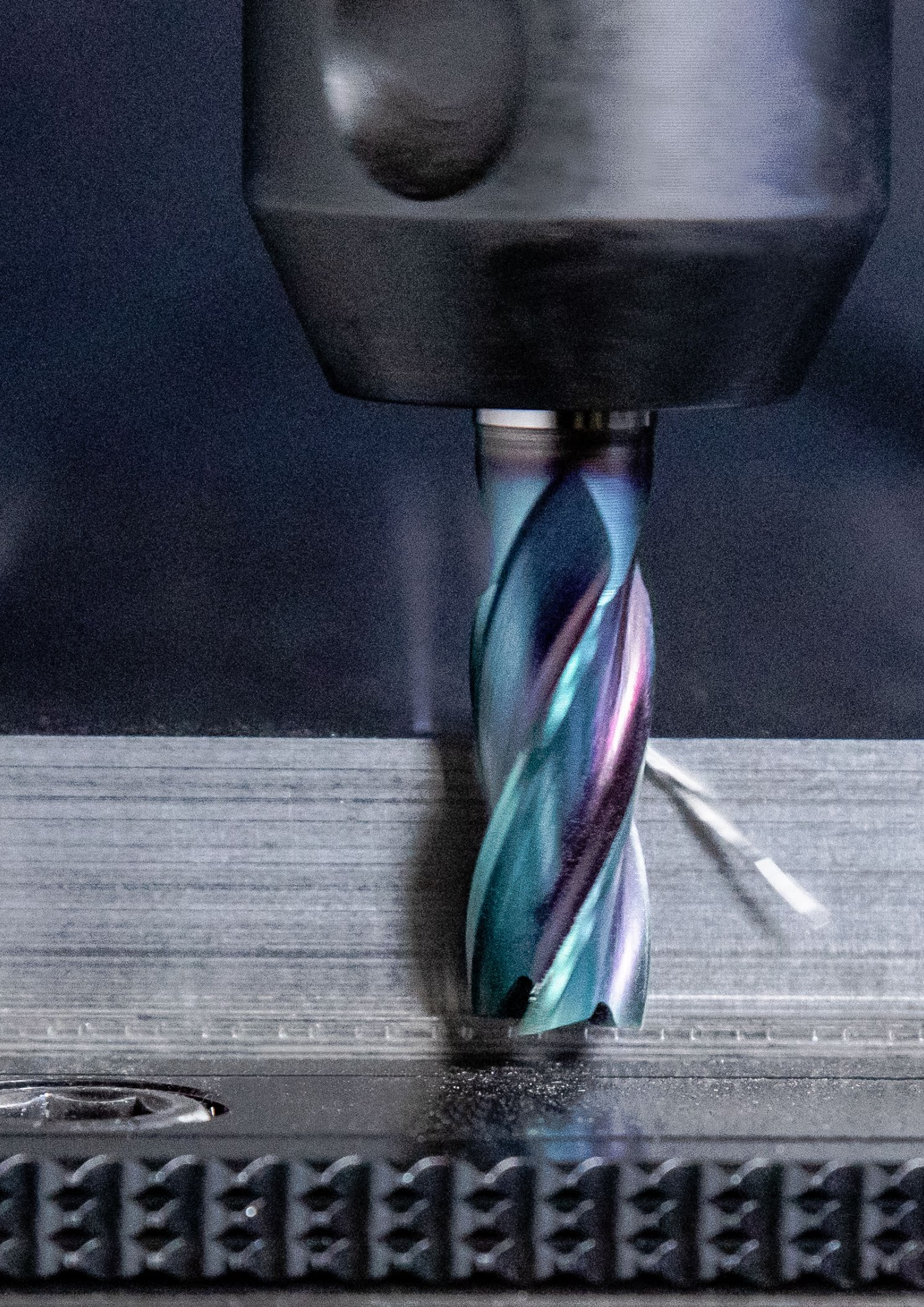






Solid drilling and bore machining

- 1 HSS drilling
- 2 Solid carbide drilling
- 3 Indexable insert drilling
- 4 Reaming and Countersinking
- 5 Spindle Tooling

Threading

- 6 Taps and thread formers
- 7 Circular and Thread Milling
- 8 Thread turning

Turning

- 9 Turning Tools
- 10 Multifunctional Tools – EcoCut and FreeTurn
- 11 Grooving Tools
- 12 Miniature turning tools

Milling

- 13 HSS Milling Cutters
- 14 Solid Carbide milling cutters
- 15 Milling tools with indexable inserts

Catalogue –
Clamping technology

- 16 Adaptors and Accessories
- 17 Workpiece clamping

- 18 Material examples and article no. Index

Table of contents

Symbol explanation	2
Toolfinder	3
List of contents	4+5
Product programme	6-38
Technical Information:	
Cutting Data	39-47
Formula for cutting data calculation	47
Version description	48
Coating	48

WNT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **WNT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Symbol explanation

Shank



Shank type



Length:
extra short / short / medium / long / extra long



Cutting edge preparation



Sharp



Corner chamfer (CHW = chamfer width in mm)



Full Radius



Application



Machining example



The red arrows describe the possible feed directions



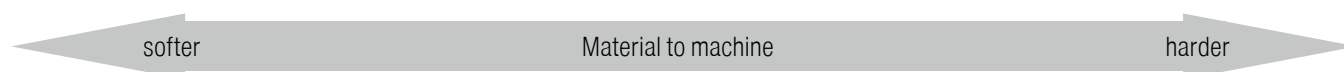
Number of flutes



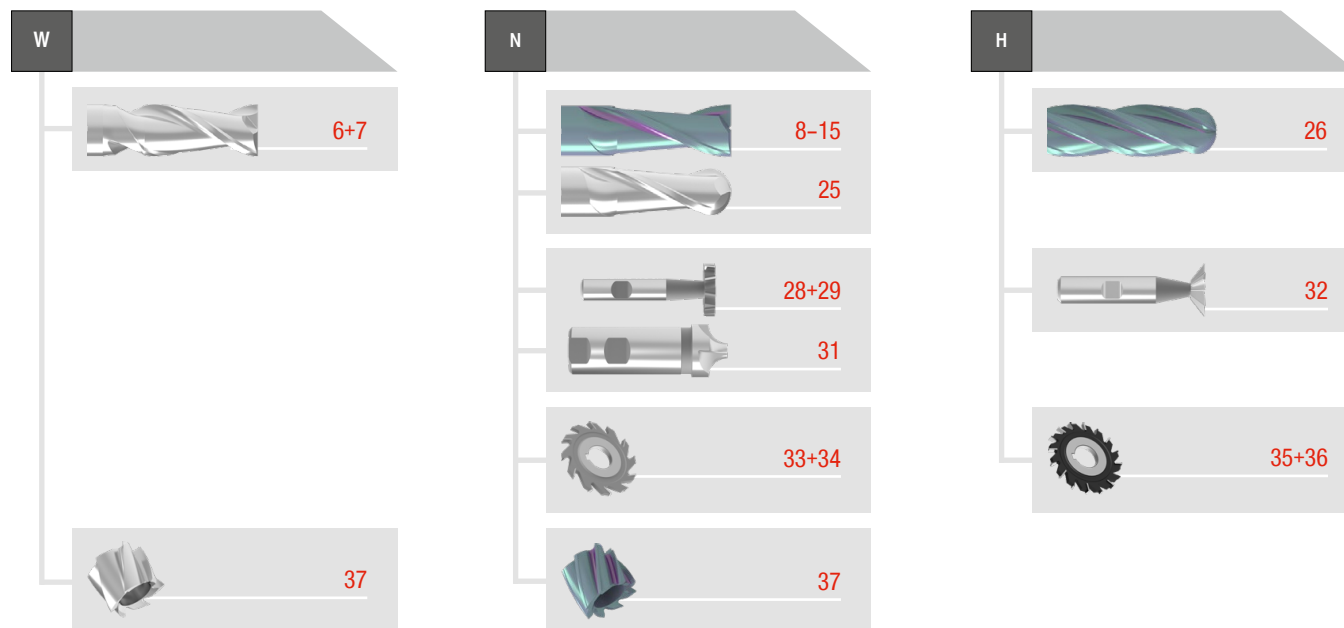
Cutting geometry
 $\lambda_s = 30^\circ$
 λ_s = helix angle
 $\gamma_s = 12^\circ$
 γ_s = rake angle

- = Main Application
- = Extended application

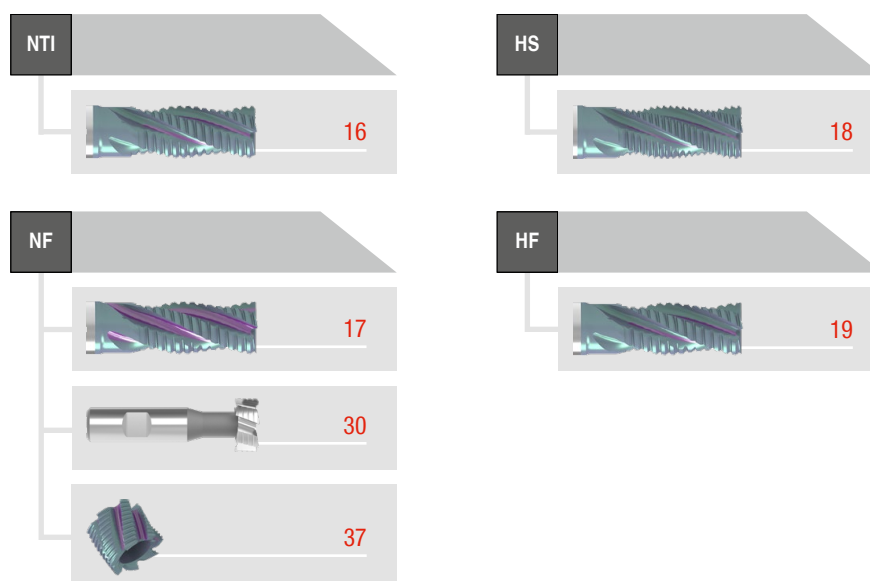
Toolfinder



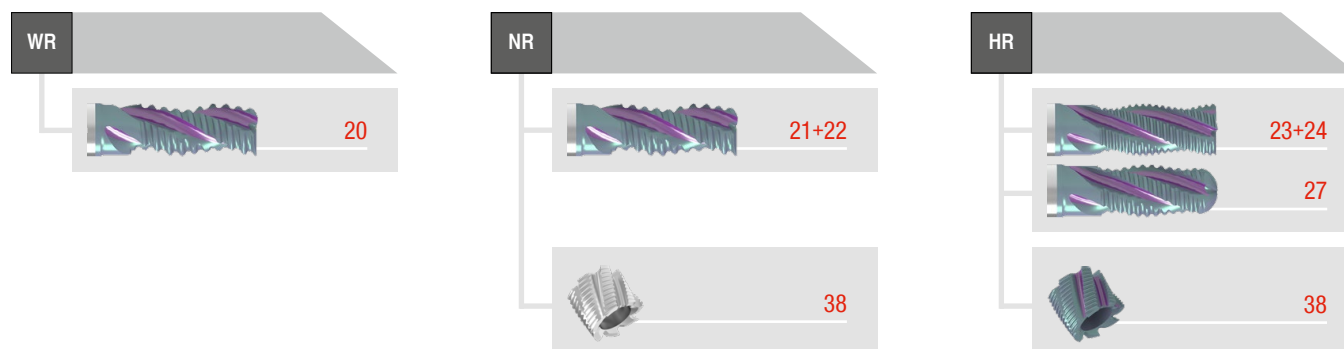
Finish milling



Rough and finish machining

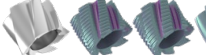


Rough machining

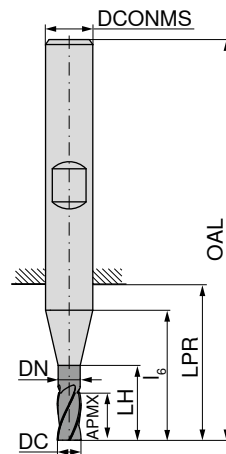
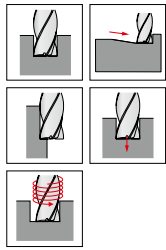
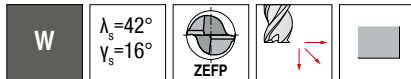


Tool type	Number of flutes	Diameter in mm Ø DC	Material								Corner chamfer	Corner radius	Full Radius	Length	Material, e.g. PM = Powdersteel	coated	uncoated	WNT Performance
			Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials									
Finishing cutter																		
	W	2	2-22												HSS-E			6
	W	3-4	2-40												HSS-E			7
	N	2	1-26												HSS-E			8+9
	N	3	1-10												HSS-E			10
	N	3	1,8-24,7												HSS-E			11+12
	N	4-5	4-25												HSS-E			13
	N	4-8	2-50												HSS-E			14+15
Rough and finish milling cutters																		
	NTI	4-6	6-40												PM			16
	NF	4-5	6-28												HSS-E			17
	HS	4-6	6-40												PM			18
	HF	4	6-25												PM			19
Rough milling cutters																		
	WR	3	6-32												HSS-E			20
	NR	3	6-25												HSS-E			21
	NR	4-6	6-40												HSS-E			22
	HR	4-6	6-32												PM			23
	HR	3-6	4-32												HSS-E			24

Overview HSS milling cutters

Tool type		Number of flutes	Diameter in mm													Length	Material, e.g. PM = Powdersteel			 Performance
				Ø DC	Steel	Stainless steel	Cast iron	Non ferrous metals	Heat resistant	hardened materials	Non metal materials							coated	uncoated	
Ball nose end milling cutters																				
	N	2	2-30													HSS-E			25	
	H	4-5	6-25													HSS-E			26	
	HR	4	6-20													HSS-E			27	
Form / Side and Face / Shell milling cutters																				
	N	6-10	11-60													HSS-E			28	
	N	6-12	10,5-45,5													HSS-E			29	
	NF	6-8	21-45													HSS-E			30	
	N	4-6	6-16													HSS-E			31	
	H	10	16-25													HSS-E			32	
	N	14-28	40-125													HSS-E			33	
		12-52	50-160													HSS-E			34-36	
		6-12	40-100													HSS-E			37+38	

Slot milling cutter HSS-E Co 8



DIN 844



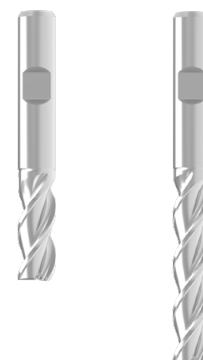
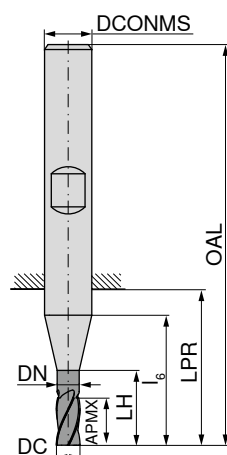
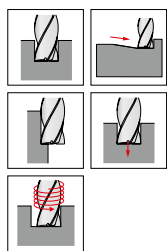
50 144 ...

