

# Mineral Ground Tools

## Road Planing and Reclaiming

RC400





Advanced brazing/heat treatment



Cutting force analysis



Engineering expertise

# Productivity in Action

# SANDVIK TOOLS

## TOUGH TOOLS FOR TOUGH JOBS

Sandvik Mining and Construction manufactures a full line of tools and accessories for the trenching, road planing, reclaiming, tunneling, longwall mining and continuous mining industries. Our tools are manufactured globally to the highest quality standards, using the strongest materials and most stringent manufacturing processes.

Headquartered in Sandviken, Sweden, and established in 1862, Sandvik is a high-technology engineering group and the world's leading manufacturer of tungsten carbide tools for the construction, mining and drilling industries.

We take special care in the manufacturing process to ensure that the cemented tungsten carbide in Sandvik's tools will meet our customers' demanding needs. The tungsten carbide is processed through a proprietary method to maximize its strengths and brazing properties. A special brazing/heat treatment bonds the tungsten carbide to high-grade alloy steel to ensure the hardness of the steel – and the superior performance of these tools in the field.

You can be confident that Sandvik tools will always provide maximum productivity and efficiency and that we will back them with the most dedicated customer and technical support in the industry.

As the world's leading supplier of drilling, excavation, crushing and screening machinery, and equipment and tools for the mining and construction industries, only Sandvik can offer customers the entire package – products, experience and expertise. We use our nearly 150 years of experience and our comprehensive product line to create value for our customers through relationships that combine hands-on knowledge of our customers' processes with our own real-world applications knowledge – proven around the world.

**NOTE:** This is the 2008 catalog for Sandvik road planing and reclaiming tools and all data are current at time of printing. Visit our Web site at [www.miningandconstruction.sandvik.com](http://www.miningandconstruction.sandvik.com) to learn more about our services and to check for any updates on the tools and products listed here. Periodic technical bulletins may be issued with updates.

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# SANDVIK CEMENTED CARBIDE

Sandvik Mining and Construction is the world's leading supplier of machines and tool systems for all rock, surface and mineral excavation applications. Sandvik is developing new hard material alloys in the R&D Centre in Stockholm, Sweden, and the new tools (in this catalog) are designed and tested in Sandvik facilities in the United States, South Africa, India, Europe and Australia. The company delivers millions of tools annually, including everything from small road planing, ice scraping and roof drilling bits used in all types of coal and soft minerals, to the biggest tunneling, trenching and surface mining tools.

The demand on tool performance, especially pertaining to the cemented carbide tip material and its resistance to wear and fracturing, becomes more critical as we progress into harder rock and mineral formations. Larger continuous cutting machines are being used to replace the drill and blast process in many tunneling and construction projects. The continuous process offers a lower cost per ton of excavated material, assures maximum worker safety and has a positive effect on the environment.

An extensive research project within Sandvik has resulted in a new generation of carbide grades and new larger, stronger, more stable and efficient tools.

## NEW CEMENTED CARBIDE ALLOYS

**Hard Rock Grade**  
**Soft Rock Grade**

This latest generation of patented carbide grades is manufactured using an innovative process technique with completely new raw materials. This process has made it possible, for the first time, to create new extra-coarse, super-tough alloys with perfectly uniform grain structure. The creation of this carbide, with a significantly stronger carbide matrix and a

perfect grain size configuration, has contributed to the superior toughness and high-temperature wear resistance experienced in a great number of operations and tests. All grades are now available in selected Sandvik special and standard tools. The tool steels have been further improved to match the performance of the new grades.

The new hard rock grade has proven to be 1.5 to 3 times better than anything else on the market in hard-to-brutal tunneling, trenching and coal mining applications.

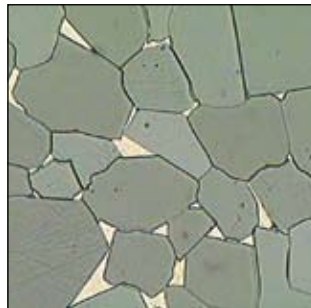
## NEW CARBIDE AND TOOL GEOMETRIES – LOW ENERGY CAP TOOLS

Many new versions of the Sandvik patented “low-energy” or cap-type tools have been introduced, not only for road planing and smaller mining tools, but also for big trenching, roadheading and longwall applications. The geometries have been calculated in CAD programs and simulated with FEM-measurement techniques, and have seen extensive rig and field testing. All forces and torques on the

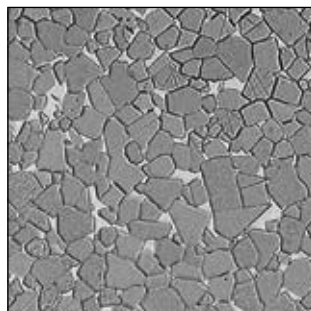
tools have been measured, confirming the cutting simulations, thus leading to further optimization of tool life, lowering the machine loads and reducing sparks and dust.

The Sandvik range of standard grades are cost effective in all general surface and underground applications and meet or exceed the performance of competitive brands.

Sandvik has again intensified its R&D efforts in the field of new alloys and super-hard materials (CBN and diamonds), helping to make us the most respected and innovative tool producer in the world.



