

GUHRING

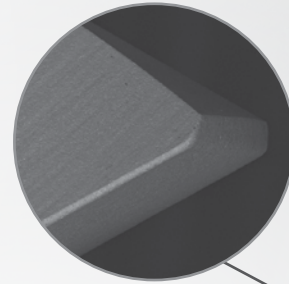
- High-performance machining
- higher cutting speeds
- outstanding tool life
- universal application in a wide variety of materials

Pionex *the new generation of THREADING TOOLS*

GUHRING – YOUR WORLDWIDE PARTNER

Pionex

Consistent cutting edge allows for excellent coating adhesion.



Tapered thread improves chip evacuation.

The enhanced coating system applied to DIN spiral flute taps results in **reduced friction**, improved chip evacuation, and **increased tool life**.

Newly developed **Slidur** coating on ANSI cut taps adds a layer of **lubricity** on top of a TiAlN base for **excellent wear-resistance**.

The unique properties of the **Sirius** coating applied to spiral point DIN taps offers **high wear resistance** and **improved chip evacuation**.

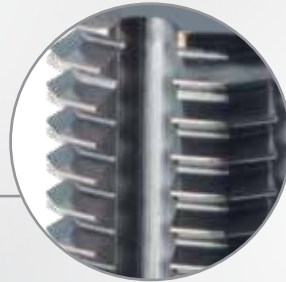
PionexTAP

- higher cutting rates
- longer tool life
- fewer tool changes

NEW GENERATION THREADING TOOLS FROM **GUHRING**

PionexFlutelessTAP

A special surface finish treatment in combination with the TiCN-coating **ensures increased wear-resistance.**



Based on a geometric modification, the contact surface between tool and workpiece have been optimized. **This reduces torque by up to 30%.**

Increased wear-resistance thanks to the application of a new powdered metal substrate.

Due to the h6 shank tolerance this new fluteless tap family can be applied in all standard clamping chucks.

New lubricating groove geometry

Thanks to the optimized lubricating grooves the **lubricating effect has been clearly improved in the forming lead area.**



	Material group	Examples
P	Common structural steels	A283, A516, Gr50, 30, 35, 42, 45, 50, 55, 60, 65, 70, 75, 80, 85, 90, 100, 110, 135, 140, 145, 150, 160
	Free-cutting steels	1151, 1215, L10, 10L10, 10L15, 10L17, 10L20, 10L23, 10L25, 10L30, 10L35, 10L40, 10L42, 10L45, 10L49, 10L50, 10L55, 11L15, 11L16, 11L17, 11L37, 11L38, 11L39, 11L41, 11L44, 11L46, 12L11, 12L12, 12L13, 12L14, 12L15, 41L25, 41L30, 41L35, 41L40, 41L42, 41L47, 41L50, 51L15, 51L17, 51L20, 86L20, 86L40
	Unalloyed heat-treatable steels	1005, 1006, 1008, 1009, 1010, 1011, 1012, 1013, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1025, 1026, 1029, 1030, 1033, 1035, 1037, 1038, 1039, 1040, 1042, 1043, 1044, 1045, 1046, 1049, 1050, 1053, 1055, 1059, 1060, 1064, 1065, 1069, 1070, 1071, 1074, 1075, 1078, 1080, 1084, 1085, 1086, 1090, 1095
	Alloyed heat-treatable steels	1330, 1335, 1340, 1345, 2340, 3140, 3145, 3150, 3230, 3240, 3335, 3340, 3435, 3450, 4032, 4037, 4063, 4130, 4135, 4137, 4140, 4142, 4145, 4147, 4150, 4161, 4337, 4340, 4640, 5045, 5046, 5060, 5130, 5132, 5135, 5140, 5145, 5157, 5150, 5155, 5160, 6130, 6135, 6140, 6145, 6150, 7140, 6145, 6150, 7140, 8630, 8632, 8635, 8637, 8640, 8642, 8645, 8650, 8650, 8660, 8735, 8740, 8742, 9250, 9254, 9255, 9260, 9262, 9840, 9850
	Unalloyed case hardened steels	1005, 1006, 1008, 1009, 1010, 1011, 1012, 1013, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1025, 1026, 1029, 1030, 1033, 1035, 1037, 1038, 1039, 1040, 1042, 1043, 1044, 1045, 1046, 1049, 1050, 1053, 1055, 1059, 1060, 1064, 1065, 1069, 1070, 1071, 1074, 1075, 1078, 1080, 1084, 1085, 1086, 1090, 1095
	Alloyed case hardened steels	2317, 2512, 2515, 2517, 3115, 3120, 3215, 3220, 3312, 3316, 3325, 4012, 4023, 4024, 4027, 4028, 4118, 4119, 4125, 4317, 4320, 4419, 4422, 4427, 4608, 4615, 4617, 4620, 4621, 4626, 4718, 4720, 4815, 4817, 4820, 5015, 5115, 5117, 5120, 6115, 6118, 6120, 6125, 8115, 8615, 8617, 8620, 8622, 8625, 8627, 8720, 8822, 9310, 9315, 9317
	Nitriding steels	1132, 1137, 1138, 1139, 1140, 1141, 1144, 1145, 1146, 1151
	Tool steels	A2, A3, A4, A5, A6, A8, A9, A10, O1, O2, O6, O7, A7, D2, D3, D4, D5, D7, H10, H11, H12, H13, H14, H19, H20, H21, H22, H23, H24, H25, H26, H41, H42, H43, L1, L3, W1, W2, W5
	High speed steels	M1, M2, M3-1, M3-2, M4, M6, M7, M10, M30, M33, M34, M36, M41, M42, M43, M44, M46, M47, T1, T2, T4, T5, T6, T8, T15
	Spring steels	5150, 5155, 6145, 6150, 9255
H	Hardened steels >48-60 Rc	Heat Treated Steels
M	Stainless steels, sulphured	203 Ez, 303 Se, 303 Ma, 303 Pb, 303 PlusX, 430F Se, 416 Se, 416 PlusX, 420F, 420F Se, 440F, 440F Se
	austenitic	201, 202, 301, 302B, 303, 304, 304L, 305, 308, 309, 309S, 310, 310S, 314, 316, 316L, 317, 321, 330, 347, 348, 384, 385, Nitronic 32, Nitronic 33, Nitronic 40, Nitronic 50, Nitronic 60, 17-7PH
	martensitic	403, 405, 410, 414, 416, 420, 422, 430, 431, 440A, 440B, 440C, 446, 501, 502, 630, Greek Ascoloy
K	Cast iron	A48-20 B, A48-30 B, A48-40 B, A48-50B, A159G1800, A159G2500, A159G3000, A159G3500, A159G4000
	Spheroidal graphite iron and malleable cast iron	60-10-18, 60-40-18, 65-45-12, 80-55-06, 100-70-03, 120-90-02, 32510, 35018, 40010, 50005, 60004, 70003, 80002, 90001, A220-70003, A220-8002, A536
	Chilled cast iron	
S	Special alloys	Inconel, Hastelloy, Monel, Nimonic, MAR-M246, DS-Ni, Waspalloy, Rene41
	Ti and Ti-alloys	Ti6AL4V, 5390A, TiCu2
N	Aluminium and Al-alloys	EC 1060, 1100, 1145, 1175, 1235, 2011, 2014, 2017, 2018, 2021, 2024, 2025, 2117, 2218, 2219, 2618, 3003, 3004, 3005, 4032, 4032-T6, 5005, 5050, 5052, 5056, 5083, 5086, 5154, 5252, 5254, 5454, 5456, 5457, 5652, 5657, 6053, 6061, 6061-T6, 6063, 6066, 6070, 6101, 6151, 6253, 6262, 6463, 6951, 7001, 7004, 7005, 7039, 7049, 7050, 7075, 7075-T6, 7079, 7175, 7178
	Al wrought alloys	1100-0, 3003-H18, 5056-0, 2024-T4, 4043-H18
	Al cast alloys	295-T6, 319-F, 356-T6, 380-F, 384-F, 390-F, 443-F, 413-F, 518-F, 713-TS, 850-TS
	Magnesium alloys	AZ31B, AZ63A, AZ80A, AZ91C, EZ33A, HK31A, QE22A, ZK60A
	Copper, low-alloyed	C10100, C27000, C71500, C52400, C77000, C17200, C71500, C95500, C86500
	Brass, short-chipping	CUZn10, CUZn20

PionexTAP



Through hole taps

UNC / UNF threads	p. 8
Metric / Metric fine threads	p. 14
G threads	p. 27



Blind hole taps

UNC / UNF threads	p. 28
Metric / Metric fine threads	p. 36
G threads	p. 51

PionexFlutelessTAP























Fluteless machine taps

UNC / UNF threads	p. 56
Metric / Metric fine threads	p. 58
G threads	p. 68

Technical Section	p. 69
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



CUT TAPS - THROUGH HOLE

$\leq 3 \times D$ thread depth 	Tool material			HSS-E					HSS-E-PM			
	Lead form			B	B	B	B	B	B	B	B	
	Coating			Slidur	Slidur							
	Cutting direction			R	R	R		R	R	R	R	
	Coolant delivery			N/A	radial	N/A	N/A	N/A	N/A	N/A	radial	
	Shank tolerance			h9	h9	h9	h9	h9	h9	h6	h6+HB	h6
THROUGH HOLE												
Suitable lubricants:  = Neat oil  = Soluble oil  = Paste	Thread type	Blank Style	Tolerance	Series no./page								
	UNC	DIN/ANSI	2BX	4658 p8	4660 p10							
	UNF	DIN/ANSI	2BX	4659 p9	4661 p11							
	UNC	DIN	2BX			4642 p12						
	UNF	DIN	2BX			4643 p13						
	M	DIN	6HX			4218 p14	4644 p25	4645 p24	4646 p16	4651 p26	4648 p18	
		DIN	6GX			4638 p20						
			7GX			4639 p22						
	MF		6H+0.1			4640 p23						
				6HX			4219 p15		4647 p17		4649 p19	
			6GX			4641 p21						
	G		- X			4220 p27						


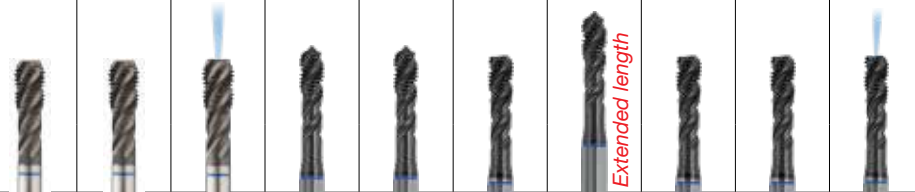
Form (fluteless) taps start on page 56

Technical section starts on page 69

Pictograms

Tool material			
Type of tapping size hole			
	Through hole	Blind hole	Through and blind hole
Cutting direction			
	right	left	

CUT TAPS - BLIND HOLE


$\leq 3 \times D$ thread depth	Tool material		HSS-E						HSS-E-PM				
	Lead form		C	E	C	C	C	E	C	C	C		
	Coating		Slidur	Slidur	Slidur	A	A	A	A	A	A		
	Cutting direction		R	R	R	R	L	R	R	R	R		
	Coolant delivery		N/A	N/A	axial	N/A	N/A	N/A	N/A	N/A	axial		
	Shank tolerance		h9	h9	h9	h9	h9	h9	h9	h6	h6+HB	h6	
													
BLIND HOLE													
Suitable lubricants: ● = Neat oil ○ = Soluble oil △ = Paste	Thread type	Blank Style	Tolerance	Series no./page									
	UNC	DIN/ANSI	2BX	4652 p28	4654 p30	4656 p32							
	UNF	DIN/ANSI	2BX	4653 p29	4655 p31	4657 p33							
	UNC	DIN	2BX				391 p34						
	UNF	DIN	2BX				392 p35						
	M	DIN	6HX				393 p36	4629 p49	4630 p38	4633 p48	4634 p40	4650 p50	4636 p42
		DIN	6GX				4625 p44						
			7GX				4626 p46						
	MF		6H+0.1				4627 p47						
			6HX				394 p37		4631 p39		4635 p41		4637 p43
		6GX				4628 p45							
G		- X				395 p51		4632 p52					

Form (fluteless) taps start on page 56
 Technical section starts on page 69

Coatings

 TiCN

 TiAlN

 Sirius

Slidur



Spiral point taps for UNC threads

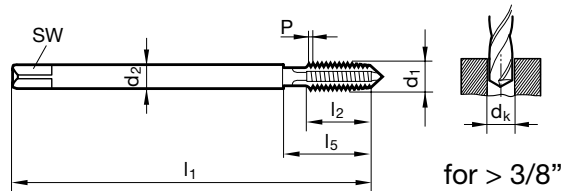
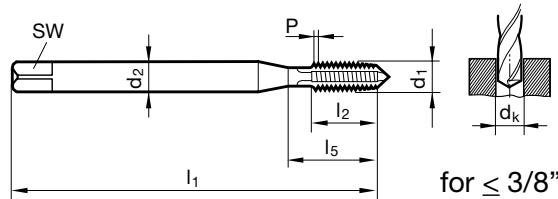
Series no.

4658



Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		

Tool material	HSS-E
Tolerance on Ø	2BX
Coating	Slidur
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN length,
ANSI shank



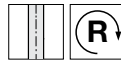
d1 - P	H	dk in	No. of	d2	SW	l1	l5	Code no.	EDP Number
	limits	range	flutes	in	in	in	in		
2-56	H3/H4	0.067 - 0.074	3	0.141	0.110	1.969	0.631	2.184	9046580021840
3-48	H3/H4	0.076 - 0.084	3	0.141	0.110	2.205	0.631	2.515	9046580025150
4-40	H3/H4	0.085 - 0.094	3	0.141	0.110	2.205	0.709	2.845	9046580028450
5-40	H3/H4	0.098 - 0.106	3	0.141	0.110	2.205	0.709	3.175	9046580031750
6-32	H4/H5	0.104 - 0.114	3	0.141	0.110	2.205	0.709	3.505	9046580035050
8-32	H4/H5	0.130 - 0.139	3	0.168	0.131	2.480	0.827	4.166	9046580041660
10-24	H4/H5	0.145 - 0.155	3	0.194	0.152	2.756	0.945	4.826	9046580048260
12-24	H4/H5	0.171 - 0.181	3	0.220	0.165	3.150	1.024	5.486	9046580054860
1/4-20	H5/H6	0.196 - 0.207	3	0.255	0.191	3.150	1.181	6.350	9046580063500
5/16-18	H5/H6	0.252 - 0.265	3	0.318	0.238	3.543	1.377	7.938	9046580079380
3/8-16	H6/H7	0.307 - 0.321	4	0.381	0.286	3.937	1.456	9.525	9046580095250
7/16-14	H6/H7	0.360 - 0.376	4	0.323	0.242	3.937	N/A	11.113	9046580111130
1/2-13	H6/H7	0.417 - 0.434	4	0.367	0.275	4.331	N/A	12.700	9046580127000
9/16-12	H6/H7	0.472 - 0.490	4	0.429	0.322	4.331	N/A	14.288	9046580142880
5/8-11	H6/H7	0.527 - 0.546	4	0.480	0.360	4.331	N/A	15.875	9046580158750
3/4-10	H6/H7	0.642 - 0.663	4	0.590	0.442	4.921	N/A	19.050	9046580190500



Spiral point taps for UNF threads

Series no.

4659



Tool material

HSS-E

Tolerance on Ø

2BX

Coating

Slidur

Flute type

VA

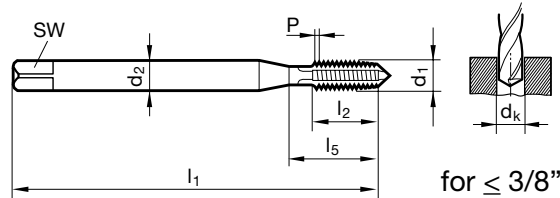
Chamfer form

B

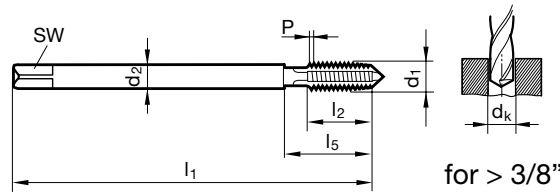
Internal coolant

N/A

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



for ≤ 3/8"



for > 3/8"



DIN length,
ANSI shank

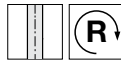
d1 - P	H	dk in	No. of	d2	SW	l1	l5	Code no.	EDP Number
	limits	range	flutes	in	in	in	in		
2-64	H3/H4	0.069 - 0.075	3	0.141	0.110	1.969	0.631	2.184	9046590021840
3-56	H3/H4	0.080 - 0.086	3	0.141	0.110	2.205	0.631	2.515	9046590025150
4-48	H3/H4	0.089 - 0.097	3	0.141	0.110	2.205	0.709	2.845	9046590028450
5-44	H3/H4	0.100 - 0.108	3	0.141	0.110	2.205	0.709	3.175	9046590031750
6-40	H3/H4	0.111 - 0.119	3	0.141	0.110	2.205	0.709	3.505	9046590035050
8-36	H3/H4	0.134 - 0.142	3	0.168	0.131	2.480	0.827	4.166	9046590041660
10-32	H4/H5	0.156 - 0.164	3	0.194	0.152	2.756	0.945	4.826	9046590048260
12-28	H4/H5	0.177 - 0.186	3	0.220	0.165	3.150	1.024	5.486	9046590054860
1/4-28	H4/H5	0.211 - 0.220	3	0.255	0.191	3.150	1.181	6.350	9046590063500
5/16-24	H4/H5	0.267 - 0.277	3	0.318	0.238	3.543	1.377	7.938	9046590079380
3/8-24	H4/H5	0.330 - 0.340	4	0.381	0.286	3.543	1.456	9.525	9046590095250
7/16-20	H5/H6	0.383 - 0.395	4	0.323	0.242	3.937	N/A	11.113	9046590111130
1/2-20	H5/H6	0.446 - 0.457	4	0.367	0.275	3.937	N/A	12.700	9046590127000
9/16-18	H5/H6	0.502 - 0.515	4	0.429	0.322	3.937	N/A	14.288	9046590142880
5/8-18	H5/H6	0.565 - 0.578	4	0.480	0.360	3.937	N/A	15.875	9046590158750
3/4-16	H6/H7	0.682 - 0.696	4	0.590	0.442	4.331	N/A	19.050	9046590190500



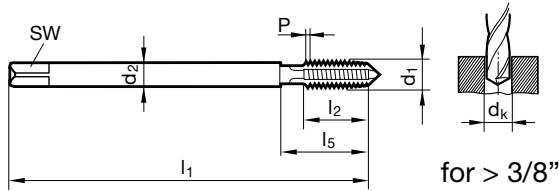
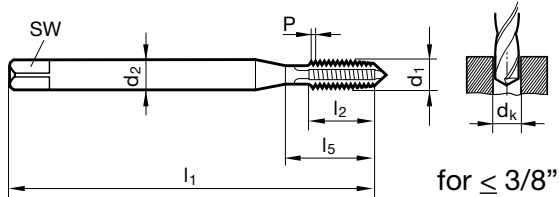
Spiral point taps for UNC threads

Series no. 4660

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
		●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	2BX
Coating	Slidur
Flute type	VA
Chamfer form	B (3.5-5)
Internal coolant	radial



DIN length,
ANSI shank



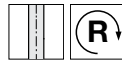
d1 - P	H	dk in	No. of	d2	SW	l1	l5	Code no.	EDP Number
	limits	range	flutes	in	in	in	in		
10-24	H4/H5	0.145 - 0.155	3	0.194	0.152	2.756	0.945	4.826	9046600048260
12-24	H4/H5	0.171 - 0.181	3	0.220	0.165	3.150	1.024	5.486	9046600054860
1/4-20	H5/H6	0.196 - 0.207	3	0.255	0.191	3.150	1.181	6.350	9046600063500
5/16-18	H5/H6	0.252 - 0.265	3	0.318	0.238	3.543	1.377	7.938	9046600079380
3/8-16	H6/H7	0.307 - 0.321	4	0.381	0.286	3.937	1.456	9.525	9046600095250
7/16-14	H6/H7	0.360 - 0.376	4	0.323	0.242	3.937	N/A	11.113	9046600111130
1/2-13	H6/H7	0.417 - 0.434	4	0.367	0.275	4.331	N/A	12.700	9046600127000
9/16-12	H6/H7	0.472 - 0.490	4	0.429	0.322	4.331	N/A	14.288	9046600142880
5/8-11	H6/H7	0.527 - 0.546	4	0.480	0.360	4.331	N/A	15.875	9046600158750
3/4-10	H6/H7	0.642 - 0.663	4	0.590	0.442	4.921	N/A	19.050	9046600190500



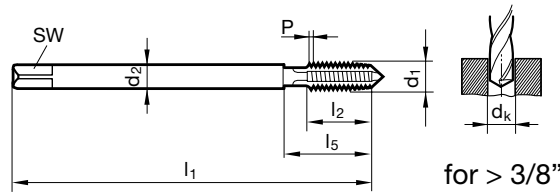
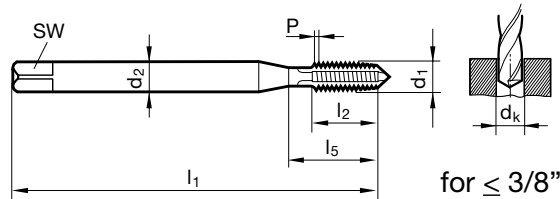
Spiral point taps for UNF threads

Series no. 4661

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
		●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	2BX
Coating	Slidur
Flute type	VA
Chamfer form	B (3.5-5)
Internal coolant	radial



DIN length,
ANSI shank



d1 - P	H	dk in	No. of	d2	SW	l1	l5	Code no.	EDP Number
	limits	range	flutes	in	in	in	in		
10-32	H4/H5	0.156 - 0.164	3	0.194	0.152	2.756	0.945	4.826	9046610048260
12-28	H4/H5	0.177 - 0.186	3	0.220	0.165	3.150	1.024	5.486	9046610054860
1/4-28	H4/H5	0.211 - 0.220	3	0.255	0.191	3.150	1.181	6.350	9046610063500
5/16-24	H4/H5	0.267 - 0.277	3	0.318	0.238	3.543	1.377	7.938	9046610079380
3/8-24	H4/H5	0.330 - 0.340	4	0.381	0.286	3.543	1.456	9.525	9046610095250
7/16-20	H5/H6	0.383 - 0.395	4	0.323	0.242	3.937	N/A	11.113	9046610111130
1/2-20	H5/H6	0.446 - 0.457	4	0.367	0.275	3.937	N/A	12.700	9046610127000
9/16-18	H5/H6	0.502 - 0.515	4	0.429	0.322	3.937	N/A	14.288	9046610142880
5/8-18	H5/H6	0.565 - 0.578	4	0.480	0.360	3.937	N/A	15.875	9046610158750
3/4-16	H6/H7	0.682 - 0.696	4	0.590	0.442	4.331	N/A	19.050	9046610190500

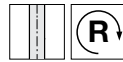


Spiral point taps for UNC threads

Series no.