DC _{es}	APMX	DN	LH	l ₆	LPR	OAL	DCONMS _{h6}	ZEFP	EUR	
mm	mm	mm	mm	mm	mm	mm	mm		U6	
2,0	7		7	13	15	51	6	2	21,94	020
2,5	8		8	14	16	52	6	2	21,94	025
3,0	8		8	14	16	52	6	2	21,94	030
3,5	10		10	16	18	54	6	2	21,94	035
4,0	11		11	17	19	55	6	2	21,94	040
4,5	11		11	17	19	55	6	2	21,94	045
5,0	13		13	19	21	57	6	2	21,94	050
5,5	13		13	19	21	57	6	2	21,94	055
6,0	13		13	19	21	57	6	2	21,94	060
6,5	16	6,0	22	24	26	66	10	2	29,57	065
7,0	16	6,5	22	24	26	66	10	2	29,57	070
8,0	19	7,5	25	27	29	69	10	2	29,57	080
9,0	19	8,5	26	27	29	69	10	2	29,57	090
10,0	22	9,5	30	30	32	72	10	2	29,57	100
12,0	26	11,5	36	36	38	83	12	2	39,08	120
14,0	26	11,5	36	36	38	83	12	2	43,45	140
16,0	32	15,0	42	42	44	92	16	2	52,50	160
18,0	32	15,0	42	42	44	92	16	2	64,61	180
20,0	38	19,0	52	52	54	104	20	2	77,94	200
22,0	38	19,0	52	52	54	104	20	2	124,50	220

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→ v_c/f_z Page 40-42

End milling cutter HSS-E Co 8



DIN 69844



DIN 844

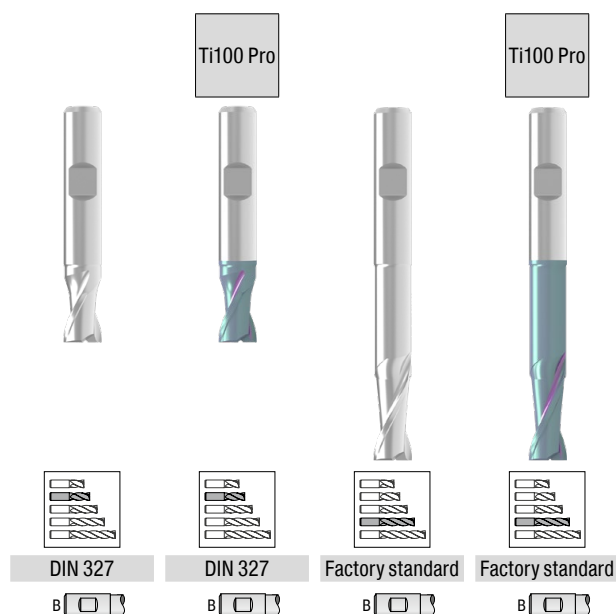
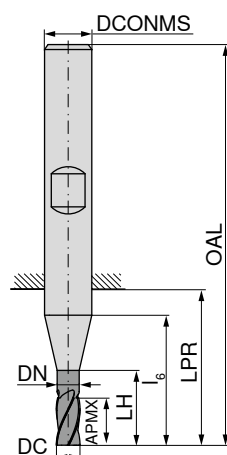
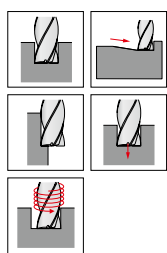
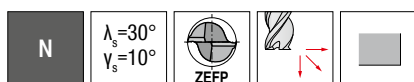


DC _{k10} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP
2	7		7	13	15	51	6	3
3	8		8	14	16	52	6	3
3	12		12	18	20	56	6	3
4	11		11	17	19	55	6	3
4	19		19	25	27	63	6	3
5	13		13	19	21	57	6	3
5	24		24	30	32	68	6	3
6	13	5,5	19	19	21	57	6	3
6	24	5,5	30	30	32	68	6	3
7	16	6,5	22	24	26	66	10	3
7	30	6,5	36	38	40	80	10	3
8	19	7,5	25	27	29	69	10	3
8	38	7,5	44	46	48	88	10	3
9	19	8,5	26	27	29	69	10	3
9	38	8,5	45	46	48	88	10	3
10	22	9,5	30	30	32	72	10	3
10	45	9,5	53	53	55	95	10	3
12	26	11,5	36	36	38	83	12	3
12	53	11,5	63	63	65	110	12	3
14	26	11,5	36	36	38	83	12	3
14	53	11,5	63	63	65	110	12	3
16	32	15,0	42	42	44	92	16	3
16	63	15,0	73	73	75	123	16	3
18	32	15,0	42	42	44	92	16	3
18	63	15,0	73	73	75	123	16	3
20	38	19,0	52	52	54	104	20	3
20	75	19,0	89	89	91	141	20	3
22	38	19,0	52	52	54	104	20	3
22	75	19,0	89	89	91	141	20	3
24	90	23,0	106	108	110	166	25	3
25	45	24,0	63	45	65	121	25	4
25	90	24,0	108	108	110	166	25	4
28	90	24,0	108	108	110	166	25	4
30	90	24,0	108	108	110	166	25	4
32	106	31,0	123	123	126	186	32	4
36	106	31,0	123	123	126	186	32	4
40	125	38,0	142	142	147	217	40	4

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→ v_c/f_z Page 40-42

Slot milling cutter HSS-E Co 8



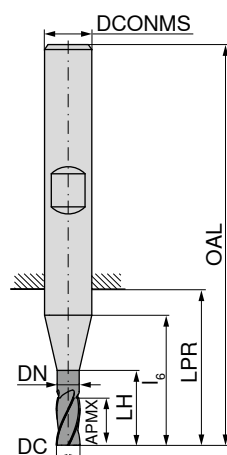
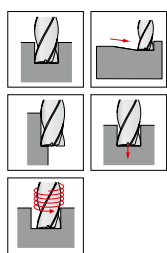
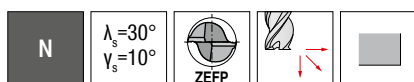
DC mm	ToI	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP	50 100 ... EUR U8	010 ¹⁾	54 025 ... EUR U8	010 ¹⁾	50 122 ... EUR U8	030	54 020 ... EUR U8	030
1,00	h10	2,5		2,5	9	11	47	6	2	32,09	010	36,68	010				
1,50	h10	3,0		3,0	9	11	47	6	2	30,01	015	36,68	015				
1,80	h10	4,0		4,0	10	12	48	6	2	14,74	018	37,44	018				
2,00	e8	4,0		4,0	10	12	48	6	2	17,58	020	30,89	020				
2,50	e8	5,0		5,0	11	13	49	6	2	17,58	025	30,89	025				
2,80	h10	5,0		5,0	11	13	49	6	2	17,58	028	32,31	028				
3,00	e8	5,0		5,0	11	13	49	6	2	16,05	030	30,89	030				
3,00	e8	8,0		8,0	18	20	56	6	2					25,76	030	45,52	030
3,50	h10	6,0		6,0	12	14	50	6	2	17,46	035	32,31	035				
3,50	h10	10,0		10,0	21	23	59	6	2					31,98	035	49,88	035
3,80	h10	7,0		7,0	13	15	51	6	2	18,23	038	36,03	038				
4,00	e8	7,0		7,0	13	15	51	6	2	16,05	040	27,17	040				
4,00	e8	11,0		11,0	25	27	63	6	2					27,61	040	45,52	040
4,50	h10	7,0		7,0	13	15	51	6	2	19,98	045	32,31	045				
4,50	h10	11,0		11,0	25	27	63	6	2					35,04	045	49,88	045
4,80	h10	8,0		8,0	14	16	52	6	2	19,98	048	36,03	048				
5,00	e8	8,0		8,0	14	16	52	6	2	16,05	050	30,89	050				
5,00	e8	13,0		13,0	30	32	68	6	2					26,75	050	45,52	050
5,50	h10	8,0		8,0	14	16	52	6	2	19,98	055	32,31	055				
5,50	h10	13,0		13,0	30	32	68	6	2					35,04	055	49,88	055
5,75	h10	8,0		8,0	14	16	52	6	2	20,09	057	36,03	057				
6,00	e8	8,0	5,50	14,0	14	16	52	6	2	16,05	060	30,89	060				
6,00	e8	13,0	5,50	30,0	30	32	68	6	2					29,25	060	44,10	060
6,50	h10	10,0	6,00	16,0	18	20	60	10	2	22,04	065	38,09	065				
6,50	h10	16,0	6,35	36,0	38	40	80	10	2					41,92	065	61,56	065
6,75	h10	10,0	6,50	16,0	18	20	60	10	2	24,67	067	40,49	067				
7,00	e8	10,0	6,50	16,0	18	20	60	10	2	23,47	070	36,68	070				
7,00	e8	16,0	6,35	36,0	38	40	80	10	2					36,78	070	57,21	070
7,50	h10	10,0	7,00	16,0	18	20	60	10	2	25,00	075	38,09	075				
7,50	h10	16,0	7,35	36,0	38	40	80	10	2					43,01	075	61,56	075
7,75	h10	11,0	7,50	17,0	19	21	61	10	2	24,67	077	40,49	077				
8,00	e8	11,0	7,50	17,0	19	21	61	10	2	21,28	080	36,68	080				
8,00	e8	19,0	7,35	44,0	46	48	88	10	2					31,98	080	56,54	080
8,50	h10	11,0	8,00	18,0	19	21	61	10	2	25,00	085	47,70	085				
8,50	h10	19,0	8,35	45,0	46	48	88	10	2					46,16	085	65,28	085
8,70	h10	11,0	8,50	18,0	19	21	61	10	2	30,67	087	51,41	087				
9,00	h10	11,0	8,50	18,0	19	21	61	10	2	24,45	090	47,05	090				
9,00	h10	19,0	8,35	45,0	46	48	88	10	2					41,92	090	66,04	090
9,50	h10	11,0	9,00	18,0	19	21	61	10	2	30,67	095	47,70	095				
9,50	h10	19,0	9,35	45,0	46	48	88	10	2					47,48	095	68,99	095
9,70	h10	13,0	9,50	21,0	21	23	63	10	2	29,91	097	51,41	097				
10,00	e8	13,0	9,50	21,0	21	23	63	10	2	23,36	100	41,16	100				
10,00	e8	22,0	9,35	53,0	53	55	95	10	2					34,71	100	58,72	100
10,50	h10	13,0	10,00	21,0	23	25	70	12	2	43,88	105	55,77	105				
10,70	h10	13,0	10,50	21,0	23	25	70	12	2	40,72	107	60,90	107				
11,00	h10	13,0	10,50	21,0	23	25	70	12	2	37,99	110	50,76	110				
11,00	h10	22,0	10,50	53,0	55	57	102	12	2					48,46	110	70,41	110

P	•	•	•	•
M	○	•	○	•
K	•	•	•	•
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

1) Factory standard

→ v_c/f_z Page 40-42

Slot milling cutter HSS-E Co 8



Ti100 Pro



Ti100 Pro



DIN 327

DIN 327

Factory standard

Factory standard



DC	Tol.	APMX	DN	LH	I ₆	LPR	OAL	DCONMS _{h6}	ZEFP		EUR		EUR		EUR		EUR
mm		mm	mm	mm	mm	mm	mm	mm			U8		U8		U8		U8
11,50	h10	13,0	11,00	21,0	23	25	70	12	2		43,66	115	56,54	115			
11,70	h10	16,0	11,50	26,0	26	28	73	12	2		43,66	117	60,15	117			
12,00	e8	16,0	11,50	26,0	26	28	73	12	2		31,87	120	50,76	120			
12,00	e8	26,0	11,50	63,0	63	65	110	12	2						39,95	120	66,91
12,70	h10	16,0	11,50	26,0	26	28	73	12	2		49,01	127	83,62	127			
13,00	h10	16,0	11,50	26,0	26	28	73	12	2		43,66	130	74,88	130			
13,00	h10	26,0	11,50	63,0	63	65	110	12	2						65,83	130	96,83
13,70	h10	16,0	11,50	26,0	26	28	73	12	2		60,70	137	79,25	137			
14,00	e8	16,0	11,50	26,0	26	28	73	12	2		41,58	140	68,99	140			
14,00	e8	26,0	11,50	63,0	63	65	110	12	2						50,65	140	92,45
14,70	h10	16,0	11,50	26,0	26	28	73	12	2		67,02	147					
15,00	h10	16,0	11,50	26,0	26	28	73	12	2		50,65	150	74,88	150			
15,00	h10	26,0	11,50	63,0	63	65	110	12	2						62,33	150	104,30
15,70	h10	19,0	15,00	29,0	29	31	79	16	2		66,25	157	86,67	157			
16,00	e8	19,0	15,00	29,0	29	31	79	16	2		46,39	160	74,88	160			
16,00	e8	32,0	15,00	73,0	73	75	123	16	2						60,47	160	101,40
16,70	h10	19,0	15,00	29,0	29	31	79	16	2		76,95	167					
17,00	h10	19,0	15,00	29,0	29	31	79	16	2		59,71	170	107,20	170			
17,00	h10	32,0	15,00	73,0	73	75	123	16	2						78,81	170	151,70
17,70	h10	19,0	15,00	29,0	29	31	79	16	2		80,66	177	107,20	177			
18,00	e8	19,0	15,00	29,0	29	31	79	16	2		63,53	180	95,51	180			
18,00	e8	32,0	15,00	73,0	73	75	123	16	2						79,35	180	136,50
19,00	h10	19,0	15,00	29,0	29	31	79	16	2		77,06	190	119,00	190			
19,00	h10	32,0	15,00	73,0	73	75	123	16	2						86,23	190	158,30
19,70	h10	22,0	19,00	36,0	36	38	88	20	2		92,12	197	119,00	197			
20,00	e8	22,0	19,00	36,0	36	38	88	20	2		71,94	200	102,70	200			
20,00	e8	38,0	19,00	89,0	89	91	141	20	2						79,69	200	139,70
21,70	h10	22,0	19,00	36,0	36	38	88	20	2		127,70	217	171,40	217			
22,00	e8	22,0	19,00	36,0	36	38	88	20	2		87,98	220	146,40	220			
22,00	e8	38,0	19,00	89,0	89	91	141	20	2						137,50	220	182,30
23,70	h10	26,0	23,00	42,0	44	46	102	25	2		135,50	237	197,60	237			
24,00	e8	26,0	23,00	42,0	44	46	102	25	2		114,60	240	177,90	240			
24,00	e8	45,0	23,00	106,0	108	110	166	25	2						170,40	240	254,30
24,70	h10	26,0	24,00	44,0	44	46	102	25	2		134,20	247	203,00	247			
25,00	e8	26,0	24,00	44,0	44	46	102	25	2		108,70	250	176,90	250			
25,00	e8	45,0	24,00	108,0	108	110	166	25	2						170,40	250	210,70
26,00	h10	26,0	24,00	44,0	44	46	102	25	2		132,10	260	229,30	260			

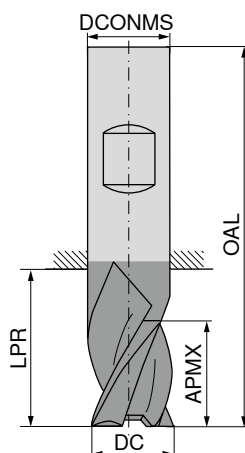
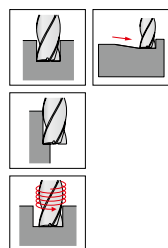
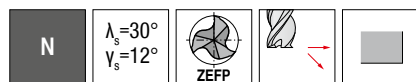
P	•	•	•	•
M	○	•	○	•
K	•	•	•	•
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

1) Factory standard

→ v_c/f_z Page 40-42

Throw-away milling cutter, HSS-E Co 8

▲ Shank similar to DIN 1835 B



Factory standard



50 092 ...

EUR U6

11,68 010

11,68 015

11,68 018

11,68 020

11,68 023

11,68 025

11,68 028

11,68 030

11,68 033

11,68 035

11,68 038

11,68 040

11,68 043

11,68 045

11,68 048

11,68 050

11,68 053

11,68 055

11,68 057

11,68 060

13,54 065

13,54 070

13,54 075

13,54 080

17,58 085

17,58 090

17,58 095

17,58 100



Factory standard



54 014 ...

EUR U8

23,13 010

23,13 015

23,13 018

23,13 020

23,13 023

23,13 025

23,13 028

23,13 030

23,13 033

23,13 035

23,13 038

23,13 040

23,13 043

23,13 045

23,13 048

23,13 050

23,13 053

23,13 055

23,13 057

23,13 060

31,55 065

31,55 070

31,55 075

31,55 080

36,03 085

36,03 090

36,03 095

36,03 100



Factory standard



50 093 ...

EUR U6

13,65 015¹⁾13,65 020¹⁾13,65 025¹⁾13,65 030¹⁾13,65 035¹⁾13,65 040¹⁾13,65 045¹⁾13,65 050¹⁾13,65 055¹⁾13,65 060¹⁾16,15 065¹⁾16,15 070¹⁾16,15 075¹⁾16,15 080¹⁾20,19 085¹⁾20,19 090¹⁾20,19 095¹⁾20,19 100¹⁾

Factory standard



54 042 ...

