

Menetfúró program

1. Áttekintő
2. Termékválaszték
3. Műszaki infók, jelölések



Az Ön DC partnere
Magyarországon:

PROTOOL
PRECÍZIÓS FÉMFORGÁCSOLÁS

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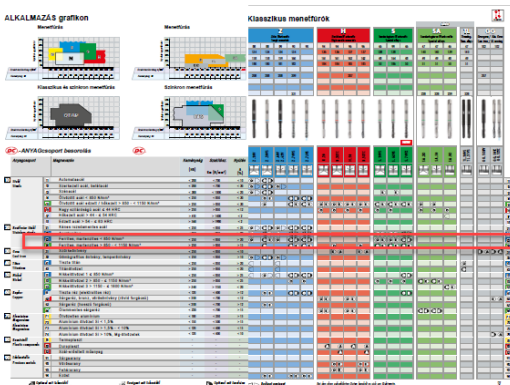
SZERSZÁMVÁLASZTÁS

HASZNÁLJA ÁTTEKINTŐ TÁBLÁNKAT, HOGY A KATALÓGUSBAN ELIGAZODJON.
Válasszon szerszámot az anyagcsoport, vagy az anyag tulajdonságainak alapján
a választógrafikon segítségével.

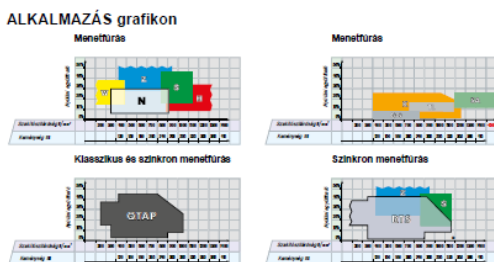


ANYAGCSOPORT ALAPJÁN

A munkadarab anyagminősége vagy werkstoff száma alapján válassza ki a megfelelő anyagcsoportot

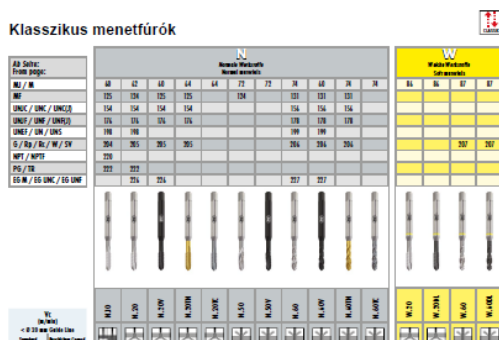


Az így meghatározott anyagcsoportszám szerint már beazonosíthatja, hogy az adott anyaghoz mely szerszámok megfelelőek, és milyen alkalmazási feltételekkel, hűtési környezetben érdemes használnia azt. Válassza a menet típusát (M, MF, UNC...), és lapozzon a kívánt katalógusoldalra



VÁLASZTÓGRAFIKON

Az anyag tulajdonságainak ismeretében (szakítószilárdság, keménység, ISO besorolás) a választógrafikon is iránymutatást jelenthet a megfelelő típusjelzésű szerszám meghatározásában (Z / W / S / Qtap stb)



A kiválasztott szerszámtípus és menet alapján (M, MF, UNC...) lapozzon a kívánt katalógusoldalra. Az ideális hűtési feltételeket mindig feltüntetjük.

Válassza ki az anyagcsoportot a munkadarab anyaga szerint

Példák:

Reference:
AISI/ASTM/UNS

11	Free-cutting steels
1.0711	1212
1.0715	1213
1.0718	12L13
1.0726	1140
1.0737	12L14

12	Structural, cementation steels
1.0037	1015
1.0050	A570 Gr.50
1.0060	A572 Gr.55
1.5919	4617
1.7131	5115

13	Carbon steels
1.0503	1045
1.0535	1055
1.0601	1060
1.1545	W110
1.2067	L 3

14	Alloy steels < 850 N/mm2
1.2363	A2
1.3551	M50
1.7218	4130
1.7220	4135
1.7225	4140

15	Alloy steels hard./temp. > 850 - < 1150 N/mm2
1.3553	-
1.6580	4340
1.7220	4135
1.7225	4140
1.8507	A355CLD (K23510)

16	High tensile alloy steels ≤ 44 HRC
	EN-GJS-1200-2
1.6582	4340
1.7225	4140
1.7228	4150
1.8515	-

17	Alloy steels tempered > 44 - ≤ 54 HRC
	> 44 - ≤ 54 HRC

18	Alloy steels hardened > 54 - ≤ 63 HRC
	> 54 - ≤ 63 HRC

21	Free machining stainless steels
1.4005	416
1.4104	430F
1.4305	303

22	Austenitic stainless steels
1.4301	304
1.4406	316LN
1.4435	316L
1.4541	321
1.4571	316Ti

23	Ferritic and martensitic < 850 N/mm2
1.4112	440B
1.4540	XM12
1.4582	-
1.4762	446
1.4821	4922

24	Ferritic and martensitic > 850 - < 1150 N/mm2
1.4057	431
1.4125	440C
1.4542	630 (17-4PH)
1.4748	-

31	Cast iron
0.6015	A48-25B
0.6020	A48-30B
0.6025	A48-35B
0.6030	A48-45B

32	Spheroidal graphite + malleable cast iron
0.7040	65-45-12
0.7043	60-40-18
0.7050	80-55-06
0.7060	70-60-03
0.7080	120-90-02

41	Pure titanium
3.7024	Gr.1
3.7034	Gr.2
3.7055	Gr.3
3.7065	Gr.4

42	Titanium alloys
3.7124	Alloy 230
	F-1295
3.7164	Gr.5
3.7174	-

51	Nickel alloys 1 ≤ 850 N/mm2
1.3912	K93600
2.4360	N04400
2.4816	N06600
1.4876	N08800

52	Nickel alloys 2 > 850 - ≤ 1150 N/mm2
2.4375	N05500 (B865)
2.4631	N07080 (B637)
2.4668	N07718 (B637)

53	Nickel alloys 3 > 1150 - ≤ 1600 N/mm2
2.4631	N07080 (B637)
2.4668	N07718 (B637)

61	Pure copper (electrolytic copper)
2.0060	C11000

62	Short chip brass, phosphor-bronze, gun metal
2.0401	C38500
2.0402	C37800
2.1030	C52100
2.1096	-

63	Long chip brass
2.0240	C23000
2.0265	C26000
2.0321	C27200

64	Lead free brass
	CuZn21Si3P (ECOBASS®)
	CuZn35
	CuZn42

71	Al unalloyed
3.0205	1200
3.0255	1050A

72	Al alloyed Si < 1.5 %
3.1255	2014
3.1355	2024
3.2315	6082
3.3206	6060
3.4345	7022

73	Al alloyed Si > 1.5 % - < 10 %
3.2161	327
3.2162	-
3.2341	-
3.2371	356

74	Al alloyed Si > 10 %, Mg-alloys
3.2381	A360
3.2382	-
3.2581	A413
3.2583	413.1

81	Thermoplastics
	Delrin (POM)
	Teflon
	Nylon

82	Duroplastics
	Bakelit
	Novopan

83	Glass fibre reinforced plastics
	Glass fibre reinforced, Thermo and Duroplastics

91	Yellow gold
2N18	
Au585AgCu205	
3N18	
Au917AgCu44	

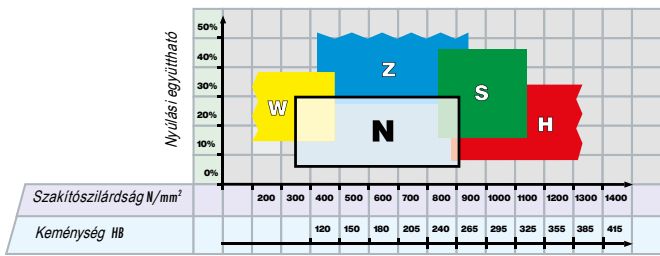
92	Red gold
4N18	
5N18	
Au585CuAg325	
Au750AgCu	
Au917Cu83	

93	White gold
Au750PdCu125	
Au750PdCu150	
Au585PdCu150	
Au925Pd75	

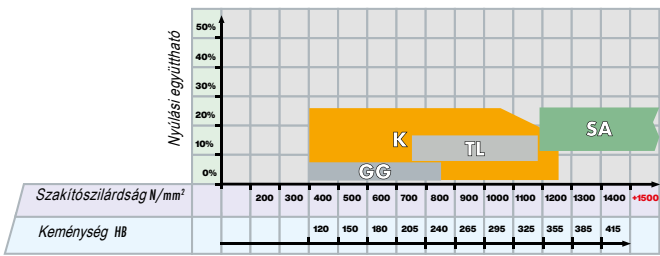
94	Silver
Ag999	
Ag800Cu	
Ag925Cu	

ALKALMAZÁS grafikon

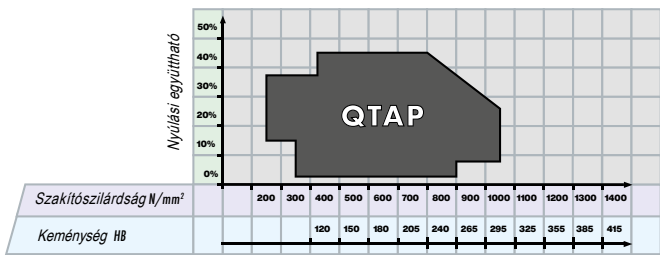
Menetfúrás



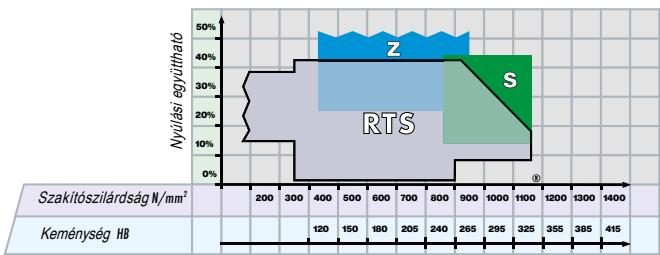
Menetfúrás



Klasszikus és szinkron menetfúrás



Szinkron menetfúrás



DC-ANYAGcsoport besorolás



Anyagcsoport		Megnevezés	Keménység (HB)	Szakítósz. Rm (N/mm ²)	Nyúlás A (%)
10 Stahl Steels	11	Automataacél	< 200	< 700	< 10
	12	Szerkezeti acél, betétacél	< 200	< 700	< 30
	13	Szénacél	< 300	< 1000	< 20
	14	Ötvözött acél < 850 N/mm ²	< 250	< 850	< 30
	15	Ötvözött acél edzett / hőkezelt > 850 - < 1150 N/mm ²	> 250	> 850	< 30
	16	Nagy szilárdságú acél ≤ 44 HRC	> 250	> 850	< 12
	17	Hőkezelt acél > 44 - ≤ 54 HRC	> 410	> 1400	< 2
	18	Edzett acél > 54 - ≤ 63 HRC	> 560	> 1980	< 2
20 Rostfreier Stahl Stainless steels	21	Kénés rozsdamentes acél	< 250	< 850	< 25
	22	Ausztenites	< 250	< 850	> 20
	23	Ferrites, martenzites < 850 N/mm ²	< 250	< 850	> 20
	24	Ferrites, martenzites > 850 - < 1150 N/mm ²	> 250	> 850	> 15
30 Guss Cast iron	31	Szürkeöntvény	< 250	< 850	< 10
	32	Gömbgrafitos öntvény, temperöntvény	< 250	< 850	> 10
40 Titan Titanium	41	Tiszta titán	< 250	< 850	> 20
	42	Titánötvözet	> 250	> 850	< 20
50 Nickel Nickel	51	Nikkelötvözet 1 ≤ 850 N/mm ²	< 250	< 850	> 25
	52	Nikkelötvözet 2 > 850 - ≤ 1150 N/mm ²	> 250	> 850	< 25
	53	Nikkelötvözet 3 > 1150 - ≤ 1600 N/mm ²	> 340	> 1150	< 20
60 Kupfer Copper	61	Tiszta réz (elektrolitos réz)	< 120	< 400	> 12
	62	Sárgaréz, bronz, vörösoöntvény (rövid forgácsú)	< 200	< 700	< 12
	63	Sárgaréz (hosszú forgácsú)	< 200	< 700	> 12
	64	Ólommentes sárgaréz	< 220	< 700	> 15
70 Aluminium Magnesium Aluminium Magnesium	71	Ötvözetlen alumínium	< 100	< 350	> 15
	72	Alumínium ötvözet Si < 1,5%	< 150	< 500	> 15
	73	Alumínium ötvözet Si > 1,5% - < 10%	< 120	< 400	< 15
	74	Alumínium ötvözet Si > 10%, Mg-ötvözetek	< 120	< 400	< 10
80 Kunststoff Plastic compounds	81	Termoplaszt	-	-	-
	82	Duroplaszt	-	-	-
	83	Szál-erősített műanyag	-	-	-
90 Edelmetalle Precious metals	91	Sárgaarany	-	-	-
	92	Vörösarany	-	-	-
	93	Fehéaarany	-	-	-
	94	Ezüst	-	-	-

CLASSIC

V_c (m/min) < Ø 20 mm Guide Line	
Standard +V / +NV	Beschichtet Coated TN / TC / DL / VS

[illegible]

11	10 - 15	25 - 35
12	10 - 15	25 - 35
13	8 - 12	16 - 24
14	8 - 12	16 - 24
15	3 - 5	6 - 12
16	3 - 5	3 - 5
17	2 - 4	
18		
21	10 - 15	20 - 30
22	3 - 6	6 - 12
23	3 - 6	6 - 12
24		4 - 8
31	10 - 15	20 - 30
32	10 - 15	20 - 30
41	4 - 8	4 - 8
42	3 - 5	3 - 5
51		6 - 12
52	4 - 8	4 - 8
53	2 - 4	
61	8 - 12	12 - 16
62	20 - 30	30 - 40
63	16 - 24	
64	16 - 24	
71	10 - 15	20 - 40
72	20 - 30	20 - 40
73	10 - 15	20 - 30
74	10 - 15	20 - 30
81	20 - 30	30 - 50
82	8 - 16	16 - 24
83		8 - 16
91	20 - 30	
92		12 - 16
93		4 - 8
94		16 - 24

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A Geeignet mit Luft
Suitable with air

Klasszikus menetfűrók

Z Zähe Werkstoffe Tough materials					H Hochfeste Werkstoffe High tensile materials				S Sonderlegierte Werkstoffe Special alloys			SA Sonderlegierte Werkstoffe Special alloys			TL Titanleg. Titan. alloys		GG Grauguss / Alu-Guss Cast iron / Al casting		
88	88	89	90	90	94	94	96	96	46	99	46	47	47	46	47		102	102	
134	134	134	134		136	136	137	137	138	138		140	140	139	140				
158	158	159	160		161	161	162	162	48	164	48	49	49	48	49				
180	180	181	182		184	184	185	185	50	186	50	51	51	50	51				
208	208	208	209				207										207		
			231									228	228	229	228				
																			
Z.20V	Z.20VS	Z.60V Z.62V	Z.70VS	Z.73VS	H.20	H.20TC	H.50	H.50TC	S.20VS	S.60VS	S.70VX	SA.20	SA.50	SA.90	TL.20VS TL.51VS		GG.50NV	GG.50TC GG.53TC	
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			
																			

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[illegible]

QTAP <i>Allrounder</i> Allrounder			
61	106	61	107
143	143	144	144
167	167	168	168
192	192	193	193
210	210	211	211



Q.20VS	Q.23VS	Q.40VS	Q.63VS
			

OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	A	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
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OE	A	OE	OE
OE	A	OE	OE
OE	OE	OE	OE
OE	A	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE
OE	OE	OE	OE

V_c
(m/min)
Guide Line
Ø 2.8 - 20 mm

20 - 40
20 - 40
16 - 24
16 - 24
6 - 12
20 - 40
6 - 12
6 - 12
4 - 8
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20 - 40
6 - 12
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12 - 16
25 - 35
20 - 40
20 - 40
20 - 40
20 - 40
20 - 40
20 - 40
20 - 40
16 - 24
8 - 16
20 - 40
12 - 16
12 - 16

	Vc (m/min) Guide Line			
	Ø 5 - 10.9 mm	Ø 11 - 18.9 mm	Ø 19 - 31.9 mm	Ø 32 - 42 mm
11	30 - 40	20 - 30	20 - 30	20 - 30
12	30 - 40	20 - 30	20 - 30	20 - 30
13	30 - 40	20 - 30	20 - 30	20 - 30
14	20 - 30	15 - 25	15 - 25	15 - 25
15	15 - 20	10 - 15	8 - 12	5 - 8
16	8 - 12	5 - 8	5 - 8	5 - 8
17				
18				
21				
22				
23				
24				
31	30 - 40	30 - 40	30 - 40	30 - 40
32	30 - 40	20 - 30	20 - 30	20 - 30
41				
42				
51				
52				
53				
61				
62	30 - 40	30 - 40	30 - 40	30 - 40
63	30 - 40	30 - 40	30 - 40	30 - 40
64	30 - 40	20 - 30	20 - 30	20 - 30
71				
72				
73				
74	30 - 40	30 - 40	30 - 40	30 - 40
81				
82				
83	30 - 40	30 - 40	30 - 40	30 - 40
91				
92				
93				
94				

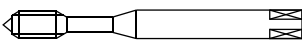
K.13TC	K.13VS
	

E	E
E	E
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E	E
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E	E
E	E
E	E
E	E

A Geeignet mit Luft
Suitable with air

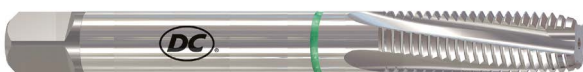
REGISTER — REGISTER

	Gewindeschneiden klassisch Classic thread cutting		Gewindeschneiden klassisch und synchron Classic thread cutting and Rigid Tapping
	MJ S 46 SA 46/47 TL 47 UNJC S 48 SA 48/49 TL 49 UNJF S 50 SA 50/51 TL 51 M N 60/62-85/114-115/118 NP 116-117 W 86-87 Z 88-91 ZX 93 H 94-97 S 98-99 SA 99-101 TL 100-101 GG 102-103 MF N 124-133/146-148 Z 134-135 H 136-137 S 138 SA 139-141 TL 140-141 UNC, UNC(J) N 154-157/170-171 Z 158-160 H 161-162 S 163-164 SA 165-166 TL 165 UNF, UNF(J), UNEF, UN, UNS N 176-179/196-199 Z 180-182 H 184-185 S 186 SA 188-190 TL 188-189 G (BSP), Rp, Rc, W, SV Schaublin N 204-206/213-217 W 207 H 207 GG 207 Z 208-209 NPT, NPTF, PG, TR N 220-223 EG M, EG UNC, EG UNF N 226-227/230/233 Z 231/234 S 234 SA 228-229/232/234-235 TL 228/232/235		M K 104-105 Q 61/106-107 MF K 142 Q 143-144 UNC, UNF Q 167-168 / 192-193 G (BSP) Q 210-211
	Synchron-Gewindeschneiden Rigid Tapping		
	M RTS 108-112 Z.70/Z.73 90-91 MF RTS 145 Z.70 134-135 UNC, UNC(J) RTS 169 Z.70 160 UNF, UNF(J) RTS 194 Z.70 182 G (BSP) RTS 212 Z.70 209 EG UNC, EG UNF Z 231/234		
	Kronengewindebohrer Crown taps		
	M, MF, UN, G (BSP) N 237-239		
	Kombi-Gewindebohrer Combination drill/taps		
	M, MF, UNC, G (BSP), PG N 242-243		

		S		SA	
Merkmale Characteristics		 VS	 R45 VX	 R15	
		 NEW	 NEW	 NEW	 NEW
Lochart Hole type					
		S320VS-4	S370VX-3	SA320-4	SA350-3
MJ 4H6H /4H5H ISO 5855	DIN lang DIN long DIN 371	46	46	47	47
UNJC 3B ISO 3161/ASME B1.15	DIN lang DIN long DIN 371	48	48	49	49
UNJF 3B ISO 3161/ASME B1.15	DIN lang DIN long DIN 371	50	50	51	51



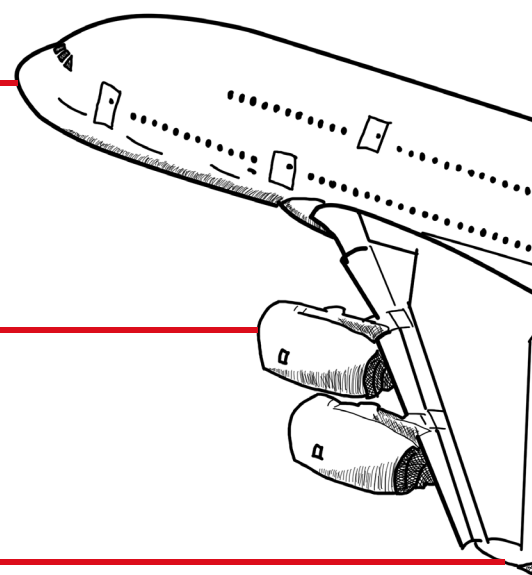
Composites
GWi3067VX



Super alloys
SA390-3



Titanium alloys
TL351VS-3



MJ, UNJC, UNJF

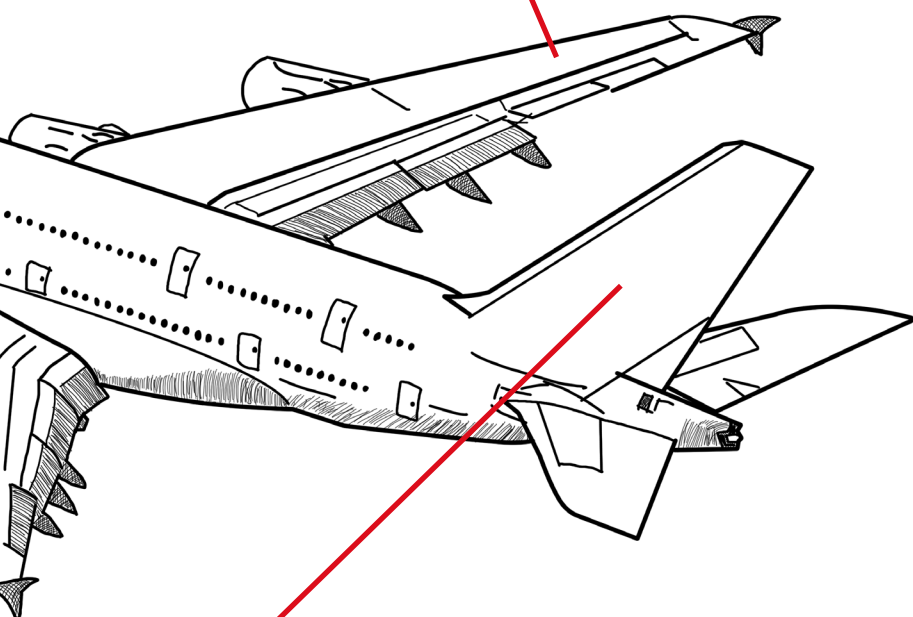
Inhaltsverzeichnis — Maschinengewindebohrer MJ ISO 5855,
UNJC / UNJF ISO 3161/ASME B1.15

Directory — Machine taps MJ ISO 5855, UNJC / UNJF ISO 3161/ASME B1.15

SA	TL
 R10	 R15  VS
 NEW	 NEW
	
SA390-3	TL351VS-3
46	47
48	49
50	51

Aluminium alloys

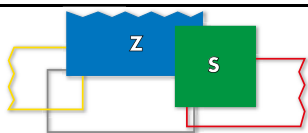
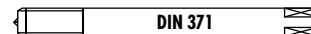
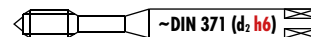
W360DL-3



Glass fibre reinforced plastics

H350TC-3





S320VS-4

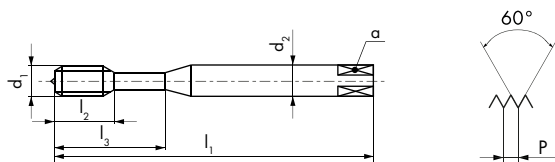


S370VX-3



aero

SA390-3



S320VS-4

S370VX-3

SA390-3



ID

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• 198966

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≤ MJ5x0.8 =

4H6H

aero

SA320-4



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SA350-3

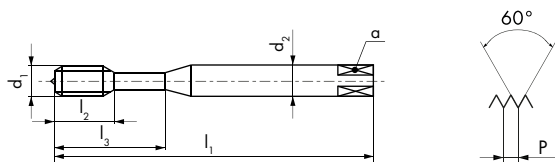


15 16 52 64

TL351VS-3



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SA320-4

SA350-3

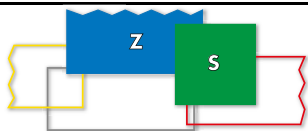
TL351VS-3



Ø d ₁ MJ	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
3	0.5	56	12		3.5	2.7	3	2.55
4	0.7	63	14		4.5	3.4	3	3.4
5	0.8	70	15		6	4.9	3	4.3
6	1	80	15	23	6	4.9	3	5.1
8	1	90	18	29	8	6.2	3	7.1
8	1.25	90	18	29	8	6.2	3	6.9
10	1.25	100	20	33	10	8	3	8.9
10	1.5	100	20	33	10	8	3	8.6

ID	ID	ID
● 198990	● 198998	● 198982
● 198991	● 198999	● 198983
● 198992	● 199000	● 198984
● 198993	● 199001	● 198985
● 198994	● 199002	● 198986
● 198995	● 199003	● 198987
● 198996	● 199004	● 198988
● 198997	● 199005	● 198989

≤MJ5x0.8 = 4H6H



S320VS-4

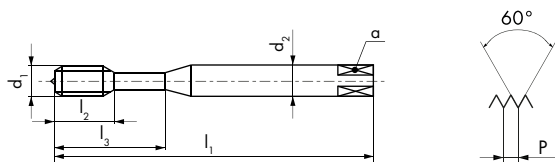


S370VX-3



aero

SA390-3



S320VS-4

S370VX-3

SA390-3



Ø" d ₁ UNJC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
6	32	3.5	56	13	20	4	3	3	2.8
8	32	4.16	63	14	21	4.5	3.4	3	3.45
10	24	4.82	70	15	25	6	4.9	3	3.9
1/4	20	6.35	80	17	30	7	5.5	3	5.2

ID

- 199014
- 199015
- 199016
- 199017

Ø" d ₁ UNJC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a mm		
6	32	3.5	56	6.5	20	4 (h9)	3	3	2.8
8	32	4.16	63	7.5	21	4.5(h9)	3.4	3	3.45
10	24	4.82	70	9	25	6	4.9	3	3.9
1/4	20	6.35	80	11	30	6	4.9	3	5.2

ID

- 199018
- 199019
- 199020
- 199021

Ø" d ₁ UNJC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			
6	32	3.5	56	13	4	3	3	2.8	
8	32	4.16	63	14	4.5	3.4	3	3.45	
10	24	4.82	70	15	6	4.9	3	3.9	
1/4	20	6.35	80	20	7	5.5	3	5.2	

ID

- 199034
- 199035
- 199036
- 199037

aero

SA320-4



15 16 52 64

SA350-3

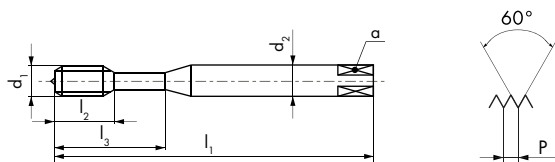


15 16 52 64

TL351VS-3



41 42



SA320-4

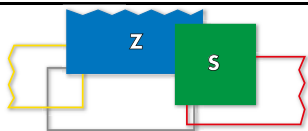
SA350-3

TL351VS-3



$\emptyset'' d_1$ UNJC	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
6	32	3.5	56	13		4	3	3	2.8
8	32	4.16	63	14		4.5	3.4	3	3.45
10	24	4.82	70	15		6	4.9	3	3.9
1/4	20	6.35	80	15	23	7	5.5	3	5.2

ID	ID	ID
• 199026	• 199030	• 199022
• 199027	• 199031	• 199023
• 199028	• 199032	• 199024
• 199029	• 199033	• 199025



S320VS-4

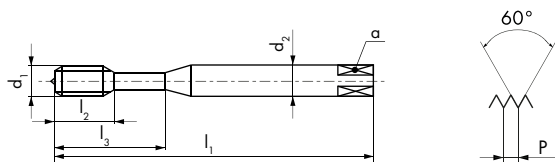


S370VX-3



aero

SA390-3



S320VS-4

S370VX-3

SA390-3



Ø" d ₁ UNJF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
10	32	4.82	70	15	25	6	4.9	3	4.1
1/4	28	6.35	80	17	30	7	5.5	3	5.55
5/16	24	7.93	90	20	35	8	6.2	3	7
3/8	24	9.52	100	22	39	10	8	3	8.6

ID

- 199038
- 199039
- 199040
- 199041

Ø" d ₁ UNJF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a mm		
10	32	4.82	70	9	25	6	4.9	3	4.1
1/4	28	6.35	80	11	30	6	4.9	3	5.55
5/16	24	7.93	90	12.5	35	8	6.2	3	7
3/8	24	9.52	100	14	39	10	8	3	8.6

ID

- 197707
- 197708
- 197709
- 197710

Ø" d ₁ UNJF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			
10	32	4.82	70	15	6	4.9	3	4.1	
1/4	28	6.35	80	20	7	5.5	3	5.55	
5/16	24	7.93	90	25	8	6.2	3	7	
3/8	24	9.52	100	30	10	8	3	8.6	

ID

- 199049
- 199050
- 199051
- 199052

aero

SA320-4



15 16 52 64

SA350-3

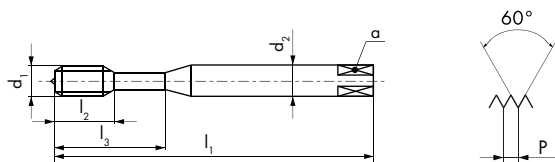


15 16 52 64

TL351VS-3



41 42



SA320-4

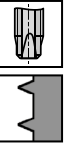
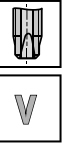
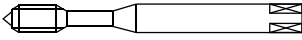
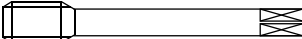
SA350-3

TL351VS-3

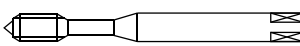
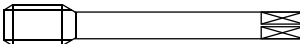


$\emptyset'' d_1$ UNJF	P TPI	d_1 mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
10	32	4.82	70	15		6	4.9	3	4.1
1/4	28	6.35	80	15	23	7	5.5	3	5.55
5/16	24	7.93	90	18	29	8	6.2	3	7
3/8	24	9.52	100	20	33	10	8	3	8.6

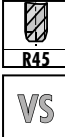
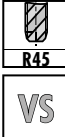
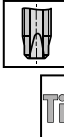
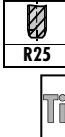
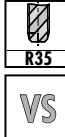
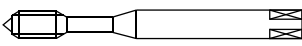
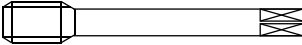
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• 174976	• 188175	• 199042
• 175993	• 199046	• 199043
• 175995	• 199047	• 199044
• 175997	• 199048	• 199045

		N						
Merkmale Characteristics								
								
Lochart Hole type								
		N310-3	N320-3 N320-4	N320V-3 N320V-4	N320TN-3/-4 N320TC-3/-4	N321-3 N321-4	N330-3 N330-4	N330V-3 N330V-4
DIN lang DIN long	DIN 371	60 / 62	62 / 64	60 / 64	64	70	70	70
Extra-lang Extra-long	DC							
ISO kurz ISO short	ISO 529							
DIN kurz DIN short	DIN 352							
Toleranz Tolerance	ISO 2 6H	60 / 62	62 / 64	60 / 64	64	70	70	70
Übermass Oversize	ISO 3 6G		68	68				
Übermass Oversize	7G		68					
Übermass Oversize	+ 0.10 mm + 0.20 mm		68					
Feintoleranz Fine tolerance	ISO 1 4H		66					
LH Linksgewinde LH Left-hand thread	ISO 2 6H	62	66	66				
		N410-3	N420-4	N420V-4	N420TN-4 N420TC-4	N421-4	N430-4	N430V-4
DIN lang DIN long	DIN 376	63	65	65	65	71	71	71
Extra-lang Extra-long	DC							
ISO kurz ISO short	ISO 529							
DIN kurz DIN short	DIN 352							
Toleranz Tolerance	ISO 2 6H	63	65	65	65	71	71	71
Übermass Oversize	ISO 3 6G		69	69				
Übermass Oversize	7G		69					
Übermass Oversize	+ 0.10 mm + 0.20 mm		69 / 71					
Feintoleranz Fine tolerance	ISO 1 4H		67					
LH Linksgewinde LH Left-hand thread	ISO 2 6H	63	67	67				

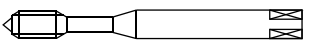
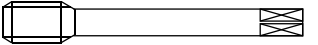
N								
 R15 	 R40	 R40 	 R40 TiN TiCN	 R40 	 R40 	 R40  		 
 			 	 				
								
N350-3 N350V-3	N360-3	N360V-3	N360TN-3 N360TC-3	N360-5 N360V-5	N361-3	N362V-3	N520-4	N520V-4
72	74	60 / 74	74	80	80	80		
							82	82
72	74	60 / 74	74	80	80	80	82	82
	76	76						
	78	78						
	78	78						
	78							
	76	76						
N450-3 N450V-3	N460-3	N460V-3	N460TN-3 N460TC-3	N460-5 N460V-5	N461-3	N462V-3	N620-4	N620V-4
73	75	75	75	81	81	81		
							83	83
73	75	75	75	81	81	81	83	83
	77	77						
	79	79						
	79	79						
	79							
	77	77						

		N												
Merkmale Characteristics			TiN		R40	V		R40	TiN			R40		
														
Lochart Hole type														
		N520TN-4	N560-3	N560V-3	N560TN-3	N1120-4	N1160-3	N1110 -1 -2 -3 -S						
DIN lang	DIN 371													
DIN long														
Extra-lang	DC	82	84	84	84									
Extra-long														
ISO kurz	ISO 529					118	118	60 / 114						
ISO short														
DIN kurz	DIN 352													
DIN short														
Toleranz	ISO 2 6H	82	84	84	84	118	118	60 / 114						
Tolerance														
Übermass	ISO 3 6G													
Oversize														
Übermass	7G													
Oversize														
Übermass	+ 0.10 mm													
Oversize	+ 0.20 mm													
Feintoleranz	ISO 1 4H													
Fine tolerance														
LH Linksgewinde	ISO 2 6H													
LH Left-hand thread														
		N620TN-4	N660-3	N660V-3	N660TN-3	N1220-4	N1260-3	N1210 -1 -2 -3 -S						
DIN lang	DIN 376													
DIN long														
Extra-lang	DC	83	85	85	85									
Extra-long														
ISO kurz	ISO 529					118	118	60 / 115						
ISO short														
DIN kurz	DIN 352													
DIN short														
Toleranz	ISO 2 6H	83	85	85	85	118	118	60 / 115						
Tolerance														
Übermass	ISO 3 6G													
Oversize														
Übermass	7G													
Oversize														
Übermass	+ 0.10 mm													
Oversize	+ 0.20 mm													
Feintoleranz	ISO 1 4H													
Fine tolerance														
LH Linksgewinde	ISO 2 6H													
LH Left-hand thread														

N	W				Z			
 		 DLC	 R40	 R40 DLC	 V	 VS	 R40 V	 R40 VS
 NEW								
								
NP110-S -1 -2 -3 -S	W320-3 W320-4	W320DL-3 W320DL-4	W360-3	W360DL-3	Z320V-3 Z320V-4	Z320VS-4	Z360V-3 Z362V-3	Z360VS-3 Z362VS-3
	86	86	87	87	88	88	89	90
116								
116	86	86	87	87	88	88	89	90
NP210-S -1 -2 -3 -S	W420-4	W420DL-4	W460-3	W460DL-3	Z420V-4	Z420VS-4	Z462V-3	Z462VS-3
	86	86	87	87	88	88	89	91
117								
117	86	86	87	87	88	88	89	91

		Z		ZX	H		S	
Merkmale Characteristics								
								
Lochart Hole type								
		Z370VS-3	Z373VS-3	ZX320-4	H320-4 H320TC-4	H350-3 H350TC-3	S320VS-4	S360VS-3
<i>DIN lang</i>	DIN 371	90	90	93	94	96	98	99
<i>DIN long</i>								
<i>Extra-lang</i>	DC							
<i>Extra-long</i>								
<i>ISO kurz</i>	ISO 529							
<i>ISO short</i>								
<i>DIN kurz</i>	DIN 352							
<i>DIN short</i>								
<i>Toleranz</i>	ISO 2 6H	90	90	93	94	96	98	99
<i>Tolerance</i>								
<i>Übermass</i>	ISO 3 6G					96		
<i>Oversize</i>								
<i>Übermass</i>	7G							
<i>Oversize</i>								
<i>Übermass</i>	+ 0.10 mm							
<i>Oversize</i>	+ 0.20 mm							
<i>Feintoleranz</i>	ISO 1 4H	90					98	
<i>Fine tolerance</i>								
<i>LH Linksgewinde</i>	ISO 2 6H							
<i>LH Left-hand thread</i>								
		Z470VS-3	Z473VS-3	ZX420-4	H420-4 H420TC-4	H450-3 H450TC-3	S420VS-4	S460VS-3
<i>DIN lang</i>	DIN 376	91	91	93	95	97	98	99
<i>DIN long</i>								
<i>Extra-lang</i>	DC							
<i>Extra-long</i>								
<i>ISO kurz</i>	ISO 529							
<i>ISO short</i>								
<i>DIN kurz</i>	DIN 352							
<i>DIN short</i>								
<i>Toleranz</i>	ISO 2 6H	91	91	93	95	97	98	99
<i>Tolerance</i>								
<i>Übermass</i>	ISO 3 6G					97		
<i>Oversize</i>								
<i>Übermass</i>	7G							
<i>Oversize</i>								
<i>Übermass</i>	+ 0.10 mm							
<i>Oversize</i>	+ 0.20 mm							
<i>Feintoleranz</i>	ISO 1 4H							
<i>Fine tolerance</i>								
<i>LH Linksgewinde</i>	ISO 2 6H							
<i>LH Left-hand thread</i>								

SA			TL		GG			
								
								
								
SA320-4	SA350-3	SA390-3	TL320VS-4	TL351VS-3	GG350NV-3	GG350TC-3	GG353TC-3	GG550NV-3
100	100	99	100	100	102	102	102	102
100	100	99	100	100	102	102	102	102
100	100	99	100	100				
SA420-4	SA450-3		TL420VS-4	TL451VS-3	GG450NV-3	GG450TC-3	GG453TC-3	GG650NV-3
101	101		101	101	103	103	103	103
								103
101	101		101	101	103	103	103	103
101	101		101	101				

		K			QTAP			
Merkmale Characteristics		 TiCN	 TiCN	 VS	 VS	 VS	 R40	 R40
					 NEW	 NEW	 NEW	 NEW
Lochart Hole type								
		K313TC-3			Q320VS-4	Q323VS-4	Q360VS-3	Q363VS-3
DIN lang	DIN 371	104			61 / 106	106	61 / 107	107
Extra-lang	DC							
ISO kurz	ISO 529							
DIN kurz	DIN 352							
Toleranz	ISO 2 6H	104			61 / 106	106	61 / 107	107
Übermass	ISO 3 6G							
Übermass	7G							
Übermass	+ 0.10 mm							
Übermass	+ 0.20 mm							
Feintoleranz	ISO 1 4H							
LH Linksgewinde	ISO 2 6H							
LH Left-hand thread								
		K413TC-3	K613TC-3	K613VS-3	Q420VS-4	Q423VS-4	Q460VS-3	Q463VS-3
DIN lang	DIN 376	104			106	106	107	107
Extra-lang	DC		105	105				
ISO kurz	ISO 529							
DIN kurz	DIN 352							
Toleranz	ISO 2 6H	104	105	105	106	106	107	107
Übermass	ISO 3 6G							
Übermass	7G							
Übermass	+ 0.10 mm							
Übermass	+ 0.20 mm							
Feintoleranz	ISO 1 4H							
LH Linksgewinde	ISO 2 6H							
LH Left-hand thread								

RTS							
 VS	 VS	 VS	 VS	 VS	 VS	 VS	 VS
							
							
RTS320VS-4	RTS323VS-4	RTS360VS-3 RTS362VS-3	RTS365VS-3	RTS362VS-5	RTS365VS-5	RTS523VS-4	RTS565VS-3
108	108	109	109	111	111	112	112
108	108	109	109	111	111	112	112
		110					
		110					
RTS420VS-4	RTS423VS-4	RTS462VS-3	RTS465VS-3			RTS623VS-4	RTS665VS-3
108	108	109	109			112	112
108	108	109	109			112	112
		110					
		110					

Gewindebohrer-Sortimente

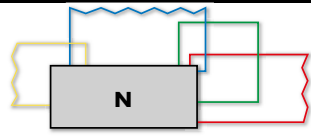
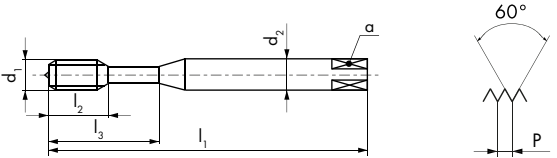
Tap assortments

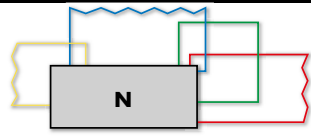
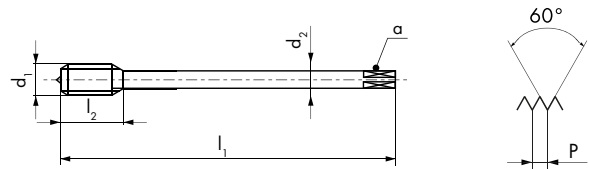
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D5855			N1110-S N1210-S	M3, M4, M5, M6, M8, M10, M12			
			N1110-S N1210-S	M3, M4, M5, M6, M8, M10, M12			
			FO DIN 338 FO DIN 338	D2.5, 3.3, 4.2, 5.0, 6.8, 8.5, 10.2			
D5891			N310-3 N410-3	M3, M4, M5, M6, M8, M10, M12			
No D5855 / D5860 / D5891					ID	ID	ID
M3 - M12					● 118728	● 118733	● 170922
BOXSET					D5892		
D5892			N320V-4	M3, M4, M5, M6, M8, M10			
							
No D5892					ID		
M3 - M10					● 170921		
BOXSET					D5896		
D5896			N360V-3	M3, M4, M5, M6, M8, M10			
							
No D5896					ID		
M3 - M10					● 167599		

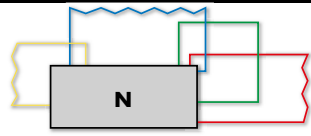
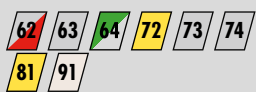
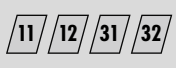
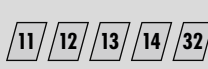
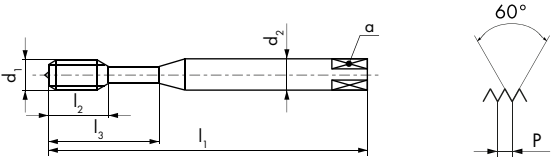
Gewindebohrer-Sortimente — QTAP
Tap assortments — QTAP

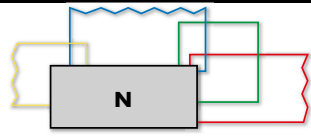
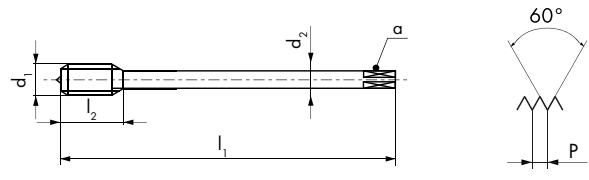


BOXSET	D5893
Q320VS-4     M3, M4, M5 M6, M8, M10 VS	 NEW
No D5893	ID
M3 - M10	● 197104
BOXSET	D5897
Q360VS-3     M3, M4, M5 M6, M8, M10 VS	 NEW
No D5897	ID
M3 - M10	● 197105

