

UNIMASTER



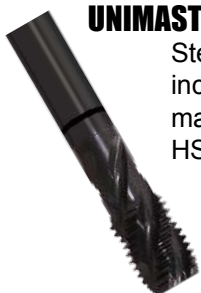
UNIVERSAL TAPS FOR ALL ISO MATERIAL GROUPS

UNIMASTER SPIRAL FLUTE AND SPIRAL POINT TAPS

UNIVERSAL APPLICATION TAPS

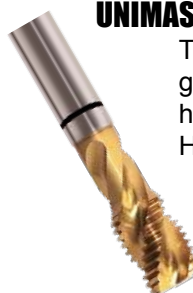
- ▶ Unique patented geometry designed for optimum chip evacuation and enhanced thread production.
- ▶ Made on specially designed, purpose built tap grinding machines.
- ▶ Excellent performance in a wide range of materials across all ISO material groups.
- ▶ Advanced base material gives excellent toughness and abrasion resistance.

UNIMASTER BLUE



Steam vapour treated to give increased tool life in most materials.
HSS-E base material

UNIMASTER GOLD



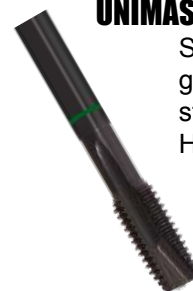
Titanium nitride coated to give increased tool life at higher speeds.
HSS-E base material

UNIMASTER BRIGHT



Uncoated for excellent results in softer materials.
HSS-E base material

UNIMASTER PM



Steam vapour treated to give increased tool life in stainless steels.
HSS-PM base material

UNIMASTER

THE PERFECT THREAD EVERY TIME

- For material group specification and cutting data, refer to pages 17-19
- For full range of material specific application taps, refer to main catalogue.

UNIMASTER TYPE			BLUE	GOLD	BRIGHT	PM	BLUE	GOLD	BRIGHT	PM
DIN371/376	6H	M	TM8130 P.4	TM8117 P.6	TM8140 P.8	TM8413 P.14	TM8030 P.5	TM8017 P.7	TM8040 P.9	TM8313 P.15
DIN371/376	2B	UNC			TM8340 P.10				TM8240 P.11	
DIN371/374	2B	UNF			TM8740 P.12				TM8640 P.13	
HOLE TYPE										
TAP STYLE										
MATERIAL GROUP			●: Excellent ○: Good							
P	11		●	●	●		●	●	●	
	12		●	●	●	○	●	●	●	○
	13		●	●	●		●	●	●	
	14		●	●	●	○	●	●	●	○
H	15		●	○	○		●	○	○	
	16									
M	21		○	○	○	●	○	○	○	●
	22		○	○	○	●	○	○	○	●
	23		○	○	○	●	○	○	○	●
K	31		●	●	●		●	●	●	
	32		●	●	●		●	●	●	
	33		●	●	●		●	●	●	
	34		●	●	●		●	●	●	
S	41		●	●	●		●	●	●	
	42		○	○	○		○	○	○	
	43									
	51		●	●	●		●	●	●	
	52		○	○	○		○	○	○	
	53									
N	61		○	●	●	○	○	●	●	○
	62		○	●	●		○	●	●	
	63		○	●	●		○	●	●	
	64									
	71									
	72		○	●	●		○	●	●	
	73		○	●	●		○	●	●	
	74		○	●	●		○	●	●	

Code	Item	Description	Page No.
TM8130		Unimaster Blue Spiral Point M2 - M20	P. 4
TM8030		Unimaster Blue Spiral Flute M2 - M20	P. 5
TM8117		Unimaster Gold Spiral Point M2 - M16	P. 6
TM8017		Unimaster Gold Spiral Flute M2 - M16	P. 7
TM8140		Unimaster Bright Spiral Point M2 - M30	P. 8
TM8040		Unimaster Bright Spiral Flute M2 - M30	P. 9
TM8340		Unimaster Bright Spiral Point No.4 - 1" UNC	P. 10
TM8240		Unimaster Bright Spiral Flute No.4 - 1" UNC	P. 11
TM8740		Unimaster Bright Spiral Point No.4 - 1" UNF	P. 12
TM8640		Unimaster Bright Spiral Flute No.4 - 1" UNF	P. 13
TM8413		Unimaster PM Spiral Point M2 - M16	P. 14
TM8313		Unimaster PM Spiral Flute M2 - M16	P. 15
SETS		Unimaster Sets Spiral Point and Spiral Flute M3 - M12 plus Goldex Tapping Drills	P. 16
		Tap Selector	P. 2
		Material Group Examples	P. 17
		Cutting Data	P. 18-19
		Technical Data	P. 20-21
		Tapping Guide	P. 21
		Troubleshooting	P. 22

HSS-E

DIN
371/376

6H

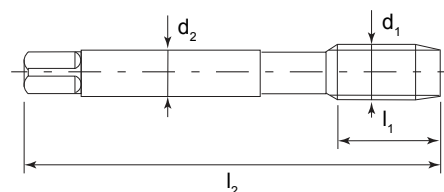
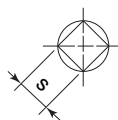
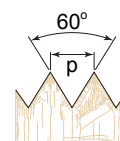


VAP

Series No. TM8130

► cutting conditions: pages 20-21

Spiral point.
Metric coarse.
Patented universal geometry.
DIN371 ≤ M10 - DIN376 > M10