**Hard Rock Grade**  
(magnified)

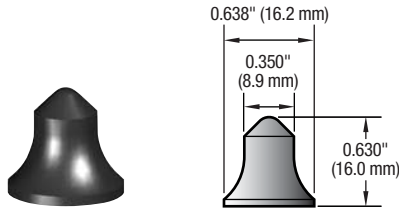


**Soft Rock Grade**  
(magnified)

# TIPS GUIDE

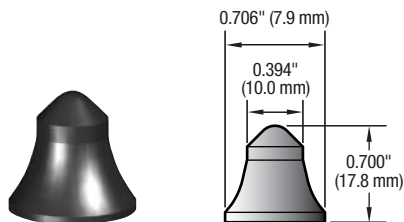
## FLAT-BOTTOM CAP CARBIDE TIPS

The following is a general guide to Sandvik's tips for road planing and reclaiming tools. The last two digits of the part number indicate which tip is used for a particular tool. General tip applications and capabilities are described below.



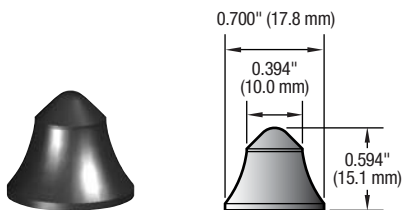
### TIP – 26

**Machines:** Small and medium machines  
**Conditions:** Asphalt  
**Features:** Narrow tip delivers excellent penetration, increasing productivity of light machines.



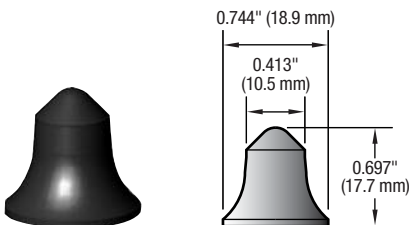
### TIP – 29

**Machines:** Small, medium and large machines  
**Conditions:** Asphalt and asphalt-off concrete  
**Features:** Maximizes penetration with a large radius profile that reduces fracturing.



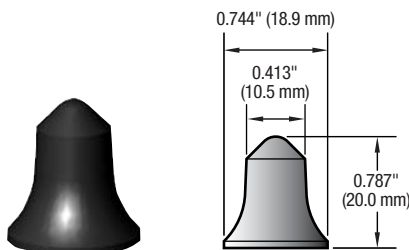
### TIP – 38

**Machines:** Small, medium and large machines  
**Conditions:** Asphalt and concrete  
**Features:** Excellent shock-resistant characteristics.



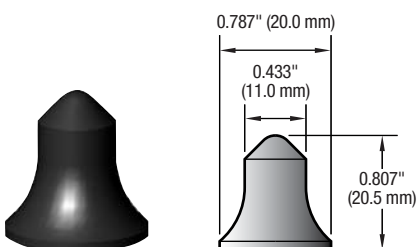
### TIP – 68

**Machines:** Medium and large machines  
**Conditions:** Asphalt and asphalt-off concrete  
**Features:** Provides excellent penetration. Maintains high machine speeds.



### TIP – 84

**Machines:** Medium and large machines  
**Conditions:** Asphalt  
**Features:** Provides excellent penetration. Maintains high machine speeds in abrasive conditions.

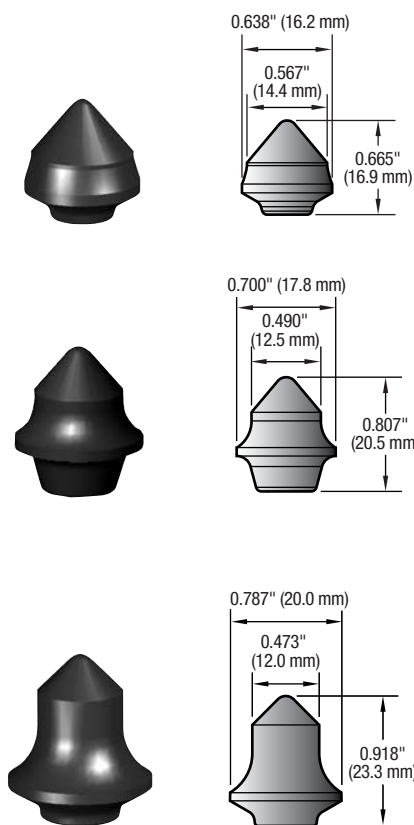


### TIP – 79

**Machines:** Large machines  
**Conditions:** Asphalt  
**Features:** Ideal for highly abrasive conditions and high production applications.

## CAP CARBIDE TIPS

Cap carbide tips have a valve-seat braze joint for increased strength and shear resistance.



### TIP – 01

**Machines:** Reclaiming and utility machines

**Conditions:** Used in varying conditions

**Features:** Full carbide where penetration is not a factor. Tip gives excellent body protection in all conditions. Valve-seat braze joint for increased shear resistance.

### TIP – 83

**Machines:** Medium and large machines

**Conditions:** Reclaiming, asphalt and concrete

**Features:** Deep valve-seat braze joint for maximum shear resistance. Large tip and full radius provide excellent performance in extreme conditions.