										N310-3	N310-3 LH	N320-3	
N310-3  													
N310-3 LH  LH 													
N320-3  													
										 < 1.5 x D	 < 1.5 x D	 < 1.5 x D	
										 2.5 x P	 2.5 x P	 2.5 x P	
										 ISO 2 6H	 ISO 2 6H	 ISO 2 6H	
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm				ID	ID	ID	
1	0.25	40	5.5		2.5	2.1	3	0.75		● 150167			
1.1	0.25	40	5.5		2.5	2.1	3	0.85		● 174745			
1.2	0.25	40	5.5		2.5	2.1	3	0.95		● 150168			
1.4	0.3	40	7		2.5	2.1	3	1.1		● 150169			
1.5	0.3	40	7		2.5	2.1	3	1.2		● 174752			
1.6	0.35	40	8		2.5	2.1	3	1.25		● 174753			
1.7	0.35	40	8		2.5	2.1	3	1.35		● 174754			
1.8	0.35	40	8		2.5	2.1	3	1.45		● 174755			
2	0.4	45	8		2.8	2.1	3	1.6		● 101439	● 111460		
2.2	0.45	45	9		2.8	2.1	3	1.75		● 174756			
2.3	0.4	45	9		2.8	2.1	3	1.9		● 174757			
2.5	0.45	50	10		2.8	2.1	3	2.05		● 101440	● 111461		
2.6	0.45	50	10		2.8	2.1	3	2.15		● 101441			
3	0.5	56	12	18	3.5	2.7	3	2.5		● 101442	● 111462		
3.5	0.6	56	13	20	4	3	3	2.9		● 101443			
4	0.7	63	14	21	4.5	3.4	3	3.3		● 101444	● 111464		
5	0.8	70	15	25	6	4.9	* 3	4.2		● 101445	● 111465	* 101465	
6	1	80	17	30	6	4.9	* 3	5		● 101446	● 111466	* 101466	
8	1.25	90	20	35	8	6.2	3	6.8		● 101447			
10	1.5	100	22	39	10	8	3	8.5		● 101438			
*N320-3 =  2										 ISO 1 4H ≤ M1.5			

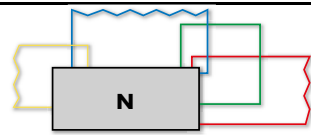
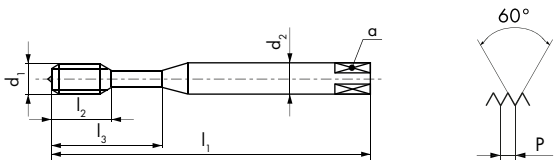
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N410-3  31 62 73 74 91 N410-3 LH  LH 31 62 73 74 91								 			
								 			
								 	 		
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID		
3	0.5	56	12	2.2	1.8	3	2.5	● 101897			
4	0.7	63	14	2.8	2.1	3	3.3	● 101924			
5	0.8	70	15	3.5	2.7	3	4.2	● 101942			
6	1	80	17	4.5	3.4	3	5	● 101953			
7	1	80	17	5.5	4.3	3	6	● 142645	● 111491		
8	1.25	90	20	6	4.9	3	6.8	● 101958	● 111492		
10	1.5	100	22	7	5.5	3	8.5	● 101866	● 111478		
12	1.75	110	24	9	7	3	10.2	● 101870	● 111479		
14	2	110	28	11	9	3	12	● 101874	● 111480		
16	2	110	30	12	9	3	14	● 101880	● 111481		
18	2.5	125	33	14	11	3	15.5	● 101883	● 111482		
20	2.5	140	36	16	12	3	17.5	● 101885	● 125530		
22	2.5	140	36	18	14.5	3	19.5	★ 101888			
24	3	160	39	18	14.5	4	21	● 101891	● 111485		
27	3	160	42	20	16	4	24	● 101895	● 111486		
30	3.5	180	45	22	18	4	26.5	● 101901	● 111487		
33	3.5	180	48	25	20	4	29.5	★ 101907			
36	4	200	51	28	22	4	32	● 101915	● 111488		
39	4	200	55	32	24	4	35	● 101922			
42	4.5	200	55	32	24	4	37.5	● 101932			
48	5	250	63	36	29	4	43	● 111489			
56	5.5	280	71	45	35	5	50.5	● 111447			

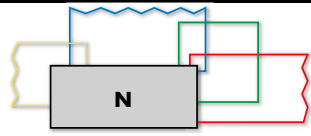
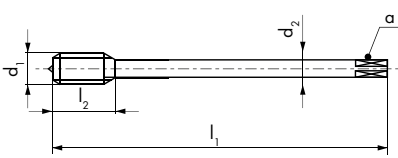
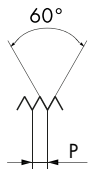
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N320-4  												
N320V-4   												
N320TN-4   												
N320TC-4   												
									   			
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID	ID	ID
* 1	0.25	40	5.5		2.5	2.1	2	0.75	● 111467			
* 1.1	0.25	40	5.5		2.5	2.1	2	0.85	● 111468			
* 1.2	0.25	40	5.5		2.5	2.1	2	0.95	● 111469			
* 1.4	0.3	40	7		2.5	2.1	2	1.1	● 111470			
* 1.5	0.3	40	7		2.5	2.1	2	1.2	● 111471			
* 1.6	0.35	40	8		2.5	2.1	2	1.25	● 101454			
* 1.7	0.35	40	8		2.5	2.1	2	1.35	● 101455			
* 1.8	0.35	40	8		2.5	2.1	2	1.45	● 101456			
* 2	0.4	45	8		2.8	2.1	2	1.6	● 101458	● 101536	● 101528	● 152900
* 2.2	0.45	45	9		2.8	2.1	2	1.75	● 101459			
* 2.3	0.4	45	9		2.8	2.1	2	1.9	● 101460			
2.5	0.45	50	10		2.8	2.1	3	2.05	● 101483	● 101545	● 101530	● 101522
2.6	0.45	50	10		2.8	2.1	3	2.15	● 101484			
3	0.5	56	12	18	3.5	2.7	3	2.5	● 101485	● 101546	● 101531	● 101523
3.5	0.6	56	13	20	4	3	3	2.9	● 101491	● 101547		
4	0.7	63	14	21	4.5	3.4	3	3.3	● 101495	● 101548	● 101532	● 101524
5	0.8	70	15	25	6	4.9	3	4.2	● 101499	● 101549	● 101533	● 101525
6	1	80	17	30	6	4.9	3	5	● 101503	● 101550	● 101534	● 101526
8	1.25	90	20	35	8	6.2	3	6.8	● 101506	● 101551	● 101535	● 101527
10	1.5	100	22	39	10	8	3	8.5	● 101481	● 101544	● 101529	● 101521
*N320-3 / N320V-3 N320TN-3 / N320TC-3 												

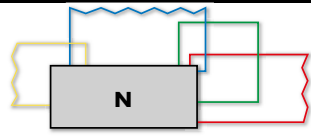
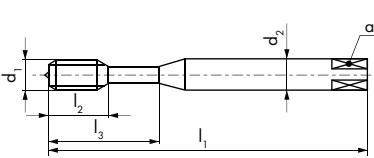
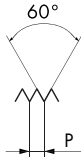
								N420-4	N420V-4	N420TN-4	N420TC-4
N420-4											
N420V-4											
N420TN-4											
N420TC-4											
											
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
3	0.5	56	12	2.2	1.8	3	2.5	• 102119	• 143418		
4	0.7	63	14	2.8	2.1	3	3.3	• 102146	• 102279		
5	0.8	70	15	3.5	2.7	3	4.2	• 102171	• 102280	• 146297	
6	1	80	17	4.5	3.4	3	5	• 102182	• 102282	• 147439	
7	1	80	17	5.5	4.3	3	6	• 102189	• 144713		
8	1.25	90	20	6	4.9	3	6.8	• 102195	• 102285	• 102251	• 102233
9	1.25	90	20	7	5.5	3	7.8	• 102202			
10	1.5	100	22	7	5.5	3	8.5	• 102061	• 102263	• 102240	• 102228
11	1.5	100	19	8	6.2	3	9.5	• 162770			
12	1.75	110	24	9	7	3	10.2	• 102072	• 102265	• 102243	• 102229
14	2	110	28	11	9	3	12	• 102081	• 102267	• 102245	
16	2	110	30	12	9	3	14	• 102090	• 102269	• 102247	• 102231
18	2.5	125	33	14	11	3	15.5	• 102097	• 102271		
20	2.5	140	36	16	12	3	17.5	• 102101	• 102273	• 102248	• 102232
22	2.5	140	36	18	14.5	3	19.5	• 102106	• 102275		
24	3	160	39	18	14.5	4	21	• 102110	• 102278	• 144220	• 163736
27	3	160	42	20	16	4	24	• 102117	• 143856		
30	3.5	180	45	22	18	4	26.5	• 102124	• 105124		
33	3.5	180	48	25	20	4	29.5	• 102130	• 146968		
36	4	200	51	28	22	4	32	• 102137	• 143430		
39	4	200	55	32	24	4	35	• 102144	• 158724		
42	4.5	200	55	32	24	4	37.5	• 102158	• 143107		
45	4.5	220	59	36	29	4	40.5	• 110225	• 159565		
48	5	250	63	36	29	4	43	• 110226	• 157517		
56	5.5	280	71	45	35	5	50.5	• 110229	• 158178		

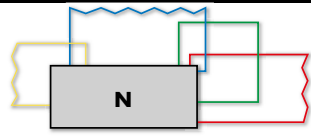
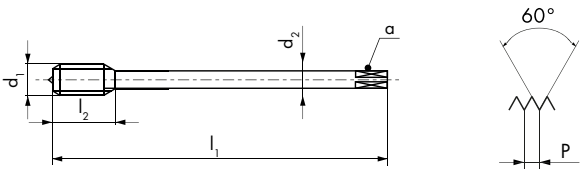
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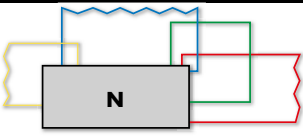
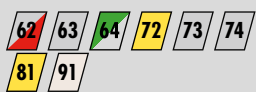
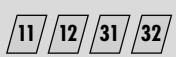
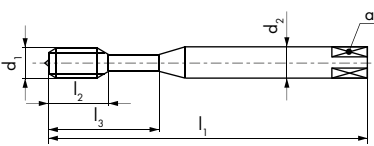
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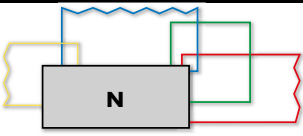
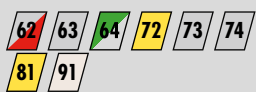
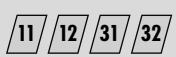
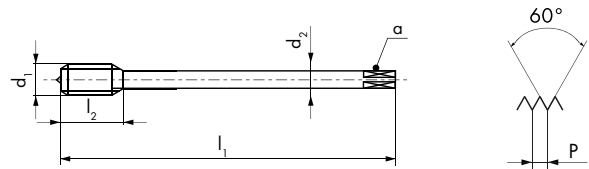
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N320-4  626364727374 8191 N320V-4   11123132																
																
									 		 		 		 	
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	6H + mm	ID	6H + mm	ID	6H + mm	ID	
* 2	0.4	45	8		2.8	2.1	2	1.6	● 101457	0.019	● 143584	0.019				
2.5	0.45	50	10		2.8	2.1	3	2.05	● 101482	0.020	● 150522	0.020				
3	0.5	56	12	18	3.5	2.7	3	2.5	● 101486	0.020	● 143116	0.020	● 101489	0.036	● 101488	
3.5	0.6	56	13	20	4	3	3	2.95	● 101490	0.021						
4	0.7	63	14	21	4.5	3.4	3	3.35	● 101494	0.022	● 143087	0.022	● 101496	0.041	● 111522	
5	0.8	70	15	25	6	4.9	3	4.25	● 101498	0.024	● 143088	0.024	● 101500	0.044	● 111523	
6	1	80	17	30	6	4.9	3	5	● 101502	0.026	● 143089	0.026	● 101504	0.050	● 111524	
8	1.25	90	20	35	8	6.2	3	6.8	● 101505	0.028	● 143604	0.028				
*N320-3 / N320V-3 																

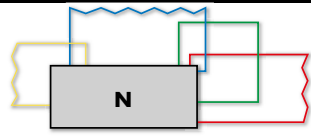
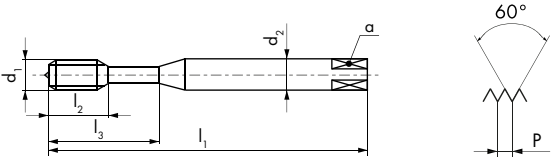
								N420-4	N420V-4	N420-4	N420-4
N420-4  62 63 64 72 73 74 81 91 N420V-4   11 12 31 32											
   											
 											
ISO 3 6G								ISO 3 6G	ISO 3 6G	7G	6H +0.1 mm
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID 6H + mm	ID 6H + mm	ID 6H + mm	ID
8	1.25	90	20	6	4.9	3	6.8	102194 0.028	145246 0.028	102199 0.052	102196
10	1.5	100	22	7	5.5	3	8.5	102060 0.032	143726 0.032	102065 0.060	102062
12	1.75	110	24	9	7	3	10.3	102071 0.034	145655 0.034	102076 0.066	102073
16	2	110	30	12	9	3	14	135531 0.038	162795 0.038	102094 0.072	102091

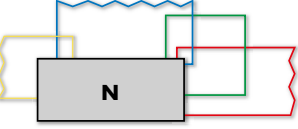
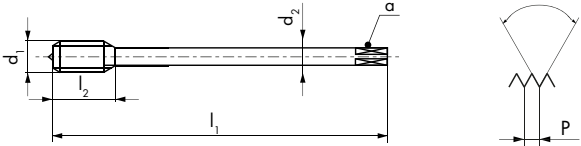
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N321-4   61 62 63 64 71 72 73 74 81 91												
N330-4  63 72												
N330V-4   11 12												
 												
 												
ISO 2 6H												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		6H	ID	ID	ID	
* 1	0.25	40	5.5		2.5	2.1	2	0.75		• 101558		
* 1.1	0.25	40	5.5		2.5	2.1	2	0.85		* 101559		
* 1.2	0.25	40	5.5		2.5	2.1	2	0.95		• 101560		
* 1.4	0.3	40	7		2.5	2.1	2	1.1		• 101561		
* 1.6	0.35	40	8		2.5	2.1	2	1.25		• 101562	• 151246	
* 2	0.4	45	8		2.8	2.1	2	1.6	• 101552	• 105125	• 101572	
2.5	0.45	50	10		2.8	2.1	* 3	2.05	• 101553	• 101565	• 101573	
3	0.5	56	12	18	3.5	2.7	* 3	2.5	• 101555	• 101567	• 101574	
3.5	0.6	56	13	20	4	3	2	2.9		• 101568		
4	0.7	63	14	21	4.5	3.4	3	3.3	• 101557	• 101569	• 101576	
5	0.8	70	15	25	6	4.9	3	4.2		• 101570	• 101577	
6	1	80	17	30	6	4.9	3	5		• 101571	• 101578	
* N320-3 / N320V-3 / N330V-3  2.5 x P									ISO 1 4H			≤ M1.5
* N330-4 =  2 * N330V-4 =  2												

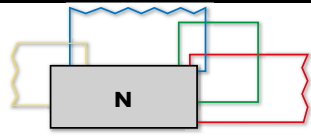
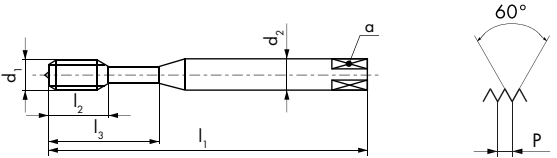
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N420-4											
N421-4											
N430-4											
N430V-4											
											
											
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
4	0.7	63	14	2.8	2.1	3	3.3		• 102293		
5	0.8	70	15	3.5	2.7	3	4.2		• 102294		
6	1	80	17	4.5	3.4	3	5		• 102295		
8	1.25	90	20	6	4.9	3	6.8	• 102197	• 102296	• 102301	• 102306
10	1.5	100	22	7	5.5	3	8.5	• 102063	• 102286	• 102297	• 102302
12	1.75	110	24	9	7	3	10.2	• 102074	• 102287	• 102298	• 102303
16	2	110	30	12	9	3	14	• 102092	• 102289		

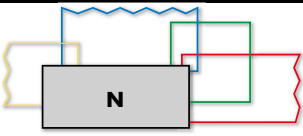
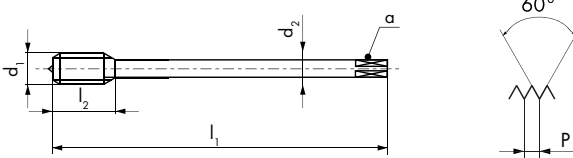
									N350-3	N350V-3		
N350-3  												
N350V-3   												
												
												
												
												
												
												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID		
2	0.4	45	8		2.8	2.1	2	1.6	● 101580	● 101593		
2.3	0.4	45	9		2.8	2.1	2	1.9	● 101581			
2.5	0.45	50	10		2.8	2.1	2	2.05	● 101582	● 101594		
2.6	0.45	50	10		2.8	2.1	2	2.15	● 101583			
3	0.5	56	12	18	3.5	2.7	2	2.5	● 101584	● 101595		
3.5	0.6	56	13	20	4	3	2	2.9	● 101585			
4	0.7	63	14	21	4.5	3.4	2	3.3	● 101587	● 101596		
5	0.8	70	15	25	6	4.9	3	4.2	● 101589	● 101597		
6	1	80	17	30	6	4.9	3	5	● 101591	● 101598		
8	1.25	90	20	35	8	6.2	3	6.8	● 101592	● 146810		
10	1.5	100	22	39	10	8	3	8.5	● 101579	● 147217		

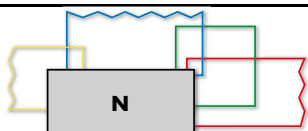
								N450-3	N450V-3		
N450-3  											
N450V-3   											
								 			
								 			
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8	1.25	90	20	6	4.9	3	6.8	● 102327	● 102334		
10	1.5	100	22	7	5.5	3	8.5	● 102314	● 102329		
12	1.75	110	24	9	7	3	10.2	● 102317	● 102330		
14	2	110	28	11	9	3	12	● 102319	● 145487		
16	2	110	30	12	9	3	14	● 102321	● 102331		
20	2.5	140	36	16	12	4	17.5	● 102324	● 102332		
24	3	160	39	18	14.5	4	21	● 102325	● 102333		

									N360-3	N360V-3	N360TN-3	N360TC-3
N360-3  												
N360V-3   												
N360TN-3   												
N360TC-3   												
												
												
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID	ID	ID
2	0.4	45	7		2.8	2.1	2	1.6	● 101618	● 101708	● 101697	● 146842
2.2	0.45	45	8		2.8	2.1	2	1.75	● 101619			
2.3	0.4	45	8		2.8	2.1	2	1.9	● 101620			
2.5	0.45	50	9		2.8	2.1	2	2.05	● 101622	● 101709	● 101698	● 101689
2.6	0.45	50	9		2.8	2.1	2	2.15	● 101623	● 101710		
3	0.5	56	5.5	18	3.5	2.7	3	2.5	● 101626	● 101711	● 101699	● 101690
3.5	0.6	56	6.5	20	4	3	3	2.9	● 101630	● 142625		
4	0.7	63	7.5	21	4.5	3.4	3	3.3	● 101635	● 101713	● 101700	● 101691
4.5	0.75	70	9	25	6	4.9	3	3.75	● 101639			
5	0.8	70	9	25	6	4.9	3	4.2	● 101644	● 101715	● 101701	● 101692
6	1	80	11	30	6	4.9	3	5	● 101652	● 101717	● 101703	● 101693
7	1	80	11	30	7	5.5	3	6	● 101656	● 101718		
8	1.25	90	12.5	35	8	6.2	3	6.8	● 101663	● 101721	● 101705	● 101694
9	1.25	90	12.5	35	9	7	3	7.8	● 101668			
10	1.5	100	14	39	10	8	3	8.5	● 101612	● 101707	● 101696	● 101688

								N460-3	N460V-3	N460TN-3	N460TC-3
N460-3  63 72 73 74 81 91											
N460V-3   11 12 32											
N460TN-3   11 12 13 14 32											
N460TC-3   11 12 13 14 21 31 32 62 64 73 74 82 83											
											
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
5	0.8	70	9	3.5	2.7	3	4.2	● 102410	● 102489	● 160682	
6	1	80	11	4.5	3.4	3	5	● 102411	● 102491	● 152850	
8	1.25	90	12.5	6	4.9	3	6.8	● 102412	● 102492	● 152849	
10	1.5	100	14	7	5.5	3	8.5	● 102351	● 102461	● 150242	● 158687
12	1.75	110	14	9	7	3	10.2	● 102359	● 102465	● 102449	● 102438
14	2	110	14	11	9	3	12	● 102369	● 102468	● 102451	● 111615
16	2	110	18	12	9	3	14	● 102376	● 102471	● 102453	● 102440
18	2.5	125	21	14	11	3	15.5	● 102383	● 102473		
20	2.5	140	24	16	12	4	17.5	● 102389	● 102475	● 102454	● 143280
22	2.5	140	24	18	14.5	4	19.5	● 102394	● 102477		
24	3	160	27	18	14.5	4	21	● 102398	● 102480	● 143119	● 150018
27	3	160	27	20	16	4	24	● 175423	● 102481		
30	3.5	180	30	22	18	4	26.5	● 150246	● 102482		
33	3.5	180	33	25	20	4	29.5	● 167621	● 102483		
36	4	200	36	28	22	5	32	● 143914	● 102484		
39	4	200	40	32	24	5	35	● 175424	● 102485		
42	4.5	200	40	32	24	5	37.5	● 169122	● 102486		
45	4.5	220	44	36	29	5	40.5		● 102487		
48	5	250	48	36	29	5	43		● 102488		
52	5	250	52	40	32	5	47		● 110228		
56	5.5	280	56	45	35	6	50.5		● 102490		
64	6	315	64	50	39	6	58		● 143805		

									N360-3 LH	N360V-3 LH	N360-3	N360V-3
N360-3 LH  LH      												
N360V-3 LH  V LH   												
N360-3       												
N360V-3  V   												
									 ISO 2 6H	 ISO 2 6H	 ISO 3 6G	 ISO 3 6G
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID	ID $6H$ + mm	ID $6H$ + mm
2	0.4	45	7		2.8	2.1	2	1.6			● 101617 0.019	● 146000 0.019
2.5	0.45	50	9		2.8	2.1	2	2.05			● 101621 0.020	● 143294 0.020
3	0.5	56	5.5	18	3.5	2.7	3	2.5	● 101627	● 146811	● 101625 0.020	● 104816 0.020
3.5	0.6	56	6.5	20	4	3	3	2.95			● 101629 0.021	● 125829 0.021
4	0.7	63	7.5	21	4.5	3.4	3	3.3	● 101637	● 162540	● 101634 0.022	● 104817 0.022
5	0.8	70	9	25	6	4.9	3	4.2	● 101646	● 144003	● 101643 0.024	● 104818 0.024
6	1	80	11	30	6	4.9	3	5	● 101654	● 144004	● 101669 0.026	● 104819 0.026
8	1.25	90	12.5	35	8	6.2	3	6.8	● 101666	● 143925	● 101662 0.028	● 104820 0.028
10	1.5	100	14	39	10	8	3	8.5	● 101615	● 143587	● 101611 0.032	● 104821 0.032

								N460-3 LH	N460V-3 LH	N460-3	N460V-3
N460-3 LH  LH 63 72 73 74 81 91											
N460V-3 LH  V LH 11 12 32											
N460-3  63 72 73 74 81 91											
N460V-3  V 11 12 32											
								 ISO 2 6H	 ISO 2 6H	 ISO 3 6G	 ISO 3 6G
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID $6H$ + mm	ID $6H$ + mm
12	1.75	110	14	9	7	3	10.2	● 102362	● 146354	● 102358 0.034	● 143602 0.034
14	2	110	14	11	9	3	12			● 102368 0.038	● 144712 0.038
16	2	110	18	12	9	3	14	● 102378	● 143439	● 102375 0.038	● 150197 0.038
20	2.5	140	24	16	12	4	17.5	● 102390	● 146564	● 102388 0.042	● 145420 0.042



N360-3

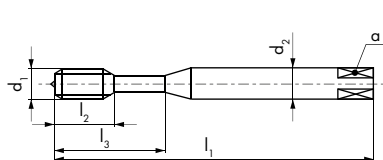


63 72 73 74 81 91

N360V-3



11 12 32



N360-3

N360-3

N360V-3



ISO 1
4H

7G

7G

Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		6H
3	0.5	56	5.5	18	3.5	2.7	3	2.5
4	0.7	63	7.5	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	12.5	35	8	6.2	3	△ 6.8
10	1.5	100	14	39	10	8	3	8.5

ID	ID	6H + mm	ID	6H + mm
• 101624	• 101628	0.036	• 144311	0.036
• 101633	• 101638	0.041	• 144192	0.041
• 101642	• 101647	0.044	• 143208	0.044
• 101651	• 101655	0.050	• 146709	0.050
• 101661	• 101667	0.052	• 146267	0.052
• 101610	• 101616	0.060	• 142547	0.060

6H
+0.1 mm

6H
+0.1 mm

Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		6H +0.1
3	0.5	56	5.5	18	3.5	2.7	3	2.6
4	0.7	63	7.5	21	4.5	3.4	3	3.4
5	0.8	70	9	25	6	4.9	3	4.3
6	1	80	11	30	6	4.9	3	5.1
8	1.25	90	12.5	35	8	6.2	3	6.9
10	1.5	100	14	39	10	8	3	8.6

ID

ID

• 160847

• 101636

• 101645

• 101653

• 101664

• 101613

• 146513

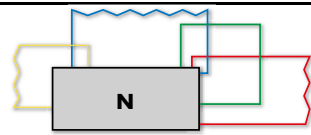
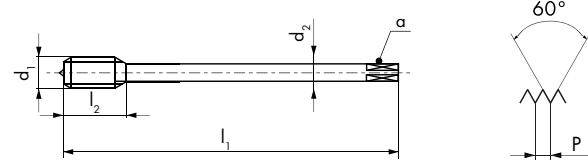
• 146046

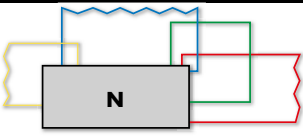
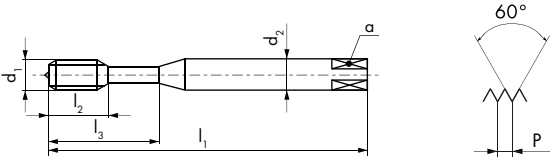
• 145559

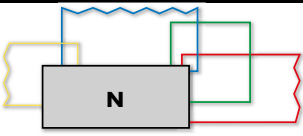
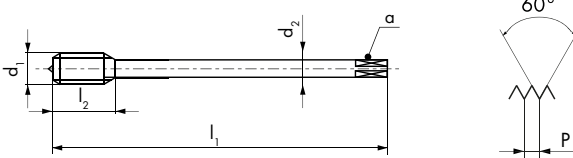
• 143415

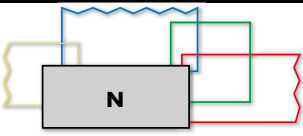
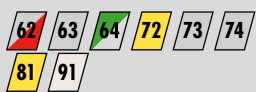
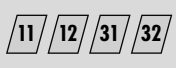
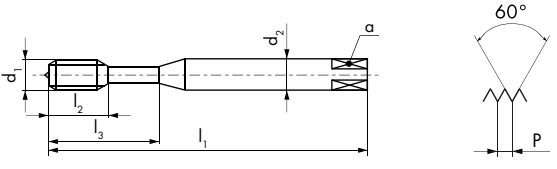
• 124917

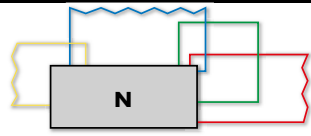
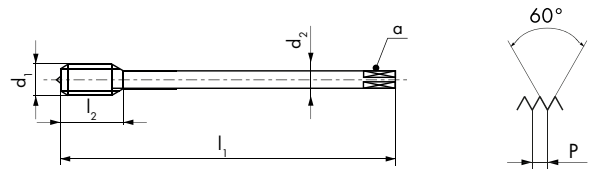
△ ISO 1
4H = 6.70

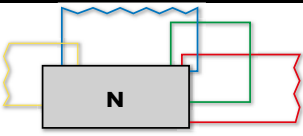
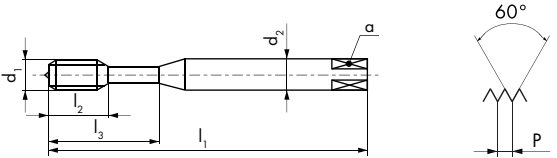
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N460-3  63 72 73 74 81 91												
N460V-3  V 11 12 32								 <2.5 x D  <2.5 x D  <2.5 x D				
								 2.5 x P ISO 1 4H  2.5 x P 7G  2.5 x P 7G				
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	6H + mm	ID	6H + mm
12	1.75	110	14	9	7	3	10.2	★ 124987	● 102363	0.066	● 142532	0.066
16	2	110	18	12	9	3	14		● 102379	0.072	● 144956	0.072
								 6H +0.1 mm  6H +0.1 mm				
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID			
12	1.75	110	14	9	7	3	10.3	● 102360	● 125044			
16	2	110	18	12	9	3	14.1	● 102377	● 145311			

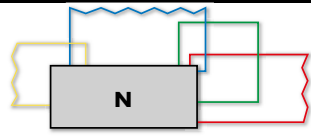
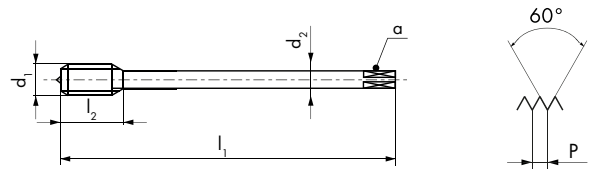
									N360-5	N360V-5	N361-3	N362V-3
N360-5  												
N360V-5   												
N361-3   												
N362V-3    												
												
												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
2	0.4	45	7		2.8	2.1	2	1.6	● 158079	● 150058		
3	0.5	56	5.5	18	3.5	2.7	3	2.5	● 104809	● 142646	● 101735	
4	0.7	63	7.5	21	4.5	3.4	3	3.3	● 104810	● 142647	● 101736	● 101741
5	0.8	70	9	25	6	4.9	3	4.2	● 104811	● 142648	● 101737	● 101742
6	1	80	11	30	6	4.9	3	5	● 104812	● 142649	● 101738	● 101743
8	1.25	90	12.5	35	8	6.2	3	6.8	● 104813	● 142650	● 101739	● 101744
10	1.5	100	14	39	10	8	3	8.5	● 104814	● 124899	● 101734	● 101740

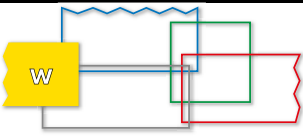
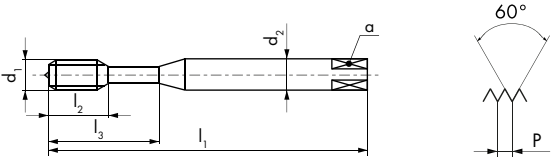
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N460-5  											
N460V-5   								   			
N461-3   								   			
N462V-3    								   			
								   			
   								   			
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
12	1.75	110	14	9	7	3	10.2	• 104815	• 142651	• 102506	• 102512
14	2	110	14	11	9	3	12				• 102513
16	2	110	18	12	9	3	14				• 102514
18	2.5	125	21	14	11	3	15.5			★ 111614	• 102515
20	2.5	140	24	16	12	4	17.5				• 102516
24	3	160	27	18	14.5	4	21				• 102517
27	3	160	27	20	16	4	24				• 159244
30	3.5	180	30	22	18	4	26.5				• 143090

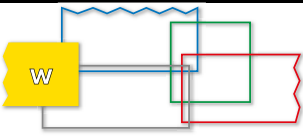
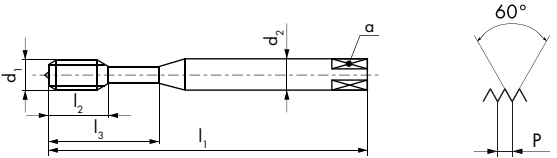
										N520-4	N520V-4	N520TN-4	
N520-4  													
N520V-4   													
N520TN-4   													
													
													
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm				ID	ID	ID	
2.5	0.45	100	10		2.8	2.1	3	2.05		• 102594	• 142623		
3	0.5	112	12	18	3.5	2.7	3	2.5		• 102595	• 143399	• 162790	
4	0.7	112	14	21	4.5	3.4	3	3.3		• 102596	• 143400	• 146837	
5	0.8	125	15	25	6	4.9	3	4.2		• 102597	• 142654	• 150113	
6	1	125	17	30	6	4.9	3	5		• 102598	• 143137	• 148821	

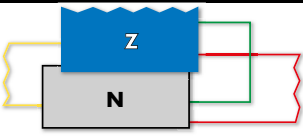
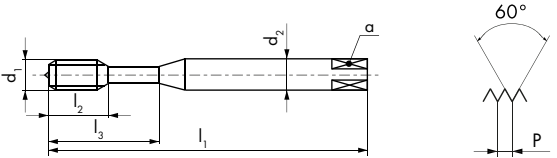
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N620-4  62 63 64 72 73 74 81 91											
N620V-4   11 12 31 32											
N620TN-4   11 12 13 14 32											
								 ISO 2 6H	 ISO 2 6H	 ISO 2 6H	
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	
4	0.7	112	14	2.8	2.1	3	3.3	● 102619	● 142582	● 146442	
5	0.8	125	15	3.5	2.7	3	4.2	● 102620	● 142657	● 146443	
6	1	125	17	4.5	3.4	3	5	● 102621	● 142658	● 144591	
8	1.25	140	20	6	4.9	3	6.8	● 102622	● 143401	● 146262	
10	1.5	160	22	7	5.5	3	8.5	● 102614	● 142660	● 146849	
12	1.75	180	24	9	7	3	10.2	● 102615	● 143127	● 146295	
14	2	180	28	11	9	3	12	● 102616	● 151905		
16	2	200	30	12	9	3	14	● 102617	● 143106	● 143574	
20	2.5	224	36	16	12	3	17.5	● 102618	● 143596	● 174317	

									N560-3	N560V-3	N560TN-3	
N560-3  												
N560V-3   												
N560TN-3   												
									 	 	 	
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	
2.5	0.45	100	9		2.8	2.1	2	2.05	● 102600	● 102607		
3	0.5	112	5.5	18	3.5	2.7	3	2.5	● 102601	● 102608	● 142663	
4	0.7	112	7.5	21	4.5	3.4	3	3.3	● 102602	● 102609	● 142664	
5	0.8	125	9	25	6	4.9	3	4.2	● 102603	● 102610	● 142665	
6	1	125	11	30	6	4.9	3	5	● 102604	● 102611	● 142666	
8	1.25	140	12.5	35	8	6.2	3	6.8	● 102605	● 102612	● 142667	
10	1.5	160	14	39	10	8	3	8.5	● 102599	● 102606	● 142668	

								N660-3	N660V-3	N660TN-3	
N660-3  											
N660V-3   											
N660TN-3   											
								 	 	 	
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	
6	1	125	11	4.5	3.4	3	5	● 162792	● 115657		
8	1.25	140	12.5	6	4.9	3	6.8	● 162793	● 115544		
10	1.5	160	14	7	5.5	3	8.5	● 162794	● 135539	● 173484	
12	1.75	180	14	9	7	3	10.2	● 102623	● 102626	● 142669	
14	2	180	14	11	9	3	12	● 162253	● 147500		
16	2	200	18	12	9	3	14	● 102624	● 102627	● 142670	
20	2.5	224	24	16	12	4	17.5	● 102625	● 102628	● 178003	

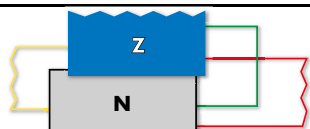
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W320-4  71 72 81												
W420-4  71 72 81												
W320DL-4  DLC 71 72 73												
W420DL-4  DLC 71 72 73												
									 ISO 2 6H	 ISO 2 6H	 ISO 2 6H	 ISO 2 6H
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID	ID	ID
* 2	0.4	45	8		2.8	2.1	2	1.6	● 104612		● 176688	
2.5	0.45	50	10		2.8	2.1	2	2.05	● 104613		● 176689	
3	0.5	56	12	18	3.5	2.7	2	2.5	● 104615		● 176690	
4	0.7	63	14	21	4.5	3.4	2	3.3	● 104617		● 176691	
5	0.8	70	15	25	6	4.9	2	4.2	● 104618		● 176354	
6	1	80	17	30	6	4.9	2	5	● 104619		● 175590	
8	1.25	90	20		6	4.9	2	6.8		● 104636		● 176692
10	1.5	100	22		7	5.5	2	8.5		● 104632		● 176693
12	1.75	110	24		9	7	3	10.2		● 104633		● 176694
16	2	110	30		12	9	3	14		● 104634		● 176695
*W320-3  *W320DL-3 												

									W360-3	W460-3	W360DL-3	W460DL-3
W360-3  71 72 81 W460-3  71 72 81 W360DL-3   71 72 73 W460DL-3   71 72 73												
												
												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
2	0.4	45	7		2.8	2.1	2	1.6	● 104625		● 176719	
2.5	0.45	50	9		2.8	2.1	2	2.05	● 104626		● 176720	
3	0.5	56	5.5	18	3.5	2.7	2	2.5	● 104627		● 176721	
4	0.7	63	7.5	21	4.5	3.4	2	3.3	● 104628		● 176722	
5	0.8	70	9	25	6	4.9	2	4.2	● 104629		● 176723	
6	1	80	11	30	6	4.9	2	5	● 104630		● 176355	
8	1.25	90	12.5	35	8	6.2	2	6.8	● 104631		● 176724	
10	1.5	100	14	39	10	8	2	8.5	● 104624		● 176725	
12	1.75	110	14		9	7	3	10.2		● 104640		● 176726
16	2	110	18		12	9	3	14		● 104641		● 176727

									Z320V-4	Z420V-4	Z320VS-4	Z420VS-4
Z320V-4		V	11	12	13	21	32					
Z420V-4		V	11	12	13	21	32					
Z320VS-4		VS	11	12	13	14	21	22				
Z420VS-4		VS	11	12	13	14	21	22				
												
												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
* 1.6	0.35	40	8		2.5	2.1	2	1.25	● 142671			
* 2	0.4	45	8		2.8	2.1	2	1.6	● 111613			
2.5	0.45	50	10		2.8	2.1	3	2.05	● 111455		● 143683	
2.6	0.45	50	10		2.8	2.1	3	2.15	● 142672			
3	0.5	56	12	18	3.5	2.7	3	2.5	● 104669		● 104830	
4	0.7	63	14	21	4.5	3.4	3	3.3	● 104670		● 104831	
5	0.8	70	15	25	6	4.9	3	4.2	● 104671		● 104832	
6	1	80	17	30	6	4.9	3	5	● 104672		● 104833	
8	1.25	90	20	35	8	6.2	3	6.8	● 104673		● 104834	
10	1.5	100	22	39	10	8	3	8.5	● 104668		● 104835	
12	1.75	110	24		9	7	3	10.2		● 104723		● 104836
14	2	110	28		11	9	3	12		● 142673		● 143684
16	2	110	30		12	9	3	14		● 105068		● 111569
18	2.5	125	33		14	11	4	15.5		● 142674		
20	2.5	140	36		16	12	4	17.5		● 105069		● 111570
22	2.5	140	36		18	14.5	4	19.5		● 146003		
24	3	160	39		18	14.5	4	21		● 142675		● 150017
30	3.5	180	45		22	18	4	26.5		● 142676		

*Z320V-3





Z360V-3



12 21 32

Z362V-3



12 21 32

Z462V-3

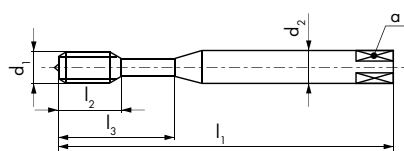


12 21 32

Z360V-3

Z362V-3

Z462V-3



Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
2	0.4	45	7		2.8	2.1	2	1.6
2.5	0.45	50	9		2.8	2.1	2	2.05
2.6	0.45	50	9		2.8	2.1	2	2.15
3	0.5	56	5.5	18	3.5	2.7	3	2.5
3.5	0.6	56	6.5	20	4	3	3	2.9
4	0.7	63	7.5	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	12.5	35	8	6.2	3	6.8
10	1.5	100	14	39	10	8	3	8.5
12	1.75	110	14		9	7	3	10.2
14	2	110	14		11	9	3	12
16	2	110	18		12	9	3	14
18	2.5	125	21		14	11	3	15.5
20	2.5	140	24		16	12	3	17.5
22	2.5	140	24		18	14.5	3	19.5
24	3	160	27		18	14.5	4	21
27	3	160	27		20	16	4	24
30	3.5	180	30		22	18	4	26.5
36	4	200	36		28	22	4	32
42	4.5	200	40		32	24	4	37.5

ID

ID

ID

• 104684

• 104685

• 104686

• 104687

• 104688

• 104689

• 104690

• 104691

• 104692

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• 104742

• 104743

• 104744

• 104745

• 104746

• 104752

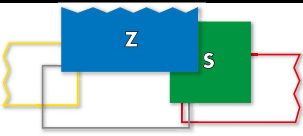
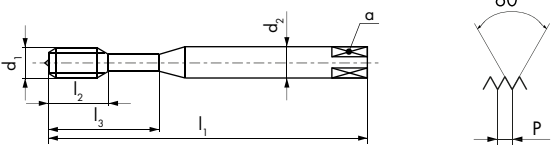
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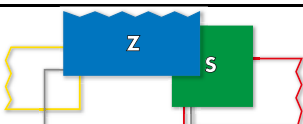
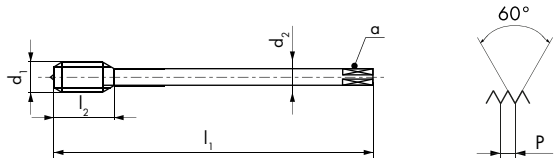
• 104748

• 104749

• 104750

• 104751

									Z362VS-3	Z370VS-3	Z370VS-3	Z373VS-3
Z362VS-3     Z370VS-3     Z373VS-3     Z370VS-3     Z373VS-3    												
												
												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID			
* 3	0.5	56	5.5	18	3.5	2.7	3	2.5	● 111504			
4	0.7	63	7.5	21	4.5	3.4	3	3.3	● 111505			
5	0.8	70	9	25	6	4.9	3	4.2	● 111506			
6	1	80	11	30	6	4.9	3	5	● 111507			
8	1.25	90	12.5	35	8	6.2	3	6.8	● 111508			
10	1.5	100	14	39	10	8	3	8.5	● 111509			
*Z360VS-3												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6	a mm			ID	ID	ID	
3	0.5	56	5.5	18	3.5(h9)	2.7	3	2.5	● 162776	● 165324	● 165236	
4	0.7	63	7.5	21	4.5(h9)	3.4	3	3.3	● 162777	● 165325	● 165237	
5	0.8	70	9	25	6	4.9	3	4.2	● 162778	● 165326	● 165238	
6	1	80	11	30	6	4.9	3	5	● 162779	● 165327	● 165239	
8	1.25	90	12.5	35	8	6.2	3	6.8	● 162780	● 165328	● 165240	
10	1.5	100	14	39	10	8	3	8.5	● 162781	● 165438	● 165241	
 = 6.7												

								Z462VS-3	Z470VS-3	Z473VS-3		
Z462VS-3			VS									
Z470VS-3												
Z473VS-3												
Z470VS-3												
Z473VS-3												
												
												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID				
12	1.75	110	14	9	7	4	10.2	● 111510				
14	2	110	14	11	9	4	12	★ 148169				
16	2	110	18	12	9	4	14	● 111511				
20	2.5	140	24	16	12	4	17.5	● 111512				
24	3	160	27	18	14.5	4	21	★ 111620				
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ h6 mm	a mm			ID	ID			
12	1.75	110	14	* 10	* 8	4	10.2	● 162782	● 165242			
14	2	110	14	* 12	* 9	4	12	● 162783				
16	2	110	18	12	9	4	14	● 162784	● 165244			
18	2.5	125	21	14	11	4	15.5	● 170643				
20	2.5	140	24	16	12	4	17.5	● 162785	● 165234			
22	2.5	140	24	16	12	4	19.5	● 175190				
24	3	160	27	16	12	4	21	● 162786	● 165235			
* Norme DC / * DC Norm/ * Norma DC												

