suttontools
world class cutting tools

AUTOMOTIVE TAPPING

Engineered Solutions

THREAD FORMING IN STEEL FORGINGS

SPM FORMING TAPS NH (NORMAL HARD DESIGN)

Ideal solution for steel forgings in automotive applications, due to the long tool life and no chips to deal with. Available to your exact requirements, with or without internal coolant ducts.

USES

- Components e.g. crank shafts, cam shafts, connecting rods, steering and suspension parts
- High volume thread production
- For through and blind holes

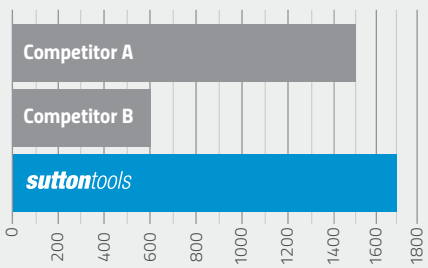
BENEFITS

- Stronger threads
- No chips or swarf
- Higher speeds with shorter cycle times
- Smoother thread surface finish

Case Study

Size	M15 x 1.5
Cutting Speed Vc (m/min)	8.5
Depth (mm)	42

Comparison



THREAD CUTTING IN STEEL FORGINGS

SPIRAL FLUTE AND GUN TAPS PM-HSS CB (CHIP-BREAKING DESIGN)

Various solutions can be offered for tapping connecting-rods, which is dependent on its design, such as blind hole and through holes.

Often the challenge when tapping blind-holes with a counter-bored designed connecting-rod is to control the swarf due to the lack of machinability of the material. The swarf is long and can tangle around the tap causing an unstable process. In addition to this, the material is known to have hard spots throughout, therefore a geometry design must be able to withstand this.

USES

- Components e.g. crank shafts, cam shafts, connecting rods, steering and suspension parts
- Caters for holes with angular exit
- Internal coolant prevents built up edge
- For deep reaching counter-bored hole design

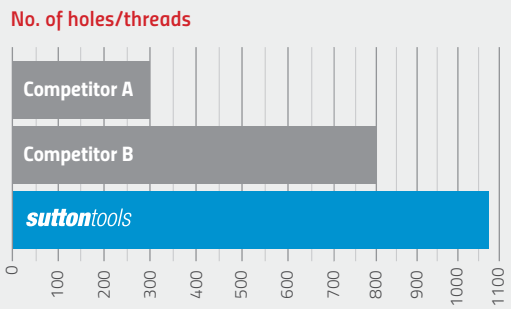
BENEFITS

- Excellent swarf control with chip-breaking design
- Geometry with stands hard spots in the material
- TiCN coating ideal for abrasion resistance
- A stable tapping process
- PM-HSS tool material retains a sharper cutting edge longer

Case Study

Component	Steering socket (42CrMo 28-32 HRC)		
Major Diameter	MF14 x 1.5		
Comparison	Competitor A	Competitor B	Sutton
Depth ap (mm)	40	40	40
Cutting Speed V (m/min)	13.2	13.2	13.2
Tool Life	300	800	1074

Comparison



CAST IRON SPECIALIST

SPIRAL FLUTE TAPS PM-HSS GG

PM-HSS tool material grade. Internal coolant can also be applied for the most efficient tapping process.

USES

- Components eg. brake callipers, steering knuckles, suspension parts
- Designed for both vertical and horizontal
- High speed tapping in CNC transfer lines

BENEFITS

- Optimal tool life
- Maximum allowable thread limit eg. 6HX
- Geometry customised for GGG materials
- TiAlN coating (Futura-Nano)
- PM-HSSCo tool material

Case Study 1

Material	Nodular cast iron GGG50
Tap Size	M9 x 1.25
Thread Depth	14mm
Machine	Vertical CNC (BT50)
Feed	Rigid Tapping
Cutting Speed	35 m/min
Tool Life	≥ 5000 holes

