

ENDURANCE  
**CARBIDE**

**MAXIMUM TILLAGE  
PERFORMANCE**  
MADE IN GERMANY



ENGINEERED  
**TO RESIST**

 **GRANIT**  
QUALITY PARTS



# ENGINEERED TO RESIST



## THE PRODUCTION PROCESS:

The hard metal plates are soldered on via a special inductive soldering process. As part of this process, an electrical current is directed into the body and the hard metal plates to be soldered via a specially developed coil. The target temperature is up to 800°C.

Once the hard metal plates have been soldered on, our tool is brought back up to temperature and hardened.

The melting points of the body, soldering material and hard metal must be observed in order to create an optimum connection between the materials. This requires years of experience (from the mining industry for example) plus high-quality raw materials, which only a few aftermarket suppliers use today.

This tempering process after the hard metal plates have been soldered on ensures maximum body hardness (46 HRC). Thanks to this complex process, GRANIT ENDURANCE CARBIDE products are superior to virtually all other aftermarket products.

Additional welds (which can have a negative impact on tool geometry) are not required with GRANIT ENDURANCE CARBIDE products as the body has a high level of wear resistance.

## HARD METAL:

Additional hard metal plates are embedded in areas of the body exposed to particularly high stresses. The triangular shape of the lower hard metal plates means that they are both solid and firmly anchored in the structure of the body.

To ensure minimal wear, we chose to include large hard metal plates on the upper side of our tools. This significantly increases their service life.

## SOPHISTICATED SOLDERING PROCESS:

A durable soldered connection between the hard metal plates and the body (which also compensates for impacts from stones without causing damage) ensures that the hard metal plates are held perfectly in the body of the GRANIT ENDURANCE CARBIDE tools.

The composition of the soldering material is crucial here. If the connection is too hard, the hard metal plates may chip when subjected to impact loads. On the other hand, a connection that is too soft often won't be able to withstand continuous abrasive loads.

## WEAR-OPTIMISED DESIGN:

We have optimised the shape of our tools to ensure optimum performance when exposed to wear. Particularly affected areas are specially reinforced. Our tools' design ensures long-term dimensional stability, and therefore a consistently good working pattern with a constant working depth.

## LOW-WEAR DESIGN

Areas exposed to wear are specially reinforced to prevent scouring.

The solid body ensures long-term dimensional stability and a fixed tool position over long periods of use.

## WEAR PROTECTION FOR BOLT HEADS

To prevent scouring, the areas around the bolt heads are reinforced.

## TEMPERING AFTER SOLDERING

Tempering after soldering results in maximum body hardness. This makes our points superior to many competition products.

## SOPHISTICATED SOLDERING PROCESS

A durable soldered connection between the hard metal plates and the body ensures a perfect hold, and compensates for impacts from stones without causing damage.

## HARD METAL

Additional hard metal plates are firmly embedded in areas of the body exposed to particularly high stresses.

The triangular shape of the hard metal plates embedded in the point not only ensures a tight fit, but has also proven to be extremely robust.



# MADE IN GERMANY

Development and production by mining and road construction specialists in Germany.





# GRANIT ENDURANCE CARBIDE SHARE POINT PRODUCT BENCHMARK IN COOPERATION WITH THE STEINBEIS CENTRE FOR MATERIAL AND COMPONENT TESTING



## WHY COMBINE A 'STANDARD' WEARING PART AND A WELDED-ON HARD METAL PLATE?

To answer this question, a basic knowledge of tillage wearing part production is required. Choosing the right combination of material and hardness is crucial here. To prove the quality of GRANIT ENDURANCE CARBIDE wearing parts, our tools are constantly examined, tested and compared:

- Material analysis on the share body
- Hardness test on the share body
- Hardness test on the hard metal plates
- Evaluation of the soldered connection between hard metal plate and share body
- Validation of laboratory results by means of a field test

## TEST RESULTS:

### Material analysis and hardness testing:

The choice of material for the bodies: here it depends on the wear-reducing alloy components. If a simple carbon steel is chosen, it will always be inferior (even with high hardness) to a steel refined with manganese and boron for example.

Tempering/hardness of the body: the quality of the tempering process is instrumental in ensuring that the cultivator point has the right degree of flexibility. Soft and flexible tools are subject to higher levels of wear, and are at risk of bending if they come into contact with foreign bodies. Although hard tools undergo less wear, they are also brittle and will sometimes break at the slightest contact with foreign bodies.

In order to achieve an optimum hardness-toughness ratio, the GRANIT ENDURANCE CARBIDE parts have a perfectly hardened body combined with extremely resistant hard metal plates.

### Results of the laboratory tests:

A total of seven products from different manufacturers and suppliers were examined.

The material analysis showed that three different materials were used for the body. These were C45 carbon steel, and 30MnB5 and 34MnB5 quenched and tempered steels. The latter two differ mainly in terms of carbon content, and are both very well suited to their intended use for tillage work.

