

# ***BUCKET TEETH***



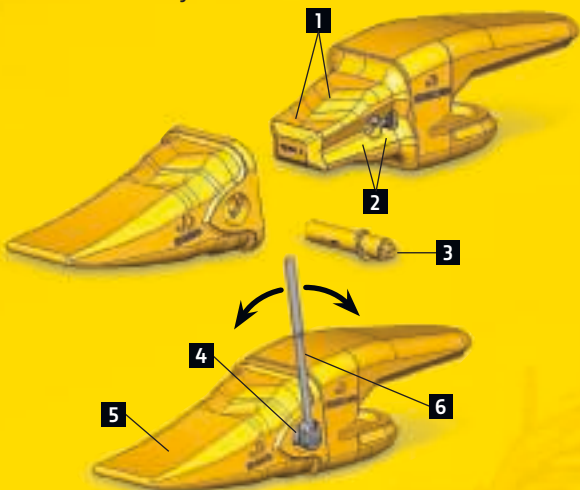
**JOHN DEERE**

# The John Deere TK-Series Tooth System

The TK-Series System is engineered to deliver maximum performance, quick and safe replacement, and superior tooth retention.

## The system

- 1** Symmetrical – nearly parallel – multi-planer nose surfaces for a fully stabilized system
- 2** Reusable rubber locks – held captive by the tooth – never compressed when the pin is locked for long wear life and very infrequent replacement
- 3** Reusable retention pin is never loaded<sup>1</sup> for long wear life and very infrequent replacement
- 4** Pin has both male and female ends that can be inserted from either side
- 5** Full line of tooth profiles and sizes
- 6** No hammers or pry bars – a simple socket or breaker bar wrench is all you need



<sup>1</sup>The pin only becomes loaded during back-dragging and remains in a neutral axis during all other digging or loading movements.

# Why it's better

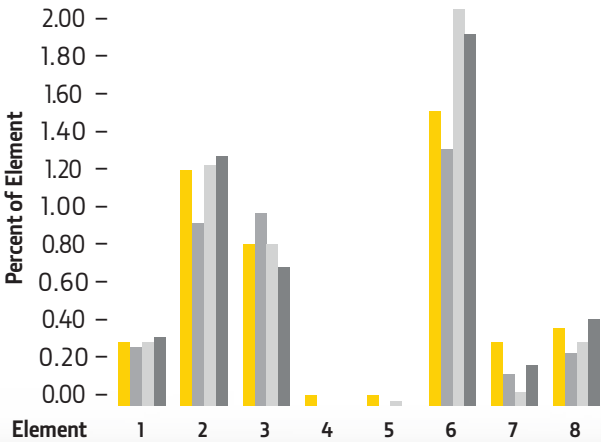
## Performance and reliability

- No hammers and no pry bars. You just need a socket or breaker bar wrench to install and remove the retention pin for quicker, safer tooth replacement
- Multi-planed nose surfaces and matching pocket surfaces absorb loads from any angle, minimizing motion for longer system life
- Optimized tooth-to-nose-length ratio for better penetration and performance
- Symmetrical design allows teeth to be flipped, with pin retention from either side for longer tooth life
- Forged pin is never under load except during back-dragging, and the rubber locks are not compressed when the pin is locked for long life and the rare need for replacement at change-outs
- Rubber locks are held captive when the tooth is retained for security and protection from direct impact

## Durability and strength

- Meets stringent quality specifications for metallurgical composition, toughness, and hardness:
  - Metallurgical comparison graph shows TK-Series teeth are very similar to other competitors in the industry
  - TK-Series Rockwell Hardness range: 47–52
  - Charpy V-Notch Toughness at room temperature is >15J
  - Charpy V-Notch Toughness at  $-40^{\circ}\text{C}/-40^{\circ}\text{F}$  is 11J-15J
- Nearly five times stronger than older, flex-pin retention systems<sup>2</sup>
- Nearly a **70-percent consumption ratio**<sup>3</sup> means you are getting more for your money
- Over **50-percent-more usage** with heavy-duty TK-Series loader teeth<sup>4</sup>
- Less frequent change-outs and more uptime
- Includes a **lifetime** warranty against breakage

Metallurgical comparison graph shows TK-Series teeth are very similar to other major competitors in the industry.