Case Study 2

Material	GGG70
Tap Size	M6
Thread Depth	12mm
Machine	Feeler VMC
Feed	CNC Rigid
Cutting Speed	20 m/min
Tool Life	10,000 holes

PERFECT FOR LOW TORQUE SPINDLES

CARBIDE STRAIGHT FLUTE TAPS DC-IK

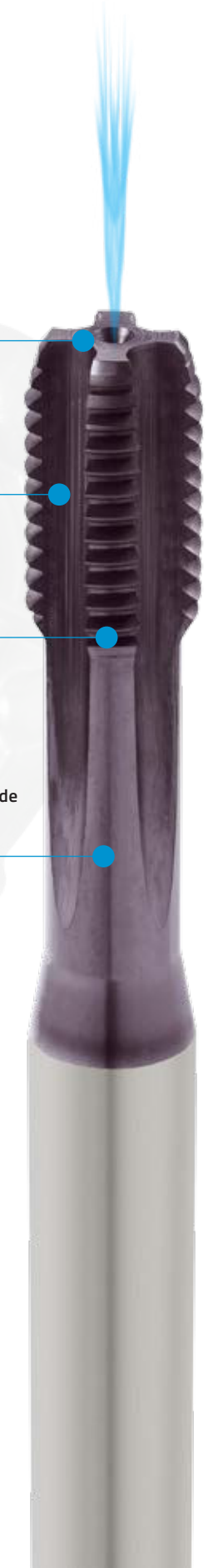
For through and blind holes, this particular design offers very high process reliability and thread quality in a mass production environment. The carbide grade, coating and geometry provides excellent abrasive wear resistance, resulting in very long tool life.
With the use of through-the-spindle internal coolant, the chips flush away very efficiently, also enabling optimal lubricity at the cutting action & produces excellent thread surface with burr free finish.

USES

- Components e.g. engine block, cylinder head, gearbox, steering housing and crankcase
- High volume thread production
- Suitable for materials with high abrasion, such as high silicon aluminium
- For through and blind holes

BENEFITS

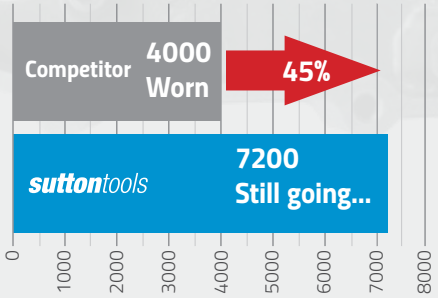
- Ideal for low torque spindle machines
- Economical
- Faster cutting speed than HSS taps
- Less machine downtime, longer tool life