4642

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material

HSS-E

Tolerance on Ø

2BX

Coating

S

Flute type

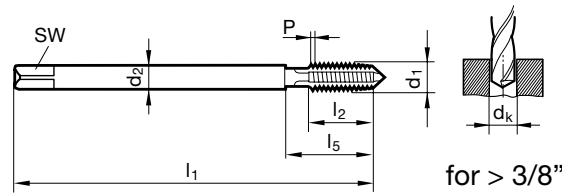
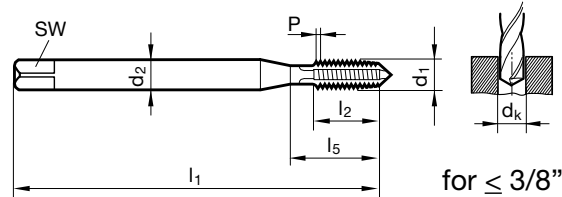
VA

Chamfer form

B

Internal coolant

N/A



DIN 2184-1 ~DIN 371/~DIN 376

d1	H	dk inch	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
2 - 56	H3/H4	0.067 - 0.074	3	2.800	2.100	45.000	9.000	14.500	2.184	9046420021840
4 - 40	H3/H4	0.085 - 0.094	3	3.500	2.700	56.000	11.000	18.000	2.845	9046420028450
6 - 32	H3/H4	0.104 - 0.114	3	4.000	3.000	56.000	12.000	20.000	3.505	9046420035050
8 - 32	H4/H5	0.130 - 0.139	3	4.500	3.400	63.000	12.000	21.000	4.166	9046420041660
10 - 24	H4/H5	0.145 - 0.155	3	6.000	4.900	70.000	14.000	25.000	4.826	9046420048260
12 - 24	H4/H5	0.171 - 0.181	3	6.000	4.900	80.000	16.000	30.000	5.486	9046420054860
1/4 - 20	H4/H5	0.196 - 0.207	3	7.000	5.500	80.000	16.000	30.000	6.350	9046420063500
5/16 - 18	H5/H6	0.252 - 0.265	3	8.000	6.200	90.000	18.000	35.000	7.938	9046420079380
3/8 - 16	H5/H6	0.307 - 0.321	3	10.000	8.000	100.000	20.000	39.000	9.525	9046420095250
7/16 - 14	H6/H7	0.360 - 0.376	3	8.000	6.200	100.000	22.000	42.000	11.113	9046420111130
1/2 - 13	H6/H7	0.417 - 0.434	4	9.000	7.000	110.000	25.000	49.000	12.700	9046420127000
9/16 - 12	H6/H7	0.472 - 0.490	4	11.000	9.000	110.000	28.000	53.000	14.288	9046420142880
5/8 - 11	H6/H7	0.527 - 0.546	4	12.000	9.000	110.000	30.000	53.000	15.875	9046420158750
3/4 - 10	H6/H7	0.642 - 0.663	4	14.000	11.000	125.000	33.000	62.000	19.050	9046420190500
7/8 - 9	H7/H8	0.755 - 0.778	4	18.000	14.500	140.000	35.000	62.000	22.225	9046420222250
1 - 8	H7/H8	0.865 - 0.890	4	18.000	14.500	160.000	38.000	73.000	25.400	9046420254000

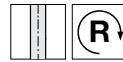


Spiral point taps for UNF threads

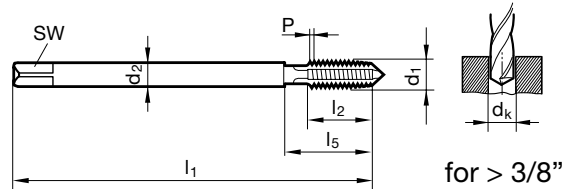
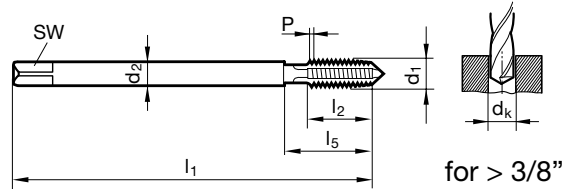
Series no. 4643

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	2BX
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 ~DIN 371/~DIN 376

d1	H	dk inch	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
2 - 64	H3/H4	0.069 - 0.075	3	2.800	2.100	45.000	9.000	14.500	2.184	9046430021840
4 - 48	H3/H4	0.089 - 0.097	3	3.500	2.700	56.000	10.000	18.000	2.845	9046430028450
6 - 40	H3/H4	0.111 - 0.119	3	4.000	3.000	56.000	11.000	20.000	3.505	9046430035050
8 - 36	H4/H5	0.134 - 0.142	3	4.500	3.400	63.000	12.000	21.000	4.166	9046430041660
10 - 32	H4/H5	0.156 - 0.164	3	6.000	4.900	70.000	14.000	25.000	4.826	9046430048260
12 - 28	H4/H5	0.177 - 0.186	3	6.000	4.900	80.000	16.000	30.000	5.486	9046430054860
1/4 - 28	H4/H5	0.211 - 0.220	3	7.000	5.500	80.000	16.000	30.000	6.350	9046430063500
5/16 - 24	H5/H6	0.267 - 0.277	3	8.000	6.200	90.000	17.000	35.000	7.938	9046430079380
3/8 - 24	H5/H6	0.330 - 0.340	3	10.000	8.000	90.000	18.000	35.000	9.525	9046430095250
7/16 - 20	H6/H7	0.383 - 0.395	3	8.000	6.200	100.000	22.000	42.000	11.113	9046430111130
1/2 - 20	H6/H7	0.446 - 0.457	4	9.000	7.000	100.000	20.000	40.000	12.700	9046430127000
9/16 - 18	H6/H7	0.502 - 0.515	4	11.000	9.000	100.000	22.000	40.000	14.288	9046430142880
5/8 - 18	H6/H7	0.565 - 0.578	4	12.000	9.000	100.000	22.000	44.000	15.875	9046430158750
3/4 - 16	H6/H7	0.682 - 0.696	4	14.000	11.000	110.000	25.000	44.000	19.050	9046430190500
7/8 - 14	H7/H8	0.798 - 0.813	4	18.000	14.500	125.000	25.000	44.000	22.225	9046430222250
1 - 12	H7/H8	0.910 - 0.928	4	18.000	14.500	140.000	28.000	50.000	25.400	9046430254000

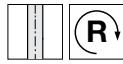


Spiral point taps for ISO metric threads

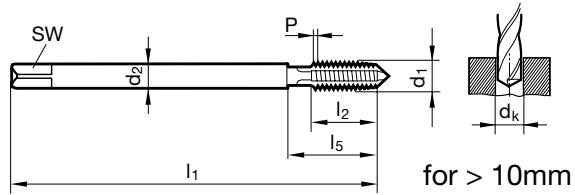
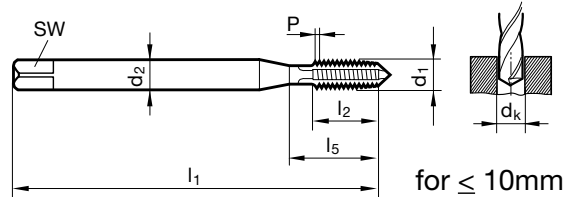
Series no. 4218

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	6HX
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 DIN 371/DIN 376

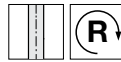
d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D3/D4	1.567 - 1.679	3	2.800	2.100	45.000	8.000	13.500	2.000	9042180020000
M2.5	0.450	D3/D4	2.013 - 2.138	3	2.800	2.100	50.000	9.000	14.500	2.500	9042180025000
M3	0.500	D3/D4	2.459 - 2.599	3	3.500	2.700	56.000	10.000	18.000	3.000	9042180030000
M4	0.700	D4/D5	3.242 - 3.422	3	4.500	3.400	63.000	12.000	21.000	4.000	9042180040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	70.000	14.000	25.000	5.000	9042180050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	80.000	16.000	30.000	6.000	9042180060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	90.000	17.000	35.000	8.000	9042180080000
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	100.000	20.000	39.000	10.000	9042180100000
M12	1.750	D8/D9	10.106 - 10.441	4	9.000	7.000	110.000	24.000	49.000	12.000	9042180120000
M14	2.000	D9/D10	11.835 - 12.210	4	11.000	9.000	110.000	26.000	53.000	14.000	9042180140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	110.000	26.000	54.000	16.000	9042180160000
M18	2.500	D10/D11	15.294 - 15.744	4	14.000	11.000	125.000	30.000	62.000	18.000	9042180180000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	140.000	32.000	62.000	20.000	9042180200000
M24	3.000	D10/D11	20.752 - 21.252	4	18.000	14.500	160.000	36.000	73.000	24.000	9042180240000
M30	3.500	D12/D13	26.211 - 26.771	4	22.000	18.000	180.000	40.000	85.000	30.000	9042180300000



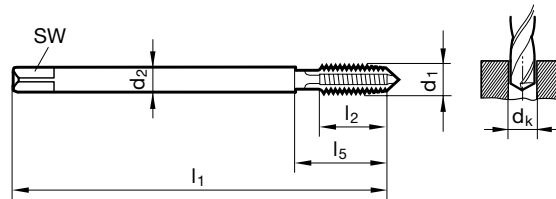
Spiral point taps for ISO metric fine threads

Series no. 4219

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	6HX
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M6 x 0.75	D5	5.188 - 5.378	3	4.500	3.400	80.000	13.000	30.000	6.004	9042190060040
M8 x 0.75	D5/D6	7.188 - 7.378	3	6.000	4.900	80.000	14.000	30.000	8.004	9042190080040
M8 x 1	D5/D6	6.917 - 7.153	3	6.000	4.900	90.000	17.000	35.000	8.005	9042190080050
M10 x 1	D5/D6	8.917 - 9.153	3	7.000	5.500	90.000	16.000	35.000	10.005	9042190100050
M10 x 1.25	D6/D7	8.647 - 8.912	3	7.000	5.500	100.000	20.000	39.000	10.006	9042190100060
M12 x 1	D6/D7	10.917 - 11.153	4	9.000	7.000	100.000	20.000	40.000	12.005	9042190120050
M12 x 1.25	D7/D8	10.647 - 10.912	4	9.000	7.000	100.000	20.000	40.000	12.006	9042190120060
M12 x 1.5	D8/D9	10.376 - 10.676	4	9.000	7.000	100.000	20.000	40.000	12.007	9042190120070
M14 x 1.5	D8/D9	12.376 - 12.676	4	11.000	9.000	100.000	20.000	40.000	14.007	9042190140070
M16 x 1.5	D8/D9	14.376 - 14.676	4	12.000	9.000	100.000	22.000	44.000	16.007	9042190160070
M18 x 1.5	D8/D9	16.376 - 16.676	4	14.000	11.000	110.000	25.000	44.000	18.007	9042190180070
M20 x 1.5	D8/D9	18.376 - 18.676	4	16.000	12.000	125.000	25.000	44.000	20.007	9042190200070
M24 x 1.5	D8/D9	22.376 - 22.676	4	18.000	14.500	140.000	28.000	48.000	24.007	9042190240070



Spiral point taps for ISO metric threads

Series no.

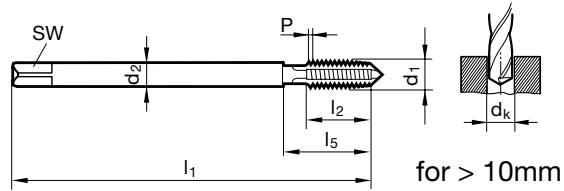
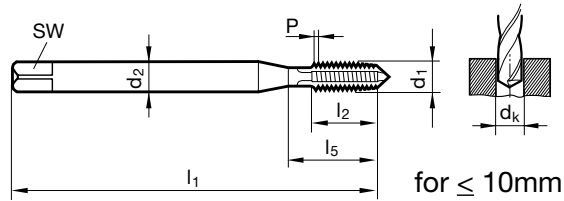
4646

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M3	0.500	D3/D4	2.459 - 2.599	3	3.500	2.700	56.000	10.000	18.000	3.000	9046460030000
M4	0.700	D4/D5	3.242 - 3.422	3	4.500	3.400	63.000	12.000	21.000	4.000	9046460040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	70.000	14.000	25.000	5.000	9046460050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	80.000	16.000	30.000	6.000	9046460060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	90.000	17.000	35.000	8.000	9046460080000
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	100.000	20.000	39.000	10.000	9046460100000
M12	1.750	D8/D9	10.106 - 10.441	4	9.000	7.000	110.000	24.000	49.000	12.000	9046460120000
M14	2.000	D9/D10	11.835 - 12.210	4	11.000	9.000	110.000	26.000	53.000	14.000	9046460140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	110.000	26.000	54.000	16.000	9046460160000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	140.000	32.000	62.000	20.000	9046460200000

HSS-E-PM FOR
MAXIMUM TOOL LIFE

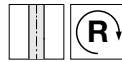


Spiral point taps for ISO metric fine threads

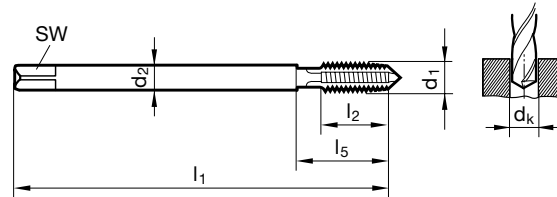
Series no. 4647

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M8 x 1	D5/D6	6.917 - 7.153	3	6.000	4.900	90.000	17.000	35.000	8.005	9046470080050
M10 x 1	D5/D6	8.917 - 9.153	3	7.000	5.500	90.000	16.000	35.000	10.005	9046470100050
M10 x 1.25	D6/D7	8.647 - 8.912	3	7.000	5.500	100.000	20.000	39.000	10.006	9046470100060
M12 x 1	D6/D7	10.917 - 11.153	4	9.000	7.000	100.000	20.000	40.000	12.005	9046470120050
M12 x 1.25	D7/D8	10.647 - 10.912	4	9.000	7.000	100.000	20.000	40.000	12.006	9046470120060
M12 x 1.5	D8/D9	10.376 - 10.676	4	9.000	7.000	100.000	20.000	40.000	12.007	9046470120070
M14 x 1.5	D8/D9	12.376 - 12.676	4	11.000	9.000	100.000	20.000	40.000	14.007	9046470140070
M16 x 1.5	D8/D9	14.376 - 14.676	4	12.000	9.000	100.000	22.000	44.000	16.007	9046470160070
M18 x 1.5	D8/D9	16.376 - 16.676	4	14.000	11.000	110.000	25.000	44.000	18.007	9046470180070
M20 x 1.5	D8/D9	18.376 - 18.676	4	16.000	12.000	125.000	25.000	44.000	20.007	9046470200070
M24 x 1.5	D8/D9	22.376 - 22.676	4	18.000	14.500	140.000	28.000	48.000	24.007	9046470240070

HSS-E-PM FOR
MAXIMUM TOOL LIFE



Coolant fed spiral point taps for ISO metric threads

Series no.

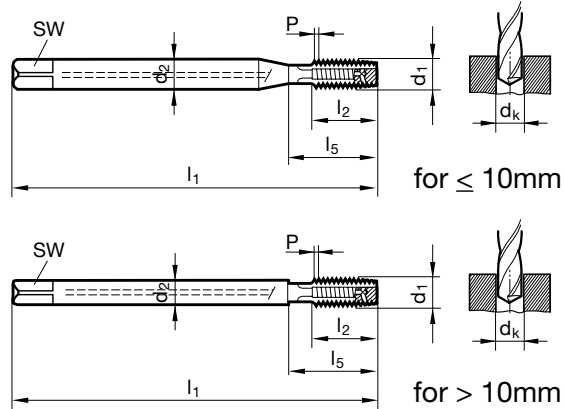
4648

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	Radial



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
mm	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	70.000	14.000	25.000	5.000	9046480050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	80.000	16.000	30.000	6.000	9046480060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	90.000	17.000	35.000	8.000	9046480080000
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	100.000	20.000	39.000	10.000	9046480100000
M12	1.750	D8/D9	10.106 - 10.441	4	9.000	7.000	110.000	24.000	49.000	12.000	9046480120000
M14	2.000	D9/D10	11.835 - 12.210	4	11.000	9.000	110.000	26.000	53.000	14.000	9046480140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	110.000	26.000	54.000	16.000	9046480160000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	140.000	32.000	62.000	20.000	9046480200000
M24	3.000	D10/D11	20.752 - 21.252	4	18.000	14.500	160.000	36.000	73.000	24.000	9046480240000
M30	3.500	D12/D13	26.211 - 26.771	4	22.000	18.000	180.000	40.000	85.000	30.000	9046480300000

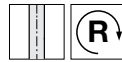
HSS-E-PM FOR
MAXIMUM TOOL LIFE



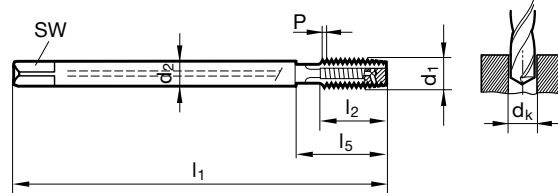
Coolant fed spiral point taps for ISO metric fine threads

Series no. 4649

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	Radial



DIN 2184-1 DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M8 x 1	D5/D6	6.917 - 7.153	3	6.000	4.900	90.000	17.000	35.000	8.005	9046490080050
M10 x 1	D5/D6	8.917 - 9.153	3	7.000	5.500	90.000	16.000	35.000	10.005	9046490100050
M10 x 1.25	D6/D7	8.647 - 8.912	3	7.000	5.500	100.000	20.000	39.000	10.006	9046490100060
M12 x 1	D6/D7	10.917 - 11.153	4	9.000	7.000	100.000	20.000	40.000	12.005	9046490120050
M12 x 1.25	D7/D8	10.647 - 10.912	4	9.000	7.000	100.000	20.000	40.000	12.006	9046490120060
M12 x 1.5	D8/D9	10.376 - 10.676	4	9.000	7.000	100.000	20.000	40.000	12.007	9046490120070
M14 x 1.5	D8/D9	12.376 - 12.676	4	11.000	9.000	100.000	20.000	40.000	14.007	9046490140070
M16 x 1.5	D8/D9	14.376 - 14.676	4	12.000	9.000	100.000	22.000	44.000	16.007	9046490160070
M18 x 1.5	D8/D9	16.376 - 16.676	4	14.000	11.000	110.000	25.000	44.000	18.007	9046490180070
M20 x 1.5	D8/D9	18.376 - 18.676	4	16.000	12.000	125.000	25.000	44.000	20.007	9046490200070
M24 x 1.5	D8/D9	22.376 - 22.676	4	18.000	14.500	140.000	28.000	48.000	24.007	9046490240070

HSS-E-PM FOR
MAXIMUM TOOL LIFE



Spiral point taps for ISO metric threads

Series no. 4638

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material **HSS-E**

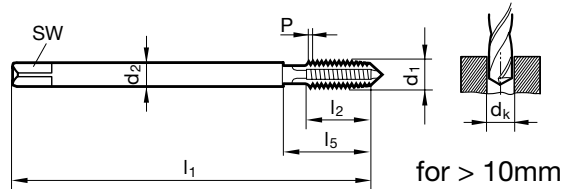
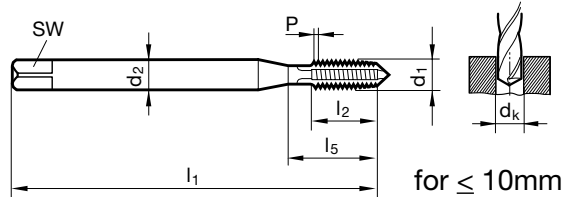
Tolerance on Ø 6GX

Coating **S**

Flute type VA

Chamfer form B

Internal coolant N/A



DIN 2184-1 DIN 371/DIN 376

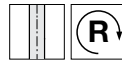
d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D4/D5	1.567 - 1.679	3	2.800	2.100	45.000	8.000	13.500	2.000	9046380020000
M2.5	0.450	D4/D5	2.013 - 2.138	3	2.800	2.100	50.000	9.000	14.500	2.500	9046380025000
M3	0.500	D5/D6	2.459 - 2.599	3	3.500	2.700	56.000	10.000	18.000	3.000	9046380030000
M4	0.700	D6/D7	3.242 - 3.422	3	4.500	3.400	63.000	12.000	21.000	4.000	9046380040000
M5	0.800	D6/D7	4.134 - 4.334	3	6.000	4.900	70.000	14.000	25.000	5.000	9046380050000
M6	1.000	D7/D8	4.917 - 5.153	3	6.000	4.900	80.000	16.000	30.000	6.000	9046380060000
M8	1.250	D8/D9	6.647 - 6.912	3	8.000	6.200	90.000	17.000	35.000	8.000	9046380080000
M10	1.500	D9/D10	8.376 - 8.676	3	10.000	8.000	100.000	20.000	39.000	10.000	9046380100000
M12	1.750	D10/D11	10.106 - 10.441	3	9.000	7.000	110.000	24.000	49.000	12.000	9046380120000
M14	2.000	D12/D13	11.835 - 12.210	3	11.000	9.000	110.000	26.000	53.000	14.000	9046380140000
M16	2.000	D12/D13	13.835 - 14.210	4	12.000	9.000	110.000	26.000	54.000	16.000	9046380160000
M18	2.500	D13/D14	15.294 - 15.744	4	14.000	11.000	125.000	30.000	62.000	18.000	9046380180000
M20	2.500	D12/D13	17.294 - 17.744	4	16.000	12.000	140.000	32.000	62.000	20.000	9046380200000
M24	3.000	D14/D15	20.752 - 21.252	4	18.000	14.500	160.000	36.000	73.000	24.000	9046380240000
M30	3.500	D15/D16	26.211 - 26.771	4	22.000	18.000	180.000	40.000	85.000	30.000	9046380300000



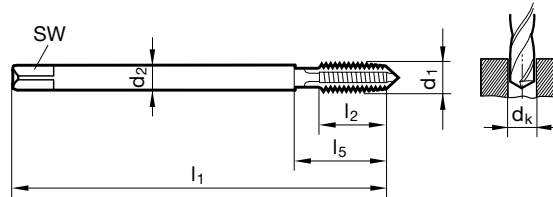
Spiral point taps for ISO metric fine threads

Series no. 4641

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	6GX
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M6 x 0.75	D5	5.188 - 5.378	3	4.500	3.400	80.000	13.000	30.000	6.004	9046410060040
M8 x 0.75	D5/D6	7.188 - 7.378	3	6.000	4.900	80.000	14.000	30.000	8.004	9046410080040
M8 x 1	D5/D6	6.917 - 7.153	3	6.000	4.900	90.000	17.000	35.000	8.005	9046410080050
M10 x 1	D5/D6	8.917 - 9.153	3	7.000	5.500	90.000	16.000	35.000	10.005	9046410100050
M10 x 1.25	D6/D7	8.647 - 8.912	3	7.000	5.500	100.000	20.000	39.000	10.006	9046410100060
M12 x 1	D6/D7	10.917 - 11.153	4	9.000	7.000	100.000	20.000	40.000	12.005	9046410120050
M12 x 1.25	D7/D8	10.647 - 10.912	4	9.000	7.000	100.000	20.000	40.000	12.006	9046410120060
M12 x 1.5	D8/D9	10.376 - 10.676	4	9.000	7.000	100.000	20.000	40.000	12.007	9046410120070
M14 x 1.5	D8/D9	12.376 - 12.676	4	11.000	9.000	100.000	20.000	40.000	14.007	9046410140070
M16 x 1.5	D8/D9	14.376 - 14.676	4	12.000	9.000	100.000	22.000	44.000	16.007	9046410160070
M18 x 1.5	D8/D9	16.376 - 16.676	4	14.000	11.000	110.000	25.000	44.000	18.007	9046410180070
M20 x 1.5	D8/D9	18.376 - 18.676	4	16.000	12.000	125.000	25.000	44.000	20.007	9046410200070
M24 x 1.5	D8/D9	22.376 - 22.676	4	18.000	14.500	140.000	28.000	48.000	24.007	9046410240070



Spiral point taps for ISO metric threads

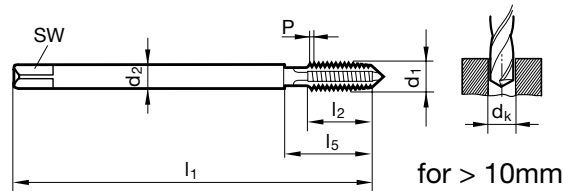
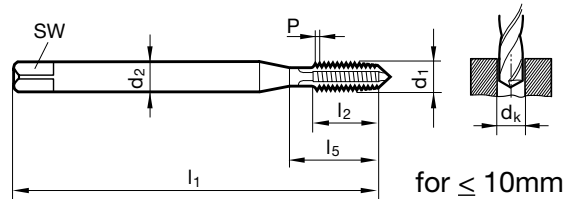
Series no.