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM81300200	■	M2	0.4	8	45	2.8	2.1	1.6
TM81300300	■	M3	0.5	11	56	3.5	2.7	2.5
TM81300400	■	M4	0.7	13	63	4.5	3.4	3.3
TM81300500	■	M5	0.8	15	70	6.0	4.9	4.2
TM81300600	■	M6	1.0	17	80	6.0	4.9	5.0
TM81300800	■	M8	1.25	20	90	8.0	6.2	6.8
TM81301000	■	M10	1.5	22	100	10.0	8.0	8.5
TM81301200	■	M12	1.75	24	110	9.0	7.0	10.2
TM81301400	■	M14	2.0	26	110	11.0	9.0	12.0
TM81301600	■	M16	2.0	27	110	12.0	9.0	14.0
TM81302000	■	M20	2.5	32	140	16.0	12.0	17.5

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
●	●	●	○	○	●	●	●	○		○	○	○	
13	14	16	23		33	34	51	52	53	71	72	73	74
●	●		○		●	●	●	○		○	○	○	

HSS-E

DIN
371/376

6H

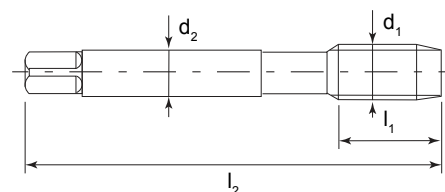
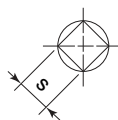
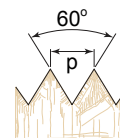


VAP

Series No. TM8030

► cutting conditions: pages 20-21

Spiral flute.
Metric coarse.
Patented universal geometry.
DIN371 ≤M10 - DIN376 >M10



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM80300200	■	M2	0.4	8	45	2.8	2.1	1.6
TM80300300	■	M3	0.5	6	56	3.5	2.7	2.5
TM80300400	■	M4	0.7	7	63	4.5	3.4	3.3
TM80300500	■	M5	0.8	8	70	6.0	4.9	4.2
TM80300600	■	M6	1.0	10	80	6.0	4.9	5.0
TM80300800	■	M8	1.25	13	90	8.0	6.2	6.8
TM80301000	■	M10	1.5	15	100	10.0	8.0	8.5
TM80301200	■	M12	1.75	18	110	9.0	7.0	10.2
TM80301400	■	M14	2.0	20	110	11.0	9.0	12.0
TM80301600	■	M16	2.0	20	110	12.0	9.0	14.0
TM80302000	■	M20	2.5	25	140	16.0	12.0	17.5

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
●	●	●	○	○	●	●	●	○		○	○	○	
13	14	16	23		33	34	51	52	53	71	72	73	74
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HSS-E

DIN
371/376

6H

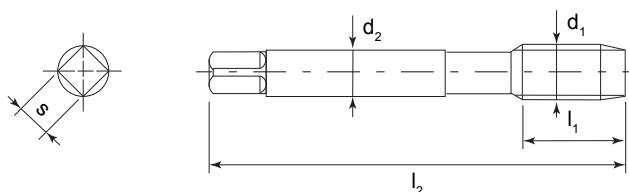
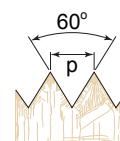


TiN

Series No. TM8117

► cutting conditions: pages 20-21

Spiral point.
Metric coarse.
Patented universal geometry.
DIN371 ≤M10 - DIN376 >M10



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM81170200	■	M2	0.4	8	45	2.8	2.1	1.6
TM81170250	■	M2.5	0.45	9	50	2.8	2.1	2.05
TM81170300	■	M3	0.5	11	56	3.5	2.7	2.5
TM81170400	■	M4	0.7	13	63	4.5	3.4	3.3
TM81170500	■	M5	0.8	15	70	6.0	4.9	4.2
TM81170600	■	M6	1.0	17	80	6.0	4.9	5.0
TM81170800	■	M8	1.25	20	90	8.0	6.2	6.8
TM81171000	■	M10	1.5	22	100	10.0	8.0	8.5
TM81171200	■	M12	1.75	24	110	9.0	7.0	10.2
TM81171400	■	M14	2.0	26	110	11.0	9.0	12.0
TM81171600	■	M16	2.0	27	110	12.0	9.0	14.0

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
●	●	○	○	○	●	●	●	○		●	●	●	
13	14	16	23		33	34	51	52	53	71	72	73	74
●	●		○		●	●	●	○		●	●	●	

HSS-E

DIN
371/376

6H

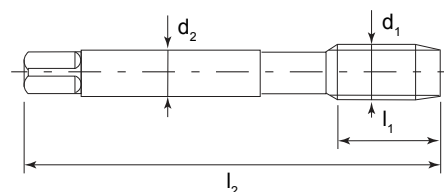
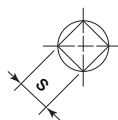
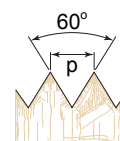


TiN

Series No. TM8017

► cutting conditions: pages 20-21

Spiral flute.
Metric coarse.
Patented universal geometry.
DIN371 ≤M10 - DIN376 >M10



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM80170200	■	M2	0.4	8	45	2.8	2.1	1.6
TM80170250	■	M2.5	0.45	9	50	2.8	2.1	2.05
TM80170300	■	M3	0.5	6	56	3.5	2.7	2.5
TM80170400	■	M4	0.7	7	63	4.5	3.4	3.3
TM80170500	■	M5	0.8	8	70	6.0	4.9	4.2
TM80170600	■	M6	1.0	10	80	6.0	4.9	5.0
TM80170800	■	M8	1.25	13	90	8.0	6.2	6.8
TM80171000	■	M10	1.5	15	100	10.0	8.0	8.5
TM80171200	■	M12	1.75	18	110	9.0	7.0	10.2
TM80171400	■	M14	2.0	20	110	11.0	9.0	12.0
TM80171600	■	M16	2.0	20	110	12.0	9.0	14.0

