

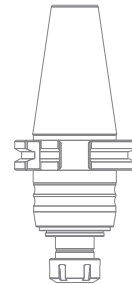
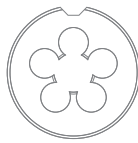


General Catalogue

www.vergnano.com



Nr. 60
English



Taps

Dies

Thread Mills

Tapping Attachments



With over 70 years of experience in the cutting tool industry, Vergnano is one of the world's leading manufacturers of high quality precision cutting tools. Over the years, Vergnano has constantly innovated its product range to meet the demands of a continuously evolving market.

The quality of Vergnano tools is the consequence of strict controls of processes and products, constant research in new technical solutions and continuous investments in state-of-the-art technology. Each manufacturing step takes place internally at the Vergnano production plant starting from the steel bar through to the final PVD coating process of the finished tool.

Particular attention is dedicated to the principles of sustainability: environmental compatibility is considered in all products, processes and technologies.

While keeping a firm foothold in its host territory, Vergnano has established itself internationally thanks to commercial subsidiaries in Germany and South Korea and a capillary worldwide distributor network. As result, Vergnano can boast among its customers the most important companies in mechanical industrial branch.



intro

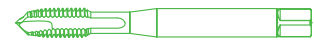
INTRODUCTION

New Products Catalogue Nr. 60	6
Guide to Tap Application Table	8
Guide to Tap Datasheets	9
Guide to Thread Mills Datasheets	10
Guide to Tapping Attachments Datasheets	11
Tap Application Table	12



"A" SERIES - TAPS FOR GENERIC APPLICATIONS

M	ISO Metric coarse thread - DIN 13	30
EG-M	ISO Metric coarse thread (for wire inserts) - DIN 8140-2	82
MF	ISO Metric fine thread - DIN 13	83
UNC	Unified coarse thread - ASME B1.1	114
UNF	Unified fine thread - ASME B1.1	123
8-UN	Unified constant pitch series thread - ASME B1.1	132
G	Gas Whitworth thread - EN ISO 228	134
Rp	Rp thread (BSPP) - DIN EN 10226-1	143
Rc	Conical gas thread (BSPT), taper 1:16 - BS 21 and DIN EN 10226-2	144
BSW	Whitworth thread - BS 84	145
NPT	National pipe thread, taper 1:16 - ASME/ANSI B1.20.1	148
NPTF	Dryseal National pipe thread, taper 1:16 - ASME/ANSI B1.20.3	150



"P" SERIES - HIGH PERFORMANCE TAPS

M	ISO Metric coarse thread - DIN 13	154
MF	ISO Metric fine thread - DIN 13	167
G	Gas Whitworth thread - EN ISO 228	173



"S" SERIES - SYNCHRONOUS TAPS

M	ISO Metric coarse thread - DIN 13	178
MF	ISO Metric fine thread - DIN 13	182



"H" SERIES - SOLID CARBIDE TAPS

M	ISO Metric coarse thread - DIN 13	186
MF	ISO Metric fine thread - DIN 13	190



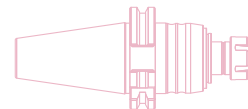
"F" DIES

M	ISO Metric coarse thread - DIN 13	192
MF	ISO Metric fine thread - DIN 13	193
UNC	Unified coarse thread - ASME B1.1	196
UNF	Unified fine thread - ASME B1.1	197
G	Gas Whitworth thread - EN ISO 228	198
BSW	Whitworth thread - BS 84	199
NPT	National pipe thread, taper 1:16 - ASME/ANSI B1.20.1	200



THREAD MILLS

ISO	Thread mills carbide	205
UN	Thread mills carbide	208
GAS	Thread mills carbide	211



SYNCHRONOUS TAPPING ATTACHMENTS

Synchronous Tapping Attachments	214
Accessories	218

info

TECHNICAL INFORMATION

222

A15S LH

Spiral point geometry for lefthand threads for generic applications on through holes.



A70S LH

40° spiral geometry for lefthand threads for generic applications on blind holes.



A170

New optimised geometry for stainless steels on blind holes.



P130

New high performance tap for high tensile strength materials on blind and through holes.



P180 N

New high performance forming taps optimised for stainless steels.



BP17

Internal radial coolant version of high performance P17 taps for through holes.



P45

New high performance taps for cast materials on blind and through holes.



BP45

Internal axial coolant version of high performance P45 taps for cast materials for blind and through holes.



K
N

P45E

New high performance taps with form E chamfer for cast materials on blind holes.



K
N

BP45E

Internal axial coolant version of high performance P45E taps for cast materials for blind holes.



K
N

BP71

Internal axial coolant version of high performance P71 taps for blind holes.



P
M
K
N
S

P71E

New high performance 45° spiral geometry with form E chamfer for blind holes.



P
M
K
N
S

P59E

New high performance 45° spiral geometry with form E chamfer for blind holes.



P
M
K
N
S

BS45

Internal axial coolant version of synchronous S45 taps for cast materials on blind holes.



K
N

Guide to Tap Application Table

In order to select the correct tap, follow steps 1 to 9.

3
Hole type

6
Tolerance

5
Thread type

Material	Thread type	Tolerance
M	M	4H
		6H/6HX
		6G/6GX
		7G/7GX
		6H +0,1
		6H/6HX
		6G/6GX
MF	6H/6HX	
	6G/6GX	
UNC	2B/2BX	
	3B	
UNF	2B/2BX	
	3B	
UN 8	2B	
G	ISO 5969/X	
Rp (BSPP)	--	
Rc (BSPT)	--	
BSW	mc	
NPT	--	
NPTF	--	

8
Tool code (page)

7
Coating

9
Cutting parameters

Material	Group	Res. N/mm ²	Lubrication
P	P.1	200 - 400	E, O, MQL
	P.2	350 - 700	E, O, MQL
	P.3	350 - 850	E, O, MQL
	P.4	500 - 850	E, O, MQL
	P.5	850 - 1200	O, MQL
	P.6	1200 - 1600	O, MQL
	P.7	< 1000	E, O, MQL
M	M.1	< 850	O, MQL
	M.2	< 1000	O, MQL
K	K.1	< 1000	O, MQL, D
	K.2	< 1000	E, O, MQL
	K.3	< 1400	O, MQL
N	N.1	< 300	E, O, MQL
	N.2	< 500	E, O, MQL
	N.3	< 500	E, O, MQL
	N.4	< 600	E, O, MQL
	N.5	250 - 350	E, O, MQL
	N.6	< 700	E, O, MQL
	N.7	< 700	E, O, MQL
	N.8	700 - 1500	E, O, MQL
	N.9	120 - 300	E, O, MQL
	N.10	240 - 400	E, O, MQL
S	S.1	400 - 600	E, O, MQL
	S.2	600 - 1000	O, MQL
	S.3	400 - 600	E, O, MQL
	S.4	600 - 1000	O, MQL
H	H.1	-	O, MQL
	H.2	-	O, MQL

Guide to Tap Datasheets

Thread type

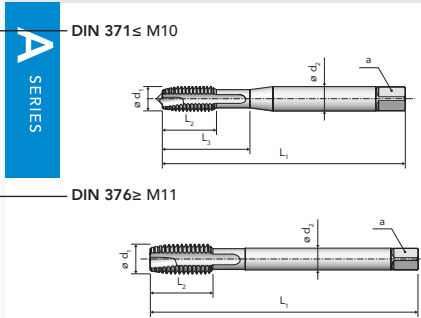
M

DIN 13 MACHINE TAPS for through holes
Straight flutes with spiral point

Application characteristics



Dimensional standard



Recommended application range

APPLICATION RANGE - CUTTING SPEED m/min					
ISO	MG	A15 S BRIGHT	A15 S VAP	A15 S TiN	A15 S TiCN
P	P.2	• 20-25	• 20-25	• 30-35	• 30-35
	P.3	• 15-20	• 15-20	• 25-30	• 25-30
	P.4	• 12-15	• 12-15	• 20-25	• 20-25
	P.5			• 10-15	• 10-15
	P.7			• 10-15	• 10-15
M	M.1			• 10-15	• 10-15
K	K.2	• 15-20	• 15-20	• 25-30	• 25-30
N	N.2-3	• 20-25	• 20-25	• 30-35	• 30-35
	N.6	• 15-18	• 15-18	• 25-30	• 25-30

Tolerance

Chamfer form

Hole type

Direction of cut

Through coolant

A15 S BRIGHT	A15 S VAP	A15 S TiN	A15 S TiCN	Tool code
ISO2 6H	ISO2 6H	ISO2 6H	ISO2 6H	Coating
B (4-5)	B (4-5)	B (4-5)	B (4-5)	
2,5 x D	2,5 x D	2,5 x D	2,5 x D	Tap characteristics
RH	RH	RH	RH	
—	—	—	—	

Sizes

Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]	z [mm]	A15 S BRIGHT	A15 S VAP	A15 S TiN	A15 S TiCN
M 2	0,4	45	7	11	2,8	2,1	2	1,6	•	•	•	•
2,2	0,45	45	8	13	2,8	2,1	2	1,75	•	•	•	•
2,3	0,4	45	8	13	2,8	2,1	2	1,9	•	•	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•	•	•
2,6	0,45	50	9	15	2,8	2,1	3	2,1	•	•	•	•
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•	•	•
3,5	0,6	56	11	20	4	3	3	2,9	•	•	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•	•	•
6	1	80	16	29	6	4,9	3	5	•	•	•	•
7	1	80	16	29	7	5,5	3	6	•	•	•	•
8	1,25	90	18	33	8	6,2	3	6,8	•	•	•	•
9	1,25	90	18	33	9	7	3	7,8	•	•	•	•
10	1,5	100	20	36	10	8	3	8,5	•	•	•	•
11	1,5	100	22	-	8	6,2	3	9,5	•	•	•	•
12	1,75	110	24	-	9	7	4	10,2	•	•	•	•
14	2	110	25	-	11	9	4	12	•	•	•	•
16	2	110	28	-	12	9	4	14	•	•	•	•
18	2,5	125	32	-	14	11	4	15,5	•	•	•	•
20	2,5	140	32	-	16	12	4	17,5	•	•	•	•
22	2,5	140	32	-	18	14,5	4	19,5	•	•	•	•
24	3	160	36	-	18	14,5	4	21	•	•	•	•
27	3	160	36	-	20	16	4	24	•	•	•	•
30	3,5	180	40	-	22	18	4	26,5	•	•	•	•
33	3,5	180	40	-	25	20	5	29,5	•	•	•	•
36	4	200	55	-	28	22	5	32	•	•	•	•

(•) Standard execution

Thread type

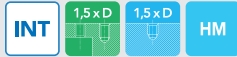


ISO

SOLID CARBIDE THREAD MILLS
Spiral flutes

DIN 13

Application characteristics



VR10
TiAlN

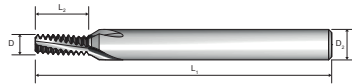
VR20
TiAlN

VR30
TiAlN

Tool code

Coating

Technical Drawing



Recommended application range

APPLICATION RANGE			
ISO	VR10	VR20	VR30
P	•	•	•
M	•	•	•
K	•	•	•
N	•	•	•
S	•	•	•

For cutting data see page 202

Thread

Hole type

Direction of cut

Through coolant

Mill Characteristics

P	M	MF	D ₂ h ₆	D	z	L ₂	L ₁	VR10 TiAlN	VR20 TiAlN	VR30 TiAlN
[mm]			[mm]	[mm]		[mm]	[mm]			
0,5		M5x0,5	6	3,8	3	10,3	58	VR10038I0501000		
0,7	M4		6	3,1	3	7,4	58	VR10031I0700700	VR20031I0700700	
0,75		M6x0,75	6	4,5	3	10,1	58		VR20045I0751000	
0,8	M5		6	3,6	3	9,2	58	VR10036I0800900	VR20036I0800900	
1	M6		6	4	3	10,5	58	VR10040I1001000		
1	M6		6	4	3	14,5	58	VR10040I1001400		
1	M6		6	4,8	3	10,5	58			VR30048I1001000
1	M6	M7x1	6	4,6	3	14,5	58		VR20046I1001400	
1		M10x1	8	8	4	16,5	64	VR10080I1001600	VR20080I1001600	VR30080I1001600
1		M12x1	10	10	4	24,5	73		VR20100I1002400	
1,25	M8	M10x1,25	6	5	3	14,4	58	VR10050I1251400		
1,25	M8	M10x1,25	6	6	3	14,4	58		VR20060I1251400	
1,25	M8	M10x1,25	6	5	3	19,4	58	VR10050I1251900		
1,25	M8	M10x1,25	6	6	3	19,4	58		VR20060I1251900	VR30060I1251900
1,5	M10	M12x1,5	8	7	3	17,3	64	VR10070I1501700		
1,5	M10	M12x1,5	8	7	3	24,8	76	VR10070I1502400		
1,5	M10	M12x1,5	8	7,8	3	17	64		VR20078I1501700	VR30078I1501700
1,5		M14x1,5	10	10	4	21,8	73	VR10100I1502100		VR30100I1502100
1,5		M16x1,5	12	12	4	26,3	84		VR20120I1502600	VR30120I1502600
1,75	M12		8	8	3	20,1	64	VR10080I1752000		
1,75	M12		10	9	3	20,1	73		VR20090I1752000	
2	M16		12	11,8	4	27	84		VR20118I2002700	
2,5	M20		16	15	5	48,8	105		VR20150I2504800	
3	M24		20	18	4	58,5	120		VR20180I3005800	

Sizes

VR SERIES

Tool code

€ p.66

205

Price list page reference

Guide to Tapping Attachments Datasheets

VERGNANO VA
SERIES

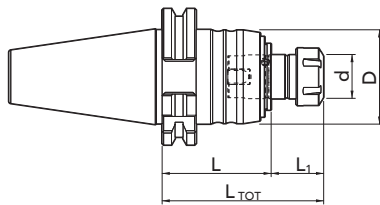
SYNCHRONOUS ER TAPPING ATTACHMENT with QUICK-CHANGE TAP ADAPTOR
With internal through coolant capability (!)

Application characteristics



SK DIN 69871 AD

Technical Drawing



Sizes

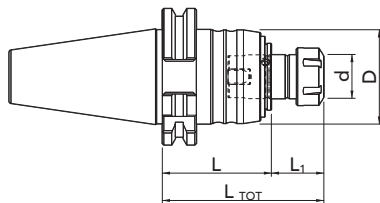
Article Code	Attachment	Tap Size	L [mm]	ø D [mm]	ø d [mm]	ER collet	L ₁ [mm]	L _{TOT} [mm]
VA01B04002CH160	SK 40 AD	M3 - M8	53	43	20	ER 16	24	77
VA01B05002CH160	SK 50 AD	M3 - M8	53	43	20	ER 16	24	77
VA01B04002CH250	SK 40 AD	M6 - M20	90	60	32	ER 25	28	118
VA01B05002CH250	SK 50 AD	M6 - M20	74	60	32	ER 25	28	102

Tool code

SYNCHRONOUS ER TAPPING ATTACHMENT with QUICK-CHANGE TAP ADAPTOR
With internal through coolant capability (!)



SK DIN 69871 AD+B



VA SERIES

Article Code	Attachment	Tap Size	L [mm]	ø D [mm]	ø d [mm]	ER collet	L ₁ [mm]	L _{TOT} [mm]
VA01B05002CH400	SK 50 B	M14 - M33	115	87	50	ER 40	32	147

(!) For coolant pressure above 50 bars a special nut screw is available on request

€ p.68

215

Price list page reference

Tap Application Table



A		A		A		A		A		A		A		A	
HSSE		HSSE		HSSE		HSSE		HSSE		HSSE		HSSE		HSSE	
B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)	
2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D	
														A15 S 50	
A15 44		A15 44		A15 44		A15 AZ 46		A15 AZ 46		A15 L 47		A15 L 47		A15 S 48	
A15 45				A15 45										A15 S 51	
														A15 S 52	
A17 94		A17 94		A17 94										A17 S 97	
														A17 S 101	
														A19 S 117	
														A19 S 117	
														A20 S 126	
														A20 S 126	
														A119 132	
														A18 S 137	
Internal lubrication															
Coating		BRIGHT		VAP		TiN		BRIGHT		TiH1		BRIGHT		TiN	

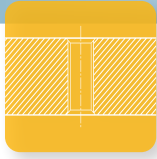
ISO 513	Material	Group
P	Steel	P.1
		P.2
		P.3
		P.4
		P.5
		P.6
		P.7
M	Stainless steel	M.1
		M.2
K	Cast iron	K.1
		K.2
		K.3
N	Aluminium Aluminium alloys	N.1
		N.2
		N.3
		N.4
	Copper Copper alloys Brass Bronze	N.5
		N.6
		N.7
		N.8
	Magnesium Magnesium alloys	N.9
		N.10
S	Titanium Titanium alloys	S.1
		S.2
	Nickel Nickel alloys	S.3
		S.4
H	Hardened materials	H.1
		H.2

● 18-20	● 18-20	● 30-35	● 18-20	● 30-35	● 18-20	● 30-35	○ 18-20
● 15-18	● 15-18	● 25-30			● 15-18	● 25-30	● 20-25
○ 12-15	○ 12-15	○ 20-25			● 12-15	● 20-25	● 15-20
○ 10-12	○ 10-12	○ 15-20			○ 10-12	○ 15-20	● 12-15
							○ 3-5
					○ 3-5	○ 6-8	○ 5-7
					○ 3-5	○ 6-8	○ 5-7
					○ 2-3	○ 3-5	○ 2-3
○ 12-15	○ 12-15	○ 20-25			○ 12-15	○ 20-25	● 15-20
● 18-20	● 18-20	○ 30-35	● 18-20	● 30-40	● 18-20	○ 30-35	○ 18-20
● 15-18	● 15-18	● 25-30	● 15-18	● 30-40	● 15-18	● 25-30	● 20-25
○ 15-18	○ 15-18	○ 25-30			○ 15-18	○ 25-30	● 20-25
● 15-18	● 15-18	○ 25-30	● 15-18	● 30-35	● 15-18	○ 25-30	○ 15-18
● 12-15	● 12-15	● 20-25	● 12-15	● 30-35	● 12-15	● 20-25	● 15-18
○ 6-8	○ 6-8		○ 6-8		○ 6-8		○ 8-10
○ 6-8	○ 6-8	○ 8-10	○ 6-8		○ 8-10		○ 8-10

A		A		A		A		A		A		A		A		A	
HSSE		HSSE		HSSE		HSSE		HSSE		HSSE		HSSE		HSSE		HSSE	
B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)	
2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D	
A15 S LH 53	A15 S 48	A15 S 50	A15 S 48	A15 S LH 53	A15 S 48			A16 S 54	A16 S 54	A150 55	A150 55						
		A15 S 51															
		A15 S 52															
	A17 S 97	A17 S 97		A17 S 97	A17 S 100												
		A17 S 101															
		A19 S 117		A19 S 117	A19 S 118												
		A20 S 126		A20 S 126	A20 S 127												
		A119 132															
	A18 S 137			A18 S 137	A18 S 137												
BRIGHT	VAP	TiN	TiN	TiCN	TiX2	BRIGHT	TiN	VAP	TiX2								

○ 18-20	○ 18-20	○ 30-35	○ 30-35	○ 30-35		○ 18-20	○ 30-35		
● 20-25	● 20-25	● 30-35	● 30-35	● 30-35		● 20-25	● 30-35		
● 15-20	● 15-20	● 25-30	● 25-30	● 25-30		● 15-20	● 25-30		
● 12-15	● 12-15	● 20-25	● 20-25	● 20-25		● 12-15	● 20-25		
○ 3-5	○ 3-5	● 10-15	● 10-15	● 10-15		○ 3-5	● 10-15		
○ 5-7	○ 5-7	● 10-15	● 10-15	● 10-15	● 10-15	○ 5-7	● 10-15	● 10-12	● 18-20
○ 5-7	○ 5-7	● 10-15	● 10-15	● 10-15	● 10-15	○ 5-7	● 10-15	● 10-12	● 18-20
○ 2-3	○ 2-3	○ 6-8	○ 6-8	○ 6-8	○ 6-8	○ 2-3	○ 6-8	● 8-10	● 10-12
● 15-20	● 15-20	● 25-30	● 25-30	● 25-30		● 15-20	● 25-30		
○ 18-20	○ 18-20	○ 30-35	○ 30-35	○ 30-35		○ 18-20	○ 30-35		
● 20-25	● 20-25	● 30-35	● 30-35	● 30-35		● 20-25	● 30-35		
● 20-25	● 20-25	● 30-35	● 30-35	● 30-35		● 20-25	● 30-35		
○ 15-18	○ 15-18	○ 25-30	○ 25-30	○ 25-30		○ 15-18	○ 25-30		
● 15-18	● 15-18	● 25-30	● 25-30	● 25-30		● 15-18	● 25-30		
○ 8-10	○ 8-10					○ 8-10			
○ 8-10	○ 8-10	○ 12-15	○ 12-15	○ 12-15		○ 8-10	○ 12-15		

Tap Application Table

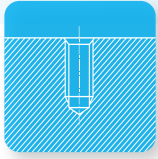


P		P		P		S		S		S	
HSSP		HSSP		HSSP		HSSK		HSSK		HSSK	
B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)		B (4-5)	
3xD		3xD		3xD		3xD		3xD		3xD	
P15 157		P15 157		BP15 157		S15 179		S15 179		BS15 179	
P17 167		P17 167		BP17 167		S17 183					
P18 173		P18 173									
Internal lubrication				IKZ-R						IKZ-R	
Coating		TiN		TiH1		TiH1		TiN		TiH1	

M	4H
	6H/6HX
	6G/6GX
	7G/7GX
MF	6H+0,1
	6H/6HX
UNC	6G/6GX
	2B/2BX
UNF	3B
	2B/2BX
UN 8	3B
	2B
G	ISO 5969/X
Rp (BSPP)	--
Rc (BSPT)	--
BSW	mc
NPT	--
NPTF	--
Internal lubrication	
Coating	

ISO 513	Material	Group	
P	Steel	P.1	
		P.2	
		P.3	
		P.4	
		P.5	
		P.6	
		P.7	
M	Stainless steel	M.1	
		M.2	
K	Cast iron	K.1	
		K.2	
		K.3	
N	Aluminium Aluminium alloys	N.1	
		N.2	
		N.3	
		N.4	
	Copper Copper alloys Brass Bronze	N.5	
		N.6	
		N.7	
		N.8	
		Magnesium Magnesium alloys	N.9
			N.10
S	Titanium Titanium alloys	S.1	
		S.2	
	Nickel Nickel alloys	S.3	
		S.4	
H	Hardened materials	H.1	
		H.2	

			● 50-60	● 50-60	● 50-60
○ 30-40	○ 30-40	○ 30-40	● 50-60	● 50-60	● 50-60
● 25-35	● 25-35	● 25-35	● 45-55	● 45-55	● 45-55
● 20-30	● 20-30	● 20-30	● 40-50	● 40-50	● 40-50
● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 15-25
● 8-10	● 8-10	● 8-10			
● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 15-25
● 10-20	● 10-20	● 10-20	● 15-25	● 15-25	● 15-25
● 6-8	● 6-8	● 6-8	● 10-20	● 10-20	● 10-20
● 25-35	● 25-35	● 25-35	● 45-55	● 45-55	● 45-55
			● 50-60	● 50-60	● 50-60
● 30-40	● 30-40	● 30-40	● 45-55	● 45-55	● 45-55
● 30-40	● 30-40	● 30-40	● 45-55	● 45-55	● 45-55
			● 40-50	● 40-50	● 40-50
● 25-35	● 25-35	● 25-35	● 35-45	● 35-45	● 35-45
				● 15-25	● 15-25
	○ 12-18	○ 12-18		○ 10-20	○ 10-20
			● 15-25	● 15-25	● 15-25
○ 12-18	○ 12-18	○ 12-18	○ 10-20	○ 10-20	○ 10-20



A	A	A	A	A	A	A	A	A
HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE
C (2-3)	C (2-3)	C (2-3)	C (2-3)	C (2-3)	C (2-3)	C (2-3)	C (2-3)	C (2-3)
1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD	1,5xD
A21 FC 34	A21 FCLH 34	A21 FC 34	A22 FC 38	A22 FC 38	A29 56	A29 56	A29 56	A29 376 60
					A29 58		A29 58	
A23 FC 87	A23 FCLH 87	A23 FC 87			A30 102		A30 102	
A27 FC 115		A27 FC 115			A33 119		A33 119	
					A33 119			
A28 FC 124		A28 FC 124			A34 128		A34 128	
					A34 128			
A26 FC 135					A32 138		A32 138	
A24 FC 146					A31 147		A31 147	
BRIGHT	BRIGHT	TiN	BRIGHT	TiN	BRIGHT	VAP	TiN	BRIGHT

○ 12-15	○ 12-15	● 20-25	○ 12-15	● 20-25	● 18-20	● 18-20	● 30-35	● 18-20
● 10-12	● 10-12	● 15-20	● 10-12	● 15-20	● 15-18	● 15-18	● 25-30	● 15-18
● 8-10	● 8-10	● 12-15	● 8-10	● 12-15	● 12-15	● 12-15	● 20-25	● 12-15
					● 10-12	● 10-12	● 15-20	● 10-12
							● 5-10	
● 8-10	● 8-10	● 12-15	● 8-10	● 12-15	● 12-15	● 12-15	● 20-25	● 12-15
○ 12-15	○ 12-15	● 20-25	○ 12-15	● 20-25	● 18-20	● 18-20	○ 30-35	● 18-20
○ 10-12	○ 10-12	○ 15-20	○ 10-12	○ 15-20	● 15-18	● 15-18	● 25-30	● 15-18
○ 10-12	○ 10-12	○ 15-20	○ 10-12	○ 15-20	● 15-18	● 15-18	● 25-30	● 15-18
○ 10-12	○ 10-12	● 15-20	○ 10-12	● 15-20	● 15-18	● 15-18	○ 25-30	● 15-18
○ 8-10	○ 8-10	○ 12-15	○ 8-10	○ 12-15	● 12-15	● 12-15	● 20-25	● 12-15
					○ 6-8	○ 6-8		○ 6-8
					○ 6-8	○ 6-8	○ 8-10	○ 6-8

Tap Application Table



A		A		A		A		A		A		A		A	
HSSE		HSSE		HSSE		HSSE		HSSE		HSSE		HSSE		HSSE	
C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)	
1,5 x D		1,5 x D		1,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D	
A29 376 60		A29 L 59		A29 L 59		A70 61		A70 61		A70 61		A70 L 63		A70 L 63	
						A70 62		A70 62		A70 62					
						A71 105		A71 105							
						A60 120		A60 120							
						A61 129		A61 129							
						A59 139		A59 139							
Internal lubrication															
Coating		TiN		BRIGHT		TiN		BRIGHT		VAP		TiN		BRIGHT	
		TiN		BRIGHT		TiN		BRIGHT		VAP		TiN		BRIGHT	

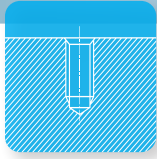
M	4H
	6H/6HX
	6G/6GX
	7G/7GX
MF	6H +0,1
	6H/6HX
UNC	2B/2BX
	3B
UNF	2B/2BX
	3B
UN 8	2B
G	ISO 5969/X
Rp (BSPP)	--
Rc (BSPT)	--
BSW	mc
NPT	--
NPTF	--
Internal lubrication	
Coating	

ISO 513	Material	Group	● 30-35	● 18-20	● 30-35	● 12-15	● 12-15	● 25-30	● 12-15	● 25-30	
P	Steel	P.1	● 30-35	● 18-20	● 30-35	● 12-15	● 12-15	● 25-30	● 12-15	● 25-30	
		P.2	● 25-30	● 15-18	● 25-30	● 10-15	● 10-15	● 20-25	● 10-15	● 20-25	
		P.3	● 20-25	● 12-15	● 20-25	○ 8-10	○ 8-10	○ 15-20	○ 8-10	○ 15-20	
		P.4	● 15-20	● 10-12	● 15-20						
		P.5	● 5-10		● 5-10						
		P.6									
		P.7									
M	Stainless steel	M.1									
		M.2									
K	Cast iron	K.1									
		K.2	● 20-25	● 12-15	● 20-25	○ 8-10	○ 8-10	○ 15-20	○ 8-10	○ 15-20	
		K.3									
N	Aluminium Aluminium alloys	N.1	○ 30-35	● 18-20	○ 30-35	● 12-15	● 12-15	○ 25-30	● 12-15	○ 25-30	
		N.2	● 25-30	● 15-18	● 25-30	● 12-15	● 12-15	● 25-30	● 12-15	● 25-30	
		N.3	● 25-30	● 15-18	● 25-30	○ 10-12	○ 10-12	○ 20-25	○ 10-12	○ 20-25	
		N.4									
	Copper Copper alloys Brass Bronze	N.5	○ 25-30	● 15-18	○ 25-30	● 10-12	● 10-12	○ 20-25	● 10-12	○ 20-25	
		N.6	● 20-25	● 12-15	● 20-25	● 10-12	● 10-12	● 20-25	● 10-12	● 20-25	
		N.7									
		N.8									
		Magnesium Magnesium alloys	N.9								
			N.10								
S	Titanium Titanium alloys	S.1		○ 6-8							
		S.2									
	Nickel Nickel alloys	S.3	○ 8-10	○ 6-8	○ 8-10						
		S.4									
H	Hardened materials	H.1									
		H.2									

A		A		A		A		A		A		A		A		A	
HSSK		HSSK		HSSE		HSSE		HSSE		HSSE		HSSE		HSSE		HSSE	
C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)		E(1,5-2)	
2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D		2,5 x D	
A70 K 64		A70 K 64		A70 S 66		A70 S LH 71		A70 S 65		A70 S 65		A70 S LH 71		A70 S 65		A70 SE 70	
				A70 S 67				A70 S 67									
				A70 S 68				A70 S 68									
				A701 S 69				A701 S 69									
				A71 S 106		A71 S 106		A71 S 106				A71 S 106		A71 S 107			
				A71 S 108				A71 S 108									
				A60 S 121				A60 S 121				A60 S 121		A60 S 121			
				A61 S 130				A61 S 130				A61 S 130		A61 S 130			
				A160 133				A160 133									
				A59 S 140		A59 S 140		A59 S 140				A59 S 140		A59 S 141			
				A159 S 143				A159 S 143									
BRIGHT		TiN		BRIGHT		BRIGHT		VAP		TiN		TiN		TiCN		TiX2	

● 12-15	● 25-30																
● 10-15	● 20-25	○ 15-20	○ 15-20	○ 15-20	○ 25-30	○ 25-30	○ 25-30									○ 15-20	
● 8-10	● 15-20	● 12-15	● 12-15	● 12-15	● 20-25	● 20-25	● 20-25									● 12-15	
○ 8-10	○ 12-15	● 10-12	● 10-12	● 10-12	● 15-20	● 15-20	● 15-20									● 10-12	
		○ 6-8	○ 6-8	○ 6-8	● 5-10	● 5-10	● 5-10									○ 6-8	
		○ 6-8	○ 6-8	○ 6-8	● 8-10	● 8-10	● 8-10	● 8-10	● 8-10	● 8-10	● 8-10	● 8-10	● 8-10	● 8-10	○ 6-8		
		○ 6-8	○ 6-8	○ 6-8	○ 3-5	○ 3-5	○ 3-5	○ 3-5	○ 3-5	○ 3-5	○ 3-5	○ 3-5	○ 3-5	○ 3-5	○ 6-8		
● 8-10	● 15-20	● 12-15	● 12-15	● 12-15	● 20-25	● 20-25	● 20-25									● 12-15	
● 12-15	○ 25-30																
● 12-15	● 25-30	○ 18-20	○ 18-20	○ 18-20	○ 30-35	○ 30-35	○ 30-35	○ 30-35	○ 30-35	○ 30-35	○ 30-35	○ 30-35	○ 30-35	○ 30-35	○ 18-20		
○ 10-12	○ 20-25	● 15-18	● 15-18	● 15-18	● 25-30	● 25-30	● 25-30								● 15-18		
● 10-12	○ 20-25																
● 10-12	● 20-25	● 15-18	● 15-18	● 15-18	● 25-30	● 25-30	● 25-30								● 15-18		
		○ 6-8	○ 6-8	○ 6-8											○ 6-8		
		○ 6-8	○ 6-8	○ 6-8	○ 8-10	○ 8-10	○ 8-10								○ 6-8		

Tap Application Table



P	P	P	S	S	S	P	P								
HSSZ	HSSZ	HSSZ	HSSK	HSSK	HSSK	HSSP	HSSP								
C (2-3)	E(1,5-2)	E(1,5-2)	C (2-3)	C (2-3)	C (2-3)	C (2-3)	E(1,5-2)								
3xD	3xD	3xD	3xD	3xD	3xD	3xD	3xD								
M		P70 E 159		P70 E 161		S70 180		S70 180		BS70 180		BP43 154		P43 E 155	
MF		P71 170		P71 E 171		S71 184				BP45 169		P45 E 169			
UNC															
UNF															
UN 8															
G		ISO 5969/X		P59 E 174											
Rp (BSP)		--													
Rc (BSPT)		--													
BSW		mc													
NPT		--													
NPTF		--													
Internal lubrication		IKZ						IKZ		IKZ					
Coating		TiH1		TiN		TiH1		TiN		TiH1		ACE		ACE	

ISO 513	Material	Group
P	Steel	P.1
		P.2
		P.3
		P.4
		P.5
		P.6
		P.7
M	Stainless steel	M.1
		M.2
K	Cast iron	K.1
		K.2
		K.3
N	Aluminium Aluminium alloys	N.1
		N.2
		N.3
		N.4
	Copper Copper alloys Brass Bronze	N.5
		N.6
		N.7
		N.8
	Magnesium Magnesium alloys	N.9
		N.10
S	Titanium Titanium alloys	S.1
		S.2
	Nickel Nickel alloys	S.3
		S.4
H	Hardened materials	H.1
		H.2

			● 45-55	● 45-55	● 45-55		
○ 25-35	○ 25-35	○ 25-35	● 45-55	● 45-55	● 45-55		
● 20-30	● 20-30	● 20-30	● 40-50	● 40-50	● 40-50		
● 15-25	● 15-25	● 15-25	● 35-45	● 35-45	● 35-45		
● 5-15	● 5-15	● 5-15	● 15-20	● 15-20	● 15-20		
○ 5-8	○ 5-8	○ 5-8					
● 10-15	● 10-15	● 10-15	● 15-20	● 15-20	● 15-20		
● 10-15	● 10-15	● 10-15	● 15-20	● 15-20	● 15-20		
● 5-7	● 5-7	● 5-7					
						● 40-50	● 40-50
● 20-30	● 20-30	● 20-30	● 40-50	● 40-50	● 40-50		
						○ 10-20	○ 10-20
			● 45-55	● 45-55	● 45-55		
○ 30-40	○ 30-40	○ 30-40	● 40-50	● 40-50	● 40-50		
● 25-35	● 25-35	● 25-35	● 40-50	● 40-50	● 40-50		
						● 40-50	● 40-50
			● 35-45	● 35-45	● 35-45		
● 25-35	● 25-35	● 25-35	● 30-40	● 30-40	● 30-40		
						● 40-50	● 40-50
						● 45-55	● 45-55
						● 45-55	● 45-55
● 10-15		● 10-15		● 15-20	● 15-20		
				○ 5-15	○ 5-15		
● 10-15	● 10-15	● 10-15	● 15-20	● 15-20	● 15-20		
			○ 5-15	○ 5-15	○ 5-15		

P		S		S		S		H		H		H		H	
HSSP		HSSK		HSSK		HSSK		HM		HM		HM		HM	
E(1,5-2)		E(1,5-2)		C(2-3)		E(1,5-2)		C(2-3)		C(2-3)		C(2-3)		C(2-3)	
3xD		3xD		3xD		3xD		2,5xD		2,5xD		2,5xD		2,5xD	
BP43 E	155	S43 E	178	BS43	178	BS43 E	178	HB43	186	HB43	186	HB29	187	HB29	187
BP45 E	169			BS45	182			HB45	190	HB45	190				
IKZ ACE		ACE		IKZ ACE		IKZ ACE		IKZ BRIGHT		IKZ TiAlN		IKZ BRIGHT		IKZ TiCN	

●	40-50	●	55-65	●	55-65	●	55-65	●	15-40	●	40-80	○	15-40	○	40-80
								●	10-20	●	15-40	○	10-20	○	15-40
○	10-20	○	20-30	○	20-30	○	20-30					●	15-30	●	25-50
												●	15-30	●	25-50
								●	20-30	●	30-50	●	20-30	●	30-50
●	40-50	●	55-65	●	55-65	●	55-65	●	15-20	●	25-40	●	15-20	●	25-40
●	40-50	●	55-65	●	55-65	●	55-65	○	20-25	○	30-40	●	20-25	●	30-40
●	45-55	●	55-65	●	55-65	●	55-65								
●	45-55	●	55-65	●	55-65	●	55-65								

Tap Application Table



A		A		A		A		A		A		P		P			
HSSE		HSSE		HSSE		HSSE		HSSE		HSSE		HSSK		HSSK			
C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)		C (2-3)			
1,5xD		1,5xD		1,5xD		2,5xD		2,5xD		2,5xD		1,5xD		3xD			
M	4H	A80	78	A80	78	A80	78	A80 N	80	A80 N	80	A80 N	80	P80	162	P80 N	163
	6H/6HX	A80	78	A80	78	A80	78	A80 N	80	A80 N	80	A80 N	80	P80	162	P80 N	163
	6G/6GX	A80	79	A80	79	A80	79	A80 N	81	A80 N	81	A80 N	81	P80	162	P80 N	163
	7G/7GX													P80	162	P80 N	163
	6H +0,1																
MF	6H/6HX		A81	110	A81	110			A81 N	112	A81 N	112	P81	172	P81 N	172	
	6G/6GX		A81	111	A81	111			A81 N	113	A81 N	113	P81	172	P81 N	172	
UNC	2B/2BX																
	3B																
UNF	2B/2BX																
	3B																
UN 8	2B																
G	ISO 5969/X							A82 N	142	A82 N	142	A82 N	142			P82 N	175
Rp (BSPP)	--																
Rc (BSPT)	--																
BSW	mc																
NPT	--																
NPTF	--																
Internal lubrication																	
Coating		VAP	TiN	TiCN	VAP	TiN	TiCN	TiN	TiCN	TiN	TiCN	TiN	TiCN				

ISO 513	Material	Group
P	Steel	P.1
		P.2
		P.3
		P.4
		P.5
		P.6
		P.7
M	Stainless steel	M.1
		M.2
K	Cast iron	K.1
		K.2
		K.3
N	Aluminium Aluminium alloys	N.1
		N.2
		N.3
		N.4
	Copper Copper alloys Brass Bronze	N.5
		N.6
		N.7
		N.8
	Magnesium Magnesium alloys	N.9
		N.10
S	Titanium Titanium alloys	S.1
		S.2
	Nickel Nickel alloys	S.3
		S.4
H	Hardened materials	H.1
		H.2

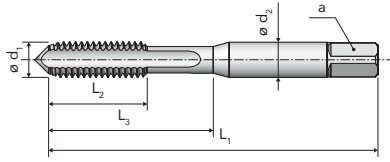
● 20-25	● 40-45	● 40-45	● 20-25	● 40-45	● 40-45	● 40-45	● 40-45	● 40-45
● 20-25	● 40-45	● 40-45	● 20-25	● 40-45	● 40-45	● 40-45	● 40-45	● 40-45
● 15-20	● 35-40	● 35-40	● 15-20	● 35-40	● 35-40	● 35-40	● 35-40	● 35-40
						● 30-35	● 30-35	
						● 15-20	● 15-20	
	○ 15-20	○ 15-20		○ 15-20	○ 15-20	● 15-20	● 15-20	
	○ 15-20	○ 15-20		○ 15-20	○ 15-20	● 15-20	● 15-20	
● 20-25	● 40-45	● 40-45	● 20-25	● 40-45	● 40-45	● 40-45	● 40-45	● 40-45
	● 40-45	● 40-45		● 40-45	● 40-45	● 40-45	● 40-45	● 40-45
	● 35-40	● 35-40		● 35-40	● 35-40	● 35-40	● 35-40	● 35-40
● 20-25	● 40-45	● 40-45	● 20-25	● 40-45	● 40-45	● 40-45	● 40-45	● 40-45
	● 40-45	● 40-45		● 40-45	● 40-45	● 40-45	● 40-45	● 40-45
						● 10-15	● 10-15	
						○ 5-10	○ 5-10	



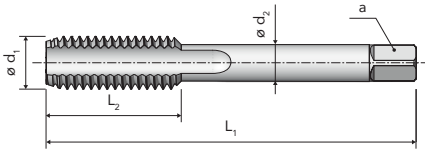
Taps for Generic Applications

A1
ROUGHINGA1
SECONDA1
FINISHINGA1
SET

DIN 352 ≤ M6



DIN 352 ≥ M7



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A1 ROUGHING	A1 SECOND	A1 FINISHING	A1 SET
P	P.1-4	•	•	•	•
	P.7	•	•	•	•
K	K.2	•	•	•	•
N	N.1-3	•	•	•	•
	N.5-7	•	•	•	•

Tolerance

ISO2
6HISO2
6H

Chamfer form



Hole type

Direction
of cut

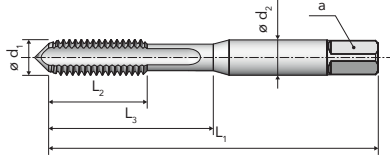
Through coolant



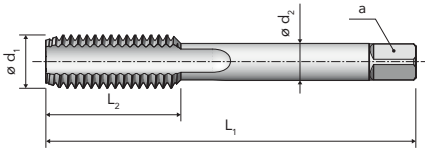
$\varnothing d_1$	P	L_1	L_2	L_3	$\varnothing d_2$	a	z		A1 ROUGHING	A1 SECOND	A1 FINISHING	A1 SET
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
M 2	0,4	36	7,5	12	2,8	2,1	3	1,6	•	•	•	•
2,2	0,45	36	8,5	13,5	2,8	2,1	3	1,75	•	•	•	•
2,3	0,4	36	8,5	13,5	2,8	2,1	3	1,9	•	•	•	•
2,5	0,45	40	8,5	14,5	2,8	2,1	3	2,05	•	•	•	•
2,6	0,45	40	8,5	14,5	2,8	2,1	3	2,1	•	•	•	•
3	0,5	40	10	18	3,5	2,7	3	2,5	•	•	•	•
3,5	0,6	45	11	20	4	3	3	2,9	•	•	•	•
4	0,7	45	12	21	4,5	3,4	3	3,3	•	•	•	•
4,5	0,75	50	13	23	6	4,9	3	3,7	•	•	•	•
5	0,8	50	14	24	6	4,9	3	4,2	•	•	•	•
6	1	56	16	28	6	4,9	3	5	•	•	•	•
7	1	56	19	-	6	4,9	3	6	•	•	•	•
8	1,25	63	22	-	6	4,9	3	6,8	•	•	•	•
9	1,25	63	22	-	7	5,5	3	7,8	•	•	•	•
10	1,5	70	24	-	7	5,5	3	8,5	•	•	•	•
11	1,5	70	24	-	8	6,2	3	9,5	•	•	•	•
12	1,75	75	28	-	9	7	4	10,2	•	•	•	•
14	2	80	30	-	11	9	4	12	•	•	•	•
16	2	80	32	-	12	9	4	14	•	•	•	•
18	2,5	95	34	-	14	11	4	15,5	•	•	•	•
20	2,5	95	34	-	16	12	4	17,5	•	•	•	•
22	2,5	100	34	-	18	14,5	4	19,5	•	•	•	•
24	3	110	38	-	18	14,5	4	21	•	•	•	•
27	3	110	38	-	20	16	4	24	•	•	•	•
30	3,5	125	45	-	22	18	4	26,5	•	•	•	•
33	3,5	125	50	-	25	20	4	29,5	•	•	•	•

HAND TAPS for blind and through holes
In sets of three piecesA1 LH
ROUGHINGA1 LH
SECONDA1 LH
FINISHINGA1 LH
SET

DIN 352 ≤ M6



DIN 352 ≥ M8



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A1 LH ROUGHING	A1 LH SECOND	A1 LH FINISHING	A1 LH SET
P	P.1-4	•	•	•	•
	P.7	•	•	•	•
K	K.2	•	•	•	•
N	N.1-3	•	•	•	•
	N.5-7	•	•	•	•

Tolerance

ISO2
6HISO2
6H

Chamfer form



Hole type

Direction
of cut

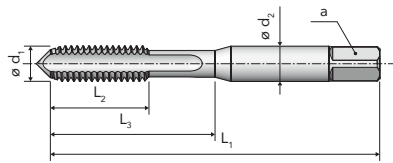
Through coolant



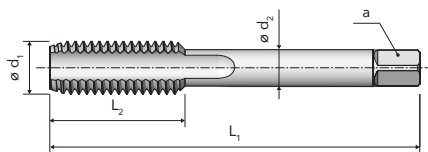
$\varnothing d_1$ [mm]	P [mm]	L_1 <small>js 16</small> [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z [-]	[mm]	A1 LH ROUGHING	A1 LH SECOND	A1 LH FINISHING	A1 LH SET
M 2,6	0,45	40	8,5	14,5	2,8	2,1	3	2,1	•	•	•	•
3	0,5	40	10	18	3,5	2,7	3	2,5	•	•	•	•
3,5	0,6	45	11	20	4	3	3	2,9	•	•	•	•
4	0,7	45	12	21	4,5	3,4	3	3,3	•	•	•	•
5	0,8	50	14	24	6	4,9	3	4,2	•	•	•	•
6	1	56	16	28	6	4,9	3	5	•	•	•	•
8	1,25	63	22	-	6	4,9	3	6,8	•	•	•	•
10	1,5	70	24	-	7	5,5	3	8,5	•	•	•	•
12	1,75	75	28	-	9	7	4	10,2	•	•	•	•
14	2	80	30	-	11	9	4	12	•	•	•	•
16	2	80	32	-	12	9	4	14	•	•	•	•
18	2,5	95	34	-	14	11	4	15,5	•	•	•	•
20	2,5	95	34	-	16	12	4	17,5	•	•	•	•
22	2,5	100	34	-	18	14,5	4	19,5	•	•	•	•
24	3	110	38	-	18	14,5	4	21	•	•	•	•
27	3	110	38	-	20	16	4	24	•	•	•	•
30	3,5	125	45	-	22	18	4	26,5	•	•	•	•

HAND TAPS for blind and through holes
 In sets of three pieces


DIN 352 ≤ M6



DIN 352 ≥ M8



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A100 ROUGHING	A100 SECOND	A100 FINISHING	A100 SET
P	P.1-5	•	•	•	•
	P.7	•	•	•	•
M	M. 1-2	•	•	•	•
K	K.1-3	•	•	•	•
N	N.1-10	•	•	•	•
		•	•	•	•
S	S.1	•	•	•	•
	S.3	•	•	•	•

A100 ROUGHING

A100 SECOND

A100 FINISHING

A100 SET



A SERIES

Tolerance



ISO2 6H

ISO2 6H

Chamfer form



Hole type



Direction of cut



Through coolant



Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]	[mm]	A100 ROUGHING	A100 SECOND	A100 FINISHING	A100 SET
M 2	0,4	36	7,5	13	2,8	2,1	3	1,6	•	•	•	•
2,5	0,45	40	9	15	2,8	2,1	3	2,05	•	•	•	•
3	0,5	40	10	18	3,5	2,7	3	2,5	•	•	•	•
3,5	0,6	45	11	18	4	3	3	2,9	•	•	•	•
4	0,7	45	12	21	4,5	3,4	3	3,3	•	•	•	•
5	0,8	50	14	24	6	4,9	3	4,2	•	•	•	•
6	1	56	16	28	6	4,9	3	5	•	•	•	•
8	1,25	63	22	-	6	4,9	4	6,8	•	•	•	•
10	1,5	70	24	-	7	5,5	4	8,5	•	•	•	•
12	1,75	75	28	-	9	7	4	10,2	•	•	•	•
14	2	80	30	-	11	9	4	12	•	•	•	•
16	2	80	32	-	12	9	4	14	•	•	•	•
18	2,5	95	34	-	14	11	4	15,5	•	•	•	•
20	2,5	95	34	-	16	12	4	17,5	•	•	•	•



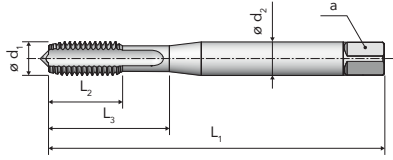
1,5xD



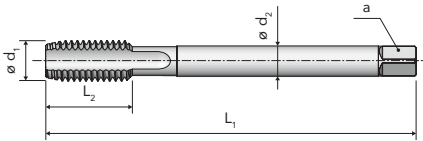
HSSE

A21 FC
BRIGHTA21 FC
TiNA21 FC LH
BRIGHT

DIN 371 ≤ M10



DIN 376 ≥ M11



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A21 FC BRIGHT	A21 FC TiN	A21 FC LH BRIGHT
P	P.1		• 20-25	
	P.2	• 10-12	• 15-20	• 10-12
	P.3	• 8-10	• 12-15	• 8-10
K	K.2	• 8-10	• 12-15	• 8-10
N	N.1		• 20-25	
	N.5		• 15-20	

Tolerance

ISO2
6HISO2
6HISO2
6H

Chamfer form



Hole type

Direction
of cut

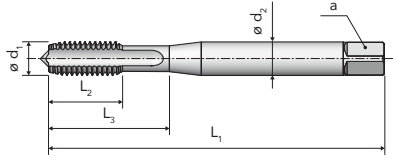
Through coolant



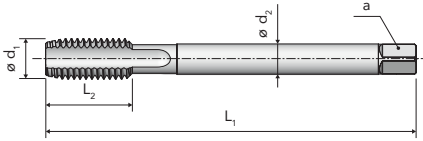
Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z		A21 FC BRIGHT	A21 FC TiN	A21 FC LH BRIGHT
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]			
M 2	0,4	45	7	11	2,8	2,1	3	1,6	•	•	
2,2	0,45	45	8	13	2,8	2,1	3	1,75	•	•	
2,3	0,4	45	8	13	2,8	2,1	3	1,9	•	•	
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•	
2,6	0,45	50	9	15	2,8	2,1	3	2,1	•	•	
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•	•
3,5	0,6	56	11	20	4	3	3	2,9	•	•	
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•	•
6	1	80	16	29	6	4,9	3	5	•	•	•
7	1	80	16	29	7	5,5	3	6	•	•	
8	1,25	90	18	33	8	6,2	3	6,8	•	•	•
9	1,25	90	18	33	9	7	3	7,8	•	•	
10	1,5	100	20	36	10	8	3	8,5	•	•	•
11	1,5	100	22	-	8	6,2	3	9,5	•	•	
12	1,75	110	24	-	9	7	3	10,2	•	•	•
14	2	110	25	-	11	9	3	12	•	•	•
16	2	110	28	-	12	9	3	14	•	•	•
18	2,5	125	32	-	14	11	3	15,5	•	•	•
20	2,5	140	32	-	16	12	4	17,5	•	•	•
22	2,5	140	32	-	18	14,5	4	19,5	•	•	•
24	3	160	36	-	18	14,5	4	21	•	•	•
27	3	160	36	-	20	16	4	24	•	•	•
30	3,5	180	40	-	22	18	4	26,5	•	•	•
33	3,5	180	40	-	25	20	4	29,5	•	•	
36	4	200	55	-	28	22	4	32	•	•	

A21 FP
BRIGHTA21 FP
TiN

DIN 371 ≤ M10



DIN 376 ≥ M11



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A21 FP BRIGHT	A21 FP TiN
P	P.1		• 20-25
	P.2	• 10-12	• 15-20
	P.3	• 8-10	• 12-15
K	K.2	• 8-10	• 12-15
N	N.1		• 20-25
	N.5		• 15-20

Tolerance



Chamfer form



Hole type



Direction of cut



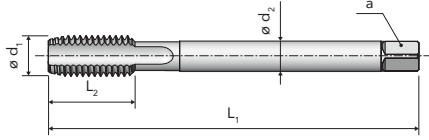
Through coolant



Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z		A21 FP BRIGHT	A21 FP TiN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]		
M 2	0,4	45	7	11	2,8	2,1	3	1,6	•	•
2,2	0,45	45	8	13	2,8	2,1	3	1,75	•	•
2,3	0,4	45	8	13	2,8	2,1	3	1,9	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•
2,6	0,45	50	9	15	2,8	2,1	3	2,1	•	•
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•
3,5	0,6	56	11	20	4	3	3	2,9	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•
6	1	80	16	29	6	4,9	3	5	•	•
7	1	80	16	29	7	5,5	3	6	•	•
8	1,25	90	18	33	8	6,2	3	6,8	•	•
9	1,25	90	18	33	9	7	3	7,8	•	•
10	1,5	100	20	36	10	8	3	8,5	•	•
11	1,5	100	22	-	8	6,2	3	9,5	•	•
12	1,75	110	24	-	9	7	3	10,2	•	•
14	2	110	25	-	11	9	3	12	•	•
16	2	110	28	-	12	9	3	14	•	•
18	2,5	125	32	-	14	11	3	15,5	•	•
20	2,5	140	32	-	16	12	4	17,5	•	•
22	2,5	140	32	-	18	14,5	4	19,5	•	•
24	3	160	36	-	18	14,5	4	21	•	•
27	3	160	36	-	20	16	4	24	•	•
30	3,5	180	40	-	22	18	4	26,5	•	•
33	3,5	180	40	-	25	20	4	29,5	•	•
36	4	200	55	-	28	22	4	32	•	•

MACHINE TAPS for through holes
 Straight flutes

DIN 13

**A21 FP
BRIGHT**
DIN 376


APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A21 FC BRIGHT			
P	P.2	● 10-12			
	P.3	● 8-10			
K	K.2	● 8-10			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



$\varnothing d_1$ [mm]	P [mm]	L_1 js 16 [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z [-]		A21 FP BRIGHT			
M 39	4	200	60	-	32	24	4	35	•			
42	4,5	200	60	-	32	24	4	37,5	•			
45	4,5	220	65	-	36	29	4	40,5	•			
48	5	250	70	-	36	29	4	43	•			
52	5	250	70	-	40	32	4	47	•			

A SERIES

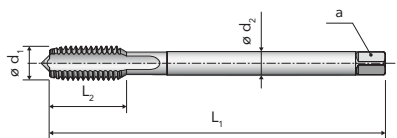
MACHINE TAPS for through holes

Straight flutes / through shank

DIN 13



DIN 376



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A22 FC BRIGHT	A22 FC TiN
P	P.1		• 20-25
	P.2	• 10-12	• 15-20
	P.3	• 8-10	• 12-15
K	K.2	• 8-10	• 12-15
N	N.1		• 20-25
	N.5		• 15-20

A22 FP BRIGHT

A22 FP TiN



ISO2 6H

ISO2 6H

Tolerance

A (5-6)

A (5-6)

Chamfer form

1,5xD

1,5xD

Hole type

RH

RH

Direction of cut

Through coolant

$\varnothing d_1$ [mm]	P [mm]	L_1 ^{js 16} [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z		A22 FP BRIGHT	A22 FP TiN
M 4	0,7	63	12	-	2,8	2,1	3	3,3	•	•
5	0,8	70	14	-	3,5	2,7	3	4,2	•	•
6	1	80	16	-	4,5	3,4	3	5	•	•
7	1	80	16	-	5,5	4,3	3	6	•	•
8	1,25	90	18	-	6	4,9	3	6,8	•	•
9	1,25	90	18	-	7	5,5	3	7,8	•	•
10	1,5	100	20	-	7	5,5	3	8,5	•	•

A SERIES



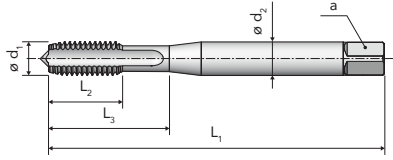
2,5 x D



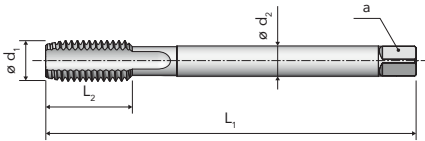
HSSE

A43
NITRIDEDA43
TiCNA43
ACE

DIN 371 ≤ M10



DIN 376 ≥ M11



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A43 NITRIDED	A43 TiCN	A43 ACE	
K	K.1	• 15-20	• 40-45	• 40-45	
N	N.4	• 15-20	• 40-45	• 40-45	
	N.7	• 15-20	• 40-45	• 40-45	
	N.9-10	• 20-25	• 45-50	• 45-50	

Tolerance



Chamfer form



Hole type

Direction
of cut

Through coolant



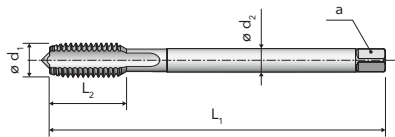
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		Ød ₁ [mm]	A43 NITRIDED	A43 TiCN	A43 ACE	
M 3	0,5	56	10	18	3,5	2,7	3	2,5		•	•	•	
3,5	0,6	56	11	20	4	3	3	2,9		•	•	•	
4	0,7	63	12	21	4,5	3,4	3	3,3		•	•	•	
5	0,8	70	14	24,5	6	4,9	3	4,2		•	•	•	
6	1	80	16	29	6	4,9	4	5		•	•	•	
7	1	80	16	29	7	5,5	4	6		•	•	•	
8	1,25	90	18	33	8	6,2	4	6,8		•	•	•	
9	1,25	90	18	33	9	7	4	7,8		•	•	•	
10	1,5	100	20	36	10	8	4	8,5		•	•	•	
11	1,5	100	22	-	8	6,2	4	9,5		•	•	•	
12	1,75	110	24	-	9	7	4	10,2		•	•	•	
14	2	110	25	-	11	9	4	12		•	•	•	
16	2	110	28	-	12	9	4	14		•	•	•	
18	2,5	125	32	-	14	11	4	15,5		•	•	•	
20	2,5	140	32	-	16	12	4	17,5		•	•	•	
22	2,5	140	32	-	18	14,5	4	19,5		•	•	•	
24	3	160	36	-	18	14,5	5	21		•	•	•	
27	3	160	36	-	20	16	5	24		•	•	•	
30	3,5	180	40	-	22	18	5	26,5		•	•	•	
33	3,5	180	40	-	25	20	5	29,5		•	•	•	
36	4	200	55	-	28	22	5	32		•	•	•	

MACHINE TAPS for blind and through holes
Straight flutes / for cast iron / through shank

