

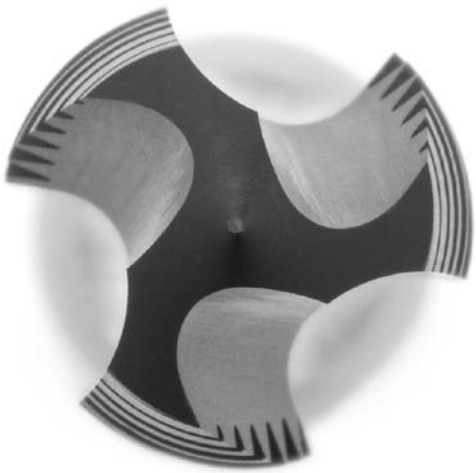
NEW

2026.06

MP300E

M-TAPS

HIGH PERFORMANCE SOLID TAPS
FOR CUTTING AND COLD FORMING



Mplus...

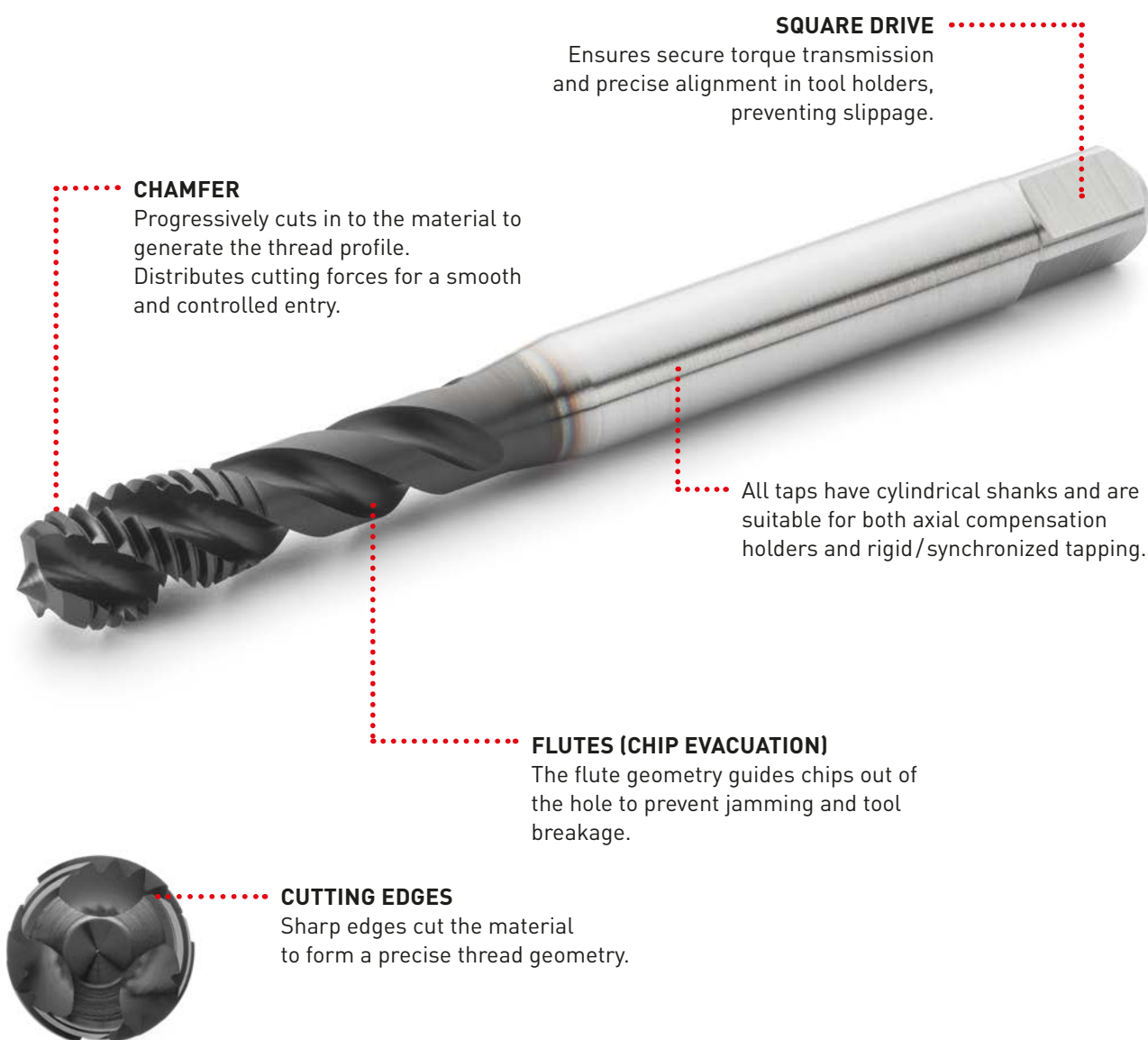
M-TAPS



CUTTING TAPS

TC SERIES

Cutting taps produce threads by removing material, thereby generating chips. They offer high versatility across materials and are suitable for both through and blind holes, ensuring reliable performance in general machining.



Cutting taps available for the main thread standards (M, MF, UNC, UNF, G).



Tap description example:
TC-UNF516P24CN45-2B TP2020 – Tool family: TC33

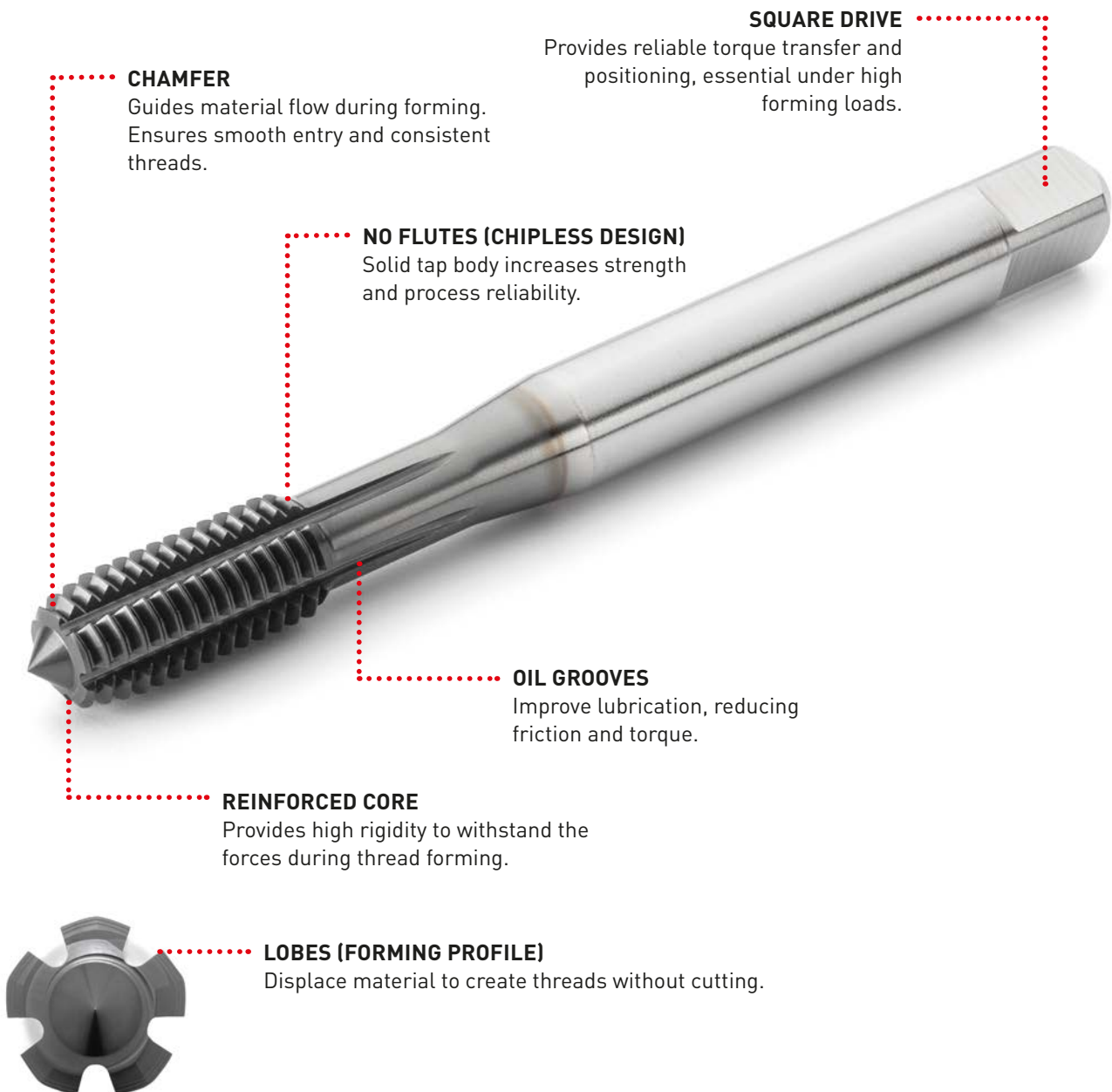
M-TAPS



COLD FORMING TAPS

TF SERIES

Cold forming taps create threads by displacing material without cutting. This chipless process results in stronger threads, improved surface finish and high process reliability, especially in ductile materials.



Cold forming taps available for the main thread standards. (M, MF, G).



Tool description example:
TF-M5P080EN-L-6H TP1030 – Tool family: TF70E

M-TAPS

MATERIAL

PERFORMANCE



Different grades of substrate suitable for each tool to improve the ratio of hardness and toughness.



HSS	High speed steel
HSS-E	HSS + Cobalt for higher heat resistance/hardness
HSS-E-PM	Powder metallurgy refined process for superior toughness, wear resistance and homogeneity

COATINGS



TP1
Monolayer coating (AlCrN).
High hardness and tough resistance.



TP2
Multilayer coating (TiAlN + C-graphite).
TiAlN improves hardness and C-graphite reduces friction coefficient.

TP



Grade description

TP Threading PVD

20



Coating type

10 Monolayer

20 Multilayer

20



Application

10 Higher cutting conditions/Higher wear resistance

20 General use/Good compromise of hardness and toughness

30 Higher toughness

TAP TOLERANCES

Tap tolerances define the final thread size produced, ensuring correct fit between internal and external threads. They balance assembly ease, strength and functional performance.

“X” DESIGNATION

Indicates a manufacturer-defined pitch diameter modification.

It compensates for coating, wear, and process conditions to achieve threads within standard tolerance while extending tool life.



(ISO Metric):

Standard tolerance for general-purpose applications.
Provides a balanced fit with reliable assembly and good thread engagement.



(ISO Metric):

Slightly tighter than 6HX, for improved thread accuracy.
Used where better control of fit and reduced play are required.



(Unified Threads):

Common tolerance for UNC/UNF threads.
Ensures standard fit with good interchangeability in general engineering.



(Gas Threads):

Tolerance for BSP/G thread applications.
Adjusted pitch diameter ensures sealing performance and correct fit according to standards.

M-TAPS

CHAMFER TYPES

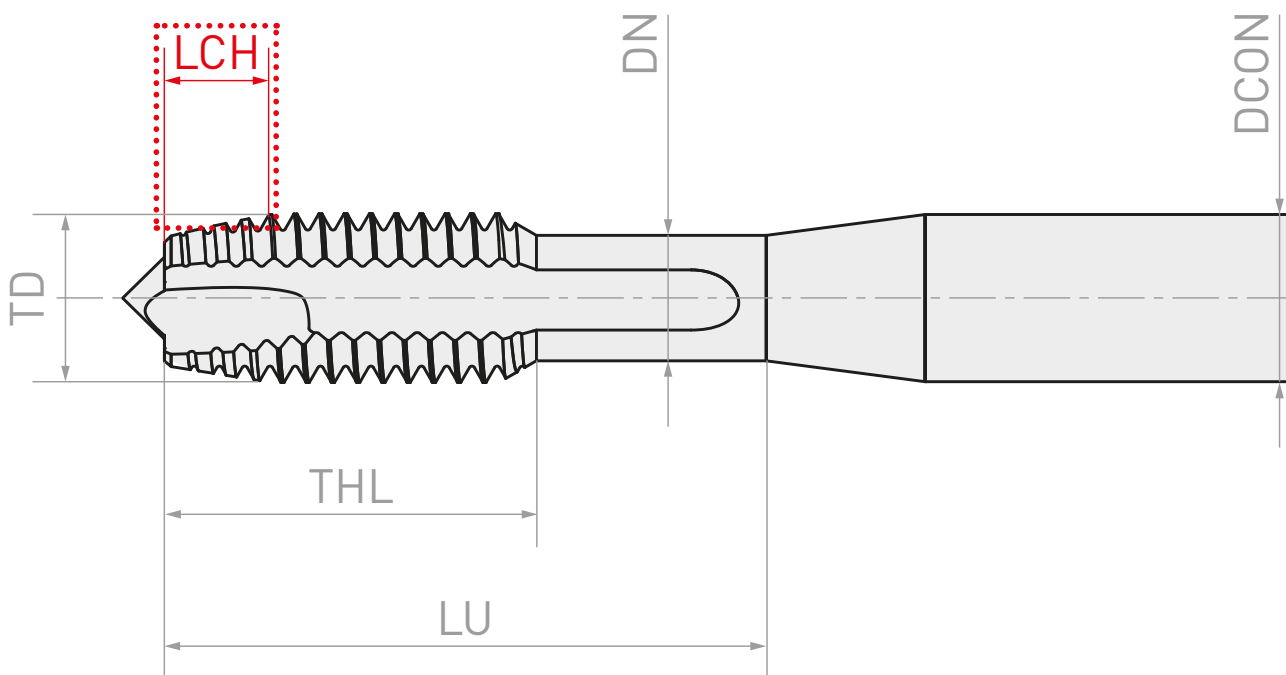
The chamfer (lead) is the front portion of the tap where the thread is progressively generated. It distributes the load over several threads, enabling smooth tool entry, stable cutting or forming and a controlled buildup of forces

CUTTING TAPS: The chamfer defines how material is removed progressively, influencing cutting forces, chip formation and process stability.

COLD FORMING TAPS: The chamfer controls how material is gradually displaced, directly affecting the torque when forming threads, material flow and the final thread quality.

A correct chamfer type ensures reliable engagement, reduced stress on the tool and enables a consistent thread accuracy.

The remaining threaded portion does not cut or form further. Its function is to guide, size and stabilize the thread, ensuring final accuracy, surface quality and dimensional consistency.



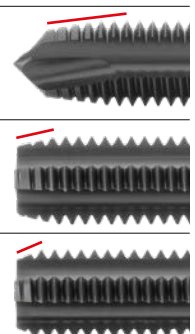
B (4-5) Balanced chamfer for general use, combining smooth entry with good productivity. Often paired with spiral point geometry for efficient forward chip evacuation in through holes.



C (2-3) Short chamfer for quick engagement and reduced axial space. Preferred for blind holes where limited depth requires immediate full thread generation.



E (1.5-2) Very short chamfer for minimal entry length. Used in very shallow or bottoming applications where maximum thread depth is required.



1. Chamfer length = chamfer type x pitch (mm)

M-TAPS

COOLANT

Internal coolant taps deliver fluid directly to the cutting points through integrated channels. This ensures effective cooling, lubrication and evacuation exactly where the process occurs, improving stability and consistency.

Cutting taps: Coolant supports chip evacuation, reduces heat and prevents chip packing.

Cold forming taps: Coolant is critical for lubrication, reducing friction and forming torque while improving surface finish.

Benefits include longer tool life, higher process reliability and better performance in deep holes or demanding materials.

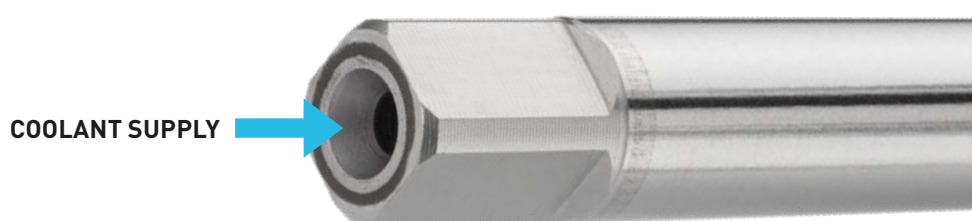
THROUGH COOLANT

Coolant is delivered through internal channels directly to the cutting edges and hole bottom. Enhances chip evacuation, reduces heat buildup and enables stable machining in deep and blind holes. Available for cutting taps.



FLUTE COOLANT

Coolant flows along the flutes or lubrication grooves to the forming zone. Provides continuous lubrication, reducing friction and torque while ensuring smooth material flow and high-quality threads. Available for cold forming taps.



1. Tools can be both solid without hole or with internal coolant holes.

M-TAPS

DRILLS FOR PRE-TAPPING OPERATIONS

The pre-tap drill defines the initial hole diameter, which directly determines thread quality, tool load, and process stability. Correct sizing ensures proper material engagement: sufficient for strength, but not excessive to avoid high torque or tool overload.

The drill-tap combination must be considered as a system. An optimized match improves thread accuracy, reduces wear, stabilizes torque, and ensures consistent results across production.

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-M3P050BN00-6H TP2010	M3	0.5	56	10	18	3.5	2.7	3	2.5	DVAS	1
TC-M4P070BN00-6H TP2010	M4	0.7	63	12	21	4.5	3.4	3	3.3	MPS1	1
TC-M5P080BN00-6H TP2010	M5	0.8	70	14	24.5	6	4.9	3	4.2	MPS1	1
TC-M6P100BN00-6H TP2010	M6	1	80	16	29	6	4.9	3	5	MPS1	1
TC-M8P125BN00-6H TP2010	M8	1.25	90	18	33	8	6.2	3	6.8	MPS1	1
TC-M10P150BN00-6H TP2010	M10	1.5	100	20	36	10	8	3	8.5	MPS1	1
TC-M12P175BN00-6H TP2010	M12	1.75	110	24	—	9	7	4	10.2	MPS1	2
TC-M14P200BN00-6H TP2010	M14	2	110	25	—	11	9	4	12	MPS1	2
TC-M16P200BN00-6H TP2010	M16	2	110	28	—	12	9	4	14	MPS1	2
TC-M18P250BN00-6H TP2010	M18	2.5	125	32	—	14	11	4	15.5	MPS1	2
TC-M20P250BN00-6H TP2010	M20	2.5	140	32	—	16	12	4	17.5	MPS1	2

1/1



CUTTING TAPS:

The pre-tap drilling diameter follows standard tables. Material is removed during tapping, so the hole is closer to nominal size.

Focus: correct thread profile and chip control.



