GUHRING

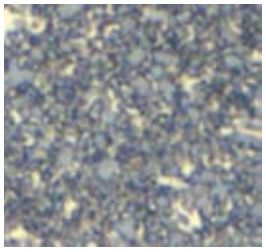
NEW!
Unique carbide:
high break resistance and
high wear resistance

Solid carbide taps for steel

Improved economic efficiency and
better thread quality
thanks to innovative carbide technology

The tool material makes it happen

Thanks to the development of a special carbide grade, Guhring is expanding the application range of solid carbide taps to steel materials. The result is an enormous increase in economic efficiency compared to the usually applied high speed steel taps, as shown in the calculations on the opposite page. Simultaneously, solid carbide taps achieve considerably improved thread quality thanks to smoother surfaces.



The machining of steel demands that tool materials possess exceptional bending strength and high resistance against crack propagation. These attributes are achieved by a high cobalt content but at the expense of reduced wear resistance.
Guhring has developed an ultra-fine grain carbide that perfectly meets both criteria - high break resistance and high wear resistance which open up new possibilities for the application of solid carbide taps.

Coating the tools with TiCN as well as adapting tool geometries for the machining of steel support these attributes of the new carbide as well. The fine tuning of all tool characteristics is possible by gathering all the tool production expertise within the Guhring group. As a world's leading tool manufacturer Guhring has its own carbide development and production as well as its own research and development centres for surface technology and tool geometries.

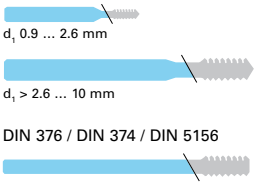
Our carbide production in Berlin

Taps for universal application in materials < 1000 N/mm²

Material examples	
Material no. to DIN EN 10 027	Abbreviation
Structural steels	
1.0035	S185 (St33)
1.0421	St 52.0
1.0067	RSt 37-1
1.0425	P265GH
Free-cutting steels	
1.0711	9S20
1.0718	11SMnPb30
1.0727	46S20
1.0728	(60 S 20)
Case hardened steels	
1.7131	16MnCr5
1.6523	21NiCrMo2-2
1.7321	20MoCr4
1.7325	25MoCr4
Unalloyed heat-treatable steels	
1.0402	C22
1.1151	C22E
1.0503	C45
1.0601	C60
Nitriding steels	
1.8504	34CrAl6
1.8507	34CrAlMo5
1.8509	41CrAlMo7
1.8515	31CrMo12
1.8550	34CrAlNi4
Spheroidal graphite iron	
0.7040	EN-GJS-400-15
0.7060	EN-GJS-600-3

Shank designs

DIN 371



DIN 376 / DIN 374 / DIN 5156

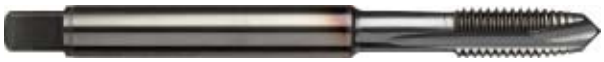
For selecting the optimal tool and recommended cutting rates for your application there is also an electronic version of the GühringNavigator available at www.guehring.de

Through holes

Thread depth	≤3xD
Tool material	Solid carbide
Type/form	N/B
Surface finish	C
Coolant delivery	☒

Thread type	Tolerance zone	Dim. to DIN 2184-1	Guhring no. Ø-range *Price page*
M	**6HX**	**~ DIN 371**	**942** M5 – M12
MF	**6HX**	**~ DIN 371**	**943** M5x0,5 – M12x1,5
	6HX	**DIN 374**	**944** M14x1 – M16x1,5

Maximum economic efficiency even with small batches



Even with small batches Guhring's solid carbide taps are able to convert their advantages into cash. Our example compares the solid carbide tap for ISO-metric threads for this typical application with the proven HSS-E-tool.

Calculate your time and cost advantages online: navigator.guehring.de

Tool	Solid carbide tap 942 TiCN-coated	HSS-E tap steam tempered
Material	St52	St52
Machine	BAZ	BAZ
Thread	M10 / 6HX	M10 / 6HX
Thread depth	16 mm	16 mm
Threads per component	8	8
No. of components	20.000	20.000
Cutting speed	50 m/min.	12 m/min.
Feed rate	2387 mm/min.	573 mm/min.
Cutting time per component	6.43 s	26.81 s
Tool life	8000 threads	3000 threads
Tool requirement	20	54
Cost per tool	€ 386	€ 40.50
Total tool costs	€ 7720	€ 2187
Machine costs[1])	€ 3575	€ 14.900
Production costs[1])	€ 11,295	€ 17,088
Cost advantage[1])	€ 5793	
Time advantage[1])	113 h	

[1]) Hourly machine rate: € 100; tool change time: 4 s

Medium volume in no time at all

With increasing batch size, Guhring's solid carbide taps can show off their strengths even more. The solid carbide tap 943 for ISO-metric fine threads up to M12 saves considerable costs and time compared to a typical application with the proven TiN-coated HSS-E-PM tap.

