TOOLTEC
CUTTING TOOL PRODUCTION
TOOLTEC

Your partner for a sharper edge

High precision, economy and reliability - the grinding machines of the high-performance JUNKER TOOLTEC series are among the technological leaders in the field of cutting tool manufacturing. The most discerning customers use JUNKER TOOLTEC to produce taps, drills, mills, reamers and sinks, as well as saw blades and a variety of special cutting tools.

Using meticulously engineered concepts, JUNKER TOOLTEC fulfills all the requirements imposed on modern production, and commands a position at the cutting edge of innovative technical development. Individual system solutions are just as much one of the strengths of the JUNKER TOOLTEC series as integral line concepts.

The JUNKER TOOLTEC machines:
- Lean Selection speed
- Lean Selection allround
- QUICKPOINT
- QUICKPOINT Blank
- JUMINIMAT
- FLUTEMAT
- JUMAXIMAT
- TAPOMAT
- DRILLMAT
- NAJ VII / NAJ VIIa
- JUSTAR

BLANK GRINDING
Lean Selection speed, Lean Selection allround
QUICKPOINT 1000, QUICKPOINT 3000, QUICKPOINT Blank

THREADED TOOL GRINDING
Flutes: JUMINIMAT, FLUTEMAT, JUMAXIMAT
Thread and chamfer: TAPOMAT 1000, TAPOMAT 3000

DRILL GRINDING
DRILLMAT S, DRILLMAT L

CUTTING TOOL GRINDING
JUMINIMAT, JUMAXIMAT

COMPLETE GRINDING OF A COMPREHENSIVE TOOL SPECTRUM
JUSTAR

TOOTH GRINDING ON CIRCULAR SAWBLADES
JUMAXIMAT IV, NAJ VII / NAJ VIIa

TECHNICAL DATA
BLANK GRINDING

Diameter, runout, surface finish – the guarantee of consistent quality is pivotal to the successful cylindrical grinding of all types of blanks. At the same time, the demands made on flexible but efficient production are growing all the time. This is why JUNKER designed its grinding machines for blank grinding to cope with an expansive part spectrum. Minimal tooling work and maximum productivity are at the forefront.

Lean Selection speed
External cylindrical grinding

Lean Selection speed grinds tool blanks at truly impressive speeds. One or more high-performance grinding spindles mounted at the swivel-action wheelhead (B axis) work using both the plunge-cut and QUICKPOINT grinding methods. This feature makes the grinding machine extremely flexible and capable of implementing several grinding operations in a single clamping set-up.

Strengths:
- QUICKPOINT grinding method
- Peripheral speed of up to 140 m/s
- Freely programmable, steplessly adjustable B axis
- Workpiece driven between centers
- Ingeniously engineered automation

Carbide step drill: dia. 10 mm, length 80 mm
Cycle time: 210 s
Grinding task: Grinding the outer contour from solid (allowance 0.5 mm)

Lean Selection allround
External and internal cylindrical grinding max. dia. 290 mm

The Lean Selection allround covers a wide range of applications: It grinds workpieces outside and in, combining extreme user convenience with precise execution. Up to three high-performance spindles can be mounted on the high-precision, swivel-action wheelhead. This degree of flexibility makes the Lean Selection allround the perfect fit for anyone with a wide assortment of workpieces to grind.

Strengths:
- Freely programmable, steplessly adjustable B axis
- Rapid retooling
- Abrasive: Corundum, CBN or diamond

Grinding task:
- External and internal cylindrical grinding: Diameter, plane surface, taper
- Grinding the hexagon surface (flat)
BLANK GRINDING

QUICKPOINT
External cylindrical grinding
QUICKPOINT 1000: max. dia. 50 mm
QUICKPOINT 3000: max. dia. 150 mm

The QUICKPOINT grinding method, patented by JUNKER, ensures efficient blank grinding. With up to three high-speed grinding spindles and a grinding contact area no bigger than a point, the QUICKPOINT grinds shoulders, tapers, chamfers and grooves in a single clamping set-up. Extremely low-wear CBN or diamond grinding wheels, just a few millimeters wide, are used.

Strengths:
• QUICKPOINT grinding method
• Workpiece driven between centers
• Rapid retooling
• Up to three high-speed grinding spindles

Carbide step drill blank:
- dia. 15 mm, length 120 mm
- Cycle time: 310 s
- Grinding task: Grinding the outer contour from solid allowance 0.5 mm

The standard QUICKPOINT grinding operations are shoulders, tapers, chamfers and grooves. Thread grinding and multiple edge and face grinding can be additionally integrated.