■ TK ■ ESCO® ■ MTG® ■ Hensley®

<sup>1</sup>Material specification comparisons against similar ESCO, MTG, and Hensley tooth products prove that the TK system is a highly competitive system when looking at metallurgy, hardness, and toughness specifications. Results of lab-test comparisons show TK-Series teeth to be equally matched against these competitors for all three composition specifications.

<sup>2</sup>Destructive testing (March 26, 2010) of the TK225FD tooth against the TF23D tooth. The TF system began failing at a load of eight tons with failure of the pin first, followed by plastic deformation of the adapter nose. The TK225 tooth pocket failed at a load of 37 tons with no failure or deformation of the pin and no deformation of the adapter nose.

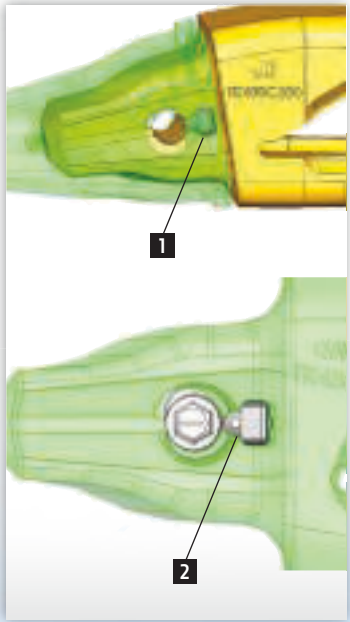
<sup>3</sup>Richmond, Virginia, field-test data from August 2012. A set of eight TK550LD teeth and eight TK550LDH teeth on a 90-metric-ton loader loading blasted granite was monitored and weighed at end of life. Data showed an average consumption ratio across all teeth for the LD set to be 67.18 percent, and 69.29 percent for the LDH set.

<sup>4</sup>Field-test data from October 2012 showed the TK550LDH (heavy-duty) teeth at end of life yielded 550 hours of production compared to an average of 254 hours for two sets of TK550LD (standard-duty) teeth tested on the same 90-metric-ton production loader in a blasted granite loading application.

## Lock the Turn Kam pin and it stays locked

- 1** Installed lock is captured by the tooth.
- 2** The pin is rotated clockwise until the indicator line is horizontal.

The rubber lock will relax within the pin recess.



# We're big on Fanggs™

Since being introduced, Fanggs continue to outperform other tooth designs in general digging applications. It's the self-cleaning effect that lets dirt flow between the teeth. Moldboard-shaped sidewalls decrease friction and soil compaction. All that adds up to 22-percent less digging effort to fill the bucket.

## **Quality statement**

John Deere is committed to providing high-quality ground-engagement tools that result in lower daily operating costs and increased machine uptime for our customers. To ensure this requirement, all materials used for John Deere bucket teeth and adapters have been metallurgically tested to verify they meet impact and hardness specifications. By meeting these requirements, all John Deere bucket teeth and adapters provide superior wear resistance and impact strength in all applications.

**Fanggs work harder using less effort!**



# TK-Series tooth shapes



*Fanggs Tooth*

FD — The FD features the proven John Deere Fanggs profile, an excellent choice for excavators and backhoes in general-purpose applications. The Fanggs design improves penetration capability through a 22-percent reduction in required force. The FD features a curved shape for greater strength.



*Severe-Duty Tooth*

SD — The severe duty (SD) tooth is similar to the John Deere Fanggs profile, but with 20-percent more material for those tough jobs. This tooth is a great option for excavators in general-purpose applications, but really shines in highly abrasive applications where tooth wear is an issue. Adding more material to the tooth's high-wear areas allows the tooth to continue to perform when a standard tooth may need replacing. This means an increase in tooth life, productivity, and uptime.



*Rock Chisel Tooth*

CH — The CH, or chisel tooth, is a general-application design. It is commonly preferred in rock applications due to good penetration and a self-sharpening, symmetrical profile. The CH provides a good balance between penetration and wear.

*NOTE: Not for use on loaders.*



*Tiger Tooth*

TG — This tooth style, known throughout the industry as a tiger tooth, is designed for excavators and backhoes. The sole purpose of the TG style is maximum penetration through any material. With its symmetrical profile, the reduced area of the body of the tooth makes it an excellent choice for penetrating tightly compacted soils, clay, and even rock.