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
●	●	○	○	○	●	●	●	○		●	●	●	
13	14	16	23		33	34	51	52	53	71	72	73	74
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DIN
371/376

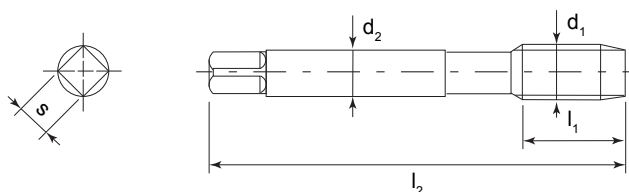
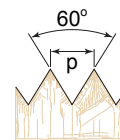
6H

B

Series No. TM8140

▶ cutting conditions: pages 20-21

Spiral point.
Metric coarse.
Patented universal geometry.
DIN371 ≤M10 - DIN376 >M10



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM81400200	■	M2	0.4	8	45	2.8	2.1	1.6
TM81400250	■	M2.5	0.45	9	50	2.8	2.1	2.05
TM81400300	■	M3	0.5	11	56	3.5	2.7	2.5
TM81400400	■	M4	0.7	13	63	4.5	3.4	3.3
TM81400500	■	M5	0.8	15	70	6.0	4.9	4.2
TM81400600	■	M6	1.0	17	80	6.0	4.9	5.0
TM81400800	■	M8	1.25	20	90	8.0	6.2	6.8
TM81401000	■	M10	1.5	22	100	10.0	8.0	8.5
TM81401200	■	M12	1.75	24	110	9.0	7.0	10.2
TM81401400	■	M14	2.0	26	110	11.0	9.0	12.0
TM81401600	■	M16	2.0	27	110	12.0	9.0	14.0
TM81402000	■	M20	2.5	32	140	16.0	12.0	17.5
TM81402200	■	M22	2.5	32	140	18.0	14.5	19.5
TM81402400	■	M24	3.0	34	160	18.0	14.5	21.0
TM81402700	■	M27	3.0	36	160	20.0	16.0	24.0
TM81403000	■	M30	3.5	40	180	22.0	18.0	26.5

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
●	●	○	○	○	●	●	●	○		●	●	●	
13	14	16	23		33	34	51	52	53	71	72	73	74
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HSS-E

DIN
371/376

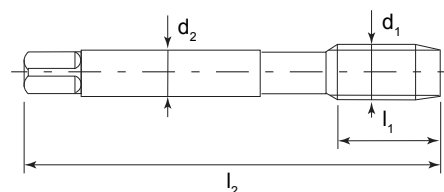
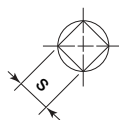
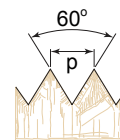
6H



Series No. TM8040

► cutting conditions: pages 20-21

Spiral flute.
Metric coarse.
Patented universal geometry.
DIN371 ≤M10 - DIN376 >M10



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM80400200	■	M2	0.4	8	45	2.8	2.1	1.6
TM80400250	■	M2.5	0.45	9	50	2.8	2.1	2.05
TM80400300	■	M3	0.5	6	56	3.5	2.7	2.5
TM80400400	■	M4	0.7	7	63	4.5	3.4	3.3
TM80400500	■	M5	0.8	8	70	6.0	4.9	4.2
TM80400600	■	M6	1.0	10	80	6.0	4.9	5.0
TM80400800	■	M8	1.25	13	90	8.0	6.2	6.8
TM80401000	■	M10	1.5	15	100	10.0	8.0	8.5
TM80401200	■	M12	1.75	18	110	9.0	7.0	10.2
TM80401400	■	M14	2.0	20	110	11.0	9.0	12.0
TM80401600	■	M16	2.0	20	110	12.0	9.0	14.0
TM80402000	■	M20	2.5	25	140	16.0	12.0	17.5
TM80402200	■	M22	2.5	25	140	18.0	14.5	19.5
TM80402400	■	M24	3.0	30	160	18.0	14.5	21.0
TM80402700	■	M27	3.0	30	160	20.0	16.0	24.0
TM80403000	■	M30	3.5	35	180	22.0	18.0	26.5

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
●	●	○	○	○	●	●	●	○		●	●	●	
13	14	16	23		33	34	51	52	53	71	72	73	74
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HSS-E

DIN
371/376

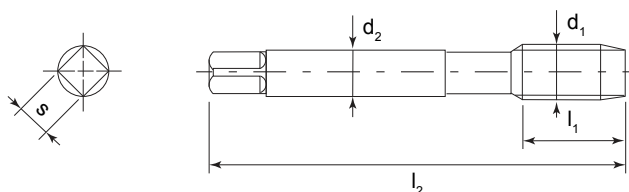
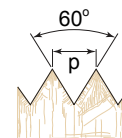
2B



Series No. TM8340

► cutting conditions: pages 20-21

Spiral point.
Unified coarse.
Patented universal geometry.
DIN371 ≤3/8 - DIN376 >3/8



