



ESCO[®]
A Weir Group Division

ESCO Shearer Drums and Accessories

ESCO Shearer Drums



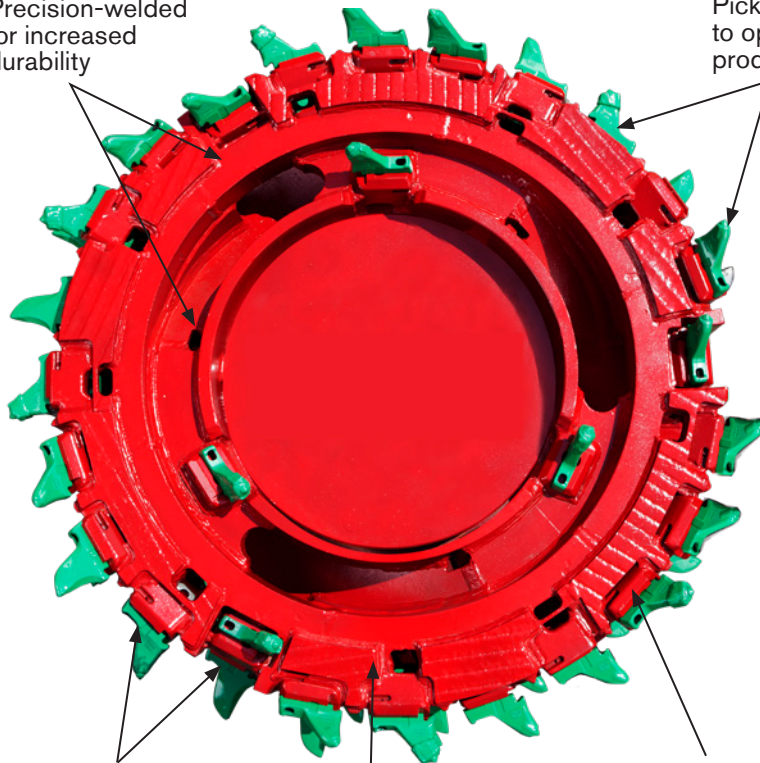
Custom Engineered for Optimum Performance

ESCO shearer drums have gained a global reputation for solving production difficulties. Whether it is dust, frictional ignitions, geological problems or low production rates, ESCO shearer drums address performance issues.

All our drums are custom-engineered to match each longwall application for optimum cutting performance and meet the demands of today's high production operations. ESCO drums are made from premium materials and are precision-assembled to ensure top performance.

Precision-welded for increased durability

Pick options to optimize productivity



Integrated water spray for controlling coal dust

Premium materials throughout

Tool holders recessed for increased support and mechanical strength

Features and Benefits

Greater safety

- Water spray suppresses coal dust and spark ignition
- Simplified locking for easier replacement

Increased production

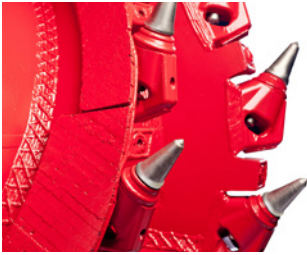
- Design optimizes machine output
- Simplified pick replacement and durability reduces downtime
- Improved haulage rates
- Increased product size, fewer fines

Improved reliability

- Highly engineered to reduce stress
- Precision-manufactured with premium materials
- Reduced tool holder wear
- Cutting efficiency minimizes machine wear