*Twin Tiger Tooth*

TT — This tooth is commonly referred to as twin tiger. Having two points rather than a single point, the cut of the TT style is much wider than a single TG tooth. It is commonly used in conjunction with TG teeth fitted to the outside corner positions of excavator and backhoe buckets to maximize clearance during the dig cycle. Like the TG tooth, the symmetrical-profile TT style is designed for optimum penetration.





*Flare Tooth*

FR — The symmetrical-profile FR style is referred to as a flare tooth. It is most commonly used in softer soils and applications that require a clean, flat-bottom surface. This tooth has great bucket-fill capability for excavators and backhoes.



*Loader Tooth*

LD — This tooth style is specifically designed for loaders. The bottom of the tooth aligns with the bottom of a level loader bucket, resulting in a clean floor. LD teeth wear primarily from the bottom up, so specific placement of tooth mass provides good penetration and long life.



*Heavy-Duty Loader Tooth*

LDH — The LDH is 38-percent heavier than the comparable-sized LD. With this profile, penetration is maintained while additional wear material is available. This tooth is ideal for abrasive loader applications.



*Loader Rock Penetrating Tooth*

LDRP — The TK550LDRP has 30-percent more overall wear material, 79-percent more topside wear area, and 18-percent more underside wear area than the TK550LDH. This tooth is designed for rock buckets used in highly abrasive conditions that show severe wear on the top of the tooth.

## TK-Series adapter styles

*Weld-on adapter*



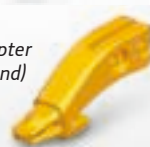
*Bolt-on adapter (center)*



*Bolt-on adapter (one-hole end)*



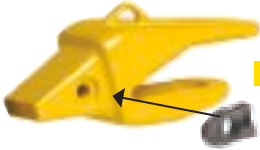
*Bolt-on adapter (two-hole end)*



**NOTE:** TK-Series teeth installed on new John Deere equipment are painted yellow as shown. Aftermarket TK-Series teeth are black.

# RVJ replacement teeth

Convert existing Caterpillar J-Series adapters to a fully hammerless solution.



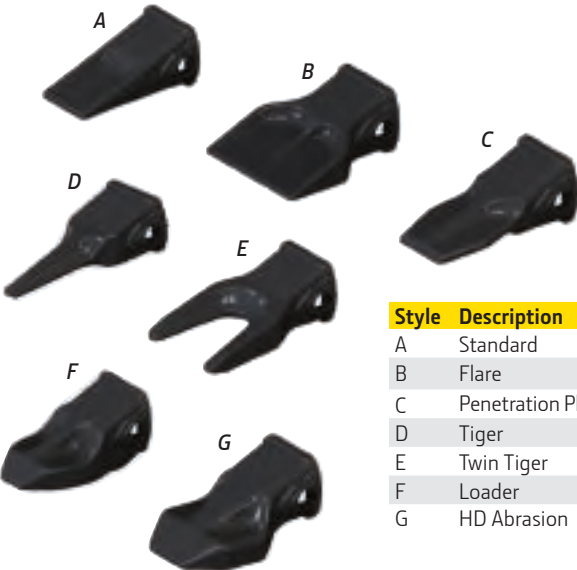
**1** Insert converter into adapter.



**2** Fit tooth over nose and converter.



**3** Insert helical pin and rotate 180 degrees with socket wrench to engage lock.



Style	Description
A	Standard
B	Flare
C	Penetration Plus
D	Tiger
E	Twin Tiger
F	Loader
G	HD Abrasion