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM83400400	■	No.4	40	11	56	3.5	2.7	2.3
TM83400600	■	No.6	32	12	56	4	3	2.85
TM83400800	■	No.8	32	13	63	4.5	3.4	3.5
TM83401000	■	No.10	24	15	70	6	4.9	3.9
TM83409160	■	1/4	20	17	80	7	5.5	5.2
TM83409200	■	5/16	18	20	90	8	6.2	6.6
TM83409240	■	3/8	16	22	100	9	7	8.0
TM83409320	■	1/2	13	25	110	9	7	10.8
TM83409400	■	5/8	11	27	110	12	9	13.5
TM83409480	■	3/4	10	30	125	14	11	16.5
TM83409640	■	1"	8	36	160	20	16	22.3

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
●	●	○	○	○	●	●	●	○		●	●	●	
13	14	16	23		33	34	51	52	53	71	72	73	74
●	●		○		●	●	●	○		●	●	●	

HSS-E

DIN
371/376

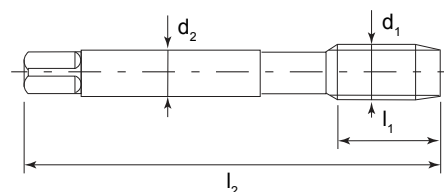
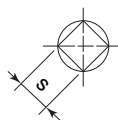
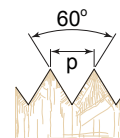
2B



Series No. TM8240

► cutting conditions: pages 20-21

Spiral flute.
Unified coarse.
Patented universal geometry.
DIN371 ≤3/8 - DIN376 >3/8



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM82400400	■	No.4	40	6	56	3.5	2.7	2.3
TM82400600	■	No.6	32	7	56	4	3	2.85
TM82400800	■	No.8	32	8	63	4.5	3.4	3.5
TM82401000	■	No.10	24	10	70	6	4.9	3.9
TM82409160	■	1/4	20	13	80	7	5.5	5.2
TM82409200	■	5/16	18	14	90	8	6.2	6.6
TM82409240	■	3/8	16	16	100	9	7	8.0
TM82409320	■	1/2	13	20	110	9	7	10.8
TM82409400	■	5/8	11	22	110	12	9	13.5
TM82409480	■	3/4	10	25	125	14	11	16.5
TM82409640	■	1"	8	30	160	20	16	22.3

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
●	●	○	○	○	●	●	●	○		●	●	●	
13	14	16	23		33	34	51	52	53	71	72	73	74
●	●		○		●	●	●	○		●	●	●	

HSS-E

DIN
371/374

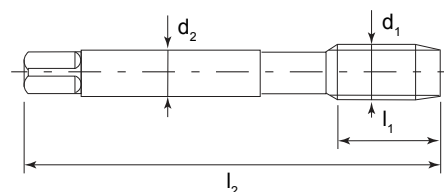
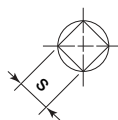
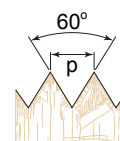
2B



Series No. TM8740

► cutting conditions: pages 20-21

Spiral point.
Unified fine.
Patented universal geometry.
DIN371 ≤3/8 - DIN374 >3/8



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM87400400	■	No.4	48	11	56	3.5	2.7	2.4
TM87400600	■	No.6	40	12	56	4	3	3.0
TM87400800	■	No.8	36	13	63	4.5	3.4	3.5
TM87401000	■	No.10	32	15	70	6	4.9	4.1
TM87409160	■	1/4	28	17	80	7	5.5	5.5
TM87409200	■	5/16	24	20	90	8	6.2	6.9
TM87409240	■	3/8	24	22	100	9	7	8.5
TM87409320	■	1/2	20	25	110	9	7	11.5
TM87409400	■	5/8	18	27	110	12	9	14.5
TM87409480	■	3/4	16	30	125	14	11	17.5
TM87409640	■	1"	12	36	160	20	16	23.3

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
●	●	○	○	○	●	●	●	○		●	●	●	
13	14	16	23		33	34	51	52	53	71	72	73	74
●	●		○		●	●	●	○		●	●	●	

HSS-E

DIN
371/374

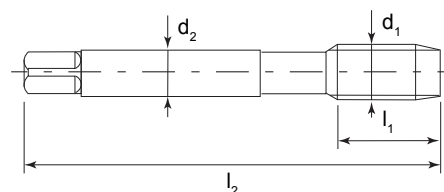
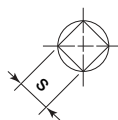
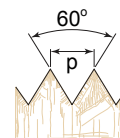
2B



Series No. TM8640

► cutting conditions: pages 20-21

Spiral flute.
Unified fine.
Patented universal geometry.
DIN371 ≤3/8 - DIN374 >3/8



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM86400400	■	No.4	48	6	56	3.5	2.7	2.4
TM86400600	■	No.6	40	7	56	4	3	3.0
TM86400600	■	No.8	36	8	63	4.5	3.4	3.5
TM86401000	■	No.10	32	10	70	6	4.9	4.1
TM86409160	■	1/4	28	13	80	7	5.5	5.5
TM86409200	■	5/16	24	14	90	8	6.2	6.9
TM86409240	■	3/8	24	16	100	9	7	8.5
TM86409320	■	1/2	20	20	110	9	7	11.5
TM86409400	■	5/8	18	22	110	12	9	14.5
TM86409480	■	3/4	16	25	125	14	11	17.5
TM86409640	■	1"	12	30	160	20	16	23.3

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
●	●	○	○	○	●	●	●	○		●	●	●	
13	14	16	23		33	34	51	52	53	71	72	73	74
●	●		○		●	●	●	○		●	●	●	

HSS-PM
HSS-E

DIN
371/376

6H

B

VAP

Series No. TM8413

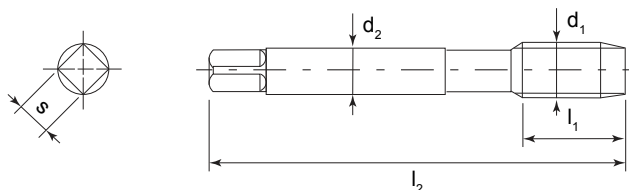
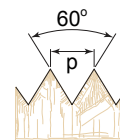
► cutting conditions: pages 20-21

Spiral point.