4639

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	7GX
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D5/D6	1.567 - 1.679	3	2.800	2.100	45.000	8.000	13.500	2.000	9046390020000
M2.5	0.450	D5/D6	2.013 - 2.138	3	2.800	2.100	50.000	9.000	14.500	2.500	9046390025000
M3	0.500	D6/D7	2.459 - 2.599	3	3.500	2.700	56.000	10.000	18.000	3.000	9046390030000
M4	0.700	D7/D8	3.242 - 3.422	3	4.500	3.400	63.000	12.000	21.000	4.000	9046390040000
M5	0.800	D8/D9	4.134 - 4.334	3	6.000	4.900	70.000	14.000	25.000	5.000	9046390050000
M6	1.000	D9/D10	4.917 - 5.153	3	6.000	4.900	80.000	16.000	30.000	6.000	9046390060000
M8	1.250	D10/D11	6.647 - 6.912	3	8.000	6.200	90.000	17.000	35.000	8.000	9046390080000
M10	1.500	D11/D12	8.376 - 8.676	3	10.000	8.000	100.000	20.000	39.000	10.000	9046390100000
M12	1.750	D13/D14	10.106 - 10.441	4	9.000	7.000	110.000	24.000	49.000	12.000	9046390120000
M14	2.000	D14/D15	11.835 - 12.210	4	11.000	9.000	110.000	26.000	53.000	14.000	9046390140000
M16	2.000	D14/D15	13.835 - 14.210	4	12.000	9.000	110.000	26.000	54.000	16.000	9046390160000
M18	2.500	D15/D16	15.294 - 15.744	4	14.000	11.000	125.000	30.000	62.000	18.000	9046390180000
M20	2.500	D15/D16	17.294 - 17.744	4	16.000	12.000	140.000	32.000	62.000	20.000	9046390200000
M24	3.000	D17/D18	20.752 - 21.252	4	18.000	14.500	160.000	36.000	73.000	24.000	9046390240000
M30	3.500	D18/D19	26.211 - 26.771	4	22.000	18.000	180.000	40.000	85.000	30.000	9046390300000

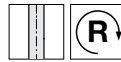


Spiral point taps for ISO metric threads

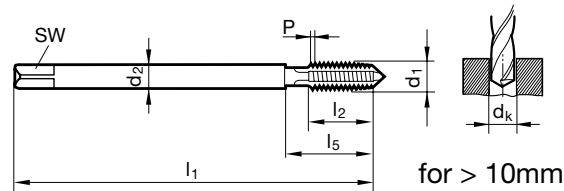
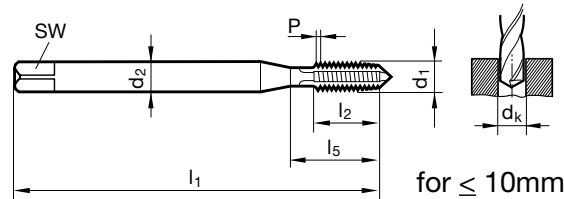
Series no. 4640

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	6H+0.1
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D11/D12	1.567 - 1.679	3	2.800	2.100	45.000	8.000	13.500	2.000	9046400020000
M2.5	0.450	D11/D12	2.013 - 2.138	3	2.800	2.100	50.000	9.000	14.500	2.500	9046400025000
M3	0.500	D11/D12	2.459 - 2.599	3	3.500	2.700	56.000	10.000	18.000	3.000	9046400030000
M4	0.700	D11/D12	3.242 - 3.422	3	4.500	3.400	63.000	12.000	21.000	4.000	9046400040000
M5	0.800	D11/D12	4.134 - 4.334	3	6.000	4.900	70.000	14.000	25.000	5.000	9046400050000
M6	1.000	D12/D13	4.917 - 5.153	3	6.000	4.900	80.000	16.000	30.000	6.000	9046400060000
M8	1.250	D13/D14	6.647 - 6.912	3	8.000	6.200	90.000	17.000	35.000	8.000	9046400080000
M10	1.500	D13/D14	8.376 - 8.676	3	10.000	8.000	100.000	20.000	39.000	10.000	9046400100000
M12	1.750	D14/D15	10.106 - 10.441	4	9.000	7.000	110.000	24.000	49.000	12.000	9046400120000
M14	2.000	D15/D16	11.835 - 12.210	4	11.000	9.000	110.000	26.000	53.000	14.000	9046400140000
M16	2.000	D15/D16	13.835 - 14.210	4	12.000	9.000	110.000	26.000	54.000	16.000	9046400160000
M18	2.500	D16/D17	15.294 - 15.744	4	14.000	11.000	125.000	30.000	62.000	18.000	9046400180000
M20	2.500	D15/D16	17.294 - 17.744	4	16.000	12.000	140.000	32.000	62.000	20.000	9046400200000
M24	3.000	D16/D17	20.752 - 21.252	4	18.000	14.500	160.000	36.000	73.000	24.000	9046400240000
M30	3.500	D17/D18	26.211 - 26.771	4	22.000	18.000	180.000	40.000	85.000	30.000	9046400300000



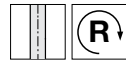
Spiral point taps for ISO metric threads - extended length

Series no.

4645

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material

HSS-E

Tolerance on Ø

6HX

Coating

S

Flute type

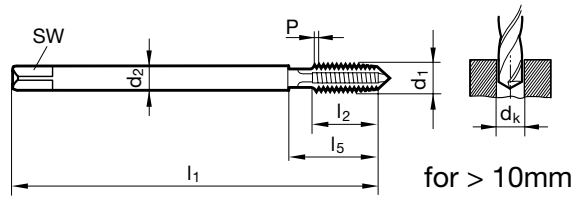
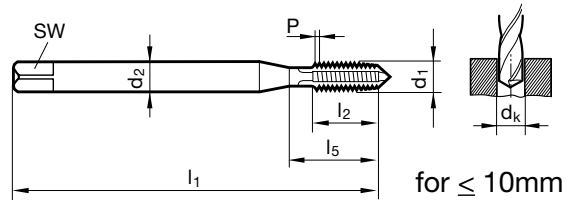
VA

Chamfer form

B

Internal coolant

N/A



Company Std.

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M3	0.500	D3/D4	2.459 - 2.599	3	3.500	2.700	90.000	10.000	18.000	3.000	9046450030000
M4	0.700	D4/D5	3.242 - 3.422	3	4.500	3.400	125.000	12.000	21.000	4.000	9046450040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	140.000	14.000	25.000	5.000	9046450050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	160.000	16.000	30.000	6.000	9046450060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	180.000	17.000	35.000	8.010	9046450080100
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	200.000	20.000	39.000	10.010	9046450100100
M12	1.750	D8/D9	10.106 - 10.441	4	9.000	7.000	220.000	24.000	158.000	12.000	9046450120000
M14	2.000	D9/D10	11.835 - 12.210	4	11.000	9.000	220.000	26.000	160.000	14.000	9046450140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	220.000	26.000	160.000	16.000	9046450160000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	280.000	32.000	217.000	20.000	9046450200000

EXTRA LENGTH TAP

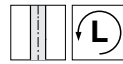


Spiral point taps for ISO metric threads - left hand

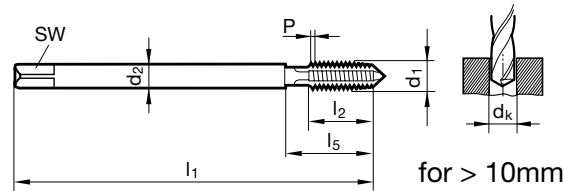
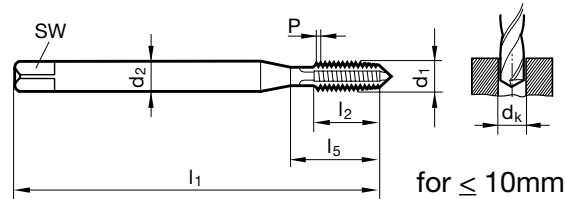
Series no. 4644

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	6HX
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D3/D4	1.567 - 1.679	3	2.800	2.100	45.000	8.000	13.500	2.000	9046440020000
M2.5	0.450	D3/D4	2.013 - 2.138	3	2.800	2.100	50.000	9.000	14.500	2.500	9046440025000
M3	0.500	D3/D4	2.459 - 2.599	3	3.500	2.700	56.000	10.000	18.000	3.000	9046440030000
M4	0.700	D4/D5	3.242 - 3.422	3	4.500	3.400	63.000	12.000	21.000	4.000	9046440040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	70.000	14.000	25.000	5.000	9046440050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	80.000	16.000	30.000	6.000	9046440060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	90.000	17.000	35.000	8.000	9046440080000
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	100.000	20.000	39.000	10.000	9046440100000
M12	1.750	D8/D9	10.106 - 10.441	4	9.000	7.000	110.000	24.000	49.000	12.000	9046440120000
M14	2.000	D9/D10	11.835 - 12.210	4	11.000	9.000	110.000	26.000	53.000	14.000	9046440140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	110.000	26.000	54.000	16.000	9046440160000
M18	2.500	D10/D11	15.294 - 15.744	4	14.000	11.000	125.000	30.000	62.000	18.000	9046440180000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	140.000	32.000	62.000	20.000	9046440200000
M24	3.000	D10/D11	20.752 - 21.252	4	18.000	14.500	160.000	36.000	73.000	24.000	9046440240000
M30	3.500	D12/D13	26.211 - 26.771	4	22.000	18.000	180.000	40.000	85.000	30.000	9046440300000



Spiral point taps for ISO metric threads

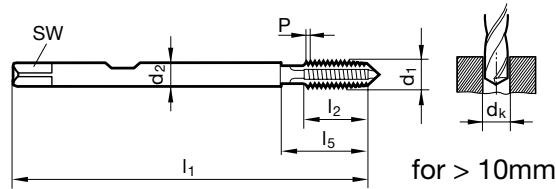
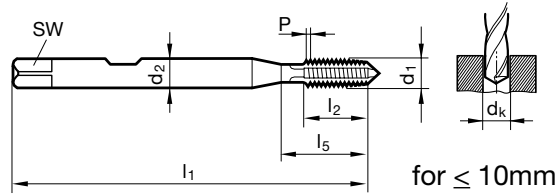
Series no. 4651

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	6HX+0.1
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M3	0.500	D3/D4	2.459 - 2.599	3	6.000	4.900	56.000	10.000	18.000	3.000	9046510030000
M4	0.700	D4/D5	3.242 - 3.422	3	6.000	4.900	63.000	12.000	21.000	4.000	9046510040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	70.000	14.000	25.000	5.000	9046510050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	80.000	16.000	30.000	6.000	9046510060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	90.000	17.000	35.000	8.000	9046510080000
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	100.000	20.000	39.000	10.000	9046510100000
M12	1.750	D8/D9	10.106 - 10.441	4	12.000	9.000	110.000	24.000	24.000	12.000	9046510120000
M14	2.000	D9/D10	11.835 - 12.210	4	12.000	9.000	110.000	26.000	53.000	14.000	9046510140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	110.000	26.000	54.000	16.000	9046510160000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	140.000	32.000	62.000	20.000	9046510200000

HSS-E-PM FOR
MAXIMUM TOOL LIFE



Spiral point taps for BSP threads

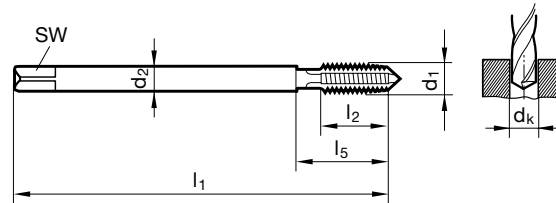
Series no. 4220

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	
Coating	S
Flute type	VA
Chamfer form	B
Internal coolant	N/A



DIN 2184-1 DIN 5156

d1	P	dk inch	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	range	flutes	mm	mm	mm	mm	mm		
G1/16	28.000	6.561 - 6.843	3	6.000	4.900	90.000	18.000	30.000	7.723	9042200077230
G1/8	28.000	8.566 - 8.848	3	7.000	5.500	90.000	18.000	35.000	9.728	9042200097280
G1/4	19.000	11.445 - 11.890	4	11.000	9.000	100.000	20.000	40.000	13.157	9042200131570
G3/8	19.000	14.950 - 15.395	4	12.000	9.000	100.000	22.000	44.000	16.662	9042200166620
G1/2	14.000	18.631 - 19.172	4	16.000	12.000	125.000	25.000	44.000	20.955	9042200209550
G5/8	14.000	20.587 - 21.128	4	18.000	14.500	125.000	25.000	48.000	22.911	9042200229110
G3/4	14.000	24.117 - 24.658	4	20.000	16.000	140.000	28.000	53.000	26.441	9042200264410
G7/8	14.000	27.877 - 28.418	4	22.000	18.000	150.000	28.000	53.000	30.201	9042200302010
G1	11.000	30.291 - 30.931	4	25.000	20.000	160.000	30.000	56.000	33.249	9042200332490

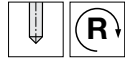


Spiral flute taps for UNC threads

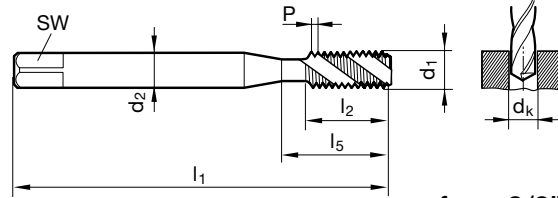
Series no.

4652

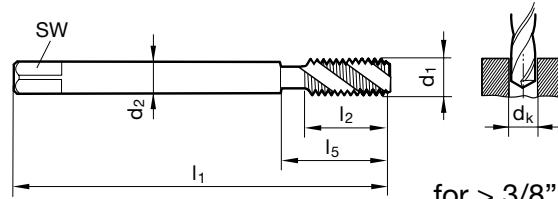
Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	2BX
Coating	Slidur
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



for ≤ 3/8"



for > 3/8"



DIN length,
ANSI shank

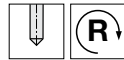
d1 - P	H	dk in	No. of	d2	SW	l1	l5	Code no.	EDP Number
	limits	range	flutes	in	in	in	in		
2-56	H3/H4	0.067 - 0.074	3	0.141	0.110	1.969	0.631	2.184	9046520021840
3-48	H3/H4	0.076 - 0.084	3	0.141	0.110	2.205	0.631	2.515	9046520025150
4-40	H3/H4	0.085 - 0.094	3	0.141	0.110	2.205	0.709	2.845	9046520028450
5-40	H3/H4	0.098 - 0.106	3	0.141	0.110	2.205	0.709	3.175	9046520031750
6-32	H4/H5	0.104 - 0.114	3	0.141	0.110	2.205	0.709	3.505	9046520035050
8-32	H4/H5	0.130 - 0.139	3	0.168	0.131	2.480	0.827	4.166	9046520041660
10-24	H4/H5	0.145 - 0.155	3	0.194	0.152	2.756	0.945	4.826	9046520048260
12-24	H4/H5	0.171 - 0.181	3	0.220	0.165	3.150	1.024	5.486	9046520054860
1/4-20	H5/H6	0.196 - 0.207	3	0.255	0.191	3.150	1.181	6.350	9046520063500
5/16-18	H5/H6	0.252 - 0.265	3	0.318	0.238	3.543	1.377	7.938	9046520079380
3/8-16	H6/H7	0.307 - 0.321	4	0.381	0.286	3.937	1.456	9.525	6046520095250
7/16-14	H6/H7	0.360 - 0.376	4	0.323	0.242	3.937	N/A	11.113	9046520111130
1/2-13	H6/H7	0.417 - 0.434	4	0.367	0.275	4.331	N/A	12.700	9046520127000
9/16-12	H6/H7	0.472 - 0.490	4	0.429	0.322	4.331	N/A	14.288	9046520142880
5/8-11	H6/H7	0.527 - 0.546	4	0.480	0.360	4.331	N/A	15.875	9046520158750
3/4-10	H6/H7	0.642 - 0.663	4	0.590	0.442	4.921	N/A	19.050	9046520190500



Spiral flute taps for UNF threads

Series no. **4653**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material **HSS-E**

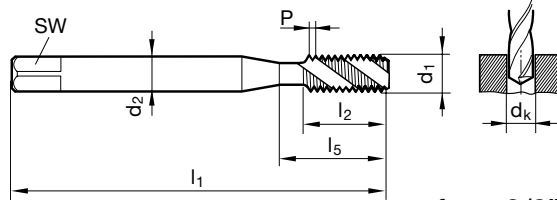
Tolerance on Ø 2BX

Coating Slidur

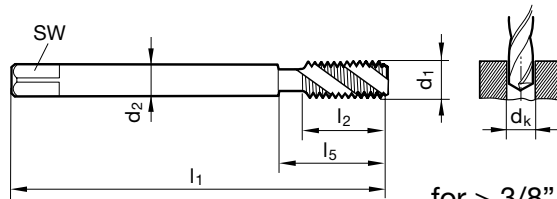
Flute type VA R45

Chamfer form C (2-3)

Internal cooling N/A



for ≤ 3/8"



for > 3/8"



DIN length,
ANSI shank

d1 - P	H	dk in	No. of	d2	SW	l1	l5	Code no.	EDP Number
	limits	range	flutes	in	in	in	in		
2-64	H3/H4	0.069 - 0.075	3	0.141	0.110	1.969	0.631	2.184	9046530021840
3-56	H3/H4	0.080 - 0.086	3	0.141	0.110	2.205	0.631	2.515	9046530025150
4-48	H3/H4	0.089 - 0.097	3	0.141	0.110	2.205	0.709	2.845	9046530028450
5-44	H3/H4	0.100 - 0.108	3	0.141	0.110	2.205	0.709	3.175	9046530031750
6-40	H3/H4	0.111 - 0.119	3	0.141	0.110	2.205	0.709	3.505	9046530035050
8-36	H3/H4	0.134 - 0.142	3	0.168	0.131	2.480	0.827	4.166	9046530041660
10-32	H4/H5	0.156 - 0.164	3	0.194	0.152	2.756	0.945	4.826	9046530048260
12-28	H4/H5	0.177 - 0.186	3	0.220	0.165	3.150	1.024	5.486	9046530054860
1/4-28	H4/H5	0.211 - 0.220	3	0.255	0.191	3.150	1.181	6.350	9046530063500
5/16-24	H4/H5	0.267 - 0.277	3	0.318	0.238	3.543	1.377	7.938	9046530079380
3/8-24	H4/H5	0.330 - 0.340	4	0.381	0.286	3.543	1.456	9.525	9046530095250
7/16-20	H5/H6	0.383 - 0.395	4	0.323	0.242	3.937	N/A	11.113	9046530111130
1/2-20	H5/H6	0.446 - 0.457	4	0.367	0.275	3.937	N/A	12.700	9046530127000
9/16-18	H5/H6	0.502 - 0.515	4	0.429	0.322	3.937	N/A	14.288	9046530142880
5/8-18	H5/H6	0.565 - 0.578	4	0.480	0.360	3.937	N/A	15.875	9046530158750
3/4-16	H6/H7	0.682 - 0.696	4	0.590	0.442	4.331	N/A	19.050	9046530190500

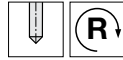


Spiral flute taps for UNC threads

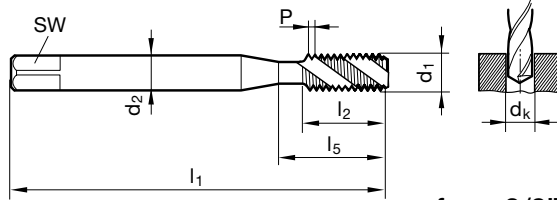
Series no.