COLD FORMING TAPS:

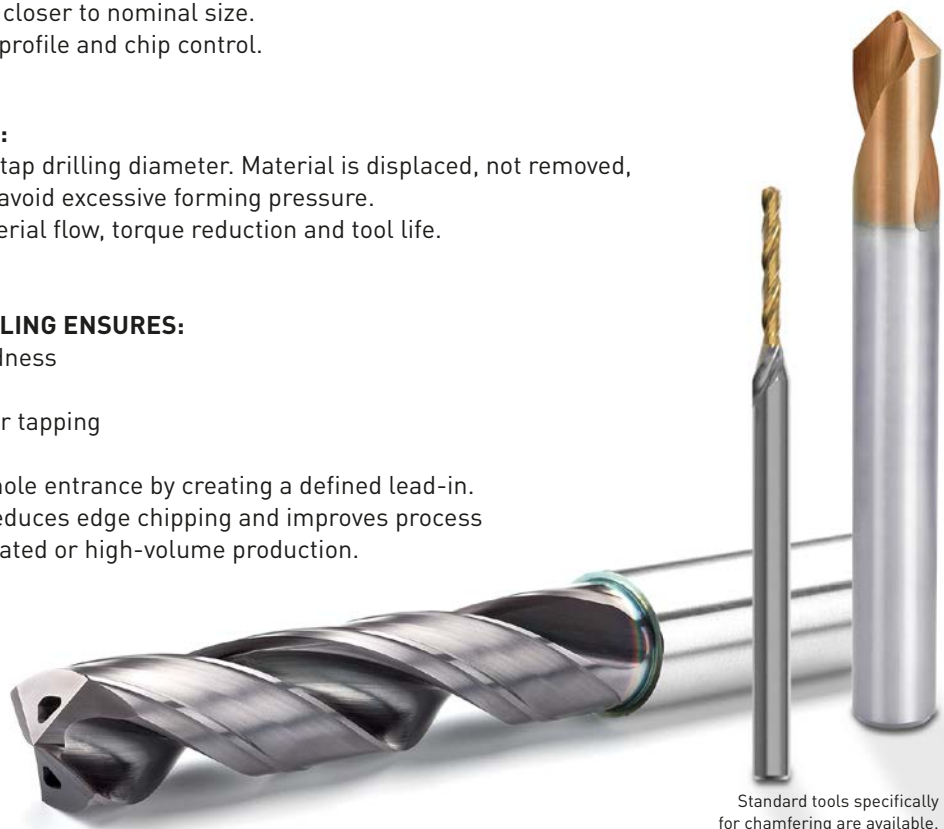
Requires a larger pre-tap drilling diameter. Material is displaced, not removed, so space is needed to avoid excessive forming pressure.

Focus: controlled material flow, torque reduction and tool life.

HIGH-QUALITY PRE-TAP DRILLING ENSURES:

- Accurate diameter and roundness
- Straightness and alignment
- Correct surface conditions for tapping

Chamfering tools prepare the hole entrance by creating a defined lead-in. This supports tap alignment, reduces edge chipping and improves process reliability – especially in automated or high-volume production.



Standard tools specifically for chamfering are available.

M-TAPS

IDENTIFICATION

ITEM DESCRIPTION CODE EXPLANATION

Sales Company Item No.

Metric / metric fine		UNC / UNF / G		
P050	0.50 mm	P24	24 TPI	Coolant supply
P070	0.70 mm	P32	32 TPI	
P080	0.80 mm	P20	20 TPI	
P100	1.00 mm	P18	18 TPI	
P125	1.25 mm	P16	16 TPI	
P150	1.50 mm	P14	14 TPI	
P175	1.75 mm	P13	13 TPI	
...		...		C Through coolant
				F Flutes coolant
				N No coolant

SERIES

TC

THREAD FORM TYPE

UNF516

PITCH

P24

C

N

Threading
Process
C Cutting
F Cold Forming

Metric	Metric Fine	UNC	UNF	G
M3	M8	UNC010 Nr.10	UNF010 Nr.10	G18 1/8"
M3.5 (035)	M10	UNC012 Nr.12	UNF012 Nr.12	G14 1/4"
M4	M12	UNC14 1/4"	UNF14 1/4"	G38 3/8"
M5	M14	UNC516 5/16"	UNF516 5/16"	G12 1/2"
M8	M16	UNC38 3/8"	UNF38 3/8"	G58 5/8"
M10	...	UNC716 7/16"	UNF716 7/16"	G34 3/4"
M12		UNC12 1/2"	UNF12 1/2"	...
...		

Chamfer type
B 3.5-5 x pitch
C 2-3.5 x pitch
E 1.5-2 x pitch
...

M-TAPS

IDENTIFICATION

ITEM DESCRIPTION CODE EXPLANATION

Metric / Metric fine	UNC / UNF	G	Coating type	
-6H 6HX	2B 2BX	(empty)	10 Monolayer	
-6G 6GX	...		20 Multilayer	
...				

Helix (TC family)	Oil grooves (TF family)	Grade description	Application
00 Straight flutes	L Lubricant (with oil grooves)	TP Threading PVD	10 Higher cutting conditions / Higher wear resistance
15 15 degree	N No lubricant (without oil grooves)		20 General use / Good compromise of hardness and toughness
45 45 degree			30 Higher toughness
...			

Helix (TC family)	TAP TOLERANCE	Grade description	Coating type	Application
45	- 2 B	TP	20	20

Examples of codes

TC-UNF516P24CN45-2B TP2020

TF-M5P080EN-L-6H TP1030

M-TAPS

IDENTIFICATION

ITEM DESCRIPTION CODE EXPLANATION

Family group

Threading process	Thread norm	Coolant (if applied)
TC Cutting	0 M	— none
TF Cold forming	1 MF	L Internal coolant
	2 UNC	
	3 UNF	
	4 G	

Application / Geometry	Variant (if applied)
1 Through hole (B-chamfer/straight flutes)	— none
2 Blind hole – medium (lower helix angle)	B Chamfer B
3 Blind hole – deeper (higher helix angle)	E Chamfer E
4 Short chip materials	
7 Cold forming (with oil grooves)	

TC
3
0
E
L

Cutting tap | Blind hole (45 helix angle) | Metric | Chamfer E | With internal coolant

M-TAPS

TOOL PAGE READING

- 1 Icons for technical infos regarding tool (chamfer type, chip generation, helix angle, ...)
- 6 Tap tolerance
- 2 Tool family
- 7 Items description and details
- 3 Process (cutting/cold forming)
- 8 Pre-tap drilling information
- 4 Work material suggested applications
- 9 Hole type selection (blind/through)
- 5 Thread norm
- 10 Pre-tap drilling related page

M-TAPS

M-TAPS

2 **TC10**

HIGH PERFORMANCE CUTTING TAPS FOR THROUGH HOLES – STRAIGHT FLUTES WITH SPIRAL POINT

3 **Cutting**

4 **P M K N S**

5 **M**
MF
UNC
UNF
G

6 **TAP TOLERANCE**

7

8

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOP	DC	Drill item*	Type
TC-M3P050BN00-6H TP2010	M3	0.5	56	10	18	3.5	2.7	3	2.5	DVAS	1
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TC-M16P200BN00-6H TP2010	M16	2	110	28	—	12	9	4	14	MPS1	2
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TC-M20P250BN00-6H TP2010	M20	2.5	140	32	—	16	12	4	17.5	MPS1	2

10 * For reference, please see the drill item on page 74.

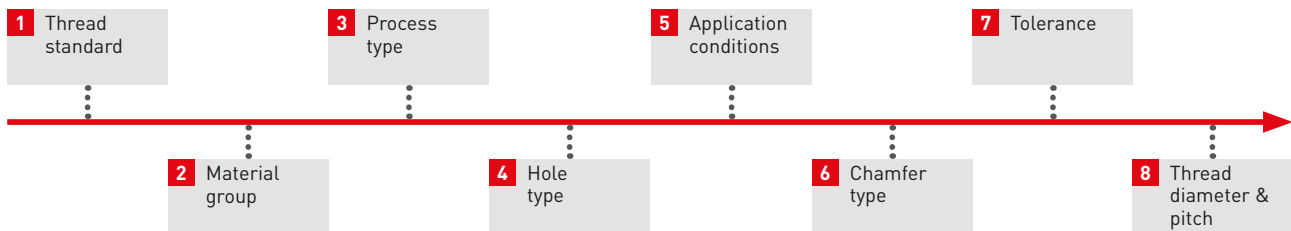
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M-TAPS

TOOL SELECTOR

This tool selector guides the user to the correct tap by following a simple, structured decision flow. It ensures fast and reliable selection by matching thread requirements, material and application conditions with the appropriate tool family.

FLOW:



This approach minimizes selection errors and guarantees optimal performance, tool life and thread quality.

1 THREAD STANDARD

Defined by the customers drawing requirement.

Each tool family identifies the thread norm:

Metric: TC10, TC20, TC30, TC40/TF70

Metric Fine: TC11, TC31, TC41/TF71

UNC: TC12, TC32

UNF: TC13, TC33

G (Gas): TC14, TC34/TF74

Each section is clearly identified by a side bookmark indicating the selected thread standard. Start here to enter the correct catalogue section and avoid wrong standards.

4 HOLE TYPE

- Through hole
- Blind hole
- Blind/Through

Defines chip or material flow behavior.

Strongly linked to family segmentation:

- Through: TC10 series
- Blind: TC20/TC30/TC31/TC32/TC33/TC34
- Blind/Through: TC40/TC41

Coolant note:

Blind holes: Internal coolant improves reliability

2 MATERIAL GROUP

Defined by the application material at customer.

Different materials influence:

- Chip formation (short, long, difficult evacuation)
- Ductility (suitability for cold forming)

Each tool page shows:

- Suitable for materials (P/M/K/N/S)
- Recommended cutting conditions

3 PROCESS TYPE

Selection depends mainly on:

- Work material
- Required thread result (strength, surface, shape)

Family prefix immediately identifies the process:

- TC \odot → cutting
- TF \odot → forming

5 APPLICATION CONDITIONS

Focus on geometry behavior and process stability, directly linked to tool families:

Helix angle (cutting taps):

- Low (15°): Medium blind holes (ex. TC20)
- High (45°): Deeper blind holes (ex. TC30)

Coolant supply:

- No coolant: Standard families (TC10, TC30, TF70...)
- Internal coolant: "L" versions (e.g. TC40L, TC41L, TF70L)

Recommended for deep holes, difficult materials and higher process reliability.

M-TAPS

TOOL SELECTOR

6 CHAMFER TYPE

Defines how the thread is generated and final thread reach:

- B: Through holes (e.g. TC10)
- C: Standard blind holes (e.g. TC30, TF70)
- E: Bottoming/maximum thread depth (e.g. TC30E, TF70E)

8 THREAD DIAMETER & PITCH

Final selection step.

The exact tool is identified within each page, including:

- Item code
- Pre-tap drills
- Technical data

7 TOLERANCE

Defines final thread fit:

- 6HX/6GX (Metric)
- 2BX (Unified)
- ISO 5969X (Gas)

“X” indicates a manufacturer-defined pitch diameter adjustment, designed to compensate for coating, wear and process conditions while still achieving the required thread tolerance and enabling extended tool life.

M-TAPS

M-TAPS

TC30

HIGH PERFORMANCE CUTTING TAPS FOR BLIND HOLES - 45° SPIRAL FLUTES

3 Cutting

2 P M C S S

1 M

MF

UNC

UNF

G

5 **6**

DIN 371
≪ M10

DIN 376
≧ M12

7 6HX TAP TOLERANCE

4 3JTD

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	Drill item*	Type	
TC-M3P050CN45-6H TP2020	M3	0.5	56	7	15	3.5	2.7	3	2.5	DVAS	1
TC-M4P070CN45-6H TP2020	M4	0.7	63	8.5	21	4.5	3.4	3	3.3	MPS1	1
TC-M5P080CN45-6H TP2020	M5	0.8	70	10	24.5	6	4.9	3	4.2	MPS1	1
TC-M6P100CN45-6H TP2020	M6	1	80	12	29	6	4.9	3	5	MPS1	1
TC-M8P125CN45-6H TP2020	M8	1.25	90	14	33	8	6.2	3	6.8	MPS1	1
TC-M10P150CN45-6H TP2020	M10	1.5	100	17	39	10	8	3	8.5	MPS1	1
TC-M12P175CN45-6H TP2020	M12	1.75	110	19	—	9	7	4	10.2	MPS1	2
TC-M14P200CN45-6H TP2020	M14	2	110	20.5	—	11	9	4	12	MPS1	2
TC-M16P200CN45-6H TP2020	M16	2	110	20.5	—	12	9	4	14	MPS1	2
TC-M18P250CN45-6H TP2020	M18	2.5	125	25.5	—	14	11	4	15.5	MPS1	2
TC-M20P250CN45-6H TP2020	M20	2.5	140	25.5	—	16	12	4	17.5	MPS1	2

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* For reference, please see the drill item on page 74.

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M-TAPS

PAGE INDEX



TC - CUTTING TAPS

Tool family	Thread	Materials	Tolerance	Chamfer	Helix	Coolant	Page
THROUGH HOLES							
TC10	M	P M K N S	6HX/6GX	B	0°	—	16
TC11	MF	P M K N S	6HX	B	0°	—	28
TC12	UNC	P M K N S	2BX	B	0°	—	38
TC13	UNF	P M K N S	2BX	B	0°	—	42
TC14	G	P M K N S	ISO 5969X	B	0°	—	46
BLIND HOLES							
TC20	M	P K N S	6HX	C	15°	—	18
TC30/TC30E	M	P M K N S	6HX/6GX	C/E	45°	—	20/22
TC31/TC31E	MF	P M K N S	6HX	C/E	45°	—	30/32
TC32	UNC	P M K N S	2BX	C	45°	—	40
TC33	UNF	P M K N S	2BX	C	45°	—	44
TC34/TC34E	G	P M K N S	ISO 5969X	C/E	45°	—	48/50
BLIND/THROUGH HOLES							
TC40	M	K N	6HX	C	0°	—	24
TC40L	M	K N	6HX	C	0°	💧	25
TC40E	M	K N	6HX	E	0°	—	26
TC40EL	M	K N	6HX	E	0°	💧	27
TC41	MF	K N	6HX	C	0°	—	34
TC41L	MF	K N	6HX	C	0°	💧	35
TC41E	MF	K N	6HX	E	0°	—	36
TC41EL	MF	K N	6HX	E	0°	💧	37

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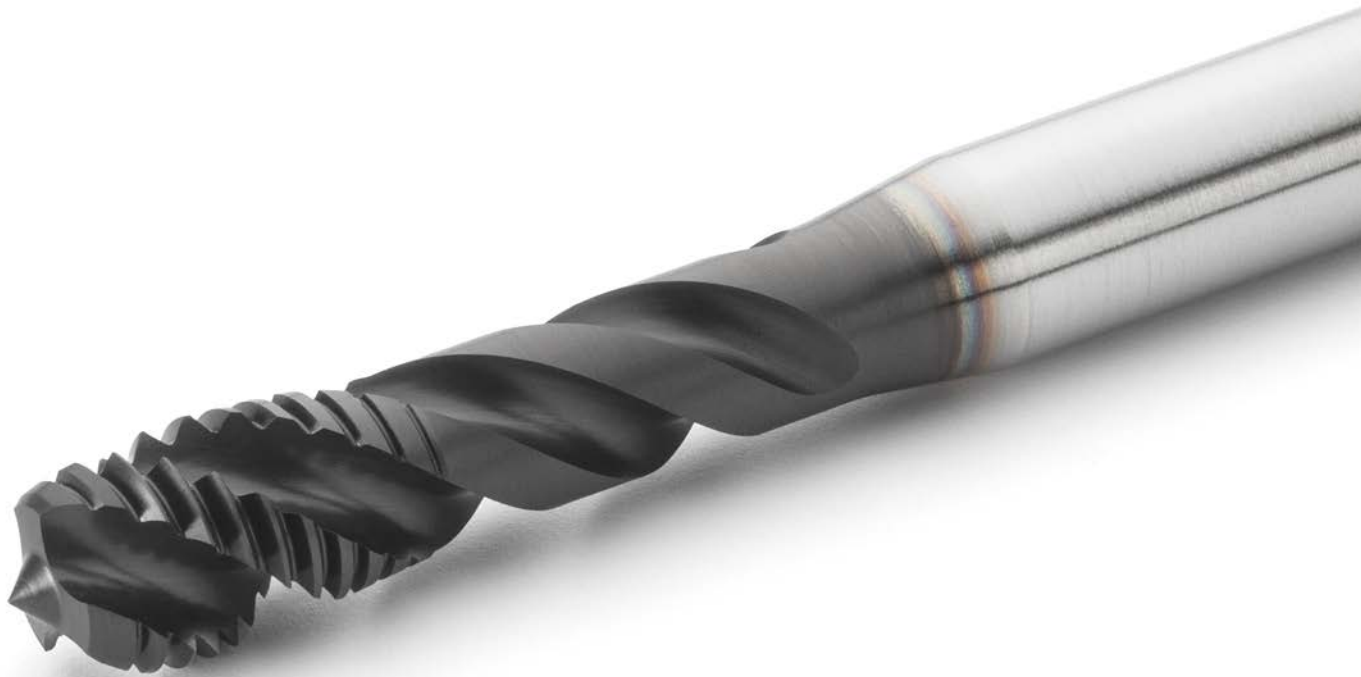
TF - COLD FORMING

Tool family	Thread	Materials	Tolerance	Chamfer	Helix	Oil grooves	Coolant	Page
BLIND/THROUGH HOLES								
TF70	M	P N	6HX	C	—	✓	—	54
TF70L	M	P N	6HX	C	—	✓	💧	56
TF70E	M	P N	6HX	E	—	✓	—	58
TF71	MF	P N	6HX	C	—	✓	—	60
TF74	G	P N	ISO 5969X	C	—	✓	—	62

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M-TAPS

CUTTING TAPS



M-TAPS

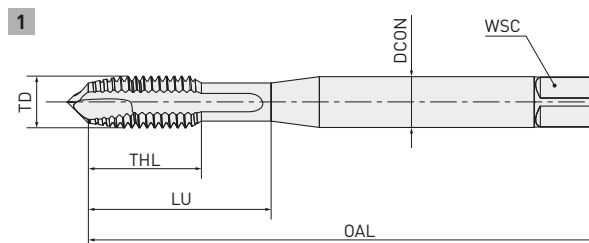


TC10

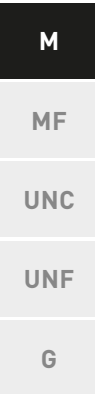
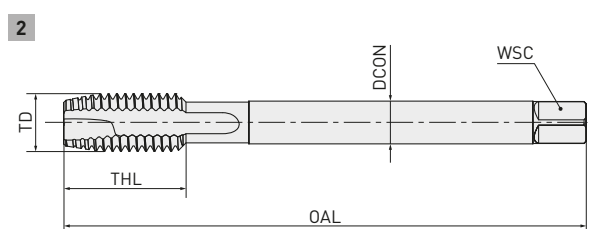
HIGH PERFORMANCE CUTTING TAPS FOR THROUGH HOLES – STRAIGHT FLUTES WITH SPIRAL POINT



DIN 371
≤ M10



DIN 376
≥ M12



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-M3P050BN00-6H TP2010	M3	0.5	56	10	18	3.5	2.7	3	2.5	DVAS	1
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TC-M6P100BN00-6H TP2010	M6	1	80	16	29	6	4.9	3	5	MPS1	1
TC-M8P125BN00-6H TP2010	M8	1.25	90	18	33	8	6.2	3	6.8	MPS1	1
TC-M10P150BN00-6H TP2010	M10	1.5	100	20	36	10	8	3	8.5	MPS1	1
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TC-M18P250BN00-6H TP2010	M18	2.5	125	32	—	14	11	4	15.5	MPS1	2
TC-M20P250BN00-6H TP2010	M20	2.5	140	32	—	16	12	4	17.5	MPS1	2


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M-TAPS – TC10



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF		Drill item*	Type
TC-M4P070BN00-6G TP2010	M4	0.7	63	12	21	4.5	3.4	3	3.3	MPS1	1
TC-M5P080BN00-6G TP2010	M5	0.8	70	14	24.5	6	4.9	3	4.2	MPS1	1
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TC-M8P125BN00-6G TP2010	M8	1.25	90	18	33	8	6.2	3	6.8	MPS1	1
TC-M10P150BN00-6G TP2010	M10	1.5	100	20	36	10	8	3	8.5	MPS1	1
TC-M12P175BN00-6G TP2010	M12	1.75	110	24	—	9	7	4	10.2	MPS1	2

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Cutting

RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	30 – 40	—
Carbon steel (350 – 850 N/mm ²)	25 – 35	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	20 – 30	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	10 – 20	—
High strength steel (1200 – 1600 N/mm ²)	8 – 10	—
M Austenitic stainless steel (< 850 N/mm ²)	10 – 20	—
Duplex/PH stainless steel (< 1000 N/mm ²)	6 – 8	—
K Ductile cast iron (400 – 800 MPa)	25 – 35	—
N Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	—	30 – 40
Long chipping copper/soft brass (200 – 400 N/mm ²)	25 – 30	—
Short chipping copper/hard brass (300 – 500 N/mm ²)	—	10 – 20
S Pure titanium/nickel (300 – 600 N/mm ²)	—	10 – 15
HRSA/titanium alloys (600 – 1000 N/mm ²)	—	12 – 18

1/1

1. Feed (f) is equal to pitch (TP)

* For reference, please see the drill item on page 74.