Metric coarse.

Patented universal geometry.

HSS-PM up to M12, HSS-E above
DIN371 ≤M10 - DIN376 >M10



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM84130200	■	M2	0.4	8	45	2.8	2.1	1.6
TM84130300	■	M3	0.5	11	56	3.5	2.7	2.5
TM84130400	■	M4	0.7	13	63	4.5	3.4	3.3
TM84130500	■	M5	0.8	15	70	6.0	4.9	4.2
TM84130600	■	M6	1.0	17	80	6.0	4.9	5.0
TM84130800	■	M8	1.25	20	90	8.0	6.2	6.8
TM84131000	■	M10	1.5	22	100	10.0	8.0	8.5
TM84131200	■	M12	1.75	24	110	9.0	7.0	10.2
TM84131400	■	M14	2.0	26	110	11.0	9.0	12.0
TM84131600	■	M16	2.0	27	110	12.0	9.0	14.0

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
	○		●	●						○			
13	14	16	23		33	34	51	52	53	71	72	73	74
	○		●										

HSS-PM
HSS-E

DIN
371/376

6H

C

VAP

Series No. TM8313

► cutting conditions: pages 20-21

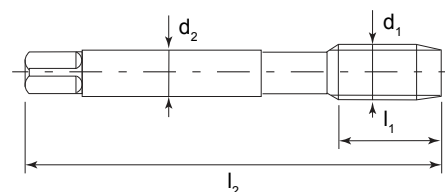
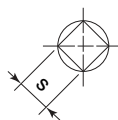
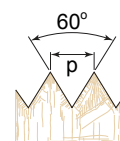
Spiral flute.

Metric coarse.

Patented universal geometry.

HSS-PM up to M12, HSS-E above

DIN371 ≤M10 - DIN376 >M10



■: UK Stock Unit: mm

EUROPA CODE		SIZE d_1	PITCH p	THREAD LENGTH l_1	OVERALL LENGTH l_2	SHANK DIAMETER d_2	SQUARE SIZE s	TAPPING DRILL
TM83130200	■	M2	0.4	8	45	2.8	2.1	1.6
TM83130300	■	M3	0.5	6	56	3.5	2.7	2.5
TM83130400	■	M4	0.7	7	63	4.5	3.4	3.3
TM83130500	■	M5	0.8	8	70	6.0	4.9	4.2
TM83130600	■	M6	1.0	10	80	6.0	4.9	5.0
TM83130800	■	M8	1.25	13	90	8.0	6.2	6.8
TM83131000	■	M10	1.5	15	100	10.0	8.0	8.5
TM83131200	■	M12	1.75	18	110	9.0	7.0	10.2
TM83131400	■	M14	2.0	20	110	11.0	9.0	12.0
TM83131600	■	M16	2.0	20	110	12.0	9.0	14.0

●: Excellent ○: Good

P		H	M		K		S			N			
11	12	15	21	22	31	32	41	42	43	61	62	63	64
	○		●	●						○			
13	14	16	23		33	34	51	52	53	71	72	73	74
	○		●										

Series No. UNI...SF/SP

Universal tap and drill sets

Metric coarse.

Unigold sets include Goldex HSS drills to suit tapping sizes.

Uniblue sets are taps only.



■: UK Stock Unit: mm

EUROPA CODE		SIZE RANGE	TAPPING DRILLS	TAP TYPE	TAP STYLE
UNIBLUESF1	■	M3, M4, M5, M6, M8, M10, M12	TAPS ONLY	UNIMASTER BLUE	SP/FLUTE
UNIBLUESP1	■	M3, M4, M5, M6, M8, M10, M12	TAPS ONLY	UNIMASTER BLUE	SP/POINT
UNIGOLDSF1	■	M3, M4, M5, M6, M8, M10, M12	2.5, 3.3, 4.2, 5.0, 6.8, 8.5, 10.2	UNIMASTER BRIGHT	SP/FLUTE
UNIGOLDSP1	■	M3, M4, M5, M6, M8, M10, M12	2.5, 3.3, 4.2, 5.0, 6.8, 8.5, 10.2	UNIMASTER BRIGHT	SP/POINT
UNIGOLDSF2	■	M3, M4, M5, M6, M8, M10, M12	2.5, 3.3, 4.2, 5.0, 6.8, 8.5, 10.2	UNIMASTER BLUE	SP/FLUTE
UNIGOLDSP2	■	M3, M4, M5, M6, M8, M10, M12	2.5, 3.3, 4.2, 5.0, 6.8, 8.5, 10.2	UNIMASTER BLUE	SP/POINT