QUICKPOINT Blank
External cylindrical grinding directly from round bar stock, diameter 3 – 25.4 mm

The QUICKPOINT Blank minimizes the throughfeed time required for blank production: From infeed of the round bar stock through chamfering, contour grinding and cutting off to carefully ordered depositing - every step is fully automatic. Maximum productivity is ensured by the QUICKPOINT high-speed grinding method.

Strengths:
• Grinding round bar stock (carbide or HSS)
• Minimal throughfeed times due to combination of all production steps
• Quality increase due to grinding in a single clamping set-up

Carbide step drill:
- dia. 10 mm, length 145 mm
- from carbide round bar stock (dia. 10.4 mm, length 330 mm)
- Cycle time: 560 s
- Grinding task:
  - Steady seat
  - Tip or chamfer
  - Contour
  - Workpiece cutting
  - Removal of tool blank
  - Drawing in new bar stock
Threaded tools must withstand high cutting speeds and leave behind an excellent thread surface. Behind every thread tap, thread former and thread milling cutter is a complex manufacturing process which is efficiently managed using precisely engineered solutions from JUNKER. The combination of high output performance and superb quality is a common feature to all JUNKER grinding machines.

Reliable loading and clamping systems ensure a smooth production process – from the blank to the finished threaded tool. A relief grinding measurement device completes the production line.

**JUMINIMAT**
Flute grinding
dia. 1 – 12.7 mm

The JUMINIMAT grinds the flutes of small threaded tools with up to four grinding wheels. The threaded tool is ground either unsupported or with tailstock support. If required, a steady can be used for stabilization. The integrated loading system takes care of a high level of independent operation and can be swiveled to the side for retooling.

**Strengths:**
- Maximum dimensional stability
- Integrated dressing unit
- Compact design
- Different tool cassettes possible
- Integrated loading system

HSS tap: M1, spiral fluted
Cycle time: < 50 s
Grinding task: Grinding the three flutes

**FLUTEMAT**
Flute grinding
dia. 2 – 20 mm

In the FLUTEMAT, the threaded tools are mounted with a spring-loaded square insert and tailstock center. The fixed stop at the tailstock guarantees that the start of each flute is identical. The dressing unit mounted directly behind the grinding spindle helps ensure a short cycle time. It carries out in-process dressing of the grinding wheels while the grinding or loading operation is under way.

**Strengths:**
- In-process dressing
- 11 kW grinding spindle
- Profile precision

HSS tap: M12, straight fluted
Cycle time: < 75 s
Grinding task: Grinding the three chip and peel flutes
**JUMAXIMAT**

Groove and chamfer grinding
dia. 6 – 42 mm

In the JUMAXIMAT, the threaded tool is ground either unsupported or with tailstock support. A steady can be used for stabilization. Requirement-based loading systems ensure a smooth production sequence. A CNC dressing unit creates all the profile shapes.

- **Strengths:**
  - Automatic coolant pipe adjustment
  - 20 kW grinding spindle
  - Rapid retooling

**TAPOMAT 3000**

Thread and chamfer grinding
dia. 3 – 32 mm (52 mm)

The TAPOMAT 3000 also works with two grinding wheels. The thread and chamfer are ground in a single clamping set-up. All chamfer shapes can be generated with a diamond dressing wheel. The relief grinding movement, patented by JUNKER, ensures a top-quality thread tap and thread former.

- **Strengths:**
  - Single or multiple tooth grinding (with or without chamfer)
  - All strokes and shapes can be covered with a single relief cam
  - User-friendly programming

**TAPOMAT 1000**

Thread and chamfer grinding
dia. 0.8 – 8 mm

The TAPOMAT 1000 is characterized by high flexibility, short tooling times, easy operability and a minimal contact surface. A diamond roller (single or multiple teeth) is used to profile the relevant threaded grinding wheel. Diamond files tools are used for profiling the chamfer grinding wheel. This allows the machine to grind any optional thread and chamfer shapes.

- **HSS tap:** M24, straight fluted
- **Cycle time:** < 208 s
- **Grinding task:**
  - Grinding four chip grooves, and peel grooves with chamfer and bevel

**RELIEF EXPERT**

Relief grinding measuring device
dia. 1 – 80 mm

For relief grinding measurement of the thread and chamfer, JUNKER developed the RELIEF EXPERT measuring machine. It measures each thread flank separately and is suitable for straight and spiral fluted workpieces in the diameter range of 1 – 80 mm.