4654

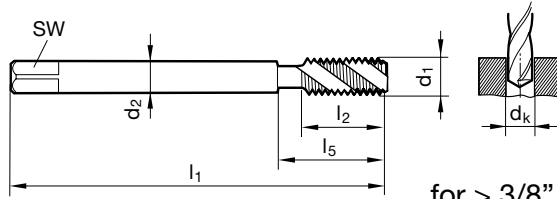
Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	2BX
Coating	Slidur
Flute type	VA R45
Chamfer form	E (1.5-2)
Internal cooling	N/A



for ≤ 3/8"



for > 3/8"



DIN length,
ANSI shank

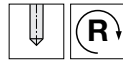
d1 - P	H	dk in	No. of	d2	SW	l1	l5	Code no.	EDP Number
	limits	range	flutes	in	in	in	in		
2-56	H3/H4	0.067 - 0.074	3	0.141	0.110	1.969	0.631	2.184	9046540021840
3-48	H3/H4	0.076 - 0.084	3	0.141	0.110	2.205	0.631	2.515	9046540025150
4-40	H3/H4	0.085 - 0.094	3	0.141	0.110	2.205	0.709	2.845	9046540028450
5-40	H3/H4	0.098 - 0.106	3	0.141	0.110	2.205	0.709	3.175	9046540031750
6-32	H4/H5	0.104 - 0.114	3	0.141	0.110	2.205	0.709	3.505	9046540035050
8-32	H4/H5	0.130 - 0.139	3	0.168	0.131	2.480	0.827	4.166	9046540041660
10-24	H4/H5	0.145 - 0.155	3	0.194	0.152	2.756	0.945	4.826	9046540048260
12-24	H4/H5	0.171 - 0.181	3	0.220	0.165	3.150	1.024	5.486	9046540054860
1/4-20	H5/H6	0.196 - 0.207	3	0.255	0.191	3.150	1.181	6.350	9046540063500
5/16-18	H5/H6	0.252 - 0.265	3	0.318	0.238	3.543	1.377	7.938	9046540079380
3/8-16	H6/H7	0.307 - 0.321	4	0.381	0.286	3.937	1.456	9.525	9046540095250
7/16-14	H6/H7	0.360 - 0.376	4	0.323	0.242	3.937	N/A	11.113	9046540111130
1/2-13	H6/H7	0.417 - 0.434	4	0.367	0.275	4.331	N/A	12.700	9046540127000
9/16-12	H6/H7	0.472 - 0.490	4	0.429	0.322	4.331	N/A	14.288	9046540142880
5/8-11	H6/H7	0.527 - 0.546	4	0.480	0.360	4.331	N/A	15.875	9046540158750
3/4-10	H6/H7	0.642 - 0.663	4	0.590	0.442	4.921	N/A	19.050	9046540190500



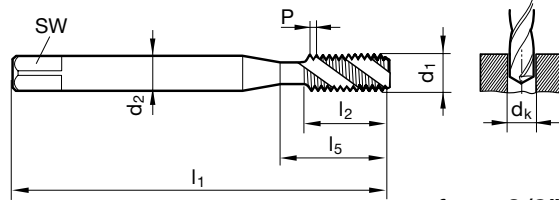
Spiral flute taps for UNF threads

Series no. **4655**

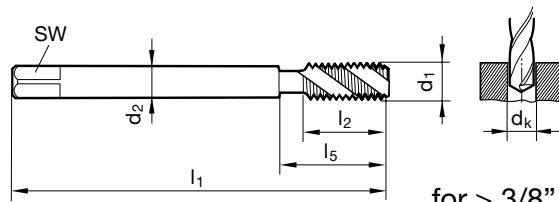
Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	2BX
Coating	Slidur
Flute type	VA R45
Chamfer form	E (1.5-2)
Internal cooling	N/A



for ≤ 3/8"



for > 3/8"



DIN length,
ANSI shank

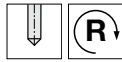
d1 - P	H	dk in	No. of	d2	SW	l1	l5	Code no.	EDP Number
	limits	range	flutes	in	in	in	in		
2-64	H3/H4	0.069 - 0.075	3	0.141	0.110	1.969	0.631	2.184	9046550021840
3-56	H3/H4	0.080 - 0.086	3	0.141	0.110	2.205	0.631	2.515	9046550025150
4-48	H3/H4	0.089 - 0.097	3	0.141	0.110	2.205	0.709	2.845	9046550028450
5-44	H3/H4	0.100 - 0.108	3	0.141	0.110	2.205	0.709	3.175	9046550031750
6-40	H3/H4	0.111 - 0.119	3	0.141	0.110	2.205	0.709	3.505	9046550035050
8-36	H3/H4	0.134 - 0.142	3	0.168	0.131	2.480	0.827	4.166	9046550041660
10-32	H4/H5	0.156 - 0.164	3	0.194	0.152	2.756	0.945	4.826	9046550048260
12-28	H4/H5	0.177 - 0.186	3	0.220	0.165	3.150	1.024	5.486	9046550054860
1/4-28	H4/H5	0.211 - 0.220	3	0.255	0.191	3.150	1.181	6.350	9046550063500
5/16-24	H4/H5	0.267 - 0.277	3	0.318	0.238	3.543	1.377	7.938	9046550079380
3/8-24	H4/H5	0.330 - 0.340	4	0.381	0.286	3.543	1.456	9.525	9046550095250
7/16-20	H5/H6	0.383 - 0.395	4	0.323	0.242	3.937	N/A	11.113	9046550111130
1/2-20	H5/H6	0.446 - 0.457	4	0.367	0.275	3.937	N/A	12.700	9046550127000
9/16-18	H5/H6	0.502 - 0.515	4	0.429	0.322	3.937	N/A	14.288	9046550142880
5/8-18	H5/H6	0.565 - 0.578	4	0.480	0.360	3.937	N/A	15.875	9046550158750
3/4-16	H6/H7	0.682 - 0.696	4	0.590	0.442	4.331	N/A	19.050	9046550190500



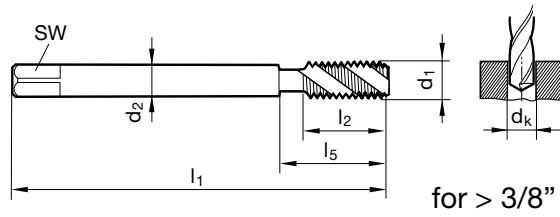
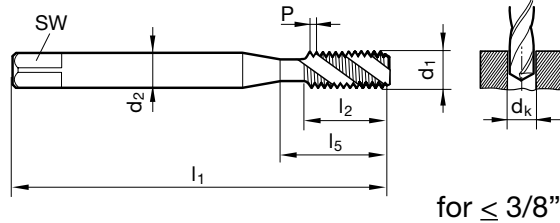
Coolant through spiral flute taps for UNC threads

Series no. 4656

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	2BX
Coating	Slidur
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	axial



DIN length,
ANSI shank



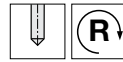
d1 - P	H	dk in	No. of	d2	SW	l1	l5	Code no.	EDP Number
	limits	range	flutes	in	in	in	in		
10-24	H4/H5	0.145 - 0.155	3	0.194	0.152	2.756	0.945	4.826	9046560048260
12-24	H4/H5	0.171 - 0.181	3	0.220	0.165	3.150	1.024	5.486	9046560054860
1/4-20	H5/H6	0.196 - 0.207	3	0.255	0.191	3.150	1.181	6.350	9046560063500
5/16-18	H5/H6	0.252 - 0.265	3	0.318	0.238	3.543	1.377	7.938	9046560079380
3/8-16	H6/H7	0.307 - 0.321	4	0.381	0.286	3.937	1.456	9.525	9046560095250
7/16-14	H6/H7	0.360 - 0.376	4	0.323	0.242	3.937	N/A	11.113	9046560111130
1/2-13	H6/H7	0.417 - 0.434	4	0.367	0.275	4.331	N/A	12.700	9046560127000
9/16-12	H6/H7	0.472 - 0.490	4	0.429	0.322	4.331	N/A	14.288	9046560142880
5/8-11	H6/H7	0.527 - 0.546	4	0.480	0.360	4.331	N/A	15.875	9046560158750
3/4-10	H6/H7	0.642 - 0.663	4	0.590	0.442	4.921	N/A	19.050	9046560190500



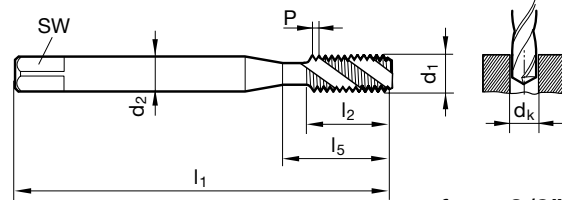
Coolant through spiral flute taps for UNF threads

Series no. 4657

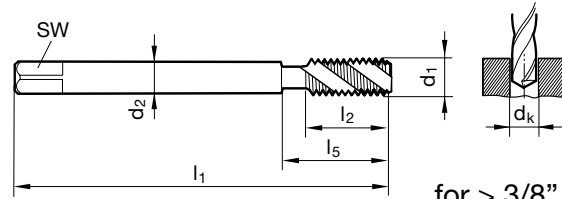
Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	2BX
Coating	Slidur
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	axial



for ≤ 3/8"



for > 3/8"



DIN length,
ANSI shank

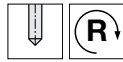
d1 - P	H	dk in	No. of	d2	SW	l1	l5	Code no.	EDP Number
	limits	range	flutes	in	in	in	in		
10-32	H4/H5	0.156 - 0.164	3	0.194	0.152	2.756	0.945	4.826	9046570048260
12-28	H4/H5	0.177 - 0.186	3	0.220	0.165	3.150	1.024	5.486	9046570054860
1/4-28	H4/H5	0.211 - 0.220	3	0.255	0.191	3.150	1.181	6.350	9046570063500
5/16-24	H4/H5	0.267 - 0.277	3	0.318	0.238	3.543	1.377	7.938	9046570079380
3/8-24	H4/H5	0.330 - 0.340	4	0.381	0.286	3.543	1.456	9.525	9046570095250
7/16-20	H5/H6	0.383 - 0.395	4	0.323	0.242	3.937	N/A	11.113	9046570111130
1/2-20	H5/H6	0.446 - 0.457	4	0.367	0.275	3.937	N/A	12.700	9046570127000
9/16-18	H5/H6	0.502 - 0.515	4	0.429	0.322	3.937	N/A	14.288	9046570142880
5/8-18	H5/H6	0.565 - 0.578	4	0.480	0.360	3.937	N/A	15.875	9046570158750
3/4-16	H6/H7	0.682 - 0.696	4	0.590	0.442	4.331	N/A	19.050	9046570190500



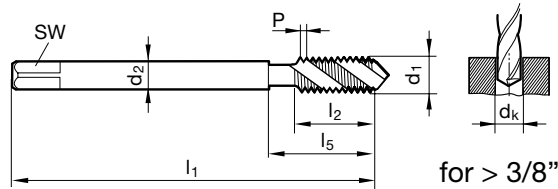
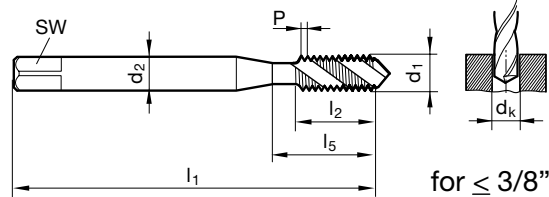
Spiral flute taps for UNC threads

Series no. **391**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	2BX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



DIN 2184-1 ~DIN 371/~DIN 376

d1	H	dk in	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
2 - 56	H3/H4	0.067 - 0.074	3	2.800	2.100	45.000	5.000	14.500	2.184	9003910021840
4 - 40	H3/H4	0.085 - 0.094	3	3.500	2.700	56.000	7.000	18.000	2.845	9003910028450
6 - 32	H3/H4	0.104 - 0.114	3	4.000	3.000	56.000	8.000	20.000	3.505	9003910035050
8 - 32	H4/H5	0.130 - 0.139	3	4.500	3.400	63.000	8.000	21.000	4.166	9003910041660
10 - 24	H4/H5	0.145 - 0.155	3	6.000	4.900	70.000	11.000	25.000	4.826	9003910048260
12 - 24	H4/H5	0.171 - 0.181	3	6.000	4.900	80.000	11.000	30.000	5.486	9003910054860
1/4 - 20	H4/H5	0.196 - 0.207	3	7.000	5.500	80.000	13.000	30.000	6.350	9003910063500
5/16 - 18	H5/H6	0.252 - 0.265	3	8.000	6.200	90.000	14.000	35.000	7.938	9003910079380
3/8 - 16	H5/H6	0.307 - 0.321	3	10.000	8.000	100.000	16.000	39.000	9.525	9003910095250
7/16 - 14	H6/H7	0.360 - 0.376	3	8.000	6.200	100.000	18.000	42.000	11.113	9003910111130
1/2 - 13	H6/H7	0.417 - 0.434	3	9.000	7.000	110.000	20.000	49.000	12.700	9003910127000
9/16 - 12	H6/H7	0.472 - 0.490	3	11.000	9.000	110.000	21.000	53.000	14.288	9003910142880
5/8 - 11	H6/H7	0.527 - 0.546	4	12.000	9.000	110.000	24.000	53.000	15.875	9003910158750
3/4 - 10	H6/H7	0.642 - 0.663	4	14.000	11.000	125.000	25.000	62.000	19.050	9003910190500
7/8 - 9	H7/H8	0.755 - 0.778	4	18.000	14.500	140.000	28.000	62.000	22.225	9003910222250
1 - 8	H7/H8	0.865 - 0.890	4	18.000	14.500	160.000	32.000	73.000	25.400	9003910254000

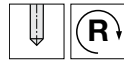


Spiral flute taps for UNF threads

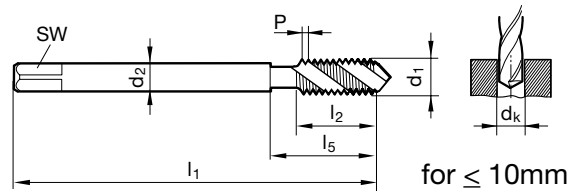
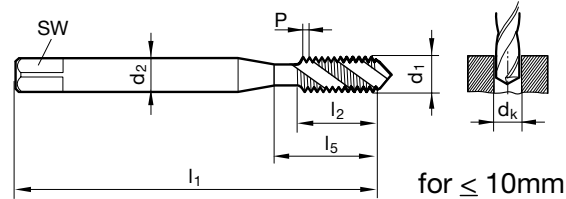
Series no. **392**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	2BX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



DIN 2184-1 ~DIN 371/~DIN 374

d1	H	dk in	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
2 - 64	H3/H4	0.069 - 0.075	3	2.800	2.100	45.000	5.000	14.500	2.184	9003920021840
4 - 48	H3/H4	0.089 - 0.097	3	3.500	2.700	56.000	6.000	18.000	2.845	9003920028450
6 - 40	H3/H4	0.111 - 0.119	3	4.000	3.000	56.000	6.500	20.000	3.505	9003920035050
8 - 36	H4/H5	0.134 - 0.142	3	4.500	3.400	63.000	7.000	21.000	4.166	9003920041660
10 - 32	H4/H5	0.156 - 0.164	3	6.000	4.900	70.000	8.500	25.000	4.826	9003920048260
12 - 28	H4/H5	0.177 - 0.186	3	6.000	4.900	80.000	9.500	30.000	5.486	9003920054860
1/4 - 28	H4/H5	0.211 - 0.220	3	7.000	5.500	80.000	9.500	30.000	6.350	9003920063500
5/16 - 24	H5/H6	0.267 - 0.277	3	8.000	6.200	90.000	11.500	35.000	7.938	9003920079380
3/8 - 24	H5/H6	0.330 - 0.340	3	10.000	8.000	90.000	11.500	35.000	9.525	9003920095250
7/16 - 20	H6/H7	0.383 - 0.395	3	8.000	6.200	100.000	13.000	42.000	11.113	9003920111130
1/2 - 20	H6/H7	0.446 - 0.457	3	9.000	7.000	100.000	13.000	40.000	12.700	9003920127000
9/16 - 18	H6/H7	0.502 - 0.515	3	11.000	9.000	100.000	14.000	40.000	14.288	9003920142880
5/8 - 18	H6/H7	0.565 - 0.578	4	12.000	9.000	100.000	15.000	44.000	15.875	9003920158750
3/4 - 16	H6/H7	0.682 - 0.696	4	14.000	11.000	110.000	16.000	44.000	19.050	9003920190500
7/8 - 14	H7/H8	0.798 - 0.813	4	18.000	14.500	125.000	19.000	44.000	22.225	9003920222250
1 - 12	H7/H8	0.910 - 0.928	4	18.000	14.500	140.000	22.000	50.000	25.400	9003920254000

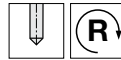


Spiral flute taps for ISO metric threads

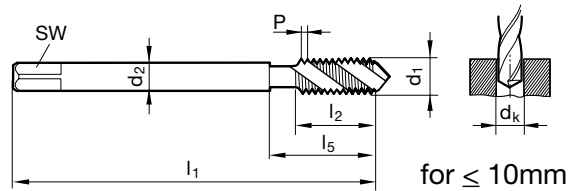
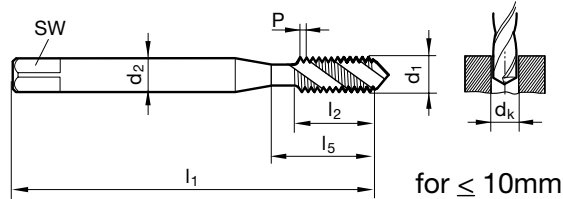
Series no. **393**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	6HX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D3/D4	1.567 - 1.679	3	2.80	2.100	45.000	4.500	13.500	2.000	9003930020000
M2.5	0.450	D3/D4	2.013 - 2.138	3	2.80	2.100	50.000	5.000	14.500	2.500	9003930025000
M3	0.500	D3/D4	2.459 - 2.599	3	3.500	2.700	56.000	6.000	18.000	3.000	9003930030000
M3.5	0.600	D4/D5	2.850 - 3.010	3	4.000	3.000	56.000	7.000	20.000	3.500	9003930035000
M4	0.700	D4/D5	3.242 - 3.422	3	4.500	3.400	63.000	7.500	21.000	4.000	9003930040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	70.000	8.500	25.000	5.000	9003930050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	80.000	11.000	30.000	6.000	9003930060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	90.000	14.000	35.000	8.000	9003930080000
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	100.000	16.000	39.000	10.000	9003930100000
M12	1.750	D8/D9	10.106 - 10.441	3	9.000	7.000	110.000	18.500	49.000	12.000	9003930120000
M14	2.000	D9/D10	11.835 - 12.210	3	11.000	9.000	110.000	20.000	53.000	14.000	9003930140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	110.000	20.000	54.000	16.000	9003930160000
M18	2.500	D10/D11	15.294 - 15.744	4	14.000	11.000	125.000	25.000	62.000	18.000	9003930180000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	140.000	25.000	62.000	20.000	9003930200000
M24	3.000	D10/D11	20.752 - 21.252	4	18.000	14.500	160.000	30.000	73.000	24.000	9003930240000
M30	3.500	D12/D13	26.211 - 26.771	4	22.000	18.000	180.000	35.000	85.000	30.000	9003930300000
M33	3.500	D12/D14	29.211 - 29.771	4	25.000	20.000	180.000	40.000	91.000	33.000	9003930330000
M36	4.000	D13/D15	31.670 - 32.270	4	28.000	22.000	200.000	40.000	102.000	36.000	9003930360000
M39	4.000	D13/D15	34.670 - 35.270	4	32.000	24.000	200.000	50.000	107.000	39.000	9003930390000

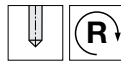


Spiral flute taps for ISO metric fine threads

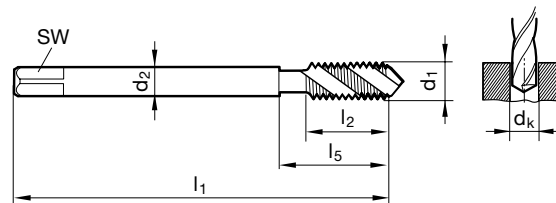
Series no. **394**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	6HX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



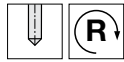
DIN 2184-1 DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M6 x 0.75	D5	5.188 - 5.378	3	4.500	3.400	80.000	8.000	30.000	6.004	9003940060040
M8 x 0.75	D5/D6	7.188 - 7.378	3	6.000	4.900	80.000	8.000	30.000	8.004	9003940080040
M8 x 1	D5/D6	6.917 - 7.153	3	6.000	4.900	90.000	11.000	35.000	8.005	9003940080050
M10 x 1	D5/D6	8.917 - 9.153	3	7.000	5.500	90.000	11.000	35.000	10.005	9003940100050
M10 x 1.25	D6/D7	8.647 - 8.912	3	7.000	5.500	100.000	14.000	39.000	10.006	9003940100060
M12 x 1	D6/D7	10.917 - 11.153	3	9.000	7.000	100.000	11.000	40.000	12.005	9003940120050
M12 x 1.25	D7/D8	10.647 - 10.912	3	9.000	7.000	100.000	16.000	40.000	12.006	9003940120060
M12 x 1.5	D8/D9	10.376 - 10.676	3	9.000	7.000	100.000	16.000	40.000	12.007	9003940120070
M14 x 1.5	D8/D9	12.376 - 12.676	3	11.000	9.000	100.000	15.000	40.000	14.007	9003940140070
M16 x 1.5	D8/D9	14.376 - 14.676	4	12.000	9.000	100.000	15.000	44.000	16.007	9003940160070
M18 x 1.5	D8/D9	16.376 - 16.676	4	14.000	11.000	110.000	16.000	44.000	18.007	9003940180070
M20 x 1.5	D8/D9	18.376 - 18.676	4	16.000	12.000	125.000	16.000	44.000	20.007	9003940200070
M24 x 1.5	D8/D9	22.376 - 22.676	4	18.000	14.500	140.000	16.000	48.000	24.007	9003940240070



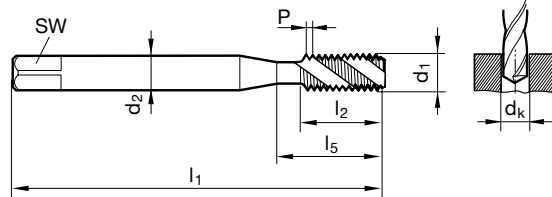
Spiral flute taps for ISO metric threads

Series no. 4630

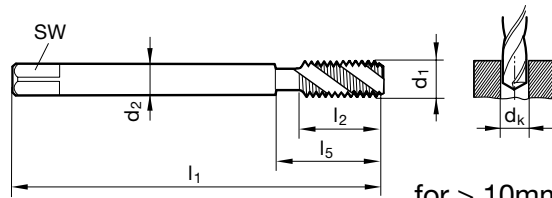


Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		

Tool material	HSS-E
Tolerance on Ø	6HX
Coating	A
Flute type	VA R45
Chamfer form	E (1.5-2)
Internal cooling	N/A



for ≤ 10mm



for > 10mm



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
mm	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D3/D4	1.567 - 1.679	3	2.800	2.100	45.000	4.500	13.500	2.000	9046300020000
M2.5	0.450	D3/D4	2.013 - 2.138	3	2.800	2.100	50.000	5.000	14.500	2.500	9046300025000
M3	0.500	D3/D4	2.459 - 2.599	3	3.500	2.700	56.000	6.000	18.000	3.000	9046300030000
M3.5	0.600	D4/D5	2.850 - 3.010	3	4.000	3.000	56.000	7.000	20.000	3.500	9046300035000
M4	0.700	D4/D5	3.242 - 3.422	3	4.500	3.400	63.000	7.500	21.000	4.000	9046300040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	70.000	8.500	25.000	5.000	9046300050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	80.000	11.000	30.000	6.000	9046300060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	90.000	14.000	35.000	8.000	9046300080000
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	100.000	16.000	39.000	10.000	9046300100000
M12	1.750	D8/D9	10.106 - 10.441	3	9.000	7.000	110.000	18.500	49.000	12.000	9046300120000
M14	2.000	D9/D10	11.835 - 12.210	3	11.000	9.000	110.000	20.000	53.000	14.000	9046300140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	110.000	20.000	54.000	16.000	9046300160000
M18	2.500	D10/D11	15.294 - 15.744	4	14.000	11.000	125.000	25.000	62.000	18.000	9046300180000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	140.000	25.000	62.000	20.000	9046300200000
M24	3.000	D10/D11	20.752 - 21.252	4	18.000	14.500	160.000	30.000	73.000	24.000	9046300240000
M30	3.500	D12/D13	26.211 - 26.771	4	22.000	18.000	180.000	35.000	85.000	30.000	9046300300000

