HIGH-PERFORMANCE, HIGH-PRECISION HOLEMAKING TOOLS
Harness the Power of Seco Holemaking

Gain the Tools and Expertise to Optimize Productivity

Seco’s broad range of solutions for drilling, reaming and boring empower you to optimize your processes. Whether you work with stacked-composites, deep holes, extremely large bores or other unique applications, Seco offers the tools you need and the expertise that will help you get the most out of them.

When you partner with Seco, our team of holemaking experts evaluate your processes and assist in determining the best possible solutions for your unique applications, whether those include standard or custom products. Across all industries and types of components, Seco provides the means for manufacturers to truly engage their productivity.
YOUR SECO BENEFIT:

• All-encompassing product range
• Expert advice
• Industry’s most advanced technology
• Complete application support

INTRODUCTION

To compete in today’s fast-paced manufacturing world, you need to produce holes faster, deeper, and more precisely than ever – all with more challenging materials, such as titanium and Inconel®.

To help you stay ahead of the curve, Seco has expanded and improved its holemaking product lines to cover a wider array of holemaking applications. Our Feedmax range now includes a high-performance drill for ISO P (steel) materials, and we have introduced a new design of the Perfomax drill that makes this outstanding drill even better.

In addition to our comprehensive range of holemaking tools that is second to none, we back our tools with years of experience and the highest level of customer service by offering:

• One stop shopping for high quality metal cutting tools, solutions and services
• A range of high performance holemaking tools covering drilling, reaming, threading and boring
• One supplier responsible for the quality of the finished hole – or even for the complete machining of the finished part
• Complete holemaking know-how, including drilling, reaming, threading and boring
• The highest tool quality, offering great productivity and cost reduction

Seco Feedmax, Crownloc® and Perfomax are used to drill holes from 0.1 to 160 mm in diameter, with tolerances from IT8 to IT12.

For already cast holes, rough boring or semi-finishing is often used, with Bridge Bars and Jumbo Bridge Bars used for the large diameters.

Finally, high quality holes are made with reaming and fine boring heads, reaching tolerances of IT5 or IT6.

For Threadmaster™ DTM, TM, TM2, 396.18 and 396.19, the same cutter could be used for machining right and left hand threads. Metric and UN versions are only for internal threading. It’s also possible to make all types of tolerances with the same cutter.

Threadmaster Tap is available in the most popular threads and tolerances in both cutting and forming taps.

FASTER, DEEPER AND MORE PRECISE HOLEMAKING WITH FEEDMAX AND PERFOMAX

DEPENDABLE TOOLS FOR EVEN THE MOST CHALLENGING APPLICATIONS
The range of Feedmax solid carbide drills now includes a high-performance drill developed for drilling in ISO P materials. We developed this new solid carbide drill to match modern machine tools in efficiency with the highest productivity possible in m/min. Feedmax -P’s optimized geometry for different types of steel materials also meets the need for optimization of cutting data to drill holes faster.

Common difficulties encountered while drilling with high cutting speeds in these materials are poor chip evacuation, high heat generation and creation of burrs at the hole entrance and exit. This new generation of solid carbide drills is equipped with wider flutes, a straight cutting edge, bigger corner chamfer and narrow land margins that help to overcome these issues. Furthermore, with better performance, higher productivity and longer tool life, Feedmax -P is outstanding value.

BOOST PERFORMANCE AND PRODUCTIVITY FOR DRILLING P MATERIALS

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FEEDMAX -P INTRODUCTION

YOUR SECO BENEFIT:
• Optimized speeds and feeds
• Efficient chip evacuation
• Superior hole quality
• Less burrs
• Longer tool life
• Cost-effectiveness
VERSATILITY TO HANDLE P1 TO P12 WITH EASE

Feedmax -P is specially designed for steel alloys in Seco material group P1 to P12 and has the versatility to handle the wide range of materials within this area. There are materials in the ISO P group that range from soft to relatively hard. This requires the drill to have a cutting geometry that combines a sharp edge with high overall strength to accommodate the various material types.

Chip formation also varies widely when machining materials in the ISO P group. Depending on the material, the chips can be very long or very short. Differing materials within the P group can also make it hard to center the drill when entering and, in some cases, can result in high generated heat. Feedmax -P’s new flute technology, improved surface finish and increased strength of the cutting edge solve all these challenges.