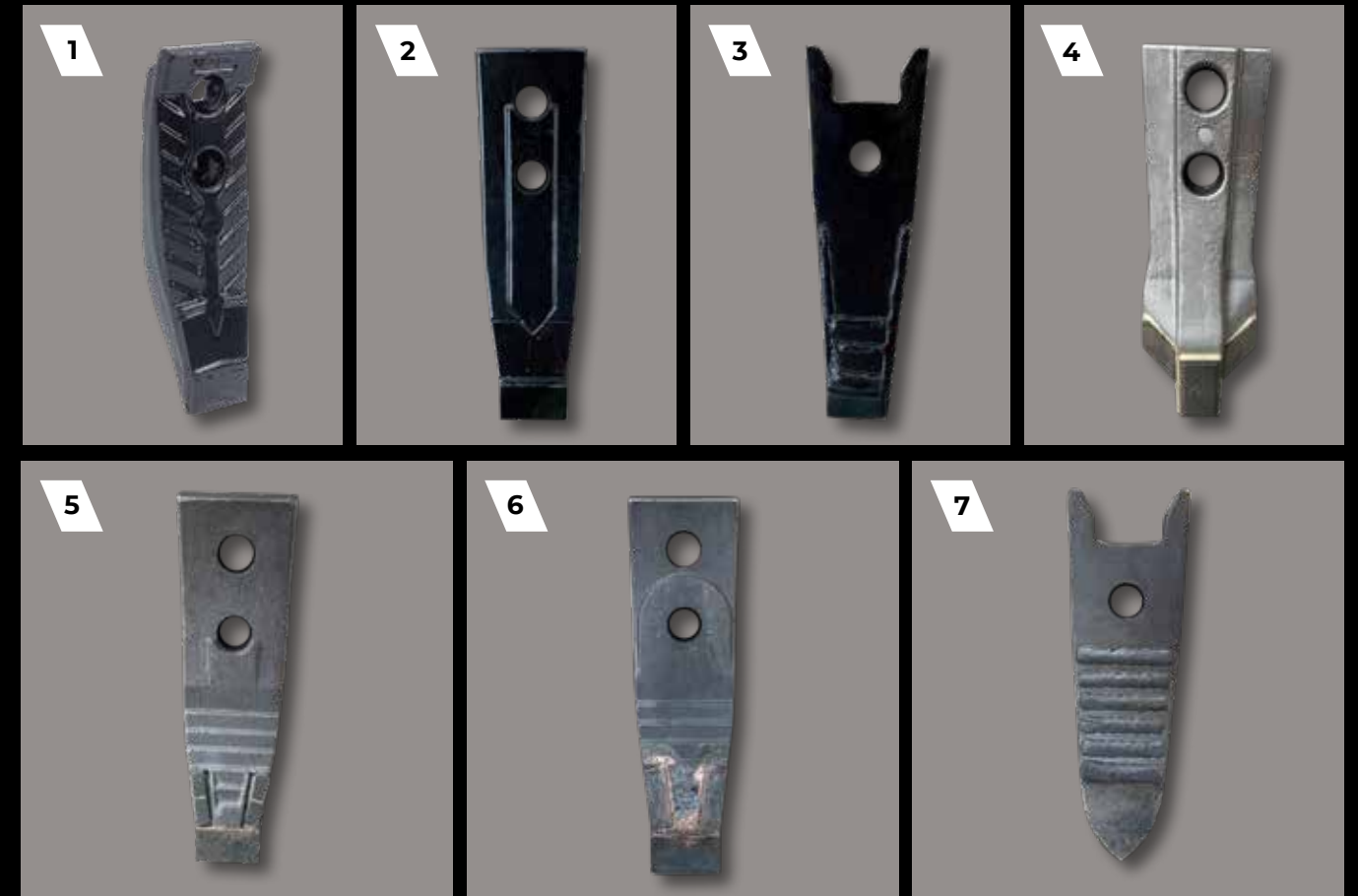
The hardness values of the bodies vary greatly, and range from 515HV1 down to 185HV1. The maximum value is close to the range where brittleness occurs, resulting in an increased risk of breakage. The low values lead to increased and undesirable wear.

The range of hardness values exhibited by the hard metal plates is smaller. However, differences are also apparent here, which lead to different levels of wear. The values range from 1351HV1 down to 1159HV1.

## CONCLUSION

When it comes to producing high-quality wearing parts, a balanced relationship between material properties, body hardness and hard metal plate hardness is important. On closer examination of the values in the table opposite, it is immediately apparent that the GRANIT ENDURANCE CARBIDE shares boast the best relationship between these properties. As mentioned above, excessive hardness in the body can lead to breakage in the event of contact with foreign bodies, rather than the resilience desired.

This investigation demonstrates the know-how and the development work that GRANIT has done together with our experienced manufacturer to produce the ENDURANCE CARBIDE range.



## IN ORDER TO GIVE A COMPLETE OVERVIEW, THE RESULTS OF THE LABORATORY TESTS HAVE BEEN SUMMARISED AS FOLLOWS:

Supplier	Body material	Body hardness	Hard metal plate hardness	Evaluation	Image no.
GRANIT ENDURANCE CARBIDE 179316661	34MnB5 1.5534	446HV1	1351HV1	++	1
OEM from Germany	34MnB5 1.5534	515HV1	1159HV1	+	2
OEM from Germany (lighter version)	34MnB5 1.5534	205HV1	1159HV1	-	3
Aftermarket manufacturer from France	30MnB5 1.5531	257HV1	1159HV1	-	4
Aftermarket product from another wholesaler	30MnB5 1.5531	251HV1	1219HV1	o	5
Aftermarket product from another wholesaler	34MnB5 1.5534	426HV1	1219HV1	+	6
Aftermarket manufacturer	C45 1.0503	185HV1	1159HV1	-	7

Table 1: Materials and hardness

# SOLDERED CONNECTION




## EVALUATION OF THE SOLDERED CONNECTION BETWEEN HARD METAL PLATE AND SHARE BODY:

The hard metal plates are attached to the body by means of hard soldering. This connection is another quality feature of these wearing parts. If this soldering is not carried out properly, even minor contact with foreign bodies can result in the hard metal plates breaking out or being lost completely. If this were to happen, the tool would no longer be protected properly.

### RESULTS:

In order to present the results appropriately, they have been summarised in a table with illustrative photos.