DIN 13



DIN 376



APPLICATION RANGE - CUTTING SPEED m/min

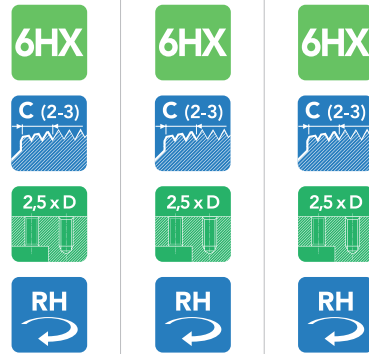
ISO	MG	A44 NITRIDED	A44 TiCN	A44 ACE	
K	K.1	• 15-20	• 40-45	• 40-45	
N	N.4	• 15-20	• 40-45	• 40-45	
	N.7	• 15-20	• 40-45	• 40-45	
	N.9-10	• 20-25	• 45-50	• 45-50	

Tolerance
Chamfer form
Hole type
Direction of cut
Through coolant

A44
NITRIDED

A44
TiCN

A44
ACE



A SERIES

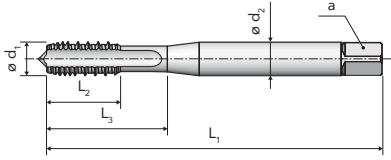
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]	[mm]	A44 NITRIDED	A44 TiCN	A44 ACE
M 4	0,7	63	12	-	2,8	2,1	3	3,3	•	•	•
5	0,8	70	14	-	3,5	2,7	3	4,2	•	•	•
6	1	80	16	-	4,5	3,4	4	5	•	•	•
8	1,25	90	18	-	6	4,9	4	6,8	•	•	•
10	1,5	100	20	-	7	5,5	4	8,5	•	•	•



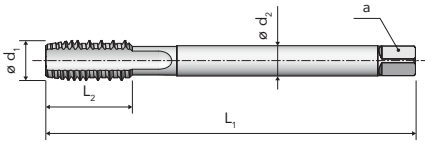
A67
BRIGHT

A67
TiH1

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A67 BRIGHT	A67 TiH1
P	P.1	• 12-15	• 20-25
	N.1	• 12-15	• 20-25
N	N.2	• 10-12	• 15-20
	N.5	• 10-12	• 15-20
	N.6	• 8-10	• 12-15

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A67 BRIGHT	A67 TiH1
M 3	0,5	56	10	18	3,5	2,7	3	2,5	•	•									
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•									
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•									
6	1	80	16	29	6	4,9	3	5	•	•									
8	1,25	90	18	33	8	6,2	3	6,8	•	•									
10	1,5	100	20	36	10	8	3	8,5	•	•									
12	1,75	110	24	-	9	7	3	10,2	•	•									
14	2	110	25	-	11	9	3	12	•	•									
16	2	110	28	-	12	9	3	14	•	•									
18	2,5	125	32	-	14	11	3	15,5	•	•									
20	2,5	140	32	-	16	12	3	17,5	•	•									

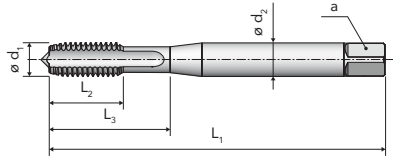
MACHINE TAPS for blind and through holes

Straight flutes / for titanium and titanium alloys

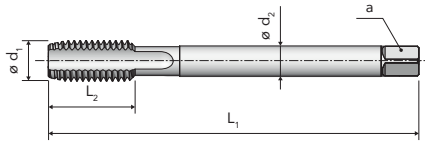
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A110 VAP	A110 CrN
S	S.1	• 6-8	• 10-12
	S.2	• 3-5	• 6-8

A110 VAP

A110 CrN



Through coolant

Ød ₁ [mm]	P [mm]	L ₁ ^{js 16} [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ ^{h9} [mm]	a ^{h12} [mm]	z [-]	[mm]	A110 VAP	A110 CrN
M 2	0,4	45	7	11	2,8	2,1	3	1,6	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•
6	1	80	16	29	6	4,9	4	5	•	•
8	1,25	90	18	33	8	6,2	4	6,8	•	•
10	1,5	100	20	36	10	8	4	8,5	•	•
12	1,75	110	24	-	9	7	4	10,2	•	•
14	2	110	25	-	11	9	4	12	•	•
16	2	110	28	-	12	9	4	14	•	•
18	2,5	125	32	-	14	11	4	15,5	•	•
20	2,5	140	32	-	16	12	4	17,5	•	•

A SERIES



2,5 x D



HSSE

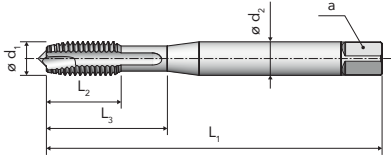
A15 BRIGHT

A15 VAP

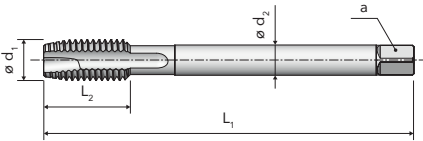
A15 TiN

A SERIES

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A15 BRIGHT	A15 VAP	A15 TiN
P	P.1	● 18-20	● 18-20	● 30-35
	P.2	● 15-18	● 15-18	● 25-30
N	N.1	● 18-20	● 18-20	
	N.2	● 15-18	● 15-18	● 25-30
	N.5	● 15-18	● 15-18	
	N.6	● 12-15	● 12-15	● 20-25

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



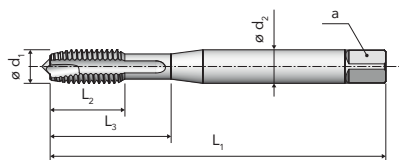
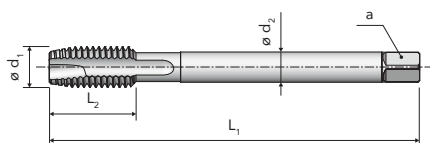
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A15 BRIGHT	A15 VAP	A15 TiN
M 2	0,4	45	7	11	2,8	2,1	2	1,6	•	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•	•
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•	•
3,5	0,6	56	11	20	4	3	3	2,9	•	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•	•
6	1	80	16	29	6	4,9	3	5	•	•	•
8	1,25	90	18	33	8	6,2	3	6,8	•	•	•
10	1,5	100	20	36	10	8	3	8,5	•	•	•
12	1,75	110	24	-	9	7	3	10,2	•	•	•
14	2	110	25	-	11	9	3	12	•	•	•
16	2	110	28	-	12	9	3	14	•	•	•
18	2,5	125	32	-	14	11	4	15,5	•	•	•
20	2,5	140	32	-	16	12	4	17,5	•	•	•
22	2,5	140	32	-	18	14,5	4	19,5	•	•	•
24	3	160	36	-	18	14,5	4	21	•	•	•
27	3	160	36	-	20	16	4	24	•	•	•
30	3,5	180	40	-	22	18	4	26,5	•	•	•

MACHINE TAPS for through holes
 Straight flutes with spiral point

DIN 13

A15 6G
 BRIGHT

A15 6G
 TiN

DIN 371 ≤ M10

DIN 376 ≥ M12


APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A15 6G BRIGHT	A15 6G TiN		
P	P.1	• 18-20	• 30-35		
	P.2	• 15-18	• 25-30		
N	N.1	• 18-20			
	N.2	• 15-18	• 25-30		
	N.5	• 15-18			
	N.6	• 12-15	• 20-25		

Tolerance



Chamfer form



Hole type


 Direction
of cut


Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A15 6G BRIGHT	A15 6G TiN		
M 2	0,4	45	7	11	2,8	2,1	2	1,6	•	•		
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•		
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•		
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•		
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•		
6	1	80	16	29	6	4,9	3	5	•	•		
8	1,25	90	18	33	8	6,2	3	6,8	•	•		
10	1,5	100	20	36	10	8	3	8,5	•	•		
12	1,75	110	24	-	9	7	3	10,2	•	•		
14	2	110	25	-	11	9	3	12	•	•		
16	2	110	28	-	12	9	3	14	•	•		

A SERIES

DIN 13 MACHINE TAPS for through holes
Straight flutes with spiral point / interrupted thread

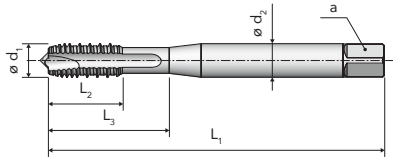
2,5 x D



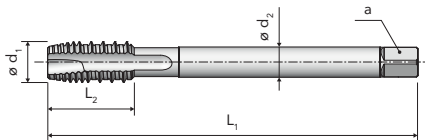
HSSE

A15 AZ
BRIGHTA15 AZ
TiH1

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A15 AZ BRIGHT	A15 AZ TiH1		
P	P.1	● 18-20	● 30-35		
	N.1	● 18-20	● 30-40		
N	N.2	● 15-18	● 30-40		
	N.5	● 15-18	● 30-35		
	N.6	● 12-15	● 30-35		

Tolerance

ISO2
6HISO2
6H

Chamfer form

B (4-5)

B (4-5)

Hole type

2,5 x D


2,5 x D

Direction
of cut

RH

RH

Through coolant

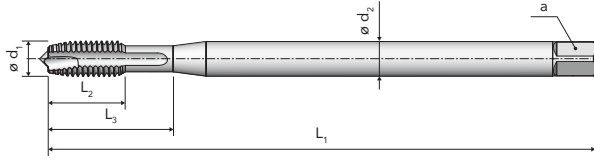
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]	 [mm]	A15 AZ BRIGHT	A15 AZ TiH1
M 3	0,5	56	10	18	3,5	2,7	3	2,5	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•
6	1	80	16	29	6	4,9	3	5	•	•
8	1,25	90	18	33	8	6,2	3	6,8	•	•
10	1,5	100	20	36	10	8	3	8,5	•	•
12	1,75	110	24	-	9	7	3	10,2	•	•
14	2	110	25	-	11	9	3	12	•	•
16	2	110	28	-	12	9	3	14	•	•

MACHINE TAPS for through holes
Straight flutes with spiral point / long shank

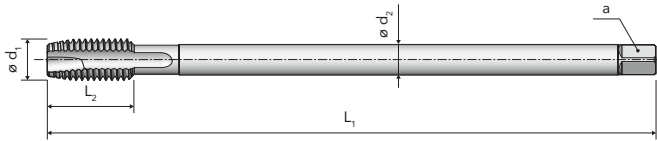
DIN 13



VERGNANO STANDARD ≤ M10



VERGNANO STANDARD ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A15 L BRIGHT	A15 L TiN		
P	P.1	• 18-20	• 30-35		
	P.2	• 15-18	• 25-30		
	P.3	• 12-15	• 20-25		
N	N.1	• 18-20			
	N.2	• 15-18	• 25-30		
	N.5	• 15-18			
	N.6	• 12-15	• 20-25		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ ^{js 16} [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ _{h9} [mm]	a _{h12} [mm]	z [-]		[mm]	A15 L BRIGHT	A15 L TiN		
M 3	0,5	112	10	18	3,5	2,7	3	2,5		•	•		
4	0,7	112	12	21	4,5	3,4	3	3,3		•	•		
5	0,8	125	14	24,5	6	4,9	3	4,2		•	•		
6	1	125	16	29	6	4,9	3	5		•	•		
8	1,25	140	18	33	8	6,2	3	6,8		•	•		
10	1,5	160	20	36	10	8	3	8,5		•	•		
12	1,75	180	24	-	9	7	3	10,2		•	•		
16	2	200	28	-	12	9	3	14		•	•		
20	2,5	225	32	-	16	12	4	17,5		•	•		

A SERIES



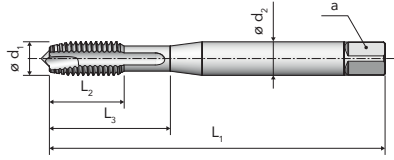
2,5 x D



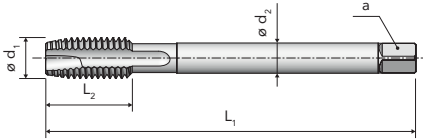
HSSE

A15 S
BRIGHTA15 S
VAPA15 S
TiNA15 S
TiCN

DIN 371 ≤ M10



DIN 376 ≥ M11



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A15 S BRIGHT	A15 S VAP	A15 S TiN	A15 S TiCN
P	P.2	• 20-25	• 20-25	• 30-35	• 30-35
	P.3	• 15-20	• 15-20	• 25-30	• 25-30
	P.4	• 12-15	• 12-15	• 20-25	• 20-25
	P.5			• 10-15	• 10-15
	P.7			• 10-15	• 10-15
M	M.1			• 10-15	• 10-15
K	K.2	• 15-20	• 15-20	• 25-30	• 25-30
N	N.2-3	• 20-25	• 20-25	• 30-35	• 30-35
	N.6	• 15-18	• 15-18	• 25-30	• 25-30

Tolerance

ISO2
6HISO2
6HISO2
6HISO2
6H

Chamfer form

B (4-5)

B (4-5)

B (4-5)

B (4-5)

Hole type

2,5 x D

2,5 x D

2,5 x D

2,5 x D

Direction
of cut

RH

RH

RH

RH

Through coolant

—

—

—

—

$\varnothing d_1$	P	L_1	L_2	L_3	$\varnothing d_2$	a	z		A15 S BRIGHT	A15 S VAP	A15 S TiN	A15 S TiCN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
M 2	0,4	45	7	11	2,8	2,1	2	1,6	•	•	•	•
2,2	0,45	45	8	13	2,8	2,1	2	1,75	•	•	•	•
2,3	0,4	45	8	13	2,8	2,1	2	1,9	•	•	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•	•	•
2,6	0,45	50	9	15	2,8	2,1	3	2,1	•	•	•	•
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•	•	•
3,5	0,6	56	11	20	4	3	3	2,9	•	•	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•	•	•
6	1	80	16	29	6	4,9	3	5	•	•	•	•
7	1	80	16	29	7	5,5	3	6	•	•	•	•
8	1,25	90	18	33	8	6,2	3	6,8	•	•	•	•
9	1,25	90	18	33	9	7	3	7,8	•	•	•	•
10	1,5	100	20	36	10	8	3	8,5	•	•	•	•
11	1,5	100	22	-	8	6,2	3	9,5	•	•	•	•
12	1,75	110	24	-	9	7	4	10,2	•	•	•	•
14	2	110	25	-	11	9	4	12	•	•	•	•
16	2	110	28	-	12	9	4	14	•	•	•	•
18	2,5	125	32	-	14	11	4	15,5	•	•	•	•
20	2,5	140	32	-	16	12	4	17,5	•	•	•	•
22	2,5	140	32	-	18	14,5	4	19,5	•	•	•	•
24	3	160	36	-	18	14,5	4	21	•	•	•	•
27	3	160	36	-	20	16	4	24	•	•	•	•
30	3,5	180	40	-	22	18	4	26,5	•	•	•	•
33	3,5	180	40	-	25	20	5	29,5	•	•	•	•
36	4	200	55	-	28	22	5	32	•	•	•	•

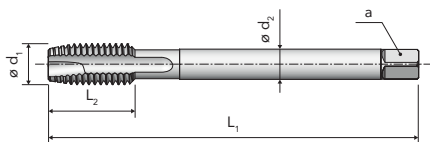
MACHINE TAPS for through holes
Straight flutes with spiral point

DIN 13



A15 S
BRIGHT

DIN 376



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A15 S BRIGHT			
P	P.2	• 20-25			
	P.3	• 15-20			
	P.4	• 12-15			
K	K.2	• 15-20			
N	N.2-3	• 20-25			
	N.6	• 15-18			



A
SERIES

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]		A15 S BRIGHT			
M 39	4	200	60	-	32	24	5	35	•			
42	4,5	200	60	-	32	24	5	37,5	•			
45	4,5	220	65	-	36	29	5	40,5	•			
48	5	250	70	-	36	29	5	43	•			
52	5	250	70	-	40	32	5	47	•			

MACHINE TAPS for through holes
Straight flutes with spiral point

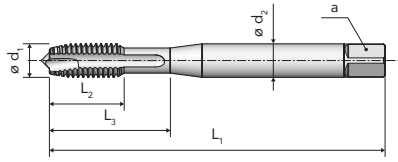
2,5 x D



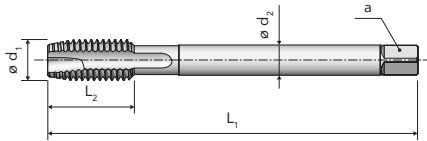
HSSE

A15 S 4H
BRIGHTA15 S 4H
TiN

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A15 S 4H BRIGHT	A15 S 4H TiN		
P	P.2	● 20-25	● 30-35		
	P.3	● 15-20	● 25-30		
	P.4	● 12-15	● 20-25		
	P.5		● 10-15		
	P.7		● 10-15		
M	M.1		● 10-15		
K	K.2	● 15-20	● 25-30		
N	N.2-3	● 20-25	● 30-35		
	N.6	● 15-18	● 25-30		

Tolerance

ISO1
4HISO1
4H

Chamfer form

B (4-5)

B (4-5)

Hole type

2,5 x D

2,5 x D

Direction
of cut

RH

RH

Through coolant

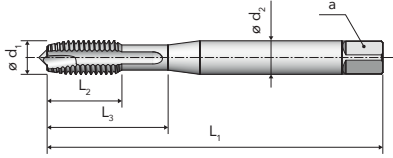
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A15 S 4H BRIGHT	A15 S 4H TiN		
M 2	0,4	45	7	11	2,8	2,1	2	1,6	•	•		
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•		
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•		
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•		
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•		
6	1	80	16	29	6	4,9	3	5	•	•		
8	1,25	90	18	33	8	6,2	3	6,8	•	•		
10	1,5	100	20	36	10	8	3	8,5	•	•		
12	1,75	110	24	-	9	7	4	10,2	•	•		
14	2	110	25	-	11	9	4	12	•	•		
16	2	110	28	-	12	9	4	14	•	•		

MACHINE TAPS for through holes
Straight flutes with spiral point

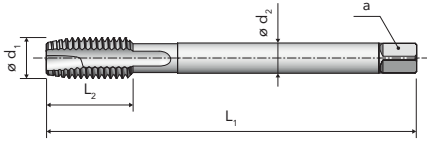
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A15 S 6G BRIGHT	A15 S 6G TiN
P	P.2	● 20-25	● 30-35
	P.3	● 15-20	● 25-30
	P.4	● 12-15	● 20-25
	P.5		● 10-15
	P.7		● 10-15
M	M.1		● 10-15
K	K.2	● 15-20	● 25-30
N	N.2-3	● 20-25	● 30-35
	N.6	● 15-18	● 25-30

A15 S 6G BRIGHT

A15 S 6G TiN



A SERIES

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ ^{js 16} [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ _{h9} [mm]	a _{h12} [mm]	z [-]	z [mm]	A15 S 6G BRIGHT	A15 S 6G TiN
M 2	0,4	45	7	11	2,8	2,1	2	1,6	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•
6	1	80	16	29	6	4,9	3	5	•	•
8	1,25	90	18	33	8	6,2	3	6,8	•	•
10	1,5	100	20	36	10	8	3	8,5	•	•
12	1,75	110	24	-	9	7	4	10,2	•	•
14	2	110	25	-	11	9	4	12	•	•
16	2	110	28	-	12	9	4	14	•	•

DIN 13 MACHINE TAPS for through holes
Straight flutes with spiral point

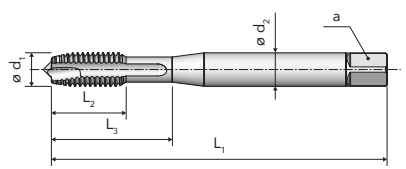


A15 S 7G
BRIGHT

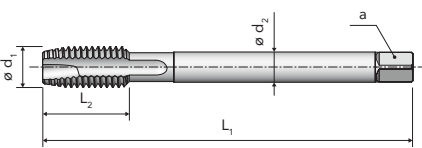
A15 S 7G
TiN

A
SERIES

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A15 S 7G BRIGHT	A15 S 7G TiN
P	P.2	• 20-25	• 30-35
	P.3	• 15-20	• 25-30
	P.4	• 12-15	• 20-25
	P.5		• 10-15
	P.7		• 10-15
M	M.1		• 10-15
K	K.2	• 15-20	• 25-30
N	N.2-3	• 20-25	• 30-35
	N.6	• 15-18	• 25-30

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

A15 S 7G
BRIGHT

A15 S 7G
TiN

Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		z [mm]	A15 S 7G BRIGHT	A15 S 7G TiN
M 3	0,5	56	10	18	3,5	2,7	3	2,5	•	•	
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•	
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•	
6	1	80	16	29	6	4,9	3	5	•	•	
8	1,25	90	18	33	8	6,2	3	6,8	•	•	
10	1,5	100	20	36	10	8	3	8,5	•	•	
12	1,75	110	24	-	9	7	4	10,2	•	•	
14	2	110	25	-	11	9	4	12	•	•	
16	2	110	28	-	12	9	4	14	•	•	

MACHINE TAPS for through holes
Straight flutes with spiral point

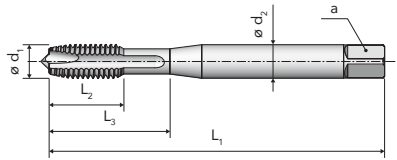
DIN 13



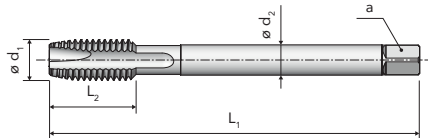
NEW
A15 S LH
BRIGHT

NEW
A15 S LH
TiN

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A15 S LH BRIGHT	A15 S LH TiN
P	P.2	● 20-25	● 30-35
	P.3	● 15-20	● 25-30
	P.4	● 12-15	● 20-25
	P.5		● 10-15
	P.7		● 10-15
M	M.1		● 10-15
K	K.2	● 15-20	● 25-30
N	N.2-3	● 20-25	● 30-35
	N.6	● 15-18	● 25-30

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z		z	[mm]	A15 S LH BRIGHT	A15 S LH TiN
M 3	0,5	56	10	18	3,5	2,7	3	2,5			•	•
4	0,7	63	12	21	4,5	3,4	3	3,3			•	•
5	0,8	70	14	24,5	6	4,9	3	4,2			•	•
6	1	80	16	29	6	4,9	3	5			•	•
8	1,25	90	18	33	8	6,2	3	6,8			•	•
10	1,5	100	20	36	10	8	3	8,5			•	•
12	1,75	110	24	-	9	7	4	10,2			•	•
16	2	110	28	-	12	9	4	14			•	•
20	2,5	140	32	-	16	12	4	17,5			•	•

A SERIES

DIN 13

MACHINE TAPS for through holes
Straight flutes with spiral point / through shank

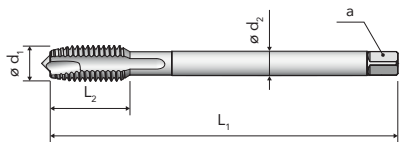


A16 S
BRIGHT

A16 S
TiN

A
SERIES

DIN 376



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A16 S BRIGHT	A16 S TiN		
P	P.2	• 20-25	• 30-35		
	P.3	• 15-20	• 25-30		
	P.4	• 12-15	• 20-25		
	P.5		• 10-15		
	P.7		• 10-15		
M	M.1		• 10-15		
K	K.2	• 15-20	• 25-30		
N	N.2-3	• 20-25	• 30-35		
	N.6	• 15-18	• 25-30		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ ^{js 16} [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]	⌀ [mm]	A16 S BRIGHT	A16 S TiN		
M 4	0,7	63	12	-	2,8	2,1	3	3,3	•	•		
5	0,8	70	14	-	3,5	2,7	3	4,2	•	•		
6	1	80	16	-	4,5	3,4	3	5	•	•		
7	1	80	16	-	5,5	4,3	3	6	•	•		
8	1,25	90	18	-	6	4,9	3	6,8	•	•		
9	1,25	90	18	-	7	5,5	3	7,8	•	•		
10	1,5	100	20	-	7	5,5	3	8,5	•	•		

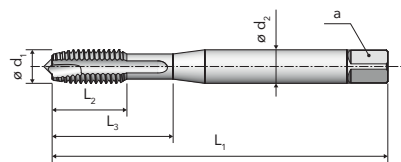
MACHINE TAPS for through holes

Straight flutes with spiral point / for stainless steel

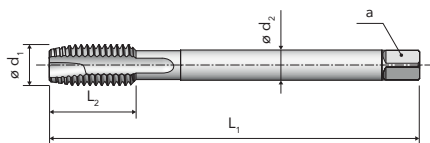
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A150 VAP	A150 TiX2
P	P.7	● 10-12	● 18-20
M	M.1	● 10-12	● 18-20
	M.2	● 8-10	● 10-20

A150 VAP

A150 TiX2



Tolerance

Chamfer form

Hole type

Direction of cut

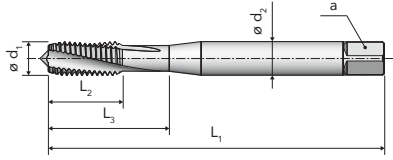
Through coolant

Ød1	P	L1	L2	L3	Ød2	a	z		A150 VAP	A150 TiX2
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	_{h9} [mm]	_{h12} [mm]	[-]	[mm]		
M 3	0,5	56	10	18	3,5	2,7	3	2,5	•	•
3,5	0,6	56	11	16	4	3	3	2,9	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•
6	1	80	16	29	6	4,9	3	5	•	•
8	1,25	90	18	33	8	6,2	3	6,8	•	•
10	1,5	100	20	36	10	8	3	8,5	•	•
12	1,75	110	24	-	9	7	3	10,2	•	•
14	2	110	25	-	11	9	3	12	•	•
16	2	110	28	-	12	9	3	14	•	•
18	2,5	125	32	-	14	11	4	15,5	•	•
20	2,5	140	32	-	16	12	4	17,5	•	•

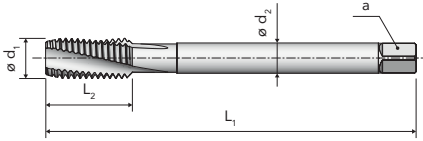
A SERIES

A29
BRIGHTA29
VAPA29
TiN

DIN 371 ≤ M10



DIN 376 ≥ M11



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A29 BRIGHT	A29 VAP	A29 TiN
P	P.1	• 18-20	• 18-20	• 30-35
	P.2	• 15-18	• 15-18	• 25-30
	P.3	• 12-15	• 12-15	• 20-25
	P.4	• 10-12	• 10-12	• 15-20
	P.5			• 5-10
K	K.2	• 12-15	• 12-15	• 20-25
N	N.1	• 18-20	• 18-20	
	N.2-3	• 15-18	• 15-18	• 25-30
	N.5	• 15-18	• 15-18	
	N.6	• 12-15	• 12-15	• 20-25

Tolerance

ISO2
6HISO2
6HISO2
6H

Chamfer form

C (2-3)

C (2-3)

C (2-3)

Hole type

1,5xD

1,5xD

1,5xD

Direction of cut

RH

RH

RH

Through coolant

—

—

—

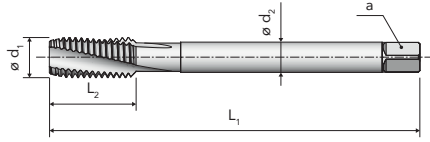
Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z		A29 BRIGHT	A29 VAP	A29 TiN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]			
M 2	0,4	45	7	11	2,8	2,1	3	1,6	•	•	•
2,2	0,45	45	8	13	2,8	2,1	3	1,75	•		
2,3	0,4	45	8	13	2,8	2,1	3	1,9	•		
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•	•
2,6	0,45	50	9	15	2,8	2,1	3	2,1	•		
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•	•
3,5	0,6	56	11	20	4	3	3	2,9	•	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•	•
4,5	0,75	70	14	24,5	6	4,9	3	3,7	•		
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•	•
6	1	80	16	29	6	4,9	3	5	•	•	•
7	1	80	16	29	7	5,5	3	6	•	•	•
8	1,25	90	18	33	8	6,2	3	6,8	•	•	•
9	1,25	90	18	33	9	7	3	7,8	•	•	•
10	1,5	100	20	36	10	8	3	8,5	•	•	•
11	1,5	100	22	-	8	6,2	3	9,5	•		
12	1,75	110	24	-	9	7	3	10,2	•	•	•
14	2	110	25	-	11	9	3	12	•	•	•
16	2	110	28	-	12	9	3	14	•	•	•
18	2,5	125	32	-	14	11	3	15,5	•	•	•
20	2,5	140	32	-	16	12	4	17,5	•	•	•
22	2,5	140	32	-	18	14,5	4	19,5	•	•	•
24	3	160	36	-	18	14,5	4	21	•	•	•
27	3	160	36	-	20	16	4	24	•	•	•
30	3,5	180	40	-	22	18	4	26,5	•	•	•
33	3,5	180	40	-	25	20	5	29,5	•	•	•

MACHINE TAPS for blind holes
15° spiral flutes

DIN 13



DIN 376



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A29 BRIGHT			
P	P.1	● 18-20			
	P.2	● 15-18			
	P.3	● 12-15			
	P.4	● 10-12			
K	K.2	● 12-15			
N	N.1	● 18-20			
	N.2-3	● 15-18			
	N.5	● 15-18			
	N.6	● 12-15			

A29 BRIGHT



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød1	P	L1	L2	L3	Ød2	a	z		
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]	

A29 BRIGHT

Ød1	P	L1	L2	L3	Ød2	a	z		A29 BRIGHT			
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
M 36	4	200	56	-	28	22	5	32	●			
39	4	200	60	-	32	24	5	35	●			
42	4,5	200	60	-	32	24	5	37,5	●			
45	4,5	220	65	-	36	29	5	40,5	●			
48	5	250	70	-	36	29	5	43	●			
52	5	250	70	-	40	32	5	47	●			

A SERIES

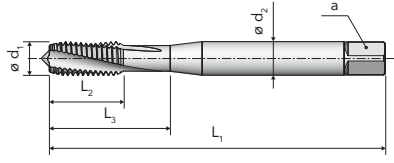


A29 6G BRIGHT

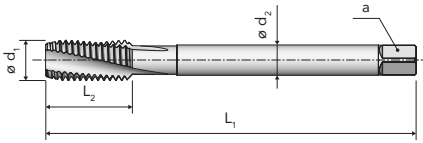
A29 6G TiN

A SERIES

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A29 6G BRIGHT	A29 6G TiN
P	P.1	● 18-20	● 30-35
	P.2	● 15-18	● 25-30
	P.3	● 12-15	● 20-25
	P.4	● 10-12	● 15-20
	P.5		● 5-10
K	K.2	● 12-15	● 20-25
N	N.1	● 18-20	
	N.2-3	● 15-18	● 25-30
	N.5	● 15-18	
	N.6	● 12-15	● 20-25

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

A29 6G BRIGHT

A29 6G TiN

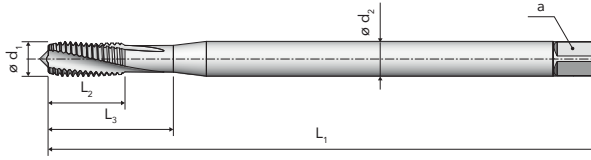
$\varnothing d_1$ [mm]	P [mm]	L_1 _{js 16} [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ _{h9} [mm]	a _{h12} [mm]	z [-]		A29 6G BRIGHT	A29 6G TiN
M 2	0,4	45	7	11	2,8	2,1	3	1,6	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,05	•	•
3	0,5	56	10	18	3,5	2,7	3	2,5	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	•	•
6	1	80	16	29	6	4,9	3	5	•	•
8	1,25	90	18	33	8	6,2	3	6,8	•	•
10	1,5	100	20	36	10	8	3	8,5	•	•
12	1,75	110	24	-	9	7	3	10,2	•	•
14	2	110	25	-	11	9	3	12	•	•

MACHINE TAPS for blind holes
15° spiral flutes / long shank

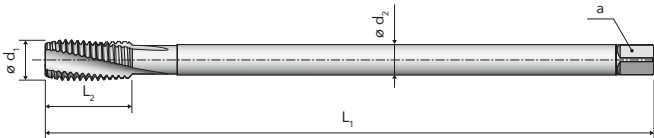
DIN 13



VERGNANO STANDARD ≤ M10



VERGNANO STANDARD ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A29 L BRIGHT	A29 L TiN		
P	P.1	• 18-20	• 30-35		
	P.2	• 15-18	• 25-30		
	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
K	K.2	• 12-15	• 20-25		
N	N.1	• 18-20			
	N.2-3	• 15-18	• 25-30		
	N.5	• 15-18			
	N.6	• 12-15	• 20-25		

Tolerance

Chamfer form

Hole type

Direction of cut

Through coolant

A29 L BRIGHT

A29 L TiN



ISO 2 6H

ISO 2 6H



Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]		[mm]
-------------	-----------	---------------------	------------	------------	-------------------	------------------	----------	--	------

A29 L BRIGHT

A29 L TiN

										A29 L BRIGHT	A29 L TiN		
M 4	0,7	112	12	21	4,5	3,4	3	3,3		•	•		
5	0,8	125	14	24,5	6	4,9	3	4,2		•	•		
6	1	125	16	29	6	4,9	3	5		•	•		
8	1,25	140	18	33	8	6,2	3	6,8		•	•		
10	1,5	160	20	36	10	8	3	8,5		•	•		
12	1,75	180	24	-	9	7	3	10,2		•	•		

A SERIES



DIN 13

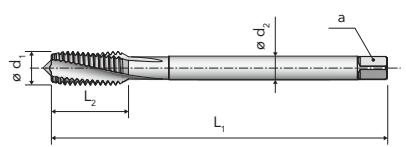
MACHINE TAPS for blind holes
15° spiral flutes / through shank



A29 DIN 376 BRIGHT A29 DIN 376 TiN

A SERIES

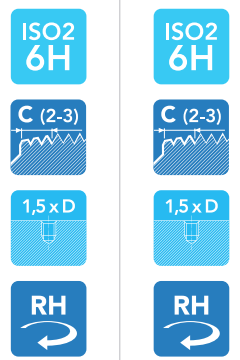
DIN 376



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A29 DIN 376 BRIGHT	A29 DIN 376 TiN
P	P.1	• 18-20	• 30-35
	P.2	• 15-18	• 25-30
	P.3	• 12-15	• 20-25
	P.4	• 10-12	• 15-20
	P.5		• 5-10
K	K.2	• 12-15	• 20-25
N	N.1	• 18-20	
	N.2-3	• 15-18	• 25-30
	N.5	• 15-18	
	N.6	• 12-15	• 20-25

Tolerance
Chamfer form
Hole type
Direction of cut
Through coolant



$\varnothing d_1$	P	L_1	L_2	L_3	$\varnothing d_2$	a	z	
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	_{h9} [mm]	_{h12} [mm]	[-]	[mm]

A29 DIN 376 BRIGHT A29 DIN 376 TiN

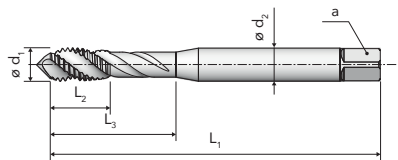
M 5	0,8	70	14	-	3,5	2,7	3	4,2	•	•
6	1	80	16	-	4,5	3,4	3	5	•	•
8	1,25	90	18	-	6	4,9	3	6,8	•	•
10	1,5	100	20	-	7	5,5	3	8,5	•	•

MACHINE TAPS for blind holes
40° spiral flutes / back tapered

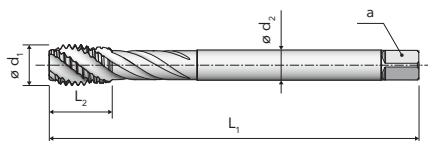
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A70 BRIGHT	A70 VAP	A70 TiN
P	P.1	• 12-15	• 12-15	• 25-30
	P.2	• 10-15	• 10-15	• 20-25
N	N.1	• 12-15	• 12-15	
	N.2	• 12-15	• 12-15	• 25-30
	N.5	• 10-12	• 10-12	
	N.6	• 10-12	• 10-12	• 20-25

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



A SERIES

$\varnothing d_1$ [mm]	P [mm]	L_1 js 16 [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z [-]		A70 BRIGHT	A70 VAP	A70 TiN
M 2	0,4	45	6	12	2,8	2,1	3	1,6	•	•	•
2,5	0,45	50	6,5	15	2,8	2,1	3	2,05	•	•	•
3	0,5	56	7	15	3,5	2,7	3	2,5	•	•	•
4	0,7	63	8,5	21	4,5	3,4	3	3,3	•	•	•
5	0,8	70	10	24,5	6	4,9	3	4,2	•	•	•
6	1	80	12	29	6	4,9	3	5	•	•	•
8	1,25	90	15	33	8	6,2	3	6,8	•	•	•
10	1,5	100	17,5	38	10	8	3	8,5	•	•	•
12	1,75	110	18	-	9	7	4	10,2	•	•	•
14	2	110	20,5	-	11	9	4	12	•	•	•
16	2	110	20,5	-	12	9	4	14	•	•	•
18	2,5	125	25,5	-	14	11	4	15,5	•	•	•
20	2,5	140	29,5	-	16	12	4	17,5	•	•	•
22	2,5	140	29,5	-	18	14,5	4	19,5	•	•	•
24	3	160	35,5	-	18	14,5	4	21	•	•	•
27	3	160	37,5	-	20	16	4	24	•	•	•
30	3,5	180	42	-	22	18	4	26,5	•	•	•
33	3,5	180	43,5	-	25	20	4	29,5	•	•	•
36	4	200	47	-	28	22	4	32	•	•	•

DIN 13

MACHINE TAPS for blind holes
40° spiral flutes / back tapered

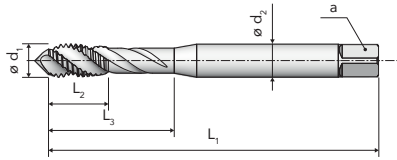


A70 6G
BRIGHT

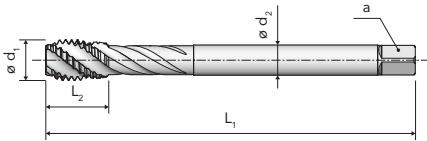
A70 6G
VAP

A70 6G
TiN

DIN 371 ≤ M10



DIN 376 ≥ M12



Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant

APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A70 6G BRIGHT	A70 6G VAP	A70 6G TiN
P	P.1	• 12-15	• 12-15	• 25-30
	P.2	• 10-15	• 10-15	• 20-25
N	N.1	• 12-15	• 12-15	
	N.2	• 12-15	• 12-15	• 25-30
	N.5	• 10-12	• 10-12	
	N.6	• 10-12	• 10-12	• 20-25

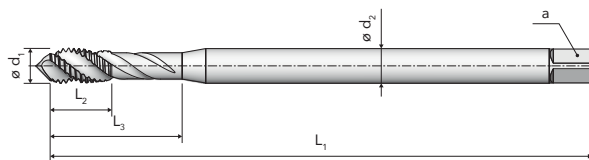
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		z	A70 6G BRIGHT	A70 6G VAP	A70 6G TiN
M 2	0,4	45	6	12	2,8	2,1	3	1,6		•	•	•
2,5	0,45	50	6,5	15	2,8	2,1	3	2,05		•	•	•
3	0,5	56	7	15	3,5	2,7	3	2,5		•	•	•
4	0,7	63	8,5	21	4,5	3,4	3	3,3		•	•	•
5	0,8	70	10	24,5	6	4,9	3	4,2		•	•	•
6	1	80	12	29	6	4,9	3	5		•	•	•
8	1,25	90	15	33	8	6,2	3	6,8		•	•	•
10	1,5	100	17,5	38	10	8	3	8,5		•	•	•
12	1,75	110	18	-	9	7	4	10,2		•	•	•

MACHINE TAPS for blind holes
40° spiral flutes / back tapered / long shank

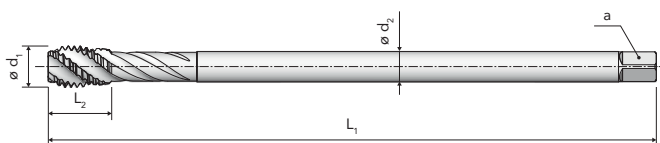
DIN 13



VERGNANO STANDARD \leq M10



VERGNANO STANDARD \geq M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A70 L BRIGHT	A70 L TIN		
P	P.1	• 12-15	• 25-30		
	P.2	• 10-15	• 20-25		
N	N.1	• 12-15			
	N.2	• 12-15	• 25-30		
	N.5	• 10-12			
	N.6	• 10-12	• 20-25		

Tolerance

Chamfer form

Hole type

Direction of cut

Through coolant

A70 L
BRIGHT

A70 L
TIN

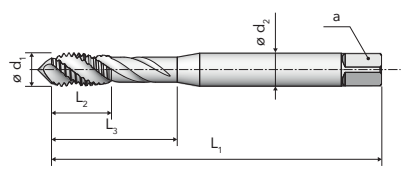


$\varnothing d_1$	P	L_1	L_2	L_3	$\varnothing d_2$	a	z			A70 L BRIGHT	A70 L TIN		
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	_{h9} [mm]	_{h12} [mm]	[-]	[mm]					
M 3	0,5	112	7	15	3,5	2,7	3	2,5		•	•		
4	0,7	112	8,5	21	4,5	3,4	3	3,3		•	•		
5	0,8	125	10	24,5	6	4,9	3	4,2		•	•		
6	1	125	12	29	6	4,9	3	5		•	•		
8	1,25	140	15	33	8	6,2	3	6,8		•	•		
10	1,5	160	17,5	38	10	8	3	8,5		•	•		
12	1,75	180	18	-	9	7	4	10,2		•	•		
16	2	200	20,5	-	12	9	4	14		•	•		
20	2,5	225	29,5	-	16	12	4	17,5		•	•		

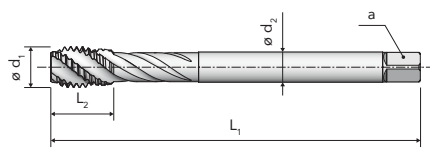
A
SERIES



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A70 K BRIGHT	A70 K TiN		
P	P.1	• 12-15	• 25-30		
	P.2	• 10-15	• 20-25		
	P.3	• 8-10	• 15-20		
K	K.2	• 8-10	• 15-20		
N	N.1	• 12-15			
	N.2	• 12-15	• 25-30		
	N.5	• 10-12			
	N.6	• 10-12	• 20-25		

Tolerance

Chamfer form

Hole type

Direction of cut

Through coolant

A70 K BRIGHT

A70 K TiN



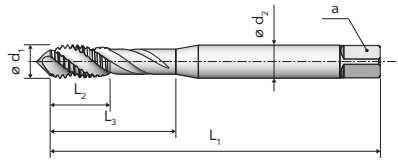
Ød ₁ [mm]	P [mm]	L ₁ <small>js 16</small> [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		Ød ₁ [mm]	P [mm]	L ₁ <small>js 16</small> [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A70 K BRIGHT	A70 K TiN		
M 3	0,5	56	7	15	3,5	2,7	3	2,5										•	•		
4	0,7	63	8,5	21	4,5	3,4	3	3,3										•	•		
5	0,8	70	10	24,5	6	4,9	3	4,2										•	•		
6	1	80	12	29	6	4,9	3	5										•	•		
8	1,25	90	15	33	8	6,2	3	6,8										•	•		
10	1,5	100	17,5	38	10	8	3	8,5										•	•		
12	1,75	110	18	-	9	7	4	10,2										•	•		
14	2	110	20,5	-	11	9	4	12										•	•		
16	2	110	20,5	-	12	9	4	14										•	•		
18	2,5	125	25,5	-	14	11	4	15,5										•	•		
20	2,5	140	29,5	-	16	12	4	17,5										•	•		

MACHINE TAPS for blind holes
40° spiral flutes / back tapered

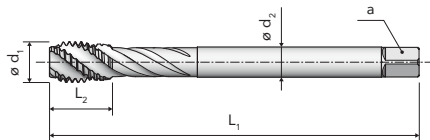
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M11



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A70 S BRIGHT	A70 S VAP	A70 S TiN	A70 S TiCN
P	P.3	● 12-15	● 12-15	● 20-25	● 20-25
	P.4	● 10-12	● 10-12	● 15-20	● 15-20
	P.5			● 5-10	● 5-10
	P.7			● 8-10	● 8-10
M	M.1			● 8-10	● 8-10
K	K.2	● 12-15	● 12-15	● 20-25	● 20-25
N	N.3	● 15-18	● 15-18	● 25-30	● 25-30
	N.6	● 15-18	● 15-18	● 25-30	● 25-30

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A70 S BRIGHT	A70 S VAP	A70 S TiN	A70 S TiCN
M 2	0,4	45	6	12	2,8	2,1	3	1,6	•	•	•	•
2,5	0,45	50	6,5	15	2,8	2,1	3	2,05	•	•	•	•
3	0,5	56	7	15	3,5	2,7	3	2,5	•	•	•	•
3,5	0,6	56	8	18,5	4	3	3	2,9	•	•	•	•
4	0,7	63	8,5	21	4,5	3,4	3	3,3	•	•	•	•
5	0,8	70	10	24,5	6	4,9	3	4,2	•	•	•	•
6	1	80	12	29	6	4,9	3	5	•	•	•	•
7	1	80	12	29	7	5,5	3	6	•	•	•	•
8	1,25	90	15	33	8	6,2	3	6,8	•	•	•	•
9	1,25	90	15	33	9	7	3	7,8	•	•	•	•
10	1,5	100	17,5	38	10	8	3	8,5	•	•	•	•
11	1,5	100	17,5	-	8	6,2	3	9,5	•	•	•	•
12	1,75	110	18	-	9	7	4	10,2	•	•	•	•
14	2	110	20,5	-	11	9	4	12	•	•	•	•
16	2	110	20,5	-	12	9	4	14	•	•	•	•
18	2,5	125	25,5	-	14	11	4	15,5	•	•	•	•
20	2,5	140	29,5	-	16	12	4	17,5	•	•	•	•
22	2,5	140	29,5	-	18	14,5	4	19,5	•	•	•	•
24	3	160	35,5	-	18	14,5	4	21	•	•	•	•
27	3	160	37,5	-	20	16	5	24	•	•	•	•
30	3,5	180	42	-	22	18	5	26,5	•	•	•	•
33	3,5	180	43,5	-	25	20	5	29,5	•	•	•	•
36	4	200	47	-	28	22	5	32	•	•	•	•
42	4,5	200	55	-	32	24	6	37,5	•	•	•	•
48	5	250	59,5	-	36	29	6	43	•	•	•	•
52	5	250	59,5	-	40	32	6	47	•	•	•	•

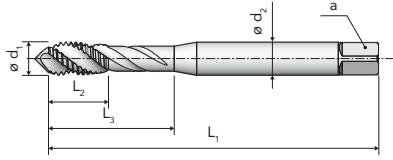
A SERIES



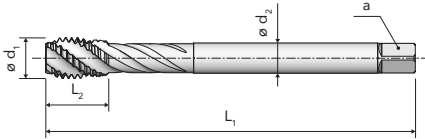
A70 S 4H
BRIGHT

A70 S 4H
TiN

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A70 S 4H BRIGHT	A70 S 4H TiN		
P	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
	P.7		• 8-10		
M	M.1		• 8-10		
K	K.2	• 12-15	• 20-25		
	N.3	• 15-18	• 25-30		
N	N.6	• 15-18	• 25-30		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant













Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A70 S 4H BRIGHT	A70 S 4H TiN
M 2	0,4	45	6	12	2,8	2,1	3	1,6										•	•
2,5	0,45	50	6,5	15	2,8	2,1	3	2,05										•	•
3	0,5	56	7	15	3,5	2,7	3	2,5										•	•
4	0,7	63	8,5	21	4,5	3,4	3	3,3										•	•
5	0,8	70	10	24,5	6	4,9	3	4,2										•	•
6	1	80	12	29	6	4,9	3	5										•	•
8	1,25	90	15	33	8	6,2	3	6,8										•	•
10	1,5	100	17,5	38	10	8	3	8,5										•	•
12	1,75	110	18	-	9	7	4	10,2										•	•

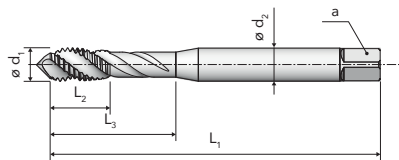
MACHINE TAPS for blind holes
40° spiral flutes / back tapered

DIN 13

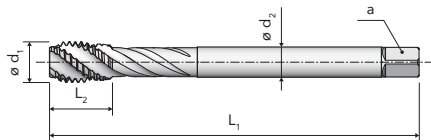


	A70 S 6G BRIGHT	A70 S 6G TiN		
				
				
				
				
				
	—	—		

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A70 S 6G BRIGHT	A70 S 6G TiN		
P	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
	P.7		• 8-10		
M	M.1		• 8-10		
K	K.2	• 12-15	• 20-25		
N	N.3	• 15-18	• 25-30		
	N.6	• 15-18	• 25-30		

Tolerance


Chamfer form

Hole type

Direction of cut

Through coolant

A
SERIES

Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]	 [mm]	A70 S 6G BRIGHT	A70 S 6G TiN		
M 3	0,5	56	7	15	3,5	2,7	3	2,5	•	•		
4	0,7	63	8,5	21	4,5	3,4	3	3,3	•	•		
5	0,8	70	10	24,5	6	4,9	3	4,2	•	•		
6	1	80	12	29	6	4,9	3	5	•	•		
8	1,25	90	15	33	8	6,2	3	6,8	•	•		
10	1,5	100	17,5	38	10	8	3	8,5	•	•		
12	1,75	110	18	-	9	7	4	10,2	•	•		
14	2	110	20,5	-	11	9	4	12	•	•		
16	2	110	20,5	-	12	9	4	14	•	•		

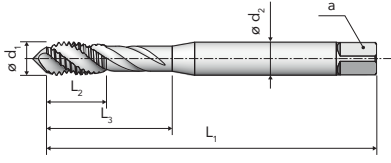


A70 S 7G
BRIGHT

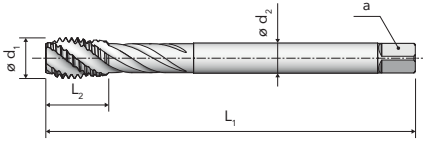
A70 S 7G
TiN

A
SERIES

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A70 S 7G BRIGHT	A70 S 7G TiN
P	P.3	• 12-15	• 20-25
	P.4	• 10-12	• 15-20
	P.5		• 5-10
	P.7		• 8-10
M	M.1		• 8-10
K	K.2	• 12-15	• 20-25
	N.3	• 15-18	• 25-30
N	N.6	• 15-18	• 25-30

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

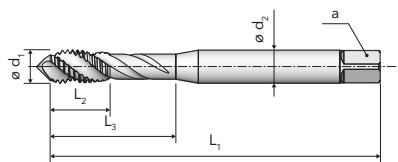
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A70 S 7G BRIGHT	A70 S 7G TiN
M 3	0,5	56	7	15	3,5	2,7	3	2,5	•	•									
4	0,7	63	8,5	21	4,5	3,4	3	3,3	•	•									
5	0,8	70	10	24,5	6	4,9	3	4,2	•	•									
6	1	80	12	29	6	4,9	3	5	•	•									
8	1,25	90	15	33	8	6,2	3	6,8	•	•									
10	1,5	100	17,5	38	10	8	3	8,5	•	•									
12	1,75	110	18	-	9	7	4	10,2	•	•									
14	2	110	20,5	-	11	9	4	12	•	•									
16	2	110	20,5	-	12	9	4	14	•	•									

MACHINE TAPS for blind holes 40° spiral flutes / back tapered

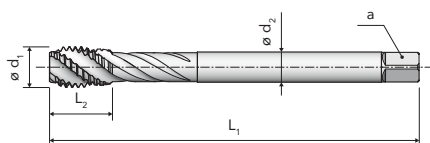
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A701 S BRIGHT	A701 S TiN
P	P.3	● 12-15	● 20-25
	P.4	● 10-12	● 15-20
	P.5		● 5-10
	P.7		● 8-10
M	M.1		● 8-10
K	K.2	● 12-15	● 20-25
	N.3	● 15-18	● 25-30
N	N.6	● 15-18	● 25-30

A701 S
BRIGHT

A701 S
TiN



Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant

	Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]		A701 S BRIGHT	A701 S TiN
NEW	M 4	0,7	63	8,5	21	4,5	3,4	3	3,3	•	•
	5	0,8	70	10	24,5	6	4,9	3	4,2	•	•
	6	1	80	12	29	6	4,9	3	5	•	•
	8	1,25	90	15	33	8	6,2	3	6,8	•	•
	10	1,5	100	17,5	38	10	8	3	8,5	•	•
	12	1,75	110	18	-	9	7	4	10,2	•	•
	14	2	110	20,5	-	11	9	4	12	•	•
	16	2	110	20,5	-	12	9	4	14	•	•

A SERIES

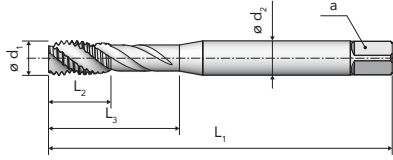
DIN 13 MACHINE TAPS for blind holes
40° spiral flutes / back tapered / chamfer form E



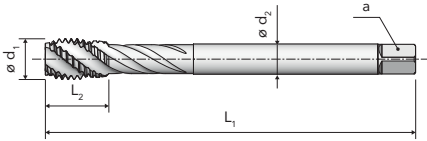
A70 SE
BRIGHT

A70 SE
TiN

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A70 SE BRIGHT	A70 SE TiN		
P	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
	P.7		• 8-10		
M	M.1		• 8-10		
K	K.2	• 12-15	• 20-25		
N	N.3	• 15-18	• 25-30		
	N.6	• 15-18	• 25-30		

Tolerance



Chamfer form



Hole type



Direction of cut



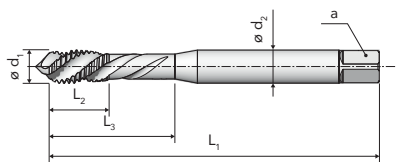
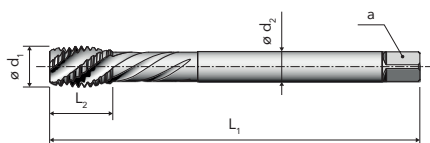
Through coolant



Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]	z [mm]	A70 SE BRIGHT	A70 SE TiN		
M 3	0,5	56	7	15	3,5	2,7	3	2,5	•	•		
4	0,7	63	8,5	21	4,5	3,4	3	3,3	•	•		
5	0,8	70	10	24,5	6	4,9	3	4,2	•	•		
6	1	80	12	29	6	4,9	3	5	•	•		
8	1,25	90	15	33	8	6,2	3	6,8	•	•		
10	1,5	100	17,5	38	10	8	3	8,5	•	•		
12	1,75	110	18	-	9	7	4	10,2	•	•		
16	2	110	20,5	-	12	9	4	14	•	•		

MACHINE TAPS for blind holes
 40° spiral flutes / back tapered

DIN 13

NEW
A70 S LH
BRIGHT
NEW
A70 S LH
TiN
DIN 371 ≤ M10

DIN 376 ≥ M12


APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A70 S LH BRIGHT	A70 S LH TiN		
P	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
	P.7		• 8-10		
M	M.1		• 8-10		
K	K.2	• 12-15	• 20-25		
N	N.3	• 15-18	• 25-30		
	N.6	• 15-18	• 25-30		

Tolerance

ISO2
6H
ISO2
6H

Chamfer form

C (2-3)
C (2-3)

Hole type

2,5 x D
2,5 x D

Direction of cut

LH
LH

Through coolant

—

—

Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]	[mm]	A70 S LH BRIGHT	A70 S LH TiN		
M 3	0,5	56	7	15	3,5	2,7	3	2,5	•	•		
4	0,7	63	8,5	21	4,5	3,4	3	3,3	•	•		
5	0,8	70	10	24,5	6	4,9	3	4,2	•	•		
6	1	80	12	29	6	4,9	3	5	•	•		
8	1,25	90	15	33	8	6,2	3	6,8	•	•		
10	1,5	100	17,5	38	10	8	3	8,5	•	•		
12	1,75	110	18	-	9	7	4	10,2	•	•		
16	2	110	20,5	-	12	9	4	14	•	•		
20	2,5	140	29,5	-	16	12	4	17,5	•	•		

A SERIES

DIN 13 MACHINE TAPS for blind holes
40° spiral flutes / back tapered / through shank

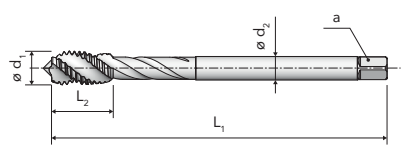


A76 S BRIGHT

A76 S TiN

A SERIES

DIN 376



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A76 S BRIGHT	A76 S TiN		
P	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
	P.7		• 8-10		
M	M.1		• 8-10		
K	K.2	• 12-15	• 20-25		
	N.3	• 15-18	• 25-30		
N	N.6	• 15-18	• 25-30		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

A76 S BRIGHT

A76 S TiN

Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z			
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]		

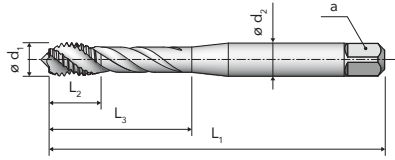
M 4	0,7	63	8,5	-	2,8	2,1	3	3,3	•	•
5	0,8	70	10	-	3,5	2,7	3	4,2	•	•
6	1	80	12	-	4,5	3,4	3	5	•	•
8	1,25	90	15	-	6	4,9	3	6,8	•	•
10	1,5	100	17,5	-	7	5,5	3	8,5	•	•

MACHINE TAPS for blind holes
 40° spiral flutes / back tapered

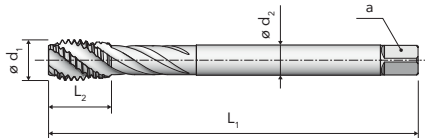
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A120 BRIGHT	A120 VAP	A120 TiN
P	P.3	• 12-15	• 12-15	• 20-25
	P.4	• 10-12	• 10-12	• 15-20
	P.5			• 5-10
	P.7			• 8-10
M	M.1			• 8-10
K	K.2	• 12-15	• 12-15	• 20-25
N	N.3	• 15-18	• 15-18	• 25-30
	N.6	• 15-18	• 15-18	• 25-30

