPTIONS:

- 200-TIP-0801
- 200-TIP-0802
- 200-TIP-0803
- 200-TIP-0811

**Tips Sold Separately.** See page 14 for more details.

**OVERVIEW:** Designed to fit the John Deere 1870 Conserva Pak Air-Hoe Drill. The body and fertilizer tubes are narrow with additional hard-surfacing on critical wear areas to increase the life of the holder.

The bracket, **650-ACC-1000** is required on single fertilizer knives and limits the tripping distance of the fertilizer knives. **Bracket sold separately. Mounting bolts included.** See page 120 for more details.

The bracket, **650-ACC-1010** is required for 650-HLD-1000GN and 650-HLD-1000GL. **Bracket sold separately. Mounting bolts included.** See page 120 for more details.

**NOTES:** Use roll pins to install. Must be purchased through your John Deere dealer.

For an expanded view of these openers see page 120.



680-ASY-1000  
680-HLD-1000

680-ASY-1000P  
680-HLD-1000P

## SINGLE SHOOT OPENER

**FITS:** Morris Maxim Edge On

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D.

**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with **880-ASY-1010**. See page 102 for more details.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** Liquid Phos is delivered onto the seed bed, **below the seed**. Seed is delivered through the precision funnel opening. Front delivery provides precise seed delivery and reduces plugging with better soil flow. Extra hard surfacing on critical wear areas increases the life of the holder and reduces breakage in rocky conditions.

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details.

**680-HLD-1000** and **680-HLD-1000P** do not have bushings.

For an expanded view of this opener see page 113.

683-ASY-1000P<sup>1</sup>  
683-KNH-1000<sup>1</sup>

693-ASY-1000P<sup>2,3</sup>  
693-KNH-1000<sup>2,3</sup>

## SINGLE SHOOT OPENER

**FITS:** Morris Contour I, Morris Contour II and Morris Quantum

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D.

**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with **880-ASY-1010**. See page 102 for more details.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** This single shoot opener applies Liquid Phos **on top of the seed**, the narrow design allows for more accurate seed placement behind the tip. Extra hard surfacing on critical wear areas increases the life of the holder. **683-KNH-1000 & 693-KNH-1000** are available without the liquid phos tubes.

**NOTES:** **Installation bolts sold separately.** Use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

<sup>1</sup>Morris Contour I, <sup>2</sup>Morris Contour II, <sup>3</sup>Morris Quantum



THESE SIDE BAND OPENERS FIT:	<b>G</b> Granular N	<b>G P</b> Granular N + Liquid Phos	<b>L</b> Liquid N	<b>L P</b> Liquid N + Liquid Phos
<b>MORRIS MAXIM EDGE ON</b>	680-ASY-0711G 680-ASY-0712G	680-ASY-0711GP 680-ASY-0712GP	680-ASY-0711L 680-ASY-0712L	680-ASY-0711LP 680-ASY-0712LP
<b>MORRIS CONTOUR I</b>	683-ASY-0711G 683-ASY-0712G	683-ASY-0711GP 683-ASY-0712GP	683-ASY-0711L 683-ASY-0712L	683-ASY-0711LP 683-ASY-0712LP
<b>MORRIS CONTOUR II MORRIS QUANTUM</b>	693-ASY-0711G 693-ASY-0712G	693-ASY-0711GP 693-ASY-0712GP	693-ASY-0711L 693-ASY-0712L	693-ASY-0711LP 693-ASY-0712LP

**SEED PLACEMENT:** The seed is placed in a 3/4" (19 mm) band onto a firm, unfractured seedbed. The GP & LP openers deliver the liquid phos on top of the seed.

**FERTILIZER PLACEMENT:** Fertilizer is delivered in a band off to the side (right or left) on the same level as the seed. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions & risk factors on page 16.**

**DISTURBANCE:** Unique design of the tip provides low disturbance, low draft and smoother fields.

**REPLACEABLE TIPS:** Cast chrome tip with carbide inserts on the nose of the tip and the wing for excellent penetration and wear resistance. Narrow carbide cutting edge on the wing for exceptional penetration. **Assemblies on this page include the tip.**

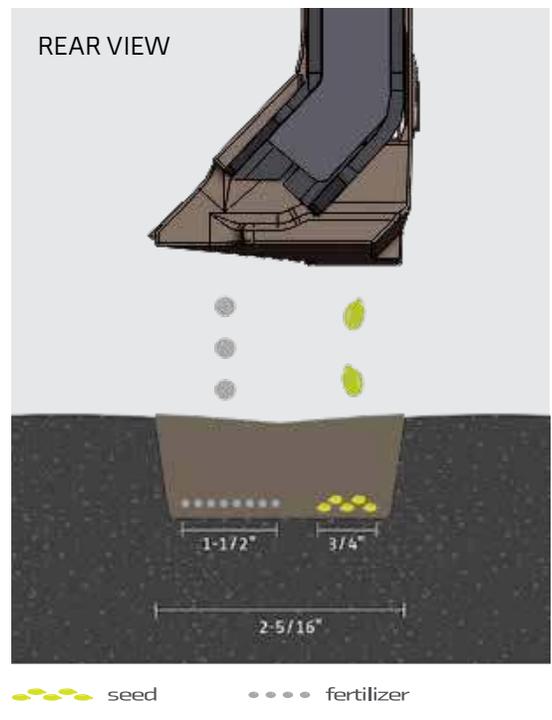
**PACKER RECOMMENDATIONS:** 2-1/4" (57mm) or wider.

**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder and proper seed placement. The streamlined holder design reduces plugging and allows for better trash clearance. Designed for use with 1-1/4" (31 mm) O.D. hose. Bushings available for larger hoses. See page 103 for more information.

**NOTES:** **Installation bolts sold separately.** **680 openers** use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details. **683 & 693 openers** use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

For an expanded view of these openers see page 114-115.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMERS SHOULD ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.

683-ASY-2711G



680-ASY-2711LP



693-ASY-2711LP



THESE SIDE BAND OPENERS FIT:	<b>G</b> Granular N	<b>G P</b> Granular N + Liquid Phos	<b>L</b> Liquid N	<b>L P</b> Liquid N + Liquid Phos
<b>MORRIS MAXIM EDGE ON</b>	680-ASY-2711G 680-ASY-2712G	680-ASY-2711GP 680-ASY-2712GP	680-ASY-2711L 680-ASY-2712L	680-ASY-2711LP 680-ASY-2712LP
<b>MORRIS CONTOUR I</b>	683-ASY-2711G 683-ASY-2712G	683-ASY-2711GP 683-ASY-2712GP	683-ASY-2711L 683-ASY-2712L	683-ASY-2711LP 683-ASY-2712LP
<b>MORRIS CONTOUR II</b>	693-ASY-2711G	693-ASY-2711GP	693-ASY-2711L	693-ASY-2711LP
<b>MORRIS QUANTUM</b>	693-ASY-2712G	693-ASY-2712GP	693-ASY-2712L	693-ASY-2712LP

**SEED PLACEMENT:** The seed is placed 3/4" (19 mm) above and to the side of the fertilizer row, after the carbide wafer under the tip's wing seals the fertilizer trench and firms up the seed bed. The GP & LP openers deliver the liquid phos on top of the seed.

**FERTILIZER PLACEMENT:** Fertilizer is placed in the center 3/4" (19 mm) below the seed bed. The carbide wafer under the wing seals the fertilizer trench before the seed is placed. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions and risk factors on page 16.**

**REPLACEABLE TIP:** Cast chrome tip with extra long carbide inserts on the nose of the tip for excellent penetration and wear resistance. Top face of wing is covered with two carbide inserts providing excellent wear resistance. Carbide wafer under the wing to seal fertilizer trench, and firm the seed bed prior to seed placement. **Assemblies on this page include the tip.**

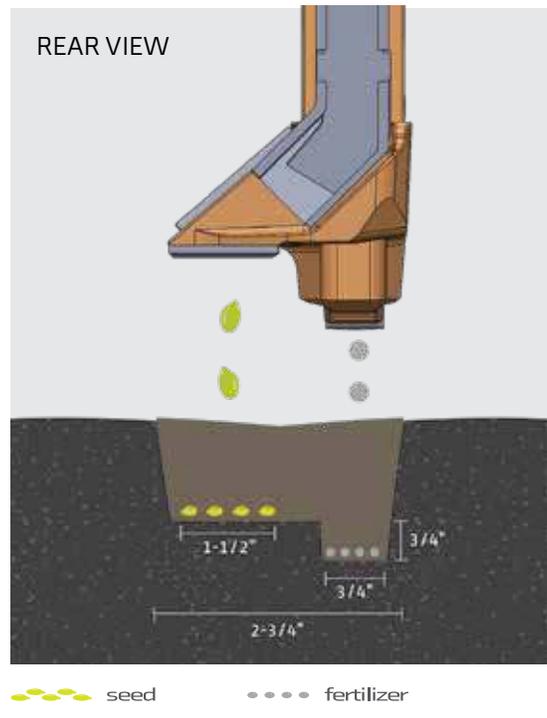
**PACKER RECOMMENDATION:** 3" (76 mm) or wider. **V-Packer not recommended.**

**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder and proper seed placement. The streamlined holder design reduces plugging and allows for better trash clearance. Designed for use with 1-1/4" (31 mm) O.D. hose. Bushings available for larger hoses. See page 103 for more information.

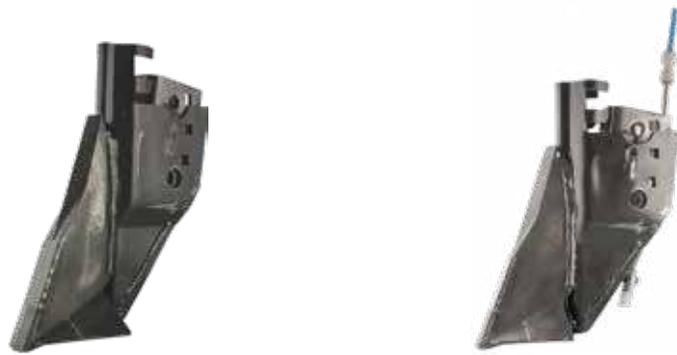
**NOTES:** **Installation bolts sold separately.** **680 openers** use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details. **683 & 693 openers** use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

For an expanded view of these openers see page 116-117.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMERS SHOULD ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.



THESE <b>SIDE BAND</b> OPENERS FIT:	<b>L</b> DOUBLE SHOOT Liquid N	<b>L P</b> TRIPLE SHOOT Liquid N + Liquid Phos
<b>MORRIS MAXIM EDGE ON</b>	<b>682-ASY-2063</b> <b>682-ASY-2064</b>	<b>682-ASY-2063P</b> <b>682-ASY-2064P</b>

**\*For Pressurized NH3 please see your pressurized system dealer for more information on tube sizing and inserts.**

**SEED PLACEMENT:** The slim body provides a low draft and low soil disturbance for better trash clearance, while ensuring great seed placement. The seed is placed in a 3/4" (19mm) band onto a firm, unfractured seedbed.

**TIP:** Cast chrome tip with extra long carbide inserts on the nose of the tip provides excellent penetration and wear resistance. Top face of the wing is covered with two carbide inserts providing excellent wear resistance. The tip is non-replaceable and welded to the seed boot.

**FERTILIZER PLACEMENT:** Liquid N or Pressurized NH3 openers are fitted with a 1/4" (6 mm) OD. stainless steel tube which places fertilizer behind the wing and 1-1/2" outward to the side away from the seed band, providing increased separation of seed and fertilizer. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions and risk factors on page 16.**

**LIQUID PHOS OPTIONS:** The P openers deliver the liquid phos. on top of the seed row. A 1/4" (6mm) stainless steel tube is welded to the back of the seed boot.

**PACKER RECOMMENDATIONS:** 2-1/4" (57 mm) or wider.

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details. For an expanded view of these openers see page 125.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMER MUST ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**



680-ASY-4020



683-ASY-4020G



693-ASY-4020L

THESE **PAIRED ROW**  
OPENERS FIT:



Granular N



Liquid N

**MORRIS MAXIM EDGE ON**

**680-ASY-4020**

**680-ASY-4026**

**MORRIS CONTOUR I**

**683-ASY-4020G**

**683-ASY-4020L**

**MORRIS CONTOUR II**

**693-ASY-4020G**

**693-ASY-4020L**

**SEED PLACEMENT:** Seed is directed rearward through the tip which places the seed in two rows onto a firm, unfractured seedbed.

**FERTILIZER PLACEMENT:** Fertilizer is delivered on the same level, between the rows of seed. In less than ideal conditions, mixing between seed and fertilizer may occur.

**For more information please refer to precautions & risk factors on page 16.**

**DISTURBANCE:** Ultra-low draft, low disturbance and smoother fields.

**REPLACEABLE TIP:** Cast chrome tip with carbide inserts on the nose and narrow carbide on the cutting edges of the wings for great penetration. **Assemblies on this page include the tip.**

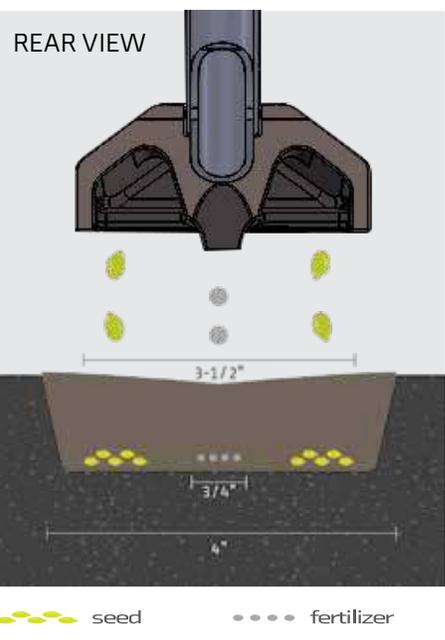
**PACKER RECOMMENDATION:** 4" (102 mm) or wider.

**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder. The streamlined holder design reduces plugging and allows for better trash clearance. Designed for use with 1-1/4" (32 mm) O.D. hose. Bushings available for larger hoses. These openers provide the flexibility to easily switch between Granular and Liquid fertilizer. The above openers are available with Liquid Phos options.

**Please call the factory for more information.**

**NOTES:** **Installation bolts sold separately.** **680 openers** use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details. **683 & 693 openers** use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

For an expanded view of these openers see page 118-119.



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.



673-HLD-2080



683-HLD-2080



693-HLD-2080



**673-HLD-2080**  
SHOWN W/ 610-TIP-1711

**FITS:** Morris Maxim Edge On

**FERTILIZER TYPE:** Multiple options.  
See page 54-55 for more details.

**OVERVIEW:** This holder is part of the **VOS (Versatile Opener System)** which gives you the flexibility to choose the right tip and fertilizer tubes for your needs. **Shown with 610-TIP-1711 and 880-TUB-1003.**

**Components sold separately.** See page 54-55 for more details.

**NOTES:** **Installation bolts sold separately.** Use 3/8" x 2-1/4" Grade 8 carriage bolts. See page 106 for more details.

**683-HLD-2080<sup>1</sup> | 693-HLD-2080<sup>2,3</sup>**  
SHOWN W/ 610-TIP-4081

**FITS:** Morris Contour I, Morris Contour II & Morris Quantum

**FERTILIZER TYPE:** Multiple options.  
See page 54-55 for more details.

**OVERVIEW:** This holder is part of the **VOS (Versatile Opener System)** which gives you the flexibility to choose the right tip and fertilizer tubes for your needs. **Shown with 610-TIP-4081.**

**Components sold separately.** See page 54-55 for more details.

**NOTES:** **Installation bolts sold separately.** Use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

<sup>1</sup>Morris Contour I

<sup>2</sup>Morris Contour II

<sup>3</sup>Morris Quantum

**628-HLD-5000**  
SHOWN W/ 620-TIP-0510

**FITS:** Morris Maxim Edge On

**FERTILIZER TYPE:** Multiple options.  
See page 51-53 for more details.

**OVERVIEW:** This holder is part of the **Titan Opener System**, an innovative system giving you the most horizontal and vertical seed separation. This system gives you the flexibility to choose the right tip, seed shoe and fertilizer tubes for your needs. **Shown with 620-TIP-0510 and 620-SSH-1000.**

**Components sold separately.** See page 51-53 for more details.

**NOTES:** Use bolt and nut combo 620-BNC-3100 (5/16" x 1-1/2") to install shoe to the holder. **Included with holder.**

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# FERTILIZER KNIVES TO FIT **SALFORD**



## THESE FERTILIZER KNIVES FIT: **SALFORD** **INDEPENDENT SERIES**

### FERTILIZER OPTIONS:

**G** Granular 1-1/2" (38 mm) O.D.

**L** Liquid 1/4" (6 mm) O.D.

**N** NH3 1/2" (12 mm) O.D.

**N** Non-Freeze NH3 1/2" (12 mm) O.D.

### TIP OPTIONS:

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** Body and fertilizer tubes are narrow with additional hard-surfacing on critical wear areas to increase the life of the holder. Designed for use with Granular N, Liquid N, NH3 or Non-Freeze NH3.

**NON-FREEZE VERSION:** NH3 is delivered through a nylon insert, insulating the NH3 from the knife. This prevents the moist soil from freezing up and building up on the knife keeping it narrow to reduce disturbance with minimal gassing off. NH3 tube size is 1/2" (12 mm) O.D. and is designed to work with Cold Flow NH3 units.

**RANGE OF ADJUSTMENT:** This opener features adjustment holes that allow you to adjust the height of the opener by 1.375" (35 mm).



**670-HLD-1000G**

SHOWN WITH 600-TIP-7501



**670-HLD-1000**



**670-HLD-1000L**



**670-ASY-7523**

SHOWN WITH 600-TIP-7502



**670-HLD-1000N**

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686-HLD-1010GN



686-HLD-1020G



686-HLD-1020L



686-HLD-1020N



686-HLD-1010GL

SHOWN WITH 200-TIP-0802

## THESE FERTILIZER KNIVES FIT: VÄDERSTAD SEED HAWK

### FERTILIZER OPTIONS:

**G** Granular 1-1/4" (32 mm) O.D.

**L** Liquid 1/4" (6 mm) O.D.

**N** NH3 1/2" (12 mm) O.D.

**G L** Granular & Liquid

**G N** Granular & NH3

### TIP OPTIONS:

- 200-TIP-0511
- 200-TIP-0801
- 200-TIP-0802
- 200-TIP-0803
- 200-TIP-0811

**Tips Sold Separately.** See page 10 for more details.

**OVERVIEW:** Body and fertilizer tubes are narrow with additional hard-surfacing on critical wear areas to increase the life of the holder.

**686-HLD-1020** holders are dedicated to one fertilizer product only.

**686-HLD-1010** holders will apply granular plus Liquid N or NH3.

**NOTES:** **Installation bolts sold separately.** Use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

For an expanded view of these openers see page 122.

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686-KNH-1001



**686-KNH-1001**  
**686-KNH-1001P**



## SINGLE SHOOT OPENER

**FITS:** Väderstad Seed Hawk

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Seed Tube:** 1-1/4" (32 mm) O.D.

**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with **880-ASY-1010**. See page 102 for more details.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions.

**Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** The seed shank is offset to the fertilizer shank. **686-KNH-1001** is available without the liquid phos tube. **686-KNH-1001P** is a single shoot opener that applies Liquid Phos **on top of the seed**. The narrow design of these openers allow for more accurate seed placement behind the tip.

**NOTES: Installation bolts sold separately.** Use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

For an expanded view of this opener see page 123.



**686-ASY-1711 & 1712**  
**686-ASY-1711P & 1712P**



## SIDE BAND OPENER

**FITS:** Väderstad Seed Hawk

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Seed Tube:** 1-1/4" (32 mm) O.D.

**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with **880-ASY-1010**. See page 102 for more details.

**TIP OPTIONS:** Cast chrome tip with carbide inserts on the nose and the wing for excellent penetration and wear resistance. **Assemblies includes the tip.**

**OVERVIEW:** The seed shank is in-line with the fertilizer shank. Extra hard surfacing on critical wear areas increases the life of the holder. For Liquid Phos option order **686-ASY-1711P & 686-ASY-1712P**.

**NOTES: Installation bolts sold separately.** Use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

For an expanded view of this opener see page 123.



**686-ASY-3500**  
**686-ASY-3500P**



## PAIRED ROW OPENER

**FITS:** Väderstad Seed Hawk

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only + Liquid Phos or just Liquid Phos

**TUBE SIZE:**

**Seed Tube:** 1-1/4" (32 mm) O.D.

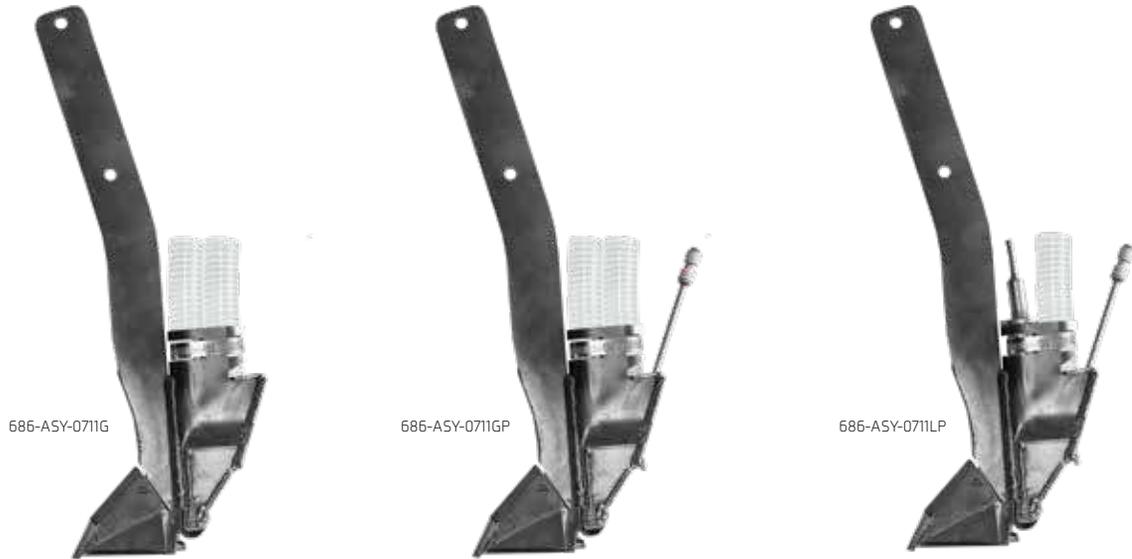
**Liquid Phos:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with **880-ASY-1010**. See page 102 for more details.

**TIP OPTIONS:** 3" (76 mm) cast chrome tip with carbide insert on the nose to fracture the ground. Carbide inserts on the underside of the wings maintain a sharp cutting edge. **Assembly includes the tip.**

**OVERVIEW:** The seed shank is in-line with the fertilizer shank. Extra hard surfacing on critical wear areas increases the life of the holder. For Liquid Phos option order **686-ASY-3500P**.

**NOTES: Installation bolts sold separately.** Use 1/2" x 2" Grade 8 Hex Head bolts. See page 110 for more details.

For an expanded view of this opener see page 123.



THESE SIDE BAND OPENERS FIT:	<b>G</b> Granular N	<b>G P</b> Granular N + Liquid Phos	<b>L</b> Liquid N	<b>L P</b> Liquid N + Liquid Phos
<b>VÄDERSTAD SEED HAWK</b>	<b>686-ASY-0711G</b> <b>686-ASY-0712G</b>	<b>686-ASY-0711GP</b> <b>686-ASY-0712GP</b>	<b>686-ASY-0711L</b> <b>686-ASY-0712L</b>	<b>686-ASY-0711LP</b> <b>686-ASY-0712LP</b>

**SEED PLACEMENT:** The seed is placed in a 3/4" (19 mm) band onto a firm, unfractured seedbed. The GP & LP openers deliver the liquid phos on top of the seed.

**FERTILIZER PLACEMENT:** Fertilizer is delivered in a band off to the side (right or left) on the same level as the seed. In less than ideal conditions, mixing between seed and fertilizer may occur. **For more information please refer to precautions & risk factors on page 16.**

**DISTURBANCE:** Unique design of the tip provides low disturbance, low draft and smoother fields.

**REPLACEABLE TIPS:** Cast chrome tip with carbide inserts on the nose of the tip and the wing for excellent penetration and wear resistance. Narrow carbide cutting edge on the wing for exceptional penetration. Assemblies on this page include the tip.

**PACKER RECOMMENDATIONS:** 2-1/4" (57 mm) or wider.

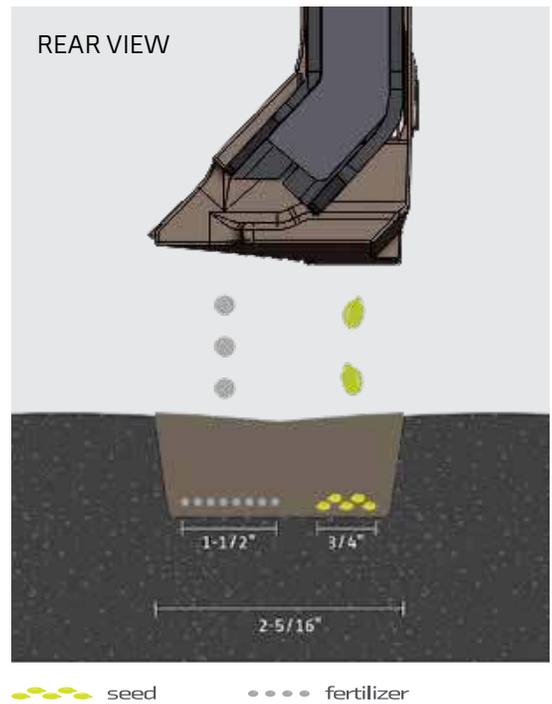
**OPENER FEATURES:** Hard facing is placed on critical wear points to ensure a long-lasting holder and proper seed placement. The streamlined holder design reduces plugging and allows for better trash clearance.

**INSTALLATION NOTE:** Use 1/2" x 2" Grade 8 Hex Head bolts to install these openers. Sold separately. See page 110 for more details.

When installing you must remove both the seed and fertilizer shanks and install the opener on the front mount (fertilizer shank).

For an expanded view of these openers see page 115.

**ALL WINGS ON SIDE BAND OPENERS MUST BE POINTING INWARD TO THE CENTER OF THE SEEDING UNIT TO PREVENT PLUGGING WHEN TURNING. CUSTOMERS SHOULD ORDER HALF LEFT AND HALF RIGHT WING OPENERS.**



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.

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# OPENERS TO FIT **SEED MASTER**



**689-KNH-1001**

## SINGLE SHOOT OPENER

**FITS:** Seed Master

**FERTILIZER TYPE:** Starter Fertilizer w/ Seed Only

**TUBE SIZE:** 1-1/4" (32 mm) O.D. and 1/2" (12 mm) O.D.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** The narrow design allows for more accurate seed placement behind the tip. Extra hard surfacing on critical wear areas increases the life of the holder.

**NOTES:** Use 3/8" lock nut and 3/8" x 1-1/2" Grade 8 Carriage bolts to install these openers. **Included with holder.** See page 110 for more details.



689-HLD-1000GN



689-HLD-1000N



689-HLD-1000G



689-HLD-1000GL



689-HLD-1000L

689-HLD-1000G **G**  
 689-HLD-1000L **L**  
 689-HLD-1000N **N**

689-HLD-1000GL **G L**  
 689-HLD-1000GN **G N**

## FERTILIZER KNIVES

**FITS:** Seed Master

**FERTILIZER TYPES:** Granular N, NH<sub>3</sub>, Liquid N, Granular N + NH<sub>3</sub> and Granular + Liquid N

**TUBE SIZE:** 1-1/4" (32 mm) O.D. Granular, 1/2" (12 mm) NH<sub>3</sub> Tube, 1/4" (6 mm) O.D. stainless steel Liquid Tube.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions. **Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** These fertilizer knives are narrow with additional hard-surfacing on critical wear areas to increase the life of the holder.

**NOTES:** Use 3/8" lock nut and 3/8" x 1-3/4" Grade 8 Carriage bolts to install these openers. **Included with holder.** See page 110 for more details.

For an expanded view of these openers see page 124.

# TITAN OPENER SYSTEM

## HORIZONTAL & VERTICAL SEED/FERTILIZER SEPARATION

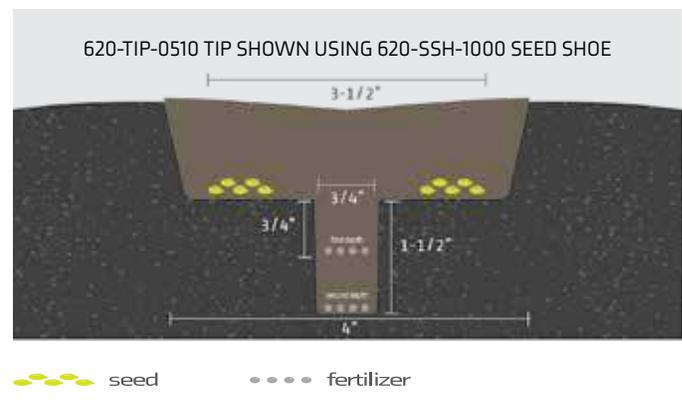
The Titan series provides both horizontal and the most vertical separation between seed and fertilizer. This system can be customized to fit your needs. **For a more in depth look at the customizations offered visit [tillagetools.com](http://tillagetools.com) and use the Titan Series Customizer.**

For an expanded view of these openers see page 126-127.



### THE TITAN SERIES ALSO OFFERS:

- 1/2" wide fertilizer knife for lower disturbance and more precise fertilizer placement.
- Adjustable seed boot providing you the flexibility to set the depth of the fertilizer from 3/4" to 1-1/2".
- Three strategic carbide locations for additional wear life. Hard facing is placed on key wear points that don't have carbide.
- Modular design allowing for replacement of worn parts instead of the entire opener.



Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.

# MULTI-SHOOT SEEDING: TITAN OPENER SYSTEM

## 1 CHOOSE YOUR HOLDER



**620-HLD-5000**

**FITS:** 47° and 50° c-shank



**628-HLD-5000**

**FITS:** Morris Maxim Edge On & Bourgault PHD Shanks



**688-HLD-5000**

**FITS:** Horsch 84° shank (see note on page 126).



**694-HLD-5000\***

**FITS:** Case IH ATX 700, NH P2060, Flexi-Coil 5500 & Concord Edge On (84° shanks ONLY)

## 2 CHOOSE YOUR SEED SHOE



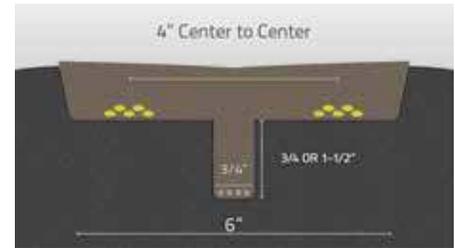
**620-SSH-1000\*\***

4" outside to outside (2-3/4" center to center) seed spread is placed above the center placed fertilizer trench.



**620-SSH-4000\*\***

6" outside to outside (4" center to center) seed spread is placed above the center placed fertilizer trench.



**620-SSH-6000\*\***

8" outside to outside (6" center to center) seed spread is placed above the center placed fertilizer trench.



**628-SBT-2000**

2" wide seed spread is placed above the center placed fertilizer trench.



## 3 CHOOSE YOUR TIP



**620-TIP-0510**

Standard tip for **620, 688 & 694** holders. Carbide inserts are placed on the nose. Hard facing is placed on critical wear points for extended life of the tip.



**620-TIP-0517\*\***

This tip is the same as **620-TIP-0510** but is 3/4" longer giving you more vertical separation.