Supplier	Evaluation	Result
GRANIT ENDURANCE CARBIDE 179316661	++	There are no defects in the soldered connection. The connection is completely interlocked.
<b>Overview of soldering</b>		<b>Close-up of soldering</b> 



Supplier	Evaluation	Result
OEM from Germany	++	There are no defects in the soldered connection. The connection is completely interlocked.
<b>Overview of soldering</b>		<b>Close-up of soldering</b> 

Supplier	Evaluation	Result
OEM from Germany (lighter version)	-	There are pores and imperfections in the soldered connection. The connection is not completely interlocked. Black spots are pores.
<b>Overview of soldering</b>		<b>Close-up of soldering</b> 

Key:  
1: Base material      2: Hard metal plate      3: Soldered connection

Supplier	Evaluation	Result
Aftermarket manufacturer from France	o	There are pores and imperfections in the soldered connection. The connection is not completely interlocked. Black spots are pores.
<b>Overview of soldering</b>		<b>Close-up of soldering</b> 

Supplier	Evaluation	Result
Aftermarket product from another wholesaler	-	There are pores and imperfections in the soldered connection. The connection is not completely interlocked. Black spots are pores.
<b>Overview of soldering</b>		<b>Close-up of soldering</b> 

Supplier	Evaluation	Result
Aftermarket product from another wholesaler	-	There are pores and imperfections in the soldered connection. The connection is not completely interlocked. Black spots are pores.
<b>Overview of soldering</b>		<b>Close-up of soldering</b> 

Supplier	Evaluation	Result
Aftermarket manufacturer	++	There are no defects in the soldered connection. The connection is completely interlocked.
<b>Overview of soldering</b>		<b>Close-up of soldering</b> 

Table 2: Evaluation of the soldered connection

## CONCLUSION

Only three of the seven manufacturers were able to produce an interlocked connection. As described above, the pores and imperfections exhibited by the other four versions may cause the hard metal plate to break out.



## FIELD TEST



### VALIDATION OF LABORATORY RESULTS BY MEANS OF A FIELD TEST:

In order to verify the theoretical results from the laboratory, a field test was carried out.

In this practical test the seven test parts were mounted on the test cultivator so that the wear conditions could be compared with each other. This means that comparisons were only ever made within one row (1st, 2nd and 3rd row), and inside or outside the tractor track. This ensured that the parts being compared were always subjected to the same degree of wear.

In order to obtain exact data regarding the number of hectares processed (excluding the influence of errors such as tractor, driver change, incorrect operation, etc.), an autonomous hectare counter specially designed for this test was mounted on the cultivator.

For the test evaluation, the individual shares were measured before use. The length, the thickness and (most importantly) the weight were recorded. After the test was completed, these parameters were recorded again in relation to the number of hectares processed. This was then used to produce a ranking.

A 3-bar, 6 m cultivator was used for the test.

The test was carried out on loamy, sandy soils containing an average amount of stones in north-eastern Mecklenburg-Western Pomerania.



Image 1: Fully assembled test cultivator



Image 2: Autonomous hectare counter

### RESULTS:

The results were tabulated and evaluated. Unfortunately, due to constant breaks one test part dropped out completely. No data could be determined.

Supplier	Average yield per hectare/share point	Evaluation
GRANIT ENDURANCE CARBIDE 179316661	855.71 ha	++
OEM from Germany	797.50 ha	+
OEM from Germany (lighter version)	No data	--
Aftermarket manufacturer from France	638.00 ha	+
Aftermarket product from another wholesaler - manufactured in Eastern Europe	473.50 ha	-
Aftermarket product from another wholesaler - manufactured in Germany	531.67 ha	o
Aftermarket manufacturer from Eastern Europe	426.67 ha	-

Table 3: Hectare output

### CONCLUSION:

The combination of high-quality raw materials, an extremely sophisticated manufacturing process and well thought-out hard metal plate geometry makes GRANIT ENDURANCE CARBIDE products superior.

#### THE GRANIT SHARE POINTS ARE CHARACTERISED BY THE FOLLOWING FEATURES:

- ▮ Excellent choice of materials
- ▮ Optimum hardness-toughness ratio in the body
- ▮ Hardest metal plate for longest service life
- ▮ Completely interlocked soldered connection
- ▮ Best results in the field test
- ▮ Extremely robust hard metal plate geometry



## ENDURANCE CARBIDE SHARE POINT

To fit as Amazone

### Description

- ▮ Length (mm): 302
- ▮ Width (mm): 51-81
- ▮ Suitable bolts: 1801280812
- ▮ Colour: black

Part no.	Reference no.
179016661	78708804

## ENDURANCE CARBIDE WING SHARE

To fit as Amazone

### Description

- ▮ Width (mm): 218
- ▮ Thickness (mm): 10
- ▮ Suitable bolts:
  - 2x 1801270812
  - 2x 18051-1022

Fig. right

Part no.	Reference no.	Version
179016663	78708826	Right, C-Mix
179016662	78708825	Left, C-Mix

## ENDURANCE CARBIDE SHARE POINT

To fit as Bednar-Strom

### Description

- ▮ Length (mm): 334.5
- ▮ Width (mm): 50-80
- ▮ Suitable bolts: M12 DIN 608
- ▮ Colour: black

Part no.	Reference no.
179626661	KM060334, KM060402, KM060427

## ENDURANCE CARBIDE SHARE POINT

To fit as Horsch

### Description

- ▮ Length (mm): 276.7
- ▮ Width (mm): 50-80
- ▮ Hole spacing (mm): 55.6
- ▮ Suitable bolts: M12 DIN 608
- ▮ Colour: black

Part no.	Reference no.
179316661	00311069

## ENDURANCE CARBIDE SHARE POINT

To fit as Horsch

### Description

- ▮ Length (mm): 481.2
- ▮ Width (mm): 40
- ▮ Thickness (mm): 25
- ▮ Suitable bolts:
  - 18012100812, 18012110810, 18051-12RMU