Feedmax -P can be used with standard shrink fit or hydraulic chucks, or with chucks adapted for MQL coolant.

WE'LL HELP YOU FIND THE RIGHT DRILL FOR THE JOB

Do you need to overcome a bottleneck to increase output or are you more concerned about tight requirements for hole tolerance, surface quality or roundness? We work with you to understand your priorities and help you select the right drill for the job.

Generally, high volume applications are best suited for a highly productive Feedmax optimized solution. Feedmax drills offer geometries specifically designed to obtain maximum performance and productivity in different applications.

Applications with medium or low batch sizes are better suited for the Universal Drill, which offers less performance, but also less cost. The Universal Drill geometry also offers more versatility if speeds and feeds are not a priority.

YOUR SECO BENEFIT:

- Versatility
- High volume performance
- Toolholder adaptability
- Coolant ready

VERSATILITY TO HANDLE P1 TO P12 WITH EASE

FEEDMAX -P STEELS THE SHOW
Achieving cost savings requires looking at the total cost for producing the part or specific feature in question, such as a hole. Increasing productivity through higher cutting speeds and feed rates will speed up the machining process and generate a bigger cost savings.

Total machining costs can be divided into two main areas, variable cost and fixed cost. Variable cost includes cutting tools, other tools, equipment and machines. Fixed cost includes items such as wages, administration, buildings and materials.

The cutting tool cost is only a small part of the total cost for machining a workpiece. On average, it is somewhere around 3% of the total machining cost. The effect of reducing the tool cost by buying a cheaper tool will always be small. For example, if the price for the drill has been reduced by 10%, savings will only be 10% of 3%, since the cost reduction is limited to the cutting tool itself.

Increasing tool life has the same effect when it comes to cost reduction. That is, it only impacts the cutting tool cost. Additionally, when evaluating tool life, one must consider whether there are other factors that should be a higher priority. Reducing downtime of a machine or achieving better synchronisation with other tools in the machine may require selecting a tool that provides less tool life than other options.

When productivity is prioritized, tool decisions impact cost across a much broader area. Producing parts faster provides savings from both the variable and fixed costs. Increasing productivity generates savings in administration, wages and machine costs. Additionally, it frees up more capacity.

The new Feedmax -P is developed to run with high parameters, providing outstanding productivity. To fully utilise the new Feedmax -P, make sure to apply it at the recommended high parameters.

**FEEDMAX -P ECONOMICS**

**THE WHOLE COST OF HOLEMAKING**

**FEEDMAX -P COST EFFECTIVENESS**

*YOUR SECO BENEFIT:*
  - Achievement of highest cost reduction
  - Increased capacity via higher throughput
FEEDMAX -P RIDES THE WAVE

OPTIMIZED PERFORMANCE, CHIP CONTROL AND TOOL LIFE

The Feedmax -P incorporates many improvements and modifications that result in better chip evacuation, better performance, higher productivity and an increased and more predictable tool life.

STRAIGHT CUTTING EDGE
The straightness of the cutting edge on the Feedmax -P makes the cutting edge and corner much stronger. This improvement achieves high levels of reliability, especially while drilling with high cutting speeds, and gives it a long and predictable tool life.

COOLANT HOLE PLACEMENT
The coolant holes on the Feedmax -P are close to the cutting edge to provide highly efficient cooling, high pressure at the cutting edge and optimal tool life.

NARROW LAND MARGINS
The use of narrow land margins leads to less friction and reduced wear of the connection between the land margin and the corner chamfer.

IMPROVED TiAlN COATING
The new TiAlN coating is heat and wear resistant, which gives the drill a long and predictable tool life and provides excellent chip removal. The composition is well adapted to the use of high cutting speeds in steel materials and is resistant to both flank and crater wear.

FEEDMAX -P
KEY FEATURES

YOUR SECO BENEFIT:
• Strength
• Reliability
• Predictability
• Long tool life
• High-efficiency chip control
**FEEDMAX -P TURNS UP THE FLUTE VOLUME**

**COOLER, FASTER, MORE STABLE DRILLING**

**OPTIMIZED FLUTE DESIGN**

The flute design, which is wider and tapered, provides better chip evacuation, especially when drilling with high cutting speeds. This results from increased volume within the flute, as well as geometry that provides smooth chip evacuation to boost stability and reduce vibrations.