**628-TIP-0510**

Only fits the **628** holder. Carbide inserts are placed on the nose. Hard facing is placed on critical wear points for extended life of the tip.



**628-TIP-0512**

Only fits the **628** holder. This tip has extra long nose carbide inserts and is 1" longer than **628-TIP-0510**.



**620-TIP-4060 TRIPLE SHOOT UNIBODY TIP + SEED SHOE**

This unibody Tip/Seed Shoe fits the **620, 688 & 694** holders. Extra-long carbide inserts are placed on the nose of the tip. The nose carbides have a continuous roofed profile, producing exceptional soil flow with minimal disturbance. The seed is placed in a distinct 4" paired row, 2-3/4" center to center. The seed is deposited prior to the Aqua NH3 + Liquid Phos being placed 3/4" deeper, between the seed rows. The tip helps prevent skewing on hill sides. The shoe portion is 4" wide, with carbide fully covering the leading edges.

**NOTE:** This tip replaces the standard tip, seed shoe, fertilizer tube combinations, and is to be used with **620, 688 & 694** holders.



FRONT VIEW

REAR VIEW



●●●● seed      ●●●● fertilizer

Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.

## 4 CHOOSE YOUR FERTILIZER

**N** **620-TUB-1021**

1/2" (12 mm) O.D. NH3 tube for **620, 688 & 694** holders. For pressurized NH3 order this tube and consult your pressurized system dealer for tubing inserts.

**N P** **620-TUB-1070**

1/4" (6 mm) O.D. Aqua NH3 + Phos tube for **620, 688 & 694** series holders.

**N P** **620-TUB-1070XL**

Same as **620-TUB-1070**, but needed when using **620-TIP-0517**.

**N L** **620-TUB-4000**

0.4" O.D. Stainless Steel Liquid or NH3 tube for **620, 688 & 694** series holders.

**N L** **620-TUB-4000XL**

Same as **620-TUB-4000**, but needed when using **620-TIP-0517**.

**N P** **620-TUB-4040**

0.4" O.D. Stainless Steel Aqua NH3 + Phos tube for **620, 688 & 694** series holders.

**N** **628-TUB-1021**

1/2" (12 mm) O.D. NH3 tube for **628** holders. For pressurized NH3 order this tube and consult your pressurized system dealer for tubing inserts.

### NOTES:

\* When installing on units other than Concord, the insert **694-ACC-1000** is needed. See page 102 for more information.

\*\* When installing tip, use 200-BNC-3100. When using these Seed Shoes with **620-TIP-0517**, you must use the bottom setting on the holder. Fertilizer is placed at 1-1/2" at this setting.

For a more detailed view of these components see pages 126-127.

# MULTI-SHOOT SEEDING: VOS (Versatile Opener System)

## 1 CHOOSE YOUR HOLDER



**610-HLD-2080**

**FITS:** C-Shank

When installing on a 50° shank other than Bourgault or Ezee-On use wedge **880-WDG-0300** or **880-WDG-0301**. See page 106 for more information.



**673-HLD-2080**

**FITS:** Edge On, Bourgault PHD, Morris Maxim Edge On

When installing on Bourgault PHD, this holder is only recommended for use with 3/4" single shoot tip **610-TIP-0802**.



**683-HLD-2080**

**FITS:** Morris Contour I



**693-HLD-2080**

**FITS:** Morris Contour II & Morris Quantum

## 2 CHOOSE YOUR TIP



**610-TIP-0802**

### SINGLE SHOOT TIP

**OVERVIEW:** 3/4" (19 mm) long-wearing single shoot tip with long carbide insert on the nose for highly abrasive conditions.

**PACKER RECOMMENDATION:** 3/4" (19 mm) or wider.

**FERTILIZER OPTIONS:** Used for seeding only.



**610-TIP-1711 (LEFT) 1712 (RIGHT)**

### SIDE BAND TIPS

**OVERVIEW:** The seed is placed in a 3/4" (19 mm) band onto a firm, unfractured seedbed. Fertilizer is delivered in a band off to the side (right or left) on the same level as the seedbed.

**PACKER RECOMMENDATION:** 2-1/4" (57 mm) or wider.

**FERTILIZER OPTIONS:** Granular or Liquid



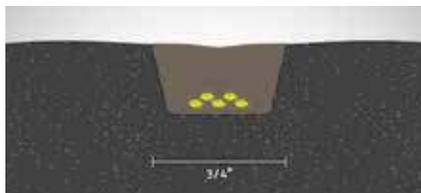
**610-TIP-3500**

### PAIRED ROW TIP

**OVERVIEW:** 3-1/2" (89 mm) Paired Row liquid double shoot tip with 3/4" horizontal and no vertical seed/fertilizer separation.

**PACKER RECOMMENDATION:** 3-1/2" (88.9 mm) or wider.

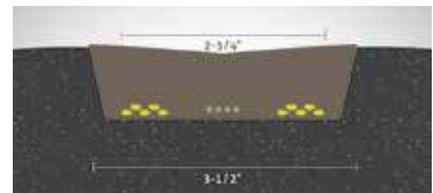
**FERTILIZER OPTIONS:** Liquid



seed



seed fertilizer



seed fertilizer

Drawings for illustration purposes only. All measurements shown are approximate. Results may vary with multiple factors including soil conditions, ground speed, application rates, fan speeds and more. In less than ideal conditions, mixing between seed and fertilizer may occur. For more information please refer to precautions and risk factors on page 16.

# MULTI-SHOOT SEEDING: VOS (Versatile Opener System)



**684-HLD-2080**

**FITS:** Case IH 800/900, New Holland P2070/2075, Flexi-Coil PD5700 & 7200

Use bottom holes when mounting for use with **0802, 1711, 1712 & 3500** tips. To make this opener 3/4" deeper use top holes when installing the holder.



**694-HLD-2080**

**FITS:** Case IH ATX 700, New Holland P2060, Flexi-Coil 5500 & Concord Edge On

**(84° SHANKS ONLY)**



**688-HLD-2080**

**FITS:** Horsch 84° Shank

Use the bottom two holes when installing this holder for standard installation. To add 4° more pitch, use the top two holes on the holder.



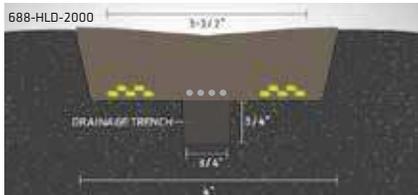
**610-TIP-4030**

## PAIRED ROW TIP

**OVERVIEW:** 4" (102 mm) Paired Row tip with extra long nose carbide and narrow carbide on the cutting edges of the wings. Two carbide inserts under the wings firm up the trench prior to seed placement. **Not recommended for use on Case IH 800/900 or NH P2070.**

**PACKER RECOMMENDATION:** 4" (102 mm) or wider.

**FERTILIZER OPTIONS:** Used for seeding only.



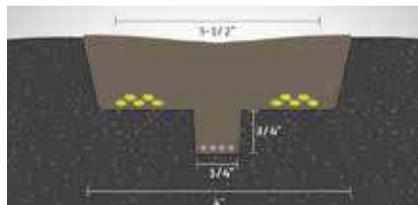
**610-TIP-4081 & 610-TIP-4082**

## PAIRED ROW TIP

**OVERVIEW:** 4" (102 mm) Paired Row tip with horizontal and 3/4" (19 mm) vertical seed/fertilizer separation. Extra long nose carbide, narrow carbide on the cutting edges of the wings and under the wing to seal the fertilizer trench, and firm up the seed bed prior to seed placement. **610-TIP-4082** has additional carbide along the sides of the fertilizer trench, below the wings, to provide extra-wear life. **Not recommended for use on Case IH 800/900 or NH P2070.**

**PACKER RECOMMENDATION:** 4" (102 mm) or wider.

**FERTILIZER OPTIONS:** Granular, Liquid, NH3 or NH3 + Phos.



## 3 CHOOSE YOUR FERTILIZER

### **N** 880-TUB-1001\*

**PRECISION DRILLS NH3**  
1/2" (12 mm) O.D. Stainless Tube

### **N** 880-TUB-1002\*

**C-SHANK DRILLS NH3**  
1/2" (12 mm) O.D. Stainless Tube



### **L** 880-TUB-1003

**PRECISION DRILLS LIQUID**  
1/4" (6 mm) O.D. Stainless Tube

### **L** 880-TUB-1004

**C-SHANK DRILLS LIQUID**  
1/4" (6 mm) O.D. STAINLESS TUBE



### **N L** 880-TUB-1009

**PRECISION DRILLS LIQUID OR NH3**  
3/8" (10 mm) O.D. Stainless Tube

### **N L** 880-TUB-1010

**C-SHANK DRILLS LIQUID OR NH3**  
3/8" (10 mm) O.D. Stainless Tube



### **N P** 880-TUB-1011

**PRECISION DRILLS AQUA NH3 + PHOS**  
1/4" (6 mm) O.D. Stainless Tube

### **N P** 880-TUB-1012

**C-SHANK DRILLS AQUA NH3 + PHOS**  
1/4" (6 mm) O.D. Stainless Tube



**NOTE:** All tubes come with bushings as pictured above.

\*For pressurized NH3 order NH3 tube and consult your pressurized system dealer for tubing inserts. For an expanded view of these openers see pages 128-129.



**200-KNF-7501**

**SINGLE SHOOT OPENER**

**FITS:** 200 Series *Speed-Loc™*

**FERTILIZER TYPE:** N/A

**TUBE SIZE:** N/A

**TIP OPTIONS:** The high-chrome welded tip has a carbide insert on the nose for a sharp cutting edge and extra wear life.

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** This opener is designed for use with the Technotill System.

200-KNF-0811



**200-KNF-0810**  
**200-KNF-0811 (CARBIDE)**

**SINGLE SHOOT OPENER**

**FITS:** 200 Series *Speed-Loc™*

**FERTILIZER TYPE:** N/A

**TUBE SIZE:** N/A

**TIP OPTIONS:** 3/4" (19 mm) weld-on tip available **with carbide (200-KNF-0811)**, or **without carbide (200-KNF-0810)**.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This low disturbance opener is low in draft and provides easy pulling. It is designed to work with **300-ATM-1035 of the Seed Boot System**.

For more information on the Seed Boot System see pages 60-61.



**200-KNF-0813**

**SINGLE SHOOT OPENER**

**FITS:** 200 Series *Speed-Loc™*

**FERTILIZER TYPE:** N/A

**TUBE SIZE:** N/A

**TIP OPTIONS:** 3/4" (19 mm) weld-on tip with extra-long nose carbide for long-lasting wear life.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** The more vertical approach of this opener reduces rock pulling. It is designed to work with **300-ATM-1035 of the Seed Boot System**.

For more information on the Seed Boot System see pages 60-61.

410-KNF-0800



**410-KNF-0800**  
**410-KNF-0801 (CARBIDE)**

**SINGLE SHOOT OPENER**

**FITS:** 410 Series *Speed-Loc™*

**FERTILIZER TYPE:** N/A

**TUBE SIZE:** N/A

**TIP OPTIONS:** 3/4" (19 mm) weld-on tip available **with carbide (410-KNF-0801)**, or **without carbide (410-KNF-0800)**.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This low disturbance opener is low in draft and provides easy pulling. It is designed to work with **300-ATM-1031 of the Seed Boot System**. For more information on the Seed Boot System see pages 60-61.



**200-VRT-1000**

**SINGLE SHOOT OPENER**

**FITS:** 200 Series *Speed-Loc™*

**FERTILIZER TYPE:** N/A

**TUBE SIZE:** N/A

**TIP OPTIONS:** 1" (25 mm) weld-on tip with nose carbide provides long-lasting wear life.

**INSTALLATION DRIVER:** 200-DRV-1030

**OVERVIEW:** The vertical approach of this opener reduces rock pulling. It is designed to work with **300-ATM-1031 of the Seed Boot System**. For more information on the Seed Boot System see pages 60-61.



**410-VRT-1000**

**SINGLE SHOOT OPENER**

**FITS:** 410 Series *Speed-Loc™*

**FERTILIZER TYPE:** N/A

**TUBE SIZE:** N/A

**TIP OPTIONS:** 1" (25 mm) weld-on tip with nose carbide provides long-lasting wear life.

**INSTALLATION DRIVER:** 200-DRV-1030

**OVERVIEW:** The vertical approach of this opener reduces rock pulling. It is designed to work with **300-ATM-1031 of the Seed Boot System**. For more information on the Seed Boot System see pages 60-61.

200-KNF-7511



**200-KNF-7510**  
**200-KNF-7511 (CARBIDE)**  
**200-ASY-7511P (CARBIDE)**

**P****SINGLE SHOOT OPENER****FITS:** 200 Series *Speed-Loc™***FERTILIZER TYPE:** Liquid Phos

**TUBE SIZE:** 3/16" (5 mm) O.D. This can be converted to work with 1/4" (6 mm) I.D. delivery hoses with **880-ASY-1010**. See page 102 for more details.

**TIP OPTIONS:** 3/4" (19 mm) weld-on tip available **with carbide (200-KNF-7511)**, or **without carbide (200-KNF-7510)**.

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** Precise seed placement due to the funnel being close to the tip and to the bottom of the furrow. The funnel is reinforced with hard surfacing for longer wear life. The funnel fits Bourgault and Flexi-Coil square tube seed boots. Also works with the square tube seed boot of the **Seed Boot System**. For more information on the Seed Boot System see pages 60-61.

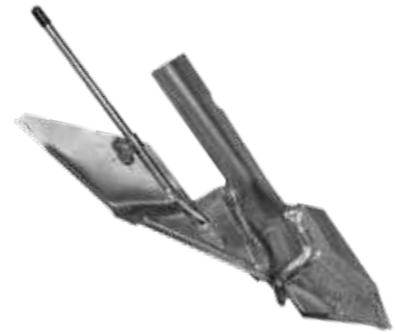
This opener is also available with a liquid phos tube: **200-ASY-7511P**.

**200-KNF-7512****SINGLE SHOOT OPENER****FITS:** 200 Series *Speed-Loc™***FERTILIZER TYPE:** N/A**TUBE SIZE:** N/A

**TIP OPTIONS:** The high-chrome welded tip has a carbide insert on the nose for a sharp cutting edge and extra wear life.

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** This funnel is reinforced with hard surfacing for longer wear life. It works with the square tube seed boot of the **Seed Boot System**. It also fits the Bourgault or Flexi-Coil square tube seed boot. For more information on the Seed Boot System see pages 60-61.

**200-KNF-0863****L****MULTI SHOOT OPENER****FITS:** 200 Series *Speed-Loc™***FERTILIZER TYPE:** Liquid N**TUBE SIZE:** 1/4" (6 mm) O.D.

**TIP OPTIONS:** The welded high-chrome tip is protected with a carbide insert on the nose and a solid carbide wing. The carbide placement provides sharp cutting edges for excellent penetration.

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** This is the only multi-shoot opener available for use with the *Speed-Loc™* system. It provides all of the benefits of the *Speed-Loc™* System with the seed placement you trust. This unique side band opener provides good horizontal separation with a slight vertical seed/fertilizer separation. These openers work very well when used with a pressurized liquid system.

**Proper Installation & Removal of Speed-Loc™ Products**

To ensure proper installation of *Speed-Loc™* products, the appropriate driver should be used. The correct drivers are listed above with each product. For a full chart of all drivers see page 79.



200-REL-1010

The Speed Release tool must be used when removing openers, sweeps & spikes from the *Speed-Loc™* Adapters. For more information see page 79.



**200-KNH-4010**

**SINGLE SHOOT OPENER**

**FITS:** 200 Series Speed-Loc™

**FERTILIZER TYPE:** N/A

**TUBE SIZE:** N/A

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions.

**Tips sold separately.** See page 10-11 for more details.

**INSTALLATION DRIVER:** Depends on tip used. See page 79 for more details.

**OVERVIEW:** This funnel is reinforced with hard surfacing for longer wear life. This opener works with the square tube seed boot of the **Seed Boot System**. It also fits the Bourgault or Flexi-Coil square tube seed boot.

For more information on the Seed Boot System see pages 60-61.



**200-KNH-4000**

**SINGLE SHOOT OPENER**

**FITS:** 200 Series Speed-Loc™

**FERTILIZER TYPE:** N/A

**TUBE SIZE:** N/A

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions.

**Tips sold separately.** See page 10-11 for more details.

**INSTALLATION DRIVER:** Depends on tip used. See page 79 for more details.

**OVERVIEW:** This opener is designed to work with **300-ATM-1035 of the Seed Boot System**.

For more information on the Seed Boot System see pages 60-61.



**410-HLD-7500**

**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** N/A

**TUBE SIZE:** N/A

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This knife is to be used in conjunction with **300-ATM-1031 of the Seed Boot System**.

For more information on the Seed Boot System see pages 60-61.

**Proper Installation & Removal of Speed-Loc™ Products**



To ensure proper installation of Speed-Loc™ products, use the appropriate driver listed with each product.

For a chart of all drivers see page 79.



200-REL-1010

The Speed Release tool must be used when removing openers, sweeps & spikes from the Speed-Loc™ Adapters.

For more information see page 79.

**200-HOE-1700****SINGLE SHOOT OPENER****FITS:** 200 Series Speed-Loc™**FERTILIZER TYPE:** N/A**TUBE SIZE:** N/A**TIP OPTIONS:** Long-wearing welded high-chrome tip.**INSTALLATION DRIVER:** 100-DRV-1020

**OVERVIEW:** This opener runs through the ground at a fairly vertical angle to provide less rock pulling. Provides 1-1/2" to 1-3/4" (38mm – 44 mm) seed spread. Works best with the 1" (25 mm) single tube seed boot.

For more information on the Seed Boot System see pages 60-61.

**200-KNF-7542****SINGLE SHOOT OPENER****FITS:** 200 Series Speed-Loc™**FERTILIZER TYPE:** Granular**TUBE SIZE:** 1-1/4" (32 mm) O.D.**TIP OPTIONS:** The high-chrome welded tip is long lasting and provides excellent penetration.**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** This single shoot opener is perfect for heavy gumbo soils. The extra space between the tip and tube reduce plugging.

**200-VRT-1040****SINGLE SHOOT OPENER****FITS:** 200 Series Speed-Loc™**FERTILIZER TYPE:** Granular**TUBE SIZE:** 1-1/4" (32 mm) O.D.**TIP OPTIONS:** 1" (25 mm) welded on tip with nose carbide for long-lasting wear life and excellent penetration.**INSTALLATION DRIVER:** 200-DRV-1030

**OVERVIEW:** The vertical approach of this opener reduces rock pulling and soil throw.

**200-SPN-0200  
200-SPN-0208****SINGLE SHOOT OPENER****FITS:** 200 Series Speed-Loc™**FERTILIZER TYPE:** N/A**TUBE SIZE:** N/A**TIP OPTIONS:** N/A**INSTALLATION DRIVER:** 400-DRV-1000

**OVERVIEW:** These spoons have a 2" (51 mm) spread. Available in 1/4" (6 mm) material (**200-SPN-0200**) or 5/16" (8 mm) material for increased wear life (**200-SPN-0208**).

**200-SPN-0300  
200-SPN-0308****SINGLE SHOOT OPENER****FITS:** 200 Series Speed-Loc™**FERTILIZER TYPE:** N/A**TUBE SIZE:** N/A**TIP OPTIONS:** N/A**INSTALLATION DRIVER:** 400-DRV-1000

**OVERVIEW:** These spoons have a 2" (51 mm) or 3" (76 mm) spread. Available in 1/4" (6 mm) material (**200-SPN-0300**) or 5/16" (8 mm) material for increased wear life (**200-SPN-0308**).

**410-SPN-0300  
410-SPN-0308****SINGLE SHOOT OPENER****FITS:** 410 Series Speed-Loc™**FERTILIZER TYPE:** N/A**TUBE SIZE:** N/A**TIP OPTIONS:** N/A**INSTALLATION DRIVER:** 400-DRV-1000

**OVERVIEW:** These spoons have a 3" (76 mm) spread. Available in 1/4" (6 mm) material (**410-SPN-0300**) or 5/16" (8 mm) material for increased wear life (**410-SPN-0308**).

# SEED BOOT SYSTEM

## QUICK CHANGE SEED BOOT SYSTEM MATCHES SEED SPREAD TO OPENER WIDTH

The quick change seed boot system consists of two parts: the seed boot holder which bolts on to the back of the shank and the seed boot attachment which fits into the holder and is secured with a nut and bolt.

There are seven different interchangeable attachments to choose from, each giving a different seed spread pattern. This system allows you to match your seed spread to the width of opener you are using. It is perfect for producers who want to switch back and forth from a wide seed spread behind a sweep to a narrow seed band behind a knife.



### SEED BOOT HOLDER



**300-HLD-4700**

This holder has 1-3/4" (45 mm) bolt hole spacing. The bolt hole section is designed flat to fit the Bourgault and Ezee-On 47° shanks. Use a hose clamp to secure the air hose into the seed boot holder.



**300-HLD-4710**

This holder has 1-3/4" (45 mm) bolt hole spacing. The bolt hole section is curved to fit all 47° shanks except the Bourgault and Ezee-On. Use self tapping screw **911-SCR-1051** to secure the air hose into the seed boot holder.



**300-HLD-5000**

This holder has 2-1/4" (57 mm) bolt hole spacing. The bolt hole section is flat and has two sets of holes. The top set of holes should be used in almost all cases when mounting this holder to the shank. It fits on the Bourgault chisel plow shanks as well as the LH755 shank used on the Morris Magnum III and the Morris Concept 2000. Use self tapping screw **911-SCR-1051** to secure the air hose into the seed boot holder.



**300-HLD-5010**

This holder has 2-1/4" (57 mm) bolt hole spacing. The bolt hole section is curved to fit any chisel plow shank except the Bourgault and the Morris LH755 shank. Use a hose clamp to secure the air hose into the seed boot holder.

#### NOTES:

- All holders on this page only accept 1-1/8" (29 mm) O.D. hose.
- Bushing **300-BSH-1200** is required for 1-1/4" (32 mm) O.D. hose. See page 103 for more details.
- A self-tapping screw **911-SCR-1051** should be used to hold the air hose or the bushing into the seed boot holder. A 3/8" (9mm) screw **911-SCR-1038** is also available to secure the air hose into the top of the bushing.

## SEED BOOT ATTACHMENTS



### 300-ATM-1000

This spreader attachment will distribute the seed evenly in a 3" to 4" (76 mm to 102 mm) band. Seed spread may vary depending on sweep size, soil type and fan speed.



### 300-ATM-1006

This spreader attachment will distribute the seed evenly in a 6" (152 mm) row. Seed spread may vary depending on sweep size, soil type and fan speed.

**Works well for organic operations because of the wide seed spread.**



### 300-ATM-1010

This splitter attachment will place the seed into two distinct rows approximately 6" (152 mm) apart. Seed spread may vary depending on sweep size, soil type and fan speed.



### 300-ATM-1020

This straight attachment will spread the seed approximately 2-1/2" (63 mm). It works well with the quick change spoons, spikes or any size of sweep.

600-NUT-3754



300-BLT-4414

### 300-BNC-4414

This bolt and nut secure the quick change seed boot attachments into the holders.

## SEED BOOT ATTACHMENTS



### 300-ATM-1031

This knife attachment will place the seed in a very narrow band.

It is designed to be used behind:

- 200-VRT-1000
- 410-VRT-1000
- 410-KNF-0800
- 410-KNF-0801



### 300-ATM-1035

This knife attachment will place the seed in a very narrow band.

It is designed to be used behind:

- 200-KNF-0810
- 200-KNF-0811
- 200-KNF-0813
- 200-KNH-4000



### 300-ATM-1036

This knife attachment will place the seed in a band. There is hard facing on the side and the slot is wider than the 300-ATM-1035. It is designed to be used behind 200-KNF-0815.

Designed for use in Europe.



### 300-SQR-1500

Both square tube seed boots have a slotted top hole to fit 1-3/4" to 2-1/4" (45 to 57 mm) bolt spacing. It accepts 1-1/4" (32 mm) O.D. air hose.

The 300-SQR-1500 seed boot is designed to fit curved bottom shanks. The 300-SQR-1505 seed boot is designed to fit flat bottom shanks.



### 300-SQR-1505

# FERTILIZER KNIVES

We understand the importance of your fertilizer operation and that you depend on your opener to get it done right. That is why we have designed a full line of fertilizer knives that are durable and stand up to most every condition.

## FERTILIZER TYPES





410-KNF-7540



**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** Granular

**TUBE SIZE:** 1-1/4" (32 mm) O.D.

**TIP OPTIONS:** 3/4" (19 mm) weld on tip with nose carbide for long-lasting wear life and excellent penetration.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** The weld on tip makes this opener better in rocky conditions.

**This knife can be converted to 1-1/2" (38 mm) O.D. pipe.** Please call the factory for more details.



410-KNH-7540



**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** Granular

**TUBE SIZE:** 1-1/4" (32 mm) O.D. For different hose sizes a bushing may be used. See page 103 for bushing options.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This fertilizer knife is designed for use with Granular fertilizer. It gives you the flexibility of using a replaceable tip allowing you to choose the right tip for your conditions.



200-KNH-4020



**FITS:** 200 Series Speed-Loc™

**FERTILIZER TYPE:** Cold Flow NH3

**TUBE SIZE:** 1/2" (12 mm) O.D.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions.

**Tips sold separately.** See page 10-11 for more details.

**INSTALLATION DRIVER:** Depends on tip used. See page 79 for more details.

**OVERVIEW:** This fertilizer knife is only recommended on light duty units with light trips. **Not recommended for rocky areas.** It is designed for use with Cold Flow NH3 kits.

**This knife can be converted to a pressurized NH3 or liquid system.** Please call the factory for more details.

## Proper Installation & Removal of Speed-Loc™ Products



To ensure proper installation of Speed-Loc™ products, use the appropriate driver listed with each product.

For a chart of all drivers see page 79.



200-REL-1010

The Speed Release tool must be used when removing openers, sweeps & spikes from the Speed-Loc™ Adapters.

For more information see page 79.

200-KNF-7521



200-KNF-7525



410-KNF-0826



**200-KNF-7520**  
**200-KNF-7521 (CARBIDE)**



**200-KNF-7524**  
**200-KNF-7525 (CARBIDE)**



**410-KNF-0824**  
**410-KNF-0825 (CARBIDE)**  
**410-KNF-0826 (CARBIDE)**



**FITS:** 200 Series *Speed-Loc™*

**FERTILIZER TYPE:** Cold Flow NH<sub>3</sub>

**TUBE SIZE:** 1/2" (12 mm) O.D.

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip available **with carbide (200-KNF-7521)** which provides extra wear life and better penetration, or **without carbide (200-KNF-7520)**.

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** The shorter tube length on this knife makes it better for cultivators and chisel plows. The welded tip is better for rocky conditions.

**Can be converted to a pressurized NH<sub>3</sub> or liquid system.** Please call the factory for more details.

**FITS:** 200 Series *Speed-Loc™*

**FERTILIZER TYPE:** Cold Flow NH<sub>3</sub>

**TUBE SIZE:** 1/2" (12 mm) O.D.

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip available **with carbide (200-KNF-7525)** which provides extra wear life and better penetration, or **without carbide (200-KNF-7524)**.

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** The longer tube length on this knife makes it better for air seeders and air drills. The welded tip is better for rocky conditions.

**Can be converted to a pressurized NH<sub>3</sub>.** Please call the factory for more details.

**FITS:** 410 Series *Speed-Loc™*

**FERTILIZER TYPE:**

**410-KNF-0824:** Cold Flow NH<sub>3</sub>

**410-KNF-0825:** Cold Flow NH<sub>3</sub>

**410-KNF-0826:** Liquid N NH<sub>3</sub> PSI

**TUBE SIZE:**

**410-KNF-0824:** 1/2" (12 mm) O.D.

**410-KNF-0825:** 1/2" (12 mm) O.D.

**410-KNF-0826:** 1/4" (6 mm) O.D.

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip available **with carbide (410-KNF-0825 & 410-KNF-0826)** which provides extra wear life and better penetration, or **without carbide (410-KNF-0824)**.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This knife is designed for heavy-duty use, the welded tip makes it better in rocky conditions.

### Proper Installation & Removal of Speed-Loc™ Products



To ensure proper installation of *Speed-Loc™* products, use the appropriate driver listed with each product.

For a chart of all drivers see page 79.



200-REL-1010

The Speed Release tool must be used when removing openers, sweeps & spikes from the *Speed-Loc™* Adapters.

For more information see page 79.

410-KNH-7524



**410-KNH-7524**  
**410-KNH-7526**

**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** Cold Flow NH3 or NH3 PSI

**TUBE SIZE:**

**410-KNH-7524:** 1/2" (12 mm) O.D. designed for use with Cold Flow Kits  
**410-KNH-7526:** 1/4" (6 mm) O.D.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This fertilizer knife is designed for use with NH3. It gives you the flexibility of using a replaceable tip allowing you to choose the right tip for your conditions.

**Can be converted to a pressurized NH3 system.** Please call the factory for more details.

200-KNF-7531



**200-KNF-7530**  
**200-KNF-7531 (CARBIDE)**

**FITS:** 200 Series Speed-Loc™

**FERTILIZER TYPE:** Hot Gas NH3

**TUBE SIZE:** 3/8" (9 mm) O.D.

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip available **with carbide (200-KNF-7531)** which provides extra wear life and better penetration, or **without carbide (200-KNF-7530).**

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** The shorter tube length on this knife makes it better for cultivators and chisel plows. The welded tip is better for rocky conditions.

**Can be converted to a pressurized NH3 or liquid system.** Please call the factory for more details.

410-KNF-0831



**410-KNF-0830**  
**410-KNF-0831 (CARBIDE)**

**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** Hot Gas NH3

**TUBE SIZE:** 3/8" (9 mm) O.D.

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip available **with carbide (410-KNF-0831)** which provides extra wear life and better penetration, or **without carbide (410-KNF-0830).**

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This knife is designed for heavy-duty use with Hot Gas NH3 kits. The welded tip makes it better in rocky conditions.

**Can be converted to a Liquid system.** Please call the factory for more details.

**Stabilize Your NH3 Hose**



600-HHA-0750

This stainless steel hose holder mounts on any C-Shank to hold the NH3 hose in place and is completely height adjustable. See page 102.



**200-ASY-7523**



**FITS:** 200 Series Speed-Loc™

**FERTILIZER TYPE:** Non-Freeze NH3

**TUBE SIZE:** 1/2" (12 mm) O.D.

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip with extra carbide for long-lasting wear life.

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** NH3 is delivered through a nylon insert, insulating the knife from the NH3. This prevents moist soil from freezing up and building up on the knife, keeping it narrow to reduce disturbance with minimal gassing off.

**Not recommended for rocky conditions.**



**410-ASY-0823**



**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** Non-Freeze NH3

**TUBE SIZE:** 1/2" (12 mm) O.D.

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip with extra carbide for long-lasting wear life.

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** NH3 is delivered through a nylon insert, insulating the knife from the NH3. This prevents moist soil from freezing up and building up on the knife, keeping it narrow to reduce disturbance with minimal gassing off.

**Not recommended for rocky conditions.**



**410-ASY-7523**



**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** Non-Freeze NH3

**TUBE SIZE:** 1/2" (12 mm) O.D.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** NH3 is delivered through a nylon insert, insulating the knife from the NH3. This prevents moist soil from freezing up and building up on the knife, keeping it narrow to reduce disturbance with minimal gassing off.

**Not recommended for rocky conditions.**

### Proper Installation & Removal of Speed-Loc™ Products



To ensure proper installation of Speed-Loc™ products, use the appropriate driver listed with each product.