Material Group Examples

Steel	11 Magnetic soft steels	12 Structural steels	13 Plain carbon steels	14 Alloy steels
P	EN1 EN2 OSOA12 230Mo7	EN3A, 4, 5, 6, 7, 8 060A35 040A10 EN32 210M15	EN9, 10 EN43 070M20 060A62 080M46	EN16, 17, 19 BO1 BO2 D2 D3
Hardened Steel	15 Alloy/Tempered steels	16 Hardened steels		
H	S95 S98, S99 BH11 BH13 830M31	>38 HRC Hardox400 Hardox500 P20		
Stainless Steel	21 Free machining	22 Austenitic	23 Martensitic/Ferritic	
M	EN56, 58 303S21 304S15 316S 321S17	EN58J 420S37 431S29	Duplex Super Duplex 17-4 PH S130	
Cast Iron	31 Grey cast iron soft	32 Grey cast iron hard	33 Nodular graphite	34 Nodular graphite
K	GG10 GG20 GG30 GG40	GG25 GG35 GF150	GGG40 GGG50 SG Iron	GGG70 GGG80 Meehanite
Titanium	41 Titanium unalloyed	42 Titanium alloys	43 Titanium alloys	
S	Pure Titanium TA1 - 9 Ti99.0	Ti6Al4V Ti6Al2Sn4Zr2Mo Ti4Al4Mo2Sn0.5Si	Ti10Al2Fe3Al Ti5Al5V5Mo3Cr Ti7Al4Mo Ti3Al8V6Cr4Zr4Mo Ti6Al6V6Sn Ti15V3 Cr3Sn3Al	
Nickel	51 Nickel unalloyed	52 Heat resisting alloys	53 Heat resisting alloys	
S	NA11 NA12 Nickel 200	Nimonic 75 Hastelloy C Inconel 601, 617, 625 Incoloy 800, 825 Monel 400	Nimonic 80 Rene 41 Inconel 718, 750-X Incoloy 925 Monel K-500	
Copper	61 Copper unalloyed	62 Short chip alloys	63 Long chip alloys	64 Cu - Al - Fe alloys
N	Commercially pure C101	CZ120 PB104 G-CuSn5ZnPb	CZ106 CZ108 CuZn37	Ampco18 Ampco20 Ampco26
Aluminium	71 Aluminium unalloyed	72 Aluminium, Si <0.5%	73 Aluminium, Si 0.5-10%	74 Aluminium, Si >10%
N	Al99.5H Al99.9 Al99.9Mg0.5	AlMn1 AlMn1Mg0.5 LM5, 10, 12 6061	HE9, 30 LM2, 4, 16, 18, 21-27 6082 6063	G-AlSi10Mg G-AlSi12 G-MgAl6 LM6,12, 13, 20, 28-30
Synthetics	81 Thermoplastics	82 Thermosetting plastics	83 Reinforced plastics	
O	Nylon Acetal	Tufnol	CFRP, GFRP Circuit Board Kevlar	

UNIMASTER



UNIVERSAL APPLICATION TAPS

UNIMASTER TYPE		
6H	DIN371/376	M
2B	DIN371/376	UNC
2B	DIN371/374	UNF
HOLE TYPE		
CHAMFER TYPE		
SURFACE TREATMENT		

COOLANT TYPES:

N - Neat Oil

E - Emulsion

N/E - Neat Oil or Emulsion

D - Dry

D/E - Dry or Emulsion

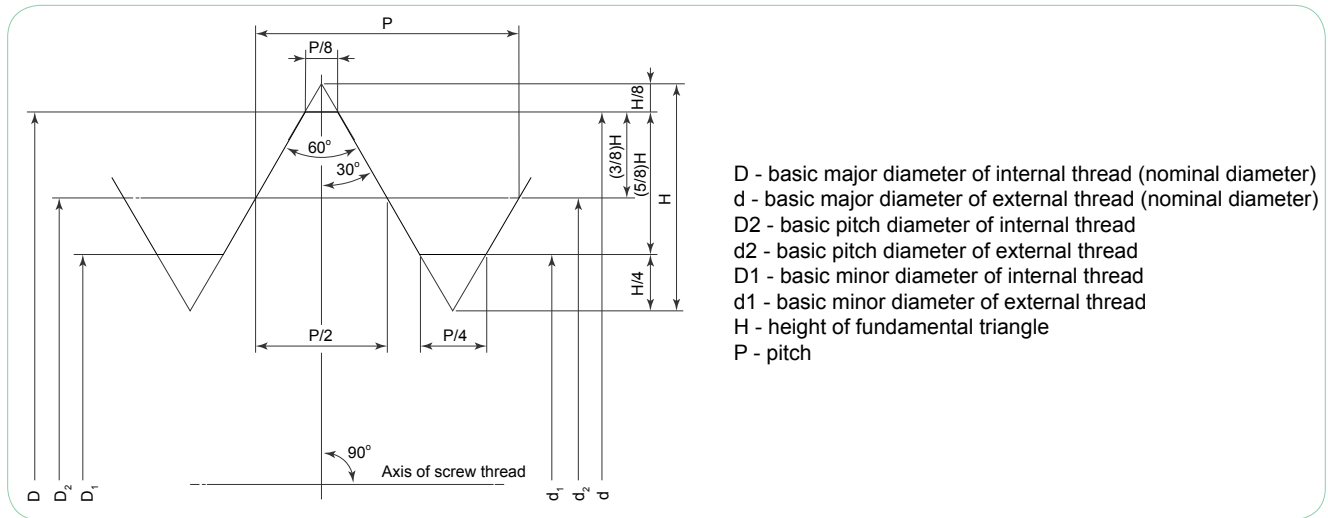
Cutting data is for guidance and should be adjusted according to your set up.