ESCO Conical Shearer Drums

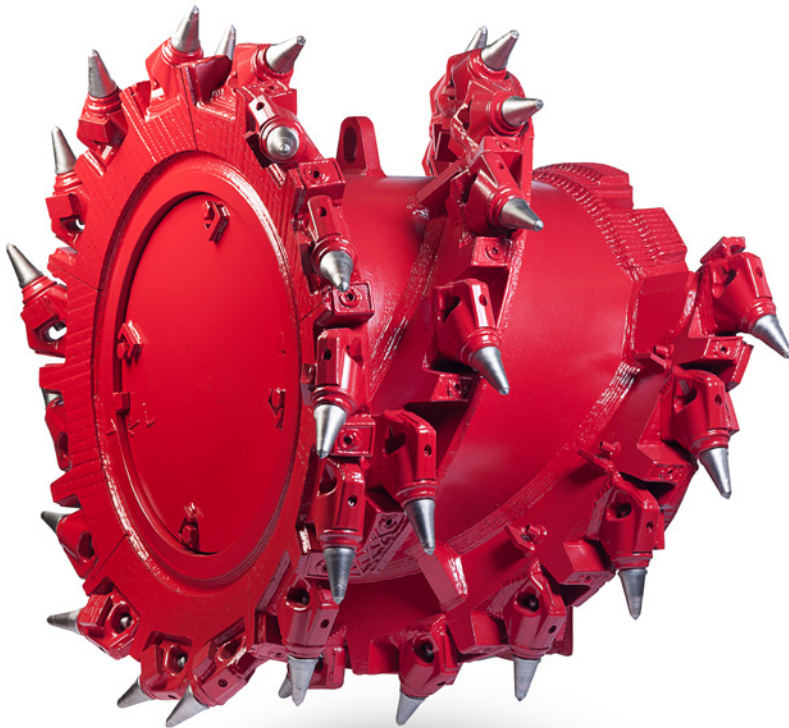


Engineered to Match the Application for Maximum Productivity

The ESCO underground mining team designs, manufactures and supplies a range of conical shearer drums.

Used in operations worldwide our products are individually engineered for the application to provide optimal performance and precision assembled to withstand the demands of today's high performance longwall mining requirements.

Cutting picks may be selected in rotating and non-rotating designs or choose a specialized option for unique applications. ESCO drums are available with hammerless tool and sleeve replacement for greater site safety and less downtime.



Features and Benefits

Greater safety

- Optional hammerless/torchless sleeve removal
- Simplified pick removal for easier replacement
- Greater durability reduces maintenance

Increased production

- Design optimizes machine performance
- Optimized and balanced pick lacing minimizes vibration
- Pick durability and simplified replacement reduces downtime
- Custom engineered to match the application

Improved reliability

- Highly engineered to reduce stress
- Precision-manufactured with premium materials
- Cutting efficiency minimizes machine wear
- Precision line spacing and cutting diameter



HRS Conical Pick Cutting Systems

ESCO offers both press-fit and HRS systems specifically developed for underground mining machines. While the HRS system offers advanced features over conventional systems, the welding footprint is within the limits of most systems it replaces. A unique feature of the system is the simple and easy removal of the sleeve by hydraulic pressure, even if the pick is damaged - a true time-saver when the machine is shut down for maintenance. Even if a broken pick is flush with the tool holder, the hydraulic removal feature allows easier and safer removal than standard systems. The result is improved machine availability, greater site safety and reduced maintenance.

- Forged and precision-machined for reliability
- Hydraulic sleeve removal is faster and easier
- Minimizes removal hardware for simplified maintenance



Hydraulic Removal Tool



Hexbore™ Conical Pick Cutting System

ESCO's Hexbore system was developed to provide conical pick users with a superior performing product. The Hexbore design will fit to shearer and continuous miner drums, and to boom type cutting heads.

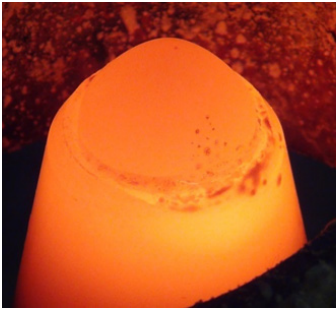
The unique system features a hexagonal sleeve and tool holder that permits quick replacement but does not allow the sleeve to rotate. Traditional conical systems use static sleeves that are difficult to remove or have unwanted rotation that significantly reduces system life by excessive wear to the internal bore of the tool holder.

The Hexbore conical cutting system has a pick back flushing (PBF) dust suppression feature that includes an integral spray unit strategically located to provide water to the cutting zone to effectively capture and reduce respiratory dust. In addition, the continual water spray dramatically reduces the risk of ignition due to incendive sparking.