For a chart of all drivers see page 79.



200-REL-1010

The Speed Release tool must be used when removing openers, sweeps & spikes from the Speed-Loc™ Adapters.

For more information see page 79.

200-KNF-7551



410-KNF-7551



410-KNF-7554



**200-KNF-7551**  
**200-KNF-7553**



**FITS:** 200 Series Speed-Loc™

**FERTILIZER TYPE:** Granular + NH3

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D. For different hose sizes a bushing may be used. See page 103 for bushing options.

**200-KNF-7551:** Cold Flow NH3, 1/2" (12 mm) O.D.

**200-KNF-7553:** Hot Gas NH3, 3/8" (9 mm) O.D.

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip with extra carbide for long-lasting wear life.

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** This fertilizer knife is designed for use with Granular fertilizer and either Cold Flow or Hot Gas NH3 kits.

**Not recommended for seeding.**

**410-KNF-7551**  
**410-KNF-7553**



**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** Granular + Cold Flow or Hot Gas NH3

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D. For different hose sizes a bushing may be used. See page 105 for bushing options.

**410-KNF-7551:** Cold Flow NH3, 1/2" (12 mm) O.D.

**410-KNF-7553:** Hot Gas NH3, 3/8" (9 mm) O.D.

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip with extra carbide for long-lasting wear life.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This fertilizer knife is designed for use with Granular fertilizer and either Cold Flow or Hot Gas NH3 kits.

**Not recommended for seeding.**

**410-KNF-7554**  
**410-KNF-7555**



**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** Granular + Hot Gas NH3

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D. For different hose sizes a bushing may be used. See page 105 for bushing options.

**410-KNF-7554:** Hot Gas NH3, 3/8" (9 mm) O.D.

**410-KNF-7555:** Hot Gas NH3, 3/8" (9 mm) O.D. capped bottom with drilled cross holes.

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip with extra carbide for long-lasting wear life.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This fertilizer knife is designed for use with Granular fertilizer Hot Gas NH3 kits. It has a second 3/8" open bottom tube for venting.

**Not recommended for seeding.**

**Stabilize Your NH3 Hose**



600-HHA-0750

This stainless steel hose holder mounts on any C-Shank to hold the NH3 hose in place and is completely height adjustable. See page 102.



410-KNH-7551



**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** Granular + Cold Flow NH3

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D. For different hose sizes a bushing may be used. See page 103 for bushing options.  
**Cold Flow NH3:** 1/2" (12 mm) O.D.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This fertilizer knife is designed for use with Granular fertilizer and Cold Flow NH3 kits. It gives you the flexibility of using a replaceable tip allowing you to choose the right tip for your conditions.

**Not recommended for seeding.**



200-KNF-7560



**FITS:** 200 Series Speed-Loc™

**FERTILIZER TYPE:** NH3 + Liquid Phos

**TUBE SIZE:** 3/8" (10 mm) O.D. stainless steel tubes

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip with extra carbide for long-lasting wear life.

**INSTALLATION DRIVER:** 100-DRV-1010

**OVERVIEW:** This fertilizer knife is designed for use with Aqua NH3 and Liquid Phos. The welded tip is better in rocky conditions.



410-KNF-7560



**FITS:** 410 Series Speed-Loc™

**FERTILIZER TYPE:** NH3 + Liquid Phos

**TUBE SIZE:** 3/8" (10 mm) O.D. stainless steel tubes

**TIP OPTIONS:** Welded 3/4" (19 mm) welded tip with extra carbide for long-lasting wear life.

**INSTALLATION DRIVER:** 400-DRV-1010

**OVERVIEW:** This fertilizer is designed for use with Aqua NH3 and Liquid Phos. The welded tip is better in rocky conditions.

**Proper Installation & Removal of Speed-Loc™ Products**



To ensure proper installation of Speed-Loc™ products, use the appropriate driver listed with each product.

For a chart of all drivers see page 79.



200-REL-1010

The Speed Release tool must be used when removing openers, sweeps & spikes from the Speed-Loc™ Adapters.

For more information see page 79.



**600-HLD-7500**  
**602-HLD-7500**

**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** N/A

**TUBE SIZE:** N/A

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** This knife uses replaceable tips, giving you the flexibility to choose the right tip for your conditions.

**600-HLD-7500** is for regular use, and **602-HLD-7500** is for heavy duty use.

**NOTES:** **Installation bolts sold separately.** Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.



**599-KNH-7540**



**FITS:** 47° C-Shank

**FERTILIZER TYPE:** Granular

**TUBE SIZE:** 1-1/4" (32 mm) O.D. For different hose sizes a bushing may be used. See page 103 for bushing options.

**BOLT HOLE SPACING:** 1-3/4" (45 mm)

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** This fertilizer knife is designed to fit on the Bourgault Shank better than the 600 Series Knives.

**NOTES:** **Installation bolts sold separately.** Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.



600-KNH-7540

**600-KNH-7540**  
**600-KNH-7640**

**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Granular

**TUBE SIZE:**

**600-KNH-7540:** 1-1/4" (32 mm) O.D.

**600-KNH-7640:** 1-1/2" (38 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011 (CARBIDE)**

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** These Granular fertilizer knives use a replaceable tip, giving you the flexibility to choose the right tip for your conditions.

**NOTES:** **Installation bolts sold separately.** Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.

# FERTILIZER KNIVES TO FIT: C-SHANK



**602-KNH-7540**



**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Granular

**TUBE SIZE:** 1-1/4" (32 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** These fertilizer knives are the **heavy duty version of the 600-KNH-7540 & 600-KNH-7640**. They are used with a replaceable tip, giving you the flexibility to choose the right tip for your conditions. **Designed for heavy duty use.**

**NOTES: Installation bolts sold separately.**

Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.



**602-KNH-7640**



**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Granular

**TUBE SIZE:** 1-1/2" (38 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** These fertilizer knives are the **heavy duty version of the 600-KNH-7540 & 600-KNH-7640**. They are used with a replaceable tip, giving you the flexibility to choose the right tip for your conditions. **Designed for heavy duty use.**

**NOTES: Installation bolts sold separately.**

Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.



**050-KNH-0820**



**FITS:** 47° and 50° C-Shank

**FERTILIZER TYPE:** Cold Flow NH3

**TUBE SIZE:** 1/2" (12 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:** Any Single Shoot Replaceable Tip, allowing you to choose the right tip for your conditions.

**Tips sold separately.** See page 10-11 for more details.

**OVERVIEW:** This fertilizer knife is only recommended for use on light duty units with light trips. Not recommended for rocky areas.

**NOTES: Installation bolts sold separately.** Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.

Can be converted to a pressurized NH3 or Liquid system. Please call the factory for more details.

## Stabilize Your NH3 Hose



600-HHA-0750

This stainless steel hose holder mounts on any C-Shank to hold the NH3 hose in place and is completely height adjustable. See page 102.



## 600-ASY-7523

**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Non-Freeze NH<sub>3</sub>

**TUBE SIZE:** 1/2" (12 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

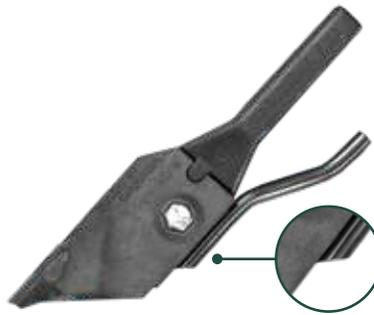
**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** NH<sub>3</sub> is delivered through a nylon insert, insulating the knife from the NH<sub>3</sub>. This prevents moist soil from freezing up and building up on the knife, keeping it narrow to reduce disturbance with minimal gassing off.

**Not recommended for rocky conditions.**

**NOTES: Installation bolts sold separately.**

Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.



## 600-KNH-7520 602-KNH-7520

**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Cold Flow NH<sub>3</sub>

**TUBE SIZE:** 1/2" (12 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

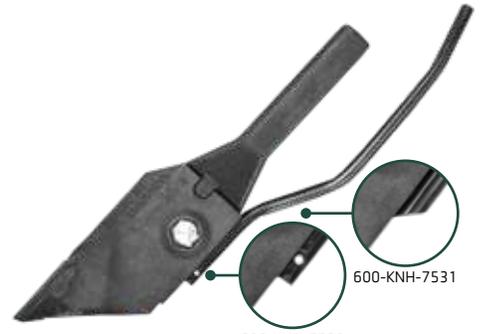
**OVERVIEW:** This fertilizer knife is designed for use with Cold Flow NH<sub>3</sub> Kits. The replaceable tip gives you the flexibility to choose the right tip for your conditions.

**NOTES: Installation bolts sold separately.**

Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.

Can be converted to a pressurized NH<sub>3</sub> or Liquid system. Please call the factory for more details.

**600-KNH-7520 is for regular use, and 602-KNH-7520 is for heavy duty use.**



600-KNH-7531

600-KNH-7530



## 600-KNH-7530 602-KNH-7530 600-KNH-7531 602-KNH-7531

**FITS:** 45°, 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Hot Gas NH<sub>3</sub>, Liquid or Aqua NH<sub>3</sub>

**TUBE SIZE:**

**600-KNH-7530** 3/8" (9 mm) O.D.

**600-KNH-7531** 0.4" stainless steel

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** These fertilizer knives are designed for use with the replaceable tip, giving you the flexibility to choose the right tip for your conditions.

**NOTES: Installation bolts sold separately.**

Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.

**600-KNH-7530/7531 are for regular use. 602-KNH-7530/7531 are for heavy duty use.**



## 602-KNH-7585



**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Granular

**TUBE SIZE:** 1-1/4" (32 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** This granular fertilizer knife is used with a replaceable tip, giving you the flexibility to choose the right tip for your conditions.

**NOTES: Installation bolts sold separately.**

Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.



## 602-KNH-7586



**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Granular + Liquid or NH3

**TUBE SIZE:** 1/4" (6 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** This liquid fertilizer knife is used with a replaceable tip, giving you the flexibility to choose the right tip for your conditions.

**NOTES: Installation bolts sold separately.**

Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.



## 602-KNH-7587



**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Granular + Cold Flow NH3

**TUBE SIZE:** 1/2" (12 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** This NH3 fertilizer knife is used with a replaceable tip, giving you the flexibility to choose the right tip for your conditions.

**NOTES: Installation bolts sold separately.**

Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.

### Stabilize Your NH3 Hose



600-HHA-0750

This stainless steel hose holder mounts on any C-Shank to hold the NH3 hose in place and is completely height adjustable. See page 102.



## 600-KNH-7522



**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Cold Flow NH3

**TUBE SIZE:** Dual 1/2" (12 mm) O.D.

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** This fertilizer knife is designed for use with Cold Flow NH3 Kits. The second 1/2" pipe is used for venting. The replaceable tip gives you the flexibility to choose the right tip for your conditions.

**NOTES:** **Installation bolts sold separately.** Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.



## 600-KNH-7552



**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Granular + Cold Flow NH3

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D. For different hose sizes a bushing may be used. See page 105 for bushing options.

**NH3:** 1/2" (12 mm)

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** This fertilizer knife is designed for use with Granular and Cold Flow NH3 kits. The replaceable tip gives you the flexibility to choose the right tip for your conditions.

**NOTES:** **Installation bolts sold separately.** Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.

**Can be converted to a Liquid system.** Please call the factory for more details.



## 600-KNH-7554



**FITS:** 47° and 50° C-Shank

Can be used on a 43° shank with the addition of a 7° wedge. See page 102 for more details.

**FERTILIZER TYPE:** Granular + Cold Flow NH3

**TUBE SIZE:**

**Granular:** 1-1/4" (32 mm) O.D. For different hose sizes a bushing may be used. See page 105 for bushing options.

**NH3:** Dual 1/2" (12 mm)

**BOLT HOLE SPACING:** 1-3/4" to 2-1/2" (44 mm - 64 mm) slotted bolt hole spacing providing the ability to fit many different makes and models.

**TIP OPTIONS:**

3/4" (19 mm) tips:

- **600-TIP-7500** (cast chrome)
- **600-TIP-7501** (regular carbide)
- **600-TIP-7502** (extra-long nose carbide)

3" (76 mm) tip:

- **600-TIP-3011** (carbide)

**Tips sold separately.** See page 15 for more details.

**OVERVIEW:** This fertilizer knife is designed for use with Granular and Cold Flow NH3 kits. The second half inch NH3 pipe is used for venting. The replaceable tip gives you the flexibility to choose the right tip for your conditions.

**NOTES:** **Installation bolts sold separately.** Use 1/2" Grade 8 Hex Head bolts. See page 110 for more details.

# ***SPEED-LOC™***

The *Speed-Loc™* system provides more benefits than any other system!

## **CONSISTENT DEPTH CONTROL**

The upper stop on the *Speed-Loc™* adapters ensures that your tillage or seeding tools are always running at the same depth.

## **PEACE OF MIND**

The spring-loaded locking pin ensures that the tools will stay securely in place in all conditions, and we back that up with a 100% guarantee.

## **TROUBLE-FREE OPERATION**

The *Speed-Loc™* adapters are designed with durability in mind. The cast adapters are heat-treated for increased strength and wear resistance.



# INSTALLATION & REMOVAL INSTRUCTIONS

## PREPARATION

Before installing a new set of seeding openers, fertilizer knives, sweeps or spikes on new or existing adapters, ensure that you visually inspect each adapter for the following signs of damage:

- broken, damaged or missing locking pin
- completely depressed locking pin that will not retract back out (damaged spring ball)
- cracks and other signs of wear
- loose bolts

## INSTALLATION

**When installing any product always use safety glasses and specified driver.**

For correct drivers please see page 79.

- 1 Firmly install product by sliding it onto the adapter by hand over the locking pin until it will no longer travel on the adapter.
- 2 Place the appropriate driver over the product being installed to prevent damage to the nose or leading edge. With a 4 lb. (1.8 kg) hammer, strike the driver with the hammer several times driving the product upward onto the adapter until it contacts the top stopper on the adapter.
- 3 Product being driven on should be over the locking pin and snapped or locked into place in the hole of the product being driven on. Pin should be visible through the hole (see illustration). **Product must be driven all the way on!** Putting the product on part way and going into the field will NOT place the product onto the adapter.
- 4 Verify the pin has sprung into place of the hole in the product. **Failure to do so will cause loss of product.**
- 5 After a few hundred acres of work, check adapters. If they are loose on the shank re-torque the bolts.

**NOTE:** New product may move slightly on the adapters. This is normal wear. If you notice any damage to the product or pin, replace damaged parts and return damaged parts to dealer. If product installs very hard and will not drive over the locking pin, do not use the product. Return it to dealer for replacement and warranty.

## REMOVAL

**When removing the product always use safety glasses and Speed-Release Tool 200-REL-1010.**

See page 79 for more details.

- 1 Strike the product sharply with a hammer on both sides of the product to loosen the rust and dirt between the adapter and product.
- 2 Place the hook of the release tool on top of the product stem; pressing down on the handle to depress the locking pin.
- 3 While depressing the locking pin strike the top driving plate of the release tool with a hammer to move the product downward to clear the pin on the adapter and STOP. Driving the release tool beyond the pin will result in damaging the release tool, locking pin and spring ball. See illustration.
- 4 Remove the release tool; strike the top of the stem to remove the product the remainder of the way off the adapter body.
- 5 Clean and inspect the adapter and locking pin for damage. Follow installation instructions for reinstalling products.



When installed correctly you should see the entire pin through the hole and the product should be able to move slightly up and down.



## 200 SERIES QUICK CHANGE ADAPTERS



**200-QCA-4700**

**FITS:** 47° Shanks, Bourgault and Ezee-On field cultivators, air seeders and air drills

**BOLT HOLE SPACING:** 1-3/4" (45 mm) center to center

**BOLTS:** 1/2" (12 mm) Hex Head Bolts



**200-QCA-4710**

**FITS:** 47° Shanks, except Bourgault and Ezee-On

**BOLT HOLE SPACING:** 1-3/4" (45 mm) center to center

**BOLTS:** Oversized Head Plow Bolts required for 7/16" (11 mm) shank holes. For 1/2" (12 mm) shank holes a regular plow is required.



**200-QCA-5000**

**FITS:** 50° Shanks, Bourgault and Morris Concept 2000

**BOLT HOLE SPACING:** 2-1/4" (57 mm) center to center

**BOLTS:** 1/2" (12 mm) Hex Head Bolts

**NOTES:** Not recommended for primary tillage, use only for seeding.



**200-QCA-5010**

**FITS:** 50° Shanks, except Bourgault Chisel Plows

**BOLT HOLE SPACING:** 2-1/4" (57 mm) center to center

**BOLTS:** 1/2" (12 mm) Plow Bolts

**NOTES:** Not recommended for deep, heavy tillage.

This adapter can be used on a 43° shank with the addition of a 7° wedge, 100-WDG-0700. See page 102 for more details.



**200-QCA-5020**

**FITS:** European built shanks

**BOLT HOLE SPACING:** 63 mm - 80 mm center to center

**BOLTS:** M12-Din608 10.9 Plow Bolts

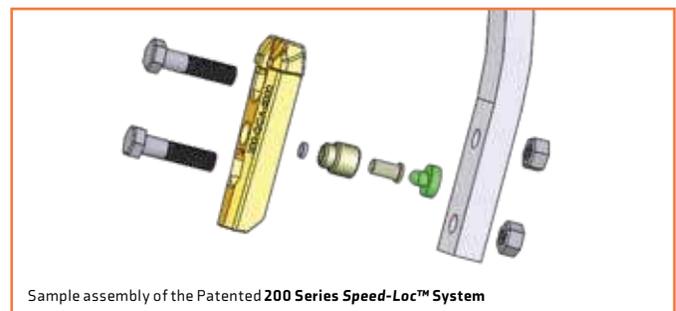


**200-QCA-5030**

**FITS:** Horsch Shanks

**BOLT HOLE SPACING:** 57 mm center to center

**BOLTS:** M12-Din608 10.9 Plow Bolts



Sample assembly of the Patented 200 Series Speed-Loc™ System

### Don't forget the Speed Release Tool

The Speed Release Tool 200-REL-1010 must be used when removing openers, sweeps & spikes from the Speed-Loc™ Adapters. For more information see page 79.



**Not sure which adapter or bolts you need?** Refer to the Speed-Loc™ adapter chart on pages 80-81. For a complete list of bolt lengths, see page 108.

# 410 SERIES QUICK CHANGE ADAPTERS



### 410-QCA-5000

**FITS:** 50° Bourgault Shanks Chisel Plows

**BOLT HOLE SPACING:** 2-1/4" (57 mm) center to center

**BOLTS:** See page 109 for more details.

**NOTES:** On a Bourgault four-hole shank, the center hole of the adapter should be plugged to protect the spring ball from NH3 gases when used as a NH3 applicator.

When installing 410 Series Speed-Loc™ Adapters for use with NH3, fill the hole behind the spring ball with plumber's putty to protect from degradation caused by NH3.



### 410-QCA-5010

**FITS:** 50° Shanks on all chisel plows except Bourgault identified under the **410-QCA-5000**

**BOLT HOLE SPACING:** 1-3/4" to 3" (45 mm - 76 mm) center to center slotted bolt hole spacing providing the ability to fit many different makes and models.

**BOLTS:** See page 109 for more details.

**NOTES:** In rocky or abrasive conditions, the bottom nut may experience excessive wear or damage. This problem is alleviated by placing the bottom bolt in from the back of the shank and putting the nut inside the slot in front of the adapter.

This adapter can be used on a 43° shank with the addition of a 7° wedge, **400-WDG-0700**.



### 410-QCA-5020

**FITS:** Lemken Shanks

**BOLT HOLE SPACING:** 45 mm center to center

**BOLTS:** M12-Din608 10.9 Plow Bolts



### 410-QCA-5050

**FITS:** Kverneland (CLD Grubber) Shanks

**BOLT HOLE SPACING:** 45 mm center to center

**BOLTS:** M12-Din608 10.9 Plow Bolts



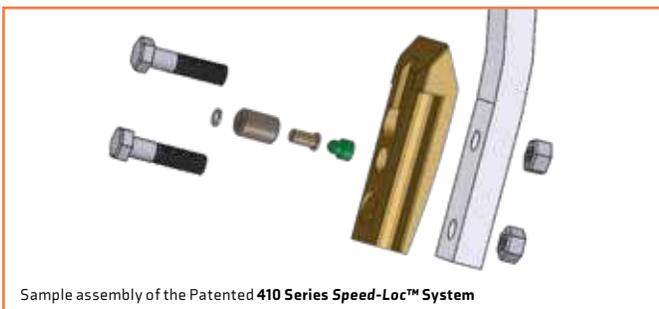
### 410-QCA-5080

**FITS:** 50° Shanks on all older and current model John Deere 2410 and 2430 chisels plows, and Summers Superchisel.

**BOLT HOLE SPACING:** 2-1/4" (57 mm) center to center

**BOLTS:** For John Deere 1-1/4" shank use 1/2" x 3" Grade 8 Hex Head bolt prevailing torque lock nuts.

**NOTE:** Bushing **880-BSH-2000** is required for installation on all John Deere shanks having the split bottom bolt hole. See page 102. Also required for Summers chisel plows.



Sample assembly of the Patented 410 Series Speed-Loc™ System

## SPEED-LOC™ REPLACEMENT PARTS



### 200-SLC-1001

Replacement bushing for all 200 Series adapters as well as the 410-QCA-5050. Comes complete with dust seal.



### 200-SLC-1010

Replacement dust seal for all 200 and 410 Series Speed-Loc™ adapters.



### 200-SLC-1020

Replacement locking pin for all 200 and 410 Series adapters purchased after Nov 1, 2008.



### 200-SLC-1030

Replacement spring ball for the 200-QCA-4700 adapters.



### 200-SLC-1035

Replacement spring ball for the 200-QCA-4710, 200-QCA-5000 and 200-QCA-5010 adapters.



### 200-SLC-1037

Replacement spring ball for the 200-QCA-5020 and 410-QCA-5050 adapters.



### 200-SLC-1038

Replacement spring ball for 200-QCA-5020 adapter for special applications.



### 200-SLC-1039

Replacement spring ball for 200-QCA-5030 adapters.



### 410-SLC-1001

Replacement bushing for the 410-QCA-5000, 410-QCA-5010 and 410-QCA-5020. Comes complete with dust seal.



### 410-SLC-1022

Replacement locking pin for all 410 Series adapters purchased prior to Nov 1/08.

**Use 200-SLC-1020 if 410 Series adapter was purchased after Nov 1/08.**



### 410-SLC-1030

Replacement spring ball for the 410-QCA-5000, 410-QCA-5010 and 410-QCA-5020.



### 410-SLC-1050

Complete replacement package for the 410 Series, includes bushing, spring ball, pin and dust seal.

## SPEED-LOC™ DRIVERS



PART #	100-DRV-1010	100-DRV-1020	200-DRV-1013	200-DRV-1030	400-DRV-1000	400-DRV-1010
200-ASY-7523	■					
200-HOE-1700		■				
200-KNF-0800, 0801, 0810, 0811, 0813, 7560						■
200-KNF-0863, 7501, 7510, 7511, 7511P, 7512, 7520, 7521, 7524, 7525, 7530, 7531, 7542, 7551, 7553	■					
200-KNH-7551						■
200-TIP-0511, 0801, 0802, 0803, 0811 when used on 200-KNH-4000, 4010 OR 4020						■
200-TIP-1011				■		
200-TIP-2011, 3000, 3001, 3011, 4011 when used on 200-KNH-4000, 4010 OR 4020			■			
200-VRT-1000, 1040					■	
410-ASY-0823, 7523						■
410-HLD-7500						■
410-KNF-0800, 0801, 0824, 0825, 0826, 0830, 0831, 7540, 7551, 7553, 7560						■
410-KNH-7524, 7526, 7540, 7551						■
410-VRT-1000					■	
SWEEPS & SPOONS					■	

## SPEED-LOC™ ACCESSORIES



### 100-HAM-4000

This 4 lb (1.8 kg) hammer is ideal for installing all quick change products.



### 200-REL-1010

The speed-release tool must be used to remove 200 and 410 Series sweeps and opens off the Speed-Loc™ adapters.



### 200-QAS-4712

This sub-plate is used in conjunction with the 200-QCA-4710 adapter on an S-tine. S-tines with a single hole can now use the Speed-Loc™ system.

# SPEED-LOC™ ADAPTER CHART

FOR NORTH AMERICA & AUSTRALIA

MAKE & MODEL	SHANK DEGREE	BOLT SIZE	HOLE CENTER	200 SERIES				410 SERIES				
				200-QCA-4700	200-QCA-4710	200-QCA-5000	200-QCA-5010	100-WDG-0700	410-QCA-5000	410-QCA-5010	410-QCA-5080	400-WDG-0300
<b>AFM</b>												
180, 200, 250, 880	43°	7/16	1-3/4	■	*	■						
150, 2300, 310, 300	50°	1/2	2-1/4			■				■		
350 SCARICHISEL	50°	1/2	2-1/4			■				■		
<b>ANDERSON</b>												
FIELD CULTIVATORS	47°	3/8	1-3/4	■								
CHISEL PLOWS	50°	1/2	2-1/4			■				■		
<b>BOURGAULT</b>												
FIELD CULTIVATORS 6200, 6800, 8800, 8810, 8910	47°	1/2	1-3/4	■								
SPS 270, 360	50°	1/2	2-1/4							■		
5710, 5810 AIR DRILL	47°	1/2	1-3/4	■								
CHISEL PLOWS 9200, 9400, 9500, 9800	50°	1/2	2-1/4			■				■		
3310, 3320 EDGE-ON	(NO ADAPTER FOR THIS APPLICATION)											
<b>BRADY</b>												
FIELD CULTIVATORS	43°	3/8	1-5/8	(NO ADAPTER FOR THIS APPLICATION)								
CHISEL PLOWS	50°	7/16	2-1/4			■				■		
<b>BRILLION</b>												
HFCT MO	47°	7/16	1-5/8	■								
<b>BUSH HOG</b>												
FIELD CULTIVATORS	47°	3/8	1-3/4	■								
CHISEL PLOWS	50°	7/16	2-1/4			■				■		
<b>CASE</b>												
FC, FCW, FCM, 10, 50, 55, 645	47°	3/8	1-3/4	■								
4700, 4900, 5000, 645	43°	1/2	2-1/4			■	■			■	■	
<b>CASE IH</b>												
255 TIGER-MATE II	47°	7/16	1-3/4	■								
45, 4300, 4500, 4600, 4700, 4800, 4900	47°	7/16	1-3/4	■								
VIBRASHANK	47°	7/16	1-3/4	■								
VIBRACHISEL 5600, 5700	43°	1/2	2-1/4			■	■			■	■	
5800, 5850, 5900	50°	1/2	2-1/4			■				■		
PTX 300, PTX 600	50°	1/2	2-1/4			■				■		
ATX AIR DRILL WITH EDGE-ON 84° SHANK	(NO ADAPTER FOR THIS APPLICATION)											
ATX 400, 700 AIR HOE DRILL 350 LB OR 550 LB TRIP	50°	1/2	2-1/4			■						
<b>CONCORD</b>												
C-SHANKS	50°	1/2	2-1/4			■				■		
EDGE-ON SHANKS	(NO ADAPTER FOR THIS APPLICATION)											
<b>CCIL</b>												
202, 179, 279, 379	47°	3/8	1-3/4	■								
203, 204, 205	43°	1/2	2-1/2							■	■	
806, 807, 808	43°	1/2	2-1/2							■	■	
CHISEL PLOW (THICK SHANK)	50°	7/16	2-1/4			■				■		
<b>CNH (DMI)</b>												
FIELD CULTIVATORS	47°	7/16	1-3/4	■								
<b>DEGELMAN</b>												
FIELD CULTIVATORS	47°	7/16	1-3/4	■								
500	50°	7/16	2-1/4			■				■		
3000-2	50°	7/16	2-1/4			■				■		
<b>DEMSTER</b>												
CHISEL PLOWS	54°	7/16	2-1/4	(NO ADAPTER FOR THIS APPLICATION)								
<b>EDWARDS</b>												
CHISEL PLOWS	50°	7/16	2-1/4			■				■		
<b>FORWARD</b>												
BOURGAULT TYNE												
280, 2700, 2800, 8800	47°	1/2	1-3/4	■								
FUSION DELTA	47°	1/2	1-3/4	■								
3000 & 400 SERIES C/P	50°	1/2	2-1/4			■				■		

MAKE & MODEL	SHANK DEGREE	BOLT SIZE	HOLE CENTER	200 SERIES				410 SERIES				
				200-QCA-4700	200-QCA-4710	200-QCA-5000	200-QCA-5010	100-WDG-0700	410-QCA-5000	410-QCA-5010	410-QCA-5080	400-WDG-0300
<b>EZEE-ON</b>												
FIELD CULTIVATORS 3500, 3550, 5550	47°	1/2	1-3/4	■								
6000 WITH FIELD CULTIVATOR SHANK OPTION	47°	1/2	1-3/4	■								
6000 WITH CHISEL PLOW SHANK OPTION	50°	1/2	2-1/4							■		
ALL CHISEL PLOWS INCLUDING 7450	50°	1/2	2-1/4							■		
7560, 7550	47°	1/2	1-3/4	■								
<b>FLEXI-COIL</b>												
200, 400, 800	47°	7/16	1-3/4	■								
300, 340, 600	50°	1/2	2-1/4							■		
820 & 5T820 WITH 350 LB & 550 LB TRIPS	47°	1/2	1-3/4			■						
820 & 5T820 WITH 550 LB & 650 LB TRIPS	50°	1/2	2-1/4							■		
5000 & 7500 DEPENDING ON SHANK OPTION	47°	1/2	1-3/4			■						
5000 & 7500 DEPENDING ON SHANK OPTION	50°	1/2	2-1/4							■		
EDGE-ON	(NO ADAPTER FOR THIS APPLICATION)											
5000HD & 5500 AIR HOE DRILL 350 LB OR 550 LB TRIP	50°	1/2	2-1/4							■		
<b>FRIGSTAD</b>												
FIELD CULTIVATORS	47°	7/16	1-3/4	■								
CHISEL PLOWS (OLDER MODELS)	50°	7/16	2-1/4							■		
CHISEL PLOWS	50°	1/2	2-1/4							■		
<b>GASON</b>												
5100 SERIES	46°	7/16	1-3/4	■								
SCARITILL & EH SCARITILL	47°	1/2	BOTH			■						
7100 ECOTILL	50°	1/2	2-1/4							■		
<b>GESSNER</b>												
HR 1200	50°	1/2	2-1/4							■		
<b>GLENCOE</b>												
PC, MPC, PCMW	47°	3/8	1-3/4	■								
CHISEL PLOWS	47°	7/16	2-1/4							■	■	
HIGH CLEARANCE	50°	7/16	1-2/4							■		
<b>GRAHAM</b>												
CHISEL PLOWS	50°	1/2	2-1/4							■		
400, 500, 1600, 2600	54°	7/16	2-1/4	(NO ADAPTER FOR THIS APPLICATION)								
<b>GREAT PLAINS</b>												
8000, 7000	47°	7/16	1-3/4	■								
<b>GYRAL IMPLEMENTS</b>												
PENETRATOR T23, T25	43°	1/2	BOTH							■	■	
AG BNOSS T30	43°	7/16	BOTH							■	■	
<b>GYSLER</b>												
CHISEL PLOWS	47°	7/16	2-1/4							■	■	
<b>HESSTON</b>												
FIELD CULTIVATORS	47°	1/2	1-3/4	■								
CHISEL PLOWS	50°	1/2	2-1/4							■		
<b>HINIKER</b>												
FIELD CULTIVATORS	47°	7/16	1-3/4	■								
CHISEL PLOWS	50°	1/2	2-1/4							■		
<b>HORWOOD BAGSHAW</b>												
350 SCARIBAR EDGE-ON	47°	1/2	1-3/4	■								
<b>HORWARD</b>												
CHISEL PLOWS**	50°	9/16	2-1/4							■		
<b>INTERNATIONAL</b>												
45, 46, 47	47°	7/16	1-3/4	■								
10, 50, 55, 75, 509, 645	43°	1/2	2-1/4							■	■	

**NOTE:** 200 Series adapters should not be used on a chisel plow or heavy duty cultivator unless being used for seeding. \*Sweeps will not work with this combination, for knife openers only. \*\*Bolt sizes will require adapting.