### TIP – 27

**Machines:** Medium and large machines

**Conditions:** Asphalt and concrete

**Features:** Valve-seat braze joint for increased shear resistance. Large tip for extreme wear conditions.

# WORKING PRINCIPLES

## REAL WORLD – REAL DECISIONS

A number of conditions can affect how you plan to cut your job, as well as your decision in selecting which Sandvik tool will do the best job for you. The following is a brief guide on how to choose the best Sandvik tool for the job – and how to maximize your tool use and reach your equipment's maximum efficiency. With this information, you'll be better informed on choosing the tools best suited for your crews and jobs.

These are just a few of the common conditions encountered by operators.

## AIR TEMPERATURE

A difference in ambient temperature may affect asphalt cutting conditions and can influence tools and machine performance by as much as 40 percent. It may also cause two different wear characteristics on tools: carbide wear and body wear.

## MACHINE COMPONENTS

These may contribute to poor machine and tool performance, which may result in increased wear:

- Worn conveyor cleats
- Slow conveyor speed
- Steep conveyor angle
- Worn drum flighting
- Worn kicker paddles
- Worn block system
- Reduced water spray

## MATERIALS AND CUT

- Mix design – aggregate and silica content determine abrasive characteristics.
- Surface mix – usually a high carbide wear cut.
- Leveling/base course – commonly an easier cut with more wear on body of tool.
- Asphalt-off concrete – high carbide wear and possible tip fracturing due to vertical loading.
- Traffic compaction – high traffic count, maximum density of material, wheel rutting.
- Concrete – machine size and weight, as well as strength and size of aggregate, generally determine the size of the carbide tip.

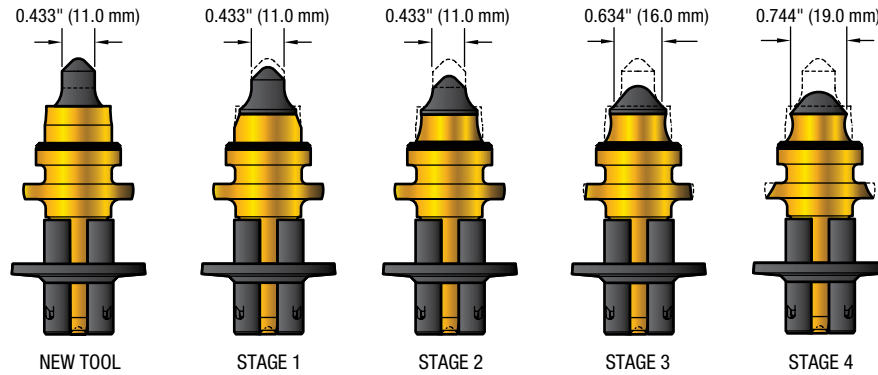
# PRINCIPLES OF TOOLS

## TOOL WEAR CHARACTERISTICS

Point Of Impact Drag (POID) / Surface Area Of Tip In The Cut

**FOR MAXIMUM PRODUCTIVITY, USE TOOLS UNTIL STAGE FOUR OF WEAR**

### TIP SIZE 68



## TOOLS ENGAGED AND TIP WEAR

This chart shows the change in the total surface area of tips engaged as wear occurs. Tip wear relates to the depth of cut and speed at which the machine is operating, as indicated below.