ZX AMPCO®

ALU-BRONZE-LEGIERUNGEN

ALU-BRONZE-ALLOYS



**ZX - DC-Maschinengewindebohrer mit
speziell angepasster Schneidengeometrie**

Für Durchgangs- und Sacklöcher $< 1.5 \times D$

Optimal
für AMPCO® 21 / 22
Brinellhärte HB $> 280 - < 330$

Geeignet
für AMPCO® 18
Brinellhärte HB < 420

Geeignet
für AMPCO® 25 / 26
Brinellhärte HB < 420

Empfehlung
Für AMPCO® 25 / 26: Kernlochdurchmesser + 0.2 mm

Weitere AMPCO® Bearbeitungsoptionen:

Optimal
Für Durchgangslöcher

**DC-Maschinengewindebohrer Typ H320-4 / H420-4
für AMPCO® 18**
Brinellhärte HB < 200

Optimal
Für Durchgangs- und Sacklöcher $< 2 \times D$
für AMPCO® 25 / 26
Brinellhärte HB $> 380 - < 420$
Schmierung: Schneidöl / Emulsion

DC-VHM-Gewindefräser Typ GF6165VS
Schnittgeschwindigkeit Vc: 30 - 50 m/min
Fräsvorschub fz: 0.01 - 0.05 mm/Zahn

Optimal
Für Durchgangs- und Sacklöcher $< 4 \times D$
für AMPCO® 25 / 26
Brinellhärte HB $> 380 - < 420$
Schmierung: Schneidöl / Emulsion

DC-VHM-Gewindewirbler
Typ GW301.VS / GWi306.VS
Schnittgeschwindigkeit Vc: 30 - 50 m/min
Fräsvorschub fz: 0.01 - 0.08 mm/Zahn

**ZX - DC machine taps with specially
adapted cutting geometry**

For through and blind holes $< 1.5 \times D$

Optimal
for AMPCO® 21 / 22
Hardness Brinell HB $> 280 - < 330$

Suitable
for AMPCO® 18
Hardness Brinell HB < 420

Suitable
for AMPCO® 25 / 26
Hardness Brinell HB < 420

Recommendation
For AMPCO® 25 / 26: Core hole diameter + 0.2 mm

Alternative AMPCO® threading solutions:

Optimal
For through holes

**DC machine taps type H320-4 / H420-4
for AMPCO® 18**
Hardness Brinell HB < 200

Optimal
For through and blind holes $< 2 \times D$
for AMPCO® 25 / 26
Hardness Brinell HB $> 380 - < 420$
Lubricant: cutting oil / emulsion

DC solid carbide thread milling cutter type GF6165VS
Cutting speed Vc: 30 - 50 m/min
Feed rate fz: 0.01 - 0.05 mm/tooth

Optimal
For through and blind holes $< 4 \times D$
for AMPCO® 25 / 26
Hardness Brinell HB $> 380 - < 420$
Lubricant: cutting oil / emulsion

DC solid carbide thread whirl cutter
type GW301.VS / GWi306.VS
Cutting speed Vc: 30 - 50 m/min
Feed rate fz: 0.01 - 0.08 mm/tooth

ZX

ZX320-4



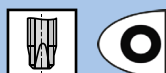
AMPCO®
21 22

ZX420-4



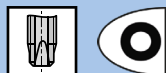
AMPCO®
21 22

ZX320-4

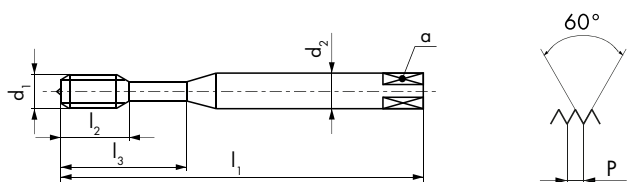


AMPCO®
18
25 26

ZX420-4



AMPCO®
18
25 26



ZX320-4

ZX420-4



$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
4	0.7	63	14	21	4.5	3.4	3	* 3.3
5	0.8	70	15	25	6	4.9	3	* 4.2
6	1	80	17	30	6	4.9	3	* 5
8	1.25	90	20	35	8	6.2	3	* 6.8
10	1.5	100	22	39	10	8	3	* 8.5

ID

- 143599
- 145458
- 110232
- 110233
- 124905

$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm		
12	1.75	110	24	9	7	3	* 10.2
16	2	110	30	12	9	3	* 14

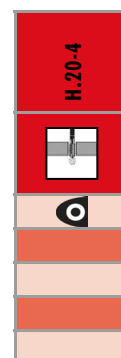
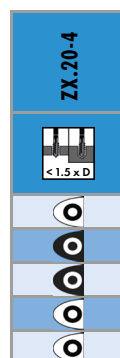
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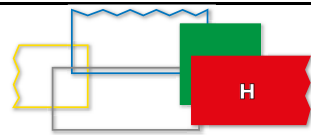
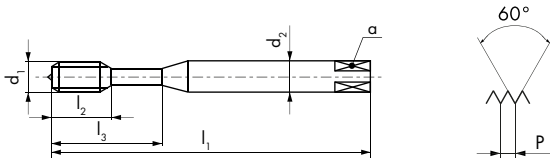
- 110208
- 110207

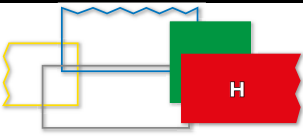
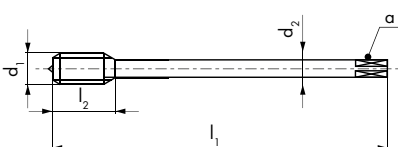
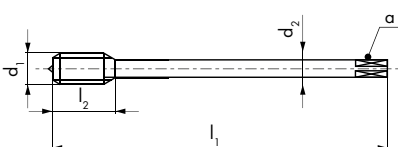
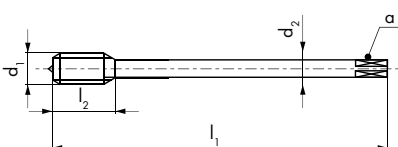
* Ampco® 25 / Ampco® 26 + 0.2 mm

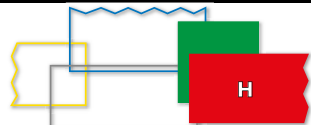
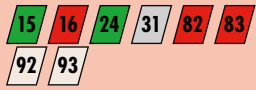
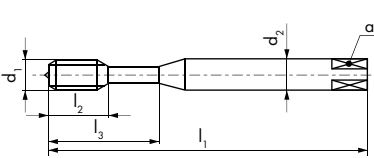
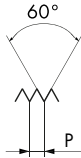
ANWENDUNGSTABELLE FÜR ALU-BRONZE-LEGIERUNGEN APPLICATION CHART FOR ALU-BRONZE-ALLOYS

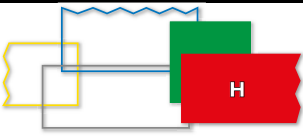
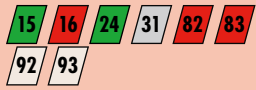
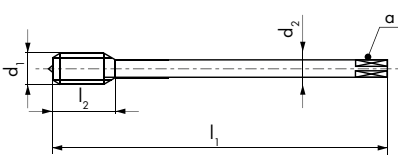
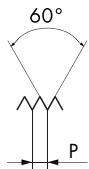
Werkstoffbezeichnung Material designation	Brinellhärte Hardness Brinell (HB)	Schnittgeschwindigkeit Cutting speed Vc (m/min) Guide Line
AMPCO® 18	< 290	6 - 10
AMPCO® 21	> 280 - < 330	2 - 3
AMPCO® 22	> 280 - < 330	2 - 3
AMPCO® 25	< 420	2 - 3
AMPCO® 26	< 420	2 - 3



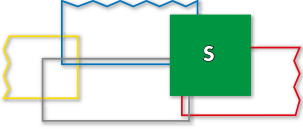
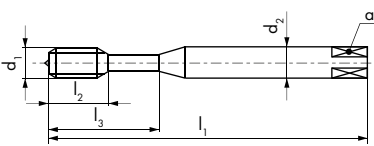
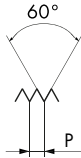
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H320-4  1516626482 H320TC-4  151624318283 9293									 			
									 			
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID		
2	0.4	45	8		2.8	2.1	2	1.6	● 101206	● 151836		
2.2	0.45	45	9		2.8	2.1	2	1.75	● 111801			
2.5	0.45	50	10		2.8	2.1	3	2.05	● 101207	● 148603		
3	0.5	56	12	18	3.5	2.7	3	2.5	● 101209	● 111836		
3.5	0.6	56	13	20	4	3	3	2.9	● 101210			
4	0.7	63	14	21	4.5	3.4	3	3.3	● 101211	● 111502		
4.5	0.75	70	15	25	6	4.9	3	3.75	● 101212			
5	0.8	70	15	25	6	4.9	3	4.2	● 101213	● 111458		
6	1	80	17	30	6	4.9	3	5	● 101215	● 111456		
8	1.25	90	20	35	8	6.2	3	6.8	● 101218	● 111453		
10	1.5	100	22	39	10	8	3	8.5	● 101205	● 110911		

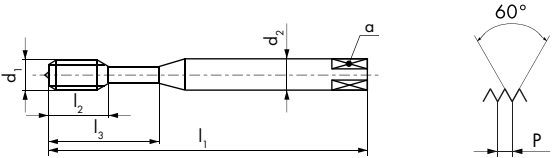
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H420-4  											
H420TC-4   											
								 			
								 			
								 			
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID		
12	1.75	110	24	9	7	4	10.2	• 101275	• 110912		
14	2	110	28	11	9	4	12	• 101277	• 145461		
16	2	110	30	12	9	4	14	• 101279	• 111612		
18	2.5	125	33	14	11	4	15.5	• 101281			
20	2.5	140	36	16	12	4	17.5	• 101284	• 144606		
22	2.5	140	36	18	14.5	4	19.5	• 157752			
24	3	160	39	18	14.5	4	21	• 101286	• 143588		
27	3	160	42	20	16	4	24	• 101287			
30	3.5	180	45	22	18	4	26.5	• 101288			
36	4	200	51	28	22	4	32	• 101289			

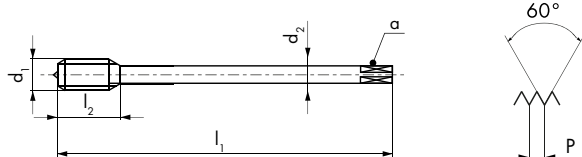
									H350-3	H350-3	H350TC-3	
H350-3  												
H350TC-3   												
												
												
												
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		6H	ID	ID	6H + mm	ID
2	0.4	45	7		2.8	2.1	2	1.6	• 101238			• 146451
2.5	0.45	50	9		2.8	2.1	3	2.05	• 101239			• 144957
3	0.5	56	5.5	18	3.5	2.7	3	2.5	• 101242	• 101241	0.020	• 111835
3.5	0.6	56	6.5	20	4	3	3	2.9	• 101243			
4	0.7	63	7.5	21	4.5	3.4	3	3.3	• 101245	• 101244	0.022	• 111607
4.5	0.75	70	9	25	6	4.9	3	3.75	• 101246			
5	0.8	70	9	25	6	4.9	3	4.2	• 101248	• 101247	0.024	• 111610
6	1	80	11	30	6	4.9	3	5	• 101251	• 101250	0.026	• 111500
8	1.25	90	12.5	35	8	6.2	3	6.8	• 101255	• 101254	0.028	• 110963
10	1.5	100	14	39	10	8	3	8.5	• 101237	• 101236	0.032	• 111454

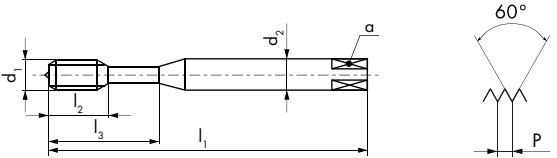
								H450-3	H450-3	H450TC-3	
H450-3  											
H450TC-3   											
 											
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	6H + mm	ID
12	1.75	110	14	9	7	4	10.2	● 101305	★ 101304	0.034	● 111501
14	2	110	14	11	9	4	12	● 101307			● 146151
16	2	110	18	12	9	4	14	● 101309			● 111605
18	2.5	125	21	14	11	4	15.5	● 101311			
20	2.5	140	24	16	12	4	17.5	● 101313			● 144986
22	2.5	140	24	18	14.5	4	19.5	● 101315			
24	3	160	27	18	14.5	4	21	● 101318			● 144987
27	3	160	27	20	16	4	24	● 101320			
30	3.5	180	30	22	18	4	26.5	● 101323			
36	4	200	36	28	22	4	32	● 101324			
42	4.5	200	40	32	24	4	37.5	● 101325			

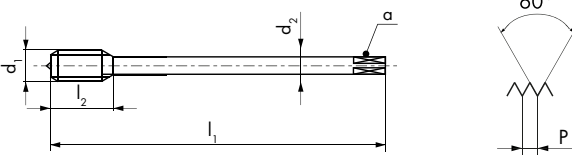
dcswiss.com

										S360VS-3	S460VS-3	SA390-3	SA390-3
S360VS-3   													
S460VS-3   													
aero													
SA390-3  													
 													
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm				ID	ID		
3	0.5	56	5.5	18	3.5	2.7	3	2.5		• 111513			
4	0.7	63	7.5	21	4.5	3.4	3	3.3		• 111514			
5	0.8	70	9	25	6	4.9	3	4.2		• 111515			
6	1	80	11	30	6	4.9	3	5		• 111516			
8	1.25	90	12.5	35	8	6.2	3	6.8		• 111517			
10	1.5	100	14	39	10	8	3	8.5		• 111518			
12	1.75	110	14		9	7	4	10.2			• 111519		
14	2	110	14		11	9	4	12			★ 148171		
16	2	110	18		12	9	4	14			• 111520		
20	2.5	140	24		16	12	4	17.5			• 111521		
24	3	160	27		18	14.5	4	21			• 111606		
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm		d_2 mm	a mm					ID	ID	
4	0.7	63	14		4.5	3.4	3	3.3			• 149673	• 149674	
5	0.8	70	15		6	4.9	3	4.2			• 149693	• 149694	
6	1	80	20		6	4.9	3	5			• 149707	• 149708	
8	1.25	90	25		8	6.2	3	△ 6.8			• 149736	• 149737	
10	1.5	100	30		10	8	3	8.5			★ 149754	• 149755	
12	1.75	110	35		12	9	4	10.2				• 149775	
14	2	110	40		16	12	4	12				★ 149792	
 = 6.7													

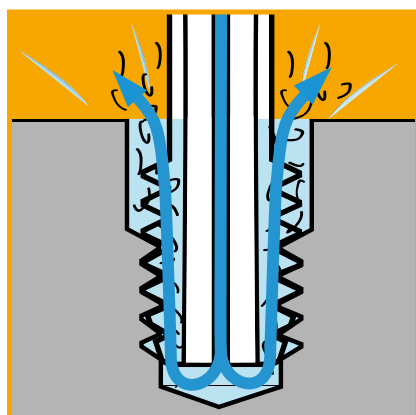
aero									SA320-4	SA350-3	TL320VS-4	TL351VS-3
SA320-4 SA350-3												
TL320VS-4 TL351VS-3												
TL320VS-4 TL351VS-3												
												
4HX 4HX 4HX 4HX												
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID	ID	ID
3	0.5	56	12		3.5	2.7	3	2.5	● 147975	● 147987	● 152006	● 152012
4	0.7	63	14		4.5	3.4	3	3.3	● 147976	● 147988	● 152007	● 152013
5	0.8	70	15		6	4.9	3	4.2	● 147977	● 147989	● 152008	● 152014
6	1	80	15	23	6	4.9	3	5	● 147978	● 147990	● 152009	● 152015
8	1.25	90	18	29	8	6.2	3	6.7	● 147979	● 147991	● 152010	● 152016
10	1.5	100	20	33	10	8	3	8.5	● 147980	● 147992	● 152011	● 152017
												
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID	ID	ID
3	0.5	56	12		3.5	2.7	3	2.5	● 147981	● 147993	● 148001	● 148000
4	0.7	63	14		4.5	3.4	3	3.3	● 147982	● 147994	● 148003	● 148002
5	0.8	70	15		6	4.9	3	4.2	● 147983	● 147995	● 148007	● 148006
6	1	80	15	23	6	4.9	3	5	● 147984	● 147996	● 148011	● 148010
8	1.25	90	18	29	8	6.2	3	6.8	● 147985	● 147997	● 148020	● 148018
10	1.5	100	20	33	10	8	3	8.5	● 147986	● 147998	● 148027	● 148025

aero								SA420-4	SA450-3	TL420VS-4	TL451VS-3												
SA420-4  15 16 52 64																							
SA450-3  15 16 52 64																							
TL420VS-4  VS 41 42																							
TL451VS-3   VS 41 42																							
																							
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID												
12	1.75	110	24	9	7	4	10.2	★ 148096	★ 152189	★ 152192	★ 152195												
14	2	110	28	11	9	4	12	★ 152187															
16	2	110	30	12	9	4	14	★ 152188			★ 152197												

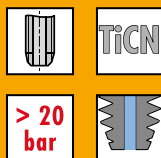
										GG350NV-3	GG350TC-3	GG353TC-3	GG550NV-3
GG350NV-3   													
GG350TC-3     													
GG353TC-3     													
GG550NV-3   													
													
													
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm				ID	ID		
3	0.5	56	12	18	3.5	2.7	3	2.5		● 101172	● 101178		
4	0.7	63	14	21	4.5	3.4	3	3.3		● 101173	● 101179		
5	0.8	70	15	25	6	4.9	3	4.2		● 101174	● 101180		
6	1	80	17	30	6	4.9	3	5		● 101175	● 101181		
8	1.25	90	20	35	8	6.2	4	6.8		● 101076	● 101182		
10	1.5	100	22	39	10	8	4	8.5		● 101171	● 101177		
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a mm				ID			
5	0.8	70	15	25	6	4.9	3	4.2			● 144947		
6	1	80	17	30	6	4.9	3	5			● 147710		
8	1.25	90	20	35	8	6.2	4	6.8			● 147711		
10	1.5	100	22	39	10	8	4	8.5			● 146708		
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm				ID			
4	0.7	112	14	21	4.5	3.4	3	3.3			● 101196		
5	0.8	125	15	25	6	4.9	3	4.2			● 101197		
6	1	125	17	30	6	4.9	3	5			● 101198		

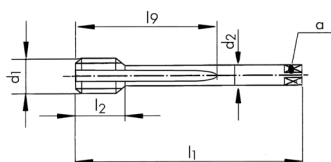
								GG450NV-3	GG450TC-3	GG453TC-3	GG650NV-3
GG450NV-3  NV 31											
GG450TC-3  TiCN 31 62 74											
GG453TC-3   TiCN 31 62 74											
GG650NV-3  NV 31											
											
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID		
8	1.25	90	20	6	4.9	4	6.8	● 101189	● 101194		
10	1.5	100	22	7	5.5	4	8.5	● 101183	● 101195		
12	1.75	110	24	9	7	4	10.2	● 101184	● 101190		
14	2	110	28	11	9	4	12	● 101185	● 101191		
16	2	110	30	12	9	4	14	● 101186	● 101192		
20	2.5	140	36	16	12	4	17.5	● 101187	● 101193		
24	3	160	39	18	14.5	4	21	● 101188			
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ h6 mm	a mm			ID			
12	1.75	110	24	* 10	* 8	4	10.2	● 146707			
16	2	110	30	12	9	4	14	● 162796			
* Norme DC / * DC Norm/ * Norma DC											
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID			
8	1.25	140	20	6	4.9	4	6.8	● 101203			
10	1.5	160	22	7	5.5	4	8.5	● 101199			
12	1.75	180	24	9	7	4	10.2	● 101200			
16	2	200	30	12	9	4	14	● 101201			
20	2.5	224	36	16	12	4	17.5	● 101202			

K										K313TC-3	K413TC-3		
 TiCN > 20 bar 11 12 13 14 15 16 31 32 62 63 64 74 83													
 TiCN > 20 bar 11 12 13 14 15 16 31 32 62 63 64 74 83													
										 6HX	 6HX		
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	l ₉ mm	d ₂ mm	a mm			ID	ID		
5	0.8	70	15	25	23	6	4.9	3	4.2	● 175961			
6	1	80	17	30	28	6	4.9	3	5	● 170766			
8	1.25	90	20	35	33	8	6.2	3	6.8	● 170769			
10	1.5	100	22	39	37	10	8	3	8.5	● 170772			
12	1.75	110	24		42	9	7	3	10.2		● 165838		
14	2	110	28		49	11	9	3	12		● 170778		
16	2	110	30		56	12	9	4	14		● 170783		
20	2.5	140	36		70	16	12	5	17.5		● 170786		
24	3	160	39		84	18	14.5	5	21		● 170775		



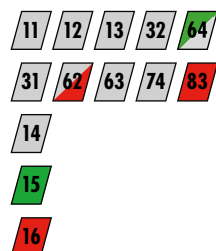
K

K613TC-3

K613VS-3

K613TC-3
K613VS-3


$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID
6	1	110	17	30	4.5	3.4	3	5	● 170646	● 172699
8	1.25	110	20	40	6	4.9	3	6.8	● 170649	● 172700
10	1.5	125	22	50	7	5.5	3	8.5	● 170652	● 172701
12	1.75	140	24	60	9	7	3	10.2	● 167982	● 172702
14	2	140	28	70	11	9	4	12	● 167983	
16	2	160	30	80	12	9	4	14	● 167984	● 170573
20	2.5	180	36	100	16	12	5	17.5	● 167985	● 170576
24	3	200	39	120	18	14.5	5	21	● 167986	● 172704
27	3	225	42	135	20	16	5	24	● 167987	
30	3.5	250	45	150	22	18	5	26.5	● 165542	
33	3.5	280	48	165	25	20	5	29.5	● 167988	
36	4	300	51	180	28	22	6	32	● 167989	
39	4	300	55	195	32	24	6	35	● 167990	
42	4.5	355	55	210	32	24	6	37.5	● 167999	

Vc (m/min) Guide Line

M5 - M10
M12 - M16
M20 - M30
M33 - M42


30 - 40
30 - 40
20 - 30
15 - 20
8 - 12

20 - 30
30 - 40
15 - 25
10 - 15
5 - 8

20 - 30
30 - 40
15 - 25
8 - 12
5 - 8

20 - 30
30 - 40
15 - 25
5 - 8
5 - 8

QTAP

Q320VS-4



VS

Q420VS-4



VS

Q323VS-4

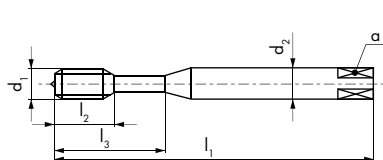


VS

Q423VS-4



VS



Q320VS-4

Q420VS-4

Q323VS-4

Q423VS-4



NEW



NEW



NEW



NEW

ISO 2
6HISO 2
6HISO 2
6HISO 2
6H

$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm		
3	0.5	56	12	18	3.5	2.7	3	2.5
4	0.7	63	14	21	4.5	3.4	3	3.3
5	0.8	70	15	25	6	4.9	3	4.2
6	1	80	17	30	6	4.9	3	5
8	1.25	90	20	35	8	6.2	3	6.8
10	1.5	100	22	39	10	8	3	8.5
12	1.75	110	24		9	7	3	10.2
14	2	110	28		11	9	3	12
16	2	110	30		12	9	3	14
20	2.5	140	36		16	12	4	17.5
24	3	160	39		18	14.5	4	21

ID

ID

ID

ID

● 195494

● 195505

● 195495

● 195506

● 195496

● 195507

● 195497

● 195508

● 195498

● 195509

● 195499

● 195510

● 195500

● 195511

● 195501

● 195512

● 195502

● 195513

● 195503

● 195514

● 195504

● 195515

QTAP

Q360VS-3



Q460VS-3



Q363VS-3



Q463VS-3



Q360VS-3

Q460VS-3

Q363VS-3

Q463VS-3

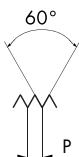
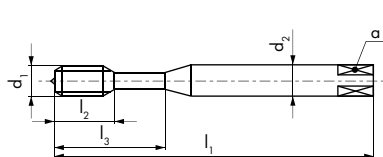


NEW

NEW

NEW

NEW



Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
3	0.5	56	5.5	18	3.5	2.7	3	2.5
4	0.7	63	7.5	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	12.5	35	8	6.2	3	6.8
10	1.5	100	14	39	10	8	3	8.5
12	1.75	110	14		9	7	3	10.2
14	2	110	14		11	9	3	12
16	2	110	18		12	9	3	14
20	2.5	140	24		16	12	3	17.5
24	3	160	27		18	14.5	4	21

ID

ID

ID

ID

● 195516

● 195527

● 195517

● 195528

● 195518

● 195529

● 195519

● 195530

● 195520

● 195531

● 195521

● 195532

● 195522 ● 195533

● 195523 ● 195534

● 195524 ● 195535

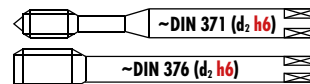
● 195525 ● 195536

● 195526 ● 195537



Uniquement pour taraudage synchro
Nur für Synchrobearbeitung
Only for rigid tapping
Solo per mescolatura sincrona
Solo para roscado sincronizado
Только для rigid tapping

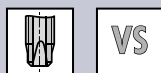
PM



RTS

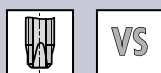
Rigid Tapping Synchro

RTS320VS-4



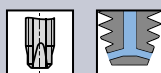
VS

RTS420VS-4



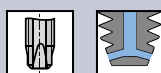
VS

RTS323VS-4

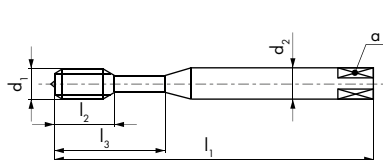


VS

RTS423VS-4



VS



RTS320VS-4

RTS420VS-4

RTS323VS-4

RTS423VS-4



6HX

6HX

6HX

6HX

$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	$d_2 h_6$ mm	a mm		
* 2	0.4	45	8		2.8(h9)	2.1	2	1.6
2.5	0.45	50	10		2.8(h9)	2.1	3	2.05
3	0.5	56	5.5	18	3.5(h9)	2.7	3	2.5
4	0.7	63	7.5	21	4.5(h9)	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	12.5	35	8	6.2	3	6.8
10	1.5	100	14	39	10	8	3	8.5
12	1.75	110	14		* 10	* 8	3	10.2
14	2	110	14		* 12	* 9	3	12
16	2	110	18		12	9	3	14
20	2.5	140	24		16	12	4	17.5
24	3	160	27		16	12	4	21

* Norme DC / * DC Norm / * Norma DC

* RTS320VS-3

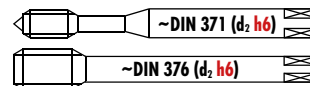


sur demande
auf Anfrage
on request
su richiesta
sobre pedido
по запросу



Uniquement pour taraudage synchro
Nur für Synchrobearbeitung
Only for rigid tapping
Solo per mescolatura sincrona
Solo para roscado sincronizado
Только для rigid tapping

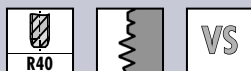
PM



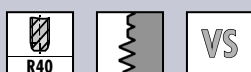
RTS

Rigid Tapping Synchro

RTS362VS-3



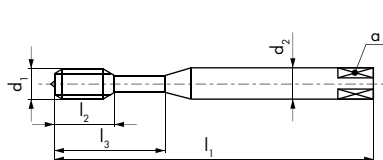
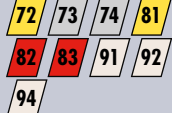
RTS462VS-3



RTS365VS-3



RTS465VS-3



RTS362VS-3

RTS462VS-3

RTS365VS-3

RTS465VS-3



$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	$d_2 h_6$ mm	a mm		
* 2	0.4	45	7		2.8(h9)	2.1	3	1.6
* 2.5	0.45	50	9		2.8(h9)	2.1	3	2.05
3	0.5	56	5.5	18	3.5(h9)	2.7	3	2.5
4	0.7	63	7.5	21	4.5(h9)	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	12.5	35	8	6.2	3	6.8
10	1.5	100	14	39	10	8	3	8.5
12	1.75	110	14		* 10	* 8	3	10.2
14	2	110	14		* 12	* 9	3	12
16	2	110	18		12	9	3	14
20	2.5	140	24		16	12	4	17.5
24	3	160	27		16	12	4	21

ID	ID	ID	ID
• 143536			
• 143538			
• 150602		• 160477	
• 150604		• 160478	
• 150607		• 150608	
• 150612		• 150613	
• 150622		• 150623	
• 150637		• 150638	
	• 151865		• 151866
	• 151870		• 150663
	• 150672		• 150673
	• 150681		• 150682
	• 151873		• 150690

* Norme DC / * DC Norm / * Norma DC

*RTS360VS-3

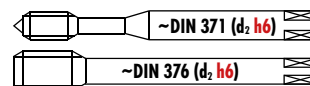


sur demande
auf Anfrage
on request
su richiesta
sobre pedido
no zampocy



Uniquement pour taraudage synchrone
Nur für Synchronbearbeitung
Only for rigid tapping
Solo per mescolatura sincrona
Solo para roscado sincronizado
Только для rigid tapping

PM



RTS

Rigid Tapping Synchro

RTS362VS-3



VS

RTS462VS-3



VS



RTS362VS-3

RTS462VS-3

RTS362VS-3

RTS462VS-3



NEW

NEW

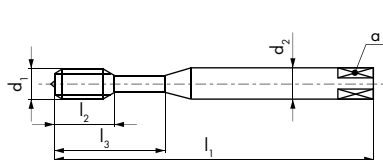


6GX

6GX

7GX

7GX

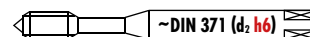


$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 h6 mm	a mm			ID	6H + mm	ID	6H + mm	ID	6H + mm	ID	6H + mm
3	0.5	56	5.5	18	3.5(h9)	2.7	3	2.5	● 162797	0.020			● 184689	0.036		
4	0.7	63	7.5	21	4.5(h9)	3.4	3	3.35	● 162798	0.022			● 184691	0.041		
5	0.8	70	9	25	6	4.9	3	4.25	● 162799	0.024			● 184693	0.044		
6	1	80	11	30	6	4.9	3	5	● 162800	0.026			● 184695	0.050		
8	1.25	90	12.5	35	8	6.2	3	6.8	● 162801	0.028			● 184697	0.052		
10	1.5	100	14	39	10	8	3	8.5	● 162802	0.032			● 184699	0.060		
12	1.75	110	14		* 10	* 8	3	10.3			● 163253	0.034			● 184701	0.066
16	2	110	18		12	9	3	14			● 172037	0.038			● 184703	0.072

* Norme DC / * DC Norm / * Norma DC



sur demande
auf Anfrage
on request
su richiesta
sobre pedido
по запросу



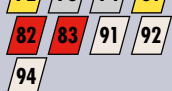
RTS

Rigid Tapping Synchro

RTS362VS-5

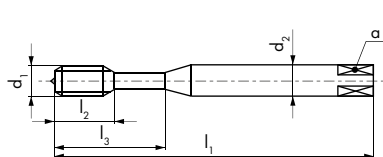


RTS365VS-5



RTS362VS-5

RTS365VS-5



6HX

6HX

$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 h6 mm	a mm		
3	0.5	56	5.5	18	3.5(h9)	2.7	3	2.5
4	0.7	63	7.5	21	4.5(h9)	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	12.5	35	8	6.2	3	6.8
10	1.5	100	14	39	10	8	3	8.5

ID

ID

● 157648

● 157650

● 157652

● 162791

● 158074

● 151803

● 158076

● 157821

● 153286

● 157823

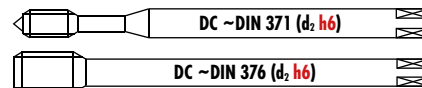


sur demande
auf Anfrage
on request
su richiesta
sobre pedido
по запросу



Uniquement pour taraudage synchrone
Nur für Synchronbearbeitung
Only for rigid tapping
Solo per mescolatura sincrona
Solo para roscado sincronizado
Только для rigid tapping

PM



RTS

Rigid Tapping Synchro

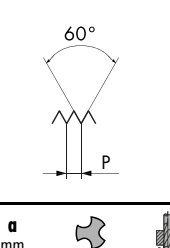
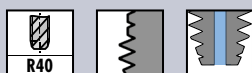
RTS523VS-4



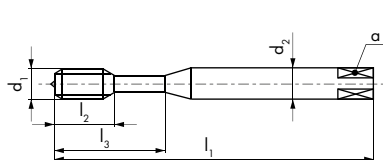
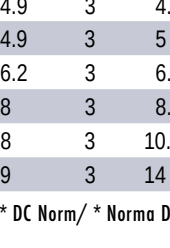
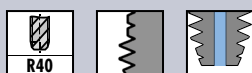
RTS623VS-4



RTS565VS-3



RTS665VS-3



RTS523VS-4

RTS623VS-4

RTS565VS-3

RTS665VS-3



$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 h6 mm	a mm		
5	0.8	125	9	25	6	4.9	3	4.2
6	1	125	11	30	6	4.9	3	5
8	1.25	140	12.5	35	8	6.2	3	6.8
10	1.5	160	14	39	10	8	3	8.5
12	1.75	180	14		* 10	* 8	3	10.2
16	2	200	18		12	9	3	14

* Norme DC / * DC Norm/ * Norma DC

$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 h6 mm	a mm		
6	1	125	11	30	6	4.9	3	5
8	1.25	140	12.5	35	8	6.2	3	6.8
10	1.5	160	14	39	10	8	3	8.5
12	1.75	180	14		* 10	* 8	3	10.2
16	2	200	18		12	9	3	14

* Norme DC / * DC Norm/ * Norma DC



sur demande
auf Anfrage
on request
su richiesta
sobre pedido
по запросу

≥ 6 mm

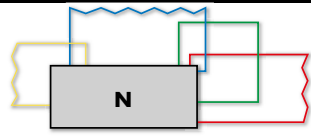
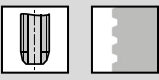
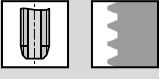
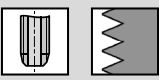
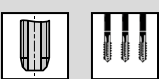
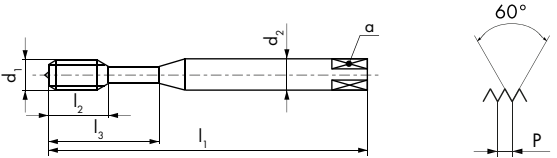


GEWINDEFORMEN

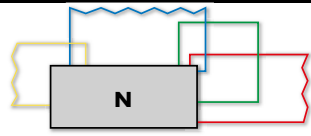
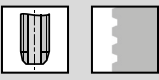
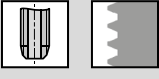
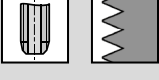
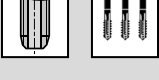
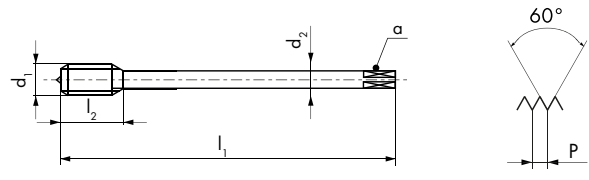
In diesem Katalog finden Sie das Gewindeformer-Programm FS - FPS - FAS in einem separaten Kapitel ab **Seite 244.**

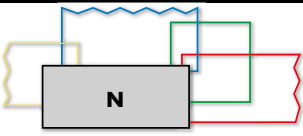
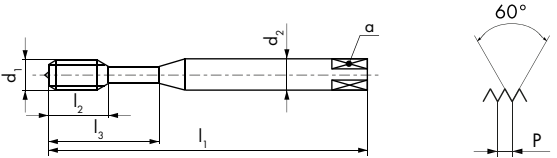
THREAD FORMING

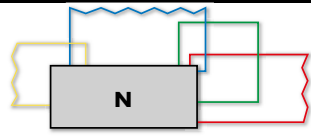
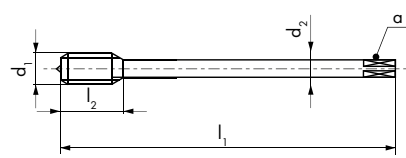
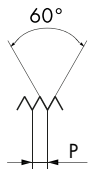
In this catalogue you will find the FS - FPS - FAS thread former programme in a separate chapter starting on **page 244.**

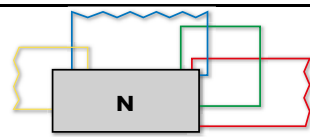
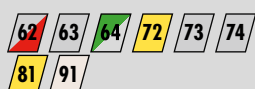
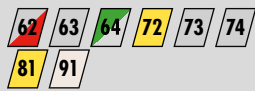
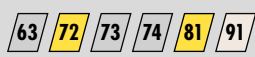
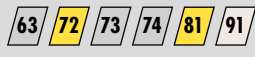
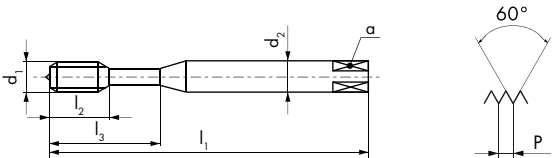
									N1110-1	N1110-2	N1110-3	N1110-S
N1110-1 												
N1110-2 												
N1110-3  												
N1110-S 												
												
												
$\varnothing d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID	ID	ID
1	0.25	40	5.5		2.5	2.1	3	0.75	● 102744	● 102844	● 102917	● 111015
1.2	0.25	40	5.5		2.5	2.1	3	0.95	● 102746	● 102846	● 102919	● 111017
1.4	0.3	40	7		2.5	2.1	3	1.1	● 102747	● 102847	● 102920	● 111018
1.6	0.35	40	8		2.5	2.1	3	1.25	● 102749	● 102849	● 102922	● 111020
1.7	0.35	40	8		2.5	2.1	3	1.35	● 102750	● 102850	● 102923	● 111021
1.8	0.35	40	8		2.5	2.1	3	1.45	● 102751	● 102851	● 102924	● 111022
2	0.4	45	8		2.8	2.1	3	1.6	● 102759	● 102854	● 102934	● 111028
2.2	0.45	45	9.5		2.8	2.1	3	1.75	● 102761	● 102856	● 102937	● 111030
2.5	0.45	45	9.5		2.8	2.1	3	2.05	● 102763	● 102858	● 102941	● 111032
2.6	0.45	45	9.5		2.8	2.1	3	2.15	● 102765	● 102860	● 102944	● 111034
3	0.5	48	11	18	3.15	2.5	3	2.5	● 102766	● 102861	● 102947	● 111036
3.5	0.6	50	13	20	3.55	2.8	3	2.9	● 102769	● 102864	● 102950	● 111038
4	0.7	53	13	21	4	3.15	3	3.3	● 102771	● 102866	● 102956	● 111042
4.5	0.75	53	13	21	4.5	3.55	3	3.75	* 102775	* 102869	* 102959	* 111044
5	0.8	58	16	25	5	4	3	4.2	● 102776	● 102870	● 102965	● 111047
6	1	66	19	30	6.3	5	3	5	● 102781	● 102874	● 102973	● 111053
7	1	66	19	30	7.1	5.6	3	6	* 102786	* 102876	* 102978	* 111055
8	1.25	72	22	35	8	6.3	3	6.8	● 102788	● 102878	● 102986	● 111059
9	1.25	72	22	36	9	7.1	3	7.8	* 102792	* 102880	* 102991	* 111061
10	1.5	80	24	39	10	8	3	8.5	● 102752	● 102852	● 102931	● 111026
												

 $\leq M1.5$ ISO 1
4H

								N1210-1	N1210-2	N1210-3	N1210-S
N1210-1  N1210-2  N1210-3  N1210-S 											
31 62 73 74 91											
											
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
11	1.5	85	22	8	6.3	3	9.5	★ 103302	★ 103427	● 103489	★ 111168
12	1.75	89	24	9	7.1	3	10.2	● 103303	● 103428	● 103499	● 111173
14	2	95	24	11.2	9	3	12	● 103310	● 103430	● 103510	● 111179
16	2	102	32	12.5	10	3	14	● 103319	● 103432	● 103522	● 111185
18	2.5	112	30	14	11.2	3	15.5	● 103324	● 103434	● 103534	● 111191
20	2.5	112	37	14	11.2	3	17.5	● 103330	● 103436	● 103543	● 111196
22	2.5	115	32	16	12.5	3	19.5	★ 103337	★ 103438	★ 103550	★ 125567
24	3	130	45	18	14	4	21	● 103341	● 103440	● 103557	● 111204
27	3	135	45	20	16	4	24	★ 103347	★ 103442	★ 103568	★ 111211
30	3.5	138	48	20	16	4	26.5	● 103353	● 103444	● 103579	● 111216
33	3.5	151	51	22.4	18	4	29.5	★ 103357	★ 103446	★ 103581	★ 111218
36	4	162	57	25	20	4	32	★ 103359	★ 103448	★ 103583	★ 111220

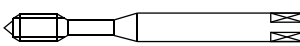
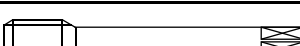
									NP110-1	NP110-2	NP110-3	NP110-S
NP110-1   												  
NP110-2  									NEW	NEW	NEW	NEW
NP110-3      											 < 1.5 x D	 < 2.5 x D
NP110-S   									 3 x P	 3 x P	 c 3 x P	 ISO 2 6H
									 ISO 2 6H	 ISO 2 6H		
Ø d ₁ M	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
3	0.5	40	11	18	3.5	2.7	3	2.5	• 174678	• 174687	• 174696	• 173676
4	0.7	45	13	21	4.5	3.4	3	3.3	• 174679	• 174688	• 174697	• 173644
5	0.8	50	16	24	6	4.9	3	4.2	• 174680	• 174689	• 174698	• 173677
6	1	56	19	27	6	4.9	3	5	• 174681	• 174690	• 174699	• 173394

								NP210-1	NP210-2	NP210-3	NP210-S
NP210-1   											
NP210-2  								NEW	NEW	NEW	NEW
NP210-3   											
NP210-S   											
 											
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
8	1.25	63	22	6	4.9	3	6.8	● 174682	● 174691	● 174700	● 173645
10	1.5	70	24	7	5.5	3	8.5	● 174683	● 174692	● 174701	● 173646
12	1.75	75	28	9	7	3	10.2	● 174684	● 174693	● 174702	● 173647
14	2	80	30	11	9	3	12	● 174685	● 174694	● 174703	● 173648
16	2	80	32	12	9	3	14	● 180705	● 180706	● 180707	● 174677

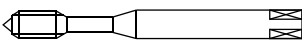
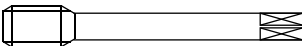
										N1120-4	N1220-4	N1160-3	N1260-3							
N1120-4																				
N1220-4																				
N1160-3																				
N1260-3																				
																				
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm				ID	ID	ID	ID							
3	0.5	48	11	18	3.15	2.5	3	2.5		• 103068										
4	0.7	53	13	21	4	3.15	3	3.3		• 103075										
5	0.8	58	16	25	5	4	3	4.2		• 103082										
6	1	66	19	30	6.3	5	3	5		• 103090										
8	1.25	72	22	35	8	6.3	3	6.8		• 103102										
10	1.5	80	24	39	10	8	3	8.5		• 103060										
12	1.75	89	24		9	7.1	3	10.2			• 103670									
14	2	95	24		11.2	9	3	12			• 103680									
16	2	102	32		12.5	10	3	14			• 103690									
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm				ID	ID	ID	ID							
3	0.5	48	5.5	18	3.15	2.5	3	2.5			★ 103177									
4	0.7	53	7.5	21	4	3.15	3	3.3			★ 103178									
5	0.8	58	9	25	5	4	3	4.2			★ 103179									
6	1	66	11	30	6.3	5	3	5			★ 103180									
8	1.25	72	12.5	35	8	6.3	3	6.8			★ 103181									
10	1.5	80	14	39	10	8	3	8.5			★ 103174									
12	1.75	89	14		9	7.1	3	10.2				★ 103781								
16	2	102	18		12.5	10	3	14				★ 103782								



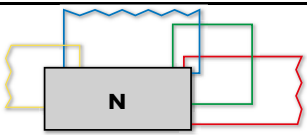
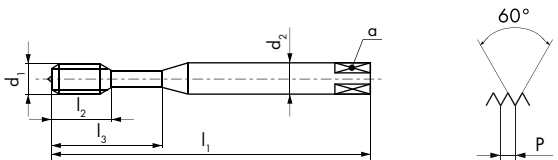
K | DEVELOPING THREADING

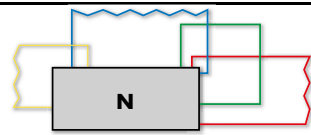
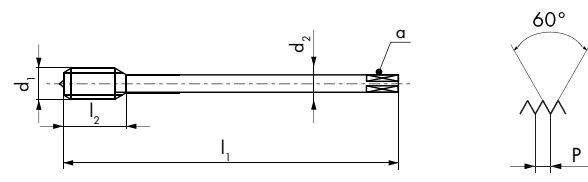
	N							
Merkmale Characteristics				 V	 TiN	 R15	 R40	
								