MAKE & MODEL	SHANK DEGREE	BOLT SIZE	HOLE CENTER	200 SERIES				410 SERIES			
				200-QCA-4700	200-QCA-4710	200-QCA-5000	200-QCA-5010	100-WDG-0700	410-QCA-5000	410-QCA-5010	410-QCA-5080
<b>JANKE</b>											
UNIV DIRECT DRILL	50°	1/2	2-1/4								
U/D DRILL (HYD) EARLY	50°	1/2	2-1/4								
<b>JEFFROY</b>											
450	47°	3/8	1-3/4								
<b>JOHN DEERE*</b>											
1000, 1010, 1050	43°	3/8	1-5/8	(NO ADAPTER FOR THIS APPLICATION)							
726, 2200, 2210, 2230	47°	7/16	1-3/4								
940, 960, 985	47°	7/16	1-3/4								
730	47°	7/16	1-3/4								
735, 737, 610, 655, 680, 685, 1600, 1610, 1650	50°	1/2	2-1/4			**					
1810, 1820, 1830, 1835 WITH 350 LB TRIPS	47°	1/2	1-3/4								
1810, 1820, 1830, 1835 WITH 500 LB TRIPS	50°	1/2	2-1/4								
2400, 2410, 2430	50°	1/2	2-1/4								
<b>JOHN SHEARER</b>											
UNIVERSAL CULTIVATOR	47°	7/16	1-3/4								
CHISEL PLOWS	50°	1/2	2-1/4								
<b>KONGSKILDE</b>											
C-SHANK	47°	1/2	1-3/4								
S-TINE	47°	7/16	1-5/8								
<b>KRAUSE</b>											
600, 900, 3100, 4200	47°	7/16	1-3/4								
4000	50°	1/2	2-1/4								
5630, 5635	47°	1/2	1-3/4								
<b>LEON</b>											
CP77	43°	7/16	2-1/4								
ALL OTHER LEON CHISEL PLOWS	50°	1/2	2-1/4								
FIELD CULTIVATORS	47°	7/16	1-3/4								
<b>MASSEY FERGUSON</b>											
160	47°	3/8	1-3/4								
259	47°	7/16	1-3/4								
124, 125, 126, 128, 133	54°	7/16	2-1/4	(NO ADAPTER FOR THIS APPLICATION)							
MF 7300 CHISEL PLOW	50°	1/2	2-1/4								
<b>MORRIS</b>											
L225, L233, L240, L320	47°	3/8	1-3/4								
CHALLENGER II, 9000, 9100	47°	1/2	1-3/4								
MAXIM, MAXIM II	47°	1/2	1-3/4								
MAXIM III	47°	1/2	1-3/4								
CONCEPT 2000 WITH 400 LB TRIP	47°	1/2	1-3/4								
CONCEPT 2000 WITH 550 LB TRIP	47°	1/2	1-3/4								
CONCEPT 2000 WITH LH 755 LB TRIP	50°	1/2	2-1/4								
220, 4, 5, 6, 7	43°	7/16	2-1/4								
MAGNUM I	43°	1/2	2-1/4								
912, 8900, 9000, MAGNUM II	50°	1/2	2-1/4								
MAGNUM III WITH LH 755 LB TRIP	50°	1/2	2-1/4								
EDGE-ON (CONTOUR DRILL)	(NO ADAPTER FOR THIS APPLICATION)										
CHALLENGER L2 480	47°	3/8	1-3/4								
<b>NEW HOLLAND</b>											
SD 440A, SD 550A AIR HOE DRILL (DEPENDING ON SHANK OPTION)	47°	1/2	1-3/4								
SD 440A, SD 550A AIR HOE DRILL (DEPENDING ON SHANK OPTION)	50°	1/2	2-1/4								

MAKE & MODEL	SHANK DEGREE	BOLT SIZE	HOLE CENTER	200 SERIES				410 SERIES			
				200-QCA-4700	200-QCA-4710	200-QCA-5000	200-QCA-5010	100-WDG-0700	410-QCA-5000	410-QCA-5010	410-QCA-5080
ST 540 CHISEL PLOW	50°	1/2	2-1/4								
ST 250	47°	1/2	1-3/4								
ST 830 WITH 350 LB TRIP	47°	1/2	1-3/4								
ST 830 WITH 550 LB TRIP (DEPENDING ON SHANK OPTION)	47°	1/2	1-3/4								
ST 830 WITH 550 LB TRIP (DEPENDING ON SHANK OPTION)	50°	1/2	2-1/4								
ST 830 WITH 650 LB TRIP	50°	1/2	2-1/4								
P2050, P2060 AIR HOE DRILL 350 LB OR 550 LB TRIP	50°	1/2	2-1/4								
<b>NOBLE</b>											
XR20	50°	7/16	2-1/4								
8000, 4000 MULTI-TOOL	50°	1/2	2-1/4								
<b>QUINSTAR</b>											
FIELD FINISHER	47°	7/16	1-3/4								
FALLOW MASTER III	50°	1/2	2-1/4								
<b>RYAN (RFM)</b>											
1000 SERIES	47°	7/16	1-3/4								
<b>SALFORD</b>											
FIELD CULTIVATOR	47°	7/16	1-3/4								
<b>SCHULTE</b>											
1000 SERIES	50°	7/16	2-1/4								
<b>SMALE</b>											
MULTIVATOR	47°	7/16	1-3/4								
CHISEL PLOWS	50°	1/2	2-1/4								
<b>SUMMERS</b>											
SUPERCHISEL	50°	1/2	2-1/4								
<b>SUNFLOWER</b>											
CHISEL PLOWS	50°	1/2	2-1/4								
5000, 6000, 7000	47°	7/16	1-3/4								
<b>TAYLOR</b>											
FIELD CULTIVATORS	47°	3/8	1-3/4								
<b>UNVERFERTH</b>											
PERFECTA II FIELD CULTIVATORS	47°	7/16	1-3/4								
<b>VERSATILE</b>											
DH730, DH750 WITH 350 LB & 550 LB TRIPS	47°	1/2	1-3/4								
C500 WITH 350 LB & 550 LB TRIPS	47°	1/2	1-3/4								
C600 WITH 350 LB & 550 LB TRIPS	47°	1/2	1-3/4								
C600 WITH 600 LB TRIP	50°	1/2	2-1/4								
C700 WITH 650 LB TRIP	50°	1/2	2-1/4								
<b>VICTORY</b>											
CHISEL PLOWS	50°	1/2	2-1/4								
<b>WIL-RICH</b>											
FIELD CULTIVATORS	47°	7/16	1-3/4								
CHISEL PLOWS (1993 & OLDER)	43°	7/16	2-1/4								
CHISEL PLOWS (1994 & NEWER)	50°	1/2	2-1/4								
XL2, QX2	47°	7/16	1-3/4								
<b>YEOMANS GRAHAM HOEMES</b>											
US CHISEL PLOWS	50°	1/2	2-1/4								

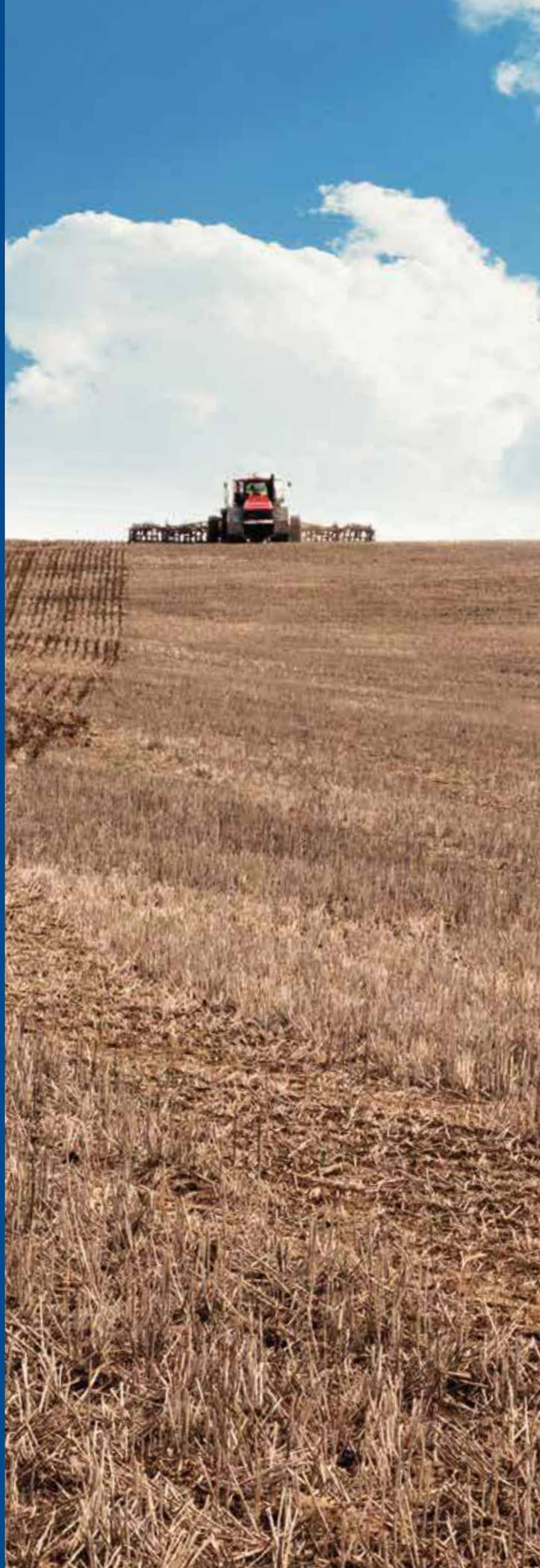
NOTE: \*880-B5H-2000 should be used with all spit John Deere shanks. \*\*Use wedge 800-WDG-0300 to correct pitch.

# TILLAGE

The sweeps and disks in this section are manufactured with the highest grade steel available, using special heat treatment processes to give you the most superior products on the market today.

Other factors that make a difference in a superior product besides the materials they are made of include some of the following:

- Long-Lasting Design
- Consistent Quality
- Innovative *Speed-Loc™*





# THE **NEXT GENERATION** OF TILLAGE TOOLS

Introducing **Blue Armour™** - the longest wearing, most durable, and best value sweep we've ever produced.  
**It's the new BTT Blue Standard.**

- ♥ **Longer life**
- ♥ **Increased durability**
- ♥ **Reduced stem wear**
- ♥ **Better value = more acres per dollar**

To learn more about Blue Armour™ see your local dealer, call 1.800.878.7714 or visit [tillagetools.com](http://tillagetools.com).



♥ **Blue Armour™ is available in select products within our 200 and 410 Series Quick Change sweeps and spoons.** It is unavailable in anything that has a wear pad welded to it. Look for the Blue Armour™ shield.

# BLUE ARMOUR™ SWEEPS

ALL PRODUCTS ON THIS PAGE

	SIZE	THICKNESS	PRODUCT NO.	
4"	4" (100 mm)	1/4" (6 mm)	200-PWV-0400	5"
	5" (140 mm)	1/4" (6 mm)	200-PWV-0500	
	5" (140 mm)	5/16" (8 mm)	200-PWV-0508	
7"	7" (180 mm)	1/4" (6 mm)	200-PWV-0700	9"
	7" (180 mm)	5/16" (8 mm)	200-PWV-0708	
	9" (230 mm)	1/4" (6 mm)	200-PWV-0900	
	9" (230 mm)	5/16" (8 mm)	200-PWV-0908	
10"	10" (254 mm)	1/4" (6 mm)	200-PWV-1000	11"
	10" (254 mm)	5/16" (8 mm)	200-PWV-1008	
	11" (280 mm)	1/4" (6 mm)	200-PWV-1100	
	11" (280 mm)	5/16" (8 mm)	200-PWV-1108	
12"	12" (305 mm)	1/4" (6 mm)	200-PWV-1200	13"
	12" (305 mm)	5/16" (8 mm)	200-PWV-1208	
	13" (330 mm)	1/4" (6 mm)	200-PWV-1300	
	13" (330 mm)	5/16" (8 mm)	200-PWV-1308	
	14" (355 mm)	1/4" (6 mm)	200-PWV-1400	
14"	14" (355 mm)	5/16" (8 mm)	200-PWV-1408	16"
	16" (406 mm)	5/16" (8 mm)	200-PWV-1608*	
	18" (457 mm)	5/16" (8 mm)	200-PWV-1808*	

\* These sweeps are only available in 5/16" (8 mm) thickness and were developed for Western Europe. It is not recommended for most North American field conditions.

## Proper Installation & Removal of Speed-Loc™ Products



400-DRV-1000

To ensure proper installation of *Speed-Loc™* products, the appropriate driver should be used. Driver 400-DRV-1000 should be used with all 200 & 410 Series Sweeps and Spikes.



200-REL-1010

The Speed Release tool must be used when removing openers, sweeps & spikes from the *Speed-Loc™* Adapters.

For more information see page 79.



**200-GFO-0308**

**GOOSEFOOT**

This "Goosefoot" tillage tool is 5/16" (8 mm) thick by 2-1/2" (63 mm) wide. It is designed specifically for vibrating S-tine cultivators.



**200-PWV-0405**

**SWEEP W/ HARDENED WEAR PAD**

This sweep is 1/4" (6 mm) thick by 4" (100 mm) wide. It has a 3/8" hardened wear pad (52-56 HRC) which increases the life expectancy. The nose on this sweep runs 1/2" (12 mm) lower than the other 200 Series sweeps. This increased pitch improves penetration in hard or compacted ground and increases disturbance. This tool is ideal for primary tillage or banding fertilizer.



**200-PWV-0405ML**

**MAX LIFE™ SWEEP W/ HARDENED WEAR PAD**

The same as 200-PWV-0405 with the addition of heat applied, embedded carbide on the underside of this sweep. The nose on this sweep runs 1/2" (12 mm) lower than the other 200 Series sweeps. This increased pitch improves penetration in hard or compacted ground and increases disturbance.

For more information see pages 90-91.



**200-PWV-0428  
200-PWV-0528**

**SWEEP W/ HARDENED WEAR PAD**

These sweeps are 5/16" (8 mm) thick. 200-PWV-0428 is 4" (100 mm) wide and 200-PWV-0528 is 5" (127 mm) wide. It is designed mainly for fall tillage or deep working. It has a 3/8" x 2" hardened wear pad (52-56 HRC) which increases its life expectancy.



**200-PWV-0738**

**SWEEP W/ HARDENED WEAR PAD**

This sweep is 5/16" (8 mm) thick by 7" (178 mm) wide with a 4" wide extended wear pad.



**200-PWV-0928**

**SWEEP W/ HARDENED WEAR PAD**

This sweep is 5/16" (8 mm) thick by 9" (230 mm) wide. It has a 3/8" x 2" hardened wear pad (52-56 HRC) that extends up the entire stem which increases its life expectancy.



**200-SPK-0200**

**SPIKE**

This quick change spike is 5/8" (15 mm) thick by 2-1/4" (57 mm) wide by 6" (150 mm) long. It has a hardened wear pad (52-56 HRC) for extra life. This tool is ideal for primary tillage or banding fertilizer.



**200-SPK-0200ML**

**MAX LIFE™ SPIKE**

The same as 200-SPK-0200 with the addition of heat applied, embedded carbide on the nose.

For more information see pages 90-91.



**200-SPK-0215**

**SPIKE**

This quick change spike is 5/8" (15 mm) thick by 2-1/4" (57 mm) wide by 6" (150 mm) long. It has a hardened wear pad (52-56 HRC) that extends to the top of the stem to prevent wear in abrasive soil or when working at greater depths.



**200-SPK-0230**

**SPIKE**

This quick change spike is 5/8" (15 mm) thick by 2" (50 mm) wide by 4" (102 mm) long. It has a hardened wear pad (52-56 HRC) for extra life. This tool is made specifically for slurry injection.

# BLUE ARMOUR™ SWEEPS

ALL PRODUCTS ON THIS PAGE

	SIZE	THICKNESS	PRODUCT NO.	
4"	4" (100 mm)	1/4" (6 mm)	410-PWV-0400	6"
	6" (150 mm)	1/4" (6 mm)	410-PWV-0600	
	6" (150 mm)	5/16" (8 mm)	410-PWV-0608	
8"	8" (200 mm)	1/4" (6 mm)	410-PWV-0800	10"
	8" (200 mm)	5/16" (8 mm)	410-PWV-0808	
	10" (254 mm)	1/4" (6 mm)	410-PWV-1000	
	10" (254 mm)	5/16" (8 mm)	410-PWV-1008	
12"	12" (305 mm)	1/4" (6 mm)	410-PWV-1200	14"
	12" (305 mm)	5/16" (8 mm)	410-PWV-1208	
	14" (355 mm)	1/4" (6 mm)	410-PWV-1400	
	14" (355 mm)	5/16" (8 mm)	410-PWV-1408	
16"	16" (406 mm)	1/4" (6 mm)	410-PWV-1600	18"
	16" (406 mm)	5/16" (8 mm)	410-PWV-1608	
	18" (457 mm)	1/4" (6 mm)	410-PWV-1800	
	18" (457 mm)	5/16" (8 mm)	410-PWV-1808	

## Proper Installation & Removal of Speed-Loc™ Products



400-DRV-1000

To ensure proper installation of *Speed-Loc™* products, the appropriate driver should be used. Driver 400-DRV-1000 should be used with all 200 & 410 Series Sweeps and Spikes.



200-REL-1010

The Speed Release tool must be used when removing openers, sweeps & spikes from the *Speed-Loc™* Adapters.

For more information see page 79.



**410-PWV-0418**

**SWEEP WITH HARDENED WEAR PAD**

This sweep has a 3/8" by 2" hardened wear pad (52-56 HRC) for longer life. The sweep is 5/16" (8 mm) thick and 4" (100 mm) wide. This sweep runs at a 13° pitch, which is steeper than the regular 410 sweep and provides more disturbance. This tool is ideal for primary tillage or banding fertilizer.



EMBEDDED CARBIDE ON UNDERSIDE

**410-PWV-0418ML**

**MAX LIFE™ SWEEP WITH HARDENED WEAR PAD**

The same as **410-PWV-0418** with the addition of heat applied, embedded carbide on the underside. This sweep runs at a 13° pitch, which is steeper than the regular 410 sweep and provides more disturbance. This tool is ideal for primary tillage or banding fertilizer.

For more information see pages 90-91.



**410-PWV-0518**

**SWEEP WITH HARDENED WEAR PAD**

This sweep is 5/16" (8 mm) thick by 5" (127 mm) wide. It has a 3/8" x 2" hardened wear pad (52-56 HRC) for longer life. It runs at a 3° pitch, which is the same as a standard sweep.



**410-SPK-0200**

**SPIKE**

This heavy-duty quick change spike is 5/8" (15 mm) thick by 2" (50 mm) wide by 9" (230 mm) long. It has a 3/8" x 2" hardened wear pad (52-56 HRC) for extra life. This tool is ideal for primary tillage or banding fertilizer.



EMBEDDED CARBIDE ON UNDERSIDE

**410-SPK-0200ML**

**MAX LIFE™ SPIKE**

The same as **410-SPK-0200** with the addition of heat applied, embedded carbide on the underside. This tool is ideal for primary tillage or banding fertilizer.

For more information see pages 90-91.



## THE EXTENDED STEM ADVANTAGE

Bolt-on sweeps fit all makes and models of tillage equipment. The stem, or neck, on these bolt-on sweeps are longer than that of our competitors. This extended stem allows us to punch the bolt holes higher than on any other brand of sweep. The results are reduced stem breakage, less wear on the shank, and less wear and stone damage to the bottom bolt.

Less wear on the shank extends the useful life of the sweep, while less stone damage on the bottom bolt means fewer problems when changing shovels. The extended stem feature saves you time and money.

### 043 SERIES

For heavy-duty chisel plows with 43° shanks and 2-1/4" to 2-1/2" (57 mm to 64 mm) hole centers.

SIZE	THICKNESS	PRODUCT NO.
8" (200 mm)	1/4" (6 mm)	<b>043-PWV-0800</b>
10" (254 mm)	1/4" (6 mm)	<b>043-PWV-1000</b>
12" (305 mm)	1/4" (6 mm)	<b>043-PWV-1200</b>
14" (355 mm)	1/4" (6 mm)	<b>043-PWV-1400</b>
16" (420 mm)	1/4" (6 mm)	<b>043-PWV-1600</b>
18" (460 mm)	1/4" (6 mm)	<b>043-PWV-1800</b>

### 047 SERIES

For field cultivators with 47° shanks and 1-3/4" (45 mm) hole centers.

SIZE	THICKNESS	PRODUCT NO.
4" (100 mm)	1/4" (6 mm)	<b>047-PWV-0400</b>
7" (180 mm)	5/16" (8 mm)	<b>047-PWV-0708</b>
9" (230 mm)	1/4" (6 mm)	<b>047-PWV-0900</b>
9" (230 mm)	5/16" (8 mm)	<b>047-PWV-0908</b>
10" (254 mm)	1/4" (6 mm)	<b>047-PWV-1000</b>
10" (254 mm)	5/16" (8 mm)	<b>047-PWV-1008</b>
11" (280 mm)	1/4" (6 mm)	<b>047-PWV-1100</b>
12" (305 mm)	1/4" (6 mm)	<b>047-PWV-1200</b>
13" (330 mm)	1/4" (6 mm)	<b>047-PWV-1300</b>
13" (330 mm)	5/16" (8 mm)	<b>047-PWV-1308</b>

### 050 SERIES

For heavy-duty chisel plows with 50° shanks and 2-1/4" (57 mm) hole centers.

SIZE	THICKNESS	PRODUCT NO.
6" (150 mm)	1/4" (6 mm)	<b>050-PWV-0600</b>
8" (200 mm)	1/4" (6 mm)	<b>050-PWV-0800</b>
10" (254 mm)	1/4" (6 mm)	<b>050-PWV-1000</b>
12" (305 mm)	1/4" (6 mm)	<b>050-PWV-1200</b>

SIZE	THICKNESS	PRODUCT NO.
14" (355 mm)	1/4" (6 mm)	<b>050-PWV-1400</b>
16" (420 mm)	1/4" (6 mm)	<b>050-PWV-1600</b>
16" (420 mm)	5/16" (8 mm)	<b>050-PWV-1608</b>
18" (460 mm)	1/4" (6 mm)	<b>050-PWV-1800</b>



**070-RCH-0451**

**REVERSIBLE CHISEL**

This reversible chisel is 5/16" (8 mm) thick and 4" (100 mm) wide. It has 1-3/4" (45 mm) bolt hole spacing to fit light- and medium-duty field cultivators. It is used mostly for primary tillage in the fall or early spring.



**070-RCH-0452**

**REVERSIBLE CHISEL**

This reversible chisel is 5/16" (8 mm) thick and 4" (100 mm) wide. It has 2-1/4" to 2-1/2" (57 to 63 mm) bolt hole spacing. It is used mostly for primary tillage in the fall or early spring.



**070-RSP-0200A**

**REVERSIBLE SPIKE**

This reversible spike is 2" (50 mm) wide, 5/8" (16 mm) thick and 14-1/2" (368 mm) long. It has 1-3/4" to 2" (45 mm to 57 mm) bolt hole spacing. It is shorter than our other two reversible spikes, and is designed for light- to medium-duty field cultivators or for chisel plows where ground clearance in transport is a concern.



**070-RSP-0210A**

**REVERSIBLE SPIKE**

This reversible spike is 2" (50 mm) wide, 5/8" (16 mm) thick and 17" (431 mm) long. It has 2-1/4" (57 mm) bolt hole spacing and is flat through the bolt hole section.

This spike is designed specifically to fit the Bourgault chisel plow and Morris LH 755 shank. On 43° machines the shank curvature may interfere with installation.



**070-RSP-0220A**

**REVERSIBLE SPIKE**

This reversible spike is 2" (50 mm) wide, 5/8" (16 mm) thick and 16-1/2" (419 mm) long. It has 2-1/4" to 2-1/2" (57 to 63 mm) bolt hole spacing and is curved at the bolt hole section.

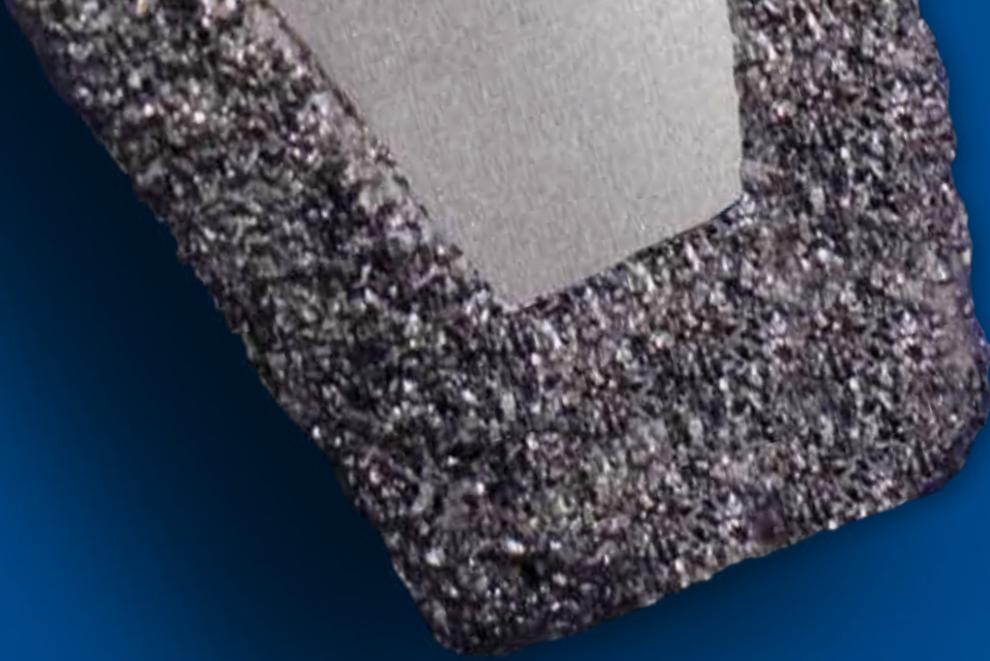
This spike can be used on any chisel plow shank except the Bourgault chisel plow and Morris LH 755 shank. On 43° machines the shank curvature may interfere with installation.

**NOT SURE WHICH SHANK DEGREE OR HOLE CENTER YOU HAVE?**

Refer to the *Speed-Loc™* adapter chart on pages 80-81.

**NOT SURE WHICH BOLTS YOU NEED?**

Refer to the bolt length chart on page 107.



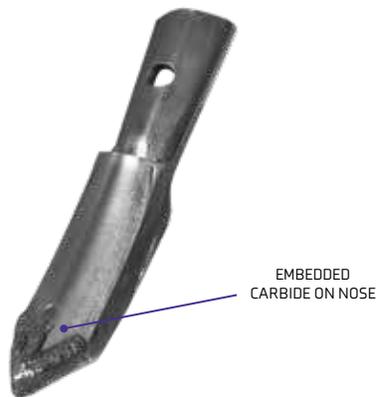
# **MAX LIFE**

**CARBIDE EDGE**

## **Let BTT help you extend the life of your wear parts**

The *MAX LIFE™* process infuses tungsten carbide onto wear parts, creating the toughest, most economical, and longest-lasting tillage tools available. *MAX LIFE™ CARBIDE EDGE* is cost effective and increases the useful life of wear parts longer than other hard facing processes. Years of rigorous field tests consistently show that the useful life is extended many times over, depending on the application.

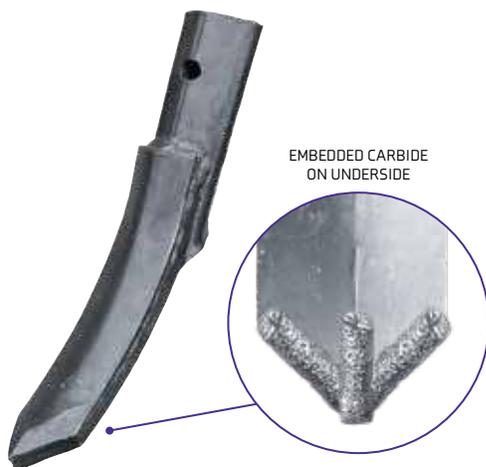
**Talk to us to learn more about this product and its many applications.**

**MAX LIFE™ CARBIDE EDGE SWEEPS & SPIKES****200-SPK-0200ML****FITS 200 SERIES SPEED-LOC™ (47° SHANK)**

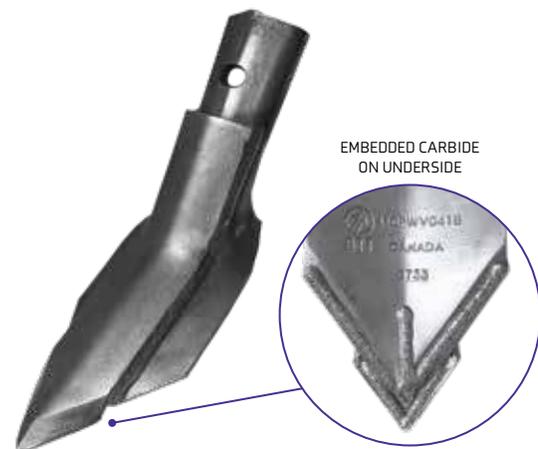
Heat applied, embedded carbide has been added to the nose of this quick change spike. The spike is 5/8" (15 mm) thick, 2-1/4" (57 mm) wide and 6" (150 mm) long. It has a hardened wear pad (52-56 HRC) for extra life. This tool is ideal for primary tillage or banding fertilizer.

**200-PWV-0405ML****FITS 200 SERIES SPEED-LOC™ (47° SHANK)**

Heat applied, embedded carbide has been added to the underside of this sweep. The sweep is 1/4" (6 mm) thick and 4" (100 mm) wide. It is designed mainly for fall tillage or deep working. It has a hardened wear pad (52-56 HRC) which increases the life expectancy. The nose on this sweep runs 1/2" (12 mm) lower than the other 200 Series sweeps. This increased pitch improves penetration in hard or compacted ground.

**410-SPK-0200ML****FITS 410 SERIES SPEED-LOC™**

Heat applied, embedded carbide has been added to the underside of this heavy-duty spike. The spike is 2" (50 mm) wide, 5/8" (15 mm) thick and 9" (230 mm) long. It has a hardened wear pad (52-56 HRC) for extra life. This tool is ideal for primary tillage or banding fertilizer.

**410-PWV-0418ML****FITS 410 SERIES SPEED-LOC™**

Heat applied, embedded carbide has been added to the underside of this sweep. The sweep has a 3/8" hardened wear pad (52-56 HRC) for longer life. The sweep is 5/16" (8 mm) thick and 4" (100 mm) wide. This sweep runs at a 13° pitch, which is steeper than the regular 410 sweep.