M-TAPS

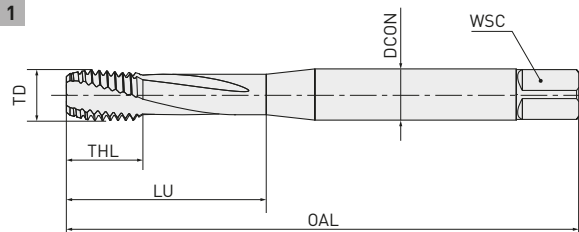


TC20

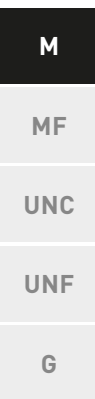
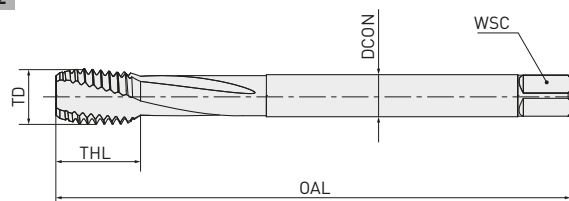
HIGH PERFORMANCE CUTTING TAPS FOR BLIND HOLES – 15° SPIRAL FLUTES



DIN 371
≤ M10



DIN 376
≥ M12



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-M3P050CN15-6H TP2010	M3	0.5	56	5	18	3.5	2.7	3	2.5	DVAS	1
TC-M4P070CN15-6H TP2010	M4	0.7	63	7	21	4.5	3.4	3	3.3	MPS1	1
TC-M5P080CN15-6H TP2010	M5	0.8	70	9	25	6	4.9	3	4.2	MPS1	1
TC-M6P100CN15-6H TP2010	M6	1	80	11	30	6	4.9	3	5	MPS1	1
TC-M8P125CN15-6H TP2010	M8	1.25	90	12	35	8	6.2	3	6.8	MPS1	1
TC-M10P150CN15-6H TP2010	M10	1.5	100	13	39	10	8	3	8.5	MPS1	1
TC-M12P175CN15-6H TP2010	M12	1.75	110	15	—	9	7	3	10.2	MPS1	2
TC-M14P200CN15-6H TP2010	M14	2	110	18	—	11	9	3	12	MPS1	2
TC-M16P200CN15-6H TP2010	M16	2	110	18	—	12	9	3	14	MPS1	2

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	—	25 – 30
Carbon steel (350 – 850 N/mm ²)	25 – 30	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	20 – 25	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	10 – 15	—
High strength steel (1200 – 1600 N/mm ²)	5 – 10	—
K Grey cast iron (150 – 350 MPa)	—	20 – 30
Ductile cast iron (400 – 800 MPa)	25 – 30	—
Austempered ductile iron (ADI)	—	10 – 15
N Long chipping aluminium Si <5% (< 500 N/mm ²)	—	25 – 30
Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	25 – 30	—
Long chipping Copper/soft brass (200 – 400 N/mm ²)	—	25 – 30
Short chipping Copper/hard brass (300 – 500 N/mm ²)	20 – 25	—
Magnesium/high strength magnesium alloys (120 – 400 N/mm ²)	—	10 – 15
S HRSA/titanium alloys (600 – 1000 N/mm ²)	2 – 3	—

1/1

1. Feed (f) is equal to pitch (TP)



Cutting

M

MF

UNC

UNF

G

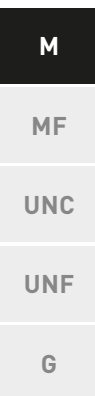


M-TAPS

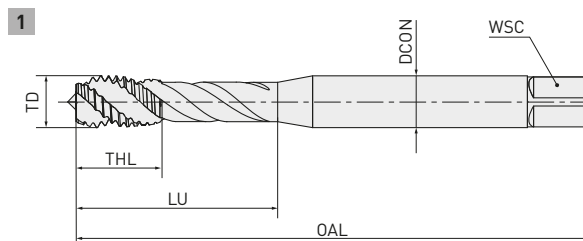


TC30

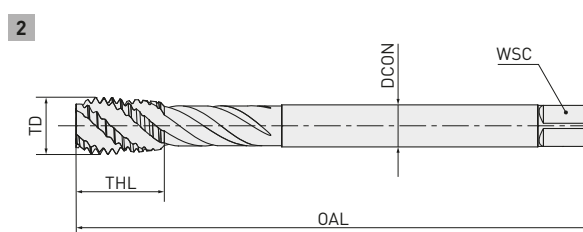
HIGH PERFORMANCE CUTTING TAPS FOR BLIND HOLES – 45° SPIRAL FLUTES



DIN 371
≤ M10



DIN 376
≥ M12



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-M3P050CN45-6H TP2020	M3	0.5	56	7	15	3.5	2.7	3	2.5	DVAS	1
TC-M4P070CN45-6H TP2020	M4	0.7	63	8.5	21	4.5	3.4	3	3.3	MPS1	1
TC-M5P080CN45-6H TP2020	M5	0.8	70	10	24.5	6	4.9	3	4.2	MPS1	1
TC-M6P100CN45-6H TP2020	M6	1	80	12	29	6	4.9	3	5	MPS1	1
TC-M8P125CN45-6H TP2020	M8	1.25	90	14	33	8	6.2	3	6.8	MPS1	1
TC-M10P150CN45-6H TP2020	M10	1.5	100	17	39	10	8	3	8.5	MPS1	1
TC-M12P175CN45-6H TP2020	M12	1.75	110	18	—	9	7	4	10.2	MPS1	2
TC-M14P200CN45-6H TP2020	M14	2	110	20.5	—	11	9	4	12	MPS1	2
TC-M16P200CN45-6H TP2020	M16	2	110	20.5	—	12	9	4	14	MPS1	2
TC-M18P250CN45-6H TP2020	M18	2.5	125	25.5	—	14	11	4	15.5	MPS1	2
TC-M20P250CN45-6H TP2020	M20	2.5	140	25.5	—	16	12	4	17.5	MPS1	2


1/1



M-TAPS – TC30



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF		Drill item*	Type
TC-M3P050CN45-6G TP2020	M3	0.5	56	7	15	3.5	2.7	3	2.5	DVAS	1
TC-M4P070CN45-6G TP2020	M4	0.7	63	8.5	21	4.5	3.4	3	3.3	MPS1	1
TC-M5P080CN45-6G TP2020	M5	0.8	70	10	24.5	6	4.9	3	4.2	MPS1	1
TC-M6P100CN45-6G TP2020	M6	1	80	12	29	6	4.9	3	5	MPS1	1
TC-M8P125CN45-6G TP2020	M8	1.25	90	14	33	8	6.2	3	6.8	MPS1	1
TC-M10P150CN45-6G TP2020	M10	1.5	100	17	39	10	8	3	8.5	MPS1	2
TC-M12P175CN45-6G TP2020	M12	1.75	110	18	-	9	7	4	10.2	MPS1	2

1/1



Cutting

RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	25 – 35	—
Carbon steel (350 – 850 N/mm ²)	20 – 30	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	15 – 25	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	5 – 15	—
High strength steel (1200 – 1600 N/mm ²)	—	5 – 8
M Austenitic stainless steel (< 850 N/mm ²)	8 – 10	—
Duplex/PH stainless steel (< 1000 N/mm ²)	5 – 7	—
K Ductile cast iron (400 – 800 MPa)	20 – 30	—
Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	25 – 35	—
Long chipping Copper/soft brass (200 – 400 N/mm ²)	25 – 35	—
S Pure titanium/nickel (300 – 600 N/mm ²)	10 – 15	—

1/1

1. Feed (f) is equal to pitch (TP)

* For reference, please see the drill item on page 74.

M-TAPS

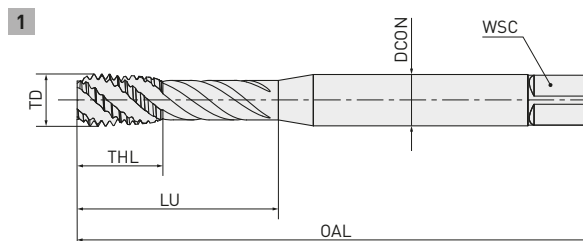


TC30E

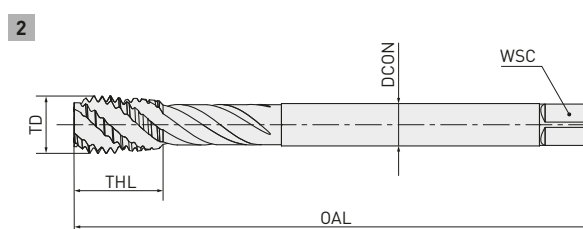
HIGH PERFORMANCE CUTTING TAPS FOR BLIND HOLES – 45° SPIRAL FLUTES/CHAMFER FORM E



DIN 371
≤ M10



DIN 376
≥ M12



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-M3P050EN45-6H TP2020	M3	0.5	56	7	15	3.5	2.7	3	2.5	DVAS	1
TC-M4P070EN45-6H TP2020	M4	0.7	63	8.5	21	4.5	3.4	3	3.3	MPS1	1
TC-M5P080EN45-6H TP2020	M5	0.8	70	10	24.5	6	4.9	3	4.2	MPS1	1
TC-M6P100EN45-6H TP2020	M6	1	80	12	29	6	4.9	3	5	MPS1	1
TC-M8P125EN45-6H TP2020	M8	1.25	90	14	33	8	6.2	4	6.8	MPS1	1
TC-M10P150EN45-6H TP2020	M10	1.5	100	17	39	10	8	4	8.5	MPS1	1
TC-M12P175EN45-6H TP2020	M12	1.75	110	18	—	9	7	4	10.2	MPS1	2
TC-M14P200EN45-6H TP2020	M14	2	110	20.5	—	11	9	5	12	MPS1	2
TC-M16P200EN45-6H TP2020	M16	2	110	20.5	—	12	9	5	14	MPS1	2

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	25 – 35	—
Carbon steel (350 – 850 N/mm ²)	20 – 30	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	15 – 25	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	5 – 15	—
High strength steel (1200 – 1600 N/mm ²)	—	5 – 8
M Austenitic stainless steel (< 850 N/mm ²)	8 – 10	—
Duplex/PH stainless steel (< 1000 N/mm ²)	5 – 7	—
K Ductile cast iron (400 – 800 MPa)	20 – 30	—
Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	25 – 35	—
Long chipping Copper/soft brass (200 – 400 N/mm ²)	25 – 35	—
S Pure titanium/nickel (300 – 600 N/mm ²)	10 – 15	—

1/1

1. Feed (f) is equal to pitch (TP)
2. For chamfer E, a cutting speed reduction of approximately 10 – 15 % is generally suggested to support process stability and tool life.



Cutting

M

MF

UNC

UNF

G



M-TAPS

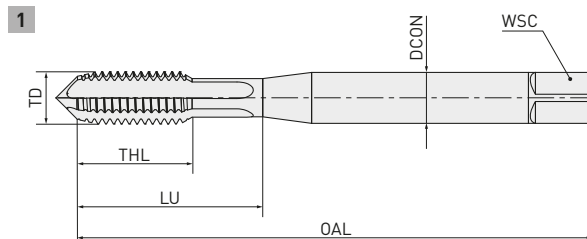


TC40

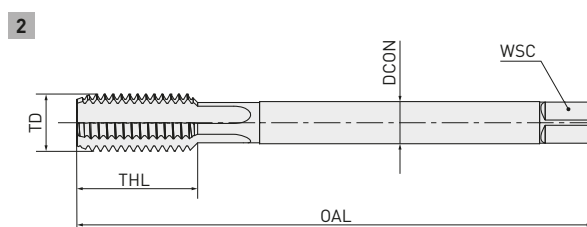
HIGH PERFORMANCE CUTTING TAPS FOR SHORT CHIP MATERIALS



DIN 371
≤ M10



DIN 376
≥ M12



Cutting

M

MF

UNC

UNF

G



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-M5P080CN00-6H TP1010	M5	0.8	70	14	24.5	6	4.9	4	4.2	MPS1	1
TC-M6P100CN00-6H TP1010	M6	1	80	16	29	6	4.9	4	5	MPS1	1
TC-M8P125CN00-6H TP1010	M8	1.25	90	18	33	8	6.2	4	6.8	MPS1	1
TC-M10P150CN00-6H TP1010	M10	1.5	100	20	36	10	8	4	8.5	MPS1	1
TC-M12P175CN00-6H TP1010	M12	1.75	110	24	—	9	7	4	10.2	MPS1	2
TC-M14P200CN00-6H TP1010	M14	2	110	25	—	11	9	4	12	MPS1	2
TC-M16P200CN00-6H TP1010	M16	2	110	28	—	12	9	4	14	MPS1	2
TC-M18P250CN00-6H TP1010	M18	2.5	125	32	—	14	11	4	15.5	MPS1	2
TC-M20P250CN00-6H TP1010	M20	2.5	140	32	—	16	12	4	17.5	MPS1	2

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested
K Grey cast iron (150 – 350 MPa)	40 – 50
Austempered ductile iron (ADI)	10 – 20
N Short-medium chipping Aluminium Si >5% (< 500 N/mm ²)	40 – 50
Short chipping Copper / hard brass (300 – 500 N/mm ²)	40 – 50
Magnesium / high strength magnesium alloys (120 – 400 N/mm ²)	45 – 55

1/1

1. Feed (f) is equal to pitch (TP)

* For reference, please see the drill item on page 74.

M-TAPS

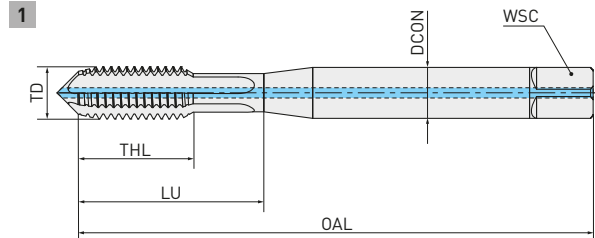


TC40L

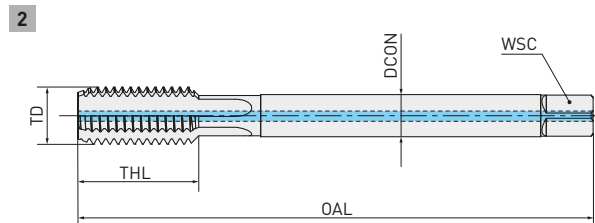
HIGH PERFORMANCE CUTTING TAPS FOR SHORT CHIP MATERIALS – INTERNAL COOLANT



DIN 371
≤ M10



DIN 376
≥ M12



Cutting

M

MF

UNC

UNF

G



6HX TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-M5P080CC00-6H TP1010	M5	0.8	70	14	24.5	6	4.9	4	4.2	MPS1	1
TC-M6P100CC00-6H TP1010	M6	1	80	16	29	6	4.9	4	5	MPS1	1
TC-M8P125CC00-6H TP1010	M8	1.25	90	18	33	8	6.2	4	6.8	MPS1	1
TC-M10P150CC00-6H TP1010	M10	1.5	100	20	36	10	8	4	8.5	MPS1	1
TC-M12P175CC00-6H TP1010	M12	1.75	110	24	—	9	7	4	10.2	MPS1	2
TC-M14P200CC00-6H TP1010	M14	2	110	25	—	11	9	4	12	MPS1	2
TC-M16P200CC00-6H TP1010	M16	2	110	28	—	12	9	4	14	MPS1	2
TC-M18P250CC00-6H TP1010	M18	2.5	125	32	—	14	11	4	15.5	MPS1	2
TC-M20P250CC00-6H TP1010	M20	2.5	140	32	—	16	12	4	17.5	MPS1	2

1/1

25

RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested
K Grey cast iron (150 – 350 MPa)	40 – 50
Austempered ductile iron (ADI)	10 – 20
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	40 – 50
Short chipping Copper/hard brass (300 – 500 N/mm ²)	40 – 50
Magnesium/high strength magnesium alloys (120 – 400 N/mm ²)	45 – 55

1/1

1. Feed (f) is equal to pitch (TP)

* For reference, please see the drill item on page 74.

M-TAPS

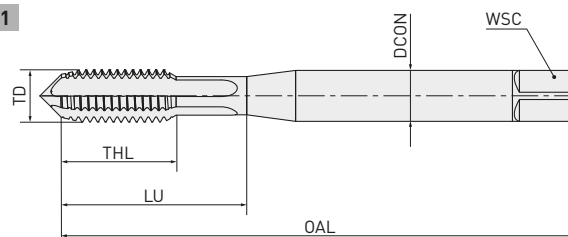


TC40E

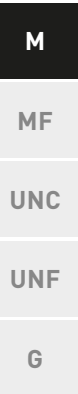
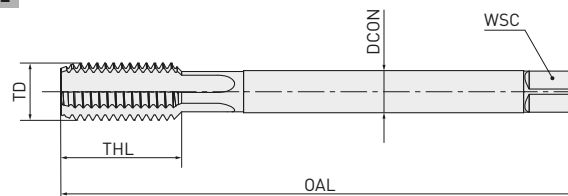
HIGH PERFORMANCE CUTTING TAPS FOR SHORT CHIP MATERIALS



DIN 371
≤ M10



DIN 376
≥ M12



6HX TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-M5P080EN00-6H TP1010	M5	0.8	70	14	24.5	6	4.9	4	4.2	MPS1	1
TC-M6P100EN00-6H TP1010	M6	1	80	16	29	6	4.9	4	5	MPS1	1
TC-M8P125EN00-6H TP1010	M8	1.25	90	18	33	8	6.2	4	6.8	MPS1	1
TC-M10P150EN00-6H TP1010	M10	1.5	100	20	36	10	8	4	8.5	MPS1	1
TC-M12P175EN00-6H TP1010	M12	1.75	110	24	—	9	7	4	10.2	MPS1	2

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested
K Grey cast iron (150 – 350 MPa)	40 – 50
Austempered ductile iron (ADI)	10 – 20
N Short-medium chipping Aluminium Si >5% (< 500 N/mm ²)	40 – 50
Short chipping Copper/hard brass (300 – 500 N/mm ²)	40 – 50
Magnesium/high strength magnesium alloys (120 – 400 N/mm ²)	45 – 55

1/1

1. Feed (f) is equal to pitch (TP)
2. For chamfer E, a cutting speed reduction of approximately 10 – 15 % is generally suggested to support process stability and tool life.

* For reference, please see the drill item on page 74.