Case Study 1

Size	M6
Cutting Speed Vc (m/min)	24
Depth (mm)	15

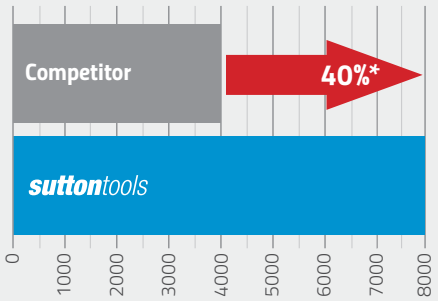
Comparison



Case Study 2

Size	M6
Cutting Speed Vc (m/min)	40
Depth (mm)	15

Comparison



*40% Cost per part saving

MINIMAL LUBRICATION FOR MAXIMUM RESULTS

CARBIDE FORMING TAPS AL-IK

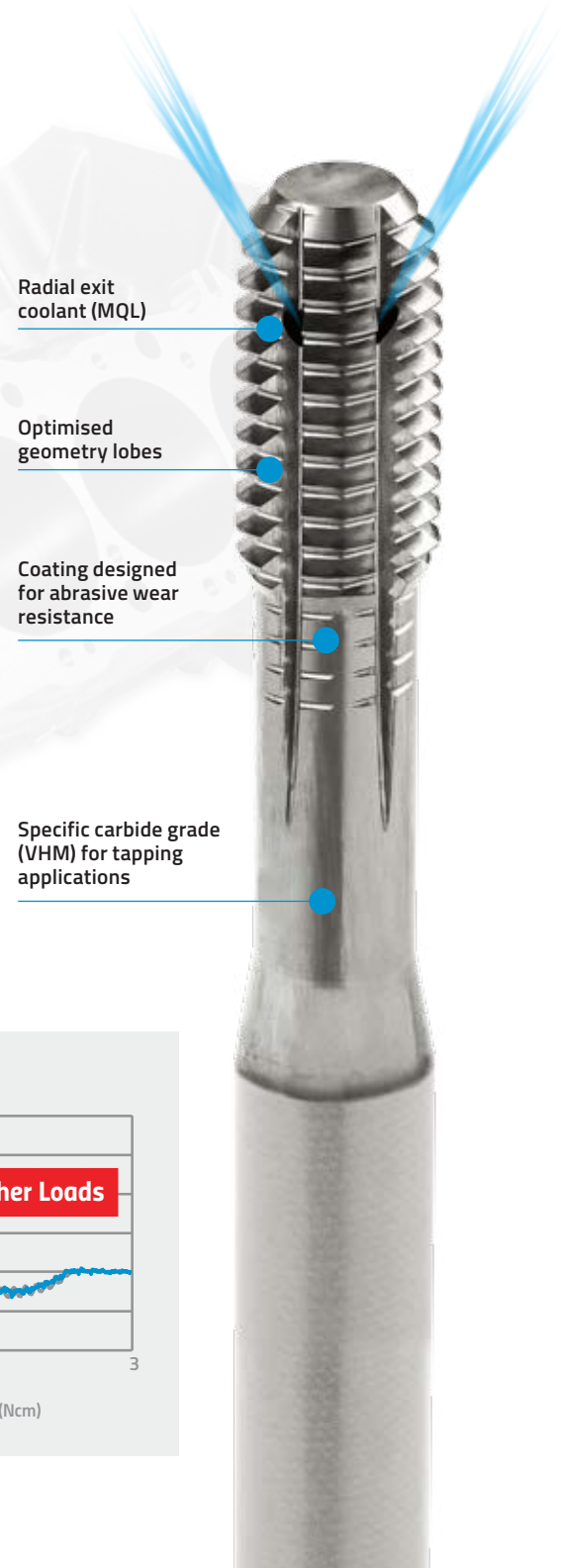
Specially developed thread forming geometry and coating with the aid of radial exit coolant channels, provide the optimal tapping solution for aluminium alloys with 10–12% Si. These characteristics has the tendency for excessive flank wear due to the hard particles of silicon in the casting, however, this problem may be minimised by the application of minimum quantity lubrication (MQL) through the tool, hence the radial exit coolant channels.

USES

- Components e.g. engine block, cylinder head, gearbox, steering housing and crankcase
- High volume thread production
- Suitable for materials with restricted ductility
- For through and blind holes

BENEFITS

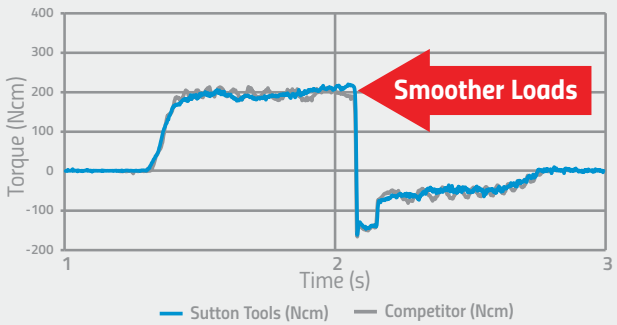
- No cutting edges, improves tapping process with longer tool life
- Stronger threads
- No chips or swarf
- Higher speeds with shorter cycle times
- Smoother thread surface finish