EUR U8

25,87 015¹⁾

25,87 020

25,87 025

25,87 030

25,87 035

25,87 040

25,87 045

25,87 050

25,87 055

25,87 060

34,49 065

34,49 070

34,49 075

34,49 080

38,64 085

38,64 090

38,64 095

38,64 100

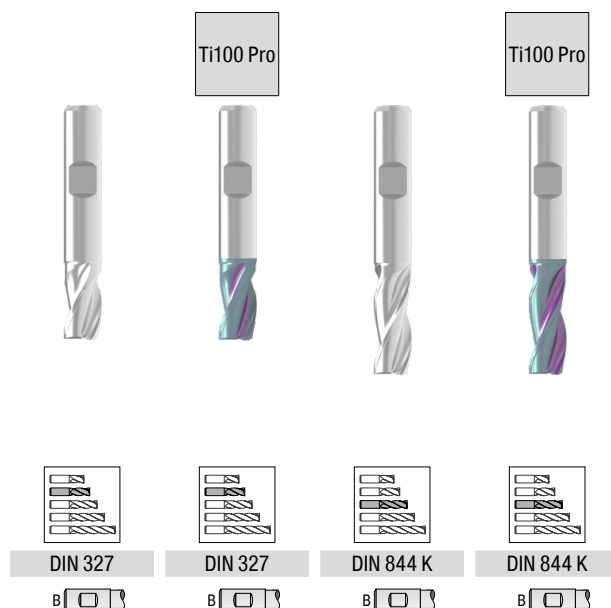
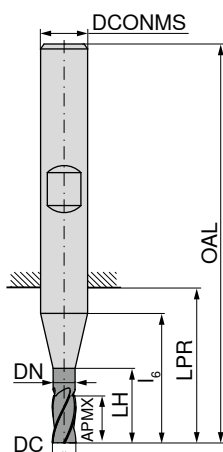
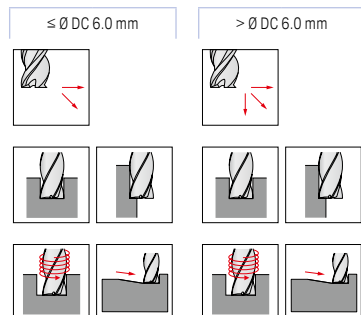
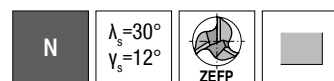
DC _{e8} mm	APMX mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP
1,00	2	8	34	6	3
1,50	3	8	34	6	3
1,50	4	10	35	6	3
1,80	3	8	34	6	3
2,00	4	9	35	6	3
2,00	7	12	38	6	3
2,30	4	9	35	6	3
2,50	5	10	36	6	3
2,50	8	13	39	6	3
2,80	5	10	36	6	3
3,00	5	10	36	6	3
3,00	8	13	39	6	3
3,30	6	11	37	6	3
3,50	6	11	37	6	3
3,50	10	15	41	6	3
3,80	7	12	38	6	3
4,00	7	12	38	6	3
4,00	11	16	42	6	3
4,30	7	12	38	6	3
4,50	7	12	38	6	3
4,50	11	16	42	6	3
4,80	8	13	39	6	3
5,00	8	13	39	6	3
5,00	13	18	44	6	3
5,30	8	13	39	6	3
5,50	8	13	39	6	3
5,50	13	18	44	6	3
5,75	8	13	39	6	3
6,00	8	13	39	6	3
6,00	13	18	44	6	3
6,50	10	14	42	8	3
6,50	16	20	48	8	3
7,00	10	14	42	8	3
7,00	16	20	48	8	3
7,50	10	14	42	8	3
7,50	16	20	48	8	3
8,00	11	15	43	8	3
8,00	19	23	51	8	3
8,50	11	16	48	10	3
8,50	19	24	56	10	3
9,00	11	16	48	10	3
9,00	19	24	56	10	3
9,50	11	16	48	10	3
9,50	19	24	56	10	3
10,00	13	18	50	10	3
10,00	22	27	59	10	3

P	●	●	●	●
M	○	●	○	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

1) Shank tolerance -0,025 / -0,0323

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre



DC mm	ToI	APMX mm	DN mm	LH mm	l_6 mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP	50 105 ...	54 021 ...	50 106 ...	54 016 ...
1,80	h10	4		4	10	12	48	6	3	EUR U8 26,75 018	EUR U8 38,09 018		
2,00	e8	4		4	10	12	48	6	3	EUR U8 21,84 020	EUR U8 31,55 020		
2,50	e8	5		5	11	13	49	6	3	EUR U8 23,79 025	EUR U8 31,55 025		
2,80	h10	5		5	11	13	49	6	3	EUR U8 26,75 028	EUR U8 38,09 028		
2,80	h10	8		8	18	20	56	6	3			EUR U8 33,08 028 ¹⁾	EUR U8 44,10 028 ¹⁾
3,00	e8	5		5	11	13	49	6	3	EUR U8 21,07 030	EUR U8 31,55 030		
3,00	e8	8		8	14	16	52	6	3			EUR U8 25,33 030	EUR U8 28,71 030
3,50	h10	6		6	12	14	50	6	3	EUR U8 26,20 035	EUR U8 34,49 035		
3,50	h10	10		10	16	18	54	6	3			EUR U8 27,40 035	EUR U8 28,71 035
3,80	h10	7		7	13	15	51	6	3	EUR U8 26,20 038	EUR U8 38,09 038		
3,80	h10	11		11	25	27	63	6	3			EUR U8 33,08 038 ¹⁾	EUR U8 44,10 038 ¹⁾
4,00	e8	7		7	13	15	51	6	3	EUR U8 21,07 040	EUR U8 31,55 040		
4,00	e8	11		11	17	19	55	6	3			EUR U8 24,67 040	EUR U8 28,71 040
4,50	h10	7		7	13	15	51	6	3	EUR U8 23,79 045	EUR U8 34,49 045		
4,50	h10	11		11	17	19	55	6	3			EUR U8 27,40 045	EUR U8 28,71 045
4,80	h10	8		8	14	16	52	6	3	EUR U8 23,79 048	EUR U8 38,09 048		
5,00	e8	8		8	14	16	52	6	3	EUR U8 21,50 050	EUR U8 31,55 050		
5,00	e8	13		13	19	21	57	6	3			EUR U8 25,33 050	EUR U8 28,71 050
5,50	h10	8		8	14	16	52	6	3	EUR U8 26,20 055	EUR U8 34,49 055		
5,50	h10	13		13	19	21	57	6	3			EUR U8 29,47 055	EUR U8 28,71 055
5,75	h10	8		8	14	16	52	6	3	EUR U8 26,20 057	EUR U8 38,09 057		
6,00	e8	8	5,5	14	14	16	52	6	3	EUR U8 21,50 060	EUR U8 31,55 060		
6,00	e8	13	5,5	19	19	21	57	6	3			EUR U8 24,67 060	EUR U8 28,71 060
6,50	h10	10	6,0	16	18	20	60	10	3	EUR U8 34,71 065	EUR U8 47,70 065		
6,50	h10	16	6,0	22	24	26	66	10	3			EUR U8 33,40 065	EUR U8 41,16 065
6,75	h10	10	6,5	16	18	20	60	10	3	EUR U8 34,71 067	EUR U8 55,77 067		
7,00	e8	10	6,5	16	18	20	60	10	3	EUR U8 34,05 070	EUR U8 47,05 070		
7,00	e8	16	6,5	22	24	26	66	10	3			EUR U8 33,63 070	EUR U8 41,16 070
7,50	h10	10	7,0	16	18	20	60	10	3	EUR U8 34,71 075	EUR U8 47,70 075		
7,50	h10	16	7,0	22	24	26	66	10	3			EUR U8 39,73 075	EUR U8 41,16 075
7,75	h10	11	7,5	17	19	21	61	10	3	EUR U8 34,71 077	EUR U8 49,88 077		
8,00	e8	11	7,5	17	19	21	61	10	3	EUR U8 30,34 080	EUR U8 44,10 080		
8,00	e8	19	7,5	25	27	29	69	10	3			EUR U8 35,14 080	EUR U8 41,16 080
8,50	h10	11	8,0	18	19	21	61	10	3	EUR U8 35,69 085	EUR U8 48,46 085		
8,50	h10	19	8,0	26	27	29	69	10	3			EUR U8 46,16 085	EUR U8 41,16 085
8,70	h10	11	8,5	18	19	21	61	10	3	EUR U8 35,69 087	EUR U8 55,77 087		
9,00	h10	19	8,5	26	27	29	69	10	3	EUR U8 37,99 090	EUR U8 47,05 090		
9,50	h10	11	9,0	18	19	21	61	10	3	EUR U8 38,32 095	EUR U8 49,88 095		
9,50	h10	19	9,0	26	27	29	69	10	3			EUR U8 43,76 095	EUR U8 63,20 095
9,70	h10	13	9,5	21	21	23	63	10	3	EUR U8 38,32 097	EUR U8 52,94 097		
10,00	e8	13	9,5	21	21	23	63	10	3	EUR U8 29,04 100	EUR U8 46,29 100		
10,00	e8	22	9,5	30	30	32	72	10	3			EUR U8 34,82 100	EUR U8 41,16 100
10,50	h10	13	10,0	21	23	25	70	12	3	EUR U8 49,88 105	EUR U8 57,21 105		
10,70	h10	13	10,5	21	23	25	70	12	3	EUR U8 49,88 107	EUR U8 63,20 107		
11,00	h10	13	10,5	21	23	25	70	12	3	EUR U8 42,67 110	EUR U8 53,59 110		

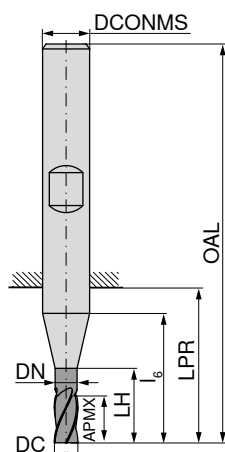
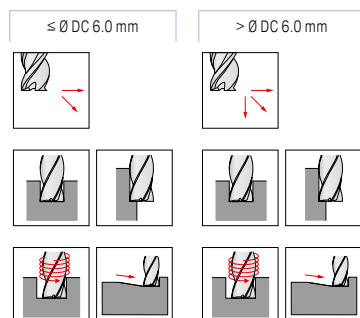
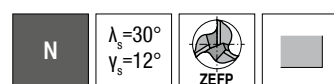
P	•	•	•	•
M	○	•	○	•
K	•	•	•	•
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

1) Factory standard

→ v_c/f_z Page 40-42

End milling cutter HSS-E Co 8

▲ ≤ Ø DC 6 mm, 3 cutting edges to centre



DIN 327

DIN 327

DIN 844 K

DIN 844 K



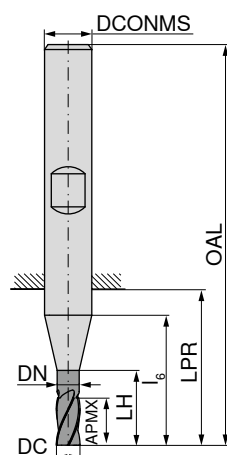
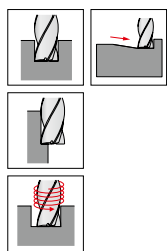
DC mm	Tol.	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP	50 105 ...	54 021 ...	50 106 ...	54 016 ...
										EUR U8	EUR U8	EUR U8	EUR U8
11,00	h10	22	10,5	30	32	34	79	12	3			43,76	110
11,50	h10	13	11,0	21	23	25	70	12	3	44,21	57,21	42,47	110
11,50	h10	22	11,0	30	32	34	79	12	3			56,11	115
11,70	h10	16	11,5	26	26	28	73	12	3	44,21	63,85	72,70	115
12,00	e8	16	11,5	26	26	28	73	12	3	37,99	52,94		120
12,00	e8	26	11,5	36	36	38	83	12	3			41,48	120
12,70	h10	16	11,5	26	26	28	73	12	3	55,56	89,51		120
13,00	h10	16	11,5	26	26	28	73	12	3	55,56	77,83		130
13,00	h10	26	11,5	36	36	38	83	12	3			60,36	130
13,70	h10	16	11,5	26	26	28	73	12	3	59,06	83,62		130
14,00	e8	16	11,5	26	26	28	73	12	3	54,25	73,46		140
14,00	e8	26	11,5	36	36	38	83	12	3			53,59	140
15,00	h10	16	11,5	26	26	28	73	12	3	57,53	77,83		150
15,00	h10	26	11,5	36	36	38	83	12	3			75,10	150
15,50	h10	32	15,0	42	42	44	92	16	3			94,31	155
15,70	h10	19	15,0	29	29	31	79	16	3	60,47	93,87		157
16,00	e8	19	15,0	29	29	31	79	16	3	51,95	80,78		160
16,00	e8	32	15,0	42	42	44	92	16	3			62,21	160
17,00	h10	19	15,0	29	29	31	79	16	3	74,99	114,60		170
17,00	h10	32	15,0	42	42	44	92	16	3			74,01	170
17,70	h10	19	15,0	29	29	31	79	16	3	86,56	119,00		177
18,00	e8	19	15,0	29	29	31	79	16	3	72,81	104,30		180
18,00	e8	32	15,0	42	42	44	92	16	3			68,99	180
19,00	h10	19	15,0	29	29	31	79	16	3	83,62	126,60		190
19,00	h10	32	15,0	42	42	44	92	16	3			89,95	190
19,50	h10	38	19,0	52	52	54	104	20	3			109,20	195
19,70	h10	22	19,0	36	36	38	88	20	3	93,99	126,60		197
20,00	e8	22	19,0	36	36	38	88	20	3	82,09	110,20		200
20,00	e8	38	19,0	52	52	54	104	20	3			82,41	200
21,70	h10	22	19,0	36	36	38	88	20	3	143,00	179,00		217
22,00	e8	22	19,0	36	36	38	88	20	3	127,70	158,30		220
22,00	e8	38	19,0	52	52	54	104	20	3			101,00	220
23,70	h10	26	23,0	42	44	46	102	25	3	171,40	210,70		237
24,00	e8	26	23,0	42	44	46	102	25	3	146,40	186,70		240
24,70	h10	26	24,0	44	44	46	102	25	3	164,90	217,20		247

P	●	●	●	●
M	○	●	○	●
K	●	●	●	●
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

1) Factory standard

→ v_c/f_z Page 40-42

End milling cutter HSS-E Co 8



Factory standard



DIN 844



DIN 844

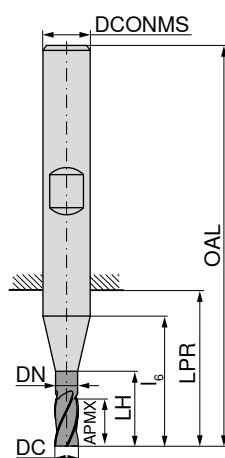
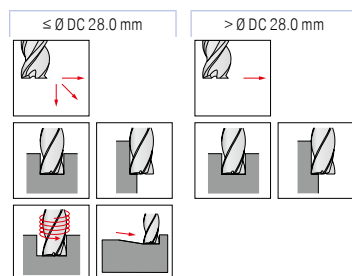
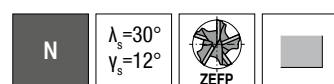


DC mm	ToI.	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS mm	h ₆	ZEFP										
4	k10	11		11	17	19	55	6	4											
5	k10	13		13	19	21	57	6	4											
6	e8	8	5,5	14	14	16	52	6	4											
6	k10	13	5,5	19	19	21	57	6	4											
8	e8	11	7,5	17	19	21	61	10	4											
8	k10	19	7,5	25	27	29	69	10	4											
9	k10	19	8,5	26	27	29	69	10	4											
10	e8	13	9,5	21	21	23	63	10	4											
10	k10	22	9,5	30	30	32	72	10	4											
12	e8	16	11,5	26	26	28	73	12	4											
12	k10	26	11,5	36	36	38	83	12	4											
14	e8	16	11,5	26	26	28	73	12	4											
14	k10	26	11,5	36	36	38	83	12	4											
15	k10	26	11,5	36	36	38	83	12	4											
16	e8	19	15,0	29	29	31	79	16	4											
16	k10	32	15,0	42	42	44	92	16	4											
17	k10	32	15,0	42	42	44	92	16	4											
18	e8	19	15,0	29	29	31	79	16	4											
18	k10	32	15,0	42	42	44	92	16	4											
20	e8	22	19,0	36	36	38	88	20	4											
20	k10	38	19,0	52	52	54	104	20	4											
25	k10	45	24,0	63	63	65	121	25	5											
P																				
M																				
K																				
N																				
S																				
H																				
O																				