Lochart Hole type								
		N320-3				N350-3	N360-3	
DIN lang DIN long	DIN 371	124				124	131	
ISO kurz ISO short	ISO 529							
Toleranz Tolerance	ISO 2 6H	124				124	131	
Übermass Oversize	ISO 3 6G						131	
Feintoleranz Fine tolerance	ISO 1 4H							
LH Linksgewinde LH Left-hand thread	ISO 2 6H							
		N410-3	N420-3	N420-4	N420V-4	N420TN-4	N450-3	N460-3
DIN lang DIN long	DIN 374/~DIN 376	125 - 130		125 - 130	125 - 128	125 - 127	124	132 - 133
ISO kurz ISO short	ISO 529							
Toleranz Tolerance	ISO 2 6H	125 - 129		125 - 129	125 - 128	125 - 127	124	132 - 133
Übermass Oversize	ISO 3 6G							132
Feintoleranz Fine tolerance	ISO 1 4H							
Toleranz Tolerance	7H (EN 60423)		128 - 129					
LH Linksgewinde LH Left-hand thread	ISO 2 6H	130		130				

N					Z			
 R40 V	 R40 TiN				 V	 VS	 R40 V	 R45 VS
								
								
N360V-3	N360TN-3	N1110-1	N1110-3	N1110-S	Z320V-3 Z320V-4	Z320VS-4	Z360V-3	Z370VS-3
131	131				134	134	134	134
		146	146	146				
131	131	146	146	146	134	134	134	134
N460V-3	N460TN-3	N1210-1	N1210-3	N1210-S	Z420V-4	Z420VS-4	Z460V-3	Z470VS-3
132 - 133	132				135	135	135	135
		147 - 148	147 - 148	147 - 148				
132 - 133	132	147 - 148	147 - 148	147 - 148	135	135	135	135

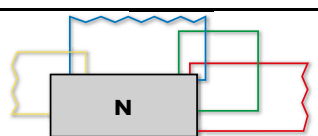
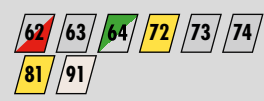
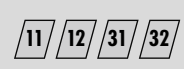
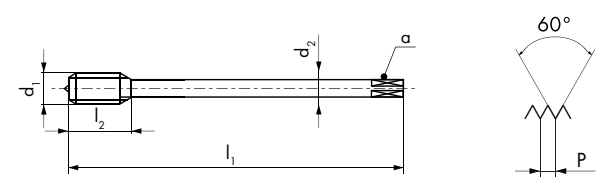
		H		S		SA	
Merkmale Characteristics		 TiCN	 R25 TiCN	 VS	 R35 VS		 R15 R10
		 NEW	 NEW				
Lochart Hole type							
		H320-4 H320TC-4	H350-3 H350TC-3	S320VS-4	S360VS-3	SA320-4	SA350-3 SA390-3
DIN lang DIN long	DIN 371	136	137	138	138	140	140 139
ISO kurz ISO short	ISO 529						
Toleranz Tolerance	ISO 2 6H	136	137	138	138	140	140 139
Übermass Oversize	ISO 3 6G						
Feintoleranz Fine tolerance	ISO 1 4H					140	140
LH Linksgewinde LH Left-hand thread	ISO 2 6H						
		H420-4 H420TC-4	H450-3 H450TC-3	S420VS-4	S460VS-3	SA420-4	SA450-3
DIN lang DIN long	DIN 374/~DIN 376	136	137	138	138	141	141
ISO kurz ISO short	ISO 529						
Toleranz Tolerance	ISO 2 6H	136	137	138	138	141	141
Übermass Oversize	ISO 3 6G						
Feintoleranz Fine tolerance	ISO 1 4H					141	141
Toleranz Tolerance	7H (EN 60423)						
LH Linksgewinde LH Left-hand thread	ISO 2 6H						

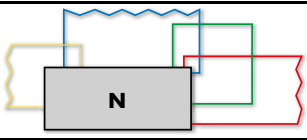
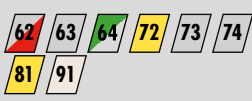
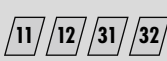
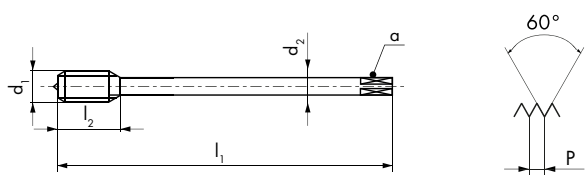
TL		K	QTAP				RTS	
								
VS	VS	TiCN	VS	VS	VS	VS	VS	VS
								
			NEW	NEW	NEW	NEW		
								
TL320VS-4	TL351VS-3	K313TC-3	Q320VS-4	Q323VS-4	Q360VS-3	Q363VS-3	RTS320VS-4	RTS362VS-3
140	140	142	143	143	144	144	145	145
140	140	142	143	143	144	144	145	145
140	140							
TL420VS-4	TL451VS-3	K413TC-3	Q420VS-4	Q423VS-4	Q460VS-3	Q463VS-3	RTS420VS-4	RTS462VS-3
141	141	142	143	143	144	144	145	145
141	141	142	143	143	144	144	145	145
141	141							

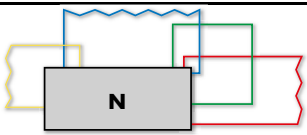
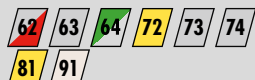
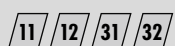
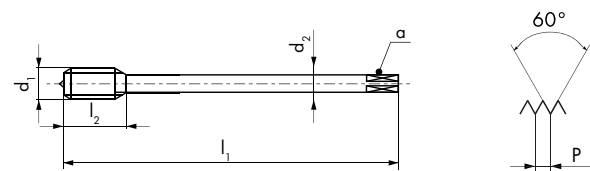
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N320-3  626364727374 8191															
N350-3  626364727374 8191															
N450-3  626364727374 8191															
															
$\varnothing d_1$ MF	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID						
2	0.25	45	8		2.8	2.1	2	1.75	● 142689						
2.5	0.35	50	10		2.8	2.1	3	2.15	● 142691						
2.6	0.35	50	10		2.8	2.1	3	2.25	★ 142692						
3	0.35	56	12	18	3.5	2.7	3	2.65	● 142693						
3.5	0.35	56	13	20	4	3	3	3.15	● 142694						
$\varnothing d_1$ MF	P mm	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID					
4	0.5	63	14	21	4.5	3.4	2	3.5	● 101586						
5	0.5	70	15	25	6	4.9	3	4.5	● 101588						
6	0.75	80	17	30	6	4.9	3	5.25	● 101590						
8	1	90	20		6	4.9	3	7		● 102326					
9	0.75	90	20		7	5.5	3	8.25		● 102328					
10	1	100	22		7	5.5	3	9		● 102313					
18	1.5	110	26		14	11	4	16.5		★ 102322					

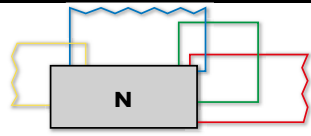
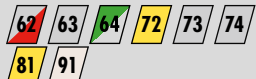
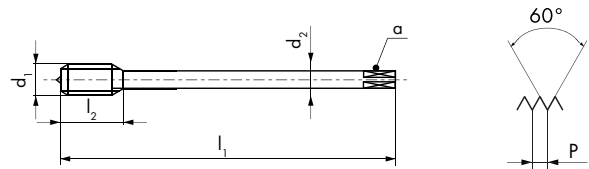
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N410-3		    	   								
N420-4		       	   								
N420V-4	 	   	   								
N420TN-4	 	    	   								
								 2.5 x P	 4 x P	 4 x P	 4 x P
											
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
* 4	0.35	63	14	2.8	2.1	3	3.65		● 142695		
4	0.5	63	14	2.8	2.1	3	3.5	● 101923	● 102145	● 142715	
4.5	0.5	70	15	3.5	2.7	3	4		● 102150		
5	0.5	70	15	3.5	2.7	3	4.5	● 101941	● 102167	● 142716	
5	0.75	70	15	3.5	2.7	3	4.25		● 102168		
5.5	0.5	80	17	4	3	3	5		● 142696		
6	0.5	80	17	4.5	3.4	3	5.5	● 101951	● 102178	● 142717	
6	0.75	80	17	4.5	3.4	3	5.25	● 101952	● 102179	● 102281	● 102249
7	0.5	80	17	5.5	4.3	3	6.5		● 102187		
7	0.75	80	17	5.5	4.3	3	6.25	● 101954	● 102188		
8	0.5	90	20	6	4.9	3	7.5	● 101955	● 102190	● 142718	
8	0.75	90	20	6	4.9	3	7.25	● 101956	● 102191	● 102283	
8	1	90	20	6	4.9	3	7	● 101957	● 102192	● 102284	● 102250
9	0.5	90	20	7	5.5	3	8.5		● 142697		
9	0.75	90	20	7	5.5	3	8.25		● 102200		
9	1	90	20	7	5.5	3	8		● 102201	● 143935	
10	0.5	100	22	7	5.5	3	9.5		● 142698		
10	0.75	100	22	7	5.5	3	9.25	● 101863	● 102056		
10	1	100	22	7	5.5	3	9	● 101864	● 102057	● 102262	● 102239
10	1.25	100	22	7	5.5	3	8.8	● 101865	● 102058	● 142719	● 148108
											

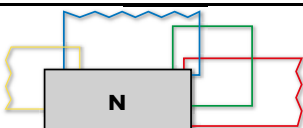
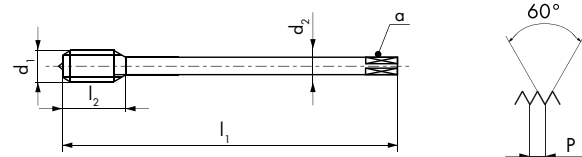
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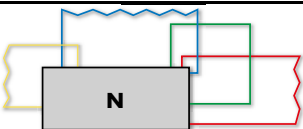
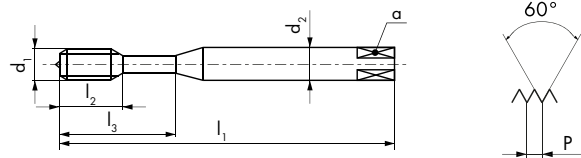
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N410-3  											
N420-4  											
N420V-4   											
N420TN-4   											
								 	 	 	 
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
11	0.5	100	19	8	6.2	3	10.5		● 142699		
11	0.75	100	19	8	6.2	3	10.25		● 142700		
11	1	100	19	8	6.2	3	10		● 142701		
11	1.25	100	19	8	6.2	3	9.8		● 142702		
12	0.5	100	14	9	7	3	11.5		● 102066		
12	0.75	100	24	9	7	3	11.25		● 142703		
12	1	100	24	9	7	3	11	● 101867	● 102067	● 142345	● 102241
12	1.25	100	24	9	7	3	10.8	● 101868	● 102068	● 142721	
12	1.5	100	24	9	7	3	10.5	● 101869	● 102069	● 102264	● 102242
13	1	100	21	11	9	3	12	● 158401	● 142704		
14	0.5	100	14	11	9	3	13.5		● 142705		
14	0.75	100	24	11	9	3	13.25		● 142706		
14	1	100	24	11	9	3	13	● 101871	● 102077		
14	1.25	100	24	11	9	3	12.8	● 101872	● 102078		
14	1.5	100	24	11	9	3	12.5	● 101873	● 102079	● 102266	● 102244
15	1	100	26	12	9	3	14	● 101875	● 102085		
15	1.5	100	26	12	9	3	13.5	● 101876	● 102086		
16	0.75	100	26	12	9	3	15.25		● 142708		
16	1	100	26	12	9	* 3	15	● 101877	● 102087		
16	1.25	100	26	12	9	* 3	14.8	● 101878	● 102088		
16	1.5	100	26	12	9	* 3	14.5	● 101879	● 102089	● 102268	● 102246
17	1	100	26	12	9	3	16		● 142709		
17	1.5	100	26	12	9	3	15.5		● 142710		
18	0.75	110	26	14	11	4	17.25		● 142711		
18	1	110	26	14	11	4	17	● 101881	● 102095		
18	1.5	110	26	14	11	4	16.5	● 101882	● 102096	● 102270	● 145350
18	2	125	33	14	11	3	16		● 142712		
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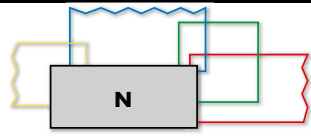
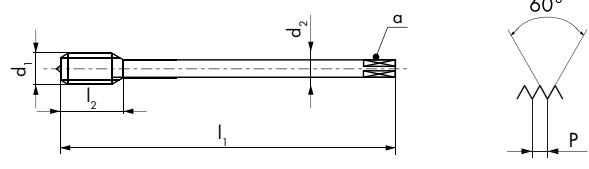
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N410-3											
N420-4											
N420V-4											
N420TN-4											
											
											
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
20	1	125	28	16	12	4	19		• 102098		
20	1.5	125	28	16	12	4	18.5	• 101884	• 102099	• 102272	• 143932
20	2	140	36	16	12	3	18	• 105130	• 102100		
22	1	125	28	18	14.5	4	21		• 102104		
22	1.5	125	28	18	14.5	4	20.5	• 101886	• 102105	• 102274	
22	2	140	36	18	14.5	3	20	• 101887	• 142714		
24	1	140	30	18	14.5	4	23		• 102107		
24	1.5	140	30	18	14.5	4	22.5	• 101889	• 102108	• 102276	
24	2	140	34	18	14.5	4	22	• 101890	• 102109	• 102277	
25	1	140	30	18	14.5	4	24		• 142722		
25	1.5	140	30	18	14.5	4	23.5	• 101892	• 102112		
25	2	140	34	18	14.5	4	23		• 142723		
26	1	140	30	18	14.5	4	25		• 102113		
26	1.5	140	30	18	14.5	4	24.5	• 101893	• 102114	• 145896	
27	1.5	140	34	20	16	4	25.5		• 102115		
27	2	140	34	20	16	4	25	• 101894	• 102116		
28	1	140	30	20	16	4	27		• 142725		
28	1.5	140	30	20	16	4	26.5	• 101896	• 102118		
28	2	140	30	20	16	4	26	• 122023			

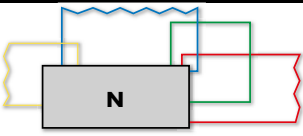
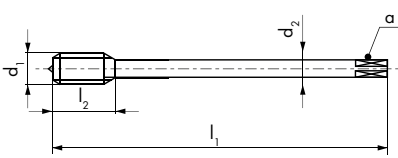
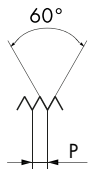
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N410-3											
N420-4											
N420V-4	 										
N420-3											
											
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30	1	150	32	22	18	4	29	• 101898	• 102121		
30	1.5	150	32	22	18	4	28.5	• 101899	• 102122	• 143978	
30	2	150	32	22	18	4	28	• 101900	• 102123	• 143766	
32	1	150	32	22	18	4	31	• 101902			
32	1.5	150	32	22	18	4	30.5	• 101903	• 102126		• 143812
32	2	150	32	22	18	4	30	• 101904	• 102127		
33	1.5	160	32	25	20	4	31.5	• 101905	• 102128		
33	2	160	32	25	20	4	31	• 101906	• 102129		
34	1.5	170	32	28	22	4	32.5	• 101909			
35	1.5	170	32	28	22	4	33.5	• 101910	• 102132		
35	2	170	32	28	22	4	33	• 101911			
36	1.5	170	34	28	22	4	34.5	• 101912	• 102134		
36	2	170	34	28	22	4	34	• 101913	• 102135		
36	3	200	45	28	22	4	33	• 101914	• 102136		
38	1.5	170	34	28	22	4	36.5	• 101917	• 102139		
38	2	170	34	28	22	4	36	• 101918			
39	2	170	34	32	24	4	37	• 101920			
39	3	200	45	32	24	4	36	• 101921			

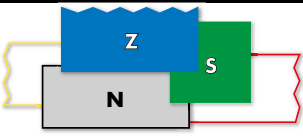
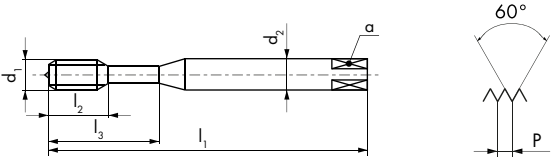
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N410-3  											
N420-4  											
N420-3  											
								 ISO 2 6H	 ISO 2 6H	 ISO 3 7H	
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm		6H	ID	ID	ID	
40	1	170	34	32	24	5	39	• 101925			
40	1.5	170	34	32	24	5	38.5	• 101926	• 102152	• 143813	
40	2	170	34	32	24	5	38	• 101927	• 102153		
40	3	200	45	32	24	4	37	★ 101928			
42	1.5	170	34	32	24	5	40.5	• 101929	• 102155		
42	2	170	34	32	24	5	40	• 101930	• 102156		
42	3	200	45	32	24	4	39	• 101931	• 102157		
45	1.5	180	34	36	29	5	43.5	• 101933	• 102159		
45	2	180	34	36	29	5	43	• 101934			
45	3	200	45	36	29	4	42	• 101935			
48	1.5	190	36	36	29	5	46.5	• 101937	• 102163		
48	2	190	36	36	29	5	46	• 101938	• 102164		
48	3	220	48	36	29	5	45	• 101939	• 102165		
50	1.5	190	36	36	29	5	48.5	• 101943	• 102176	• 143814	
50	2	190	36	36	29	5	48	• 101944	★ 102177		
52	2	190	36	40	32	5	50	• 101947			
60	2	220	42	45	35	5	58	• 105132			
63	1.5	220	38	45	35	5	61.5			• 143815	

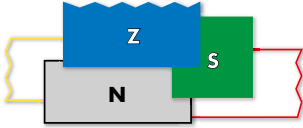
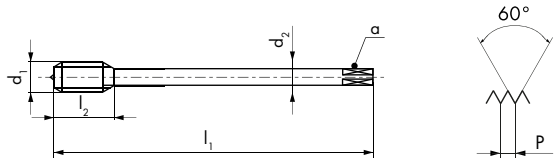
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N410-3 LH  LH 31 62 73 74 91 N420-4 LH  LH 62 63 64 72 73 74 81 91								 			
								 < 1.5 x D			
								 2.5 x P ISO 2 6H	 4 x P ISO 2 6H		
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID		
4	0.5	63	14	2.8	2.1	3	3.5	● 104844			
5	0.5	70	15	3.5	2.7	3	4.5	● 104845			
6	0.5	80	17	4.5	3.4	3	5.5	● 104846	● 104870		
6	0.75	80	17	4.5	3.4	3	5.25	● 104847	● 105133		
7	0.75	80	17	5.5	4.3	3	6.25	● 104848			
8	0.5	90	20	6	4.9	3	7.5	● 104849			
8	0.75	90	20	6	4.9	3	7.25	● 104850	● 104871		
8	1	90	20	6	4.9	3	7	● 104851	● 104872		
10	0.75	100	22	7	5.5	3	9.25	● 104852			
10	1	100	22	7	5.5	3	9	● 104853	● 104873		
10	1.25	100	22	7	5.5	3	8.8		● 104874		
12	1	100	24	9	7	3	11	● 104854	● 104875		
12	1.25	100	24	9	7	3	10.8	● 104855	● 104876		
12	1.5	100	24	9	7	3	10.5	● 104856	● 104877		
14	1	100	24	11	9	3	13	● 104857	● 104878		
14	1.25	100	24	11	9	3	12.8	● 104858			
14	1.5	100	24	11	9	3	12.5	● 104859	● 104879		
16	1	100	26	12	9	* 3	15	● 104860	● 104880		
16	1.5	100	26	12	9	* 3	14.5	● 104861	● 104881		
18	1	110	26	14	11	4	17	● 104862			
18	1.5	110	26	14	11	4	16.5	● 104863	● 104882		
20	1	125	28	16	12	4	19	● 104864			
20	1.5	125	28	16	12	4	18.5	● 104865	● 104883		
22	1.5	125	28	18	14.5	4	20.5	● 104866	● 104884		
24	1.5	140	30	18	14.5	4	22.5	● 104867	● 104885		
24	2	140	34	18	14.5	4	22	● 104868	● 104886		
28	1.5	140	30	20	16	4	26.5	● 105166			
30	1.5	150	32	22	18	4	28.5	● 105167	● 105165		
30	2	150	32	22	18	4	28	● 105168			
* N410-3 LH =  4											

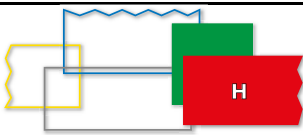
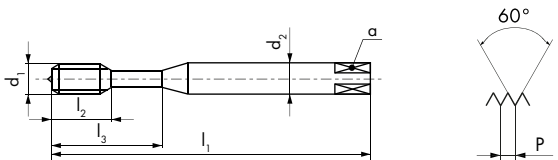
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N360-3  												
N360V-3   												
N360TN-3   												
									 	 	 	 
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID ^{6H} + mm
4	0.5	63	7.5	21	4.5	3.4	3	3.5	• 101632	• 101712	• 111618	• 101631 0.020
5	0.5	70	9	25	6	4.9	3	4.5	• 101641	• 101714	• 111617	• 101640 0.020
6	0.5	80	11	30	6	4.9	3	5.5	• 101648	• 143990		
6	0.75	80	11	30	6	4.9	3	5.25	• 101650	• 101716	• 101702	• 101649 0.022
8	0.75	90	12.5	35	8	6.2	3	7.25	• 101658	• 101719		• 101657 0.022
8	1	90	12.5	35	8	6.2	3	7	• 101660	• 101720	• 101704	• 101659 0.026
10	0.75	100	14	39	10	8	3	9.25	• 101606	• 144401		
10	1	100	14	39	10	8	3	9	• 101608	• 101706	• 101695	• 101607 0.026
10	1.25	100	14	39	10	8	3	8.8	• 101609	• 105134	• 110965	

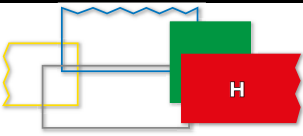
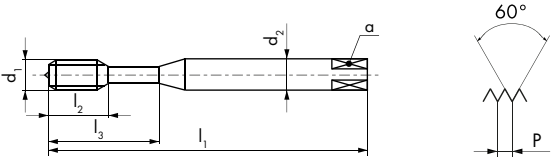
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N460-3  63 72 73 74 81 91											
N460V-3   11 12 32											
N460TN-3   11 12 13 14 32											
											
											
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm		6H	ID	ID	ID	ID 6H + mm
12	1	100	14	9	7	3	11	• 102353	• 102462	• 102447	• 102352 0.026
12	1.25	100	14	9	7	3	10.8	• 102354	• 102463	• 144202	
12	1.5	100	14	9	7	3	10.5	• 102356	• 102464	• 102448	• 102355 0.032
13	1	100	14	11	9	3	12	• 102364			
14	1	100	14	11	9	3	13	• 102365	• 102466		
14	1.5	100	14	11	9	3	12.5	• 102367	• 102467	• 102450	• 102366 0.032
15	1	100	14	12	9	3	14	• 102370			
15	1.5	100	18	12	9	3	13.5	• 102371			
16	1	100	14	12	9	4	15	• 102372	• 102469		
16	1.5	100	14	12	9	4	14.5	• 102374	• 102470	• 102452	• 102373 0.032
18	1	110	18	14	11	4	17	• 102380	• 143926		
18	1.5	110	18	14	11	4	16.5	• 102382	• 102472	• 145346	• 102381 0.032
20	1	125	20	16	12	4	19	• 102384	• 146377		
20	1.5	125	20	16	12	4	18.5	• 102386	• 102474	• 148780	
20	2	140	24	16	12	4	18	• 102387	• 143566		
22	1	125	20	18	14.5	4	21	• 102392	• 147702		
22	1.5	125	20	18	14.5	4	20.5	• 102393	• 102476		
24	1.5	140	22	18	14.5	4	22.5	• 102396	• 102478		
24	2	140	22	18	14.5	4	22	• 102397	• 102479		
25	1.5	140	22	18	14.5	4	23.5	• 102399	• 143810		
26	1.5	140	22	18	14.5	4	24.5	• 102400	• 143952		
27	1.5	140	22	20	16	4	25.5	• 102401	• 143965		
27	2	140	22	20	16	4	25	• 102402	• 144201		
28	1.5	140	22	20	16	4	26.5	• 102403	• 144997		

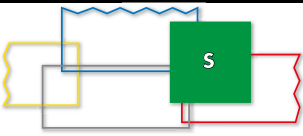
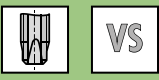
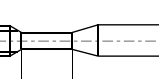
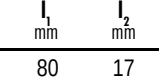
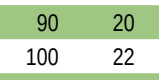
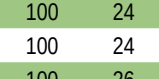
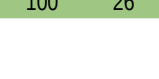
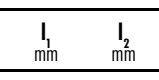
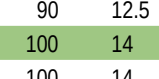
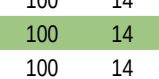
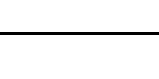
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N460-3  63 72 73 74 81 91								 			
N460V-3   11 12 32								 			
 								  ISO 2 6H ISO 2 6H			
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30	1.5	150	24	22	18	4	28.5	● 102404	● 142524		
30	2	150	24	22	18	4	28	● 102405	● 142581		
32	1.5	150	24	22	18	4	30.5	● 102406	● 143605		
33	2	160	26	25	20	4	31	● 102407	● 147604		
33	3	180	33	25	20	4	30	● 175437	● 150448		
35	1.5	170	24	28	22	5	33.5	● 102408	● 146846		
36	1.5	170	24	28	22	5	34.5	● 102409	● 143824		
36	2	170	28	28	22	5	34	● 175436	● 164870		
36	3	200	36	28	22	4	33	● 115072	● 150453		
39	3	200	40	32	24	5	36	● 174995	● 122669		
42	3	200	40	32	24	5	39	● 174996	● 150436		

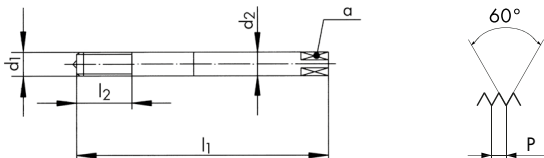
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Z320V-4		V										
Z320VS-4		VS										
Z360V-3		V										
Z370VS-3		VS										
Z370VS-3		VS										PM
												
												
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID		
* 3	0.35	56	12	18	3.5	2.7	3	2.65	• 115468			
6	0.75	80	17	30	6	4.9	3	5.25	• 142726	• 123691		
8	1	90	20	35	8	6.2	3	7	• 142727	• 124289		
10	1	100	22	39	10	8	3	9	• 142728	• 120060		
10	1.25	100	22	39	10	8	3	8.8	• 196023	• 196024		
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID			
4	0.5	63	7.5	21	4.5	3.4	3	3.5		• 104675		
5	0.5	70	9	25	6	4.9	3	4.5		• 104676		
6	0.75	80	11	30	6	4.9	3	5.25		• 104677		
8	1	90	12.5	35	8	6.2	3	7		• 104678		
10	1	100	14	39	10	8	3	9		• 104674		
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a mm			ID			
6	0.75	80	11	30	6	4.9	3	5.25		• 166117		
8	1	90	12.5	35	8	6.2	3	7		• 166118		
10	1	100	14	39	10	8	3	9		• 166119		
10	1.25	100	14	39	10	8	3	8.8		• 196020		
												
*Z320V-3												

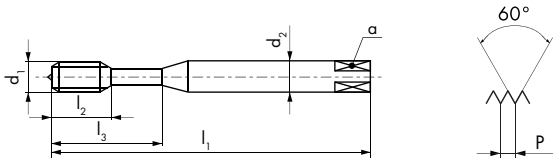
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Z420V-4		V	11 12 13 21 32									
Z420VS-4		VS	11 12 13 14 21 22 23 32 61 63 94									
Z460V-3		V	12 21 32									
Z470VS-3		VS	 CLASSIC	14 15 21 22 23 24 51 61 94								
Z470VS-3		VS	 SYNCHRO	13 14 15 21 22 23 24 51 52							PM	
								 4 x P	 4 x P	 2.5 x P	 2.5 x P	
								ISO 2 6H	ISO 2 6H	ISO 2 6H	6HX	
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID			
12	1	100	24	9	7	3	11	● 142729				
12	1.5	100	24	9	7	3	10.5	● 142730	● 120421			
14	1.5	100	24	11	9	3	12.5	● 142731	● 120688			
16	1.5	100	26	12	9	3	14.5	● 142732	● 120878			
18	1.5	110	26	14	11	4	16.5	● 196025	● 196027			
20	1.5	125	28	16	12	4	18.5	● 163931	● 196026			
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID				
12	1	100	14	9	7	3	11	● 104729				
12	1.5	100	14	9	7	3	10.5	● 104730				
14	1.5	100	14	11	9	3	12.5	● 104731				
16	1.5	100	14	12	9	4	14.5	● 104732				
18	1.5	110	18	14	11	4	16.5	● 104733				
20	1.5	125	20	16	12	4	18.5	● 104734				
22	1.5	125	20	18	14.5	4	20.5	● 104735				
24	1.5	140	22	18	14.5	4	22.5	● 104736				
24	2	140	22	18	14.5	4	22	● 104737				
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ h6 mm	a mm							ID
12	1.5	110	14	* 10	* 8	4	10.5					● 166120
14	1.5	110	14	* 12	* 9	4	12.5					● 166121
16	1.5	110	18	12	9	4	14.5					● 166122
18	1.5	125	21	14	11	4	16.5					● 196021
20	1.5	140	24	16	12	4	18.5					● 196022
* Norme DC / * DC Norm/ * Norma DC												

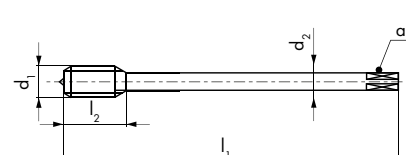
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H320-4													
H420-4													
H320TC-4										 			
H420TC-4													
													
													
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID	
6	0.75	80	17	30	6	4.9	3	5.25	● 101214		● 196035		
8	0.75	90	20	35	8	6.2	3	7.25	● 101216				
8	1	90	20	35	8	6.2	3	7	● 101217		● 196036		
10	1	100	22	39	10	8	3	9	● 101204		● 172963		
10	1.25	100	22	39	10	8	3	8.8	● 175213		● 173079		
12	1.25	100	24		9	7	4	10.8		● 101273			
12	1.5	100	24		9	7	4	10.5		● 101274		● 196037	
14	1.5	100	24		11	9	4	12.5		● 101276		● 164053	
16	1.5	100	26		12	9	4	14.5		● 101278		● 196038	
18	1.5	110	26		14	11	4	16.5		● 101280		● 196039	
20	1.5	125	28		16	12	4	18.5		● 101282		● 148362	
24	2	140	34		18	14.5	4	22		● 101285			

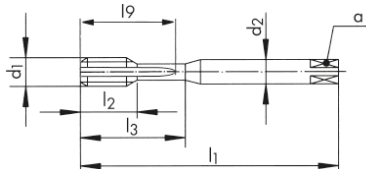
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H350-3  												
H450-3  											NEW	NEW
H350TC-3   												
H450TC-3   												
												
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
6	0.75	80	11	30	6	4.9	3	5.25	● 101249		● 196033	
8	0.75	90	12.5	35	8	6.2	3	7.25	● 101252			
8	1	90	12.5	35	8	6.2	3	7	● 101253		● 150356	
10	1	100	14	39	10	8	3	9	● 101235		● 148753	
10	1.25	100	14	39	10	8	3	8.8	● 145590		● 196034	
12	1	100	14		9	7	4	11		● 101302		
12	1.5	100	14		9	7	4	10.5		● 101303		● 145561
14	1.5	100	14		11	9	4	12.5		● 101306		● 184003
16	1.5	100	14		12	9	4	14.5		● 101308		● 176013
18	1.5	110	18		14	11	4	16.5		● 101310		● 160146
20	1.5	125	20		16	12	4	18.5		● 101312		● 160147
22	1.5	125	20		18	14.5	4	20.5		● 101314		
24	1.5	140	22		18	14.5	4	22.5		● 101316		
24	2	140	22		18	14.5	4	22		● 101317		
27	2	140	22		20	16	4	25		● 101319		
30	1.5	150	24		22	18	4	28.5		● 101321		
30	2	150	24		22	18	4	28		● 101322		

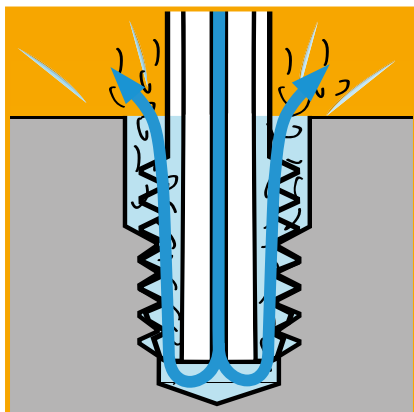
										S320VS-4	S420VS-4	S360VS-3	S460VS-3
													
													
													
													
													
													
													
													
													
													
													
													
													
													
													
													
													
													
													
													
													

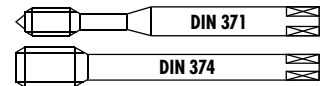
aero								SA390-3			
SA390-3  											
								 			
								 			
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10	1	100	30	10	8	3	9	★ 149751			
12	1	110	35	12	9	4	11	★ 149769			
12	1.5	110	35	12	9	4	10.5	★ 149773			
14	1.5	110	40	16	12	4	12.5	★ 149790			

aero									SA320-4	SA350-3	TL320VS-4	TL351VS-3
SA320-4 SA350-3									   			
TL320VS-4 TL351VS-3									    			
									       			
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
4	0.5	63	14		4.5	3.4	3	3.5		★ 149079		● 152033
5	0.5	70	15		6	4.9	3	4.5		● 149144		● 152049
6	0.5	80	15	23	6	4.9	3	5.5	★ 149193		★ 152058	● 152059
8	1	90	18	29	8	6.2	3	7	● 149304	● 149306		● 152080
10	1	100	20	33	10	8	3	9	● 149362	● 149364		● 152093

aero								SA420-4	SA450-3	TL420VS-4	TL451VS-3
SA420-4  15 16 52 64											
SA450-3  15 16 52 64											
TL420VS-4  VS 41 42											
TL451VS-3   VS 41 42											
											
$\varnothing d_1$	P	l_1	l_2	d_2	a			ID	ID	ID	ID
MF	mm	mm	mm	mm	mm						
12	1	100	19	9	7	4	11	* 152209		* 152218	
12	1.5	100	24	9	7	4	10.5		* 152213		
16	1.5	100	26	12	9	4	14.5		* 152216		* 152226

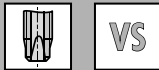
K										K313TC-3	K413TC-3		
K313TC-3  TiCN > 20 bar  11 12 13 14 15 16 31 32 62 63 64 74 83													
K413TC-3  TiCN > 20 bar  11 12 13 14 15 16 31 32 62 63 64 74 83													
 													
													
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	l ₀ mm	d ₂ mm	a mm			ID	ID		
10	1	100	22	39	37	10	8	3	9	● 175729			
10	1.25	100	22	39	37	10	8	3	8.8	● 196067			
12	1	110	24		42	9	7	3	11		● 175731		
12	1.25	110	24		42	9	7	3	10.8		● 175733		
12	1.5	110	24		42	9	7	3	10.5		● 175735		
14	1.5	110	28		49	11	9	3	12.5		● 175737		
16	1.5	110	30		56	12	9	3	14.5		● 175739		
20	1.5	140	36		70	16	12	5	18.5		● 171205		





QTAP

Q320VS-4



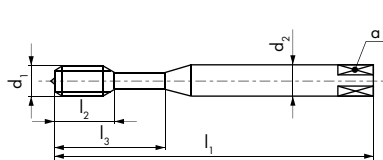
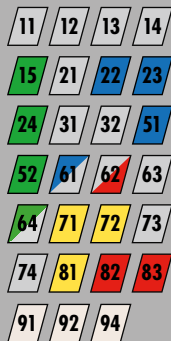
Q420VS-4



Q323VS-4



Q423VS-4



Q320VS-4

Q420VS-4

Q323VS-4

Q423VS-4



NEW



NEW



NEW



NEW

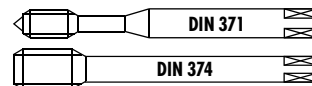
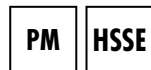


Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
6	0.75	80	17	30	6	4.9	3	5.25
8	1	90	20	35	8	6.2	3	7
10	1	100	22	39	10	8	3	9
12	1	100	24		9	7	3	11
12	1.5	100	24		9	7	3	10.5
14	1.5	100	24		11	9	3	12.5
16	1.5	100	26		12	9	3	14.5
18	1.5	110	26		14	11	4	16.5
20	1.5	125	28		16	12	4	18.5

ID	ID	ID	ID
● 197661		● 197684	
● 197662		● 197685	
● 197663		● 197686	
	● 197664		● 197687
	● 197665		● 197688
	● 197666		● 197689
	● 197667		● 197690
	● 197668		● 197691
	● 197669		● 197692



≤ Ø 16 > Ø 16



QTAP

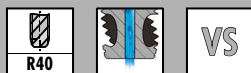
Q360VS-3



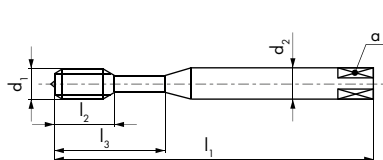
Q460VS-3



Q363VS-3



Q463VS-3



Q360VS-3



NEW



Q460VS-3



NEW



Q363VS-3



NEW



Q463VS-3

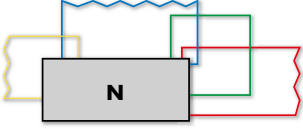
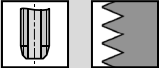
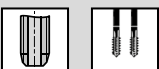
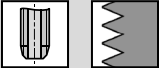
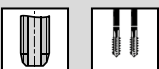
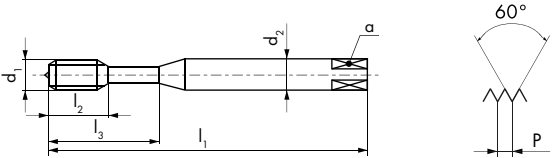


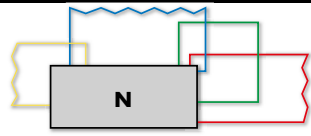
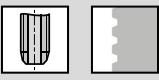
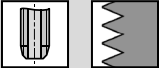
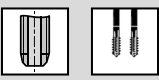
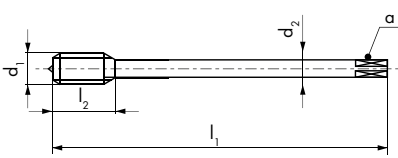
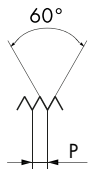
NEW

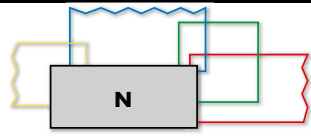
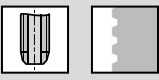
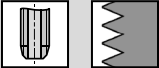
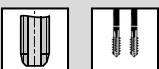
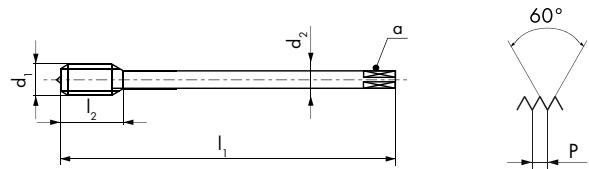


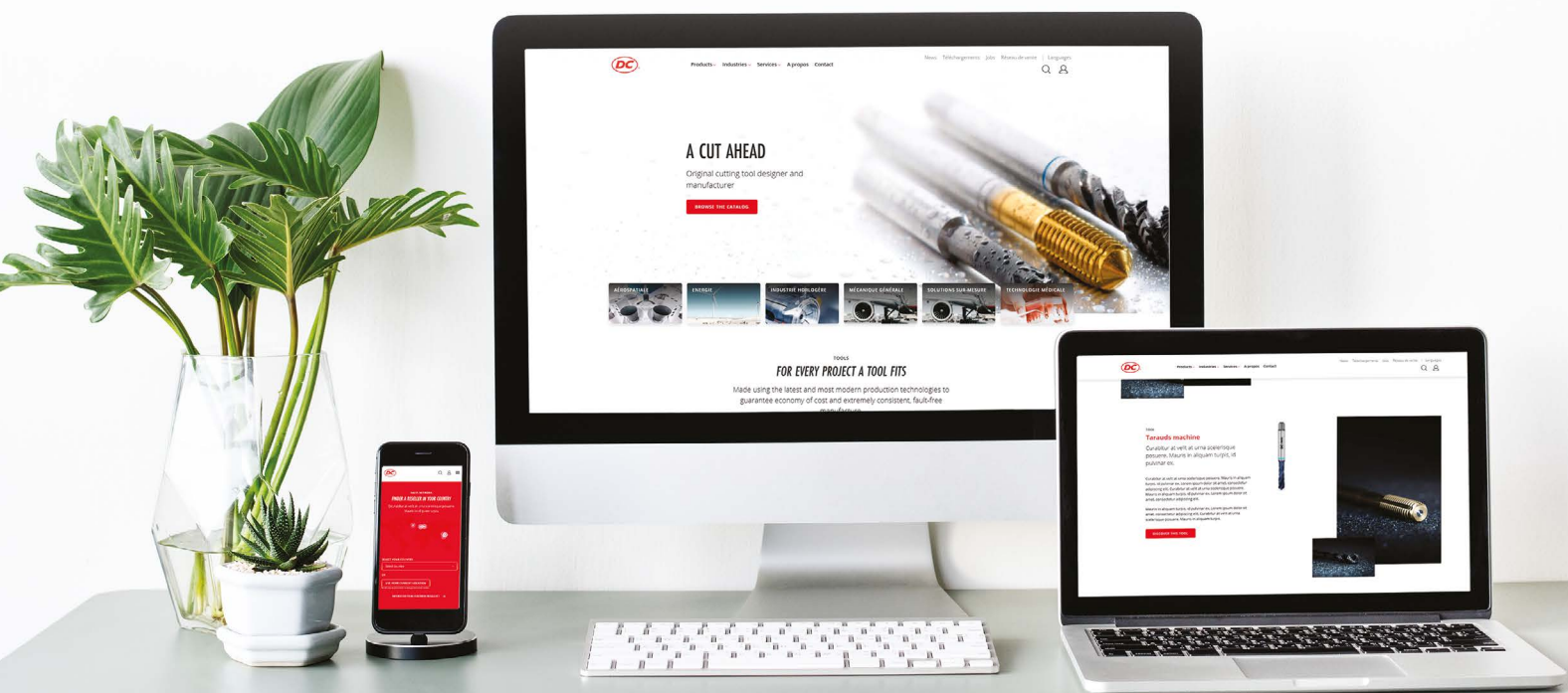
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
4	0.5	63	7.5	21	4.5	3.4	3	3.5
5	0.5	70	9	25	6	4.9	3	4.5
6	0.75	80	11	30	6	4.9	3	5.25
8	1	90	12.5	35	8	6.2	3	7
10	1	100	14	39	10	8	3	9
12	1	100	14		9	7	3	11
12	1.5	100	14		9	7	3	10.5
14	1.5	100	14		11	9	3	12.5
16	1.5	100	14		12	9	4	14.5
18	1.5	110	18		14	11	4	16.5
20	1.5	125	20		16	12	4	18.5
22	1.5	125	20		18	14.5	4	20.5
24	1.5	140	22		18	14.5	4	22.5
24	2	140	22		18	14.5	4	22

ID	ID	ID	ID
● 197670		● 197693	
● 197671		● 197694	
● 197672		● 197695	
● 197673		● 197696	
● 197674		● 197697	
	● 197675		● 197698
	● 197676		● 197699
	● 197677		● 197700
	● 197678		● 197701
	● 197679		● 197702
	● 197680		● 197703
	● 197681		● 197704
	● 197682		● 197705
	● 197683		● 197706

									N1110-1	N1110-3	N1110-S	
N1110-1  N1110-3  N1110-S 												
 31 62 73 74 91												
										 < 1.5 x D	 < 2.5 x D	
									 5 x P	 2 x P		
										 ISO 2 6H	 ISO 2 6H	
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	
2	0.25	45	8		2.8	2.1	3	1.75		• 102933		
2.2	0.25	45	9.5		2.8	2.1	3	1.95		• 102936		
2.5	0.35	45	9.5		2.8	2.1	3	2.15		• 102940		
3	0.35	48	11	18	3.15	2.5	3	2.65		• 102945		
3.5	0.35	50	13	20	3.55	2.8	3	3.15		• 102949		
4	0.35	53	13	21	4	3.15	3	3.65		• 102952		
4	0.5	53	13	21	4	3.15	3	3.5	• 102773	• 102953	• 111040	
4.5	0.5	53	13	21	4.5	3.55	3	4		• 102958		
5	0.35	58	16	25	5	4	3	4.65		• 102960		
5	0.5	58	16	25	5	4	3	4.5	• 102778	• 102961	• 111045	
5	0.75	58	16	25	5	4	3	4.25		• 102963		
5.5	0.5	62	17	26	5.6	4.5	3	5		• 102967		
6	0.5	66	19	30	6.3	5	3	5.5	• 102783	• 102969	• 111050	
6	0.75	66	19	30	6.3	5	3	5.25	• 102784	• 102971	• 111051	
7	0.5	66	19	30	7.1	5.6	3	6.5		• 102975		
8	0.75	72	22	35	8	6.3	3	7.25	• 102790	• 102982	• 111057	
8	1	72	22	35	8	6.3	3	7	• 102791	• 102984	• 111058	
9	0.5	72	22	36	9	7.1	3	8.5		• 102988		
9	0.75	72	22	36	9	7.1	3	8.25		• 102989		
9	1	72	22	36	9	7.1	3	8		• 102990		
10	0.5	80	24	39	10	8	3	9.5		• 102925		
10	1	80	24	39	10	8	3	9	• 102756	• 102928	• 111024	
10	1.25	80	24	39	10	8	3	8.8	• 102758	• 102930	• 111025	
												
									P 0.25			

								N1210-1	N1210-3	N1210-S	
N1210-1  N1210-3  N1210-S 											
									 < 1.5 x D	 < 2.5 x D	
 								 5 x P	 C 2 x P		
									 ISO 2 6H	 ISO 2 6H	
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	
11	0.5	85	22	8	6.3	3	10.5		• 103485		
11	0.75	85	22	8	6.3	3	10.25		• 103486		
11	1	85	22	8	6.3	3	10		• 103487		
11	1.25	85	22	8	6.3	3	9.8		• 103488		
12	0.5	89	24	9	7.1	3	11.5		• 103490		
12	0.75	89	24	9	7.1	3	11.25		• 103491		
12	1	89	24	9	7.1	3	11	• 103305	• 103493	• 111169	
12	1.25	89	24	9	7.1	3	10.8	• 103307	• 103495	• 111171	
12	1.5	89	24	9	7.1	3	10.5	• 103308	• 103497	• 111172	
14	0.5	95	24	11.2	9	3	13.5		• 103502		
14	0.75	95	24	11.2	9	3	13.25		• 103503		
14	1	95	24	11.2	9	3	13	• 103312	• 103504	• 111175	
14	1.25	95	24	11.2	9	3	12.8	• 103314	• 103506	• 111177	
14	1.5	95	24	11.2	9	3	12.5	• 103315	• 103508	• 111178	
15	0.75	90	23	11.2	9	3	14.25		• 103512		
15	1	90	23	11.2	9	3	14		• 103513		
16	0.5	102	32	12.5	10	4	15.5		• 103515		
16	0.75	102	32	12.5	10	4	15.25		• 103516		
16	1	102	32	12.5	10	4	15	• 103321	• 103517	• 111183	
16	1.5	102	32	12.5	10	4	14.5	• 103322	• 103520	• 111184	
17	1	95	23	12.5	10	4	16		• 103525		
18	0.75	112	30	14	11.2	4	17.25		• 103527		
18	1	112	30	14	11.2	4	17	• 103326	• 103528	• 111187	
18	1.5	112	30	14	11.2	4	16.5	• 103327	• 103531	• 111188	
18	2	112	30	14	11.2	3	16		• 103533		
19	1	112	33	14	11.2	4	18		• 103536		

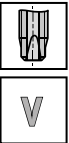
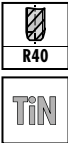
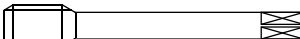
								N1210-1	N1210-3	N1210-S	
N1210-1 											
N1210-3  											
N1210-S 											
								 5 x P	 C 2 x P	 < 1.5 x D	 < 2.5 x D
									 ISO 2 6H	 ISO 2 6H	
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	
20	1	112	37	14	11.2	4	19	• 103332	• 103537	• 111198	
20	1.25	112	37	14	11.2	4	18.8		• 103539		
20	1.5	112	37	14	11.2	4	18.5	• 103334	• 103540	• 111195	
22	1	115	32	16	12.5	4	21		• 103545		
22	1.5	115	32	16	12.5	4	20.5	• 103340	• 103546	• 121669	
22	2	115	32	16	12.5	3	20		• 103548		
24	1	120	30	18	14	4	23		• 103552		
24	1.5	120	30	18	14	4	22.5	• 103343	• 103553	• 111202	
24	2	130	45	18	14	4	22	• 103344	• 103555	• 111203	
25	1	120	30	18	14	4	24		• 103559		
25	1.5	120	30	18	14	4	23.5		• 103560		
25	2	120	30	18	14	4	23		• 103561		
26	1	120	30	18	14	4	25		• 103562		
26	1.5	120	30	18	14	4	24.5	• 103346	• 103563	• 111207	
26	2	120	30	18	14	4	24		• 103564		
27	1	127	30	20	16	4	26		• 103565		
27	1.5	127	30	20	16	4	25.5		• 103566		
27	2	135	45	20	16	4	25	* 103351	* 103567	* 111210	
28	1	127	30	20	16	4	27		• 103570		
28	1.5	127	30	20	16	4	26.5		• 103571		
30	1.5	127	32	20	16	4	28.5	• 103355	• 103575	• 111214	
30	2	127	32	20	16	4	28	• 103356	• 103577	• 111215	

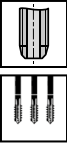
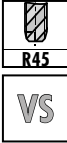
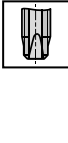
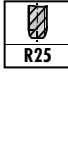
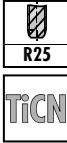


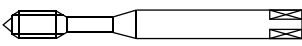
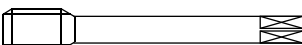
NEUE WEBSITE
IM AUFBAU — FREIGABE IM SOMMER 2021.

