

THREADING · TAPS · BLIND HOLE TAPS

Blind hole tap - Quenched and tempered, alloy and tool steels

40° right-hand spiral flute tap for blind holes in quenched and tempered and alloy steels: the chip flows back towards the shank. TiCN, 10 - 12° rake.



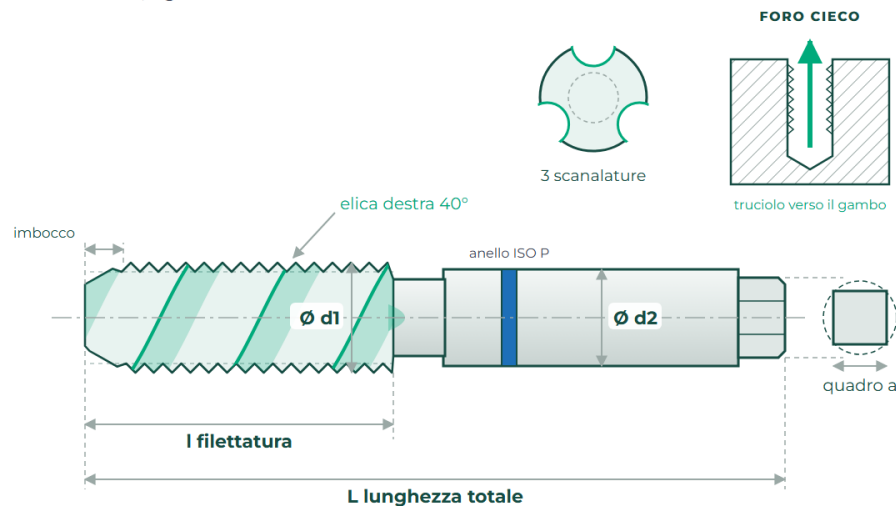
KEY DATA

Product type	Taps
ISO materials	P steel
Online page	innot-it.com/en/prodotto/maschio-fori-ciechi-bonificati

Technical drawing

Maschio per fori ciechi

Acciai bonificati, legati e da utensili · 800 - 1200 N/mm²



fori ciechi fino a 2×d

elica 40°

TiCN

spoglia 10 - 12°

M2 - M36

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At a glance

Hole type	Blind holes
Geometry	Right-hand helix 40° · 3 spiral flutes

Chamfer	Form C, 2 - 3 threads
Chip	Risale lungo l'elica verso il gambo: il fondo del foro resta pulito
Thread depth	Up to 2 × d
Rake angle	10 - 12°
Tool material	Vanadium HSS-E or HSS-E-PM (powder-metallurgy high-speed steel)
Coating	TiCN (first choice) - alternatively AlCrN, TiAlN, TiN
Tolerance	6H; 6G and 7G for threads to be galvanised or painted
Design	Reinforced shank from M2 to M10 (DIN 371), reduced shank from M12 (DIN 376); from M3 to M10 also with reduced shank for deep holes
Cutting direction	Right-hand; left-hand on request

Workpiece materials

Group	Quenched and tempered, alloy and tool steels ISO P
Strength	800 - 1200 N/mm ² (up to 1400 N/mm ² with powder-metallurgy substrate)
Examples	42CrMo4, 39NiCrMo3, 34CrNiMo6, 40CrMnMo7 (1.2311), mould and tool steels in the annealed condition (1.2379, 1.2343)

Sizes - ISO metric thread

Thread	Pitch P	Tap drill Ø	L overall	l thread	Ø d2 shank	Square a
M2	0,4	1,6	45	8	2,8	2,1
M2,5	0,45	2,05	50	9	2,8	2,1
M3	0,5	2,5	56	7	3,5	2,7
M3,5	0,6	2,9	56	7	4	3
M4	0,7	3,3	63	8	4,5	3,4
M5	0,8	4,2	70	10	6	4,9
M6	1	5	80	12	6	4,9
M8	1,25	6,8	90	16	8	6,2
M10	1,5	8,5	100	16	10	8
M12	1,75	10,2	110	18	9	7
M14	2	12	110	20	11	9
M16	2	14	110	22	12	9
M18	2,5	15,5	125	25	14	11
M20	2,5	17,5	140	25	16	12
M22	2,5	19,5	140	25	18	14,5
M24	3	21	160	30	18	14,5
M27	3	24	160	30	20	16
M30	3,5	26,5	180	35	22	18
M33	3,5	29,5	180	35	25	20
M36	4	32	200	45	28	22

Misure in mm. Da M39 a M100 e filetti fini, gas e pollici su richiesta. Il Ø preforo è quello consigliato per la tolleranza 6H. Nei fori ciechi la lunghezza filettata è più corta per lasciare spazio al truciolo nell'elica.

Coatings for quenched and tempered and alloy steels

Coating	When to choose it
TiCN - titanium carbonitride ★	Harder and more abrasion-resistant than TiN: quenched and tempered steels, cast irons and series production.
AlCrN - aluminium chromium nitride	Very high hot hardness with good toughness: quenched and tempered and tool steels up to 1400 N/mm², series tapping.
TiAlN / AlTiN - titanium aluminium nitride	Withstands high temperatures at the cutting edge: higher speeds, minimum quantity lubrication (MQL) or dry, alloy steels and stainless steels on powder-metallurgy substrate.
TiN - titanium nitride	The universal coating: less friction and less sticking, longer life on structural steels and common materials.

★ INNOT first choice for this material. Every tap can be supplied with any coating in the range: specify it in your request.

Starting data

Cutting speed Vc	5 - 10 m/min (lower value for uncoated substrate or machines with a compensating chuck)
Feed	Equal to the thread pitch: synchronised tapping or chuck with axial compensation
Lubrication	Cutting oil or rich emulsion (10 - 12 %)
Thread	Spindle speed (n)
M6	270 - 530
M10	160 - 320
M16	100 - 200
M24	70 - 130

Guide values to be adapted to machine, clamping and lubrication. $n = Vc \times 1000 / (\pi \times d)$.

Consigli d'uso

- Drill at least 3 pitches deeper than the thread: the tap must never touch the bottom of the hole.
- Il truciolo risale lungo l'elica: oltre $1,5 \times d$ di profondità serve refrigerante abbondante o refrigerazione interna (su richiesta).
- Imposta un'inversione dolce a fine corsa: con i colpi di inversione il tagliente si scheggia.
- Above 1200 N/mm² choose the HSS-E-PM substrate with AlCrN or TiCN and start from the lowest Vc value.
- Smussa l'ingresso del foro a 90°: imbocco pulito e nessuna bava sul primo filetto.

Selection guide

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Cutting data are indicative starting values: adjust them to machine, clamping, tool overhang and workpiece material. Data and images may change without notice.