Part no.	Reference no.
179316611	00311349, 00311113

## ENDURANCE CARBIDE SHARE POINT

To fit as Horsch

### Description

- ▮ Length (mm): 298
- ▮ Width (mm): 50
- ▮ Hole spacing (mm): 45
- ▮ Types: Cruiser
- ▮ Suitable bolts: 1801260812

Part no.	Reference no.
179316612	00311565, 00311513

## CULTIVATORS





## ENDURANCE CARBIDE SHARE POINT

To fit as Horsch

### Description

- Length (mm): 370
- Width (mm): 28
- Types: Terrano, Tiger, Focus



Part no.	Reference no.
179316613	00311357

## ENDURANCE CARBIDE GUIDE PLATE

To fit as Horsch

### Description

- Width (mm): 25
- Types: Terrano, Tiger, Focus



Part no.	Reference no.
179316614	00311358

## ENDURANCE CARBIDE WING SHARE

To fit as Horsch

### Description

- Width (mm): 172.5
- Thickness (mm): 10
- Types: Terrano and Tiger Mulch Mix system
- Suitable bolts:
  - 2x 56031 00360037
  - 2x 18051-12RMU



Fig. right

Part no.	Reference no.	Version
179316663	00311275, 34060857	Right
179316662	00311274, 34060856	Left

## ENDURANCE CARBIDE SHARE POINT

To fit as Köckerling

### Description

- Length (mm): 344.2
- Width (mm): 40-81.5
- Hole spacing (mm): 113
- Suitable bolts: M12 DIN 608
- Colour: black
- Types: Trio, Quadro, Vector

Part no.	Reference no.
179506661	915776

## ENDURANCE CARBIDE SHARE POINT

To fit as Köckerling

### Description

- Length (mm): 255
- Width (mm): 35-56
- Hole spacing (mm): 45
- Suitable bolts: 1801060810
- Colour: black
- Types: Allrounder

Part no.	Reference no.
179506662	915772

## ENDURANCE CARBIDE WING SHARE

To fit as Köckerling

### Description

- Width (mm): 200
- Thickness (mm): 10
- Suitable bolts: 18063-1265-1



Fig. right

Part no.	Reference no.	Version
179506666	932214	Right
179506665	932216	Left

## CULTIVATORS





## ENDURANCE CARBIDE CHISEL SHARE

To fit as Kockerling

### Description

- Length (mm): 424.8
- Width (mm): 40
- Thickness (mm): 25
- Suitable bolts: 1801285812
- Types: Trio, Quadro, Vector



Part no.	Reference no.
179506667	915774

## ENDURANCE CARBIDE SHARE POINT

To fit as Kuhn (new version)

### Description

- Length (mm): 276.3
- Width (mm): 50
- Hole spacing (mm): 45
- Suitable bolts: 1802800055
- Colour: black



Part no.	Reference no.
179286661	H2225650, H2237810, H2212540

## ENDURANCE CARBIDE SHARE POINT

To fit as Kuhn (new version)

### Description

- Length (mm): 276.5
- Width (mm): 80
- Hole spacing (mm): 45
- Suitable bolts: 1801290812
- Colour: black



Part no.	Reference no.
179286662	H2220761, H2220760

## ENDURANCE CARBIDE WING SHARE

To fit as Kuhn (new version)

### Description

- Width (mm): 242.5
- Thickness (mm): 12
- Suitable bolts: 1801290812
- Types: Cultimer, Performer



Fig. right

Part no.	Reference no.	Version
179286665	H2218181	Right
179286664	H2218191	Left

## ENDURANCE CARBIDE SHARE POINT

To fit as Lemken

### Description

- Length (mm): 273.4
- Width (mm): 80
- Suitable bolts: 1801250812
- Colour: black

Part no.	Reference no.
179176663	33710031, 33710008

## ENDURANCE CARBIDE SHARE POINT

To fit as Lemken

### Description

- Length (mm): 220
- Width (mm): 120
- Suitable bolts: 1801240812

Part no.	Reference no.
179176667	3374387, 3374391, 3374392

## ENDURANCE CARBIDE WING SHARE

To fit as Lemken

### Description

- Width (mm): 287.7
- Thickness (mm): 12
- Suitable bolts: 1801700019  
Nut: 1801700020



Fig. right

Part no.	Reference no.	Version
179176665	33710018	Right
179176664	33710019	Left

## CULTIVATORS





## ENDURANCE CARBIDE SHARE POINT

To fit as Pöttinger

### Description

- ▮ Length (mm): 277.7
- ▮ Width (mm): 50-81
- ▮ Hole spacing (mm): 45
- ▮ Suitable bolts: 18012851410
- ▮ Colour: black
- ▮ Types: Terria, Synkro

Part no.	Reference no.
179546661	00+9791.50.031.1, 00+9791.50.031.2, 00+9791.50.031.0

## ENDURANCE CARBIDE WING SHARE

To fit as Pöttinger

### Description

- ▮ Length (mm): 286
- ▮ Width (mm): 100
- ▮ Thickness (mm): 12

Fig. right

Part no.	Reference no.	Version
179546663	9104.50.024.0	Right
179546662	9104.50.023.0	Left

## ENDURANCE CARBIDE SHARE POINT

To fit as Väderstad

### Description

- ▮ Length (mm): 270
- ▮ Width (mm): 51-81
- ▮ Hole spacing (mm): 30
- ▮ Suitable bolts: M12 DIN 608
- ▮ Colour: black

Part no.	Reference no.
179076661	205006

## ENDURANCE CARBIDE WING SHARE

To fit as Väderstad

### Description

- ▮ Width (mm): 216
- ▮ Thickness (mm): 10
- ▮ Suitable bolts: 180101.1276
- ▮ Types: TopDown, Cultus, Opus