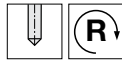


Spiral flute taps for ISO metric fine threads

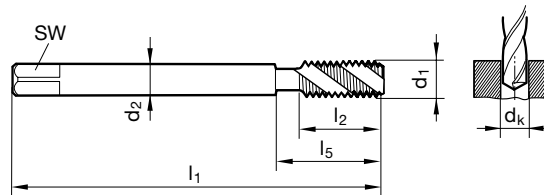
Series no. **4631**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	6HX
Coating	A
Flute type	VA R45
Chamfer form	E (1.5-2)
Internal cooling	N/A



DIN 2184-1 DIN 374

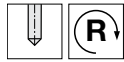
d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M6 x 0.75	D5	5.188 - 5.378	3	4.500	3.400	80.000	8.000	30.000	6.004	9046310060040
M8 x 0.75	D5/D6	7.188 - 7.378	3	6.000	4.900	80.000	8.000	30.000	8.004	9046310080040
M8 x 1	D5/D6	6.917 - 7.153	3	6.000	4.900	90.000	11.000	35.000	8.005	9046310080050
M10 x 1	D5/D6	8.917 - 9.153	3	7.000	5.500	90.000	11.000	35.000	10.005	9046310100050
M10 x 1.25	D6/D7	8.647 - 8.912	3	7.000	5.500	100.000	14.000	39.000	10.006	9046310100060
M12 x 1	D6/D7	10.917 - 11.153	3	9.000	7.000	100.000	11.000	40.000	12.005	9046310120050
M12 x 1.25	D7/D8	10.647 - 10.912	3	9.000	7.000	100.000	16.000	40.000	12.006	9046310120060
M12 x 1.5	D8/D9	10.376 - 10.676	3	9.000	7.000	100.000	16.000	40.000	12.007	9046310120070
M14 x 1.5	D8/D9	12.376 - 12.676	3	11.000	9.000	100.000	15.000	40.000	14.007	9046310140070
M16 x 1.5	D8/D9	14.376 - 14.676	4	12.000	9.000	100.000	15.000	44.000	16.007	9046310160070
M18 x 1.5	D8/D9	16.376 - 16.676	4	14.000	11.000	110.000	16.000	44.000	18.007	9046310180070
M20 x 1.5	D8/D9	18.376 - 18.676	4	16.000	12.000	125.000	16.000	44.000	20.007	9046310200070
M24 x 1.5	D8/D9	22.376 - 22.676	4	18.000	14.500	140.000	16.000	48.000	24.007	9046310240070



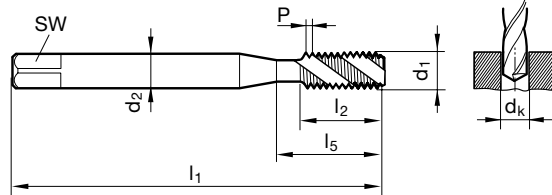
Spiral flute taps for ISO metric threads

Series no. 4634

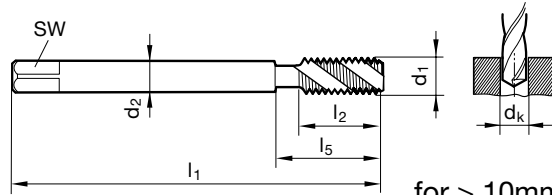
Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



for ≤ 10mm



for > 10mm



DIN 2184-1 DIN 371/DIN 376

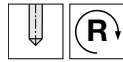
d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M3	0.500	D3/D4	2.459 - 2.599	3	3.500	2.700	56.000	6.000	18.000	3.000	9046340030000
M4	0.700	D4/D5	3.242 - 3.422	3	4.500	3.400	63.000	7.500	21.000	4.000	9046340040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	70.000	8.500	25.000	5.000	9046340050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	80.000	11.000	30.000	6.000	9046340060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	90.000	14.000	35.000	8.000	9046340080000
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	100.000	16.000	39.000	10.000	9046340100000
M12	1.750	D8/D9	10.106 - 10.441	3	9.000	7.000	110.000	18.500	49.000	12.000	9046340120000
M14	2.000	D9/D10	11.835 - 12.210	3	11.000	9.000	110.000	20.000	53.000	14.000	9046340140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	110.000	20.000	54.000	16.000	9046340160000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	140.000	25.000	62.000	20.000	9046340200000

HSS-E-PM FOR
MAXIMUM TOOL LIFE



Spiral flute taps for ISO metric fine threads

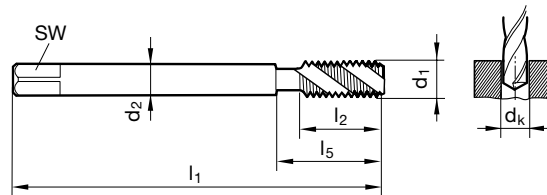
Series no. 4635



Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary

Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



DIN 2184-1 DIN 374

Series no.

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M8 x 1	D5/D6	7.188 - 7.378	3	6.000	4.900	90.000	11.000	35.000	8.005	9046350080050
M10 x 1	D5/D6	6.917 - 7.153	3	7.000	5.500	90.000	11.000	35.000	10.005	9046350100050
M10 x 1.25	D6/D7	8.917 - 9.153	3	7.000	5.500	100.000	14.000	39.000	10.006	9046350100060
M12 x 1	D6/D7	8.647 - 8.912	3	9.000	7.000	100.000	11.000	40.000	12.005	9046350120050
M12 x 1.25	D7/D8	10.917 - 11.153	3	9.000	7.000	100.000	16.000	40.000	12.006	9046350120060
M12 x 1.5	D8/D9	10.647 - 10.912	3	9.000	7.000	100.000	16.000	40.000	12.007	9046350120070
M14 x 1.5	D8/D9	10.376 - 10.676	3	11.000	9.000	100.000	15.000	40.000	14.007	9046350140070
M16 x 1.5	D8/D9	12.376 - 12.676	4	12.000	9.000	100.000	15.000	44.000	16.007	9046350160070
M18 x 1.5	D8/D9	14.376 - 14.676	4	14.000	11.000	110.000	16.000	44.000	18.007	9046350180070
M20 x 1.5	D8/D9	16.376 - 16.676	4	16.000	12.000	125.000	16.000	44.000	20.007	9046350200070
M24 x 1.5	D8/D9	18.376 - 18.676	4	18.000	14.500	140.000	16.000	48.000	24.007	9046350240070

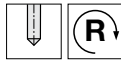
**HSS-E-PM FOR
MAXIMUM TOOL LIFE**



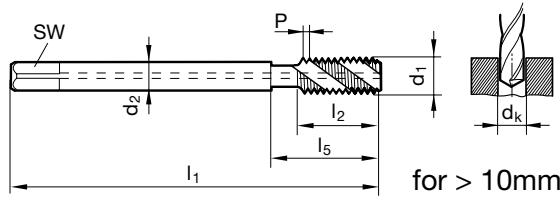
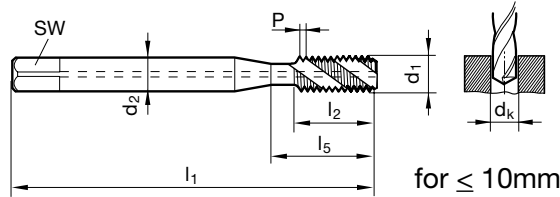
Coolant fed spiral flute taps for ISO metric threads

Series no. 4636

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	Axial



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
mm	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M5	0.800	D4/D5	2.459 - 2.599	3	6.000	4.900	70.000	8.500	25.000	5.000	9046360050000
M6	1.000	D6/D7	3.242 - 3.422	3	6.000	4.900	80.000	11.000	30.000	6.000	9046360060000
M8	1.250	D6/D7	4.134 - 4.334	3	8.000	6.200	90.000	14.000	35.000	8.000	9046360080000
M10	1.500	D7/D8	4.917 - 5.153	3	10.000	8.000	100.000	16.000	39.000	10.000	9046360100000
M12	1.750	D8/D9	6.647 - 6.912	3	9.000	7.000	110.000	18.500	49.000	12.000	9046360120000
M14	2.000	D9/D10	8.376 - 8.676	3	11.000	9.000	110.000	20.000	53.000	14.000	9046360140000
M16	2.000	D9/D10	10.106 - 10.441	4	12.000	9.000	110.000	20.000	54.000	16.000	9046360160000
M20	2.500	D9/D10	11.835 - 12.210	4	16.000	12.000	140.000	25.000	62.000	20.000	9046360200000
M24	3.000	D10/D11	13.835 - 14.210	4	18.000	14.500	160.000	30.000	73.000	24.000	9046360240000
M30	3.500	D12/D13	17.294 - 17.744	4	22.000	18.000	180.000	35.000	85.000	30.000	9046360300000

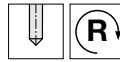
HSS-E-PM FOR
MAXIMUM TOOL LIFE



Coolant fed spiral flute taps for ISO metric fine threads

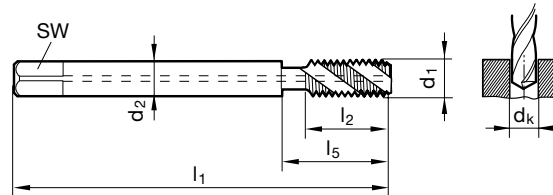
Series no.

4637



Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		

Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	Axial



DIN 2184-1 DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M8 x 1	D5/D6	7.188 - 7.378	3	6.000	4.900	90.000	11.000	35.000	8.005	9046370080050
M10 x 1	D5/D6	6.917 - 7.153	3	7.000	5.500	90.000	11.000	35.000	10.005	9046370100050
M10 x 1.25	D6/D7	8.917 - 9.153	3	7.000	5.500	100.000	14.000	39.000	10.006	9046370100060
M12 x 1	D6/D7	8.647 - 8.912	3	9.000	7.000	100.000	11.000	40.000	12.005	9046370120050
M12 x 1.25	D7/D8	10.917 - 11.153	3	9.000	7.000	100.000	16.000	40.000	12.006	9046370120060
M12 x 1.5	D8/D9	10.647 - 10.912	3	9.000	7.000	100.000	16.000	40.000	12.007	9046370120070
M14 x 1.5	D8/D9	10.376 - 10.676	3	11.000	9.000	100.000	15.000	40.000	14.007	9046370140070
M16 x 1.5	D8/D9	12.376 - 12.676	4	12.000	9.000	100.000	15.000	44.000	16.007	9046370160070
M18 x 1.5	D8/D9	14.376 - 14.676	4	14.000	11.000	110.000	16.000	44.000	18.007	9046370180070
M20 x 1.5	D8/D9	16.376 - 16.676	4	16.000	12.000	125.000	16.000	44.000	20.007	9046370200070
M24 x 1.5	D8/D9	18.376 - 18.676	4	18.000	14.500	140.000	16.000	48.000	24.007	9046370240070

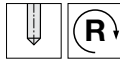
**HSS-E-PM FOR
MAXIMUM TOOL LIFE**



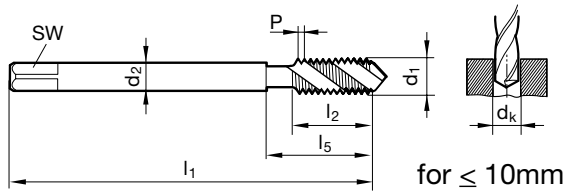
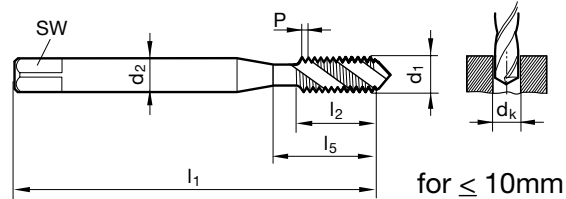
Spiral flute taps for ISO metric threads

Series no. **4625**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	6GX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D4/D5	1.567 - 1.679	3	2.80	2.100	45.000	4.500	13.500	2.000	9046250020000
M2.5	0.450	D4/D5	2.013 - 2.138	3	2.80	2.100	50.000	5.000	14.500	2.500	9046250025000
M3	0.500	D5/D6	2.459 - 2.599	3	3.500	2.700	56.000	6.000	18.000	3.000	9046250030000
M3.5	0.600	D6/D7	2.850 - 3.010	3	4.000	3.000	56.000	7.000	20.000	3.500	9046250035000
M4	0.700	D6/D7	3.242 - 3.422	3	4.500	3.400	63.000	7.500	21.000	4.000	9046250040000
M5	0.800	D6/D7	4.134 - 4.334	3	6.000	4.900	70.000	8.500	25.000	5.000	9046250050000
M6	1.000	D7/D8	4.917 - 5.153	3	6.000	4.900	80.000	11.000	30.000	6.000	9046250060000
M8	1.250	D8/D9	6.647 - 6.912	3	8.000	6.200	90.000	14.000	35.000	8.000	9046250080000
M10	1.500	D9/D10	8.376 - 8.676	3	10.000	8.000	100.000	16.000	39.000	10.000	9046250100000
M12	1.750	D10/D11	10.106 - 10.441	3	9.000	7.000	110.000	18.500	49.000	12.000	9046250120000
M14	2.000	D12/D13	11.835 - 12.210	3	11.000	9.000	110.000	20.000	53.000	14.000	9046250140000
M16	2.000	D12/D13	13.835 - 14.210	4	12.000	9.000	110.000	20.000	54.000	16.000	9046250160000
M18	2.500	D13/D14	15.294 - 15.744	4	14.000	11.000	125.000	25.000	62.000	18.000	9046250180000
M20	2.500	D12/D13	17.294 - 17.744	4	16.000	12.000	140.000	25.000	62.000	20.000	9046250200000
M24	3.000	D14/D15	20.752 - 21.252	4	18.000	14.500	160.000	30.000	73.000	24.000	9046250240000
M30	3.500	D15/D16	26.211 - 26.771	4	22.000	18.000	180.000	35.000	85.000	30.000	9046250300000

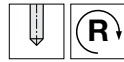


Spiral flute taps for ISO metric fine threads

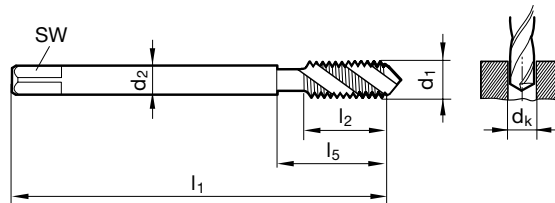
Series no. **4628**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	6GX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



DIN 2184-1 DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M6 x 0.75	D5	5.188 - 5.378	3	4.500	3.400	80.000	8.000	30.000	6.004	9046280060040
M8 x 0.75	D5/D6	7.188 - 7.378	3	6.000	4.900	80.000	8.000	30.000	8.004	9046280080040
M8 x 1	D5/D6	6.917 - 7.153	3	6.000	4.900	90.000	11.000	35.000	8.005	9046280080050
M10 x 1	D5/D6	8.917 - 9.153	3	7.000	5.500	90.000	11.000	35.000	10.005	9046280100050
M10 x 1.25	D6/D7	8.647 - 8.912	3	7.000	5.500	100.000	14.000	39.000	10.006	9046280100060
M12 x 1	D6/D7	10.917 - 11.153	3	9.000	7.000	100.000	11.000	40.000	12.005	9046280120050
M12 x 1.25	D7/D8	10.647 - 10.912	3	9.000	7.000	100.000	16.000	40.000	12.006	9046280120060
M12 x 1.5	D8/D9	10.376 - 10.676	3	9.000	7.000	100.000	16.000	40.000	12.007	9046280120070
M14 x 1.5	D8/D9	12.376 - 12.676	3	11.000	9.000	100.000	15.000	40.000	14.007	9046280140070
M16 x 1.5	D8/D9	14.376 - 14.676	4	12.000	9.000	100.000	15.000	44.000	16.007	9046280160070
M18 x 1.5	D8/D9	16.376 - 16.676	4	14.000	11.000	110.000	16.000	44.000	18.007	9046280180070
M20 x 1.5	D8/D9	18.376 - 18.676	4	16.000	12.000	125.000	16.000	44.000	20.007	9046280200070
M24 x 1.5	D8/D9	22.376 - 22.676	4	18.000	14.500	140.000	16.000	48.000	24.007	9046280240070

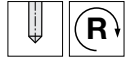


Spiral flute taps for ISO metric threads

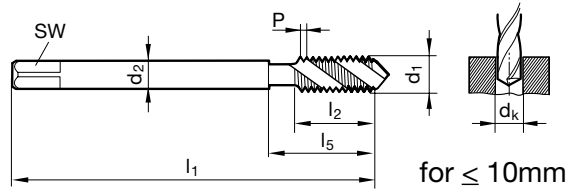
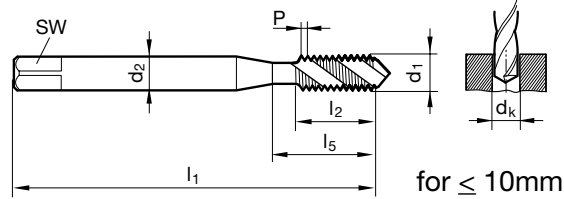
Series no. **4626**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	7GX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



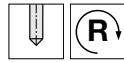
DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D5/D6	1.567 - 1.679	3	2.80	2.100	45.000	4.500	13.500	2.000	9046260020000
M2.5	0.450	D5/D6	2.013 - 2.138	3	2.80	2.100	50.000	5.000	14.500	2.500	9046260025000
M3	0.500	D6/D7	2.459 - 2.599	3	3.500	2.700	56.000	6.000	18.000	3.000	9046260030000
M3.5	0.600	D7/D8	2.850 - 3.010	3	4.000	3.000	56.000	7.000	20.000	3.500	9046260035000
M4	0.700	D7/D8	3.242 - 3.422	3	4.500	3.400	63.000	7.500	21.000	4.000	9046260040000
M5	0.800	D8/D9	4.134 - 4.334	3	6.000	4.900	70.000	8.500	25.000	5.000	9046260050000
M6	1.000	D9/D10	4.917 - 5.153	3	6.000	4.900	80.000	11.000	30.000	6.000	9046260060000
M8	1.250	D10/D11	6.647 - 6.912	3	8.000	6.200	90.000	14.000	35.000	8.000	9046260080000
M10	1.500	D11/D12	8.376 - 8.676	3	10.000	8.000	100.000	16.000	39.000	10.000	9046260100000
M12	1.750	D13/D14	10.106 - 10.441	3	9.000	7.000	110.000	18.500	49.000	12.000	9046260120000
M14	2.000	D14/D15	11.835 - 12.210	3	11.000	9.000	110.000	20.000	53.000	14.000	9046260140000
M16	2.000	D14/D15	13.835 - 14.210	4	12.000	9.000	110.000	20.000	54.000	16.000	9046260160000
M18	2.500	D15/D16	15.294 - 15.744	4	14.000	11.000	125.000	25.000	62.000	18.000	9046260180000
M20	2.500	D15/D16	17.294 - 17.744	4	16.000	12.000	140.000	25.000	62.000	20.000	9046260200000
M24	3.000	D17/D18	20.752 - 21.252	4	18.000	14.500	160.000	30.000	73.000	24.000	9046260240000
M30	3.500	D18/D19	26.211 - 26.771	4	22.000	18.000	180.000	35.000	85.000	30.000	9046260300000



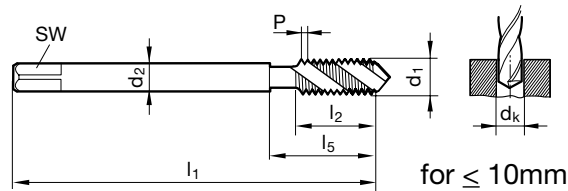
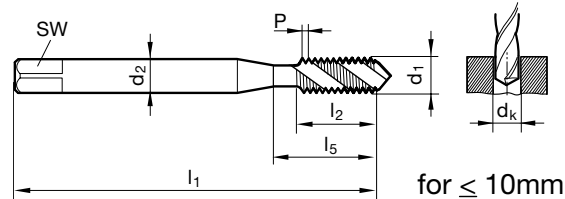
Spiral flute taps for ISO metric threads

Series no. 4627



Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		

Tool material	HSS-E
Tolerance on Ø	6H+0.1
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D11/D12	1.567 - 1.679	3	2.80	2.100	45.000	4.500	13.500	2.000	9046270020000
M2.5	0.450	D11/D12	2.013 - 2.138	3	2.80	2.100	50.000	5.000	14.500	2.500	9046270025000
M3	0.500	D11/D12	2.459 - 2.599	3	3.500	2.700	56.000	6.000	18.000	3.000	9046270030000
M3.5	0.600	D11/D12	2.850 - 3.010	3	4.000	3.000	56.000	7.000	20.000	3.500	9046270035000
M4	0.700	D11/D12	3.242 - 3.422	3	4.500	3.400	63.000	7.500	21.000	4.000	9046270040000
M5	0.800	D11/D12	4.134 - 4.334	3	6.000	4.900	70.000	8.500	25.000	5.000	9046270050000
M6	1.000	D12/D13	4.917 - 5.153	3	6.000	4.900	80.000	11.000	30.000	6.000	9046270060000
M8	1.250	D13/D14	6.647 - 6.912	3	8.000	6.200	90.000	14.000	35.000	8.000	9046270080000
M10	1.500	D13/D14	8.376 - 8.676	3	10.000	8.000	100.000	16.000	39.000	10.000	9046270100000
M12	1.750	D14/D15	10.106 - 10.441	3	9.000	7.000	110.000	18.500	49.000	12.000	9046270120000
M14	2.000	D15/D16	11.835 - 12.210	3	11.000	9.000	110.000	20.000	53.000	14.000	9046270140000
M16	2.000	D15/D16	13.835 - 14.210	4	12.000	9.000	110.000	20.000	54.000	16.000	9046270160000
M18	2.500	D16/D17	15.294 - 15.744	4	14.000	11.000	125.000	25.000	62.000	18.000	9046270180000
M20	2.500	D15/D16	17.294 - 17.744	4	16.000	12.000	140.000	25.000	62.000	20.000	9046270200000
M24	3.000	D16/D17	20.752 - 21.252	4	18.000	14.500	160.000	30.000	73.000	24.000	9046270240000
M30	3.500	D17/D18	26.211 - 26.771	4	22.000	18.000	180.000	35.000	85.000	30.000	9046270300000