- **Strengths:**
  - Extreme measurement accuracy
  - 2-axis CNC controlled
  - Fully automatic measurement sequence

**HSS tap:** M20
- **Cycle time:** < 180 s
- **Grinding task:**
  - Grinding the thread profile and lead taper

**Grinding task:**
- Thread profile and chamfer grinding
A sharp cutting edge, precise concentricity, a long service life - twist drills for professional use must be manufactured to an exemplary standard without neglecting the cost aspect. This is achieved by DRILLMAT, which grinds from blanks made of HSS in a single clamping set-up to produce a finished twist drill. The grinding wheel package ensures a perfect ground finish for twist drills with even the most complex cutting edge geometry. Integrated loading and unloading systems reduce downtimes.

**DRILLMAT**

Complete grinding of HSS twist drills

**DRILLMAT S:** dia. 2 – 10 mm  
**DRILLMAT L:** dia. 5 – 20 mm

The DRILLMAT grinds flutes, the face geometry and the back in a single clamping set-up. Stable bushing support ensures the necessary rigidity during grinding operations, thus enabling maximum precision. Up to four corundum grinding wheels are mounted on the grinding spindle. With the DRILLMAT S, dressing is possible simultaneously with the grinding and loading sequence. The cooling nozzle system can be individually controlled with 4 channels for each grinding process.

**Strengths:**
- Face grinding prior to back grinding  
- 11/20 kW grinding spindle  
- Rapid retooling  
- CNC dressing unit

**HSS twist drill:** dia. 5 mm, total length 86 mm, flute length 52 mm, two flutes, Runout< 0.002 mm  
**Cycle time:** < 49 s  
**Grinding task:** Complete grinding
CUTTING TOOL GRINDING

Cutting tools such as reamers, mills or sinks are required to withstand high cutting forces, adhere to narrow tolerances and guarantee perfect runout between the cutting edges and shaft. This requirement can only be met by grinding the cutting tool in a single clamping set-up. It is precisely for this application that JUNKER developed the grinding machines JUMINIMAT and JUMAXIMAT.

JUMINIMAT
Complete grinding of cutting tools dia. 1 – 12.7 mm

In a single clamping set-up, the JUMINIMAT grinds the flutes, end teeth and cutting relief from solid. The cutting tool is ground either unsupported or with tailstock support. If required, a swivel-in steady can be used for stabilization.

Strengths:
- Integrated loading system
- Different tool cassettes possible
- Compact design
- Integrated CNC dressing unit
- Profile precision

HSS shank cutter: dia. 6 mm, four cutting edges
Cycle time: < 5 min
Grinding task: Grinding the flutes, the end tooth and the body relief

JUMAXIMAT
Complete grinding of cutting tools dia. 6 – 42 mm

The JUMAXIMAT grinds precision tools from solid. The cutting tool is ground either unsupported or with tailstock support. A steady can be used for stabilization. Requirement-based loading systems ensure a trouble-free production sequence and a CNC dressing unit generates all profile shapes.

Strengths:
- Automatic coolant pipe adjustment
- 20 kW grinding spindle
- Rapid retooling

Carbide ball-head milling cutter: dia. 20 mm, length 110 mm, diameter tolerance < 0.005 mm, Axial runout 0.002 mm
Cycle time: < 18 min
Grinding task: Complete grinding
Complete grinding of all kinds of tools dia. 2 – 24.5 mm (51 mm)

The JUSTAR Grinding Center is the perfect machine for complete processing of an extensive range of workpieces. It offers maximum flexibility with top productivity and practice-oriented programming. A high-performance grinding spindle ensures high-speed cutting, and is supported by robot-operated coolant nozzle tracking. Thanks to a measurement system featuring automatic dimensional correction, only acceptable parts leave the machine.