**IMPROVED SURFACE FINISH**

Less friction on the cutting edge and nearby areas promotes better chip formation and decreases heat generation. It also minimizes the risk of micro chipping of the cutting edge, which gives the drill a more predictable tool life and higher application security.

**LARGE CORNER CHAMFERS**

Large corner chamfers spread the forces created when drilling over a large area, which makes the drill more robust and resists corner wear more effectively. The large corners also result in fewer exit burrs while drilling through the material.

**HIGH STRENGTH MICRO GRAIN CARBIDE**

The carbide rods on the Feedmax -P are optimized to manage high feed rates and high speeds. All rods have internal coolant supply, and the carbide strength gives the drills greater application security and predictable tool life.

**MQL – MINIMUM QUANTITY LUBRICATION**

Feedmax -P can be effectively used with MQL toolholders.

**YOUR SECO BENEFIT:**

- Efficient chip evacuation
- Predictable tool life
- Application security
- Strength

**FEEDMAX -P OPTIMIZED FLUTE DESIGN**

- Improved surface finish: Sa measurement area
  - Feedmax -P – Sa value: 0.14 µm

**IMAGE:**

- Cross section of the new Feedmax -P drill

**IMAGE:**

- Improved surface finish: Sa measurement area

**IMAGE:**

- Large corner chamfers spread the forces created when drilling over a large area, which makes the drill more robust and resists corner wear more effectively. The large corners also result in fewer exit burrs while drilling through the material.
FEEDMAX -P ADVANTAGE

INCREASED BENEFITS

PRODUCTIVITY
With Feedmax -P, our cutting data recommendations offer many improvements. Compared to other high performance solid carbide drills, the recommended values for the new SD205A-0850-042-10R1-P allow for an increase in cutting speed of >25%, while still achieving better tool life.

MACHINING COSTS
Large investments are made in machine tools. Therefore, using them as effectively and efficiently as possible is essential for increasing productivity and reducing machining costs.

Several features of the Feedmax -P drills reduce overall machining costs:
• High table feed reduces machining time and leads to cost savings
• High cutting speed capability leads to a reduction in machining time that can result in higher productivity
• Finished holes in most applications are produced without any pre-finishing or finishing operations
• Long tool life reduces tool cost per hole

HOLE QUALITY
The drill will produce a plus tolerance hole, (i.e. a hole above nominal diameter). The hole diameter produced is, in general, H8 to H9. But since several different factors influence hole diameter (e.g. coolant concentration and pressure, application stability, cutting data, material, etc.), the achieved hole diameter is expressed as IT8 to IT9.

EXPANDED RANGE

Maximum drilling depth can be read from the product description. “A” stands for coolant through. Example: SD205A = 5xD drill with coolant-through possibilities. The shank is adapted for internal coolant and MQL supply.

PRODUCT RANGE
Feedmax -P comes in 3xD and 5xD with drill diameters from 2 to 20 mm and in 7xD with drill diameters from 3 to 20 mm. The range includes over 400 products.

<table>
<thead>
<tr>
<th>Drill type</th>
<th>Drill depth</th>
<th>Min. D</th>
<th>Max. D</th>
<th>Shank type</th>
</tr>
</thead>
<tbody>
<tr>
<td>SD203A</td>
<td>3xD</td>
<td>2.00</td>
<td>20.00</td>
<td>R1</td>
</tr>
<tr>
<td>SD205A</td>
<td>5xD</td>
<td>2.00</td>
<td>20.00</td>
<td>R1</td>
</tr>
<tr>
<td>SD207A</td>
<td>7xD</td>
<td>3.00</td>
<td>20.00</td>
<td>R1</td>
</tr>
</tbody>
</table>

INTERMEDIATE DIAMETERS
For delivery time on intermediate drills, please contact your local Seco representative.

MY DESIGN
As part of the My Design program, Feedmax -P is available to order with customized specifications.

NOMENCLATURE
The Feedmax -P nomenclature is easy to understand and will give you the most important information about the drill, such as drill diameter, maximum drilling depth, shank size and geometry.

As an example, a 6.1 mm drill with a 3xD drilling depth would have the designation SD203A-0610-024-08R1-P.