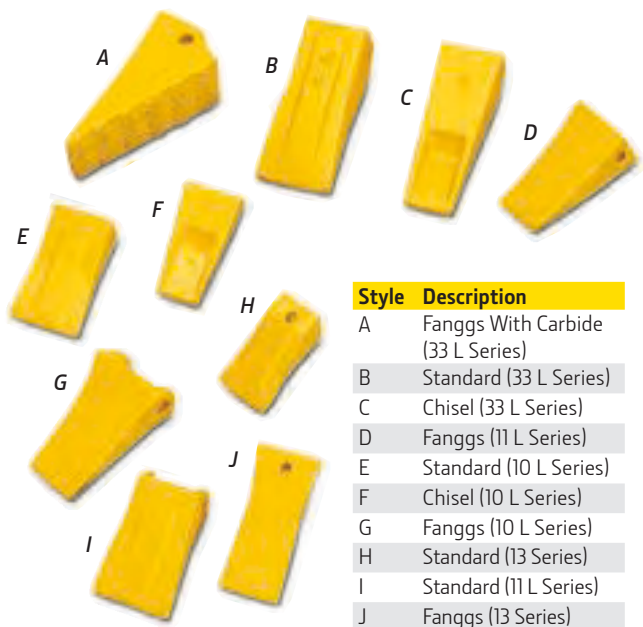


## John Deere “original line” replacement teeth

### Retention

The two-piece pin and split-washer design makes tooth removal and installation fast and easy. Both the pin and the washer are reusable. The original line of John Deere teeth has a nose and pocket design similar to traditional Caterpillar replacement teeth.

The roll pin is an economical means of retaining teeth. The coil in the pin takes up manufacturing tolerances and keeps the tooth tight against the adapter.



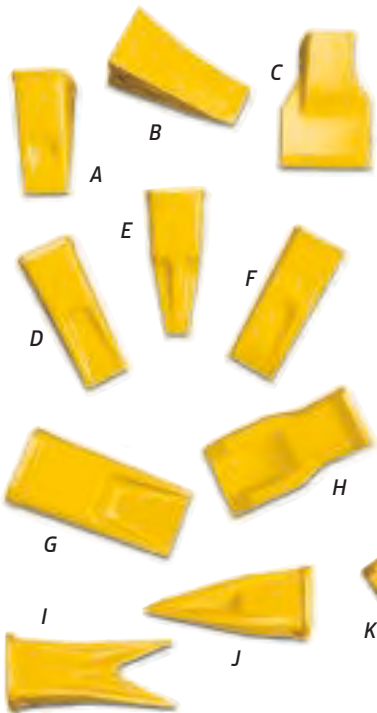
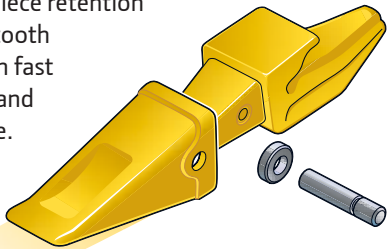
# Caterpillar replacement teeth

## Design

The oversized pocket characteristics of these teeth with the extended adapter nosepiece provide a nose fit between the tooth and adapter, which results in strong impact resistance but a loose fit in the ramps.

## Retention

Replacement teeth for Caterpillar equipment use a two-piece retention method, which makes tooth removal and installation fast and easy. Both the pin and the washer are reusable. The original style and "E" style are available.



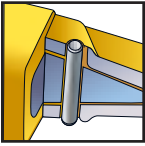
Style	Description
A	Short
B	Fanggs Dig / Fanggs Load
C	Flare
D	Long
E	Penetrator
F	Long H-D
G	Abrasion
H	Abrasion H-D
I	Twin Tiger
J	Tiger
K	Rock Chisel
L	Rock Penetrator

# Hensley replacement teeth

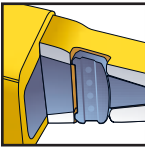
## Design

The parabolic (dished-out) design creates a wedging and self-tightening fit. A recessed channel on the inside sidewall of the tooth matches a tapered extension on the adapter nose-piece, forming a locking fit. The design absorbs impact loads.

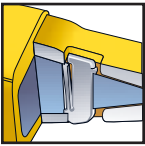
## Retention



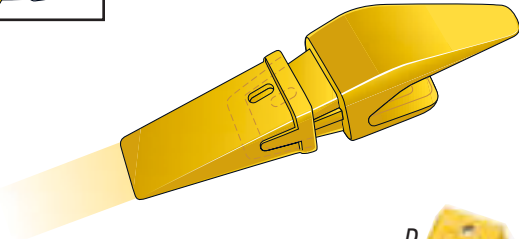
A roll pin is used on the 156, 160, 220, and 310 Series. Smaller series teeth are retained with a vertical roll pin, allowing easy removal and installation.