**Strengths:**
- Automatic dimensional correction
- Robot-operated coolant nozzle tracking
- Grinding wheel changer (with up to 30 grinding wheels)
- Stable machine bed

**Carbide tap:** M8, total length 91 mm, thread length 25 mm from round carbide bar (dia. 8.5 mm, length 350 mm)

**Cycle time:** < 20 min

**Grinding task:**
1. Solid tip (external centering for tailstock mounting)
2. Steady seat
3. Measurement seat
4. Contour
5. Square section
6. Chamfer on square section
7. Four flutes
8. Peeling chamfer
9. Chamfer
10. Thread
11. Workpiece cutting

Workpiece examples

**COMPLETE GRINDING OF A COMPREHENSIVE TOOL SPECTRUM**

The JUSTAR grinding center is a dream come true: The production of wide-ranging cutting tools in HSS and carbide with just one machine. This is made possible by the JUSTAR’s fully automatic grinding wheel changer, with up to 30 grinding wheel mounting interfaces. This ingenious technology allows the machine to grind finished tools from round bar stock – in a single clamping set-up.

**JUSTAR**

Complete grinding of all kinds of tools dia. 2 – 24.5 mm (51 mm)
TOOTH GRINDING ON CIRCULAR SAWBLADES

High-quality circular saw blades have a long service life, permit high feed rates and ensure great cutting quality. The decisive factors here are the material type and precise tooth grinding finish. This is why, as a ‘partner for precision’, JUNKER offers three machines for grinding peripheral toothing which guarantee not only perfect quality but also high productivity.

JUMAXIMAT IV
Tooth grinding on circular saw blades
dia. 20 – 203 mm

NAJ VII / NAJ VIIa
Tooth grinding on circular saw blades
NAJ VII: dia. 100 – 550 mm
NAJ VIIa: dia. 210 – 710 mm

Strengths:
• Grinding in package clamping
• Short cycle time
• Grinding of all tooth profiles with identical and non-identical tooth height
• Runout < 0.03 mm

Metal circular saw blades
Grinding task:
Tooth grinding

These special machines grind the peripheral toothing of circular saw blades in package clamping. All technical tooth profiles, with identical or non-identical tooth heights, are ground from solid blanks. The oscillating longitudinal grinding process guarantees the production of high-grade circular saw blades with excellent runout.
## TECHNICAL DATA

