

Construction & Foundation Carbide Tools

This datasheet applies to the complete STROVOLT range of tungsten-carbide construction tools — foundation drilling picks and flat teeth, roller cone bits, drilling teeth, casing tools, HDD cutters, trencher picks, diaphragm-wall cutter teeth, roadheader picks and road milling picks. Dimensions for each individual model are given on its own product page and in the product catalogue.

CONSTRUCTION

Carbide tip	Cemented tungsten carbide (WC-Co), vacuum/furnace brazed into the forged body. Grade and tip geometry are selected for the target geology — see the tip guide overleaf.
Tip hardness	≥ 86 HRA typical; cobalt content 6–13 % depending on the balance of wear resistance and impact toughness required
Tip density	14.3–14.6 g/cm ³ (grade dependent)
Body material	Drop-forged alloy steel — 42CrMo (equiv. EN 42CrMo4 / AISI 4140) or 35CrMo class, selected by duty
Heat treatment	Quench and temper, with the hardness graded along the tool: harder at the head for wear resistance, tougher at the shank to absorb impact
Body hardness	Head approx. HRC 43 (42–45) · shank approx. HRC 38 (36–40), ±2 HRC
Surface	Shot-blasted and anti-corrosion treated
Rotation	Conical picks are free to rotate in the holder so the tip wears evenly and stays self-sharpening

SHANK SYSTEMS

Round-shank tools are supplied to the standard shank sizes below and fit the corresponding weld-on holder blocks. Always state the machine and holder system when ordering.

SHANK	TYPICAL APPLICATION
Ø19 mm	Small-diameter augers and drilling buckets
Ø20 mm	Road milling and pavement profiling
Ø22 mm	Road milling, surface miners, light trenching
Ø25 mm	Foundation drilling picks, chain trenchers, rock saws
Ø30 mm	Roadheaders, drum cutters, surface miners
Ø30/38 mm step	Rotary piling rigs — rock augers, drilling buckets, core barrels; heavy trenching
Ø34 / Ø38 mm	Roadheaders and shearers, heaviest cutting duty

Selecting a tool. Match the carbide tip to the ground first, then the body and shank to the machine. Harder, more abrasive ground needs a blunter tip and a larger carbide volume; softer ground allows a sharper tip for faster penetration. Running a tip that is too sharp in hard rock breaks carbide; running one that is too blunt in soft ground wastes power and slows the cut.

CARBIDE TIP SHAPES & APPLICATIONS

The tip profile is the main factor in tool life and cutting speed. STROVOLT supplies the following standard geometries; special shapes are made to order.



Dome-shaped

Largest carbide volume and the bluntest profile. Highest impact resistance — for very hard, highly abrasive rock and boulder-laden ground where sharper tips would fracture.



Parabolic

The general-purpose profile. A balanced compromise between penetration and strength, giving good cutting efficiency in hard rock and mixed or broken strata.



Wedge-shaped

Sharp, fast-penetrating profile for soft to medium ground — clay, weathered rock and soft sandstone. Highest cutting rate where impact loading is low.



Narrow bottom

Reduced carbide base diameter concentrates load on a smaller contact area for faster penetration, while the shoulder continues to protect the pick body.



Cap tip

The carbide extends over the shoulder and caps the body, protecting the steel behind the tip. For soft-to-medium ground where body wash-out limits tool life.



Irregular / laid-on

Flat and profiled inserts laid onto flat teeth, welding bars and diaphragm-wall cutters, where the cutting edge is a line rather than a point.

RETAINER TYPES

The retainer holds the tool in its block while still allowing free rotation. The type is matched to the tool and the working conditions.



Friction sleeve

Split spring sleeve gripping the shank by friction. Simple, quick to change; the general-purpose choice.



Hairpin

Sprung wire clip engaging a groove in the shank. Positive hold, tool-free removal.



Lock ring

Sprung ring seated in the holder bore. Resists pull-out in heavy or wet conditions.



Snap ring

Circlip in a shank groove. Compact, secure, and reusable across tool changes.



Bumped sleeve

Sleeve with raised bumps for extra grip — the most secure option for high-vibration duty.

QUALITY & SUPPLY

Inspection

Carbide grade, brazing integrity and body hardness are checked on every production batch

Customisation

Carbide grade, tip geometry, body length, collar diameter and cutting angle can be adapted to the project — minimum quantities apply

Ordering

Quote the STROVOLT part number shown on the product page or catalogue figure, the quantity, and your machine or holder system

Packing

Boxed; carton and pallet quantities on request

Hardness and material figures are typical works values and are subject to normal production tolerance (± 2 HRC). Dimensions of individual models are given on the product page and in the catalogue. Machine and holder-system names are used for fitment identification only and remain the trademarks of their respective owners. Specifications subject to technical modification without notice. © 2026 STROVOLT.