A120 BRIGHT

A120 VAP

A120 TiN



ISO2 6H

ISO2 6H

ISO2 6H

Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant



Ød1	P	L1	L2	L3	Ød2	a	z		A120 BRIGHT	A120 VAP	A120 TiN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]			
M 2	0,4	45	5	14	2,8	2,1	3	1,6	•	•	•
2,5	0,45	50	5	18	2,8	2,1	3	2,05	•	•	•
3	0,5	56	5	21	3,5	2,7	3	2,5	•	•	•
4	0,7	63	5	27	4,5	3,4	3	3,3	•	•	•
5	0,8	70	6,5	30	6	4,9	3	4,2	•	•	•
6	1	80	7	34,5	6	4,9	3	5	•	•	•
8	1,25	90	9	38,5	8	6,2	3	6,8	•	•	•
10	1,5	100	11	43	10	8	3	8,5	•	•	•
12	1,75	110	13	-	9	7	3	10,2	•	•	•
14	2	110	16,5	-	11	9	3	12	•	•	•
16	2	110	19,5	-	12	9	3	14	•	•	•
18	2,5	125	24	-	14	11	3	15,5	•	•	•
20	2,5	140	25,5	-	16	12	3	17,5	•	•	•
22	2,5	140	25,5	-	18	14,5	3	19,5	•	•	•
24	3	160	32	-	18	14,5	3	21	•	•	•

A SERIES

DIN 13 MACHINE TAPS for blind holes 40° spiral flutes / for stainless steel

R40 2,5 x D HSSE

A170 VAP

A170 TiX2



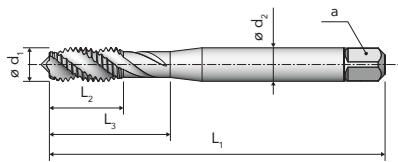
ISO2 6H

ISO2 6H

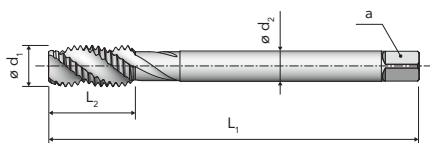


Through coolant

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A170 VAP	A170 TiX2
P	P.7	● 6-8	● 8-10
M	M.1	● 6-8	● 8-10
	M.2		● 5-7

Tolerance

Chamfer form

Hole type

Direction of cut

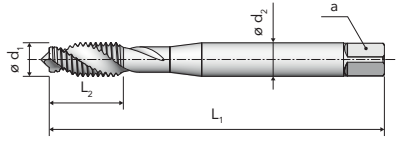
Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z	z	z	A170 VAP	A170 TiX2
[mm]	[mm]	js 16 [mm]	[mm]	[mm]	[mm]	h12 [mm]	[-]	[mm]	[mm]		
M 3	0,5	56	10	18	3,5	2,7	3	2,5	2,5	•	•
4	0,7	63	12	21	4,5	3,4	3	3,3	3,3	•	•
5	0,8	70	14	24,5	6	4,9	3	4,2	4,2	•	•
6	1	80	16	29	6	4,9	3	5	5	•	•
8	1,25	90	18	33	8	6,2	3	6,8	6,8	•	•
10	1,5	100	20	36	10	8	3	8,5	8,5	•	•
12	1,75	110	24	-	9	7	3	10,2	10,2	•	•
14	2	110	25	-	11	9	4	12	12	•	•
16	2	110	28	-	12	9	4	14	14	•	•
18	2,5	125	32	-	14	11	4	15,5	15,5	•	•
20	2,5	140	32	-	16	12	4	17,5	17,5	•	•

MACHINE TAPS for blind holes
Two 40° spiral flutes / for light alloys

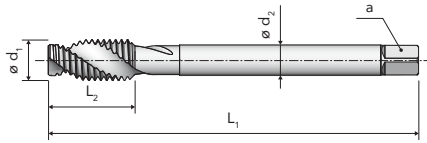
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M11



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A62 BRIGHT	A62 TiH1		
N	N.1-2	• 12-15	• 25-30		
	N.5-6	• 10-12	• 20-25		
S	S.1	• 6-8	• 10-12		
	S.3	• 6-8	• 10-12		

A62 BRIGHT

A62 TiH1



ISO2 6H

ISO2 6H



Tolerance

Chamfer form

Hole type

Direction of cut

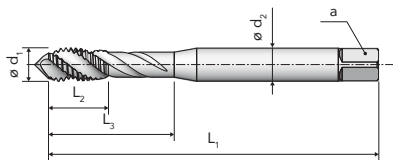
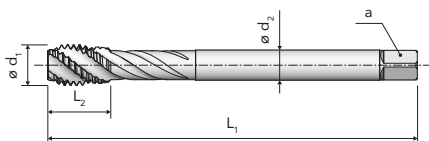
Through coolant

Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]	z [mm]	A62 BRIGHT	A62 TiH1
M 2	0,4	45	7	11	2,8	2,1	2	1,6	•	•
2,2	0,45	45	8	13	2,8	2,1	2	1,75	•	•
2,3	0,4	45	8	13	2,8	2,1	2	1,9	•	•
2,5	0,45	50	9	15	2,8	2,1	2	2,05	•	•
2,6	0,45	50	9	15	2,8	2,1	2	2,1	•	•
3	0,5	56	10	18	3,5	2,7	2	2,5	•	•
3,5	0,6	56	11	20	4	3	2	2,9	•	•
4	0,7	63	12	21	4,5	3,4	2	3,3	•	•
5	0,8	70	14	24,5	6	4,9	2	4,2	•	•
6	1	80	16	29	6	4,9	2	5	•	•
7	1	80	16	29	7	5,5	2	6	•	•
8	1,25	90	18	33	8	6,2	2	6,8	•	•
9	1,25	90	18	33	9	7	2	7,8	•	•
10	1,5	100	20	36	10	8	2	8,5	•	•
11	1,5	100	20	-	8	6,2	2	9,5	•	•
12	1,75	110	24	-	9	7	2	10,2	•	•
14	2	110	25	-	11	9	2	12	•	•
16	2	110	28	-	12	9	3	14	•	•

NEW

A SERIES

DIN 13 MACHINE TAPS for blind holes
 40° spiral flutes / back tapered / for light alloys

**A72
BRIGHT**
**A72
TiH1**
DIN 371 ≤ M10

DIN 376 ≥ M12


APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A72 BRIGHT	A72 TiH1
P	P.1	● 12-15	● 25-30
N	N.1-2	● 12-15	● 25-30
	N.3	● 10-12	● 20-25
	N.5	● 10-12	● 20-25
	N.6	● 10-12	● 20-25

Tolerance

ISO2
6HISO2
6H

Chamfer form



Hole type

Direction
of cut

Through coolant

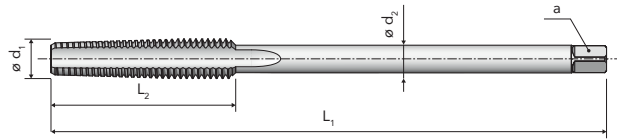


ϕd_1	P	L_1	L_2	L_3	ϕd_2	a	z		A72 BRIGHT	A72 TiH1
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	[mm]	^{h12} [mm]	[-]	[mm]		
M 3	0,5	56	7	15	3,5	2,7	3	2,5	•	•
4	0,7	63	8,5	21	4,5	3,4	3	3,3	•	•
5	0,8	70	10	24,5	6	4,9	3	4,2	•	•
6	1	80	12	29	6	4,9	3	5	•	•
8	1,25	90	15	33	8	6,2	3	6,8	•	•
10	1,5	100	17,5	38	10	8	3	8,5	•	•
12	1,75	110	18	-	9	7	3	10,2	•	•
14	2	110	20,5	-	11	9	3	12	•	•
16	2	110	20,5	-	12	9	3	14	•	•
18	2,5	125	25,5	-	14	11	3	15,5	•	•
20	2,5	140	29,5	-	16	12	3	17,5	•	•

MACHINE NUT TAPS
Straight flutes



DIN 357



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A9 BRIGHT			
P	P.1	• 18-20			
	P.2	• 15-18			
	P.3	• 12-15			

Tolerance

Chamfer form

Hole type

Direction of cut

Through coolant

A9
BRIGHT



$\varnothing d_1$ [mm]	P [mm]	L_1 js 16 [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z [-]		$\varnothing d_1$ [mm]	A9 BRIGHT
M 4	0,7	90	25	-	2,8	2,1	3	3,3		•
5	0,8	100	28	-	3,5	2,7	3	4,2		•
6	1	110	32	-	4,5	3,4	3	5		•
8	1,25	125	40	-	6	4,9	3	6,8		•
10	1,5	140	45	-	7	5,5	3	8,5		•
12	1,75	180	50	-	9	7	3	10,2		•
14	2	200	56	-	11	9	3	12		•
16	2	200	63	-	12	9	3	14		•
18	2,5	220	63	-	14	11	3	15,5		•
20	2,5	250	70	-	16	12	3	17,5		•
22	2,5	280	80	-	18	14,5	3	19,5		•
24	3	280	80	-	18	14,5	3	21		•
27	3	315	90	-	20	16	3	24		•
30	3,5	315	100	-	22	18	3	26,5		•

A
SERIES

COLD FORMING TAPS for blind holes and through holes
Without oil grooves

DIN 13

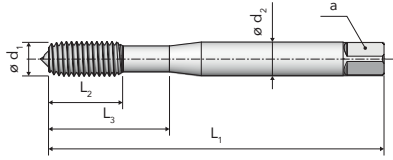


A80 VAP

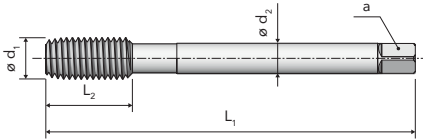
A80 TiN

A80 TiCN

DIN 2174 (371) ≤ M10



DIN 2174 (376) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A80 VAP	A80 TiN	A80 TiCN
P	P.1-2	• 20-25	• 40-45	• 40-45
	P.3	• 15-20	• 35-40	• 35-40
N	N.1	• 20-25	• 40-45	• 40-45
	N.2		• 40-45	• 40-45
	N.3		• 35-40	• 35-40
	N.5	• 20-25	• 40-45	• 40-45
	N.6		• 40-45	• 40-45

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



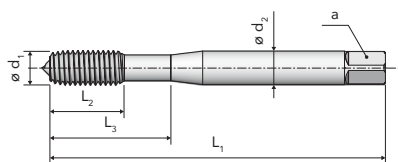
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A80 VAP	A80 TiN	A80 TiCN
M 2	0,4	45	7	11	2,8	2,1	3	1,85	•	•	•	•	•	•	•	•	•	•	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,3	•	•	•	•	•	•	•	•	•	•	•	•
3	0,5	56	10	18	3,5	2,7	4	2,8	•	•	•	•	•	•	•	•	•	•	•	•
3,5	0,6	56	11	20	4	3	4	3,25	•	•	•	•	•	•	•	•	•	•	•	•
4	0,7	63	12	21	4,5	3,4	5	3,7	•	•	•	•	•	•	•	•	•	•	•	•
5	0,8	70	14	24,5	6	4,9	5	4,65	•	•	•	•	•	•	•	•	•	•	•	•
6	1	80	16	29	6	4,9	5	5,55	•	•	•	•	•	•	•	•	•	•	•	•
8	1,25	90	18	33	8	6,2	5	7,4	•	•	•	•	•	•	•	•	•	•	•	•
10	1,5	100	20	36	10	8	5	9,3	•	•	•	•	•	•	•	•	•	•	•	•
12	1,75	110	24	-	9	7	5	11,2	•	•	•	•	•	•	•	•	•	•	•	•
14	2	110	25	-	11	9	6	13,1	•	•	•	•	•	•	•	•	•	•	•	•
16	2	110	28	-	12	9	6	15,1	•	•	•	•	•	•	•	•	•	•	•	•

COLD FORMING TAPS for blind holes and through holes
Without oil grooves

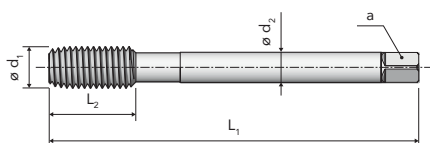
DIN 13



DIN 2174 (371) ≤ M10



DIN 2174 (376) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A80 6GX VAP	A80 6GX TiN	A80 6GX TiCN
P	P.1-2	● 20-25	● 40-45	● 40-45
	P.3	● 15-20	● 35-40	● 35-40
N	N.1	● 20-25	● 40-45	● 40-45
	N.2		● 40-45	● 40-45
	N.3		● 35-40	● 35-40
	N.5	● 20-25	● 40-45	● 40-45
	N.6		● 40-45	● 40-45

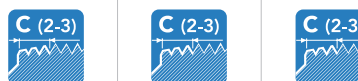
A80 6GX VAP A80 6GX TiN A80 6GX TiCN



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z		A80 6GX VAP	A80 6GX TiN	A80 6GX TiCN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	[mm]	[mm]	[-]	[mm]			
M 2	0,4	45	7	11	2,8	2,1	3	1,85	•	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,3	•	•	•
3	0,5	56	10	18	3,5	2,7	4	2,8	•	•	•
3,5	0,6	56	11	20	4	3	4	3,25	•	•	•
4	0,7	63	12	21	4,5	3,4	5	3,7	•	•	•
5	0,8	70	14	24,5	6	4,9	5	4,65	•	•	•
6	1	80	16	29	6	4,9	5	5,55	•	•	•
8	1,25	90	18	33	8	6,2	5	7,4	•	•	•
10	1,5	100	20	36	10	8	5	9,3	•	•	•
12	1,75	110	24	-	9	7	5	11,2	•	•	•
14	2	110	25	-	11	9	6	13,1	•	•	•
16	2	110	28	-	12	9	6	15,1	•	•	•

A SERIES

COLD FORMING TAPS for blind holes and through holes

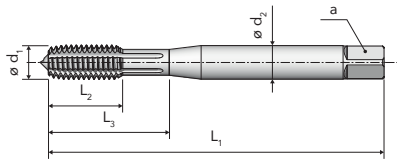
With oil grooves



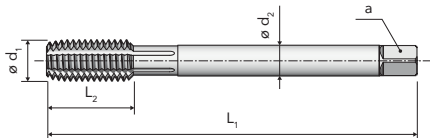
HSSE

A80 N
VAPA80 N
TiNA80 N
TiCN

DIN 2174 (371) ≤ M10



DIN 2174 (376) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A80 N VAP	A80 N TiN	A80 N TiCN
P	P.1-2	● 20-25	● 40-45	● 40-45
	P.3	● 15-20	● 35-40	● 35-40
N	N.1	● 20-25	● 40-45	● 40-45
	N.2		● 40-45	● 40-45
	N.3		● 35-40	● 35-40
	N.5	● 20-25	● 40-45	● 40-45
	N.6		● 40-45	● 40-45

Tolerance

6HX

6HX

6HX

Chamfer form

C (2-3)

C (2-3)

C (2-3)

Hole type

2,5 x D

2,5 x D

2,5 x D

Direction
of cut

RH

RH

RH

Through coolant

—

—

—

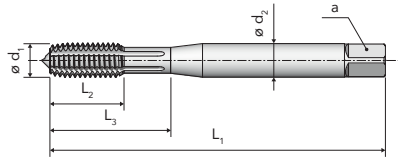
Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z	⌀	A80 N VAP	A80 N TiN	A80 N TiCN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	[mm]	^{h12} [mm]	[-]	[mm]			
M 2	0,4	45	7	11	2,8	2,1	3	1,85	•	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,3	•	•	•
3	0,5	56	10	18	3,5	2,7	4	2,8	•	•	•
3,5	0,6	56	11	20	4	3	4	3,25	•	•	•
4	0,7	63	12	21	4,5	3,4	5	3,7	•	•	•
5	0,8	70	14	24,5	6	4,9	5	4,65	•	•	•
6	1	80	16	29	6	4,9	5	5,55	•	•	•
8	1,25	90	18	33	8	6,2	5	7,4	•	•	•
10	1,5	100	20	36	10	8	5	9,3	•	•	•
12	1,75	110	24	-	9	7	5	11,2	•	•	•
14	2	110	25	-	11	9	6	13,1	•	•	•
16	2	110	28	-	12	9	6	15,1	•	•	•
18	2,5	125	28	-	14	11	8	16,9	•	•	•
20	2,5	140	30	-	16	12	8	18,9	•	•	•

COLD FORMING TAPS for blind holes and through holes
With oil grooves

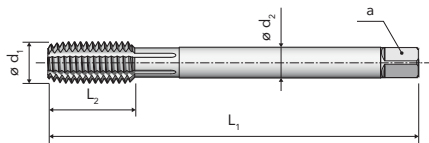
DIN 13



DIN 2174 (371) ≤ M10



DIN 2174 (376) ≤ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A80 N 6GX VAP	A80 N 6GX TiN	A80 N 6GX TiCN
P	P.1-2	● 20-25	● 40-45	● 40-45
	P.3	● 15-20	● 35-40	● 35-40
N	N.1	● 20-25	● 40-45	● 40-45
	N.2		● 40-45	● 40-45
	N.3		● 35-40	● 35-40
	N.5	● 20-25	● 40-45	● 40-45
	N.6		● 40-45	● 40-45

A80 N 6GX VAP

A80 N 6GX TiN

A80 N 6GX TiCN



Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A80 N 6GX VAP	A80 N 6GX TiN	A80 N 6GX TiCN
M 2	0,4	45	7	11	2,8	2,1	3	1,85	•	•	•
2,5	0,45	50	9	15	2,8	2,1	3	2,3	•	•	•
3	0,5	56	10	18	3,5	2,7	4	2,8	•	•	•
3,5	0,6	56	11	20	4	3	4	3,25	•	•	•
4	0,7	63	12	21	4,5	3,4	5	3,7	•	•	•
5	0,8	70	14	24,5	6	4,9	5	4,65	•	•	•
6	1	80	16	29	6	4,9	5	5,55	•	•	•
8	1,25	90	18	33	8	6,2	5	7,4	•	•	•
10	1,5	100	20	36	10	8	5	9,3	•	•	•
12	1,75	110	24	-	9	7	5	11,2	•	•	•
14	2	110	25	-	11	9	6	13,1	•	•	•
16	2	110	28	-	12	9	6	15,1	•	•	•

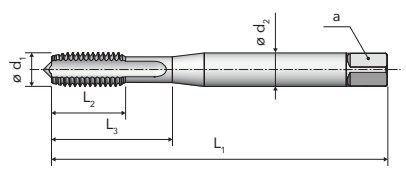
A SERIES



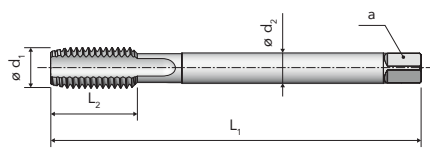
A190 BRIGHT

A SERIES

DIN 40435 ≤ EG-M8



DIN 40435 ≥ EG-M10



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A190 BRIGHT			
P	P.2	• 10-12			
	P.3	• 8-10			
K	K.2	• 8-10			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]	z [mm]	
-------------------------	-----------	---------------------------------	------------------------	------------------------	-------------------------------	------------------	----------	-----------	--

A190 BRIGHT

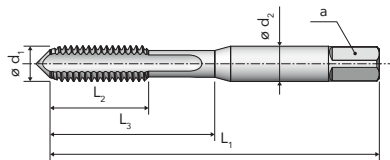
EGM 3	0,5	63	12	17	4,5	3,4	3	3,15	•
4	0,7	70	14	24,5	6	4,9	3	4,2	•
5	0,8	80	16	29	6	4,9	3	5,25	•
6	1	90	18	33	8	6,2	3	6,3	•
8	1,25	100	20	36	10	8	3	8,4	•
10	1,5	100	22	-	9	7	3	10,5	•
12	1,75	110	25	-	11	9	3	12,5	•
14	2	110	28	-	12	9	3	14,5	•
16	2	125	28	-	14	11	4	16,5	•

HAND TAPS for blind holes and through holes
In sets of two pieces

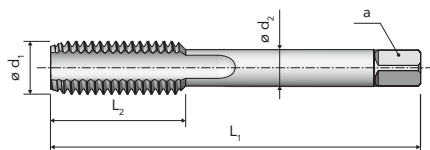
DIN 13



DIN 2181 ≤ M6



DIN 2181 ≥ M7



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A2 ROUGHING	A2 FINISHING	A2 SET
P	P.1-4	•	•	•
	P.7	•	•	•
K	K.2	•	•	•
N	N.1-3	•	•	•
	N.5-7	•	•	•

A2 ROUGHING

A2 FINISHING

A2 SET



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



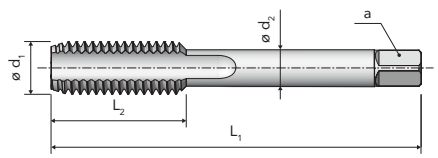
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A2 ROUGHING	A2 FINISHING	A2 SET
M 2	0,25	36	7,5	12	2,8	2,1	3	1,75	•	•	•
2,3	0,25	36	8,5	13,5	2,8	2,1	3	2,05	•	•	•
2,5	0,35	40	8,5	14,5	2,8	2,1	3	2,15	•	•	•
2,6	0,35	40	8,5	14,5	2,8	2,1	3	2,25	•	•	•
3	0,35	40	8	18	3,5	2,7	3	2,65	•	•	•
3,5	0,35	45	9	19	4	3	3	3,15	•	•	•
4	0,5	45	10	21	4,5	3,4	3	3,5	•	•	•
4,5	0,5	50	12	23	6	4,9	3	4	•	•	•
5	0,5	50	12	24	6	4,9	3	4,5	•	•	•
6	0,5	56	14	28	6	4,9	3	5,5	•	•	•
6	0,75	56	14	28	6	4,9	3	5,2	•	•	•
7	0,75	56	14	-	6	4,9	3	6,2	•	•	•
8	0,75	56	18	-	6	4,9	3	7,2	•	•	•
8	1	63	22	-	6	4,9	3	7	•	•	•
9	1	63	22	-	7	5,5	3	8	•	•	•
10	0,75	63	20	-	7	5,5	4	9,2	•	•	•
10	1	63	20	-	7	5,5	4	9	•	•	•
10	1,25	70	24	-	7	5,5	3	8,8	•	•	•
11	1	63	20	-	8	6,2	4	10	•	•	•
12	0,75	70	22	-	9	7	4	11,2	•	•	•
12	1	70	22	-	9	7	4	11	•	•	•
12	1,25	70	22	-	9	7	4	10,8	•	•	•
12	1,5	70	22	-	9	7	4	10,5	•	•	•
14	1	70	22	-	11	9	4	13	•	•	•
14	1,25	70	22	-	11	9	4	12,8	•	•	•
14	1,5	70	22	-	11	9	4	12,5	•	•	•

A SERIES



A2 ROUGHING A2 FINISHING A2 SET

DIN 2181



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A2 ROUGHING	A2 FINISHING	A2 SET
P	P.1-4	•	•	•
	P.7	•	•	•
K	K.2	•	•	•
N	N.1-3	•	•	•
	N.5-7	•	•	•

Tolerance: — ISO2 6H ISO2 6H

Chamfer form: A (5-6) C (2-3) C (2-3)

Hole type: 2,5 x D 2,5 x D 2,5 x D

Direction of cut: RH RH RH

Through coolant: — — —

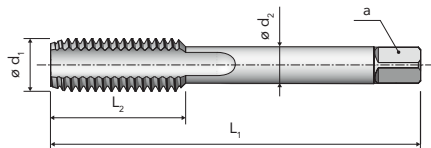
Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z	z	A2 ROUGHING	A2 FINISHING	A2 SET
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]			
M 15	1	70	22	-	12	9	4	14	•	•	•
15	1,5	70	22	-	12	9	4	13,5	•	•	•
16	1	70	22	-	12	9	4	15	•	•	•
16	1,25	70	22	-	12	9	4	14,8	•	•	•
16	1,5	70	22	-	12	9	4	14,5	•	•	•
18	1	80	22	-	14	11	4	17	•	•	•
18	1,5	80	22	-	14	11	4	16,5	•	•	•
18	2	80	22	-	14	11	4	16	•	•	•
20	1	80	22	-	16	12	4	19	•	•	•
20	1,5	80	22	-	16	12	4	18,5	•	•	•
20	2	80	22	-	16	12	4	18	•	•	•
22	1	80	22	-	18	14,5	4	21	•	•	•
22	1,5	80	22	-	18	14,5	4	20,5	•	•	•
22	2	80	22	-	18	14,5	4	20	•	•	•
24	1	90	22	-	18	14,5	4	23	•	•	•
24	1,5	90	22	-	18	14,5	4	22,5	•	•	•
24	2	90	22	-	18	14,5	4	22	•	•	•
25	1,5	90	22	-	18	14,5	4	23,5	•	•	•
25	2	90	22	-	18	14,5	4	23	•	•	•
26	1,5	90	22	-	18	14,5	4	24,5	•	•	•
26	2	90	22	-	18	14,5	4	24	•	•	•
27	1,5	90	22	-	20	16	4	25,5	•	•	•
27	2	90	22	-	20	16	4	25	•	•	•
28	1,5	90	22	-	20	16	4	26,5	•	•	•
28	2	90	22	-	20	16	4	26	•	•	•
30	1,5	90	22	-	22	18	4	28,5	•	•	•

HAND TAPS for blind holes and through holes
In sets of two pieces

DIN 13



DIN 2181



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A2 ROUGHING	A2 FINISHING	A2 SET
P	P.1-4	●	●	●
	P.7	●	●	●
K	K.2	●	●	●
N	N.1-3	●	●	●
	N.5-7	●	●	●

	A2 ROUGHING	A2 FINISHING	A2 SET
Tolerance	—	ISO2 6H	ISO2 6H
Chamfer form	A (5-6)	C (2-3)	C (2-3)
Hole type	2,5 x D	2,5 x D	2,5 x D
Direction of cut	RH	RH	RH
Through coolant	—	—	—

A SERIES

Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]		A2 ROUGHING	A2 FINISHING	A2 SET
M 30	2	90	22	-	22	18	4	28	●	●	●
32	1,5	90	22	-	22	18	5	30,5	●	●	●
32	2	90	22	-	22	18	4	30	●	●	●
33	2	100	25	-	25	20	4	31	●	●	●
35	1,5	100	25	-	28	22	5	33,5	●	●	●
35	2	125	30	-	28	22	5	33	●	●	●
36	1,5	100	25	-	28	22	5	34,5	●	●	●
36	2	125	30	-	28	22	5	34	●	●	●
36	3	125	40	-	28	22	4	33	●	●	●
38	1,5	100	25	-	28	22	5	36,5	●	●	●
39	2	125	32	-	32	24	5	37	●	●	●
39	3	125	40	-	32	24	4	36	●	●	●
40	1,5	110	25	-	32	24	6	38,5	●	●	●
40	2	125	32	-	32	24	5	38	●	●	●
40	3	125	40	-	32	24	4	37	●	●	●
42	1,5	110	25	-	32	24	6	40,5	●	●	●
42	2	125	32	-	32	24	5	40	●	●	●
42	3	125	40	-	32	24	4	39	●	●	●
45	1,5	110	25	-	36	29	6	43,5	●	●	●
45	2	125	32	-	36	29	5	43	●	●	●
45	3	125	40	-	36	29	5	42	●	●	●
48	1,5	140	25	-	36	29	6	46,5	●	●	●
48	2	140	32	-	36	29	6	46	●	●	●
48	3	140	40	-	36	29	5	45	●	●	●

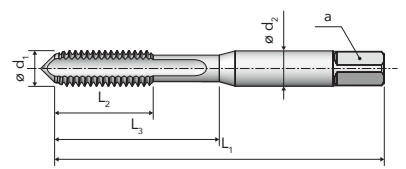


A2 LH
ROUGHING

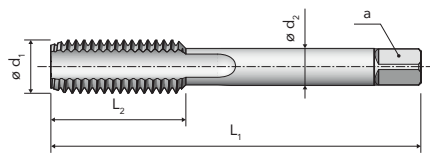
A2 LH
FINISHING

A2 LH
SET

DIN 2181 ≤ M6



DIN 2181 ≥ M8



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A2 LH ROUGHING	A2 LH FINISHING	A2 LH SET
P	P.1-4	•	•	•
	P.7	•	•	•
K	K.2	•	•	•
N	N.1-3	•	•	•
	N.5-7	•	•	•

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



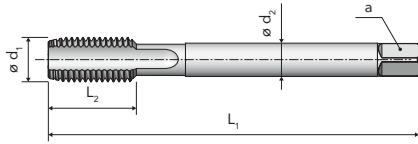
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]			
										A2 LH ROUGHING			A2 LH FINISHING			A2 LH SET												
M 4	0,5	45	10	21	4,5	3,4	3	3,5	•	•	•																	
5	0,5	50	12	24	6	4,9	3	4,5	•	•	•																	
6	0,75	56	14	28	6	4,9	3	5,2	•	•	•																	
8	1	63	22	-	6	4,9	3	7	•	•	•																	
10	1	63	20	-	7	5,5	4	9	•	•	•																	
10	1,25	70	24	-	7	5,5	3	8,8	•	•	•																	
11	1	63	20	-	8	6,2	4	10	•	•	•																	
12	1	70	22	-	9	7	4	11	•	•	•																	
12	1,25	70	22	-	9	7	4	10,8	•	•	•																	
12	1,5	70	22	-	9	7	4	10,5	•	•	•																	
14	1,5	70	22	-	11	9	4	12,5	•	•	•																	
16	1,5	70	22	-	12	9	4	14,5	•	•	•																	
18	1,5	80	22	-	14	11	4	16,5	•	•	•																	
20	1,5	80	22	-	16	12	4	18,5	•	•	•																	

MACHINE TAPS for blind holes
Straight flutes

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A23 FC BRIGHT	A23 FC TiN	A23 FC LH BRIGHT
P	P.1		• 20-25	
	P.2	• 10-12	• 15-20	• 10-12
	P.3	• 8-10	• 12-15	• 8-10
K	K.2	• 8-10	• 12-15	• 8-10
N	N.1		• 20-25	
	N.5		• 15-20	

A23 FC BRIGHT

A23 FC TiN

A23 FC LH BRIGHT



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		z [mm]	A23 FC BRIGHT	A23 FC TiN	A23 FC LH BRIGHT
M 3	0,35	56	8	-	2,2	-	3	2,65		•		
3,5	0,35	56	9	-	2,5	2,1	3	3,15		•		
4	0,5	63	10	-	2,8	2,1	3	3,5		•		
5	0,5	70	12	-	3,5	2,7	3	4,5		•		
6	0,5	80	14	-	4,5	3,4	3	5,5		•	•	
6	0,75	80	14	-	4,5	3,4	3	5,2		•	•	•
7	0,75	80	14	-	5,5	4,3	3	6,2		•	•	
8	0,75	80	16	-	6	4,9	3	7,2		•		
8	1	90	16	-	6	4,9	3	7		•	•	•
9	1	90	16	-	7	5,5	3	8		•		
10	0,5	90	18	-	7	5,5	4	9,5		•	•	
10	0,75	90	18	-	7	5,5	3	9,2		•		
10	1	90	18	-	7	5,5	3	9		•	•	•
10	1,25	100	18	-	7	5,5	3	8,8		•	•	•
11	1	90	20	-	8	6,2	3	10		•		
12	0,75	100	22	-	9	7	4	11,2		•	•	
12	1	100	22	-	9	7	4	11		•	•	
12	1,25	100	22	-	9	7	3	10,8		•	•	•
12	1,5	100	22	-	9	7	3	10,5		•	•	•
14	1	100	22	-	11	9	4	13		•	•	
14	1,25	100	22	-	11	9	3	12,8		•	•	
14	1,5	100	22	-	11	9	3	12,5		•	•	•
15	1	100	22	-	12	9	4	14		•		
15	1,5	100	22	-	12	9	3	13,5		•		
16	1	100	22	-	12	9	4	15		•	•	
16	1,25	100	22	-	12	9	4	14,8		•	•	

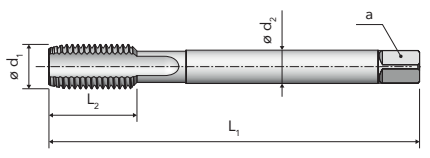
A SERIES

DIN 13 MACHINE TAPS for blind holes Straight flutes



A23 FC BRIGHT A23 FC TiN A23 FC LH BRIGHT

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A23 FC BRIGHT	A23 FC TiN	A23 FC LH BRIGHT
P	P.1		• 20-25	
	P.2	• 10-12	• 15-20	• 10-12
	P.3	• 8-10	• 12-15	• 8-10
K	K.2	• 8-10	• 12-15	• 8-10
N	N.1		• 20-25	
	N.5		• 15-20	

Tolerance: ISO2 6H

Chamfer form: C (2-3)

Hole type: 1,5xD

Direction of cut: RH (Right Hand), LH (Left Hand)

Through coolant: —

Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z		A23 FC BRIGHT	A23 FC TiN	A23 FC LH BRIGHT
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]			
M 16	1,5	100	22	-	12	9	3	14,5	•	•	•
17	1	100	22	-	12	9	4	16	•		
17	1,5	100	22	-	12	9	4	15,5	•		
18	1	110	25	-	14	11	4	17	•		
18	1,5	110	25	-	14	11	4	16,5	•	•	•
18	2	125	28	-	14	11	4	16	•		
20	1	125	25	-	16	12	4	19	•		
20	1,5	125	25	-	16	12	4	18,5	•	•	•
20	2	140	28	-	16	12	4	18	•		
22	1	125	25	-	18	14,5	4	21	•		
22	1,5	125	25	-	18	14,5	4	20,5	•	•	
22	2	140	28	-	18	14,5	4	20	•		
24	1	140	25	-	18	14,5	4	23	•		
24	1,5	140	25	-	18	14,5	4	22,5	•		
24	2	140	28	-	18	14,5	4	22	•		
25	1	140	25	-	18	14,5	4	24	•		
25	1,5	140	25	-	18	14,5	4	23,5	•		
25	2	140	28	-	18	14,5	4	23	•		
26	1	140	25	-	18	14,5	4	25	•		
26	1,5	140	25	-	18	14,5	4	24,5	•		
26	2	140	28	-	18	14,5	4	24	•		
27	1,5	140	28	-	20	16	4	25,5	•		
27	2	140	28	-	20	16	4	25	•		
28	1,5	140	28	-	20	16	4	26,5	•		
28	2	140	28	-	20	16	4	26	•		
30	1	150	25	-	22	18	5	29	•		

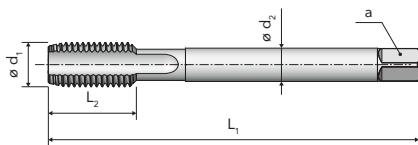
MACHINE TAPS for blind holes
Straight flutes

DIN 13



A23 FC
BRIGHT

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A23 FC BRIGHT			
P	P.2	• 10-12			
	P.3	• 8-10			
K	K.2	• 8-10			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]	[mm]	A23 FC BRIGHT			
M 30	1,5	150	28	-	22	18	4	28,5	•			
30	2	150	28	-	22	18	4	28	•			
32	1,5	150	28	-	22	18	5	30,5	•			
32	2	150	28	-	22	18	4	30	•			
33	1,5	160	30	-	25	20	5	31,5	•			
33	2	160	30	-	25	20	4	31	•			
35	1,5	170	30	-	28	22	5	33,5	•			
35	2	170	30	-	28	22	5	33	•			
36	1,5	170	30	-	28	22	5	34,5	•			
36	2	170	30	-	28	22	5	34	•			
36	3	200	56	-	28	22	4	33	•			
39	3	200	60	-	32	24	5	36	•			
40	1,5	170	30	-	32	24	5	38,5	•			
40	2	170	30	-	32	24	5	38	•			
40	3	200	60	-	32	24	5	37	•			
42	1,5	170	30	-	32	24	6	40,5	•			
42	2	170	30	-	32	24	5	40	•			
42	3	200	60	-	32	24	5	39	•			
45	1,5	180	32	-	36	29	6	43,5	•			
45	2	180	32	-	36	29	5	43	•			
45	3	200	50	-	36	29	5	42	•			
48	1,5	190	32	-	36	29	6	46,5	•			
48	2	190	32	-	36	29	6	46	•			
48	3	225	50	-	36	29	5	45	•			
52	1,5	190	32	-	40	32	6	50,5	•			
52	2	190	32	-	40	32	6	50	•			
52	3	225	50	-	40	32	5	49	•			

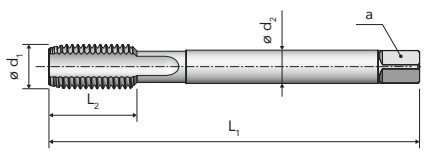
A SERIES

DIN 13 MACHINE TAPS for through holes Straight flutes



A23 FP BRIGHT A23 FP TiN A23 FP LH BRIGHT

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A23 FP BRIGHT	A23 FP TiN	A23 FP LH BRIGHT
P	P.1		• 20-25	
	P.2	• 10-12	• 15-20	• 10-12
	P.3	• 8-10	• 12-15	• 8-10
K	K.2	• 8-10	• 12-15	• 8-10
N	N.1		• 20-25	
	N.5		• 15-20	

Tolerance: ISO2 6H

Chamfer form: A (5-6)

Hole type: 1,5xD

Direction of cut: RH (Right Hand), LH (Left Hand)

Through coolant: —

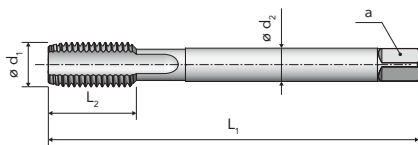
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A23 FP BRIGHT	A23 FP TiN	A23 FP LH BRIGHT
M 3	0,35	56	8	-	2,2	-	3	2,65	•		
3,5	0,35	56	9	-	2,5	2,1	3	3,15	•		
4	0,5	63	10	-	2,8	2,1	3	3,5	•		
5	0,5	70	12	-	3,5	2,7	3	4,5	•		
6	0,5	80	14	-	4,5	3,4	3	5,5	•	•	
6	0,75	80	14	-	4,5	3,4	3	5,2	•	•	•
7	0,75	80	14	-	5,5	4,3	3	6,2	•	•	
8	0,75	80	16	-	6	4,9	3	7,2	•		
8	1	90	16	-	6	4,9	3	7	•	•	•
9	1	90	16	-	7	5,5	3	8	•		
10	0,5	90	18	-	7	5,5	4	9,5	•	•	
10	0,75	90	18	-	7	5,5	3	9,2	•		
10	1	90	18	-	7	5,5	3	9	•	•	•
10	1,25	100	18	-	7	5,5	3	8,8	•	•	•
11	1	90	20	-	8	6,2	3	10	•		
12	0,75	100	22	-	9	7	4	11,2	•	•	
12	1	100	22	-	9	7	4	11	•	•	
12	1,25	100	22	-	9	7	3	10,8	•	•	•
12	1,5	100	22	-	9	7	3	10,5	•	•	•
14	1	100	22	-	11	9	4	13	•	•	
14	1,25	100	22	-	11	9	3	12,8	•	•	
14	1,5	100	22	-	11	9	3	12,5	•	•	•
15	1	100	22	-	12	9	4	14	•		
15	1,5	100	22	-	12	9	3	13,5	•		
16	1	100	22	-	12	9	4	15	•	•	
16	1,25	100	22	-	12	9	4	14,8	•	•	

MACHINE TAPS for through holes
Straight flutes

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A23 FP BRIGHT	A23 FP TiN	A23 FP LH BRIGHT
P	P.1		• 20-25	
	P.2	• 10-12	• 15-20	• 10-12
	P.3	• 8-10	• 12-15	• 8-10
K	K.2	• 8-10	• 12-15	• 8-10
N	N.1		• 20-25	
	N.5		• 15-20	

A23 FP BRIGHT

A23 FP TiN

A23 FP LH BRIGHT



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



$\varnothing d_1$ [mm]	P [mm]	L_1 ^{js 16} [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ _{h9} [mm]	a _{h12} [mm]	z [-]	[mm]	A23 FP BRIGHT	A23 FP TiN	A23 FP LH BRIGHT
M 16	1,5	100	22	-	12	9	3	14,5	•	•	•
17	1	100	22	-	12	9	4	16	•		
17	1,5	100	22	-	12	9	4	15,5	•		
18	1	110	25	-	14	11	4	17	•		
18	1,5	110	25	-	14	11	4	16,5	•	•	•
18	2	125	28	-	14	11	4	16	•		
20	1	125	25	-	16	12	4	19	•		
20	1,5	125	25	-	16	12	4	18,5	•	•	•
20	2	140	28	-	16	12	4	18	•		
22	1	125	25	-	18	14,5	4	21	•		
22	1,5	125	25	-	18	14,5	4	20,5	•	•	
22	2	140	28	-	18	14,5	4	20	•		
24	1	140	25	-	18	14,5	4	23	•		
24	1,5	140	25	-	18	14,5	4	22,5	•		
24	2	140	28	-	18	14,5	4	22	•		
25	1	140	25	-	18	14,5	4	24	•		
25	1,5	140	25	-	18	14,5	4	23,5	•		
25	2	140	28	-	18	14,5	4	23	•		
26	1	140	25	-	18	14,5	4	25	•		
26	1,5	140	25	-	18	14,5	4	24,5	•		
26	2	140	28	-	18	14,5	4	24	•		
27	1,5	140	28	-	20	16	4	25,5	•		
27	2	140	28	-	20	16	4	25	•		
28	1,5	140	28	-	20	16	4	26,5	•		
28	2	140	28	-	20	16	4	26	•		
30	1	150	25	-	22	18	5	29	•		

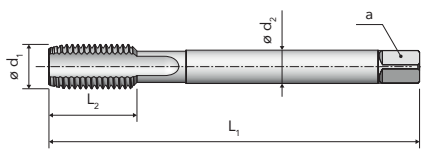
A SERIES



A23 FP
BRIGHT

A
SERIES

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A23 FP BRIGHT			
P	P.2	• 10-12			
	P.3	• 8-10			
K	K.2	• 8-10			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		Ød ₂ h9 [mm]
-------------------------	-----------	---------------------------------	------------------------	------------------------	-------------------------------	------------------	----------	--	-------------------------------

A23 FP
BRIGHT

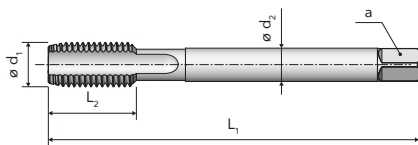
M 30	1,5	150	28	-	22	18	4	28,5	•
30	2	150	28	-	22	18	4	28	•
32	1,5	150	28	-	22	18	5	30,5	•
32	2	150	28	-	22	18	4	30	•
33	1,5	160	30	-	25	20	5	31,5	•
33	2	160	30	-	25	20	4	31	•
35	1,5	170	30	-	28	22	5	33,5	•
35	2	170	30	-	28	22	5	33	•
36	1,5	170	30	-	28	22	5	34,5	•
36	2	170	30	-	28	22	5	34	•
36	3	200	56	-	28	22	4	33	•
39	3	200	60	-	32	24	5	36	•
40	1,5	170	30	-	32	24	5	38,5	•
40	2	170	30	-	32	24	5	38	•
40	3	200	60	-	32	24	5	37	•
42	1,5	170	30	-	32	24	6	40,5	•
42	2	170	30	-	32	24	5	40	•
42	3	200	60	-	32	24	5	39	•
45	1,5	180	32	-	36	29	6	43,5	•
45	2	180	32	-	36	29	5	43	•
45	3	200	50	-	36	29	5	42	•
48	1,5	190	32	-	36	29	6	46,5	•
48	2	190	32	-	36	29	6	46	•
48	3	225	50	-	36	29	5	45	•
52	1,5	190	32	-	40	32	6	50,5	•
52	2	190	32	-	40	32	6	50	•
52	3	225	50	-	40	32	5	49	•

MACHINE TAPS for blind and through holes
Straight flutes / for cast iron

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A45 NITRIDED	A45 TiCN	A45 ACE
K	K.1	• 15-20	• 40-45	• 40-45
N	N.4	• 15-20	• 40-45	• 40-45
	N.7	• 15-20	• 40-45	• 40-45
	N.9-10	• 20-25	• 45-50	• 45-50

A45 NITRIDED

A45 TiCN

A45 ACE



Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant

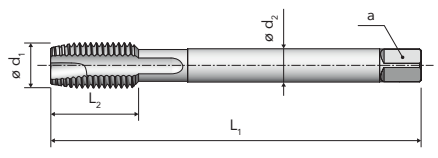
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A45 NITRIDED	A45 TiCN	A45 ACE
M 4	0,5	63	12	-	2,8	2,1	3	3,5	•	•	•
5	0,5	70	14	-	3,5	2,7	3	4,5	•	•	•
6	0,75	80	16	-	4,5	3,4	3	5,2	•	•	•
8	1	90	16	-	6	4,9	4	7	•	•	•
9	1	90	16	-	7	5,5	4	8	•	•	•
10	1	90	18	-	7	5,5	4	9	•	•	•
10	1,25	100	18	-	7	5,5	4	8,8	•	•	•
11	1	90	20	-	8	6,2	4	10	•	•	•
12	1	100	22	-	9	7	4	11	•	•	•
12	1,25	100	22	-	9	7	4	10,8	•	•	•
12	1,5	100	22	-	9	7	4	10,5	•	•	•
14	1	100	22	-	11	9	4	13	•	•	•
14	1,25	100	22	-	11	9	4	12,8	•	•	•
14	1,5	100	22	-	11	9	4	12,5	•	•	•
16	1	100	22	-	12	9	4	15	•	•	•
16	1,5	100	22	-	12	9	4	14,5	•	•	•
18	1,5	110	25	-	14	11	4	16,5	•	•	•
20	1,5	125	25	-	16	12	4	18,5	•	•	•
22	1,5	125	25	-	18	14,5	4	20,5	•	•	•
24	1,5	140	25	-	18	14,5	5	22,5	•	•	•
24	2	140	28	-	18	14,5	5	22	•	•	•
27	1,5	140	28	-	20	16	5	25,5	•	•	•
27	2	140	28	-	20	16	5	25	•	•	•
30	1,5	150	28	-	22	18	5	28,5	•	•	•
30	2	150	28	-	22	18	5	28	•	•	•

A SERIES



A17 BRIGHT A17 VAP A17 TiN

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A17 BRIGHT	A17 VAP	A17 TiN
P	P.1	• 18-20	• 18-20	• 30-35
	P.2	• 15-18	• 15-18	• 25-30
N	N.1	• 18-20	• 18-20	
	N.2	• 15-18	• 15-18	• 25-30
	N.5	• 15-18	• 15-18	
	N.6	• 12-15	• 12-15	• 20-25

Tolerance: ISO2 6H

Chamfer form: B (4-5)

Hole type: 2,5xD

Direction of cut: RH

Through coolant: —

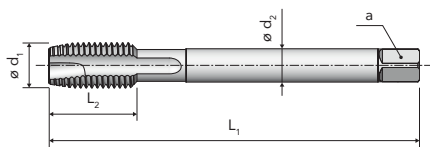
Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z	z		A17 BRIGHT	A17 VAP	A17 TiN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
M 4	0,5	63	10	-	2,8	2,1	3	3,5	•			
5	0,5	70	12	-	3,5	2,7	3	4,5	•			
6	0,75	80	14	-	4,5	3,4	3	5,2	•	•	•	
7	0,75	80	14	-	5,5	4,3	3	6,2	•			
8	0,75	80	16	-	6	4,9	3	7,2	•			
8	1	90	16	-	6	4,9	3	7	•	•	•	
9	1	90	16	-	7	5,5	3	8	•			
10	0,75	90	18	-	7	5,5	4	9,2	•			
10	1	90	18	-	7	5,5	4	9	•	•	•	
10	1,25	100	18	-	7	5,5	3	8,8	•	•	•	
11	1	90	20	-	8	6,2	4	10	•			
12	1	100	22	-	9	7	4	11	•	•	•	
12	1,25	100	22	-	9	7	4	10,8	•	•	•	
12	1,5	100	22	-	9	7	3	10,5	•	•	•	
14	1	100	22	-	11	9	4	13	•			
14	1,25	100	22	-	11	9	4	12,8	•	•	•	
14	1,5	100	22	-	11	9	4	12,5	•	•	•	
15	1	100	22	-	12	9	4	14	•			
15	1,5	100	22	-	12	9	4	13,5	•			
16	1	100	22	-	12	9	4	15	•			
16	1,5	100	22	-	12	9	4	14,5	•	•	•	
18	1	110	25	-	14	11	4	17	•			
18	1,5	110	25	-	14	11	4	16,5	•	•	•	
20	1	125	25	-	16	12	4	19	•			
20	1,5	125	25	-	16	12	4	18,5	•	•	•	
22	1	125	25	-	18	14,5	4	21	•			

MACHINE TAPS for through holes
Straight flutes with spiral point

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A17 BRIGHT			
P	P.1	• 18-20			
	P.2	• 15-18			
N	N.1	• 18-20			
	N.2	• 15-18			
	N.5	• 15-18			
	N.6	• 12-15			

A17 BRIGHT



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



$\varnothing d_1$ [mm]	P [mm]	L_1 js 16 [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z [-]		A17 BRIGHT			
M 22	1,5	125	25	-	18	14,5	4	20,5	•			
24	1	140	25	-	18	14,5	5	23	•			
24	1,5	140	25	-	18	14,5	4	22,5	•			
24	2	140	28	-	18	14,5	4	22	•			
25	1,5	140	25	-	18	14,5	4	23,5	•			
25	2	140	28	-	18	14,5	4	23	•			
26	1,5	140	25	-	18	14,5	4	24,5	•			
26	2	140	28	-	18	14,5	4	24	•			
27	1,5	140	28	-	20	16	4	25,5	•			
27	2	140	28	-	20	16	4	25	•			
28	1,5	140	28	-	20	16	4	26,5	•			
28	2	140	28	-	20	16	4	26	•			
30	1,5	150	28	-	22	18	4	28,5	•			
30	2	150	28	-	22	18	4	28	•			
32	1,5	150	28	-	22	18	5	30,5	•			
32	2	150	28	-	22	18	4	30	•			
36	1,5	170	30	-	28	22	5	34,5	•			
36	2	170	30	-	28	22	5	34	•			
36	3	200	56	-	28	22	4	33	•			
40	1,5	170	30	-	32	24	5	38,5	•			
40	2	170	30	-	32	24	5	38	•			
40	3	200	60	-	32	24	4	37	•			
42	1,5	170	30	-	32	24	5	40,5	•			
42	2	170	30	-	32	24	5	40	•			
42	3	200	60	-	32	24	5	39	•			
45	1,5	180	32	-	36	29	6	43,5	•			

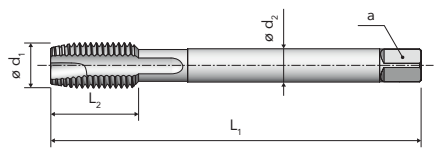
A SERIES



A17
BRIGHT

A
SERIES

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A17 BRIGHT			
P	P.1	• 18-20			
	P.2	• 15-18			
N	N.1	• 18-20			
	N.2	• 15-18			
	N.5	• 15-18			
	N.6	• 12-15			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z		A17 BRIGHT
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]	

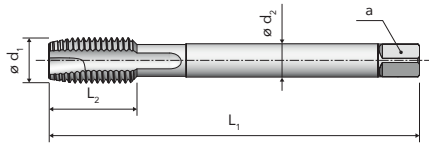
M 45	2	180	32	-	36	29	5	43	•
45	3	200	50	-	36	29	5	42	•
48	1,5	190	32	-	36	29	6	46,5	•
48	2	190	32	-	36	29	5	46	•
48	3	225	50	-	36	29	5	45	•

MACHINE TAPS for through holes
Straight flutes with spiral point

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A17 S BRIGHT	A17 S VAP	A17 S TiN	A17 S TiCN
P	P.2	• 20-25	• 20-25	• 30-35	• 30-35
	P.3	• 15-20	• 15-20	• 25-30	• 25-30
	P.4	• 12-15	• 12-15	• 20-25	• 20-25
	P.5			• 10-15	• 10-15
	P.7			• 10-15	• 10-15
M	M.1			• 10-15	• 10-15
K	K.2	• 15-20	• 15-20	• 25-30	• 25-30
N	N.2-3	• 20-25	• 20-25	• 30-35	• 30-35
	N.6	• 15-18	• 15-18	• 25-30	• 25-30

A17 S BRIGHT

A17 S VAP

A17 S TiN

A17 S TiCN



A SERIES

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A17 S BRIGHT	A17 S VAP	A17 S TiN	A17 S TiCN
M 4	0,5	63	10	-	2,8	2,1	3	3,5	•			
5	0,5	70	12	-	3,5	2,7	3	4,5	•			
6	0,75	80	14	-	4,5	3,4	3	5,2	•	•		•
7	0,75	80	14	-	5,5	4,3	3	6,2	•			
8	0,75	80	16	-	6	4,9	3	7,2	•			
8	1	90	16	-	6	4,9	3	7	•	•		•
9	1	90	16	-	7	5,5	3	8	•			
10	0,75	90	18	-	7	5,5	4	9,2	•			
10	1	90	18	-	7	5,5	4	9	•	•		•
10	1,25	100	18	-	7	5,5	3	8,8	•	•		•
11	1	90	20	-	8	6,2	4	10	•			
12	1	100	22	-	9	7	4	11	•	•		•
12	1,25	100	22	-	9	7	4	10,8	•	•		•
12	1,5	100	22	-	9	7	3	10,5	•	•		•
14	1	100	22	-	11	9	4	13	•			
14	1,25	100	22	-	11	9	4	12,8	•	•		•
14	1,5	100	22	-	11	9	4	12,5	•	•		•
15	1	100	22	-	12	9	4	14	•			
15	1,5	100	22	-	12	9	4	13,5	•			
16	1	100	22	-	12	9	4	15	•			
16	1,5	100	22	-	12	9	4	14,5	•	•		•
18	1	110	25	-	14	11	4	17	•			
18	1,5	110	25	-	14	11	4	16,5	•	•		•
20	1	125	25	-	16	12	4	19	•			
20	1,5	125	25	-	16	12	4	18,5	•	•		•
22	1	125	25	-	18	14,5	4	21	•			

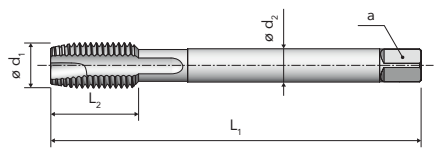


A17 S
BRIGHT

A17 S
TiN

A
SERIES

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A17 S BRIGHT	A17 S TiN
P	P.2	• 20-25	• 30-35
	P.3	• 15-20	• 25-30
	P.4	• 12-15	• 20-25
	P.5		• 10-15
	P.7		• 10-15
M	M.1		• 10-15
K	K.2	• 15-20	• 25-30
N	N.2-3	• 20-25	• 30-35
	N.6	• 15-18	• 25-30

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

A17 S
BRIGHT

A17 S
TiN

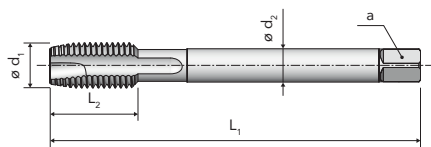
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A17 S BRIGHT	A17 S TiN
M 22	1,5	125	25	-	18	14,5	4	20,5	•	•
24	1	140	25	-	18	14,5	5	23	•	
24	1,5	140	25	-	18	14,5	4	22,5	•	•
24	2	140	28	-	18	14,5	4	22	•	
25	1,5	140	25	-	18	14,5	4	23,5	•	
25	2	140	28	-	18	14,5	4	23	•	
26	1,5	140	25	-	18	14,5	4	24,5	•	
26	2	140	28	-	18	14,5	4	24	•	
27	1,5	140	28	-	20	16	4	25,5	•	•
27	2	140	28	-	20	16	4	25	•	
28	1,5	140	28	-	20	16	4	26,5	•	
28	2	140	28	-	20	16	4	26	•	
30	1,5	150	28	-	22	18	4	28,5	•	•
30	2	150	28	-	22	18	4	28	•	
32	1,5	150	28	-	22	18	5	30,5	•	
32	2	150	28	-	22	18	4	30	•	
36	1,5	170	30	-	28	22	5	34,5	•	
36	2	170	30	-	28	22	5	34	•	
36	3	200	56	-	28	22	4	33	•	
40	1,5	170	30	-	32	24	5	38,5	•	
40	2	170	30	-	32	24	5	38	•	
40	3	200	60	-	32	24	4	37	•	
42	1,5	170	30	-	32	24	5	40,5	•	
42	2	170	30	-	32	24	5	40	•	
42	3	200	60	-	32	24	5	39	•	
45	1,5	180	32	-	36	29	6	43,5	•	

MACHINE TAPS for through holes
Straight flutes with spiral point

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A17 S BRIGHT			
P	P.2	• 20-25			
	P.3	• 15-20			
	P.4	• 12-15			
K	K.2	• 15-20			
N	N.2-3	• 20-25			
	N.6	• 15-18			

A17 S
BRIGHT



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



$\varnothing d_1$ [mm]	P [mm]	L_1 ^{js 16} [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ ^{h9} [mm]	a ^{h12} [mm]	z [-]		$\varnothing d_1$ [mm]				
M 45	2	180	32	-	36	29	5	43	•				
45	3	200	50	-	36	29	5	42	•				
48	1,5	190	32	-	36	29	6	46,5	•				
48	2	190	32	-	36	29	5	46	•				
48	3	225	50	-	36	29	5	45	•				

A17 S
BRIGHT

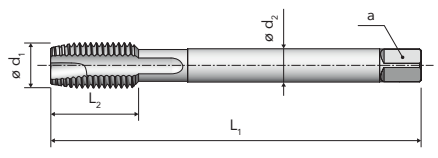
A SERIES



NEW
A17 S
TiX2

A SERIES

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A17 S TiX2			
P	P.7	• 10-15			
M	M.1	• 10-15			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

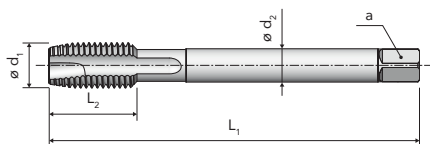
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A17 S TiX2			
M 6	0,75	80	14	-	4,5	3,4	3	5,2	•			
8	1	90	16	-	6	4,9	3	7	•			
10	1	90	18	-	7	5,5	4	9	•			
10	1,25	100	18	-	7	5,5	3	8,8	•			
12	1,25	100	22	-	9	7	4	10,8	•			
12	1,5	100	22	-	9	7	3	10,5	•			
14	1,25	100	22	-	11	9	4	12,8	•			
14	1,5	100	22	-	11	9	4	12,5	•			
16	1,5	100	22	-	12	9	4	14,5	•			
20	1,5	125	25	-	16	12	4	18,5	•			