### TIP SIZE 68

Cutting Dia.: 46" (1.2 m)  
Drum Speed: 100 rpm  
Number of tools: 153

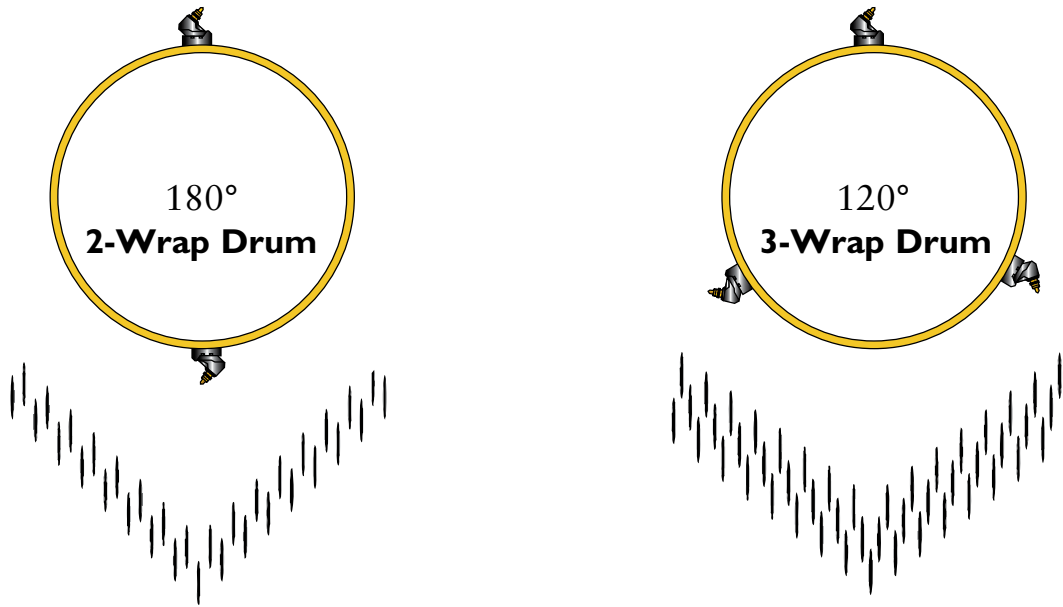
			NP68 Surface Area of Tips in the Cut										
Depth of Cut	Speed		Tools Engaged	New tool		Stage 1		Stage 2		Stage 3		Stage 4	
	FPM	MPM		in. <sup>2</sup>	cm. <sup>2</sup>	in. <sup>2</sup>	cm. <sup>2</sup>	in. <sup>2</sup>	cm. <sup>2</sup>	in. <sup>2</sup>	cm. <sup>2</sup>	in. <sup>2</sup>	cm. <sup>2</sup>
1.5" (3.8 cm)	30	9.1	11	0.15	1.0	0.15	1.0	0.15	1.0	0.32	2.0	0.43	2.8
1.5" (3.8 cm)	60	18.3	13	1.62	10.5	1.62	10.5	1.62	10.5	3.47	22.4	4.78	30.9
1.5" (3.8 cm)	120	36.6	17	1.91	12.4	1.91	12.4	1.91	12.4	4.10	26.5	5.65	36.5
3" (7.6 cm)	30	9.1	15	2.50	16.2	2.50	16.2	2.50	16.2	5.37	34.6	7.39	47.7
3" (7.6 cm)	60	18.3	16	2.21	14.3	2.21	14.3	2.21	14.3	4.74	30.6	6.52	42.1
3" (7.6 cm)	120	36.6	20	2.36	15.2	2.36	15.2	2.36	15.2	5.05	32.6	6.96	44.9
6" (15.2 cm)	30	9.1	20	2.95	19.0	2.95	19.0	2.95	19.0	6.31	40.7	8.69	56.1
6" (15.2 cm)	60	18.3	22	2.95	19.0	2.95	19.0	2.95	19.0	6.31	40.7	8.69	56.1
6" (15.2 cm)	120	36.6	26	3.24	20.9	3.24	20.9	3.24	20.9	6.95	44.8	9.56	61.7
12" (30.5 cm)	30	9.1	28	3.83	24.7	3.83	24.7	3.83	24.7	8.21	53.0	11.30	72.9
12" (30.5 cm)	60	18.3	30	4.12	26.6	4.12	26.6	4.12	26.6	8.84	57.0	12.17	78.5
12" (30.5 cm)	60	18.3	30	4.42	28.5	4.42	28.5	4.42	28.5	9.47	61.1	13.04	84.1

\*Surface area of one tip in the cut.

# CUTTING PATTERNS

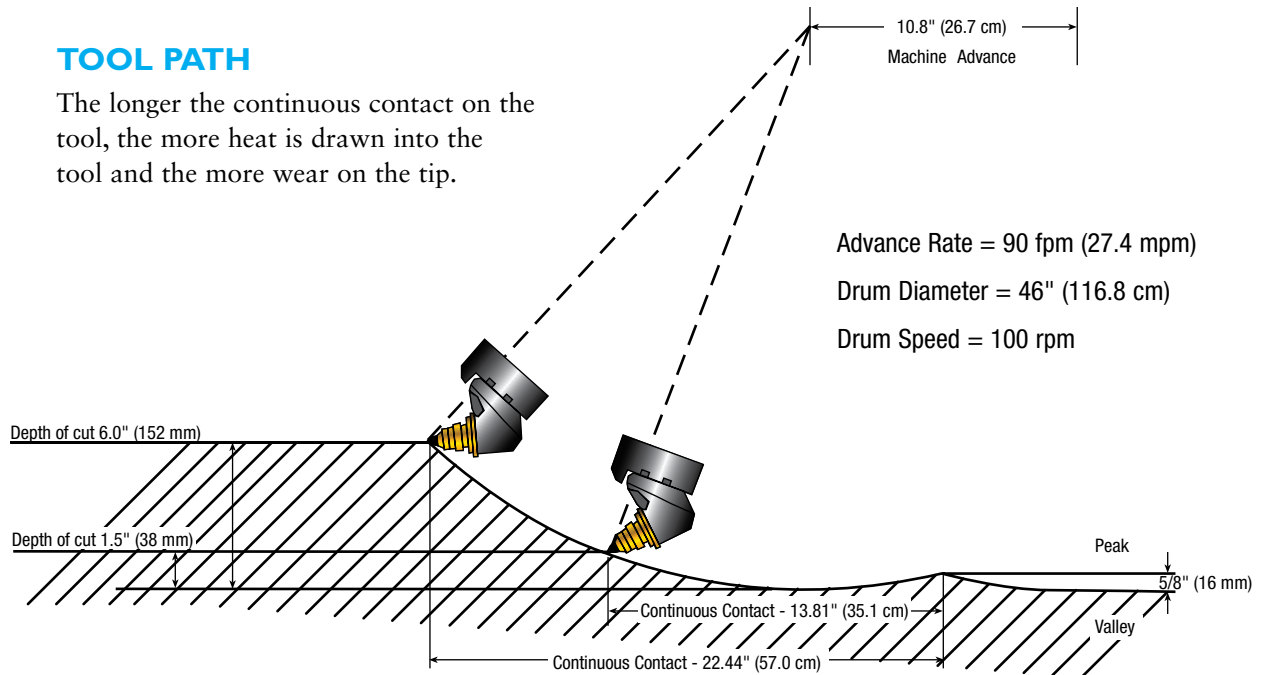
## DRUM WRAP COMPARISON

Shown below are the patterns of a 2-wrap and a 3-wrap drum per revolution. Each of these reflects a standard 5/8-inch (16 mm) spacing.