M-TAPS

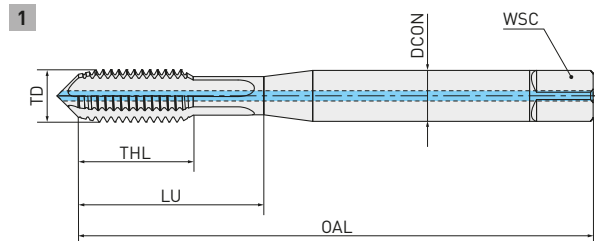


TC40EL

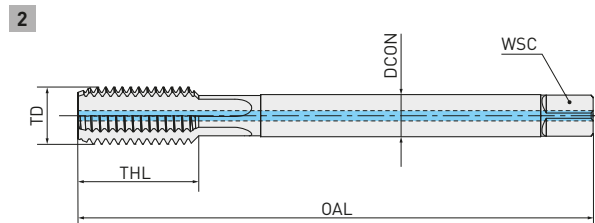
HIGH PERFORMANCE CUTTING TAPS FOR SHORT CHIP MATERIALS – INTERNAL COOLANT



DIN 371
≤ M10



DIN 376
≥ M12



Cutting

M

MF

UNC

UNF

G



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-M5P080EC00-6H TP1010	M5	0.8	70	14	24.5	6	4.9	4	4.2	MPS1	1
TC-M6P100EC00-6H TP1010	M6	1	80	16	29	6	4.9	4	5	MPS1	1
TC-M8P125EC00-6H TP1010	M8	1.25	90	18	33	8	6.2	4	6.8	MPS1	1
TC-M10P150EC00-6H TP1010	M10	1.5	100	20	36	10	8	4	8.5	MPS1	1
TC-M12P175EC00-6H TP1010	M12	1.75	110	24	—	9	7	4	10.2	MPS1	2

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested
K Grey cast iron (150 – 350 MPa)	40 – 50
Austempered ductile iron (ADI)	10 – 20
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	40 – 50
N Short chipping Copper/hard brass (300 – 500 N/mm ²)	40 – 50
N Magnesium/high strength magnesium alloys (120 – 400 N/mm ²)	45 – 55

1/1

1. Feed (f) is equal to pitch (TP)
2. For chamfer E, a cutting speed reduction of approximately 10 – 15 % is generally suggested to support process stability and tool life.

* For reference, please see the drill item on page 74.

M-TAPS

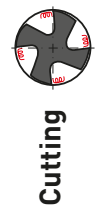
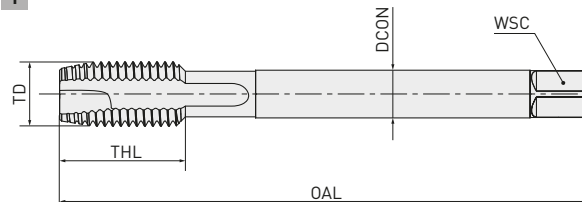


TC11

HIGH PERFORMANCE CUTTING TAPS FOR THROUGH HOLES – STRAIGHT FLUTES WITH SPIRAL POINT



DIN 374 **1**



Cutting

- M
- MF**
- UNC
- UNF
- G



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-MF8P100BN00-6H TP2010	MF8	1	90	16	—	6	4.9	3	7	MPS1	1
TC-MF10P100BN00-6H TP2010	MF10	1	90	18	—	7	5.5	3	9	MPS1	1
TC-MF10P125BN00-6H TP2010	MF10	1.25	100	18	—	7	5.5	3	8.8	MPS1	1
TC-MF12P100BN00-6H TP2010	MF12	1	100	22	—	9	7	4	11	MPS1	1
TC-MF12P125BN00-6H TP2010	MF12	1.25	100	22	—	9	7	4	10.8	MPS1	1
TC-MF12P150BN00-6H TP2010	MF12	1.5	100	22	—	9	7	4	10.5	MPS1	1
TC-MF14P150BN00-6H TP2010	MF14	1.5	100	22	—	11	9	4	12.5	MPS1	1
TC-MF16P150BN00-6H TP2010	MF16	1.5	100	22	—	12	9	4	14.5	MPS1	1

1/1



* For reference, please see the drill item on page 74.

RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	30 – 40	—
Carbon steel (350 – 850 N/mm ²)	25 – 35	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	20 – 30	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	10 – 20	—
High strength steel (1200 – 1600 N/mm ²)	8 – 10	—
M Austenitic stainless steel (< 850 N/mm ²)	10 – 20	—
Duplex/PH stainless steel (< 1000 N/mm ²)	6 – 8	—
K Ductile cast iron (400 – 800 MPa)	25 – 35	—
N Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	—	30 – 40
Long chipping copper/soft brass (200 – 400 N/mm ²)	25 – 30	—
Short chipping copper/hard brass (300 – 500 N/mm ²)	—	10 – 20
S Pure titanium/nickel (300 – 600 N/mm ²)	—	10 – 15
HRSA/titanium alloys (600 – 1000 N/mm ²)	—	12 – 18

1/1

1. Feed (f) is equal to pitch (TP)



Cutting

M

MF

UNC

UNF

G



M-TAPS

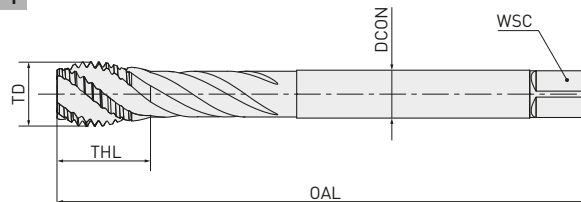


TC31

HIGH PERFORMANCE CUTTING TAPS FOR BLIND HOLES – 45° SPIRAL FLUTES



DIN 374 **1**



- M
- MF**
- UNC
- UNF
- G



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-MF8P100CN45-6H TP2020	MF8	1	90	12	—	6	4.9	3	7	MPS1	1
TC-MF10P100CN45-6H TP2020	MF10	1	90	12	—	7	5.5	3	9	MPS1	1
TC-MF10P125CN45-6H TP2020	MF10	1.25	100	14	—	7	5.5	3	8.8	MPS1	1
TC-MF12P100CN45-6H TP2020	MF12	1	100	14	—	9	7	4	11	MPS1	1
TC-MF12P125CN45-6H TP2020	MF12	1.25	100	14	—	9	7	4	10.8	MPS1	1
TC-MF12P150CN45-6H TP2020	MF12	1.5	100	15	—	9	7	4	10.5	MPS1	1
TC-MF14P150CN45-6H TP2020	MF14	1.5	100	16	—	11	9	4	12.5	MPS1	1
TC-MF16P150CN45-6H TP2020	MF16	1.5	100	16	—	12	9	4	14.5	MPS1	1

1/1



* For reference, please see the drill item on page 74.

RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	25 – 35	—
Carbon steel (350 – 850 N/mm ²)	20 – 30	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	15 – 25	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	5 – 15	—
High strength steel (1200 – 1600 N/mm ²)	—	5 – 8
M Austenitic stainless steel (< 850 N/mm ²)	8 – 10	—
Duplex/PH stainless steel (< 1000 N/mm ²)	5 – 7	—
K Ductile cast iron (400 – 800 MPa)	20 – 30	—
Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	25 – 35	—
Long chipping Copper/soft brass (200 – 400 N/mm ²)	25 – 35	—
S Pure titanium/nickel (300 – 600 N/mm ²)	10 – 15	—

1/1

1. Feed (f) is equal to pitch (TP)



Cutting

M

MF

UNC

UNF

G



M-TAPS

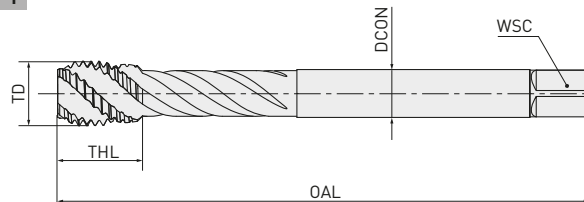


TC31E

HIGH PERFORMANCE CUTTING TAPS FOR BLIND HOLES – 45° SPIRAL FLUTES/CHAMFER FORM E



DIN 374 **1**



Cutting

M

MF

UNC

UNF

G



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-MF8P100EN45-6H TP2020	MF8	1	90	12	—	6	4.9	4	7	MPS1	1
TC-MF10P100EN45-6H TP2020	MF10	1	90	12	—	7	5.5	4	9	MPS1	1
TC-MF10P125EN45-6H TP2020	MF10	1.25	100	14	—	7	5.5	4	8.8	MPS1	1
TC-MF12P100EN45-6H TP2020	MF12	1	100	14	—	9	7	4	11	MPS1	1
TC-MF12P125EN45-6H TP2020	MF12	1.25	100	14	—	9	7	4	10.8	MPS1	1
TC-MF12P150EN45-6H TP2020	MF12	1.5	100	15	—	9	7	4	10.5	MPS1	1
TC-MF14P150EN45-6H TP2020	MF14	1.5	100	16	—	11	9	5	12.5	MPS1	1
TC-MF16P150EN45-6H TP2020	MF16	1.5	100	16	—	12	9	5	14.5	MPS1	1

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	25 – 35	—
Carbon steel (350 – 850 N/mm ²)	20 – 30	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	15 – 25	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	5 – 15	—
High strength steel (1200 – 1600 N/mm ²)	—	5 – 8
M Austenitic stainless steel (< 850 N/mm ²)	8 – 10	—
Duplex/PH stainless steel (< 1000 N/mm ²)	5 – 7	—
K Ductile cast iron (400 – 800 MPa)	20 – 30	—
Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	25 – 35	—
Long chipping Copper/soft brass (200 – 400 N/mm ²)	25 – 35	—
S Pure titanium/nickel (300 – 600 N/mm ²)	10 – 15	—

1/1

1. Feed (f) is equal to pitch (TP)
2. For chamfer E, a cutting speed reduction of approximately 10 – 15 % is generally suggested to support process stability and tool life.



Cutting

M

MF

UNC

UNF

G



M-TAPS

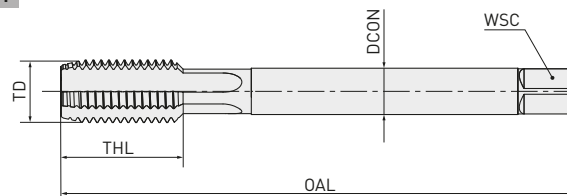


TC41

HIGH PERFORMANCE CUTTING TAPS FOR SHORT CHIP MATERIALS



DIN 374 1



- M
- MF**
- UNC
- UNF
- G



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-MF8P100CN00-6H TP1010	MF8	1	90	16	—	6	4.9	4	7	MPS1	1
TC-MF10P100CN00-6H TP1010	MF10	1	90	18	—	7	5.5	4	9	MPS1	1
TC-MF10P125CN00-6H TP1010	MF10	1.25	100	18	—	7	5.5	4	8.8	MPS1	1
TC-MF12P125CN00-6H TP1010	MF12	1.25	100	22	—	9	7	4	10.8	MPS1	1
TC-MF12P150CN00-6H TP1010	MF12	1.5	100	22	—	9	7	4	10.5	MPS1	1
TC-MF14P125CN00-6H TP1010	MF14	1.25	100	22	—	11	9	4	12.8	MPS1	1
TC-MF14P150CN00-6H TP1010	MF14	1.5	100	22	—	11	9	4	12.5	MPS1	1
TC-MF16P150CN00-6H TP1010	MF16	1.5	100	22	—	12	9	4	14.5	MPS1	1

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested
K Grey cast iron (150 – 350 MPa)	40 – 50
Austempered ductile iron (ADI)	10 – 20
N Short-medium chipping Aluminium Si >5% (< 500 N/mm ²)	40 – 50
Short chipping Copper/hard brass (300 – 500 N/mm ²)	40 – 50
Magnesium/high strength magnesium alloys (120 – 400 N/mm ²)	45 – 55

1/1

1. Feed (f) is equal to pitch (TP)

* For reference, please see the drill item on page 74.

M-TAPS



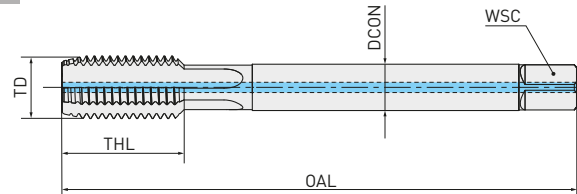
TC41L

HIGH PERFORMANCE CUTTING TAPS FOR SHORT CHIP MATERIALS – INTERNAL COOLANT

K **N**



DIN 374 **1**



Cutting

M

MF

UNC

UNF

G

6HX

TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-MF8P100CC00-6H TP1010	MF8	1	90	16	—	6	4.9	4	7	MPS1	1
TC-MF10P100CC00-6H TP1010	MF10	1	90	18	—	7	5.5	4	9	MPS1	1
TC-MF10P125CC00-6H TP1010	MF10	1.25	100	18	—	7	5.5	4	8.8	MPS1	1
TC-MF12P125CC00-6H TP1010	MF12	1.25	100	22	—	9	7	4	10.8	MPS1	1
TC-MF12P150CC00-6H TP1010	MF12	1.5	100	22	—	9	7	4	10.5	MPS1	1
TC-MF14P125CC00-6H TP1010	MF14	1.25	100	22	—	11	9	4	12.8	MPS1	1
TC-MF14P150CC00-6H TP1010	MF14	1.5	100	22	—	11	9	4	12.5	MPS1	1
TC-MF16P150CC00-6H TP1010	MF16	1.5	100	22	—	12	9	4	14.5	MPS1	1

1/1

35

RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested
K Grey cast iron (150 – 350 MPa)	40 – 50
Austempered ductile iron (ADI)	10 – 20
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	40 – 50
Short chipping Copper/hard brass (300 – 500 N/mm ²)	40 – 50
Magnesium/high strength magnesium alloys (120 – 400 N/mm ²)	45 – 55

1/1

1. Feed (f) is equal to pitch (TP)

* For reference, please see the drill item on page 74.

M-TAPS

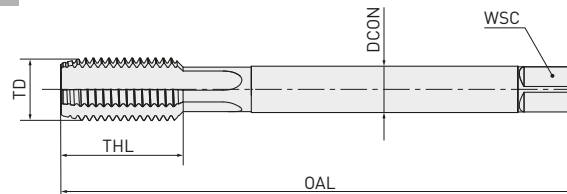


TC41E

HIGH PERFORMANCE CUTTING TAPS FOR SHORT CHIP MATERIALS



DIN 374 **1**



Cutting

M

MF

UNC

UNF

G



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-MF8P100EN00-6H TP1010	MF8	1	90	16	—	6	4.9	4	7	MPS1	1
TC-MF10P100EN00-6H TP1010	MF10	1	90	18	—	7	5.5	4	9	MPS1	1
TC-MF10P125EN00-6H TP1010	MF10	1.25	100	18	—	7	5.5	4	8.8	MPS1	1
TC-MF12P125EN00-6H TP1010	MF12	1.25	100	22	—	9	7	4	10.8	MPS1	1
TC-MF12P150EN00-6H TP1010	MF12	1.5	100	22	—	9	7	4	10.5	MPS1	1
TC-MF14P150EN00-6H TP1010	MF14	1.5	100	22	—	11	9	4	12.8	MPS1	1
TC-MF16P150EN00-6H TP1010	MF16	1.5	100	22	—	11	9	4	12.5	MPS1	1

1/1



RECOMMENDED CUTTING CONDITIONS

Material Vc

K	Grey cast iron (150 – 350 MPa)	40 – 50
	Austempered ductile iron (ADI)	10 – 20
N	Short-medium chipping Aluminium Si >5% (< 500 N/mm ²)	40 – 50
	Short chipping Copper/hard brass (300 – 500 N/mm ²)	40 – 50
	Magnesium/high strength magnesium alloys (120 – 400 N/mm ²)	45 – 55

1/1

1. Feed (f) is equal to pitch (TP)
2. For chamfer E, a cutting speed reduction of approximately 10 – 15 % is generally suggested to support process stability and tool life.

* For reference, please see the drill item on page 74.

M-TAPS

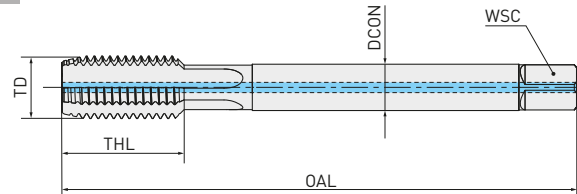


TC41EL

HIGH PERFORMANCE CUTTING TAPS FOR SHORT CHIP MATERIALS – INTERNAL COOLANT



DIN 374 **1**



Cutting

M

MF

UNC

UNF

G



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-MF8P100EC00-6H TP1010	MF8	1	90	16	—	6	4.9	4	7	MPS1	1
TC-MF10P100EC00-6H TP1010	MF10	1	90	18	—	7	5.5	4	9	MPS1	1
TC-MF10P125EC00-6H TP1010	MF10	1.25	100	18	—	7	5.5	4	8.8	MPS1	1
TC-MF12P125EC00-6H TP1010	MF12	1.25	100	22	—	9	7	4	10.8	MPS1	1
TC-MF12P150EC00-6H TP1010	MF12	1.5	100	22	—	9	7	4	10.5	MPS1	1
TC-MF14P150EC00-6H TP1010	MF14	1.5	100	22	—	11	9	4	12.5	MPS1	1
TC-MF16P150EC00-6H TP1010	MF16	1.5	100	22	—	12	9	4	14.5	MPS1	1

1/1



RECOMMENDED CUTTING CONDITIONS

Material

Vc

K	Grey cast iron (150 – 350 MPa)	40 – 50
	Austempered ductile iron (ADI)	10 – 20
N	Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	40 – 50
	Short chipping Copper/hard brass (300 – 500 N/mm ²)	40 – 50
	Magnesium/high strength magnesium alloys (120 – 400 N/mm ²)	45 – 55

1/1

1. Feed (f) is equal to pitch (TP)

2. For chamfer E, a cutting speed reduction of approximately 10 – 15 % is generally suggested to support process stability and tool life.

* For reference, please see the drill item on page 74.