→ v_c/f_z Page 40-42

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre



DIN 69844

DIN 69844

DIN 844

DIN 844

Factory standard



DC _{k10} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP
2,0	7		7	13	15	51	6	4
2,5	8		8	14	16	52	6	4
3,0	8		8	14	16	52	6	4
3,0	12		12	18	20	56	6	4
3,5	10		10	16	18	54	6	4
4,0	11		11	17	19	55	6	4
4,0	19		19	25	27	63	6	4
4,5	11		11	17	19	55	6	4
5,0	13		13	19	21	57	6	4
5,0	24		24	30	32	68	6	4
5,5	13		13	19	21	57	6	4
6,0	13	5,5	19	19	21	57	6	4
6,0	24	5,5	30	30	32	68	6	4
6,0	56	5,5	62	62	64	100	6	4
6,5	16	6,0	22	24	26	66	10	4
7,0	16	6,5	22	24	26	66	10	4
7,0	30	6,5	36	38	40	80	10	4
7,5	16	7,0	22	24	26	66	10	4
8,0	19	7,5	25	27	29	69	10	4
8,0	38	7,5	44	46	48	88	10	4
8,0	70	7,5	73	73	75	115	10	4
8,5	19	8,0	26	27	29	69	10	4
9,0	19	8,5	26	27	29	69	10	4
9,0	38	8,5	45	46	48	88	10	4
9,5	19	9,0	26	27	29	69	10	4
10,0	22	9,5	30	30	32	72	10	4
10,0	45	9,5	53	53	55	95	10	4
10,0	75	9,5	79	79	81	121	10	4
10,5	22	10,0	30	32	34	79	12	4
11,0	22	10,5	30	32	34	79	12	4
11,0	45	10,5	53	55	57	102	12	4
11,5	22	11,0	30	32	34	79	12	4
12,0	26	11,5	36	36	38	83	12	4
12,0	53	11,5	63	63	65	110	12	4
12,0	85		85	85	85	130	12	4
13,0	26	11,5	36	36	38	83	12	4
14,0	26	11,5	36	36	38	83	12	4
14,0	53	11,5	63	63	65	110	12	4
14,0	85		85	85	85	130	12	4

50 110 ...

54 018 ...

50 111 ...

54 019 ...

50 104 ...

EUR
U8EUR
U8EUR
U8EUR
U8EUR
U6

21,84

36,03

30,46

43,33

23,03

34,49

21,84

33,73

030

030

21,84

36,03

035

035

19,87

32,31

040

040

21,84

35,26

29,91

43,33

19,87

32,31

045

045

21,84

36,03

050

050

18,45

32,96

055

055

27,07

42,47

060

060

25,87

45,52

065

065

25,87

44,87

070

070

25,87

45,52

075

075

22,71

43,33

080

080

38,42

49,88

080

080

27,61

45,52

085

085

27,73

49,23

090

090

27,61

56,54

095

095

26,31

45,52

100

100

40,49

53,59

100

100

43,99

62,55

105

105

38,09

55,77

110

110

42,35

57,21

115

115

36,45

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130

48,90

66,04

140

140

56,11

83,62

140

140

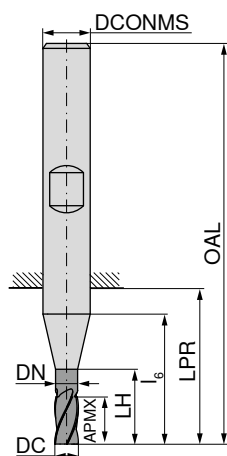
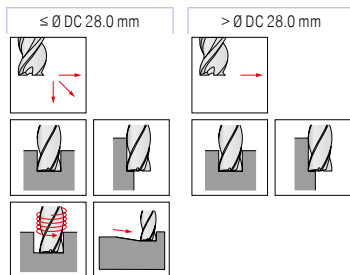
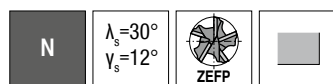
87,98

P	●	●	●	●	●
M	○	●	○	●	○
K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H					
O	○	○	○	○	○

→ v_c/f_z Page 40-42

End milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre



DIN 69844

DIN 69844

DIN 844

DIN 844

Factory standard

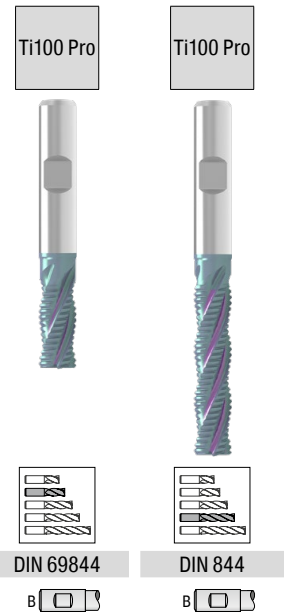
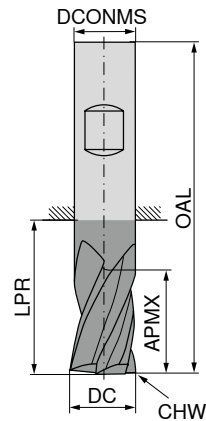
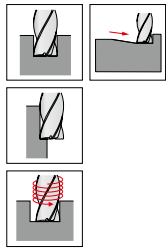
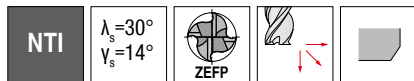


DC _{k10} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP	50 110 ... EUR U8	54 018 ... EUR U8	50 111 ... EUR U8	54 019 ... EUR U8	50 104 ... EUR U6
15,0	26	11,5	36	36	38	83	12	4	55,56	150	79,25	150	
15,0	53	11,5	63	63	65	110	12	4			72,81	150	96,83
16,0	32	15,0	42	42	44	92	16	4	50,65	160	77,83	160	
16,0	63	15,0	73	73	75	123	16	4			62,33	160	93,87
16,0	90	15,0	95	95	97	145	16	4					83,62
18,0	32	15,0	42	42	44	92	16	4	71,28	180	107,20	180	
18,0	63	15,0	73	73	75	123	16	4			77,17	180	133,20
18,0	100	15,0	110	110	112	160	16	5					154,00
20,0	38	19,0	52	52	54	104	20	4	74,77	200	112,50	200	
20,0	75	19,0	89	89	91	141	20	4			89,40	200	139,70
20,0	110	19,0	128	128	130	180	20	5					144,10
22,0	38	19,0	52	52	54	104	20	5	103,80	220	149,60	220	
22,0	75	19,0	89	89	91	141	20	5			125,60	220	225,90
22,0	110	19,0	128	128	130	180	20	5					203,00
24,0	45	23,0	61	63	65	121	25	5	120,10	240	172,40	240	
24,0	90	23,0	106	108	110	166	25	5			169,20	240	251,10
25,0	45	24,0	63	63	65	121	25	5	120,10	250	164,90	250	
25,0	90	24,0	108	108	110	166	25	5			170,40	250	240,20
25,0	125	24,0	142	142	144	200	25	6					203,00
28,0	45	24,0	63	63	65	121	25	5	137,50	280	203,00	280	
28,0	90	24,0	108	108	110	166	25	5			201,90	280	314,40
28,0	140	24,0	147	147	149	205	25	6					284,90
30,0	45	24,0	63	63	65	121	25	5	192,10	300	241,20	300	
30,0	90	24,0	108	108	110	166	25	5			222,70	300	374,40
32,0	53	31,0	70	70	73	133	32	6	186,70	320			
32,0	53	31,0	70	70	73	133	32	5		229,30	320		
32,0	106	31,0	123	123	126	186	32	6			211,80	320	364,60
32,0	160	31,0	167	167	170	230	32	6					348,20
36,0	53	31,0	70	70	73	133	32	6	211,80	360	330,80	360	
40,0	63	38,0	80	80	85	155	40	6	279,40	400	411,60	400	
40,0	125	38,0	142	142	147	217	40	6			400,70	400	540,30
40,0	180	31,0	197	197	200	260	32	8					579,60
45,0	125	38,0	142	142	147	217	40	8			672,40	450	744,50
50,0	150	48,0	172	172	172	252	50	8			776,10	500	864,60

P	•	•	•	•	•
M	○	•	○	•	○
K	•	•	•	•	•
N	○	○	○	○	○
S	○	○	○	○	○
H					
O	○	○	○	○	○

→ v_c/f_z Page 40-42

Powdersteel roughing finishing cutter

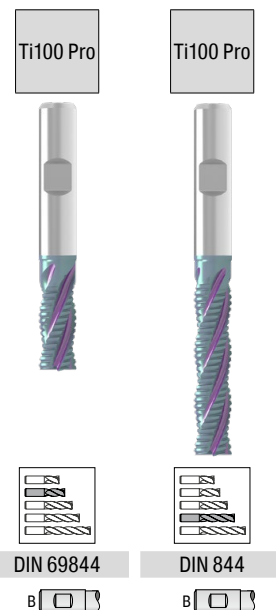
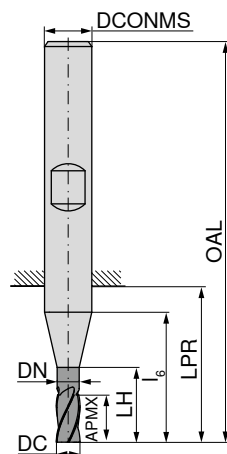
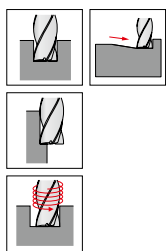


DC _{k12} mm	APMX mm	LPR mm	OAL mm	DCONMS _{h6} mm	CHW mm	ZEFP
6	13	21	57	6	0,3	4
6	24	32	68	6	0,3	4
7	16	26	66	10	0,3	4
8	19	29	69	10	0,3	4
8	38	48	88	10	0,3	4
9	19	29	69	10	0,5	4
10	22	32	72	10	0,5	4
10	45	55	95	10	0,5	4
12	26	38	83	12	0,7	4
12	53	65	110	12	0,7	4
14	26	38	83	12	0,8	4
14	53	65	110	12	0,8	4
16	32	44	92	16	0,8	4
16	63	75	123	16	0,8	4
18	32	44	92	16	0,8	4
18	63	75	123	16	0,8	4
20	38	54	104	20	0,8	4
20	75	91	141	20	0,8	4
25	45	65	121	25	1,0	5
25	90	110	166	25	1,0	4
30	90	110	166	25	1,3	5
32	53	73	133	32	1,3	6
32	106	126	186	32	1,3	5
40	63	85	155	40	1,3	6
40	125	147	217	40	1,3	6

	54 007 ...	54 008 ...
P	○	○
M	●	●
K	○	○
N	○	○
S	●	●
H		
O	○	○

→ v_c/f_z Page 40-42

Roughing-finishing milling cutter HSS-E Co 5

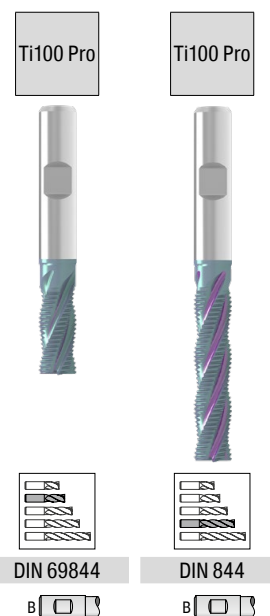
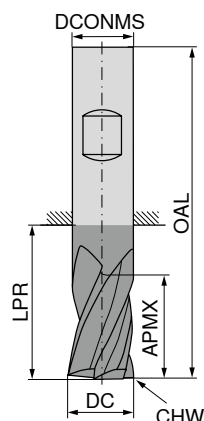
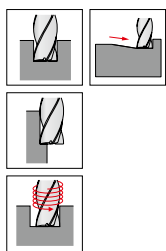


DC _{k12} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP
6	13	5,5	19	19	21	57	6	4
6	24	5,5	30	30	32	68	6	4
7	16	6,5	22	24	26	66	10	4
8	19	7,5	25	27	29	69	10	4
8	38	7,5	44	46	48	88	10	4
9	19	8,5	26	27	29	69	10	4
10	22	9,5	30	30	32	72	10	4
10	45	9,5	53	53	55	95	10	4
11	22	10,5	30	32	32	79	12	4
11	45	10,5	53	55	57	102	12	4
12	26	11,5	36	36	38	83	12	4
12	53	11,5	63	63	65	110	12	4
13	26	11,5	36	36	38	83	12	4
14	26	11,5	36	36	38	83	12	4
15	26	11,5	36	36	38	83	12	4
15	53	11,5	63	63	65	110	12	4
16	32	15,0	42	42	44	92	16	4
16	63	15,0	73	73	75	123	16	4
18	32	15,0	42	42	44	92	16	4
20	38	19,0	52	52	54	104	20	4
20	75	19,0	89	89	91	141	20	4
22	75	19,0	89	89	91	141	20	4
22	38	19,0	52	52	54	104	20	4
25	90	24,0	108	108	110	166	25	4
25	45	24,0	63	63	65	121	25	4
28	90	24,0	108	108	110	166	25	5

P	•	•
M	○	○
K	•	•
N	○	○
S	○	○
H	○	○
O	○	○

→ v_c/f_z Page 40-42

Powdersteel roughing finishing cutter



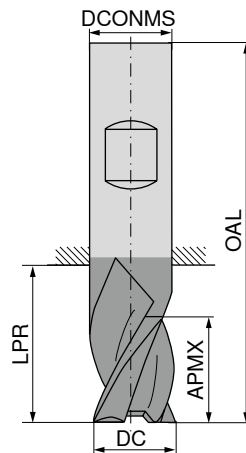
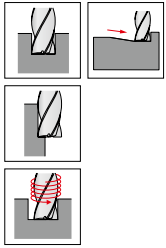
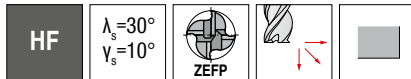
DC _{k12} mm	APMX mm	LPR mm	OAL mm	DCONMS _{h6} mm	CHW mm	ZEFP
6	13	21	57	6	0,45	4
6	24	32	68	6	0,45	4
8	19	29	69	10	0,45	4
8	38	48	88	10	0,45	4
10	22	32	72	10	0,45	4
10	45	55	95	10	0,45	4
12	26	38	83	12	0,45	4
12	53	65	110	12	0,45	4
14	26	38	83	12	0,45	4
14	53	65	110	12	0,45	4
16	32	44	92	16	0,60	4
16	63	75	123	16	0,60	4
18	32	44	92	16	0,60	4
18	63	75	123	16	0,60	4
20	38	54	104	20	0,60	4
20	75	91	141	20	0,60	4
22	38	54	104	20	0,60	5
25	45	65	121	25	0,75	5
25	90	110	166	25	0,75	5
28	45	65	121	25	0,75	5
28	90	110	166	25	0,75	5
30	45	65	121	25	0,75	5
30	90	110	166	25	0,75	5
32	53	73	133	32	0,75	6
32	106	126	186	32	0,75	5
40	63	85	155	40	0,90	6

P	○	○
M	○	○
K	●	●
N	○	○
S	●	●
H	○	○
O	○	○

54 009 ...	54 012 ...
EUR U8	EUR U8
104,60	149,60
137,50	176,90
147,40	185,50
151,70	207,30
192,10	246,70
217,20	280,60
273,00	356,90
289,20	386,40
379,90	627,60
429,00	946,40
538,20	985,70
623,40	912,60
574,10	
985,70	

→ v_c/f_z Page 40-42

Powdersteel roughing finishing cutter



Ti100 Pro



DIN 844

B

54 034 ...