## TOOL PATH

The longer the continuous contact on the tool, the more heat is drawn into the tool, the more wear on the tip.



# K6LW

SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	60	2700

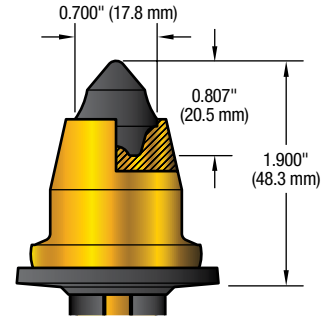
EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	63	2835

# R19

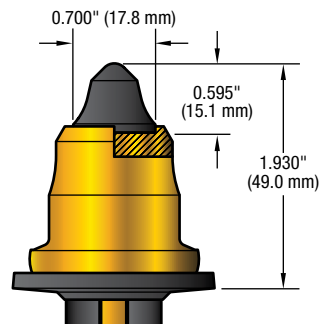


- FEATURES:**
- Heavy body and collar extend tool life and provide block protection
  - Full sleeve retainer and washer maintain maximum block bore and seat protection

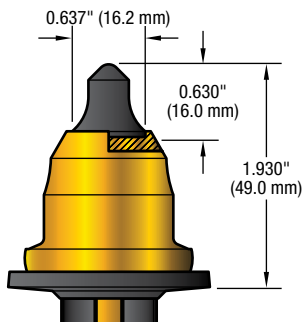
## K6LW-1948-8366



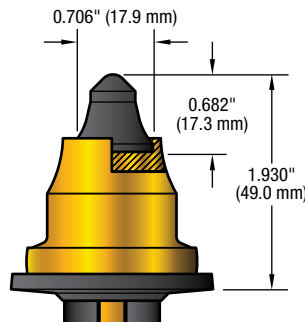
## K6LW-1949-3866



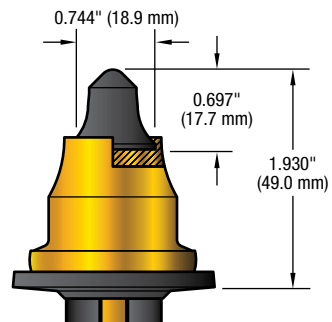
## K6LW-1949-2666



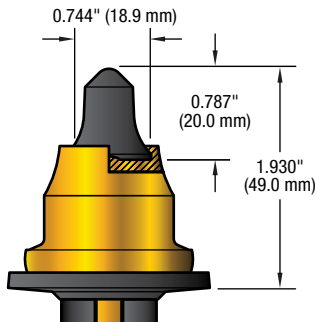
## K6LW-1949-2966



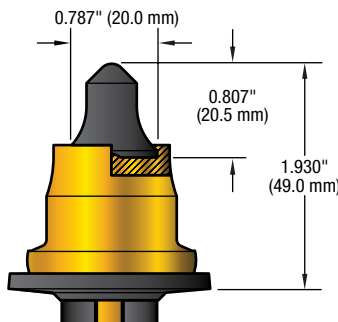
## K6LW-1949-6866\*



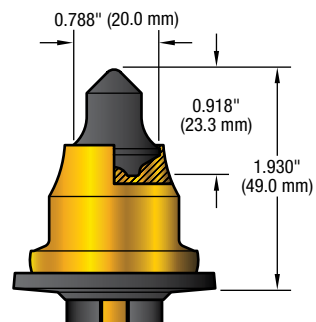
## K6LW-1949-8466



## K6LW-1949-7966



## K6LW-1949-2766



\*Revised Tool

# K6MW

SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	60	2700

EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	63	2835

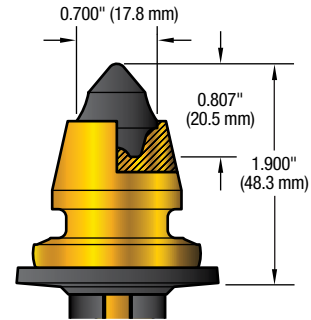
# R19



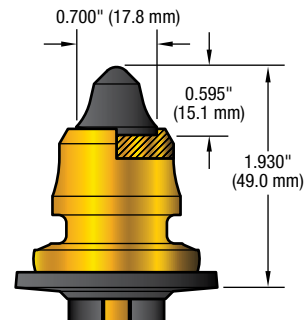
### FEATURES:

- Puller groove for easy tool installation and removal
- Heavy body and collar extend tool life and provide block protection
- Full sleeve retainer and washer maintain maximum block bore and seat protection