MACHINE TAPS for through holes
Straight flutes with spiral point

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A17 S 6G BRIGHT	A17 S 6G TiN		
P	P.2	• 20-25	• 30-35		
	P.3	• 15-20	• 25-30		
	P.4	• 12-15	• 20-25		
	P.5		• 10-15		
	P.7		• 10-15		
M	M.1		• 10-15		
K	K.2	• 15-20	• 25-30		
N	N.2-3	• 20-25	• 30-35		
	N.6	• 15-18	• 25-30		

A17 S 6G BRIGHT

A17 S 6G TiN



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



A SERIES

Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]		z [mm]	A17 S 6G BRIGHT	A17 S 6G TiN
M 6	0,75	80	14	-	4,5	3,4	3	5,2		•	•
8	1	90	16	-	6	4,9	3	7		•	•
10	1	90	18	-	7	5,5	4	9		•	•
10	1,25	100	18	-	7	5,5	3	8,8		•	•
12	1,5	100	22	-	9	7	3	10,5		•	•
14	1,5	100	22	-	11	9	4	12,5		•	•

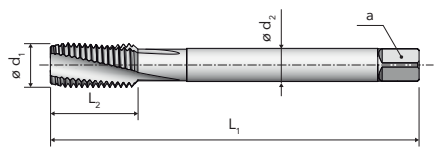


A30 BRIGHT

A30 TiN

A SERIES

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A30 BRIGHT	A30 TiN
P	P.1	• 18-20	• 30-35
	P.2	• 15-18	• 25-30
	P.3	• 12-15	• 20-25
	P.4	• 10-12	• 15-20
	P.5		• 5-10
K	K.2	• 12-15	• 20-25
N	N.1	• 18-20	
	N.2-3	• 15-18	• 25-30
	N.5	• 15-18	
	N.6	• 12-15	• 20-25

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



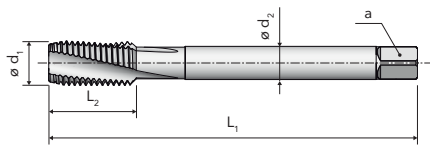
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A30 BRIGHT	A30 TiN
M 3	0,35	56	8	-	2,2	-	3	2,65	•	
3,5	0,35	56	9	-	2,5	2,1	3	3,15	•	
4	0,5	63	10	-	2,8	2,1	3	3,5	•	
5	0,5	70	12	-	3,5	2,7	3	4,5	•	
6	0,75	80	14	-	4,5	3,4	3	5,2	•	•
7	0,75	80	14	-	5,5	4,3	3	6,2	•	
8	0,75	80	16	-	6	4,9	3	7,2	•	
8	1	90	16	-	6	4,9	3	7	•	•
9	1	90	16	-	7	5,5	3	8	•	
10	0,75	90	18	-	7	5,5	3	9,2	•	
10	1	90	18	-	7	5,5	3	9	•	•
10	1,25	100	18	-	7	5,5	3	8,8	•	•
11	1	90	20	-	8	6,2	3	10	•	
12	1	100	22	-	9	7	3	11	•	•
12	1,25	100	22	-	9	7	3	10,8	•	•
12	1,5	100	22	-	9	7	3	10,5	•	•
14	1	100	22	-	11	9	3	13	•	
14	1,25	100	22	-	11	9	3	12,8	•	•
14	1,5	100	22	-	11	9	3	12,5	•	•
15	1	100	22	-	12	9	4	14	•	
15	1,5	100	22	-	12	9	3	13,5	•	
16	1	100	22	-	12	9	4	15	•	
16	1,25	100	22	-	12	9	4	14,8	•	
16	1,5	100	22	-	12	9	4	14,5	•	•
17	1	100	22	-	12	9	4	16	•	
17	1,5	100	22	-	12	9	4	15,5	•	

MACHINE TAPS for blind holes
15° spiral flutes

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A30 BRIGHT	A30 TiN		
P	P.1	● 18-20	● 30-35		
	P.2	● 15-18	● 25-30		
	P.3	● 12-15	● 20-25		
	P.4	● 10-12	● 15-20		
	P.5		● 5-10		
K	K.2	● 12-15	● 20-25		
N	N.1	● 18-20			
	N.2-3	● 15-18	● 25-30		
	N.5	● 15-18			
	N.6	● 12-15	● 20-25		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A30 BRIGHT	A30 TiN		
M 18	1	110	25	-	14	11	4	17	•			
18	1,5	110	25	-	14	11	4	16,5	•	•		
20	1	125	25	-	16	12	4	19	•			
20	1,5	125	25	-	16	12	4	18,5	•	•		
22	1	125	25	-	18	14,5	4	21	•			
22	1,5	125	25	-	18	14,5	4	20,5	•	•		
24	1	140	25	-	18	14,5	4	23	•			
24	1,5	140	25	-	18	14,5	4	22,5	•	•		
24	2	140	28	-	18	14,5	4	22	•			
25	1	140	25	-	18	14,5	4	24	•			
25	1,5	140	25	-	18	14,5	4	23,5	•			
25	2	140	28	-	18	14,5	4	23	•			
26	1	140	25	-	18	14,5	4	25	•			
26	1,5	140	25	-	18	14,5	4	24,5	•			
26	2	140	28	-	18	14,5	4	24	•			
27	1,5	140	28	-	20	16	4	25,5	•	•		
27	2	140	28	-	20	16	4	25	•			
28	1,5	140	28	-	20	16	4	26,5	•			
28	2	140	28	-	20	16	4	26	•			
30	1	150	25	-	22	18	5	29	•			
30	1,5	150	28	-	22	18	4	28,5	•	•		
30	2	150	28	-	22	18	4	28	•			
32	1,5	150	28	-	22	18	5	30,5	•			
32	2	150	28	-	22	18	4	30	•			
36	1,5	170	30	-	28	22	5	34,5	•			
36	2	170	30	-	28	22	5	34	•			

A SERIES

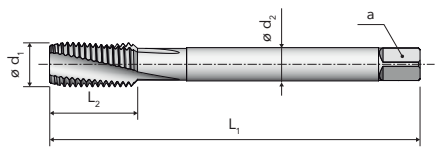
DIN 13 MACHINE TAPS for blind holes 15° spiral flutes

R15 1,5xD HSSE

A30 BRIGHT

A SERIES

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A30 BRIGHT			
P	P.1	• 18-20			
	P.2	• 15-18			
	P.3	• 12-15			
	P.4	• 10-12			
K	K.2	• 12-15			
N	N.1	• 18-20			
	N.2-3	• 15-18			
	N.5	• 15-18			
	N.6	• 12-15			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]	z [mm]
-------------------------	-----------	---------------------------------	------------------------	------------------------	-------------------------------	------------------	----------	-----------

A30 BRIGHT

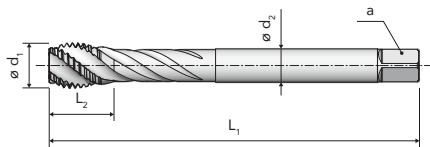
M 36	3	200	56	-	28	22	4	33	•
40	1,5	170	30	-	32	24	5	38,5	•
40	2	170	30	-	32	24	5	38	•
40	3	200	60	-	32	24	5	37	•
42	1,5	170	30	-	32	24	6	40,5	•
42	2	170	30	-	32	24	5	40	•
42	3	200	60	-	32	24	5	39	•
45	1,5	180	32	-	36	29	6	43,5	•
45	2	180	32	-	36	29	5	43	•
45	3	200	50	-	36	29	5	42	•
48	1,5	190	32	-	36	29	6	46,5	•
48	2	190	32	-	36	29	6	46	•
48	3	225	50	-	36	29	5	45	•

MACHINE TAPS for blind holes
40° spiral flutes / back tapered

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A71 BRIGHT	A71 TiN		
P	P.1	• 12-15	• 25-30		
	P.2	• 10-15	• 20-25		
N	N.1	• 12-15			
	N.2	• 12-15	• 25-30		
	N.5	• 10-12			
	N.6	• 10-12	• 20-25		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A71 BRIGHT	A71 TiN		
M 6	0,75	80	7,5	-	4,5	3,4	3	5,2	•	•		
8	1	90	10	-	6	4,9	3	7	•	•		
10	1	90	10	-	7	5,5	3	9	•	•		
10	1,25	100	11,5	-	7	5,5	3	8,8	•	•		
12	1	100	13	-	9	7	4	11	•	•		
12	1,25	100	13,5	-	9	7	4	10,8	•	•		
12	1,5	100	14	-	9	7	4	10,5	•	•		
14	1,5	100	15,5	-	11	9	4	12,5	•	•		
16	1,5	100	15,5	-	12	9	4	14,5	•	•		
18	1,5	110	16	-	14	11	4	16,5	•	•		
20	1	125	15	-	16	12	4	19	•			
20	1,5	125	17	-	16	12	4	18,5	•	•		
22	1,5	125	19	-	18	14,5	4	20,5	•			
24	1,5	140	21	-	18	14,5	4	22,5	•			
24	2	140	26	-	18	14,5	4	22	•			
26	1,5	140	23	-	18	14,5	4	24,5	•			
27	1,5	140	23	-	20	16	4	25,5	•			
27	2	140	28	-	20	16	4	25	•			
28	1,5	140	23	-	20	16	4	26,5	•			
30	1,5	150	25	-	22	18	5	28,5	•			
30	2	150	29	-	22	18	4	28	•			
36	3	200	46	-	28	22	4	33	•			
42	3	200	51	-	32	24	5	39	•			

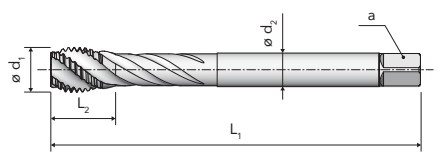
A SERIES

DIN 13 MACHINE TAPS for blind holes 40° spiral flutes / back tapered



A SERIES

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A71 S BRIGHT	A71 S VAP	A71 S TiN	A71 S TiCN
P	P.3	• 12-15	• 12-15	• 20-25	• 20-25
	P.4	• 10-12	• 10-12	• 15-20	• 15-20
	P.5			• 5-10	• 5-10
	P.7			• 8-10	• 8-10
M	M.1			• 8-10	• 8-10
K	K.2	• 12-15	• 12-15	• 20-25	• 20-25
N	N.3	• 15-18	• 15-18	• 25-30	• 25-30
	N.6	• 15-18	• 15-18	• 25-30	• 25-30

Tolerance

Chamfer form

Hole type

Direction of cut

Through coolant

A71 S BRIGHT A71 S VAP A71 S TiN A71 S TiCN



ISO2 6H ISO2 6H ISO2 6H ISO2 6H

C (2-3) C (2-3) C (2-3) C (2-3)

2,5xD 2,5xD 2,5xD 2,5xD

RH RH RH RH

Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z		A71 S BRIGHT	A71 S VAP	A71 S TiN	A71 S TiCN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
M 6	0,75	80	7,5	-	4,5	3,4	3	5,2	•	•	•	•
8	1	90	10	-	6	4,9	3	7	•	•	•	•
10	1	90	10	-	7	5,5	3	9	•	•	•	•
10	1,25	100	11,5	-	7	5,5	3	8,8	•	•	•	•
12	1	100	13	-	9	7	4	11	•	•	•	•
12	1,25	100	13,5	-	9	7	4	10,8	•	•	•	•
12	1,5	100	14	-	9	7	4	10,5	•	•	•	•
14	1,5	100	15,5	-	11	9	4	12,5	•	•	•	•
16	1,5	100	15,5	-	12	9	4	14,5	•	•	•	•
18	1,5	110	16	-	14	11	4	16,5	•	•	•	•
20	1	125	15	-	16	12	4	19	•	•	•	•
20	1,5	125	17	-	16	12	4	18,5	•	•	•	•
22	1,5	125	19	-	18	14,5	4	20,5	•	•	•	•
24	1,5	140	21	-	18	14,5	4	22,5	•	•	•	•
24	2	140	26	-	18	14,5	4	22	•	•	•	•
26	1,5	140	23	-	18	14,5	4	24,5	•	•	•	•
27	1,5	140	23	-	20	16	4	25,5	•	•	•	•
27	2	140	28	-	20	16	4	25	•	•	•	•
28	1,5	140	23	-	20	16	4	26,5	•	•	•	•
30	1,5	150	25	-	22	18	5	28,5	•	•	•	•
30	2	150	29	-	22	18	5	28	•	•	•	•
36	3	200	46	-	28	22	5	33	•	•	•	•
42	3	200	51	-	32	24	6	39	•	•	•	•

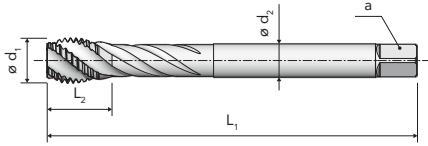
MACHINE TAPS for blind holes
40° spiral flutes / back tapered / for stainless steel

DIN 13



NEW
A71 S
TiX2

DIN 374



A SERIES

APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A71 S TiX2			
P	P.7	• 8-10			
M	M.1	• 8-10			
	M.2	• 5-7			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A71 S TiX2			
M 6	0,75	80	7,5	-	4,5	3,4	3	5,2	•			
8	1	90	10	-	6	4,9	3	7	•			
10	1	90	10	-	7	5,5	3	9	•			
10	1,25	100	11,5	-	7	5,5	3	8,8	•			
12	1,25	100	13,5	-	9	7	4	10,8	•			
12	1,5	100	14	-	9	7	4	10,5	•			
14	1,5	100	15,5	-	11	9	4	12,5	•			
16	1,5	100	15,5	-	12	9	4	14,5	•			
20	1,5	125	17	-	16	12	4	18,5	•			

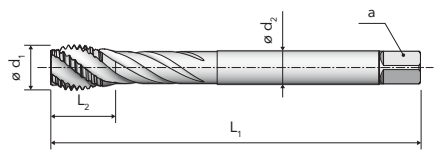


A71 S 6G
BRIGHT

A71 S 6G
TiN

A
SERIES

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A71 S 6G BRIGHT	A71 S 6G TiN		
P	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
	P.7		• 8-10		
M	M.1		• 8-10		
K	K.2	• 12-15	• 20-25		
	N.3	• 15-18	• 25-30		
N	N.6	• 15-18	• 25-30		

Tolerance



Chamfer form



Hole type




Direction of cut



Through coolant

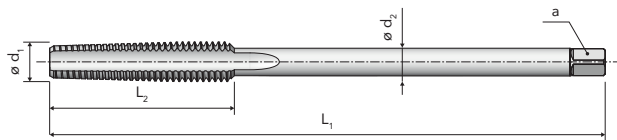
A71 S 6G
BRIGHT

A71 S 6G
TiN

$\varnothing d_1$ [mm]	P [mm]	L_1 js 16 [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z [-]		$\varnothing d_1$ [mm]	z [-]	A71 S 6G BRIGHT	A71 S 6G TiN
M 6	0,75	80	7,5	-	4,5	3,4	3	5,2			•	•
8	1	90	10	-	6	4,9	3	7			•	•
10	1	90	10	-	7	5,5	3	9			•	•
10	1,25	100	11,5	-	7	5,5	3	8,8			•	•
12	1	100	13	-	9	7	4	11			•	•
12	1,25	100	13,5	-	9	7	4	10,8			•	•
12	1,5	100	14	-	9	7	4	10,5			•	•
14	1,5	100	15,5	-	11	9	4	12,5			•	•

MACHINE NUT TAPS
 Straight flutes

DIN 13

VERGNANO STANDARD


APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A10 BRIGHT			
P	P.1	• 18-20			
	P.2	• 15-18			
	P.3	• 12-15			

A10
BRIGHT

A SERIES

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



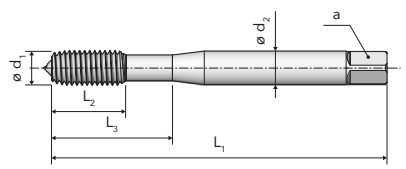
$\text{\textcircled{O}}d_1$	P	L_1	L_2	L_3	$\text{\textcircled{O}}d_2$	a	z		A10 BRIGHT				
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	_{h9} [mm]	_{h12} [mm]	[-]	[mm]	•				
M 4	0,5	80	20	-	2,8	2,1	3	3,5	•				
5	0,5	85	22	-	3,5	2,7	3	4,5	•				
8	1	115	30	-	6	4,9	3	7	•				
10	1	130	35	-	7	5,5	3	9	•				
10	1,25	140	45	-	7	5,5	3	8,8	•				
12	1,25	160	45	-	9	7	3	10,8	•				
12	1,5	160	45	-	9	7	3	10,5	•				
14	1,5	180	45	-	11	9	3	12,5	•				
16	1,5	190	48	-	12	9	3	14,5	•				
18	1,5	200	48	-	14	11	3	16,5	•				
20	1,5	220	50	-	16	12	3	18,5	•				



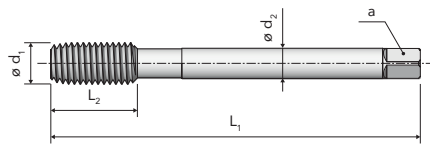
A81 TiN A81 TiCN

A SERIES

DIN 2174 (371) ≤ M10



DIN 2174 (374) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A81 TiN	A81 TiCN
P	P.1-2	• 40-45	• 40-45
	P.3	• 35-40	• 35-40
N	N.1-2	• 40-45	• 40-45
	N.3	• 35-40	• 35-40
	N.5-6	• 40-45	• 40-45

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A81 TiN	A81 TiCN
M 3	0,35	56	10	18	3,5	2,7	4	2,85	•	•									
4	0,5	63	12	21	4,5	3,4	5	3,8	•	•									
5	0,5	70	14	24,5	6	4,9	5	4,8	•	•									
6	0,75	80	16	29	6	4,9	5	5,65	•	•									
8	1	90	18	33	8	6,2	5	7,55	•	•									
10	1	90	18	34	10	8	6	9,55	•	•									
10	1,25	100	20	36	10	8	6	9,4	•	•									
12	1	100	22	-	9	7	6	11,55	•	•									
12	1,25	100	22	-	9	7	6	11,4	•	•									
12	1,5	100	22	-	9	7	6	11,3	•	•									
14	1,25	100	22	-	11	9	6	13,4	•	•									
14	1,5	100	22	-	11	9	6	13,3	•	•									
16	1,5	100	22	-	12	9	6	15,3	•	•									

COLD FORMING TAPS for blind and through holes
Without oil grooves

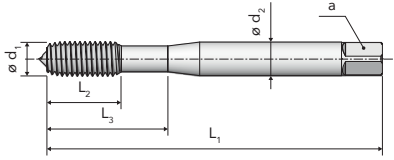
DIN 13



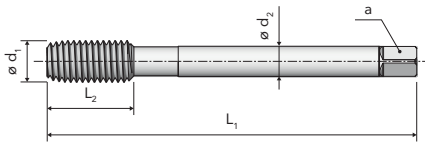
A81 6GX
TiN

A81 6GX
TiCN

DIN 2174 (371) ≤ M10



DIN 2174 (374) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A81 6GX TiN	A81 6GX TiCN		
P	P.1-2	• 40-45	• 40-45		
	P.3	• 35-40	• 35-40		
N	N.1-2	• 40-45	• 40-45		
	N.3	• 35-40	• 35-40		
	N.5-6	• 40-45	• 40-45		

Tolerance



Chamfer form



Hole type




Direction of cut



Through coolant



Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]		A81 6GX TiN	A81 6GX TiCN
M 3	0,35	56	10	18	3,5	2,7	4	2,85	•	•
4	0,5	63	12	21	4,5	3,4	5	3,8	•	•
5	0,5	70	14	24,5	6	4,9	5	4,8	•	•
6	0,75	80	16	29	6	4,9	5	5,65	•	•
8	1	90	18	33	8	6,2	5	7,55	•	•
10	1	90	18	34	10	8	6	9,55	•	•
10	1,25	100	20	36	10	8	6	9,4	•	•
12	1	100	22	-	9	7	6	11,55	•	•
12	1,25	100	22	-	9	7	6	11,4	•	•
12	1,5	100	22	-	9	7	6	11,3	•	•
14	1,25	100	22	-	11	9	6	13,4	•	•
14	1,5	100	22	-	11	9	6	13,3	•	•
16	1,5	100	22	-	12	9	6	15,3	•	•

A
SERIES

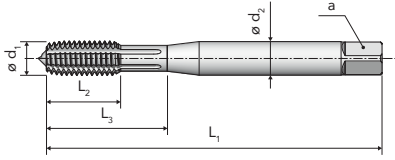
COLD FORMING TAPS for blind and through holes
With oil grooves

DIN 13

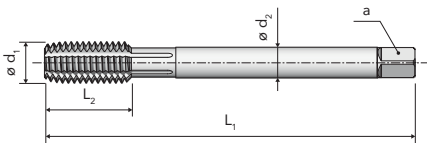


A SERIES

DIN 2174 (371) ≤ M10



DIN 2174 (374) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A81 N TiN	A81 N TiCN		
P	P.1-2	• 40-45	• 40-45		
	P.3	• 35-40	• 35-40		
N	N.1-2	• 40-45	• 40-45		
	N.3	• 35-40	• 35-40		
	N.5-6	• 40-45	• 40-45		

A81 N
TiN

A81 N
TiCN



Tolerance



Chamfer form




Hole type



Direction of cut

Through coolant

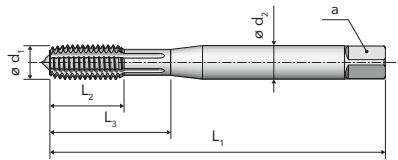
Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z		A81 N TiN	A81 N TiCN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	[mm]	_{h12} [mm]	[-]	[mm]		
M 3	0,35	56	10	18	3,5	2,7	4	2,85	•	•
4	0,5	63	12	21	4,5	3,4	5	3,8	•	•
5	0,5	70	14	24,5	6	4,9	5	4,8	•	•
6	0,75	80	16	29	6	4,9	5	5,65	•	•
8	1	90	18	33	8	6,2	5	7,55	•	•
10	1	90	18	34	10	8	6	9,55	•	•
10	1,25	100	20	36	10	8	6	9,4	•	•
12	1	100	22	-	9	7	6	11,55	•	•
12	1,25	100	22	-	9	7	6	11,4	•	•
12	1,5	100	22	-	9	7	6	11,3	•	•
14	1,25	100	22	-	11	9	6	13,4	•	•
14	1,5	100	22	-	11	9	6	13,3	•	•
16	1,5	100	22	-	12	9	6	15,3	•	•
18	1,5	110	22	-	14	11	8	17,3	•	•
20	1,5	125	25	-	16	12	8	19,3	•	•

COLD FORMING TAPS for blind and through holes
With oil grooves

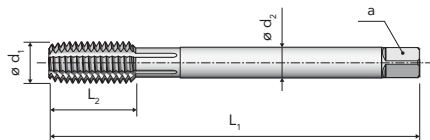
DIN 13



DIN 2174 (371) ≤ M10



DIN 2174 (374) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A81 N 6GX TiN	A81 N 6GX TiCN		
P	P.1-2	• 40-45	• 40-45		
	P.3	• 35-40	• 35-40		
N	N.1-2	• 40-45	• 40-45		
	N.3	• 35-40	• 35-40		
	N.5-6	• 40-45	• 40-45		

A81 N 6GX TiN A81 N 6GX TiCN



Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant



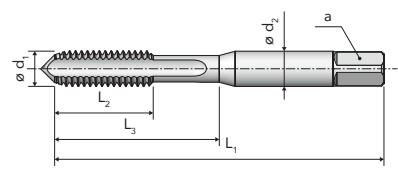
Ød1	P	L1	L2	L3	Ød2	a	z	z	z	A81 N 6GX	A81 N 6GX		
										TiN	TiCN		
M 3	0,35	56	10	18	3,5	2,7	4	2,85		•	•		
4	0,5	63	12	21	4,5	3,4	5	3,8		•	•		
5	0,5	70	14	24,5	6	4,9	5	4,8		•	•		
6	0,75	80	16	29	6	4,9	5	5,65		•	•		
8	1	90	18	33	8	6,2	5	7,55		•	•		
10	1	90	18	34	10	8	6	9,55		•	•		
10	1,25	100	20	36	10	8	6	9,4		•	•		
12	1	100	22	-	9	7	6	11,55		•	•		
12	1,25	100	22	-	9	7	6	11,4		•	•		
12	1,5	100	22	-	9	7	6	11,3		•	•		
14	1,25	100	22	-	11	9	6	13,4		•	•		
14	1,5	100	22	-	11	9	6	13,3		•	•		
16	1,5	100	22	-	12	9	6	15,3		•	•		
18	1,5	110	22	-	14	11	8	17,3		•	•		
20	1,5	125	25	-	16	12	8	19,3		•	•		

A SERIES

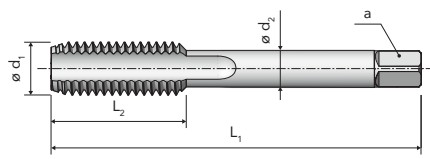


A SERIES

DIN 2184-2 ≤ Ø 1/4"



DIN 2184-2 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A7 ROUGHING	A7 SECOND	A7 FINISHING	A7 SET
P	P.1-4	•	•	•	•
	P.7	•	•	•	•
K	K.2	•	•	•	•
N	N.1-3	•	•	•	•
	N.5-7	•	•	•	•

	A7 ROUGHING	A7 SECOND	A7 FINISHING	A7 SET
Tolerance	—	—	2B	2B
Chamfer form	A (5-6)	D (4-5)	C (2-3)	C (2-3)
Hole type	2,5xD	2,5xD	2,5xD	2,5xD
Direction of cut	RH	RH	RH	RH
Through coolant	—	—	—	—

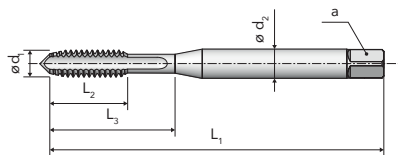
UNC	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z	z	A7 ROUGHING	A7 SECOND	A7 FINISHING	A7 SET
	[TPI]	[mm]	js 16 [mm]	[mm]	[mm]	h9 [mm]	h12 [mm]	[-]	[mm]				
Nr.1	64	1,854	36	7,5	12	2,8	2,1	3	1,55	•	•	•	•
Nr.2	56	2,184	36	8,5	13,5	2,8	2,1	3	1,85	•	•	•	•
Nr.3	48	2,515	40	8,5	14,5	2,8	2,1	3	2,1	•	•	•	•
Nr.4	40	2,845	40	10	18	3,5	2,7	3	2,35	•	•	•	•
Nr.5	40	3,175	40	10	18	3,5	2,7	3	2,65	•	•	•	•
Nr.6	32	3,505	45	11	20	4	3	3	2,85	•	•	•	•
Nr.8	32	4,166	45	12	21	4,5	3,4	3	3,5	•	•	•	•
Nr.10	24	4,826	50	14	23	6	4,9	3	3,9	•	•	•	•
Nr.12	24	5,486	56	16	28	6	4,9	3	4,5	•	•	•	•
1/4"	20	6,35	56	16	28	6	4,9	3	5,1	•	•	•	•
5/16"	18	7,938	63	22	-	6	4,9	3	6,6	•	•	•	•
3/8"	16	9,525	70	24	-	7	5,5	3	8	•	•	•	•
7/16"	14	11,113	70	24	-	8	6,2	3	9,4	•	•	•	•
1/2"	13	12,7	75	28	-	9	7	3	10,8	•	•	•	•
9/16"	12	14,288	80	28	-	11	9	4	12,2	•	•	•	•
5/8"	11	15,875	80	30	-	12	9	4	13,5	•	•	•	•
3/4"	10	19,05	95	32	-	14	11	4	16,5	•	•	•	•
7/8"	9	22,225	100	32	-	18	14,5	4	19,5	•	•	•	•
1"	8	25,4	110	36	-	18	14,5	4	22,25	•	•	•	•
1 1/8"	7	28,575	125	40	-	22	18	4	25	•	•	•	•
1 1/4"	7	31,75	125	40	-	22	18	4	28	•	•	•	•

MACHINE TAPS FC = for blind holes - FP = for through holes
Straight flutes

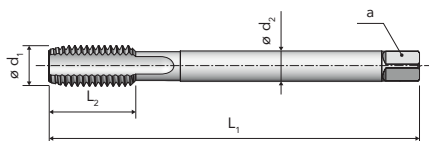
ASME
B1.1



DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A27 FC BRIGHT	A27 FC TiN	A27 FP BRIGHT	A27 FP TiN
P	P.1		• 20-25		• 20-25
	P.2	• 10-12	• 15-20	• 10-12	• 15-20
	P.3	• 8-10	• 12-15	• 8-10	• 12-15
K	K.2	• 8-10	• 12-15	• 8-10	• 12-15
N	N.1		• 20-25		• 20-25
	N.5		• 15-20		• 15-20

A27 FC
BRIGHT

A27 FC
TiN

A27 FP
BRIGHT

A27 FP
TiN



A
SERIES

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



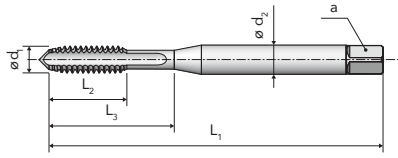
UNC	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z		A27 FC BRIGHT	A27 FC TiN	A27 FP BRIGHT	A27 FP TiN
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
Nr.2	56	2,184	45	9	13	2,8	2,1	3	1,85	•	•	•	•
Nr.3	48	2,515	50	9	15	2,8	2,1	3	2,1	•	•	•	•
Nr.4	40	2,845	56	10	18	3,5	2,7	3	2,35	•	•	•	•
Nr.5	40	3,175	56	10	18	3,5	2,7	3	2,65	•	•	•	•
Nr.6	32	3,505	56	11	20	4	3	3	2,85	•	•	•	•
Nr.8	32	4,166	63	13	22	4,5	3,4	3	3,5	•	•	•	•
Nr.10	24	4,826	70	16	26,5	6	4,9	3	3,9	•	•	•	•
Nr.12	24	5,486	80	16	26,5	6	4,9	3	4,5	•	•	•	•
1/4"	20	6,35	80	17	30	7	5,5	3	5,1	•	•	•	•
5/16"	18	7,938	90	18	-	6	4,9	3	6,6	•	•	•	•
3/8"	16	9,525	100	22	-	7	5,5	3	8	•	•	•	•
7/16"	14	11,113	100	24	-	8	6,2	3	9,4	•	•	•	•
1/2"	13	12,7	110	26	-	9	7	3	10,8	•	•	•	•
9/16"	12	14,288	110	28	-	11	9	3	12,2	•	•	•	•
5/8"	11	15,875	110	28	-	12	9	3	13,5	•	•	•	•
3/4"	10	19,05	125	32	-	14	11	4	16,5	•	•	•	•
7/8"	9	22,225	140	32	-	18	14,5	4	19,5	•	•	•	•
1"	8	25,4	160	36	-	18	14,5	4	22,25	•	•	•	•
1 1/8"	7	28,575	180	40	-	22	18	4	25	•	•	•	•
1 1/4"	7	31,75	180	40	-	22	18	4	28	•	•	•	•
1 3/8"	6	34,925	200	50	-	28	22	4	30,75	•	•	•	•
1 1/2"	6	38,1	200	50	-	28	22	4	34	•	•	•	•



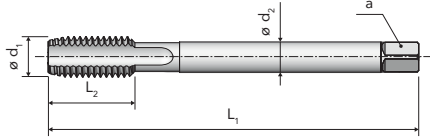
A49
NITRIDED

A49
TiCN

DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A49 NITRIDED	A49 TiCN		
K	K.1	• 15-20	• 40-45		
	N.4	• 15-20	• 40-45		
N	N.7	• 15-20	• 40-45		
	N.9-10	• 20-25	• 45-50		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



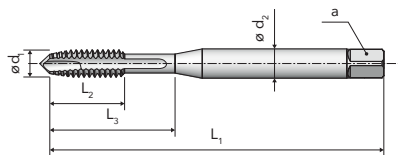
UNC	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z		A49 NITRIDED	A49 TiCN		
	[TPI]	[mm]	js 16 [mm]	[mm]	[mm]	h9 [mm]	h12 [mm]	[-]	[mm]				
Nr.2	56	2,184	45	9	13	2,8	2,1	3	1,85	•	•		
Nr.3	48	2,515	50	9	15	2,8	2,1	3	2,1	•	•		
Nr.4	40	2,845	56	10	18	3,5	2,7	3	2,35	•	•		
Nr.5	40	3,175	56	10	18	3,5	2,7	3	2,65	•	•		
Nr.6	32	3,505	56	11	20	4	3	3	2,85	•	•		
Nr.8	32	4,166	63	13	22	4,5	3,4	3	3,5	•	•		
Nr.10	24	4,826	70	16	26,5	6	4,9	3	3,9	•	•		
Nr.12	24	5,486	80	16	26,5	6	4,9	3	4,5	•	•		
1/4"	20	6,35	80	17	30	7	5,5	3	5,1	•	•		
5/16"	18	7,938	90	18	-	6	4,9	4	6,6	•	•		
3/8"	16	9,525	100	22	-	7	5,5	4	8	•	•		
7/16"	14	11,113	100	24	-	8	6,2	4	9,4	•	•		
1/2"	13	12,7	110	26	-	9	7	4	10,8	•	•		
9/16"	12	14,288	110	28	-	11	9	4	12,2	•	•		
5/8"	11	15,875	110	28	-	12	9	4	13,5	•	•		
3/4"	10	19,05	125	32	-	14	11	4	16,5	•	•		
7/8"	9	22,225	140	32	-	18	14,5	4	19,5	•	•		
1"	8	25,4	160	36	-	18	14,5	5	22,25	•	•		
1 1/8"	7	28,575	180	40	-	22	18	5	25	•	•		
1 1/4"	7	31,75	180	40	-	22	18	5	28	•	•		
1 3/8"	6	34,925	200	50	-	28	22	5	30,75	•	•		
1 1/2"	6	38,1	200	50	-	28	22	5	34	•	•		

MACHINE TAPS for through holes
Straight flutes with spiral point

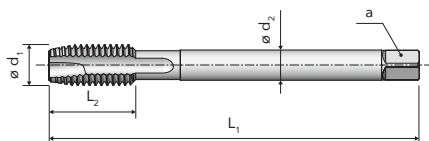
ASME
B1.1



DIN 2184-1 ≤ Ø 1/4"



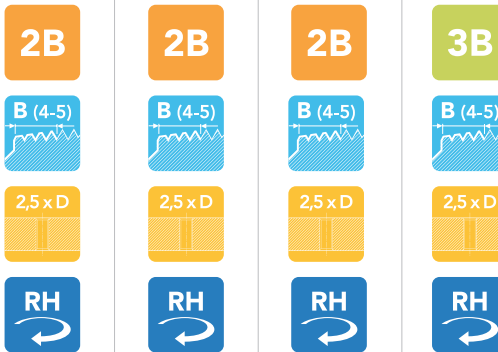
DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A19 S BRIGHT	A19 S TiN	A19 S TiCN	A19 S 3B BRIGHT
P	P.2	• 20-25	• 30-35	• 30-35	• 20-25
	P.3	• 15-20	• 25-30	• 25-30	• 15-20
	P.4	• 12-15	• 20-25	• 20-25	• 12-15
	P.5		• 10-15	• 10-15	
	P.7		• 10-15	• 10-15	
M	M.1		• 10-15	• 10-15	
K	K.2	• 15-20	• 25-30	• 25-30	• 15-20
N	N.2-3	• 20-25	• 30-35	• 30-35	• 20-25
	N.6	• 15-18	• 25-30	• 25-30	• 15-18

Tolerance



Chamfer form

Hole type

Direction of cut

Through coolant

UNC	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z		A19 S BRIGHT	A19 S TiN	A19 S TiCN	A19 S 3B BRIGHT
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
Nr.2	56	2,184	45	8	13	2,8	2,1	2	1,85	•	•	•	
Nr.3	48	2,515	50	9	15	2,8	2,1	3	2,1	•	•	•	
Nr.4	40	2,845	56	10	18	3,5	2,7	3	2,35	•	•	•	
Nr.5	40	3,175	56	10	18	3,5	2,7	3	2,65	•	•	•	
Nr.6	32	3,505	56	11	20	4	3	3	2,85	•	•	•	•
Nr.8	32	4,166	63	13	22	4,5	3,4	3	3,5	•	•	•	•
Nr.10	24	4,826	70	16	26,5	6	4,9	3	3,9	•	•	•	•
Nr.12	24	5,486	80	16	26,5	6	4,9	3	4,5	•	•	•	•
1/4"	20	6,35	80	17	30	7	5,5	3	5,1	•	•	•	•
5/16"	18	7,938	90	18	-	6	4,9	3	6,6	•	•	•	•
3/8"	16	9,525	100	22	-	7	5,5	3	8	•	•	•	•
7/16"	14	11,113	100	24	-	8	6,2	3	9,4	•	•	•	•
1/2"	13	12,7	110	26	-	9	7	3	10,8	•	•	•	•
9/16"	12	14,288	110	28	-	11	9	3	12,2	•	•	•	•
5/8"	11	15,875	110	28	-	12	9	3	13,5	•	•	•	•
3/4"	10	19,05	125	32	-	14	11	4	16,5	•	•	•	•
7/8"	9	22,225	140	32	-	18	14,5	4	19,5	•	•	•	•
1"	8	25,4	160	36	-	18	14,5	4	22,25	•	•	•	•
1 1/4"	7	31,75	180	40	-	22	18	4	28	•			
1 1/2"	6	38,1	200	50	-	28	22	4	34	•			

NEW
NEW

A
SERIES

MACHINE TAPS for through holes
Straight flutes with spiral point / for stainless steel



2,5 x D



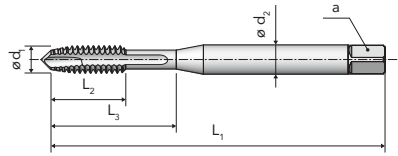
HSSE



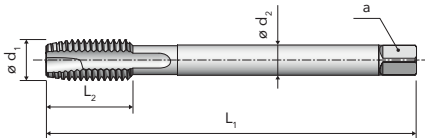
NEW
A19 S
TiX2

A
SERIES

DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A19 S TiX2			
P	P.7	● 10-15			
M	M.1	● 10-15			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



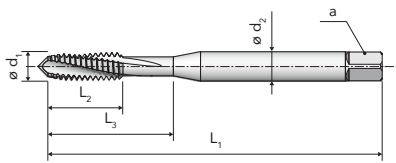
UNC	P [TPI]	Ød ₁ [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z	z	z	A19 S TiX2
Nr.6	32	3,505	56	11	20	4	3	3	2,85	•	
Nr.8	32	4,166	63	13	22	4,5	3,4	3	3,5	•	
Nr.10	24	4,826	70	16	26,5	6	4,9	3	3,9	•	
Nr.12	24	5,486	80	16	26,5	6	4,9	3	4,5	•	
1/4"	20	6,35	80	17	30	7	5,5	3	5,1	•	
5/16"	18	7,938	90	18	-	6	4,9	3	6,6	•	
3/8"	16	9,525	100	22	-	7	5,5	3	8	•	
7/16"	14	11,113	100	24	-	8	6,2	3	9,4	•	
1/2"	13	12,7	110	26	-	9	7	3	10,8	•	
9/16"	12	14,288	110	28	-	11	9	3	12,2	•	
5/8"	11	15,875	110	28	-	12	9	3	13,5	•	
3/4"	10	19,05	125	32	-	14	11	4	16,5	•	
7/8"	9	22,225	140	32	-	18	14,5	4	19,5	•	
1"	8	25,4	160	36	-	18	14,5	4	22,25	•	

MACHINE TAPS for blind holes
15° spiral flutes

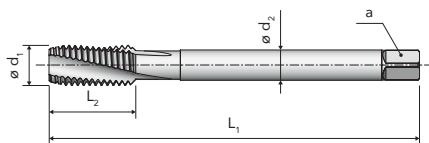
ASME
B1.1



DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A33 BRIGHT	A33 TiN	A33 3B BRIGHT
P	P.1	• 18-20	• 30-35	• 18-20
	P.2	• 15-18	• 25-30	• 15-18
	P.3	• 12-15	• 20-25	• 12-15
	P.4	• 10-12	• 15-20	• 10-12
	P.5		• 5-10	
K	K.2	• 12-15	• 20-25	• 12-15
N	N.1	• 18-20		• 18-20
	N.2-3	• 15-18	• 25-30	• 15-18
	N.5	• 15-18		• 15-18
	N.6	• 12-15	• 20-25	• 12-15

Tolerance

2B

2B

3B

Chamfer form



Hole type



Direction of cut



Through coolant



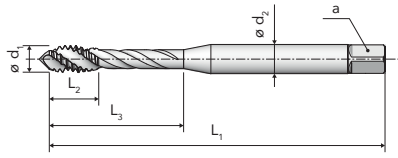
UNC	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z		A33 BRIGHT	A33 TiN	A33 3B BRIGHT
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]			
Nr.2	56	2,184	45	8	13	2,8	2,1	3	1,85	•	•	
Nr.3	48	2,515	50	9	15	2,8	2,1	3	2,1	•	•	
Nr.4	40	2,845	56	10	18	3,5	2,7	3	2,35	•	•	
Nr.5	40	3,175	56	10	18	3,5	2,7	3	2,65	•	•	
Nr.6	32	3,505	56	11	20	4	3	3	2,85	•	•	•
Nr.8	32	4,166	63	13	20	4,5	3,4	3	3,5	•	•	•
Nr.10	24	4,826	70	16	26,5	6	4,9	3	3,9	•	•	•
Nr.12	24	5,486	80	16	29	6	4,9	3	4,5	•	•	•
1/4"	20	6,35	80	17	30	7	5,5	3	5,1	•	•	•
5/16"	18	7,938	90	18	-	6	4,9	3	6,6	•	•	•
3/8"	16	9,525	100	22	-	7	5,5	3	8	•	•	•
7/16"	14	11,113	100	24	-	8	6,2	3	9,4	•	•	•
1/2"	13	12,7	110	26	-	9	7	3	10,8	•	•	•
9/16"	12	14,288	110	28	-	11	9	3	12,2	•	•	•
5/8"	11	15,875	110	28	-	12	9	3	13,5	•	•	•
3/4"	10	19,05	125	32	-	14	11	4	16,5	•	•	•
7/8"	9	22,225	140	32	-	18	14,5	4	19,5	•	•	
1"	8	25,4	160	36	-	18	14,5	4	22,25	•	•	
1 1/8"	7	28,575	180	40	-	22	18	4	25	•		
1 1/4"	7	31,75	180	40	-	22	18	4	28	•		
1 3/8"	6	34,925	200	50	-	28	22	4	30,75	•		
1 1/2"	6	38,1	200	50	-	28	22	4	34	•		

A
SERIES

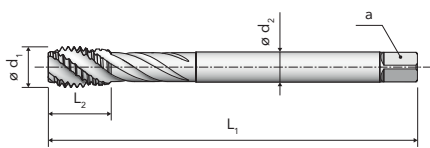


A SERIES

DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A60 BRIGHT	A60 TIN		
P	P.1	• 12-15	• 25-30		
	P.2	• 10-15	• 20-25		
N	N.1	• 12-15			
	N.2	• 12-15	• 25-30		
	N.5	• 10-12			
	N.6	• 10-12	• 20-25		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



UNC	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z	
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]
Nr.2	56	2,184	45	6	13	2,8	2,1	3	1,85
Nr.3	48	2,515	50	6	15	2,8	2,1	3	2,1
Nr.4	40	2,845	56	6,5	21	3,5	2,7	3	2,35
Nr.5	40	3,175	56	6,5	21	3,5	2,7	3	2,65
Nr.6	32	3,505	56	7,5	22,5	4	3	3	2,85
Nr.8	32	4,166	63	7,5	26	4,5	3,4	3	3,5
Nr.10	24	4,826	70	10	28,5	6	4,9	3	3,9
Nr.12	24	5,486	80	10	28,5	6	4,9	3	4,5
1/4"	20	6,35	80	11,5	32	7	5,5	3	5,1
5/16"	18	7,938	90	13	-	6	4,9	3	6,6
3/8"	16	9,525	100	14	-	7	5,5	3	8
7/16"	14	11,113	100	17	-	8	6,2	3	9,4
1/2"	13	12,7	110	19	-	9	7	4	10,8
9/16"	12	14,288	110	21	-	11	9	4	12,2
5/8"	11	15,875	110	22,5	-	12	9	4	13,5
3/4"	10	19,05	125	26	-	14	11	4	16,5
7/8"	9	22,225	140	30	-	18	14,5	4	19,5
1"	8	25,4	160	36,5	-	18	14,5	4	22,25

A60 BRIGHT

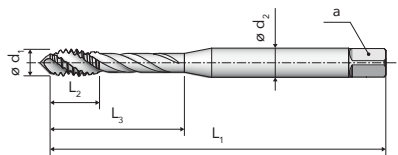
A60 TIN

MACHINE TAPS for blind holes
40° spiral flutes / back tapered

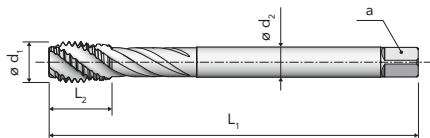
ASME
B1.1



DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A60 BRIGHT	A60 TiN	A60 TiCN	A60 TiX2
P	P.3	• 12-15	• 20-25	• 20-25	
	P.4	• 10-12	• 15-20	• 15-20	
	P.5		• 5-10	• 5-10	
	P.7		• 8-10	• 8-10	• 8-10
M	M.1		• 8-10	• 8-10	• 8-10
	M.2				• 5-7
K	K.2	• 12-15	• 20-25	• 20-25	
N	N.3	• 15-18	• 25-30	• 25-30	
	N.6	• 15-18	• 25-30	• 25-30	

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



A SERIES

UNC	P [TPI]	Ød1 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]	z [mm]	A60 S BRIGHT	A60 S TiN	A60 S TiCN	A60 S TiX2
Nr.2	56	2,184	45	6	13	2,8	2,1	3	1,85	•	•	•	•
Nr.3	48	2,515	50	6	15	2,8	2,1	3	2,1	•	•	•	•
Nr.4	40	2,845	56	6,5	21	3,5	2,7	3	2,35	•	•	•	•
Nr.5	40	3,175	56	6,5	21	3,5	2,7	3	2,65	•	•	•	•
Nr.6	32	3,505	56	7,5	22,5	4	3	3	2,85	•	•	•	•
Nr.8	32	4,166	63	7,5	26	4,5	3,4	3	3,5	•	•	•	•
Nr.10	24	4,826	70	10	28,5	6	4,9	3	3,9	•	•	•	•
Nr.12	24	5,486	80	10	28,5	6	4,9	3	4,5	•	•	•	•
1/4"	20	6,35	80	11,5	32	7	5,5	3	5,1	•	•	•	•
5/16"	18	7,938	90	13	-	6	4,9	3	6,6	•	•	•	•
3/8"	16	9,525	100	14	-	7	5,5	3	8	•	•	•	•
7/16"	14	11,113	100	17	-	8	6,2	3	9,4	•	•	•	•
1/2"	13	12,7	110	19	-	9	7	4	10,8	•	•	•	•
9/16"	12	14,288	110	21	-	11	9	4	12,2	•	•	•	•
5/8"	11	15,875	110	22,5	-	12	9	4	13,5	•	•	•	•
3/4"	10	19,05	125	26	-	14	11	4	16,5	•	•	•	•
7/8"	9	22,225	140	30	-	18	14,5	4	19,5	•	•	•	•
1"	8	25,4	160	36,5	-	18	14,5	4	22,25	•	•	•	•
1 1/4"	7	31,75	180	42	-	22	18	5	28	•	•	•	•
1 1/2"	6	38,1	200	49	-	28	22	5	34	•	•	•	•

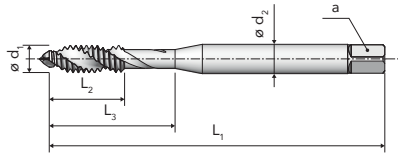
NEW
NEW



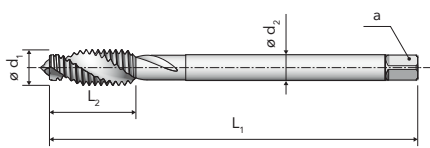
A65 BRIGHT

A SERIES

DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A65 BRIGHT			
N	P.1-2	• 12-15			
	P.5-6	• 10-15			
S	S.1	• 6-8			
	S.3	• 6-8			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

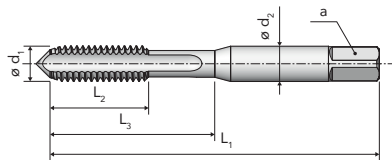


UNC	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z	z	z	A65 BRIGHT
	[TPI]	[mm]	js 16 [mm]	[mm]	[mm]	h9 [mm]	h12 [mm]	[-]	[mm]	[mm]	
Nr.3	48	2,515	50	9	15	2,8	2,1	2	2,1	2,1	•
Nr.4	40	2,845	56	10	18	3,5	2,7	2	2,35	2,35	•
Nr.5	40	3,175	56	10	18	3,5	2,7	2	2,65	2,65	•
Nr.6	32	3,505	56	11	20	4	3	2	2,85	2,85	•
Nr.8	32	4,166	63	13	20	4,5	3,4	2	3,5	3,5	•
Nr.10	24	4,826	70	16	26,5	6	4,9	2	3,9	3,9	•
Nr.12	24	5,486	80	16	29	6	4,9	2	4,5	4,5	•
1/4"	20	6,35	80	17	30	7	5,5	2	5,1	5,1	•
5/16"	18	7,938	90	18	-	6	4,9	2	6,6	6,6	•
3/8"	16	9,525	100	22	-	7	5,5	2	8	8	•

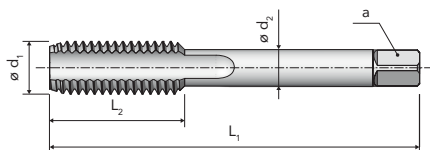
HAND TAPS for blind and through holes
In sets of two pieces



DIN 2184-2 ≤ Ø 1/4"



DIN 2184-2 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A8 ROUGHING	A8 FINISHING	A8 SET
P	P.1-4	●	●	●
	P.7	●	●	●
K	K.2	●	●	●
N	N.1-3	●	●	●
	N.5-7	●	●	●

A8 ROUGHING

A8 FINISHING

A8 SET



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



UNF	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z		A8 ROUGHING	A8 FINISHING	A8 SET
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]		[mm]		
Nr.2	64	2,184	36	9	15	2,8	2,1	3	1,85	●	●	●
Nr.3	56	2,515	40	9	15	2,8	2,1	3	2,15	●	●	●
Nr.4	48	2,845	40	10	18	3,5	2,7	3	2,4	●	●	●
Nr.5	44	3,175	40	10	18	3,5	2,7	3	2,7	●	●	●
Nr.6	40	3,505	45	11	20	4	3	3	2,95	●	●	●
Nr.8	36	4,166	45	12	21	4,5	3,4	3	3,5	●	●	●
Nr.10	32	4,826	50	14	23	6	4,9	3	4,1	●	●	●
Nr.12	28	5,486	56	16	28	6	4,9	3	4,6	●	●	●
1/4"	28	6,35	56	16	28	6	4,9	3	5,5	●	●	●
5/16"	24	7,938	63	18	-	6	4,9	3	6,9	●	●	●
3/8"	24	9,525	63	18	-	7	5,5	3	8,5	●	●	●
7/16"	20	11,113	70	20	-	8	6,2	3	9,9	●	●	●
1/2"	20	12,7	70	20	-	9	7	4	11,5	●	●	●
9/16"	18	14,288	70	22	-	11	9	4	12,9	●	●	●
5/8"	18	15,875	70	22	-	12	9	4	14,5	●	●	●
3/4"	16	19,05	80	22	-	14	11	4	17,5	●	●	●
7/8"	14	22,225	80	22	-	18	14,5	4	20,4	●	●	●
1"	12	25,4	90	22	-	18	14,5	4	23,25	●	●	●
1 1/8"	12	28,575	90	22	-	22	18	4	26,5	●	●	●
1 1/4"	12	31,75	90	22	-	22	18	4	29,5	●	●	●



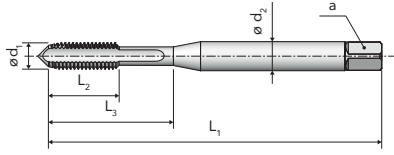
A28 FC BRIGHT

A28 FC TiN

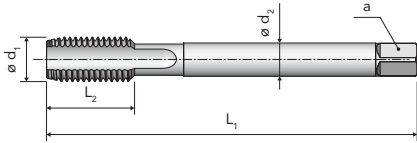
A28 FP BRIGHT

A28 FP TiN

DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A28 FC BRIGHT	A28 FC TiN	A28 FP BRIGHT	A28 FP TiN
P	P.1		• 20-25		• 20-25
	P.2	• 10-12	• 15-20	• 10-12	• 15-20
	P.3	• 8-10	• 12-15	• 8-10	• 12-15
K	K.2	• 8-10	• 12-15	• 8-10	• 12-15
N	N.1		• 20-25		• 20-25
	N.5		• 15-20		• 15-20

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



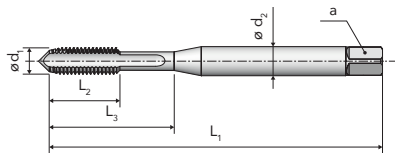
UNF	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z		A28 FC BRIGHT	A28 FC TiN	A28 FP BRIGHT	A28 FP TiN
	[TPI]	[mm]	js 16 [mm]	[mm]	[mm]	h9 [mm]	h12 [mm]	[-]	[mm]				
Nr.2	64	2,184	45	9	13	2,8	2,1	3	1,85	•	•	•	•
Nr.3	56	2,515	50	9	15	2,8	2,1	3	2,15	•	•	•	•
Nr.4	48	2,845	56	10	18	3,5	2,7	3	2,4	•	•	•	•
Nr.5	44	3,175	56	10	18	3,5	2,7	3	2,7	•	•	•	•
Nr.6	40	3,505	56	11	20	4	3	3	2,95	•	•	•	•
Nr.8	36	4,166	63	12	21	4,5	3,4	3	3,5	•	•	•	•
Nr.10	32	4,826	70	14	24,5	6	4,9	3	4,1	•	•	•	•
Nr.12	28	5,486	80	16	26,5	6	4,9	3	4,6	•	•	•	•
1/4"	28	6,35	80	16	30	7	5,5	3	5,5	•	•	•	•
5/16"	24	7,938	90	18	-	6	4,9	3	6,9	•	•	•	•
3/8"	24	9,525	90	18	-	7	5,5	3	8,5	•	•	•	•
7/16"	20	11,113	100	20	-	8	6,2	3	9,9	•	•	•	•
1/2"	20	12,7	100	22	-	9	7	3	11,5	•	•	•	•
9/16"	18	14,288	100	22	-	11	9	3	12,9	•	•	•	•
5/8"	18	15,875	100	22	-	12	9	3	14,5	•	•	•	•
3/4"	16	19,05	110	25	-	14	11	4	17,5	•	•	•	•
7/8"	14	22,225	125	25	-	18	14,5	4	20,4	•	•	•	•
1"	12	25,4	140	28	-	18	14,5	4	23,25	•	•	•	•
1 1/8"	12	28,575	150	28	-	22	18	4	26,5	•	•	•	•
1 1/4"	12	31,75	150	28	-	22	18	4	29,5	•	•	•	•
1 3/8"	12	34,925	170	30	-	28	22	4	32,75	•	•	•	•
1 1/2"	12	38,1	170	30	-	28	22	5	36	•	•	•	•

MACHINE TAPS for blind and through holes
Straight flutes / for cast iron

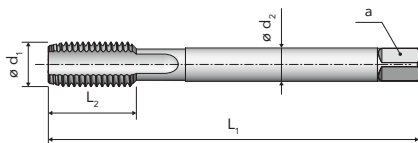
ASME
B1.1



DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A50 NITRIDED	A50 TiCN		
K	K.1	• 15-20	• 40-45		
N	N.4	• 15-20	• 40-45		
	N.7	• 15-20	• 40-45		
	N.9-10	• 20-25	• 45-50		

A50
NITRIDED

A50
TiCN



Tolerance

Chamfer form

Hole type

Direction of cut

Through coolant

UNF	P [TPI]	Ød ₁ [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A50 NITRIDED	A50 TiCN		
Nr.8	36	4,166	63	12	21	4,5	3,4	3	3,5	•	•		
Nr.10	32	4,826	70	14	24,5	6	4,9	3	4,1	•	•		
Nr.12	28	5,486	80	16	26,5	6	4,9	3	4,6	•	•		
1/4"	28	6,35	80	16	30	7	5,5	3	5,5	•	•		
5/16"	24	7,938	90	18	-	6	4,9	4	6,9	•	•		
3/8"	24	9,525	90	18	-	7	5,5	4	8,5	•	•		
7/16"	20	11,113	100	20	-	8	6,2	4	9,9	•	•		
1/2"	20	12,7	100	22	-	9	7	4	11,5	•	•		
9/16"	18	14,288	100	22	-	11	9	4	12,9	•	•		
5/8"	18	15,875	100	22	-	12	9	4	14,5	•	•		
3/4"	16	19,05	110	25	-	14	11	4	17,5	•	•		
7/8"	14	22,225	125	25	-	18	14,5	4	20,4	•	•		
1"	12	25,4	140	28	-	18	14,5	5	23,25	•	•		
1 1/8"	12	28,575	150	28	-	22	18	5	26,5	•	•		
1 1/4"	12	31,75	150	28	-	22	18	5	29,5	•	•		
1 3/8"	12	34,925	170	30	-	28	22	5	32,75	•	•		
1 1/2"	12	38,1	170	30	-	28	22	5	36	•	•		

A
SERIES



2,5 x D



HSSE



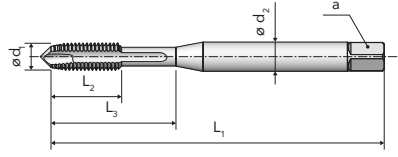
A20 S BRIGHT

A20 S TiN

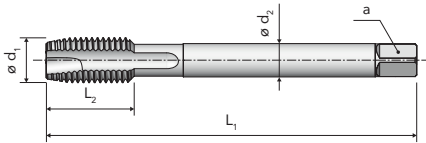
A20 S TiCN

A20 S 3B BRIGHT

DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A20 S BRIGHT	A20 S TiN	A20 S TiCN	A20 S 3B BRIGHT
P	P.2	• 20-25	• 30-35	• 30-35	• 20-25
	P.3	• 15-20	• 25-30	• 25-30	• 15-20
	P.4	• 12-15	• 20-25	• 20-25	• 12-15
	P.5		• 10-15	• 10-15	
	P.7		• 10-15	• 10-15	
M	M.1		• 10-15	• 10-15	
K	K.2	• 15-20	• 25-30	• 25-30	• 15-20
N	N.2-3	• 20-25	• 30-35	• 30-35	• 20-25
	N.6	• 15-18	• 25-30	• 25-30	• 15-18