DC _{k12} mm	APMX mm	LPR mm	OAL mm	DCONMS _{n6} mm	ZEFP
6	13	21	57	6	4
8	19	29	69	10	4
10	22	32	72	10	4
12	26	38	83	12	4
14	26	38	83	12	4
16	32	44	92	16	4
18	32	44	92	16	4
20	38	54	104	20	4
25	45	65	121	25	4

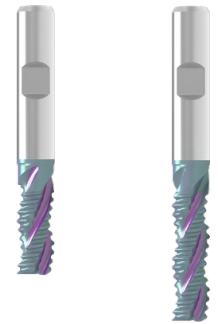
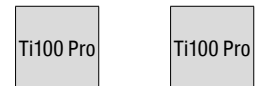
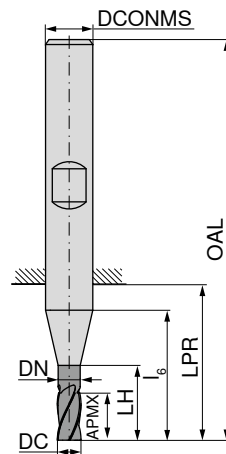
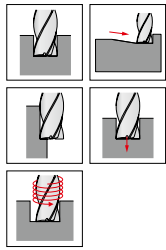
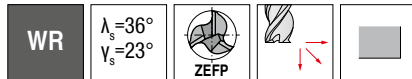
EUR
U8

57,21	060
77,83	080
83,62	100
90,93	120
102,70	140
135,50	160
143,00	180
173,60	200
266,30	250

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 40-42

Rough milling cutter HSS-E Co 8



DIN 844



Factory standard

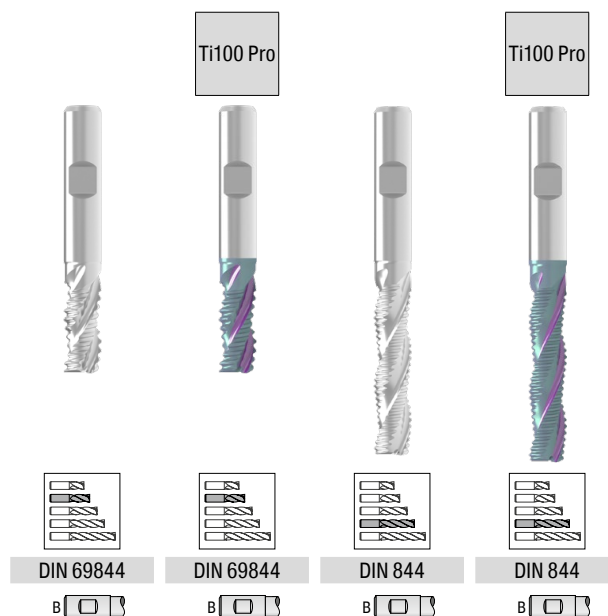
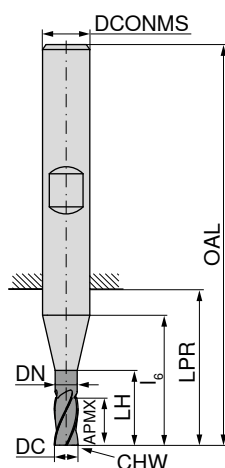
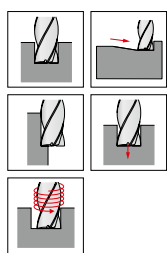


DC _{K12} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP
6	13	5,5	19	19	21	57	6	3
6	19	5,5	25	25	27	63	6	3
8	19	7,5	25	27	29	69	10	3
8	28	7,5	34	36	38	78	10	3
10	22	9,5	30	30	32	72	10	3
10	34	9,5	42	42	44	84	10	3
12	26	11,5	36	36	38	83	12	3
12	40	11,5	50	50	52	97	12	3
16	32	15,0	42	42	44	92	16	3
16	48	15,0	58	58	60	108	16	3
20	38	19,0	52	52	54	104	20	3
20	56	19,0	70	70	72	122	20	3
25	45	24,0	63	63	65	121	25	3
25	68	24,0	86	86	88	144	25	3
32	80	31,0	97	97	100	160	32	3

P		
M		
K		
N	•	•
S		
H		
O	•	•

→ v_c/f_z Page 40-42

Rough milling cutter HSS-E Co 8



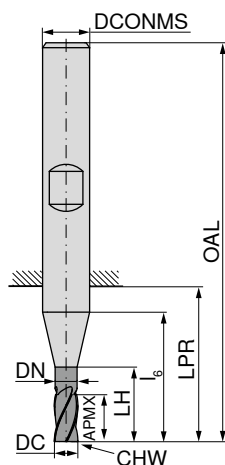
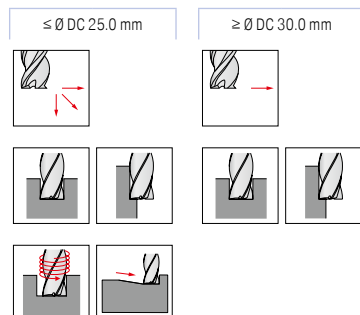
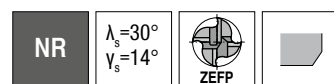
DC _{k12} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	CHW mm	ZEFP	50 153 ... EUR U8	54 026 ... EUR U8	50 157 ... EUR U8	54 027 ... EUR U8
6	13	5,5	19	19	21	57	6	0,5	3	43,22	060	49,88	060
6	24	5,5	30	30	32	68	6	0,5	3			51,41	060
7	16	6,5	22	24	26	66	10	0,5	3	56,76	070	68,99	070
8	19	7,5	25	27	29	69	10	0,7	3	51,85	080	64,51	080
8	38	7,5	44	46	48	88	10	0,7	3			57,41	080
9	19	8,5	26	27	29	69	10	0,7	3	62,44	090	73,46	090
9	38	8,5	45	46	48	88	10	0,7	3			85,14	090
10	22	9,5	30	30	32	72	10	0,7	3	55,23	100	67,57	100
10	45	9,5	53	53	55	95	10	0,7	3			73,13	100
11	22	10,5	30	32	34	79	12	0,7	3	69,97	110	83,62	110
11	45	10,5	53	55	55	102	12	0,7	3			95,51	110
12	26	11,5	36	36	38	83	12	0,7	3	59,38	120	74,88	120
12	53	11,5	63	63	65	110	12	0,7	3			79,03	120
14	26	11,5	36	36	38	83	12	0,9	3	68,99	140	93,87	140
14	53	11,5	63	63	65	110	12	0,9	3			95,30	140
15	26	11,5	36	36	38	83	12	0,9	3	81,43	150	105,70	150
15	53	11,5	63	63	65	110	12	0,9	3			113,50	150
16	32	15,0	42	42	44	92	16	0,9	3	78,59	160	102,70	160
16	63	15,0	73	73	75	123	16	0,9	3			98,24	160
18	32	15,0	42	42	44	92	16	0,9	3	99,23	180	139,70	180
18	63	15,0	73	73	75	123	16	0,9	3			149,60	180
20	38	19,0	52	52	54	104	20	0,9	3	108,90	200	143,00	200
20	75	19,0	89	89	91	141	20	0,9	3			144,10	200
25	45	24,0	63	63	65	121	25	0,9	3	169,20	250	204,20	250
25	90	24,0	108	108	110	166	25	0,9	3			211,80	250

P	•	•	•	•
M	○	○	○	○
K	•	•	•	•
N	○	○	○	○
S	○	○	○	○
H				
O	○	○	○	○

→ v_c/f_z Page 40-42

Rough milling cutter HSS-E Co 5

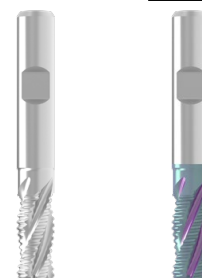
▲ > Ø 25,0 mm recessed centre



DC _{k12} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	CHW mm	ZEFP
6	13	5,5	19	19	21	57	6	0,5	4
7	16	6,5	22	24	26	66	10	0,5	4
8	19	7,5	25	27	29	69	10	0,7	4
9	19	8,5	26	27	29	69	10	0,7	4
10	22	9,5	30	30	32	72	10	0,7	4
11	22	10,5	30	32	32	79	12	0,7	4
12	26	11,5	36	36	38	83	12	0,7	4
13	26	11,5	36	36	38	83	12	0,7	4
14	26	11,5	36	36	38	83	12	0,9	4
15	26	11,5	36	36	38	83	12	0,9	4
16	32	15,0	42	42	44	92	16	0,9	4
18	32	15,0	42	42	44	92	16	0,9	4
20	38	19,0	52	52	54	104	20	0,9	4
22	38	19,0	52	52	54	104	20	0,9	4
24	45	23,0	61	63	65	121	25	0,9	4
25	45	24,0	63	63	65	121	25	0,9	4
30	45	24,0	63	63	65	121	25	1,1	5
32	53	31,0	70	70	73	133	32	1,1	6
40	63	38,0	80	80	85	155	40	1,1	6

P	●	●
M	○	○
K	●	●
N	○	○
S	○	○
H		
O	○	○

Ti100 Pro



DIN 69844



DIN 69844



50 125 ...

EUR

U8

34,17

43,12

37,33

50,33

39,84

55,13

42,02

54,58

65,50

70,41

86,99

111,30

54 030 ...

EUR

U8

49,88

68,99

64,51

66,04

67,57

89,51

74,88

96,83

93,87

104,30

102,70

139,70

143,00

187,80

200,90

204,20

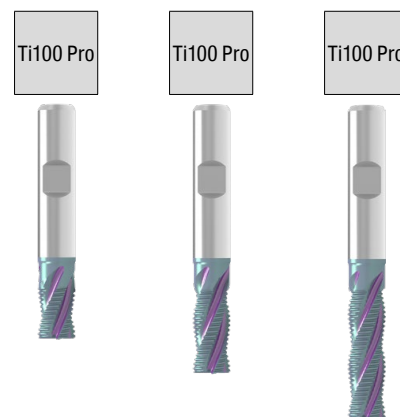
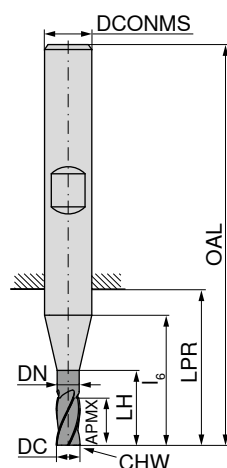
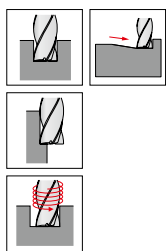
307,90

289,20

519,50

→ v_c/f_z Page 40-42

Powdersteel Fine rough milling cutter



Factory standard



DIN 844



Factory standard



DC _{k12} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	CHW mm	ZEFP
6	8	5,5	14	14	16	52	6	0,35	4
6	13	5,5	19	19	21	57	6	0,35	4
8	11	7,5	17	19	21	61	10	0,45	4
8	19	7,5	25	27	29	69	10	0,45	4
8	28	7,5	34	36	38	78	10	0,45	4
10	13	9,5	21	21	23	63	10	0,45	4
10	22	9,5	30	30	32	72	10	0,45	4
10	34	9,5	42	42	44	84	10	0,45	4
12	16	11,5	26	26	28	73	12	0,60	4
12	26	11,5	36	36	38	83	12	0,60	4
12	40	11,5	50	50	52	97	12	0,60	4
14	16	11,5	26	26	28	73	12	0,60	4
14	26	11,5	36	36	38	83	12	0,60	4
14	40	11,5	50	50	52	97	12	0,60	4
16	19	15,0	29	29	31	79	16	0,70	4
16	32	15,0	42	42	44	92	16	0,70	4
16	48	15,0	58	58	60	108	16	0,70	4
18	19	15,0	29	29	31	79	16	0,70	4
18	32	15,0	42	42	44	92	16	0,70	4
18	48	15,0	58	58	60	108	16	0,70	4
20	22	19,0	36	36	38	88	20	0,70	4
20	38	19,0	52	52	54	104	20	0,70	4
20	56	19,0	70	70	72	122	20	0,70	4
22	22	19,0	36	36	38	88	20	0,70	4
22	38	19,0	52	52	54	104	20	0,70	4
22	56	19,0	70	70	72	122	20	0,70	4
25	26	24,0	44	44	46	102	25	0,70	4
25	45	24,0	63	63	65	121	25	0,70	4
25	68	24,0	86	86	88	144	25	0,70	4
28	26	24,0	44	44	46	102	25	0,90	5
30	45	24,0	63	63	65	121	25	0,90	5
32	32	31,0	49	49	52	112	32	0,90	6
32	53	31,0	70	70	73	133	32	0,90	6

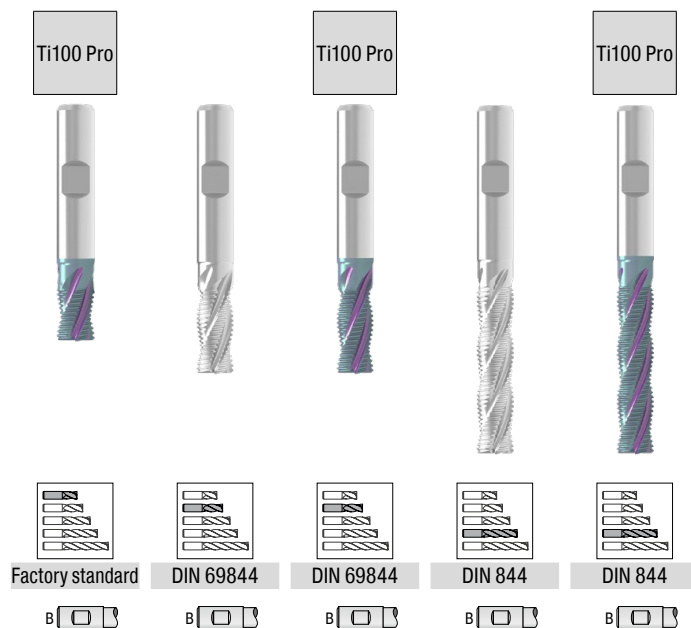
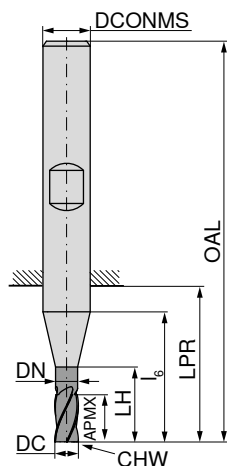
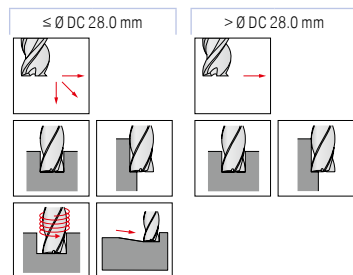
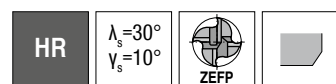
54 031 ...	54 032 ...	54 033 ...
EUR U8	EUR U8	EUR U8
65,28	49,88	
73,46	70,41	96,06
73,46	77,83	103,00
86,67	88,09	120,10
111,30	98,24	157,20
122,30	122,30	180,00
146,40	149,60	222,70
164,90	171,40	225,90
220,40	239,10	314,40
259,80	234,70	352,60
326,40	399,50	
347,10	375,40	

P	●	●	●
M	●	●	●
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

→ v_c/f_z Page 40-42

Fine profile milling cutter HSS-E Co 8

▲ > Ø 28,0 mm recessed centre

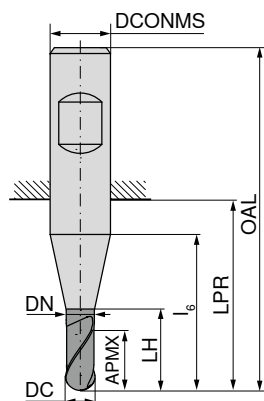
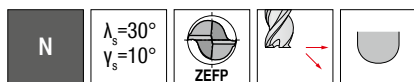