NEW WEBSITE
UNDER CONSTRUCTION — RELEASED IN SUMMER 2021.

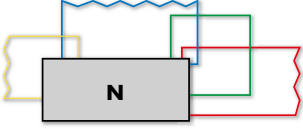
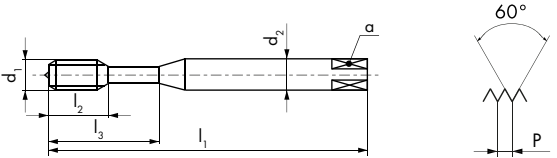


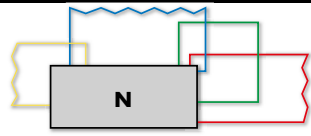
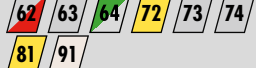
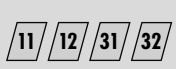
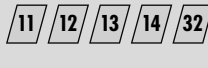
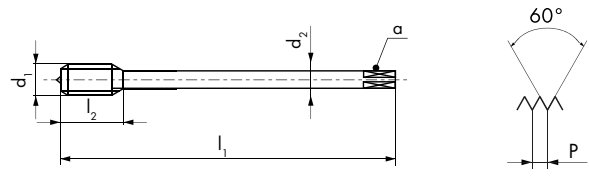
		N						
Merkmale Characteristics								
								
Lochart Hole type								
		N310-3	N320-3 N320-4	N320V-4	N320TN-4	N360-3	N360V-3	N360TN-3
DIN lang DIN long	DIN 371	154	154	154	154	156	156	156
ISO kurz ISO short	ISO 529							
Toleranz Tolerance	UNC 2B	154	154	154	154	156	156	156
Toleranz Tolerance	UNC 3B							
Toleranz Tolerance	UNC(J) 3B		154			156		
		N410-3	N420-4	N420V-4	N420TN-4	N460-3	N460V-3	N460TN-3
DIN lang DIN long	DIN 376	155	155	155	155	157	157	157
ISO kurz ISO short	ISO 529							
Toleranz Tolerance	UNC 2B	155	155	155	155	157	157	157
Toleranz Tolerance	UNC 3B							
Toleranz Tolerance	UNC(J) 3B							

N	Z				H			
	 V	 VS	 R40 V	 R45 VS		 TiCN	 R25	 R25 TiCN
						 NEW		 NEW
								
N1110 -1 -2 -3 -S	Z320V-3 Z320V-4	Z320VS-4	Z360V-3 Z362V-3	Z370VS-3	H320-4	H320TC-4	H350-3	H350TC-3
	158	158	159	160	161	161	162	162
170								
170	158	158	159	160	161	161	162	162
				160				
N1210 -1 -2 -3 -S	Z420V-4	Z420VS-4	Z462V-3	Z470VS-3	H420-4	H420TC-4	H450-3	H450TC-3
	158	158	159	160	161	161	162	162
171								
171	158	158	159	160	161	161	162	162

		S		SA			TL	
Merkmale Characteristics								
		VS	VS				VS	 VS
								
Lochart Hole type								
		S320VS-4	S360VS-3	SA320-4	SA350-3	SA390-3	TL320VS-4	TL351VS-3
DIN lang DIN long	DIN 371	163	164	165	165	166	165	165
ISO kurz ISO short	ISO 529							
Toleranz Tolerance	UNC 2B	163	164	165	165		165	165
Toleranz Tolerance	UNC 3B							
Toleranz Tolerance	UNC(J) 3B	163		165	165	166	165	165
		S420VS-4	S460VS-3	SA420-4	SA450-3			
DIN lang DIN long	DIN 376	163	164	166	166			
ISO kurz ISO short	ISO 529							
Toleranz Tolerance	UNC 2B	163	164	166	166			
Toleranz Tolerance	UNC 3B							
Toleranz Tolerance	UNC(J) 3B							

Q				RTS	
 VS	 VS	 R40 VS	 R40 VS	 VS	 R40 VS
 NEW	 NEW	 NEW	 NEW		
					
Q320VS-4	Q323VS-4	Q360VS-3	Q363VS-3	RTS320VS-4	RTS362VS-3
167	167	168	168	169	169
167	167	168	168	169	169
Q420VS-4	Q423VS-4	Q460VS-3	Q463VS-3	RTS420VS-4	RTS462VS-3
167	167	168	168	169	169
167	167	168	168	169	169

										N310-3	N320-4	N320V-4	N320TN-4
N310-3													
N320-4													
N320V-4													NEW
N320TN-4													
													
													
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
* 2	56	2.18	45	9		2.8	2.1	2	1.75		• 101469	• 143690	
* 3	48	2.51	50	10		2.8	2.1	2	2		• 101470		
4	40	2.84	56	12	18	3.5	2.7	3	2.25	• 101450	• 101511	• 142738	
5	40	3.17	56	12	18	3.5	2.7	3	2.55		• 101512		
6	32	3.5	56	13	20	4	3	3	2.75	• 101451	• 101514	• 144402	• 196003
8	32	4.16	63	14	21	4.5	3.4	3	3.4	• 101452	• 101515	• 142739	• 196004
10	24	4.82	70	15	25	6	4.9	3	3.8	• 101449	• 101508	• 142740	• 196005
12	24	5.48	80	17	30	6	4.9	3	4.4		• 101509		
1/4	20	6.35	80	17	30	7	5.5	3	5.1	• 101448	• 101507	• 142741	• 196006
													
Ø d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID			
4	40	2.84	56	12	18	3.5	2.7	3	2.3	• 145656			
6	32	3.5	56	13	20	4	3	3	2.8	• 155317			
8	32	4.16	63	14	21	4.5	3.4	3	3.45	• 155319			
													
*N320-3 / N320V-3													

									N410-3	N420-4	N420V-4	N420TN-4
N410-3												
N420-4												
N420V-4												
N420TN-4												
												
												
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
5/16	18	7.93	90	20	6	4.9	3	6.5	● 101997	● 102213	● 142742	● 196007
3/8	16	9.52	100	22	7	5.5	3	8	● 101996	● 102212	● 142743	● 158317
7/16	14	11.11	100	19	8	6.2	3	9.3		● 102215	● 142744	● 196008
1/2	13	12.7	110	24	9	7	3	10.8	● 101993	● 102208	● 142745	● 143827
9/16	12	14.28	110	28	11	9	3	12.2		● 102217		
5/8	11	15.87	110	30	12	9	3	13.6	● 101998	● 102214	● 142746	● 146391
3/4	10	19.05	125	33	14	11	3	16.6	● 101995	● 102211	● 142747	● 146054
7/8	9	22.22	140	36	18	14.5	3	19.5		● 102216	● 142748	
1	8	25.4	160	39	18	14.5	4	22.3	● 101994	● 102209	● 142749	
1 1/8	7	28.57	180	45	22	18	4	25		● 102205		
1 1/4	7	31.75	180	45	22	18	4	28.2		● 102204		
1 1/2	6	38.1	200	55	32	24	4	34		● 102203		
1 3/4	5	44.45	220	59	36	29	4	39.5	★ 101992	● 102206		
2	4.5	50.8	250	67	40	32	4	45.3		● 102210		

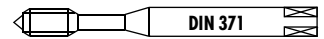
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ASME B1.1

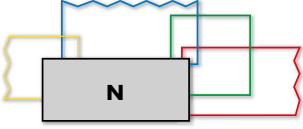
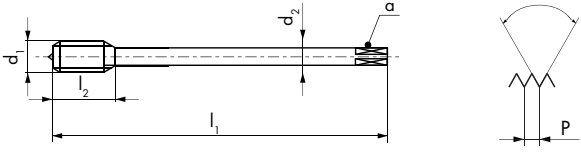
≤ Ø 2.8 > Ø 2.8

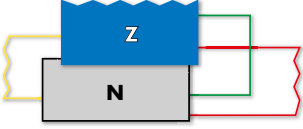
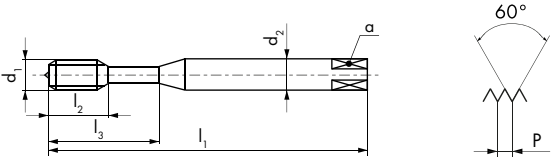
PM

HSSE



										N360-3	N360V-3	N360TN-3	N360-3
N360-3 637273748191 N360V-3 111232 N360TN-3 1112131432 N360-3 637273748191													
										NEW			

									N460-3	N460V-3	N460TN-3	
N460-3  63 72 73 74 81 91												
N460V-3   11 12 32												
N460TN-3   11 12 13 14 32											NEW	
												
												
												
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	
7/16	14	11.11	100	14	8	6.2	3	9.3	• 102424	• 105135	• 196002	
1/2	13	12.7	110	14	9	7	3	10.8	• 102420	• 102497	• 157376	
9/16	12	14.28	110	14	11	9	3	12.2	• 102426	• 102502		
5/8	11	15.87	110	18	12	9	3	13.6	• 102423	• 102500	• 128252	
3/4	10	19.05	125	21	14	11	3	16.6	• 102422	• 102499	• 143519	
7/8	9	22.22	140	24	18	14.5	4	19.5	• 102425	• 102501		
1	8	25.4	160	27	18	14.5	4	22.3	• 102421	• 102498		
1 1/8	7	28.57	180	30	22	18	4	25	• 102418	• 102495		
1 1/4	7	31.75	180	30	22	18	4	28.2	• 102417	• 102494		
1 1/2	6	38.1	200	40	32	24	5	34	• 102416	• 102493		
1 3/4	5	44.45	220	44	36	29	5	39.5		• 128062		
2	4.5	50.8	250	52	40	32	5	45.3		• 128084		

										Z320V-4	Z320VS-4	Z420V-4	Z420VS-4
Z320V-4		V	11	12	13	21	32						
Z320VS-4		VS	11	12	13	14	21	22	23				
Z420V-4		V	11	12	13	21	32						
Z420VS-4		VS	11	12	13	14	21	22	23				
													
										2B	2B	2B	2B
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
* 2	56	2.18	45	9		2.8	2.1	2	1.75	● 142750			
4	40	2.84	56	12	18	3.5	2.7	3	2.25	● 142751			
6	32	3.5	56	13	20	4	3	3	2.75	● 142752	● 111560		
8	32	4.16	63	14	21	4.5	3.4	3	3.4	● 142753	● 111561		
10	24	4.82	70	15	25	6	4.9	3	3.8	● 142754	● 111562		
1/4	20	6.35	80	17	30	7	5.5	3	5.1	● 142755	● 111563		
5/16	18	7.93	90	20	35	8	6.2	3	6.5	● 142756	● 111564		
3/8	16	9.52	100	22	39	10	8	3	8	● 142757	● 111565		
7/16	14	11.11	100	19		8	6.2	3	9.3				● 196028
1/2	13	12.7	110	24		9	7	3	10.8			● 142758	● 111566
5/8	11	15.87	110	30		12	9	3	13.6			● 142759	● 111567
3/4	10	19.05	125	33		14	11	4	16.6			● 142760	● 111568
7/8	9	22.22	140	36		18	14.5	4	19.5			● 142761	
1	8	25.4	160	39		18	14.5	4	22.3			● 142762	
													

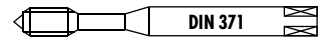
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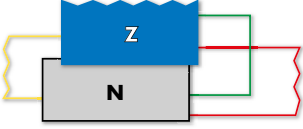
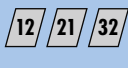
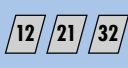
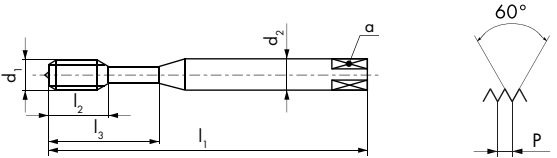
ASME B1.1

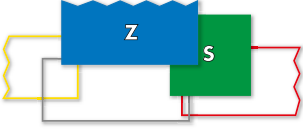
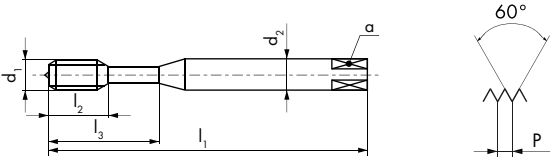
≤ Ø 2.8 > Ø 2.8

PM

HSSE



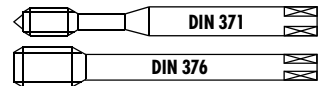
										Z362V-3	Z462V-3		
Z362V-3    													
Z462V-3    													
										 			
										 			
										 			
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID		
* 2	56	2.18	45	8		2.8	2.1	2	1.75	● 104695			
* 4	40	2.84	56	5.5	18	3.5	2.7	3	2.25	● 104697			
6	32	3.5	56	6.5	20	4	3	3	2.75	● 104699			
8	32	4.16	63	7.5	21	4.5	3.4	3	3.4	● 104700			
10	24	4.82	70	9	25	6	4.9	3	3.8	● 104694			
1/4	20	6.35	80	11	30	7	5.5	3	5.1	● 104693			
5/16	18	7.93	90	12.5	35	8	6.2	3	6.5	● 104698			
3/8	16	9.52	100	14	39	10	8	3	8	● 104696			
7/16	14	11.11	100	14		8	6.2	3	9.3		● 104757		
1/2	13	12.7	110	14		9	7	3	10.8		● 104753		
5/8	11	15.87	110	18		12	9	3	13.6		● 104756		
3/4	10	19.05	125	21		14	11	3	16.6		● 104755		
7/8	9	22.22	140	24		18	14.5	3	19.5		● 104758		
1	8	25.4	160	27		18	14.5	4	22.3		● 104754		
*Z360V-3													

											Z370VS-3	Z470VS-3		
Z370VS-3		VS									 			
Z470VS-3		VS									 			
Z370VS-3		VS									 			
Z470VS-3		VS									 			
											 			
											 			
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm				ID	ID		
6	32	3.5	56	6.5	20	4 (h9)	3	3	2.75		● 166123			
8	32	4.16	63	7.5	21	4.5(h9)	3.4	3	3.4		● 166124			
10	24	4.82	70	9	25	6	4.9	3	3.8		● 166125			
1/4	20	6.35	80	11	30	* 6	* 4.9	3	5.1		● 166126			
5/16	18	7.93	90	12.5	35	8	6.2	3	6.5		● 166127			
3/8	16	9.52	100	14	39	10	8	3	8		● 166128			
7/16	14	11.11	100	14		8	6.2	3	9.3			● 166129		
1/2	13	12.7	110	14		* 10	* 8	4	10.8			● 166130		
5/8	11	15.87	110	18		12	9	4	13.6			● 166131		
3/4	10	19.05	125	21		14	11	4	16.6			● 166132		
1	8	25.4	160	27		16	12	4	22.3			● 175703		
* Norme DC / * DC Norm/ * Norma DC														
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm				ID			
4	40	2.84	56	5.5	18	3.5(h9)	2.7	3	2.3		● 165114			
6	32	3.5	56	6.5	20	4 (h9)	3	3	2.8		● 165115			
8	32	4.16	63	7.5	21	4.5(h9)	3.4	3	3.45		● 165116			
1/4	20	6.35	80	11	30	* 6	* 4.9	3	5.2		● 165117			
5/16	18	7.93	90	12.5	35	8	6.2	3	6.7		● 165118			
* Norme DC / * DC Norm/ * Norma DC														

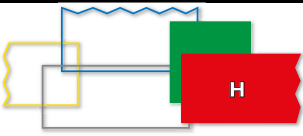
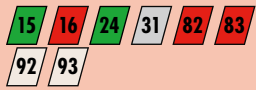
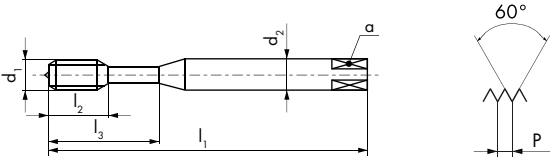
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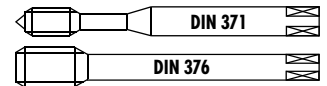
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H320-4 H420-4 H320TC-4 NEW H420TC-4 NEW													
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
2	56	2.18	45	8		2.8	2.1	2	1.75	● 101221			
4	40	2.84	56	10	18	3.5	2.7	3	2.25	● 101223			
6	32	3.5	56	13	20	4	3	3	2.75	● 101225		● 196046	
8	32	4.16	63	14	21	4.5	3.4	3	3.4	● 101226		● 196047	
10	24	4.82	70	15	25	6	4.9	3	3.8	● 101220		● 196048	
1/4	20	6.35	80	17	30	7	5.5	3	5.1	● 101219		● 196049	
5/16	18	7.93	90	20	35	8	6.2	3	6.5	● 101224		● 143730	
3/8	16	9.52	100	22	39	10	8	3	8	● 101222		● 196050	
7/16	14	11.11	100	19		8	6.2	3	9.3		● 196051		● 196052
1/2	13	12.7	110	24		9	7	4	10.8		● 101290		● 143731
5/8	11	15.87	110	30		12	9	4	13.6		● 163741		● 196053
3/4	10	19.05	125	33		14	11	4	16.6		● 163743		● 196054

										H350-3	H450-3	H350TC-3	H450TC-3
H350-3   H450-3   H350TC-3    H450TC-3   												 NEW	 NEW
										 2B	 2B	 2B	 2B
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
2	56	2.18	45	8		2.8	2.1	2	1.75	● 101258			
4	40	2.84	56	5.5	18	3.5	2.7	3	2.25	● 101260			
6	32	3.5	56	6.5	20	4	3	3	2.75	● 101262		● 196040	
8	32	4.16	63	7.5	21	4.5	3.4	3	3.4	● 101263		● 196041	
10	24	4.82	70	9	25	6	4.9	3	3.8	● 101257		● 196042	
1/4	20	6.35	80	11	30	7	5.5	3	5.1	● 101256		● 160585	
5/16	18	7.93	90	12.5	35	8	6.2	3	6.5	● 101261		● 160587	
3/8	16	9.52	100	14	39	10	8	3	8	● 101259		● 162106	
7/16	14	11.11	100	14		8	6.2	3	9.3		● 101330		● 196043
1/2	13	12.7	110	14		9	7	4	10.8		● 101326		● 160586
5/8	11	15.87	110	18		12	9	4	13.6		● 101329		● 196044
3/4	10	19.05	125	21		14	11	4	16.6		● 101328		● 196045
1	8	25.4	160	27		18	14.5	4	22.3		● 101327		

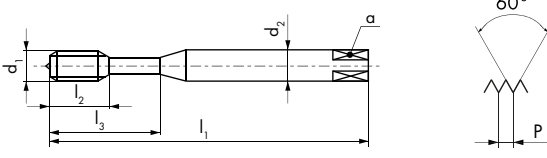
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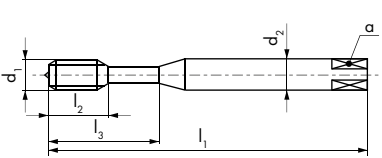
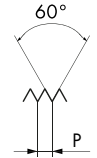
ASME B1.1

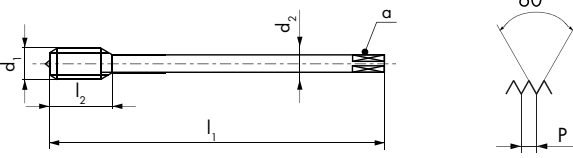
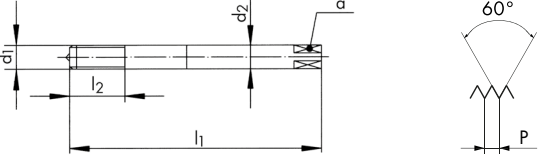
PM



										S320VS-4	S420VS-4		
S320VS-4 VS 13 15 16 22 23 24 52													
S420VS-4 VS 13 15 16 22 23 24 52													
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID		
6	32	3.5	56	13	20	4	3	3	2.75	• 111587			
8	32	4.16	63	14	21	4.5	3.4	3	3.4	• 111588			
1/4	20	6.35	80	17	30	7	5.5	3	5.1	• 111590			
5/16	18	7.93	90	20	35	8	6.2	3	6.5	• 111591			
3/8	16	9.52	100	22	39	10	8	3	8	• 111592			
1/2	13	12.7	110	24		9	7	4	10.8		• 111593		
5/8	11	15.87	110	30		12	9	4	13.6		• 111594		
3/4	10	19.05	125	33		14	11	4	16.6		• 111595		
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID			
4	40	2.84	56	12	18	3.5	2.7	3	2.3	• 165314			
6	32	3.5	56	13	20	4	3	3	2.8	• 165315			
8	32	4.16	63	14	21	4.5	3.4	3	3.45	• 165316			
1/4	20	6.35	80	17	30	7	5.5	3	5.2	• 165317			
5/16	18	7.93	90	20	35	8	6.2	3	6.7	★ 143761			

										S360VS-3	S460VS-3						
S360VS-3  VS 13 15 16 22 23 24 52																	
S460VS-3  VS 13 15 16 22 23 24 52																	
																	
																	
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID						
6	32	3.5	56	6.5	20	4	3	3	2.75	● 111530							
8	32	4.16	63	7.5	21	4.5	3.4	3	3.4	● 111531							
1/4	20	6.35	80	11	30	7	5.5	3	5.1	● 111533							
5/16	18	7.93	90	12.5	35	8	6.2	3	6.5	● 111534							
3/8	16	9.52	100	14	39	10	8	3	8	● 111535							
1/2	13	12.7	110	14		9	7	4	10.8		● 111537						

aero										SA320-4	SA350-3	TL320VS-4	TL351VS-3
SA320-4 SA350-3										   			
TL320VS-4 TL351VS-3										   			
 										   			
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
4	40	2.84	56	12		3.5	2.7	3	2.25	● 147271	● 149003		● 152018
5	40	3.17	56	12		3.5	2.7	3	2.55			* 152023	* 152024
6	32	3.5	56	13		4	3	3	2.75	● 149055	● 149057	* 152027	● 152028
8	32	4.16	63	14		4.5	3.4	3	3.4	● 149093	● 149095		● 152037
10	24	4.82	70	15		6	4.9	3	3.8	● 149125	* 149127		
1/4	20	6.35	80	15	23	7	5.5	3	5.1	● 149222	● 149224		● 127972
5/16	18	7.93	90	18	29	8	6.2	3	6.5	● 149269	● 149271		● 152068
3/8	16	9.52	100	20	33	10	8	3	8	● 149346	● 149348	* 152084	● 152085
										3B UNC(J)	3B UNC(J)	3B UNC(J)	3B UNC(J)
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
4	40	2.84	56	12		3.5	2.7	3	2.3	● 149005	● 149007	* 148804	● 150194
6	32	3.5	56	13		4	3	3	2.8	● 149059	● 149061	* 152029	● 150210
8	32	4.16	63	14		4.5	3.4	3	3.45	● 149097	● 149099		● 152039
10	24	4.82	70	15		6	4.9	3	3.9				* 152045
1/4	20	6.35	80	15	23	7	5.5	3	5.2	● 149226	● 149228	* 152063	● 152064
5/16	18	7.93	90	18	29	8	6.2	3	6.7	● 149273	● 149275	* 152069	● 152070
3/8	16	9.52	100	20	33	10	8	3	8.1	● 149350	● 149352		● 152087

aero									SA420-4	SA450-3		SA390-3
SA420-4												
SA450-3												
SA390-3												
												
$\emptyset'' d_1$ UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID		
1/2	13	12.7	110	24	9	7	4	10.8	• 152247	• 152252		
5/8	11	15.87	110	30	12	9	4	13.6	• 152249	• 152254		
												
$\emptyset'' d_1$ UNC	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm						ID
4	40	2.84	56	12	3.5	2.7	3	2.3				• 149652
6	32	3.5	56	13	4	3	3	2.8				• 149666
8	32	4.16	63	14	4.5	3.4	3	3.45				• 149677
10	24	4.82	70	15	6	4.9	3	3.9				• 149685
1/4	20	6.35	80	20	7	5.5	3	5.2				• 149713
5/16	18	7.93	90	25	8	6.2	3	6.7				• 149726
3/8	16	9.52	100	30	10	8	3	8.1				• 149747

QTAP

Q320VS-4



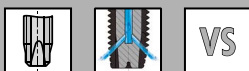
VS

Q420VS-4



VS

Q323VS-4

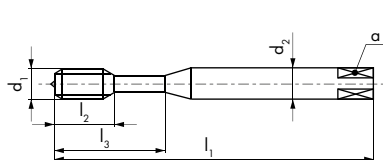


VS

Q423VS-4



VS



Q320VS-4

Q420VS-4

Q323VS-4

Q423VS-4



NEW



NEW



NEW



NEW



2B



2B



2B



2B

Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
6	32	3.5	56	13	20	4	3	3	2.75
8	32	4.16	63	14	21	4.5	3.4	3	3.4
10	24	4.82	70	15	25	6	4.9	3	3.8
1/4	20	6.35	80	17	30	7	5.5	3	5.1
5/16	18	7.93	90	20	35	8	6.2	3	6.5
3/8	16	9.52	100	22	39	10	8	3	8
1/2	13	12.7	110	24		9	7	3	10.8
5/8	11	15.87	110	30		12	9	3	13.6
3/4	10	19.05	125	33		14	11	4	16.6
7/8	9	22.22	140	36		18	14.5	4	19.5
1	8	25.4	160	39		18	14.5	4	22.3

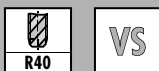
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● 196275		● 196320	
● 196276		● 196321	
● 196277		● 196322	
● 196278		● 196323	
● 196279		● 196324	
● 196280		● 196325	
	● 196281		● 196326
	● 196282		● 196327
	● 196283		● 196328
	● 196284		● 196329
	● 196285		● 196330

QTAP

Q360VS-3



Q460VS-3



Q363VS-3



Q463VS-3



Q360VS-3

Q460VS-3

Q363VS-3

Q463VS-3



NEW



NEW



NEW



NEW

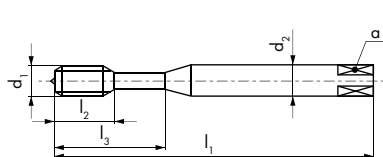


2B

2B

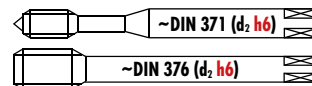
2B

2B



Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
6	32	3.5	56	6.5	20	4	3	3	2.75
8	32	4.16	63	7.5	21	4.5	3.4	3	3.4
10	24	4.82	70	9	25	6	4.9	3	3.8
1/4	20	6.35	80	11	30	7	5.5	3	5.1
5/16	18	7.93	90	12.5	35	8	6.2	3	6.5
3/8	16	9.52	100	14	39	10	8	3	8
7/16	14	11.11	100	14		8	6.2	3	9.3
1/2	13	12.7	110	14		9	7	3	10.8
5/8	11	15.87	110	18		12	9	3	13.6
3/4	10	19.05	125	21		14	11	3	16.6
7/8	9	22.22	140	24		18	14.5	3	19.5
1	8	25.4	160	27		18	14.5	4	22.3

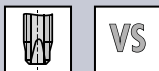
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● 196286		● 196331	
● 196287		● 196332	
● 196288		● 196333	
● 196289		● 197622	
● 196290		● 197623	
● 196291		● 197624	
	● 196292		● 197625
	● 196293		● 197626
	● 196294		● 197627
	● 196295		● 197628
	● 196296		● 197629
	● 196297		● 197630



RTS

Rigid Tapping Synchro

RTS320VS-4



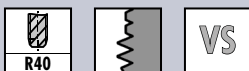
VS

RTS420VS-4



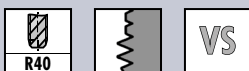
VS

RTS362VS-3

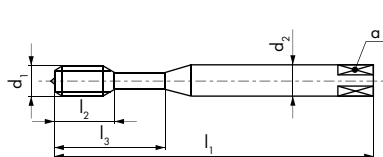


VS

RTS462VS-3



VS



RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3



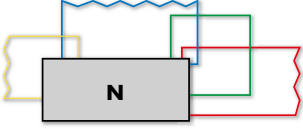
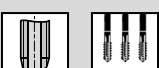
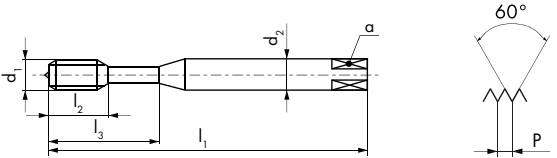
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm	3	3	2.75
6	32	3.5	56	6.5	20	4 (h9)	3	3	3	2.75
8	32	4.16	63	7.5	21	4.5(h9)	3.4	3	3	3.4
10	24	4.82	70	9	25	6	4.9	3	3	3.8
1/4	20	6.35	80	11	30	* 6	* 4.9	3	3	5.1
5/16	18	7.93	90	12.5	35	8	6.2	3	3	6.5
3/8	16	9.52	100	14	39	10	8	3	3	8
1/2	13	12.7	110	14		* 10	* 8	3	3	10.8

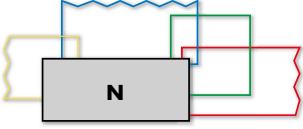
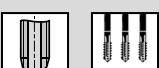
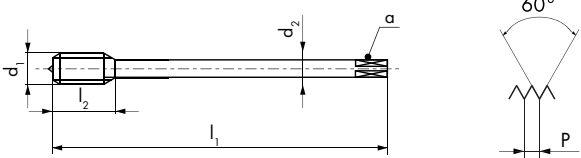
* Norme DC / * DC Norm/ * Norma DC

ID	ID	ID	ID
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● 157396		● 157403	
● 157397		● 157404	
● 157398		● 157405	
● 157399		● 157406	
● 157400		● 157407	
	● 157401		● 157408



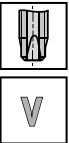
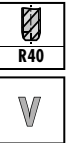
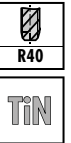
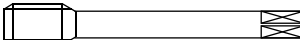
sur demande
auf Anfrage
on request
su richiesta
sobre pedido
по запросу

										N1110-1	N1110-2	N1110-3	N1110-S
N1110-1 													
N1110-2 													
N1110-3  31 62 73 74 91												 < 1.5 x D	 < 2.5 x D
N1110-S 													
										 5 x P	 3 x P	 c 2 x P	
												2B	2B
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
2	56	2.18	45	9.5		2.8	2.1	3	1.75	● 102799	● 102885	● 102998	● 111067
3	48	2.51	45	9.5		2.8	2.1	3	2	★ 102800	★ 102886	★ 102999	★ 111068
4	40	2.84	48	11	18	3.15	2.5	3	2.25	● 102802	● 102888	● 103001	● 111070
5	40	3.17	48	11	18	3.15	2.5	3	2.55			● 103002	
6	32	3.5	50	13	20	3.55	2.8	3	2.75	● 102805	● 102891	● 103004	● 111073
8	32	4.16	53	13	21	4.5	3.55	3	3.4	● 102806	● 102892	● 103005	● 111074
10	24	4.82	58	16	25	5	4	3	3.8	● 102797	● 102883	● 102996	● 111065
1/4	20	6.35	66	19	30	6.3	5	3	5.1	● 102796	● 102882	● 102995	● 111064
5/16	18	7.93	72	22	35	8	6.3	3	6.5	● 102804	● 102890	● 103003	● 111072
3/8	16	9.52	80	24	39	10	8	3	8	● 102801	● 102887	● 103000	● 111069

									N1210-1	N1210-2	N1210-3	N1210-S
N1210-1  N1210-2  N1210-3  N1210-S 												
31 62 73 74 91												
												
5 x P 3 x P 2 x P											2B	2B
Ø" d ₁ UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
7/16	14	11.11	85	22	8	6.3	3	9.3	● 103392	● 103466	● 103606	● 111236
1/2	13	12.7	89	24	9	7.1	3	10.8	● 103387	● 103461	● 103601	● 111229
5/8	11	15.87	102	32	12.5	10	3	13.6	● 103391	● 103465	● 103605	● 111235
3/4	10	19.05	112	33	14	11.2	3	16.6	● 103390	● 103464	● 103604	● 111234
1	8	25.4	130	45	18	14	4	22.3	● 103388	● 103462	● 103602	● 111230

UNF, UNEF UNS, UN

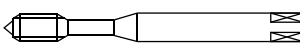
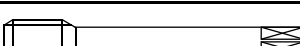
Inhaltsverzeichnis — Maschinengewindebohrer ASME B1.1 Directory — Machine taps ASME B1.1

		N						
Merkmale Characteristics								
					 NEW			 NEW
Lochart Hole type								
		N310-3	N320-3 N320-4	N320V-4	N320TN-4	N360-3	N360V-3	N360TN-3
DIN lang DIN long	DIN 371	176	176	176	176	178	178	178
ISO kurz ISO short	ISO 529							
Toleranz Tolerance	UNF 2B	176	176	176	176	178	178	178
Toleranz Tolerance	UNF(J) 3B		176			178		
Toleranz Tolerance	UNEF 2B							
Toleranz Tolerance	UNS 2B							
Toleranz Tolerance	UN 2B							
		N410-3	N420-4	N420V-4	N420TN-4	N460-3	N460V-3	N460TN-3
DIN lang DIN long	DIN 374/~DIN 376	177 / 199	177	177	177	179 / 199	179 / 199	179
ISO kurz ISO short	ISO 529							
Toleranz Tolerance	UNF 2B	177	177	177	177	179	179	179
Toleranz Tolerance	UNF(J) 3B		177			179		
Toleranz Tolerance	UNEF 2B							
Toleranz Tolerance	UNS 2B	199				199	199	
Toleranz Tolerance	UN 2B					199	199	

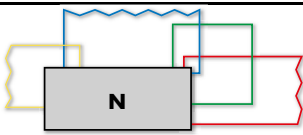
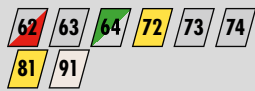
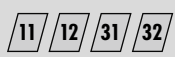
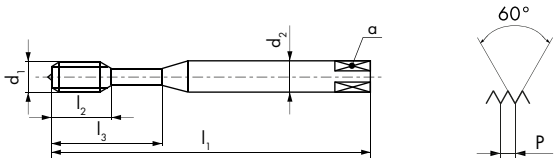
UNF, UNEF

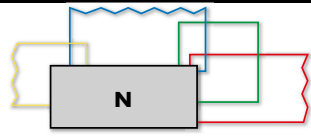
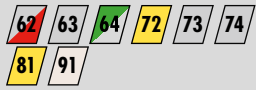
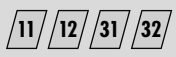
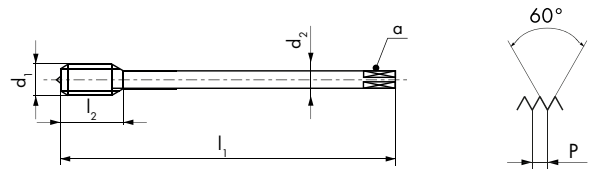
Inhaltsverzeichnis — Maschinen- und Handgewindebohrer ASME B1.1 Directory — Machine and hand taps ASME B1.1

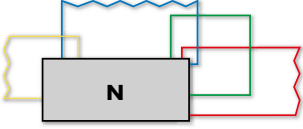
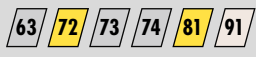
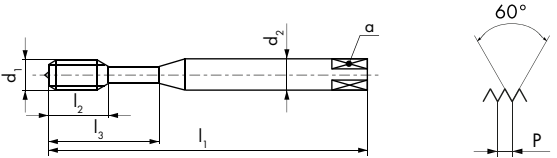
N		Z				H		
								
								
								
			NEW				NEW	
								
N1110 -1 -3 -S	N1120-4	Z320V-4	Z320VS-4	Z360V-3	Z370VS-3	H320-4	H320TC-4	H350-3
196 / 198	198	180	180	181	182	184	184	185
196		180	180	181	182	184	184	185
					182			
198	198							
N1210 -1 -3 -S	N1220-4	Z420V-4	Z420VS-4	Z460V-3	Z470VS-3	H420-4	H420TC-4	H450-3
197 / 198	198	180	180	181	182	184	184	185
197		180	180	181	182	184	184	185
198	198							

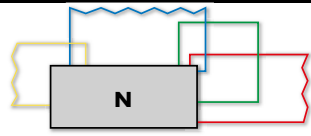
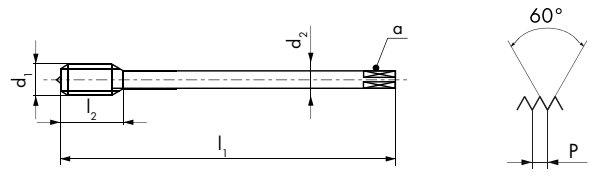
		H	S		SA		TL	
Merkmale Characteristics		 R25  TICN	 VS	 R35  VS	 R15	 R10	 R15  VS	
		 NEW						
Lochart Hole type								
		H350TC-3	S320VS-4	S360VS-3	SA320-4	SA350-3	SA390-3	TL351VS-3
DIN lang	DIN 371	185	186	186	188	188	190	188
DIN long	DIN 371							
ISO kurz	ISO 529							
ISO short	ISO 529							
Toleranz	UNF 2B	185			188	188		188
Tolerance	UNF 2B							
Toleranz	UNF(J) 3B		186	186	188	188	190	188
Tolerance	UNF(J) 3B							
Toleranz	UNEF 2B							
Tolerance	UNEF 2B							
Toleranz	UNS 2B							
Tolerance	UNS 2B							
Toleranz	UN 2B							
Tolerance	UN 2B							
		H450TC-3	S420VS-4	S460VS-3	SA420-4	SA450-3		TL451VS-3
DIN lang	DIN 374/~DIN 376	185	186	186	189	189		189
DIN long	DIN 374/~DIN 376							
ISO kurz	ISO 529							
ISO short	ISO 529							
Toleranz	UNF 2B	185			189	189		
Tolerance	UNF 2B							
Toleranz	UNF(J) 3B		186	186	189	189		189
Tolerance	UNF(J) 3B							
Toleranz	UNEF 2B							
Tolerance	UNEF 2B							
Toleranz	UNS 2B							
Tolerance	UNS 2B							
Toleranz	UN 2B							
Tolerance	UN 2B							