Fig. right

Part no.	Reference no.	Version
179076663	475000, 475311	Right
179076662	475001, 475311	Left





## ENDURANCE CARBIDE SHARE POINT

To fit as Kuhn

### Description

- Length (mm): 225.5
- Width (mm): 93.3
- Thickness (mm): 30
- Suitable bolts: 1801245812

Fig. right



Part no.	Reference no.	Version
179286667	622164	Right
179286666	622165	Left

## ENDURANCE CARBIDE LANDSIDE

To fit as Kuhn

### Description

- Length (mm): 548
- Width (mm): 111
- Thickness (mm): 15.2
- Suitable bolts: 3x 1801233HU

Part no.	Reference no.
179286668	761108

## ENDURANCE CARBIDE LANDSIDE

To fit as Kuhn

### Description

- Length (mm): 548
- Width (mm): 131
- Thickness (mm): 18
- Suitable bolts: 3x 1801233HU

Part no.	Reference no.
179286669	279140

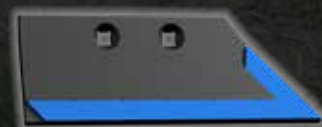
## ENDURANCE CARBIDE SKIMMER SHARE

To fit as Kuhn

### Description

- Length (mm): 288
- Width (mm): 110
- Thickness (mm): 12
- Suitable bolts: 2x 1801230810

Fig. right



Part no.	Reference no.	Version
179286610	631030	Right
179286611	631031	Left

## ENDURANCE CARBIDE SKIMMER SHARE

To fit as Kuhn

### Description

- Length (mm): 274
- Width (mm): 110
- Thickness (mm): 12
- Suitable bolts: 2x 1801230810

Part no.	Reference no.	Version
179286613	631100	Right
179286612	631101	Left

## ENDURANCE CARBIDE REVERSIBLE POINT

To fit as Kverneland

### Description

- Length (mm): 221
- Width (mm): 73
- Suitable bolts: 1801238KV

Part no.	Reference no.	Version
179346662	053090B, KK053090B, 053090R, KK053090R, 053090, KK053090	Right
179346661	063090B, KK063090B, 063090R, KK063090R, 063090, KK063090	Left

## ENDURANCE CARBIDE SHARE POINT

To fit as Lemken

### Description

- Length (mm): 336
- Width (mm): 99
- Suitable bolts: 1801235810

Fig. right

Part no.	Reference no.	Version
179176610	3364250	Right
179176669	3364251	Left

## PLOUGHS



Fig. right



Fig. right





## ENDURANCE CARBIDE TILLING HOOK

To fit as AVR/Struik

### Description

- ▾ Length (mm): 253.5
- ▾ Width (mm): 111.2
- ▾ Thickness (mm): 10.5

Part no.	Reference no.
179326662	RS18197, NR-018197

## ENDURANCE CARBIDE TILLING HOOK

To fit as AVR/Struik

Part no.	Reference no.
179326663	RS1874, NR-350415

## ENDURANCE CARBIDE TILLING HOOK

To fit as Baselier

### Description

- ▾ Length (mm): 362
- ▾ Width (mm): 149
- ▾ Thickness (mm): 10.5

Part no.	Reference no.
179326664	FK090041

## ENDURANCE CARBIDE TILLING HOOK

To fit as Baselier

### Description

- ▾ Length (mm): 235
- ▾ Width (mm): 107.6
- ▾ Thickness (mm): 10.6

Part no.	Reference no.
179326665	FF01915

## ENDURANCE CARBIDE TILLING HOOK

To fit as Baselier

### Description

- ▾ Thickness (mm): 12

Part no.	Reference no.
179326666	FKS90001

## ENDURANCE CARBIDE TILLING HOOK

To fit as Baselier

### Description

- ▾ Length (mm): 294
- ▾ Width (mm): 109.2
- ▾ Thickness (mm): 12.7

Part no.	Reference no.
179326667	FKS12005

## TILLING HOOKS





# FORESTRY MULCHERS

Forestry mulchers are traditionally used for maintaining forest trails, creating logging trails and recultivating entire areas. Due to the drought seen in recent years and the resulting damage caused by severe beetle infestations (especially in conifers), forestry mulching is becoming increasingly important as a means of clearing infested wood.

Our GRANIT forestry mulcher tools are made in Germany and are characterised by the highest level of quality. The use of a forged body with sturdy hard metal plates results in an extremely long service life. The special hard metal types and geometries ensure a perfect result.

When developing our tools, we set great store by an optimum relationship between toughness and wear resistance. Both our hard metal plates and our steel bodies are made of premium materials, thereby ensuring a high level of efficiency.

The innovative design ensures better shredding capabilities, and the tested accuracy of fit means that you are guaranteed to always get the right product for your machine.

If you can't find the tool you need in this offer, don't hesitate to get in touch!