DC mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	CHW mm	ZEFP	54 022 ... EUR U8	50 140 ... EUR U8	54 023 ... EUR U8	50 141 ... EUR U8	54 024 ... EUR U8
4	11		11	17	19	55	6	0,35	3					
5	13		13	19	21	57	6	0,35	3					
6	8	5,5	14	14	16	52	6	0,35	4	52,07				
6	13	5,5	19	19	21	57	6	0,35	4		38,21	060	41,81	060
6	24	5,5	30	30	32	68	6	0,35	4				58,83	060
8	11	7,5	17	19	21	61	10	0,45	4	64,51				79,25
8	19	7,5	25	27	29	69	10	0,45	4		40,49	080	46,29	080
8	38	7,5	44	46	48	88	10	0,45	4				67,90	080
10	13	9,5	21	21	23	63	10	0,45	4	57,21				93,87
10	22	9,5	30	30	32	72	10	0,45	4		43,88	100	49,88	100
10	45	9,5	53	53	55	95	10	0,45	4				73,13	100
12	16	11,5	26	26	28	73	12	0,60	4	70,41				110,20
12	26	11,5	36	36	38	83	12	0,60	4		48,57	120	58,72	120
12	53	11,5	63	63	65	110	12	0,60	4				81,53	120
14	16	11,5	26	26	28	73	12	0,60	4	89,51				126,60
14	26	11,5	36	36	38	83	12	0,60	4		53,27	140	66,04	140
14	53	11,5	63	63	65	110	12	0,60	4				88,53	140
16	19	15,0	29	29	31	79	16	0,70	4	93,87				148,40
16	32	15,0	42	42	44	92	16	0,70	4		57,08	160	76,30	160
16	63	15,0	73	73	75	123	16	0,70	4				106,20	160
18	19	15,0	29	29	31	79	16	0,70	4	122,30				181,30
18	32	15,0	42	42	44	92	16	0,70	4		72,81	180	93,87	180
18	63	15,0	73	73	75	123	16	0,70	4				123,40	180
20	22	19,0	36	36	38	88	20	0,70	4	126,60				210,70
20	38	19,0	52	52	54	104	20	0,70	4		84,70	200	111,30	200
20	75	19,0	89	89	91	141	20	0,70	4				144,10	200
22	38	19,0	52	52	54	114	20	0,70	4		113,50	220	140,90	220
22	75	19,0	89	89	91	141	20	0,70	4				177,90	220
25	45	24,0	63	63	65	121	25	0,70	4		159,40	250	151,70	250
25	90	24,0	108	108	110	166	25	0,70	4					337,30
28	45	24,0	63	63	65	121	25	0,90	5				230,30	280
28	90	24,0	108	108	110	166	25	0,90	5					424,70
30	45	24,0	63	63	65	121	25	0,90	5				197,60	300
30	90	24,0	108	108	110	166	25	0,90	5					462,90
32	53	31,0	70	70	73	133	32	0,90	6				235,80	320
32	106	31,0	123	123	126	186	32	0,90	6					471,50

P	●	●	●	●	●
M	●	○	●	○	●
K	●	●	●	●	●
N	○	○	○	○	○
S	○	○	○	○	○
H					
O	○	○	○	○	○

→ v_c/f_z Page 40-42

Ball nosed end milling cutter HSS-E Co 8



DC _{h10} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP
2	4		4	10	12	48	6	2
3	5		5	11	13	49	6	2
3	8		8	18	20	56	6	2
4	7		7	13	15	51	6	2
4	11		11	25	27	63	6	2
5	8		8	14	16	52	6	2
5	13		13	30	32	68	6	2
6	8	5,50	14	14	16	52	6	2
6	13	5,50	30	30	32	68	6	2
7	10	6,50	16	18	20	60	10	2
7	16	6,35	36	38	40	80	10	2
8	11	7,50	17	19	21	61	10	2
8	19	7,35	44	46	48	88	10	2
9	11	8,50	18	19	21	61	10	2
9	19	8,35	45	46	48	88	10	2
10	13	9,50	21	21	23	63	10	2
10	22	9,35	53	53	55	95	10	2
11	13	10,50	21	23	25	70	12	2
11	22	10,50	53	55	57	102	12	2
12	16	11,50	26	26	28	73	12	2
12	26	11,50	63	63	65	110	12	2
13	16	11,50	26	26	28	73	12	2
14	16	11,50	26	26	28	73	12	2
14	26	11,50	63	63	65	110	12	2
15	16	11,50	26	26	28	73	12	2
15	26	11,50	63	63	65	110	12	2
16	19	15,50	29	29	31	79	16	2
16	32	15,00	73	73	75	123	16	2
18	19	15,50	29	29	31	79	16	2
18	32	15,00	73	73	75	123	16	2
20	22	19,00	36	36	38	88	20	2
22	22	19,00	36	36	38	88	20	2
24	26	23,00	42	44	46	102	25	2
24	45	23,00	106	108	110	166	25	2
25	26	24,00	44	44	46	102	25	2
25	45	24,00	108	108	110	166	25	2
26	26	24,00	44	44	46	102	25	2
28	26	24,00	44	44	46	102	25	2
30	26	24,00	44	44	46	102	25	2
30	45	24,00	108	108	110	166	25	2

P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

Ti100 Pro



Factory standard



50 320 ...

EUR
U8

020

030

040

050

060

070

080

090

100

110

120

130

140

150

160

180

201

220

240

250

260

280

300



Factory standard



54 041 ...

EUR
U8

020

030

040

050

060

070

080

090

100

120

130

140

150

160

180

201

240

250

260

280

300



Factory standard



50 321 ...

EUR
U8

030

040

050

060

070

080

090

100

110

120

140

150

160

180

240

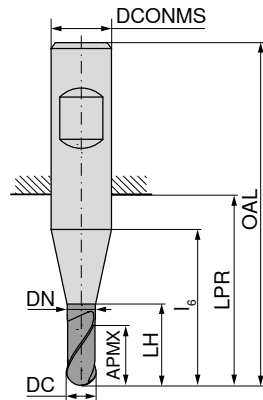
250

260

280

300

Ball nosed cutter HSS-E Co 8



DIN 1889 B



50 308 ...

EUR
U8

77,17

060



DIN 1889 B



54 038 ...

EUR
U8

82,19

060



DIN 1889 B



54 039 ...

EUR
U8

99,88

060

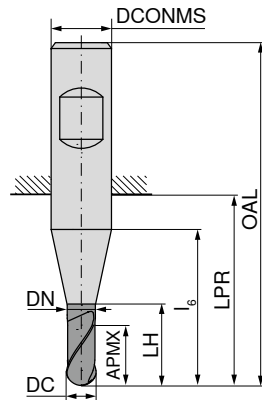
DC _{k12} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP
6	13	5,5	19	19	21	57	6	4
6	24	5,5	30	30	32	68	6	4
8	19	7,5	25	27	29	69	10	4
8	38	7,5	44	46	48	88	10	4
10	22	9,5	30	30	32	72	10	4
10	45	9,5	53	53	55	95	10	4
12	26	11,5	36	36	38	83	12	4
12	53	11,5	63	63	65	110	12	4
16	32	15,0	42	42	44	92	16	4
16	63	15,0	73	73	75	123	16	4
20	38	19,0	52	52	54	104	20	4
20	75	19,0	89	89	91	141	20	4
25	45	24,0	63	63	65	121	25	5

P	●	●	●
M	○	○	○
K	●	●	●
N	○	○	○
S	○	○	○
H			
O	○	○	○

1) Factory standard

→ v_c/f_z Page 40-42

Ball nosed fine rough milling cutter HSS-E Co 8



Ti100 Pro



DIN 1889 B

B

54 040 ...

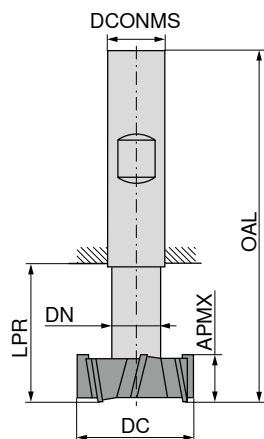
DC _{js14} mm	APMX mm	DN mm	LH mm	l ₆ mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP	EUR U8	
6	13	5,5	19	19	21	57	6	4	104,30	060
8	19	7,5	25	27	29	69	10	4	127,70	080
10	22	9,5	30	30	32	72	10	4	128,80	100
12	26	11,5	36	36	38	83	12	4	151,70	120
16	32	15,0	42	42	44	92	16	4	213,90	160
20	38	19,0	52	52	54	104	20	4	275,10	200

P	●
M	○
K	●
N	○
S	○
H	○
O	○

→ v_c/f_z Page 40-42

T-slot milling cutter HSS-E Co 5, cross pitched

▲ For slots according to DIN 650



DIN 851 A

B

50 240 ...

DC _{d11} mm	APMX _{d11} mm	DN _{h12} mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP	
11,0	4	4	13,5	53,5	10	6	
12,5	6	5	17,0	57,0	10	6	
16,0	8	7	22,0	62,0	10	6	
18,0	8	8	25,0	70,0	12	6	
19,0	9	8	26,0	71,0	12	6	
21,0	9	10	29,0	74,0	12	6	
22,0	10	10	30,0	75,0	12	6	
25,0	11	12	34,0	82,0	16	8	
28,0	12	13	37,0	85,0	16	8	
32,0	14	15	42,0	90,0	16	8	
36,0	16	17	47,0	103,0	25	8	
40,0	18	19	52,0	108,0	25	10	
45,0	20	21	57,0	113,0	25	10	
50,0	22	25	64,0	124,0	32	10	
60,0	28	30	79,0	139,0	32	10	
P							●
M							○
K							●
N							○
S							○
H							
O							○

EUR
U6

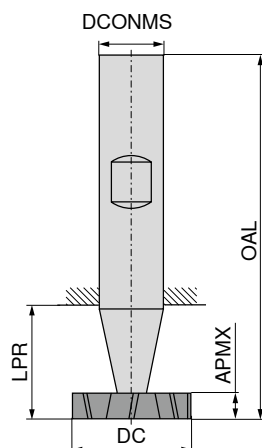
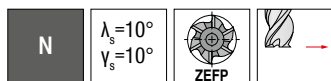
110
125
160
180
190 ¹⁾
210
220 ¹⁾
250
280 ¹⁾
320
360 ¹⁾
400
450 ¹⁾
500
600

1) Factory standard

→ v_c/f_z Page 43

Slot milling cutter HSS-E Co 5, cross-pitched

▲ For slots according to DIN 6888

▲ $CDX = a_{p \max}$ 

DIN 850



50 234 ...

DC _{h12} mm	APMX _{e8} mm	LPR mm	OAL mm	DCONMS _{h6} mm	CDX mm	ZEFP	EUR U6	
10,5	2,0	14	50	6	3,25	6	63,64	100
10,5	2,5	14	50	6	3,15	6	63,64	101
10,5	3,0	14	50	6	3,15	6	63,64	102
13,5	2,0	16	56	10	4,45	6	63,64	130 ¹⁾
13,5	3,0	16	56	10	4,45	6	63,64	132
13,5	4,0	16	56	10	4,45	6	63,64	133
16,5	3,0	16	56	10	5,95	6	69,32	161
16,5	4,0	16	56	10	5,95	6	69,32	162
16,5	5,0	16	56	10	5,75	6	69,32	163
19,5	3,0	23	63	10	6,95	8	76,41	190 ¹⁾
19,5	4,0	23	63	10	6,95	8	76,41	191
19,5	5,0	23	63	10	6,75	8	76,41	192
22,5	4,0	23	63	10	8,25	8	90,71	220 ¹⁾
22,5	5,0	23	63	10	8,25	8	90,71	221
22,5	6,0	23	63	10	8,00	8	90,71	222
25,5	5,0	23	63	10	9,00	10	90,71	250 ¹⁾
25,5	6,0	23	63	10	9,00	10	90,71	251
28,5	6,0	23	63	10	10,00	10	133,20	281
28,5	8,0	23	63	10	10,00	10	133,20	283
32,5	6,0	26	71	12	12,00	10	135,50	321 ¹⁾
32,5	8,0	26	71	12	12,00	10	135,50	322
38,5	8,0	26	71	12	13,35	10	200,90	381 ¹⁾
45,5	10,0	26	71	12	16,85	12	244,50	450

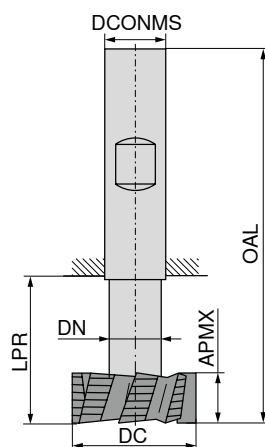
P	●
M	○
K	●
N	○
S	○
H	○
O	○

1) Factory standard

→ v_c/f_z Page 43

T-slot milling cutter HSS-E Co 5

▲ For slots according to DIN 650



DIN 851 A

B

50 241 ...

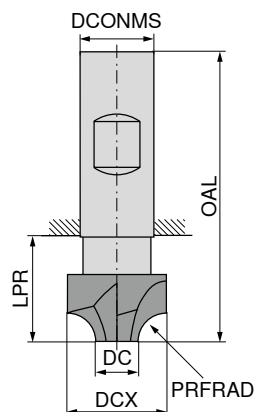
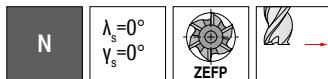
EUR
U6

DC _{d11} mm	APMX mm	DN _{h12} mm	LPR mm	OAL mm	DCONMS _{h6} mm	ZEFP	
21	9	10	29	74	12	6	
22	10	10	30	75	12	6	135,50 210
25	11	12	34	82	16	6	149,60 220 ¹⁾
28	12	13	37	85	16	6	161,50 250
32	14	15	42	90	16	6	176,90 280 ¹⁾
36	16	17	47	103	25	6	222,70 320
40	18	19	52	108	25	8	271,80 360 ¹⁾
45	20	21	57	113	25	8	351,40 400
							367,80 450 ¹⁾
P							●
M							○
K							●
N							○
S							○
H							○
O							○

1) Factory standard

→ v_c/f_z Page 43

Quarter-round profile milling cutter HSS-E Co 5, concave



DIN 6518



50 248 ...

PRFRAD _{H11}	DCX	DC	LPR	OAL	DCONMS _{H6}	ZEFP	
mm	mm	mm	mm	mm	mm		
1,0	8	6	20	60	10	4	
1,5	9	6	20	60	10	4	
2,0	10	6	20	60	10	4	
2,5	11	6	20	60	10	4	
3,0	12	6	15	60	12	4	
4,0	14	6	15	60	12	4	
5,0	16	6	15	60	12	4	
6,0	20	8	19	67	16	4	
8,0	24	8	23	71	16	4	
9,0	26	8	29	85	25	4	
10,0	28	8	29	85	25	4	
12,0	34	10	34	90	25	4	
15,0	46	16	44	100	25	6	
16,0	48	16	44	100	25	6	

EUR
U6

49,01

59,93

55,56

62,55

56,87

73,57

76,41

99,65

133,20

140,90

162,60

247,80

340,50

400,70

010

015

020

025

030

040

050

060

080

090

100

120

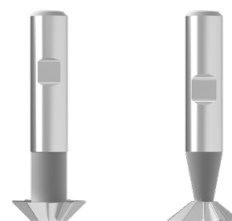
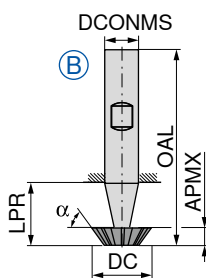
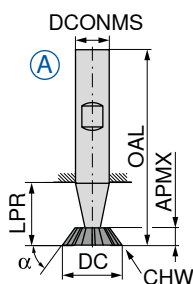
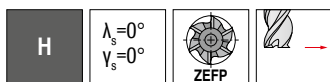
150

160

P	●
M	○
K	●
N	○
S	○
H	
O	○

→ v_c/f_z Page 43

Single angle milling cutters HSS-E Co 5



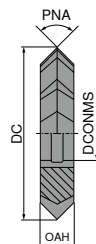
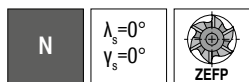
α°	DC mm	APMX mm	LPR mm	OAL mm	DCONMS _{h6} mm	CHW mm	ZEFP	Fig.	DIN 1833	
									B	B
45	16	4,0	15	60	12	0,3	10	A	50 246 ...	50 245 ...
	16	4,0	15	60	12		10	B	EUR U6	EUR U6
	20	5,0	18	63	12	0,3	10	A	83,62	73,57
	20	5,0	18	63	12		10	B	016	106,80
	25	6,3	22	67	12	0,3	10	A	112,50	130,00
	25	6,3	22	67	12		10	B	020	025
60	16	6,3	15	60	12	0,3	10	A	025	
	16	6,3	15	60	12		10	B		83,62
	20	8,0	18	63	12	0,3	10	A	116	106,80
	20	8,0	18	63	12		10	B	120	115,70
	25	10,0	22	67	12	0,3	10	A	125	
	25	10,0	22	67	12		10	B		130,00
70	16	7,0	15	60	12	0,3	10	A		83,62
	20	9,0	18	63	12	0,3	10	A		106,80
	25	11,0	19	67	16	0,3	10	A		130,00
P									●	●
M									○	○
K									●	●
N									○	○
S									○	○
H										
O									○	○

1) Factory standard

→ v_c/f_z Page 44

Double angle milling cutter HSS

▲ with keyway to DIN 138



DIN 847

50 360 ...