MAX LIFE™ CARBIDE EDGE

# HARROW TINES

**MAX LIFE™**  
**CARBIDE EDGE**  
EXTENDS THE LIFE  
OF HARROW TINES  
BY A MINIMUM OF

**6X**



**IMPROVED WEAR.**  
**EXCEPTIONAL VALUE.**

The MAX LIFE™ process infuses tungsten carbide onto the harrow tine creating the toughest and most economical option available. Field tests have proven that MAX LIFE™ tines outlast regular tines by a minimum of 6X. BTT applies its MAX LIFE™ coating to tines manufactured by S3 Wireform, which are known for consistency and longer coil life.

**MAX LIFE™/S3 Harrow Tines - the perfect match for longevity and exceptional value.**



**MAX LIFE™ CARBIDE EDGE HARROW TINES**

**10,000**  
acres of wear  
comparing a **MAX LIFE™**  
tine to a regular tine.

**FIELD TESTED. OUTSTANDING RESULTS.**

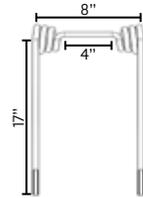
"MAX LIFE™ harrow tines have proven to outperform a regular tine many times over. There is no more need to worry about excessive tine wear in dry soil conditions prior to the fall rain. People tend to put off harrowing when the soil is too dry but the sooner you can harrow straw and chaff behind the combine maximizes the benefits of straw management and even germination the next year. This new product will now change a harrowing/tine management decision and there is a good chance the life of this tine will be close to the life of the harrow bar itself. I wouldn't hesitate to recommend the MAX LIFE™ tine to anyone."

**Shawn Blandin**  
**Synergy Farms, St. Brieux, SK**

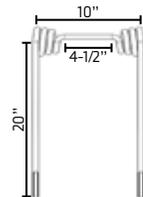
Harrow tines are warranted from the date of purchase against breakage for one year prorated to a maximum of 100%.

**010-HAR-3817ML****COIL I.D.:** 1-13/16"**WIRE:** 3/8"**FITS:**

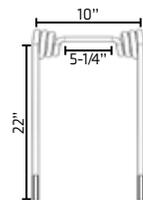
- Bourgault (OEM #2070-27)

**010-HAR-5000ML****COIL I.D.:** 2-9/16"**WIRE:** 1/2"**FITS:**

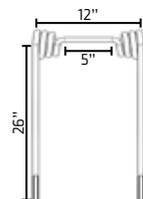
- Salford (OEM #R60000)

**010-HAR-5022ML****COIL I.D.:** 2-3/4"**WIRE:** 1/2"**FITS:**

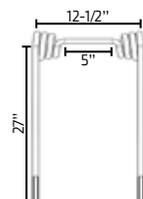
- Elmer's (OEM #21370, 12137000)

**010-HAR-5625ML****COIL I.D.:** 2-5/8"**WIRE:** 9/16"**FITS:**

- Bourgault (OEM #2070-28)
- Brandt (OEM #B021750)
- Degelman (OEM #143112)
- Flexi-Coil (OEM #90081C, 87445314)
- Rite Way (OEM #404-0010, 404-0028)
- Summers/Herman (OEM #8H11905)
- Gates (OEM #120240, 120241)

**010-HAR-6250ML****COIL I.D.:** 2-5/8"**WIRE:** 5/8"**FITS:**

- Bourgault (OEM #2070-70, 8606-13)
- Brandt (OEM #B021751, C516584)
- Degelman (OEM #143113)
- Gates (OEM #120229, 120230)
- Summers (OEM #8H11955)



# **DEEP RIPPER**

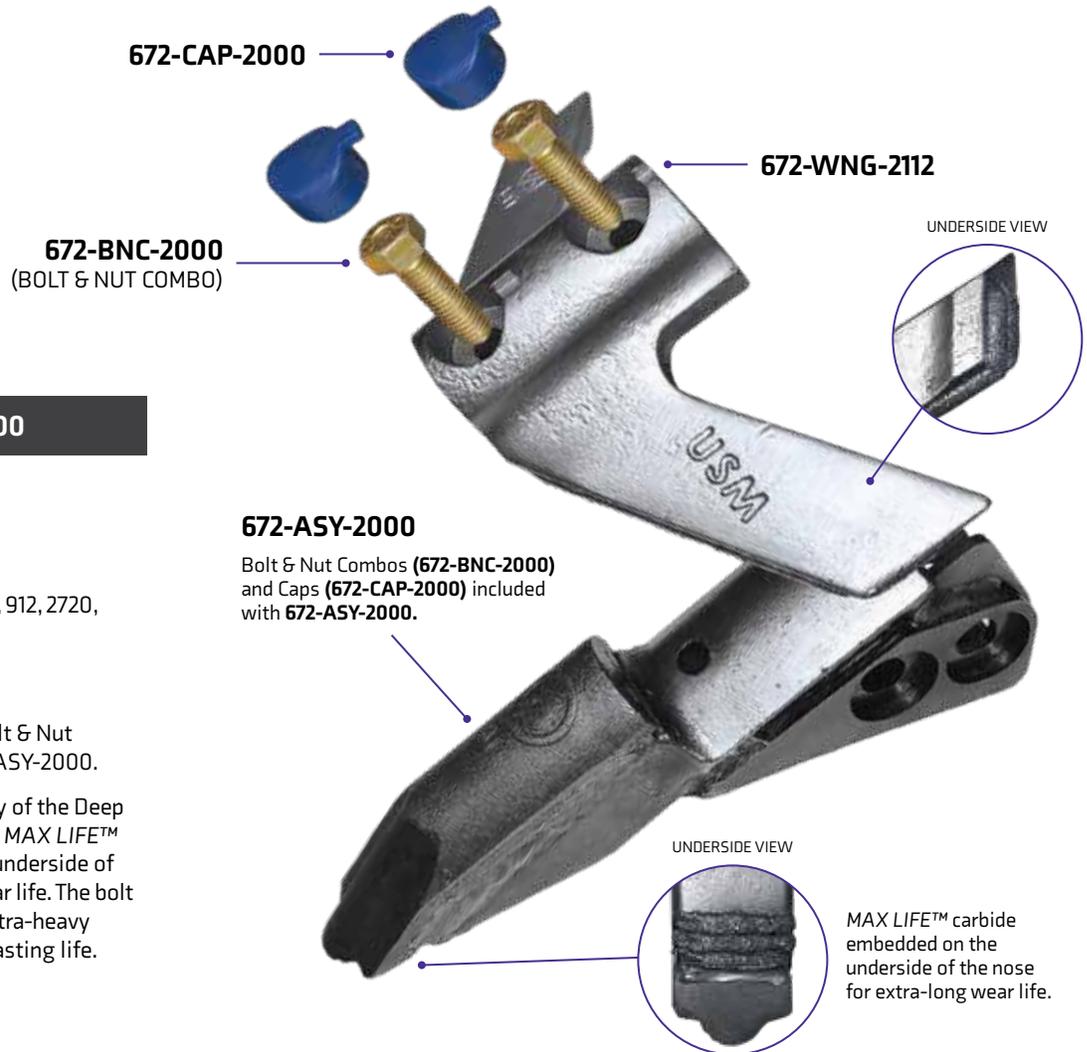
with replaceable wings



**MAX LIFE**  
CARBIDE EDGE

The Deep Ripper is used to penetrate compacted soils and mechanically break up the soil hard pan. Replaceable wings allow for quick and easy change overs to different wing profiles without having to remove the entire ripper from your machine. Embedded carbide is added to the underside of the wings and the main body for extra-long wear life.

# MAX LIFE™ CARBIDE EDGE DEEP RIPPER



## 672-ASY-2000

**FITS:**

- Brillion
- CNH: 870 & 875
- DMI
- John Deere: 510, 512, 910, 912, 2720, 2730 & 3700
- Krause: Dominator
- Landoll & Wil-Rich

**BOLTS:** 672-BNC-2000. Bolt & Nut Combo included with 672-ASY-2000.

**OVERVIEW:** The main body of the Deep Ripper is cast chrome with MAX LIFE™ carbide embedded on the underside of the nose for extra-long wear life. The bolt holes are re-enforced by extra-heavy cast plate to ensure long lasting life.

## 672-ASY-2000

Bolt & Nut Combos (672-BNC-2000) and Caps (672-CAP-2000) included with 672-ASY-2000.



## 672-WNG-2000

**PROFILE:** N/A

**WIDTH:** No wings, just standard cap



## 672-WNG-2007

**PROFILE:** Standard

**WIDTH:** 7" (178 mm)



## 672-WNG-2112

**PROFILE:** Flat Profile for Low Draft

**WIDTH:** 12" (305 mm)

**OVERVIEW:** Heat applied, embedded carbide has been added to the leading edge of the wings for extra-long wear life. Wings are available in two widths, with two different profiles allowing you to choose the right wing for your conditions. The polyurethane caps fit snugly over of the bolts to protect the bolts during the ripping process.

# NIAUX 200

BOOST  
YOUR PERFORMANCE

## BOOST YOUR PERFORMANCE

The research and development efforts in metallurgy and heat treatment have resulted in a line of coulters and disk blades that outperform the competition. Special boron-carbon steel along with our patented transitional heat treatment results in a consistently longer wearing blade with less dulling on the leading edge and without sacrificing durability. Niaux 200 is the disk blade of choice for leading OEMs and farmers around the world.

### LONG-LASTING

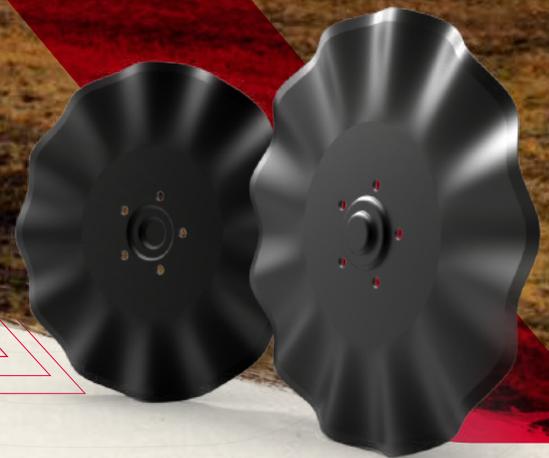
Thanks to increased hardness in the working area, Niaux 200 disks have the longest lifespan on the market.

### EFFECTIVE

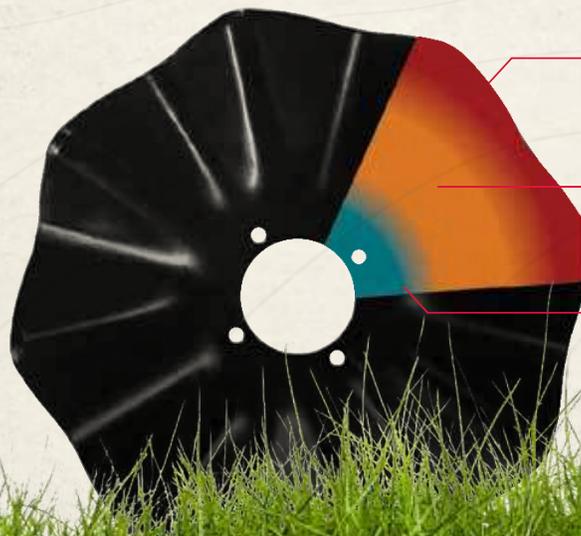
Niaux 200 disk blades ensure a perfect cutting quality throughout their lifetime.

### ROBUST

Niaux 200 disk blades are very resilient and are designed to resist extreme shocks and deformations.



Niaux 200 uses patented technology that has set a new **quality standard** in the field of agricultural disk blades. When replacing coulters or disk blades on your seeding or tillage equipment ask for Niaux 200 quality blades.



**Maximum hardness & wear resistance**  
(55-58 HRC)

**Transition area**  
(50-55 HRC)

**Maximum flexibility**  
(48-50 HRC)



500-200-1025	
FITS: <b>AMITY/CONCORD</b>	
<b>Replaces OEM Part #</b>	34354
<b>Disk Type</b>	Flat Coultter
<b>Dimensions</b>	18" x 5mm
<b>Pilot Hole Size</b>	3-5/8"
<b># of Bolt Holes</b>	4



500-200-1005	
FITS: <b>CNH</b>	
<b>Case:</b> IH 500, 500T <b>NH:</b> P2080 & NH P2085	
<b>Replaces OEM Part #</b>	87488385
<b>Disk Type</b>	Flat Coultter
<b>Dimensions</b>	18" x 5mm
<b>Pilot Hole Size</b>	3.5"
<b># of Bolt Holes</b>	4



517-200-1020	
FITS: <b>CNH</b>	
<b>CIH, DMI:</b> 530C, 730C	
<b>Replaces OEM Part #</b>	87457566
<b>Disk Type</b>	Plain Concave
<b>Dimensions</b>	24-3/4" x 6.5 mm
<b>Pilot Hole Size</b>	4"
<b># of Bolt Holes</b>	5



510-200-1000	
FITS: <b>GREAT PLAINS</b>	
Turbo Chopper, Turbo-Max , Turbo Till & Turbo Till II	
<b>Replaces OEM Part #</b>	820-011C
<b>Disk Type</b>	20 Wave RT Coultter
<b>Dimensions</b>	20-1/2" x 6.5 mm
<b>Pilot Hole Size</b>	1-3/4" ROUND
<b># of Bolt Holes</b>	N/A



511-200-1000	
FITS: <b>GREAT PLAINS</b>	
Vantage I Fertilizer Coultter, Zone Coultter & HD Utility Coultter	
<b>Replaces OEM Part #</b>	820-215C
<b>Disk Type</b>	20 Wave RT Coultter
<b>Dimensions</b>	18" x 5 mm
<b>Pilot Hole Size</b>	4"
<b># of Bolt Holes</b>	4



500-200-1010	
FITS: <b>JOHN DEERE</b>	
JD 750, 752, 1560, 1590, 1690, 1850, 1860, 1890, 1890 CCS, 1895, 1990 & 1835 SFP Air Hoe	
<b>Replaces OEM Part #</b>	N283804
<b>Disk Type</b>	Flat Coultter
<b>Dimensions</b>	18" x 5 mm
<b>Pilot Hole Size</b>	3"
<b># of Bolt Holes</b>	4



517-200-1030	
FITS: <b>JOHN DEERE &amp; NORWOOD</b>	
JD: 2680H Norwood: Kwik-Till	
Replaces OEM Part #	JD NS90340003 NW 18199A & 19028A
Disk Type	Plain Concave Flat Center
Dimensions	20" x 6.5 mm
Pilot Hole Size	N/A
# of Bolt Holes	4



522-200-1040	
FITS: <b>JOHN DEERE &amp; NORWOOD</b>	
JD: 2680H Norwood: Kwik-Till	
Replaces OEM Part #	JD NS90340002 NW 18354A
Disk Type	Notched Concave Flat Center
Dimensions	20" x 6.5 mm
Pilot Hole Size	N/A
# of Bolt Holes	4



522-200-1000	
FITS: <b>LEMKEN</b>	
Heliodor 8	
Replaces OEM Part #	3490471
Disk Type	Notched Concave
Dimensions	18" x 5 mm
Pilot Hole Size	N/A
# of Bolt Holes	6



522-200-1005	
FITS: <b>LEMKEN</b>	
Rubin 9 & Rubin 12	
Replaces OEM Part #	3490467
Disk Type	Notched Concave
Dimensions	24-5/8" x 6 mm
Pilot Hole Size	N/A
# of Bolt Holes	5



522-200-1035	
FITS: <b>LEMKEN</b>	
Heliodor 9	
Replaces OEM Part #	34910027
Disk Type	Notched Concave
Dimensions	20" x 5 mm
Pilot Hole Size	N/A
# of Bolt Holes	4



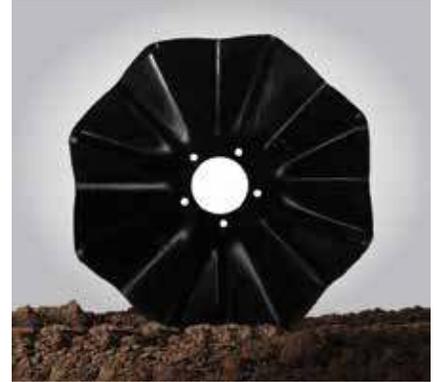
500-200-1020	
FITS: <b>PILLAR</b>	
DH Series	
Replaces OEM Part #	206-007
Disk Type	Flat Coulter
Dimensions	18" x 5 mm
Pilot Hole Size	3-5/8"
# of Bolt Holes	4



505-200-1000	
FITS: <b>SALFORD</b>	
Salford I-1100 & Salford I-1200	
<b>Replaces OEM Part #</b>	10010764 & CT512008
<b>Disk Type</b>	8 Wave Coultter
<b>Dimensions</b>	20" x 4.5 mm
<b>Pilot Hole Size</b>	4"
<b># of Bolt Holes</b>	4



505-200-1005	
FITS: <b>SALFORD</b>	
Salford I-1100 & Salford I-1200	
<b>Replaces OEM Part #</b>	10010766 & CT512013
<b>Disk Type</b>	13 Wave Coultter
<b>Dimensions</b>	20" x 4.5 mm
<b>Pilot Hole Size</b>	4"
<b># of Bolt Holes</b>	4



505-200-1010	
FITS: <b>SALFORD</b>	
Salford I-2100, I-2200 (all) Salford I-4100 (last 2 rows) Salford I-4200 (all but front row)	
<b>Replaces OEM Part #</b>	10010768 & CT512208
<b>Disk Type</b>	8 Wave Coultter
<b>Dimensions</b>	21-3/4" x 5 mm
<b>Pilot Hole Size</b>	4"
<b># of Bolt Holes</b>	5



505-200-1015	
FITS: <b>SALFORD</b>	
Salford I-2100, I-2200 (all) Salford I-4100 (last 2 rows) Salford I-4200 (all but front row)	
<b>Replaces OEM Part #</b>	CT512213 & 10010769
<b>Disk Type</b>	13 Wave Coultter
<b>Dimensions</b>	22-3/4" x 5 mm
<b>Pilot Hole Size</b>	4"
<b># of Bolt Holes</b>	5



517-200-1015	
FITS: <b>SALFORD</b>	
Salford I-4100 (first 2 rows), I-4200 (front row) & I-5100 (all)	
<b>Replaces OEM Part #</b>	CT512250 & 10010771
<b>Disk Type</b>	Plain Concave
<b>Dimensions</b>	22-1/4" x 5 mm
<b>Pilot Hole Size</b>	4"
<b># of Bolt Holes</b>	5



517-200-1020	
FITS: <b>SALFORD</b>	
Optional on Salford I-5100	
<b>Replaces OEM Part #</b>	CT503059 & 10010727
<b>Disk Type</b>	Plain Concave
<b>Dimensions</b>	24-3/4" x 6.5 mm
<b>Pilot Hole Size</b>	4"
<b># of Bolt Holes</b>	5



505-200-1020	
FITS: <b>SUMMERS</b>	
Summers Super Coulter & Coulter Chisel	
<b>Replaces OEM Part #</b>	8J1020
<b>Disk Type</b>	8 Wave Coulter
<b>Dimensions</b>	20" x 6.5 mm
<b>Pilot Hole Size</b>	2" Round
<b># of Bolt Holes</b>	N/A



505-200-1025	
FITS: <b>SUMMERS</b>	
Summers Super Coulter & Coulter Chisel	
<b>Replaces OEM Part #</b>	8J1021N
<b>Disk Type</b>	8 Wave Notch Coulter
<b>Dimensions</b>	22-1/2" x 6.5 mm
<b>Pilot Hole Size</b>	2" Round
<b># of Bolt Holes</b>	N/A



515-200-1000	
FITS: <b>SUMMERS</b>	
Summers DK Series Disk	
<b>Replaces OEM Part #</b>	8K5026
<b>Disk Type</b>	Plain Concave
<b>Dimensions</b>	26-1/4" x 6.5 mm
<b>Pilot Hole Size</b>	2" Round
<b># of Bolt Holes</b>	N/A



521-200-1000	
FITS: <b>SUMMERS</b>	
Summers DT Series Disk	
<b>Replaces OEM Part #</b>	8K5025N
<b>Disk Type</b>	Notched Concave
<b>Dimensions</b>	25" x 8 mm
<b>Pilot Hole Size</b>	2" Round
<b># of Bolt Holes</b>	N/A



500-200-1030	
FITS: <b>YETTER &amp; AGPRO</b>	
<b>Replaces OEM Part #</b>	Yetter 2571-169
<b>Disk Type</b>	Flat Coulter
<b>Dimensions</b>	18" x 4.5 mm
<b>Pilot Hole Size</b>	3-15/16" Round
<b># of Bolt Holes</b>	4



We are continuously adding new products to our line-up. If you can't find what you're looking for, please call us at **1.800.878.7714**.

For the most up to date listing of our product, visit [tillage.tools.com](http://tillage.tools.com).

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## **ACCESSORIES & REFERENCE**

This section contains replacement parts and accessories for our product lines.

For your reference there are expanding drawings of several of our openers, charts for Bolt Sizes and Fasteners, Product Depth Chart, and Installation Notes.

# ACCESSORIES



<b>100-WDG-0700</b>	<b>200-WDG-0206</b>	<b>200-WDG-0506</b>	<b>200-WDG-1000</b>	<b>200-WDG-1006</b>	<b>400-WDG-0300</b>	<b>400-WDG-0700</b>
This 7° urethane wedge is designed to correct the pitch of the 100-QCA-5010 and the 200-QCA-5010 adapters on 43° shanks.	This 2° urethane wedge has 45 mm to 80 mm bolt hole spacing. It is used to obtain proper sweep pitch on certain shanks.	This 5° urethane wedge has 45 mm to 80 mm bolt hole spacing. It is used to obtain proper sweep pitch on certain shanks.	This 10° urethane wedge has 45 mm to 80 mm bolt hole spacing. It is used to obtain proper sweep pitch on certain shanks.	This 10° urethane wedge has 45 mm to 80 mm bolt hole spacing. It is used to obtain proper sweep pitch on certain shanks.	This 3° urethane wedge is designed to correct the pitch of the 410-QCA-5010 adapter on a 47° chisel plow shank, as well as the 50° bolt-on sweeps.	This 7° urethane wedge is designed to correct the pitch of the 410-QCA-5010 adapter when installing on a 43° shank. It should also be used with the 600 Series knives when installing on a 43° shank.



<b>880-WDG-0300</b>	<b>880-WDG-0301</b>	<b>880-BSH-1000</b>	<b>880-BSH-2000</b>	<b>200-QAS-4711</b>	<b>047-ACC-1001</b>	<b>047-ACC-1002</b>
This cast wedge adapter is designed for our 047, 610 and 612 seeding openers on all John Deere shanks except the John Deere 1830.	This cast wedge adapter is designed for our 047, 610 and 612 seeding openers on all 50° curved bottom shanks including the John Deere 1830 but excluding all other John Deere models.	This bushing is to be used with all VOS tips.	This bushing is to be used on John Deere split shanks with bolt ons & QCAs.	This sub-plate is used in conjunction with the 200-QCA-4710 adapter on the Kongsilde VFM shank.	Helps direct the flow of seed in a focused row behind the 047-ASY-1000, 047-ASY-1005P or 675 Series openers.	Allows you to adapt to any shank with an open bottom hole. Keeps the bottom bolt in place on the John Deere 1820, 1830 & 2410.



<b>047-CAP-1000</b>	<b>600-HHA-0750</b>	<b>614-ACC-1000</b>	<b>650-ACC-1000</b>	<b>650-ACC-1010</b>	<b>880-ORF-0001</b>	<b>680-ACC-0001</b>
This cap is a replacement cap for the 047-ASY-1000 and 047-ASY-1005P. See expanded assemblies for the right cap for your opener.	This stainless steel hose holder mounts on any C-Shank to hold the NH3 hose in place. It is completely height adjustable.	This bushing is necessary when using NH3 with the 614-TIP-2711 & 614-TIP-2712.	This bracket limits the tripping distance of the 650 fertilizer knives on the JD 1870 Conserva-Pac drills. This bracket is to be used with all fertilizer knives excluding the 650-HLD-1000GL & 650-HLD-1000GN knives.	This bracket limits the tripping distance of the 650 fertilizer knives on the JD 1870 Conserva-Pac drills. This bracket is to be used with the 650-HLD-1000GL & 650-HLD-1000GN knives.	This orifice is used to concentrate and direct the flow of liquid fertilizer on the 200-VRT-1061 and 200-KNF-0863.	This spacer plate is required for the Concord when installing any edge on product.



<b>680-ACC-0002</b>	<b>680-ACC-0003</b>	<b>680-ACC-0004</b>	<b>680-ACC-1000</b>	<b>694-ACC-1000</b>	<b>880-ASY-1010</b>	<b>880-CPL-1010</b>
Spacer required when a 680-ASY-4026 is mounted on a Bourgault 3310 & 3320 PHD Drill.	Spacer required when a 680-ASY-4020 is mounted on a Bourgault 3310 & 3320 PHD Drill.	This conversion tab replaces the fertilizer tube on the 680-HLD-2000 so it can be converted to a single shoot opener.	Helps direct the flow of seed in a focused row behind the opener. Use with 680-ASY-1000 openers prior to 2012.	This spacer is required when installing Titan Openers on anything except Concord.	This assembly is required to convert the standard 3/16" (5 mm) O.D. liquid phos hose to 1/4" I.D. Liquid Phos delivery hoses on the 47-ASY-1005P and 680-ASY-1000P.	This barb and compression fitting are used when going from 1/4" (6 mm) I.D. Liquid Phos tube to 3/16" stainless steel liquid phos tubes.



**880-CPL-2500**

This coupler is used to attach a 1/4" (6 mm) O.D. Liquid Phos tube. Included with all new liquid phos openers.

**880-GRD-1000**

This guard is used to protect liquid hose on all side band liquid openers in heavy trash conditions.

**880-GRD-1010**

This guard is used to protect Liquid Phos tubes on 047 & 680 Liquid Phos openers in heavy trash conditions.

**880-HCL-0001**

This clip eliminates hose movement, as the sharp corners embed into the granular pipe.

**880-HCL-0002**

Spacer clip may be required on the rear tube of the following side band openers: 683, 684, 686, 693, 694 where 1-1/8" (29 mm) hose is used.

**880-HCL-0004**

This 3/4" ear clamp is used to secure the rubber sleeve to the 1/2" pipe to protect the Liquid Phos tube.

## BUSHINGS TO ADAPT TO DIFFERENT AIR HOSE SIZES



**300-BSH-1200**

This bushing adapts from a 1-1/8" (28 mm) O.D. air hose up to a 1-1/4" (32 mm) O.D. air hose.

**300-BSH-1205**

This bushing adapts from 1-1/8" (28 mm) O.D. air hose to 1-1/8" (28 mm) O.D. air hose.

**880-BSH-1130**

This bushing is needed when you are using 1-1/8" (28 mm) O.D. hose.

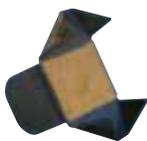
**880-BSH-1150**

This bushing adapts from 1-1/4" (32 mm) O.D. air hose up to a 1-1/2" (38 mm) O.D. air hose.

**880-BSH-1170**

This bushing adapts 1-1/2" (38 mm) O.D. hose to 1-1/4" (32 mm) hose.

## HOSES POPPING OUT? DON'T FORGET THE HOSE CLIP



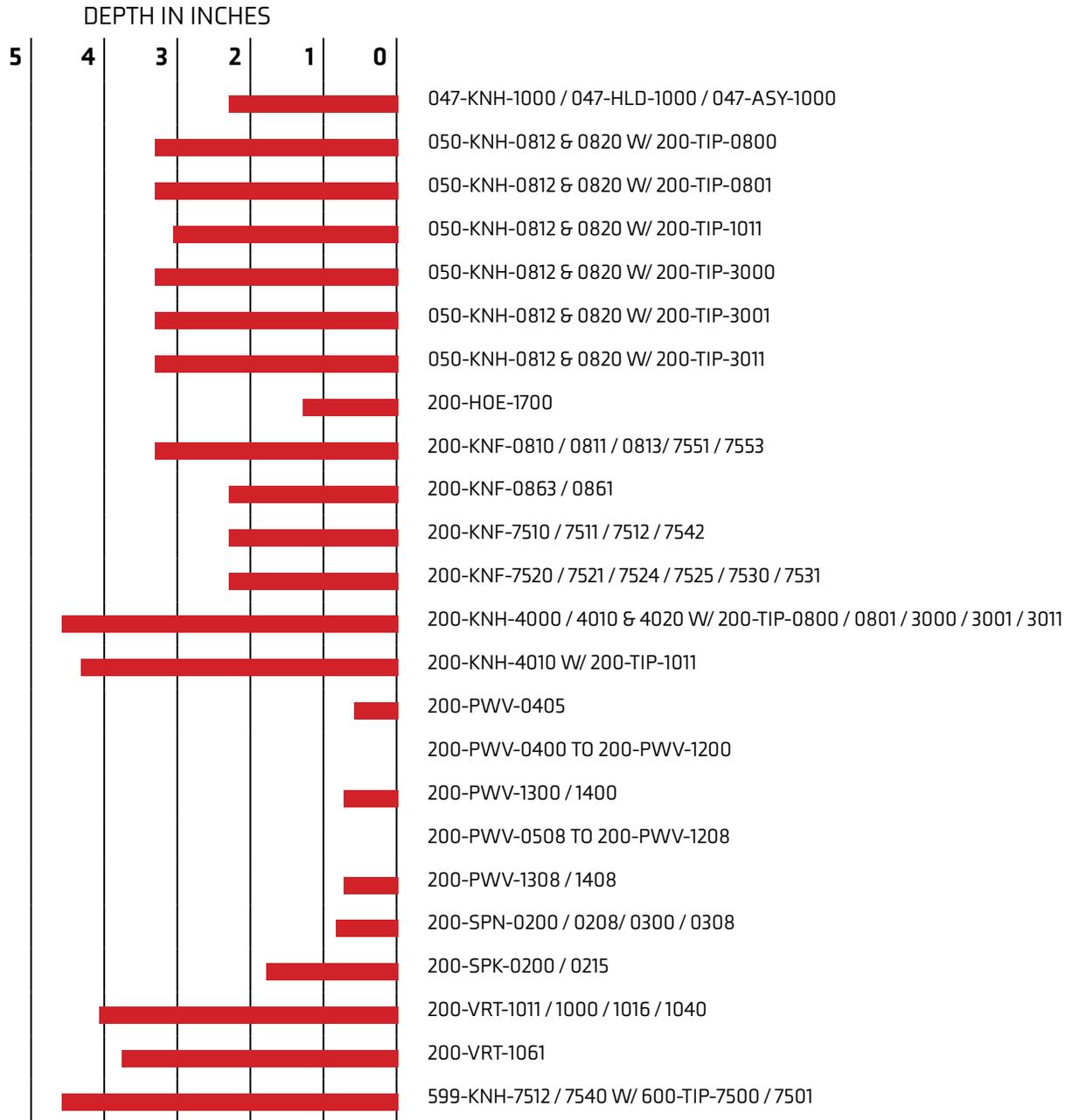
**880-HCL-0001**

This clip eliminates hose movement, as the sharp corners embed into the granular pipe. **For proper installation see illustration to right.**

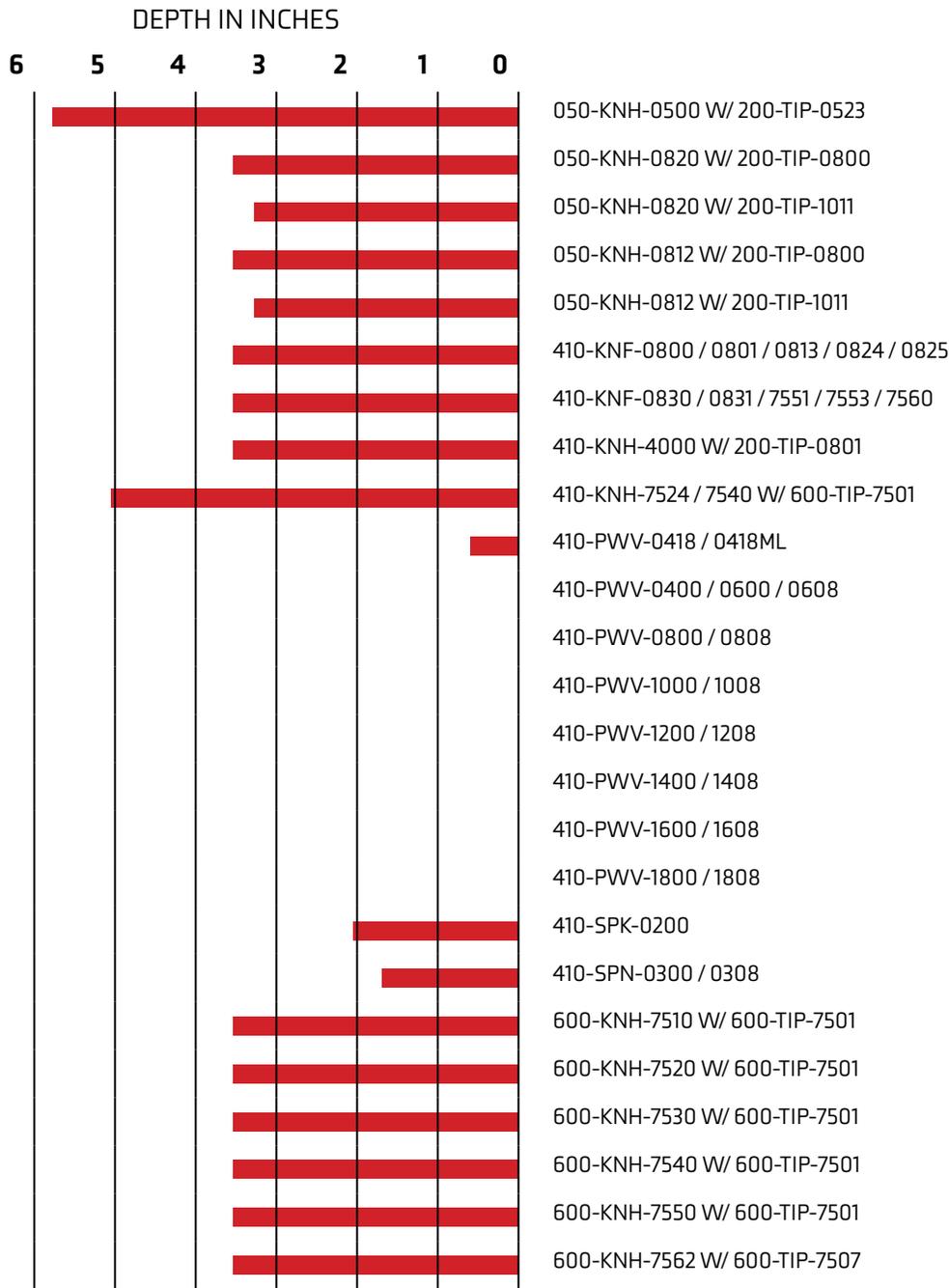


FINAL ASSEMBLY

# 200 SERIES



# 410 SERIES



## C-SHANK

### FOR 047-ASY-1000, 610 & 612 SERIES OPENERS:

- For 1" shanks use 1/2" x 2" **Grade 8** Carriage Bolt, **961-CRG-2005**
- For 1-1/4" shanks use 1/2" x 2-1/4" **Grade 8** Carriage Bolt, **961-CRG-2255**
- When installing on a **50° shank** other than Bourgault or Ezee-On use **wedge 880-WDG-0300 or 880-WDG-0301**. See page 102 for more information.