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



UNF	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z		A20 S BRIGHT	A20 S TiN	A20 S TiCN	A20 S 3B BRIGHT
	[TPI]	[mm]	js 16 [mm]	[mm]	[mm]	h9 [mm]	h12 [mm]	[-]	[mm]				
Nr.2	64	2,184	45	8	13	2,8	2,1	2	1,85	•	•	•	
Nr.3	56	2,515	50	9	15	2,8	2,1	3	2,15	•	•	•	
Nr.4	48	2,845	56	10	18	3,5	2,7	3	2,4	•	•	•	
Nr.5	44	3,175	56	10	18	3,5	2,7	3	2,7	•	•	•	
Nr.6	40	3,505	56	11	20	4	3	3	2,95	•	•	•	•
Nr.8	36	4,166	63	12	21	4,5	3,4	3	3,5	•	•	•	•
Nr.10	32	4,826	70	14	24,5	6	4,9	3	4,1	•	•	•	•
Nr.12	28	5,486	80	16	26,5	6	4,9	3	4,6	•	•	•	•
1/4"	28	6,35	80	16	30	7	5,5	3	5,5	•	•	•	•
5/16"	24	7,938	90	18	-	6	4,9	3	6,9	•	•	•	•
3/8"	24	9,525	90	18	-	7	5,5	3	8,5	•	•	•	•
7/16"	20	11,113	100	20	-	8	6,2	3	9,9	•	•	•	•
1/2"	20	12,7	100	22	-	9	7	4	11,5	•	•	•	•
9/16"	18	14,288	100	22	-	11	9	4	12,9	•	•	•	•
5/8"	18	15,875	100	22	-	12	9	4	14,5	•	•	•	•
3/4"	16	19,05	110	25	-	14	11	4	17,5	•	•	•	•
7/8"	14	22,225	125	25	-	18	14,5	4	20,4	•	•	•	•
1"	12	25,4	140	28	-	18	14,5	4	23,25	•	•	•	•
1 1/4"	12	31,75	150	28	-	22	18	4	29,5	•			
1 1/2"	12	38,1	170	30	-	28	22	5	36	•			

NEW
NEW



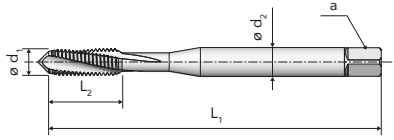
A34 BRIGHT

A34 TiN

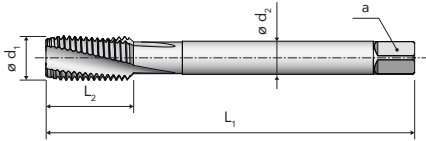
A34 3B BRIGHT

A SERIES

DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A34 BRIGHT	A34 TiN	A34 3B BRIGHT
P	P.1	• 18-20	• 30-35	• 18-20
	P.2	• 15-18	• 25-30	• 15-18
	P.3	• 12-15	• 20-25	• 12-15
	P.4	• 10-12	• 15-20	• 10-12
	P.5		• 5-10	
K	K.2	• 12-15	• 20-25	• 12-15
N	N.1	• 18-20		• 18-20
	N.2-3	• 15-18	• 25-30	• 15-18
	N.5	• 15-18		• 15-18
	N.6	• 12-15	• 20-25	• 12-15

Tolerance



Chamfer form



Hole type



Direction of cut



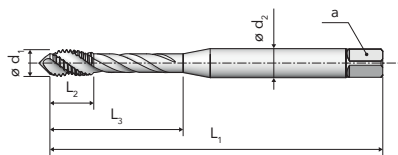
Through coolant



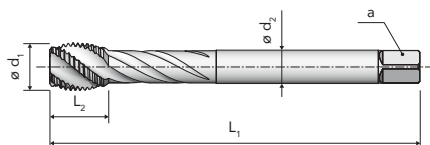
UNF	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z	z	A34 BRIGHT	A34 TiN	A34 3B BRIGHT
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]			
Nr.2	64	2,184	45	8	13	2,8	2,1	3	1,85	•	•	
Nr.3	56	2,515	50	9	15	2,8	2,1	3	2,15	•	•	
Nr.4	48	2,845	56	10	18	3,5	2,7	3	2,4	•	•	
Nr.5	44	3,175	56	10	18	3,5	2,7	3	2,7	•	•	
Nr.6	40	3,505	56	11	20	4	3	3	2,95	•	•	•
Nr.8	36	4,166	63	12	21	4,5	3,4	3	3,5	•	•	•
Nr.10	32	4,826	70	14	24,5	6	4,9	3	4,1	•	•	•
Nr.12	28	5,486	80	16	26,5	6	4,9	3	4,6	•	•	•
1/4"	28	6,35	80	16	30	7	5,5	3	5,5	•	•	•
5/16"	24	7,938	90	18	-	6	4,9	3	6,9	•	•	•
3/8"	24	9,525	90	18	-	7	5,5	3	8,5	•	•	•
7/16"	20	11,113	100	20	-	8	6,2	3	9,9	•	•	•
1/2"	20	12,7	100	22	-	9	7	3	11,5	•	•	•
9/16"	18	14,288	100	22	-	11	9	3	12,9	•	•	•
5/8"	18	15,875	100	22	-	12	9	3	14,5	•	•	•
3/4"	16	19,05	110	25	-	14	11	4	17,5	•	•	•
7/8"	14	22,225	125	25	-	18	14,5	4	20,4	•	•	
1"	12	25,4	140	28	-	18	14,5	4	23,25	•	•	
1 1/8"	12	28,575	150	28	-	22	18	4	26,5	•		
1 1/4"	12	31,75	150	28	-	22	18	4	29,5	•		
1 3/8"	12	34,925	170	30	-	28	22	5	32,75	•		
1 1/2"	12	38,1	170	30	-	28	22	5	36	•		

MACHINE TAPS for blind holes
 40° spiral flutes / back tapered


DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A61 BRIGHT	A61 TiN		
P	P.1	• 12-15	• 25-30		
	P.2	• 10-15	• 20-25		
N	N.1	• 12-15			
	N.2	• 12-15	• 25-30		
	N.5	• 10-12			
	N.6	• 10-12	• 20-25		

A61 BRIGHT

A61 TiN



2B

2B

Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant

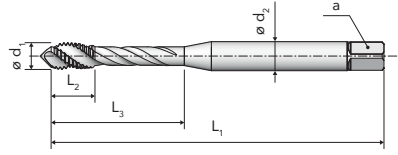
UNF	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z	z	A61 BRIGHT	A61 TiN		
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
Nr.2	64	2,184	45	5,5	13	2,8	2,1	3	1,85	•	•		
Nr.3	56	2,515	50	6	18	2,8	2,1	3	2,15	•	•		
Nr.4	48	2,845	56	6	18	3,5	2,7	3	2,4	•	•		
Nr.5	44	3,175	56	6	18	3,5	2,7	3	2,7	•	•		
Nr.6	40	3,505	56	6,5	22	4	3	3	2,95	•	•		
Nr.8	36	4,166	63	7	26,5	4,5	3,4	3	3,5	•	•		
Nr.10	32	4,826	70	8	29	6	4,9	3	4,1	•	•		
Nr.12	28	5,486	80	9	29,5	6	4,9	3	4,6	•	•		
1/4"	28	6,35	80	10	32	7	5,5	3	5,5	•	•		
5/16"	24	7,938	90	11	-	6	4,9	3	6,9	•	•		
3/8"	24	9,525	90	12	-	7	5,5	3	8,5	•	•		
7/16"	20	11,113	100	13,5	-	8	6,2	3	9,9	•	•		
1/2"	20	12,7	100	14,5	-	9	7	4	11,5	•	•		
9/16"	18	14,288	100	15,5	-	11	9	4	12,9	•	•		
5/8"	18	15,875	100	16	-	12	9	4	14,5	•	•		
3/4"	16	19,05	110	18	-	14	11	4	17,5	•	•		
7/8"	14	22,225	125	23,5	-	18	14,5	4	20,4	•	•		
1"	12	25,4	140	26	-	18	14,5	4	23,25	•	•		

A SERIES

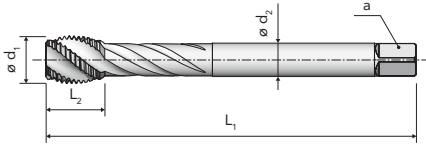


A SERIES

DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A61 S BRIGHT	A61 S TiN	A61 S TiCN	A61 S TiX2
P	P.3	• 12-15	• 20-25	• 20-25	
	P.4	• 10-12	• 15-20	• 15-20	
	P.5		• 5-10	• 5-10	
	P.7		• 8-10	• 8-10	• 8-10
M	M.1		• 8-10	• 8-10	• 8-10
	M.2				• 5-7
K	K.2	• 12-15	• 20-25	• 20-25	
N	N.3	• 15-18	• 25-30	• 25-30	
	N.6	• 15-18	• 25-30	• 25-30	

Tolerance	2B	2B	2B	2B
Chamfer form	C (2-3)	C (2-3)	C (2-3)	C (2-3)
Hole type	2,5xD	2,5xD	2,5xD	2,5xD
Direction of cut	RH	RH	RH	RH
Through coolant	—	—	—	—

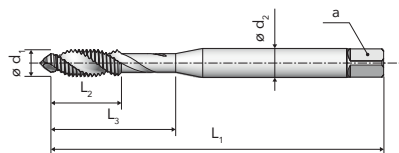
UNF	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z		A61 S BRIGHT	A61 S TiN	A61 S TiCN	A61 S TiX2
	[TPI]	[mm]	js 16 [mm]	[mm]	[mm]	h9 [mm]	h12 [mm]	[-]	[mm]				
Nr.2	64	2,184	45	5,5	13	2,8	2,1	3	1,85	•	•	•	
Nr.3	56	2,515	50	6	18	2,8	2,1	3	2,15	•	•	•	
Nr.4	48	2,845	56	6	18	3,5	2,7	3	2,4	•	•	•	
Nr.5	44	3,175	56	6	18	3,5	2,7	3	2,7	•	•	•	
Nr.6	40	3,505	56	6,5	22	4	3	3	2,95	•	•	•	•
Nr.8	36	4,166	63	7	26,5	4,5	3,4	3	3,5	•	•	•	•
Nr.10	32	4,826	70	8	29	6	4,9	3	4,1	•	•	•	•
Nr.12	28	5,486	80	9	29,5	6	4,9	3	4,6	•	•	•	•
1/4"	28	6,35	80	10	32	7	5,5	3	5,5	•	•	•	•
5/16"	24	7,938	90	11	-	6	4,9	3	6,9	•	•	•	•
3/8"	24	9,525	90	12	-	7	5,5	3	8,5	•	•	•	•
7/16"	20	11,113	100	13,5	-	8	6,2	3	9,9	•	•	•	•
1/2"	20	12,7	100	14,5	-	9	7	4	11,5	•	•	•	•
9/16"	18	14,288	100	15,5	-	11	9	4	12,9	•	•	•	•
5/8"	18	15,875	100	16	-	12	9	4	14,5	•	•	•	•
3/4"	16	19,05	110	18	-	14	11	4	17,5	•	•	•	•
7/8"	14	22,225	125	23,5	-	18	14,5	4	20,4	•	•	•	•
1"	12	25,4	140	26	-	18	14,5	4	23,25	•	•	•	•
1 1/4"	12	31,75	150	26	-	22	18	5	29,5	•			
1 1/2"	12	38,1	170	29	-	28	22	5	36	•			

NEW
NEW

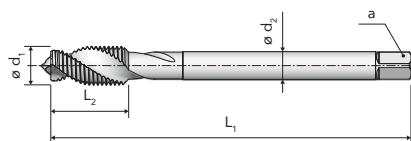
MACHINE TAPS for blind holes
Two 40° spiral flutes / for light alloys



DIN 2184-1 ≤ Ø 1/4"



DIN 2184-1 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A66 BRIGHT			
N	N.1-2	• 12-15			
	N.5-6	• 10-12			
S	S.1	• 6-8			
	S.3	• 6-8			

A66 BRIGHT



Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant



UNF	P [TPI]	Ød ₁ [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]	z [mm]	A66 BRIGHT			
Nr.2	64	2,184	45	8	13	2,8	2,1	2	1,85	•			
Nr.3	56	2,515	50	9	15	2,8	2,1	2	2,15	•			
Nr.4	48	2,845	56	10	18	3,5	2,7	2	2,4	•			
Nr.5	44	3,175	56	10	18	3,5	2,7	2	2,7	•			
Nr.6	40	3,505	56	11	20	4	3	2	2,95	•			
Nr.8	36	4,166	63	12	21	4,5	3,4	2	3,5	•			
Nr.10	32	4,826	70	14	24,5	6	4,9	2	4,1	•			
Nr.12	28	5,486	80	16	26,5	6	4,9	2	4,6	•			
1/4"	28	6,35	80	16	30	7	5,5	2	5,5	•			
5/16"	24	7,938	90	18	-	6	4,9	2	6,9	•			
3/8"	24	9,525	90	18	-	7	5,5	2	8,5	•			

A SERIES

MACHINE TAPS for through holes
Straight flutes with spiral point

ASME
B1.1



2,5 x D



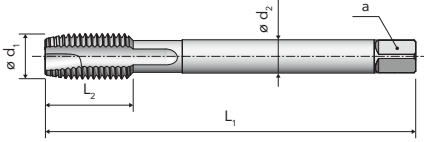
HSSE

A119
BRIGHT

A119
TiN

A
SERIES

VERGNANO STANDARD



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A119 BRIGHT	A119 TiN		
P	P.2	• 20-25	• 30-35		
	P.3	• 15-20	• 25-30		
	P.4	• 12-15	• 20-25		
	P.5		• 10-15		
	P.7		• 10-15		
M	M.1		• 10-15		
K	K.2	• 15-20	• 25-30		
N	N.2-3	• 20-25	• 30-35		
	N.6	• 15-18	• 25-30		

Tolerance

2B

2B

Chamfer form



Hole type



Direction of cut



Through coolant



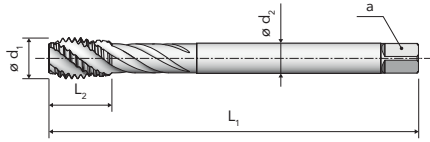
8-UN	P	$\varnothing d_1$	L_1	L_2	L_3	$\varnothing d_2$	a	z		A119 BRIGHT	A119 TiN		
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	_{h9} [mm]	_{h12} [mm]	[-]					
1 1/8"	8	28,575	180	40	-	22	18	4	25,4	•	•		
1 1/4"	8	31,75	180	40	-	25	20	4	28,6	•	•		
1 3/8"	8	34,925	200	50	-	28	22	4	31,8	•	•		
1 1/2"	8	38,1	200	50	-	32	24	4	35	•	•		
1 5/8"	8	41,275	200	50	-	32	24	5	38,1	•	•		
1 3/4"	8	44,45	200	50	-	36	29	5	41,3	•	•		
1 7/8"	8	47,625	225	60	-	36	29	5	44,5	•	•		
2"	8	50,8	225	60	-	40	32	5	47,7	•	•		

MACHINE TAPS for blind holes
40° spiral flutes / back tapered

ASME
B1.1



VERGNANO STANDARD



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A160 BRIGHT	A160 TiN		
P	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
	P.7		• 8-10		
M	M.1		• 8-10		
K	K.2	• 12-15	• 20-25		
N	N.3	• 15-18	• 25-30		
	N.6	• 15-18	• 25-30		

	A160 BRIGHT	A160 TiN
Tolerance	2B	2B
Chamfer form		
Hole type		
Direction of cut		
Through coolant	—	—

A SERIES

8-UN	P [TPI]	Ød1 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]		A160 BRIGHT	A160 TiN		
1 1/8"	8	28,575	180	40	-	22	18	4	25,4	•	•		
1 1/4"	8	31,75	180	41,5	-	25	20	4	28,6	•	•		
1 3/8"	8	34,925	200	50	-	28	22	4	31,1	•	•		
1 1/2"	8	38,1	200	50	-	32	24	5	35	•	•		
1 5/8"	8	41,275	200	52	-	32	24	5	38,1	•	•		
1 3/4"	8	44,45	200	52	-	36	29	5	41,3	•	•		
1 7/8"	8	47,625	225	53,5	-	36	29	5	44,5	•	•		
2"	8	50,8	225	61,5	-	40	32	5	47,7	•	•		



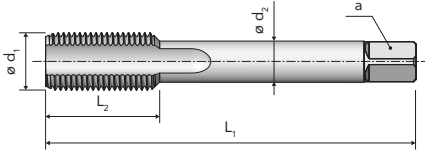
A5 ROUGHING

A5 FINISHING

A5 SET



DIN 5157



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A5 ROUGHING	A5 FINISHING	A5 SET
P	P.1-4	•	•	•
	P.7	•	•	•
K	K.2	•	•	•
N	N.1-3	•	•	•
	N.5-7	•	•	•

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



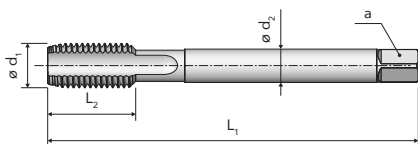
G	P	$\varnothing d_1$	L_1	L_2	L_3	$\varnothing d_2$	a	z	$\frac{1}{z}$		A5 ROUGHING	A5 FINISHING	A5 SET
[TPI]	[mm]	$js\ 16$	[mm]	[mm]	[mm]	$h9$	$h12$	[-]	[mm]	[mm]			
1/8"	28	9,728	63	18	-	7	5,5	3	8,8		•	•	•
1/4"	19	13,157	70	20	-	11	9	4	11,8		•	•	•
3/8"	19	16,662	70	20	-	12	9	4	15,25		•	•	•
1/2"	14	20,955	80	22	-	16	12	4	19		•	•	•
5/8"	14	22,911	80	22	-	18	14,5	4	21		•	•	•
3/4"	14	26,441	90	22	-	20	16	4	24,5		•	•	•
7/8"	14	30,201	90	22	-	22	18	4	28,25		•	•	•
1"	11	33,249	100	25	-	25	20	4	30,75		•	•	•
1 1/8"	11	37,897	125	32	-	28	22	5	35,5		•	•	•
1 1/4"	11	41,91	125	32	-	32	24	5	39,5		•	•	•
1 1/2"	11	47,803	140	32	-	36	29	6	45,25		•	•	•
1 3/4"	11	53,746	140	36	-	40	32	6	51		•	•	•
2"	11	59,614	160	36	-	45	35	6	57		•	•	•

MACHINE TAPS FC = for blind holes - FP = for through holes
Straight flutes

EN ISO 228



DIN 5156



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A26 FC BRIGHT	A26 FP BRIGHT		
P	P.2	• 10-12	• 10-12		
	P.3	• 8-10	• 8-10		
K	K.2	• 8-10	• 8-10		

A26 FC BRIGHT

A26 FP BRIGHT



Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant

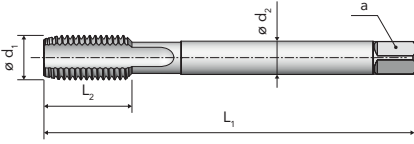


A SERIES

G	P [TPI]	$\varnothing d_1$ [mm]	L_1 _{js 16} [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ _{h9} [mm]	a _{h12} [mm]	z [-]		A26 FC BRIGHT	A26 FP BRIGHT		
1/8"	28	9,728	90	18	-	7	5,5	3	8,8	•	•		
1/4"	19	13,157	100	22	-	11	9	3	11,8	•	•		
3/8"	19	16,662	100	22	-	12	9	3	15,25	•	•		
1/2"	14	20,955	125	25	-	16	12	4	19	•	•		
5/8"	14	22,911	125	25	-	18	14,5	4	21	•	•		
3/4"	14	26,441	140	28	-	20	16	4	24,5	•	•		
7/8"	14	30,201	150	28	-	22	18	4	28,25	•	•		
1"	11	33,249	160	30	-	25	20	4	30,75	•	•		
1 1/8"	11	37,897	170	30	-	28	22	5	35,5	•	•		
1 1/4"	11	41,91	170	30	-	32	24	5	39,5	•	•		
1 1/2"	11	47,803	190	32	-	36	29	6	45,25	•	•		
1 3/4"	11	53,746	190	32	-	40	32	6	51	•	•		
2"	11	59,614	220	40	-	45	35	6	57	•	•		
2 1/2"	11	75,184	250	50	-	45	35	8	72,8	•	•		

MACHINE TAPS for blind and through holes
 Straight flutes / for cast iron
**A48**
NITRIDED**A48**
TiCN

DIN 5156



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A48 NITRIDED	A48 TiCN		
K	K.1	• 15-20	• 40-45		
	N.4	• 15-20	• 40-45		
N	N.7	• 15-20	• 40-45		
	N.9-10	• 20-25	• 45-50		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



G	P [TPI]	$\varnothing d_1$ [mm]	L_1 js 16 [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z [-]			
										A48 NITRIDED	A48 TiCN
1/8"	28	9,728	90	18	-	7	5,5	4	8,8	•	•
1/4"	19	13,157	100	22	-	11	9	4	11,8	•	•
3/8"	19	16,662	100	22	-	12	9	4	15,25	•	•
1/2"	14	20,955	125	25	-	16	12	4	19	•	•
5/8"	14	22,911	125	25	-	18	14,5	4	21	•	•
3/4"	14	26,441	140	28	-	20	16	5	24,5	•	•
7/8"	14	30,201	150	28	-	22	18	5	28,25	•	•
1"	11	33,249	160	30	-	25	20	5	30,75	•	•
1 1/8"	11	37,897	170	30	-	28	22	6	35,5	•	
1 1/4"	11	41,91	170	30	-	32	24	6	39,5	•	
1 1/2"	11	47,803	190	32	-	36	29	6	45,25	•	

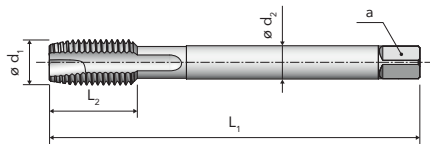
MACHINE TAPS for through holes

Straight flutes with spiral point

EN ISO 228



DIN 5156



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A18 S BRIGHT	A18 S VAP	A18 S TiCN	A18 S TiX2
P	P.2	• 20-25	• 20-25	• 30-35	
	P.3	• 15-20	• 15-20	• 25-30	
	P.4	• 12-15	• 12-15	• 20-25	
	P.5			• 10-15	
	P.7			• 10-15	• 10-15
M	M.1			• 10-15	• 10-15
K	K.2	• 15-20	• 15-20	• 25-30	
N	N.2-3	• 20-25	• 20-25	• 30-35	
	N.6	• 15-18	• 15-18	• 25-30	

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



G	P [TPI]	Ød1 [mm]	L1 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]		A18 S BRIGHT	A18 S VAP	A18 S TiCN	A18 S TiX2
1/8"	28	9,728	90	18	-	7	5,5	4	8,8	•	•	•	•
1/4"	19	13,157	100	22	-	11	9	4	11,8	•	•	•	•
3/8"	19	16,662	100	22	-	12	9	4	15,25	•	•	•	•
1/2"	14	20,955	125	25	-	16	12	4	19	•	•	•	•
5/8"	14	22,911	125	25	-	18	14,5	4	21	•	•	•	•
3/4"	14	26,441	140	28	-	20	16	4	24,5	•	•	•	•
7/8"	14	30,201	150	28	-	22	18	4	28,25	•	•	•	•
1"	11	33,249	160	30	-	25	20	4	30,75	•	•	•	•
1 1/8"	11	37,897	170	30	-	28	22	5	35,5	•	•	•	•
1 1/4"	11	41,91	170	30	-	32	24	5	39,5	•	•	•	•
1 1/2"	11	47,803	190	32	-	36	29	5	45,25	•	•	•	•

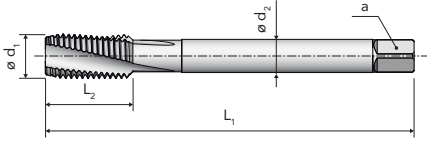
A SERIES



A32 BRIGHT

A32 TiN

DIN 5156



A SERIES

APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A32 BRIGHT	A32 TiN		
P	P.1	• 18-20	• 30-35		
	P.2	• 15-18	• 25-30		
	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
K	K.2	• 12-15	• 20-25		
N	N.1	• 18-20			
	N.2-3	• 15-18	• 25-30		
	N.5	• 15-18			
	N.6	• 12-15	• 20-25		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

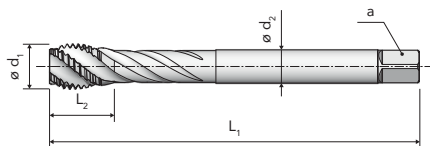
G	P [TPI]	Ød ₁ [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]	z [mm]		A32 BRIGHT	A32 TiN		
1/8"	28	9,728	90	18	-	7	5,5	3	8,8		•	•		
1/4"	19	13,157	100	22	-	11	9	3	11,8		•	•		
3/8"	19	16,662	100	22	-	12	9	3	15,25		•	•		
1/2"	14	20,955	125	25	-	16	12	4	19		•	•		
5/8"	14	22,911	125	25	-	18	14,5	4	21		•	•		
3/4"	14	26,441	140	28	-	20	16	4	24,5		•	•		
7/8"	14	30,201	150	28	-	22	18	4	28,25		•	•		
1"	11	33,249	160	30	-	25	20	4	30,75		•	•		
1 1/8"	11	37,897	170	30	-	28	22	5	35,5		•			
1 1/4"	11	41,91	170	30	-	32	24	5	39,5		•			
1 1/2"	11	47,803	190	32	-	36	29	6	45,25		•			
1 3/4"	11	53,746	190	32	-	40	32	6	51		•			
2"	11	59,614	220	40	-	45	35	6	57		•			
2 1/2"	11	75,184	250	50	-	45	35	8	72,8		•			

MACHINE TAPS for blind holes
40° spiral flutes / back tapered

EN ISO 228



DIN 5156



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A59 BRIGHT	A59 TiN		
P	P.1	● 12-15	● 25-30		
	P.2	● 10-15	● 20-25		
N	N.1	● 12-15			
	N.2	● 12-15	● 25-30		
	N.5	● 10-12			
	N.6	● 10-12	● 20-25		

A59 BRIGHT

A59 TiN



Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant



G	P	$\varnothing d_1$	L_1	L_2	L_3	$\varnothing d_2$	a	z		A59 BRIGHT	A59 TiN		
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	[mm]	^{h12} [mm]	[-]	[mm]				
1/8"	28	9,728	90	17	-	7	5,5	3	8,8	•	•		
1/4"	19	13,157	100	23	-	11	9	4	11,8	•	•		
3/8"	19	16,662	100	23	-	12	9	4	15,25	•	•		
1/2"	14	20,955	125	29	-	16	12	4	19	•	•		
5/8"	14	22,911	125	29	-	18	14,5	4	21	•	•		
3/4"	14	26,441	140	29	-	20	16	4	24,5	•	•		
7/8"	14	30,201	150	32	-	22	18	4	28,25	•	•		
1"	11	33,249	160	34,5	-	25	20	4	30,75	•	•		
1 1/8"	11	37,897	170	34,5	-	28	22	5	35,5	•			
1 1/4"	11	41,91	170	34,5	-	32	24	5	39,5	•			
1 1/2"	11	47,803	190	37,5	-	36	29	6	45,25	•			

A SERIES

MACHINE TAPS for blind holes 40° spiral flutes / back tapered



A59 S BRIGHT

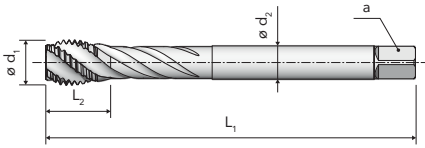
A59 S VAP

A59 S TiN

A59 S TiCN



DIN 5156



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A59 S BRIGHT	A59 S VAP	A59 S TiN	A59 S TiCN
P	P.3	• 12-15	• 12-15	• 20-25	• 20-25
	P.4	• 10-12	• 10-12	• 15-20	• 15-20
	P.5			• 5-10	• 5-10
	P.7			• 8-10	• 8-10
M	M.1			• 8-10	• 8-10
K	K.2	• 12-15	• 12-15	• 20-25	• 20-25
N	N.3	• 15-18	• 15-18	• 25-30	• 25-30
	N.6	• 15-18	• 15-18	• 25-30	• 25-30

Tolerance

Chamfer form

Hole type

Direction of cut

Through coolant

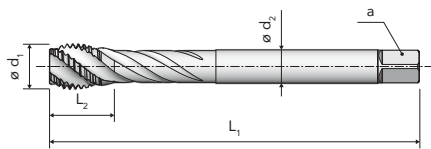
G	P	$\varnothing d_1$	L ₁	L ₂	L ₃	$\varnothing d_2$	a	z	z	A59 S BRIGHT	A59 S VAP	A59 S TiN	A59 S TiCN
	[TPI]	[mm]	js 16 [mm]	[mm]	[mm]	h9 [mm]	h12 [mm]	[-]	[mm]				
1/8"	28	9,728	90	17	-	7	5,5	3	8,8	•	•	•	•
1/4"	19	13,157	100	23	-	11	9	4	11,8	•	•	•	•
3/8"	19	16,662	100	23	-	12	9	4	15,25	•	•	•	•
1/2"	14	20,955	125	29	-	16	12	5	19	•	•	•	•
5/8"	14	22,911	125	29	-	18	14,5	5	21	•	•	•	•
3/4"	14	26,441	140	29	-	20	16	5	24,5	•	•	•	•
7/8"	14	30,201	150	32	-	22	18	5	28,25	•	•	•	•
1"	11	33,249	160	34,5	-	25	20	5	30,75	•	•	•	•
1 1/8"	11	37,897	170	34,5	-	28	22	5	35,5	•	•		
1 1/4"	11	41,91	170	34,5	-	32	24	5	39,5	•	•		
1 1/2"	11	47,803	190	37,5	-	36	29	6	45,25	•	•		

MACHINE TAPS for blind holes
40° spiral flutes / back tapered / for stainless steel

EN ISO 228



DIN 5156



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A59 S TiX2			
P	P.7	• 8-10			
M	M.1	• 8-10			
	M.2	• 5-7			

A59 S
TiX2



ISO 5969

Tolerance

C (2-3)

Chamfer form

2,5 x D

Hole type

RH

Direction
of cut

Through coolant



G	P	Ød1	L1	L2	L3	Ød2	a	z		A59 S TiX2			
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
1/8"	28	9,728	90	17	-	7	5,5	3	8,8	•			
1/4"	19	13,157	100	23	-	11	9	4	11,8	•			
3/8"	19	16,662	100	23	-	12	9	4	15,25	•			
1/2"	14	20,955	125	29	-	16	12	5	19	•			
5/8"	14	22,911	125	29	-	18	14,5	5	21	•			
3/4"	14	26,441	140	29	-	20	16	5	24,5	•			
7/8"	14	30,201	150	32	-	22	18	5	28,25	•			
1"	11	33,249	160	34,5	-	25	20	5	30,75	•			

A SERIES

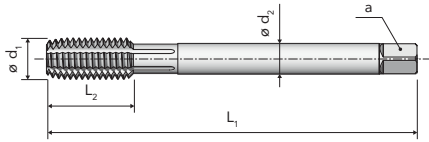


A82 N VAP

A82 N TiN

A82 N TiCN

DIN 2189



Tolerance



Chamfer form



Hole type



Direction of cut

Through coolant

APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A82 N VAP	A82 N TiN	A82 N TiCN
P	P.1-2	• 20-25	• 40-45	• 40-45
	P.3	• 15-20	• 35-40	• 35-40
N	N.1	• 20-25	• 40-45	• 40-45
	N.2		• 40-45	• 40-45
	N.3		• 35-40	• 35-40
	N.5	• 20-25	• 40-45	• 40-45
	N.6		• 40-45	• 40-45

G	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z	
	[TPI]	[mm]	js 16 [mm]	[mm]	[mm]	h9 [mm]	h12 [mm]	[-]	[mm]
1/8"	28	9,728	90	18	-	7	5,5	6	9,25
1/4"	19	13,157	100	22	-	11	9	6	12,5
3/8"	19	16,662	100	22	-	12	9	6	16
1/2"	14	20,955	125	25	-	16	12	6	20
3/4"	14	26,441	140	28	-	20	16	6	25,5
1"	11	33,249	160	30	-	25	20	8	32

A82 N VAP

A82 N TiN

A82 N TiCN

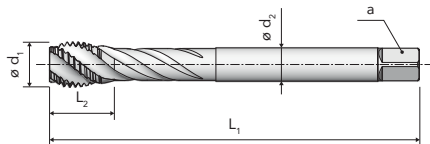
NEW

MACHINE TAPS for blind holes
40° spiral flutes / back tapered

DIN EN 10226-1



DIN 5156



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A159 S BRIGHT	A159 S TiN		
P	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
	P.7		• 8-10		
M	M.1		• 8-10		
K	K.2	• 12-15	• 20-25		
N	N.3	• 15-18	• 25-30		
	N.6	• 15-18	• 25-30		

A159 S BRIGHT

A159 S TiN



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



A SERIES

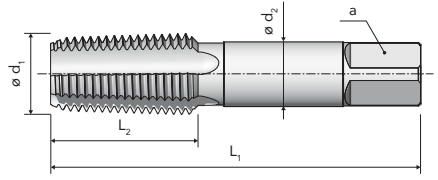
Rp	P [TPI]	Ød1 [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]	[mm]	A159 S BRIGHT	A159 S TiN
1/8"	28	9,728	90	17	-	7	5,5	3	8,6	•	•
1/4"	19	13,157	100	23	-	11	9	4	11,5	•	•
3/8"	19	16,662	100	23	-	12	9	4	15	•	•
1/2"	14	20,955	125	29	-	16	12	5	18,5	•	•
3/4"	14	26,441	140	29	-	20	16	5	24	•	•



A6 BRIGHT

A SERIES

VERGNANO STANDARD



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A6 BRIGHT			
P	P.2	• 10-15			
	P.3	• 10-15			
	P.4	• 8-10			
K	K.2	• 10-12			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Rc	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z	z	
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]	
1/8"	28	9,728	63	17,5	-	7	5,5	4	8,2 ^(a)	•
1/4"	19	13,157	63	23,5	-	11	9	4	11 ^(a)	•
3/8"	19	16,662	70	24	-	12	9	4	14,5 ^(a)	•
1/2"	14	20,955	80	29	-	16	12	4	18 ^(a)	•
3/4"	14	26,441	100	32	-	20	16	5	23,5 ^(a)	•
1"	11	33,249	110	36	-	25	20	5	29,5 ^(a)	•
1 1/4"	11	41,91	125	44	-	32	24	5	38 ^(a)	•
1 1/2"	11	47,803	140	46	-	36	29	6	44 ^(a)	•
2"	11	59,614	160	50	-	45	35	6	55,5 ^(a)	•

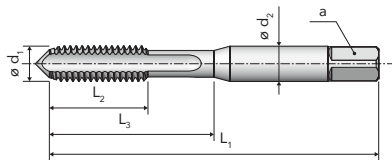
A6 BRIGHT

^(a) = Cylindrical hole (see page 238)

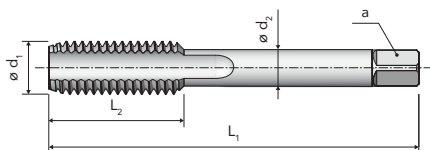
HAND TAPS for blind and through holes
In sets of three pieces



DIN 2184-2 ≤ Ø 1/4"



DIN 2184-2 ≥ Ø 5/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A4 ROUGHING	A4 SECOND	A4 FINISHING	A4 SET
P	P.1-4	•	•	•	•
	P.7	•	•	•	•
K	K.2	•	•	•	•
N	N.1-3	•	•	•	•
	N.5-7	•	•	•	•

A4 ROUGHING

A4 SECOND

A4 FINISHING

A4 SET



A SERIES

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



BSW	P [TPI]	Ød ₁ [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A4 ROUGHING	A4 SECOND	A4 FINISHING	A4 SET
3/32"	48	2,381	40	9	15	2,8	2,1	3	1,9	•	•	•	•
1/8"	40	3,175	40	10	18	3,5	2,7	3	2,55	•	•	•	•
5/32"	32	3,969	45	12	21	4,5	3,4	3	3,2	•	•	•	•
3/16"	24	4,763	50	14	23	6	4,9	3	3,7	•	•	•	•
7/32"	24	5,556	56	16	28	6	4,9	3	4,5	•	•	•	•
1/4"	20	6,35	56	16	28	6	4,9	3	5,1	•	•	•	•
5/16"	18	7,938	63	22	-	6	4,9	3	6,5	•	•	•	•
3/8"	16	9,525	70	24	-	7	5,5	3	7,9	•	•	•	•
7/16"	14	11,113	70	24	-	8	6,2	3	9,25	•	•	•	•
1/2"	12	12,7	75	28	-	9	7	4	10,5	•	•	•	•
9/16"	12	14,288	80	28	-	11	9	4	12	•	•	•	•
5/8"	11	15,875	80	30	-	12	9	4	13,5	•	•	•	•
3/4"	10	19,05	95	32	-	14	11	4	16,4	•	•	•	•
7/8"	9	22,225	100	32	-	18	14,5	4	19,25	•	•	•	•
1"	8	25,4	110	36	-	18	14,5	4	22	•	•	•	•
1 1/8"	7	28,575	125	40	-	22	18	4	24,75	•	•	•	•
1 1/4"	7	31,75	125	40	-	22	18	4	27,75	•	•	•	•

MACHINE TAPS FC = for blind holes - FP = for through holes
Straight flutes

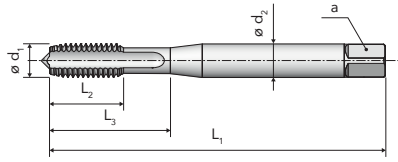
BS 84



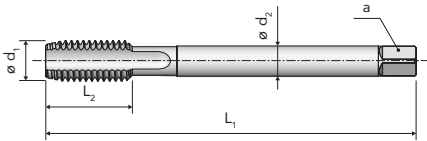
**A24 FC
BRIGHT**

**A24 FP
BRIGHT**

DIN 2184-1 ≤ Ø 3/8"



DIN 2184-1 ≥ Ø 7/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A24 FC BRIGHT	A24 FP BRIGHT
P	P.2	• 10-12	• 10-12
	P.3	• 8-10	• 8-10
K	K.2	• 8-10	• 8-10

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



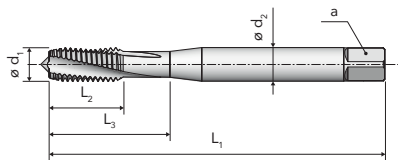
BSW	P [TPI]	Ød ₁ [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A24 FC BRIGHT	A24 FP BRIGHT
3/32"	48	2,381	50	9	15	2,8	2,1	3	1,9	•	•
1/8"	40	3,175	56	11	17	3,5	2,7	3	2,55	•	•
5/32"	32	3,969	63	12	21	4,5	3,4	3	3,2	•	•
3/16"	24	4,763	70	14	24	6	4,9	3	3,7	•	•
7/32"	24	5,556	80	15	28	6	4,9	3	4,5	•	•
1/4"	20	6,35	80	16	29	7	5,5	3	5,1	•	•
5/16"	18	7,938	90	18	33	8	6,2	3	6,5	•	•
3/8"	16	9,525	100	20	36	10	8	3	7,9	•	•
7/16"	14	11,113	100	22	-	8	6,2	3	9,25	•	•
1/2"	12	12,7	110	25	-	9	7	3	10,5	•	•
9/16"	12	14,288	110	27	-	11	9	3	12	•	•
5/8"	11	15,875	110	28	-	12	9	3	13,5	•	•
3/4"	10	19,05	125	32	-	14	11	4	16,4	•	•
7/8"	9	22,225	140	32	-	18	14,5	4	19,25	•	•
1"	8	25,4	160	36	-	18	14,5	4	22	•	•
1 1/8"	7	28,575	180	40	-	22	18	4	24,75	•	•
1 1/4"	7	31,75	180	40	-	22	18	4	27,75	•	•

MACHINE TAPS for blind holes 15° spiral flutes

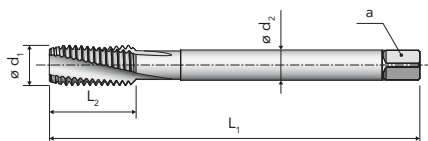
BS 84



DIN 2184-1 ≤ Ø 3/8"



DIN 2184-1 ≥ Ø 7/16"



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A31 BRIGHT	A31 TiN		
P	P.1	• 18-20	• 30-35		
	P.2	• 15-18	• 25-30		
	P.3	• 12-15	• 20-25		
	P.4	• 10-12	• 15-20		
	P.5		• 5-10		
K	K.2	• 12-15	• 20-25		
N	N.1	• 18-20			
	N.2-3	• 15-18	• 25-30		
	N.5	• 15-18			
	N.6	• 12-15	• 20-25		

A31
BRIGHT

A31
TiN



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



A SERIES

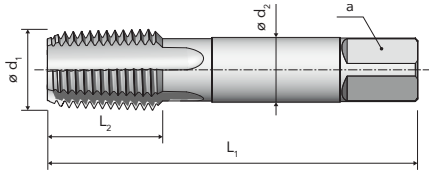
BSW	P [TPI]	Ød ₁ [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		A31 BRIGHT	A31 TiN		
3/32"	48	2,381	50	9	15	2,8	2,1	3	1,9	•	•		
1/8"	40	3,175	56	11	17	3,5	2,7	3	2,55	•	•		
5/32"	32	3,969	63	12	21	4,5	3,4	3	3,2	•	•		
3/16"	24	4,763	70	14	24	6	4,9	3	3,7	•	•		
7/32"	24	5,556	80	15	28	6	4,9	3	4,5	•	•		
1/4"	20	6,35	80	16	29	7	5,5	3	5,1	•	•		
5/16"	18	7,938	90	18	33	8	6,2	3	6,5	•	•		
3/8"	16	9,525	100	20	36	10	8	3	7,9	•	•		
7/16"	14	11,113	100	22	-	8	6,2	3	9,25	•	•		
1/2"	12	12,7	110	25	-	9	7	3	10,5	•	•		
9/16"	12	14,288	110	27	-	11	9	3	12	•	•		
5/8"	11	15,875	110	28	-	12	9	3	13,5	•	•		
3/4"	10	19,05	125	32	-	14	11	4	16,4	•	•		
7/8"	9	22,225	140	32	-	18	14,5	4	19,25	•	•		
1"	8	25,4	160	36	-	18	14,5	4	22	•	•		
1 1/8"	7	28,575	180	40	-	22	18	4	24,75	•	•		
1 1/4"	7	31,75	180	40	-	22	18	4	27,75	•	•		



A6 B
BRIGHT

A
SERIES

VERGNANO STANDARD



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A6 B BRIGHT			
P	P.2	• 10-15			
	P.3	• 10-12			
	P.4	• 8-10			
K	K.2	• 10-12			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



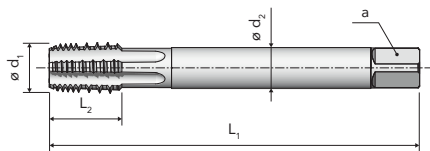
NPT	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z		A6 B BRIGHT
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]	
1/16"	27	7,938	63	12	-	6	4,9	4	6,15 ^(a)	•
1/8"	27	10,287	63	12	-	7	5,5	4	8,5 ^(a)	•
1/4"	18	13,716	63	18	-	11	9	4	11 ^(a)	•
3/8"	18	17,145	70	18	-	12	9	4	14,5 ^(a)	•
1/2"	14	21,336	80	23	-	16	12	4	17,85 ^(a)	•
3/4"	14	26,67	100	24	-	20	16	5	23,2 ^(a)	•
1"	11 1/2	33,401	110	30	-	25	20	5	29 ^(a)	•
1 1/4"	11 1/2	42,164	125	32	-	32	24	5	37,8 ^(a)	•
1 1/2"	11 1/2	48,26	140	32	-	36	29	6	44 ^(a)	•
2"	11 1/2	60,325	160	34	-	45	35	6	56 ^(a)	•

^(a) = Cylindrical hole (see page 238)

MACHINE TAPS for conical blind holes
Straight flutes / interrupted thread



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A6 BZ BRIGHT			
P	P.1	• 12-15			
	P.7	• 2-3			
M	M.1	• 2-3			
N	N.1-2	• 12-15			
	N.5	• 10-12			
	N.6	• 6-8			

A6 BZ
BRIGHT



Tolerance —

Chamfer form

Hole type

Direction of cut

Through coolant —

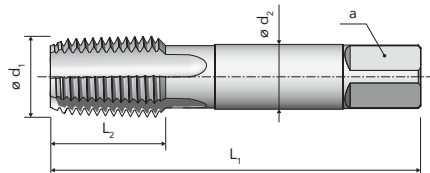
NPT	P	$\varnothing d_1$	L_1	L_2	L_3	$\varnothing d_2$	a	z		A6 BZ BRIGHT			
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
1/16"	27	7,938	90	12	-	6	4,9	3	6,15 ^(a)	•			
1/8"	27	10,287	100	12	-	7	5,5	5	8,5 ^(a)	•			
1/4"	18	13,716	100	18	-	11	9	5	11 ^(a)	•			
3/8"	18	17,145	110	18	-	12	9	5	14,5 ^(a)	•			
1/2"	14	21,336	140	23	-	16	12	5	17,85 ^(a)	•			
3/4"	14	26,67	150	24	-	20	16	5	23,2 ^(a)	•			
1"	11 1/2	33,401	170	30	-	25	20	5	29 ^(a)	•			

^(a) = Cylindrical hole (see page 238)



**A6 F
BRIGHT**

NORMA VERGNANO



A
SERIES

APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A6 F BRIGHT			
P	P.2	● 10-15			
	P.3	● 10-12			
	P.4	● 8-10			
K	K.2	● 10-12			

Tolerance —

Chamfer form



Hole type



Direction of cut



Through coolant —

NPTF	P	$\varnothing d_1$	L_1	L_2	L_3	$\varnothing d_2$	a	z	Icon	A6 F BRIGHT
	[TPI]	[mm]	js_{16} [mm]	[mm]	[mm]	$h_{9/h12}$ [mm]	h_{12} [mm]	[-]	[mm]	

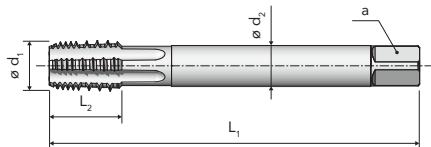
1/16"	27	7,938	63	12	-	6	4,9	4	6,15 ^(a)	•
1/8"	27	10,287	63	12	-	7	5,5	4	8,5 ^(a)	•
1/4"	18	13,716	63	18	-	11	9	4	11 ^(a)	•
3/8"	18	17,145	70	18	-	12	9	4	14,5 ^(a)	•
1/2"	14	21,336	80	23	-	16	12	4	17,8 ^(a)	•
3/4"	14	26,67	100	24	-	20	16	5	23 ^(a)	•
1"	11 1/2	33,401	110	30	-	25	20	5	29 ^(a)	•
1 1/4"	11 1/2	42,164	125	32	-	32	24	5	37,8 ^(a)	•
1 1/2"	11 1/2	48,26	140	32	-	36	29	6	43,8 ^(a)	•
2"	11 1/2	60,325	160	34	-	45	35	6	56 ^(a)	•

^(a) = Cylindrical hole (see page 238)

MACHINE TAPS for conical blind holes
Straight flutes / interrupted thread



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	A6 FZ BRIGHT			
P	P.1	● 12-15			
	P.7	● 2-3			
M	M.1	● 2-3			
N	N.1-2	● 12-15			
	N.5	● 10-12			
	N.6	● 6-8			

A6 FZ BRIGHT



A SERIES

Tolerance —

Chamfer form



Hole type



Direction of cut



Through coolant —

NPTF	P	Ød ₁	L ₁	L ₂	L ₃	Ød ₂	a	z	Ød ₁	A6 FZ BRIGHT			
	[TPI]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[mm]	[mm]	[mm]			
1/16"	27	7,938	90	12	-	6	4,9	3	6,15 ^(a)	●			
1/8"	27	10,287	100	12	-	7	5,5	5	8,5 ^(a)	●			
1/4"	18	13,716	100	18	-	11	9	5	11 ^(a)	●			
3/8"	18	17,145	110	18	-	12	9	5	14,5 ^(a)	●			
1/2"	14	21,336	140	23	-	16	12	5	17,8 ^(a)	●			
3/4"	14	26,67	150	24	-	20	16	5	23 ^(a)	●			
1"	11 1/2	33,401	170	30	-	25	20	5	29 ^(a)	●			

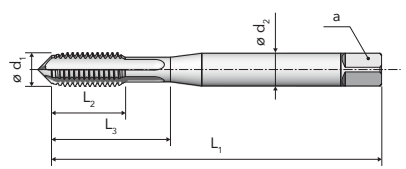
^(a) = Cylindrical hole (see page 238)



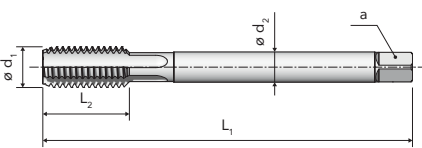
High Performance Taps



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P43 TiCN	P43 ACE	BP43 ACE
K	K.1	• 40-50	• 40-50	• 40-50
	N.4	• 40-50	• 40-50	• 40-50
N	N.7	• 40-50	• 40-50	• 40-50
	N.9-10	• 45-55	• 45-55	• 45-55

P SERIES

P43 TiCN

P43 ACE

BP43 ACE



- Tolerance
- Chamfer form
- Hole type
- Direction of cut
- Through coolant

6HX

C (2-3)

3xD

RH

—

Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z	z	z
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]	[mm]

	P43 TiCN	P43 ACE	BP43 ACE
M 3	•	•	
4	•	•	
5	•	•	•
6	•	•	•
8	•	•	•
10	•	•	•
12	•	•	•
14	•	•	•
16	•	•	•
18	•	•	•
20	•	•	•

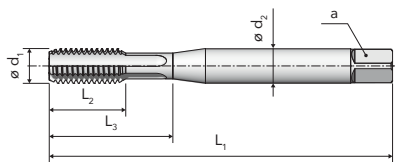
HIGH PERFORMANCE MACHINE TAPS for blind holes

Straight flutes / for cast iron / chamfer form E

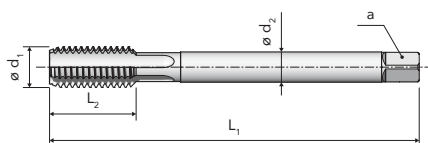
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P43 E ACE	BP43 E ACE		
K	K.1	• 40-50	• 40-50		
	N.4	• 40-50	• 40-50		
N	N.7	• 40-50	• 40-50		
	N.9-10	• 45-55	• 45-55		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

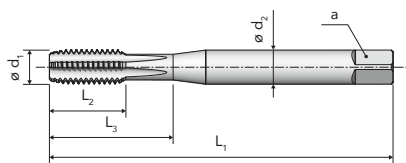


Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]	z [mm]	P43 E ACE	BP43 E ACE
M 4	0,7	63	12	21	4,5	3,4	4	3,3	•	
5	0,8	70	14	24,5	6	4,9	4	4,2	•	•
6	1	80	16	29	6	4,9	4	5	•	•
8	1,25	90	18	33	8	6,2	4	6,8	•	•
10	1,5	100	20	36	10	8	4	8,5	•	•
12	1,75	110	24	-	9	7	4	10,2	•	•

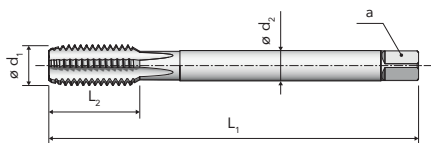
P SERIES

NEW
P130
BRIGHTNEW
P130
ACE

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P130 BRIGHT	P130 ACE
P	P.6	• 2-3	• 5-8
N	N.8	• 3-5	• 8-10

Tolerance



Chamfer form



Hole type

Direction
of cut

Through coolant



Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z		P130 BRIGHT	P130 ACE
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	h9 [mm]	h12 [mm]	[-]	[mm]		
M 4	0,7	63	12	21	4,5	3,4	4	3,4 (*)	•	•
5	0,8	70	14	24,5	6	4,9	4	4,3 (*)	•	•
6	1	80	16	29	6	4,9	5	5,1 (*)	•	•
8	1,25	90	18	33	8	6,2	5	6,9 (*)	•	•
10	1,5	100	20	36	10	8	5	8,6 (*)	•	•
12	1,75	110	24	-	9	7	5	10,4 (*)	•	•
14	2	110	25	-	11	9	5	12,2 (*)	•	•
16	2	110	28	-	12	9	5	14,2 (*)	•	•
20	2,5	140	32	-	16	12	5	17,7 (*)	•	•

(*) = The hole diameters are oversized.