M-TAPS

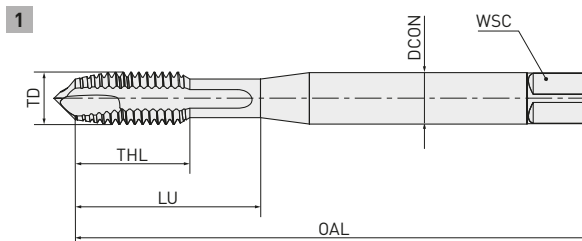


TC12

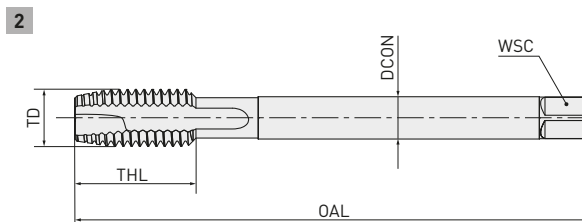
HIGH PERFORMANCE CUTTING TAPS FOR THROUGH HOLES – STRAIGHT FLUTES WITH SPIRAL POINT



DIN 2184-1
≤ Ø 1/4



DIN 2184-1
≥ Ø 5/16



Cutting

M

MF

UNC

UNF

G



TAP TOLERANCE

Order number	TD	TPI	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-UNC010P24BN00-2B TP2010	UNC Nr. 10	24	70	16	26.5	6	4.9	3	3.9	MPS1	1
TC-UNC012P24BN00-2B TP2010	UNC Nr. 12	24	80	16	26.5	6	4.9	3	4.5	MPS1	1
TC-UNC14P20BN00-2B TP2010	UNC 1/4"	20	80	17	30	7	5.5	3	5.1	MPS1	1
TC-UNC516P18BN00-2B TP2010	UNC 5/16"	18	90	18	—	6	4.9	3	6.6	MPS1	2
TC-UNC38P16BN00-2B TP2010	UNC 3/8"	16	100	22	—	7	5.5	3	8	MPS1	2
TC-UNC716P14BN00-2B TP2010	UNC 7/16"	14	100	24	—	8	6.2	3	9.4	MPS1	2
TC-UNC12P13BN00-2B TP2010	UNC 1/2"	13	110	26	—	9	7	4	10.8	MPS1	2

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	30 – 40	—
Carbon steel (350 – 850 N/mm ²)	25 – 35	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	20 – 30	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	10 – 20	—
High strength steel (1200 – 1600 N/mm ²)	8 – 10	—
M Austenitic stainless steel (< 850 N/mm ²)	10 – 20	—
Duplex/PH stainless steel (< 1000 N/mm ²)	6 – 8	—
K Ductile cast iron (400 – 800 MPa)	25 – 35	—
N Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	—	30 – 40
Long chipping copper/soft brass (200 – 400 N/mm ²)	25 – 30	—
Short chipping copper/hard brass (300 – 500 N/mm ²)	—	10 – 20
S Pure titanium/nickel (300 – 600 N/mm ²)	—	10 – 15
HRSA/titanium alloys (600 – 1000 N/mm ²)	—	12 – 18

1/1

1. Feed (f) is equal to pitch (TP)



Cutting

M

MF

UNC

UNF

G



M-TAPS

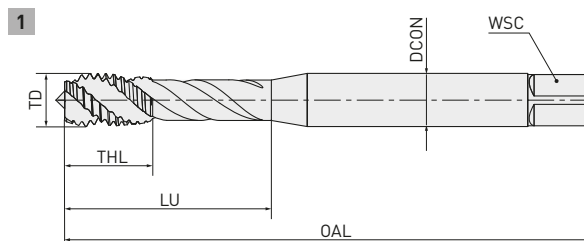


TC32

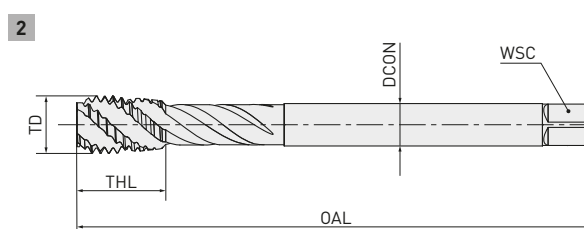
HIGH PERFORMANCE CUTTING TAPS FOR BLIND HOLES – 45° SPIRAL FLUTES



DIN 2184-1
≤ Ø 1/4"



DIN 2184-1
≥ Ø 5/16"



- M
- MF
- UNC**
- UNF
- G



TAP TOLERANCE

Order number	TD	TPI	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-UNC010P24CN45-2B TP2020	UNC Nr. 10	24	70	11	28.5	6	4.9	3	3.9	MPS1	1
TC-UNC012P24CN45-2B TP2020	UNC Nr. 12	24	80	11.5	28.5	6	4.9	3	4.5	MPS1	1
TC-UNC14P20CN45-2B TP2020	UNC 1/4"	20	80	13	32	7	5.5	3	5.1	MPS1	1
TC-UNC516P18CN45-2B TP2020	UNC 5/16"	18	90	14	—	6	4.9	3	6.6	MPS1	2
TC-UNC38P16CN45-2B TP2020	UNC 3/8"	16	100	15.5	—	7	5.5	3	8	MPS1	2
TC-UNC716P14CN45-2B TP2020	UNC 7/16"	14	100	17	—	8	6.2	3	9.4	MPS1	2
TC-UNC12P13CN45-2B TP2020	UNC 1/2"	13	110	19	—	9	7	4	10.8	MPS1	2

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	25 – 35	—
Carbon steel (350 – 850 N/mm ²)	20 – 30	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	15 – 25	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	5 – 15	—
High strength steel (1200 – 1600 N/mm ²)	—	5 – 8
M Austenitic stainless steel (< 850 N/mm ²)	8 – 10	—
Duplex/PH stainless steel (< 1000 N/mm ²)	5 – 7	—
K Ductile cast iron (400 – 800 MPa)	20 – 30	—
Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	25 – 35	—
Long chipping Copper/soft brass (200 – 400 N/mm ²)	25 – 35	—
S Pure titanium/nickel (300 – 600 N/mm ²)	10 – 15	—

1/1

1. Feed (f) is equal to pitch (TP)



Cutting

M

MF

UNC

UNF

G



M-TAPS



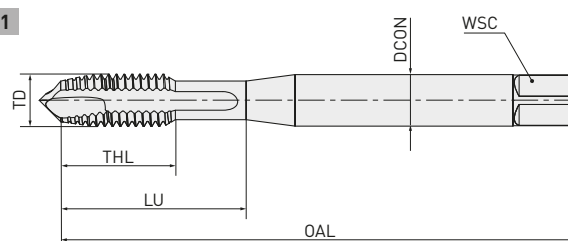
TC13

HIGH PERFORMANCE CUTTING TAPS FOR THROUGH HOLES – STRAIGHT FLUTES WITH SPIRAL POINT



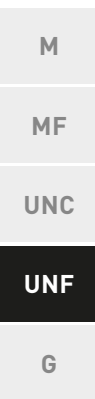
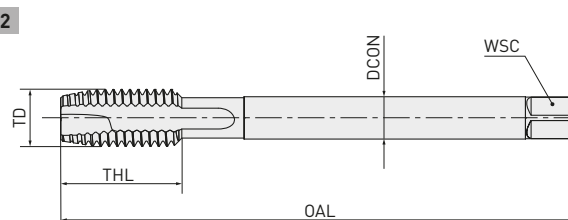
DIN 2184-1
≤ Ø 1/4

1



DIN 2184-1
≥ Ø 5/16

2



TAP TOLERANCE

Order number	TD	TPI	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-UNF010P32BN00-2B TP2010	UNF Nr. 10	32	70	14	24.5	6	4.9	3	4.1	MPS1	1
TC-UNF012P28BN00-2B TP2010	UNF Nr. 12	28	80	16	26.5	6	4.9	3	4.6	MPS1	1
TC-UNF14P28BN00-2B TP2010	UNF 1/4"	28	80	16	30	7	5.5	3	5.5	MPS1	1
TC-UNF516P24BN00-2B TP2010	UNF 5/16"	24	90	18	—	6	4.9	3	6.9	MPS1	2
TC-UNF38P24BN00-2B TP2010	UNF 3/8"	24	90	18	—	7	5.5	3	8.5	MPS1	2
TC-UNF716P20BN00-2B TP2010	UNF 7/16"	20	100	20	—	8	6.2	3	9.9	MPS1	2
TC-UNF12P20BN00-2B TP2010	UNF 1/2"	20	100	22	—	9	7	4	11.5	MPS1	2

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	30 – 40	—
Carbon steel (350 – 850 N/mm ²)	25 – 35	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	20 – 30	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	10 – 20	—
High strength steel (1200 – 1600 N/mm ²)	8 – 10	—
M Austenitic stainless steel (< 850 N/mm ²)	10 – 20	—
Duplex/PH stainless steel (< 1000 N/mm ²)	6 – 8	—
K Ductile cast iron (400 – 800 MPa)	25 – 35	—
N Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	—	30 – 40
Long chipping copper/soft brass (200 – 400 N/mm ²)	25 – 30	—
Short chipping copper/hard brass (300 – 500 N/mm ²)	—	10 – 20
S Pure titanium/nickel (300 – 600 N/mm ²)	—	10 – 15
HRSA/titanium alloys (600 – 1000 N/mm ²)	—	12 – 18

1/1

1. Feed (f) is equal to pitch (TP)



Cutting

M

MF

UNC

UNF

G



M-TAPS

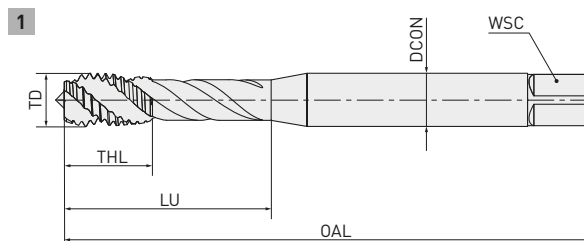


TC33

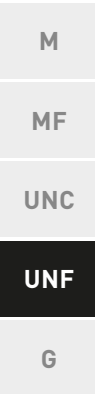
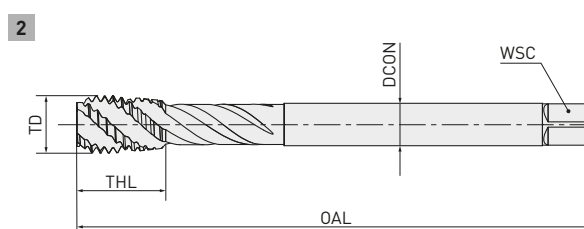
HIGH PERFORMANCE CUTTING TAPS FOR BLIND HOLES – 45° SPIRAL FLUTES



DIN 2184-1
≤ Ø 1/4"



DIN 2184-1
≥ Ø 5/16"



TAP TOLERANCE

Order number	TD	TPI	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-UNF010P32CN45-2B TP2020	UNF Nr. 10	32	70	9.0	28.5	6	4.9	3	4.1	MPS1	1
TC-UNF012P28CN45-2B TP2020	UNF Nr. 12	28	80	9.0	28.5	6	4.9	3	4.6	MPS1	1
TC-UNF14P28CN45-2B TP2020	UNF 1/4"	28	80	9.5	32	7	5.5	3	5.5	MPS1	1
TC-UNF516P24CN45-2B TP2020	UNF 5/16"	24	90	11.0	—	6	4.9	3	6.9	MPS1	2
TC-UNF38P24CN45-2B TP2020	UNF 3/8"	24	90	11.0	—	7	5.5	3	8.5	MPS1	2
TC-UNF716P20CN45-2B TP2020	UNF 7/16"	20	100	12.5	—	8	6.2	3	9.9	MPS1	2
TC-UNF12P20CN45-2B TP2020	UNF 1/2"	20	100	13.0	—	9	7	4	11.5	MPS1	2

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	25 – 35	—
Carbon steel (350 – 850 N/mm ²)	20 – 30	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	15 – 25	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	5 – 15	—
High strength steel (1200 – 1600 N/mm ²)	—	5 – 8
M Austenitic stainless steel (< 850 N/mm ²)	8 – 10	—
Duplex/PH stainless steel (< 1000 N/mm ²)	5 – 7	—
K Ductile cast iron (400 – 800 MPa)	20 – 30	—
Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	25 – 35	—
Long chipping Copper/soft brass (200 – 400 N/mm ²)	25 – 35	—
S Pure titanium/nickel (300 – 600 N/mm ²)	10 – 15	—

1/1

1. Feed (f) is equal to pitch (TP)



Cutting

M

MF

UNC

UNF

G



M-TAPS

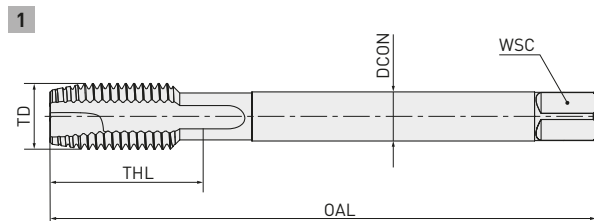


TC14

HIGH PERFORMANCE CUTTING TAPS FOR THROUGH HOLES – STRAIGHT FLUTES WITH SPIRAL POINT



Cutting



M

MF

UNC

UNF

G



TAP TOLERANCE

Order number	TD	TPI	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-G18P28BN00 TP2010	G 1/8"	28	90	18	—	7	5.5	3	8.8	MPS1	1
TC-G14P19BN00 TP2010	G 1/4"	19	100	22	—	11	9	4	11.8	MPS1	1
TC-G38P19BN00 TP2010	G 3/8"	19	100	22	—	12	9	4	15.25	—	1
TC-G12P14BN00 TP2010	G 1/2"	14	125	25	—	16	12	4	19	DXAS	1
TC-G58P14BN00 TP2010	G 5/8"	14	125	25	—	18	14.5	4	21	DXAS	1
TC-G34P14BN00 TP2010	G 3/4"	14	140	28	—	20	16	5	24.5	DXAS	1

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	30 – 40	—
Carbon steel (350 – 850 N/mm ²)	25 – 35	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	20 – 30	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	10 – 20	—
High strength steel (1200 – 1600 N/mm ²)	8 – 10	—
M Austenitic stainless steel (< 850 N/mm ²)	10 – 20	—
Duplex/PH stainless steel (< 1000 N/mm ²)	6 – 8	—
K Ductile cast iron (400 – 800 MPa)	25 – 35	—
N Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	—	30 – 40
Long chipping copper/soft brass (200 – 400 N/mm ²)	25 – 30	—
Short chipping copper/hard brass (300 – 500 N/mm ²)	—	10 – 20
S Pure titanium/nickel (300 – 600 N/mm ²)	—	10 – 15
HRSA/titanium alloys (600 – 1000 N/mm ²)	—	12 – 18

1/1

1. Feed (f) is equal to pitch (TP)



Cutting

M

MF

UNC

UNF

G



M-TAPS



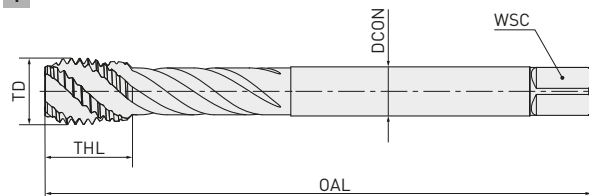
TC34

HIGH PERFORMANCE CUTTING TAPS FOR BLIND HOLES 45° SPIRAL FLUTES



DIN 5156

1



Cutting

M

MF

UNC

UNF

G



TAP TOLERANCE

Order number	TD	TPI	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-G18P28CN45 TP2020	G 1/8"	28	90	13	—	7	5.5	3	8.8	MPS1	1
TC-G14P19CN45 TP2020	G 1/4"	19	100	16	—	11	9	4	11.8	MPS1	1
TC-G38P19CN45 TP2020	G 3/8"	19	100	16.5	—	12	9	4	15.25	—	1
TC-G12P14CN45 TP2020	G 1/2"	14	125	20.5	—	16	12	5	19	DXAS	1

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	25 – 35	—
Carbon steel (350 – 850 N/mm ²)	20 – 30	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	15 – 25	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	5 – 15	—
High strength steel (1200 – 1600 N/mm ²)	—	5 – 8
M Austenitic stainless steel (< 850 N/mm ²)	8 – 10	—
Duplex/PH stainless steel (< 1000 N/mm ²)	5 – 7	—
K Ductile cast iron (400 – 800 MPa)	20 – 30	—
Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	25 – 35	—
Long chipping Copper/soft brass (200 – 400 N/mm ²)	25 – 35	—
S Pure titanium/nickel (300 – 600 N/mm ²)	10 – 15	—

1/1

1. Feed (f) is equal to pitch (TP)



Cutting

M

MF

UNC

UNF

G



M-TAPS



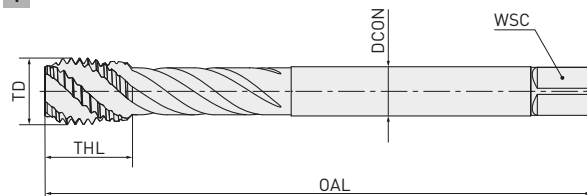
TC34E

HIGH PERFORMANCE CUTTING TAPS FOR BLIND HOLES – 45° SPIRAL FLUTES / CHAMFER FORM E



DIN 5156

1



Cutting

M

MF

UNC

UNF

G



TAP TOLERANCE

Order number	TD	TPI	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TC-G18P28EN45 TP2020	G 1/8"	28	90	13	—	7	5.5	3	8.8	MPS1	1
TC-G14P19EN45 TP2020	G 1/4"	19	100	16	—	11	9	4	11.8	MPS1	1
TC-G38P19EN45 TP2020	G 3/8"	19	100	16.5	—	12	9	4	15.25	—	1
TC-G12P14EN45 TP2020	G 1/2"	14	125	20.5	—	16	12	5	19	DXAS	1

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	25 – 35	—
Carbon steel (350 – 850 N/mm ²)	20 – 30	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	15 – 25	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	5 – 15	—
High strength steel (1200 – 1600 N/mm ²)	—	5 – 8
M Austenitic stainless steel (< 850 N/mm ²)	8 – 10	—
Duplex/PH stainless steel (< 1000 N/mm ²)	5 – 7	—
K Ductile cast iron (400 – 800 MPa)	20 – 30	—
Long chipping aluminium Si <5% (< 500 N/mm ²)	30 – 40	—
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	25 – 35	—
Long chipping Copper/soft brass (200 – 400 N/mm ²)	25 – 35	—
S Pure titanium/nickel (300 – 600 N/mm ²)	10 – 15	—

1/1

1. Feed (f) is equal to pitch (TP)
2. For chamfer E, a cutting speed reduction of approximately 10 – 15 % is generally suggested to support process stability and tool life.



Cutting

M

MF

UNC

UNF

G



M-TAPS

COLD FORMING TAPS



M-TAPS



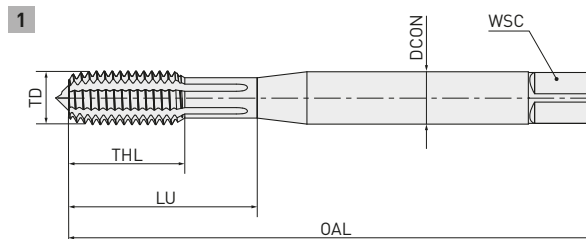
TF70

HIGH PERFORMANCE COLD FORMING TAPS FOR BLIND AND THROUGH HOLES

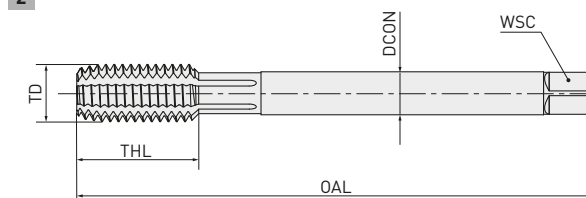
P N



DIN 2174 (371)
≤ M10



DIN 2174 (376)
≥ M12



Cold forming

M

MF

UNC

UNF

G

6HX

TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TF-M3P050CN-L-6H TP1030	M3	0.5	56	10	18	3.5	2.7	4	2.8	DVAS	1
TF-M035P060CN-L-6H TP1030	M3.5	0.6	56	11	20	4	3	4	3.25	—	1
TF-M4P070CN-L-6H TP1030	M4	0.7	63	12	21	4.5	3.4	5	3.7	MPS1	1
TF-M5P080CN-L-6H TP1030	M5	0.8	70	14	24.5	6	4.9	5	4.65	MPS1	1
TF-M6P100CN-L-6H TP1030	M6	1	80	16	29	6	4.9	5	5.55	MPS1	1
TF-M8P125CN-L-6H TP1030	M8	1.25	90	18	33	8	6.2	5	7.4	MPS1	1
TF-M10P150CN-L-6H TP1030	M10	1.5	100	20	36	10	8	5	9.3	MPS1	1
TF-M12P175CN-L-6H TP1030	M12	1.75	110	24	—	9	7	5	11.2	MPS1	2


1/1



M-TAPS – TF70



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF		Drill item*	Type
TF-M3P050CN-L-6G TP1030	M3	0.5	56	10	18	3.5	2.7	4	2.8	DVAS	1
TF-M4P070CN-L-6G TP1030	M4	0.7	63	12	21	4.5	3.4	5	3.7	MPS1	1
TF-M5P080CN-L-6G TP1030	M5	0.8	70	14	24.5	6	4.9	5	4.65	MPS1	1
TF-M6P100CN-L-6G TP1030	M6	1	80	16	29	6	4.9	5	5.55	MPS1	1
TF-M8P125CN-L-6G TP1030	M8	1.25	90	18	33	8	6.2	5	7.4	MPS1	1
TF-M10P150CN-L-6G TP1030	M10	1.5	100	20	36	10	8	5	9.3	MPS1	1

1/1



Cold forming

RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	20 – 25	—
P Carbon steel (350 – 850 N/mm ²)	15 – 20	—
Alloy steel (low strength) (500 – 850 N/mm ²)	12 – 18	—
Alloy steel (high strength) (850 – 1200 N/mm ²)	—	8 – 10
N Long chipping aluminium Si <5% (< 500 N/mm ²)	20 – 25	—
Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	15 – 20	—
Long chipping Copper / soft brass (200 – 400 N/mm ²)	20 – 25	—

1/1

1. Feed (f) is equal to pitch (TP)
2. Cold forming taps are also suitable for ISO M materials (stainless steel) with controlled conditions. Pay special attention to the pre-tap drill diameter (risk of material shrinking), lubrication, cutting parameters and machine stability to ensure correct thread quality and avoid excessive torque. Use lower cutting conditions.