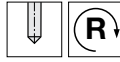


Spiral flute taps for ISO metric threads - extended length

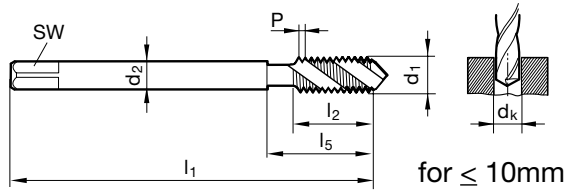
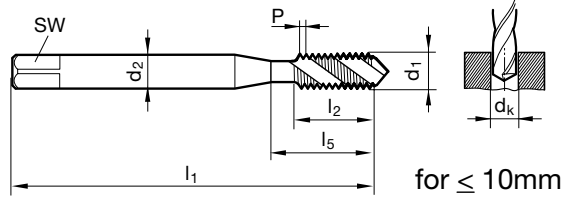
Series no. **4633**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E
Tolerance on Ø	6HX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



Guhring Standard

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M3	0.500	D3/D4	2.459 - 2.599	3	3.500	2.700	90.000	6.000	18.000	3.000	9046330030000
M4	0.700	D4/D5	3.242 - 3.422	3	4.500	3.400	125.000	7.500	21.000	4.000	9046330040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	140.000	8.500	25.000	5.000	9046330050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	160.000	11.000	30.000	6.000	9046330060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	180.000	14.000	35.000	8.010	9046330080100
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	200.000	16.000	39.000	10.010	9046330100100
M12	1.750	D8/D9	10.106 - 10.441	3	9.000	7.000	220.000	18.500	158.000	12.000	9046330120000
M14	2.000	D9/D10	11.835 - 12.210	3	11.000	9.000	220.000	20.000	160.000	14.000	9046330140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	220.000	20.000	160.000	16.000	9046330160000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	280.000	25.000	217.000	20.000	9046330200000

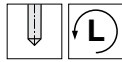
EXTRA LENGTH TAP



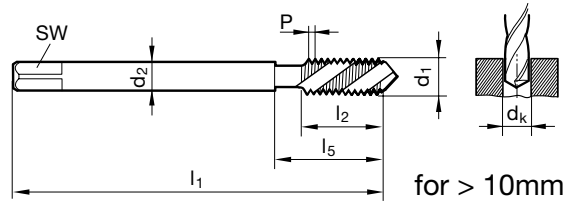
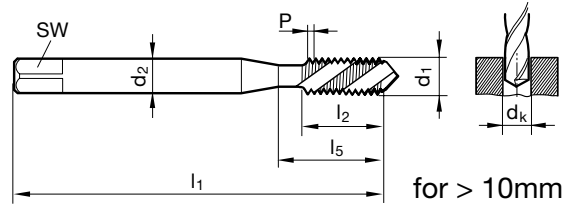
Spiral flute taps for ISO metric threads - left hand

Series no. **4629**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	
●=Optimal ○=Secondary		



Tool material	HSS-E
Tolerance on Ø	6HX
Coating	A
Flute type	VA L45
Chamfer form	C (2-3)
Internal cooling	N/A



DIN 2184-1 DIN 371/DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D3/D4	1.567 - 1.679	3	2.800	2.100	45.000	4.500	13.500	2.000	9046290020000
M2.5	0.450	D3/D4	2.013 - 2.138	3	2.800	2.100	50.000	5.000	14.500	2.500	9046290025000
M3	0.500	D3/D4	2.459 - 2.599	3	3.500	2.700	56.000	6.000	18.000	3.000	9046290030000
M3.5	0.600	D4/D5	2.850 - 3.010	3	4.000	3.000	56.000	7.000	20.000	3.500	9046290035000
M4	0.700	D4/D5	3.242 - 3.422	3	4.500	3.400	63.000	7.500	21.000	4.000	9046290040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	70.000	8.500	25.000	5.000	9046290050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	80.000	11.000	30.000	6.000	9046290060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	90.000	14.000	35.000	8.000	9046290080000
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	100.000	16.000	39.000	10.000	9046290100000
M12	1.750	D8/D9	10.106 - 10.441	3	9.000	7.000	110.000	18.500	49.000	12.000	9046290120000
M14	2.000	D9/D10	11.835 - 12.210	3	11.000	9.000	110.000	20.000	53.000	14.000	9046290140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	110.000	20.000	54.000	16.000	9046290160000
M18	2.500	D10/D11	15.294 - 15.744	4	14.000	11.000	125.000	25.000	62.000	18.000	9046290180000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	140.000	25.000	62.000	20.000	9046290200000
M24	3.000	D10/D11	20.752 - 21.252	4	18.000	14.500	160.000	30.000	73.000	24.000	9046290240000
M30	3.500	D12/D13	26.211 - 26.771	4	22.000	18.000	180.000	35.000	85.000	30.000	9046290300000

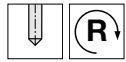


Spiral flute taps for ISO metric threads

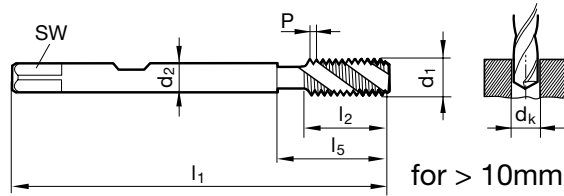
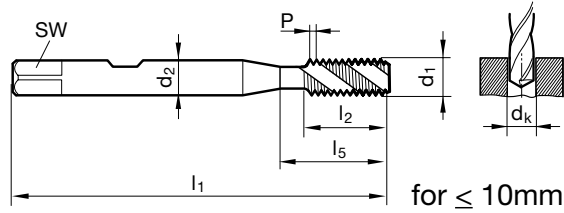
Series no. 4650

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



DIN 2184-1 DIN 371/DIN 376

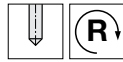
d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M3	0.500	D3/D4	2.459 - 2.599	3	6.000	4.900	56.000	6.000	18.000	3.000	9046500030000
M4	0.700	D4/D5	3.242 - 3.422	3	6.000	4.900	63.000	7.500	21.000	4.000	9046500040000
M5	0.800	D4/D5	4.134 - 4.334	3	6.000	4.900	70.000	8.500	25.000	5.000	9046500050000
M6	1.000	D6/D7	4.917 - 5.153	3	6.000	4.900	80.000	11.000	30.000	6.000	9046500060000
M8	1.250	D6/D7	6.647 - 6.912	3	8.000	6.200	90.000	14.000	35.000	8.000	9046500080000
M10	1.500	D7/D8	8.376 - 8.676	3	10.000	8.000	100.000	16.000	39.000	10.000	9046500100000
M12	1.750	D8/D9	10.106 - 10.441	3	12.000	9.000	110.000	18.500	49.000	12.000	9046500120000
M14	2.000	D9/D10	11.835 - 12.210	3	12.000	9.000	110.000	20.000	53.000	14.000	9046500140000
M16	2.000	D9/D10	13.835 - 14.210	4	12.000	9.000	110.000	20.000	54.000	16.000	9046500160000
M20	2.500	D9/D10	17.294 - 17.744	4	16.000	12.000	140.000	25.000	62.000	20.000	9046500200000

HSS-E-PM FOR
MAXIMUM TOOL LIFE



Spiral flute taps for BSP threads

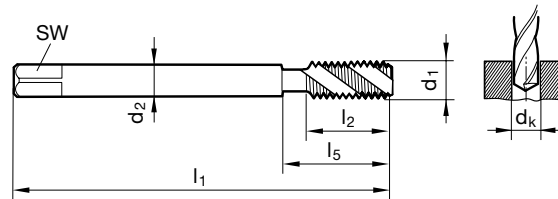
Series no. **395**



Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary

Tool material	HSS-E
Tolerance on Ø	
Coating	A
Flute type	VA R45
Chamfer form	C (2-3)
Internal cooling	N/A



DIN 2184-1 DIN 5156

d1	P	dk in range	No. of flutes	d2 mm	SW mm	l1 mm	l2 mm	l5 mm	Code no.	EDP Number
G1/16	28.000	6.561 - 6.843	3	6.000	4.900	90.000	11.000	30.000	7.723	9003950077230
G1/8	28.000	8.566 - 8.848	3	7.000	5.500	90.000	11.000	35.000	9.728	9003950097280
G1/4	19.000	11.445 - 11.890	3	11.000	9.000	100.000	14.000	40.000	13.157	9003950131570
G3/8	19.000	14.950 - 15.395	4	12.000	9.000	100.000	14.000	44.000	16.662	9003950166620
G1/2	14.000	18.631 - 19.172	4	16.000	12.000	125.000	18.000	44.000	20.955	9003950209550
G5/8	14.000	20.587 - 21.128	4	18.000	14.500	125.000	18.000	48.000	22.911	9003950229110
G3/4	14.000	24.117 - 24.658	4	20.000	16.000	140.000	20.000	53.000	26.441	9003950264410
G7/8	14.000	27.877 - 28.418	4	22.000	18.000	150.000	22.000	53.000	30.201	9003950302010
G1	11.000	30.291 - 30.931	4	25.000	20.000	160.000	24.000	56.000	33.249	9003950332490



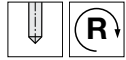
Spiral flute taps for BSP threads

Series no.

4632

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	○
S	Ni / Ti alloys	○
H	Hardened steel	

●=Optimal ○=Secondary



Tool material

HSS-E

Tolerance on Ø

Coating

A

Flute type

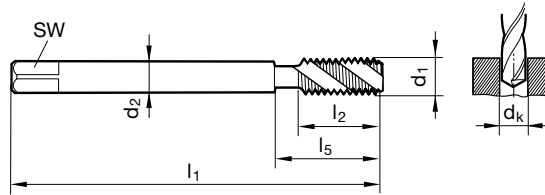
VA R45

Chamfer form

E (1.5-2)

Internal cooling

N/A



DIN 2184-1 DIN 5156

d1	P	dk in range	No. of flutes	d2 mm	SW mm	l1 mm	l2 mm	l5 mm	Code no.	EDP Number
G1/16	28.000	6.561 - 6.843	3	6.000	4.900	90.000	11.000	30.000	7.723	9046320077230
G1/8	28.000	8.566 - 8.848	3	7.000	5.500	90.000	11.000	35.000	9.728	9046320097280
G1/4	19.000	11.445 - 11.890	3	11.000	9.000	100.000	14.000	40.000	13.157	9046320131570
G3/8	19.000	14.950 - 15.395	4	12.000	9.000	100.000	14.000	44.000	16.662	9046320166620
G1/2	14.000	18.631 - 19.172	4	16.000	12.000	125.000	18.000	44.000	20.955	9046320209550
G5/8	14.000	20.587 - 21.128	4	18.000	14.500	125.000	18.000	48.000	22.911	9046320229110
G3/4	14.000	24.117 - 24.658	4	20.000	16.000	140.000	20.000	53.000	26.441	9046320264410
G7/8	14.000	27.877 - 28.418	4	22.000	18.000	150.000	22.000	53.000	30.201	9046320302010
G1	11.000	30.291 - 30.931	4	25.000	20.000	160.000	24.000	56.000	33.249	9046320332490

GÜHROSync

UP TO 30% BETTER PERFORMANCE AT A POWER PRICE

Allows for 0.3 mm of compensation for up to 75% reduction in axial forces

Offers internal, peripheral or MQL lubrication

Extreme concentricity and application speed

First tapping chuck to offer combination of steel and polymer components for independent axial and torsional force dampening

Quick and simple handling, slim design

Maximum tool life and thread accuracy



The new **GÜHROSync** tapping chuck

Synchro and hydraulic clamping technology intelligently combined

by **GUHRING**

Pionex

PionexFlutelessTAP

A special surface finish treatment in combination with the TiCN-coating ensures increased wear-resistance.



Based on a geometric modification, the contact surface between tool and workpiece have been optimized. **This reduces torque by up to 30%.**

Increased wear-resistance thanks to the application of a new powdered metal substrate.

Due to the h6 shank tolerance this new fluteless tap family can be applied in all standard clamping chucks.

New lubricating groove geometry

Thanks to the optimized lubricating grooves the **lubricating effect has been clearly improved in the forming lead area.**



FLUTELESS TAPS

	Thread depth	$\leq 3xD$				
	Tool material	HSS-E-PM				
	Lead form	C	E	C	E	
	Coating					
	Coolant delivery			Radial	Axial	
	Shank tolerance	h6	h6	h6	h6	
<ul style="list-style-type: none"> ● = Neat oil ○ = Soluble oil △ = Paste □ = MQL 	Thread type	Tolerance	Series no./page			
	UNC	2BX	4491 p56			
	UNF	2BX	4492 p57			
	M	6HX	4487 p58	4494 p60	4485 p62	4483 p64
		6GX	4488 p66			
	MF	6HX	4489 p59	4495 p61	4486 p63	4484 p65
		6GX	4490 p67			
	G	- X	4493 p68			
Suitable lubricant:		○/●/△	○/●/△	○/●/△/□	○/●/△/□	



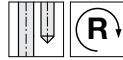
Fluteless taps for UNC threads

Series no.

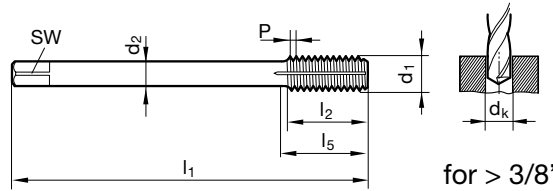
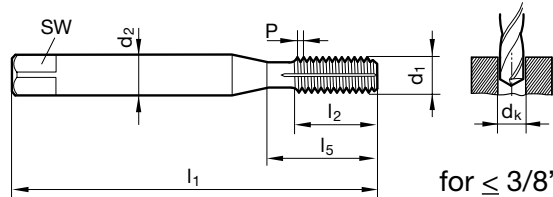
4491

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	○

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	2BX
Coating	C
Type	N
Chamfer Form	C (2-3)
Internal cooling	N/A



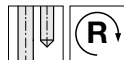
DIN 2184-1 ~DIN 371/~DIN 376

d1	H	dk in	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
4 - 40	H4/H5	0.100 - 0.102	4	3.500	2.700	56.000	11.000	18.000	2.845	9044910028450
6 - 32	H5/H6	0.124 - 0.126	4	4.000	3.000	56.000	12.000	20.000	3.505	9044910035050
8 - 32	H5/H6	0.149 - 0.150	4	4.500	3.400	63.000	12.000	21.000	4.166	9044910041660
10 - 24	H6/H7	0.171 - 0.173	5	6.000	4.900	70.000	14.000	25.000	4.826	9044910048260
12 - 24	H6/H7	0.196 - 0.198	5	6.000	4.900	80.000	16.000	30.000	5.486	9044910054860
1/4 - 20	H7/H8	0.225 - 0.228	5	7.000	5.500	80.000	16.000	30.000	6.350	9044910063500
5/16 - 18	H8/H9	0.286 - 0.290	5	8.000	6.200	90.000	18.000	35.000	7.938	9044910079380
3/8 - 16	H8/H9	0.345 - 0.350	5	10.000	8.000	100.000	20.000	35.000	9.525	9044910095250
7/16 - 14	H9/H10	0.404 - 0.408	7	8.000	6.200	100.000	22.000	42.000	11.113	9044910111130
1/2 - 13	H10/H11	0.463 - 0.468	7	9.000	7.000	100.000	25.000	40.000	12.700	9044910127000
9/16 - 12	H10/H11	0.523 - 0.527	8	11.000	9.000	110.000	28.000	40.000	14.288	9044910142880
5/8 - 11	H11/H12	0.582 - 0.587	8	12.000	9.000	110.000	30.000	44.000	15.875	9044910158750
3/4 - 10	H12/H13	0.703 - 0.708	8	14.000	11.000	125.000	33.000	44.000	19.050	9044910190500



Fluteless taps for UNF threads

Series no. **4492**



Tool material **HSS-E-PM**

Tolerance on Ø 2BX

Coating **C**

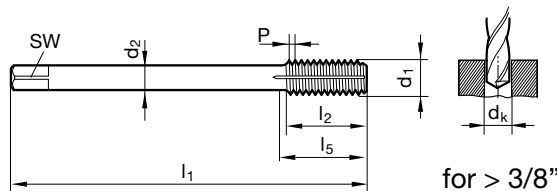
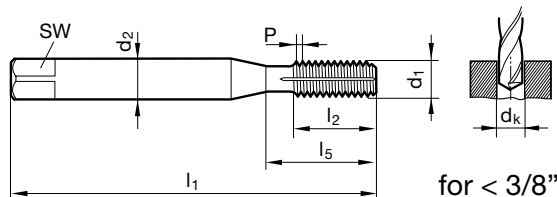
Type N

Chamfer Form C (2-3)

Internal cooling N/A

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary



DIN 2184-1 ~DIN 371/~DIN 374

d1	D	dk in	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
4 - 48	H4/H5	0.102 - 0.103	4	3.500	2.700	56.000	10.000	18.000	2.845	9044920028450
6 - 40	H5/H6	0.126 - 0.128	4	4.000	3.000	56.000	11.000	20.000	3.505	9044920035050
8 - 36	H4/H5	0.151 - 0.153	4	4.500	3.400	63.000	12.000	21.000	4.166	9044920041660
10 - 32	H5/H6	0.174 - 0.178	5	6.000	4.900	70.000	14.000	25.000	4.826	9044920048260
12 - 28	H6/H7	0.198 - 0.202	5	6.000	4.900	80.000	16.000	30.000	5.486	9044920054860
1/4 - 28	H6/H7	0.233 - 0.236	5	7.000	5.500	80.000	16.000	30.000	6.350	9044920063500
5/16 - 24	H7/H8	0.292 - 0.295	5	8.000	6.200	90.000	18.000	35.000	7.938	9044920079380
3/8 - 24	H7/H8	0.355 - 0.358	5	10.000	8.000	90.000	18.000	39.000	9.525	9044920095250
7/16 - 20	H8/H9	0.413 - 0.417	7	8.000	6.200	100.000	22.000	42.000	11.113	9044920111130
1/2 - 20	H8/H9	0.476 - 0.480	7	9.000	7.000	100.000	20.000	40.000	12.700	9044920127000
9/16 - 18	H8/H9	0.535 - 0.540	8	11.000	9.000	100.000	22.000	40.000	14.288	9044920142880
5/8 - 18	H9/H10	0.599 - 0.603	8	12.000	9.000	100.000	22.000	44.000	15.875	9044920158750
3/4 - 16	H10/H11	0.719 - 0.727	8	14.000	11.000	110.000	25.000	44.000	19.050	9044920190500

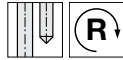


Fluteless taps for ISO metric threads

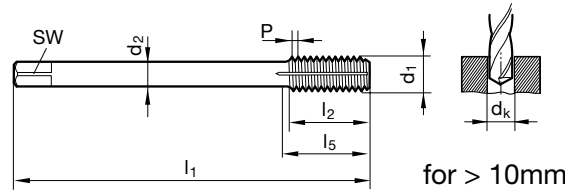
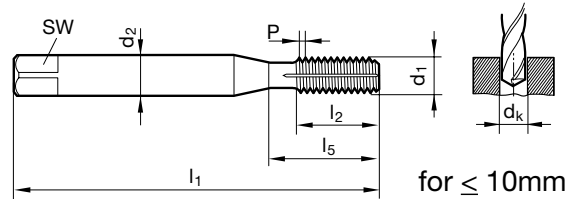
Series no. **4487**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	4HX/6HX
Coating	C
Type	N
Chamfer Form	C (2-3)
Internal cooling	N/A



DIN 2174 ~DIN 371/~DIN 376

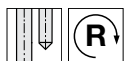
d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
*M1	0.250	D4/D5	0.89 - 0.92	-	2.500	2.100	40.000	4.000	4.0000	1.000	9044870010000
*M1.2	0.250	D4/D5	1.09 - 1.12	-	2.500	2.100	40.000	4.800	4.8000	1.200	9044870012000
*M1.4	0.300	D4/D5	1.27 - 1.30	-	2.500	2.100	40.000	5.600	5.6000	1.400	9044870014000
*M1.6	0.350	D4/D5	1.45 - 1.48	-	2.500	2.100	40.000	6.400	6.4000	1.600	9044870016000
*M1.7	0.350	D4/D5	1.55 - 1.58	-	2.500	2.100	40.000	6.800	6.8000	1.700	9044870017000
*M1.8	0.350	D4/D5	1.65 - 1.68	-	2.500	2.100	40.000	7.300	7.3000	1.800	9044870018000
M2	0.400	D4/D5	1.84 - 1.88	4	2.800	2.100	45.000	8.000	13.5000	2.000	9044870020000
M2.5	0.450	D4/D5	2.28 - 2.32	4	2.800	2.100	50.000	9.000	14.5000	2.500	9044870025000
M3	0.500	D5/D6	2.78 - 2.85	4	3.500	2.700	56.000	10.000	18.0000	3.000	9044870030000
M4	0.700	D6/D7	3.68 - 3.76	4	4.500	3.400	63.000	12.000	21.0000	4.000	9044870040000
M5	0.800	D7/D8	4.62 - 4.71	5	6.000	4.900	70.000	14.000	25.0000	5.000	9044870050000
M6	1.000	D8/D9	5.52 - 5.62	5	6.000	4.900	80.000	16.000	30.0000	6.000	9044870060000
M8	1.250	D9/D10	7.36 - 7.47	5	8.000	6.200	90.000	17.000	35.0000	8.000	9044870080000
M10	1.500	D10/D11	9.26 - 9.38	5	10.000	8.000	100.000	20.000	39.0000	10.000	9044870100000
M12	1.750	D11/D12	11.15 - 11.29	7	9.000	7.000	110.000	24.000	49.0000	12.000	9044870120000
M14	2.000	D13/D14	13.05 - 13.20	7	11.000	9.000	110.000	26.000	53.0000	14.000	9044870140000
M16	2.000	D13/D14	15.05 - 15.20	8	12.000	9.000	110.000	26.000	54.0000	16.000	9044870160000
M20	2.500	D14/D15	18.83 - 19.02	8	16.000	12.000	140.000	32.000	62.0000	20.000	9044870200000

Series no. 4487 from Ø M2 with oil grooves, Ø tolerance ≤ M1.4 = 4HX
No coolant grooves under 2.0mm Ø



Fluteless taps for ISO metric fine threads

Series no. **4489**



Tool material **HSS-E-PM**

Tolerance on Ø 6HX

Coating **C**

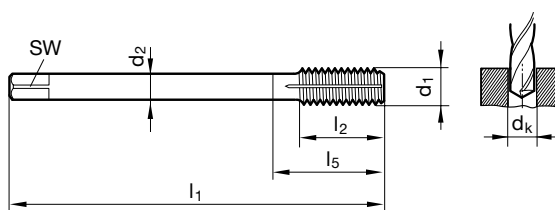
Type N

Chamfer Form C (2-3)

Internal cooling N/A

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary



DIN 2174 ~DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M8 x 1	D7/D8	7.52 - 7.62	5	6.000	4.900	90.000	16.000	35.000	8.005	9044890080050
M10 x 1	D7/D8	9.52 - 9.62	6	7.000	5.500	90.000	16.000	35.000	10.005	9044890100050
M10 x 1.25	D7/D8	9.36 - 9.47	6	7.000	5.500	100.000	20.000	39.000	10.006	9044890100060
M12 x 1.25	D7/D8	11.36 - 11.47	7	9.000	7.000	100.000	20.000	40.000	12.006	9044890120060
M12 x 1.5	D8/D9	11.26 - 11.38	7	9.000	7.000	100.000	20.000	40.000	12.007	9044890120070
M14 x 1.25	D9/D10	13.36 - 13.47	8	11.000	9.000	100.000	20.000	40.000	14.006	9044890140060
M14 x 1.5	D10/D11	13.26 - 13.38	8	11.000	9.000	100.000	20.000	40.000	14.007	9044890140070
M16 x 1.5	D10/D11	15.26 - 15.38	8	12.000	9.000	100.000	22.000	44.000	16.007	9044890160070
M20 x 1.5	D11/D12	19.26 - 19.38	8	16.000	12.000	125.000	25.000	44.000	20.007	9044890200070



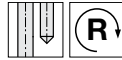
Fluteless taps for ISO metric threads

Series no.