### When using these wedges different bolt lengths are required:

- For 1" shank use 1/2" x 2-1/4" **Grade 8** Bolt, **961-CRG-2255**
- For 1 1/4" shank use 1/2" x 2-1/2" **Grade 8** Bolt, **961-CRG-2505**
- 1/2" Stover Lock Nuts, **906-NPT-5005**

**Torque shank bolts to 80 - 100 ft/lbs.**

**NOTE:** For 047-VRT-1040 and 047-KNH-1000 refer to page 18.

### FOR 600 & 620 SERIES OPENERS:

- Use 1/2" Hex Head **Grade 8** Bolt

**Torque shank bolts to 120 - 130 ft/lbs.**

**NOTE:** Blue Loctite is also recommended

## EDGE ON

### FOR BOURGAULT 3310 & 3320 EDGE ON SHANK:

- 3/8" x 2-1/4" **Grade 8** Carriage Bolts, **960-CRG-3755**
- 3/8" Stover Lock Nut, **906-NPT-3755**
- For the 680-ASY-4020 use spacer plate **680-ACC-0003**
- For the 680-ASY-4026 use the **680-ACC-0002**

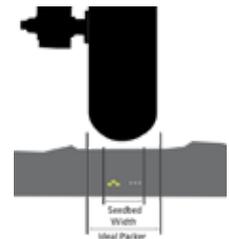
### FOR MORRIS MAXIM:

- 3/8" x 2-1/4" **Grade 8** Carriage Bolts, **960-CRG-3755**
- 3/8" Stover Lock Nut, **906-NPT-3755**

**For more detailed installation instructions refer to the individual part pages.**

## PACKING CONSIDERATIONS

It is recommended to use on-row packing to achieve good soil to seed contact for even germination. Generally, the packer wheel width should be equal to or greater than the width of the tip on the opener. The ideal result is to have uniform depth of firm soil over the full seed row.



## INSTALLING & CHANGING TIPS

One of our most popular innovations is the replaceable tip. The tongue and groove configuration allows customers to change tips as they wear out, instead of the whole opener. You can also change tip sizes if conditions change in your operation. There are several things to keep in mind when changing or installing new tips:

**1** When installing new tips it is important to use a new bolt and nut combination. Before installing a new tip, clean the tongue of the holder of any rust or debris with a wire brush.

**2** The nut is placed in a pocket in the tongue. The bolt is installed through the hole in the side of the replaceable tip.

**3**

**4** **TIP REMOVAL**  
If a worn out tip is seized on the tongue, you can use two 3lb hammers, one to support the side of the boot and the other to strike the opposite side of the tip to break the side wall.

**5** When installing a knife on the *Speed-Loc™* adapter, always use the correct driver.

**Always wear safety glasses!**

**NOTE:** Over torquing will result in difficulty removing. Torque to 84 in/lbs or 7ft/lbs.

## 047 SERIES BOLT-ON SWEEPS (LIGHT & MEDIUM-DUTY CULTIVATORS)

APPLICATION	TOP BOLT	BOTTOM BOLT	SPECIAL NOTES
1" Bourgault shank w/o seed boot	1/2" x 2"	1/2" x 2"	Plow bolts, no lock washer, regular nut
1" Bourgault shank w/ Bourgault round tube seed boot	1/2" x 2"	1/2" x 2"	Plow bolts, no lock washer, regular nut
1" Bourgault shank w/ Bourgault square tube seed boot	1/2" x 2-1/4"	1/2" x 2"	Plow bolts, no lock washer, regular nut
7/8" Bourgault shank w/o seed boot	1/2" x 1-3/4"	1/2" x 1-3/4"	Plow bolts, no lock washer, regular nut
7/8" Bourgault shank w/ Bourgault round tube seed boot	1/2" x 2"	1/2" x 1-3/4"	Plow bolts, no lock washer, regular nut
7/8" Bourgault shank w/ Bourgault square tube seed boot	1/2" x 2-1/4"	1/2" x 1-3/4"	Plow bolts, no lock washer, regular nut
3/4" Bourgault shank w/o seed boot	1/2" x 1-3/4"	1/2" x 1-3/4"	Plow bolts, no lock washer, regular nut
3/4" Bourgault shank w/ Bourgault round tube seed boot	1/2" x 1-3/4"	1/2" x 1-3/4"	Plow bolts, no lock washer, regular nut
3/4" Bourgault shank w/ Bourgault square tube seed boot	1/2" x 2"	1/2" x 1-3/4"	Plow bolts, no lock washer, regular nut
3/4" Degelman shank w/o seed boot	7/16" x 1-3/4"	7/16" x 1-3/4"	Plow bolts, no lock washer, regular nut
7/8" Flexi-Coil shank w/o seed boot	7/16" x 1-3/4"	7/16" x 1-3/4"	Plow bolts, no lock washer, regular nut
1/2" Morris Challenger shank w/o seed boot	3/8" x 1-1/2"	3/8" x 1-1/2"	Plow bolts, no lock washer, regular nut
5/8" Morris Challenger shank w/o seed boot	3/8" x 1-1/2"	3/8" x 1-1/2"	Plow bolts, no lock washer, regular nut
5/8" John Deere shank w/o seed boot	7/16" x 1-1/2"	7/16" x 1-1/2"	Plow bolts, no lock washer, regular nut
9/16" CIL shank w/o seed boot	3/8" x 1-1/2"	3/8" x 1-1/2"	Plow bolts, no lock washer, regular nut
1/2" Case IH shank w/o seed boot	7/16" x 1-1/2"	7/16" x 1-1/2"	Plow bolts, no lock washer, regular nut

## 043 & 050 SERIES BOLT-ON SWEEPS (HEAVY-DUTY CHISEL PLOWS)

APPLICATION	TOP BOLT	BOTTOM BOLT	SPECIAL NOTES
1" Bourgault shank without seed boot	1/2" X 2"	1/2" X 2"	Plow bolts, no lock washer, regular nut
1" Bourgault shank with Bourgault splitter seed boot #6505-42	1/2" X 2-1/4"	1/2" X 2"	Plow bolts, no lock washer, regular nut
1-1/4" Bourgault shank without seed boot	1/2" X 2-1/4"	1/2" X 2-1/4"	Plow bolts, no lock washer, regular nut
1-1/4" Bourgault shank with Bourgault splitter seed boot #6505-42	1/2" X 2-1/2"	1/2" X 2-1/4"	Plow bolts, no lock washer, regular nut
1" John Deere shank without seed boot	1/2" X 1-3/4"	1/2" X 2"	Plow bolts, no lock washer, regular nut
3/4" Degelman shank (50°) without seed boot	1/2" X 1-3/4"	1/2" X 1-3/4"	Plow bolts, no lock washer, regular nut
1-1/4" Flexi-Coil shank without seed boot	1/2" X 2-1/4"	1/2" X 2-1/4"	Plow bolts, no lock washer, regular nut
1" Morris shank (43°) without seed boot	1/2" X 2"	1/2" X 2"	Plow bolts, no lock washer, regular nut
7/8" Shulte shank without seed boot	1/2" X 2"	1/2" X 2"	Plow bolts, no lock washer, regular nut
1-1/4" CIL shank without seed boot	1/2" X 2-1/4"	1/2" X 2-1/4"	Plow bolts, no lock washer, regular nut
1-1/4" IH shank without seed boot	1/2" X 2-1/4"	1/2" X 2-1/4"	Plow bolts, no lock washer, regular nut
3/4" Case IH Vibra shank without seed boot	1/2" x 1-3/4"	1/2" x 1-3/4"	Plow bolts, no lock washer, regular nut

**NOTES: 1)** All Bourgault sweeps come with 1/2" holes. Shanks with 3/8" and 7/16" holes require special oversize (O/S) head plow bolts. **2)** When bolting a seed boot, usually it is the bottom bolt which bolts the seed boot to the shank; the top bolt should remain the same length as listed above. If the seed boot cross section at the point the bolt goes through is 1/8" thick or less, use the same bolt length as above without the lock washer. If the seed boot cross section at the point the bolt goes through is greater than 1/8", increase bolt length by adding the measured cross section of the seed boot at the point the bolt goes through to the above lengths.

## 200 SERIES QC ADAPTER: 200-QCA-4700

APPLICATION	TOP BOLT	BOTTOM BOLT	SPECIAL NOTES
1" Bourgault shank w/o seed boot	1/2" x 2-1/4" no lock washer	1/2" x 2-1/4" no lock washer	Hex-head bolts
1" Bourgault shank w/ round tube Bourgault seed boot	1/2" x 2-1/4" no lock washer	1/2" x 2" no lock washer	Hex-head bolts, Grade 8 required
1" Bourgault shank w/ square tube Bourgault seed boot	1/2" x 2" no lock washer	1/2" x 2-1/2" no lock washer	Hex-head bolts, Grade 8 required
7/8" Bourgault shank w/o seed boot	1/2" x 2" no lock washer	1/2" x 2" no lock washer	Hex-head bolts
7/8" Bourgault shank w/ round tube Bourgault seed boot	1/2" x 2-1/4" no lock washer	1/2" x 2" no lock washer	Hex-head bolts, Grade 8 required
7/8" Bourgault shank w/ square tube Bourgault seed boot	1/2" x 2-1/4" no lock washer	1/2" x 2" no lock washer	Hex-head bolts, Grade 8 required
3/4" Bourgault shank w/o seed boot	1/2" x 2" no lock washer	1/2" x 2" no lock washer	Hex-head bolts
3/4" Bourgault shank w/ round tube Bourgault seed boot	1/2" x 2" c/w with lock washer	1/2" x 1-3/4" no lock washer	Hex-head bolts
3/4" Bourgault shank w/ square tube Bourgault seed boot	1/2" x 2-1/4" w/ lock washer	1/2" x 1-3/4" no lock washer	Hex-head bolts
3/4" Ezee-On shank w/o seed boot	7/16" x 1-3/4"	7/16" x 1-3/4"	Hex-head bolts (See note 3 below)
7/8" Ezee-On shank w/o seed boot	7/16" x 2"	7/16" x 2"	Hex-head bolts (See note 3 below)

**NOTES:** **1)**Above bolt lengths are determined using prevailing torque side locknuts – Grade C. This special locknut is necessary to keep the adapter tight. It is very important to use it, especially in stony or hard ground conditions. **2)**Grade 8 bolts are required with the Bourgault 7/8" and 1" shanks where seed boots are involved. If not used, bolt loosening may occur. **3)**Shanks with 7/16" holes require the special oversize head hex bolt.

## 200 SERIES QC ADAPTER: 200-QCA-4710

APPLICATION	TOP BOLT	BOTTOM BOLT	SPECIAL NOTES
3/4" and 7/8" Flexi-Coil shank w/o seed boot	7/16" x 2-1/4" no lock washer	7/16" x 2-1/4" no lock washer	Plow bolt (See note 2 below)
7/8" Flexi-Coil shank w/ 5649 seed boot	7/16" x 2-1/2" no lock washer	7/16" x 3-7/8" no lock washer	Plow bolt (see note 2 below)
1/2" Morris Challenger shank w/o seed boot	3/8" x 1-3/4" no lock washer	3/8" x 1-3/4" no lock washer	Plow bolt (see note 2 below)
5/8" Morris Challenger shank w/o seed boot	3/8" x 2" no lock washer	3/8" x 2" no lock washer	Plow bolt (see note 2 below)
7/8" Morris shank w/o seed boot	7/16" x 2-1/4" no lock washer	7/16" x 2-1/4" no lock washer	Plow bolt (see note 2 below)
9/16" CIL shank w/o seed boot	3/8" x 2" no lock washer	3/8" x 2" no lock washer	Plow bolt (see note 2 below)
5/8" John Deere shank w/o seed boot	7/16" x 2" no lock washer	7/16" x 2" no lock washer	Plow bolt (see note 2 below)
3/4" Degelman shank	7/16" x 2-1/4" no lock washer	7/16" x 2-1/4" no lock washer	Plow bolt (see note 2 below)
9/16" Wil-rich shank w/o seed boot	1/2" x 2" no lock washer	1/2" x 2" no lock washer	Plow bolt

## 200 SERIES QC ADAPTER: 200-QCA-5010

APPLICATION	TOP BOLT	BOTTOM BOLT	SPECIAL NOTES
1" shank w/o seed boot or wedge	1/2" x 2-1/2" w/ lock washer	1/2" x 2-1/2" w/ lock washer	Plow bolt
1-1/4" shank w/o seed boot seed boot or wedge	1/2" x 2-3/4" w/ lock washer	1/2" x 2-3/4" w/ lock washer	Plow bolt

**NOTES:** **1)**Above bolt lengths are determined using prevailing torque side locknuts – Grade C. This special locknut is necessary to keep the adapter tight. **2)**Shanks with 3/8" and 7/16" holes require special oversize head plow bolts. **3)**When bolting a seed boot, usually it is the bottom bolt which bolts the seed boot to the shank; the top bolt should remain the same length as listed above. If the seed boot cross section at the point the bolt goes through is 1/8" thick or less, use the same bolt length as above without the lock washer. If the seed boot cross section at the point the bolt goes through is greater than 1/8", increase bolt length by adding the measured cross section of the seed boot at the point the bolt goes through to the above lengths.

## 410 SERIES QC ADAPTER: 410-QCA-5000

APPLICATION	TOP HOLE	BOTTOM HOLE	SPECIAL NOTES
1" Bourgault shank w/o seed boot	1/2" x 2-1/2"	1/2" x 2-1/2"	Hex-head
1" Bourgault shank w/ Bourgault splitter seed boot 6505-42	1/2" x 2-1/2"	1/2" x 2-3/4"	Hex-head
1-1/4" Bourgault shank w/o seed boot	1/2" x 2-3/4"	1/2" x 2-3/4"	Hex-head
1-1/4" Bourgault shank w/ Bourgault splitter seed boot 6505-42	1/2" x 2-3/4"	1/2" x 3"	Hex-head

## 410 SERIES QC ADAPTER: 410-QCA-5010

APPLICATION	TOP HOLE	BOTTOM HOLE	SPECIAL NOTES
1" shank w/o seed boot or wedge	1/2" x 2-1/2"	1/2" x 2-1/2"	Hex-head
1-1/4" shank w/o seed boot or wedge	1/2" x 2-3/4"	1/2" x 2-3/4"	Hex-head

**NOTES: 1)** Above bolt lengths are determined using prevailing torque side locknuts – grade C. This special locknut is necessary to keep the adapter tight. **2)** When bolting a seed boot, usually it is the bottom bolt which bolts the seed boot to the shank; the top bolt should remain the same length as listed above. If the seed boot cross section at the point the bolt goes through is 1/8" thick or less, use the same bolt length as above without the lockwasher. If the seed boot cross section at the point the bolt goes through is greater than 1/8", increase bolt length by adding the measured cross section of the seed boot at the point the bolt goes through to the above lengths. **3)** When bolting an adapter using a wedge, a wedge will only be used when using the 410-QCA-5010 adapter on 43° and 47° chisel plows. Measure the cross section of the wedge at both bolt holes and add this amount to the above numbers. Remember that the measured cross section will be different at each hole in the wedge.

## 600/602 SERIES QUICK TIP KNIVES

APPLICATION	TOP HOLE	BOTTOM HOLE	SPECIAL NOTES
<b>For 47° and 50° applications, no wedge is needed</b>			
1-1/4" Bourgault shank	1/2" x 2-3/4"	1/2" x 2-3/4"	Hex-head bolt, regular nut and lock
1" Bourgault shank	1/2" x 2-1/2"	1/2" x 2-1/2"	Hex-head bolt, regular nut and lock
7/8" Bourgault shank	1/2" x 2-1/2"	1/2" x 2-1/2"	Hex-head bolt, regular nut and lock
3/4" Bourgault shank	1/2" x 2-1/4"	1/2" x 2-1/4"	Hex-head bolt, regular nut and lock
1-1/4" Flexi-Coil shank	1/2" x 2-3/4"	1/2" x 2-3/4"	Hex-head bolt, regular nut and lock
1-1/4" Morris shank	1/2" x 2-3/4"	1/2" x 2-3/4"	Hex-head bolt, regular nut and lock (See note 1 below)
1" John Deere shank	1/2" x 2-1/2"	1/2" x 2-1/2"	Hex-head bolt, regular nut and lock
7/8" Shulte shank	1/2" x 2-1/2"	1/2" x 2-1/2"	Hex-head bolt, regular nut and lock
3/4" Degelman shank	1/2" x 2-1/4"	1/2" x 2-1/4"	Hex-head bolt, regular nut and lock
<b>For 43° applications, wedge 400-WDG-0700 is required</b>			
1" Morris shank for NH3 knives	1/2" x 3" no lock washer	1/2" x 2-3/4" no lock washer	Hex-head, regular nut
1" Morris shank for granular knives	1/2" x 3" no lock washer	1/2" x 2-3/4" no lock washer	Hex-head, regular nut
1-1/4" CIL shank, 2-1/2" hole center-to-center	1/2" x 3-1/4" c/w no lock washer	1/2" x 2-3/4" no lock washer	Hex-head, regular nut
1-1/4" IH shank	1/2" x 3-1/4"	1/2" x 3"	Hex-head bolt, regular nut and lock (See note 2 below)
3/4" Case IH Vibra chisel shank	1/2" x 2-3/4"	1/2" x 2-1/2"	Hex-head bolt, regular nut and lock

**NOTES: 1)** Some material may have to be ground off the bottom of the 1-1/4" Morris shank (front face) to get the knife holder to seat down tight against the shank. **2)** The 1-1/4" IH shank will fit the NH3 knives, but not the granular knife. **3)** All knives come with holes to accommodate 1/2" bolts. If cultivator shanks have 7/16" holes, substitute 7/16" bolts for 1/2" and use a flat washer on the bolt head.

## BOLT & NUT PART NUMBERS

DESCRIPTION	SIZE	PART NUMBER
Carriage Bolt – Grade 8	3/8" x 1-1/2"	960-CRG-1505
Carriage Bolt – Grade 8	3/8" x 1-3/4"	960-CRG-1755
Carriage Bolt – Grade 8	3/8" x 2-1/4"	960-CRG-3755
Carriage Bolt – Grade 8	1/2" x 2"	961-CRG-2005
Carriage Bolt – Grade 8	1/2" x 2-1/4"	961-CRG-2255
Carriage Bolt – Grade 8	1/2" x 2-1/2"	961-CRG-2505
Hex Bolt	1/4" x 3/4"	942-HRG-0754
Hex Bolt	1/4" x 2"	942-HRG-2004
Hex Bolt	1/2" x 1-3/4"	946-HRG-1754
Hex Bolt	1/2" x 2-3/4"	946-HRG-2754
Hex Bolt	1/2" x 3"	946-HRG-3004
Hex Bolt	1/2" x 3-1/4"	946-HRG-3254
Hex Bolt	1/2" x 3-1/2"	946-HRG-3504
Hex Bolt – Grade 8	1/2" x 2"	946-HRG-2005
Hex Bolt – Grade 8	1/2" x 2-1/4"	946-HRG-2255
Hex Bolt – Grade 8	1/2" x 2-1/2"	946-HRG-2505
Hex Bolt – O/S Hd Shld Blt	7/16" x 1-3/4"	933-HOS-1754
Hex Bolt – O/S Hd Shld Blt	7/16" x 2"	933-HOS-2004
Lock Nut – Stover	1/4"	906-NPT-2505
Lock Nut – Stover	3/8"	906-NPT-3755
Lock Nut – Stover	7/16"	906-NPT-4375
Lock Nut – Stover	1/2"	906-NPT-5005
Lock Nut – Nylon Insert	1/4"	908-NNI-2504
Lock Washer	1/2"	902-LWS-5000
Nut – Grade 5	3/8"	904-NRG-3754
Nut – Grade 5	7/16"	904-NRG-4374
Nut – Grade 5	1/2"	904-NRG-5004
Plow Bolt	1/2" x 1-3/4"	926-PRG-1754
Plow Bolt	1/2" x 2"	926-PRG-2004
Plow Bolt	1/2" x 2-1/4"	926-PRG-2254
Plow Bolt	1/2" x 2-1/2"	926-PRG-2504
Plow Bolt	1/2" x 2-3/4"	926-PRG-2754
Plow Bolt	1/2" x 3"	926-PRG-3004
Plow Bolt	1/2" x 3-1/2"	926-PRG-3504
Plow Bolt – O/S Hd Low Shld	3/8" x 1-1/2"	922-POL-1504
Plow Bolt – O/S Hd Low Shld	3/8" x 1-3/4"	922-POL-1754

DESCRIPTION	SIZE	PART NUMBER
Plow Bolt – O/S Hd Low Shld	3/8" x 2"	922-POL-2004
Plow Bolt – O/S Hd	3/8" x 2-1/4"	922-POR-2254
Plow Bolt – O/S Hd Low Shld	7/16" x 1-3/4"	924-POL-1754
Plow Bolt – O/S Hd	7/16" x 2"	924-POR-2004
Plow Bolt – O/S Hd	7/16" x 2-1/4"	924-POR-2254
Plow Bolt – O/S Hd	7/16" x 2-1/2"	924-POR-2504
Plow Bolt – O/S Hd	7/16" x 2-3/4"	924-POR-2754
Plow Bolt – O/S Hd	7/16" x 3"	924-POR-3004
Plow Bolt – O/S Hd	7/16" x 3-7/8"	924-POR-3874
Screw – Pan Head	3/8"	911-SCR-1038
Screw – Self Drill	1/2"	911-SCR-1051

**LEGEND:** O/S Hd = Oversized Head; Low Shld = Low Shoulder; Shld Blt = Shoulder Bolt

## COMMON TORQUE VALUES: USS/SAE GRADE 8

This chart lists some of the more common bolt sizes and their calculated torque values. To ensure proper installation and the integrity of the bolts, it is recommended that you follow these values.

**All highlighted values are common bolt sizes used for our products.**

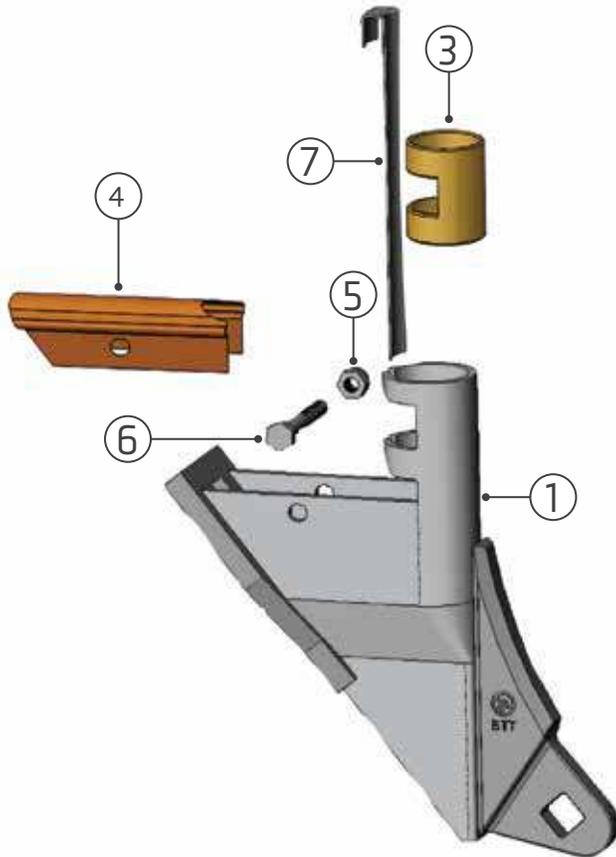
BOLT DIAMETER	TORQUE DRY FT. LBS.	LUBRICATED FT. LBS.
<b>1/4"</b>	<b>12</b>	<b>9</b>
5/16"	24	18
<b>3/8"</b>	<b>45</b>	<b>35</b>
<b>7/16"</b>	<b>70</b>	<b>50</b>
<b>1/2"</b>	<b>110</b>	<b>80</b>
9/16"	150	110
5/8"	210	160
3/4"	380	280
7/8"	600	450
1"	910	680

## COMMON TORQUE VALUES: METRIC

BOLT DIAMETER	CLASS 10.9		CLASS 12.9	
	TORQUE DRY FT. LBS.	LUBRICATED FT. LBS.	TORQUE DRY FT. LBS.	LUBRICATED FT. LBS.
M4	3.2	2.4	3.8	2.8
M5	6.5	4.9	7.6	5.7
M6	11.1	8.3	13	9.7
M7	18.5	13.9	21.7	16.3
M8	26.9	20.2	31.4	23.6
M10	53.2	39.9	62.2	46.7
M12	92.8	69.6	108.5	81.4
M14	148.4	111.3	173.4	130
M16	230	173	269	202
M18	318	239	372	279

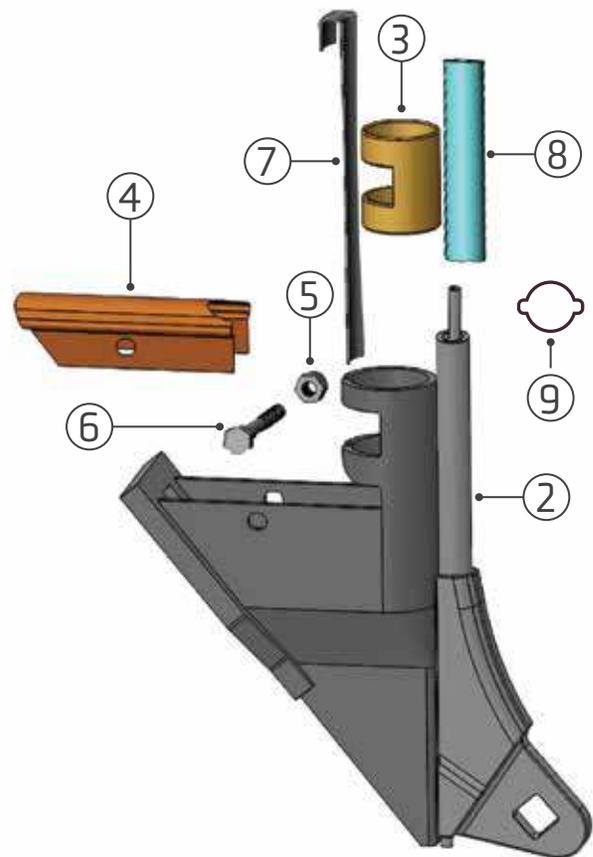
## 047-ASY-1000

SINGLE SHOOT (PAGE 18)



## 047-ASY-1005P

SINGLE SHOOT (PAGE 18)



PART		047-ASY-1000	047-ASY-1005P
1	047-HLD-1000	■	
2	047-HLD-1005P		■
3	880-BSH-1130	■	■
4	047-CAP-1001	■	■
5	908-NNI-2504	■	■
6	942-HRG-2004	■	■
7	047-ACC-1001*	■	■
8	680-HOS-1000**		■
9	880-HCL-0004		■

**TIP OPTIONS :**

- |              |              |
|--------------|--------------|
| 200-TIP-0511 | 200-TIP-1011 |
| 200-TIP-0800 | 200-TIP-2011 |
| 200-TIP-0801 | 200-TIP-3000 |
| 200-TIP-0802 | 200-TIP-3001 |
| 200-TIP-0803 | 200-TIP-3011 |
| 200-TIP-0811 | 200-TIP-4011 |

**Tips sold separately.** See page 10-11 for more information.

**NOTE:** \*Use focus strip 047-ACC-1001 for more concentrated seed placement.

\*\*680-HOS-1000 is a 6" x 1/2" I.D. NH3 hose. Curved 50° shanks require either the 880-WDG-0300 or 880-WDG-0301. **Sold separately.** See page 102 for more details.