* For reference, please see the drill item on page 74.

M-TAPS



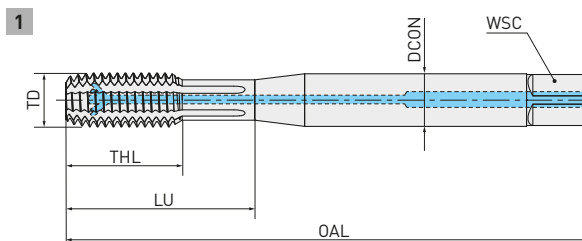
TF70L

HIGH PERFORMANCE COLD FORMING TAPS FOR BLIND AND THROUGH HOLES – INTERNAL COOLANT

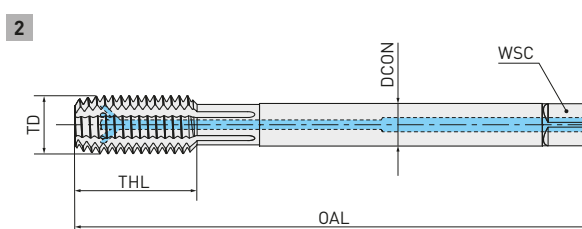
P N



DIN 2174 (371)
≤ M10



DIN 2174 (376)
≥ M12



Cold forming

M

MF

UNC

UNF

G

6HX

TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TF-M5P080CF-L-6H TP1030	M5	0.8	70	14	24.5	6	4.9	5	4.65	MPS1	1
TF-M6P100CF-L-6H TP1030	M6	1	80	16	29	6	4.9	5	5.55	MPS1	1
TF-M8P125CF-L-6H TP1030	M8	1.25	90	18	33	8	6.2	5	7.4	MPS1	1
TF-M10P150CF-L-6H TP1030	M10	1.5	100	20	36	10	8	5	9.3	MPS1	1
TF-M12P175CF-L-6H TP1030	M12	1.75	110	24	—	9	7	5	11.2	MPS1	2
TF-M16P200CF-L-6H TP1030	M16	2	110	28	—	12	9	6	15.1	—	2

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
P Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²) Carbon steel (350 – 850 N/mm ²) Alloy steel (low strength) (500 – 850 N/mm ²) Alloy steel (high strength) (850 – 1200 N/mm ²)	20 – 25	—
	15 – 20	—
	12 – 18	—
	—	8 – 10
N Long chipping aluminium Si <5% (< 500 N/mm ²) Short-medium chipping aluminium Si >5% (< 500 N/mm ²) Long chipping Copper / soft brass (200 – 400 N/mm ²)	20 – 25	—
	15 – 20	—
	20 – 25	—

1/1

1. Feed (f) is equal to pitch (TP)
2. Cold forming taps are also suitable for ISO M materials (stainless steel) with controlled conditions. Pay special attention to the pre-tap drill diameter (risk of material shrinking), lubrication, cutting parameters and machine stability to ensure correct thread quality and avoid excessive torque. Use lower cutting conditions.



Cold forming

M

MF

UNC

UNF

G



M-TAPS

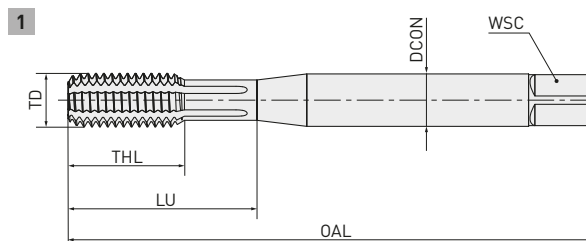


TF70E

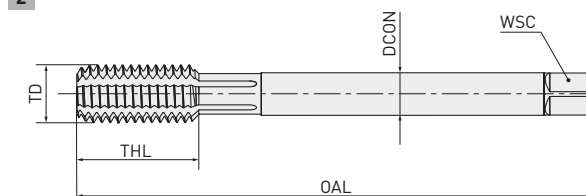
HIGH PERFORMANCE COLD FORMING TAPS FOR BLIND AND THROUGH HOLES – CHAMFER FORM E



DIN 2174 (371)
≤ M10



DIN 2174 (376)
≥ M12



Cold forming

M

MF

UNC

UNF

G

6HX

TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TF-M3P050EN-L-6H TP1030	M3	0.5	56	10	18	3.5	2.7	4	2.8	DVAS	1
TF-M035P060EN-L-6H TP1030	M3.5	0.6	56	11	20	4	3	4	3.25	—	1
TF-M4P070EN-L-6H TP1030	M4	0.7	63	12	21	4.5	3.4	5	3.7	MPS1	1
TF-M5P080EN-L-6H TP1030	M5	0.8	70	14	24.5	6	4.9	5	4.65	MPS1	1
TF-M6P100EN-L-6H TP1030	M6	1	80	16	29	6	4.9	5	5.55	MPS1	1
TF-M8P125EN-L-6H TP1030	M8	1.25	90	18	33	8	6.2	5	7.4	MPS1	1
TF-M10P150EN-L-6H TP1030	M10	1.5	100	20	36	10	8	5	9.3	MPS1	1
TF-M12P175EN-L-6H TP1030	M12	1.75	110	24	—	9	7	5	11.2	MPS1	2


1/1



M-TAPS – TF70E



TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF		Drill item*	Type
TF-M3P050EN-L-6G TP1030	M3	0.5	56	10	18	3.5	2.7	4	2.8	DVAS	1
TF-M4P070EN-L-6G TP1030	M4	0.7	63	12	21	4.5	3.4	5	3.7	MPS1	1
TF-M5P080EN-L-6G TP1030	M5	0.8	70	14	24.5	6	4.9	5	4.65	MPS1	1
TF-M6P100EN-L-6G TP1030	M6	1	80	16	29	6	4.9	5	5.55	MPS1	1
TF-M8P125EN-L-6G TP1030	M8	1.25	90	18	33	8	6.2	5	7.4	MPS1	1
TF-M10P150EN-L-6G TP1030	M10	1.5	100	20	36	10	8	5	9.3	MPS1	1

1/1



Cold forming

RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
P Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	20 – 25	—
P Carbon steel (350 – 850 N/mm ²)	15 – 20	—
P Alloy steel (low strength) (500 – 850 N/mm ²)	12 – 18	—
P Alloy steel (high strength) (850 – 1200 N/mm ²)	—	8 – 10
N Long chipping aluminium Si <5% (< 500 N/mm ²)	20 – 25	—
N Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	15 – 20	—
N Long chipping Copper /soft brass (200 – 400 N/mm ²)	20 – 25	—

1/1

1. Feed (f) is equal to pitch (TP)
2. Cold forming taps are also suitable for ISO M materials (stainless steel) with controlled conditions. Pay special attention to the pre-tap drill diameter (risk of material shrinking), lubrication, cutting parameters and machine stability to ensure correct thread quality and avoid excessive torque. Use lower cutting conditions.
3. For chamfer E, a cutting speed reduction of approximately 10 – 15 % is generally suggested to support process stability and tool life"



* For reference, please see the drill item on page 74.

M-TAPS



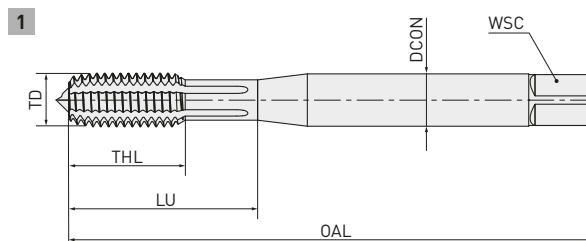
TF71

HIGH PERFORMANCE COLD FORMING TAPS FOR BLIND AND THROUGH HOLES

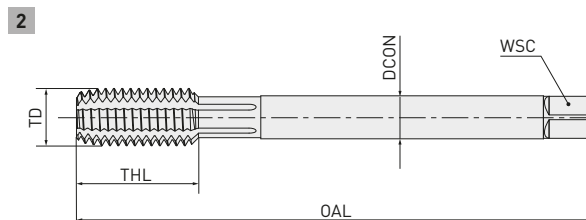
P N



DIN 2174 (371)
≤ M10 x 1.25



DIN 2174 (374)
≥ M12 x 1



Cold forming

M

MF

UNC

UNF

G

6HX

TAP TOLERANCE

Order number	TD	TP	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TF-MF8P100CN-L-6H TP1030	MF8	1	90	18	33	8	6.2	5	7.55	—	1
TF-MF10P100CN-L-6H TP1030	MF10	1	90	18	34	10	8	6	9.55	—	1
TF-MF10P125CN-L-6H TP1030	MF10	1.25	100	20	36	10	8	6	9.4	MPS1	1
TF-MF12P100CN-L-6H TP1030	MF12	1	100	22	—	9	7	6	11.55	—	2
TF-MF12P125CN-L-6H TP1030	MF12	1.25	100	22	—	9	7	6	11.4	MPS1	2
TF-MF12P150CN-L-6H TP1030	MF12	1.5	100	22	—	9	7	6	11.3	MPS1	2
TF-MF14P125CN-L-6H TP1030	MF14	1.25	100	22	—	11	9	6	13.4	MPS1	2
TF-MF14P150CN-L-6H TP1030	MF14	1.5	100	22	—	11	9	6	13.3	MPS1	2
TF-MF16P150CN-L-6H TP1030	MF16	1.5	100	22	—	12	9	6	15.3	—	2

1/1

61

RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
P Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²) Carbon steel (350 – 850 N/mm ²) Alloy steel (low strength) (500 – 850 N/mm ²) Alloy steel (high strength) (850 – 1200 N/mm ²)	20 – 25	—
	15 – 20	—
	12 – 18	—
	—	8 – 10
N Long chipping aluminium Si <5% (< 500 N/mm ²) Short-medium chipping aluminium Si >5% (< 500 N/mm ²) Long chipping Copper / soft brass (200 – 400 N/mm ²)	20 – 25	—
	15 – 20	—
	20 – 25	—

1/1

1. Feed (f) is equal to pitch (TP)
2. Cold forming taps are also suitable for ISO M materials (stainless steel) with controlled conditions. Pay special attention to the pre-tap drill diameter (risk of material shrinking), lubrication, cutting parameters and machine stability to ensure correct thread quality and avoid excessive torque. Use lower cutting conditions.



Cold forming

M

MF

UNC

UNF

G



M-TAPS



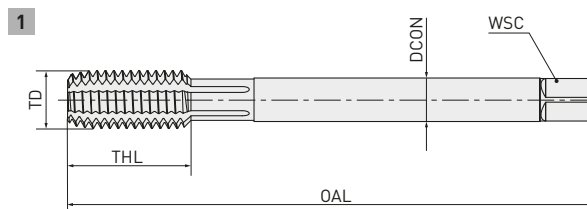
TF74

HIGH PERFORMANCE COLD FORMING TAPS FOR BLIND AND THROUGH HOLES

P **N**



DIN 2189



Cold forming

M

MF

UNC

UNF

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TAP TOLERANCE

Order number	TD	TPI	OAL	THL	LU	DCON	WSC	NOF	DC	Drill item*	Type
TF-G18P28CN-L TP1030	G 1/8"	28	90	18	—	7	5.5	6	9.25	—	1
TF-G14P19CN-L TP1030	G 1/4"	19	100	22	—	11	9	6	12.5	MPS1	1
TF-G38P19CN-L TP1030	G 3/8"	19	100	22	—	12	9	6	16	MPS1	1
TF-G12P14CN-L TP1030	G 1/2"	14	125	25	—	16	12	6	20	MPS1	1

1/1



RECOMMENDED CUTTING CONDITIONS

Material	Vc Suggested	Vc Suitable
P Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	20 – 25	—
	15 – 20	—
	12 – 18	—
	—	8 – 10
N Long chipping aluminium Si <5% (< 500 N/mm ²)	20 – 25	—
	15 – 20	—
	20 – 25	—
Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	15 – 20	—
Long chipping Copper / soft brass (200 – 400 N/mm ²)	20 – 25	—

1/1

1. Feed (f) is equal to pitch (TP)
2. Cold forming taps are also suitable for ISO M materials (stainless steel) with controlled conditions. Pay special attention to the pre-tap drill diameter (risk of material shrinking), lubrication, cutting parameters and machine stability to ensure correct thread quality and avoid excessive torque. Use lower cutting conditions.



Cold forming

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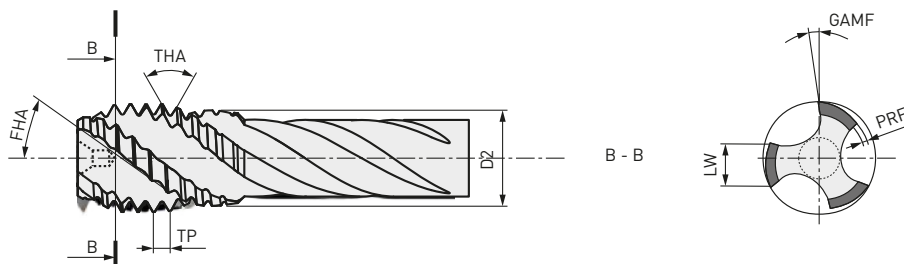
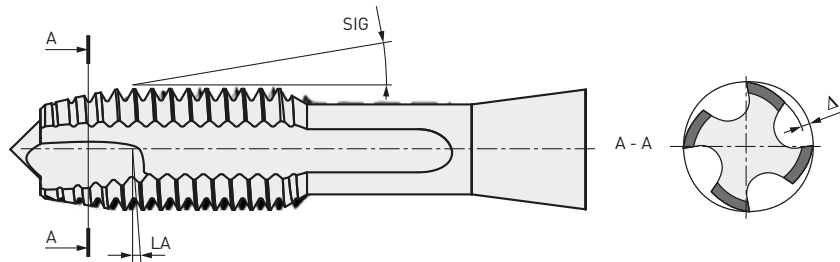
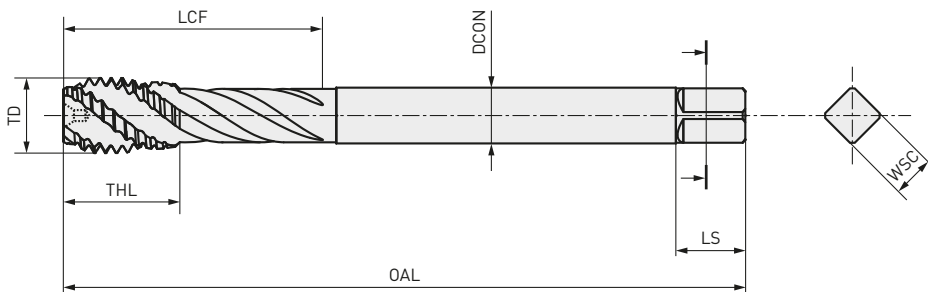
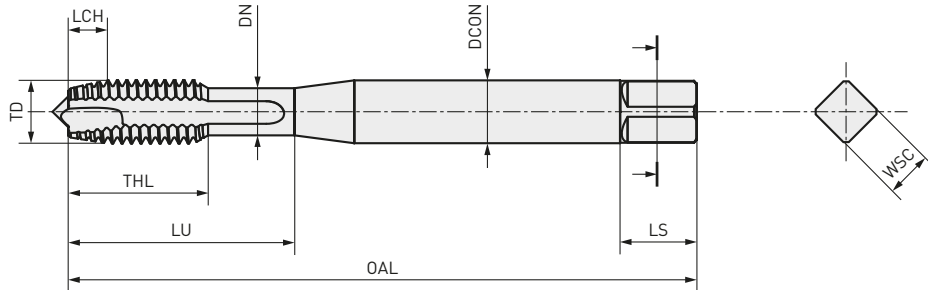
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M-TAPS

TAP TERMINOLOGY






M-TAPS – TAP TERMINOLOGY

Code	Short description	Technical detail
TDZ	Thread size	Includes diameter and standard; defines the complete thread specification (e.g. M10)
TD	Thread diameter	Major diameter of thread (nominal size)
THFT	Thread norm	Defines thread profile (Metric, UNC, G...); linked to THA
THCHT	Chamfer type	Defines chamfer geometry (B, C, E...) and application
THL	Thread length	Effective thread length (chamfer + full profile)
TP	Pitch	Axial distance between two consecutive thread peaks (crests)
LCF	Flute length	Length of chip evacuation channels
D2	Pitch diameter	Functional diameter controlling thread fit and tolerance
DCON	Shank diameter	Interface diameter for tool holder connection
DN	Neck diameter	Reduced section diameter for clearance
LU	Neck length	Distance between cutting section and shank
LCH	Chamfer length	Length of lead chamfer section
WSC	Square width	Drive dimension for torque transmission
OAL	Overall length	Total tool length
SIG	Chamfer angle	Angle of chamfer relative to axis
LA	Lead angle	Angle of thread helix derived from pitch and diameter
THA	Thread angle	Angle between thread flanks (e.g. 60° metric)
FHA	Helix angle	Flute helix angle affecting chip evacuation
LS	Square length	Axial length of square drive
NOF	Number of flutes	Number of cutting edges / chip evacuation channels
GAMF	Rake angle	Cutting geometry affecting cutting forces and material suitability
PRF	Pitch diameter relief	Reduction of pitch diameter behind the cutting edge to reduce friction
LW	Land width	Width of guiding surface between flutes
Δ	Chamfer relief	Clearance behind chamfer cutting edge

M-TAPS

TYPES OF CENTRES

The tap manufacturer, according to the diameter and the application, defines the types of centres. Types of centre and chamfer are generally combined together as in the following table, but for specific applications exceptions are possible.