<table>
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<th>Clamping/workpiece length</th>
<th>Grinding length</th>
<th>Drive capacity</th>
<th>Peripheral speed</th>
<th>Abrasive</th>
<th>Swivel grinding spindle</th>
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</thead>
<tbody>
<tr>
<td>Lean Selection</td>
<td>max. dia. 150 mm</td>
<td>max. 880 mm</td>
<td>max. 610 mm</td>
<td>12 kW</td>
<td>140 m/s</td>
<td>CBN/diamond</td>
<td>210°</td>
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<td>max. dia. 150 mm</td>
<td>max. 880 mm</td>
<td>max. 800 mm</td>
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<td>45 m/s</td>
<td>CBN/diamond/diamond</td>
<td>240° B axis</td>
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<td>QUICKPOINT 1000</td>
<td>max. dia. 50 mm</td>
<td>max. 150 mm</td>
<td>max. 150 mm</td>
<td>12 kW</td>
<td>140 m/s</td>
<td>CBN/diamond/carbon</td>
<td>B axis</td>
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<td>QUICKPOINT 1000</td>
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<td>max. 150 mm</td>
<td>max. 500 mm</td>
<td>24 kW</td>
<td>140 m/s</td>
<td>CBN/diamond/carbon</td>
<td>B axis</td>
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<td>QUICKPOINT Blank</td>
<td>dia. 5 – 25.4 mm</td>
<td>Bar stock max. 400 mm</td>
<td>max. 400 mm</td>
<td>24 kW</td>
<td>140 m/s</td>
<td>Diamond</td>
<td>8 axis</td>
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<td>JUMINIMAT</td>
<td>dia. 1 – 8 mm</td>
<td>Thread milling/cutter</td>
<td>max. 12.7 mm</td>
<td>3 kW</td>
<td>70 m/s</td>
<td>Corundum/CBN/diamond</td>
<td>-53°/+105°</td>
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<td>FLUTEMAT</td>
<td>dia. 2 – 20 mm</td>
<td>max. loading (450 mm)</td>
<td>max. 800 mm</td>
<td>11 kW</td>
<td>80 m/s</td>
<td>Corundum/CBN/diamond</td>
<td>-58°/+91°</td>
</tr>
<tr>
<td>TAPOMAT 1000</td>
<td>dia. 0.8 – 8 mm</td>
<td>max. 50 mm</td>
<td>5 kW</td>
<td>52 m/s</td>
<td>Corundum</td>
<td>-7°/+10°</td>
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<td>TAPOMAT 1000</td>
<td>dia. 3 – 32 mm (52 mm)</td>
<td>45 – 280 mm</td>
<td>12 kW</td>
<td>50 m/s</td>
<td>Corundum</td>
<td>-5°/+10°</td>
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<td>RELIEF EXPERT</td>
<td>dia. 1 – 80 m</td>
<td>max. 350 mm</td>
<td>160 mm (measurement length)</td>
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<td>DRILLMAT S</td>
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<td>max. loading (350 mm)</td>
<td>max. 470 mm</td>
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<td>DRILLMAT L</td>
<td>dia. 5 – 20 mm</td>
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<td>80 m/s</td>
<td>Corundum/CBN/diamond</td>
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<td>JUMAXIMAT</td>
<td>dia. 5 – 42 mm</td>
<td>max. loading (350 mm)</td>
<td>max. 350 mm</td>
<td>20 kW</td>
<td>80 m/s</td>
<td>Corundum/CBN/diamond</td>
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<td>JUMAXIMAT IV</td>
<td>dia. 2 – 25.4 mm (51 mm)</td>
<td>35 – 480 mm</td>
<td>20 kW</td>
<td>140 m/s</td>
<td>Corundum/CBN/diamond</td>
<td>-115°/+103°</td>
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<td>NAJ VII</td>
<td>dia. 100 – 550 mm</td>
<td>max. 200 mm (package width)</td>
<td>20 kW</td>
<td>80 m/s</td>
<td>Corundum</td>
<td>-58°/+91°</td>
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<td>NAJ Vita</td>
<td>dia. 210 – 710 mm</td>
<td>max. 200 mm (package width)</td>
<td>30 kW</td>
<td>80 m/s</td>
<td>Corundum</td>
<td>-</td>
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<table>
<thead>
<tr>
<th>Number of grinding wheels</th>
<th>Diameter grinding wheel</th>
<th>Bore diameters grinding wheel</th>
<th>Width per grinding wheel</th>
<th>Thread pitch</th>
<th>Material grinding</th>
<th>Axes</th>
<th>Grinding spindle variants</th>
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<tr>
<td>2</td>
<td>400 – 290 mm</td>
<td>127 mm</td>
<td>max. 65 mm</td>
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<td>HSS/carbide</td>
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<td>81, 84, 812, 815, X7</td>
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<tr>
<td>3</td>
<td>400 – 290 mm</td>
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<td>max. 65 mm</td>
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<td>HSS/carbide</td>
<td>4</td>
<td>81, 84, 812, 813, 815</td>
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<tr>
<td>2</td>
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<td>127 mm</td>
<td>max. 50 mm</td>
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<td>HSS/carbide</td>
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<td>10, 20, 40, 50</td>
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<td>400 – 350 mm</td>
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<td>HSS/carbide</td>
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<tr>
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<td>max. 350 mm</td>
<td>127 mm</td>
<td>max. 60 mm</td>
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<td>HSS/carbide</td>
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<td>50, 60</td>
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<td>50 mm (optional: 100 mm)</td>
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<td>–</td>
<td>–</td>
<td>–</td>
<td>HSS/carbide</td>
<td>2</td>
<td>–</td>
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<td>(and 2 for dressing) –</td>
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<td>4</td>
<td>250 – 175 mm</td>
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<td>250 – 175 mm</td>
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<td>30</td>
<td>70 – 250 mm</td>
<td>32 mm dia./50.8 mm dia./76 mm dia.</td>
<td>1 – 25 mm</td>
<td>Depends on the diamond roller with multiple teeth</td>
<td>HSS/carbide</td>
<td>10 / 2 robots</td>
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<td>4</td>
<td>250 – 175 mm</td>
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<td>max. 25 mm</td>
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<td>HSS (and 2 for dressing)</td>
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<td>400 – 350 mm</td>
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<td>127 mm</td>
<td>max. 52 mm</td>
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<td>HSS (and 3 for dressing)</td>
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WHEELHEAD VERSIONS

QUICKPOINT 1000 / 3000

Variant 10
Variant 20
Variant 3000/40

Variant 50
Variant 3000/60

Lean Selection speed

Variant X1
Variant B1
Variant B4
Variant B12

Lean Selection allround

Variant B1
Variant B1i
Variant B4
Variant B4i

Variant B12
Variant B12i
Variant B13