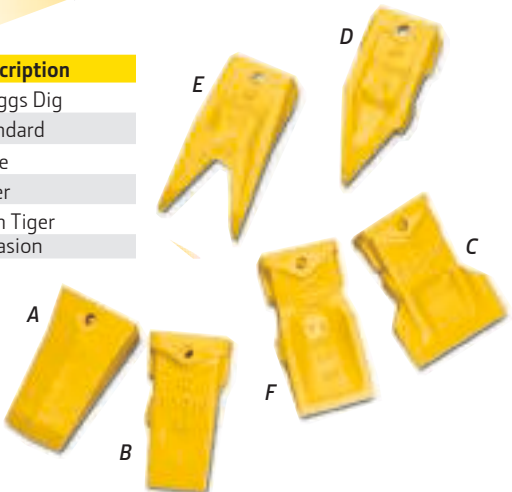
The 350, 400, and 475 Series use a vertical flex pin made of two hardened steel forgings with vulcanized neoprene between. The flex pin provides a four-way locking support.



A steel key retains the 290, 330, 370, 410, 500, and 550 Series. This key provides outstanding retention in all types of applications. It is not reusable.



Style	Description
A	Fanggs Dig
B	Standard
C	Flare
D	Tiger
E	Twin Tiger
F	Abrasion



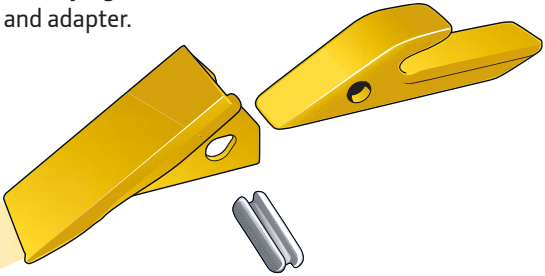
# H&L replacement teeth

## Design

H&L-style teeth are designed for backhoes and excavators. They are available in a multitude of shapes offering superb performance and reliability in all digging conditions.

## Retention

The H&L tooth is attached with a horizontal flex pin. The flex pin consists of two steel pin halves with rubber sandwiched between. This pin design withstands shock and can take up small amounts of adapter wear in order to provide the necessary tight fit between tooth and adapter.



Style	Description
A	Twin Tiger
B	Tiger
C	Star
D	Ripper
E	Long Rock
F	Flare
G	Long
H	Fanggs Dig
I	Fanggs Load

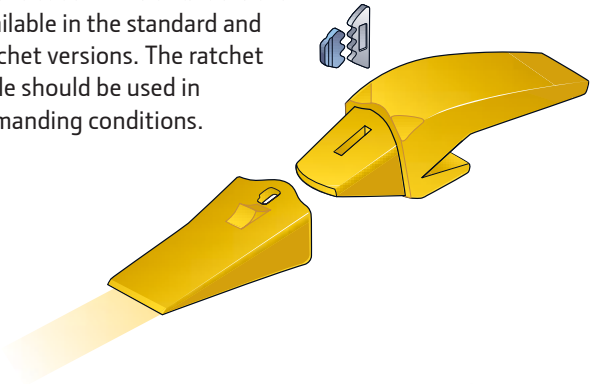
# ESCO conical replacement teeth

## Design

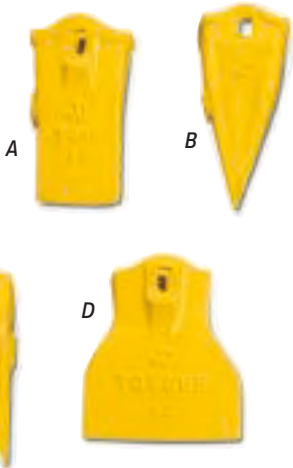
The “conical design” mating system between tooth and adapter creates self-tightening action. The raised center area on the top and bottom of the adapter nosepiece fits tightly into the formed area on the top and bottom of the tooth pocket. The design reduces tooth movement both vertically and horizontally. This design absorbs impact loads.

## Retention

All Deere replacement teeth for ESCO conical products are retained with a pin and lock. Once the pin and lock are installed, a snug fit gives this attaching system little to no movement and provides great strength throughout the life of the tooth. Pins and locks are available in the standard and ratchet versions. The ratchet style should be used in demanding conditions.