## ENDURANCE CARBIDE HAMMER

To fit as AHWI/Prinoth

### Description

Types: FM 500, 600, M 450, 550, 650, 700, 900, RF 800, 1000, S700-650, UZM 580, 700

Part no.	Reference no.	Version
32272000	UPTS04	2+2 tips

## ENDURANCE CARBIDE HAMMER

To fit as AHWI/Prinoth

### Description

Types: FM 500, 600, M 450, 550, 650, 700, 900, RF 800, 1000, S700-650, UZM 580, 700

Part no.	Reference no.	Version
32272001	UPTS02	2 tips

## ENDURANCE CARBIDE HAMMER

To fit as AHWI/Prinoth

### Description

Types: FM 700, 900, M 700, 900, RF 800, 1000, S700-650, UZM 580, 700

Part no.	Reference no.	Version
32272002	UPT11	2+2+2+2 tips

## ENDURANCE CARBIDE BLADE

To fit as AHWI/Prinoth

### Description

Types: FM 500, 600, M 450, 550, 650, 700, 900, M 450e, 550e, RF 800, 1000, S700-650, UZM 580, 700

Part no.	Reference no.	Version
32272003	HM017, HM028	HM028

## ENDURANCE CARBIDE WELD-ON TOOTH

To fit as AHWI/Prinoth

### Description

Types: various

Part no.	Version
32272004	MS25G universal

## ENDURANCE CARBIDE FLAIL

To fit as AHWI/Prinoth

### Description

Types: SF 1100

Part no.	Version
32272076	1 tip, right

## ENDURANCE CARBIDE FLAIL

To fit as AHWI/Prinoth

### Description

Types: SF 1100

Part no.	Version
32272077	1 tip, centre

## ENDURANCE CARBIDE FLAIL

To fit as AHWI/Prinoth

### Description

Types: SF 1100

Part no.	Version
32272078	1 tip, left





## ENDURANCE CARBIDE WELD-ON TOOTH

To fit as AHWI/Prinoth

### Description

Types: S700, SF900 H



Part no.	Reference no.	Version
32272079	BFZ60	1 tip

## ENDURANCE CARBIDE HAMMER

To fit as AHWI/Prinoth

### Description

Types: UZM 580, 700, M 700, 900, RF 800, 1000, S700-650

Part no.	Reference no.	Version
32272084	UPT02, UPM02	UPM02 - index B

## ENDURANCE CARBIDE WELD-ON TOOTH

To fit as AHWI/Prinoth

Part no.	Version
32272081	1 tip, centre, light HM edging

## ENDURANCE CARBIDE HAMMER

To fit as FAE

Part no.	Reference no.	Version
32272047	111530007-K	2 tips, version C (2 bolts)

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: UML, UMM, UMM/S, UMH/S

Part no.	Reference no.	Version
32272048	111530013-K	4 tips, version C - BP (1 bolt)



## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: UML, UMM, UMM/S, UMH/S

Part no.	Reference no.	Version
32272049	112800009-K	2 tips, version C - HD (1 bolt)

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: UMM/EX, UMM/EX/VT, UML/SSL, UML/SSL/VT, UML/HY - UML/HY/VT, 500U, 300U, 200U, 140U

Part no.	Reference no.	Version
32272051	111530018-K	5 tips, version C - 16 BP

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: UML/SSL - UML/SSL/VT, UMM/EX - UMM/EX/VT, UML/S/EX/VT, UML/EX - UML/EX/VT, UML/HY - UML/HY/VT, UML/HY/RW, 140U, 200U, 300U, 500U

Part no.	Reference no.	Version
32272052	112800063-K	2 tips, version C - 16 HD



## FORESTRY MULCHERS





## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: UMM/EX, UMM/EX/VT, UML/SSL, UML/SSL/VT, UML/HY - UML/HY/VT, 500U, 300U, 200U, 140U

Part no.	Reference no.	Version
32272053	112700004-K	2+3 tips right, version C - 16 HDSSL
32272054	112700005-K	2+3 tips left, version C - 16 HDSSR

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: UMM/EX, UMM/EX/VT, UML/SSL, UML/SSL/VT, UML/HY - UML/HY/VT, 500U, 300U, 200U, 140U

Part no.	Reference no.	Version
32272055	112800083-K	1 tip, version C - 16 Mono

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: UMM/EX, UMM/EX/VT, UML/SSL, UML/SSL/VT, UML/HY - UML/HY/VT, 500U, 300U, 200U, 140U

Part no.	Reference no.	Version
32272056	112800082-K	1 tip, version C SC

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: 300S, 500U, SCH/PM

Part no.	Reference no.	Version
32272058	111431000-K	3 tips, version A+BP

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: 300S, 500U, SCH/PM, UMH/S, UMH Mega

Part no.	Reference no.	Version
32272059	112800014-K	2 tips, version A+HD

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: 300S, 500U, SCH/PM

Part no.	Reference no.	Version
32272060	112800075-K	2 tips, version A - BP

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: 300S, 500U, SCH/PM, SFM, SSM, SSH