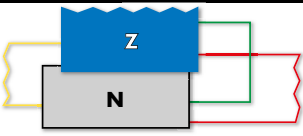
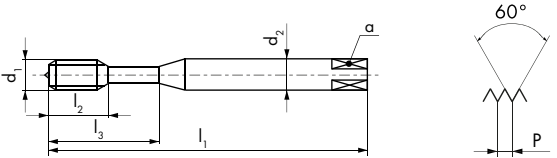
QTAP				RTS	
					
VS	VS	VS	VS	VS	VS
					
NEW	NEW	NEW	NEW		
					
Q320VS-4	Q323VS-4	Q360VS-3	Q363VS-3	RTS320VS-4	RTS362VS-3
192	192	193	193	194	194
192	192	193	193	194	194
Q420VS-4	Q423VS-4	Q460VS-3	Q463VS-3	RTS420VS-4	RTS462VS-3
192	192	193	193	194	194
192	192	193	193	194	194

										N310-3	N320-4	N320V-4	N320TN-4
N310-3													
N320-4													
N320V-4													
N320TN-4													NEW
													
													
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
* 0	80	1.52	40	7		2.5	2.1	2	1.2		● 101475		
* 2	64	2.18	45	9		2.8	2.1	2	1.8		● 101477		
4	48	2.84	56	12	18	3.5	2.7	3	2.35		● 128847		
5	44	3.17	56	12	18	3.5	2.7	3	2.6		● 142764		
6	40	3.5	56	13	20	4	3	3	2.9		● 101519	● 142765	
8	36	4.16	63	14	21	4.5	3.4	3	3.5		● 101520		
10	32	4.82	70	15	25	6	4.9	3	4.05		● 101517	● 142766	● 196014
12	28	5.48	80	17	30	6	4.9	3	4.6		● 101518		
1/4	28	6.35	80	17	30	7	5.5	3	5.5	● 101453	● 101516	● 142767	● 158791

									N410-3	N420-4	N420V-4	N420TN-4
N410-3												
N420-4												NEW
N420V-4												
N420TN-4												
												
$\emptyset'' d_1$ UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	ID
5/16	24	7.93	90	20	6	4.9	3	6.9	● 102004	● 102223	● 142774	● 196015
3/8	24	9.52	100	22	7	5.5	3	8.5	● 102003	● 102222	● 142775	● 196016
7/16	20	11.11	100	19	8	6.2	3	9.8	● 102006	● 102225	● 142776	● 196017
1/2	20	12.7	100	24	9	7	3	11.4	● 102000	● 102219	● 142777	● 196018
9/16	18	14.28	100	24	11	9	3	12.9		● 102227		
5/8	18	15.87	100	26	12	9	3	14.5	● 102005	● 102224	● 142778	● 196019
3/4	16	19.05	125	33	14	11	4	17.5	● 102002	● 102221	● 142779	● 185919
7/8	14	22.22	140	36	18	14.5	4	20.4		● 102226		
1	12	25.4	160	39	18	14.5	4	23.3		● 102220	● 142780	
1 1/8	12	28.57	180	39	22	18	4	26.5		● 142773		
1 1/4	12	31.75	180	39	22	18	4	29.7		● 102218		
1 3/8	12	34.92	200	36	28	22	4	32.8		● 105137		
1 1/2	12	38.1	200	41	32	24	4	36		● 105138		

										N360-3	N360V-3	N360TN-3	
N360-3  													
N360V-3   													
N360TN-3   												NEW	
													
													
										2B	2B	2B	
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	
6	40	3.5	56	6.5	20	4	3	3	2.9	• 101686			
10	32	4.82	70	9	25	6	4.9	3	4.05	• 101682	• 101730	• 196009	
12	28	5.48	80	11	30	6	4.9	3	4.6	• 101683			
1/4	28	6.35	80	11	30	7	5.5	3	5.5	• 101681	• 101729	• 146137	
5/16	24	7.93	90	12.5	35	8	6.2	3	6.9	• 101685	• 101732	• 196010	
3/8	24	9.52	100	14	39	10	8	3	8.5	• 101684	• 101731	• 196011	
										3B UNF(J)			
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID			
10	32	4.82	70	9	25	6	4.9	3	4.15	• 155325			
1/4	28	6.35	80	11	30	7	5.5	3	5.55	• 155324			
5/16	24	7.93	90	12.5	35	8	6.2	3	7	• 155329			
3/8	24	9.52	100	14	39	10	8	3	8.6	• 155327			

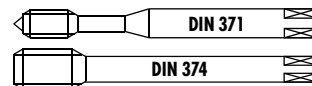
									N460-3	N460V-3	N460TN-3	
N460-3  63 72 73 74 81 91												
N460V-3   11 12 32												
N460TN-3   11 12 13 14 32												
									 2B	 2B	 2B	
$\emptyset'' d_1$ UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID	ID	ID	
7/16	20	11.11	100	14	8	6.2	3	9.8	● 102434	● 142781	● 158885	
1/2	20	12.7	100	14	9	7	3	11.4	● 102430	● 102503	● 196012	
9/16	18	14.28	100	14	11	9	3	12.9	● 102436	● 143422		
5/8	18	15.87	100	14	12	9	3	14.5	● 102433	● 143097	● 196013	
3/4	16	19.05	125	18	14	11	4	17.5	● 102432	● 102505	● 142568	
7/8	14	22.22	140	20	18	14.5	4	20.4	● 102435	● 144714		
1	12	25.4	160	27	18	14.5	4	23.3	● 102431	● 102504		
1 1/8	12	28.57	180	24	22	18	4	26.5	● 102429	● 144414		
1 1/4	12	31.75	180	24	22	18	4	29.7	● 102428	● 151709		
1 1/2	12	38.1	200	30	32	24	5	36	● 102427	● 148793		
									3B UNF(J)			
$\emptyset'' d_1$ UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID			
7/16	20	11.11	100	14	8	6.2	3	10	● 155331			
1/2	20	12.7	100	14	9	7	3	11.55	● 155322			

										Z320V-4	Z420V-4	Z320VS-4	Z420VS-4
Z320V-4		V	11	12	13	21	32						
Z420V-4		V	11	12	13	21	32						
Z320VS-4		VS	11	12	13	14	21	22				NEW	NEW
Z420VS-4		VS	11	12	13	14	21	22					
													
										2B	2B	2B	2B
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
10	32	4.82	70	15	25	6	4.9	3	4.05	• 142783		• 128685	
1/4	28	6.35	80	17	30	7	5.5	3	5.5	• 142784		• 128596	
5/16	24	7.93	90	20	35	8	6.2	3	6.9	• 142785		• 128869	
3/8	24	9.52	100	22	39	10	8	3	8.5	• 142786		• 128814	
7/16	20	11.11	100	19		8	6.2	3	9.8		• 142787		• 128960
1/2	20	12.7	100	24		9	7	3	11.4		• 142788		• 128556
5/8	18	15.87	100	26		12	9	3	14.5				• 196031
3/4	16	19.05	125	33		14	11	4	17.5				• 196032

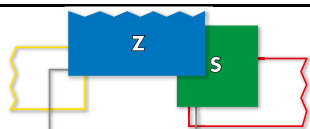
UNF

ASME B1.1

HSSE



										Z360V-3	Z460V-3		
Z360V-3 12 21 32													
Z460V-3 12 21 32													
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID		
10	32	4.82	70	9	25	6	4.9	3	4.05	● 104680			
1/4	28	6.35	80	11	30	7	5.5	3	5.5	● 104679			
5/16	24	7.93	90	12.5	35	8	6.2	3	6.9	● 104682			
3/8	24	9.52	100	14	39	10	8	3	8.5	● 104681			
7/16	20	11.11	100	14		8	6.2	3	9.8		● 104741		
1/2	20	12.7	100	14		9	7	3	11.4		● 104738		
5/8	18	15.87	100	14		12	9	3	14.5		● 104740		
3/4	16	19.05	125	18		14	11	4	17.5		● 104739		



Z370VS-3



VS



Z470VS-3



VS



Z370VS-3



VS



Z470VS-3



VS



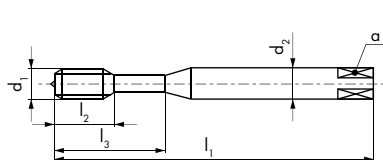
Z370VS-3

Z470VS-3



2BX

2BX



Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm		
10	32	4.82	70	9	25	6	4.9	3	4.05
1/4	28	6.35	80	11	30	* 6	* 4.9	3	5.5
5/16	24	7.93	90	12.5	35	8	6.2	3	6.9
3/8	24	9.52	100	14	39	10	8	3	8.5
7/16	20	11.11	100	14		8	6.2	3	9.8
1/2	20	12.7	110	14		* 10	* 8	4	11.4
5/8	18	15.87	110	18		12	9	4	14.5
3/4	16	19.05	125	21		14	11	4	17.5

* Norme DC / * DC Norm/ * Norma DC

ID

ID

• 166136

• 166135

• 166134

• 166133

• 166138

• 166137

• 196029

• 196030

3B
UNF(J)

Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h ₆ mm	a mm		
10	32	4.82	70	9	25	6	4.9	3	4.15
1/4	28	6.35	80	11	30	* 6	* 4.9	3	5.55
5/16	24	7.93	90	12.5	35	8	6.2	3	7
3/8	24	9.52	100	14	39	10	8	3	8.6

* Norme DC / * DC Norm/ * Norma DC

ID

• 165121

• 165122

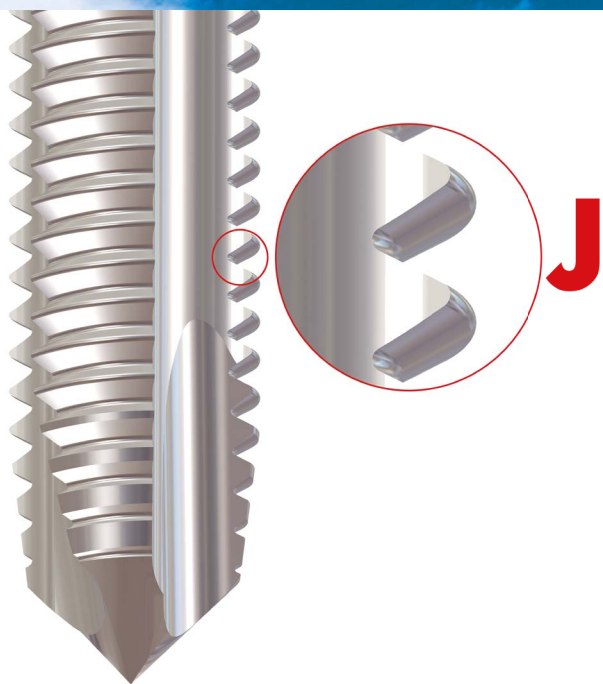
• 165123

• 165124

MJ, UNJC, UNJF

Unsere Maschinen-Gewindebohrer mit Radius auf dem Aussendurchmesser zusammengefasst in einem separaten Kapitel ab Seite 44.

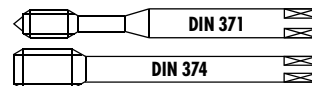
Our machine taps with radius on the outside diameter summarised in a separate chapter from page 44.

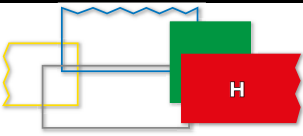
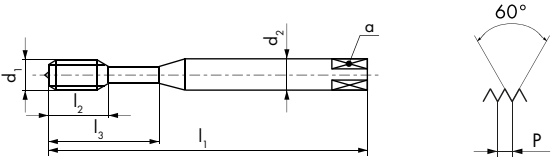


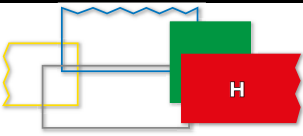
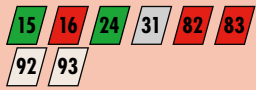
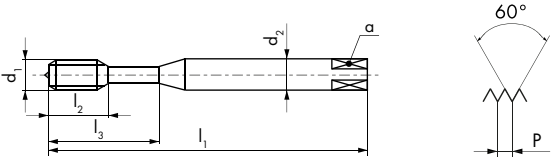
UNF

ASME B1.1

PM



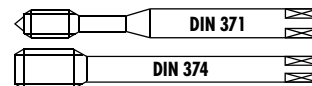
										H320-4	H420-4	H320TC-4	H420TC-4
H320-4  15 16 62 64 82													
H420-4  15 16 62 64 82												NEW	NEW
H320TC-4   15 16 24 31 82 83 92 93													
H420TC-4   15 16 24 31 82 83 92 93													
													
										2B	2B	2B	2B
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
10	32	4.82	70	15	25	6	4.9	3	4.05	● 101228		● 196060	
1/4	28	6.35	80	17	30	7	5.5	3	5.5	● 101227		● 142613	
5/16	24	7.93	90	20	35	8	6.2	3	6.9	● 105139		● 196061	
3/8	24	9.52	100	22	39	10	8	3	8.5	● 101229		● 196062	
7/16	20	11.11	100	19		8	6.2	3	9.8		● 147253		● 196063
1/2	20	12.7	100	24		9	7	4	11.4		● 101291		● 196064
5/8	18	15.87	100	26		12	9	4	14.5		● 101293		● 196065
3/4	16	19.05	125	33		14	11	4	17.5		● 101292		● 196066

										H350-3	H450-3	H350TC-3	H450TC-3
H350-3   H450-3   H350TC-3    H450TC-3   												 NEW	 NEW
													
													
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
10	32	4.82	70	9	25	6	4.9	3	4.05	● 101265		● 196055	
1/4	28	6.35	80	11	30	7	5.5	3	5.5	● 101264		● 146714	
5/16	24	7.93	90	12.5	35	8	6.2	3	6.9	● 101267		● 196056	
3/8	24	9.52	100	14	39	10	8	3	8.5	● 101266		● 196057	
7/16	20	11.11	100	14		8	6.2	3	9.8		● 101334		● 196058
1/2	20	12.7	100	14		9	7	4	11.4		● 101331		● 196059
5/8	18	15.87	100	14		12	9	4	14.5		● 101333		● 174297
3/4	16	19.05	125	18		14	11	4	17.5		● 101332		● 158882

UNF

ASME B1.1

PM



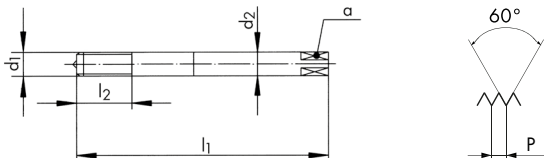
										S320VS-4	S420VS-4	S360VS-3	S460VS-3



**S | RESPECTING
THREADING**



aero									SA420-4	SA450-3		TL451VS-3
SA420-4  15 16 52 64 SA450-3  15 16 52 64												
TL451VS-3   VS 41 42												
 												
												
												
												
												
												
												
												
												
												
												
												

aero										SA390-3			
SA390-3  													
										 $< 1.5 \times D$  $< 1.5 \times D$			
										 3B UNF(J)			
$\emptyset'' d_1$ UNF	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID				
10	32	4.82	70	15	6	4.9	3	4.15	• 149687				
1/4	28	6.35	80	20	7	5.5	3	5.55	• 149715				
5/16	24	7.93	90	25	8	6.2	3	7	• 149728				
3/8	24	9.52	100	30	10	8	3	8.6	• 149745				



NEW

DER PERFEKTE "ALLROUNDER"

Lieferbar für M-, MF-, UNC-, UNF- und G-Gewinde

THE PERFECT "ALLROUNDER"

Available for M, MF, UNC, UNF and G threads



QTAP

Q320VS-4



VS

Q420VS-4



VS

Q323VS-4

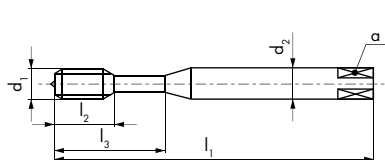


VS

Q423VS-4



VS



Q320VS-4

Q420VS-4

Q323VS-4

Q423VS-4



NEW



NEW



NEW



NEW



2B

2B

2B

2B

Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		
10	32	4.82	70	15	25	6	4.9	3	4.05
1/4	28	6.35	80	17	30	7	5.5	3	5.5
5/16	24	7.93	90	20	35	8	6.2	3	6.9
3/8	24	9.52	100	22	39	10	8	3	8.5
7/16	20	11.11	100	19		8	6.2	3	9.8
1/2	20	12.7	100	24		9	7	3	11.4

ID	ID	ID	ID
● 196298		● 197631	
● 196299		● 197632	
● 196300		● 197633	
● 196301		● 197634	
	● 196302		● 197635
	● 196303		● 197636

QTAP

Q360VS-3



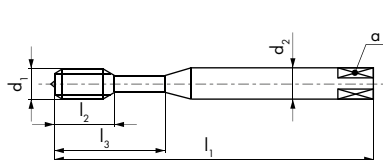
Q460VS-3



Q363VS-3



Q463VS-3



Q360VS-3

Q460VS-3

Q363VS-3

Q463VS-3



NEW



NEW



NEW



NEW



2B

2B

2B

2B

Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm	3	4.05
10	32	4.82	70	9	25	6	4.9	3	4.05
1/4	28	6.35	80	11	30	7	5.5	3	5.5
5/16	24	7.93	90	12.5	35	8	6.2	3	6.9
3/8	24	9.52	100	14	39	10	8	3	8.5
7/16	20	11.11	100	14		8	6.2	3	9.8
1/2	20	12.7	100	14		9	7	3	11.4
5/8	18	15.87	100	14		12	9	3	14.5
3/4	16	19.05	125	18		14	11	4	17.5

ID

ID

ID

ID

196304

197637

196305

197638

196306

197639

196307

197640

196308

197641

196309

197642

196310

197643

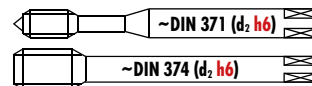
196311

197644



Uniquement pour taraudage synchrone
Nur für Synchronbearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado
Только для rigid tapping

PM



RTS

Rigid Tapping Synchro

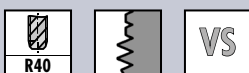
RTS320VS-4



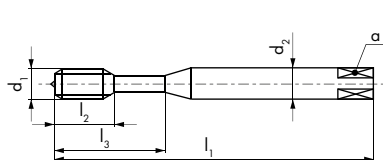
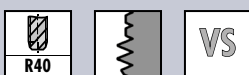
RTS420VS-4



RTS362VS-3



RTS462VS-3



RTS320VS-4

RTS420VS-4

RTS362VS-3

RTS462VS-3



Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a mm		
10	32	4.82	70	9	25	6	4.9	3	4.05
1/4	28	6.35	80	11	30	* 6	* 4.9	3	5.5
5/16	24	7.93	90	12.5	35	8	6.2	3	6.9
3/8	24	9.52	100	14	39	10	8	3	8.5
1/2	20	12.7	110	14		* 10	* 8	3	11.4

* Norme DC / * DC Norm/ * Norma DC

ID	ID	ID	ID
● 157409		● 157413	
● 157410		● 157414	
● 157411		● 157415	
● 157412		● 157416	
	● 157417		● 157418



sur demande
auf Anfrage
on request
su richiesta
sobre pedido
по запросу



W | IMPROVING THREADING

UNF

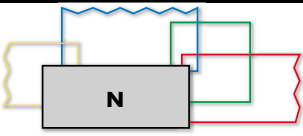
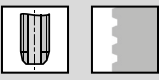
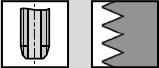
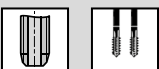
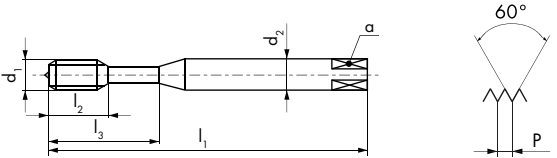
ASME B1.1

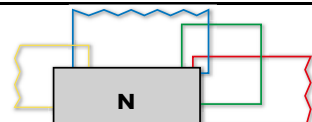
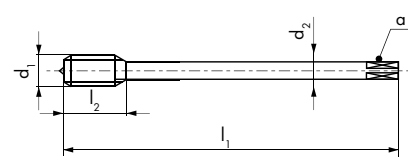
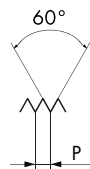
≤ Ø 2.8 > Ø 2.8

PM

HSS



										N1110-1	N1110-3	N1110-S	
N1110-1 													
N1110-3  													
N1110-S 													
													
											2B	2B	
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	
0	80	1.52	40	7		2.5	2.1	3	1.2	● 102811	● 103010	● 111079	
1	72	1.85	40	8		2.5	2.1	3	1.5	● 102812	● 103011	● 111080	
8	36	4.16	53	13	21	4.5	3.55	3	3.5		★ 103022		
10	32	4.82	58	16	25	5	4	3	4.05	● 102814	● 103013	● 111082	
12	28	5.48	62	17	26	5.6	4.5	3	4.6		★ 103014		
1/4	28	6.35	66	19	30	6.3	5	3	5.5	● 102813	● 103012	● 111081	
5/16	24	7.93	72	22	35	8	6.3	3	6.9	● 102821	● 103020	● 111089	
3/8	24	9.52	80	24	39	10	8	3	8.5	● 102818	● 103017	● 111086	

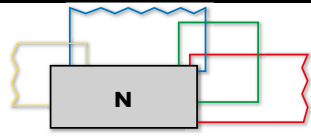
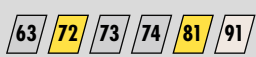
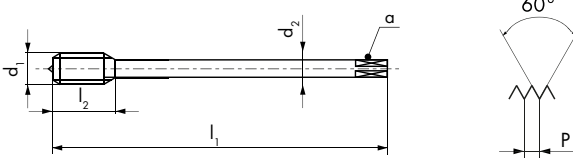
									N1210-1	N1210-3	N1210-S						
N1210-1 N1210-3 3162737491 N1210-S <td colspan="3"></td> <td colspan="3"></td> <td colspan="3"></td>																	
										 < 1.5 x D	 < 2.5 x D						
 									 5 x P	 C 2 x P 2B	 2B						
Ø" d ₁ UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID						
7/16	20	11.11	85	22	8	6.3	3	9.8	● 103411	● 103626	● 111255						
1/2	20	12.7	89	24	9	7.1	3	11.4	● 103407	● 103622	● 111251						
5/8	18	15.87	102	32	12.5	10	3	14.5	● 103410	● 103625	● 111254						
3/4	16	19.05	112	33	14	11.2	4	17.5	● 103409	● 103624	● 111253						
7/8	14	22.22	115	32	16	12.5	4	20.4	● 103412	● 103627	● 111256						
1	12	25.4	130	45	18	14	4	23.3	● 103408	● 103623	● 111252						

										N1110-3	N1120-4	N1210-3	N1220-4
N1110-3		31 62 73 74 91											
N1120-4		62 63 64 72 73 74 81 91											
N1210-3		31 62 73 74 91											
N1220-4		62 63 64 72 73 74 81 91											
Ø" d ₁ UNEF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
12	32	5.48	62	17	26	5.6	4.5	3	4.7	• 103007	• 103118		
1/4	32	6.35	66	19	30	6.3	5	3	5.6	• 103006	• 103117		
5/16	32	7.93	72	22	35	8	6.3	3	7.2	• 103009	• 103120		
3/8	32	9.52	80	24	39	10	8	3	8.75	• 103008	• 103119		
7/16	28	11.11	85	22		8	6.3	3	10.25			• 103615	• 103754
1/2	28	12.7	89	24		9	7.1	3	11.85			• 103609	• 103749
9/16	24	14.28	95	24		11.2	9	3	13.2			• 103617	• 103756
5/8	24	15.87	102	32		12.5	10	3	14.8			• 103614	• 103753
11/16	24	17.46	104	26		14	11.2	4	16.4			• 103611	
3/4	20	19.05	112	33		14	11.2	4	17.8			• 103613	
7/8	20	22.22	115	32		16	12.5	4	21			• 103616	
1	20	25.4	120	30		18	14	4	24.1			• 103610	

UNS, UN ASME B1.1

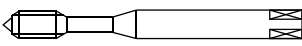
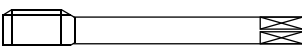
HSSE



										N410-3	N460-3	N460V-3	
N410-3  													
N460-3  													
N460V-3   													
													
Ø" d ₁ UNS	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm				ID	ID	ID	
1/4	36	6.35	80	17	4.5	3.4	3	5.65		● 104899			
1/2	24	12.7	100	24	9	7	3	11.6		● 104900			
1	14	25.4	140	34	18	14.5	4	23.6		● 104898			
1	14	25.4	140	22	18	14.5	4	23.6			● 102437	● 142789	
Ø" d ₁ UN	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm				ID	ID		
1 1/8	8	28.57	180	30	22	18	4	25.5		● 102415	● 142790		
1 1/4	8	31.75	180	30	22	18	4	28.7		● 102414	● 142520		
1 3/8	8	34.92	200	36	28	22	5	31.8		● 104896	● 142792		
1 1/2	8	38.1	200	40	32	24	5	35		● 102413	● 142793		
1 3/4	8	44.45	220	44	36	29	5	41.4			● 115198		
2	8	50.8	250	38	40	32	5	47.7			● 111622		

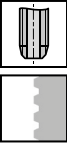
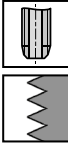
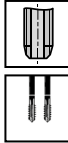
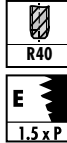
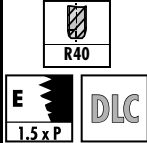
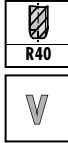
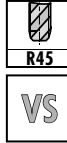
G Inhaltsverzeichnis — Maschinengewindebohrer G (Rohr) DIN EN ISO 228

Directory — Machine taps G (BSP) DIN EN ISO 228

	N						
Merkmale Characteristics		 V	 TiN	 R40	 R40 V	 R40 TiN	 R40 V
							
Lochart Hole type							
							
	N410-3	N420-4 N420V-4	N420TN-4	N460-3	N460V-3	N460TN-3	N462V-3
DIN lang DIN long DIN 5156	204	205	205	206	206	206	206
DIN lang DIN long ~ DIN 376							
DIN kurz DIN short DIN 5157							
LH Linksgewinde LH Left-hand thread DIN 5156	204						

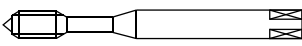
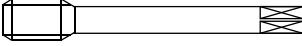
G Inhaltsverzeichnis — Maschinen- und Handgewindebohrer G (Rohr) DIN EN ISO 228

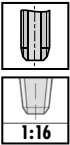
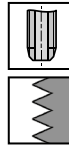
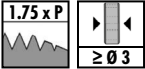
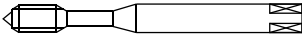
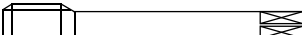
Directory — Machine and hand taps G (BSP) DIN EN ISO 228

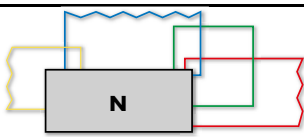
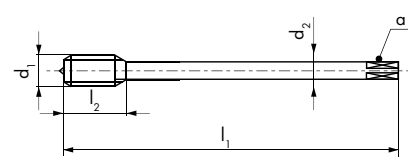
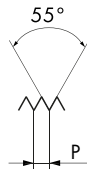
N			W		Z			
								
								
								
N210-1	N210-3	N210-S	W460-5	W460DL-5	Z420V-4	Z420VS-4	Z460V-3	Z470VS-3
			207	207	208	208	208	
								209
213	213	213						

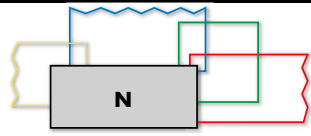
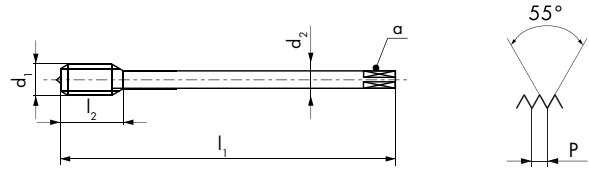
G Inhaltsverzeichnis — Maschinengewindebohrer G (Rohr) DIN EN ISO 228

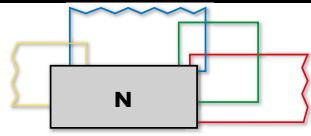
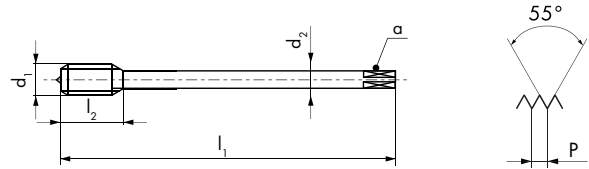
Directory — Machine taps G (BSP) DIN EN ISO 228

	H	GG	QTAP		RTS	
Merkmale Characteristics	 R25	 R15 NV	 VS	 R40 VS	 R40 VS	 R40 E 1.5xP VS
			 NEW	 NEW		
Lochart Hole type						
						
	H450-3	GG450NV-3	Q420VS-4 Q423VS-4	Q460VS-3 Q463VS-3	RTS462VS-3	RTS462VS-5
DIN lang DIN long	DIN 5156					
	207	207	210	211		
DIN lang DIN long	~ DIN 376					
					212	212
DIN kurz DIN short	DIN 5157					
LH Linksgewinde LH Left-hand thread	DIN 5156					

	N					
Merkmale Characteristics						HSS 
						
Lochart Hole type						
				N1110-3	N1120-4	
ISO kurz ISO short ISO 529				216 - 217	216	
W ISO 529				216 - 217	216	
SV ISO 529				217		
	N420-3	N410-3	D5800	N1210-3	N1220-4	N5120
DIN lang DIN long DIN 5156	214					
DIN lang DIN long DC		214	215			
ISO kurz ISO short ISO 529				216 - 217	216	
Rp DIN 5156	214					
Rc DC		214	215			
W ISO 529				216	216	
SV ISO 529 / DC				217		217

									N410-3		N410-3 LH									
N410-3  3162737491 N410-3 LH  LH 3162737491																				
									 < 1.5 x D  < 1.5 x D											
 									 C2.5 x P  C2.5 x P											
Ø" d₁ G P TPI d₁ mm l₁ mm l₂ mm d₂ mm a mm   ID ID									● 101855 ● 101853 ● 101861 ● 101851 ● 101859 ● 101857 ● 101850 ● 101849						● 101854 ● 101862 ● 101852					

									N420-4	N420V-4	N420TN-4	
N420-4			62 63 64 72 73 74 81 91									
N420V-4		V	11 12 31 32									
N420TN-4		TiN	11 12 13 14 32									
												
Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	
1/16	28	7.72	90	18	6	4.9	3	6.75	● 102045			
1/8	28	9.72	90	22	7	5.5	3	8.75	● 102048	● 102258	● 102236	
1/4	19	13.15	100	20	11	9	3	11.6	● 102047	● 102257	● 102235	
3/8	19	16.66	100	20	12	9	3	15.2	● 102053	● 102261	● 102238	
1/2	14	20.95	125	22	16	12	4	18.9	● 102046	● 102256	● 102234	
5/8	14	22.91	125	25	18	14.5	4	20.9	● 102054	● 144722		
3/4	14	26.44	140	28	20	16	4	24.4	● 102052	● 102260	● 102237	
1	11	33.24	160	32	25	20	4	30.7	● 102049	● 102259		
1 1/4	11	41.91	170	32	32	24	5	39.3	● 102043			
1 1/2	11	47.8	190	32	36	29	5	45.2	● 102042			
2	11	59.61	220	36	45	35	5	57	● 102051			
2 1/2	11	75.18	280	36	50	39	6	72.6	● 102050			

									N460-3	N460V-3	N460TN-3	N462V-3
N460-3  												
N460V-3   												
N460TN-3   												
N462V-3    												
												
Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
1/16	28	7.72	90	12.5	6	4.9	3	6.75	● 102341			
1/8	28	9.72	90	14	7	5.5	3	8.75	● 102344	● 102457	● 102444	● 143687
1/4	19	13.15	100	14	11	9	3	11.6	● 102343	● 102456	● 102443	● 143600
3/8	19	16.66	100	14	12	9	4	15.2	● 102348	● 102460	● 102446	● 143431
1/2	14	20.95	125	20	16	12	4	18.9	● 102342	● 102455	● 102442	● 143921
5/8	14	22.91	125	20	18	14.5	4	20.9	● 102349	● 143711		
3/4	14	26.44	140	22	20	16	4	24.4	● 102347	● 102459	● 102445	● 143688
1	11	33.24	160	26	25	20	4	30.7	● 102345	● 102458		
1 1/4	11	41.91	170	30	32	24	5	39.3	● 102340	● 111608		
1 1/2	11	47.8	190	35	36	29	5	45.2	● 102339	● 111609		
2	11	59.61	220	41	45	35	6	57	● 102346	● 111503		

G DIN EN ISO 228 (BSP)

≤ Ø 25.4 > Ø 25.4

HSSE
W

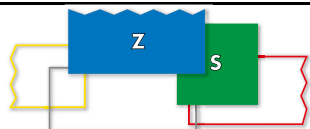
PM
H/GG

HSSE
H/GG



									W460-5	W460DL-5	H450-3	GG450NV-3
W460-5 71 72 81												
W460DL-5 71 72 73												
H450-3 15 16 62 64 82												
GG450NV-3 31												
Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID	ID	ID
1/8	28	9.72	90	14	7	5.5	3	8.75	● 119350	● 176728	● 101298	
1/4	19	13.15	100	14	11	9	* 4	11.6	● 119300	● 176729	● 101297	
3/8	19	16.66	100	14	12	9	4	15.2	● 119682	● 176730	● 101301	
1/2	14	20.95	125	20	16	12	4	18.9	● 119199	● 176731	● 101296	
3/4	14	26.44	140	22	20	16	4	24.4			● 101300	
1	11	33.24	160	26	25	20	4	30.7			● 101299	
* W460-5 = 3 * W460DL-5 = 3												
Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID			
1/8	28	9.72	90	22	7	5.5	4	8.75			● 102309	
1/4	19	13.15	100	20	11	9	4	11.6			● 102308	
3/8	19	16.66	100	20	12	9	4	15.2			● 102312	
1/2	14	20.95	125	22	16	12	4	18.9			● 102307	
3/4	14	26.44	140	28	20	16	4	24.4			● 102311	
1	11	33.24	160	32	25	20	4	30.7			● 102310	

									Z420V-4	Z420VS-4	Z460V-3	
Z420V-4		V										
Z420VS-4		VS										
Z460V-3		V										
Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID	ID		
1/8	28	9.72	90	22	7	5.5	3	8.75	● 142794	● 142800		
1/4	19	13.15	100	20	11	9	3	11.6	● 142795	● 119303		
3/8	19	16.66	100	20	12	9	3	15.2	● 142796	● 142802		
1/2	14	20.95	125	22	16	12	4	18.9	● 142797	● 142803		
3/4	14	26.44	140	28	20	16	4	24.4	● 142798			
1	11	33.24	160	32	25	20	4	30.7	● 142799			
Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID			
1/8	28	9.72	90	14	7	5.5	3	8.75	● 104726			
1/4	19	13.15	100	14	11	9	3	11.6	● 104725			
3/8	19	16.66	100	14	12	9	4	15.2	● 104728			
1/2	14	20.95	125	20	16	12	4	18.9	● 104724			
3/4	14	26.44	140	22	20	16	4	24.4	● 104727			
1	11	33.24	160	26	25	20	4	30.7	● 105142			



Z470VS-3



VS



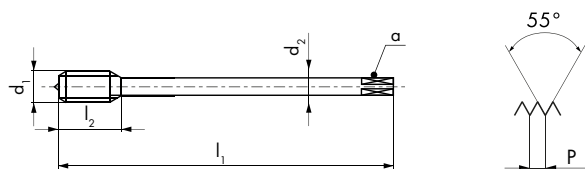
Z470VS-3



VS



Z470VS-3



$\emptyset'' d_1$ G	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 h6 mm	a mm		
1/8	28	9.72	100	14	* 8	* 6.2	3	8.75
1/4	19	13.15	110	14	* 12	* 9	4	11.6
3/8	19	16.66	110	18	12	9	4	15.2
1/2	14	20.95	125	20	16	12	4	18.9

* Norme DC / * DC Norm/ * Norma DC

ID

- 165198
- 165199
- 165200
- 165201

QTAP

Q420VS-4



Q423VS-4



Q420VS-4

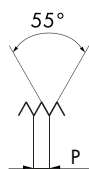
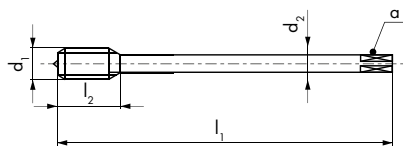
Q423VS-4



NEW



NEW



$\frac{\text{Ø}''}{G}$	d_1	P	d_1	l_1	l_2	d_2	a		
TPI	mm	mm	mm	mm	mm	mm	mm		
1/8	28	9.72	90	22	7	5.5	3	8.75	
1/4	19	13.15	100	20	11	9	3	11.6	
3/8	19	16.66	100	20	12	9	3	15.2	
1/2	14	20.95	125	22	16	12	4	18.9	

ID

ID

● 196312

● 197645

● 196313

● 197646

● 196314

● 197647

● 196315

● 197648

QTAP

Q460VS-3



VS

Q463VS-3



VS



Q460VS-3

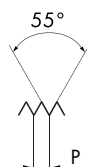
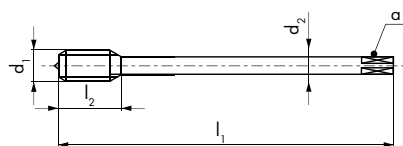
Q463VS-3



NEW



NEW



Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm		
1/8	28	9.72	90	14	7	5.5	3	8.75
1/4	19	13.15	100	14	11	9	3	11.6
3/8	19	16.66	100	14	12	9	4	15.2
1/2	14	20.95	125	20	16	12	4	18.9

ID

ID

● 196316	● 197649
● 196317	● 197650
● 196318	● 197651
● 196319	● 197652



Uniquement pour taraudage synchrone
Nur für Synchronbearbeitung
Only for rigid tapping
Solo per maschiatura sincrona
Solo para roscado sincronizado
Только для rigid tapping

PM



RTS

Rigid Tapping Synchro

RTS462VS-3



VS

RTS462VS-5

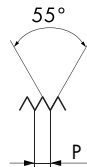
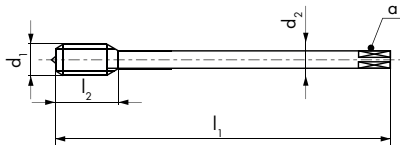


VS



RTS462VS-3

RTS462VS-5



$\emptyset'' d_1$ G	P TPI	d_1 mm	l_1 mm	l_2 mm	$d_2 h6$ mm	a mm		
1/8	28	9.72	100	14	* 8	* 6.2	3	8.75
1/4	19	13.15	110	14	* 12	* 9	3	11.6
3/8	19	16.66	110	18	12	9	4	15.2
1/2	14	20.95	125	20	16	12	4	18.9

* Norme DC / * DC Norm/ * Norma DC

ID

ID

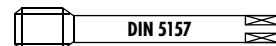
- 151861 170629
- 151868 170631
- 151872 170633
- 150685 170635

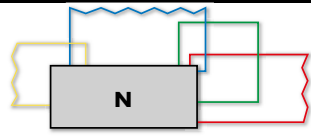
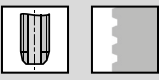
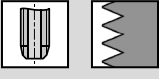
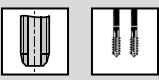
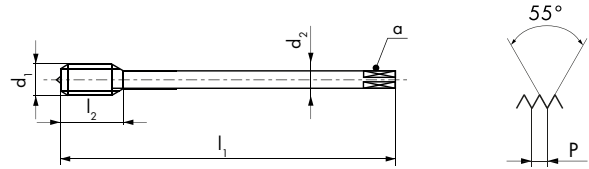


sur demande
auf Anfrage
on request
su richiesta
sobre pedido
по запросу

G DIN EN ISO 228 (BSP)

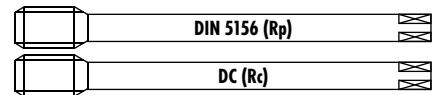
HSSE

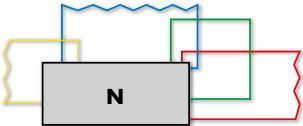
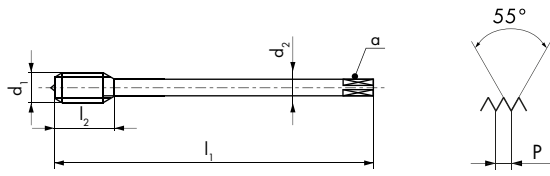


										N210-1	N210-3	N210-S	
N210-1 													
N210-3  													
N210-S 													
													
Ø" d ₁ G	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm				ID	ID	ID	
1/16	28	7.72	63	18	6	4.9	3	6.75			● 101418		
1/8	28	9.72	63	22	7	5.5	3	8.75	● 101404	● 101421	● 119386		
1/4	19	13.15	70	20	11	9	3	11.6	● 101403	● 101420	● 119336		
3/8	19	16.66	70	20	12	9	4	15.2	● 101409	● 101427	● 110938		
1/2	14	20.95	80	22	16	12	4	18.9	● 101402	● 101419	● 119264		
5/8	14	22.91	80	25	18	14.5	4	20.9	● 101411	● 105140	● 110940		
3/4	14	26.44	90	28	20	16	4	24.4	● 101408	● 101426	● 110937		
1	11	33.24	100	32	25	20	4	30.7	● 101405	● 101422	● 110933		
1 1/8	11	37.89	125	32	28	22	4	35.3		● 101415			
1 1/4	11	41.91	125	32	32	24	5	39.3	● 101400	● 101414	● 111425		
1 1/2	11	47.8	140	32	36	29	5	45.2	● 101399	● 101413	● 110934		
2	11	59.61	160	36	45	35	5	57	● 101407	● 101425	● 110935		
2 1/2	11	75.18	160	36	50	39	6	72.6		● 101423			

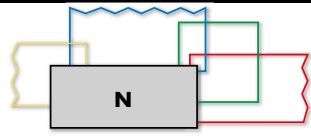
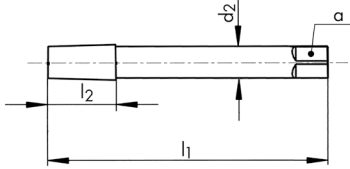
Rp, Rc DIN EN 10226

HSSE



										N420-3				N410-3					
N420-3  626364727374 8191																			
N410-3  316274																  1:16			
																			
Ø" d₁ R_p P TPI d₁ mm l₁ mm l₂ mm d₂ mm a mm  										ID									
1/8289.72902275.538.6										● 104911									
1/41913.1510020119311.5										● 104912									
3/81916.6610020129315										● 104913									
1/21420.95125221612418.5										● 104914									
3/41426.44140282016424										● 104915									
11133.24160322520430.25										● 104916									
Ø" d₁ R_c P TPI d₁ mm l₁ mm l₂ mm d₂ mm a mm 										ID									
1/8289.72711386.25										● 104917									
1/41913.1580201195										● 104918									
3/81916.6690201295										● 104919									
1/21420.951002616125										● 104920									
3/41426.441102620165										● 104921									
11133.241253225205										● 104922									

Vc (m/min) Ø d1 - Guide Line				
Rc	1/16" - 1/4"	3/8" - 1/2"	3/4" - 1"	1.1/4" - 2"
 31 74	10	8	7	5
 62	18	15	13	10

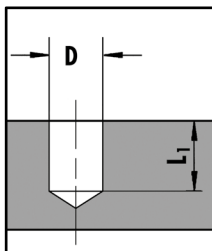
					D5800			
D5800 								
								
Ø" Rc	l ₁ mm	l ₂ mm	d ₂ mm	a mm	ID			
1/16	70	17	6	4.9	● 118701			
1/8	70	17	8	6.2	● 110531			
1/4	80	27	10	8	● 110530			
3/8	85	27	12	9	● 110535			
1/2	95	35	16	12	● 110529			
3/4	105	35	20	16	● 110534			
1	130	43	25	20	● 110532			

Kernloch-Durchmesser für kegeliges Rohrgewinde nach DIN EN 10226

Core hole diameters for tapered pipe thread to DIN EN 10226

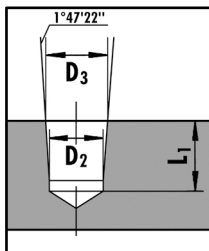
Bohrung zylindrisch
Vermeiden, da schnellere
Abnutzung des Gewindebohrers
und Klemmen