Case Study

Material	AlSi 10%
Tool Holder	Tapmatic Synchroflex
Size	M6×1
Cutting Speed Vc (m/min)	50
RPM	2650
Depth	12 (2×∅)

Comparison



FOR VEHICLE OIL FILTERS OF ANY SIZE

HSSE FORMING TAPS NH

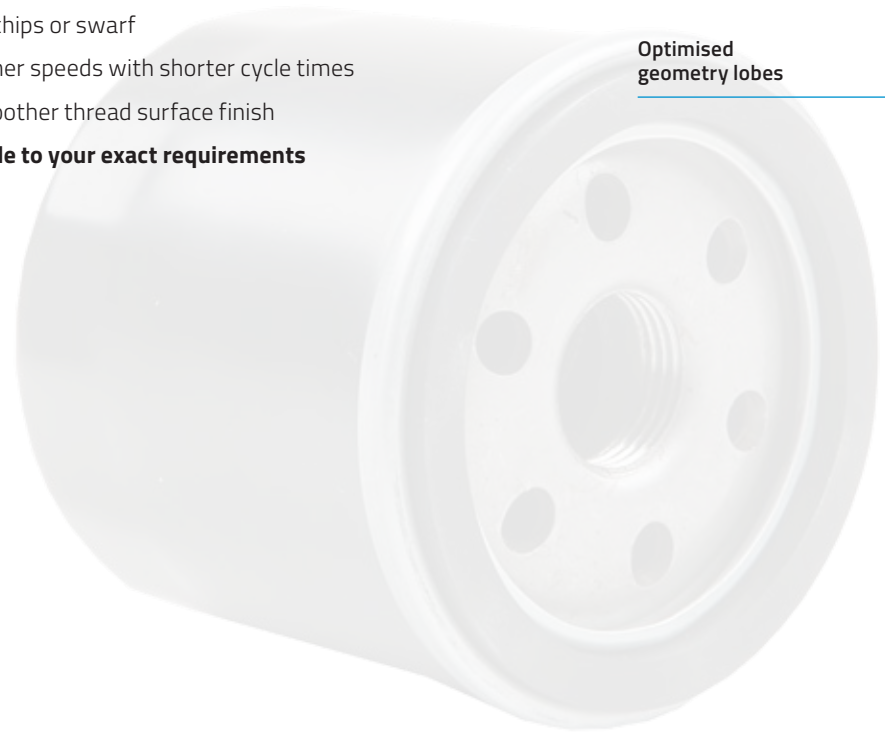
Unique design forming tap to produce oil filter caps, normally on special-purpose-machines, special lead-in geometry provides superior tap life. Capable of producing various thread forms, sizes and limits to cater for small to very large vehicle oil filters.

USES

- Components e.g. oil filter caps
- High volume thread production
- Suitable for materials with restricted ductility
- For through holes

BENEFITS

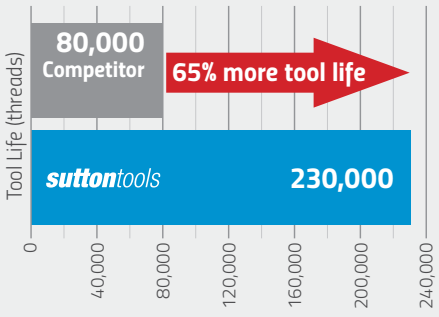
- Stronger threads
- No chips or swarf
- Higher speeds with shorter cycle times
- Smoother thread surface finish
- **Made to your exact requirements**



Case Study

Size	3/4 inch	
Pitch	16 TPI	
Depth (mm)	15	
Comparison	Sutton Tools	Competitor
Tool Life	230,000	80,000
Cost per part	$0.0004	$0.0008
Result	Cost Halved	

Comparison



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