MATERIAL GROUP			HARDNESS HB	TENSILE STRENGTH N/mm ²	CHIP TYPE	COOLANT TYPE
P	11	Magnetic soft steels	< 120	< 400	Extra Long	E
	12	Structural steels, case carburizing steels	< 200	< 700	Medium/Long	E
	13	Plain carbon steels	< 250	< 850	Long	E
	14	Alloy steels	< 250	< 850	Long	N/E
H	15	Alloy steels/Hardened & Tempered steels	< 350	< 1200	Long	N/E
	16	Alloy steels/Hardened & Tempered steels	> 350	> 1200	Long	N
M	21	Free machining	< 250	< 850	Medium	N
	22	Austenitic	< 250	< 850	Long	N
	23	Ferritic, Ferritic+Austenitic, Martensitic	< 300	< 1000	Long	N
K	31	Grey cast irons	< 150	< 500	Extra Short	N/E
	32	Grey cast irons	< 300	< 1000	Extra Short	E
	33	Nodular graphite, Malleable cast irons	< 200	< 700	Short	N/E
	34	Nodular graphite, Malleable cast irons	< 300	< 1000	Short	N/E
S	41	Titanium, unalloyed	< 200	< 700	Extra Long	E
	42	Titanium, alloyed	< 270	< 900	Medium/Short	N
	43	Titanium, alloyed	< 350	< 1250	Medium/Short	N
	51	Nickel, unalloyed	< 150	< 500	Extra Long	N
	52	Nickel, alloyed	< 270	< 900	Long	N
	53	Nickel, alloyed	< 350	< 1250	Long	N
N	61	Copper, unalloyed	< 100	< 350	Extra Long	E
	62	Short chipping Brass, Bronze, Copper	< 200	< 700	Medium/Short	E
	63	Long chipping Brass, Bronze, Copper	< 200	< 700	Long	E
	64	AMPCO (Cu-Al-Fe alloys)	< 470	< 1500	Short	N
	71	Aluminium, Magnesium, unalloyed	< 100	< 350	Extra Long	E
	72	Aluminium, alloyed Si < 0.5%	< 150	< 500	Medium	E
	73	Aluminium, alloyed, Si < 10%	< 120	< 400	Medium/Short	E
	74	Aluminium, alloyed, Si > 10%	< 120	< 400	Short	E

BLUE	GOLD	BRIGHT	PM	BLUE	GOLD	BRIGHT	PM
TM8130	TM8117	TM8140	TM8413	TM8030	TM8017	TM8040	TM8313
		TM8340				TM8240	
		TM8740				TM8640	
B	B	B	B	C	C	C	C
VAP	TiN	BRIGHT	VAP	VAP	TiN	BRIGHT	VAP
V_c (m/min)							
20	30	15		20	30	15	11
20	30	15	15	20	30	15	12
18	24	12		18	24	12	13
15	20	10	10	15	20	10	14
10	12	6		10	12	6	15
							16
10	14	7	10	10	14	7	21
8	10	5	8	8	10	5	22
6	8	4	6	6	8	4	23
15	20	10		15	20	10	31
8	10	5		8	10	5	32
15	20	10		15	20	10	33
8	10	5		8	10	5	34
15	20	10		15	20	10	41
12	16	8		12	16	8	42
							43
12	16	8		12	16	8	51
15	20	10		15	20	10	52
							53
12	16	8	8	12	16	8	61
35	50	25		35	50	25	62
20	30	15		20	30	15	63
							64
							71
35	50	25		35	50	25	72
20	30	15		20	30	15	73
15	20	10		15	20	10	74

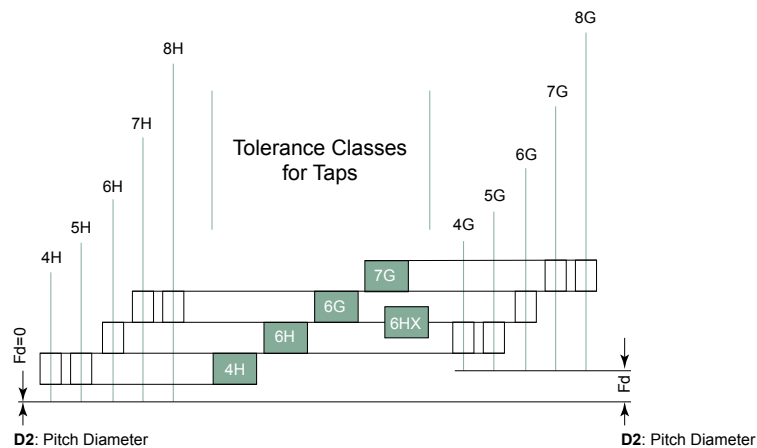
BASIC THREAD PROFILE

The theoretical profile of a screw thread in an axial plane defined by theoretical dimensions and angles common to internal and external ISO metric threads



TAP TOLERANCES

Tolerance classes of taps and tolerance positions for screw threads as per Metric ISO standard



Tap tolerance ISO	Tap tolerance DIN	Correct class to obtain nut thread with tolerance				
ISO 1	4H	4H	5H			
ISO 2	6H	4G	5G	6H		
ISO 3	6G			6G	7H	8H
	7G				7G	8G

Standard fit for a thread corresponds to tolerance class ISO 2/6H. For more precise fits, without allowance on thread flank, tolerance class ISO 1/4H must be chosen. ISO 3/6G is used in case of loose fits, with large allowance, which is often required for subsequent coatings.

Between classes 6H and 6G taps are produced with tolerance 6HX. These taps are used for tapping abrasive materials, such as cast iron or Al-Si alloys, in order to increase their tool life. Another important application is on cold forming taps, which create the thread by plastic deformation and not by cutting. In this case, due to the elastic return of the material, in order to obtain a thread 6H tolerance, a 6HX tap must be used.