Calculate your time and cost advantages online: navigator.guehring.de

Tool	Solid carbide tap 943 TiCN-coated	HSS-E-PM tap TiN-coated
Material	16 MnCr 5	16 MnCr 5
Machine	machining centre	machining centre
Thread	M10x1 / 6HX	M10x1 / 6H
Thread depth	22 mm	22 mm
Threads per component	6	6
No. of components	50.000	50.000
Cutting speed	50 m/min.	15 m/min.
Feed rate	1592 mm/min.	477 mm/min.
Cutting time per component	9.95 s	33.1 s
Tool life	8000 threads	4000 threads
Tool requirement	38	75
Cost per tool	€ 384	€ 76
Total tool costs	€ 14.592	€ 5700
Machine costs[1])	€ 13.824	€ 46.091
Production costs[1])	€ 28.416	€ 51.791
Cost advantage[1])	€ 23.376	
Time advantage[1])	322 h	

[1]) Hourly machine rate: € 100; tool change time: 4 s

Two machine years saved

In mass production Guhring's solid carbide taps make unbelievable time and cost savings possible. In our application example the solid carbide tap 944 for ISO-metric fine threads from M14 saves two entire machine years - and therefore opens up opportunities for considerably improved productivity compared to a typical application with proven TiN-coated HSS-E PM tap.

Calculate your time and cost advantages online: navigator.guehring.de

Tool	Solid carbide tap 944 TiCN-coated	HSS-E-PM tap TiN-coated
Material	C45	C45
Machine	machining centre	machining centre
Thread	M14 x 1.5 / 6HX	M14 x 1.5 / 6HX
Thread depth	20 mm	20 mm
Threads per component	6	6
No. of components	1 000 000	1 000 000
Cutting speed	50 m/min.	15 m/min.
Feed rate	1705 mm/min.	512 mm/min.
Cutting time per component	8,44 s	28,15 s
Tool life	6000 threads	2000 threads
Tool requirement	1000	3000
Cost per tool	€ 510	€ 104
Total tool costs	€ 510,000	€ 312,000
Machine costs[1])	€ 235,000	€ 783,000
Production costs[1])	€ 744,600	€ 1 094,300
Cost advantage[1])	€ 350,000	
Time advantage[1])	5473 h	

[1]) Hourly machine rate: € 100; tool change time: 4 s

GUHRING

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OUR PRODUCT RANGE:

1. DRILLING TOOLS
IN HIGH SPEED STEEL AND CARBIDE

Twist drills
Ratio drills
Micro-precision drills
Oil feed drills
Subland drills
Centre drills
Core drills
Gun drills
Drilling systems with interchangeable inserts

2. THREAD CUTTING TOOLS
IN HIGH SPEED STEEL AND CARBIDE

Machine taps and fluteless taps
Oil feed taps and oil feed fluteless taps
Hand taps
Thread milling cutters
Dies

3. MILLING CUTTERS
IN HIGH SPEED STEEL AND CARBIDE

Ratio end mills
Slot drills
End mills
Radius profile cutters
Hard profile cutters
Diesinking cutters

4. REAMING TOOLS
IN HIGH SPEED STEEL AND CARBIDE

NC machine reamers
Machine reamers
Taper pin reamers
Hand reamers

5. COUNTERSINKING TOOLS
IN HIGH SPEED STEEL AND CARBIDE

Countersinks, counterbores and spot facers
Short counterbores, back spot facers
De-burring tools

6. CUTTING TOOLS
IN ULTRA-HARD MATERIALS

PF 1000 face millling cutters wit PCD/CBN milling inserts
Cermet tools
PCD- and CBN-tipped tools

7. COATED TOOLS

A-tools, TiAlN-coated
SuperA-tools, AlTiN-coated
C-tools, TiCN-coated
F-tools, FIRE-coated (allround)
P-tools, AlCrN-coated
S-tools, TiN-coated (allround)
M-tools, MolyGlide-coated

8. MODULAR TOOLING SYSTEMS
TOOLING SYSTEM GM 300

Tool holders, clamping systems and accessories to ISO 12164, DIN 69893 and DIN 69871 for transfer lines, machining and turning centres, hydraulic chucks and shrink fit chucks as well as shrink fit systems

FLEXIBLE TOOLING SYSTEM GE 100

A tooling system for the combined machining operations facing, chamfering, boring, centering etc.

ISO INDEXABLE INSERTS, SHORT CLAMPING HOLDERS AND CARTRIDGE SYSTEM KV 400

9. SPECIAL TOOLS

to sketch or drawing, the more complex the better

10. CARBIDE RODS
FOR PRECISION TOOLS

11. CARBIDE SPECIAL PARTS
FOR THE FORMING, MACHINING AND WEAR PROTECTION INDUSTRY

Cold heading dies, ribbed rolls, dies, mandrels, drawing dies, gear cutters etc.

12. TOOL RESTORATION SERVICE

Re-grinding, re-coating, tool management

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