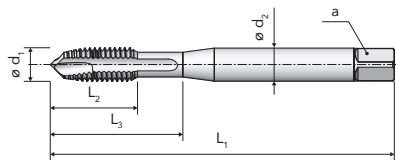
HIGH PERFORMANCE MACHINE TAPS for through holes

Straight flutes with spiral point

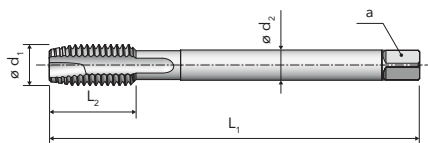
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P15 TiN	P15 TiH1	P15 6GX TiN	BP15 TiH1
P	P.3	• 25-35	• 25-35	• 25-35	• 25-35
	P.4	• 20-30	• 20-30	• 20-30	• 20-30
	P.5	• 10-20	• 10-20	• 10-20	• 10-20
	P.6	• 8-10	• 8-10	• 8-10	• 8-10
	P.7	• 10-20	• 10-20	• 10-20	• 10-20
M	M.1	• 10-20	• 10-20	• 10-20	• 10-20
	M.2	• 6-8	• 6-8	• 6-8	• 6-8
K	K.2	• 25-35	• 25-35	• 25-35	• 25-35
N	N.2-3	• 30-40	• 30-40	• 30-40	• 30-40
	N.6	• 25-35	• 25-35	• 25-35	• 25-35

Tolerance



Chamfer form



Hole type



Direction of cut



Internal coolant



Ød1	P	L1	L2	L3	Ød2	a	z	z		P15 TiN	P15 TiH1	P15 6GX TiN	BP15 TiH1
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	[mm]	^{h12} [mm]	[-]	[mm]					
M 1(*)	0,25	40	5,5	7,5	2,5	2,1	2	0,75		•	•		
1,2(*)	0,25	40	5,5	7,5	2,5	2,1	2	0,95		•	•		
1,4(*)	0,3	40	7	10	2,5	2,1	2	1,1		•	•		
1,6	0,35	40	8	11	2,5	2,1	2	1,25		•	•		
1,7	0,35	40	8	11	2,5	2,1	2	1,35		•	•		
1,8	0,35	40	8	11	2,5	2,1	2	1,45		•	•		
2	0,4	45	7	11	2,8	2,1	3	1,6		•	•		
2,5	0,45	50	9	15	2,8	2,1	3	2,05		•	•		
3	0,5	56	10	18	3,5	2,7	3	2,5		•	•		
4	0,7	63	12	21	4,5	3,4	3	3,3		•	•	•	
5	0,8	70	14	24,5	6	4,9	3	4,2		•	•	•	•
6	1	80	16	29	6	4,9	3	5		•	•	•	•
8	1,25	90	18	33	8	6,2	3	6,8		•	•	•	•
10	1,5	100	20	36	10	8	3	8,5		•	•	•	•
12	1,75	110	24	-	9	7	4	10,2		•	•	•	•
14	2	110	25	-	11	9	4	12		•	•	•	•
16	2	110	28	-	12	9	4	14		•	•	•	•
18	2,5	125	32	-	14	11	4	15,5		•	•		
20	2,5	140	32	-	16	12	4	17,5		•	•		
24	3	160	36	-	18	14,5	4	21		•	•		
27	3	160	36	-	20	16	4	24		•	•		
30	3,5	180	40	-	22	18	4	26,5		•	•		
33	3,5	180	40	-	25	20	5	29,5		•	•		
36	4	200	55	-	28	22	5	32		•	•		

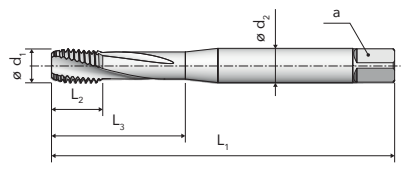
(*) = Tolerance 5HX

P SERIES

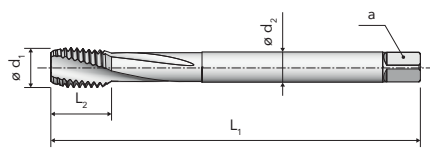


P29 BRIGHT P29 TiN P29 TiH1 BP29 TiH1

DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min											
ISO	MG	P29 BRIGHT	P29 TiN	P29 TiH1	BP29 TiH1	Tolerance					
P	P.3	● 15-18	● 25-30	● 25-30	● 25-30	6HX	C (2-3)	2xD	RH	-	
	P.4	● 12-15	● 20-25	● 20-25	● 20-25	6HX	C (2-3)	2xD	RH	-	
	P.5	● 8-10	● 10-15	● 10-15	● 10-15	6HX	C (2-3)	2xD	RH	-	
	P.6	● 3-5	● 5-10	● 5-10	● 5-10	6HX	C (2-3)	2xD	RH	-	
	P.7	● 8-10	● 10-15	● 10-15	● 10-15	6HX	C (2-3)	2xD	RH	-	
K	K.2	● 15-18	● 25-30	● 25-30	● 25-30	6HX	C (2-3)	2xD	RH	-	
N	N.3	● 15-18	● 25-30	● 25-30	● 25-30	6HX	C (2-3)	2xD	RH	-	
	N.6	● 15-18	● 25-30	● 25-30	● 25-30	6HX	C (2-3)	2xD	RH	-	
	N.7	● 12-15	● 20-25	● 20-25	● 20-25	6HX	C (2-3)	2xD	RH	-	
S	S.2	● 2-3		● 2-3	● 2-3	6HX	C (2-3)	2xD	RH	-	Internal coolant
	S.4	● 2-3	● 2-3	● 2-3	● 2-3	6HX	C (2-3)	2xD	RH	-	Internal coolant

Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]	z [mm]	P29 BRIGHT	P29 TiN	P29 TiH1	BP29 TiH1
M 3	0,5	56	5	18	3,5	2,7	3	2,5	•	•	•	
4	0,7	63	7	21	4,5	3,4	3	3,3	•	•	•	
5	0,8	70	9	25	6	4,9	3	4,2	•	•	•	•
6	1	80	11	30	6	4,9	3	5	•	•	•	•
8	1,25	90	12	35	8	6,2	3	6,8	•	•	•	•
10	1,5	100	13	39	10	8	3	8,5	•	•	•	•
12	1,75	110	15	-	9	7	3	10,2	•	•	•	•
14	2	110	18	-	11	9	3	12	•	•	•	•
16	2	110	18	-	12	9	3	14	•	•	•	•
18	2,5	125	20	-	14	11	4	15,5	•	•	•	•
20	2,5	140	20	-	16	12	4	17,5	•	•	•	•
24	3	160	25	-	18	14,5	4	21	•	•	•	•
27	3	160	25	-	20	16	4	24	•	•	•	•
30	3,5	180	29	-	22	18	4	26,5	•	•	•	•
36	4	200	34	-	28	22	4	32	•	•	•	•

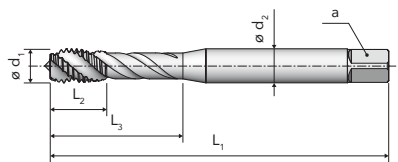
NEW
NEW
NEW
NEW

HIGH PERFORMANCE MACHINE TAPS for blind holes
45° spiral flutes / back tapered

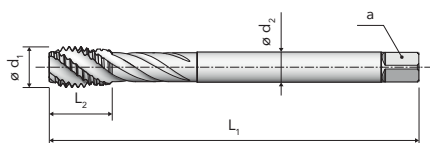
DIN 13



DIN 371 ≤ M10



DIN 376 ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P70 TiN	P70 TiH1	BP70 TiH1
P	P.3	● 20-30	● 20-30	● 20-30
	P.4	● 15-25	● 15-25	● 15-25
	P.5	● 5-15	● 5-15	● 5-15
	P.7	● 10-15	● 10-15	● 10-15
M	M.1	● 10-15	● 10-15	● 10-15
	M.2	● 5-7	● 5-7	● 5-7
K	K.2	● 20-30	● 20-30	● 20-30
N	N.3	● 25-35	● 25-35	● 25-35
	N.6	● 25-35	● 25-35	● 25-35
S	S.1		● 10-15	● 10-15
	S.3	● 10-15	● 10-15	● 10-15

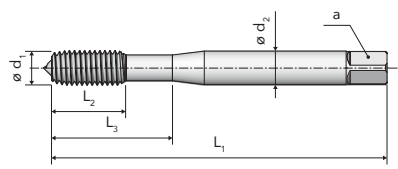
	P70 TiN	P70 TiH1	BP70 TiH1
Tolerance	6HX	6HX	6HX
Chamfer form			
Hole type			
Direction of cut			
Internal coolant	—	—	

P SERIES

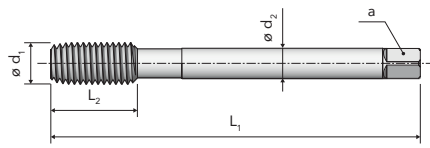
Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]	z [mm]	P70 TiN	P70 TiH1	BP70 TiH1
M 2	0,4	45	6	12	2,8	2,1	3	1,6	•	•	
2,5	0,45	50	6,5	15	2,8	2,1	3	2,05	•	•	
3	0,5	56	7	15	3,5	2,7	3	2,5	•	•	
4	0,7	63	8,5	21	4,5	3,4	3	3,3	•	•	
5	0,8	70	10	24,5	6	4,9	3	4,2	•	•	•
6	1	80	12	29	6	4,9	3	5	•	•	•
8	1,25	90	14	33	8	6,2	3	6,8	•	•	•
10	1,5	100	17	39	10	8	3	8,5	•	•	•
12	1,75	110	18	-	9	7	4	10,2	•	•	•
14	2	110	20,5	-	11	9	4	12	•	•	•
16	2	110	20,5	-	12	9	4	14	•	•	•
18	2,5	125	25,5	-	14	11	4	15,5	•	•	•
20	2,5	140	25,5	-	16	12	4	17,5	•	•	•
24	3	160	32	-	18	14,5	4	21	•	•	•
27	3	160	32	-	20	16	5	24	•	•	•
30	3,5	180	37	-	22	18	5	26,5	•	•	•
33	3,5	180	-	-	25	20	5	29,5	•	•	•
36	4	200	42	-	28	22	5	32	•	•	•



DIN 2174 (371) ≤ M10



DIN 2174 (376) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P80 TiN	P80 6GX TiN	P80 7GX TiN
P	P.1-2	• 40-45	• 40-45	• 40-45
	P.3	• 35-40	• 35-40	• 35-40
	P.4	• 30-35	• 30-35	• 30-35
	P.5	• 15-20	• 15-20	• 15-20
	P.7	• 15-20	• 15-20	• 15-20
M	M.1	• 15-20	• 15-20	• 15-20
N	N.1-2	• 40-45	• 40-45	• 40-45
	N.3	• 35-40	• 35-40	• 35-40
	N.5-6	• 40-45	• 40-45	• 40-45
S	S.3	• 10-15	• 10-15	• 10-15

Tolerance



Chamfer form



Hole type



Direction of cut



Internal coolant



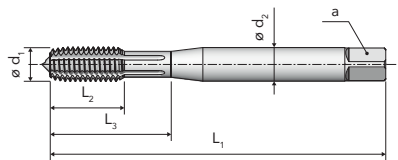
$\varnothing d_1$ [mm]	P [mm]	L_1 js 16 [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z [-]		P80 TiN	P80 6GX TiN	P80 7GX TiN
M 2	0,4	45	7	11	2,8	2,1	3	1,85	•	•	
2,5	0,45	50	9	15	2,8	2,1	3	2,3	•	•	
3	0,5	56	10	18	3,5	2,7	4	2,8	•	•	•
3,5	0,6	56	11	20	4	3	4	3,25	•	•	•
4	0,7	63	12	21	4,5	3,4	5	3,7	•	•	•
5	0,8	70	14	24,5	6	4,9	5	4,65	•	•	•
6	1	80	16	29	6	4,9	5	5,55	•	•	•
8	1,25	90	18	33	8	6,2	5	7,4	•	•	•
10	1,5	100	20	36	10	8	5	9,3	•	•	•
12	1,75	110	24	-	9	7	5	11,2	•	•	•
14	2	110	25	-	11	9	6	13,1	•	•	•
16	2	110	28	-	12	9	6	15,1	•	•	•

HIGH PERFORMANCE COLD FORMING TAPS for blind and through holes
Oil grooves

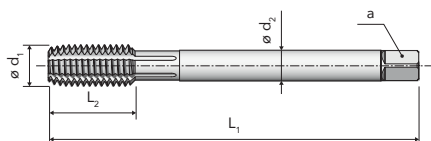
DIN 13



DIN 2174 (371) ≤ M10



DIN 2174 (376) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P80 N TiN	P80 N TiH1	P80 N 6GX TiN	P80 N 7GX TiN
P	P.1-2	● 40-45	● 40-45	● 40-45	● 40-45
	P.3	● 35-40	● 35-40	● 35-40	● 35-40
	P.4	● 30-35	● 30-35	● 30-35	● 30-35
	P.5	● 15-20	● 15-20	● 15-20	● 15-20
	P.7	● 15-20	● 15-20	● 15-20	● 15-20
M	M.1	● 15-20	● 15-20	● 15-20	● 15-20
N	N.1-2	● 40-45	● 40-45	● 40-45	● 40-45
	N.3	● 35-40	● 35-40	● 35-40	● 35-40
	N.5-6	● 40-45	● 40-45	● 40-45	● 40-45
S	S.1		● 10-15		
	S.3	● 10-15	● 10-15	● 10-15	● 10-15

P80 N
TiN

P80 N
TiH1

P80 N 6GX
TiN

P80 N 7GX
TiN



Tolerance



Chamfer form



Hole type



Direction of cut

Internal coolant

Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		P80 N TiN	P80 N TiH1	P80 N 6GX TiN	P80 N 7GX TiN
M 2	0,4	45	7	11	2,8	2,1	3	1,85	•	•	•	
2,5	0,45	50	9	15	2,8	2,1	3	2,3	•	•	•	
3	0,5	56	10	18	3,5	2,7	4	2,8	•	•	•	•
3,5	0,6	56	11	20	4	3	4	3,25	•	•	•	•
4	0,7	63	12	21	4,5	3,4	5	3,7	•	•	•	•
5	0,8	70	14	24,5	6	4,9	5	4,65	•	•	•	•
6	1	80	16	29	6	4,9	5	5,55	•	•	•	•
8	1,25	90	18	33	8	6,2	5	7,4	•	•	•	•
10	1,5	100	20	36	10	8	5	9,3	•	•	•	•
12	1,75	110	24	-	9	7	5	11,2	•	•	•	•
14	2	110	25	-	11	9	6	13,1	•	•	•	•
16	2	110	28	-	12	9	6	15,1	•	•	•	•
18	2,5	125	28	-	14	11	8	16,9	•	•	•	
20	2,5	140	30	-	16	12	8	18,9	•	•	•	

P SERIES



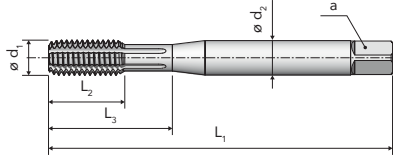
P80 E
TiN

P80 N E
TiN

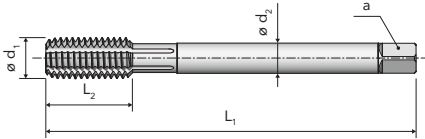
P80 N E 6GX
TiN

NEW
BP80 N E
TiN

DIN 2174 (371) ≤ M10



DIN 2174 (376) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P80 E TiN	P80 N E TiN	P80 N E 6GX TiN	BP80 N E TiN
P	P.1-2	• 40-45	• 40-45	• 40-45	• 40-45
	P.3	• 35-40	• 35-40	• 35-40	• 35-40
	P.4	• 30-35	• 30-35	• 30-35	• 30-35
	P.5	• 15-20	• 15-20	• 15-20	• 15-20
	P.7	• 15-20	• 15-20	• 15-20	• 15-20
M	M.1	• 15-20	• 15-20	• 15-20	• 15-20
N	N.1-2	• 40-45	• 40-45	• 40-45	• 40-45
	N.3	• 35-40	• 35-40	• 35-40	• 35-40
	N.5-6	• 40-45	• 40-45	• 40-45	• 40-45
S	S.3	• 10-15	• 10-15	• 10-15	• 10-15

Tolerance



Chamfer form



Hole type



Direction of cut



Internal coolant



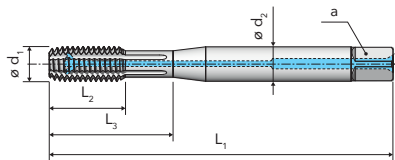
Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		P80 E TiN	P80 N E TiN	P80 N E 6GX TiN	BP80 N E TiN
M 3	0,5	56	10	18	3,5	2,7	4	2,8	•	•	•	
3,5	0,6	56	11	20	4	3	4	3,25	•	•	•	
4	0,7	63	12	21	4,5	3,4	5	3,7	•	•	•	
5	0,8	70	14	24,5	6	4,9	5	4,65	•	•	•	•
6	1	80	16	29	6	4,9	5	5,55	•	•	•	•
8	1,25	90	18	33	8	6,2	5	7,4	•	•	•	•
10	1,5	100	20	36	10	8	5	9,3	•	•	•	•
12	1,75	110	24	-	9	7	5	11,2		•		•
16	2	110	28	-	12	9	6	15,1		•		•

HIGH PERFORMANCE COLD FORMING TAPS for blind and through holes
Oil grooves / internal coolant

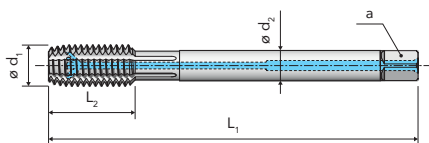
DIN 13



DIN 2174 (371) ≤ M10



DIN 2174 (376) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	BP80 N TiN	BP80 NR TiN
P	P.1-2	• 40-45	• 40-45
	P.3	• 35-40	• 35-40
	P.4	• 30-35	• 30-35
	P.5	• 15-20	• 15-20
	P.7	• 15-20	• 15-20
M	M.1	• 15-20	• 15-20
N	N.1-2	• 40-45	• 40-45
	N.3	• 35-40	• 35-40
	N.5-6	• 40-45	• 40-45
S	S.3	• 10-15	• 10-15

BP80 N
TiN

BP80 NR
TiN



Tolerance



Chamfer form



Hole type



Direction of cut



Internal coolant

$\varnothing d_1$ [mm]	P [mm]	L_1 js 16 [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z [-]		z [mm]
---------------------------	-----------	------------------------	---------------	---------------	---------------------------------	------------------	----------	--	-----------

BP80 N
TiN

BP80 NR
TiN

	$\varnothing d_1$ [mm]	P [mm]	L_1 js 16 [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ h9 [mm]	a h12 [mm]	z [-]	z [mm]	BP80 N TiN	BP80 NR TiN
M 5	0,8	0,8	70	14	24,5	6	4,9	5	4,65	•	•
6	1	1	80	16	29	6	4,9	5	5,55	•	•
8	1,25	1,25	90	18	33	8	6,2	5	7,4	•	•
10	1,5	1,5	100	20	36	10	8	5	9,3	•	•
NEW 12	1,75	1,75	110	24	-	9	7	5	11,2	•	•
NEW 16	2	2	110	28	-	12	9	6	15,1	•	•
20	2,5	2,5	140	30	-	16	12	8	18,9		•
24	3	3	160	35	-	18	14,5	8	22,7		•
27	3	3	160	35	-	20	16	8	25,7		•
30	3,5	3,5	180	40	-	22	18	8	28,45		•

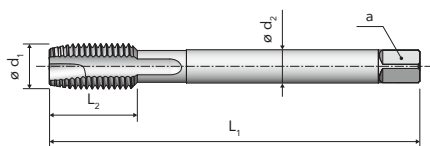
P SERIES

HIGH PERFORMANCE MACHINE TAPS for through holes
Straight flutes with spiral point

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P17 TiN	P17 TiH1	P17 6GX TiN	BP17 TiH1
P	P.3	• 25-35	• 25-35	• 25-35	• 25-35
	P.4	• 20-30	• 20-30	• 20-30	• 20-30
	P.5	• 10-20	• 10-20	• 10-20	• 10-20
	P.6	• 8-10	• 8-10	• 8-10	• 8-10
	P.7	• 10-20	• 10-20	• 10-20	• 10-20
M	M.1	• 10-20	• 10-20	• 10-20	• 10-20
	M.2	• 6-8	• 6-8	• 6-8	• 6-8
K	K.2	• 25-35	• 25-35	• 25-35	• 25-35
N	N.2-3	• 30-40	• 30-40	• 30-40	• 30-40
	N.6	• 25-35	• 25-35	• 25-35	• 25-35

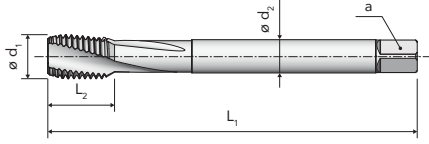
	P17 TiN	P17 TiH1	P17 6GX TiN	NEW BP17 TiH1
Tolerance	6HX	6HX	6GX	6HX
Chamfer form	B (4-5)	B (4-5)	B (4-5)	B (4-5)
Hole type	3xD	3xD	3xD	3xD
Direction of cut	RH	RH	RH	RH
Internal coolant	—	—	—	

P SERIES

Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]		P17 TiN	P17 TiH1	P17 6GX TiN	BP17 TiH1
M 8	1	90	16	-	6	4,9	3	7	•	•	•	•
10	1	90	18	-	7	5,5	3	9	•	•	•	•
10	1,25	100	18	-	7	5,5	3	8,8	•	•	•	•
12	1	100	22	-	9	7	4	11	•	•	•	•
12	1,25	100	22	-	9	7	4	10,8	•	•	•	•
12	1,5	100	22	-	9	7	4	10,5	•	•	•	•
14	1,5	100	22	-	11	9	4	12,5	•	•	•	•
16	1,5	100	22	-	12	9	4	14,5	•	•	•	•
18	1,5	110	25	-	14	11	4	16,5	•	•	•	•
20	1,5	125	25	-	16	12	4	18,5	•	•	•	•



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P30 BRIGHT	P30 TiN	P30 TiH1	BP30 TiH1
P	P.3	● 15-18	● 25-30	● 25-30	● 25-30
	P.4	● 12-15	● 20-25	● 20-25	● 20-25
	P.5	● 8-10	● 10-15	● 10-15	● 10-15
	P.6	● 3-5	● 5-10	● 5-10	● 5-10
	P.7	● 8-10	● 10-15	● 10-15	● 10-15
K	K.2	● 15-18	● 25-30	● 25-30	● 25-30
N	N.3	● 15-18	● 25-30	● 25-30	● 25-30
	N.6	● 15-18	● 25-30	● 25-30	● 25-30
	N.7	● 12-15	● 20-25	● 20-25	● 20-25
S	S.2	● 2-3		● 2-3	● 2-3
	S.4	● 2-3	● 2-3	● 2-3	● 2-3

P30 BRIGHT

P30 TiN

P30 TiH1

BP30 TiH1



Tolerance



Chamfer form



Hole type



Direction of cut

Internal coolant



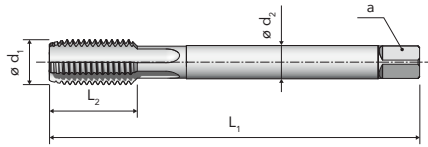
Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z	z	P30 BRIGHT	P30 TiN	P30 TiH1	BP30 TiH1
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h9} [mm]	^{h12} [mm]	[-]	[mm]				
M 8	1	90	10	-	6	4,9	3	7	•	•	•	
10	1	90	11	-	7	5,5	3	9	•	•	•	
10	1,25	100	12	-	7	5,5	3	8,8	•	•	•	•
12	1,25	100	14	-	9	7	3	10,8	•	•	•	•
12	1,5	100	15	-	9	7	3	10,5	•	•	•	•
14	1,5	100	16	-	11	9	3	12,5	•	•	•	•
16	1,5	100	16	-	12	9	3	14,5	•	•	•	•
18	1,5	110	18	-	14	11	4	16,5	•	•	•	•
20	1,5	125	18	-	16	12	4	18,5	•	•	•	•

HIGH PERFORMANCE MACHINE TAPS for blind and through holes
Straight flutes / for cast iron

DIN 13



DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P45 ACE	BP45 ACE	P45 E ACE	BP45 E ACE
K	K.1	• 40-50	• 40-50	• 40-50	• 40-50
	N.4	• 40-50	• 40-50	• 40-50	• 40-50
N	N.7	• 40-50	• 40-50	• 40-50	• 40-50
	N.9-10	• 45-55	• 45-55	• 45-55	• 45-55

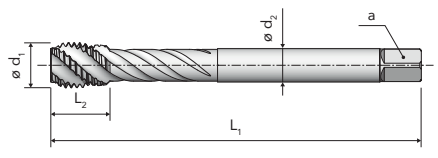
	NEW P45 ACE	NEW BP45 ACE	NEW P45 E ACE	NEW BP45 E ACE
Tolerance				
Chamfer form				
Hole type				
Direction of cut				
Internal coolant	—		—	

P SERIES

Ød1 [mm]	P [mm]	L1 js 16 [mm]	L2 [mm]	L3 [mm]	Ød2 h9 [mm]	a h12 [mm]	z [-]		P45 ACE	BP45 ACE	P45 E ACE	BP45 E ACE
M 8	1	90	16	-	6	4,9	4	7	•	•	•	•
10	1	90	18	-	7	5,5	4	9	•	•	•	•
10	1,25	100	18	-	7	5,5	4	8,8	•	•	•	•
12	1,25	100	22	-	9	7	4	10,8	•	•	•	•
12	1,5	100	22	-	9	7	4	10,5	•	•	•	•
14	1,25	100	22	-	11	9	4	12,8	•	•	•	•
14	1,5	100	22	-	11	9	4	12,5	•	•	•	•
16	1,5	100	22	-	12	9	4	14,5	•	•	•	•
20	1,5	125	25	-	16	12	4	18,5	•	•	•	•



DIN 374



P SERIES

APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P71 TiN	P71 TiH1	P71 6GX TiN	BP71 TiH1
P	P.3	• 20-30	• 20-30	• 20-30	• 20-30
	P.4	• 15-25	• 15-25	• 15-25	• 15-25
	P.5	• 5-15	• 5-15	• 5-15	• 5-15
	P.7	• 10-15	• 10-15	• 10-15	• 10-15
M	M.1	• 10-15	• 10-15	• 10-15	• 10-15
	M.2	• 5-7	• 5-7	• 5-7	• 5-7
K	K.2	• 20-30	• 20-30	• 20-30	• 20-30
N	N.3	• 25-35	• 25-35	• 25-35	• 25-35
	N.6	• 25-35	• 25-35	• 25-35	• 25-35
S	S.1		• 10-15		• 10-15
	S.3	• 10-15	• 10-15	• 10-15	• 10-15

P71 TiN P71 TiH1 P71 6GX TiN **NEW**
BP71 TiH1



Tolerance



Chamfer form



Hole type



Direction of cut



Internal coolant



Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z		P71 TiN	P71 TiH1	P71 6GX TiN	BP71 TiH1
[mm]	[mm]	<small>js 16</small> [mm]	[mm]	[mm]	<small>h9</small> [mm]	<small>h12</small> [mm]	[-]	[mm]				
M 8	1	90	12	-	6	4,9	3	7	•	•	•	•
10	1	90	12	-	7	5,5	3	9	•	•	•	•
10	1,25	100	14	-	7	5,5	3	8,8	•	•	•	•
12	1	100	14	-	9	7	4	11	•	•	•	•
12	1,25	100	14	-	9	7	4	10,8	•	•	•	•
12	1,5	100	15	-	9	7	4	10,5	•	•	•	•
14	1,5	100	16	-	11	9	4	12,5	•	•	•	•
16	1,5	100	16	-	12	9	4	14,5	•	•	•	•
18	1,5	110	18	-	14	11	4	16,5	•	•	•	•
20	1,5	125	18	-	16	12	4	18,5	•	•	•	•

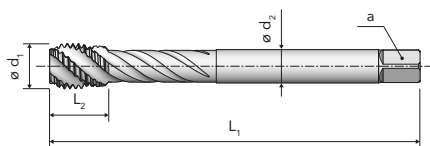
HIGH PERFORMANCE MACHINE TAPS for blind holes 45° spiral flutes / back tapered / chamfer form E

DIN 13



NEW
P71 E
TiH1

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P71 E TiH1			
P	P.3	• 20-30			
	P.4	• 15-25			
	P.5	• 5-15			
	P.7	• 10-15			
M	M.1	• 10-15			
	M.2	• 5-7			
K	K.2	• 20-30			
N	N.3	• 25-35			
	N.6	• 25-35			
S	S.1	• 10-15			
	S.3	• 10-15			

Tolerance



Chamfer form



Hole type



Direction of cut



Internal coolant



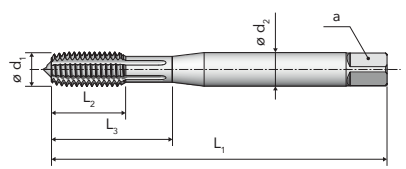
Ød1 [mm]	P [mm]	L1 ^{js 16} [mm]	L2 [mm]	L3 [mm]	Ød2 ^{h9} [mm]	a ^{h12} [mm]	z [-]	
-------------	-----------	--------------------------------	------------	------------	------------------------------	-----------------------------	----------	--

									P71 E TiH1			
M 8	1	90	12	-	6	4,9	3	7	•			
10	1	90	12	-	7	5,5	3	9	•			
10	1,25	100	14	-	7	5,5	3	8,8	•			
12	1	100	14	-	9	7	4	11	•			
12	1,25	100	14	-	9	7	4	10,8	•			
12	1,5	100	15	-	9	7	4	10,5	•			
14	1,5	100	16	-	11	9	4	12,5	•			
16	1,5	100	16	-	12	9	4	14,5	•			

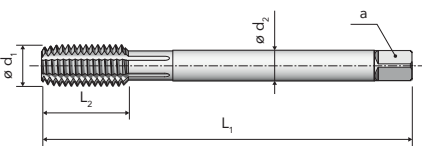
HIGH PERFORMANCE COLD FORMING TAPS for blind and through holes



DIN 2174 (371) ≤ M10



DIN 2174 (374) ≥ M12



APPLICATION RANGE - CUTTING SPEED m/min

Table with columns for ISO, MG, P81 TiN, P81 6GX TiN, P81 N TiN, and P81 N 6GX TiN, listing application ranges for different materials like P, M, N, and S.

Tolerance

Chamfer form

Hole type

Direction of cut

Internal coolant

Product images and icons for P81 TiN, P81 6GX TiN, P81 N TiN, and P81 N 6GX TiN, including icons for 6HX, 6GX, C (2-3), 1,5xD, 3xD, RH, and coolant status.

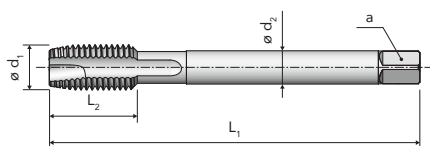
Main technical table with columns for dimensions (Ød1, P, L1, L2, L3, Ød2, a, z) and tap types (P81 TiN, P81 6GX TiN, P81 N TiN, P81 N 6GX TiN) for various hole sizes from M4 to M20.

P SERIES

HIGH PERFORMANCE MACHINE TAPS for through holes
Straight flutes with spiral point



DIN 5156



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P18 TiN	P18 TiH1		
P	P.3	• 25-35	• 25-35		
	P.4	• 20-30	• 20-30		
	P.5	• 10-20	• 10-20		
	P.6	• 8-10	• 8-10		
	P.7	• 10-20	• 10-20		
M	M.1	• 10-20	• 10-20		
	M.2	• 6-8	• 6-8		
K	K.2	• 25-35	• 25-35		
N	N.2-3	• 30-40	• 30-40		
	N.6	• 25-35	• 25-35		

P18
TiN

P18
TiH1



Tolerance



Chamfer form



Hole type



Direction of cut

Internal coolant

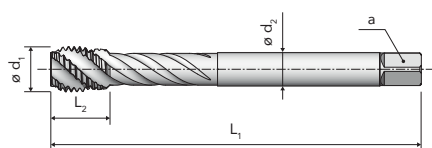


G	P [TPI]	ϕd_1 [mm]	L_1 <small>js 16</small> [mm]	L_2 [mm]	L_3 [mm]	ϕd_2 <small>h9</small> [mm]	a <small>h12</small> [mm]	z [-]		P18	P18		
										TiN	TiH1		
1/8"	28	9,728	90	18	-	7	5,5	3	8,8	•	•		
1/4"	19	13,157	100	22	-	11	9	4	11,8	•	•		
3/8"	19	16,662	100	22	-	12	9	4	15,25	•	•		
1/2"	14	20,955	125	25	-	16	12	4	19	•	•		
5/8"	14	22,911	125	25	-	18	14,5	4	21	•	•		
3/4"	14	26,441	140	28	-	20	16	5	24,5	•	•		
1"	11	33,249	160	30	-	25	20	5	30,75	•	•		

P SERIES

EN
ISO 228HIGH PERFORMANCE MACHINE TAPS for blind holes
45° spiral flutes / back tapered

DIN 5156



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P59 TiN	P59 TiH1	P59 E TiH1
P	P.3	• 20-30	• 20-30	• 20-30
	P.4	• 15-25	• 15-25	• 15-25
	P.5	• 5-15	• 5-15	• 5-15
	P.7	• 10-15	• 10-15	• 10-15
M	M.1	• 10-15	• 10-15	• 10-15
	M.2	• 5-7	• 5-7	• 5-7
K	K.2	• 20-30	• 20-30	• 20-30
N	N.3	• 25-35	• 25-35	• 25-35
	N.6	• 25-35	• 25-35	• 25-35
S	S.1		• 10-15	• 10-15
	S.3	• 10-15	• 10-15	• 10-15

Tolerance



Chamfer form



Hole type



Direction of cut



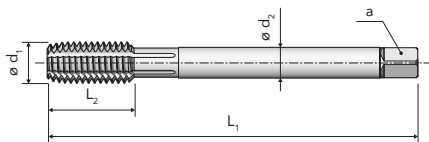
Internal coolant



G	P	Ød ₁ [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h9 [mm]	a h12 [mm]	z [-]		[mm]	P59	P59	P59 E
											TiN	TiH1	TiH1
1/8"	28	9,728	90	13	-	7	5,5	3	8,8	•	•	•	
1/4"	19	13,157	100	16	-	11	9	4	11,8	•	•	•	
3/8"	19	16,662	100	16,5	-	12	9	4	15,25	•	•	•	
1/2"	14	20,955	125	20,5	-	16	12	5	19	•	•	•	
5/8"	14	22,911	125	20,5	-	18	14,5	5	21	•	•	•	
3/4"	14	26,441	140	21,5	-	20	16	5	24,5	•	•	•	
1"	11	33,249	160	25,5	-	25	20	5	30,75	•	•	•	



DIN 2189



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	P82 N TiN			
P	P.1-2	● 40-45			
	P.3	● 35-40			
	P.4	● 30-35			
	P.5	● 15-20			
	P.7	● 15-20			
M	M.1	● 15-20			
N	N.1-2	● 40-45			
	N.3	● 35-40			
	N.5-6	● 40-45			
S	S.3	● 10-15			

P82 N
TiN



Tolerance



Chamfer form



Hole type



Direction
of cut

Internal coolant



G	P	$\varnothing d_1$	L_1	L_2	L_3	$\varnothing d_2$	a	z		P82 N TiN			
	[TPI]	[mm]	<small>js 16</small> [mm]	[mm]	[mm]	<small>h9</small> [mm]	<small>h12</small> [mm]	[-]	[mm]				
1/8"	28	9,728	90	18	-	7	5,5	6	9,25	●			
1/4"	19	13,157	100	22	-	11	9	6	12,5	●			
3/8"	19	16,662	100	22	-	12	9	6	16	●			
1/2"	14	20,955	125	25	-	16	12	6	20	●			
3/4"	14	26,441	140	28	-	20	16	6	25,5	●			

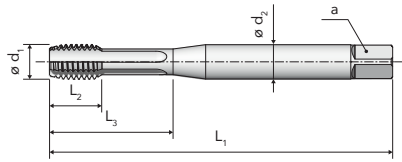
 S
SERIES

Synchronous Taps

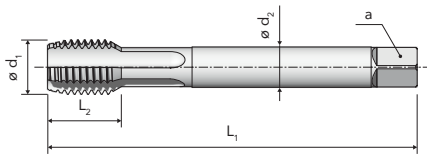
MACHINE TAPS FOR SYNCHRONOUS TAPPING for blind and through holes
Straight flutes / for cast iron



DIN 371 ≤ Ø 12(*)



DIN 376 ≤ Ø 16(*)



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	S43 ACE	BS43 ACE	S43 E ACE	BS43 E ACE
K	K.1	● 55-65	● 55-65	● 55-65	● 55-65
	N.4	● 55-65	● 55-65	● 55-65	● 55-65
N	N.7	● 55-65	● 55-65	● 55-65	● 55-65
	N.9-10	● 55-65	● 55-65	● 55-65	● 55-65

Tolerance
Chamfer form
Hole type
Direction of cut
Internal coolant

S43 ACE

BS43 ACE

S43 E ACE

BS43 E ACE



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h6 [mm]	a h12 [mm]	z [-]		S43 ACE	BS43 ACE	S43 E ACE	BS43 E ACE
M 3	0,5	70	5	15	6	4,9	3	2,5	•			
4	0,7	70	7	18	6	4,9	3	3,3	•			
5	0,8	70	8	23	6	4,9	3	4,2	•	•	•	•
6	1	80	10	29	6	4,9	4	5	•	•	•	•
8	1,25	90	11	33	8	6,2	4	6,8	•	•	•	•
10	1,5	100	13	36	10	8	4	8,5	•	•	•	•
12	1,75	110	16	42	12	9	4	10,2	•	•	•	•
16	2	110	18	-	12	9	4	14	•	•	•	•
20	2,5	140	23	-	16	12	4	17,5	•	•	•	•

NEW
NEW

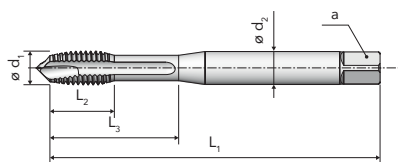
(*) = DIN 1835-B on request

MACHINE TAPS FOR SYNCHRONOUS TAPPING for through holes
Straight flutes with spiral point

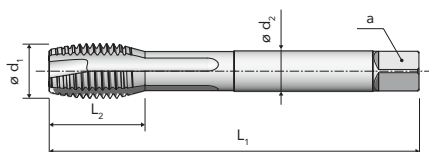
DIN 13



~ DIN 371 ≤ M12(*)



~ DIN 376 ≥ M14(*)



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	S15 TiN	S15 TiH1	BS15 TiH1
P	P.1-2	● 50-60	● 50-60	● 50-60
	P.3	● 45-55	● 45-55	● 45-55
	P.4	● 40-50	● 40-50	● 40-50
	P.5	● 15-25	● 15-25	● 15-25
	P.7	● 15-25	● 15-25	● 15-25
M	M.1	● 15-25	● 15-25	● 15-25
	M.2	● 10-20	● 10-20	● 10-20
K	K.2	● 45-55	● 45-55	● 45-55
N	N.1	● 50-60	● 50-60	● 50-60
	N.2-3	● 45-55	● 45-55	● 45-55
	N.5	● 40-50	● 40-50	● 40-50
	N.6	● 35-45	● 35-45	● 35-45
S	S.1	● 15-25	● 15-25	● 15-25
	S.3	● 15-25	● 15-25	● 15-25

	S15 TiN	S15 TiH1	BS15 TiH1
Tolerance	6HX	6HX	6HX
Chamfer form	B (4-5)	B (4-5)	B (4-5)
Hole type	3xD	3xD	3xD
Direction of cut	RH	RH	RH
Internal coolant	—	—	

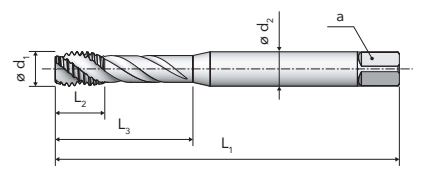
	Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h6 [mm]	a h12 [mm]	z [-]		S15 TiN	S15 TiH1	BS15 TiH1
M 3		0,5	70	5	15	6	4,9	3	2,5	•	•	
4		0,7	70	7	18	6	4,9	3	3,3	•	•	
5		0,8	70	8	25	6	4,9	3	4,2	•	•	•
6		1	80	10	30	6	4,9	3	5	•	•	•
8		1,25	90	12,5	35	8	6,2	3	6,8	•	•	•
10		1,5	100	15	39	10	8	3	8,5	•	•	•
12		1,75	110	17,5	42	12	9	3	10,2	•	•	•
14		2	110	20	-	12	9	3	12	•	•	
16		2	110	20	-	12	9	4	14	•	•	•

(*) = DIN 1835-B on request

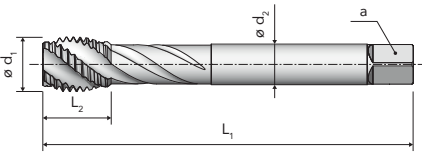
SERIES
S



~ DIN 371 ≤ M12(*)



~ DIN 376 ≥ M14(*)



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	S70 TiN	S70 TiH1	BS70 TiH1
P	P.1-2	● 45-55	● 45-55	● 45-55
	P.3	● 40-50	● 40-50	● 40-50
	P.4	● 35-45	● 35-45	● 35-45
	P.5	● 15-20	● 15-20	● 15-20
	P.7	● 15-20	● 15-20	● 15-20
M	M.1	● 15-20	● 15-20	● 15-20
K	K.2	● 40-50	● 40-50	● 40-50
	N.1	● 45-55	● 45-55	● 45-55
N	N.2-3	● 40-50	● 40-50	● 40-50
	N.5	● 35-45	● 35-45	● 35-45
	N.6	● 30-40	● 30-40	● 30-40
	S.1	● 15-20	● 15-20	● 15-20
S	S.3	● 15-20	● 15-20	● 15-20

Tolerance



Chamfer form



Hole type



Direction of cut



Internal coolant



Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z	⌀	S70 TiN	S70 TiH1	BS70 TiH1
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h6} [mm]	^{h12} [mm]	[-]	[mm]			
M 3	0,5	70	5,5	14	6	4,9	3	2,5	•	•	
4	0,7	70	7,5	18	6	4,9	3	3,3	•	•	
5	0,8	70	8,5	25	6	4,9	3	4,2	•	•	•
6	1	80	10,5	30	6	4,9	3	5	•	•	•
8	1,25	90	11,5	35	8	6,2	3	6,8	•	•	•
10	1,5	100	14	40	10	8	3	8,5	•	•	•
12	1,75	110	16,5	42	12	9	3	10,2	•	•	•
14	2	110	19	-	12	9	3	12	•	•	
16	2	110	19	-	12	9	4	14	•	•	•

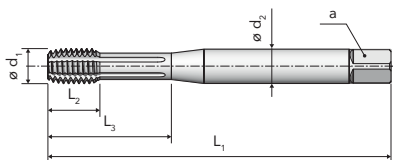
(*) = DIN 1835-B on request

COLD FORMING TAPS FOR SYNCHRONOUS TAPPING for blind and through holes
Oil grooves

DIN 13



~ DIN 371(*)



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	S80 N TiN	S80 N 6GX TiN	BS80 NR TiN
P	P.1-2	● 50-60	● 50-60	● 50-60
	P.3	● 45-55	● 45-55	● 45-55
	P.4	● 40-50	● 40-50	● 40-50
	P.5	● 20-30	● 20-30	● 20-30
	P.7	● 25-35	● 25-35	● 25-35
M	M.1	● 25-35	● 25-35	● 25-35
	M.2	● 15-25	● 15-25	● 15-25
N	N.1-2	● 50-60	● 50-60	● 50-60
	N.3	● 45-55	● 45-55	● 45-55
	N.5-6	● 50-60	● 50-60	● 50-60
S	S.3	● 10-20	● 10-20	● 10-20

- Tolerance
- Chamfer form
- Hole type
- Direction of cut
- Internal coolant

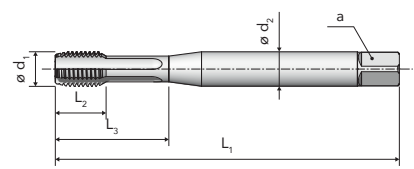
S80 N TiN	S80 N 6GX TiN	BS80 NR TiN
6HX	6GX	6HX
C (2-3)	C (2-3)	C (2-3)
3xD	3xD	3xD
RH	RH	RH
—	—	

$\varnothing d_1$ [mm]	P [mm]	L_1 ^{js 16} [mm]	L_2 [mm]	L_3 [mm]	$\varnothing d_2$ ^{h6} [mm]	a ^{h12} [mm]	z [-]	 [mm]	S80 N TiN	S80 N 6GX TiN	BS80 NR TiN
M 4	0,7	70	7	18	6	4,9	5	3,7	•	•	•
5	0,8	70	8	23	6	4,9	5	4,65	•	•	•
6	1	80	10	29	6	4,9	5	5,55	•	•	•
8	1,25	90	11	33	8	6,2	5	7,4	•	•	•
10	1,5	100	13	36	10	8	5	9,3	•	•	•
12	1,75	110	16	42	12	9	5	11,2	•	•	•

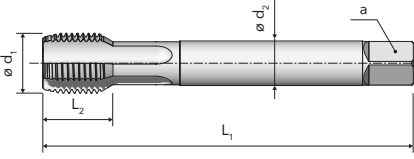
S SERIES



~ DIN 371 ≤ M12(*)



~ DIN 374 ≥ M14(*)



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	S45 ACE	BS45 ACE		
K	K.1	● 55-65	● 55-65		
	N.4	● 55-65	● 55-65		
N	N.7	● 55-65	● 55-65		
	N.9-10	● 55-65	● 55-65		

Tolerance

Chamfer form

Hole type

Direction of cut

Internal coolant

S45 ACE

NEW
BS45 ACE



Ød ₁	P	L ₁	L ₂	L ₃	Ød ₂	a	z	z		S45 ACE	BS45 ACE
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h6} [mm]	^{h12} [mm]	[-]	[mm]			

M 8	1	90	10	33	8	6,2	4	7		•	•
10	1	90	10	33	10	8	4	9		•	•
10	1,25	100	12,5	33	10	8	4	8,8		•	•
12	1,25	100	12,5	33	12	9	4	10,8		•	•
12	1,5	100	15	37	12	9	4	10,5		•	•
14	1,5	100	15	-	12	9	4	12,5		•	•
16	1,5	100	15	-	12	9	4	14,5		•	•
20	1,5	125	17	-	16	12	4	18,5		•	•

NEW

(*) = DIN 1835-B on request

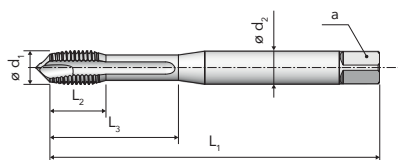
MACHINE TAPS FOR SYNCHRONOUS TAPPING for through holes
Straight flutes with spiral point

DIN 13

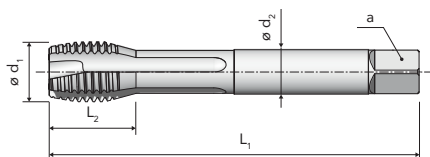


S17
TiN

~ DIN 371 ≤ M12(*)



~ DIN 374 ≥ M14(*)



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	S15 TiN			
P	P.1-2	● 50-60			
	P.3	● 45-55			
	P.4	● 40-50			
	P.5	● 15-25			
	P.7	● 15-25			
M	M.1	● 15-25			
	M.2	● 10-20			
K	K.2	● 45-55			
N	N.1	● 50-60			
	N.2-3	● 45-55			
	N.5	● 40-50			
	N.6	● 35-45			
S	S.3	● 15-25			

Tolerance



Chamfer form



Hole type



Direction of cut



Internal coolant



Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h6 [mm]	a h12 [mm]	z [-]	z [mm]	S17 TiN
M 8	1	90	10	35	8	6,2	3	7	•
10	1	90	10	39	10	8	3	9	•
10	1,25	100	12,5	39	10	8	3	8,8	•
12	1,25	100	12,5	42	12	9	3	10,8	•
12	1,5	100	15	42	12	9	3	10,5	•
14	1,5	100	15	-	12	9	3	12,5	•
16	1,5	100	15	-	12	9	4	14,5	•

(*) = DIN 1835-B on request

S SERIES

 H
SERIES

Solid Carbide Taps

DIN 13

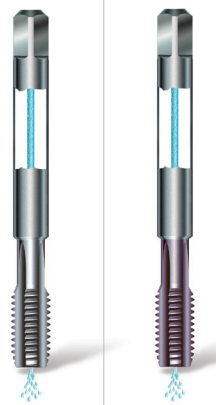
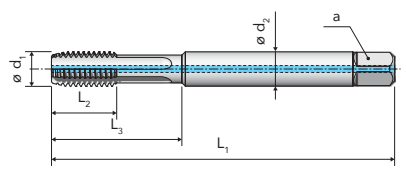
SOLID CARBIDE MACHINE TAPS for blind holes Straight flutes / internal coolant / for cast iron



**HB43
BRIGHT**

**HB43
TiAIN**

DIN 371



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	HB43 BRIGHT	HB43 TiAIN		
K	K.1	• 15-40	• 40-80		
	N.2	• 10-20	• 15-40		
N	N.3	• 20-30	• 30-50		
	N.4	• 15-20	• 25-40		

Tolerance



Chamfer form



Hole type



Direction of cut



Internal coolant



H SERIES

Ød ₁ [mm]	P [mm]	L ₁ js 16 [mm]	L ₂ [mm]	L ₃ [mm]	Ød ₂ h6 [mm]	a h12 [mm]	z [-]	[mm]
-------------------------	-----------	---------------------------------	------------------------	------------------------	-------------------------------	------------------	----------	------

**HB43
BRIGHT**

**HB43
TiAIN**

M 3(*)	0,5	56	8	18	3,5	2,7	3	2,5	•	•		
4(*)	0,7	63	10	21	4,5	3,4	3	3,3	•	•		
5	0,8	70	10	25	6	4,9	4	4,2	•	•		
6	1	80	12	30	6	4,9	4	5	•	•		
8	1,25	90	16	35	8	6,2	4	6,8	•	•		
10	1,5	100	18	39	10	8	4	8,5	•	•		

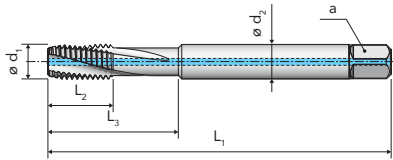
(*) = Taps without through coolant

SOLID CARBIDE MACHINE TAPS for blind holes
15° spiral flutes / internal coolant

DIN 13



DIN 371

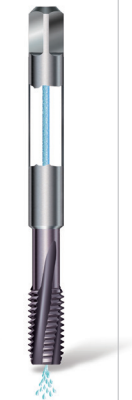


APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	HB29 BRIGHT	HB29 TiCN		
N	N.1-2	• 15-30	• 25-50		
	N.3	• 20-30	• 30-50		
	N.4	• 15-20	• 25-40		
	N.7	• 20-25	• 30-40		

HB29
BRIGHT

HB29
TiCN



Tolerance

Chamfer form

Hole type

Direction of cut

Internal coolant

H SERIES

Ød1	P	L1	L2	L3	Ød2	a	z	z		HB29 BRIGHT	HB29 TiCN		
[mm]	[mm]	js 16 [mm]	[mm]	[mm]	[mm]	[mm]	[-]	[mm]					
M 3(*)	0,5	56	8	18	3,5	2,7	3	2,5		•	•		
4(*)	0,7	63	10	21	4,5	3,4	3	3,3		•	•		
5	0,8	70	10	25	6	4,9	3	4,2		•	•		
6	1	80	12	30	6	4,9	3	5		•	•		
8	1,25	90	16	35	8	6,2	3	6,8		•	•		
10	1,5	100	18	39	10	8	3	8,5		•	•		

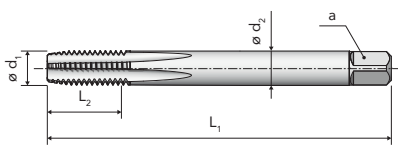
(*) = Taps without through coolant

DIN 13 SOLID CARBIDE MACHINE TAPS for blind and through holes
Straight flutes / for high strength materials



H130 BRIGHT H130 TiCN

NORM VERGNANO



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	H130 BRIGHT	H130 TiCN
H	H.1	• 2-3	• 3-6
	H.2	• 1-2	• 2-4

Tolerance	ISO2 6H	ISO2 6H
Chamfer form	D (4-5)	D (4-5)
Hole type	1,5 x D	1,5 x D
Direction of cut	RH	RH
Internal coolant	-	-

$\varnothing d_1$	P	L_1	L_2	L_3	$\varnothing d_2$	a	z		H130 BRIGHT	H130 TiCN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h6} [mm]	^{h12} [mm]	[-]	[mm]		
M 3	0,5	56	12	17	3,5	2,7	3	2,6 (*)	•	•
4	0,7	63	14	19	4,5	3,4	4	3,4 (*)	•	•
5	0,8	70	17	22	6	4,9	4	4,3 (*)	•	•
6	1	80	20	-	6	4,9	4	5,1 (*)	•	•
8	1,25	90	20	-	8	6,2	5	6,9 (*)	•	•
10	1,5	100	24	-	10	8	5	8,6 (*)	•	•
12	1,75	110	28	-	12	9	5	10,4 (*)	•	•

(*) = The hole diameters are oversized.

SOLID CARBIDE COLD FORMING TAPS for blind and through holes

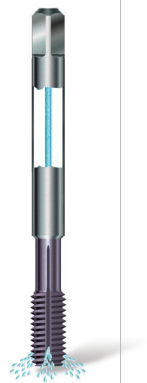
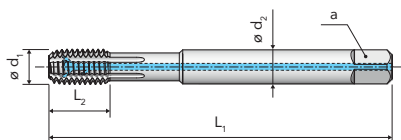
Oil grooves / internal coolant

DIN 13



HB80 NR
TiCN

DIN 371



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	HB80 NR TiCN			
P	P.1-2	• 40-50			
	P.3	• 35-45			
	P.4	• 30-40			
	P.5	• 15-25			
	P.7	• 15-25			
M	M.1	• 15-25			
N	N.1-2	• 40-50			
	N.3	• 35-45			
	N.5-6	• 40-50			
S	S.3	• 10-20			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



Ød1	P	L1	L2	L3	Ød2	a	z			HB80 NR TiCN			
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	_{h6} [mm]	_{h12} [mm]	[-]	 [mm]					
M 3(*)	0,5	56	6	18	3,5	2,7	4	2,8	•				
4(*)	0,7	63	7,5	21	4,5	3,4	4	3,7	•				
5	0,8	70	8,5	25	6	4,9	4	4,65	•				
6	1	80	11	30	6	4,9	5	5,55	•				
8	1,25	90	14	35	8	6,2	5	7,4	•				
10	1,5	100	16	39	10	8	5	9,3	•				

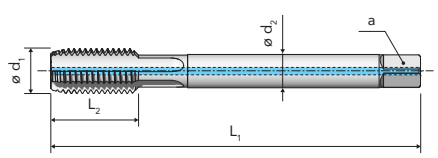
(*) = Taps without through coolant



HB45 BRIGHT

HB45 TiAIN

DIN 374



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	HB45 BRIGHT	HB45 TiAIN		
K	K.1	• 15-40	• 40-80		
	N.2	• 10-20	• 15-40		
N	N.3	• 20-30	• 30-50		
	N.4	• 15-20	• 25-40		

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



H SERIES

$\varnothing d_1$	P	L_1	L_2	L_3	$\varnothing d_2$	a	z		HB45 BRIGHT	HB45 TiAIN
[mm]	[mm]	^{js 16} [mm]	[mm]	[mm]	^{h6} [mm]	^{h12} [mm]	[-]	[mm]		

M 10	1	90	18	-	7	5,5	4	9	•	•
12	1,25	100	22	-	9	7	4	10,8	•	•
12	1,5	100	22	-	9	7	4	10,5	•	•
14	1,5	100	22	-	11	9	4	12,5	•	•
16	1,5	100	22	-	12	9	4	14,5	•	•

NEW
NEW

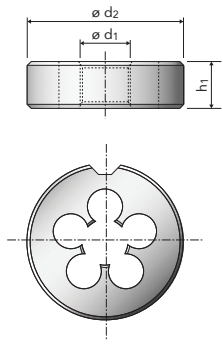

SERIES

Dies

DIN 13
DIES
With spiral point



DIN EN 22568



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	X200 BRIGHT	X200 LH BRIGHT		
P	P.1-4	•	•		
	P.7	•	•		
M	M.1	•	•		
K	K.2	•	•		
N	N.1-3	•	•		
	N.5-7	•	•		

Tolerance

Chamfer form

Hole type

Direction of cut

Through coolant

	X200 BRIGHT	X200 LH BRIGHT
ISO 6g		
1,75xP		
Hole type	—	—
Direction of cut		
Through coolant	—	—

F SERIES

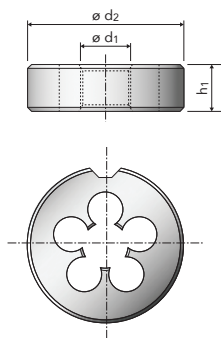
$\varnothing d_1$	P	$\varnothing d_2$	h_1	X200 BRIGHT	X200 LH BRIGHT
[mm]	[mm]	[mm]	[mm]		
M 2	0,4	16	5	•	
2,2	0,45	16	5	•	
2,5	0,45	16	5	•	
3	0,5	20	5	•	•
3,5	0,6	20	5	•	
4	0,7	20	5	•	•
5	0,8	20	7	•	•
6	1	20	7	•	•
7	1	25	9	•	
8	1,25	25	9	•	•
9	1,25	25	9	•	
10	1,5	30	11	•	•
11	1,5	30	11	•	
12	1,75	38	14	•	•
14	2	38	14	•	•
16	2	45	18	•	
18	2,5	45	18	•	
20	2,5	45	18	•	
22	2,5	55	22	•	
24	3	55	22	•	
27	3	65	25	•	
30	3,5	65	25	•	
33	3,5	65	25	•	
36	4	65	25	•	
39	4	75	30	•	

DIES
With spiral point

DIN 13

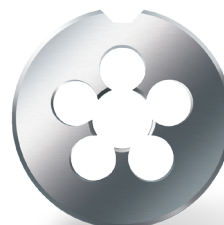


DIN EN 22568



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	X201 BRIGHT			
P	P.1-4	•			
	P.7	•			
M	M.1	•			
K	K.2	•			
N	N.1-3	•			
	N.5-7	•			



X201
BRIGHT

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



$\varnothing d_1$	P	$\varnothing d_2$	h_1	X201 BRIGHT
[mm]	[mm]	[mm]	[mm]	
M 2	0,25	16	5	•
2,2	0,25	16	5	•
2,5	0,35	16	5	•
3	0,35	20	5	•
4	0,5	20	5	•
5	0,5	20	5	•
6	0,75	20	7	•
7	0,75	25	9	•
8	0,75	25	9	•
8	1	25	9	•
9	1	25	9	•
10	0,75	30	11	•
10	1	30	11	•
10	1,25	30	11	•
11	1	30	11	•
12	1	38	10	•
12	1,25	38	10	•
12	1,5	38	10	•
14	1	38	10	•
14	1,25	38	10	•
14	1,5	38	10	•
15	1	38	10	•
15	1,5	38	10	•
16	1	45	14	•
16	1,5	45	14	•
18	1	45	14	•

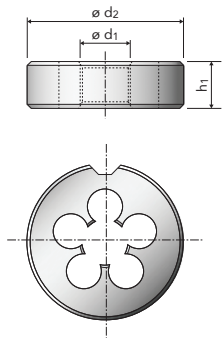
F
SERIES

DIN 13
DIES
With spiral point



X201
BRIGHT

DIN EN 22568



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	X201 BRIGHT			
P	P.1-4	•			
	P.7	•			
M	M.1	•			
K	K.2	•			
N	N.1-3	•			
	N.5-7	•			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



F SERIES

$\varnothing d_1$	P	$\varnothing d_2$	h_1	X201 BRIGHT
[mm]	[mm]	[mm]	[mm]	
M 18	1,5	45	14	•
18	2	45	14	•
20	1	45	14	•
20	1,5	45	14	•
20	2	45	14	•
22	1	55	16	•
22	1,5	55	16	•
22	2	55	16	•
24	1	55	16	•
24	1,5	55	16	•
24	2	55	16	•
25	1	55	16	•
25	1,5	55	16	•
25	2	55	16	•
26	1,5	55	16	•
27	1,5	65	18	•
27	2	65	18	•
28	1,5	65	18	•
28	2	65	18	•
30	1	65	18	•
30	1,5	65	18	•
30	2	65	18	•
32	1,5	65	18	•
32	2	65	18	•
33	2	65	18	•
35	1,5	65	18	•

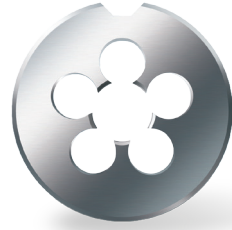
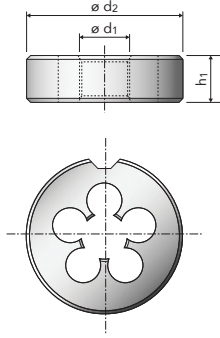
DIES
With spiral point

DIN 13



**X201
BRIGHT**

DIN EN 22568



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	X201 BRIGHT			
P	P.1-4	●			
	P.7	●			
M	M.1	●			
K	K.2	●			
N	N.1-3	●			
	N.5-7	●			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



$\varnothing d_1$ [mm] P [mm] $\varnothing d_2$ [mm] h_1 [mm]

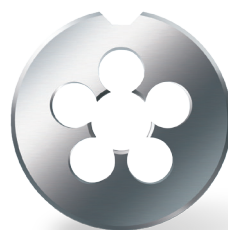
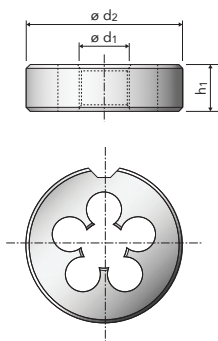
**X201
BRIGHT**

$\varnothing d_1$ [mm]	P [mm]	$\varnothing d_2$ [mm]	h_1 [mm]	X201 BRIGHT
M 36	1,5	65	18	●
36	2	65	18	●
36	3	65	25	●



X204
BRIGHT

DIN EN 22568



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	X204 BRIGHT			
P	P.1-4	•			
	P.7	•			
M	M.1	•			
K	K.2	•			
N	N.1-3	•			
	N.5-7	•			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



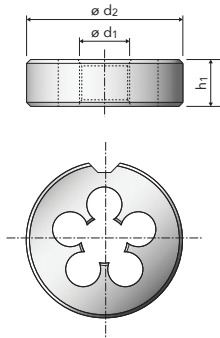
F
SERIES

UNC	P [TPI]	ϕd_1 [mm]	ϕd_2 [mm]	h_1 [mm]	X204 BRIGHT	
Nr. 2	56	2,184	16	5	•	
Nr. 4	40	2,845	20	5	•	
Nr. 5	40	3,175	20	5	•	
Nr. 6	32	3,505	20	7	•	
Nr. 8	32	4,166	20	7	•	
Nr. 10	24	4,826	20	7	•	
Nr. 12	24	5,486	20	7	•	
1/4"	20	6,35	20	7	•	
5/16"	18	7,938	25	9	•	
3/8"	16	9,525	30	11	•	
7/16"	14	11,113	30	11	•	
1/2"	13	12,7	38	14	•	
9/16"	12	14,288	38	14	•	
5/8"	11	15,875	45	18	•	
3/4"	10	19,05	45	18	•	
7/8"	9	22,225	55	22	•	
1"	8	25,4	55	22	•	

DIES
With spiral point



DIN EN 22568



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	X205 BRIGHT			
P	P.1-4	●			
	P.7	●			
M	M.1	●			
K	K.2	●			
N	N.1-3	●			
	N.5-7	●			