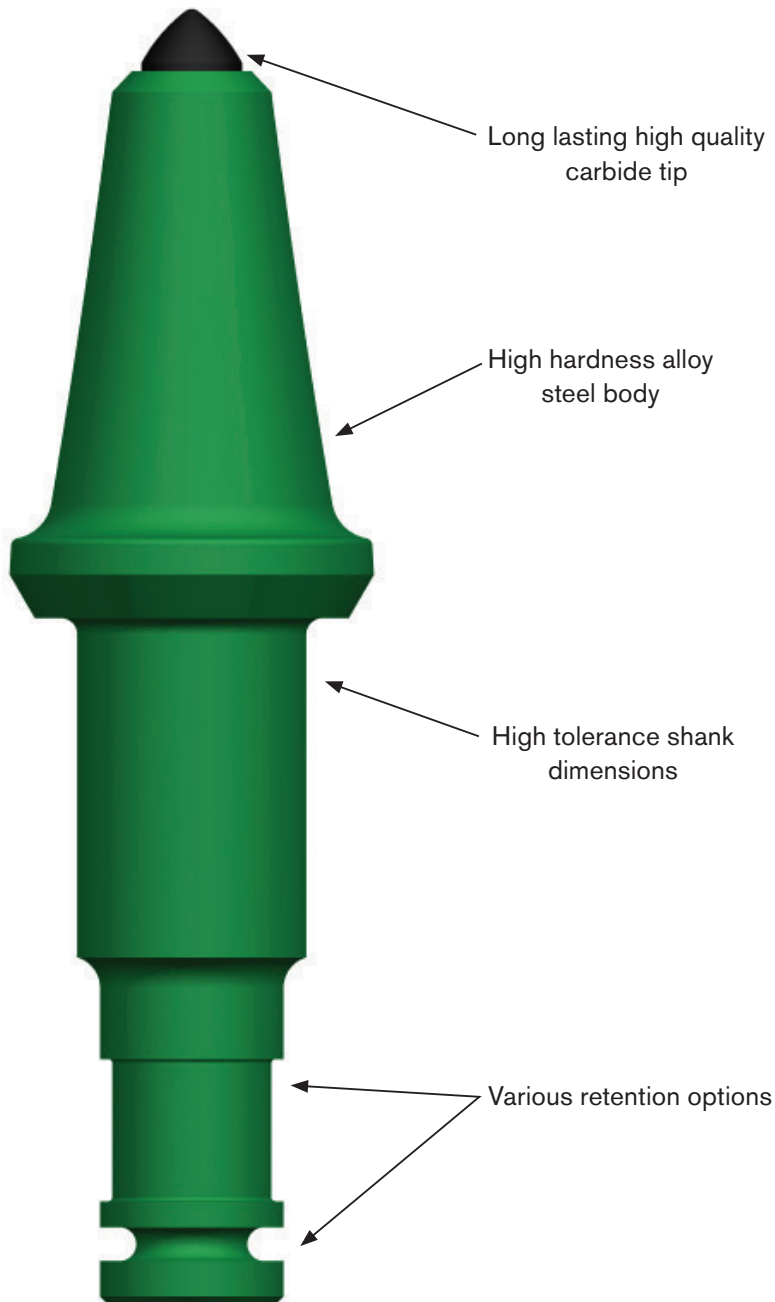
Another unique feature of the Hexbore cutting system is a secondary filter in the base of the tool holder. The secondary filter helps keep the waterway clear and permits insertion of a blanking plug if the tool holder is damaged, to allow operation to continue until it can be replaced.



ESCO® Conical Picks



ESCO's conical picks provide excellent wear life. Forged in superior alloy steel ESCO picks are an effective solution to decrease down time and improve productivity.



Features and Benefits

High quality forgings

- Superior forged alloy steel bodies provide excellent strength and toughness to improve pick life

High quality carbide tips

- Various carbide tip geometries, sizes, and grades to address specific cutting conditions

Easy to handle and install

- Minimal work required for installation

Versatile

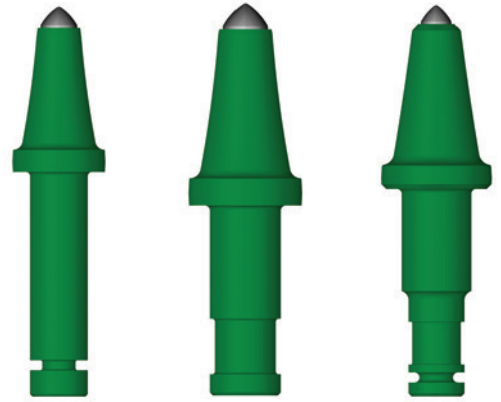
- Different profiles and sizes are available to suit a variety of customer needs
- ESCO works with customers to provide improvements and advantages of existing products.

Note: Please contact your ESCO sales representative for detailed dimensional information and size recommendations.

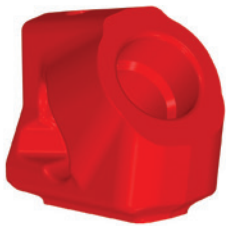


Conical Pick System Options

Conical picks are available in a variety of shank diameters and lengths, reach and tip profiles to match production requirements. Custom lengths and profiles are available for special applications or conditions. Contact your ESCO representative for additional details or to discuss your requirements.



Conical picks



Press-fit toolholder



HRS toolholder



Hexbore toolholder

ESCO toolholders are forged out of high quality alloy steel. Toolholders are available in both dry and wet configurations. Toolholder bore machining can be varied to accommodate an assortment of sleeves. Optional hard-facing can be applied to any toolholder.