Part no.	Reference no.	Version
32272061	112800078-K	1 tip, version A / RP+HD





## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

▼ Types: STC



Part no.	Reference no.	Version
32272063	112221000-K	2 tips, version STC

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

▼ Types: STC



Part no.	Reference no.	Version
32272064	112800059-K	4 tips, version STC BP

## ENDURANCE CARBIDE FLAIL

To fit as FAE

### Description

▼ Types: UMM/S, SSL Speed, SSL



Part no.	Reference no.	Version
32272082	111708000-K	1 tip, version MSB - index B

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

▼ Types: UML, UMM, UMM/S, UMH/S



Part no.	Reference no.	Version
32272005	111530012-K	2 tips

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

▼ Types: UMM/EX, UMM/EX/VT, UML/SSL, UML/SSL/VT, UML/HY - UML/HY/VT, 500U, 300U, 200U, 140U



Part no.	Reference no.	Version
32272006	111530017-K	2 tips

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

▼ Types: SCH/PM, SSH, SSM, UMH/S, UMH Mega, 500U, 300S



Part no.	Reference no.	Version
32272008	112800075-K	2 tips

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

▼ Types: SCH/PM, UMH/S, UMH Mega, 300S, 500U



Part no.	Reference no.	Version
32272009	111431000-K	1 tip





## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: SFM, SSM, SSH, SCH/PM

Part no.	Reference no.	Version
32272010	112800094-K	2 tips

## ENDURANCE CARBIDE HAMMER

To fit as FAE

### Description

Types: 200S, 500S, RSL/PM, SSL Speed, SSL, SFH

Part no.	Reference no.	Version
32272011	112800064-K	2 tips

## ENDURANCE CARBIDE BLADE

To fit as Gyro trac

### Description

Types: 500HF, 700HF, 500HDM, 400HL

Part no.	Reference no.
32272073	F0010

## ENDURANCE CARBIDE HAMMER

To fit as Gyro trac

### Description

Types: 500HF, 700HF, 500HDM, 400HL

Part no.	Reference no.
32272074	F0010

## ENDURANCE CARBIDE FLAIL

To fit as Prinoth

Part no.	Reference no.	Version
32272036	BFS26	2 tips, MSA26 twin hammer

## ENDURANCE CARBIDE FLAIL

To fit as Prinoth

Part no.	Reference no.	Version
32272037	BFS33	2 tips, MSA33 stone crusher tool

## FORESTRY MULCHERS





## ENDURANCE CARBIDE HAMMER

To fit as Prinoth

### Description

Types: UZM580, UZM700, M550, M700, M900, RF800, RF1000, S700-650

Part no.	Reference no.	Version
32272038	UPTS07	2 tips, UPMS07

## ENDURANCE CARBIDE HAMMER

To fit as Prinoth

### Description

Types: UZM580, UZM700, M550, M700, M900, RF800, RF1000, S700-650

Part no.	Reference no.	Version
32272039	UPTS05	1+2 tips, UPMS05
32272040	UPTS06	1+2 tips, UPMS06

## ENDURANCE CARBIDE FLAIL

To fit as Prinoth

### Description

Types: M 700, 900, RF 800, 1000, RFL 700, 1000, S700-650, UZM 580, 700

Part no.	Reference no.	Version
32272041	HDT01	2 tips, HTD01

## ENDURANCE CARBIDE FLAIL

To fit as Prinoth

### Description

Types: M 700, 900, RF 800, 1000, RFL 700, 1000, S700-650, UZM 580, 700

Part no.	Reference no.	Version
32272042	HDT04	2+1 tips, HTD04

## ENDURANCE CARBIDE FLAIL

To fit as Prinoth

### Description

Types: M 700, 900, RF 800, 1000, RFL 700, 1000, S700-650, UZM 580, 700

Part no.	Reference no.	Version
32272043	HDT03	2 tips, HTD03

## ENDURANCE CARBIDE FLAIL

To fit as Prinoth

Part no.	Reference no.	Version
32272044	BFS 146	1 tip, BFS 146

## ENDURANCE CARBIDE FLAIL

To fit as Prinoth

Part no.	Reference no.	Version
32272045	BFS 146	1 tip, BFS 147





## ENDURANCE CARBIDE HAMMER

To fit as Prinoth

### Description

Types: UZM 580, 700, M 700, 900, RF 800, 1000, S700-650

Part no.	Reference no.	Version
32272046	AN001	1 tip, MS001

## ENDURANCE CARBIDE FLAIL

To fit as SEPPI

### Description

Types: Superforst (+ hyd), Maxiforst

Part no.	Reference no.	Version
32272065	182.02.040	2+1 tips long version

## ENDURANCE CARBIDE FLAIL

To fit as SEPPI

### Description

Types: Midipierre (+ dt), Super-BMS

Part no.	Reference no.	Version
32272066	182.02.041	3 tips long version

## ENDURANCE CARBIDE FLAIL

To fit as SEPPI

### Description

Types: Midiforst DRAGO

Part no.	Reference no.	Version
32272067	187.02.125	3 tips, 3 HM L106

## ENDURANCE CARBIDE HAMMER

To fit as SEPPI

### Description

Types: Miniforst, Midiforst, Starforst, Superforst, Maxiforst, Multiforst

Part no.	Reference no.	Version
32272068	176.02.084	2+2 tips

## ENDURANCE CARBIDE HAMMER

To fit as SEPPI

### Description

Types: Miniforst, Midiforst, Superforst

Part no.	Reference no.	Version
32272069	176.02.005 OPT 228	2 tips with granulation

## ENDURANCE CARBIDE HAMMER

To fit as SEPPI

### Description

Types: Miniforst, Midiforst, Superforst

Part no.	Reference no.	Version
32272070	187.02.163 OPT 141	Mini Mono





## ENDURANCE CARBIDE HAMMER

To fit as SEPP1

### Description

Types: Midiforst, Starforst, Superforst, Maxiforst, Multiforst, Star-FC, Midipierre dt, Midisoil, Starsoil, Supersoil, Maxisoil

Part no.	Reference no.	Version
32272071	OPT 443	Super Mono Protect

## ENDURANCE CARBIDE HAMMER

To fit as SEPP1

### Description

Types: Star-FC, Midipierre dt, Midisoil dt, Supersoil, Maxisoil

Part no.	Reference no.	Version
32272072	191.02.113	Super Mono Protect 1+2 tips

## ENDURANCE CARBIDE HAMMER

To fit as SEPP1

### Description

Types: Miniforst, Midiforst, Starforst, Superforst, Maxiforst, Multiforst

Part no.	Reference no.	Version
32272012	228 176.02.005	2 tips

## ENDURANCE CARBIDE HAMMER

To fit as SEPP1

### Description

Types: Miniforst, Midiforst, Starforst, Superforst, Maxiforst, Multiforst, Midisoil, Starsoil, Supersoil, Maxisoil