Type of drill
Solid carbide drill:
SD203: ~3xD
SD205: ~5xD
SD207: ~7xD

Drill diameter
Drilling depth
Right hand rotation
Type of shank
Internal through coolant
0950
045
10
R1
P

For steel

SD205 A P 0950 045 10 R1 P
An improved design makes the already outstanding Perfomax drill even better. Innovative features – including a new flute design, wave pattern and laser hardening – add strength, stability and accuracy, and have been implemented on the new Perfomax drills.

In addition to stronger, more stable and more accurate performance, the design changes make it easy to switch to the new Perfomax drill. For example, the same setting length has been used on the new drill as the previous Perfomax, and most of the drills will keep the same insert combination as the previous drill. There are some cases, however, in which some of the drill diameters require a new insert combination. This has been done to add more security by building in more strength.
PERFOMAX AND THE NEW WAVE OF CHIP CONTROL

MANAGE CHIPS LIKE A BOSS

Many new design features add strength, stability and accuracy to the Perfomax drills. These features have been implemented in all Perfomax drills and work together to take the performance of the newly designed drill to an even higher level.

NEW FLUTE DESIGN
A new design of the front flute optimizes chip forming and increases application security. The design features a larger helix, smoother chip flute exit and larger center chip flute area. This leads to the creation of shorter chips, which makes it easier to evacuate chips, reduces the risk of chip jamming and results in longer body tool life and better surface finish of the hole. This is especially true when machining long chipping materials like low carbon steels, austenitic stainless steels and super duplex stainless steels.

WAVE PATTERN IN THE FLUTE
To further improve chip evacuation, the flutes now feature a wave pattern that generates an “anti-friction” surface. This minimizes the contact between the chip and the flute and leads to higher application security.

LASER HARDENING
To enhance the drill body tool life, the front of the flute is now laser hardened. The high hardness of HRC 60 increases the tool life of the drill body up to 140% due to less risk of chip erosion.

MORE RADIAL CLEARANCE OF THE DRILL BODY
Thanks to the radial clearance of the outside of the drill body, there is more room for the chips between the drill body and the hole surface. This leads to increased application security and lower tool cost by reducing the risk of chip jamming, which can cause breakage and shorten body tool life.

PERFOMAX KEY FEATURES
YOUR SECO BENEFIT:
• High application security
• Efficient chip evacuation
• Longer tool life
• Better surface finishes

Radial clearance

New flute design

Wave technology
HOLD INSERTS WITH STRENGTH AND STABILITY

POLISHED DRILL BODY
The design of the new Perfomax drill incorporates polished drill bodies to improve surface finish and reduce friction, leading to improved chip evacuation. Additionally, a polished drill body leaves a more eco-friendly footprint than a coated drill body.

NEW POCKET DESIGN
An improved design creates a bigger radius at the bottom of the insert pocket and makes it more rigid than the previous version of Perfomax. The inserts in the periphery and center pocket also have more support thanks to a longer contact zone with the insert wall. This provides improved reliability and much better application security.

NEW INSERT COMBINATIONS
One of the design changes implemented on the new drill point geometry is the introduction of new insert combinations for some diameters. More strength has been added to the drill body by leaving more material between the insert pockets.

The drill diameters that have new insert combinations are:

<table>
<thead>
<tr>
<th>Diameter range</th>
<th>Center insert</th>
<th>Periphery insert</th>
</tr>
</thead>
<tbody>
<tr>
<td>34.50 – 40.49 mm (1.358 – 1.594 in)</td>
<td>SPGX12T3-C1</td>
<td>NEW SCGX11T308</td>
</tr>
</tbody>
</table>

MY DESIGN
As part of the My Design program, Perfomax is available to order with customized specifications.

PERFOMAX KEY FEATURES

YOUR SECO BENEFIT:
- Eco-consciousness
- Better chip evacuation
- Longer tool life
- Versatility
- Strength
- Reliability
INCREASED PRODUCTIVITY AND DEPENDABILITY

IMPROVED APPLICATION SECURITY
Small diameter indexable drills are not easy to use. The inserts are tiny. The screws are even tinier, and the drill body isn’t as strong as on larger drill diameters. As a result, problems can occur with chipped inserts or a cracked drill body. This is not a specific issue with Seco Perfomax; it’s the same for all indexable drills. It’s the law of physics, smaller = less material = less strength.

The new insert pocket design of the Perfomax, in combination with smaller insert size (for some diameters), improves the strength and the length of the drill body tool life. This leads to improved reliability and much better application security.