X205
BRIGHT



Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant

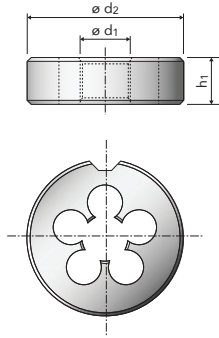
UNF	P [TPI]	Ød1 [mm]	Ød2 [mm]	h1 [mm]	X205 BRIGHT
Nr. 3	56	2,515	16	5	●
Nr. 4	48	2,845	20	5	●
Nr. 5	44	3,175	20	5	●
Nr. 6	40	3,505	20	5	●
Nr. 8	36	4,166	20	7	●
Nr. 10	32	4,826	20	7	●
Nr. 12	28	5,486	20	7	●
1/4"	28	6,35	20	7	●
5/16"	24	7,938	25	9	●
3/8"	24	9,525	30	11	●
7/16"	20	11,113	30	11	●
1/2"	20	12,7	38	10	●
9/16"	18	14,288	38	10	●
5/8"	18	15,875	45	14	●
3/4"	16	19,05	45	14	●
7/8"	14	22,225	55	16	●
1"	12	25,4	55	16	●

F
SERIES



X203 BRIGHT

DIN EN 24231



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	X203 BRIGHT			
P	P.1-4	•			
	P.7	•			
M	M.1	•			
K	K.2	•			
N	N.1-3	•			
	N.5-7	•			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



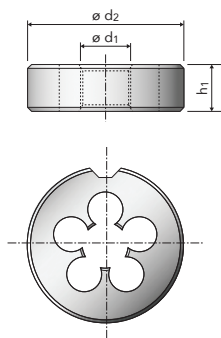
G	P [TPI]	ϕd_1 [mm]	ϕd_2 [mm]	h_1 [mm]	X203 BRIGHT
1/8"	28	9,728	30	11	•
1/4"	19	13,157	38	10	•
3/8"	19	16,662	45	14	•
1/2"	14	20,955	45	14	•
5/8"	14	22,911	55	16	•
3/4"	14	26,441	55	16	•
7/8"	14	30,201	65	18	•
1"	11	33,249	65	18	•
1 1/4"	11	41,91	75	20	•
1 1/2"	11	47,803	90	22	•
2"	11	59,614	105	22	•

DIES
With spiral point

BS 84



DIN EN 22568



APPLICATION RANGE - CUTTING SPEED m/min

ISO	MG	X202 BRIGHT			
P	P.1-4	•			
	P.7	•			
M	M.1	•			
K	K.2	•			
N	N.1-3	•			
	N.5-7	•			

Tolerance



Chamfer form



Hole type



Direction of cut



Through coolant



BSW	P [TPI]	$\varnothing d_1$ [mm]	$\varnothing d_2$ [mm]	h_1 [mm]	X202 BRIGHT
3/32"	48	2,381	20	5	•
1/8"	40	3,175	20	5	•
3/16"	24	4,763	20	7	•
1/4"	20	6,35	25	9	•
5/16"	18	7,938	25	9	•
3/8"	16	9,525	30	11	•
7/16"	14	11,113	30	11	•
1/2"	12	12,7	38	14	•
5/8"	11	15,875	45	18	•
3/4"	10	19,05	45	18	•
7/8"	9	22,225	55	22	•
1"	8	25,4	55	22	•

F SERIES



Thread Mills

APPLICATION AND CUTTING SPEED TABLE

VR10 - VR20 - VR30

ISO 513	Material	Group	Application	N/mm ²	Vc m/min	Feed (mm/tooth)									
						Ø2	Ø3	Ø4	Ø6	Ø8	Ø10	Ø12	Ø14	Ø16	Ø20
P	Steel	P.1	Mild / magnetic steel	200 - 400	100-250	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		P.2	Construction steel, case hardening steel	350 - 700	100-250	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		P.3	Carbon steel	350 - 850	100-250	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		P.4	Alloyed steel, tempered steel	500 - 850	110-180	0,02	0,03	0,03	0,05	0,06	0,07	0,08	0,09	0,1	0,12
		P.5	Alloyed steel, tempered steel	850 - 1200	90-160	0,02	0,02	0,03	0,03	0,04	0,05	0,05	0,06	0,07	0,08
		P.6	Alloyed steel / high strength steel	1200 - 1600	90-140	0,02	0,02	0,02	0,02	0,03	0,04	0,04	0,05	0,06	0,07
		P.7	Ferritic / martensitic stainless steel	< 1000	110-180	0,02	0,03	0,03	0,05	0,06	0,07	0,08	0,09	0,1	0,12
M	Stainless steel	M.1	Austenitic	< 850	60-120	0,02	0,02	0,03	0,03	0,04	0,05	0,05	0,06	0,07	0,08
		M.2	Ferritic-austenitic (Duplex)	< 1000	50-100	0,02	0,02	0,03	0,03	0,04	0,05	0,05	0,06	0,07	0,08
K	Cast iron	K.1	Grey cast iron	< 1000	70-150	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		K.2	Nodular cast iron	< 1000	100-250	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		K.3	Austempered ductile iron (ADI)	< 1400	70-120	0,03	0,03	0,03	0,04	0,05	0,06	0,07	0,08	0,09	0,1
N	Aluminium alloys	N.1	Pure aluminium	< 300	150-350	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		N.2	Aluminium alloys Si < 0,5% (long chipping)	< 500	150-350	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		N.3	Aluminium alloys Si < 10% (medium chipping)	< 500	150-350	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		N.4	Aluminium alloys Si > 10% (short chipping)	< 600	100-250	0,02	0,02	0,03	0,03	0,04	0,05	0,05	0,06	0,07	0,08
	Copper alloys	N.5	Pure copper	250 - 350	150-350	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		N.6	Copper alloys, Brass (long chipping)	< 700	150-350	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		N.7	Copper alloys, Brass (short chipping)	< 700	100-250	0,02	0,02	0,03	0,03	0,04	0,05	0,05	0,06	0,07	0,08
		N.8	High strength bronze	700 - 1500	90-140	0,02	0,02	0,02	0,02	0,03	0,04	0,04	0,05	0,06	0,07
	Magnesium alloys	N.9	Pure Magnesium / Magnesium alloys	120 - 300	150-350	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
		N.10	High strength Magnesium alloys	240 - 400	150-350	0,03	0,04	0,04	0,06	0,07	0,08	0,09	0,11	0,12	0,15
S	Titanium alloys	S.1	Pure titanium	400 - 600	20-90	0,02	0,02	0,02	0,03	0,04	0,04	0,04	0,05	0,05	0,05
		S.2	Titanium alloys	600 - 1000	20-80	0,02	0,02	0,02	0,03	0,03	0,03	0,03	0,04	0,04	0,04
	Nickel alloys	S.3	Pure nickel	400 - 600	20-90	0,02	0,02	0,02	0,03	0,04	0,04	0,04	0,05	0,05	0,05
		S.4	Nickel alloys	600 - 1000	20-80	0,02	0,02	0,02	0,03	0,03	0,03	0,03	0,04	0,04	0,04

APPLICATION AND CUTTING SPEED TABLE

VR40 - VR45

ISO 513	Material	Group	Application	N/mm ²	Vc m/min	Feed (mm/tooth)														
						Ø1	Ø1,5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø16	
P	Steel	P.1	Mild / magnetic steel	200 - 400	60-120	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		P.2	Construction steel, case hardening steel	350 - 700	60-120	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		P.3	Carbon steel	350 - 850	60-120	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		P.4	Alloyed steel, tempered steel	500 - 850	60-90	0,03	0,04	0,05	0,06	0,08	0,09	0,1	0,12	0,13	0,14	0,14	0,16	0,17	0,18	
		P.5	Alloyed steel, tempered steel	850 - 1200	50-80	0,03	0,04	0,04	0,05	0,05	0,06	0,07	0,07	0,08	0,09	0,1	0,12	0,13	0,14	
		P.6	Alloyed steel / high strength steel	1200 - 1600	50-70	0,02	0,02	0,02	0,03	0,04	0,05	0,06	0,06	0,07	0,08	0,09	0,1	0,12	0,13	
		P.7	Ferritic / martensitic stainless steel	< 1000	60-90	0,03	0,04	0,05	0,06	0,08	0,09	0,1	0,12	0,13	0,14	0,14	0,16	0,17	0,18	
M	Stainless steel	M.1	Austenitic	< 850	60-90	0,02	0,03	0,03	0,04	0,05	0,06	0,06	0,07	0,08	0,09	0,1	0,11	0,12	0,13	
		M.2	Ferritic-austenitic (Duplex)	< 1000	50-80	0,02	0,03	0,03	0,04	0,05	0,06	0,06	0,07	0,08	0,09	0,10	0,11	0,12	0,13	
K	Cast iron	K.1	Grey cast iron	< 1000	40-80	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		K.2	Nodular cast iron	< 1000	60-120	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		K.3	Austempered ductile iron (ADI)	< 1400	40-70	0,04	0,04	0,04	0,05	0,05	0,06	0,07	0,08	0,09	0,1	0,11	0,12	0,12	0,12	
N	Aluminium alloys	N.1	Pure aluminium	< 300	100-200	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		N.2	Aluminium alloys Si < 0,5% (long chipping)	< 500	100-200	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		N.3	Aluminium alloys Si < 10% (medium chipping)	< 500	100-200	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		N.4	Aluminium alloys Si > 10% (short chipping)	< 600	60-140	0,03	0,03	0,03	0,04	0,05	0,06	0,06	0,07	0,08	0,09	0,1	0,11	0,13	0,14	
	Copper alloys	N.5	Pure copper	250 - 350	100-200	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		N.6	Copper alloys, Brass (long chipping)	< 700	100-200	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		N.7	Copper alloys, Brass (short chipping)	< 700	60-140	0,03	0,03	0,03	0,04	0,05	0,06	0,06	0,07	0,08	0,09	0,1	0,11	0,13	0,14	
		N.8	High strength bronze	700 - 1500	60-100	0,03	0,03	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,08	0,08	0,09	0,09	0,1	
	Magnesium alloys	N.9	Pure Magnesium / Magnesium alloys	120 - 300	100-200	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
		N.10	High strength Magnesium alloys	240 - 400	100-200	0,04	0,05	0,05	0,07	0,09	0,11	0,13	0,14	0,15	0,16	0,16	0,17	0,18	0,18	
S	Titanium alloys	S.1	Pure titanium	400 - 600	20-50	0,03	0,03	0,03	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,08	0,08		
		S.2	Titanium alloys	600 - 1000	20-40	0,03	0,03	0,03	0,04	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,07	0,08	0,08	
	Nickel alloys	S.3	Pure nickel	400 - 600	20-50	0,03	0,03	0,03	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,08	0,08	0,08	0,08	
		S.4	Nickel alloys	600 - 1000	20-40	0,03	0,03	0,03	0,04	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,07	0,08	0,08	

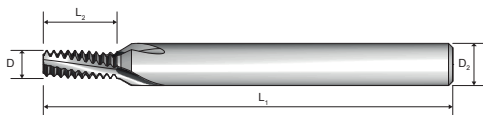
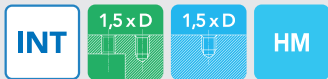
APPLICATION AND CUTTING SPEED TABLE

VR50 - VR55

ISO 513	Material	Group	Application	N/mm ²	Vc m/min	Feed (mm/tooth)													
						Ø1	Ø1,5	Ø2	Ø3	Ø4	Ø5	Ø6	Ø7	Ø8	Ø9	Ø10	Ø12	Ø14	Ø16
S	Titanium alloys	S.2	Titanium alloys	600 - 1000	20-40	0,03	0,03	0,03	0,04	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,07	0,08	0,08
	Nickel alloys	S.4	Nickel alloys	600 - 1000	20-40	0,03	0,03	0,03	0,04	0,04	0,05	0,06	0,06	0,06	0,07	0,07	0,07	0,08	0,08
H	Hardened materials	H.1	Alloyed steel, hardness HRC 44-55	-	50-60	0,02	0,03	0,03	0,04	0,04	0,05	0,05	0,06	0,06	0,07	0,07	0,08	0,09	0,1
		H.2	Alloyed steel, hardness HRC 56-62	-	40-50	0,01	0,02	0,02	0,03	0,03	0,04	0,05	0,05	0,06	0,06	0,06	0,07	0,08	0,09

SOLID CARBIDE THREAD MILLS
Spiral flutes

DIN 13



APPLICATION RANGE

ISO	VR10	VR20	VR30
P	•	•	•
M	•	•	•
K	•	•	•
N	•	•	•
S	•	•	•

For cutting data see page 202

Thread

Hole type

Direction of cut

Through coolant

VR10
TiAlN

VR20
TiAlN

VR30
TiAlN



P	M	MF	D ₂ h6 [mm]	D [mm]	z	L ₂ [mm]	L ₁ [mm]	VR10 TiAlN	VR20 TiAlN	VR30 TiAlN
0,5		M5x0,5	6	3,8	3	10,3	58	VR10038I0501000		
0,7	M4		6	3,1	3	7,4	58	VR10031I0700700	VR20031I0700700	
0,75		M6x0,75	6	4,5	3	10,1	58		VR20045I0751000	
0,8	M5		6	3,6	3	9,2	58	VR10036I0800900	VR20038I0800900	
1	M6		6	4	3	10,5	58	VR10040I1001000		
1	M6		6	4	3	14,5	58	VR10040I1001400		
1	M6		6	4,8	3	10,5	58			VR30048I1001000
1	M6	M7x1	6	4,6	3	14,5	58		VR20046I1001400	
1		M10x1	8	8	4	16,5	64	VR10080I1001600	VR20080I1001600	VR30080I1001600
1		M12x1	10	10	4	24,5	73		VR20100I1002400	
1,25	M8	M10x1,25	6	5	3	14,4	58	VR10050I1251400		
1,25	M8	M10x1,25	6	6	3	14,4	58		VR20060I1251400	
1,25	M8	M10x1,25	6	5	3	19,4	58	VR10050I1251900		
1,25	M8	M10x1,25	6	6	3	19,4	58		VR20060I1251900	VR30060I1251900
1,5	M10	M12x1,5	8	7	3	17,3	64	VR10070I1501700		
1,5	M10	M12x1,5	8	7	3	24,8	76	VR10070I1502400		
1,5	M10	M12x1,5	8	7,8	3	17	64		VR20078I1501700	VR30078I1501700
1,5		M14x1,5	10	10	4	21,8	73	VR10100I1502100		VR30100I1502100
1,5		M16x1,5	12	12	4	26,3	84		VR20120I1502600	VR30120I1502600
1,75	M12		8	8	3	20,1	64	VR10080I1752000		
1,75	M12		10	9	3	20,1	73		VR20090I1752000	
2	M16		12	11,8	4	27	84		VR20118I2002700	
2,5	M20		16	15	5	48,8	105		VR20150I2504800	
3	M24		20	18	4	58,5	120		VR20180I3005800	

VR SERIES

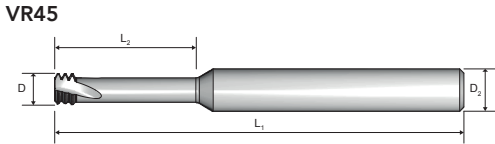
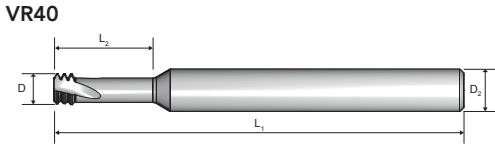
SOLID CARBIDE THREAD MILLS
Spiral flutes

DIN 13



VR40
TiAlN

VR45
TiAlN



APPLICATION RANGE

ISO	VR40	VR45	
P	•	•	
M	•	•	
K	•	•	
N	•	•	
S	•	•	

For cutting data see page 203

Thread



Hole type



Direction of cut



Through coolant

VR40
TiAlN

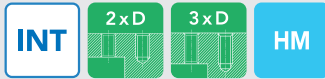
VR45
TiAlN

P	M	D ₂ h6 [mm]	D [mm]	z	L ₂ [mm]	L ₁ [mm]	VR40 TiAlN	VR45 TiAlN
0,3	M1,4	3	1,05	3	4	39		VR45010I0300400
0,35	M1,6	3	1,2	3	4,8	39		VR45012I0350400
0,4	M2	6	1,53	3	4,5	58	VR40015I0400400	
0,4	M2	3	1,53	3	6	39		VR45015I0400600
0,5	M3	6	2,37	3	6,5	58	VR40023I0500600	
0,5	M3	6	2,37	3	9,5	58		VR45023I0500900
0,5	M3	6	2,37	3	9,5	105		VR45023I050090L
0,7	M4	6	3,1	3	9	58	VR40031I0700900	
0,7	M4	6	3,1	3	12,5	58		VR45031I0701200
0,7	M4	6	3,1	3	12,5	105		VR45031I080120L
0,8	M5	6	3,8	3	12,5	58	VR40038I0801200	
0,8	M5	6	3,8	3	16	58		VR45038I0801600
0,8	M5	6	3,8	3	16	105		VR45038I080160L
1	M6	6	4,65	3	14	58	VR40046I1001400	
1	M6	6	4,65	3	20	58		VR45046I1002000
1	M6	6	4,65	3	20	105		VR45046I100200L
1,25	M8	6	5,95	3	18	58	VR40059I1251800	
1,25	M8	6	6	3	24	58		VR45060I1252400
1,5	M10	8	7,8	3	23	64	VR40078I1502300	
1,75	M12	10	9	3	26	73	VR40090I1752600	
2	M16	12	11,8	4	35	84	VR40118I2003500	

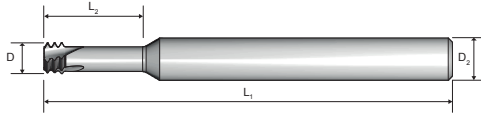
VR
SERIES

SOLID CARBIDE THREAD MILLS for hardened materials
Lefthand spiral flutes

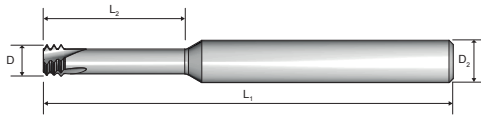
DIN 13



VR50



VR55



VR50
TiAIN

VR55
TiAIN



APPLICATION RANGE

ISO	VR50	VR55	
S	•	•	
H	•	•	

For cutting data see page 204

Thread



Hole type



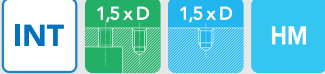
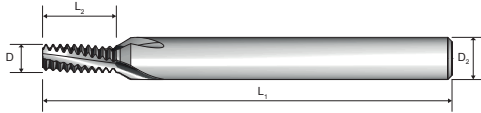
Direction of cut



Through coolant



P	M	D ₂ h6 [mm]	D [mm]	z	L ₂ [mm]	L ₁ [mm]	VR50 TiAIN	VR55 TiAIN
0,4	M2	6	1,53	3	4,5	58	VR50015I0400400	
0,5	M3	6	2,37	3	6,5	58	VR50023I0500600	
0,7	M4	6	3,1	3	9	58	VR50031I0700900	
0,7	M4	6	3,1	3	12,5	58		VR55031I0701200
0,8	M5	6	3,8	3	12,5	58	VR50038I0801200	
0,8	M5	6	3,8	3	16	58		VR55038I0801600
1	M6	6	4,65	3	14	58	VR50046I1001400	
1	M6	6	4,65	3	20	58		VR55046I1002000
1,25	M8	6	6	3	18	58	VR50060I1251800	
1,25	M8	6	6	3	24	58		VR55060I1252400
1,5	M10	8	7,8	3	23	64	VR50078I1502300	
1,75	M12	10	9	3	26	73	VR50090I1752600	
2	M16	12	11,8	4	35	84	VR50118I2003500	

VR10
TiAlNVR20
TiAlN

APPLICATION RANGE

ISO	VR10	VR20	
P	•	•	
M	•	•	
K	•	•	
N	•	•	
S	•	•	

For cutting data see page 202

Thread



Hole type

Direction
of cut

Through coolant



P (TPI)	UNC	UNF	D ₂ [mm]	D [mm]	z	L ₂ [mm]	L ₁ [mm]	VR10 TiAlN	VR20 TiAlN
28		1/4"	6	4	3	11,3	58	VR10040U28T1100	
28		1/4"	6	5	3	11,3	58		VR20050U28T1100
24		5/16"	6	5	3	14,3	58	VR10050U24T1400	
24		3/8"	8	7	3	20,6	64	VR10070U24T2000	
24		5/16"	8	6,6	3	14,3	64		VR20066U24T1400
24		3/8"	8	8	4	20,6	64		VR20080U24T2000
20	1/4"		6	4,5	3	12,1	58	VR10045U20T1200	
20		7/16"-1/2"	8	7	3	21	64	VR10070U20T2100	
20	1/4"		6	4,7	3	12,1	58		VR20047U20T1200
20		7/16"	8	8	3	21	64		VR20080U20T2100
20		1/2"	10	10	4	22,3	73		VR20100U20T2200
18	5/16"		6	5	3	14,8	58	VR10050U18T1400	
18	5/16"		6	5,6	3	14,8	58		VR20056U18T1400
16	3/8"		6	6	3	16,7	58	VR10060U16T1600	
16	3/8"		8	6,7	3	16,7	64		VR20067U16T1600
14	7/16"		8	7	3	20,9	64	VR10070U14T2000	
14	7/16"		8	7,7	3	20,9	64		VR20077U14T2000
13	1/2"		8	8	3	22,5	64	VR10080U13T2200	
13	1/2"		10	9,2	3	22,5	73		VR20092U13T2200
11	5/8"		10	10	3	28,9	73	VR10100U11T2800	
11	5/8"		12	11,4	3	28,9	84		VR20114U11T2800

VR10
TiAlNVR20
TiAlN

SOLID CARBIDE THREAD MILLS
Spiral flutes

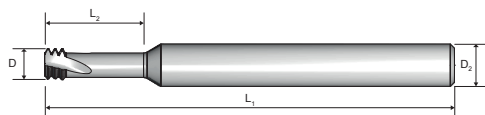
ASME
B1.1



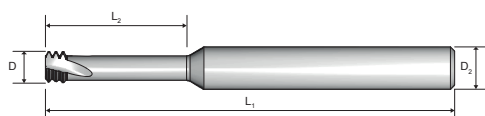
VR40
TiAlN

VR45
TiAlN

VR40



VR45



APPLICATION RANGE

ISO	VR40	VR45
P	•	•
M	•	•
K	•	•
N	•	•
S	•	•

For cutting data see page 203

Thread



Hole type



Direction of cut



Through coolant

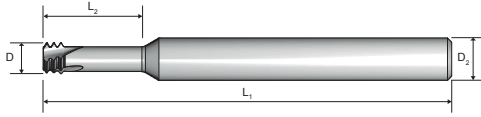


P (TPI)	UNC	UNF	D ₂ [mm]	D [mm]	z	L ₂ [mm]	L ₁ [mm]	VR40 TiAlN	VR45 TiAlN
28		1/4"	6	5	3	14,5	58	VR40050U28T1400	
28		1/4"	6	5	3	19	58		VR45050U28T1900
24		5/16"-3/8"	8	6,6	3	17	64	VR40066U24T1700	
24		5/16"-3/8"	8	6,6	3	24	64		VR45066U24T2400
20	1/4"		6	4,75	3	14	58	VR40047U20T1400	
20		7/16"	8	8	3	25	64	VR40080U20T2500	
20	1/4"		6	4,75	3	19	58		VR45047U20T1900
18	5/16"		6	6	3	17	58	VR40060U18T1700	
18		5/8"	12	12	4	35	84	VR40120U18T3500	
18	5/16"		6	6	3	23	58		VR45060U18T2300
16	3/8"		8	6,7	3	22	64	VR40067U16T2200	
14	7/16"		8	7,7	3	25	64	VR40077U14T2500	
13	1/2"		10	9,2	3	27,5	73	VR40092U13T2700	
11	5/8"		12	11,4	3	34,5	84	VR40114U11T3400	

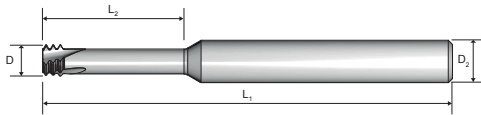
VR SERIES

VR50
TiAlNVR55
TiAlN

VR50



VR55



APPLICATION RANGE

ISO	VR50	VR55	
S	•	•	
H	•	•	

For cutting data see page 204

Thread

INT

INT

Hole type



Direction of cut



Through coolant



P (TPI)	UNC	UNF	D ₂ [mm]	D [mm]	z	L ₂ [mm]	L ₁ [mm]	VR50 TiAlN	VR55 TiAlN
28		1/4"	6	5	3	14,5	58	VR50050U28T1400	
28		1/4"	6	5	3	19	58		VR55050U28T1900
24		5/16"-3/8"	8	6,6	3	17	64	VR50066U24T1700	
24		5/16"-3/8"	8	6,6	3	24	64		VR55066U24T2400
20	1/4"		6	4,75	3	14	58	VR50047U20T1400	
20		7/16"	8	8	3	25	64	VR50080U20T2500	
20	1/4"		6	4,75	3	19	58		VR55047U20T1900
18	5/16"		6	6	3	17	58	VR50060U18T1700	
18		5/8"	12	12	4	35	84	VR50012U18T3500	
18	5/16"		6	6	3	23	58		VR55060U18T2300
16	3/8"		8	6,7	3	22	64	VR50067U16T2200	
14	7/16"		8	7,7	3	25	64	VR50077U14T2500	
13	1/2"		10	9,2	3	27,5	73	VR50092U13T2700	
11	5/8"		12	11,4	3	34,5	84	VR50114U11T3400	

VR50
TiAlNVR55
TiAlN

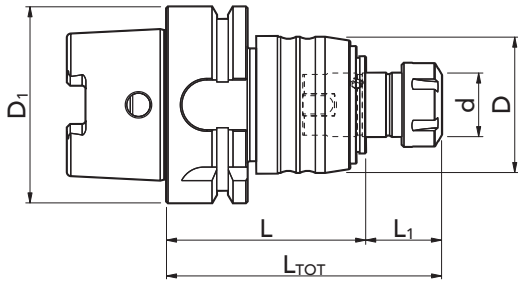


Synchronous Tapping Attachments

SYNCHRONOUS ER TAPPING ATTACHMENT with QUICK-CHANGE TAP ADAPTOR
With internal through coolant capability (*)



DIN 69893 HSK A

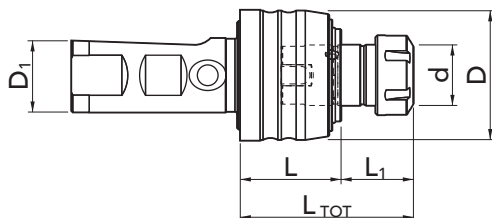


Article Code	Attachment øD ₁ [mm]	Tap Size	L [mm]	ø D [mm]	ø d [mm]	ER collet	L ₁ [mm]	L _{TOT} [mm]
VA01A06302CH160	HSK-A63	M3 - M8	64	43	20	ER 16	20,5	84,5
VA01A06302CH250	HSK-A63	M6 - M20	97	60	32	ER 25	23,5	120,5
VA01A10002CH400	HSK-A100	M14 - M33	115	87	50	ER 40	28,5	143,5

SYNCHRONOUS ER TAPPING ATTACHMENT with QUICK-CHANGE TAP ADAPTOR
With internal through coolant capability (*)



DIN 1835 B+E



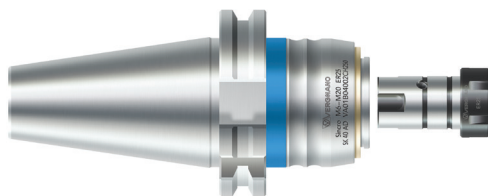
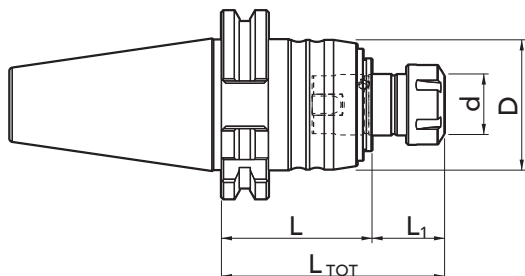
Article Code	Attachment øD ₁ [mm]	Tap Size	L [mm]	ø D [mm]	ø d [mm]	ER collet	L ₁ [mm]	L _{TOT} [mm]
VA01C02502CH160	25	M3 - M8	34	43	20	ER 16	20,5	54,5
VA01C02502CH250	25	M6 - M20	56	60	32	ER 25	23,5	79,5
VA01C04002CH400	40	M14 - M33	80	87	50	ER 40	28,5	108,5

(*) For coolant pressure above 50 bars a special nut screw is available on request

SYNCHRONOUS ER TAPPING ATTACHMENT with QUICK-CHANGE TAP ADAPTOR
With internal through coolant capability (¹)



SK DIN 69871 AD

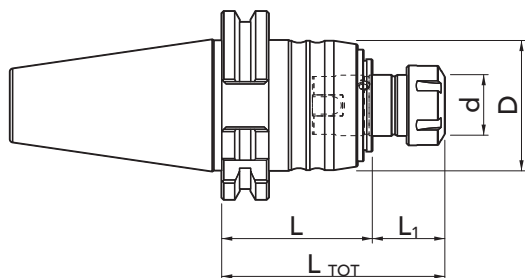


Article Code	Attachment	Tap Size	L [mm]	ø D [mm]	ø d [mm]	ER collet	L ₁ [mm]	L _{TOT} [mm]
VA01B04002CH160	SK 40 AD	M3 - M8	53	43	20	ER 16	20,5	73,5
VA01B05002CH160	SK 50 AD	M3 - M8	53	43	20	ER 16	20,5	73,5
VA01B04002CH250	SK 40 AD	M6 - M20	90	60	32	ER 25	23,5	113,5
VA01B05002CH250	SK 50 AD	M6 - M20	74	60	32	ER 25	23,5	97,5

SYNCHRONOUS ER TAPPING ATTACHMENT with QUICK-CHANGE TAP ADAPTOR
With internal through coolant capability (¹)



SK DIN 69871 AD+B



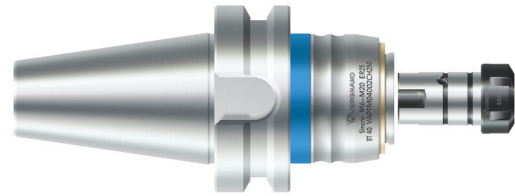
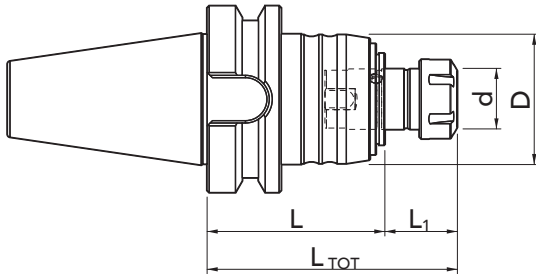
Article Code	Attachment	Tap Size	L [mm]	ø D [mm]	ø d [mm]	ER collet	L ₁ [mm]	L _{TOT} [mm]
VA01B05002CH400	SK 50 B	M14 - M33	115	87	50	ER 40	28,5	143,5

(¹) For coolant pressure above 50 bars a special nut screw is available on request

SYNCHRONOUS ER TAPPING ATTACHMENT with QUICK-CHANGE TAP ADAPTOR
With internal through coolant capability (!)



MAS 403 BT

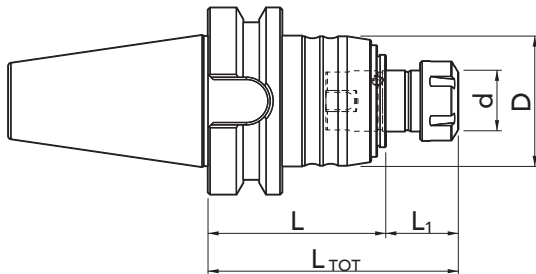


Article Code	Attachment	Tap Size	L [mm]	ø D [mm]	ø d [mm]	ER collet	L ₁ [mm]	L _{TOT} [mm]
VA01M04002CH160	BT 40	M3 - M8	61	43	20	ER 16	20,5	81,5
VA01M05002CH160	BT 50	M3 - M8	72	43	20	ER 16	20,5	92,5
VA01M04002CH250	BT 40	M6 - M20	82	60	32	ER 25	23,5	105,5
VA01M05002CH250	BT 50	M6 - M20	93	60	32	ER 25	23,5	116,5

SYNCHRONOUS ER TAPPING ATTACHMENT with QUICK-CHANGE TAP ADAPTOR
With internal through coolant capability (!)



MAS 403 BT - B



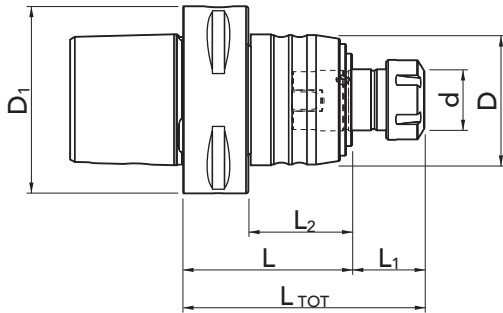
Article Code	Attachment	Tap Size	L [mm]	ø D [mm]	ø d [mm]	ER collet	L ₁ [mm]	L _{TOT} [mm]
VA01M05002CH400	BT 50 B	M14 - M33	124	87	50	ER 40	28,5	152,5

(!) For coolant pressure above 50 bars a special nut screw is available on request

SYNCHRONOUS ER TAPPING ATTACHMENT with QUICK-CHANGE TAP ADAPTOR
With internal through coolant capability ⁽¹⁾



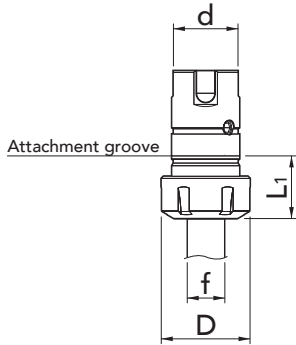
POLIGONAL Attachment ISO 26623-1



Article Code	Attachment øD ₁ [mm]	Tap Size	L [mm]	L ₂ [mm]	ø D [mm]	ø d [mm]	ER collet	L ₁ [mm]	L _{TOT} [mm]
VA01P04002CH160	C40	M3 - M8	55	35	43	20	ER 16	20,5	75,5
VA01P05002CH160	C50	M3 - M8	55	35	43	20	ER 16	20,5	75,5
VA01P06302CH160	C63	M3 - M8	57	35	43	20	ER 16	20,5	77,5
VA01P08002CH160	C80	M3 - M8	66	36	43	20	ER 16	20,5	86,5
VA01P04002CH250	C40	M6 - M20	75	55	60	32	ER 25	23,5	98,5
VA01P05002CH250	C50	M6 - M20	75	55	60	32	ER 25	23,5	98,5
VA01P06302CH250	C63	M6 - M20	77	55	60	32	ER 25	23,5	100,5
VA01P08002CH250	C80	M6 - M20	86	56	60	32	ER 25	23,5	109,5
VA01P08002CH400	C80	M14 - M33	116	86	87	50	ER 40	28,5	144,5

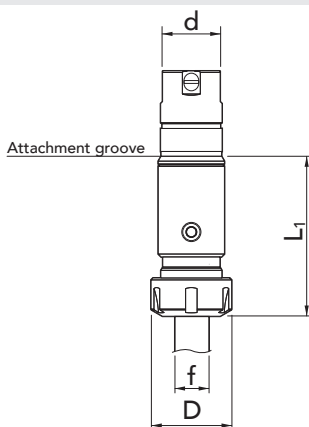
⁽¹⁾ For coolant pressure above 50 bars a special nut screw is available on request

QUICK-CHANGE TAP ADAPTOR



Article Code	Tap Size	Shaft Ø f [mm]	ø d [mm]	ø D [mm]	L ₁	ER collet
*CHADAP160310000	M3 - M8	03 - 08	20	28	20,5	ER 16
CHADAP250316000	M6 - M20	03 - 16	32	42	23,5	ER 25
CHADAP400626000	M14 - M33	06 - 25	50	63	28,5	ER 40

EXTENDED QUICK-CHANGE TAP ADAPTOR

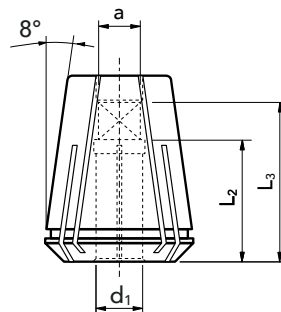


Article Code	Tap Size	Shaft Ø f [mm]	ø d [mm]	ø D [mm]	L ₁	ER collet
*CHEXAD160310000	M3 - M8	03 - 08	20	28	51,5	ER 16
CHEXAD250316000	M6 - M20	03 - 16	32	42	80,5	ER 25
CHEXAD400626000	M14 - M33	06 - 25	50	63	90,5	ER 40

* Hexagonal nut screw

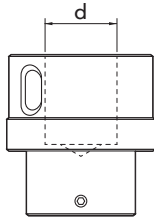
ER COLLET (sealed) - with internal square

DIN 6499



Article Code	ER collet	ø d ₁ [mm]	a [mm]	L ₂ [mm]	L ₃ [mm]
SLERGB160103500	ER 16	3,5	2,7	18	24
SLERGB160104500	ER 16	4,5	3,4	18	24
SLERGB160105500	ER 16	5,5	4,3	18	25
SLERGB160106000	ER 16	6	4,9	18	26
SLERGB160107000	ER 16	7	5,5	18	26
SLERGB160108000	ER 16	8	6,2	22	31
SLERGB250103500	ER 25	3,5	2,7	18	24
SLERGB250104500	ER 25	4,5	3,4	18	24
SLERGB250105500	ER 25	5,5	4,3	18	25
SLERGB250106000	ER 25	6	4,9	18	26
SLERGB250107000	ER 25	7	5,5	18	26
SLERGB250108000	ER 25	8	6,2	22	31
SLERGB250109000	ER 25	9	7	22	32
SLERGB250110000	ER 25	10	8	25	36
SLERGB250111000	ER 25	11	9	25	37
SLERGB250112000	ER 25	12	9	25	37
SLERGB250114000	ER 25	14	11	25	39
SLERGB250116000	ER 25	16	12	25	40
SLERGB400106000	ER 40	6	4,9	18	26
SLERGB400106000	ER 40	7	5,5	18	26
SLERGB400108000	ER 40	8	6,2	22	31
SLERGB400109000	ER 40	9	7	22	32
SLERGB400110000	ER 40	10	8	25	36
SLERGB400111000	ER 40	11	9	25	37
SLERGB400112000	ER 40	12	9	25	37
SLERGB400114000	ER 40	14	11	25	39
SLERGB400116000	ER 40	16	12	25	40
SLERGB400118000	ER 40	18	14,5	25	42
SLERGB400120000	ER 40	20	16	28	47
SLERGB400122000	ER 40	22	18	28	49
SLERGB400125000	ER 40	25	20	33	56

ASSEMBLY SUPPORT



Article Code	ER collet	ø d [mm]
ASCHADAP1620000	ER 16	20
ASCHADAP2532000	ER 25	32
ASCHADAP4050000	ER 40	50

WRENCH for nut screw

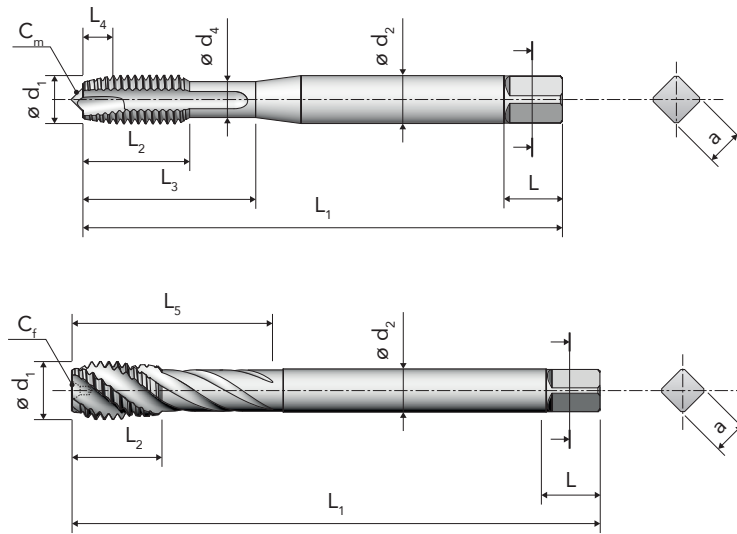


Article Code	Nut Screw	ER collet
KE02ER160200000	Esagonale	ER 16
KE04ER250200000	Standard	ER 25
KE04ER400200000	Standard	ER 40



Technical Information

Tap and Die Terminology



TAP TERMINOLOGY

Nominal diameter (d_1):

the diameter used for the purpose of general identification.

Pitch diameter (d_m):

the diameter measured where the width of the thread is equal to half the pitch.

Shank diameter (d_2):

the diameter of the shank, important for the tapping attachment.

Chamfer diameter (d_3):

the diameter at the leading end of the chamfer.

Neck diameter (d_4):

the diameter of the reduced section between the thread and shank of the tap.

Core diameter (d_5):

the diameter of a circle tangent to the bottom of the flutes.

Chamfer:

the taper on the threads at the front end of the tap made by grinding and relieving the crests of the first few teeth.

Square (a):

the square with rounded corners formed by four flats parallel to the tap axis. The square serves to drive the tap.

Square length (L):

the length of the flats that form the square.

Total length (L_1):

the complete length of the tap from end to end, excluding external centres.

Thread length (L_2):

the length of the threaded section of the tap.

Usable length (L_3):

the length measured from the front end of the tap to the end of the neck section. This length determines the maximum threadable depth on taps with reinforced shank.

Chamfer length (L_4):

the length of the chamfer measured parallel to the tap axis, excluding the chamfer bevel.

Flute length (L_5):

the axial length of the flute including the cutter sweep.

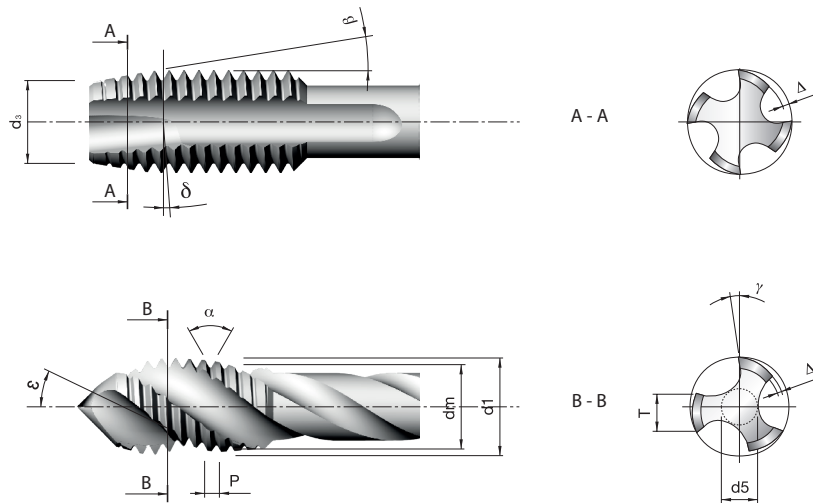
External center (C_m):

the pointed end of the tap.

Internal center (C_f):

the countersink in one or both ends of the tap.

Tap and Die Terminology



Pitch (P):

the distance, measured parallel to the tap axis, between two corresponding and successive points on the thread profile.

Angle of thread (α):

the angle between the flanks of the thread (measured in an axial plane).

Thread lead angle (δ):

the angle made by the spiral of the thread and a plane perpendicular to the tap axis, measured on the pitch diameter line.

Chamfer angle (β):

the angle between the chamfer and the tap axis, measured in an axial plane.

Rake angle (γ):

the angle between the cutting face of the tap and a radial line passing through the crest of the tooth at the cutting edge.

Land width (T):

the chordal width of material between two successive flutes.

Flute:

the longitudinal channels in a tap which create cutting edges. The flutes provide space for chips and passage for coolant/lubricant.

Spiral flute angle (ϵ):

the angle formed by the flutes and the tap axis.

Pitch diameter relief ($\Delta 1$):

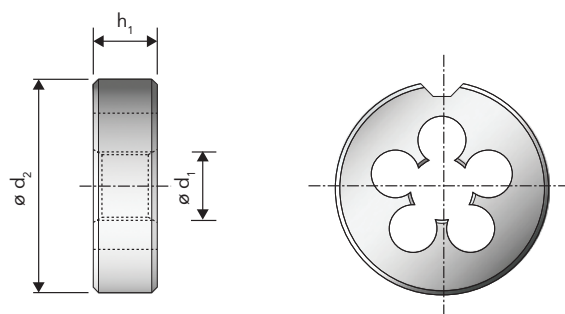
the radial reduction of the pitch and/or major diameter behind the cutting edge of the tap. The relief confers cutting properties and provides clearance between the part being threaded and the tap threads.

Chamfer relief (Δ):

the radial reduction of the major diameter on the tap chamfer behind the cutting edge. The chamfer relief confers cutting properties to the tap.

DIE TERMINOLOGY

- d_1 : nominal diameter
- d_2 : outside diameter
- h_1 : thickness
- l_1 : length of full thread



Types of Chamfer Forms and Centres

The types of chamfer are defined in standards DIN 2175 and DIN 2197 for forming taps and cutting taps, respectively.

	Form A	Form B	Form C					Form D	Form E		
Chamfer form and length											
Flute type											

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

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

Formulae

Parameter	Formula	Unit of Measurement
Cutting speed	$V_c = \frac{N \cdot \pi \cdot d_l}{1000}$	$\frac{\text{m}}{\text{min}}$
Rotational speed	$N = \frac{1000 \cdot V_c}{\pi \cdot d_l}$	rpm
Torque (*)	$M_t = \frac{K_c \cdot p^2 \cdot z^{0.6} \cdot d_l}{10^4}$	N · m
Spindle power	$P = \frac{M_t \cdot 2 \cdot \pi \cdot N}{60}$	W
Nominal diameter	d_l	mm
Feed	$p \cdot N$	$\frac{\text{mm}}{\text{min}}$
p	Thread pitch	mm
z	Number of flutes	-
K_c	Cutting force coefficient (function of the material and of tap wear)	$\frac{\text{N}}{\text{mm}^2}$

M.G.	Kc [N/mm ²]
P.1	1300
P.2	1400
P.3	1400
P.4	1600
P.5	1700
P.6	2000
P.7	1400
M.1	1600
M.2	1800
K.1	1100
K.2	1500
K.3	1600
N.1	600
N.2	800
N.3	900
N.4	1000
N.5	700
N.6	850
N.7	900
N.8	2500
N.9	400
N.10	500
S.1	1200
S.2	1900
S.3	1300
S.4	2400

(*) The torque value is valid for a new cutting tap.
For worn-out taps, the value can increase up to 2-3 times. For forming taps, the value must be multiplied by 1,5-2 times.

Conversion Table Hardness vs Tensile Strength

Tensile Strength	Hardness		
	HB Brinell	HRC Rockwell C	HV Vickers
R [N/mm ²]			
3400	700	68	1008
3120	688	67	955
2960	676	66	920
2890	670	65	885
2770	659	64	850
2240	650	63	826
2190	635	62	797
2140	627	61	772
2100	613	60	746
2050	600	59	720
2010	587	58	693
1970	574	57	666
1930	561	56	646
1890	548	55	623
1850	536	54	604
1810	524	53	585
1780	512	52	567
1730	500	51	549
1680	488	50	528
1630	476	49	513
1590	464	48	497
1560	453	47	482
1520	442	46	468
1480	430	45	453
1440	419	44	440

Tensile Strength	Hardness		
	HB Brinell	HRC Rockwell C	HV Vickers
R [N/mm ²]			
1400	408	43	427
1360	398	42	416
1320	389	41	404
1300	377	40	391
1260	367	39	381
1230	357	38	371
1190	347	37	357
1150	337	36	345
1120	327	35	332
1100	319	34	323
1060	309	33	314
1040	301	32	304
1010	294	31	296
980	286	30	288
960	279	29	280
940	272	28	273
910	265	27	266
890	259	26	259
870	253	25	253
850	247	24	247
830	241	23	241
810	235	22	235
790	230	21	230
770	225	20	225

High Speed Steel and Solid Carbide for Taps

Vergnano Designation	Designation according to ISO 11054	Hardness	Toughness	Applicazioni	Structure (500x)
HSS	HSS	•	•	Used exclusively for hand taps (except A100).	
HSSE	HSS-E	•	• •	For general applications.	
HSSK	HSS-E-PM	• •	• • •	Used in applications where a compromise between high hardness and high toughness is needed.	
HSSZ	HSS-E-PM	• •	• • •	For applications where extremely high performance and productivity are requested.	
HSSP	HSS-E-PM	• • •	• •	For tough materials and extreme applications.	
HM	-	• • •	-	For heat-treated steels and abrasive materials.	

Coatings - Properties

Type of coating / treatment	Structure	Hardness	Friction Coefficient	Oxidation temperature	Features
TiN	Mono-layer	• •	• •	•	Wear resistance
TiCN	Mono-layer	• •	• •	•	Wear resistance
TiX2	Multi-layer	• • •	• • •	• •	Oxidation and wear resistance, chip evacuation
TiH1	Multi-layer	• • •	• • •	• •	Oxidation and wear resistance, chip evacuation
CrN	Mono-layer	•	• •	• •	Oxidation and wear resistance
TiAlN	Nano structured	• • •	• •	• • •	Oxidation and wear resistance
ACE	Mono-layer	• • •	• •	• • •	Oxidation and wear resistance
Steam tempering	Surface oxidation	-	• •	•	Chip evacuation
Nitriding	Surface hardening	•	•	•	Wear resistance

• • • Excellent • • Very good • Good

Coatings - Applications

COATINGS RECOMMENDED FOR CUTTINGS TAPS				TiN	TiCN	TiX2	TiH1	CrN	TiAlN	ACE	VAP	NiTR
ISO	Material	Group	Application	Coating								
P	Steel	P.1	Mild / magnetic steel	○			○				●	
		P.2	Construction steel, case hardening steel	●			○				○	
		P.3	Carbon steel	●			○					
		P.4	Alloyed steel / tempered steel	○	○		●					
		P.5	Alloyed steel / tempered steel	○	○		●					
		P.6	Alloyed steel / high strength steel	○	○		●					
		P.7	Ferritic stainless steel, martensitic stainless steel, precipitation hardening	○		●						○
M	Stainless Steel	M.1	Austenitic stainless steel			●	○				○	
		M.2	Ferritic+austenitic (Duplex)			●	○				○	
K	Cast iron	K.1	Grey cast iron		○					●		○
		K.2	Nodular cast iron, malleable cast iron, tempered cast iron	●			○					
		K.3	Austempered ductile iron (ADI)							●		
N	Aluminium Aluminium alloys	N.1	Pure aluminium				●				○	
		N.2	Aluminium wrought and die cast alloys with Si < 0,5% (long chipping)	○			●				○	
		N.3	Aluminium wrought and die cast alloys with Si > 10% (medium chipping)	○			●				○	
		N.4	Aluminium die cast alloys with Si > 10% (short chipping)		○					●		○
	Copper Copper alloys Brass Bronze	N.5	Pure copper				●				○	
		N.6	Copper alloys (long chipping), soft brass	○			●				○	
		N.7	Copper alloys (short chipping), hard brass		●							○
		N.8	High strength bronze		○					●		○
	Magnesium Magnesium alloys	N.9	Pure magnesium, magnesium alloys		○							●
		N.10	High strength magnesium alloy		○							●
S	Titanium Titanium alloys	S.1	Pure titanium				○	●				
		S.2	Titanium alloys				○	●				
	Nickel Nickel alloys	S.3	Pure nickel	○			●					
		S.4	Nickel alloys	○			●					
H	Hardened materials	H.1	Alloyed steel, hardness HRC 44-55						●	○		
		H.2	Alloyed steel, hardness HRC 56-63						●	○		

COATINGS RECOMMENDED FOR COLD FORMING TAPS				TiN	TiCN	TiH1	VAP
ISO	Material	Group	Application	Coating			
P	Steel	P.1	Mild / magnetic steel	○			●
		P.2	Construction steel, case hardening steel	●			○
		P.3	Carbon steel	●	○		
		P.4	Alloyed steel / tempered steel	●	○		
		P.5	Alloyed steel / tempered steel	●	○		
		P.7	Ferritic stainless steel, martensitic stainless steel, precipitation hardening	○		●	
		M	Stainless Steel	M.1	Austenitic stainless steel	○	
M.2	Ferritic+austenitic (Duplex)			○		●	
N	Aluminium Aluminium alloys	N.1	Pure aluminium	○			●
		N.2	Aluminium wrought and die cast alloys with Si < 0,5% (long chipping)	●	○		○
		N.3	Aluminium wrought and die cast alloys with Si < 10 % (medium chipping)	●	○		○
	Copper Copper alloys Brass Bronze	N.5	Pure copper	○		●	
		N.6	Copper alloys (long chipping), soft brass	●	○		○
		S.1	Pure titanium			●	
S	Titanium Titanium alloys	S.2	Titanium alloys			●	
		S.3	Pure nickel	○		●	
	Nickel Nickel alloys	S.4	Nickel alloys	○		●	


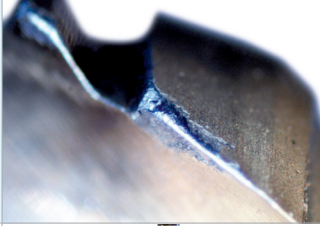

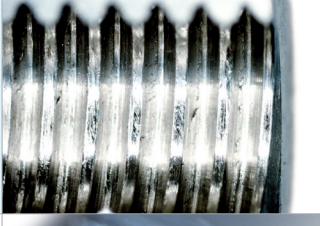

● Ideal ○ Suitable

Troubleshooting

Tapping is a complex process and often the last machining operation performed on the workpiece. Therefore, incorrect or faulty tapping can compromise the quality of the entire workpiece.

Numerous factors influence the process: cutting parameters, drilling parameters, lubrication, machine conditions. The choice of the correct tool is paramount in order to obtain high quality threads.

The following table summarises the most common problems encountered during tapping and their possible solutions.

Problem	Solution	
Chipped teeth on tap	<ul style="list-style-type: none"> • Choose correct tap, with lower rake angle or longer chamfer. • Reduce cutting speed. • Check drilled hole size is not too small. • Check tap alignment and run-out of tap on tapping attachment. • For deep blind holes ($\geq 2,5xD$) use taps with back-tapering. 	
Excessive tap wear	<ul style="list-style-type: none"> • Improve quality (richer emulsion, neat oil) and quantity (higher pressure) of lubrication. • Use correct tap, with more relief or longer chamfer if possible. • Choose coating suitable for specific application. • Use recommended cutting parameters for specific application. 	
Chips clogging flutes	<ul style="list-style-type: none"> • Use tap with lower spiral flute angle. • Choose correct tap with suitable rake angle and relief for specific application. • Use tap with sharp cutting edge (bright tap or vapourised tap). 	
Poor finish on threaded workpiece	<ul style="list-style-type: none"> • Check wear on tap. If necessary, sharpen or change tap. • Improve quality and quantity of lubrication. • Choose correct tap with suitable rake angle and relief for specific application. • Use recommended cutting parameters for specific application. 	
Built-up-edge	<ul style="list-style-type: none"> • Choose correct tap with lower rake angle and/or higher relief. • Choose coating suitable for specific application. • Increase cutting speed. • Improve quality and quantity of lubrication. 	

Troubleshooting

Problem	Solution	
Tap sticking	<ul style="list-style-type: none"> • Choose correct tap with lower rake angle and/or higher relief. • Choose coating suitable for specific application. • Increase cutting speed. • Improve quality and quantity of lubrication. 	
Crater wear	<ul style="list-style-type: none"> • Choose suitable tap, with base material in HSSE-PM. • Use coated tap. • Improve quality and quantity of lubrication. 	
Tap breakage	<ul style="list-style-type: none"> • Check drilled hole size. • Check alignment between tap and drilled hole. • Reduce cutting speed. • On blind holes, check that tapping depth is less than hole depth. • Use tapping attachment with slip clutch. • Use compensated tapping attachment. 	
Oversized thread	<ul style="list-style-type: none"> • Check tap tolerance is compatible with requested workpiece (nut) tolerance. • Choose correct tap with suitable rake angle and relief for specific application. • Reduce feed rate (revs x pitch) or use rigid / synchronous tapping attachment. • Reduce cutting speed. • Check tap alignment and that workpiece is fastened steadily. • Remove clogged chips from flutes. 	
Undersized thread	<ul style="list-style-type: none"> • Check drilled hole size is not too small. • Check tap tolerance is compatible with requested workpiece (nut) tolerance. • Use coated tap to avoid tap sticking. • On forming taps, use slightly larger drilled hole size. • Check wear on tap. If necessary, sharpen or change tap. • Choose correct tap with higher rake angle and relief. • Use rigid / synchronous tapping attachment. • Improve quality and quantity of lubrication. 	
Excessive power requirement	<ul style="list-style-type: none"> • On high strength materials, increase drilled hole size. • Check wear on tap. If necessary, sharpen or change tap. • Choose correct tap with higher rake angle and relief. • Improve quality and quantity of lubrication. 	