		Form A	Form B	Form C	Form D	Form E
Male centre 	M	$M2 \leq \emptyset \leq M8$	$M2 \leq \emptyset \leq M8$	$M2 \leq \emptyset \leq M8$	$M2 \leq \emptyset \leq M8$	—
	MF	$M2 \leq \emptyset \leq M6$	$M4 \leq \emptyset \leq M6$	$M2 \leq \emptyset \leq M6$	$M5 \leq \emptyset \leq M6$	—
	UNC	$Nr.2 - 56 \leq \emptyset \leq 1/4" - 18$	$Nr.2 - 56 \leq \emptyset \leq 1/4" - 18$	$Nr.2 - 56 \leq \emptyset \leq 1/4" - 18$	$Nr.2 - 56 \leq \emptyset \leq 1/4" - 18$	—
	UNF	$Nr.2 - 64 \leq \emptyset \leq 1/4" - 28$	$Nr.2 - 64 \leq \emptyset \leq 1/4" - 28$	$Nr.2 - 64 \leq \emptyset \leq 1/4" - 28$	—	—
	G	—	—	—	—	—
Half centre 	M	$M8 < \emptyset \leq M10$	$M8 < \emptyset \leq M10$	$M8 < \emptyset \leq M10$	$M8 < \emptyset \leq M10$	—
	MF	$M6 < \emptyset \leq M10$	$M6 < \emptyset \leq M10$	$M6 < \emptyset \leq M10$	$M6 < \emptyset \leq M10$	—
	UNC	$5/16" - 18 \leq \emptyset \leq 3/8" - 16$	$5/16" - 18 \leq \emptyset \leq 3/8" - 16$	$5/16" - 18 \leq \emptyset \leq 3/8" - 16$	—	—
	UNF	$5/16" - 24 \leq \emptyset \leq 3/8" - 24$	$5/16" - 24 \leq \emptyset \leq 3/8" - 24$	$5/16" - 24 \leq \emptyset \leq 3/8" - 24$	—	—
	G	$\emptyset = 1/8" - 28$	$\emptyset = 1/8" - 28$	$\emptyset = 1/8" - 28$	—	—
Female centre 	M	$\emptyset > M10$	$\emptyset > M10$	$\emptyset > M10$	$\emptyset > M10$	All sizes
	MF	$\emptyset > M10$	$\emptyset > M10$	$\emptyset > M10$	$\emptyset > M10$	All sizes
	UNC	$\emptyset \geq 7/16" - 14$	$\emptyset \geq 7/16" - 14$	$\emptyset \geq 7/16" - 14$	$\emptyset \geq 5/16" - 18$	All sizes
	UNF	$\emptyset \geq 7/16" - 20$	$\emptyset \geq 7/16" - 20$	$\emptyset \geq 7/16" - 20$	—	All sizes
	G	$\emptyset \geq 1/4" - 19$	$\emptyset \geq 1/4" - 19$	$\emptyset \geq 1/4" - 19$	—	All sizes

M-TAPS

FORMULAS

Parameter	Formula	Unit of measurement
Cutting speed	$V_c = \frac{S \cdot \pi \cdot TD}{1000}$	m/min
Spindle speed	$S = \frac{1000 \cdot V_c}{\pi \cdot TD}$	rpm
Torque*	$M_t = K_c \cdot \frac{TP^2 \cdot NOF^{0.6} \cdot TD}{10^4}$	N · m
Spindle power	$P_c = \frac{M_t \cdot 2 \cdot \pi \cdot S}{60 \cdot 1000}$	kW

* The torque value is valid for a new cutting tap.
For worn-out taps, the value can increase up to 2 – 3 times. For forming taps, the value must be multiplied by 1.5 – 2 times.

TD	Nominal diameter (mm)
F = TP · S	Feed (mm/min)
TP	Thread pitch (mm)
NOF	Number of flutes
Kc	Specific cutting force coefficient dependent on material and tap wear (N/mm ²)

Kc VALUES

Material group	Kc (N/mm ²)
Mild steel (< 500 N/mm ²), Construction steel (< 700 N/mm ²)	1300 – 1400
Carbon steel (350 – 850 N/mm ²)	1400
P Alloy steel (low strength) (500 – 850 N/mm ²)	1600
Alloy steel (high strength) (850 – 1200 N/mm ²)	1700
High strength steel (1200 – 1600 N/mm ²)	2000
M Austenitic stainless steel (< 850 N/mm ²)	1600
Duplex/PH stainless steel (< 1000 N/mm ²)	1800
K Grey cast iron (150 – 350 MPa)	1100
Ductile cast iron (400 – 800 MPa)	1500
Austempered ductile iron (ADI)	1600
Long chipping aluminium Si <5% (< 500 N/mm ²)	600 – 800
Short-medium chipping aluminium Si >5% (< 500 N/mm ²)	900 – 1000
N Long chipping Copper/soft brass (200 – 400 N/mm ²)	700 – 850
Short chipping Copper/hard brass (300 – 500 N/mm ²)	800 – 900
Magnesium/high strength magnesium alloys (120 – 400 N/mm ²)	400 – 500
S Pure titanium/nickel (300 – 600 N/mm ²)	1200 – 1300
HRSA/titanium alloys (600 – 1000 N/mm ²)	1900 – 2400

M-TAPS

TROUBLESHOOTING

Tapping – whether by cutting or cold forming – is a demanding operation, frequently carried out as the final step in the machining sequence. Any error at this stage can directly affect the integrity and functionality of the finished component.

The process is influenced by multiple variables, including cutting and forming parameters, pre-hole preparation, lubrication conditions and machine stability. Achieving consistent, high-quality threads requires careful alignment of these factors, along with the correct selection of tooling.

The following section outlines the most common issues encountered during tapping operations and provides guidance on their likely causes and recommended corrective actions.

CUTTING TAPS

Problem	Immediate actions
Chipped cutting edges	<ul style="list-style-type: none"> • Use longer chamfer • Reduce cutting speed • Increase pre-tap drill diameter if near minimum limit • Check tap alignment and holder runout • For blind holes $\geq 2.5xD$, use back-tapered tap
Fast or uneven wear	<ul style="list-style-type: none"> • Increase coolant flow and pressure • Reduce cutting speed • Match chamfer to hole type (avoid B in blind holes) • Confirm material is within correct cutting conditions
Chips jamming	<ul style="list-style-type: none"> • Choose tap with lower helix angle • Improve coolant supply and quantity • Increase cutting speed, within recommended cutting conditions • Clean flutes regularly
Poor thread surface finish	<ul style="list-style-type: none"> • Replace worn tap • Improve lubrication supply • Verify correct tap choice for material and cutting conditions
Built-up edge on teeth	<ul style="list-style-type: none"> • Increase cutting speed • Improve lubrication supply • Verify correct tap choice for material and cutting conditions
Tap sticking	<ul style="list-style-type: none"> • Improve lubrication supply • Increase cutting speed • Check pre-tap drilling diameter • Verify correct tap choice for material and cutting conditions
Crater wear on cutting edges	<ul style="list-style-type: none"> • Reduce cutting speed • Improve coolant supply and quantity

M-TAPS – TROUBLESHOOTING

CUTTING TAPS

Problem	Immediate actions
Tap breakage	<ul style="list-style-type: none"> • Check pre-tap hole diameter first • Reduce cutting speed • Verify tapping depth < hole depth (blind holes) • Check alignment and square drive engagement • Use axial compensation tapping and check machine program
Oversize thread	<ul style="list-style-type: none"> • Check correct tap tolerance with requirement • Reduce cutting speed • Check alignment and workpiece clamping • Remove chips from flutes • Use rigid/synchronized tapping
Undersize thread	<ul style="list-style-type: none"> • Increase pre-tap drill diameter • Check tap tolerance with requirement • Replace worn tap • Improve lubrication • Use rigid/synchronized tapping
High torque / machine overload	<ul style="list-style-type: none"> • Increase pre-tap drill diameter (on high strength materials) • Reduce cutting speed • Improve coolant supply and quantity • Confirm material suitability • Verify correct tap choice for material and cutting conditions

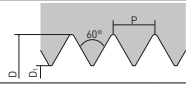
M-TAPS – TROUBLESHOOTING

COLD FORMING TAPS

Problem	Immediate actions
Excessive forming torque	<ul style="list-style-type: none"> • Increase pre-tap drill diameter • Reduce rotation speed • Improve lubrication quantity [oil preferred] • Confirm material ductility (ISO P/M/N only)
Tap sticking or seizure	<ul style="list-style-type: none"> • Improve lubrication supply • Increase pre-tap drill diameter • Reduce rotation speed • Check oil grooves condition (if present)
Tap breakage	<ul style="list-style-type: none"> • Increase pre-tap drill diameter • Reduce rotation speed • Verify tapping depth < hole depth • Check alignment and square drive engagement • Use axial compensation tapping and check machine programm
Poor thread surface	<ul style="list-style-type: none"> • Improve lubrication supply and quantity • Reduce rotation speed • Replace worn tap • Verify correct tap choice for material and cutting conditions
Undersize thread	<ul style="list-style-type: none"> • Increase pre-tap drill diameter • Replace worn tap • Improve lubrication supply
Oversize thread	<ul style="list-style-type: none"> • Check correct tap tolerance with requirement • Reduce rotation speed • Use rigid/synchronized tapping and check machine program
High machine load	<ul style="list-style-type: none"> • Increase pre-tap drill diameter • Reduce rotation speed • Improve lubrication supply
Fast tool wear	<ul style="list-style-type: none"> • Reduce rotation speed • Improve lubrication supply • Confirm material is suitable for thread forming

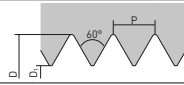
M-TAPS

DRILL SIZE FOR CUTTING TAPS

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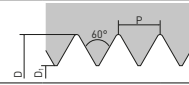
ISO Metric coarse thread DIN 13

D	Pitch (mm)	Maximum core diam. (tol. 6H) (mm) D1	Drill size (mm)
M 1	0.25	0.785	0.75
M 1.1	0.25	0.885	0.85
M 1.2	0.25	0.985	0.95
M 1.4	0.3	1.142	1.1
M 1.6	0.35	1.321	1.25
M 1.7	0.35	1.421	1.35
M 1.8	0.35	1.521	1.45
M 2	0.4	1.679	1.6
M 2.2	0.45	1.838	1.75
M 2.3	0.4	1.938	1.9
M 2.5	0.45	2.138	2.05
M 2.6	0.45	2.238	2.1
M 3	0.5	2.599	2.5
M 3.5	0.6	3.010	2.9
M 4	0.7	3.422	3.3
M 4.5	0.75	3.878	3.7
M 5	0.8	4.334	4.2
M 6	1	5.153	5
M 7	1	6.153	6
M 8	1.25	6.912	6.8
M 9	1.25	7.912	7.8
M 10	1.5	8.676	8.5
M 11	1.5	9.676	9.5
M 12	1.75	10.441	10.2
M 14	2	12.210	12
M 16	2	14.210	14
M 18	2.5	15.744	15.5
M 20	2.5	17.744	17.5
M 22	2.5	19.744	19.5
M 24	3	21.252	21
M 27	3	24.252	24
M 30	3.5	26.771	26.5
M 33	3.5	29.771	29.5
M 36	4	32.270	32
M 39	4	35.270	35
M 42	4.5	37.799	37.5
M 45	4.5	40.799	40.5
M 48	5	43.297	43
M 52	5	47.297	47
M 56	5.5	50.796	50.5
M 60	5.5	54.796	54.5
M 64	6	58.305	58
M 68	6	62.305	62

MF

ISO Metric fine thread DIN 13

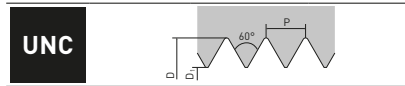
D	Pitch (mm)	Maximum core diam. (tol. 6H) (mm) D1	Drill size (mm)
M 2	0.25	1.774	1.75
M 2.3	0.25	2.085	2.05
M 2.5	0.35	2.221	2.15
M 3	0.35	2.721	2.65
M 3.5	0.35	3.221	3.15
M 4	0.5	3.599	3.5
M 4.5	0.5	4.099	4
M 5	0.5	4.599	4.5
M 5.5	0.5	5.099	5
M 6	0.75	5.378	5.2
M 7	0.75	6.378	6.2
M 8	0.75	7.378	7.2
M 8	1	7.153	7
M 9	0.75	8.378	8.2
M 9	1	8.153	8
M 10	0.75	9.378	9.2
M 10	1	9.153	9
M 10	1.25	8.912	8.8
M 11	0.75	10.378	10.2
M 11	1	10.153	10
M 12	0.75	11.378	11.2
M 12	1	11.153	11
M 12	1.25	10.912	10.8
M 12	1.5	10.676	10.5
M 14	1	13.153	13
M 14	1.25	12.912	12.8
M 14	1.5	12.676	12.5
M 15	1	14.153	14
M 15	1.5	13.676	13.5
M 16	1	15.153	15
M 16	1.5	14.676	14.5
M 17	1	16.153	16
M 17	1.5	15.676	15.5
M 18	1	17.153	17
M 18	1.5	16.676	16.5
M 18	2	16.210	16
M 20	1	19.153	19
M 20	1.5	18.676	18.5
M 20	2	18.210	18
M 22	1	21.153	21
M 22	1.5	20.676	20.5
M 22	2	20.210	20
M 24	1	23.153	23
M 24	1.5	22.676	22.5
M 24	2	22.210	22
M 25	1	24.153	24

MF

ISO Metric fine thread DIN 13

D	Pitch (mm)	Maximum core diam. (tol. 6H) (mm) D1	Drill size (mm)
M 25	1.5	23.676	23.5
M 25	2	23.210	23
M 26	1.5	24.676	24.5
M 27	1	26.153	26
M 27	1.5	25.676	25.5
M 27	2	25.210	25
M 28	1	27.153	27
M 28	1.5	26.676	26.5
M 28	2	26.210	26
M 30	1	29.153	29
M 30	1.5	28.676	28.5
M 30	2	28.210	28
M 30	3	27.252	27
M 32	1.5	30.676	30.5
M 32	2	30.210	30
M 33	1.5	31.676	31.5
M 33	2	31.210	31
M 33	3	30.252	30
M 35	1.5	33.676	33.5
M 36	1.5	34.676	34.5
M 36	2	34.210	34
M 36	3	33.252	33
M 38	1.5	36.676	36.5
M 39	1.5	37.676	37.5
M 39	2	37.210	37
M 39	3	36.252	36
M 40	1.5	38.676	38.5
M 40	2	38.210	38
M 40	3	37.252	37
M 42	1.5	40.676	40.5
M 42	2	40.210	40
M 42	3	39.252	39
M 45	1.5	43.676	43.5
M 45	2	43.210	43
M 45	3	42.252	42
M 48	1.5	46.676	46.5
M 48	2	46.210	46
M 48	3	45.252	45
M 50	1.5	48.676	48.5
M 50	2	48.210	48
M 50	3	47.252	47
M 52	1.5	50.676	50.5
M 52	2	50.210	50
M 52	3	49.252	49

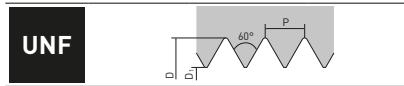
M-TAPS – DRILL SIZE FOR CUTTING TAPS



UNC

**Unified coarse thread
UNC ASME – B1.1**

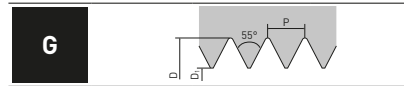
D	Pitch (TPI)	Maximum core diam. (tol. 6H) (mm) D1	Drill size (mm)
Nr. 1	64	1.582	1.55
Nr. 2	56	1.872	1.85
Nr. 3	48	2.146	2.1
Nr. 4	40	2.385	2.35
Nr. 5	40	2.697	2.65
Nr. 6	32	2.896	2.85
Nr. 8	32	3.528	3.5
Nr. 10	24	3.950	3.9
Nr. 12	24	4.590	4.5
1/4"	20	5.250	5.1
5/16"	18	6.680	6.6
3/8"	16	8.082	8
7/16"	14	9.441	9.4
1/2"	13	10.881	10.8
9/16"	12	12.301	12.2
5/8"	11	13.693	13.5
3/4"	10	16.624	16.5
7/8"	9	19.520	19.5
1"	8	22.344	22.25
1 1/8"	7	25.082	25
1 1/4"	7	28.258	28
1 3/8"	6	30.851	30.75
1 1/2"	6	34.026	34
1 3/4"	5	39.560	39.5
2"	4.5	45.367	45



UNF

**Unified fine thread
UNF ASME – B1.1**

D	Pitch (TPI)	Maximum core diam. (tol. 6H) (mm) D1	Drill size (mm)
Nr. 0	80	1.306	1.25
Nr. 1	72	1.613	1.55
Nr. 2	64	1.913	1.85
Nr. 3	56	2.197	2.15
Nr. 4	48	2.459	2.4
Nr. 5	44	2.741	2.7
Nr. 6	40	3.012	2.95
Nr. 8	36	3.597	3.5
Nr. 10	32	4.168	4.1
Nr. 12	28	4.717	4.6
1/4"	28	5.563	5.5
5/16"	24	6.995	6.9
3/8"	24	8.565	8.5
7/16"	20	9.947	9.9
1/2"	20	11.524	11.5
9/16"	18	12.969	12.9
5/8"	18	14.554	14.5
3/4"	16	17.546	17.5
7/8"	14	20.493	20.4
1"	12	23.363	23.25
1 1/8"	12	26.538	26.5
1 1/4"	12	29.713	29.5
1 3/8"	12	32.888	32.75
1 1/2"	12	36.063	36



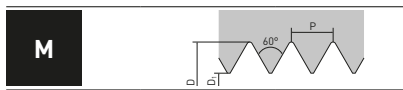
G

**Whitworth pipe thread
EN – ISO 228**

D	Pitch (TPI)	Maximum core diam. (tol. 6H) (mm) D1	Drill size (mm)
G 1/8"	28	8.848	8.8
1/4"	19	11.890	11.8
3/8"	19	15.395	15.25
1/2"	14	19.172	19
5/8"	14	21.128	21
3/4"	14	24.658	24.5
7/8"	14	28.418	28.25
1"	11	30.931	30.75
1 1/8"	11	35.579	35.5
1 1/4"	11	39.592	39.5
1 3/8"	11	42.005	41.9
1 1/2"	11	45.485	45.25
1 3/4"	11	51.428	51
2"	11	57.296	57
2 1/4"	11	63.392	63.3
2 3/8"	11	67.080	67
2 1/2"	11	72.866	72.8
2 3/4"	11	79.216	79.1
3"	11	85.566	85.5
3 1/4"	11	91.662	91.5
3 1/2"	11	98.012	98
3 3/4"	11	104.362	104
4"	11	110.712	110.5

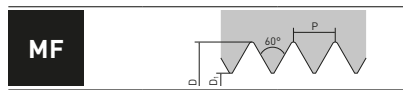
M-TAPS

DRILL SIZE FOR COLD FORMING TAPS

**M**

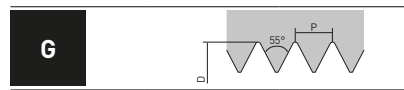
ISO Metric coarse thread DIN 13

D	Pitch (mm)	Drill size (mm)
M 2	0.4	1.85 ± 0.03
M 2.5	0.45	2.30 ± 0.03
M 3	0.5	2.80 ± 0.03
M 3.5	0.6	3.25 ± 0.03
M 4	0.7	3.70 ± 0.03
M 5	0.8	4.65 ± 0.03
M 6	1	5.55 ± 0.05
M 8	1.25	7.40 ± 0.05
M 10	1.5	9.30 ± 0.05
M 12	1.75	11.20 ± 0.05
M 14	2	13.10 ± 0.05
M 16	2	15.10 ± 0.05
M 18	2.5	16.90 ± 0.05
M 20	2.5	18.90 ± 0.05
M 24	3	22.70 ± 0.05
M 27	3	25.70 ± 0.05
M 30	3.5	28.45 ± 0.05

**MF**

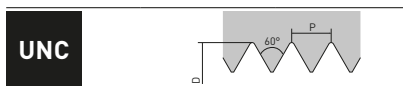
ISO Metric fine thread DIN 13

D	Pitch (mm)	Drill size (mm)
M 3	0.35	2.85 ± 0.03
M 4	0.5	3.80 ± 0.03
M 5	0.5	4.80 ± 0.03
M 6	0.75	5.65 ± 0.03
M 8	1	7.55 ± 0.05
M 10	1	9.55 ± 0.05
M 10	1.25	9.40 ± 0.05
M 12	1	11.55 ± 0.05
M 12	1.25	11.40 ± 0.05
M 12	1.5	11.30 ± 0.05
M 14	1.25	13.40 ± 0.05
M 14	1.5	13.30 ± 0.05
M 16	1.5	15.30 ± 0.05
M 18	1.5	17.30 ± 0.05
M 20	1.5	19.30 ± 0.05

**G**

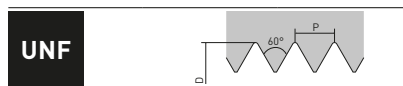
Whitworth gas whitworth EN – ISO 228

D	Pitch (TPI)	Drill size (mm)
G 1/8"	28	9.25 ± 0.05
G 1/4"	19	12.50 ± 0.05
G 3/8"	19	16.00 ± 0.05
G 1/2"	14	20.00 ± 0.05
G 3/4"	14	25.50 ± 0.05
G 1"	11	32.00 ± 0.05

**UNC**

Unified coarse thread UNC ASME – B1.1

D	Pitch (TPI)	Drill size (mm)
Nr. 8	32	3.80 ± 0.03
Nr. 10	24	4.35 ± 0.03
Nr. 12	24	5.00 ± 0.03
1/4"	20	5.80 ± 0.03
5/16"	18	7.30 ± 0.05
3/8"	16	8.80 ± 0.05
7/16"	14	10.30 ± 0.05
1/2"	13	11.80 ± 0.05
5/8"	11	14.85 ± 0.05
3/4"	10	17.90 ± 0.05

**UNF**

Unified fine thread UNF ASME – B1.1

D	Pitch (TPI)	Drill size (mm)
Nr. 8	32	3.80 ± 0.03
Nr. 10	24	4.35 ± 0.03
Nr. 12	24	5.00 ± 0.03
1/4"	20	5.80 ± 0.03
5/16"	18	7.30 ± 0.05
3/8"	16	8.80 ± 0.05
7/16"	14	10.30 ± 0.05
1/2"	13	11.80 ± 0.05
5/8"	11	14.85 ± 0.05
3/4"	10	17.90 ± 0.05

Other drill sizes = theoretical flank diameter + pitch/5

To achieve the specified thread tolerance, ensure that the pre-drilled hole diameter and its tolerance are strictly maintained. This is essential for proper thread formation and to preserve tap tool life.