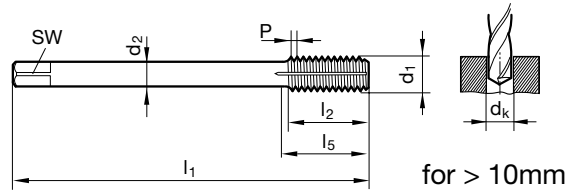
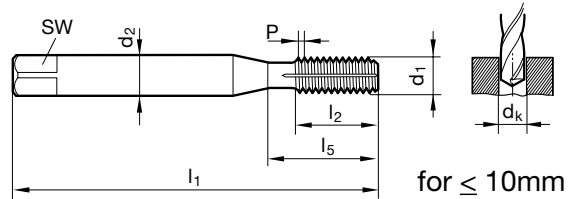
4494

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	Ⓢ
Type	N
Chamfer Form	E (1.5-2)
Internal cooling	N/A



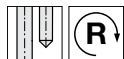
DIN 2174 ~DIN 371/~DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D4/D5	1.84 - 1.88	4	2.800	2.100	45.000	8.000	13.500	2.000	9044940020000
M2.5	0.450	D4/D5	2.28 - 2.32	4	2.800	2.100	50.000	9.000	14.500	2.500	9044940025000
M3	0.500	D5/D6	2.78 - 2.85	4	3.500	2.700	56.000	10.000	18.000	3.000	9044940030000
M4	0.700	D6/D7	3.68 - 3.76	4	4.500	3.400	63.000	12.000	21.000	4.000	9044940040000
M5	0.800	D7/D8	4.62 - 4.71	5	6.000	4.900	70.000	14.000	25.000	5.000	9044940050000
M6	1.000	D8/D9	5.52 - 5.62	5	6.000	4.900	80.000	16.000	30.000	6.000	9044940060000
M8	1.250	D9/D10	7.36 - 7.47	5	8.000	6.200	90.000	17.000	35.000	8.000	9044940080000
M10	1.500	D10/D11	9.26 - 9.38	7	10.000	8.000	100.000	20.000	39.000	10.000	9044940100000
M12	1.750	D11/D12	11.15 - 11.29	7	9.000	7.000	110.000	24.000	49.000	12.000	9044940120000
M14	2.000	D13/D14	13.05 - 13.20	8	11.000	9.000	110.000	26.000	53.000	14.000	9044940140000
M16	2.000	D13/D14	15.05 - 15.20	8	12.000	9.000	110.000	26.000	54.000	16.000	9044940160000
M20	2.500	D13/D14	18.83 - 19.02	8	16.000	12.000	140.000	32.000	62.000	20.000	9044940200000



Fluteless taps for ISO metric fine threads

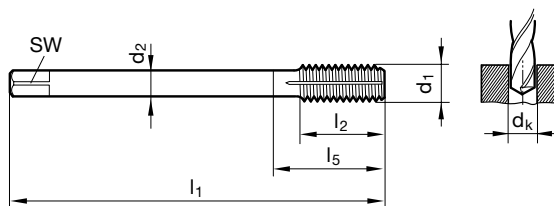
Series no. 4495



Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary

Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	C
Type	N
Chamfer Form	E (1.5-2)
Internal cooling	N/A



DIN 2174 ~DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M8 x 1	D7/D8	7.52 - 7.62	5	6.000	4.900	90.000	16.000	35.000	8.005	9044950080050
M10 x 1	D7/D8	9.52 - 9.62	6	7.000	5.500	90.000	16.000	35.000	10.005	9044950100050
M10 x 1.25	D7/D8	9.36 - 9.47	6	7.000	5.500	100.000	20.000	39.000	10.006	9044950100060
M12 x 1.25	D7/D8	11.36 - 11.47	7	9.000	7.000	100.000	20.000	40.000	12.006	9044950120060
M12 x 1.5	D8/D9	11.26 - 11.38	7	9.000	7.000	100.000	20.000	40.000	12.007	9044950120070
M14 x 1.25	D9/D10	13.36 - 13.47	8	11.000	9.000	100.000	20.000	40.000	14.006	9044950140060
M14 x 1.5	D10/D11	13.26 - 13.38	8	11.000	9.000	100.000	20.000	40.000	14.007	9044950140070
M16 x 1.5	D10/D11	15.26 - 15.38	8	12.000	9.000	100.000	22.000	44.000	16.007	9044950160070
M20 x 1.5	D11/D12	19.26 - 19.38	8	16.000	12.000	125.000	25.000	44.000	20.007	9044950200070



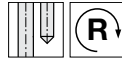
Coolant fed fluteless taps for ISO metric threads

Series no.

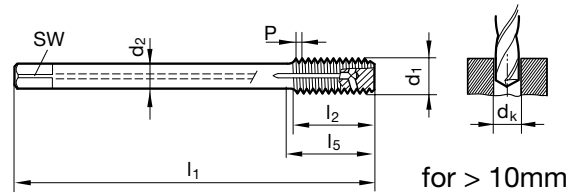
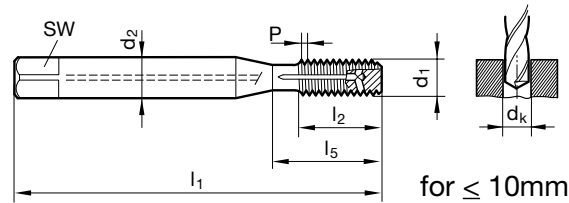
4485

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	C
Type	N
Chamfer Form	C (2-3)
Internal cooling	Radial



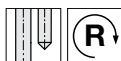
DIN 2174 ~DIN 371/~DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M5	0.800	D7/D8	4.62 - 4.71	5	6.000	4.900	70.000	8.500	25.000	5.000	9044850050000
M6	1.000	D8/D9	5.52 - 5.62	5	6.000	4.900	80.000	11.000	30.000	6.000	9044850060000
M8	1.250	D9/D10	7.36 - 7.47	5	8.000	6.200	90.000	14.000	35.000	8.000	9044850080000
M10	1.500	D10/D11	9.26 - 9.38	5	10.000	8.000	100.000	16.000	39.000	10.000	9044850100000
M12	1.750	D11/D12	11.15 - 11.29	7	9.000	7.000	110.000	18.500	49.000	12.000	9044850120000
M14	2.000	D13/D14	13.05 - 13.20	7	11.000	9.000	110.000	20.000	53.000	14.000	9044850140000
M16	2.000	D13/D14	15.05 - 15.20	8	12.000	9.000	110.000	20.000	54.000	16.000	9044850160000
M20	2.500	D13/D14	18.83 - 19.02	8	16.000	12.000	140.000	25.000	62.000	20.000	9044850200000



Coolant fed fluteless taps for ISO metric threads

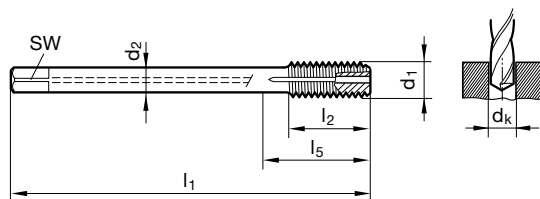
Series no. **4486**



Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary

Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	C
Type	N
Chamfer Form	C (2-3)
Internal cooling	Radial



DIN 2174 ~DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M8 x 1	D7/D8	7.52 - 7.62	5	6.000	4.900	90.000	11.000	35.000	8.005	9044860080050
M10 x 1	D7/D8	9.52 - 9.62	6	7.000	5.500	90.000	11.000	35.000	10.005	9044860100050
M10 x 1.25	D7/D8	9.36 - 9.47	6	7.000	5.500	100.000	14.000	39.000	10.006	9044860100060
M12 x 1.25	D7/D8	11.36 - 11.47	7	9.000	7.000	100.000	16.000	40.000	12.006	9044860120060
M12 x 1.5	D8/D9	11.26 - 11.38	7	9.000	7.000	100.000	16.000	40.000	12.007	9044860120070
M14 x 1.25	D9/D10	13.36 - 13.47	8	11.000	9.000	100.000	15.000	40.000	14.006	9044860140060
M14 x 1.5	D10/D11	13.26 - 13.38	8	11.000	9.000	100.000	15.000	40.000	14.007	9044860140070
M16 x 1.5	D10/D11	15.26 - 15.38	8	12.000	9.000	100.000	15.000	44.000	16.007	9044860160070
M20 x 1.5	D11/D12	19.26 - 19.38	8	16.000	12.000	125.000	16.000	44.000	20.007	9044860200070



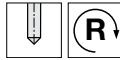
Coolant fed fluteless taps for ISO metric threads

Series no.

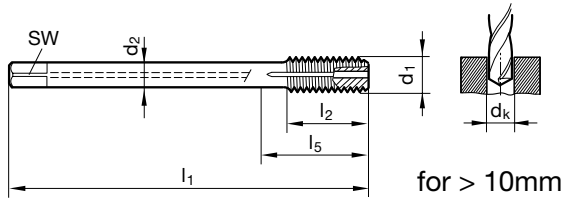
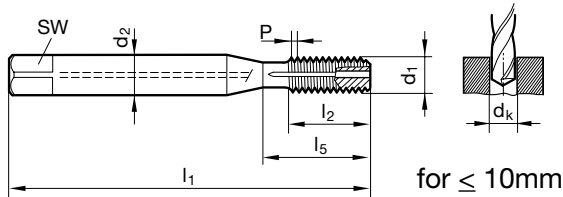
4483

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	C
Type	N
Chamfer Form	E (1.5-2)
Internal cooling	Axial



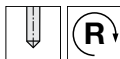
DIN 2174 ~DIN 371/~DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M5	0.800	D7/D8	4.62 - 4.71	5	6.000	4.900	70.000	8.500	25.000	5.000	9044830050000
M6	1.000	D8/D9	5.52 - 5.62	5	6.000	4.900	80.000	11.000	30.000	6.000	9044830060000
M8	1.250	D9/D10	7.36 - 7.47	5	8.000	6.200	90.000	14.000	35.000	8.000	9044830080000
M10	1.500	D10/D11	9.26 - 9.38	5	10.000	8.000	100.000	16.000	39.000	10.000	9044830100000
M12	1.750	D11/D12	11.15 - 11.29	7	9.000	7.000	110.000	18.500	49.000	12.000	9044830120000
M14	2.000	D13/D14	13.05 - 13.20	7	11.000	9.000	110.000	20.000	53.000	14.000	9044830140000
M16	2.000	D13/D14	15.05 - 15.20	8	12.000	9.000	110.000	20.000	54.000	16.000	9044830160000
M20	2.500	D13/D14	18.83 - 19.02	8	16.000	12.000	140.000	25.000	62.000	20.000	9044830200000



Coolant fed fluteless taps for ISO metric threads

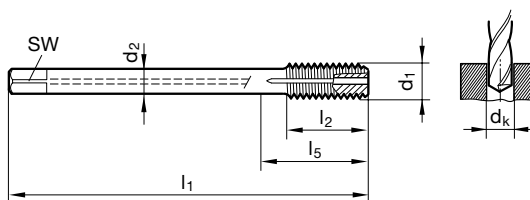
Series no. **4484**



Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	○
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	○

● = Optimal ○ = Secondary

Tool material	HSS-E-PM
Tolerance on Ø	6HX
Coating	C
Type	N
Chamfer Form	E (1.5-2)
Internal cooling	Axial



DIN 2174 ~DIN 374

d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M8 x 1	D7/D8	7.52 - 7.62	5	6.000	4.900	90.000	11.000	35.000	8.005	9044840080050
M10 x 1	D7/D8	9.52 - 9.62	6	7.000	5.500	90.000	11.000	35.000	10.005	9044840100050
M10 x 1.25	D7/D8	9.36 - 9.47	6	7.000	5.500	100.000	14.000	39.000	10.006	9044840100060
M12 x 1.25	D7/D8	11.36 - 11.47	7	9.000	7.000	100.000	16.000	40.000	12.006	9044840120060
M12 x 1.5	D8/D9	11.26 - 11.38	7	9.000	7.000	100.000	16.000	40.000	12.007	9044840120070
M14 x 1.25	D9/D10	13.36 - 13.47	8	11.000	9.000	100.000	15.000	40.000	14.006	9044840140060
M14 x 1.5	D10/D11	13.26 - 13.38	8	11.000	9.000	100.000	15.000	40.000	14.007	9044840140070
M16 x 1.5	D10/D11	15.26 - 15.38	8	12.000	9.000	100.000	15.000	44.000	16.007	9044840160070
M20 x 1.5	D11/D12	19.26 - 19.38	8	16.000	12.000	125.000	16.000	44.000	20.007	9044840200070

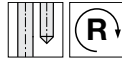


Fluteless taps for ISO metric threads

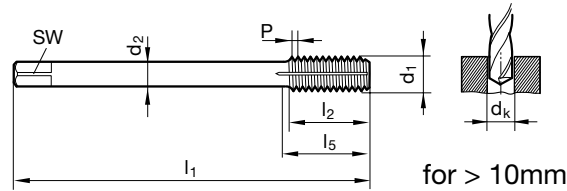
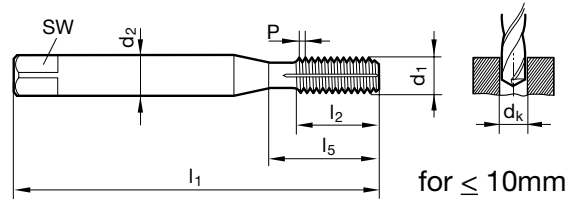
Series no. 4488

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	6GX
Coating	C
Type	N
Chamfer Form	C (2-3)
Internal cooling	N/A



DIN 2174 ~DIN 371/~DIN 376

d1	P	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	mm	limits	range	flutes	mm	mm	mm	mm	mm		
M2	0.400	D5/D6	1.84 - 1.88	4	2.800	2.100	45.000	8.000	13.500	2.000	9044880020000
M2.5	0.450	D5/D6	2.28 - 2.32	4	2.800	2.100	50.000	9.000	14.500	2.500	9044880025000
M3	0.500	D6/D7	2.78 - 2.85	4	3.500	2.700	56.000	10.000	18.000	3.000	9044880030000
M4	0.700	D7/D8	3.68 - 3.76	4	4.500	3.400	63.000	12.000	21.000	4.000	9044880040000
M5	0.800	D9/D10	4.62 - 4.71	5	6.000	4.900	70.000	14.000	25.000	5.000	9044880050000
M6	1.000	D10/D11	5.52 - 5.62	5	6.000	4.900	80.000	16.000	30.000	6.000	9044880060000
M8	1.250	D11/D12	7.36 - 7.47	5	8.000	6.200	90.000	17.000	35.000	8.000	9044880080000
M10	1.500	D12/D13	9.26 - 9.38	5	10.000	8.000	100.000	20.000	39.000	10.000	9044880100000
M12	1.750	D13/D14	11.15 - 11.29	7	9.000	7.000	110.000	24.000	49.000	12.000	9044880120000
M14	2.000	D16/D17	13.05 - 13.20	7	11.000	9.000	110.000	26.000	53.000	14.000	9044880140000
M16	2.000	D16/D17	15.05 - 15.20	8	12.000	9.000	110.000	26.000	54.000	16.000	9044880160000
M20	2.500	D16/D17	18.83 - 19.02	8	16.000	12.000	140.000	32.000	62.000	20.000	9044880200000

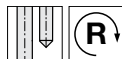


Fluteless taps for ISO metric fine threads

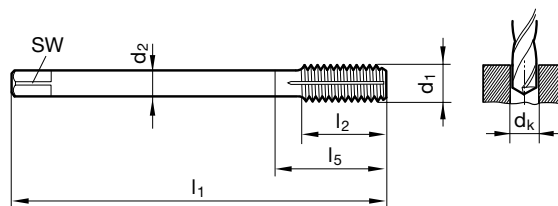
Series no. **4490**

Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary



Tool material	HSS-E-PM
Tolerance on Ø	6GX
Coating	C
Type	N
Chamfer Form	C (2-3)
Internal cooling	N/A



DIN 2174 ~DIN 374

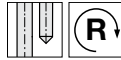
d1	D	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	limits	range	flutes	mm	mm	mm	mm	mm		
M8 x 1	D9/D10	7.52 - 7.62	5	6.000	4.900	90.000	16.000	35.000	8.005	9044900080050
M10 x 1	D9/D10	9.52 - 9.62	6	7.000	5.500	90.000	16.000	35.000	10.005	9044900100050
M10 x 1.25	D9/D10	9.36 - 9.47	6	7.000	5.500	100.000	20.000	39.000	10.006	9044900100060
M12 x 1.25	D9/D10	11.36 - 11.47	7	9.000	7.000	100.000	20.000	40.000	12.006	9044900120060
M12 x 1.5	D10/D11	11.26 - 11.38	7	9.000	7.000	100.000	20.000	40.000	12.007	9044900120070
M14 x 1.25	D11/D12	13.36 - 13.47	8	11.000	9.000	100.000	20.000	40.000	14.006	9044900140060
M14 x 1.5	D12/D13	13.26 - 13.38	8	11.000	9.000	100.000	20.000	40.000	14.007	9044900140070
M16 x 1.5	D12/D13	15.26 - 15.38	8	12.000	9.000	100.000	22.000	44.000	16.007	9044900160070
M20 x 1.5	D13/D14	19.26 - 19.38	8	16.000	12.000	125.000	25.000	44.000	20.007	9044900200070



Fluteless taps for BSP-threads

Series no.

4493



Material	Material examples	Suitability
P	Steel	●
M	Stainless steel	●
K	Cast iron	
N	Aluminum	●
S	Ni / Ti alloys	●
H	Hardened steel	

●=Optimal ○=Secondary

Tool material

HSS-E-PM

Tolerance on Ø

Coating

C

Type

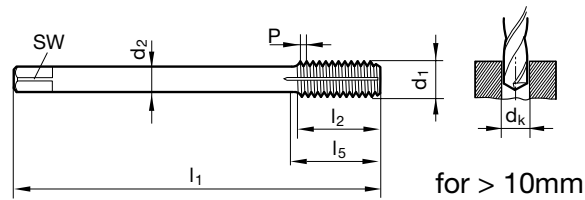
N

Chamfer Form

C (2-3)

Internal cooling

N/A



DIN 2184-1 DIN 2189

d1	P	dk mm	No. of	d2	SW	l1	l2	l5	Code no.	EDP Number
	G/inch	range	flutes	mm	mm	mm	mm	mm		
G1/8	28.000	9.28 - 9.35	6	7.000	5.500	90.000	18.000	35.000	9.728	9044930097280
G1/4	19.000	12.48 - 12.55	7	11.000	9.000	100.000	20.000	40.000	13.157	9044930131570
G3/8	19.000	15.98 - 16.05	7	12.000	9.000	100.000	22.000	44.000	16.662	9044930166620
G1/2	14.000	19.98 - 20.12	8	16.000	12.000	125.000	25.000	44.000	20.955	9044930209550



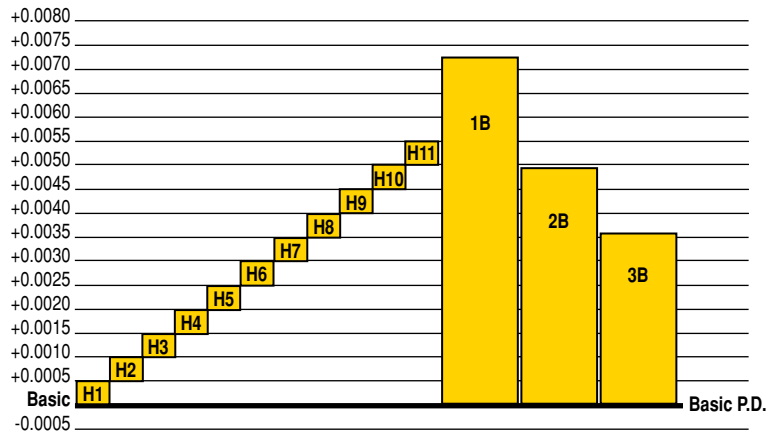
UNC/UNF Taps

Screw size and fractional threads are typically specified as one of three classes of fit. Class 1B – for low precision, or threads that are typically used in areas where dirt and grime are a constant factor; Class 2B for general threading applications (by far the most common); and Class 3B for precision threads generally found in medical, aerospace and applicable automotive applications.

- As seen in the chart – these classes of fit do overlap even though they are progressive in accuracy. To further break down the accuracy of these threads we have “H” limits in increments of 0.0005”.

- Every size/pitch tap has a specific or given basic pitch diameter that is the basis for the “H” limits and the class of fit for that size.

- As you can see in the chart – the class of fit will give you minimum and maximum pitch diameter limits that need to be maintained during manufacturing (typically these are your thread gauge limits). By seeing the “H” limits illustrated you are better able to understand what area of the class of fit you are actually working within.



(This chart does not show a specific size tap – its purpose is to give a visual understanding of how the “H” limits work within the different classes of fit).

Metric Taps

With the aim of unifying threads on an international basis, the ISO thread was introduced. Today the ISO metric thread is the most common type. As you can see, our tap program demonstrates this fact in the clearest possible way.

Metric tolerance qualities (figure identification)

Tolerance qualities of external threads are defined by the table to the right, those of nut threads by the table on the lower right.