INCREASED PRODUCTIVITY AND BETTER HOLE TOLERANCE
The new drill point geometry, along with all the improvements in drill body design, gives the new Perfomax drill much better resistance against deflection and better hole tolerance.

NEW FLUTE DESIGN AND POLISHED DRILL BODY
The new flute front design with larger helix and chip flute offer improved performance in stainless steel and low carbon steel. Combined with the polished drill body, this gives more control over chip formation and chip evacuation.

INCREASED STRENGTH AND LASER HARDENING
To avoid cracks in the drill body, the new Perfomax design has increased strength in the drill point as well as laser hardening to prevent erosion, ensuring a longer tool life of the drill body.

RADIAL CLEARANCE ON DRILL BODY
Radial clearance of the drill body allows the avoidance of chip jamming between body and hole.

SMOOTHER CHIP FLUTE EXIT AND CHAMFER ON FLATS
The newly-designed chip flute exit ensures better hole tolerance and chamfer on flats helps avoid marks in the holder.

WAVE TECHNOLOGY
Wave technology provides an improved anti-friction surface that enables smoother chip evacuation.
PERFOMAX RANGE

EXPANDED RANGE

For larger diameter holes, Perfomax indexable drills are the natural choice. They have the capability to run at high cutting speeds and high feed rates, due to the combination of a strong, rigid design and the wide array of available inserts.

INSERTS
Optimized grades and geometries for different workpiece materials secure long and predictable tool life. The square inserts have a strong design to handle high feed rates.

DRILL BODY
Strong, sturdy drill bodies are able to handle almost all applications. The low helix angle of the flutes guarantees that the vibration and noise level are kept to a minimum during the drilling operation. To ensure good chip evacuation, the drill body has a low-friction coating.

RANGE
Perfomax drill bodies are available in 2xD, 3xD, 4xD and 5xD with diameters from 15 to 59 mm. A modular drill head system is available for larger diameters, up to 160 mm.

CODE KEY, INDEXABLE INSERT DRILL – METRIC

<table>
<thead>
<tr>
<th>Type of drill</th>
<th>Drilling depth</th>
<th>Right hand rotation</th>
<th>Type of shank</th>
<th>Drilling depth</th>
<th>Connection for Seco-Capto C4, C5, C6</th>
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</thead>
<tbody>
<tr>
<td>SD523</td>
<td>20</td>
<td>R</td>
<td>7</td>
<td>60</td>
<td>C5</td>
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CODE KEY, INDEXABLE INSERT DRILL – INCH

<table>
<thead>
<tr>
<th>Type of drill</th>
<th>Drilling depth</th>
<th>Right hand rotation</th>
<th>Application</th>
<th>Drilling depth</th>
<th>Shank diameter</th>
<th>Type of shank</th>
<th>Application</th>
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<tr>
<td>SD522</td>
<td>0750</td>
<td>R</td>
<td>C</td>
<td>150</td>
<td>1000</td>
<td>7</td>
<td>7 ISO 9766</td>
</tr>
</tbody>
</table>
PERFOMAX INSERT GRADES

PERIPHERY INSERT GRADES

The following periphery insert grades are available for Perfomax:

DP3000
- General grade for machining steel and stainless steel
- The grade for deep hole drilling (5xD)
- The grade for interrupted cuts and other difficult applications when high toughness is required

DP2000
- Recommended in steel and cast iron applications where high cutting speed can be used
- Cutting speed should not be too low; heat is needed to benefit from the toughness in the grade
- Avoid cutting speeds below V<sub>c</sub>150 m/min in steel applications

T250D
- Use a PVD-coated, micro grain carbide grade to get the edge sharpness needed to minimize the heat generated

DS2050 – NEW
- First choice for titanium, superalloys and difficult stainless steel
- New chipbreaker, -MF, with improved chip control
- Low cutting forces to minimize heat generation

CENTER INSERT GRADES

The following center insert grades are available for Perfomax:

T4000
- General grade for machining steel, cast iron and stainless steel
- Tough PVD-coated grade for maximum application security

DP3000
- Grade of productivity-oriented applications and materials
- Superior wear resistance
- Gradient substrate with Duratomic<sup>®</sup> coating technology

DS4050 – NEW
- First choice for titanium, superalloys and difficult stainless steel
- New chipbreaker, -MC, with improved chip control

YOUR SECO BENEFIT:
- Application versatility
- Enhanced heat control
- Maximum performance
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