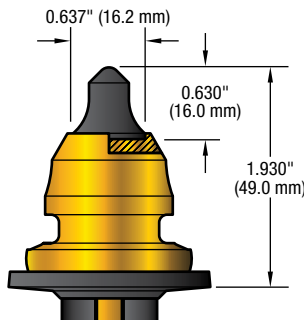
### K6MW-1948-8366



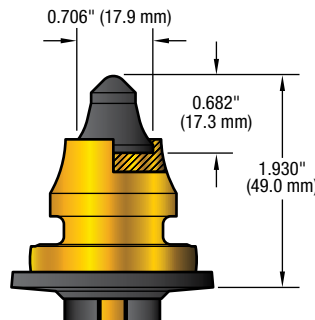
### K6MW-1949-3866



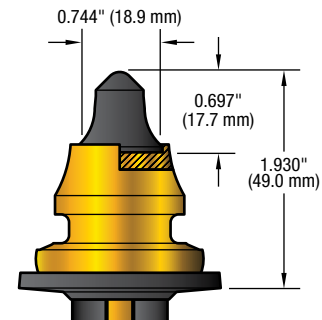
### K6MW-1949-2666



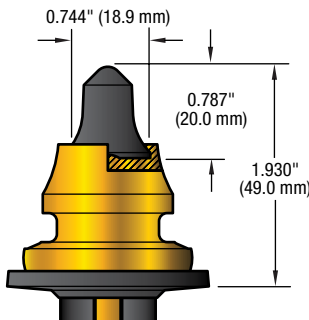
### K6MW-1949-2966



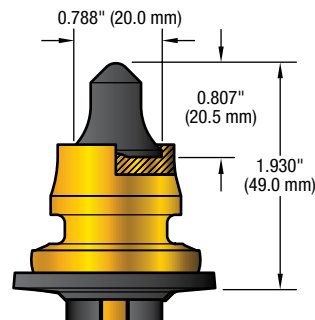
### K6MW-1949-6866\*



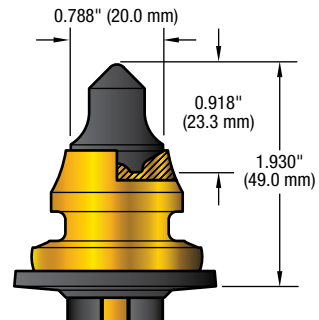
### K6MW-1949-8466



### K6MW-1949-7966



### K6MW-1949-2766



\*Revised Tool

# K6MT



SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	60	2700

## FEATURES:

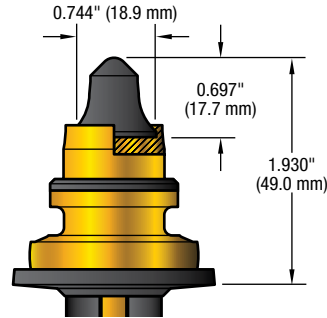
- Puller groove for easy tool installation and removal
- Strategically placed carbide ring prevents body wear, maximizing carbide tip use
- Carbide ring also adds greater block protection if tip is lost
- Full sleeve retainer and washer maintain maximum block bore and seat protection



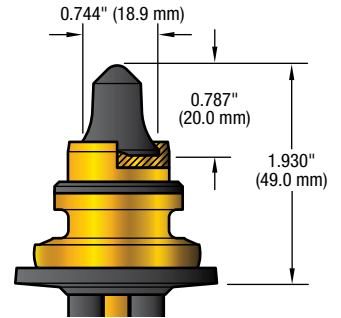
EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	63	2835

# R19

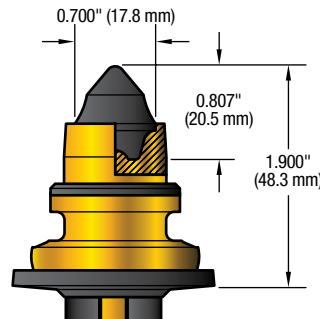
## K6MT-1949-6866\*



## K6MT-1949-8466



## K6MT-1948-8366



\*Revised Tool

# K6LT



SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	60	2700

## FEATURES:

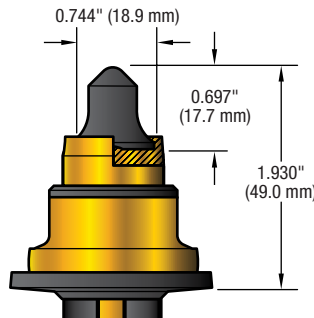
- Strategically placed carbide ring prevents body wear, maximizing carbide tip use
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- Full sleeve retainer and washer maintain maximum block bore and seat protection



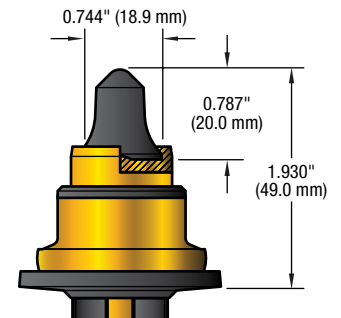
EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	63	2835

# R19

## K6LT-1949-6866\*



## K6LT-1949-8466



\*Revised Tool

# K6LT

SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	60	2700

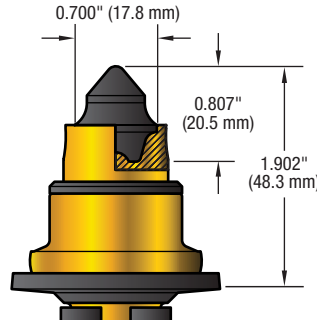
EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	63	2835