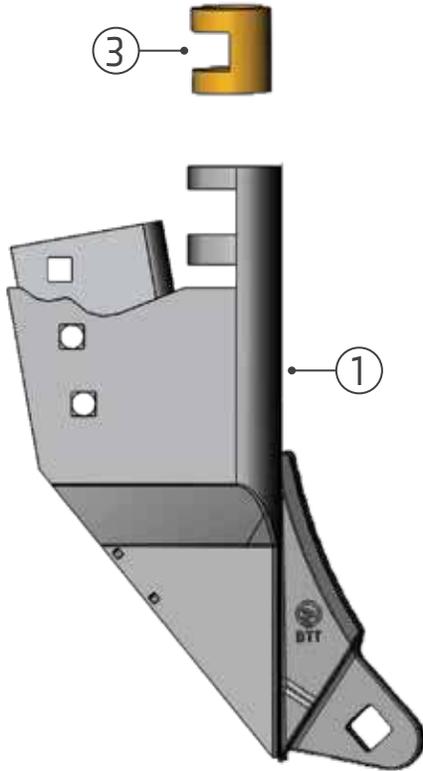
**880-ASY-1010 REQUIRED**

**This assembly is sold separately** and is required to convert the standard 3/16" O.D. Liquid Phos tube to 1/4" I.D. Liquid Phos delivery hoses.



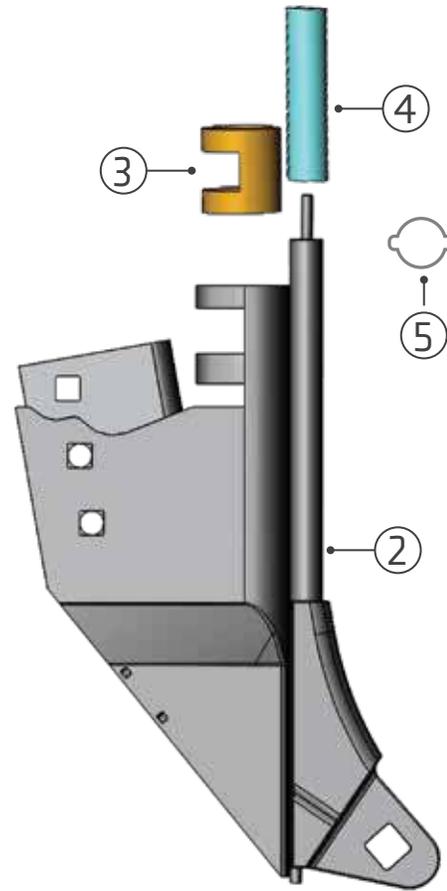
# 680-ASY-1000

SINGLE SHOOT (PAGE 24)



# 680-ASY-1000P

SINGLE SHOOT (PAGE 40)



PART		680-ASY-1000	680-ASY-1000P
1	680-HLD-1000	■	
2	680-HLD-1000P		■
3	880-B5H-1130	■	■
4	680-HOS-1000**	■	■
5	880-HCL-0004		■

**TIP OPTIONS :**

- 200-TIP-0511      200-TIP-1011
- 200-TIP-0800      200-TIP-2011
- 200-TIP-0801      200-TIP-3000
- 200-TIP-0802      200-TIP-3001
- 200-TIP-0803      200-TIP-3011
- 200-TIP-0811      200-TIP-4011

**Tips sold separately.** See page 10-11 for more information.

**NOTE:** \*\*680-HOS-1000 is a 6" x 1/2" I.D. NH3 hose.

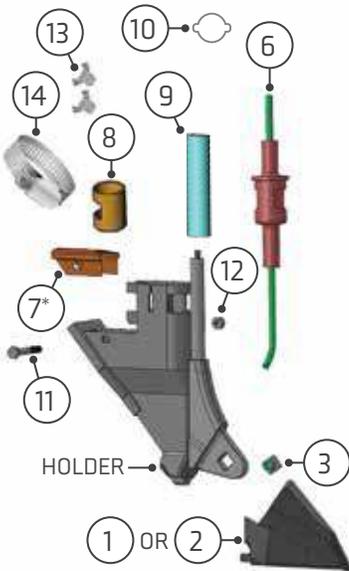
**880-ASY-1010 REQUIRED**

**This assembly is sold separately** and is required to convert the standard 3/16" O.D. Liquid Phos tube to 1/4" I.D. Liquid Phos delivery hoses.



# 612-TIP-0711 & 612-TIP-0712 ASSEMBLIES

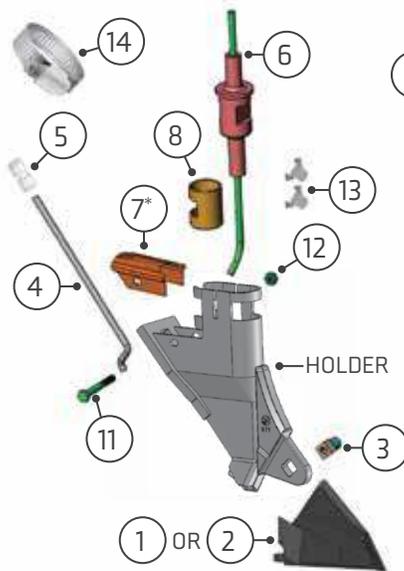
SIDE BAND (ASSEMBLIES ON THESE PAGES INCLUDE THE TIP)



**610-ASY-0711**  
**610-ASY-0712 (SHOWN)**

**HOLDERS:**  
610-HLD-0711  
610-HLD-0712 (SHOWN)

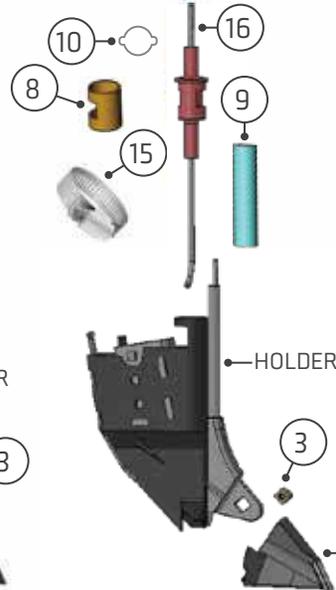
**FITS:** C-Shank (page 20)



**612-ASY-0711 (LEFT)**  
**612-ASY-0712 (RIGHT SHOWN)**

**HOLDERS:**  
612-HLD-0711  
612-HLD-0712 (SHOWN)

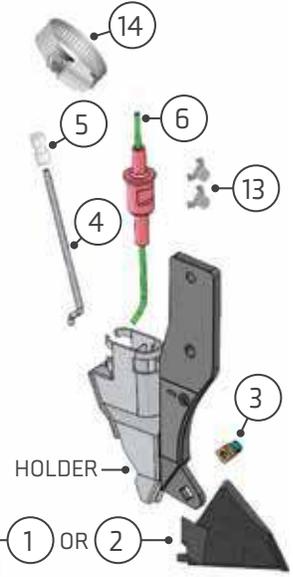
**FITS:** C-Shank (page 20)



**680-ASY-0711**  
**680-ASY-0712 (SHOWN)**

**HOLDERS:**  
680-HLD-0711  
680-HLD-0712 (SHOWN)  
680-HLD-0711P (NOT SHOWN)  
680-HLD-0712P (NOT SHOWN)

**FITS:** Bourgault PHD & Morris Maxim  
Edge On (page 25 & 41)



**683-ASY-0711**  
**683-ASY-0712 (SHOWN)**

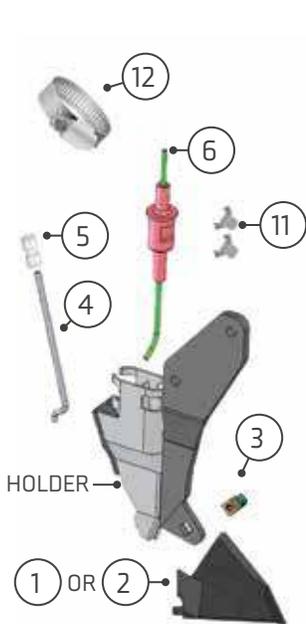
**HOLDERS:**  
683-HLD-0711  
683-HLD-0712 (SHOWN)

**FITS:** Morris Contour I (page 41)

**NOTE:** If your C-Shank Holder looks different than those pictured above, you have a pre-2014 style holder. These holders require the galvanized steel cap 612-CAP-1001.

PART		G	L	G	L	G	G	L	L	G	G	L	L	G	G	L	L	G	G	L	L
		P	P	P	P		P		P	P	P	P	P	P	P	P	P	P	P	P	P
1	612-TIP-0711	■	■			■	■	■	■					■	■	■	■				
2	612-TIP-0712 (SHOWN)			■	■					■	■	■	■					■	■	■	■
3	200-BNC-3100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
4	047-TUB-2540						■	■	■												■
5	880-CPL-2500						■	■	■												■
6	612-TUB-6061	■	■	■	■			■	■									■	■		■
7	612-CAP-1002	■	■	■	■					■	■	■	■								
8	880-BSH-1130	■	■	■	■	■	■	■	■	■	■	■	■								
9	680-HOS-1000*	■	■	■	■																
10	880-HCL-0004	■	■	■	■																
11	942-HRG-2004	■	■	■	■	■	■	■	■	■	■	■	■								
12	908-NNI-2504	■	■	■	■					■	■	■	■								■
13	880-HCL-0001	■	■	■	■	■	■	■	■	■	■	■	■								
14	880-HCL-1828	■	■	■	■	■	■	■	■	■	■	■	■								■
15	880-HCL-8117																				
16	682-TUB-6061																				

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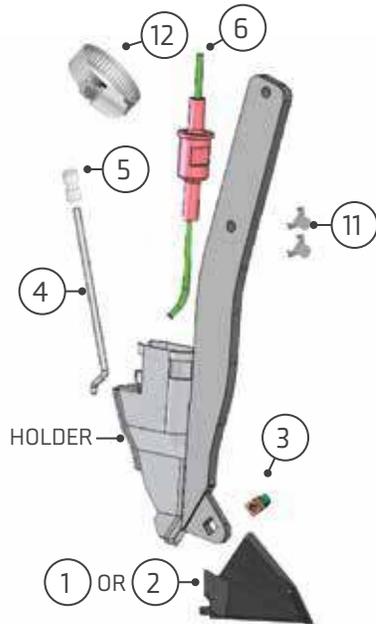


**684-ASY-0711**  
**684-ASY-0712 (SHOWN)**

**HOLDERS:**

684-HLD-0711  
684-HLD-0712 (SHOWN)

**FITS:** Case IH 800/900,  
NH P2070, Flexi-Coil PD5700  
& 7200 (page 31)

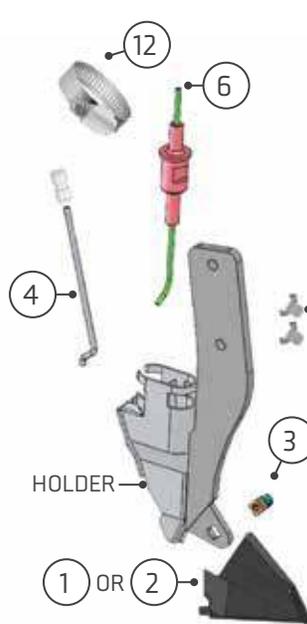


**686-ASY-0711**  
**686-ASY-0712 (SHOWN)**

**HOLDERS:**

686-HLD-0711  
686-HLD-0712 (SHOWN)

**FITS:** Seed Hawk Inc. (page 49)

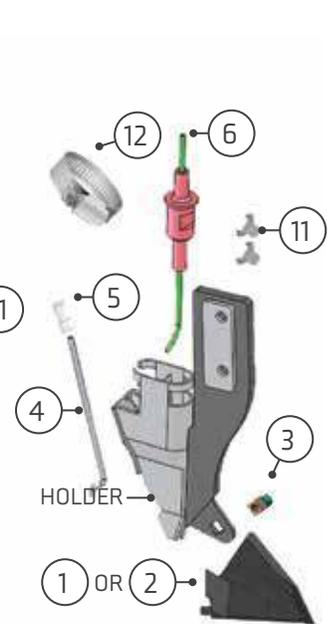


**693-ASY-0711**  
**693-ASY-0712 (SHOWN)**

**HOLDERS:**

693-HLD-0711  
693-HLD-0712 (SHOWN)

**FITS:** Morris Contour II & Morris  
Quantum (page 41)



**694-ASY-0711**  
**694-ASY-0712 (SHOWN)**

**HOLDERS:**

694-HLD-0711  
694-HLD-0712 (SHOWN)

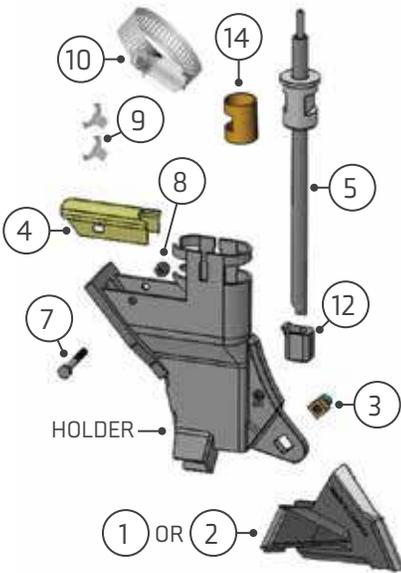
**FITS:** Case IH ATX 700,  
NH P2060, Flexi-Coil 5500  
& Concord (page 31)

PART		684-ASY-0711	684-ASY-0711P	684-ASY-0711L	612-ASY-0711LP	684-ASY-0712	684-ASY-0712P	684-ASY-0712L	684-ASY-0712LP	686-ASY-0711	686-ASY-0711P	686-ASY-0711L	686-ASY-0711LP	686-ASY-0712	686-ASY-0712P	686-ASY-0712L	686-ASY-0712LP	693-ASY-0711	693-ASY-0711P	693-ASY-0711L	693-ASY-0711LP	693-ASY-0712	693-ASY-0712P	693-ASY-0712L	693-ASY-0712LP	694-ASY-0711	694-ASY-0711P	694-ASY-0711L	694-ASY-0711LP	694-ASY-0712	694-ASY-0712P	694-ASY-0712L	694-ASY-0712LP			
1	612-TIP-0711	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■		
2	612-TIP-0712 (SHOWN)					■	■	■	■					■	■	■	■					■	■	■	■											
3	200-BNC-3100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	
4	047-TUB-2540		■		■		■		■		■		■		■		■		■		■		■		■		■		■		■		■		■	
5	880-CPL-2500		■		■		■		■		■		■		■		■		■		■		■		■		■		■		■		■		■	
6	612-TUB-6061			■	■			■	■							■	■						■	■												
11	880-HCL-0001	■	■		■	■				■	■		■	■				■	■		■	■				■	■									
12	880-HCL-1828	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■

**NOTE:** Two 880-HCL-0001 are only included with the granular openers. They are intended to provide additional security to installed hoses. See page 103 for proper hose clip installation.

# 614-TIP-2711 & 614-TIP-2712 ASSEMBLIES

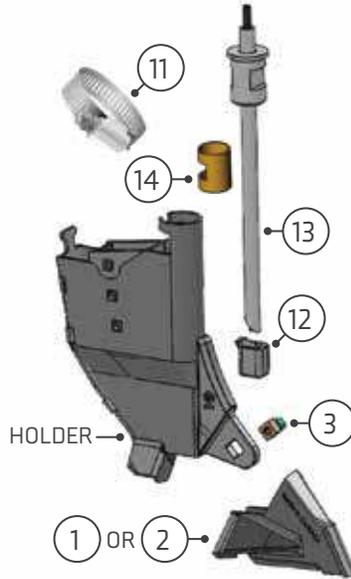
SIDE BAND (ASSEMBLIES ON THESE PAGES INCLUDE THE TIP)



**610-ASY-2711 (LEFT)**  
**610-ASY-2712 (RIGHT SHOWN)**

**HOLDERS:**  
610-HLD-2711  
610-HLD-2712 (SHOWN)

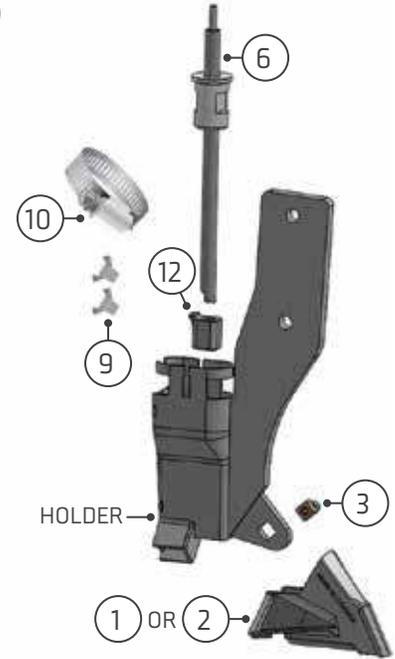
**FITS:** C-Shank (page 21)



**680-ASY-2711 (LEFT)**  
**680-ASY-2712 (RIGHT SHOWN)**

**HOLDERS:**  
680-HLD-2711  
680-HLD-2712 (SHOWN)

**FITS:** Edge On, Bourgault PHD  
& Morris Maxim (page 26 & 42)



**683-ASY-2711 (LEFT)**  
**683-ASY-2712 (RIGHT SHOWN)**

**HOLDERS:**  
683-HLD-2711  
683-HLD-2712 (SHOWN)

**FITS:** Morris Contour I (page 42)

PART		610-ASY-2711G	610-ASY-2711GP	610-ASY-2711L	610-ASY-2711LP	610-ASY-2712G	610-ASY-2712GP	610-ASY-2712L	610-ASY-2712LP	680-ASY-2711G	680-ASY-2711GP	680-ASY-2711L	680-ASY-2711LP	680-ASY-2712G	680-ASY-2712GP	680-ASY-2712L	680-ASY-2712LP	683-ASY-2711G	683-ASY-2711GP	683-ASY-2711L	683-ASY-2711LP	683-ASY-2712G	683-ASY-2712GP	683-ASY-2712L	683-ASY-2712LP
1	614-TIP-2711	■	■	■	■					■	■	■	■					■	■	■	■				
2	614-TIP-2712 (SHOWN)					■	■	■	■					■	■	■	■					■	■	■	■
3	200-BNC-3100	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
4	610-CAP-1080	■	■	■	■	■	■	■	■																
5	880-TUB-2701			■	■			■	■																
6	880-TUB-2711																	■	■				■	■	
7	942-HRG-2004	■	■	■	■	■	■	■	■																
8	908-NNI-2504	■	■	■	■	■	■	■	■																
9	880-HCL-0001	■	■			■	■	■	■									■	■			■	■	■	■
10	880-HCL-1828	■	■	■	■	■	■	■	■									■	■	■	■	■	■	■	■
11	880-HCL-8117									■	■														
12	614-ACC-1000				■	■			■									■	■					■	■
13	680-TUB-2701									■	■														
14	880-BSH-1130	■	■			■	■																		

**NOTE:** Two 880-HCL-0001 are only included with the granular openers. They are intended to provide additional security to installed hoses. **See page 103 for proper hose clip installation.**

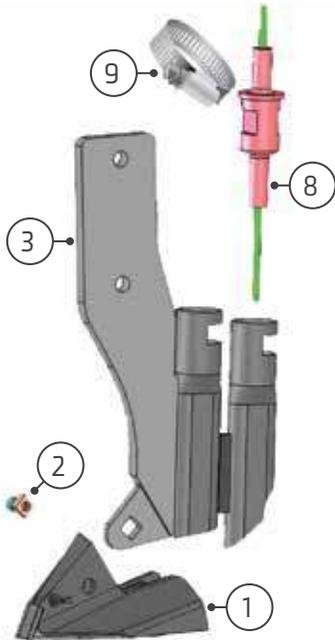
When ordering Liquid Phos openers call the factory for tube sizes.

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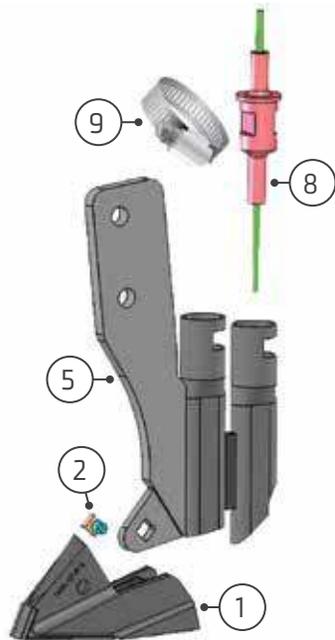
# 610-TIP-4041 ASSEMBLIES

PAIRED ROW (ASSEMBLIES ON THESE PAGES INCLUDE THE TIP)



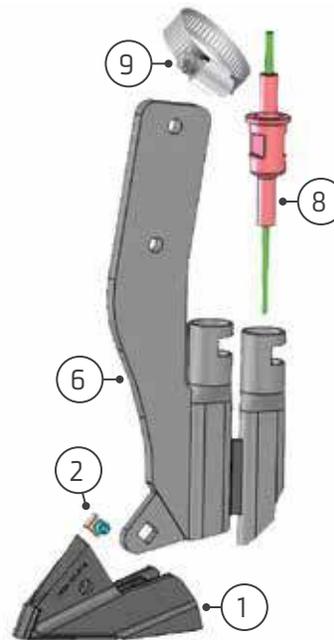
**683-ASY-4020**

**FITS:** Morris Contour I (page 44)



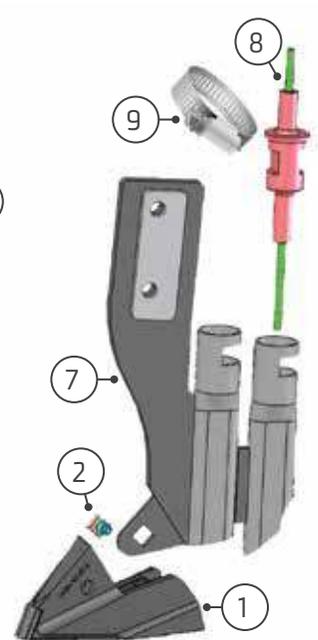
**688-ASY-4020**

**FITS:** Horsch 84° Shank (page 36)



**693-ASY-4020**

**FITS:** Morris Contour II & Morris Quantum (page 44)

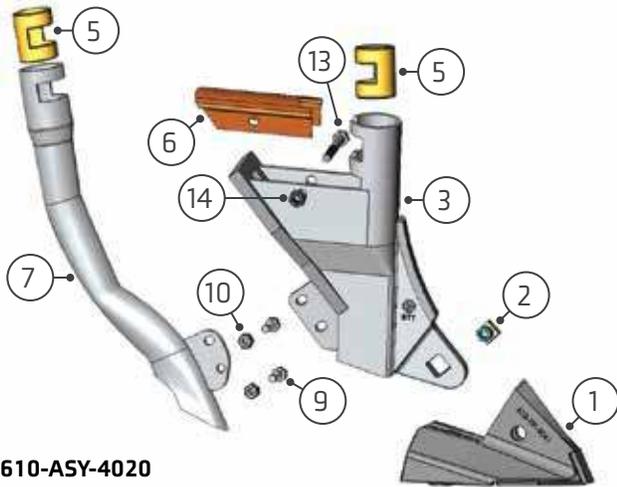


**694-ASY-4020**

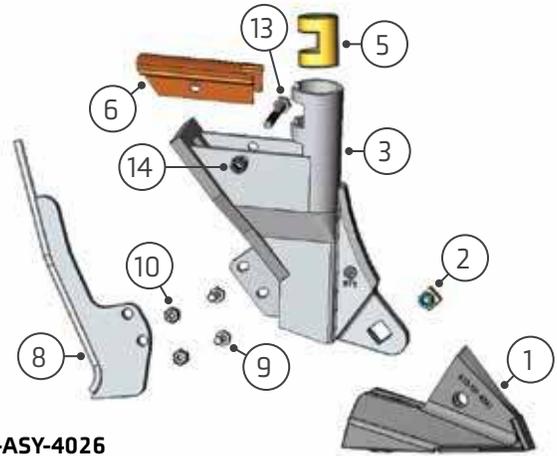
**FITS:** Case IH ATX 700, NH P2060, Flexi-Coil 5500 & Concord (page 33)

PART		G	L	G	L	G	L	G	L
1	610-TIP-4041	■	■	■	■				
2	200-BNC-3100					■	■	■	■
3	683-HLD-2000	■	■	■	■	■	■	■	■
4	684-HLD-2000			■	■			■	■
5	688-HLD-2000	■	■			■	■		
6	693-HLD-2000	■	■	■	■	■	■	■	■
7	694-HLD-2000								
8	683-TUB-6061								
9	880-HCL-8117			■	■			■	■

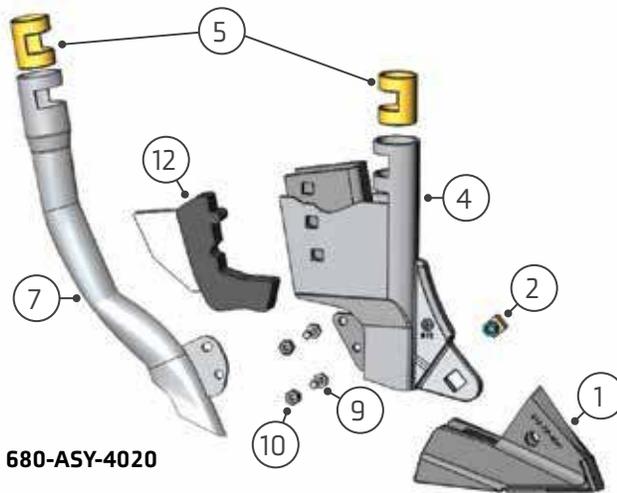
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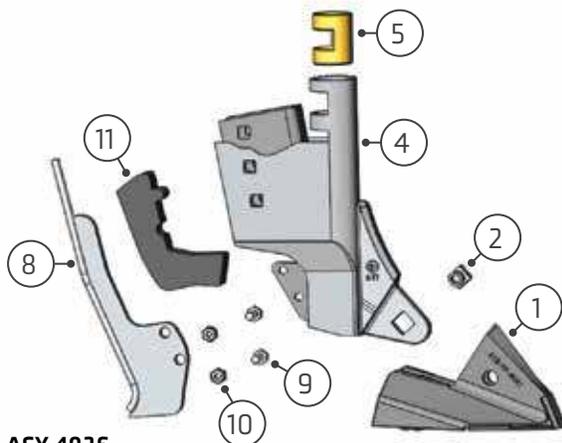
**610-ASY-4020**  
**FITS:** C-Shank (page 22)



**610-ASY-4026**  
**FITS:** C-Shank (page 22)



**680-ASY-4020**  
**FITS:** Edge On (pages 28 & 44)



**680-ASY-4026**  
**FITS:** Edge On (pages 28 & 44)

PART	610-ASY-4020		610-ASY-4026		680-ASY-4020		680-ASY-4026	
	G	L	G	L	G	L	G	L
1	610-TIP-4041	■	■	■	■	■	■	■
2	200-BNC-3100	■	■	■	■	■	■	■
3	610-HLD-2000	■	■					
4	680-HLD-2000					■	■	
5	880-BSH-1130	■	■	■	■	■	■	■
6	047-CAP-1000	■	■					
7	610-TUB-1001	■		■				
8	610-TUB-2526			■			■	
9	942-HRG-0754	■	■	■	■	■	■	■
10	906-NPT-2505	■	■	■	■	■	■	■
11	680-ACC-0002*						■	
12	680-ACC-0003**					■		
13	942-HRG-2004	■	■					
14	908-NNI-2504	■	■					

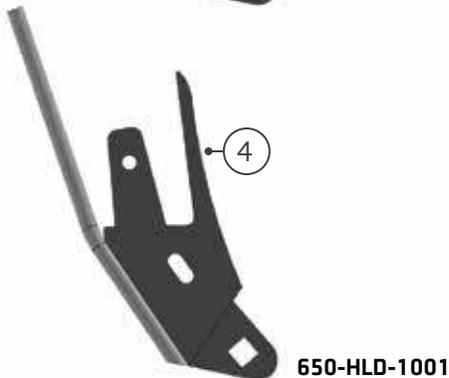
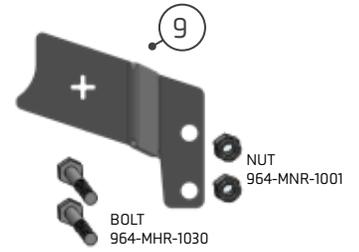
**NOTE:** \*680-ACC-0002 is a spacer plate required for Bourgault 3310 & 3320 only, not included in assembly. See page 102 for more information.

\*\*680-ACC-0003 is a spacer plate required for Bourgault 3310 & 3320 only, not included in assembly. See page 102 for more information.

680-ACC-0004 is a conversion tab to replace the fertilizer tube on the 680-HLD-2000 making it a single shoot opener. See page 102 for more details.

# JOHN DEERE 1870 CONSERVA PAK

## FERTILIZER KNIVES (PAGE 39)



		G	L	N	G	G	N
		L	N	L	N		
	650-HLD-1000G	■					
	650-HLD-1000L						
	650-HLD-1000N						
	650-HLD-1000GL						
	650-HLD-1000GN						
	650-HLD-1001						■
1	650-HLD-1000G	■					
2	650-HLD-1000GL				■		
3	650-HLD-1000GN						■
4	650-HLD-1001						■
5	650-HLD-1000L		■				
6	650-HLD-1000N			■			
7	880-HCL-8117	■			■	■	
8	650-ACC-1000*	■	■	■			■
9	650-ACC-1010*				■	■	

**TIP OPTIONS:**

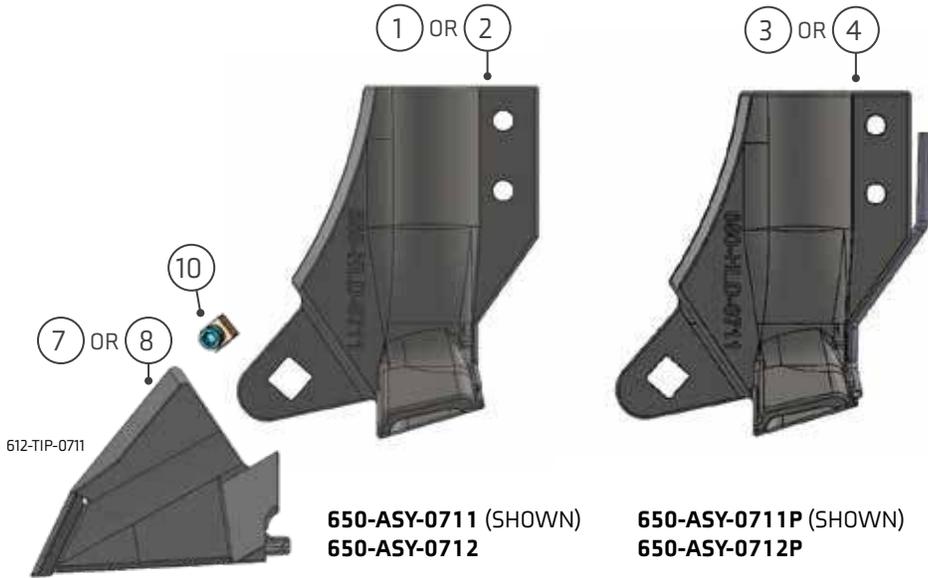
- 200-TIP-0511
- 200-TIP-0800
- 200-TIP-0801
- 200-TIP-0802
- 200-TIP-0803
- 200-TIP-0811

**Tips sold separately.** See page 10-11 for more information.

**NOTE:** \*The brackets **650-ACC-1000 AND 650-ACC-1010** (pictured above) limits the tripping distance of these fertilizer knives. **It is not included in the assembly** and must be ordered separately. The metric bolts needed to install this bracket are included with the brackets. To see this bracket installed properly see page 39.