Parallel hole
Increased tap wear,
not recommended



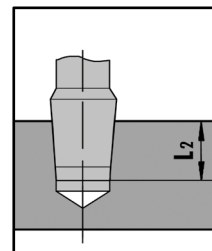
Bohrung konisch 1:16
Zylindrisch bohren nach Ø D₂
und konisch aufreiben auf Ø D₃

Tapered hole 1:16
Pre-drill at Ø D₂
and taper-ream to Ø D₃



Gewindeschneiden
Gewindebohrer auf Nennmass
L₂ eindrehen

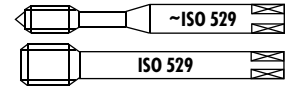
Tapped hole
Engage tap to hole depth
L₂ = nominal Ø



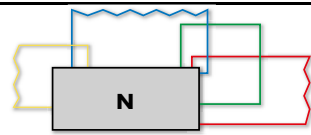
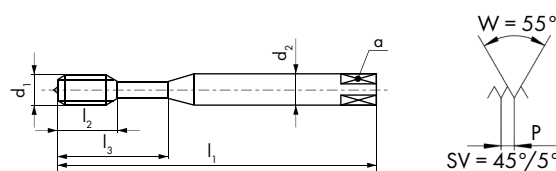
Ø" Rc	l ₁ min. mm	D ₁ mm	D ₂ mm	D ₃ mm	l ₂ mm
1/16	11.9	6.2	6.1	6.56	10.6
1/8	11.9	8.2	8.1	8.57	10.6
1/4	17.7	11	10.75	11.45	15.7
3/8	18.1	14.5	14.25	14.95	16.1
1/2	24	18	17.75	18.63	21.4
3/4	25.3	23.5	23	24.12	21.5
1	30.6	29.5	29	30.29	26.3

W BS 84 (BSW)

HSS



										N1110-3	N1210-3	N1120-4	N1220-4
N1110-3													
N1210-3													
N1120-4													
N1220-4													
Ø" d ₁ W	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
1/8	40	3.17	48	11	18	3.15	2.5	3	2.5	● 103025		● 103126	
5/32	32	3.96	53	13	21	4	3.15	3	3.1	● 103031		● 103130	
3/16	24	4.76	58	16	25	5	4	3	3.6	● 103026		● 103127	
1/4	20	6.35	66	19	30	6.3	5	3	4.9	● 103024		● 103125	
5/16	18	7.93	72	22	35	8	6.3	3	6.4	● 103030		● 103129	
3/8	16	9.52	80	24	39	10	8	3	7.7	● 103028		● 103128	
7/16	14	11.11	85	22		8	6.3	3	9.1		● 103642		● 103771
1/2	12	12.7	89	24		9	7.1	3	10.3		● 103634		● 103767
5/8	11	15.87	102	32		12.5	10	3	13.3		● 103641		● 103770
3/4	10	19.05	112	33		14	11.2	3	16.2		● 103640		● 103769

										N1110-3	N1210-3	N5120	
N1110-3 31 62 73 74 91 N1210-3 31 62 73 74 91 N5120 11 12 										 < 1.5 x D	 < 1.5 x D		
										 C 2 x P	 C 2 x P	 1.75 x P	
$\emptyset d_1$ W	P TPI/mm	B6	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID			
5	36/TPI/1"	B6	58	16	25	5	4	3	4.3*	●	103029		
6.82	0.625	B8	66	19	30	7.1	5.6	3	6.2*	●	111143		
$\emptyset d_1$ SV	P mm	W10	l_1 mm	l_2 mm	l_3 mm	d_2 mm	a mm			ID	ID		
10	0.833	W10	80	24	39	10	8	3	* 8.9	●	130429		
12	1.25	W12	89	24		9	7.1	3	* 10.5			●	103591
15	1.25	W15	90	23		11.2	9	3	* 13.5			●	103592
20	1.666	W20	112	37		14	11.2	4	* 17.9			●	103593
25	1.693	W25	120	30		18	14	4	* 22.75			●	103594

NPT, NPTF

Maschinengewindebohrer, NPT ASME B1.20.1 und NPTF ANSI B1.20.3

Machine taps, NPT ASME B1.20.1 and NPTF ANSI B1.20.3

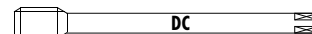
		N			
Merkmale Characteristics			 	 	 1:16
					
Lochart Hole type					
					
		N410-3	N410V-3	N411V-3	D5800
NPT DIN lang NPT DIN long	DC	220	220	220	221
NPTF DIN lang NPTF DIN long	DC	220			

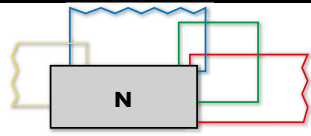
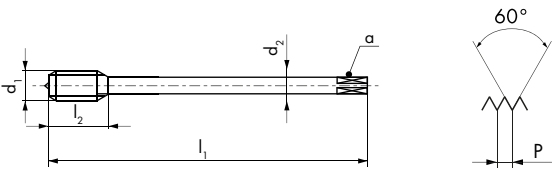
PG, TR *Maschinen- und Handgewindebohrer, PG DIN 40430, TR ISO 2901-2904, DIN 103*
Machine and hand taps, PG DIN 40430, TR ISO 2901-2904, DIN 103

NPT, NPTF

ASME B1.20.1, ANSI B1.20.3

HSSE



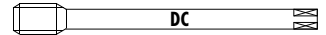
							N410-3	N410V-3	N411V-3	N410-3
N410-3						31 62 74				
N410V-3		V				11 12 14 21 32				
N411V-3			V			11 12 14 21 32				
N410-3						31 62 74				
										
							2 x P	2 x P	2 x P	2 x P
							NPT	NPT	NPT	NPTF
Ø" d ₁ NPT, NPTF	P TPI	l ₁ mm	l ₂ mm	d ₂ mm	a mm		ID	ID	ID	ID
1/16	27	71	13	7	5.5	3	• 101961	• 102021	• 102031	• 101971
1/8	27	71	13	8	6.2	5	• 101964	• 102024	• 102034	• 101974
1/4	18	80	20	11	9	5	• 101963	• 102023	• 102033	• 101973
3/8	18	90	20	12	9	5	• 101968	• 102028	• 102038	• 101978
1/2	14	100	26	16	12	5	• 101962	• 102022	• 102032	• 101972
3/4	14	110	26	20	16	5	• 101967	• 102027	• 102037	• 101977
1	11.5	125	32	25	20	5	• 101965	• 102025	• 102035	• 101975
1 1/4	11.5	125	32	32	24	5	• 101960	• 102020		
1 1/2	11.5	140	32	36	29	5	• 101959	• 102019		
2	11.5	160	32	36	29	7	• 101966	• 102026		

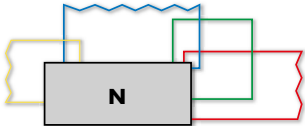
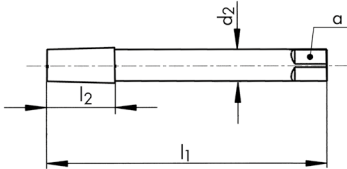
Vc (m/min) Ø d1 - Guide Line				
NPT, NPTF	1/16" - 1/4"	3/8" - 1/2"	3/4" - 1"	1 1/4" - 2"
11 12 14 32	6	5	4	3
21	5	4	3	2
31 74	10	8	7	5
62	18	15	13	10

NPT, NPTF

ASME B1.20.1, ANSI B1.20.3

HSSE



					D5800			
D5800 								
								
Ø" NPT, NPTF	l ₁ mm	l ₂ mm	d ₂ mm	a mm	ID			
1/16	70	17	6	4.9	● 118701			
1/8	70	17	8	6.2	● 110531			
1/4	80	27	10	8	● 110530			
3/8	85	27	12	9	● 110535			
1/2	95	35	16	12	● 110529			
3/4	105	35	20	16	● 110534			
1	130	43	25	20	● 110532			

Kernloch-Durchmesser für NPT- und NPTF-Gewinde Core hole diameters for NPT and NPTF threads

Bohrung zylindrisch

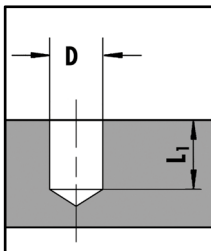
Vermeiden, da schnellere Abnutzung des Gewindebohrers und Klemmen

Parallel hole

Increased tap wear, not recommended

*Es wird empfohlen, das Kernloch auf D₃ maxi konisch aufzureiben.

*Taper-ream at upper limit D₃ is recommended

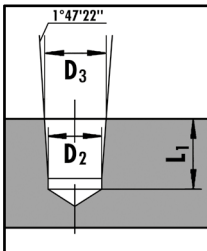


Bohrung konisch 1:16

Zylindrisch bohren nach Ø D₂ und konisch aufreiben auf Ø D₃

Tapered hole 1:16

Pre-drill at Ø D₂ and taper-ream to Ø D₃

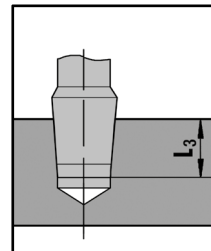


Gewindeschneiden

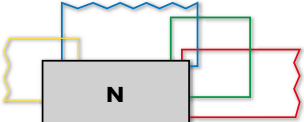
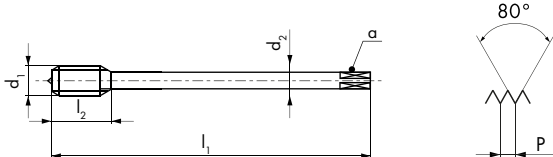
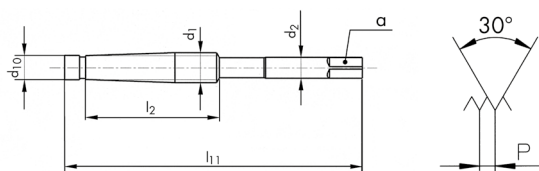
Gewindebohrer auf Nennmass L₃ eindrehen

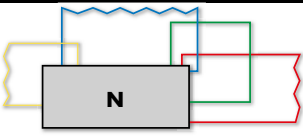
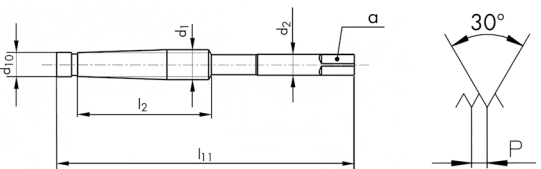
Tapped hole

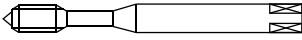
Engage tap to hole depth L₃ = nominal Ø



Ø" NPT, NPTF	D mm	L ₁ mm	D ₂ mm	NPT D ₃ (+0.05) mm	NPTF D ₃ (+0.05) mm	L ₃ mm
1/16	6.15	12	6	6.39	6.41	10.2
1/8	8.5	12	8.3	8.74	8.76	10.3
1/4	11	17.5	10.8	11.36	11.4	15.1
3/8	14.5	17.5	14.2	14.8	14.84	15.3
1/2	17.9	23	17.5	18.32	18.33	20
3/4	23.2	23	22.8	23.67	23.68	20.5
1	29	28	28.6	29.69	29.72	24.6

										N420-3				N410-8	
N420-3  61 63 71 72 73 81															
N410-8  31 62 74												 < 1.5 x D			
										 2.5 x P					
$\varnothing d_1$ PG	P TPI	d_1 mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID						
7	20	12.5	100	24	9	7	3	11.3	● 104901						
9	18	15.2	100	26	12	9	3	13.9	● 104902						
11	18	18.6	110	26	14	11	4	17.3	● 104903						
13.5	18	20.4	125	28	16	12	4	19.1	● 104904						
16	18	22.5	125	28	18	14.5	4	21.2	● 104905						
21	16	28.3	150	36	22	18	4	26.8	● 104906						
29	16	37	170	38	28	22	4	35.5	● 104907						
36	16	47	190	38	36	29	5	45.5	● 104908						
												7H			
$\varnothing d_1$ TR	P mm	l_{11} mm	l_2 mm	d_{10} mm	d_2 mm	a mm			ID						
10	2	100	45	8.2	7	5.5	3	8.2	● 102008						
12	3	140	75	9.25	8	6.2	3	9.25	● 102009						
14	3	150	75	11.25	10	8	3	11.25	● 102010						
16	4	180	100	12.25	11	9	3	12.25	● 102011						
18	4	180	100	14.25	12	9	3	14.25	● 102012						
20	4	190	100	16.25	14	11	3	16.25	● 102013						
22	5	220	110	17.25	16	12	4	17.25	● 111616						
24	5	220	110	19.25	18	14.5	4	19.25	● 102015						

									N410-1	N410-2	N410-3	N410-S
N410-1  N410-2  N410-3  N410-S 												
												
7H									7H			
Ø d₁	P	l₁₁	l₂	d₁₀	d₂	a			ID	ID	ID	ID
10	2	85	30	8.2	7	5.5	3	8.2	* 101827	* 101838	* 101979	* 110972
16	4	165	65	12.25	11	9	3	12.25	* 101830	* 101841	* 101982	* 110975
Zufolge der geringen Nachfrage führen wir TR-Gewindebohrer-Sätze nicht mehr im Standard-Programm. Auf Wunsch bieten wir Ihnen diese gerne als Spezialanfertigung an, Preis und Lieferfrist auf Anfrage. Due to low demand, we no longer keep TR tap sets in our standard programme. On request, we will be pleased to offer these as custom-made products, price and delivery time on demand.												

	N				Z	S	
Merkmale Characteristics 	 	 	 R40	 R40 	 R45 	 	 R35 
							
Lochart Hole type							
	N320-4	N320V-4	N360-3	N360V-3	Z370VS-3	S320VS-4	S360VS-3
DIN lang DIN long	~DIN 40435	226	226	227	227		
DIN lang DIN long	~DIN 2184-1	230 / 233		230 / 233	231 / 234	234	234
Gewinde Thread	EG M	226	226	227	227		
Gewinde Thread	EG UNC	230		230	231		
Gewinde Thread	EG UNF	233		233	234	234	234
	N420-4	N420V-4	N460-3	N460V-3			
DIN lang DIN long	~DIN 40435	226	226	227	227		
DIN lang DIN long	~DIN 2184-1	230 / 233		230 / 233			
Gewinde Thread	EG M	226	226	227	227		
Gewinde Thread	EG UNC	230		230			
Gewinde Thread	EG UNF	233		233			

EG

Maschinengewindebohrer, Aufnahmegewinde für Gewindeeinsätze EG M, EG UNC, EG UNF
Machine taps for wire screw thread inserts EG M, EG UNC, EG UNF

[illegible]

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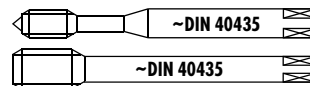
dcswiss.com



≤ Ø 2.8 > Ø 2.8

PM

HSSE

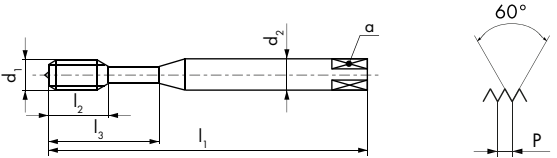


										N360-3	N360V-3	N460-3	N460V-3
Ø d ₁ EG M	P mm	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID	ID	ID
2	0.4	2.52	50	9		2.8	2.1	2	2.1	● 101599			
2.5	0.45	3.08	56	5.5	18	3.5	2.7	3	2.65	● 101600			
3	0.5	3.65	56	6.5	20	4	3	3	3.15	● 101601	● 142813		
4	0.7	4.91	70	9	25	6	4.9	3	4.2	● 101602	● 142814		
5	0.8	6.04	80	11	30	6	4.9	3	5.25	● 101603	● 142815		
6	1	7.3	80	11	30	7	5.5	3	6.3	● 101604	● 142816		
8	1.25	9.62	100	14	39	10	8	3	8.4	● 101605	● 142817		
10	1.5	11.94	100	14		9	7	3	10.4			● 102335	● 142818
12	1.75	14.27	110	14		11	9	3	12.5			● 102336	● 142819
14	2	16.59	110	18		12	9	3	14.6			● 102337	● 142820
16	2	18.59	125	21		14	11	3	16.6			● 102338	● 142821



PM



aero										SA320-4	SA350-3		TL351VS-3
SA320-4 SA350-3													
TL351VS-3													
													
													
													
Ø d ₁ EG M	P mm	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID		ID
3	0.5	3.65	56	13		4	3	3	3.15	● 147676	● 147682		● 150478
4	0.7	4.91	70	15		6	4.9	3	4.2	● 147678	● 147684		● 152003
5	0.8	6.04	80	15	23	6	4.9	3	5.25	● 147680	● 147686		● 150184
6	1	7.3	80	15	23	7	5.5	3	6.3	● 147688	● 147692		● 152005
8	1.25	9.62	100	20	33	10	8	3	8.4	● 149354	● 149356		● 152089



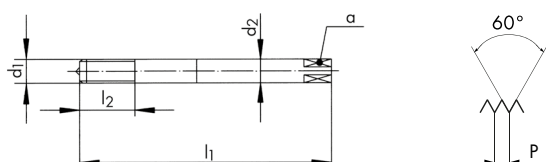
aero

SA390-3



16 53

SA390-3



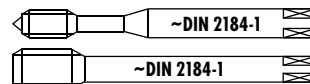
Ø d ₁ EG M	P mm	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID
3	0.5	3.65	56	13	4	3	3	3.15	• 149669
4	0.7	4.91	70	15	6	4.9	3	4.2	• 149688
5	0.8	6.04	80	20	6	4.9	3	5.25	• 149710
6	1	7.3	80	20	7	5.5	3	6.3	• 149723
8	1.25	9.62	100	30	10	8	3	8.4	• 149748
10	1.5	11.94	110	35	12	9	3	10.4	• 149767

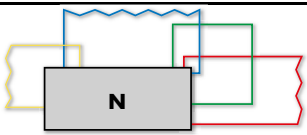
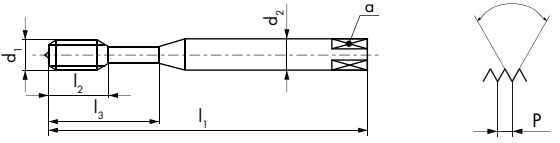
EG UNC

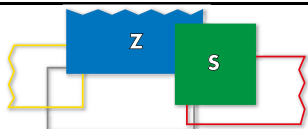
ASME B18.29.1



HSSE



										N320-4	N420-4	N360-3	N460-3
N320-4		       											
N420-4		       											
N360-3	 R40	     											
N460-3	 R40	     											
													
Ø" d ₁ EG UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID		
4	40	3.67	56	13	20	4	3	3	3.05	● 110946			
6	32	4.53	70	15	25	6	4.9	3	3.75	● 110948			
8	32	5.19	70	15	25	6	4.9	3	4.45	● 110949			
1/4	20	8	90	20	35	8	6.2	3	6.7	● 110944			
5/16	18	9.77	100	22	39	10	8	3	8.4	● 110947			
3/8	16	11.58	110	24		9	7	3	10		● 110033		
1/2	13	15.23	110	30		12	9	3	13.3		● 104935		
Ø" d ₁ EG UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm					ID	ID
4	40	3.67	56	6.5	20	4	3	3	3.05			● 110018	
6	32	4.53	70	9	25	6	4.9	3	3.75			● 110019	
8	32	5.19	70	9	25	6	4.9	3	4.45			● 110956	
10	24	6.2	80	11	30	7	5.5	3	5.1			● 110954	
1/4	20	8	90	12.5	35	8	6.2	3	6.7			● 110024	
5/16	18	9.77	100	14	39	10	8	3	8.4			● 111759	
3/8	16	11.58	110	14		9	7	3	10				● 111715
1/2	13	15.23	110	18		12	9	3	13.3				● 111558



Z370VS-3



VS



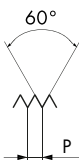
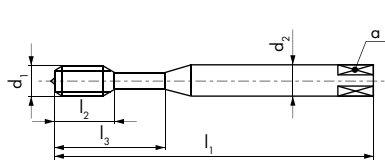
Z370VS-3



VS



Z370VS-3



3B

Ø d EG UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ h6 mm	a mm		
4	40	3.67	56	6.5	20	4(h9)	3	3	3.05
6	32	4.53	70	9	25	6	4.9	3	3.75
8	32	5.19	70	9	25	6	4.9	3	4.45

ID

- 165126
- 165127
- 165128



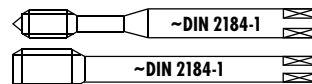
aero									SA320-4	SA350-3	TL320VS-4	TL351VS-3
SA320-4 SA350-3												
TL320VS-4 TL351VS-3												
Ø" d ₁ EG UNC	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm		ID	ID	ID	ID
4	40	3.67	56	13		4	3	3	149073	149075		152031
6	32	4.53	70	15		6	4.9	3	149121	149123	* 152040	152041
8	32	5.19	70	15		6	4.9	3	149170	149172		152053
1/4	20	8	90	18	29	8	6.2	3	149284	149286	* 152073	152074
5/16	18	9.77	100	20	33	10	8	3		* 149360		

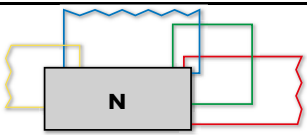
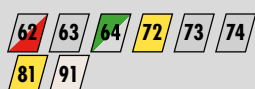
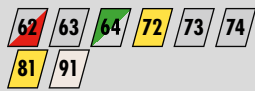
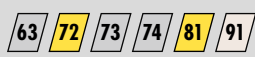
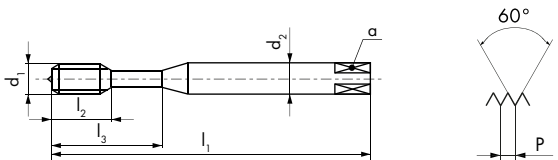
EG UNF

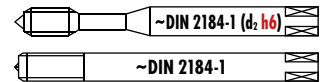
ASME B18.29.1



HSSE



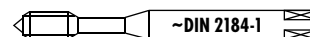
											N320-4	N420-4	N360-3	N460-3
N320-4														
N420-4														
N360-3														
N460-3														
														
														
Ø" d ₁ EG UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm			ID	ID			
6	40	4.33	63	14	21	4.5	3.4	3	3.7	● 118879				
8	36	5.08	70	15	25	6	4.9	3	4.4	● 118882				
10	32	5.85	80	17	30	6	4.9	3	5.1	● 104941				
1/4	28	7.52	90	20	35	8	6.2	3	6.65	● 110234				
5/16	24	9.31	90	20	35	9	7	3	8.2	● 118876				
3/8	24	10.89	100	19		8	6.2	3	9.8		● 118873			
1/2	20	14.35	100	24		11	9	3	13.1		● 118865			
Ø" d ₁ EG UNF	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	l ₃ mm	d ₂ mm	a mm					ID	ID	
6	40	4.33	63	7.5	21	4.5	3.4	3	3.7			● 110959		
8	36	5.08	70	9	25	6	4.9	3	4.4			● 110960		
10	32	5.85	80	11	30	6	4.9	3	5.1			● 104946		
1/4	28	7.52	90	12.5	35	8	6.2	3	6.65			● 110020		
5/16	24	9.31	90	12.5	35	9	7	3	8.2			● 111619		
3/8	24	10.89	100	19		8	6.2	3	9.8				● 110027	
1/2	20	14.35	100	14		11	9	3	13.1				● 104951	



Z S										Z370VS-3	S320VS-4	S360VS-3	SA390-3
Z370VS-3 VS 14 15 21 22 23 24 51 61 94													
Z370VS-3 VS 13 14 15 21 22 23 24 51 52													
S320VS-4 VS 13 15 16 22 23 24 52													
S360VS-3 VS 13 15 16 22 23 24 52													
SA390-3 aero 16 53													
										3B	3B	3B	3B
Ø" d₁ EG UNF P TPI d₁ mm l₁ mm l₂ mm l₃ mm d₂ h6 mm a mm	ID												
10	32	5.85	80	11	30	6	4.9	3	5.1	● 165129			
1/4	28	7.52	90	12.5	35	8	6.2	3	6.65	● 165130			
5/16	24	9.31	90	12.5	35	* 8	* 6.2	3	8.2	● 165131			
* Norme DC / * DC Norm/ * Norma DC													
Ø" d₁ EG UNF P TPI d₁ mm l₁ mm l₂ mm l₃ mm d₂ mm a mm	ID												
10	32	5.85	80	17	30	6	4.9	3	5.1	● 111821			
1/4	28	7.52	90	20	35	8	6.2	3	6.65	● 111822			
5/16	24	9.31	90	20	35	9	7	3	8.2	● 111823			
Ø" d₁ EG UNF P TPI d₁ mm l₁ mm l₂ mm l₃ mm d₂ mm a mm	ID												
10	32	5.85	80	11	30	6	4.9	3	5.1	● 111811			
1/4	28	7.52	90	12.5	35	8	6.2	3	6.65	● 111812			
5/16	24	9.31	90	12.5	35	9	7	3	8.2	● 111824			
Ø" d₁ EG UNF P TPI d₁ mm l₁ mm l₂ mm d₂ mm a mm	ID												
10	32	5.85	80	20		6	4.9	3	5.1	● 149702			
1/4	28	7.52	90	25		8	6.2	3	6.65	● 149724			



PM



aero

SA320-4



15 16 52 64

SA350-3

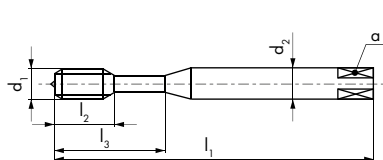


15 16 52 64

TL351VS-3



41 42



SA320-4

SA350-3

TL351VS-3



Ø" d ₁	P	d ₁	l ₁	l ₂	l ₃	d ₂	a		
EG UNF	TPI	mm	mm	mm	mm	mm	mm		
10	32	5.85	80	15	23	6	4.9	3	5.1
1/4	28	7.52	90	18	29	8	6.2	3	6.65
5/16	24	9.31	90	20	31	9	7	3	8.2

ID

ID

ID

• 149190

• 149192

• 148008

• 146099

• 149268

• 148014

• 149336

• 149338

• 148021

Allgemeines

Der DC-Kronengewindebohrer mit "V"-Oberflächenbehandlung ist ein Hochleistungswerkzeug, das eine sichere Toleranzhaltigkeit und eine sehr saubere Oberflächenqualität garantiert.

Anwendungsbereich

Dank der stirnseitigen Aussparung, die die Spanaufnahme erlaubt, kann der Kronengewindebohrer sowohl für das Schneiden von Durchgangs- als auch von Sacklöchern verwendet werden. Er ist bestimmt für die Bearbeitung von Werkstoffen mit einer Zugfestigkeit von bis zu 850 N/mm² und einer Bruchdehnung von maximal 30 %.

Einsatz

Für einwandfreie Sacklochgewinde muss die Tiefe der Kernlochbohrung jeweils entsprechend angepasst und die nachstehenden Hinweise müssen befolgt werden:

- Gewinde schneiden, bis Rutschkupplung anspricht
- Gewindebohrer zurückdrehen und Späne entfernen
- Gewinde fertig schneiden.

Spezielle Anforderungen

Das einwandfreie Funktionieren der DC-Kronengewindebohrer und der damit erzielten Gewindequalität ist abhängig von folgenden Voraussetzungen:

- Zentrierfehler darf 0.1 mm nicht überschreiten
- Einsatz eines entsprechenden Gewindeschneidfutters, das einen einwandfreien Rundlauf ermöglicht
- korrekte Schnittgeschwindigkeit wählen
- Schneidöl dem Werkstoff anpassen
- einspannen in einem Gewindeschneidfutter mit Längenausgleich und Überlastungskupplung
- Überlastungskupplung so einstellen, dass das Ansprechdrehmoment nur leicht höher liegt als das Schneiddrehmoment.

Es ist empfehlenswert, beim ersten Gewinde die Rutschkupplung bis zum Gleiten zu entlasten und dann schrittweise anzuziehen, bis der Gewindebohrer mitgenommen wird.

Spanaufnahme

Die Spanaufnahme Kapazität der stirnseitigen Krone ist ausreichend für:

Gewindedurchmesser	Ø 20 - 29 mm	≥ Ø 30 mm
M	-	1.4 x D
MF	1.2 x D	1.4 x D
UN-8	-	1.4 x D
G	1.2 x D	1.4 x D

General information

The DC crown tap with "V" surface treatment to prevent cold welding is a tool of high performance, which offers a very high quality surface finish of the tapped threads.

Application rang

Thanks to the front recess providing space for the chip collection, the DC crown tap is suitable for both, through and blind hole tapping. The crown tap can be used for materials with a tensile strength up to 850 N/mm² and an elongation of maximum 30 %.

Utilization

For an optimal blind hole threading, the core hole depth must be adapted accordingly and the following application instructions must be followed:

- tap until tapping head clutch slips
- retract tap and clear chips
- tap to the full depth.

General hints

The efficient operation of DC crown taps, as well as the quality of the cut threads, depend on observation of the following rules:

- do not exceed the maximum permissible centering error of 0.1 mm
- the tap must run concentrically, use a suitable tapping head
- tap at the correct cutting speed
- select a coolant to suit the material being tapped
- use a tapping head with axial compensation and safety clutch
- set the safety clutch so that it will slip at just above the tapping torque.

When tapping the first hole, slacken the clutch until it slips, then gradually tighten it until the tap is driven.

Chip accumulation

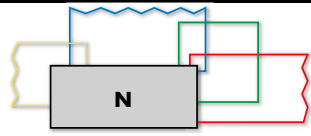
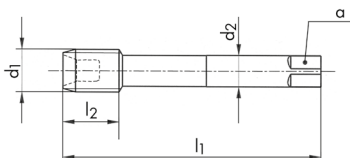
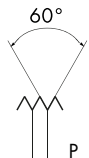
The chip accumulation capacity of the recess is the following:

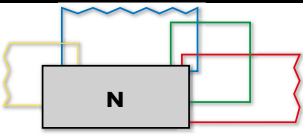
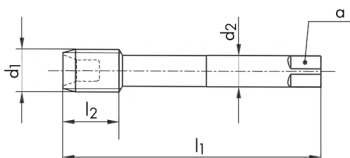
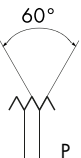
Thread diameter	Ø 20 - 29 mm	≥ Ø 30 mm
M	-	1.4 x D
MF	1.2 x D	1.4 x D
UN-8	-	1.4 x D
G	1.2 x D	1.4 x D

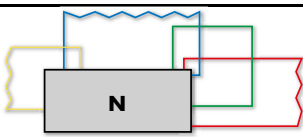
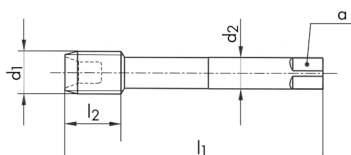
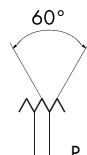
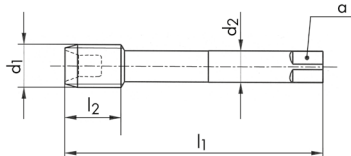
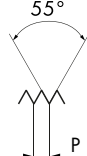
Schnittgeschwindigkeiten und Drehzahlen (Richtwerte) - Cutting and spindle speeds (guide values)

M	P	V _c (m/min)	n (U/min)	MF	P	V _c (m/min)	n (U/min)	MF	P	V _c (m/min)	n (U/min)	UN-8	P	V _c (m/min)	n (U/min)
30	3.5	7.9	84	22	1.5	8.0	116	45	1.5	6.9	49	1 1/4"	8	7.8	77
33	3.5	7.7	74	24	1.5	8.0	106	45	2.0	6.9	49	1 3/8"	8	7.6	69
36	4.0	7.5	66	26	1.5	7.9	97	48	1.5	6.6	44	1 1/2"	8	7.3	62
39	4.0	7.3	60	28	1.5	7.9	90	48	2.0	6.6	44	1 5/8"	8	7.1	55
42	4.5	7.1	54	30	1.5	7.9	84	48	3.0	6.6	44	1 3/4"	8	6.9	49
45	4.5	6.9	49	30	2.0	7.9	84	48	4.0	6.6	44	1 7/8"	8	6.7	45
48	5.0	6.6	44	32	1.5	7.8	77	50	1.5	6.5	41	2"	8	6.4	40
52	5.0	6.4	39	32	2.0	7.8	77	52	1.5	6.4	39	2 1/8"	8	6.4	38
56	5.5	6.1	35	33	1.5	7.7	74	52	3.0	6.4	39	2 1/4"	8	6.1	34
60	5.5	5.8	31	33	2.0	7.7	74	55	1.5	6.2	36	2 1/2"	8	5.6	28
64	6.0	5.5	28	34	1.5	7.6	71	56	4.0	6.1	35				
68	6.0	5.2	25	35	1.5	7.6	69	60	2.0	5.8	31				
				36	1.5	7.5	66	64	4.0	5.5	28				
				36	2.0	7.5	66	68	4.0	5.2	25				
				36	3.0	7.5	66	72	6.0	5.0	22				
				38	1.5	7.3	62	76	6.0	4.7	20				
				40	1.5	7.2	57	80	2.0	4.4	18				
				40	2.0	7.2	57	80	4.0	4.4	18				
				42	1.5	7.1	54	80	6.0	4.4	18				
				42	2.0	7.1	54	90	6.0	3.7	13				
				42	3.0	7.1	54	100	6.0	3.0	10				
				42	4.0	7.1	54	110	6.0	2.5	7				

G	P	V _c (m/min)	n (U/min)
	TPI		
3/4"	14	7.9	95
1"	11	7.7	74
1 1/4"	11	7.1	54
1 1/2"	11	6.6	44
1 3/4"	11	6.3	37
2"	11	5.8	31

								N470V-4			
N470V-4   11 12 13 14 21 32											
								 			
 								 			
$\emptyset d_1$ M	P mm	l_1 mm	l_2 mm	d_2 mm	a mm			ID			
30	3.5	180	39	22	18	5	26.5	● 102575			
33	3.5	180	39	22	18	5	29.5	★ 102576			
36	4	200	43	25	20	5	32	● 102577			
39	4	200	43	25	20	5	35	● 102578			
42	4.5	220	47	28	22	5	37.5	● 102579			
45	4.5	220	47	28	22	5	40.5	● 102580			
48	5	240	52	32	24	5	43	● 102581			
52	5	240	52	32	24	5	47	● 102582			
56	5.5	260	58	36	29	6	50.5	● 102583			
60	5.5	260	58	36	29	6	54.5	● 102584			
64	6	290	64	40	32	6	58	● 102585			
68	6	290	64	40	32	6	62	★ 102586			

								N470V-3			
N470V-3   11 12 13 14 21 32											
								 			
 								 ISO 2 6H			
Ø d ₁ MF	P mm	l ₁ mm	l ₂ mm	d ₂ mm	a mm			ID			
△ 22	1.5	125	28	18	14.5	4	20.5	★ 102526			
△ 26	1.5	140	30	18	14.5	4	24.5	★ 102529			
△ 28	1.5	140	30	20	16	4	26.5	★ 102530			
30	1.5	160	32	22	18	5	28.5	★ 102531			
34	1.5	160	26	22	18	5	32.5	★ 102537			
35	1.5	175	28	25	20	5	33.5	★ 102538			
36	2	175	35	25	20	5	34	● 102540			
36	3	200	43	25	20	5	33	● 102541			
38	1.5	175	28	25	20	5	36.5	★ 102542			
40	2	190	38	28	22	5	38	★ 102544			
42	2	190	38	28	22	5	40	● 102546			
42	3	220	47	28	22	5	39	● 102547			
48	1.5	205	34	32	24	5	46.5	★ 102551			
48	3	205	41	32	24	5	45	● 102553			
52	3	205	41	32	24	5	49	● 102557			
56	4	260	58	36	29	6	52	● 102559			
64	4	290	64	40	32	6	60	● 102561			
80	4	270	56	45	35	7	76	★ 102564			
 Other sizes from Ø 30 to 160 mm on request!											

									N470V-3																																																																																																																						
N470V-3   11 12 13 14 21 32																																																																																																																															
									  < 1.4 x D																																																																																																																						
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<table><tr><th>Ø" d₁ UN</th><th>P TPI</th><th>d₁ mm</th><th>l₁ mm</th><th>l₂ mm</th><th>d₂ mm</th><th>α mm</th><th></th><th></th><th>ID</th></tr><tr><td>1 1/4</td><td>8</td><td>31.75</td><td>180</td><td>39</td><td>22</td><td>18</td><td>5</td><td>28.7</td><td>● 102566</td></tr><tr><td>1 3/8</td><td>8</td><td>34.92</td><td>180</td><td>39</td><td>22</td><td>18</td><td>5</td><td>31.8</td><td>● 102568</td></tr><tr><td>1 1/2</td><td>8</td><td>38.1</td><td>200</td><td>43</td><td>25</td><td>20</td><td>5</td><td>35</td><td>● 102565</td></tr><tr><td>1 5/8</td><td>8</td><td>41.27</td><td>220</td><td>47</td><td>28</td><td>22</td><td>5</td><td>38.2</td><td>● 102569</td></tr><tr><td>1 3/4</td><td>8</td><td>44.45</td><td>220</td><td>47</td><td>28</td><td>22</td><td>5</td><td>41.4</td><td>● 102567</td></tr><tr><td>1 7/8</td><td>8</td><td>47.62</td><td>240</td><td>52</td><td>32</td><td>24</td><td>5</td><td>44.5</td><td>● 102570</td></tr><tr><td>2</td><td>8</td><td>50.8</td><td>205</td><td>41</td><td>32</td><td>24</td><td>5</td><td>47.7</td><td>● 102572</td></tr><tr><td>2 1/8</td><td>8</td><td>53.97</td><td>205</td><td>41</td><td>32</td><td>24</td><td>5</td><td>50.9</td><td>★ 143542</td></tr><tr><td>2 1/4</td><td>8</td><td>57.15</td><td>220</td><td>45</td><td>36</td><td>29</td><td>6</td><td>54.1</td><td>● 102571</td></tr><tr><td>2 1/2</td><td>8</td><td>63.5</td><td>220</td><td>45</td><td>36</td><td>29</td><td>6</td><td>60.4</td><td>● 111879</td></tr></table>									Ø" d ₁ UN	P TPI	d ₁ mm	l ₁ mm	l ₂ mm	d ₂ mm	α mm			ID	1 1/4	8	31.75	180	39	22	18	5	28.7	● 102566	1 3/8	8	34.92	180	39	22	18	5	31.8	● 102568	1 1/2	8	38.1	200	43	25	20	5	35	● 102565	1 5/8	8	41.27	220	47	28	22	5	38.2	● 102569	1 3/4	8	44.45	220	47	28	22	5	41.4	● 102567	1 7/8	8	47.62	240	52	32	24	5	44.5	● 102570	2	8	50.8	205	41	32	24	5	47.7	● 102572	2 1/8	8	53.97	205	41	32	24	5	50.9	★ 143542	2 1/4	8	57.15	220	45	36	29	6	54.1	● 102571	2 1/2	8	63.5	220	45	36	29	6	60.4	● 111879									
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2	11	59.61	220	45	36	29	6	57	● 102524																																																																																																																						
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KOMBI-GEWINDEBOHRER

Allgemeines

Der DC-Kombi-Gewindebohrer ist ein Werkzeug, das das Schneiden des Kernloches und des Gewindes in einem Arbeitsgang erlaubt, ohne dass ein Werkzeugwechsel notwendig ist.

Er ist ideal für den Einsatz auf CNC-Maschinen, Bohrtasteinheiten, Drehbänken mit Revolverkopf und Gewindeschneidmaschinen.

Anwendungsbereich

Werkstoffe mit einer Zugfestigkeit bis 750 N/mm² lassen sich mit dem DC-Kombi-Gewindebohrer bearbeiten, also gewisse Stähle, Grauguss, Messing, Aluminium.

Spezielle Anforderungen

- Das Kernloch muss vollständig durchbohrt sein, bevor der Gewindebohrer zu schneiden beginnt.
- Bei der Bearbeitung von kurzspanenden Werkstoffen darf die Gewindetiefe 1.8 x D nicht überschreiten (Typ N5952 bis 2 x D).
- Bei der Bearbeitung von langspanenden Werkstoffen darf die Gewindetiefe 1.2 x D nicht überschreiten.
- Schmieren wie beim Gewindeschneiden.

Schnittgeschwindigkeiten

Wenn die Maschine, auf der die Kombiboher eingesetzt werden, es erlaubt, ist es vorteilhaft, die idealste Drehzahl für das Gewindeschneiden zu wählen. (Siehe dazu unsere Anwendungstabelle).

Für Maschinen, auf denen eine unterschiedliche Drehzahl für das Bohren und Gewindeschneiden nicht eingestellt werden kann, empfehlen wir die nachstehend aufgeführten Schnittwerte.

Programmierungs-Instruktionen

Ansenkung:

Gleichzeitig zentrieren und ansenken.

Programmschritte bei Spindelvorschub und Rotation, 100 % synchronisiert (Idealfall):

- 1) Kombi-Gewindebohrer im Eilgang in Arbeitsposition bringen
- 2) Bohren:
 - Drehzahl einstellen
 - Vorschub einstellen
 - lange Späne vermeiden
 - Späne entfernen
- 3) Gewindeanschnitt in Startposition bringen
- 4) Gewindeschneiden:
 - Drehzahl einstellen
 - Vorschub (100 %) einstellen
 - Gewindetiefe einstellen
 - Gewindebohrer muss vor Arbeitsbeginn spanfrei sein
- 5) Kombi-Gewindebohrer zurück in Startposition.

Programmschritte bei nicht voller Synchronisation von Spindelvorschub und Rotation:

Wichtig: Kombi-Gewindebohrer in Futter spannen, mit blockierter Andrucksfeder, jedoch mit Längenausgleich.

- 1) Kombi-Gewindebohrer im Eilgang in Arbeitsposition bringen
- 2) Bohren:
 - Drehzahl einstellen
 - Vorschub einstellen
 - lange Späne vermeiden
 - Späne entfernen
- 3) Gewindeanschnitt in Startposition bringen
- 4) Gewindeschneiden:
 - Drehzahl einstellen
 - Vorschub = 90 - 95 %
 - Gewindetiefe einstellen
- 5) Kombi-Gewindebohrer zurück in Startposition.

Schnittgeschwindigkeiten und Drehzahlen (Richtwerte)

Werkstoffgruppen	Vc (m/min)	Durchmesser und Drehzahl U/min										
		M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
Stähle bis 500 N/mm ²	20	2120	1600	1270	1060	800	640	530	460	400	360	320
Stähle über 500 N/mm ²	15	1600	1200	950	800	600	480	400	340	300	270	240
Grauguss weich	20	2120	1600	1270	1060	800	640	530	460	400	360	320
Grauguss hart	15	1600	1200	950	800	600	480	400	340	300	270	240
Messing	25	2650	2000	1600	1330	950	800	660	570	500	450	400
Aluminium	25	2650	2000	1600	1330	950	800	660	570	500	450	400

COMBINATION DRILL/TAPS

General information

DC combination drill/taps - two tools in one, which allows the drilling and the threading of a workpiece without changing the tool.

It is the optimal solution for CNC-machines, drilling heads, turret lathes and tapping machines.

Application rang

DC combination drill/taps are recommended for use in materials with a tensile strenght up to 750 N/mm², such as certain steels, cast iron, aluminium, brass.

General hints

- The core hole must be completely drilled through before the tap starts cutting.
- In short chipping materials, the depth of thread should not exceed 1.8 x D (type N5952 up to 2 x D).
- In long chipping materials, the depth of thread should not exceed 1.2 x D.
- Lubricate as for tapping.

Cutting speeds

On drilling heads and CNC-machines, the ideal speeds for drilling and tapping are selected (see our application chart).

If the same speed is selected for both drilling and tapping, we recommend the values indicated below.

Programming instructions

Countersinking:

Center and countersink simultaneously.

Programming steps for spindle feed and rotation 100 % synchronised (ideal case):

- 1) Combi-drill-tap in rapid to start position
- 2) Drilling:
 - set speed
 - set feed
 - avoid long chips
 - clear shavings
- 3) Tapping section in start position
- 4) Tapping:
 - set speed
 - feed = 100 % pitch
 - set thread depth
 - tap must be free of swarf before starting to cut
- 5) Combi-drill-tap returns to start position.

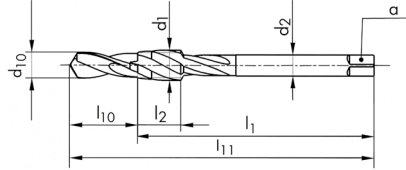
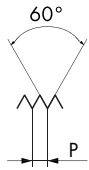
Programming steps for spindle feed rotation not fully synchronised:

Important: Mount combination drill-tap in chuck with locked pressure spring, but with axial compensation on pull.