Material Examples

ISO 513	Application	W.Nr.	Germany DIN	Italy UNI	France AFNOR	United States AISI/SAE/ASTM
P STEEL	Mild/magnetic	1.1015	RFe60			
		1.1014	RFe80			
		1.1013	RFe100			
	Structural	1.0037	St 37-2	Fe360B	E 24-2	1013
		1.0044	St 44-2	Fe430B	E 28-2	1021
		1.0050	St 50-2	Fe490	A 50-2	A 570 (50)
		1.0060	St 60-2	Fe590	A 60-2	A 572 (65)
		1.0570	St 52-3	Fe510B	E 36-3	1024
	Case hardening	1.0301	C10	C10	C10	1010
		1.0401	C15	C15	C18	1015
		1.7131	16MnCr5	16MnCr5	16 MC 5	5115
		1.7147	20MnCr5	20MnCr5	20 MC 5	5120
		1.7243	18CrMo4	18CrMo4		
		1.5919	15CrNi6	16CrNi4	16 NC 6	4320
		1.6523	21NiCrMo2	20NiCrMo2	20 NCD 2	8620
	1.6587	17CrNiMo1106	18NiCrMo5-7	18 NCD6/18 NCD7	4320	
	Nitriding	1.8515	31CrMo12	31CrMo12	30 CD 12	A/B
		1.8519	31CrMoV9	31CrMoV10		
		1.8507	34CrAlMo5	34CrAlMo7	30 CAD 6.12	A355Cl.D
		1.8509	41CrAlMo7	41CrAlMo7	40 CAD 6.12	E7140
	Free cutting	1.0711	9S20	9S20		1212
		1.0715	9SMn28	9SMn28	S 250	1213
		1.0718	9SMnPb28	9SMnPb28	S 250 Pb	12 L 13
		1.0726	35S20	35S20	35 MF 4	1140
		1.0736	9SMn36	9SMn36	S 300	1215
		1.0737	9SMnPb36	9SMnPb36	S 300 Pb	12 L 14
	Heat-treatable	1.0406	C25	C25	AF 50 C 30	1025
		1.0528	C30	C30		1030
		1.0501	C35	C35	AF 55 C 35	1035
		1.0511	C40	C40	AF 60 C 40	1040
		1.0503	C45	C45	AF 65 C 45	1045
		1.0540	C50	C50		1050
		1.0535	C55	C55	C54	1055
		1.0601	C60	C60	C60	1060
		1.7035	41Cr4	41Cr4	41Cr4	5140
		1.8159	51CrV4	51CrV4	50 CV 4	6150
		1.7218	25CrMo4	25CrMo4	25 CD 4	4130
		1.7220	34CrMo4	34CrMo4	35 CD 4	4137
		1.7225	42CrMo4	42CrMo4	42 CD 4	4140
		1.7228	50CrMo4	50CrMo4	50CrMo4	4150
		1.6580	30CrNiMo8	30CrNiMo8	30 NCD 8	
		1.6582	34CrNiMo6	34CrNiMo6	35 NCD 6	4337
	1.6511	36CrNiMo4	36CrNiMo4	40 NCD 3	9840	
	1.6773	36NiCrMo16	36NiCrMo16			
	Ball bearing	1.3505	100Cr6	100Cr6	100C6	52100
		1.3536	100CrMo7-3	100CrMo7		
	Spring	1.1231	Ck67	C67	XC 68	1070
1.1248		Ck75	C75		1074	
1.1269		Ck85	C85	C90	1086	
1.1274		Ck101	C100	C100	1095	
1.5021			48Si7			
1.5026		55Si7	55Si7	56SC7	9255	
1.5027			60Si7	60Si7	9260	
1.7108		60SiCr7	60SiCr8		9262	
1.8159		51CrV4	51CrV4	50 CV 4	6150	
1.7176		55Cr3	55Cr3	55 C 3	5155	
1.7701	51CrMoV4	51CrMoV4				
Superficial hardening	1.1183	Cf 35	C36	XC 68 H1TS		
	1.1193	Cf 45	C43	XC 42 H1TS		
	1.1213	Cf 53	C53	XC 48 H1TS	1050	
	1.7005	45Cr2	45Cr2			
	1.7043	38Cr4	38Cr4			
	1.7034	37Cr4	36CrMn4	38 C 4	5135	
	1.7223	41CrMo4	41CrMo4	42 CD 4 TS	4142	

	Russia GOST	Japan JIS	China GB	India IS	MG Vergnano	Application	ISO 513
	20860				P.1	Mild/magnetic	P STEEL
	20880				P.1		
	20895				P.1		
	St3kp/St3ps	STKM12C	Q235A		P.2	Structural	
	St4ps/St4sp	STK400	Q275B	Fe440	P.2		
	St5ps/St5sp	SS490	Q275	Fe490	P.2		
	St6ps/St6sp	S45C	45	Fe570	P.2		
	17G1S	STK490	16Mn	Fe540	P.2		
	10	S10C	10		P.2	Case hardening	
	15	S15C	15	14C6	P.2		
	18ChG	SCR415	20CrMn	16Mn5Cr4	P.2		
	18 ChG	SMnC420H	20CrMn	20Mn5Cr5	P.2		
					P.2		
	15ChGN2T	SNCM415M		15Cr6Ni6	P.2		
	20ChGNM	SNCM220M	20CrNiMo		P.2		
	20ChN2M			16Ni6Cr7Mo3	P.2		
		SBV1A/SBV1B			P.4	Nitriding	
					P.5		
					P.4		
	38Ch2MJuA	SACM645	38CrMoAl	40Cr7Al10Mo2	P.5		
	A11	SUM21	Y12		P.1	Free cutting	
		SUM22	Y15		P.1		
		SUM22L	Y15Pb		P.1		
	A35		Y35		P.2		
		SUM25			P.1		
		SUM24L			P.1		
	25	S25C	25	25C4	P.3	Heat-treatable	
	30	S30C	30	30C8	P.3		
	35	S35C	35	35C8	P.3		
	40	S40C	40	40C8	P.3		
	45	S45C	45	45C8	P.3		
	50	S50C	50	50C8	P.3		
	55	S55C	55	55C8	P.3		
	60	S58C	60	C604	P.3		
	40Ch	SCr440(H)	40Cr	40Cr4	P.4 (norm.) / P.5 (bonif.)		
	50Ch	SUP10	50CrVA	50Cr4V2	P.4 (norm.) / P.5 (bonif.)		
	30ChM	SCCrM1	30CrMo	21Cr4Mo2	P.4 (norm.) / P.5 (bonif.)		
	35ChML	SCM435	35CrMo		P.4 (norm.) / P.5 (bonif.)		
	38ChA	SCM440	42CrMo	40CrMoH	P.4 (norm.) / P.5 (bonif.)		
	50Ch	SCM445(H)	ZG50Cr1Mo		P.4 (norm.) / P.5 (bonif.)		
		SNCM431			P.5 (norm.) / P.6 (bonif.)		
	38Ch2N2MA	SNCM439			P.5 (norm.) / P.6 (bonif.)		
	40ChGMN		40CrNiMoA		P.4 (norm.) / P.5 (bonif.) P.5 (norm.) / P.6 (bonif.)		
	SChCh15	SUJ2/SUJ4	GCr15		P.4 (norm.) P.4 (norm.)		
	65	S70C-CSP	65	70C6	P.3	Spring	
	75A	S75CM	75		P.3		
	85A	SK85	85		P.3		
		SK4-CSP	T10A	98C6	P.3		
	55S2/55S2A		55Si2Mn	55Si7	P.4 (norm.) / P.5 (bonif.)		
	60S2	SUP6	60Si2Mn	60Si7	P.4 (norm.) / P.5 (bonif.)		
	60S2G		60Si2CrA		P.4 (norm.) / P.5 (bonif.)		
	50Ch	SUP10	50CrVA	50Cr4V2	P.4 (norm.) / P.6 (bonif.)		
	50ChGA	SUP9(A)	55CrMnA	55Cr3	P.4 (norm.) / P.6 (bonif.)		
					P.4 (norm.) / P.6 (bonif.)		
					P.3	Superficial hardening	
					P.3		
	50	S50C			P.3		
			38CrA		P.4		
	35Ch	SCr435H	35Cr		P.5		
	40ChFA	SNB22	42CrMo	40Cr4Mo3	P.5		

Material Examples

ISO 513	Application	W.Nr.	Germany DIN	Italy UNI	France AFNOR	United States AISI/SAE/ASTM	
P STEEL	Hot-work	1.2767	45NiCrMo16	40NiCrMoV16 KU	Y35NCD16		
		1.2713	55NiCrMoV7	55NiCrMoV7 KU	55NiCrMoV7	L6	
		1.2311		35CrMo8 KU			
		1.2365	32CrMoV12-28	30CrMoV12-27 KU	32CDV12-28	H10	
		1.2343	X38CrMoV5-1	X37CrMoV5-1 KU	Z38CDV5	H11	
		1.2344	X40CrMoV5-1	X40CrMoV5-1-1 KU	Z40CDV5	H13	
		1.2567	X30WCrV5-3	X30WCrV5-3 KU	Z32WCV5	H14	
	1.2581	X30WCrV9-3	X30WCrV9-3 KU	Z30WCV9	H21		
	Ferritic stainless steel	1.4002	X6CrAl13	X6CrAl13	Z 8 CA 12	405	
		1.4512	X2CrTi12	X6CrTi12	Z 3 CT 12	409	
		1.4016	X6Cr17	X8Cr17	Z 8 C 17	430	
		1.4104	X14CrMoS17	X10CrS17	Z 13 CF 17	430F	
	Martensitic stainless steel	1.4006	X12Cr13	X12Cr13	Z 10 C 13	410	
		1.4005	X12CrS13	X12CrS13	Z 11 CF 13	416	
		1.4021	X20Cr13	X20Cr13	Z 20 C 13	420	
		1.4028	X30Cr13	X30Cr13	Z 30 C 13	420	
		1.4057	X17CrNi16-2	X16CrNi16	Z 15 CN 16-02	431	
		1.4125	X105CrMo17		Z 100 CD 17	440C	
	Precipitation hardening	1.4542	X5CrNiCuNb16-4		Z 7 CNU 15-05	630	
M STAINLESS STEEL	Austenitic	1.4319	X3CrNiN17-8	X10CrNi1809		302	
		1.4305	X8CrNiS18-9	X10CrNiS1809	Z 8 CNF 18-09	303	
		1.4301	X5CrNi18-10	X5CrNi1810	Z 4 CN 19-10 FF	304	
		1.4306	X2CrNi19-11	X2CrNi1811	Z 1 CN 18-12	304L	
		1.4303	X4CrNi18-12	X8CrNi1812	Z 5 CN 18-11 FF	305	
		1.4828	X15CrNiSi20-12	X16CrNi2314	Z 9 CN 24-13	309	
		1.4841	X15CrNiSi25-20	X22CrNiSi2520	Z 15 CNS 25-20	310	
		1.4401	X5CrNiMo17-12-2	X5CrNiMo1712	Z 3 CND 17-11-01	316	
		1.4404	X2CrNiMo17-12-2	X2CrNiMo1712	Z 2 CND 17-12	316L	
		1.4541	X6CrNiTi18-10	X6CrNiTi1811	Z 6 CNT 18-10	321	
	1.4550	X6CrNiNb18-10	X6CrNiNb1811	Z 6 CNNb 18-10	347		
	Duplex	1.4462	X2CrNiMoN22-5-3	X2CrNiMoN22-5-3	Z 3 CND 22-05 Az	S31803	
1.4501		X2CrNiMoCuWN25-7-4	X2CrNiMoCuWN25-7-4		S32760		
K CAST IRON	Grey cast iron	0.6010	GG10	G10	Ft10D	A48-20B	
		0.6015	GG15	G15	Ft15D	A48-25B	
		0.6020	GG20	G20	Ft20D	A48-30B	
		0.6025	GG25	G25	Ft25D	A48-40B	
		0.6030	GG30	G30	Ft30D	A48-45B	
		0.6035	GG35	G35	Ft35D	A48-50B	
		0.6040	GG40	G40	Ft40D	A48-60B	
	Nodular cast iron / tempered	0.7040	GGG40	GS400-12	FGS400-12	60-40-18	
		0.7050	GGG50	GS500-7	FGS500-7	65-45-12	
		0.7060	GGG60	GS600-3	FGS600-3	80-55-06	
		0.7070	GGG70	GS700-2	FGS700-2	100-70-03	
	Malleable cast iron	0.8035	GTW35-04				
		0.8055	GTW55				
	Austempered ductile iron		EN-GJS-800-8				
			EN-GJS-1000-5				
			EN-GJS-1200-2				
		EN-GJS-1400-1					
N NON-FERROUS METALS	Pure aluminium	3.0205	Al99	9001/1	1200 (A4)	1200	
		3.0305	Al99.9				
	Al wrought alloys	3.0505	AlMn0.5Mg0.5			3105	
		3.0915	AlFeSi	8011		8011	
		3.3315	AlMg1	9005/1		5005 (AlMg1)	5005
		3.3525	AlMg2Mn0.3			5251	5251
		3.3527	AlMg2Mn0.8			5049	5049
		3.3545	AlMg4Mn	9005/4		5086 (AG4MC)	5086
		3.3555	AlMg5				
		3.0615	AlMgSiPb			6012	

	Russia GOST	Japan JIS	China GB	India IS	MG Vergnano	Application	ISO 513
	5ChNM	SKT4	5CrNiMo	T55Ni7Cr3Mo3V1	P.5 (ricott.) P.4 (ricott.) P.4 (ricott.)	Hot-work	P STEEL
	3Ch3M3F	SKD7	4Cr3Mo3SiV		P.4 (ricott.)		
	4Ch5MFS	SKD6	4Cr5MoSiV	XT35Cr5Mo1V3	P.4 (ricott.)		
	4Ch5MF1S	SKD61	4Cr5MoSiV1	XT35Cr5Mo1V1	P.4 (ricott.)		
	4Ch2W5MF	SKD4	30W4Cr2VA		P.4 (ricott.)		
	3Ch3W8F	SKD5	3Cr2W8V	XT33W9Cr3V4	P.4 (ricott.)		
		SUS405	0Cr13Al	X04Cr13	P.7		
		SUS409TB	022Cr11NbTi		P.7		
		SUS430	1Cr17	X07Cr17	P.7		
		SUS430F	Y1Cr17		P.7		
		SUS410	1Cr13	X12Cr12	P.7	Martensitic stainless steel	
		SUS416	Y1Cr13		P.7		
	20Ch13	SUS420J1	2Cr13	X20Cr13	P.7		
	30Ch13	SUS420J2	3Cr13	X30Cr13	P.7		
	14Ch17N2	SUS431	1Cr17Ni2	X15Cr16Ni2	P.7		
	95Ch18	SUS440C	108Cr17	X108Cr17Mo	P.7		
		SUS630/SCS24	0Cr17Ni4Cu4Nb		M.2	Precipitation hardening	
		SUS302			M.1	Austenitic	M STAINLESS STEEL
		SUS303			M.1		
	08Ch18N10	SUS304	0Cr18Ni9	X04Cr18Ni10	M.1		
	03Ch18N11	SUS304L/SCS19	00Cr19Ni10	X02Cr19Ni10	M.1		
	12Ch18N12T	SUS305J1	1Cr18Ni12		M.1		
		SUH309	1Cr20Ni14Si2	X15Cr24Ni13	M.1		
	20Ch25N20S2	SUH310	1Cr25Ni20Si2	X20Cr25Ni20	M.1		
	08Ch16N11M3	SUS316	0Cr17Ni12Mo2	X04Cr17Ni12Mo2	M.1		
		SUS316L	00Cr17Ni14Mo2	X02Cr17Ni12Mo2	M.1		
	08Ch18N10T	SUS321	0Cr18Ni10Ti	X04Cr18Ni10Ti	M.1		
	08Ch18N12B	SUS347	0Cr18Ni11Nb	X04Cr18Ni10Nb	M.1		
		SUS329J3L	022Cr22Ni5Mo3N 022Cr25Ni7Mo3WCuN		M.2 M.2	Duplex	
	Sc10	FC10			K.1	Grey cast iron	K CAST IRON
	Sc15	FC15			K.1		
	Sc20	FC20			K.1		
	Sc25	FC25			K.1		
	Sc30	FC30			K.1		
	Sc35	FC35			K.1		
	Sc40				K.1		
	VC 42-12	FCD40			K.2	Malleable cast iron	
	VC 50-2	FCD50			K.2		
	VC 60-2	FCD60			K.2		
	VC 70-2	FCD70			K.2		
					K.2 K.2	ghisa malleabile	
					K.3 K.3 K.3 K.3	Austempered ductile iron	
		A1200			N.1 N.1	Pure aluminium	N NON-FERROUS METALS
		A3105			N.2 N.2	Al wrought alloys	
		A5005			N.2 N.2 N.2 N.2		
		A5086			N.2		
		A5056			N.2		
					N.2		

Material Examples

ISO 513	Application	W.Nr.	Germany DIN	Italy UNI	France AFNOR	United States AISI/SAE/ASTM	
N NON-FERROUS METALS	Al wrought alloys	3.1255	AlCuSiMn	9002/3	2014	2014	
		3.1325	AlCuMg1	9002/2	2017 A (AU4G)	2017A	
		3.1355	AlCuMg2	9002/4	2024 (AU4G1)	2024	
		3.1645	AlCuMgPb	9002/8	2030 (AU4PB)	2030	
		3.4335	AlZn4.5Mg1	9007/1	7020 (AZ5G)	7020	
	Al casting alloys	3.1371	G-AlCu4TiMg				
		3.2134	G-AlSi5Cu1Mg				
		3.3241	G-AlMg3Si				
		3.3261	G-AlMg5Si				
		3.3541	G-AlMg3				
		3.2373	G-AlSi9Mg				
		3.2381	G-AlSi10Mg				
		3.2383	G-AlSi10Mg(Cu)				
		3.2581	G-AlSi12				
	3.2583	G-AlSi12(Cu)					
	Pure copper	2.0060	E-Cu57				C11000
		2.0065	E-Cu58		5649	CuA1	C11000
	Cu wrought alloys	2.1525	CuSi3Mn		CuSi3Mn1		C65500
		2.0855	CuNi2Si		CuNi2Si		C64700
		2.1247	CuBe2		Classe IV		C17200
		2.1285	CuCo2Be		Classe III		C17510
	Brass	2.0240	CuZn15				
		2.0250	CuZn20				
		2.0265	CuZn30				C26000
		2.0280	CuZn33				
		2.0321	CuZn37				C27450
		2.0360	CuZn40				C28000
		2.0410	CuZn44Pb2		CuZn43Pb2Al		C38000
		2.0550	CuZn40Al2		CuZn37Mn3Al2PbSi		C67410
	Bronze	2.1016	CuSn4				
		2.1020	CuSn6				
		2.1030	CuSn8				
		2.1086	G-CuSn10Zn		7013	U-E12P7U-E8Z2	C90500
		2.0978	CuAl11Ni6Fe6		CuAl11Fe6Ni6		
		2.0940	CuAl10Fe		5274		C95400
2.0882		CuNi30Mn1Fe					
3.5312		MgAl3Zn					
3.5632		MgAl6Zn3					
3.5912		MgAl9Zn1					
3.5161	MgZn6Zr						
S SUPERALLOYS AND TITANIUM	Pure titanium	3.7024	Ti99.5				
		3.7034	Ti99.7				
	Titanium alloys	3.7165	TiAl6V4			T-A6V	
		3.7174	TiAl6V4Sn2				
	Pure Nickel	1.3911	RNi24				
		1.3926	RNi12				
	Nickel alloys	2.4858	NiCr21Mo (Incoloy 825)				
		2.4668	NiCr19Fe19NbMo (Inconel 718)			INCONEL 718	
2.4630		Ni-Cr20Ti (Nimonic 75)			NIMONIC 75		
2.4665		NiCr22Fe18Mo (Hastelloy X)					
H HARDENED MATERIALS	Ball bearing	1.3505	100Cr6	100Cr6	100C6	52100	
		1.3536	100CrMo6	100CrMo7	100CD7	3	
	Hot-work	1.2767	45NiCrMo16	40NiCrMoV16 KU	Y35NCD16		
		1.2713	55NiCrMoV7	55NiCrMoV7 KU	55NiCrMoV7	L6	
		1.2311		35CrMo8 KU			
		1.2365	32CrMoV12-28	30CrMoV12-27 KU	32CDV12-28	H10	
		1.2343	X38CrMoV5-1	X37CrMoV5-1 KU	Z38CDV5	H11	
		1.2344	X40CrMoV5-1	X40CrMoV5-1-1 KU	Z40CDV5	H13	
		1.2567	X30WCrV5-3	X30WCrV5-3 KU	Z32WCV5	H14	
		1.2581	X30WCrV9-3	X30WCrV9-3 KU	Z30WCV9	H21	

Russia GOST	Japan JIS	China GB	India IS	MG Vergnano	Application	ISO 513
	A2014			N.2	Al wrought alloys	N NON-FERROUS METALS
	A2017			N.2		
	A2024			N.2		
	A7N01			N.2		
	AC1B			N.2	Al casting alloys	
	AC4D			N.3		
				N.2		
				N.2		
	AC4A			N.2		
				N.3		
				N.4		
	ADC3			N.4		
	AC3A			N.4		
	ADC1			N.4		
	C1100			N.5	Pure copper	
	C1100			N.5		
				N.6	Cu wrought alloys	
				N.6		
				N.6		
				N.6		
	C2600			N.6	Brass	
				N.6		
	C2700			N.6		
	C2800			N.7		
				N.7		
				N.7		
				N.6	Bronze	
				N.6		
				N.6		
	CAC403C (BC3)			N.7		
				N.8		
	CAC702C			N.8		
				N.8		
				N.9		
				N.9		
				N.9		
				N.10		
				S.1	Pure titanium	S SUPERALLOYS AND TITANIUM
				S.1		
				S.2	Titanium alloys	
				S.2		
				S.3	Pure Nickel	
				S.3		
	NCF825			S.4	Nickel alloys	
				S.4		
				S.4		
				S.4		
SChCh15	SUJ2/SUJ4	GCr15		H.2 (bonif.)	Ball bearing	H HARDENED MATERIALS
				H.2 (bonif.)		
5ChNM	SKT6 SKT4	5CrNiMo	T55Ni7Cr3Mo3V1	H.1 (bonif.) H.1 (bonif.) H.1 (bonif.)	Hot-work	
3Ch3M3F	SKD7	4Cr3Mo3SiV		H.1 (bonif.)		
4Ch5MFS	SKD6	4Cr5MoSiV	XT35Cr5Mo1V3	H.1 (bonif.)		
4Ch5MF1S	SKD61	4Cr5MoSiV1	XT35Cr5Mo1V1	H.1 (bonif.)		
4Ch2W5MF	SKD4	30W4Cr2VA		H.1 (bonif.)		
3Ch3W8F	SKD5	3Cr2W8V	XT33W9Cr3V4	H.1 (bonif.)		

Drill Sizes Cutting Taps

ISO Metric coarse thread DIN 13			
M	Pitch [mm]	Maximum core diam. (toll. 6H) [mm]	Drill size* [mm]
M1	0,25	0,785 ⁽¹⁾	0,75
1,1	0,25	0,885 ⁽¹⁾	0,85
1,2	0,25	0,985 ⁽¹⁾	0,95
1,4	0,3	1,142 ⁽¹⁾	1,1
1,6	0,35	1,321	1,25
1,7 ⁽³⁾	0,35	1,421	1,35
1,8	0,35	1,521	1,45
2	0,4	1,679	1,6
2,2	0,45	1,838	1,75
2,3 ⁽³⁾	0,4	1,938	1,9
2,5	0,45	2,138	2,05
2,6 ⁽³⁾	0,45	2,238	2,1
3	0,5	2,599	2,5
3,5	0,6	3,010	2,9
4	0,7	3,422	3,3
4,5	0,75	3,878	3,7
5	0,8	4,334	4,2
6	1	5,153	5
7	1	6,153	6
8	1,25	6,912	6,8
9	1,25	7,912	7,8
10	1,5	8,676	8,5
11	1,5	9,676	9,5
12	1,75	10,441	10,2
14	2	12,210	12
16	2	14,210	14
18	2,5	15,744	15,5
20	2,5	17,744	17,5
22	2,5	19,744	19,5
24	3	21,252	21
27	3	24,252	24
30	3,5	26,771	26,5
33	3,5	29,771	29,5
36	4	32,270	32
39	4	35,270	35
42	4,5	37,799	37,5
45	4,5	40,799	40,5
48	5	43,297	43
52	5	47,297	47
56	5,5	50,796	50,5
60 ⁽³⁾	5,5	54,796	54,5
64 ⁽³⁾	6	58,305	58
68 ⁽³⁾	6	62,305	62

ISO Metric coarse thread DIN 13				ISO Metric coarse thread DIN 13			
M	Pitch [mm]	Maximum core diam. (toll. 6H) [mm]	Drill size* [mm]	M	Pitch [mm]	Maximum core diam. (toll. 6H) [mm]	Drill size* [mm]
M2 ⁽³⁾	0,25	1,774 ⁽²⁾	1,75	M25	1	24,153	24
2,3 ⁽³⁾	0,25	2,085	2,05	25	1,5	23,676	23,5
2,5	0,35	2,221	2,15	25	2	23,210	23
3	0,35	2,721	2,65	26	1,5	24,676	24,5
3,5	0,35	3,221	3,15	27	1	26,153	26
4	0,5	3,599	3,5	27	1,5	25,676	25,5
4,5	0,5	4,099	4	27	2	25,210	25
5	0,5	4,599	4,5	28	1	27,153	27
5,5	0,5	5,099	5	28	1,5	26,676	26,5
6	0,75	5,378	5,2	28	2	26,210	26
7	0,75	6,378	6,2	30	1	29,153	29
8	0,75	7,378	7,2	30	1,5	28,676	28,5
8	1	7,153	7	30	2	28,210	28
9	0,75	8,378	8,2	30	3	27,252	27
9	1	8,153	8	32	1,5	30,675	30,5
10	0,75	9,378	9,2	32	2	30,210	30
10	1	9,153	9	33	1,5	31,676	31,5
10	1,25	8,912	8,8	33	2	31,210	31
11	0,75	10,378	10,2	33	3	30,252	30
11	1	10,153	10	35	1,5	33,676	33,5
12 ⁽³⁾	0,75	11,378	11,2	36	1,5	34,676	34,5
12	1	11,153	11	36	2	34,210	34
12	1,25	10,912	10,8	36	3	33,252	33
12	1,5	10,676	10,5	38	1,5	36,676	36,5
14	1	13,153	13	39	1,5	37,676	37,5
14	1,25	12,912	12,8	39	2	37,210	37
14	1,5	12,676	12,5	39	3	36,252	36
15	1	14,153	14	40	1,5	38,676	38,5
15	1,5	13,676	13,5	40	2	38,210	38
16	1	15,153	15	40	3	37,252	37
16	1,5	14,676	14,5	42	1,5	40,676	40,5
17	1	16,153	16	42	2	40,210	40
17	1,5	15,676	15,5	42	3	39,252	39
18	1	17,153	17	45	1,5	43,676	43,5
18	1,5	16,676	16,5	45	2	43,210	43
18	2	16,210	16	45	3	42,252	42
20	1	19,153	19	48	1,5	46,676	46,5
20	1,5	18,676	18,5	48	2	46,210	46
20	2	18,210	18	48	3	45,252	45
22	1	21,153	21	50	1,5	48,676	48,5
22	1,5	20,676	20,5	50	2	48,210	48
22	2	20,210	20	50	3	47,252	47
24	1	23,153	23	52	1,5	50,676	50,5
24	1,5	22,676	22,5	52	2	50,210	50
24	2	22,210	22	52	3	49,252	49

(*) Drill size according to DIN 336

(¹) Tolerance 5H

(²) Tolerance 4H

(³) Size not included in DIN 336

Drill Sizes Cutting Taps

ISO Metric coarse thread DIN 8140 Part 2	
EG-M	Drill size* [mm]
3	3,15
4	4,2
5	5,25
6	6,3
8	8,4
10	10,5
12	12,5
14	14,5
16	16,5

Unified coarse thread UNC ASME - B.1.1			
UNC	TPI	Maximum core diam. (toll. 3B) [mm]	Drill size* [mm]
Nr. 1	64	1,582	1,55
Nr. 2	56	1,872	1,85
Nr. 3	48	2,146	2,1
Nr. 4	40	2,385	2,35
Nr. 5	40	2,697	2,65
Nr. 6	32	2,896	2,85
Nr. 8	32	3,528	3,5
Nr. 10	24	3,950	3,9
Nr. 12	24	4,590	4,5
1/4"	20	5,250	5,1
5/16"	18	6,680	6,6
3/8"	16	8,082	8
7/16"	14	9,441	9,4
1/2"	13	10,881	10,8
9/16"	12	12,301	12,2
5/8"	11	13,693	13,5
3/4"	10	16,624	16,5
7/8"	9	19,520	19,5
1"	8	22,344	22,25
1 1/8"	7	25,082	25
1 1/4"	7	28,258	28
1 3/8"	6	30,851	30,75
1 1/2"	6	34,026	34
1 3/4"	5	39,560	39,5
2"	4,5	45,367	45

Unified coarse thread UNF ASME - B.1.1			
UNF	TPI	Maximum core diam. (toll. 3B) [mm]	Drill size* [mm]
Nr. 0	80	1,306	1,25
Nr. 1	72	1,613	1,55
Nr. 2	64	1,913	1,85
Nr. 3	56	2,197	2,15
Nr. 4	48	2,459	2,4
Nr. 5	44	2,741	2,7
Nr. 6	40	3,012	2,95
Nr. 8	36	3,597	3,5
Nr. 10	32	4,168	4,1
Nr. 12	28	4,717	4,6
1/4"	28	5,563	5,5
5/16"	24	6,995	6,9
3/8"	24	8,565	8,5
7/16"	20	9,947	9,9
1/2"	20	11,524	11,5
9/16"	18	12,969	12,9
5/8"	18	14,554	14,5
3/4"	16	17,546	17,5
7/8"	14	20,493	20,4
1"	12	23,363	23,25
1 1/8"	12	26,538	26,5
1 1/4"	12	29,713	29,5
1 3/8"	12	32,888	32,75
1 1/2"	12	36,063	36

8-UN thread ASME B1.1			
8-UN	TPI	Maximum core diam. (toll. 3B) [mm]	Drill size* [mm]
1 1/8"	8	25,519	25,4
1 1/4"	8	28,694	28,6
1 3/8"	8	31,869	31,8
1 1/2"	8	35,044	35,0
1 5/8"	8	38,219	38,1
1 3/4"	8	41,394	41,3
1 7/8"	8	44,569	44,5
2"	8	47,744	47,7

Whitworth thread BSW - BS 84			
BSW	TPI	Maximum core diam. [mm]	Drill size* [mm]
3/32"	48	1,912	1,9
1/8"	40	2,591	2,55
5/32"	32	3,214	3,2
3/16"	24	3,744	3,7
7/32"	24	4,539	4,5
1/4"	20	5,156	5,1
5/16"	18	6,589	6,5
3/8"	16	7,988	7,9
7/16"	14	9,332	9,25
1/2"	12	10,589	10,5
9/16"	12	12,177	12
5/8"	11	13,559	13,5
3/4"	10	16,485	16,4
7/8"	9	19,355	19,25
1"	8	22,149	22
1 1/8"	7	24,831	24,75
1 1/4"	7	28,006	27,75
1 3/8"	6	30,528	30,3
1 1/2"	6	33,703	33,5
1 5/8"	5	35,961	35,5
1 3/4"	5	39,136	39
1 7/8"	4,5	41,702	41,5
2"	4,5	44,877	44,5
2 1/4"	4	50,465	50
2 1/2"	4	56,815	56,3
2 3/4"	3,5	62,182	61,5
3"	3,5	68,532	68

Whitworth pipe thread EN - ISO 228			
G	TPI	Maximum core diam. [mm]	Drill size* [mm]
1/8"	28	8,848	8,8
1/4"	19	11,890	11,8
3/8"	19	15,395	15,25
1/2"	14	19,172	19
5/8"	14	21,128	21
3/4"	14	24,658	24,5
7/8"	14	28,418	28,25
1"	11	30,931	30,75
1 1/8"	11	35,579	35,5
1 1/4"	11	39,592	39,5
1 3/8"	11	42,005	41,9
1 1/2"	11	45,485	45,25
1 3/4"	11	51,428	51
2"	11	57,296	57
2 1/4"	11	63,392	63,3
2 3/8"	11	67,080	67
2 1/2"	11	72,866	72,8
2 3/4"	11	79,216	79,1
3"	11	85,566	85,5
3 1/4"	11	91,662	91,5
3 1/2"	11	98,012	98
3 3/4"	11	104,362	104
4"	11	110,712	110,5

Rp thread (BSPP) DIN EN 10226-1			
Rp	TPI	Maximum core diam. [mm]	Drill size* [mm]
1/8"	28	8,637	8,60
1/4"	19	11,549	11,50
3/8"	19	15,054	15,00
1/2"	14	18,773	18,50
3/4"	14	24,259	24,00

(*) Drill size according to DIN 336

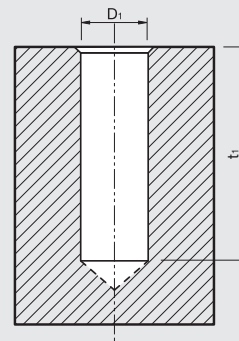
Drill Sizes Cutting Taps

Rc Conical gas thread (BSPT), taper 1:16 - BS 21 e DIN EN 10226-2

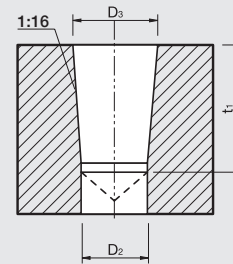
NPT National pipe thread, taper 1:16 - ASME/ANSI B1.20.1

NPTF Dryseal National pipe thread, taper 1:16 - ASME/ANSI B1.20.3

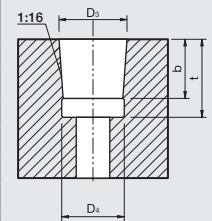
Cylindrical hole, without using a reamer							
Tap sizes	TPI		D1 [mm]			t1 [mm]	
	NPT NPTF	Rc (BSPT)	NPT	NPTF	Rc (BSPT)	NPT NPTF	Rc (BSPT)
1/16"	27	28	6,15	6,15	6,2	12	11,9
1/8"	27	28	8,5	8,5	8,2	12	11,9
1/4"	18	19	11	11	11	17,5	17,7
3/8"	18	19	14,5	14,5	14,5	17,6	18,1
1/2"	14	14	17,85	17,8	18	22,9	24
3/4"	14	14	23,2	23	23,5	23	25,3
1"	11 1/2	11	29	29	29,5	27,4	30,6
1 1/4"	11 1/2	11	37,8	37,8	38	28,1	32,9
1 1/2"	11 1/2	11	44	43,8	44	28,4	32,9
2"	11 1/2	11	56	56	55,5	28,4	37,2



Cylindrical holes with use of tapered reamer									
Tap sizes	TPI		D2 [mm]		D3 [mm]			t1 [mm]	
	NPT NPTF	Rc (BSPT)	NPT NPTF	Rc (BSPT)	NPT	NPTF	Rc (BSPT)	NPT NPTF	Rc (BSPT)
1/16"	27	28	5,95	6,1	6,39	6,41	6,56	12	11,9
1/8"	27	28	8,25	8,1	8,74	8,76	8,57	12	11,9
1/4"	18	19	10,75	10,75	11,36	11,4	11,45	17,5	17,7
3/8"	18	19	14,1	14,25	14,8	14,84	14,95	17,6	18,1
1/2"	14	14	17,5	17,75	18,32	18,33	18,63	22,9	24
3/4"	14	14	22,7	23	23,67	23,68	24,12	23	25,3
1"	11 1/2	11	28,6	29	29,69	29,72	30,29	27,4	30,6
1 1/4"	11 1/2	11	37,3	37,5	38,45	38,48	38,95	28,1	32,9
1 1/2"	11 1/2	11	43,4	43,5	44,52	44,55	44,85	28,4	32,9
2"	11 1/2	11	55,5	55	56,56	56,59	56,66	28,4	37,2



Preparation of tapered blind hole														
Tap sizes	TPI		D3 [mm]			b [mm]			t [mm]			D4 [mm]		
	NPT NPTF	Rc (BSPT)	NPT	NPTF	Rc (BSPT)	NPT	NPTF	Rc (BSPT)	NPT	NPTF	Rc (BSPT)	NPT	NPTF	Rc (BSPT)
1/16"	27	28	6,39	6,41	6,56	7	8	5,6	10	11	9,5	7,6	7,4	7,6
1/8"	27	28	8,74	8,76	8,57	7	8	5,6	10	11	9,5	10	9,8	9,6
1/4"	18	19	11,36	11,4	11,45	10,2	11,6	8,4	14,5	15,5	14	13,1	12,9	13
3/8"	18	19	14,8	14,84	14,95	10,6	12	8,8	15	16	14,4	16,5	16,3	16,5
1/2"	14	14	18,32	18,33	18,63	13,8	15,6	11,4	19	20,5	19	20,5	20,3	20,6
3/4"	14	14	23,67	23,68	24,12	14,2	16	12,7	20	21,5	20,3	25,8	25,6	26
1"	11 1/2	11	29,69	29,72	30,29	17	19,2	14,5	24	26	24,3	32,2	32	32,8
1 1/4"	11 1/2	11	38,45	38,48	38,95	17,5	19,7	16,8	24,5	26,5	26,6	41	40,8	40,2
1 1/2"	11 1/2	11	44,52	44,55	44,85	17,5	19,7	16,8	24,5	26,5	26,6	47,2	47	47,2
2"	11 1/2	11	56,56	56,59	56,66	18	20,2	21,1	25	27	30,9	59,2	59	58,7



Drill Sizes Forming Taps

ISO Metric coarse thread DIN 13		
M	Pitch [mm]	Drill size [mm]
M 2	0,4	1,85 ± 0,03
2,5	0,45	2,30 ± 0,03
3	0,5	2,80 ± 0,03
3,5	0,6	3,25 ± 0,03
4	0,7	3,70 ± 0,03
5	0,8	4,65 ± 0,03
6	1	5,55 ± 0,05
8	1,25	7,40 ± 0,05
10	1,5	9,30 ± 0,05
12	1,75	11,20 ± 0,05
14	2	13,10 ± 0,05
16	2	15,10 ± 0,05
18	2,5	16,90 ± 0,05
20	2,5	18,90 ± 0,05
24	3	22,70 ± 0,05
27	3	25,70 ± 0,05
30	3,5	28,45 ± 0,05

ISO Metric fine thread DIN 13		
MF	Pitch [mm]	Drill size [mm]
M 3	0,35	2,85 ± 0,03
4	0,5	3,80 ± 0,03
5	0,5	4,80 ± 0,03
6	0,75	5,65 ± 0,03
8	1	7,55 ± 0,05
10	1	9,55 ± 0,05
10	1,25	9,40 ± 0,05
12	1	11,55 ± 0,05
12	1,25	11,40 ± 0,05
12	1,5	11,30 ± 0,05
14	1,25	13,40 ± 0,05
14	1,5	13,30 ± 0,05
16	1,5	15,30 ± 0,05
18	1,5	17,30 ± 0,05
20	1,5	19,30 ± 0,05

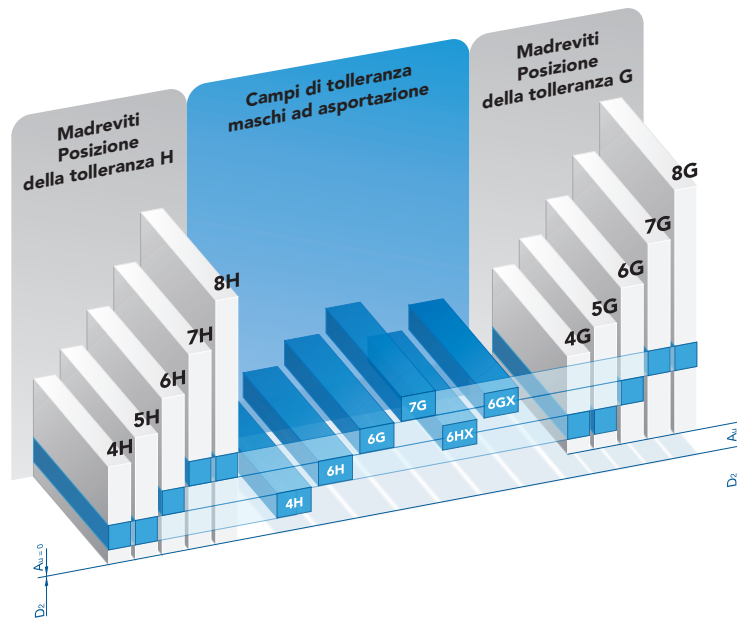
Whitworth pipe thread EN - ISO 228		
G	TPI	Drill size [mm]
G 1/8"	28	9,25 ± 0,05
1/4"	19	12,50 ± 0,05
3/8"	19	16,00 ± 0,05
1/2"	14	20,00 ± 0,05
3/4"	14	25,50 ± 0,05
1"	11	32,00 ± 0,05

Other drill sizes = theoretical flank diameter + pitch/5

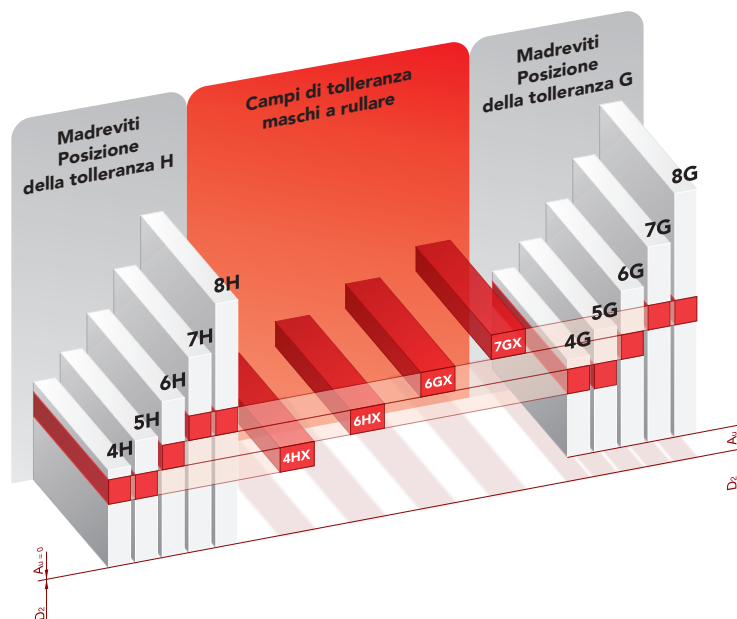
In order to obtain the requested tolerance, the formation of a complete internal thread and guarantee the tap tool life, it is important to respect the drill hole diameters and their tight tolerances.

The core diameter of the internal thread obtained by forming is not only a function of the drill hole diameter but also depends on the workpiece material properties. For this reason the tolerance on the core diameter is 7H compared to 6H for cutting taps. For more detailed information see the DIN 13-50 standard.

Cutting Tap Tolerance Range



Forming Tap Tolerance Range



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, as well as between classes 6G and 7G, tap manufacturers produce taps with tolerance 6HX and 6GX. 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 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 European standard EN 22857.

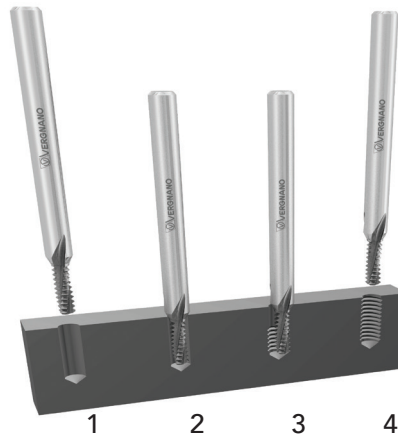
Tolerance Table

Nominal diameter (mm)		Pitch (mm)	Limits on pitch diameter (µm)*			
			Class			
>	≤		4H (ISO1)	6H (ISO 2)	6G (ISO 3)	7G
0,99	1,4	0,2	+ 15	-	-	-
			+ 5	-	-	-
		0,25	+ 17	-	-	-
			+ 6	-	-	-
			+ 18	+ 30	-	-
0,3	+ 6	+ 18	-	-		
	+ 16	-	-	-		
1,4	2,8	0,2	+ 5	-	-	-
			+ 18	-	-	-
		0,25	+ 6	-	-	-
			+ 20	+ 34	-	-
		0,35	+ 7	+ 20	-	-
			+ 21	+ 36	-	-
		0,4	+ 7	+ 21	-	-
+ 23	+ 38		-	-		
0,45	+ 8	+ 23	-	-		
	+ 21	+ 36	-	-		
2,8	5,6	0,35	+ 7	+ 21	-	-
			+ 24	+ 40	+ 56	+ 70
		0,5	+ 8	+ 24	+ 40	+ 55
			+ 27	+ 45	+ 63	+ 81
		0,6	+ 9	+ 27	+ 45	+ 63
			+ 29	+ 48	+ 67	+ 86
		0,7	+ 10	+ 29	+ 48	+ 67
			+ 29	+ 48	+ 67	+ 86
0,75	+ 10	+ 29	+ 48	+ 67		
	+ 30	+ 50	+ 70	+ 90		
0,8	+ 10	+ 30	+ 50	+ 70		
	+ 32	+ 53	+ 74	-		
5,6	11,2	0,75	+ 11	+ 32	+ 53	-
			+ 35	+ 59	+ 83	+ 107
		1	+ 12	+ 35	+ 59	+ 83
			+ 38	+ 63	+ 88	+ 113
		1,25	+ 13	+ 38	+ 63	+ 88
+ 42	+ 70		+ 98	+ 126		
11,2	22,4	1,5	+ 14	+ 42	+ 70	+ 98
			+ 38	+ 63	+ 88	+ 113
		1	+ 13	+ 38	+ 63	+ 88
			+ 42	+ 70	+ 98	+ 126
		1,25	+ 14	+ 42	+ 70	+ 98
			+ 45	+ 75	+ 105	+ 135
		1,5	+ 15	+ 45	+ 75	+ 105
+ 48	+ 80		+ 112	+ 144		
1,75	+ 16	+ 48	+ 80	+ 112		
	+ 51	+ 85	+ 119	+ 153		
22,4	45	2	+ 17	+ 51	+ 85	+ 119
			+ 54	+ 90	+ 126	+ 162
		2,5	+ 18	+ 54	+ 90	+ 126
			+ 40	+ 66	+ 92	+ 118
		1	+ 13	+ 40	+ 66	+ 92
			+ 48	+ 80	+ 112	+ 144
		1,5	+ 16	+ 48	+ 80	+ 112
			+ 54	+ 90	+ 126	+ 162
2	+ 18	+ 54	+ 90	+ 126		
	+ 64	+ 106	+ 148	+ 190		
45	90	3	+ 21	+ 64	+ 106	+ 148
			+ 67	+ 112	+ 157	+ 202
		3,5	+ 22	+ 67	+ 112	+ 157
			+ 71	+ 118	+ 165	+ 212
		4	+ 24	+ 71	+ 118	+ 165
			+ 75	+ 125	+ 175	+ 225
		4,5	+ 25	+ 75	+ 125	+ 175
+ 51	+ 85		+ 119	+ 153		
45	90	1,5	+ 17	+ 51	+ 85	+ 119
			+ 57	+ 95	+ 133	+ 171
		2	+ 19	+ 57	+ 95	+ 133
			+ 67	+ 112	+ 157	+ 202
		3	+ 22	+ 67	+ 112	+ 157
			+ 75	+ 125	+ 175	+ 225
		4	+ 25	+ 75	+ 125	+ 175
			+ 80	+ 133	+ 186	+ 239
5,5	+ 27	+ 80	+ 133	+ 186		
	+ 84	+ 140	+ 196	+ 252		
6	+ 28	+ 84	+ 140	+ 196		
	+ 90	+ 150	+ 210	+ 270		
		+ 30	+ 90	+ 150	+ 210	

(*) According to EN 22857

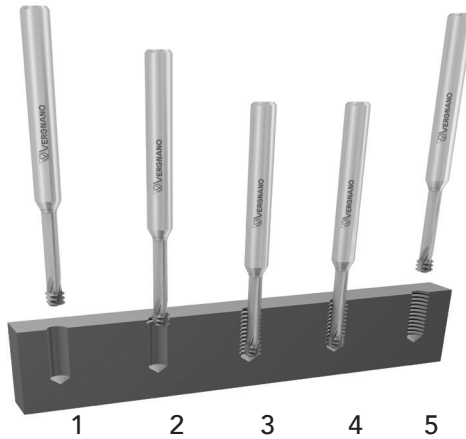
Thread Mills: Process description

VR10 - VR20 - VR30



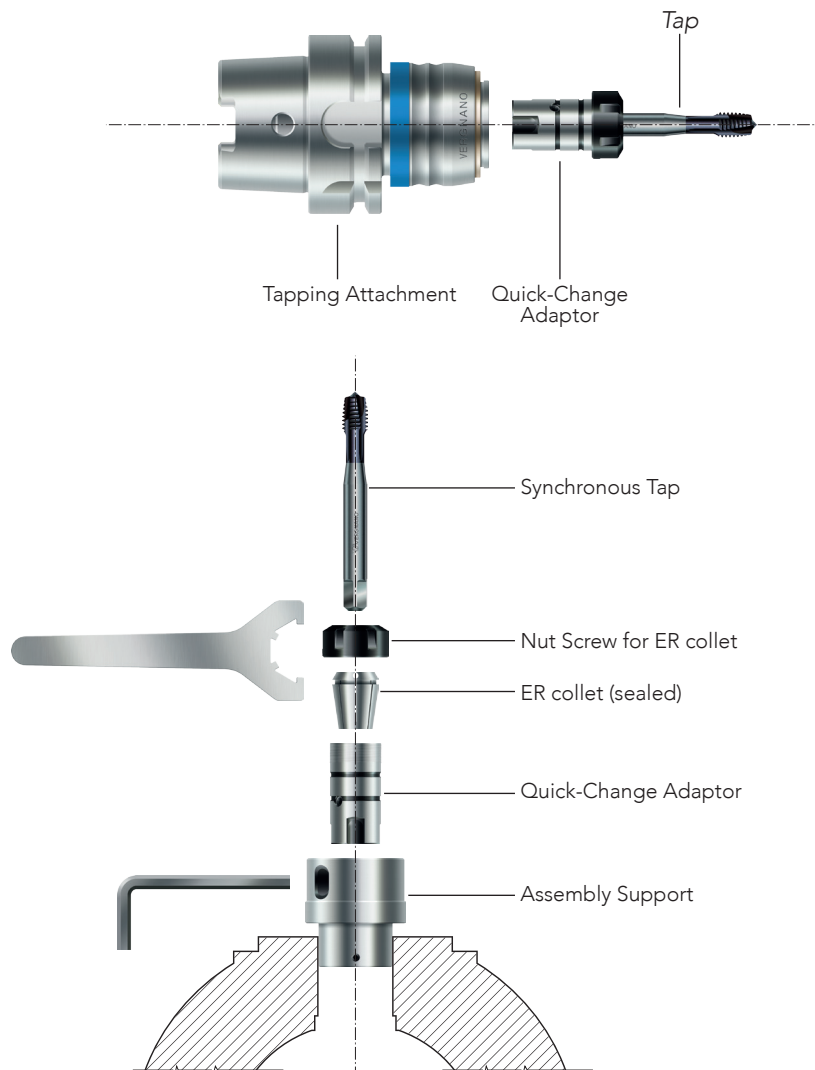
1	Start point - center position
2	Axial movement down to required thread depth, then 45° arc entrance
3	Thread milling (360°)
4	45° arc exit, then axial movement to start point

VR40 - VR45 - VR50 - VR55



1	Start point - center position
2	45° arc entrance
3	Thread milling to required thread depth
4	45° arc exit
5	Axial movement to start point

Tapping Attachments: Terminology and Assembly Instructions



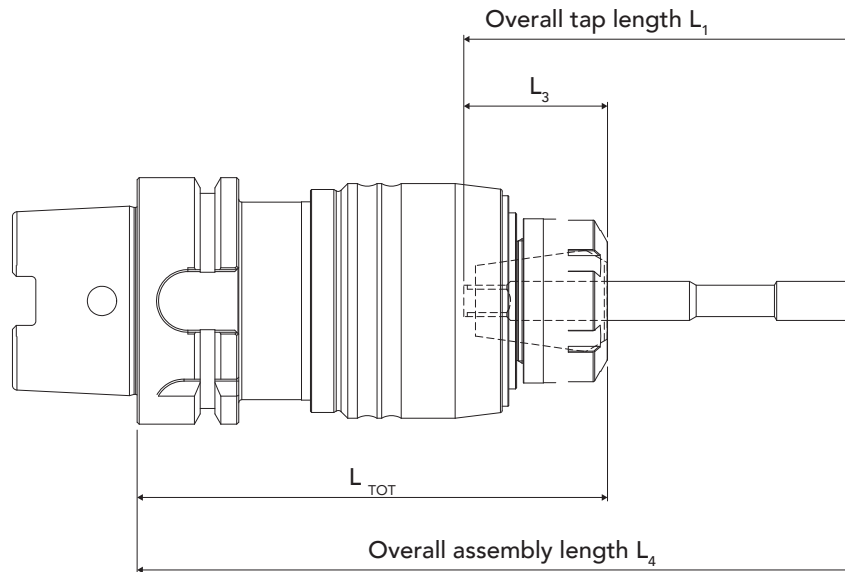
1. Place the quick-change adaptor in the assembly support
2. Insert the ER collet in the nut screw
3. Partially tighten the nut screw on the quick-change adaptor
4. Insert the tap in the quick-change adaptor until it stops
5. Securely tighten the nut screw with a wrench
6. Insert the quick-change adaptor into the tapping attachment by pulling back the sleeve

Tightening Torque Table

It is recommended to tighten the nut screws with the torque values shown in the table below.

ER Collet	Torque [Nm]
ER 16	45
ER 25	70
ER 40	150

Overall Length of Tapping Attachment Assembly



In the example below, the overall assembly length of the tapping attachment with a mounted tap is shown. This calculation is useful to avoid collisions. (*)

MACHINE TAP M10 S15								
$\varnothing d_1$	P	L_1	L_2	L_3	$\varnothing d_2$	a	z	
[mm]	[mm]	js 16 [mm]	[mm]	[mm]	h6 [mm]	h12 [mm]	[-]	[mm]
M 10	1,5	100	15	39	10	8	3	8,5

ER COLLET (sealed) - with internal square					
Article Code	ER Collet	$\varnothing d_1$	a	L_2	L_3
		[mm]	[mm]	[mm]	[mm]
SLERGB250110000	ER25	10	8	25	36










TAPPING ATTACHMENT - DIN 69893 HSK A								
Article Code	Attachment $\varnothing D_1$ [mm]	Tap Size	L [mm]	$\varnothing D$ [mm]	$\varnothing d$ [mm]	ER Collet	L_1 [mm]	L_{TOT} [mm]
VA01A06302CH250	HSK-A63	M6 - M20	97	60	32	ER25	23,5	120,5





$$\text{Overall assembly length } L_4 = (L_1 - L_3) + L_{TOT}$$

(*) The calculation does not consider male centres.














Icon Description

Tap and Die Geometry

	Hand tap
	Tap with straight flutes
	Tap with straight flutes and spiral point
	Tap with straight flutes with interrupted thread
	Tap with straight flutes and spiral point with interrupted thread
	R15 Tap with 15° right hand spiral
	L15 Tap with 15° left hand spiral
	R40 z2 Tap with 40° right hand spiral and 2 flutes
	R40 Tap with 40° right hand spiral
	R45 Tap with 45° right hand spiral
	Forming tap without oil grooves
	Forming tap with oil grooves
	Through coolant tap with internal axial hole, for blind holes
	Through coolant tap with internal axial and radial holes, for through holes
	Through coolant tap with internal axial hole, for blind holes
	Through coolant forming tap with internal axial hole, for blind holes
	Through coolant forming tap with internal axial and radial holes, for through holes
	Thread Mills with internal axial coolant

	Thread Mills with internal radial coolant
	Die
	Back tapering
	Tap with long shank
	Tap with through shank

Hole Type and Depth

	Through
	1 x D Through, up to 1 x d ₁
	1,5 x D Through, up to 1,5 x d ₁
	2,5 x D Through, up to 2,5 x d ₁
	3 x D Through, up to 3 x d ₁
	Blind
	1,5 x D Blind, up to 1,5 x d ₁
	2 x D Blind, up to 2 x d ₁
	2,5 x D Blind, up to 2,5 x d ₁
	3 x D Blind, up to 3 x d ₁
	Blind and through
	1,5 x D Blind and through, up to 1,5 x d ₁
	2 x D Blind and through, up to 2 x d ₁

Icon Description



Blind and through, up to 2,5 x d₁



Blind and through, up to 3 x d₁



Tapered hole



Nut

Direction of Cut



Right hand cut



Left hand cut

Type of Chip



Short chipping



Medium chipping



Medium to long chipping



Long chipping



Plastic deformation without chip formation

Coloured Ring



Orange ring - Taps for tough materials

Tap and Die Tolerance



Tolerance 4H / ISO1



Tolerance 6H / ISO2



Tolerance 6G / ISO3



Tolerance 7G



Tolerance 6HX



Tolerance 6GX



Tolerance 7GX



Tolerance 6H + 0,1 mm



Modified 6H Tolerance



Tolerance 3B



Tolerance 2B



Tolerance 2BX



Tolerance ISO 5969



Tolerance ISO 5969X



Medium Tolerance



Tolerance ISO 6g



Tolerance 2A



Tolerance Classe A

Material



Material: solid carbide



Material: conventional high speed steel



Material: conventional high speed steel

Icon Description

HSSK Material: powder metallurgy high speed steel

HSSZ Material: high performance powder metallurgy high speed steel

HSSP Material: high performance powder metallurgy high speed steel

Thread Type

M ISO Metric coarse thread

MF ISO Metric fine thread

UNC Unified coarse thread - UNC ASME B1.1

UNF Unified fine thread - UNF ASME B1.1

8-UN 8-UN thread - ASME B1.1

G Whitworth pipe thread - EN ISO 228

R_p
(BSPP) Rp thread (BSPP) - DIN EN 10226-1

R_c
(BSPT) Conical gas thread Rc (BSPT) taper 1:16 - BS 21 and DIN EN 10226-2

BSW Whitworth thread - BS 84

NPT National pipe thread, taper 1:16 - ASME/ANSI B1.20.1

NPTF Dryseal National pipe thread, taper 1:16 - ASME/ANSI B1.20.3

EG-M ISO Metric coarse thread - DIN 8140-2

ISO ISO thread DIN 13

UN American Unified Thread ASME B1.1

GAS GAS thread EN ISO 228

Chamfer Form

A (5-6) Chamfer form A: 5 - 6 threads for through holes

B (4-5) Chamfer form B: 4 - 5 threads for through holes


C (2-3) Chamfer form C: 2 - 3 threads for blind and through holes


D (4-5) Chamfer form D: 4 - 5 threads for through holes

E (1,5-2) Chamfer form E: 1,5 - 2 threads for blind holes

1,75xP Die chamfer form: 1,75 x P

Application Information

 Tap only for rigid tapping attachment (synchronous)

 High recommended cutting speed

 High tool life

Thread Mills

INT For internal threads

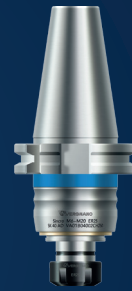
EXT For external threads

Graphic design by:
StudioAlmayern
Chieri - Torino - Italy

Printed by:
IlTipografo
Riva presso Chieri - Torino - Italy
Printed 05/2016



Printed on Certified Ecological Paper



F.LLI VERGNANO S.r.l.
Corso Egidio Olia, 2
10023 Chieri - TO - Italy
Tel. +39 0119423523
Fax. +39 0119425426
info@vergnano.com