PNA °	DC mm	OAH mm	DCONMS mm	ZEFP	EUR U6	
45	50	8	16	22	135,50	045
	63	10	22	24	169,20	145
	80	12	27	26	268,50	245
	100	18	32	28	400,70	345
60	50	10	16	18	135,50	060
	63	14	22	20	169,20	160
	80	18	27	22	311,10	260
	100	25	32	24	498,80	360
90	50	14	16	16	158,30	090
	63	20	22	18	201,90	190
	80	22	27	20	330,80	290
	100	32	32	24	551,30	390
120	50	14	16	16	180,00	120 1)
	63	20	22	16	262,00	121 1)

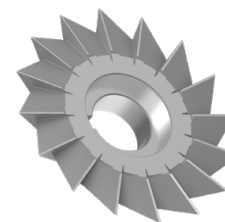
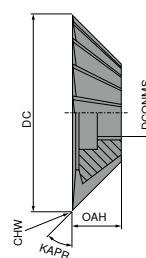
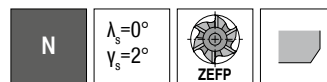
P	●
M	○
K	●
N	○
S	○
H	○
O	○

1) Factory standard

→ v_c/f_z Page 44

Shell type single angle milling cutter HSS

▲ with keyway to DIN 138



DIN 842 A

50 362 ...

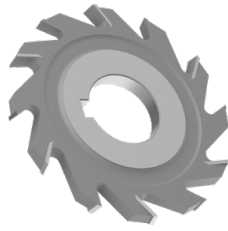
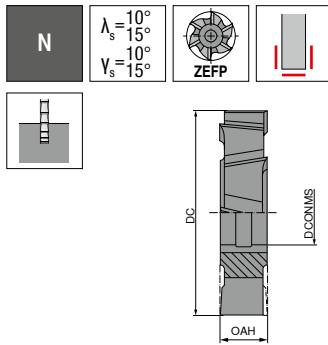
KAPR °	DC mm	OAH mm	DCONMS mm	CHW mm	ZEFP	EUR U6	
45	40	10	10	0,3	14	156,10	045
	50	13	13	0,3	16	213,90	145
	63	18	16	0,3	18	269,70	245
	80	22	22	0,3	20	380,90	345
	100	28	27	0,3	22	578,60	445
50	50	16	13	0,3	16	213,90	150
60	40	13	10	0,3	14	137,50	060
	50	16	13	0,3	16	169,20	160
	63	20	16	0,3	18	232,60	260
	80	25	22	0,3	20	380,90	360
	100	32	27	0,3	22	578,60	460
	125	40	32	0,3	28	953,00	560

P	●
M	○
K	●
N	○
S	○
H	○
O	○

→ v_c/f_z Page 44

Side and face milling cutter HSS-E Co 5

- ▲ Coarse cross-pitched
▲ with keyway to DIN 138



DIN 885 A

50 348 ...

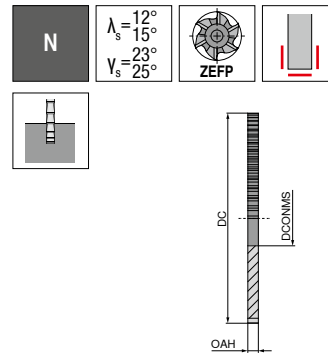
DC _{js16} mm	OAH _{k11} mm	DCONMS _{H7} mm	ZEFP	EUR U6	
50	4	16	12	105,40	100
50	5	16	12	107,20	102
50	6	16	12	109,00	104
50	8	16	12	122,30	106
50	10	16	12	132,10	108
63	4	22	12	114,60	200
63	5	22	12	122,30	202
63	6	22	12	121,10	204
63	8	22	12	134,20	206
63	10	22	12	147,40	208
63	12	22	12	169,20	210
63	14	22	12	189,90	212
80	5	27	14	155,00	300
80	6	27	14	157,20	302
80	8	27	14	169,20	304
80	10	27	14	173,60	306
80	12	27	14	192,10	308
80	14	27	14	222,70	310
80	16	27	14	240,20	312
80	18	27	14	277,30	314
80	20	27	14	300,10	316
100	6	32	14	225,90	400
100	8	32	14	224,90	402
100	10	32	14	237,90	404
100	12	32	14	258,70	406
100	14	32	14	290,40	408
100	16	32	14	303,40	410
100	18	32	14	359,20	412
100	20	32	14	351,40	414
100	25	32	14	456,20	418
125	8	32	16	297,00	500
125	10	32	16	317,70	502
125	12	32	16	343,80	504
125	14	32	16	387,60	506
125	16	32	16	409,30	508
125	18	32	16	444,20	510
125	20	32	16	474,80	512
125	25	32	16	570,80	516
160	10	40	18	470,50	600
160	12	40	18	522,80	602
160	14	40	18	553,40	604
160	16	40	18	594,90	606
160	18	40	18	663,70	608
160	20	40	18	672,40	610
160	25	40	18	823,00	614
160	32	40	18	1.045,00	618

P	○
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

- ▲ Coarse cross-pitched
▲ with keyway to DIN 138



Factory standard

50 342 ...

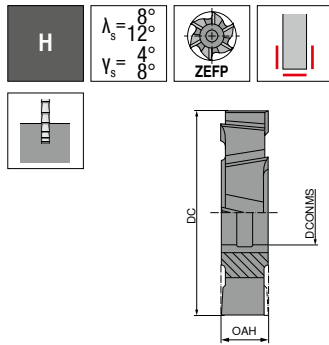
DC _{js16} mm	OAH _{k11} mm	DCONMS _{H7} mm	ZEFP	EUR U6	
63	1,6	22	16	112,50	200
63	2,0	22	16	99,33	202
63	2,5	22	16	101,20	204
63	3,0	22	16	104,10	206
80	1,6	27	20	120,10	300
80	2,0	27	20	116,80	302
80	2,5	27	20	119,00	304
80	3,0	27	20	122,30	306
80	4,0	27	20	132,10	310
100	1,6	32	24	154,00	400
100	2,0	32	24	151,70	402
100	2,5	32	24	151,70	404
100	3,0	32	24	155,00	406
100	4,0	32	24	165,90	410
100	5,0	32	24	177,90	414
125	1,6	32	26	192,10	500
125	2,0	32	26	184,50	502
125	2,5	32	26	189,90	504
125	3,0	32	26	193,20	506
125	4,0	32	26	210,70	510
125	5,0	32	26	224,90	514
125	6,0	32	26	241,20	516
160	2,0	40	30	300,10	600
160	2,5	40	30	290,40	602
160	3,0	40	30	294,70	604
160	4,0	40	30	310,00	606
160	5,0	40	30	329,60	608
160	6,0	40	30	351,40	610
160	8,0	40	22	403,90	612

P	○
M	●
K	
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Side and face milling cutter HSS-E Co 5

- ▲ Fine cross-pitched version
▲ with keyway to DIN 138



DIN 885 A

50 349 ...

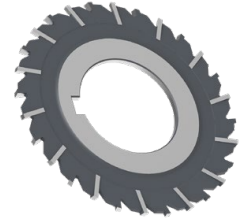
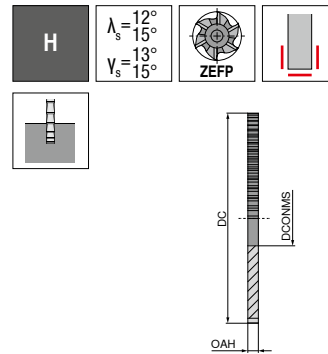
DC _{js16} mm	OAH _{k11} mm	DCONMS _{H7} mm	ZEFP	EUR U6	
50	4	16	16	124,50	100
50	5	16	16	124,50	102
50	6	16	16	133,20	104
50	8	16	16	140,90	106
50	10	16	16	155,00	108
63	4	22	18	136,50	200
63	5	22	18	145,10	202
63	6	22	18	139,70	204
63	8	22	18	157,20	206
63	10	22	18	175,80	208
63	12	22	18	198,70	210
63	14	22	18	223,80	212
80	5	27	20	183,40	300
80	6	27	20	188,90	302
80	8	27	20	197,60	304
80	10	27	18	200,90	306
80	12	27	18	227,10	308
80	14	27	18	263,10	310
80	16	27	18	284,90	312
80	18	27	18	329,60	314
80	20	27	18	329,60	316
100	6	32	22	265,20	400
100	8	32	22	263,10	402
100	10	32	20	283,80	404
100	12	32	20	305,60	406
100	14	32	20	340,50	408
100	16	32	20	361,30	410
100	18	32	20	421,30	412
100	20	32	20	424,70	414
100	25	32	20	526,20	418
125	8	32	24	350,40	500
125	10	32	22	375,40	502
125	12	32	22	406,10	504
125	14	32	22	456,20	506
125	16	32	22	473,80	508
125	18	32	22	546,80	510
125	20	32	22	555,70	512
125	25	32	22	665,90	516
160	10	40	26	558,90	600
160	12	40	26	609,00	602
160	14	40	26	655,00	604
160	16	40	26	705,10	606
160	18	40	26	775,00	608
160	20	40	26	776,10	610
160	25	40	26	966,00	614
160	32	40	26	1.214,00	618

P	●
M	○
K	●
N	●
S	○
H	●
O	●

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

- ▲ Fine cross-pitched version
▲ with keyway to DIN 138



DIN 1834 A

50 340 ...

DC _{js16} mm	OAH _{k11} mm	DCONMS _{H7} mm	ZEFP	EUR U6	
63	1,6	22	28	107,40	200
63	2,0	22	28	92,57	202
63	2,5	22	28	94,53	204
63	3,0	22	28	96,93	206
80	1,6	27	32	111,30	300
80	2,0	27	32	108,70	302
80	2,5	27	32	110,20	304
80	3,0	27	32	113,50	306
80	4,0	27	32	122,30	310
100	1,6	32	36	135,50	400
100	2,0	32	36	134,20	402
100	2,5	32	36	134,20	404
100	3,0	32	36	136,50	406
100	4,0	32	36	145,10	410
100	5,0	32	36	159,40	414
125	1,6	32	40	175,80	500
125	2,0	32	40	169,20	502
125	2,5	32	40	174,60	504
125	3,0	32	40	177,90	506
125	4,0	32	40	188,90	510
125	5,0	32	40	201,90	514
125	6,0	32	40	223,80	516
160	2,0	40	48	279,40	600
160	2,5	40	48	269,70	602
160	3,0	40	48	274,00	604
160	4,0	40	48	292,50	606
160	5,0	40	48	307,90	608
160	6,0	40	48	332,90	610
160	8,0	40	36	377,70	612

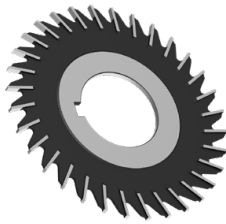
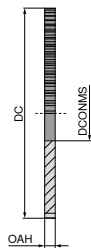
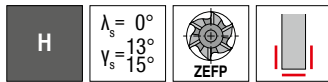
P	●
M	○
K	●
N	●
S	○
H	●
O	●

→ v_c/f_z Page 45

Narrow side and face milling cutter HSS-E Co 5

▲ straight cut

▲ with keyway to DIN 138



DIN 1834 B

50 341 ...

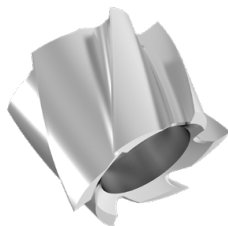
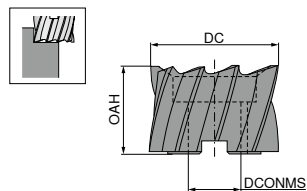
DC _{js16} mm	OAH _{k11} mm	DCONMS _{H7} mm	ZEFP	EUR U6	
63	1,6	22	32	123,40	200
63	2,0	22	32	109,20	202
63	2,5	22	32	111,30	204
63	3,0	22	32	114,60	206
80	1,6	27	36	133,20	300
80	2,0	27	36	128,80	302
80	2,5	27	36	130,00	304
80	3,0	27	36	135,50	306
80	4,0	27	36	143,00	310
100	1,6	32	40	157,20	400
100	2,0	32	40	157,20	402
100	2,5	32	40	157,20	404
100	3,0	32	40	159,40	406
100	4,0	32	40	173,60	410
100	5,0	32	40	182,30	414
125	1,6	32	44	212,90	500
125	2,0	32	44	203,00	502
125	2,5	32	44	210,70	504
125	3,0	32	44	215,00	506
125	4,0	32	44	229,30	510
125	5,0	32	44	246,70	514
125	6,0	32	44	270,70	516
160	2,0	40	52	329,60	600
160	2,5	40	52	316,50	602
160	3,0	40	52	323,10	604
160	4,0	40	52	340,50	606
160	5,0	40	52	362,40	608
160	6,0	40	52	386,40	610
160	8,0	40	40	443,20	612

P	●
M	○
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 45

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138



DIN 1880

50 255 ...

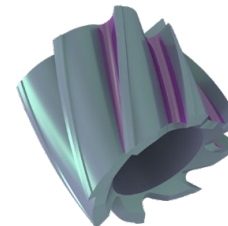
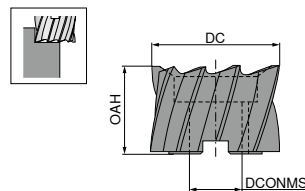
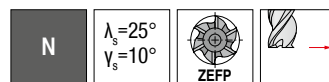
DC _{k10} mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	6	218,40	040
50	36	22	6	250,00	050
63	40	27	6	317,70	063
80	45	27	6	514,20	080
100	50	32	6	808,90	100

P	•
M	•
K	•
N	•
S	•
H	•
O	•

→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138

Ti100
Pro

DIN 1880

54 035 ...

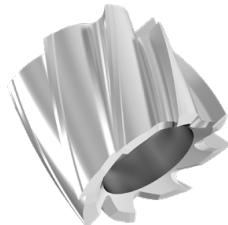
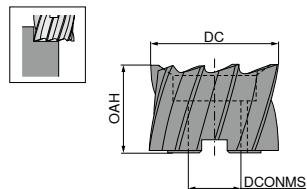
DC _{k10} mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	8	247,80	040
50	36	22	8	317,70	050
63	40	27	8	402,70	063
80	45	27	10	601,50	080
100	50	32	12	942,00	100

P	•
M	•
K	•
N	•
S	○
H	•
O	•

→ v_c/f_z Page 46+47

Face milling cutters HSS-E Co 5

▲ with keyway to DIN 138



DIN 1880

50 250 ...

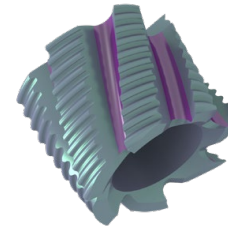
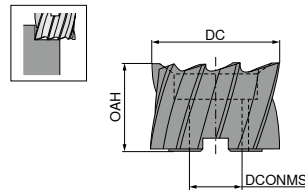
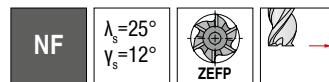
DC _{k10} mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	8	173,60	040
50	36	22	8	227,10	050
63	40	27	8	312,20	063
80	45	27	10	471,50	080
100	50	32	12	745,50	100

P	•
M	•
K	•
N	•
S	○
H	•
O	•

→ v_c/f_z Page 46+47Roughing-finishing face milling cutters
HSS-Co 5

▲ with keyway to DIN 138

▲ Manufacturing tolerance lies on the plus range of the tolerance js14

Ti100
Pro

DIN 1880

54 036 ...