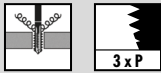
- 1) Combi-drill-tap in rapid to start position
- 2) Drilling:
 - set speed
 - set feed
 - avoid long chips
 - clear shavings
- 3) Tapping section in start position
- 4) Tapping:
 - set speed
 - feed = 90 - 95 % pitch
 - set thread depth
- 5) Combi-drill-tap returns to start position.

Cutting and spindle speeds (guide values)

Material groups	Vc (m/min)	Speeds for different diameters										
		M3	M4	M5	M6	M8	M10	M12	M14	M16	M18	M20
Steels up to 500 N/mm ²	20	2120	1600	1270	1060	800	640	530	460	400	360	320
Steels over 500 N/mm ²	15	1600	1200	950	800	600	480	400	340	300	270	240
Cast iron, soft	20	2120	1600	1270	1060	800	640	530	460	400	360	320
Cast iron, hard	15	1600	1200	950	800	600	480	400	340	300	270	240
Brass	25	2650	2000	1600	1330	950	800	660	570	500	450	400
Aluminium	25	2650	2000	1600	1330	950	800	660	570	500	450	400

								N5951	N5952	N5951	
N5951   N5952   N5951  											
 								ISO 2 6H	ISO 2 6H	7H EN 60423	
Ø d ₁ M	P mm	l ₁₁ mm	l ₂ mm	d ₂ mm	a mm	d ₁₀ mm	l ₁₀ mm	ID			
3	0.5	62	12.5	3.5	2.7	2.55	9	•	104578		
4	0.7	66	16	4.5	3.4	3.36	10	•	104580		
5	0.8	75.5	18	6	4.9	4.26	12.5	•	104583		
6	1	81	20	6	4.9	5.05	14	•	104585		
8	1.25	93	12	6	4.9	6.8	20	•	104588		
10	1.5	99	14	7	5.5	8.55	22	•	104571		
12	1.75	106	16	9	7	10.3	25	•	104573		
16	2	123	20	12	9	14.1	32	•	104576		
20	2.5	132	22	16	12	17.6	36	•	104577		
Ø d ₁ M	P mm	l ₁₁ mm	l ₂ mm	d ₂ mm	a mm	d ₁₀ mm	l ₁₀ mm	ID			
4	0.7	77	16	4.5	3.4	3.36	21	•	104608		
5	0.8	87	18	6	4.9	4.26	24	•	104609		
6	1	94	20	6	4.9	5.05	27	•	104610		
8	1.25	109	12	6	4.9	6.8	36	•	104611		
10	1.5	118	14	7	5.5	8.55	41	•	104603		
Ø d ₁ MF	P mm	l ₁₁ mm	l ₂ mm	d ₂ mm	a mm	d ₁₀ mm	l ₁₀ mm	ID			
4	0.5	66	16	4.5	3.4	3.55	10	★	104579		
5	0.75	75.5	18	6	4.9	4.31	12.5	★	123379		
8	1	93	12	6	4.9	7.05	20	•	104587		
10	1	99	14	7	5.5	9.05	22	•	104570		
Ø d ₁ MF	P mm	l ₁₁ mm	l ₂ mm	d ₂ mm	a mm	d ₁₀ mm	l ₁₀ mm	ID			
12	1.5	106	16	9	7	10.55	25	•	142825		
16	1.5	123	16	12	9	14.55	32	•	142826		
20	1.5	132	18	16	12	18.55	36	•	111844		
25	1.5	155	22	18	14.5	23.55	45	•	111845		
32	1.5	170	24	22	18	30.55	50	•	111846		

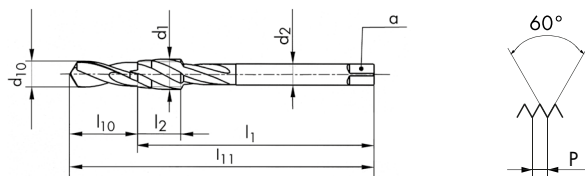
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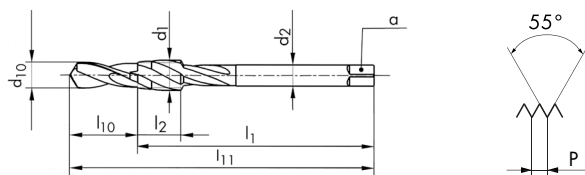
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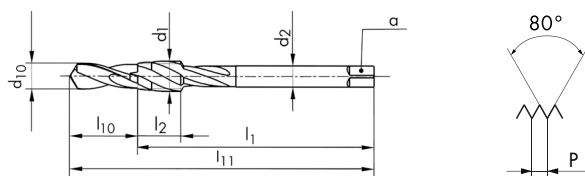
2B



$\emptyset'' d_1$ UNC	P TPI	d_1 mm	l_{11} mm	l_2 mm	d_2 mm	a mm	d_{10} mm	l_{10} mm	ID
6	32	3.5	66	16	4	3	2.8	10	★ 104601
10	24	4.82	75.5	18	4.5	3.4	3.86	12.5	● 104598
1/4	20	6.35	81	20	7	5.5	5.15	14	● 104597
1/2	13	12.7	106	16	9	7	10.85	25	★ 104596

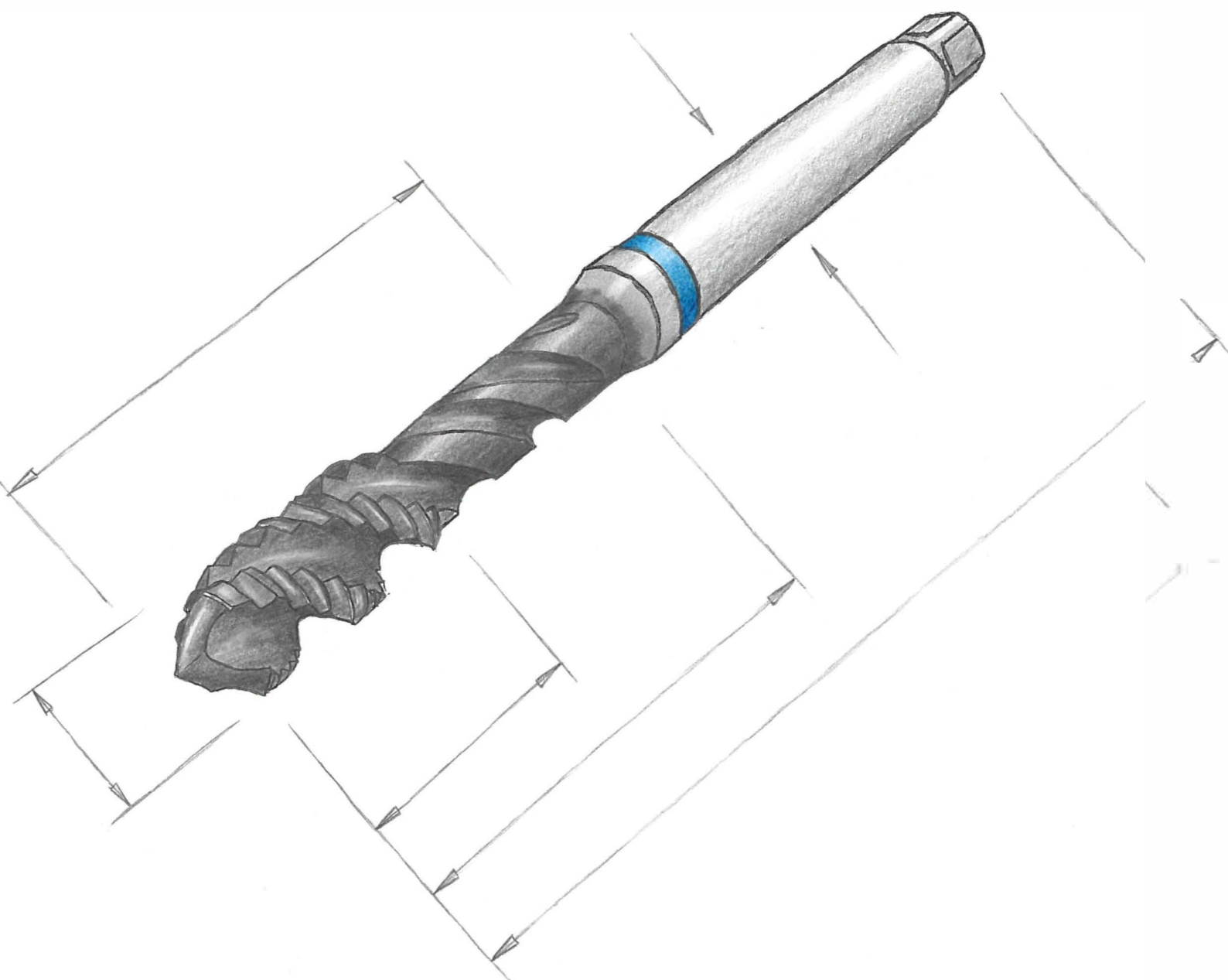


$\emptyset'' d_1$ G	P TPI	d_1 mm	l_{11} mm	l_2 mm	d_2 mm	a mm	d_{10} mm	l_{10} mm	ID
1/8	28	9.72	93	12	7	5.5	8.75	20	● 104567
1/4	19	13.15	106	14	11	9	11.75	25	● 104566
3/8	19	16.66	123	16	12	9	15.25	32	● 104569
1/2	14	20.95	132	18	16	12	19	36	● 104565



$\emptyset d_1$ PG	P TPI	d_1 mm	l_{11} mm	l_2 mm	d_2 mm	a mm	d_{10} mm	l_{10} mm	ID
16	18	22.5	142	20	18	14.5	21.25	40	● 104591
29	16	37	203	28	28	22	35.65	63	● 104593

Technológiai információk





ELÉRHETŐSÉG

- ID Raktári
- ID Rövid határidővel
- * ID Kifutó, raktárkészlet erejéig

ALLGEMEINE BAUMASSE NACH ISO / DIN

GENERAL DIMENSIONS ACCORDING TO ISO / DIN



N1120-4 ISO 529

Kurzer, verstärkter ISO-Schaft — Short, reinforced ISO shank



N1220-4 ISO 529

Kurzer, durchfallender ISO-Schaft — Short, reduced ISO shank



N320-4 DIN 371

Verstärkter DIN-Schaft — Reinforced DIN shank



N420-4 DIN 376 / DIN 374

Durchfallender DIN-Schaft — Reduced DIN shank



N520-4 NORM DC

Extra-langer Maschinengewinde-
bohrer mit verstärktem DIN-Schaft;
Totallänge gemäss DC-Werksnorm

— Extra long machine tap with
reinforced DIN shank; total
length as per DC standards

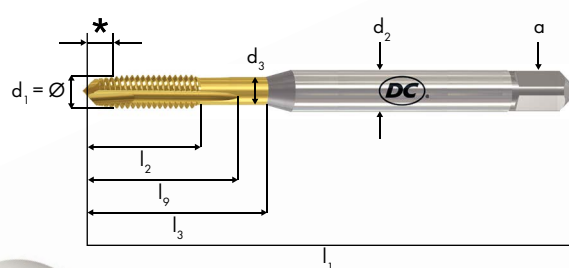


N620-4 NORM DC

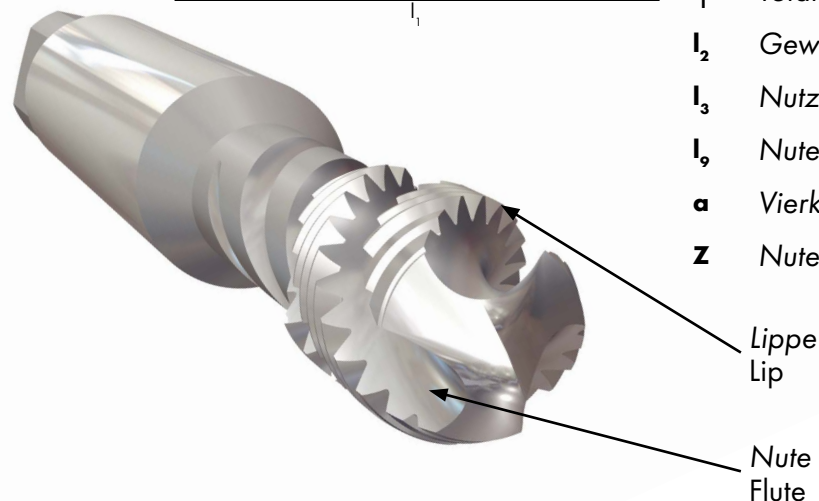
Extra-langer Maschinengewinde-
bohrer mit durchfallendem DIN-Schaft;
Totallänge gemäss DC-Werksnorm

— Extra long machine tap with
reduced DIN shank; total
length as per DC standards

BAUMASSE DES GEWINDEBOHRERS — MEASUREMENTS OF THE TAP



*	<i>Anschnittlänge</i>	Chamfer lead length
d₁	<i>Gewindenennendurchmesser</i>	Nominal thread diameter
d₂	<i>Schaftdurchmesser</i>	Shank diameter
d₃	<i>Halsdurchmesser</i>	Neck diameter
l₁	<i>Totallänge</i>	Overall length
l₂	<i>Gewindelänge</i>	Thread length
l₃	<i>Nutzlänge</i>	Usable length
l_φ	<i>Nutenlänge</i>	Flute length
a	<i>Vierkant</i>	Square
z	<i>Nutenzahl</i>	Number of flutes



ZENTRIERSPITZEN — CENTER POINTS

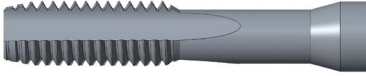
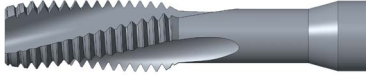
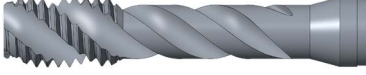
	Gewinde	Thread
	Volle Zentrierspitze	Full external center point
	Abgesetzte Spitze	Reduced center point
	Zentrierbohrung	Internal center point
	Schaft	Shank
	Vollspitze	Full external center point
	Zentrierfase	Centering bevel
	Zentrierbohrung	Internal center point

Die Spitzenform ist abhängig vom Gewindedurchmesser, dem Werkzeugtypen und der Maschine, auf welcher die Werkzeuge hergestellt werden.

The center shape depends on the thread diameter, the type of tool and the machine on which the tools are manufactured.

NUTENFORMEN FÜR DC-GEWINDEBOHRER

FLUTE FORMS FOR DC TAPS

		Beispiele für Rechtsgewinde	Examples for right-hand threads
	.10	Gerade Nuten für Durchgangs- und Sacklöcher in kurzspanende Werkstoffe	Straight flutes for through and blind holes in short-chipping materials
	.20	Gerade Nuten mit Schälanschnitt für Durchgangslöcher in langspan- nende Werkstoffe	Straight flutes with spiral point for through holes in long-chip- ping materials
	.30	Nur Schälanschnitt für Durchgangslöcher in langspanende Werkstoffe, für Gewindetiefen $\leq 1.5 \times D$; Blechbearbeitung	Spiral point only for through holes in long-chip- ping materials, for threading depth $\leq 1.5 \times D$; sheet metal working
	.40	Spiralnuten mit leichtem Linksdrall für Durchgangslöcher	Slow left-hand spiral flutes for through holes
	.50	Spiralnuten mit leichtem Rechtsdrall $\leq 27^\circ$ für Durchgangs- und Sacklöcher in kurzspanende Werkstoffe $\leq 2.5 \times D$ bzw. für Sacklöcher in mittel-lang- und langspanende Werkstoffe $\leq 1.5 \times D$	$\leq 27^\circ$ slow right-hand spiral flutes for through and blind holes in short-chipping materials $\leq 2.5 \times D$ respectively for blind holes in middle-long and long-chipping materials $\leq 1.5 \times D$
	.60	Spiralnuten mit starkem Rechtsdrall $> 27^\circ - \leq 40^\circ$ für Sacklöcher in langspanende Werkstoffe $\leq 2.5 \times D$	$> 27^\circ - \leq 40^\circ$ fast right-hand spiral flutes for blind holes in long- chipping materials $\leq 2.5 \times D$
	.70	Spiralnuten mit starkem Rechtsdrall $> 40^\circ$ (R45) für Sacklöcher in zähe Werkstoffe bis $3 \times D$	$> 40^\circ$ fast right-hand spiral flutes (R45) for blind holes up to $3 \times D$ in tough materials

SCHMIERNUTENFORMEN FÜR DC-GEWINDEFORMER

LUBRICATION GROOVE FORMS FOR DC THREAD FORMERS



.80

Ohne Schmiernuten

Without lubrication grooves



.81

Mit Schmiernuten

With lubrication grooves



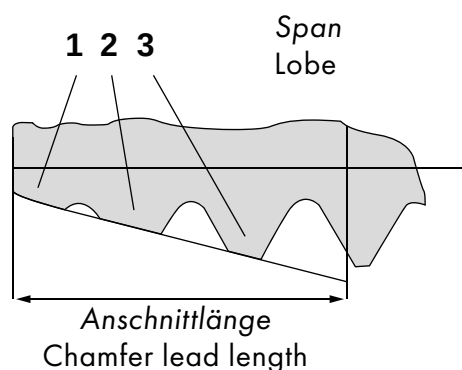
.84

**Mit Schmiernuten und Innen-
kühlung mit seitlich eingelenk-
tem 45° Schmiermittelaustritt**
(Umstellung auf diese neue
Ausführung im Gange)

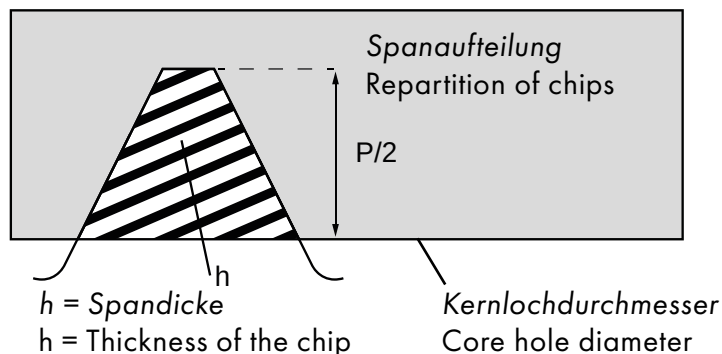
**With lubrication grooves and
internal cooling channel with
lateral 45° lubricant outflow**
(conversion to this new version in
progress)

ANSCHNITTFORMEN FÜR DC-GEWINDEBOHRER UND GEWINDEFORMER

CHAMFER FORMS FOR DC TAPS AND THREAD FORMERS



Spanbildung im Anschnitt
Chip formation in the chamfer



Anschnittformen und Anschnittlängen
für Gewindebohrer nach DIN 2197

Chamfer forms and chamfer lead lengths
for taps as per DIN 2197

-8			Anschnittlänge 6 - 8 Gewindegänge; für gerade Nuten	Chamfer lead length 6 - 8 threads; for straight flutes
.20 - 4			Anschnittlänge 3.5 - 5.5 Gewindegänge; für gerade Nuten mit Schälanschnitt	Chamfer lead length 3.5 - 5.5 threads; for straight flutes with spiral point
-3			Anschnittlänge 2 - 3 Gewindegänge; für gerade Nuten und Spiralnuten	Chamfer lead length 2 - 3 threads; for straight and spiral flutes
-4			Anschnittlänge 3.5 - 5 Gewindegänge; für gerade Nuten und Spiralnuten	Chamfer lead length 3.5 - 5 threads; for straight and spiral flutes
-5			Anschnittlänge 1.5 - 2 Gewindegänge für gerade Nuten und Spiralnuten	Chamfer lead length 1.5 - 2 threads; for straight and spiral flutes

Anformkegelformen und Anformkegellängen
für Gewindeformer nach DIN 2175

Lead taper forms and lead taper lengths
for thread forming taps as per DIN 2175

-3			Anformkegellänge 2 - 3 Gewindegänge	Lead taper length 2 - 3 threads
-5			Anformkegellänge 1.5 - 2 Gewindegänge	Lead taper length 1.5 - 2 threads

DC-SCHNEIDENGEOMETRIEN — DC CUTTING GEOMETRIES

N



Für normale Werkstoffe
(Automatenstahl; Baustahl;
Einsatzstahl; Kohlenstoffstahl;
Stahl legiert < 850 N/mm²; rost-
freier Stahl, geschwefelt; Kugel-
graphitguss; Temporguss;
Messing langspanend;
Al legiert, Si < 10 %)

For normal materials
(free-cutting steels; structural,
cementation steels; carbon steels;
alloy steels < 850 N/mm²;
free machining stainless steels;
spheroidal graphite + malleable
cast iron; long chip brass; Al
alloyed Si < 10 %)

W



Für weiche Werkstoffe
(Aluminium unlegiert; niedrig
legiertes Aluminium;
Thermoplaste)

For soft materials
(aluminium unalloyed;
low-alloyed aluminium;
thermoplastics)

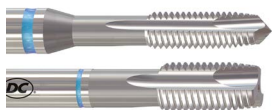
Z



Für zähe Werkstoffe
(rost- und säurebeständige
Werkstoffe - austenitisch; ferritisch,
martensitisch < 850 N/mm²;
Reintitan; Nickellegierung 1
< 850 N/mm²; Reinkupfer)

For tough materials
(rust and acid resistant mate-
rials - austenitic stainless steels;
ferritic and martensitic
< 850 N/mm²; pure titanium;
nickel alloys 1 < 850 N/mm²;
pure copper)

**ZX
NEW**



Für ALU-BRONZE-Legierungen
(AMPCO® 21 / 22)

For ALU-BRONZE-Alloys
(AMPCO® 21 / 22)

H



Für hochfeste Werkstoffe
> 850 - < 1'400 N/mm²
((legierte Stähle, Vergü-
tungsstähle - hochfester Stahl);
Messing, Bronze, Rotguss
(kurzspanend); **Messing bleifrei;**
Duroplaste; glasfaserverstärkte
Kunststoffe)

For high tensile materials
> 850 - < 1'400 N/mm²
((alloyed steels, tempered
steels - high tensile alloy
steels); **short chip brass + phos-
phor bronze + gun metal; lead-
free brass; duroplastics; glass
fibre reinforced plastics)**

S



Für sonderlegierte Werkstoffe
> 850 - < 1'150 N/mm²
(Stahl legiert / vergütet;
ferritisch, martensitische Stähle;
Nickellegierung 2)

For special alloyed materials
> 850 - < 1'150 N/mm²
(alloy steels hardened /
tempered; ferritic, martensitic
steels; nickel alloys 2)

SA AERO
SA.20 / SA.50



Für sonderlegierte Werkstoffe
> 850 - < 1'150 N/mm²
(Nickellegierung 2; Messing
bleifrei)

For special alloyed materials
> 850 - < 1'150 N/mm²
(nickel alloys 2; lead-free brass)

DC-SCHNEIDENGEOMETRIEN — DC CUTTING GEOMETRIES

SA AERO SA.90



Für sonderlegierte Werkstoffe
 $> 1'150 - < 1'600 \text{ N/mm}^2$
 (Nickellegierung 3)

For special alloyed materials
 $> 1'150 - < 1'600 \text{ N/mm}^2$
 (nickel alloys 3)

TL



Für Titanlegierungen

For titanium alloys

GG



Für Grauguss; Alu-Gusse mit hohem Si-Gehalt; Magnesium-Legierungen

For grey cast iron; aluminium castings with high Si content; magnesium alloys

K



Mit spezieller "Spanbrecher-Schneidengeometrie"
 (für normale, gut zerspanbare Werkstoffe bis $1'150 \text{ N/mm}^2$; Messing bleifrei)

With special "chipbreaker cutting edge geometry"
 (for normal, easily machinable materials up to $1'150 \text{ N/mm}^2$; lead-free brass)

QTAP NEW



Der DC-ALLROUNDER
 (für die Bearbeitung von universellen Werkstoffen bis zu $1'150 \text{ N/mm}^2$, für den Einsatz im Längenausgleichsfutter und das Synchron-Gewindeschneiden)

The DC ALLROUNDER
 (for machining universal materials up to $1'150 \text{ N/mm}^2$, for use in tapping chucks with axial compensation and for synchronous tapping)

RTS



DC-Synchron-Gewindebohrer Typ RTS
 (für die Bearbeitung von universellen Werkstoffen bis zu $1'150 \text{ N/mm}^2$, für das Synchron-Gewindeschneiden "Rigid Tapping")

DC Synchro tap type RTS
 (for machining universal materials up to $1'150 \text{ N/mm}^2$, for synchronous tapping "Rigid Tapping")

FS $< \varnothing 3 \text{ mm}$



DC-Gewindeformer Typ FS
 (Universalgewindeformer mit 4 Druckstollen für kleine Gewinde im Abmessungsbereich $\varnothing \geq 1 - < 3 \text{ mm}$ in alle kaltverformbaren Werkstoffe)

DC Thread formers type FS
 (universal thread former with 4 forming lobes for small thread sizes $\varnothing \geq 1 - < 3 \text{ mm}$, in all cold forming materials)

DC-SCHNEIDENGEOMETRIEN — DC CUTTING GEOMETRIES

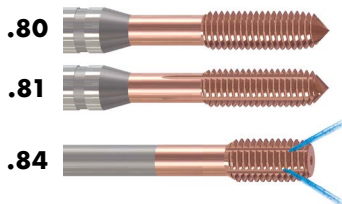
FPS
≥ Ø 3 mm



DC-Gewindeformer Typ FPS
(für Ø ≥ 3 mm, mit breiten Druckstollen, für ein progressives Fließen von Werkstoffen mit geringer Bruchdehnung (Baustähle, Kohlenstoffstähle, legierte Stähle, langspannendes Messing, Aluminium, usw.))

DC Thread formers type FPS
(for Ø ≥ 3 mm, with large forming lobes designed for a progressive flow of materials with low elongation coefficient (structural steels, carbon steels, alloy steels, long chipping brass, aluminium, etc.))

FAS
≥ Ø 3 mm



DC-Gewindeformer Typ FAS
(für Ø ≥ 3 mm, mit spitzen Druckstollen, für ein schnelles Fließen von zähen Werkstoffen mit hoher Bruchdehnung (rostfreie Stähle, Reinkupfer, usw.))

DC Thread formers type FAS
(for Ø ≥ 3 mm, with pointed forming lobes designed for a fast flow of tough materials with high elongation coefficient (stainless steels, pure copper, etc.))



Ausgesetzte Zähne
(für weniger Wärmeentwicklung)

Interrupted thread
(for less heat generation)



Verjüngtes Führungsgewinde
(zum Vermeiden von Spanverklebungen und Zahnausbrüchen im Führungsgewinde)

Truncated thread
(to avoid chip jamming and tooth breakage in the guiding section of the tap)



Verjüngtes Führungsgewinde und Innenkühlung mit stirnseitigem Schmiermittelaustritt

Truncated thread and internal coolant with frontal outflow

OBERFLÄCHENBEHANDLUNGEN UND BESCHICHTUNGEN

SURFACE TREATMENTS AND COATINGS



DC-"V"-Oberflächenbehandlung Dampfangelassen

Die DC-"V"-Oberflächenbehandlung verbessert die Gleitfähigkeiten der Gewindebohrer und verhindert Kaltschweissungen.

DC "V" surface treatment Steam tempered

The DC "V" surface treatment improves the sliding friction of the tap and prevents cold welding.



Plasmanitrierung + "V"-Oberflächenbehandlung

Plasmanitrierte Gewindebohrer haben eine grössere Oberflächenhärte, ca. 1100 HV, und sind besonders geeignet für die Bearbeitung von abrasiven Werkstoffen (Grauguss, Aluguss mit hohem Si-Gehalt). Zudem haben sie eine verbesserte Gleitfähigkeit dank der zusätzlichen DC-"V"-Oberflächenbehandlung.

Plasma nitriding + "V" surface treatment

Plasma-nitrided taps have increased surface hardness, approx. 1100 HV, and are particularly suitable for machining abrasive materials (grey cast iron, cast aluminium with high Si content). They also have improved sliding properties thanks to the additional DC "V" surface treatment.



DLC-Beschichtung

DLC-beschichtete Gewindewerkzeuge haben eine Oberflächenhärte von ca. 2500 HV und eignen sich vor allem für die Bearbeitung von Buntmetallen und Aluminium mit geringem Silizium-Gehalt (< 9 % Si).

DLC-coating

DLC-coated threading tools have a surface hardness of approx. 2500 HV and are particularly suitable for machining non-ferrous metals and aluminium with a low silicon content (< 9 % Si).



Titannitrid-Beschichtung (TiN)

Die Titannitrid-Beschichtung ist eine Hartstoff-Beschichtung (PVD) mit ca. 2400 HV. TiN-beschichtete Gewindebohrer sind besonders geeignet für die Bearbeitung von abrasiven oder kaltschweisenden Werkstoffen; höhere Schnittgeschwindigkeiten und grössere Leistung.

Titanium-nitride coating (TiN)

The titanium nitride coating is of a hard metal material (PVD) with a hardness of approximately 2400 HV. TiN-coated taps are particularly suitable for working abrasive and cold-welding type materials; higher cutting speeds and improved performance.



Titancarbonitrid-Beschichtung (TiCN)

Die TiCN-Beschichtung hat mit ca. 3000 HV eine noch grössere Härte als die TiN-Beschichtung; noch höhere Schnittgeschwindigkeit.

Titanium-carbonitride coating (TiCN)

The TiCN-coating with a hardness of approx. 3000 HV is even harder than the TiN-coating, for even higher cutting speeds.

OBERFLÄCHENBEHANDLUNGEN UND BESCHICHTUNGEN

SURFACE TREATMENTS AND COATINGS



VS

DC-\"VS\"-Verschleisschutzschicht für den allgemeinen Einsatz

Spezifische Oberflächen-Behandlung, speziell geeignet für Gewindebohrer der Leistungsklasse \"Z\", optimal abgestimmt für die Bearbeitung mit Emulsion in INOX; für Gewindebohrer der Leistungsklasse \"S\" für sonderlegierte Werkstoffe; für Gewindebohrer der Leistungsklasse \"TL\" für Titan-Legierungen.

DC \"VS\" wear-protective coating for general use

A special treatment for taps specifically intended for use in Inox with taps of the performance class \"Z\" with emulsion; in special alloys with taps of the performance class \"S\"; in titanium alloyed materials with taps of the performance class \"TL\".



VX

DC-\"VX\"-Verschleisschutzschicht für rostfreie Stähle und Nickellegierungen

Spezifische Oberflächen-Behandlung speziell geeignet für Gewindebohrer der Leistungsklasse \"Z\", optimal abgestimmt für die Bearbeitung mit Emulsion von rostfreien Stählen und Nickellegierungen.

DC \"VX\" wear-protective coating for stainless steels and Nickel alloys

Specific surface treatment, especially suitable for taps in performance class \"Z\", optimally adapted for machining with emulsion of stainless steels and Nickel alloys.

Hinweis

Unsere Standard-Beschichtungen erlauben die Bearbeitung einer breiten Werkstoffpalette. Für spezifische Anwendungsfälle in ganz bestimmte Werkstoffe bieten wir Ihnen gerne die dafür optimal geeignete Beschichtung an. Lieferfrist und Preis auf Anfrage.

Notice

Our standard coatings allow a wide range of materials to be performed. For specific applications in very specific materials, we will be pleased to offer you the most suitable coating. Delivery time and price on request.

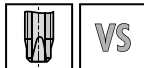
NEW

AERO



MJ UNJC - UNJF

S320VS-4



S370VX-3



MJ UNJC - UNJF

SA320-4



SA350-3



SA390-3



MJ UNJC - UNJF

TL351VS-3



ZX



Für ALU-BRONZE-Legierungen (AMPCO® 21/22)
For ALU-BRONZE-Alloys (AMPCO® 21/22)

M

ZX320-4

ZX420-4



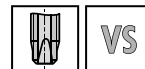
QTAP



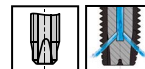
DC-Allrounder
DC Allrounder

M - MF - UNC UNF - G

Q320VS-4 Q420VS-4



Q323VS-4 Q423VS-4



Q360VS-3 Q460VS-3



Q363VS-3 Q463VS-3



ERWEITERTE DC-ANWENDUNGSTABELLE ENLARGED DC APPLICATION CHART

*** 17** Stahl vergütet > 44 - ≤ 54 HRC
Alloy steels tempered > 44 - ≤ 54 HRC
> 44 - ≤ 54 HRC

*** 18** Stahl gehärtet > 54 - ≤ 63 HRC
Alloy steels hardened > 54 - ≤ 63 HRC
> 54 - ≤ 63 HRC

64 Messing bleifrei (ECOBASS®)
Lead free brass (ECOBASS®)

CuZn21Si3P
(ECOBASS®)
CuZn35
CuZn42

* Siehe unser Programm DC-VHM-Gewindefräser und VHM-Gewindewirbler gemäss DC-Katalog TM.1.
* See our programme DC solid carbide thread milling cutters and solid carbide thread whirl cutters as per DC catalogue TM.1.

NEW

RTS



M

7GX

RTS362VS-3

RTS462VS-3

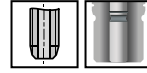


NP



M

NP110-1 NP210-1



NP110-2 -3 NP210-2 -3



H.TC



MF - UNC - UNF

H320TC-4 H420TC-4



H350TC-3 H450TC-3



AUF ANFRAGE

- Für den spezifischen Einsatz gemäss Kundenanforderungen:
DC-Maschinengewindebohrer Typ MEGA
(Ø 42 - 164 mm)
- DC-VHM-Maschinen-Gewindebohrer für höhere Standzeiten und grössere Prozesssicherheit in spezifischen Anwendungsfällen.

ON REQUEST

- For specific applications according to customer requirements:
DC machine taps type MEGA
(Ø 42 - 164 mm)
- DC solid carbide machine taps for higher tool-life and improved process security in specific applications.



TECHNISCHE VERBESSERUNGEN: UMSTELLUNG AUF NEUE AUSFÜHRUNG IM GANGE

TECHNICAL IMPROVEMENTS: CHANGE TO NEW VERSION IN PROGRESS

INNENKÜHLUNG MIT SEITLICHEM SCHMIERMITTELAUSTRITT, NEU 45° INTERNAL COOLANT WITH RADIAL OUTFLOW, NEW 45°



M

RTS323VS-4 RTS423VS-4

RTS523VS-4 RTS623VS-4

FPS384VS-3 FPS484VS-3

FPS584VS-3 FPS684VS-3

FAS384VS-3 FAS484VS-3

FAS584VS-3 FAS684VS-3



MIT NEUER SCHNEIDKANTEN-KONDITIONIERUNG WITH NEW CONDITIONING OF THE CUTTING EDGES



M - MF - UNC - UNF G - EG UNC - EG UNF

Z370VS-3 Z470VS-3

M

Z373VS-3 Z473VS-3



M - MF - UNC - UNF EG M - EG UNC - EG UNF

SA320-4 SA420-4

SA350-3 SA450-3

M - MF - UNC - UNF EG M - EG UNF

SA390-3



M

TL320VS-4 TL420VS-4

M - MF - UNC - UNF EG M - EG UNC - EG UNF

TL351VS-3 TL451VS-3

MJ - UNJC - UNJF

S370VX-3 S470VX-3

COMING SOON:

Überarbeitete Gewindebohrer Typ H.20TC-4 / H.50TC-3 - neue VH-Beschichtung zur Erhöhung der Werkzeugstandzeit um bis zu 50 %, für Materialien gemäß den Gruppen 15 und 16 unserer Anwendungstabelle.

COMING SOON:

Reworked taps H.20TC-4 / H.50TC-3 - new VH coating to increase tool life by up to 50 %, for materials according to groups 15 and 16 of our application chart.

DC®-Gewindebohrer



Normale Werkstoffe	Normal materials	N
Weiche Werkstoffe	Soft materials	W
Zähe Werkstoffe	Tough materials	Z
Alu-Bronze-Legierungen	Alu-bronze alloys	ZX
Hochfeste Werkstoffe	High tensile materials	H
Sonderlegierte Werkstoffe	Special alloys	S
Sonderlegierte Werkstoffe (Aero)	Special alloys (Aero)	SA
Titanlegierungen (Aero)	Titanium alloys (Aero)	TL
Grauguss und Alu-Guss	Cast iron and aluminium casting	GG
Allrounder	Allrounder	QTAP
Synchron-Gewindeschneiden	Rigid Tapping	RTS
Spanbrecher	Swarf breaker	K
MEGA-Gewindegrößen	MEGA tap sizes	MA
Spezialausführung	Special execution	3
Kurzer DIN-Schaft verstärkt	DIN short - reinforced shank	1
Kurzer DIN-Schaft durchfallend	DIN short - reduced shank	2
Langer DIN-Schaft verstärkt	DIN long - reinforced shank	3
Langer DIN-Schaft durchfallend	DIN long - reduced shank	4
Extra-langer DIN-Schaft verstärkt	DIN extra-long - reinforced shank	5
Extra-langer DIN-Schaft durchfallend	DIN extra-long - reduced shank	6
DC-Werksnorm	DC standards	9
Kurzer ISO-Schaft verstärkt	ISO short - reinforced shank	11
Kurzer ISO-Schaft durchfallend	ISO short - reduced shank	12
Gerade Nuten	Straight flutes	1
Gerade Nuten und Schälanschnitt	Straight flutes with spiral point	2
Schälanschnitt	Spiral point	3
Spiralnuten mit Linksdrall < 27°	< 27° left-hand slow spiral flutes	4
Spiralnuten mit Rechtsdrall < 27°	< 27° right-hand slow spiral flutes	5
Spiralnuten mit Rechtsdrall > 27°	> 27° right-hand fast spiral flutes	6
Spiralnuten mit Rechtsdrall > 40°	> 40° right-hand fast spiral flutes	7
Spiralnuten mit Rechtsdrall 10°, Schälän.	10° right-hand slow spiral flutes, spiral point	9
Standardausführung	Standard	0
Ausgesetzte Zähne	Interrupted thread	1
Verjüngtes Führungsgewinde	Truncated thread	2
Innenkühlung	Internal coolant	3
Ausgesetzte Zähne, Innenkühlung	Interrupted thread, internal coolant	4
Verjüngtes Führungsgewinde, Innenkühlung	Truncated thread, internal coolant	5
"V"-Oberflächenbehandlung	"V" surface treatment	V
VS-Verschleisschutzschicht, generell	VS wear-protective coating, general	VS
VX-Beschichtung für rostfreie Stähle und Nickelleg.	VX coating for stainless steels and Nickel alloys	VX
Titannitrid-Beschichtung (TiN)	Titanium-nitride coating (TiN)	TN
Titancarbonitrid-Beschichtung (TiCN)	Titanium carbonitride coating (TiCN)	TC
Plasmanitrierung + "V"-Oberflächenbehandlung	Plasma nitriding + "V" surface treatment	NV
DLC-Beschichtung	DLC-coating	DL
Vorschneider	Taper tap	-1
Mittelschneider	Second tap	-2
Fertigschneider / 2 - 3 Gewindegänge	Bottoming tap / 2 - 3 chamfered threads	-3
3.5 - 5.5 Gewindegänge, Schälanschnitt	3.5 - 5.5 chamfered threads, spiral point	-4
1.5 - 2 Gewindegänge	1.5 - 2 chamfered threads	-5
6 - 8 Gewindegänge	6 - 8 chamfered threads	-8
Gewindebohrer-Satz	Thread taps set	-5

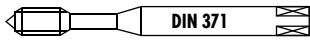
PIKTOGRAMME — PICTOGRAPHS



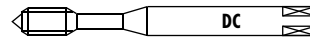
Für Werkstoffgruppen gemäss (DC)-Anwendungstabelle
For material groups as per (DC) application chart

12	
1.0037	Si37-2 (S235JR)
1.0050	St50-2 (E295)
1.0060	St60-2 (E335)
1.5919	15CrNi6
1.7131	16MnCr5

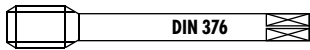
22	
1.4301	X5CrNi18-10
1.4406	X2CrNiMoN17-12-2
1.4435	X2CrNiMo18-14-3
1.4541	X6CrNiTi18-10
1.4571	X6CrNiMoTi17-12-2



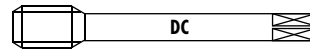
Verstärkter Schaft gemäss DIN 371
Reinforced shank as per DIN 371



Verstärkter Schaft gemäss DC-Werksnorm
Reinforced shank as per DC standards



Durchfallender Schaft gemäss DIN 376
Reduced shank as per DIN 376



Durchfallender Schaft gemäss DC-Werksnorm
Reduced shank as per DC standards



Extra-lang
Extra-long



HSSE-PM
HSSE-PM



HSSE
HSSE



Anzahl Spannuten (Z)
Number of flutes (Z)



Gerade Nuten
Straight flutes



Gerade Nuten mit Schälanschnitt
Straight flutes with spiral point



Schälanschnitt
Spiral point only



Spiralnuten mit 40° Rechtsdrall
40° right-hand spiral flutes



Verjüngtes Führungsgewinde
Truncated thread



Ausgesetzte Zähne
Interrupted thread



Vorschneider
Taper tap



Mittelschneider
Second tap



Fertigschneider
Bottoming tap



Handgewindebohrer, Satz zu 2 Stück
Hand taps, set of 2 pieces



Handgewindebohrer, Satz zu 3 Stück
Hand taps, set of 3 pieces



Führungzapfen
Parallel pilot



Innenkühlung mit stirnseitigem Schmiermittelaustritt
Internal coolant with frontal outflow



Innenkühlung mit seitlichem Schmiermittelaustritt, neu 45°
Umstellung auf neue Ausführung im Gange
Internal coolant with radial outflow, new 45°
Change to new version in progress



Durchgangsloch, langspanende Werkstoffe
Through hole, long chipping materials



Durchgangsloch < 1.5 x D, kurzspanende Werkstoffe
Through hole < 1.5 x D, short chipping materials



Sackloch < 1.5 x D, langspanende Werkstoffe
Blind hole < 1.5 x D, long chipping materials



Sackloch < 2.5 x D, kurzspanende Werkstoffe
Blind hole < 2.5 x D, short chipping materials



Sackloch < 2.5 x D, langspanende Werkstoffe
Blind hole < 2.5 x D, long chipping materials



Durchgangs- und Sackloch < 2.5 x D
Through / blind hole < 2.5 x D



Sackloch < 3 x D
Blind hole < 3 x D



MEGA-Gewindeschneidkopf
MEGA thread tapping head



Kronengewindebohrer
Crown tap



Kombi-Gewindebohrer
Combination drill/tap



Kernlochdurchmesser
Core hole diameter



Radius auf Aussendurchmesser (J)
Radius on external diameter (J)



Konisches Gewinde 1:16 (NPT - NPTF - Rc)
Tapered thread 1:16 (NPT - NPTF - Rc)



EG-Gewinde (für Drahteinsatzgewinde)
Thread EG (for wire screw thread inserts)

PIKTOGRAMME — PICTOGRAPHS

	Linksgewinde Left-hand thread	●	Lagerartikel Stock item
	3.5 - 5.5 Gewindegänge, Anschnitt Form B 3.5 - 5.5 chamfered threads, lead form B	●	Kurzfristig lieferbar Available at short notice
	2 - 3 Gewindegänge, Anschnitt Form C 2 - 3 chamfered threads, lead form C	*	Ab Lager lieferbar solange Vorrat Available from stock, while stock lasts
	1.5 - 2 Gewindegänge, Anschnitt Form E 1.5 - 2 chamfered threads, lead form E		
	Toleranzklasse ISO 2 6H Tolerance class ISO 2 6H		
	Toleranzklasse ISO 2 6H + 0.1 mm Tolerance class ISO 2 6H + 0.1 mm		
	Toleranzklasse ISO 3 6G Tolerance class ISO 3 6G		
	DC-"V"-Oberflächenbehandlung DC "V" surface treatment		
	DC-"VS"-Verschleisschutzschicht für den allgemeinen Einsatz DC "VS" wear-protective coating for general use		
	DC-"VX"-Verschleisschutzschicht für rostfreie Stähle und Nickellegierungen DC "VX" wear-protective coating for stainless steels and Nickel alloys		
	Titannitrid-Beschichtung Titanium-nitride coating		
	Titancarbonitrid-Beschichtung Titanium-carbonitride coating		
	Plasmanitrierung + "V"-Oberflächenbehandlung Plasma nitriding + "V" surface treatment		
	DLC-Beschichtung DLC-coating		
	Hardlube-Beschichtung Hardlube-coating		
	Spanfragmente / regelmäßige Spanaufteilung Swarf fragments / consistant chips		
	Für synchrones Gewindeschneiden For Rigid Tapping		
	Für klassisches Gewindeschneiden For Classic Tapping		