Style	Description
A	Sharp
B	Tiger
C	Twin Tiger
D	Flare



# Helilok<sup>®</sup>/Vertalok<sup>®</sup> replacement teeth

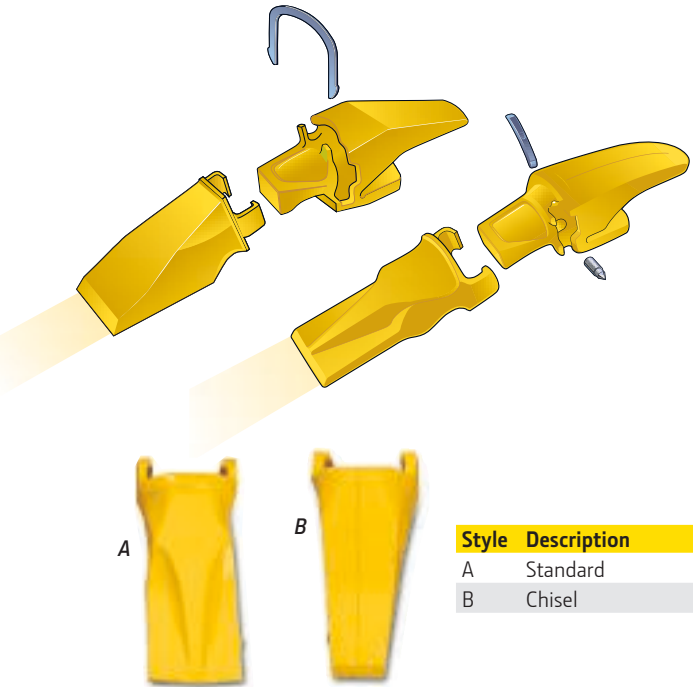
## Design

Helilok/Vertalok teeth mount on both the Vertalok and Helilok adapters with a quarter turn and “butt” up against the adapter nose to take thrust loads head-on. The helical threads and large stabilizing flats at the end of the nose deliver maximum resistance to severe breakout forces.

## Retention

Teeth are held on to Helilok adapters by a drive-on, one-piece Quadrilok™ retainer (reusable). With the Quadrilok, the helical threads create a locknut force that tightens under load and resists rotation under the most severe impact.

Teeth are securely fastened to Vertalok adapters with a drive-through pin, which provides maximum holding power and virtually eliminates tooth loss. The pin is held in place by a spring-loaded plug that fits snugly into a cavity in the side of the adapter nose. Both are reusable.





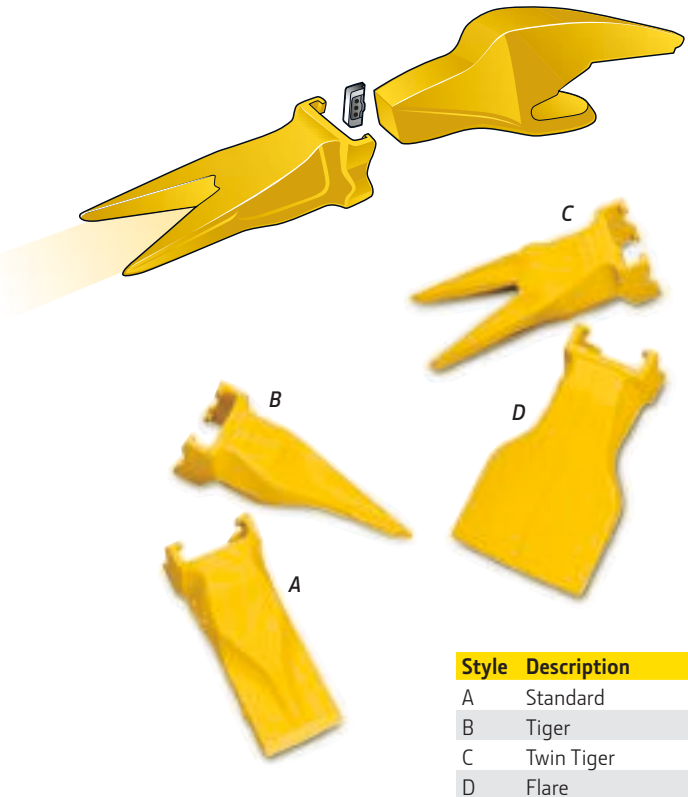
# Super V<sup>®</sup> replacement teeth

## Design

The Super V tooth design provides a slimmer profile for increased penetration, better loading, reduced fuel consumption, and lower maintenance requirements. Broad stabilizing flats and a large load-bearing area reduce the chance for breakage and tooth loss. The tooth twists a quarter turn onto the adapter and “butts up” against the adapter nose to match breakout forces more closely.