# JOHN DEERE 1870 CONSERVA PAK

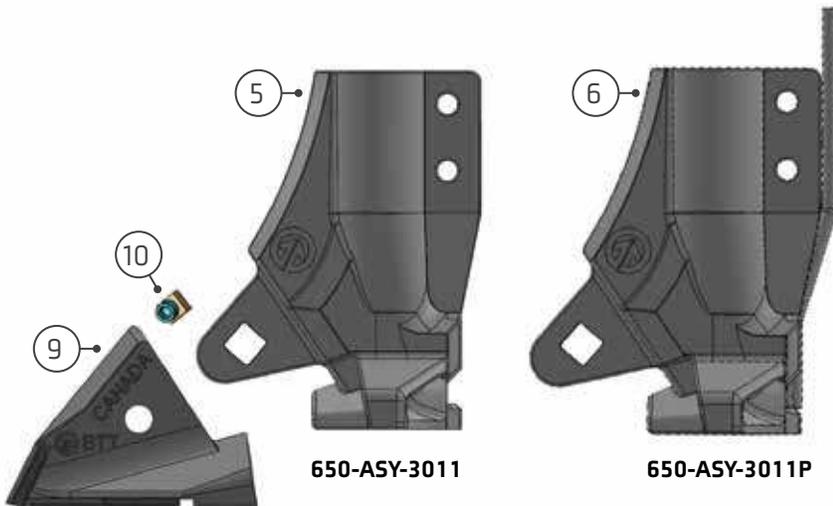
## SINGLE SHOOT (PAGE 38)



612-TIP-0711

650-ASY-0711 (SHOWN)  
650-ASY-0712

650-ASY-0711P (SHOWN)  
650-ASY-0712P



650-ASY-3011

650-ASY-3011P

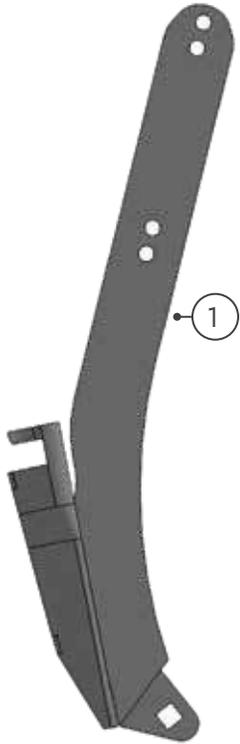
PART	G		P		G		P	
	650-ASY-0711	650-ASY-0712	650-ASY-0711P	650-ASY-0712P	650-ASY-3011	650-ASY-3011P	650-ASY-0711	650-ASY-0712
1 650-HLD-0711	■							
2 650-HLD-0712		■						
3 650-HLD-0711P			■					
4 650-HLD-0712P				■				
5 650-HLD-3000					■			
6 650-HLD-3000P						■		
7 612-TIP-0711	■		■					
8 612-TIP-0712		■		■				
9 200-TIP-3011					■	■		
10 200-BNC-3100	■	■	■	■	■	■		

**NOTE: Assemblies on this page include the tip.**

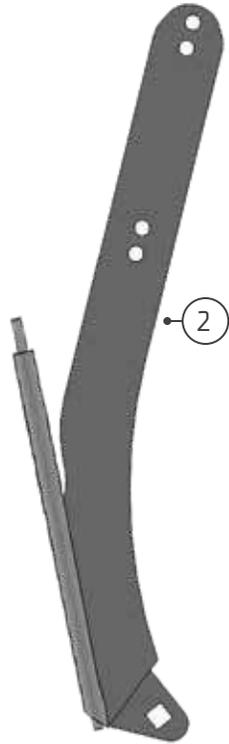
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# SEED HAWK INC.\*

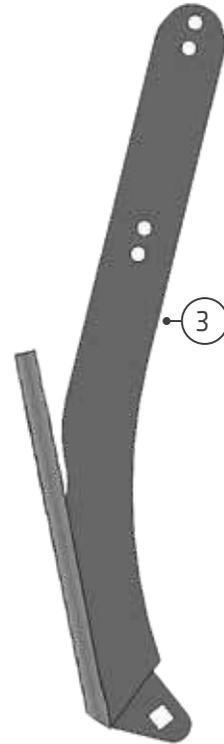
## FERTILIZER KNIVES (PAGE 47)



**686-HLD-1020G**



**686-HLD-1020L**

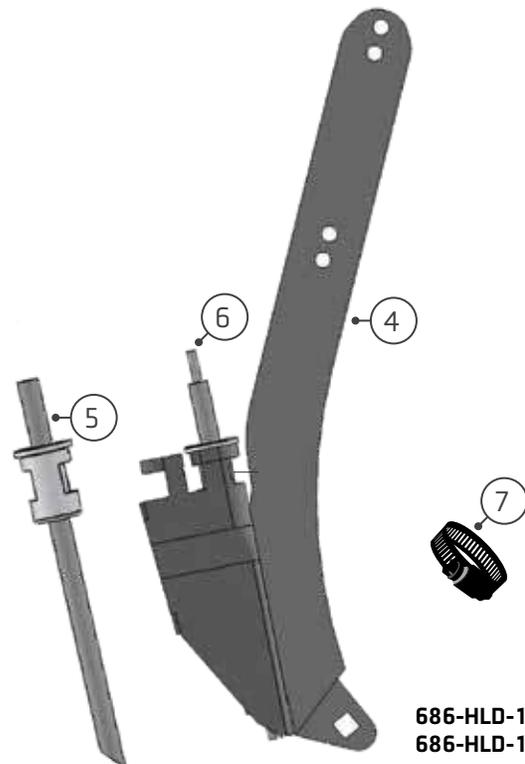


**686-HLD-1020N**

PART		<b>G</b>	<b>L</b>	<b>N</b>	<b>G</b>	<b>G</b>
		<b>L</b>	<b>N</b>	<b>L</b>	<b>N</b>	<b>N</b>
1	686-HLD-1020G	■				
2	686-HLD-1020L		■			
3	686-HLD-1020N			■		
4	686-HLD-1010				■	■
5	880-TUB-8375					■
6	880-TUB-8375L				■	
7	880-HCL-1828				■	■

**TIP OPTIONS:**  
 200-TIP-0511  
 200-TIP-0801  
 200-TIP-0802  
 200-TIP-0803  
 200-TIP-0811

**Tips sold separately.**  
 See page 10-11 for more information.

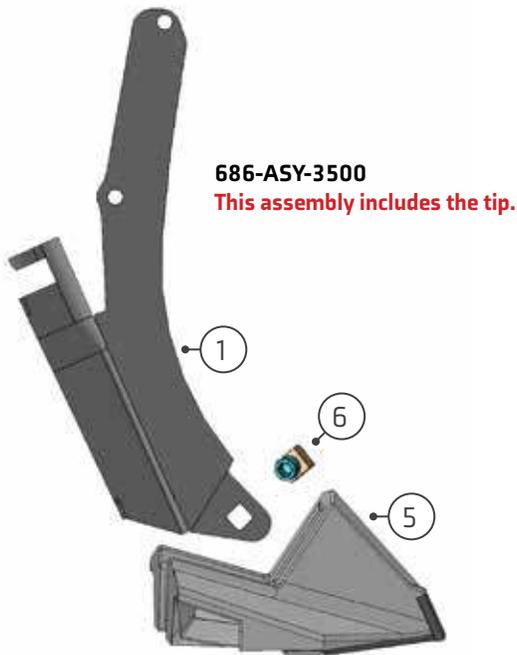
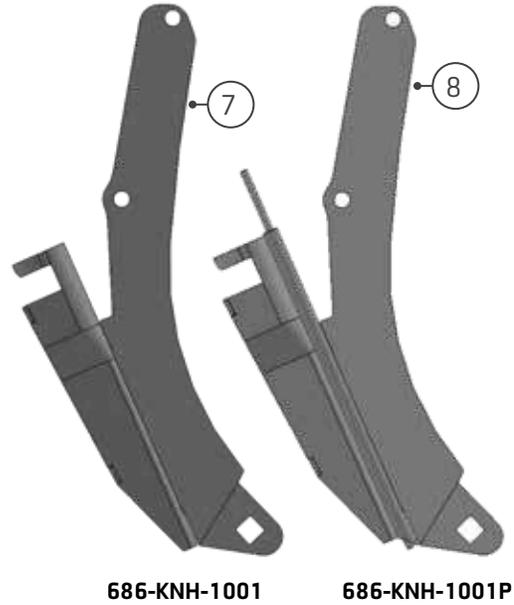
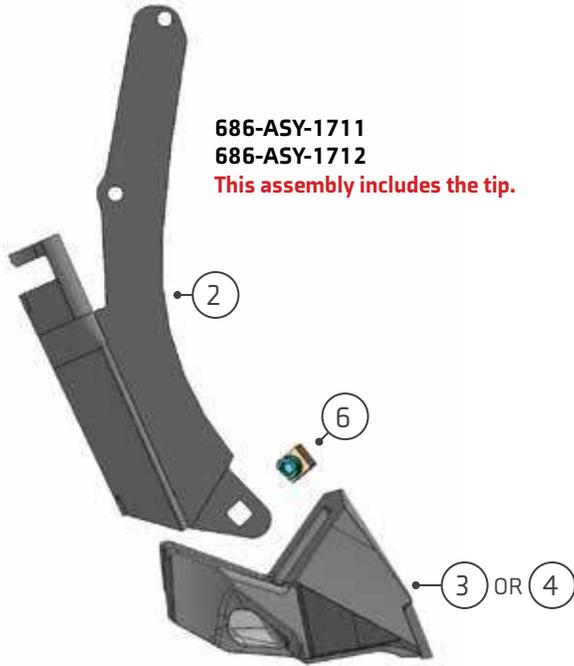


**686-HLD-1010GL**  
**686-HLD-1010GN**

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# SEED HAWK INC.\*

## SINGLE SHOOT (PAGE 48)



PART		G	G	G	G	P
		686-ASY-1711	686-ASY-1712	686-ASY-3500	686-KNH-1001	686-KNH-1001P
1	686-KNH-1000	■	■	■		
3	610-TIP-1711 (NOT SHOWN)	■				
4	610-TIP-1712		■			
5	610-TIP-3500			■		
6	200-BNC-3100	■	■	■		
7	686-KNH-1001				■	
8	686-KNH-1001P					■

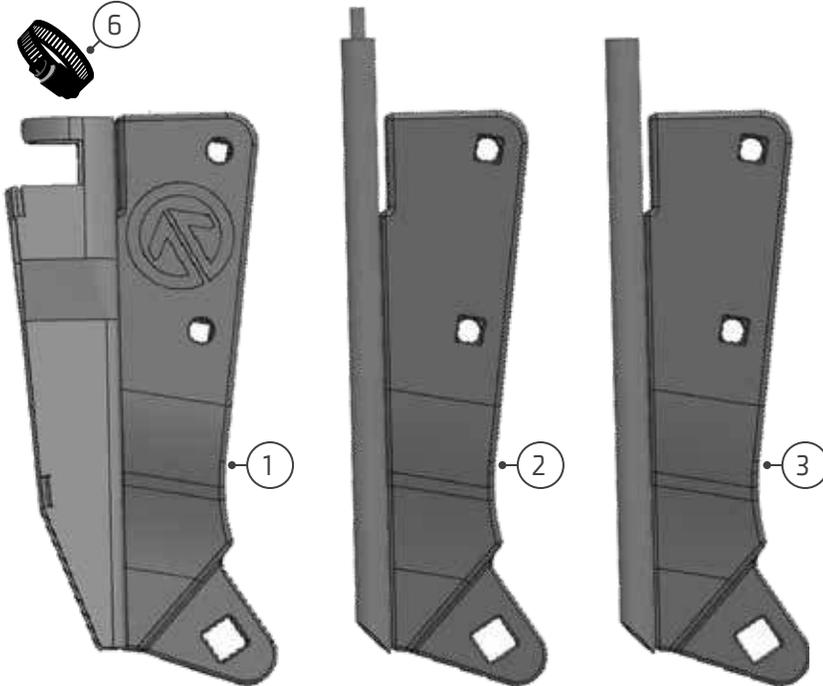
**TIP OPTIONS:**  
 200-TIP-0511  
 200-TIP-0800  
 200-TIP-0801  
 200-TIP-0802  
 200-TIP-0803  
 200-TIP-0811

**Tips sold separately.**  
 See page 10-11 for more information.

**NOTE:** These openers are available with liquid phos options, please call the factory for more details.

# SEED MASTER

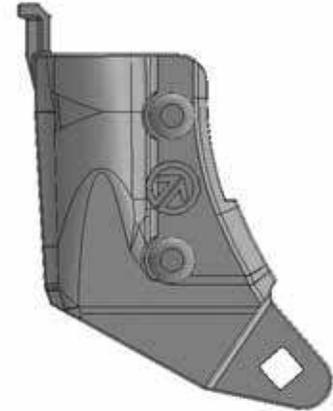
## FERTILIZER KNIVES (PAGE 50)



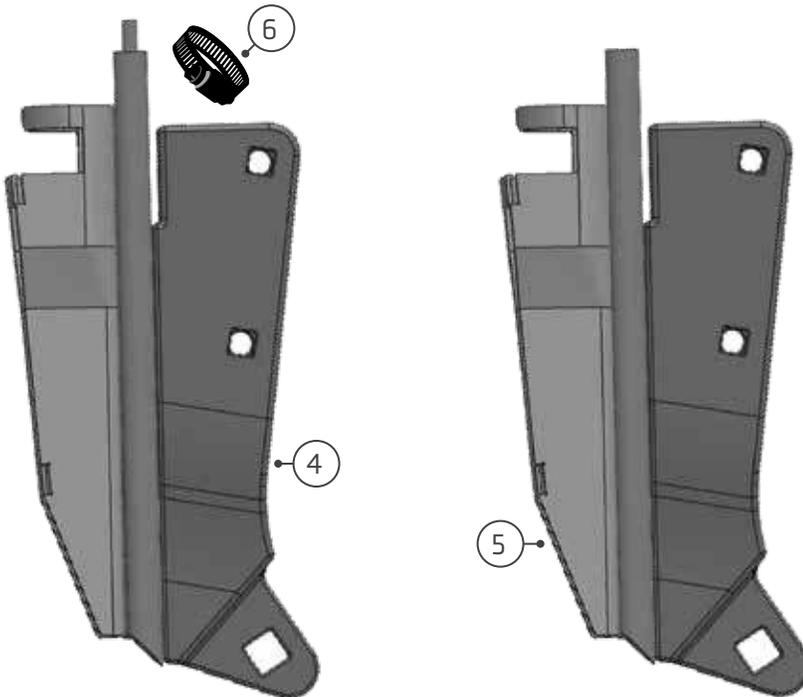
689-HLD-1000G

689-HLD-1000L

689-HLD-1000N



689-KNH-1001(P)



689-HLD-1000GL

689-HLD-1000GN

	G	L	N	G	G
689-HLD-1000G	■				
689-HLD-1000L		■			
689-HLD-1000N			■		
689-HLD-1000GL				■	
689-HLD-1000GN					■

PART		689-HLD-1000G	689-HLD-1000L	689-HLD-1000N	689-HLD-1000GL	689-HLD-1000GN
1	689-HLD-1000G	■				
2	689-HLD-1000L		■			
3	689-HLD-1000N			■		
4	689-HLD-1000GL				■	
5	689-HLD-1000GN					■
6	880-HCL-817				■	

**TIP OPTIONS:**

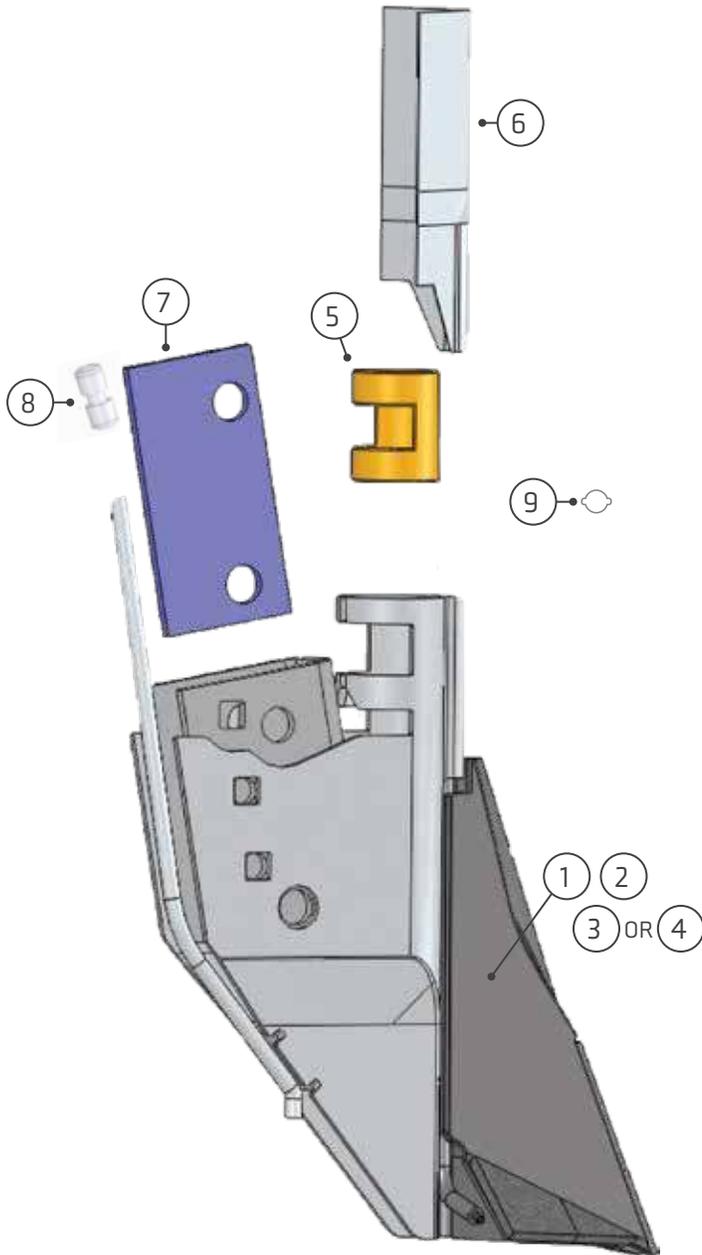
- 200-TIP-0511
- 200-TIP-0801
- 200-TIP-0802
- 200-TIP-0803
- 200-TIP-0811

**Tips sold separately.** See page 10-11 for more information.

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# 682-ASY-2063 & 682-ASY-2064 ASSEMBLIES

SIDE BAND (PAGES 27 & 43)



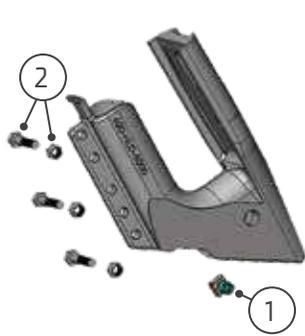
**682-ASY-2063** (LEFT)  
**682-ASY-2064** (RIGHT SHOWN)

PART	G		P	
	682-ASY-2063	682-ASY-2063P	682-ASY-2064	682-ASY-2064P
1	682-KNF-2063	■		
2	682-KNF-2063P		■	
3	682-KNF-2064			■
4	682-KNF-2064P			■
5	880-BSH-1130	■	■	■
6	682-DEF-1000	■	■	■
7	680-ACC-0001*	■	■	■
8	880-CPL-2500		■	■
9	695-HCL-1220			

**NOTE:** Accessory **680-ACC-0001** is needed when used on an edge on Concord. See page 102 for more information.

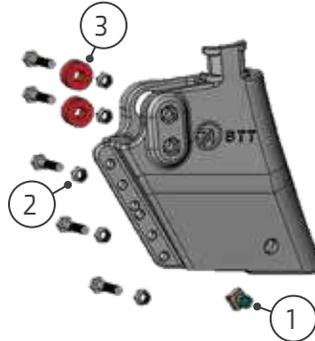
# TITAN OPENER SYSTEM (PAGES 51-53)

## HOLDERS



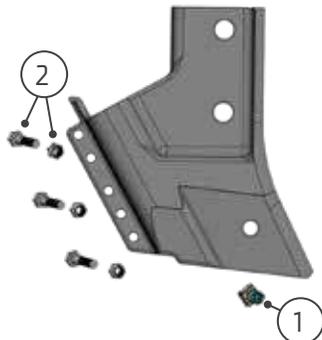
**620-HLD-5000**

**FITS:** 47° and 50 ° C-Shank



**628-HLD-5000**

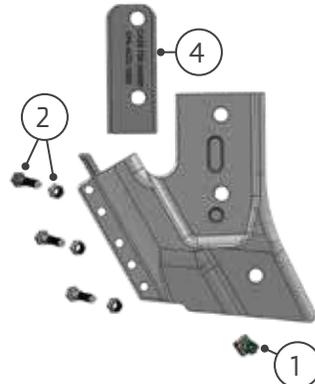
**FITS:** Morris Maxim Edge On & Bourgault PHD Shanks



**688-HLD-5000**

**FITS:** Horsch 84° Shank

**NOTE: On older drills, customer needs to verify mounting bolt holes:**  
 1/2" bolt hole requires **694-HLD-5000**  
 (does not require 694-ACC-1000)  
 5/8" bolt hole requires **688-HLD-5000**



**694-HLD-5000**

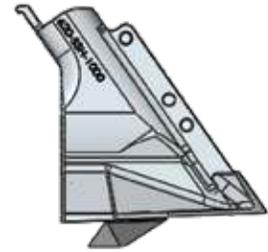
**FITS:** Case IH AXT 700, NH P2060, Flexi-Coil 5500 & Concord Edge On (84° shanks only)

**NOTE:** 694-HLD-5000 requires 694-ACC-1000 (included). Not required when installing on the Concord.

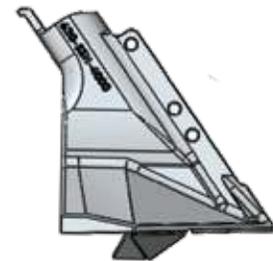
PART		620-HLD-5000	628-HLD-5000	688-HLD-5000	694-HLD-5000
1	200-BNC-3100	■	■	■	■
2	620-BNC-3100	■	■	■	■
3	628-BSH-1000		■		
4	694-ACC-1000			■	

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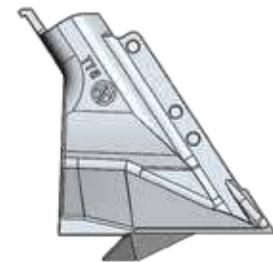
## SEED SHOES/BOOT



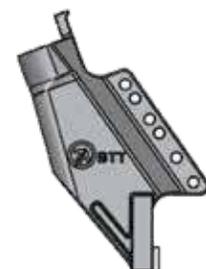
**620-SSH-1000**



**620-SSH-4000**



**620-SSH-6000**



**628-SBT-2000**

**TIPS**



**620-TIP-0510**



**620-TIP-0517**



**628-TIP-0510**



**628-TIP-0512**



**620-TIP-4060**

**NOTE:** 800-CPL-2500 is required (included).

**FERTILIZER TUBES**

The tube assemblies pictured below include the tube and any accessories shown.

**N** **620-TUB-1021\***

1/2" (12 mm) O.D. NH3 tube for **620, 688 & 694** holders.



**N P** **620-TUB-1070 & 1070XL**

1/4" (6 mm) O.D. Aqua NH3 + Phos tube for **620, 688 & 694** series holders. **880-CPL-2500** sold separately.



**N L** **620-TUB-4000 & 4000XL**

0.4" O.D. Stainless Steel Liquid or NH3 tube for **620, 688 & 694** series holders.



**N P** **620-TUB-4040**

0.4" O.D. Stainless Steel Aqua NH3 + Phos tube for **620, 688 & 694** series holders.



**N** **628-TUB-1021\***

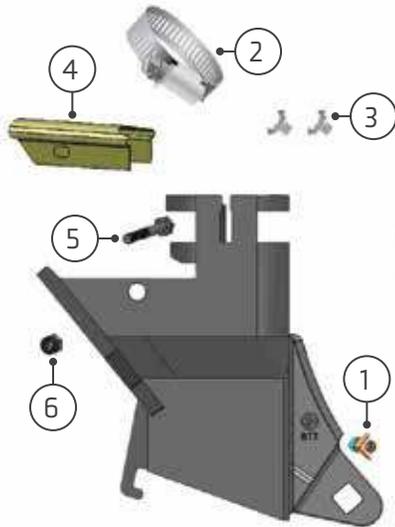
1/2" (12 mm) O.D. NH3 tube for **628** holders.



\*For pressurized NH3 Systems (including MaxQuip) you will be given the standard NH3 tube and then must consult with your pressurized system dealer for tubing inserts.

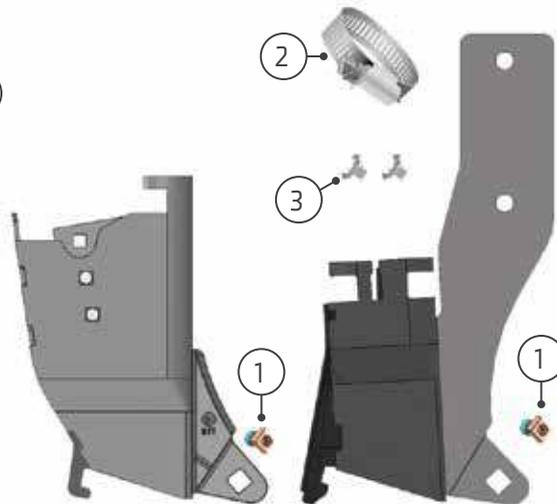
# VOS (VERSATILE OPENER SYSTEM) (PAGES 54-55)

## HOLDERS



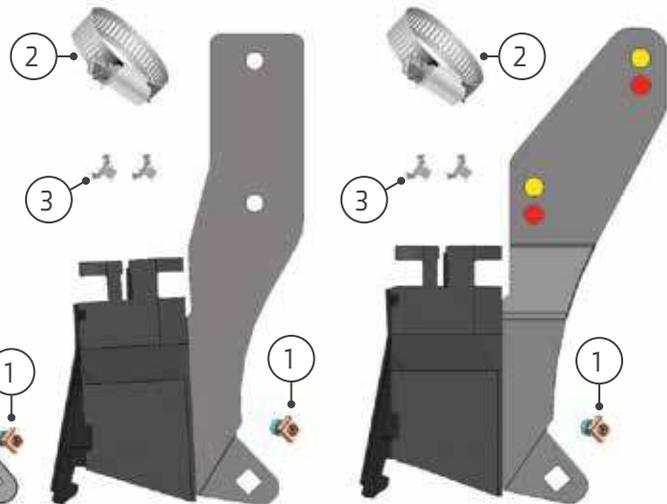
**610-HLD-2080**

**FITS:** C-Shank



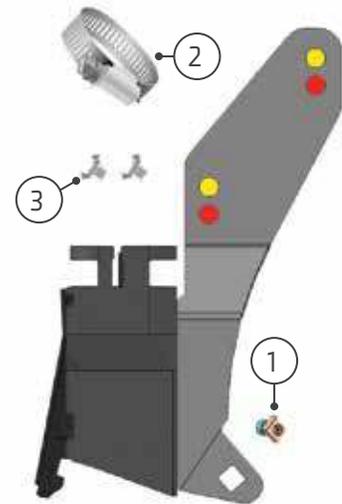
**673-HLD-2080**

**FITS:** Edge On, Bourgault PHD & Morris Maxim



**683-HLD-2080**

**FITS:** Morris Contour I

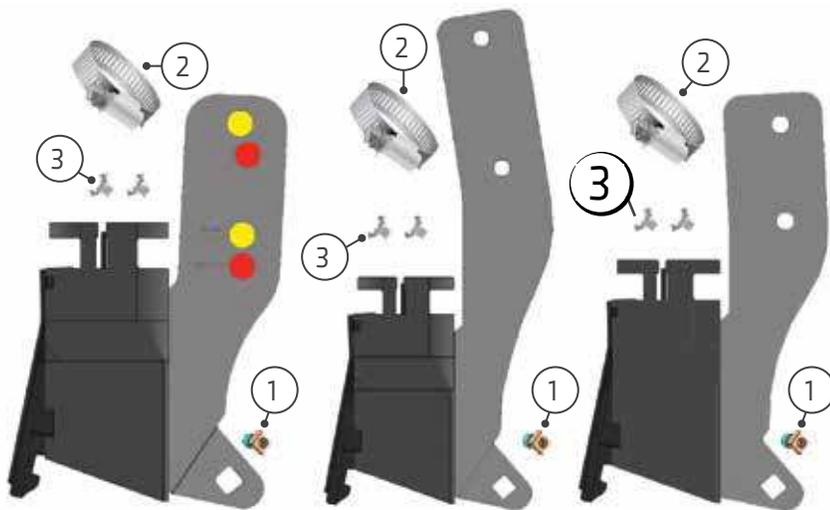


**684-HLD-2080**

**FITS:** Case IH 800/900, NH P2070 & Flexi-Coil PD5070

**NOTE:** When installing openers on Case IH 800/900, NH P2070 & Flexi-Coil PD5070 you have two options shown above.

- Standard installation
- 3/4" more depth



**688-HLD-2080**

**FITS:** Horsch 84° Shank

**NOTE:** When installing openers on Horsch 84° Shanks you have 2 options shown above.

- Standard installation
- 3/4" more depth

**693-HLD-2080**

**FITS:** Morris Contour II & Morris Quantum

**694-HLD-2080**

**FITS:** Case IH ATX 700, New Holland P2060, Flexi-Coil 5500 & Concord (84° Shanks only)

PART		610-HLD-2080	673-HLD-2080	683-HLD-2080	684-HLD-2080	688-HLD-2080	693-HLD-2080	694-HLD-2080
1	200-BNC-3100	■	■	■	■	■	■	■
2	880-HCL-1828	■	■	■	■	■	■	■
3	880-HCL-0001	■	■	■	■	■	■	■
4	610-CAP-1080	■						
5	942-HRG-2004	■						
6	908-NNI-2504	■						

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**TIPS**



**610-TIP-0802** SINGLE SHOOT TIP



**610-TIP-1711** (LEFT WING) **610-TIP-1712** (RIGHT WING) SIDE BAND TIP



**610-TIP-3500** PAIRED ROW TIP



**610-TIP-4030** PAIRED ROW TIP



**610-TIP-4081** PAIRED ROW TIP



**610-TIP-4082** PAIRED ROW TIP

**FERTILIZER TUBES**

**N** **880-TUB-1001**  
OR **880-TUB-1002**

**Precision Drills NH3 1/2"** (12 mm) O.D.  
Stainless Tube



**L** **880-TUB-1003**  
OR **880-TUB-1004**

**Precision Drills Liquid 1/4"** (6 mm) O.D.  
Stainless Tube



**N L** **880-TUB-1009**  
OR **880-TUB-1010**

**Precision Drills Liquid or NH3 3/8"** (10 mm)  
O.D. Stainless Tube



**N P** **880-TUB-1011**  
OR **880-TUB-1012**

**Precision Drills Aqua NH3 + Phos**  
1/4" (6 mm) O.D. Stainless Tube



**NOTES:**

- 880-TUB-1001, 1003, 1009 & 1011 are for everything other than C-Shank.
- 880-TUB-1002, 1004, 1010 & 1012 are for C-Shank openers, and are 1" longer.
- Pipes can be made for the 673-HLD-2080 on request. Call the factory for more details.

**All tubes come with bushings as pictured above.**

**PROPER INSTALLATION:**



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047-PWV-1000	88	200-PWV-1000	84	300-HLD-4710	60	505-200-1010	99
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047-PWV-1308	88	200-PWV-1208	84	400-DRV-1000	79	511-200-1000	97
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Printed in Canada (10/2019)