Press-fit sleeve



HRS sleeve



Hexbore sleeve

ESCO sleeves are engineered to provide longer toolholder life. Sleeves are available in both dry and wet configurations. Sleeves can either be press-fit (non-rotating) or slip-fit (rotating or non-rotating). Sleeve bore machining can be varied to accommodate an assortment of picks. Optional hard-facing can be applied to any sleeve.

Pick Removal Tools

As a service to our customers ESCO provides a variety of removal tools for removal of cutting picks. Our engineering staff analyzes available tool options to ensure it meets customer needs for fast and safer pick replacement during machine maintenance cycles.



ESCO Hydra™ Shearer Drums



Shearer drum at work

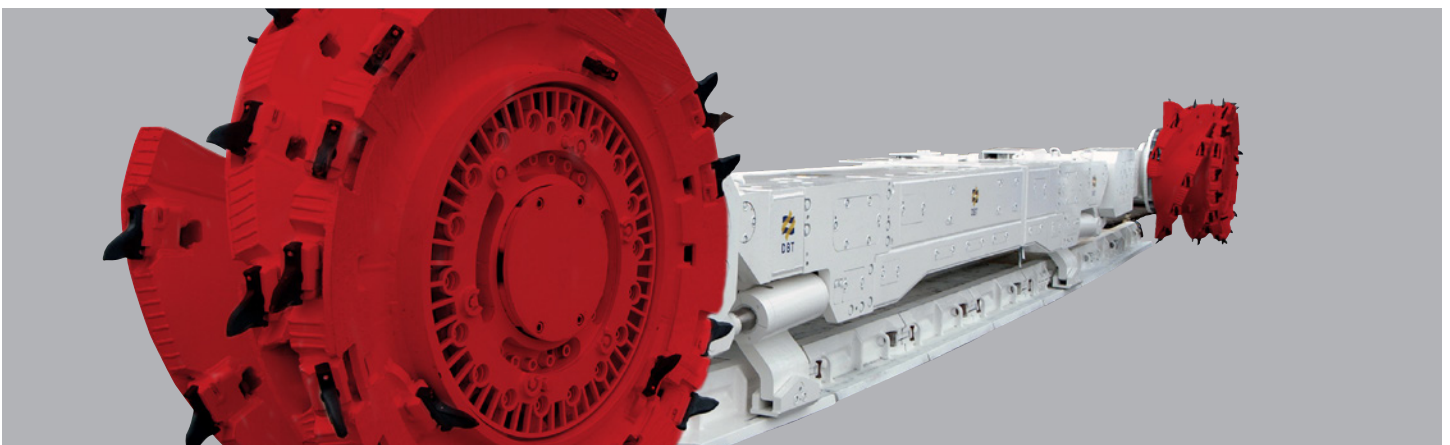
ESCO's Hydra shearer drums are a respected industry leader to maximize productivity. The Hydra drums feature a unique radial pick cutting system that provides increased production efficiency with larger product size and fewer fines.

The radial picks are locked in place with the easy-to-use Riblock retainer. The tool holders are contained within the vane for a smooth profile, leading to reduced wear, increased product size and lower power consumption.

Shearing Without Cows

ESCO's Hydra shearer drum designs allow mines to operate without cows and achieve better cutting performance, faster cycle times, and elimination of the expense to buy, maintain and operate with a cowl.

The current range of longwall installations have the power to push over farther and clean up better without the use of cows, allowing increased drum diameter that enables the lead drum to cut more, the trailing drum to clean up more efficiently, and permits the drums to work closer to the conveyor to assist loading. In addition, there is no localized gas build-up between the drum and the cowl. Time does not need to be spent at the end of the cut turning over the cowl.