## Retention

A vertical one-piece pin provides a quick and safe tooth change-out. The unique pin design delivers a positive and secure lock, yet is easily installed or removed. The pin locks to the point ear independent of the nose and is fully covered by the point ear for reduced wear.



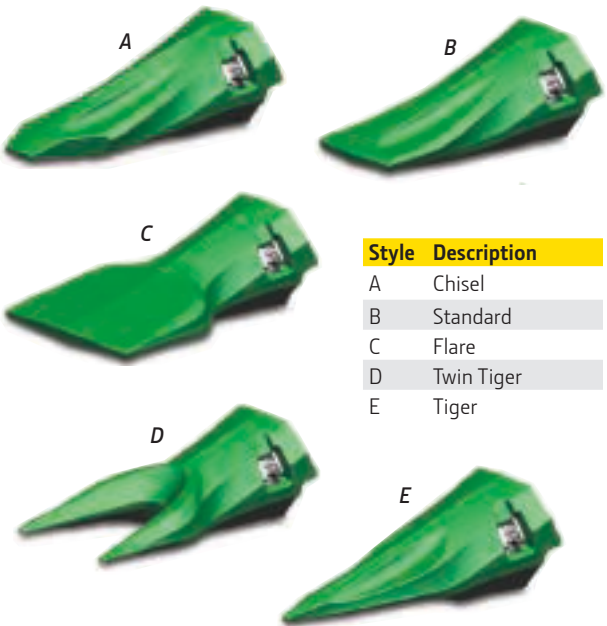
# ESCO Ultralok<sup>®</sup>

## Design

The Ultralok tooth and adapter design provide improved penetration through smooth adapter to tooth point transitions and all-new, streamlined profile shapes. A unique triangular nose shape provides stabilized mating flats to absorb load.

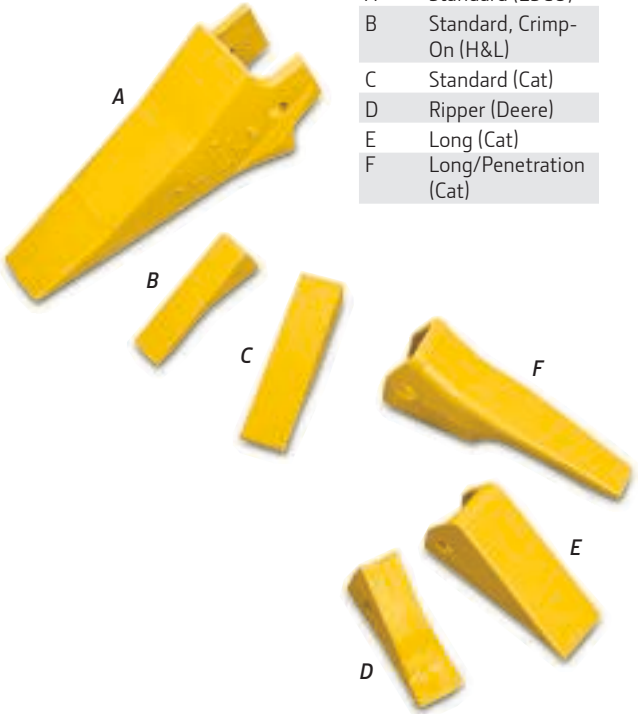
## Retention

The Ultralok system is hammerless — integrating the locking mechanism into the tooth point. The integrated locking device makes the Ultralok system two pieces, unlike a traditional three piece (tooth, pin, adapter) system. The system is locked and unlocked using a pry bar. The placement of the lock reduces wear and loading of the locking mechanism.



# Ripper/scarifier replacement teeth

Style	Description
A	Standard (ESCO)
B	Standard, Crimp-On (H&L)
C	Standard (Cat)
D	Ripper (Deere)
E	Long (Cat)
F	Long/Penetration (Cat)



**NOTE:** Reference GET Guide (DKEGET) for part number information.

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