# R22

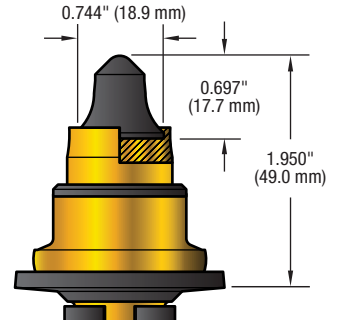


- FEATURES:**
- Strategically placed carbide ring prevents body wear, maximizing carbide tip use
  - Carbide ring also adds greater block protection if tip is lost
  - Full sleeve retainer and washer maintain maximum block bore and seat protection

## K6LT-2248-8366



## K6LT-2249-6866



# K6LW

SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	60	2700

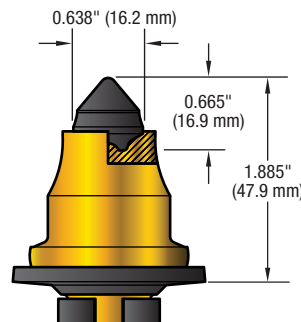
EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	63	2835

# R22

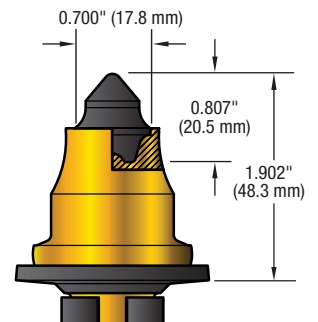


- FEATURES:**
- Full collar provides block protection
  - Long retainer for secure tool retention

## K6LW-2248-0169



## K6LW-2248-8366



# K6MW

SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	60	2700

EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
45	63	2835

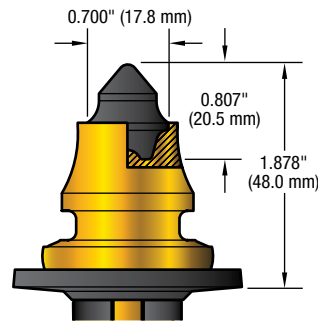
# R22



## FEATURES:

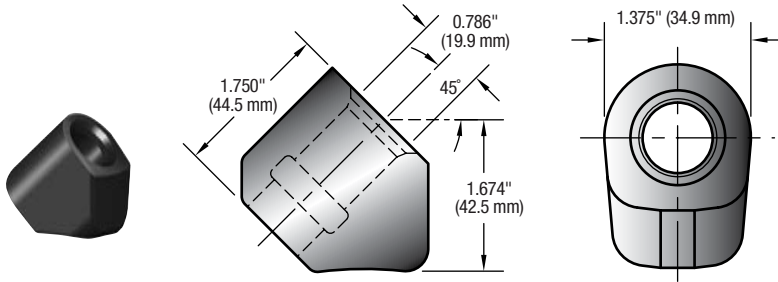
- Puller groove for easy tool installation and removal
- Heavy body and collar extend tool life and provide block protection
- Full sleeve retainer and washer maintain maximum block bore and seat protection

## K6MW-2248-8366



# R19 BLOCKS

Sandvik has durable, yet serviceable blocks for specific applications and for particular tools.

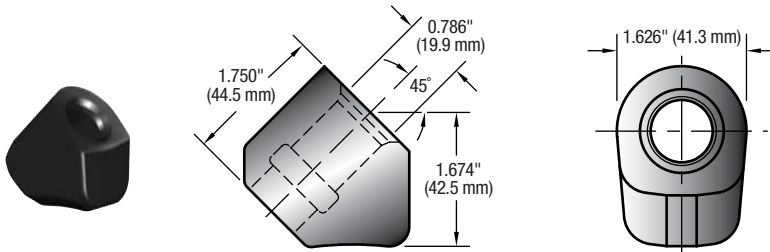


SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
35	45	1575

EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
35	63	2205

## B3AA-1943-4500

A standard block

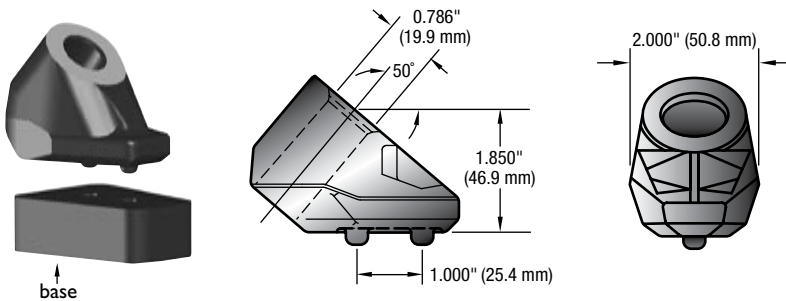


SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
35	45	1575

EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
35	63	2205

## B3AH-1943-4500

A heavy-duty block

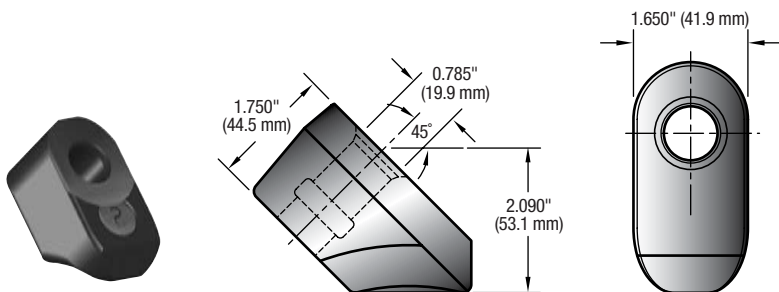


SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
15	45	675

EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
15	63	945

## B4BA-1948-5000

Block features locator pins for easy alignment. The “V”-shaped front reduces wear by channeling material away from the face. For use with Sandvik standard series tools. Use M8D-0003 base with B4BA-1948-5000 block.



SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
35	45	1575

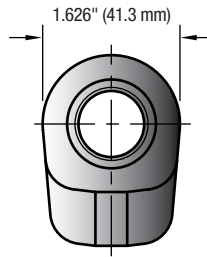
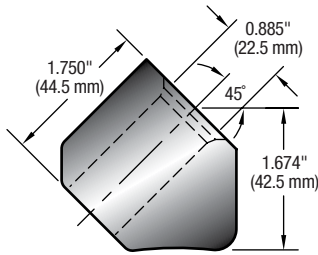
EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
35	63	2205

## B3AJ-1953-4500

Block is .393 inches (10 mm) taller than standard

# R22 BLOCKS

Sandvik has durable, yet serviceable blocks for specific applications and for particular tools.

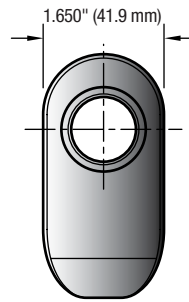
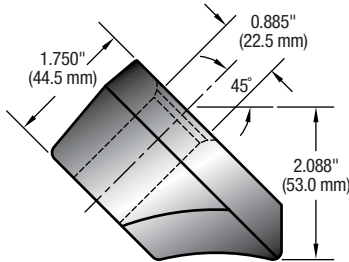
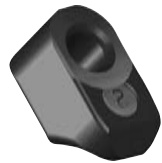


SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
35	45	1575

EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
35	63	2205

## B3BH-2243-4500

A heavy-duty block

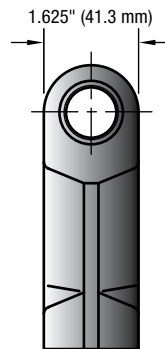
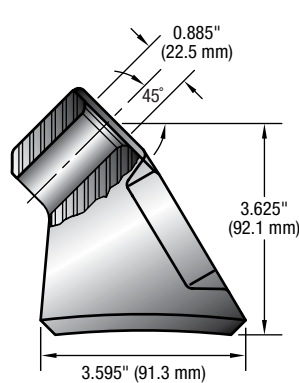


SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
35	45	1575

EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
35	63	2205

## B3BJ-2253-4500

Block is .393 inches (10 mm) taller than standard

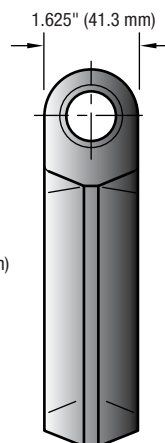
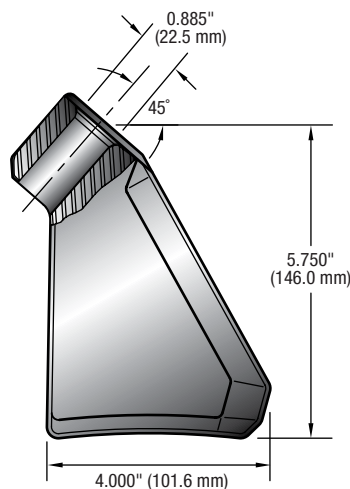


SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
12	45	540

EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
12	63	756

## B4BA-2292-4500

High-rise block for use on reclaimers



SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
6	45	270

EU SHIPPING INFORMATION		
Pieces Per Box	Boxes Per Pallet	Pieces Per Pallet
6	63	378

## B4BJ-2246-4500

Block is 2 inches taller than B4BA-2292-4500 and is ideal for use on 34-inch-diameter drums on reclaimers

# ACCESSORIES

Sandvik provides punches, installation tools and pullers to assist with tool and machine maintenance.



## CURVED KNOCK-OUT PUNCH

Tool remover with carbide tip for extended life.

### PART NUMBER

M8T-0004



## AIR-HAMMER PUNCHES

For removal of conical tools from blocks. Hardened tip provides long life. Fits light-duty air-hammer guns with 3/8 or 1/2-inch chucks.

### PART NUMBER

M8T-0012 ..... 3/8-inch Chuck

M8T-0013 ..... 1/2-inch Chuck



## AIR-HAMMER INSTALLATION TOOLS

For installation of conical tools into blocks. Fits light-duty and heavy-duty air-hammer guns with 3/8 or 1/2-inch chucks.

### PART NUMBER

M8T-0015 ..... 3/8-inch Chuck

M8T-0016 ..... 1/2-inch Chuck



## PULLERS

For removal of tools with puller grooves. Use shank diameter to specify puller tool size required.

### PART NUMBER      TOOL SERIES

M8T-0003-19..... 19 mm Tool

M8T-0003-22 ..... 22 mm Tool

Superior performance



Maximum productivity



# Partners in Action



Quality results



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