In cold forming, the resulting internal thread geometry is influenced not only by the hole diameter but also by the material properties of the workpiece. Consequently, the core diameter tolerance is typically 7H, compared to 6H for cutting taps.

For further details, refer to the DIN 13-50 standard.



M-TAPS

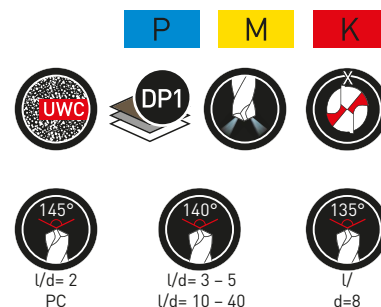
PRE-TAP DRILLING TOOLS

This section highlights the key drilling tools recommended for pre-tapping operations. Each solution is optimized to work in combination with the taps in this catalogue, ensuring precise hole preparation and stable threading performance. Explore the dedicated product pages for full technical details and application guidelines. For best results and typical use, standard pre-tap drilling operations are typically performed with short tools (typically L/D ≤ 5), providing maximum stability and accuracy.

MPS1

Diameter range: DC 3 – 20 mm, Depth range: L/D 2 – 40

	3<DC≤6	6<DC≤10	10<DC≤18	18<DC≤20
 DC Tolerance (DIN/PC) (mm)	+0.010 -0.002	+0.010 -0.005	+0.005 -0.013	+0.005 -0.016
DC Tolerance (L_C) (mm)	0 -0.012	0 -0.015	0 -0.018	0 -0.021
 DCON Tolerance (mm)	0 -0.008	0 -0.009	0 -0.011	0 -0.013



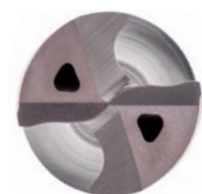
DP1021
New ALTiCrN PVD coating technology ensures a long tool life and high productivity in standard and high cutting speeds. Suitable in steels, stainless steels and cast iron.



STRONG CUTTING EDGE
For high performance drilling.

LxDC 3 – 8

ACCURACY
The double margin and Tri-Coolant Technology helps to provide high quality hole surface finishes.



OPTIMIZED GEOMETRY
For extra deep hole drilling and optimal hole quality.

LxDC 10 – 40
LxDC 2 (PC)



- Increased coolant volume
- Optimized flow at the margin
- Faster chip evacuation

CHAMFER AT SHOULDER PARTS
Prevents a chipping at shoulder parts and protects the cutting edge.

DOUBLE MARGIN
Unique guide pads design ensure stable and high precision drilling. It guides the drill during cutting and helps to achieve a better quality surface of holes.



M-TAPS

PRE-TAP DRILLING TOOLS

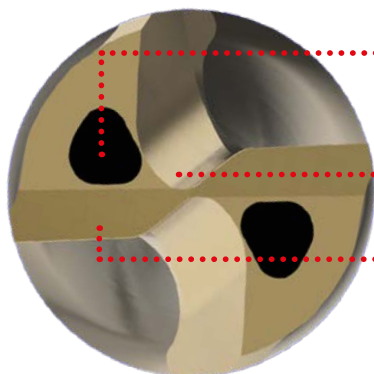
MINI DVAS



DC<3
0.006
-0.004



DCONMS = 4
0
-0.008



ADVANCED COOLANT HOLE

NEW XR POINT THINNING

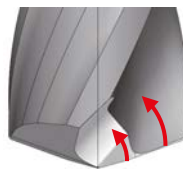
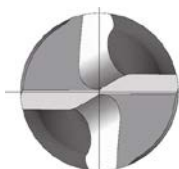
TOUGH AND SHARP CUTTING EDGE DESIGN

NEW COATED GRADE DP1120

UNIQUE RIGID FORM

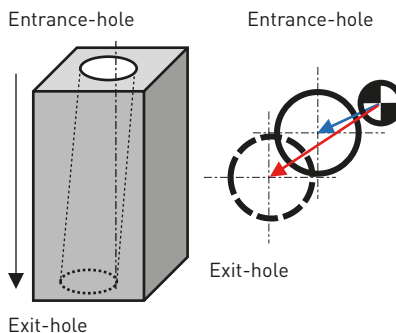
DVAS

The R shaped space created by the point thinning helps to form compact chips and aid flow.

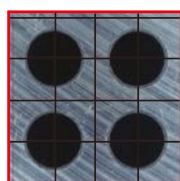


TRISTAR: ACCURATE

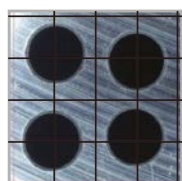
Conventionally drilled holes can wander considerably and have poor positioning.



Straighter holes and improved dimensional accuracy are enabled by using DVAS drills.



DVAS



Conventional



M-TAPS

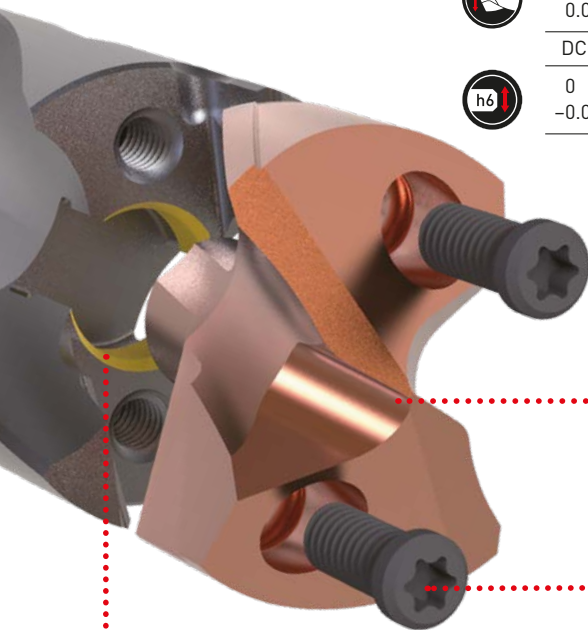
PRE-TAP DRILLING TOOLS

DXAS

Diameter range: DC 18 – 30 mm, Depth range: L/D 1.5 – 8

P **K**

	DC < 18	18 < DC < 30	30 < DC
	0.019	0.023	0.027
	0.001	0.002	0.002
	DCONMS = 25		DCONMS = 32
	0	0	
	-0.013	-0.016	



XR POINT THINNING

By smoothly curling the chips, low resistance and excellent chip separation are achieved. The low resistance design achieves highly efficient machining and reduces power consumption during machining.

STRONG AND INTUITIVE TWO-SCREW SYSTEM

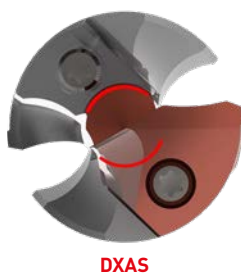
The two-screw fastening suppresses deformation of the holder and enables high-strength fastening, so it is less likely to loosen and securely fixes the head, even in high-stress machining environments.




PERFECT CENTERING

"Perfect Centering" minimises the misalignment of the central axes of the head and holder that occurs when fastened, achieving hole precision comparable to that of a solid drill.

DP6020 WITH EXCELLENT HEAT RESISTANCE AND HARDNESS

By adding Si, the coating hardness and the temperature at which oxidation started to occur were significantly raised. This multi-layer structure also improves wear and crack resistance during cutting and provided excellent wear resistance even during high-speed, high feed machining.



	DXAS	Conventional	Conventional
	Head exchangeable type		Solid drills
Cylindricity (mm)	0.05	0.22	0.06
			

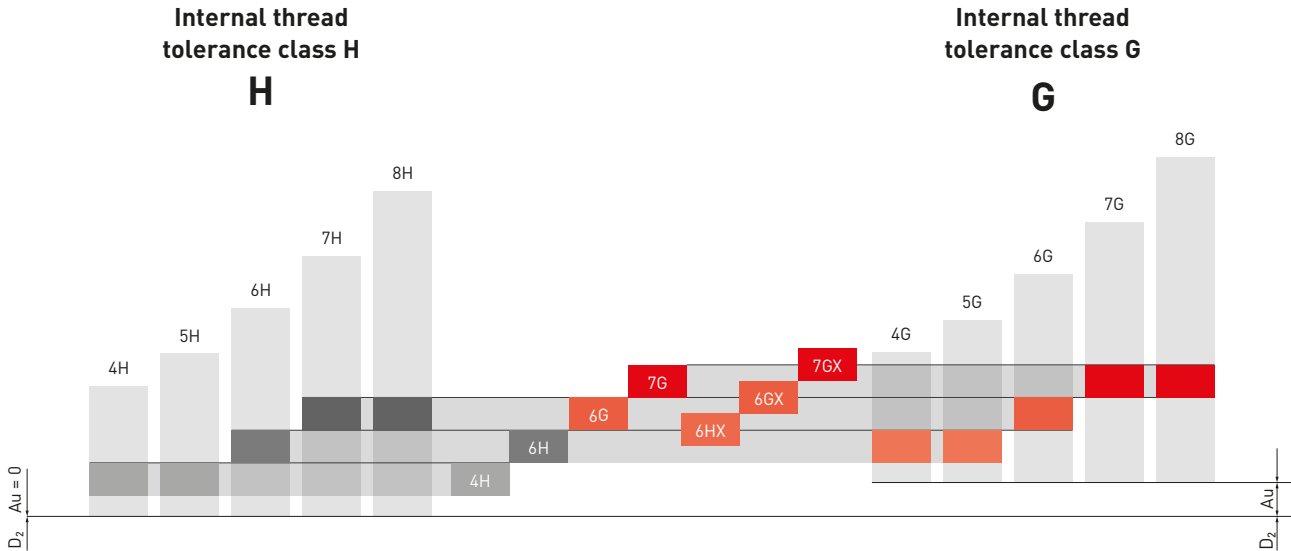


*By Image

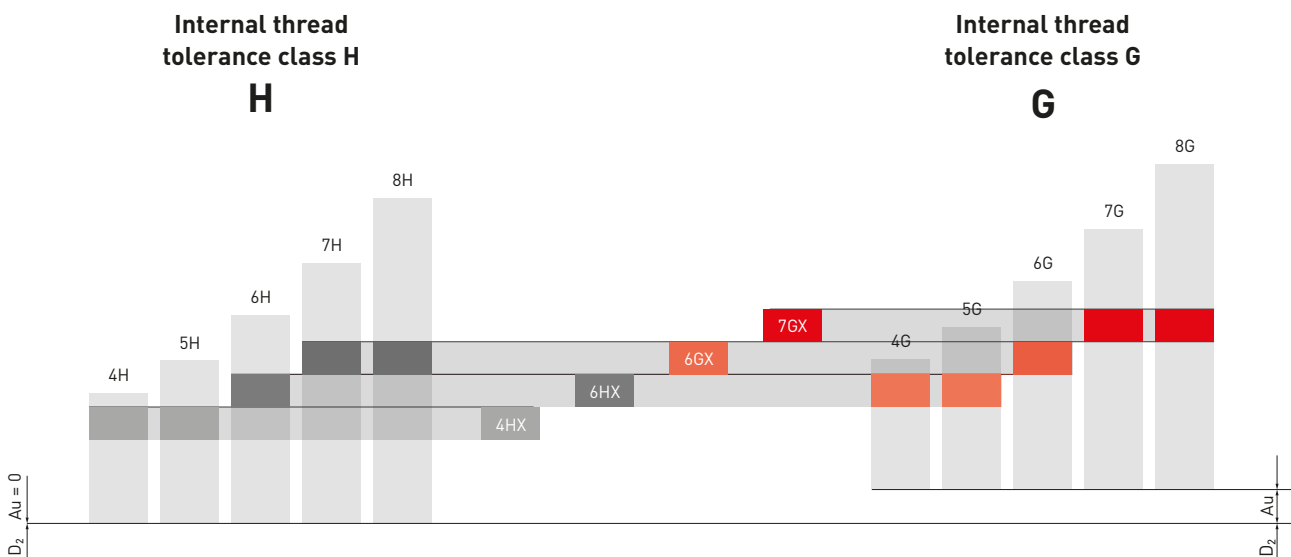
M-TAPS

TAP TOLERANCE

CUTTING TAP TOLERANCE RANGE



FORMING TAP TOLERANCE RANGE



The standard thread fit corresponds to tolerance class ISO 2/6H. For higher precision applications, where minimal or no allowance on the thread flank is required, tolerance class ISO 1/4H is recommended. Conversely, ISO 3/6G is applied for looser fits with greater allowance, typically required for parts undergoing subsequent coating processes.

Between tolerance classes 6H and 6G, as well as between 6G and 7G, taps are commonly produced with intermediate tolerances such as 6HX and 6GX. These are particularly suited for machining abrasive materials (e.g. cast iron or Al-Si alloys), where increased wear compensation helps extend tool life.

Such tolerance classes are also relevant for forming taps, which generate threads through plastic deformation rather than cutting. Due to material springback, achieving a 6H internal thread typically requires the use of a 6HX tap.

The tolerance system described is defined in the European standard EN 22857.

M-TAPS – TOLERANCE TABLE

Nominal diameter (mm)		Pitch (mm)	Limits on pitch diameter (µm)*					
			Class					
>	≤		4H (ISO1)	6H (ISO2)	6G (ISO3)	7G		
0.99	1.4	0.2	+15	—	—	—		
			+5	—	—	—		
		0.25	+17	—	—	—		
			+6	—	—	—		
		0.3	+18	+30	—	—		
			+6	+18	—	—		
1.4	2.8	0.2	+16	—	—	—		
			+5	—	—	—		
		0.25	+18	—	—	—		
			+6	—	—	—		
		0.35	+20	+34	—	—		
			+7	+20	—	—		
		0.4	+21	+36	—	—		
			+7	+21	—	—		
		0.45	+23	+38	—	—		
			+8	+23	—	—		
		2.8	5.6	0.35	+21	+36	—	—
					+7	+21	—	—
0.5	+24			+40	+56	+70		
	+8			+24	+40	+55		
0.6	+27			+45	+63	+81		
	+9			+27	+45	+63		
0.7	+29			+48	+67	+86		
	+10			+29	+48	+67		
0.75	+29			+48	+67	+86		
	+10			+29	+48	+67		
0.8	+30			+50	+70	+90		
	+10			+30	+50	+70		
5.6	11.2	0.75	+32	+53	+74	—		
			+11	+32	+53	—		
		1	+35	+59	+83	+107		
			+12	+35	+59	+83		
		1.25	+38	+63	+88	+113		
			+13	+38	+63	+88		
		1.5	+42	+70	+98	+126		
			+14	+42	+70	+98		
		11.2	22.4	1	+38	+63	+88	+113
					+13	+38	+63	+88
				1.25	+42	+70	+98	+126
					+14	+42	+70	+98
1.5	+45			+75	+105	+135		
	+15			+45	+75	+105		
1.75	+48			+80	+112	+144		
	+16			+48	+80	+112		
2	+51			+85	+119	+153		
	+17			+51	+85	+119		
2.5	+54			+90	+126	+162		
	+18			+54	+90	+126		

* According to EN 22857

M-TAPS – TOLERANCE TABLE



























Nominal diameter (mm)		Pitch (mm)	Limits on pitch diameter (µm)*			
			Class			
>	≤		4H (ISO1)	6H (ISO2)	6G (ISO3)	7G
22.4	45	1	+40	+66	+92	+118
			+13	+40	+66	+92
		1.5	+48	+80	+112	+144
			+16	+48	+80	+112
		2	+54	+90	+126	+162
			+18	+54	+90	+126
		3	+64	+106	+148	+190
			+21	+64	+106	+148
		3.5	+67	+112	+157	+202
			+22	+67	+112	+157
		4	+71	+118	+165	+212
			+24	+71	+118	+165
		4.5	+75	+125	+175	+225
			+25	+75	+125	+125
45	90	1.5	+51	+85	+119	+153
			+17	+51	+85	+119
		2	+57	+95	+133	+171
			+19	+57	+95	+133
		3	+67	+112	+157	+202
			+22	+67	+112	+157
		4	+75	+125	+175	+225
			+25	+75	+125	+175
		5	+80	+133	+186	+239
			+27	+80	+133	+186
		5.5	+84	+140	+196	+252
			+28	+84	+140	+196
		6	+90	+150	+210	+270
			+30	+90	+150	+210

2/2

* According to EN 22857

M-TAPS

ICON DESCRIPTION

TAP GEOMETRY	TYPE OF CHIP
 Straight flutes	 Short chips
 Straight flutes and spiral point	 Medium chips
 15 degrees helix angle	 Medium-long chips
 45 degrees helix angle	 Plastic deformation without chip formation
 Forming tap without oil grooves	
 Forming tap with oil grooves	
 Through internal coolant	
 Internal coolant channel with radial exits	
HOLE TYPE AND DEPTH	TAP TOLERANCE
 Through hole, up to ...	 Tolerance 6HX
 Blind hole, up to ...	 Tolerance 6GX
 Blind/through hole, up to ...	 Tolerance 2BX
	 Tolerance ISO 5969X
DIRECTION OF CUT	MATERIAL
 Right hand cut	 Powder metallurgy high speed steel
	COATINGS
	 TP1 (monolayer)
	 TP2 (multilayer)
	CHAMFER FORM
	 Chamfer form B (4 – 5 threads)
	 Chamfer form C (2 – 3 threads)
	 Chamfer form E (1.5 – 2 threads)

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