Part no.	Reference no.	Version
32272013	187.02.163	1+4 tips

## ENDURANCE CARBIDE HAMMER

To fit as SEPP1

### Description

Types: Midiforst, Miniforst, Multiforst, Starsoil

Part no.	Reference no.	Version
32272014	187.02.207	1+4+2 tips

## ENDURANCE CARBIDE FLAIL

To fit as SEPP1

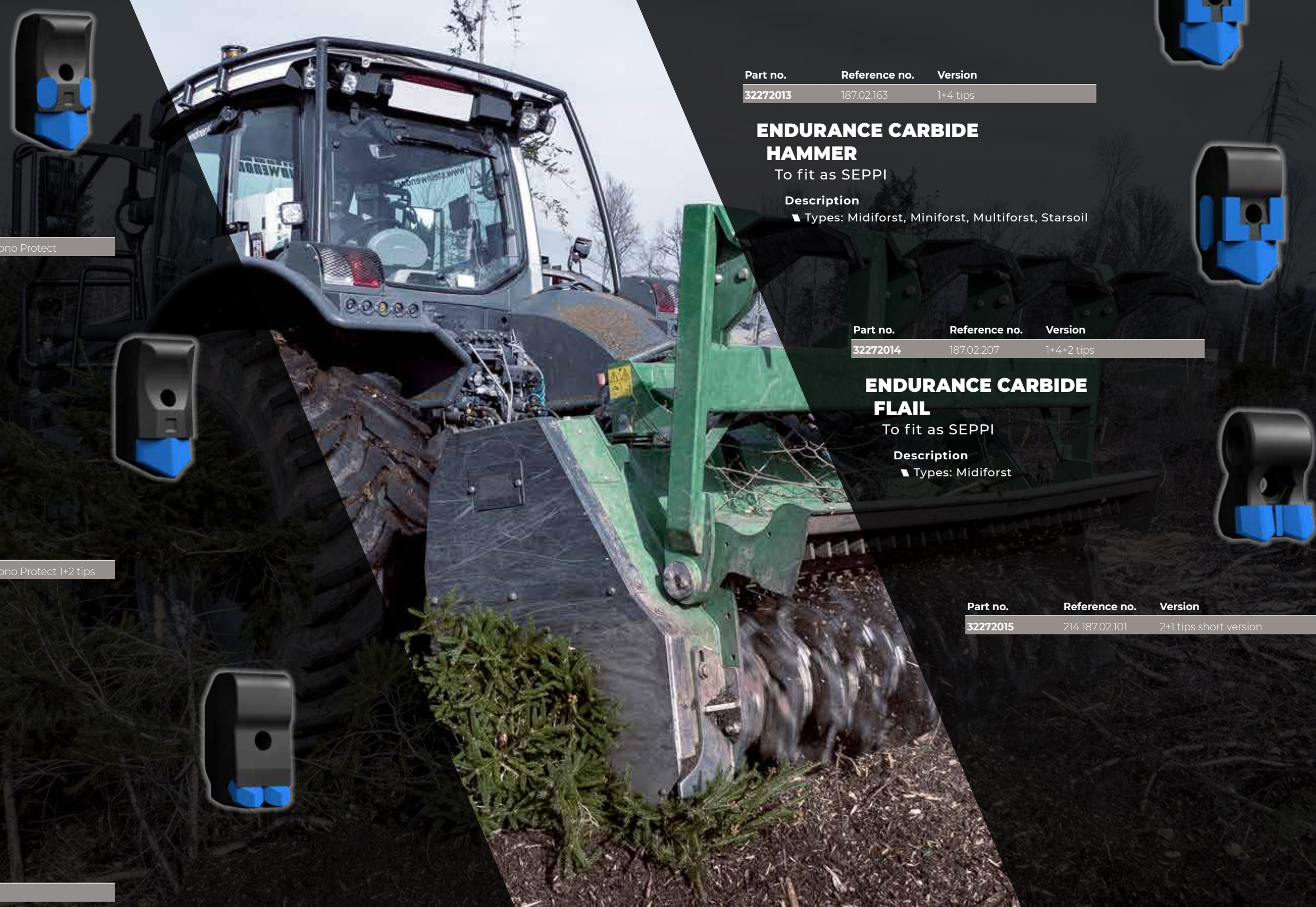
### Description

Types: Midiforst

Part no.	Reference no.	Version
32272015	214 187.02.101	2+1 tips short version



## FORESTRY MULCHERS





# TESTED IN THE FIELD

The GRANIT Endurance Carbide cultivator points were developed for use under the most difficult conditions. To ensure that our points are able to withstand the harshest conditions, our products undergo continuous testing at selected test sites. This is because the quality of tillage tools can only be reliably determined in practice.

A detailed test report can be found on pages 6 - 11.





# ENDURANCE CARBIDE

## MADE IN GERMANY

Development and production by mining and road construction specialists in Germany.

## LOW-WEAR DESIGN

Areas exposed to wear are specially reinforced to prevent scouring. The solid body ensures long-term dimensional stability and a fixed tool position over long periods of use.

## TEMPERING AFTER SOLDERING

Tempering after soldering results in maximum body hardness, making our points superior to many competition products.

## SOPHISTICATED SOLDERING PROCESS

A durable soldered connection between the hard metal plates and the body ensures a perfect hold and compensates for impacts from stones without causing damage.

## HARD METAL

Additional hard metal plates are firmly embedded in areas of the body exposed to particularly high stresses. The triangular shape of the hard metal plates embedded in the point not only ensures a tight fit, but has also proven to be extremely robust.

## WEAR PROTECTION FOR BOLT HEADS

To prevent scouring, the areas around the bolt heads are reinforced.

## TESTED IN THE FIELD

The GRANIT Endurance Carbide cultivator points were developed for use under the most difficult conditions. To ensure that our points are able to withstand the harshest conditions, our products undergo continuous testing at selected test sites. This is because the quality of tillage tools can only be reliably determined in practice.



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