Tolerance positions (letter identification)

ISO metric internal threads are identified by capital letters A to H, ISO metric external threads by small letters a to h. Tolerance zones A to G have positive and a to g negative basic pitch deviations in contrast to the tolerance zones H and h which commence at zero. Generally, tolerance zones H and g are used. For threads destined for Coating treatment tolerance zones G and e are applied.

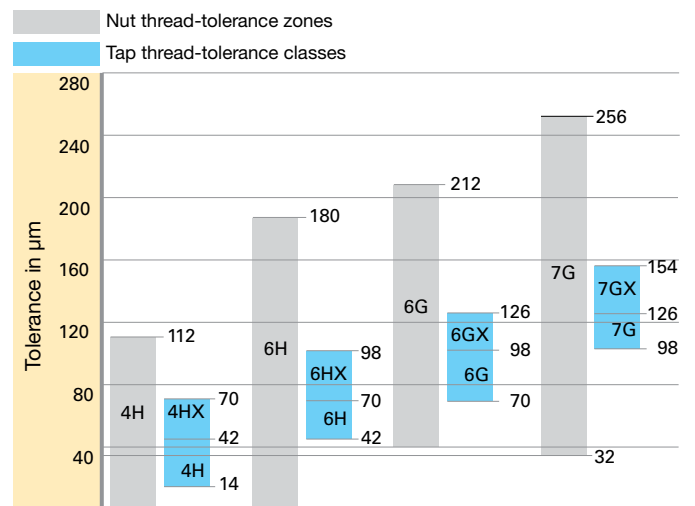
When manufacturing ISO-external threads the deviations that are determined for the major diameter with regard to the tolerance zones a to g have to be taken into account.

Tolerance zones (nut thread)/ Tolerance classes (tap thread)

Quality and position of tolerance determine the tolerance zone, which is identified by the appropriate figures and letters. The abbreviation for the tolerance class of tap corresponds to the tolerance zone of the internal thread for which the tap is used in most cases. Therefore, it is not identical with the tolerance zone of the cut nut thread in every application.

Taps with deviating tolerances according to DIN 802 part 1 will be given additional marking “X” (6 HX, 6 GX). We recommend the application of taps in accordance with the adjacent table:

Tolerance zone / tolerance class allocation



DIN EN 22857		Tolerance zone of internal thread to be cut				DIN 802 part 1 (withdrawn)	
Application class of tap	Designation*	Reference					Tolerance class of tap
Class 1	ISO 1		4H	5H			4H
Class 2	ISO 2			6H			6H
Class 3	ISO 3				6G		6G
-	-					7G	7G

* The tolerance of the 3 application classes is calculated in accordance to the following data dependent on one tolerance unit t the value of which corresponds to the value of the basic pitch diameter TD2 in tolerance class 5 of the nut thread (polished to a pitch of 0.2 mm):
t = t₀₂ Tolerance class 5 of nut thread

Operating Parameters - Cut Taps



Material Reference		Approx. Rc	Approx. HB	Recommended SFM		
				HSS-E	HSS-E-PM	
P	Structural steels, free cutting steels		<180	50-70	70-85	
	Unalloyed case hardened steels		<22	45-55	55-65	
	Unalloyed heat treatable steels		<30	35-45	45-55	
	Structural steels, free cutting steels		<22	45-55	55-65	
	Case hardened steels, heat treatable steels		<30	35-45	45-55	
	Nitriding Steels, Spheroidal graphite iron		<38	25-35	35-45	
	Alloyed case hardened steels		<22	45-55	55-65	
	Alloyed heat treatable steels		<30	35-45	45-55	
	Alloyed tool steels		<38	25-35	35-45	
	High speed tool steels					
M	Stainless Steels	sulphured, austenitic, martensitic	<22	<220	35-45	45-55
			<30	<290	25-35	35-45
			<40	<375	15-20	20-25
K	Cast Iron		<180	-	-	
	Spheroidal graphite iron		<290	50-70	70-85	
	Malleable cast iron		<350	30-40	40-50	
N	Aluminum and Al-alloys	Al cast alloys	Silcon content	Wrought Aluminum		
			<6%	n/a	55-65	75-85
			6-12%	n/a		
		Al wrought alloys	n/a	30-80	25-35	35-45
			n/a	75-150		
	Magnesium alloys		<150	-	-	
	Copper and copper alloys		Long chipping	50-70	70-85	
		Short chipping				
Thermoplastics-Duroplastics		Long chipping	-	-		
		Short chipping	-	-		
S	Titanium and Ti alloys		140-275	8-12	12-16	
			300-380			
	Nickel and Ni alloys		200-300	4-8	8-12	
			>300			
H	Hardened steel		45-55	-	-	
			55-62	-	-	



Operating Parameters - Form (Fluteless) Taps



Material Reference		Approx. Rc	Approx. HB	Recommended SFM HSS-E-PM		
P	Structural steels, free cutting steels		<180	75-85		
	Unalloyed case hardened steels	<22	<220	75-85		
	Unalloyed heat treatable steels	<30	<290	75-85		
	Structural steels, free cutting steels	<22	<220	75-85		
	Case hardened steels, heat treatable steels	<30	<290	75-85		
	Nitriding Steels, Spheroidal graphite iron	<38	<350	45-55		
	Alloyed case hardened steels	<22	<220	75-85		
	Alloyed heat treatable steels	<30	<290	75-85		
	Alloyed tool steels	<38	<350	45-55		
	High speed tool steels					
M	Stainless Steels	sulphured, austenitic, martensitic	<22	<220	45-55	
			<30	<290	25-40	
			<40	<375	15-20	
K	Cast Iron		<180	-		
	Spheroidal graphite iron		<290	90-110		
	Malleable cast iron		<350	70-90		
N	Aluminum and Al-alloys	Al cast alloys	Silcon content	Wrought Aluminum	90-110	
			<6%	n/a		
			6-12%	n/a		
			Al wrought alloys	n/a	30-80	45-55
				n/a	75-150	
	Magnesium alloys			<150	-	
	Copper and copper alloys		Long chipping		90-110	
			Short chipping			
Thermoplastics-Duroplastics		Long chipping		-		
		Short chipping		-		
S	Titanium and Ti alloys		140-275	20-30		
			300-380			
	Nickel and Ni alloys		200-300	20-30		
			>300			
H	Hardened steel		45-55	-		
			55-62	-		



Thread production by pressure deformation

Fluteless taps are used for the forming of internal threads without chip removal. In contrast to conventional tapping where material is cut from the workpiece, thread forming is a pressure deformation process without chip removal for the production of internal threads. During the process the material is cold formed without interrupting the grain flow.

According to DIN 8583, thread forming is described as “pressing the thread into the workpiece with a tool possessing a spiral working area”. The spiral threaded, polygonal portion of the fluteless tap is “screwed” into the pre-drilled workpiece with an appropriate constant feed rate equal to the thread pitch. Hereby the thread profile is pressed gradually via the forming lead into the material of the workpiece so to speak. Subsequently, the pressure in the deformation zone exceeds the compression limit, the workpiece becomes ductile and is deformed. The material yields radially, “flows” along the thread profile in the unoccupied base of the tool and forms the minor diameter of the nut thread. The flow process creates the process specific form pockets (claws).

The tapping size hole diameter is heavily dependent on the formability of the material, the workpiece geometry and the required effective depth of the thread. In comparison to conventional tapping, a larger diameter tapping size hole should be selected. With a larger diameter tapping size hole the load on the tool is reduced whilst increasing the tool life. Thanks to the uninterrupted grain flow, the loading capacity of the thread remains sufficient with a 50% effective thread depth.

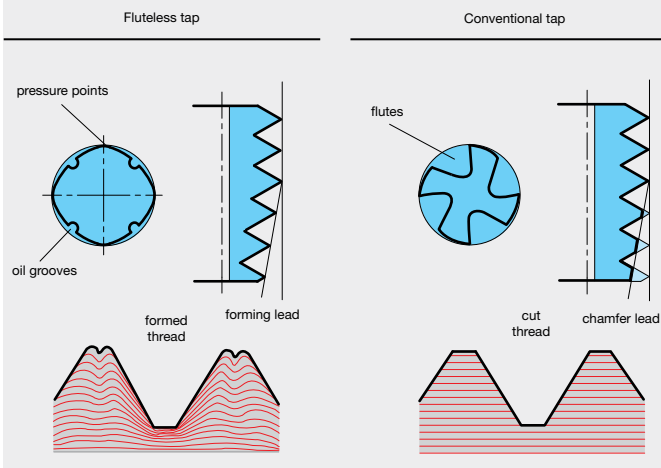
The partially formed crests of the thread with decreasing effective thread depth are a typical characteristic of threads produced by the thread forming process. With the flanks of the thread fully formed, they have no influence on the tensile strength of the thread. If necessary, the required deformation level of the thread should be determined by performing a test.

Lubrication is of significant importance. The lubrication prevents material from building up on the thread flanks and ensures that the necessary torque for the forming process is not too high. Therefore, under no circumstances should there ever be a breakdown in lubrication! Preference should be given to lubricants such as cooling agents of oils containing graphite such as those used in rolling processes. Always follow the rule: “The better the lubrication the easier the thread forming process!”

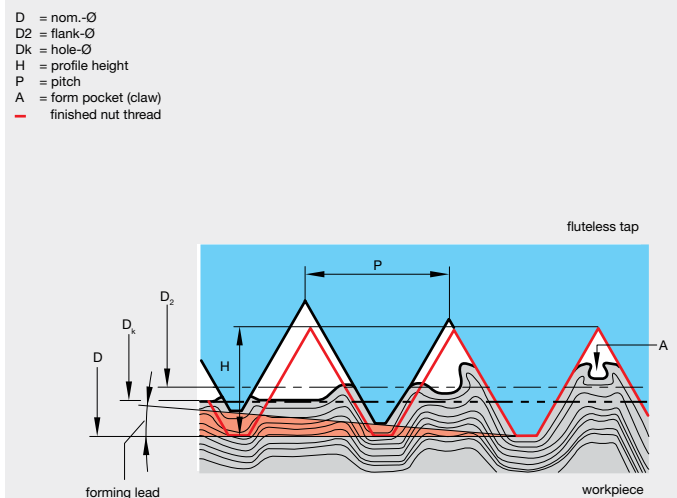
It offers the following advantages:

- no chip formation.
- one tool for the production of threads in through and blind holes.
- application in wide range of materials.
- no cutting errors.
- pitch and angle of thread errors that can occur with thread cutting are eliminated.
- internal threads produced by thread forming possess a higher tensile strength particularly at the thread flanks thanks to the so-called “uninterrupted grain flow” and the cold forming process.
- the Coating of the thread is improved.
- fluteless taps can be applied at higher speeds because the formability of many materials increases with the forming speed. This does not have a negative effect on the tool life.
- reduced danger of breakage through rigid design

Process
The production of internal threads without chip removal (thread forming) in comparison to conventional tapping



Flow characteristics of the material during thread forming and the deformation process





Guhring's new fluteless tap generation

Characteristics and advantages

Conventional fluteless taps, produced by a grinding process only, show traces of microscopic, very fine grinding marks on the Coating of the tool. This also applies to the threaded portion of the tool required to perform the thread forming operation.

This Coating topography (structure) has a negative effect on the friction between the tool and the material to be re-formed as well as on the herewith associated heat development, on the necessary torque and last but not least on the wear of the pressure points of the fluteless tap. In addition, the "grinding marks" encourage the build-up of the material to be re-formed in the thread flanks of the fluteless tap. This is also called cold welding.

Thanks to a special process to improve the Coating topography (structure), Guhring's new Pionex fluteless taps no longer possess these "grinding marks". This has been confirmed in research and tool life studies in varying materials under production conditions.

For the user, a longer tool life and increased cutting speeds are the benefits of this special process. The tool life can be increased considerably depending on the material to be machined and the application conditions. A 100% increase in tool life is not unusual.

The improved Coating topography is not only of benefit to tools with bright finish. Particularly coated tools also benefit from the new process. Outer contour and forming lead greatly determine the performance of the fluteless tap. Numerous tests have shown that fluteless taps with optimal pressure point geometry and quantity achieve increased tool life and dimensional accuracy.

Further improvements in quality are achieved when the fluteless tap is produced completely in one setting and with one grinding wheel - set-up with a special roll. Pitch errors between the thread crests and former lead transition area do not occur as with the conventional grinding process.

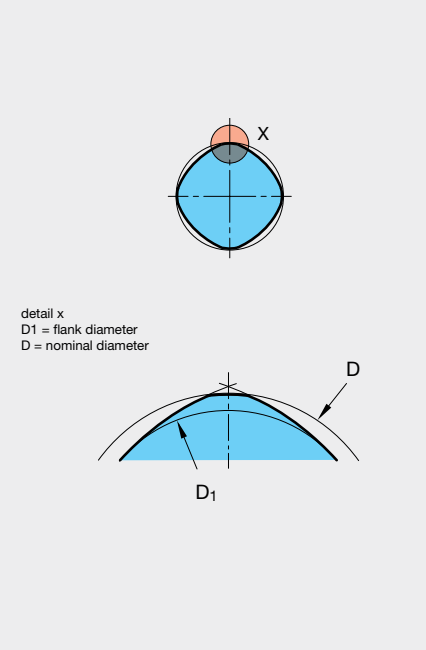


Coating of a conventional fluteless tap

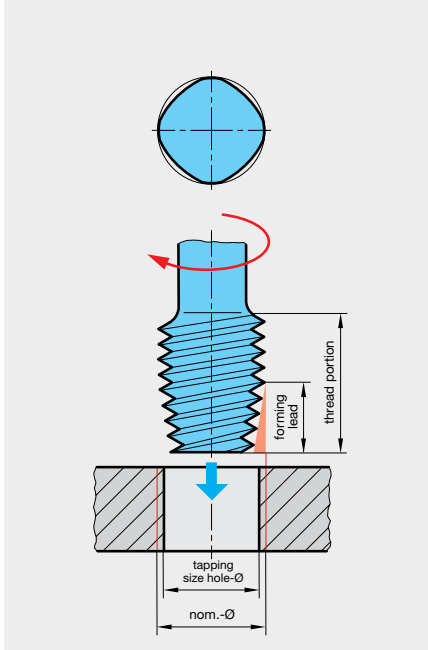


Optimized Coating of a Guhring Pionex fluteless tap

Cross section of fluteless tap



The principle



Types of tapping size hole

with fluteless taps without oil grooves
for thread depth $\leq 1 \times D$



for thread depth $\geq 1 \times D$



with fluteless taps with oil grooves
for all thread depths





Tapping size hole diameter

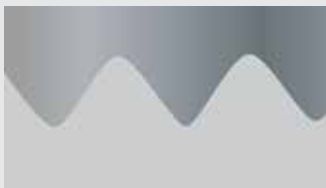
With fluteless tapping, the tapping size hole diameter influences the distinction of the formed thread. A too small tapping size hole diameter results in an over-forming of the thread which must definitely be prevented because this can lead to tool breakage. A

too large tapping size hole is acceptable with certain tolerances because formed threads have a sufficient loading capacity from a 50% bearing depth.

The thread M18x1.5 mm example clearly shows the influence of the tapping size hole diameter selection:

M 18 x 1.00	17.55	17.52	17.62	16.917	17.217
M 18 x 1.50	17.30	17.26	17.38	16.376	16.751
M 18 x 2.00	17.10	17.05	17.20	15.835	16.310

Pre-drilling Ø 17.1 mm



Pre-drilling Ø 17.3 mm

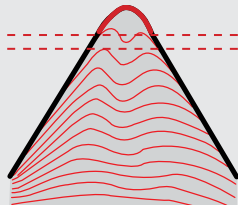


Pre-drilling Ø 17.4 mm



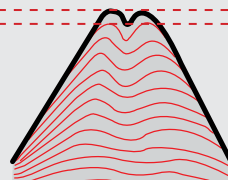
Tapping size hole diameter is too small:

- thread over-formed
- no form pocket (claw)
- profile too high



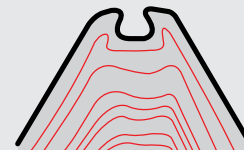
Optimal tapping size hole diameter:

- thread fully formed
- small form pocket (claw)
- optimal height of profile



Tapping size hole diameter is too large:

- thread not formed
- large form pocket (claw)
- height of profile too low

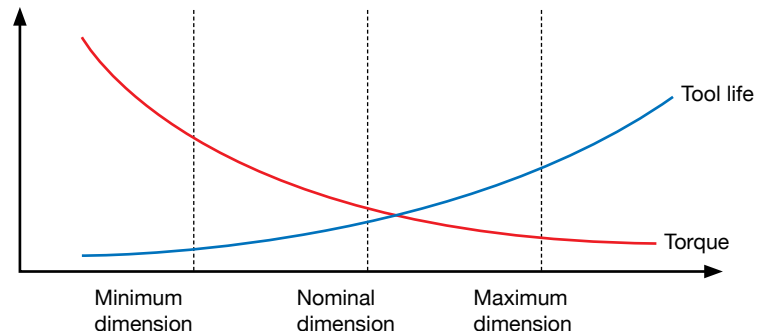


min.
max.

Tapping size hole diameter tolerance zone to DIN 13, part 50

Influence of the tapping size hole on tool life, torque and process reliability

The optimisation of the pre-drilling diameter is especially worthwhile in mass production. The larger it is, the longer the tool life and the less the required torque is. The graphic clearly shows the relationship.

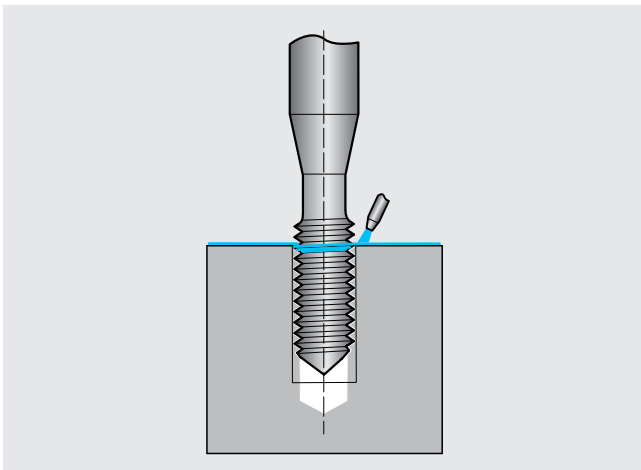




Lubrication for thread forming

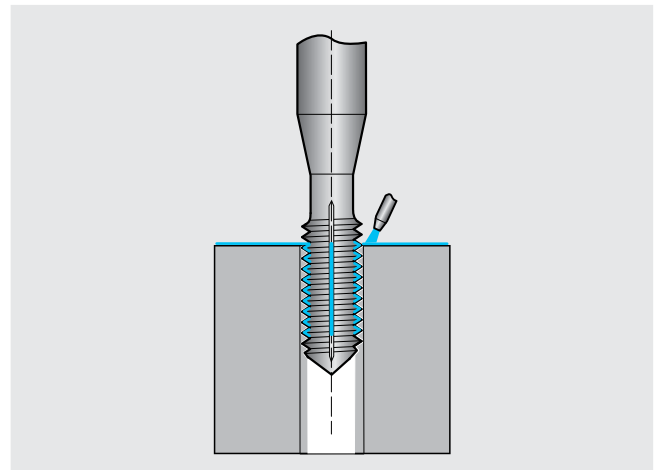
For tool design four different cases should be differentiated between.

Vertical machining of a blind hole



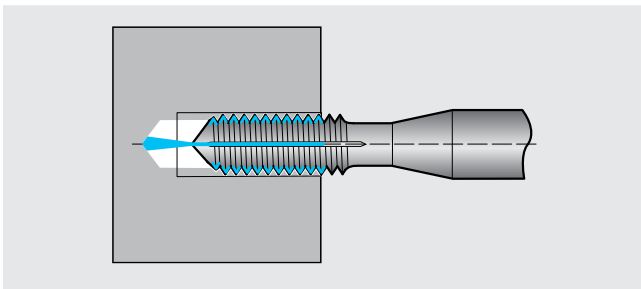
Lubrication grooves and internal coolant delivery is not necessary; external coolant delivery is sufficient (Axial coolant is recommended for very deep threads).

Vertical machining of a through hole (> 1.5xD_N)



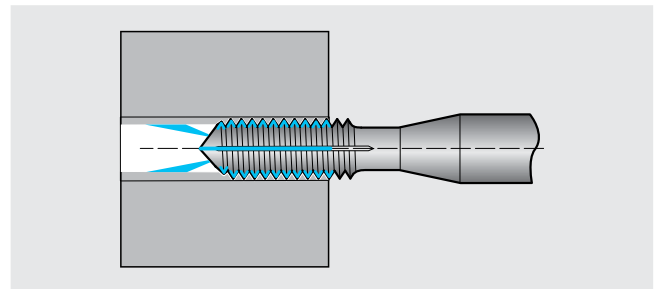
Lubrication grooves are required; internal coolant delivery is not necessary. Via the lubrication grooves the externally delivered coolant can advance to the form edges (Radial coolant is recommended for very deep threads).

Horizontal machining of blind hole



Lubrication grooves and internal coolant delivery is necessary. Axial coolant exit is sufficient.

Horizontal machining of through hole



Lubrication grooves are required. Internal coolant delivery with radial exit is recommended.

Cooling lubricants with fluteless taps

With fluteless taps the main task of the coolant is lubrication. The better the lubrication with the maximum concentration, the longer the tool life.

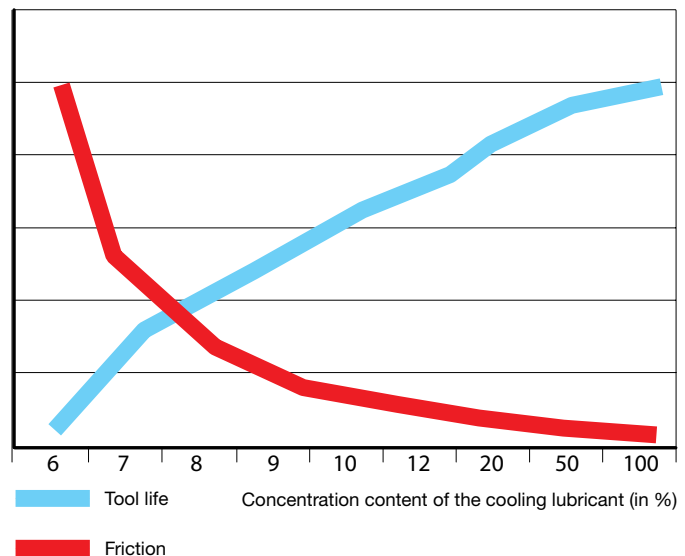
There are two different types of lubricant:

Oil based lubricants

These are mineral oils with the best lubricating characteristics. They reduce friction and achieve optimal life.

Soluble lubricants

These soluble lubricants are a concentrate thinned to an emulsion prior to the use with water. The concentration must not be below 6%. A content more than 12% is ideal in order to achieve a long life thanks to a good lubrication effect.





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