Radial Picks with Riblock™ Retainer



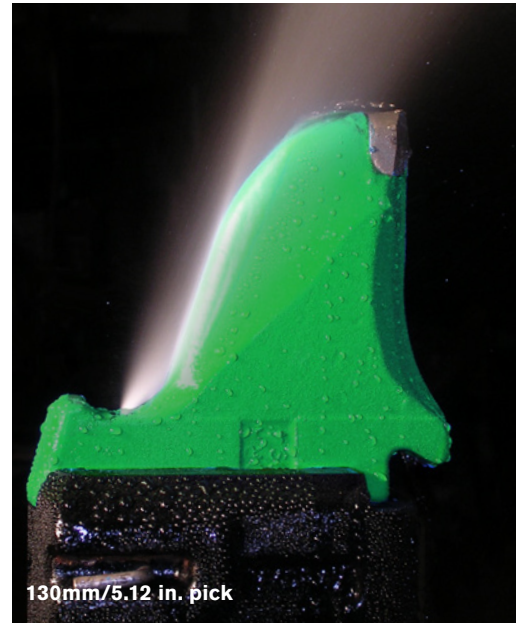
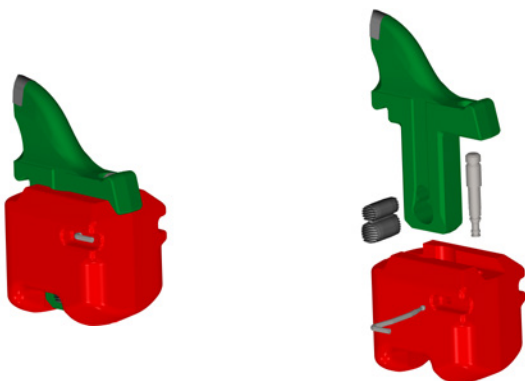
The ESCO radial pick offering is unique to the industry and provides multiple benefits over other systems. The typical effective reach for picks on high production radial and conical cutting systems is 100mm / 3.94 in., but the new range of shearers with increased haulage speeds requires longer reach picks to achieve the desired performance.

It is not practical to increase the effective reach of conical style picks much beyond the current distance. To increase the reach, the tool holder would need to move in proportion which, as currently positioned, is already exposed to wear.

ESCO now offers radial picks with a 130mm / 5.12 in. reach. The extended reach provides increased product size with fewer fines for substantially improved production rates. The radial tool holders are recessed, while the conical pick tool holder is significantly higher, making full contact with the coal, creating more fines and dust. The differences are detailed in the following illustration.

The ESCO radial cutting system also features the unique Riblock retainer that enables picks to be easily changed to match cutting conditions. The Riblock retainer is a proven retention device for both shearer and continuous miner drums. The system can be used dry but is more commonly used wet to minimize dust and the risk of frictional ignitions. The radial picks are an exclusive feature on all Hydra style shearer drums.

- Extended reach increases product size with fewer fines for improved productivity
- Wet system option minimizes dust and ignition risk for greater safety
- Riblock retainer simplifies replacement for reduced maintenance



Incendive Temperature Potential Protection System

Water is an excellent tool in the battle against dust; but more importantly, water is invaluable in the reduction of incendive sparks, lowering their temperature below that which can ignite methane gas. ESCO has developed the water-based Incendive Temperature Potential Protection (ITPP) system to provide additional safety at the coal face.

For the system to be successful, the water spray needs to have the correct shape and density, and accurately target where incendive sparks are generated. ESCO addresses these criteria by precise machining locating the spray socket directly into the tool holder. The result is a quick release, easy-change water spray fitting with an integral filter to prevent clogging.

The ITPP cutting system is one of the most effective ways of suppressing dust and reducing the risk of frictional ignitions. A testament to the value of this spray system is recognizing that it meets or exceeds many regional requirements and codes for control of frictional ignition on shearers

The system is engineered to:

- Capture respirable dust at the source.
- Reduce the risk of frictional ignitions.

The tool reaches available are:

- 100mm & 130mm
- To align the spray path correctly to the tool, it is imperative to fit the correct spray nozzle. The spray nozzle is held in position by the use of a hardened stainless steel retainer.



To prevent the retainer from vibrating loose during mineral cutting, the retainer is provided with a barbed end.



Standard Carbide Radial Picks

F79 Tip – The latest design, shaped to improve cutting efficiency with added carbide for increased life in high abrasion applications.

F78 Heavy Duty Tip – Slotted style carbide insert provides increased support and more brazed surface. Excellent choice for abrasive applications requiring greater impact resistance.

R88 Heavy Duty Slug Tip – Inserted cylindrical carbide tip. Provides improved wear life, excellent penetration with optimum performance in high impact applications.

R88 Heavy Duty Slug Tip with Overlay – Inserted cylindrical carbide tip. Offers the same impact resistance as the R88 heavy duty slug tip but with carbide overlay for maximum wear life in highly abrasive applications.



Long Reach Carbide Radial Picks

F79 Tip – The latest design, shaped to improve cutting efficiency with added carbide for increased life in high abrasion applications.

F78 Long Reach Pick with Heavy Duty Tip – Provides longer reach for improved haulage rates with slotted-style carbide insert for increased support and more brazed surface. Excellent choice for abrasive applications requiring greater impact resistance and higher production levels.





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