The tolerances described above are collected in the ISO standard ISO 68-1.

For application taps with tolerances other than standard, please refer to our main catalogue.

TAPPING GUIDE

TAP SELECTION

The type of tap used depends on the type of material to be machined. Generally, any materials with an elongation of at least 10% can be cold formed, but any other materials need to be cut. Please refer to tap selection guide for most suitable tap.

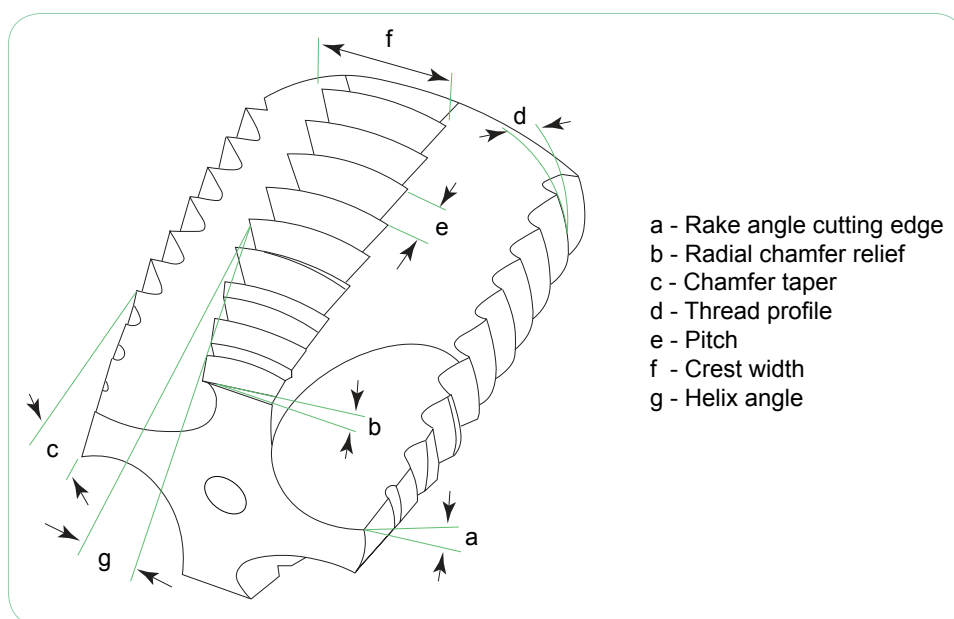
CORE HOLES

Core holes should be clean and swarf free. In materials that have a tendency to close down after drilling, a slightly larger tapping drill size should be used. Each tap size in this catalogue has a recommended tapping drill size shown in its dimension table.

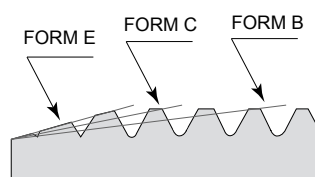
CUTTING SPEEDS

The correct cutting speed is necessary to control chip flow and establish the best tool life for the tap. Guide values are given in the cutting data chart on pages 20-21. Material hardness and rigidity of workpiece can have a detrimental effect on the tap, so it is worth experimenting with the guide data to establish the best speeds for your particular application.

TAP GEOMETRY



CHAMFER TYPES



FORM B

Generally 3 - 5 threads on spiral point taps for all through holes

FORM C

Generally 2 - 3 threads on spiral flute, cold forming and some straight flute taps for blind holes

FORM E

Generally 1.5 - 2 threads for blind holes with very limited core hole depth

TROUBLESHOOTING GUIDE

	Probable causes	Suggested actions
Thread oversize	Thread “overfed” due to incorrect toolholder	Use synchronised type toolholder
	Tap not right for application	Choose correct tool from application chart
	Axial feed rate incorrect	Make sure feed rate is better controlled
	Tapping speed not high enough	Apply speed according to application chart
	Tolerance incorrect	Choose lower tolerance tap
Thread undersize	Probable causes	Suggested actions
	Worn out tap	Replace with new tap
	Tapping drill size too small	Choose correct size from recommendation
	Material “closes in”	Use larger tapping drill
	Pull out pressure too high	Make adjustments to tapping attachment
	Tolerance incorrect	Choose higher tolerance tap
Tap wears quickly	Probable causes	Suggested actions
	Tapping speed too high	Apply speed according to application chart
	Tap not right for application	Choose correct tool from application chart
	Not enough or lack of coolant	Apply coolant according to application chart
	Tapping drill size too small	Choose correct size from recommendation
	Drilled hole has surface hardened	Adjust cutting data for tapping drill
Tap chipped	Probable causes	Suggested actions
	Tap “bottoming out”	Increase drilling depth/reduce thread depth
	Material chips trapped in hole	Choose correct tool from application chart
	Tap not right for application	Choose correct tool from application chart
	Drilled hole has surface hardened	Adjust cutting data for tapping drill
	Not enough or lack of coolant	Apply coolant according to application chart
Tap broken	Probable causes	Suggested actions
	Worn out tap	Replace with new tap
	Tap “bottoming out”	Increase drilling depth/reduce thread depth
	Tapping speed too high	Apply speed according to application chart
	Tapping drill size too small	Choose correct size from recommendation
	Too much torque	Use torque controlled tapping holder
	Material chips trapped in hole	Choose correct tool from application chart
	Not enough or lack of coolant	Apply coolant according to application chart
Built-up edge	Probable causes	Suggested actions
	Worn out tap	Replace with new tap
	Tap not right for application	Choose correct tool from application chart
	Not enough or lack of coolant	Apply coolant according to application chart