DC _{js14} mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	7	235,80	040
50	36	22	8	302,40	050
63	40	27	8	461,70	063
80	45	27	10	675,70	080
100	50	32	12	1.025,00	100

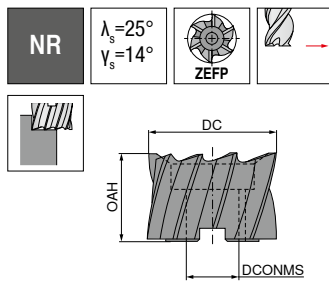
P	•
M	•
K	•
N	•
S	○
H	•
O	•

→ v_c/f_z Page 46+47

Roughing face milling cutters

HSS-E Co 5

- ▲ with keyway to DIN 138
- ▲ Manufacturing tolerance lies on the plus range of the tolerance js14



DIN 1880

50 260 ...

DC _{js14} mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	7	176,90	040
50	36	22	8	233,60	050
63	40	27	8	314,40	063
80	45	27	10	441,10	080
100	50	32	12	677,80	100

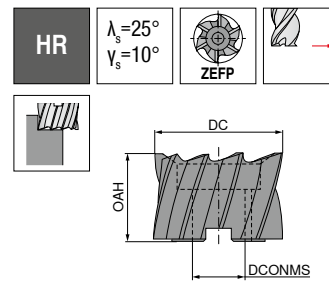
P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters

HSS-E Co 8

- ▲ with keyway to DIN 138
- ▲ Manufacturing tolerance lies on the plus range of the tolerance js14

Ti100
Pro

DIN 1880

54 037 ...

DC _{js14} mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	7	247,80	040
50	36	22	8	310,00	050
63	40	27	8	479,20	063
80	45	27	10	703,00	080
100	50	32	12	1.062,00	100

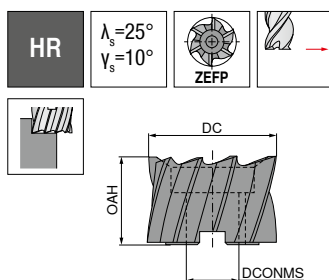
P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 46+47

Roughing-finishing face milling cutters

HSS-E Co 8

- ▲ with keyway to DIN 138
- ▲ Manufacturing tolerance lies on the plus range of the tolerance js14



DIN 1880

50 297 ...

DC _{js14} mm	OAH mm	DCONMS mm	ZEFP	EUR U8	
40	32	16	7	176,90	040
50	36	22	8	233,60	050
63	40	27	8	314,40	063
80	45	27	10	441,10	080
100	50	32	12	677,80	100

P	●
M	●
K	●
N	●
S	○
H	
O	●

→ v_c/f_z Page 46+47

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment	Tensile strength N/mm ² / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0,15 % C	Annealed	420 N/mm ² / 125 HB	1.0401	C15	1.1141 Ck15
		P.1.2	< 0,45 % C	Annealed	640 N/mm ² / 190 HB	1.1191	C45E	1.0718 9SMnPb28
		P.1.3		Tempered	840 N/mm ² / 250 HB	1.1191	C45E	1.0535 C55
		P.1.4	< 0,75 % C	Annealed	910 N/mm ² / 270 HB	1.1223	C60R	1.0535 C55
		P.1.5		Tempered	1010 N/mm ² / 300 HB	1.1223	C60R	1.0727 45S20
	Low-alloy steel	P.2.1		Annealed	610 N/mm ² / 180 HB	1.7131	16MnCr5	1.6587 17CrNiMo6
		P.2.2		Tempered	930 N/mm ² / 275 HB	1.7131	16MnCr5	1.6587 17CrNiMo6
		P.2.3		Tempered	1010 N/mm ² / 300 HB	1.7225	42CrMo4	1.3505 100Cr6
		P.2.4		Tempered	1200 N/mm ² / 375 HB	1.7225	42CrMo4	1.3505 100Cr6
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	680 N/mm ² / 200 HB	1.4021	X20Cr13	1.4034 X46Cr13
		P.3.2		Hardened and tempered	1100 N/mm ² / 300 HB	1.2343	X38CrMoV5-1	1.4034 X46Cr13
		P.3.3		Hardened and tempered	1300 N/mm ² / 400 HB	1.2343	X38CrMoV5-1	1.4034 X46Cr13
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	680 N/mm ² / 200 HB	1.4016	X6Cr17	1.2316 X36CrMo16
		P.4.2	Martensitic	Tempered	1010 N/mm ² / 300 HB	1.4112	X90CrMoV18	1.2316 X36CrMo16
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	610 N/mm ² / 180 HB	1.4301	X5CrNi18-10	1.4571 X6CrNiMoTi17-12-2
		M.2.1	Austenitic	Tempered	300 HB	1.4841	X15CrNiSi25-21	1.4539 X1NiCrMoCu25-20-5
		M.3.1	Austenitic / ferritic (Duplex)		780 N/mm ² / 230 HB	1.4462	X2CrNiMoN22-5-3	1.4501 X2CrNiMoCuWN25-7-4
K	Grey cast iron	K.1.1	Pearlitic / ferritic		350 N/mm ² / 180 HB	0.6010	GG-10	0.6025 GG-25
		K.1.2	Pearlitic (martensitic)		500 N/mm ² / 260 HB	0.6030	GG-30	0.6045 GG-45
	Spherulitic graphite cast iron	K.2.1	Ferritic		540 N/mm ² / 160 HB	0.7040	GGG-40	0.7060 GGG-60
		K.2.2	Pearlitic		845 N/mm ² / 250 HB	0.7070	GGG-70	0.7080 GGG-80
	Malleable iron	K.3.1	Ferritic		440 N/mm ² / 130 HB	0.8035	GTW-35-04	0.8045 GTW-45
		K.3.2	Pearlitic		780 N/mm ² / 230 HB	0.8165	GTS-65-02	0.8170 GTS-70-02
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	Al99,5	3.3315 AlMg1
		N.1.2	Hardenable	Age-hardened	340 N/mm ² / 100 HB	3.1355	AlCuMg2	3.2315 AlMgSi1
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		250 N/mm ² / 75 HB	3.2581	G-AlSi12	3.2163 G-AlSi9Cu3
		N.2.2	≤ 12 % Si, hardenable	Age-hardened	300 N/mm ² / 90 HB	3.2134	G-AlSi5Cu1Mg	3.2373 G-AlSi9Mg
		N.2.3	> 12 % Si, non-hardenable		440 N/mm ² / 130 HB		G-AlSi17Cu4Mg	G-AlSi18CuNiMg
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		375 N/mm ² / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0410 CuZn44Pb2
		N.3.2	CuZn, CuSnZn		300 N/mm ² / 90 HB	2.0331	CuZn15	2.4070 CuZn28Sn1As
		N.3.3	CuSn, lead-free copper and electrolytic copper		340 N/mm ² / 100 HB	2.0060	E-Cu57	2.0590 CuZn40Fe
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn	3.5312 MgAl3Zn
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	680 N/mm ² / 200 HB	1.4864	X12NiCrSi 36-16	1.4865 G-X40NiCrSi38-18
		S.1.2		Age-hardened	950 N/mm ² / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4876 X10NiCrAlTi32-20
		S.2.1	Ni or Co basis	Annealed	840 N/mm ² / 250 HB	2.4631	NiCr20TiAl (Nimonic80A)	3.4856 NiCr22Mo9Nb
		S.2.2		Age-hardened	1180 N/mm ² / 350 HB	2.4668	NiCr19Nb5Mo3 (Inconel 718)	2.4955 NiFe25Cr20NbTi
		S.2.3		Cast	1080 N/mm ² / 320 HB	2.4765	CoCr20W15Ni	1.3401 G-X120Mn12
	Titanium alloys	S.3.1	Pure titanium		400 N/mm ²	3.7025	Ti99,8	3.7034 Ti99,7
		S.3.2	Alpha + beta alloys	Age-hardened	1050 N/mm ² / 320 HB	3.7165	TiAl6V4	Ti-6246 Ti-6Al-2Sn-4Zr-6Mo
		S.3.3	Beta alloys		1400 N/mm ² / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr	R56410 Ti-10V-2Fe-3Al
H	Hardened steel	H.1.1		Hardened and tempered	46-55 HRC			
		H.1.2		Hardened and tempered	56-60 HRC			
		H.1.3		Hardened and tempered	61-65 HRC			
		H.1.4		Hardened and tempered	66-70 HRC			
	Chilled iron	H.2.1		Cast	400 HB			
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC			
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 150 N/mm ²			
		O.1.2	Plastics, thermoplastic		≤ 100 N/mm ²			
		O.2.1	Aramid fibre-reinforced		≤ 1000 N/mm ²			
		O.2.2	Glass/carbon-fibre reinforced		≤ 1000 N/mm ²			
		O.3.1	Graphite					

* Tensile strength

Cutting data – slot and end milling cutters

		uncoated	Ti100 Pro	Powder steel	1st choice		
				Ti100 Pro	●	suitable	
					○	Compressed air	MMS
Index	Kf f _z	v _c in m/min			Emulsion		
P.1.1	1,2	20	45	50	●		
P.1.2	1,2	20	45	50	●		
P.1.3	1,2	20	45	50	●		
P.1.4	1,0	15	30	35	●		
P.1.5	1,0	15	30	35	●		
P.2.1	1,2	20	40	45	●		
P.2.2	1,0	15	40	45	●		
P.2.3	0,8	15	30	35	●		
P.2.4	0,8	15	30	35	●		
P.3.1	1,0	15	30	35	●		
P.3.2	0,8	12	25	30	●		
P.3.3	0,8	10	20	25	●		
P.4.1	1,0	10	20	25	●		
P.4.2	1,0	10	20	25	●		
M.1.1	1,0	10	20	25	●		
M.2.1	0,9	7	15	20	●		
M.3.1	1,0	5	10	15	●		
K.1.1	1,0	18	35	40	●		
K.1.2	1,0	18	25	30	●		
K.2.1	1,0	15	30	35	●		
K.2.2	1,0	15	30	35	●		
K.3.1	1,0	15	35	40	●		
K.3.2	0,8	12	25	30	●		
N.1.1	1,9	150	240	260	●		
N.1.2	1,9	100	130	150	●		
N.2.1	1,8		100	140	●		
N.2.2	1,7		60	80	●		
N.2.3							
N.3.1	1,1		100	130	●		
N.3.2	1,2	30	60	80	●		
N.3.3	1,2	30	60	80	●		
N.4.1	1,8	90	140	160		●	
S.1.1							
S.1.2							
S.2.1							
S.2.2							
S.2.3							
S.3.1	1,0	10	15	25	●		
S.3.2	1,1	10	15	25	●		
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1	2,0	30	50	70	●		
O.1.2	2,0	20	25	40	●		
O.2.1							
O.2.2							
O.3.1	1,0		30	40	○		

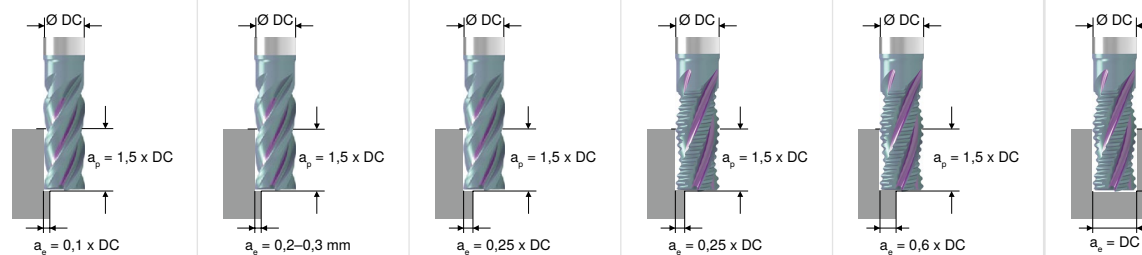


For full slot milling reduce the cutting speed (V_c), indicated in this table by approx. 15 - 20%!

Kf f_z = Correction factor for feed per tooth

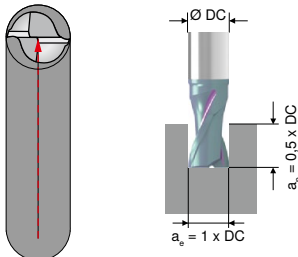
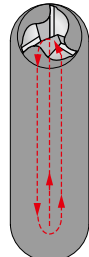
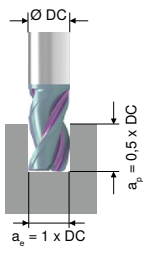
Feed per tooth for HSS end mills

Approximate values (in mm) for the feed per tooth (f_z)

Peripheral milling													Full slot milling	
														
f _z in mm		f _z in mm		f _z in mm		f _z in mm		f _z in mm		f _z in mm				
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated		
2	0,008	0,009	0,008	0,009	0,008	0,009								
3	0,011	0,012	0,010	0,012	0,009	0,010								
4	0,017	0,018	0,014	0,015	0,013	0,014	0,015	0,016	0,013	0,014	0,011	0,012		
5	0,024	0,026	0,018	0,020	0,014	0,015	0,019	0,021	0,016	0,018	0,014	0,016		
6	0,032	0,035	0,022	0,024	0,015	0,017	0,024	0,027	0,020	0,022	0,018	0,019		
8	0,047	0,051	0,029	0,032	0,020	0,022	0,032	0,036	0,027	0,030	0,024	0,026		
10	0,065	0,072	0,037	0,041	0,026	0,028	0,042	0,047	0,035	0,039	0,031	0,034		
12	0,084	0,091	0,044	0,049	0,031	0,034	0,051	0,057	0,043	0,047	0,037	0,041		
14	0,100	0,106	0,054	0,059	0,037	0,041	0,063	0,069	0,053	0,058	0,045	0,050		
16	0,111	0,121	0,061	0,067	0,042	0,046	0,072	0,079	0,060	0,066	0,052	0,057		
18	0,126	0,136	0,070	0,077	0,048	0,053	0,084	0,093	0,071	0,078	0,061	0,067		
20	0,141	0,151	0,076	0,083	0,052	0,057	0,092	0,101	0,077	0,084	0,066	0,073		
22	0,160	0,166	0,085	0,094	0,059	0,065	0,104	0,114	0,087	0,096	0,075	0,082		
25	0,170	0,188	0,095	0,104	0,065	0,072	0,117	0,129	0,098	0,108	0,084	0,093		
28	0,196	0,210	0,109	0,120	0,075	0,083	0,136	0,150	0,114	0,125	0,098	0,108		
32	0,212	0,240	0,124	0,137	0,086	0,094	0,157	0,173	0,131	0,145	0,113	0,125		
36	0,224	0,240	0,144	0,159	0,099	0,109	0,170	0,194	0,142	0,162	0,126	0,140		
40	0,240	0,240	0,157	0,173	0,108	0,119	0,184	0,202	0,154	0,169	0,132	0,146		
45	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160		
50	0,240	0,240	0,157	0,173	0,108	0,119	0,200	0,220	0,170	0,180	0,140	0,160		

Feed per tooth when milling parallel key slots with HSS slot drills

Approximate values (in mm) for the feed per tooth (f_z)

	Full slot milling (in one cut)		Profile slot milling (internal profile milling)				Circular ramping			
										
	f _z in mm		f _z in mm				f _z in mm			
Ø DC mm	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated	uncoated	coated
2	0,005	0,006	0,005	0,006	0,008	0,009	0,003	0,003	0,002	0,002
3	0,009	0,010	0,009	0,010	0,015	0,016	0,004	0,005	0,003	0,003
4	0,012	0,013	0,012	0,013	0,022	0,024	0,006	0,007	0,004	0,004
5	0,016	0,017	0,016	0,017	0,030	0,033	0,008	0,009	0,005	0,006
6	0,020	0,022	0,020	0,022	0,039	0,043	0,010	0,011	0,007	0,007
8	0,026	0,029	0,026	0,029	0,055	0,061	0,013	0,014	0,009	0,010
10	0,034	0,037	0,034	0,037	0,075	0,082	0,017	0,019	0,011	0,012
12	0,040	0,044	0,040	0,044	0,093	0,101	0,020	0,022	0,013	0,015
14	0,049	0,054	0,049	0,054	0,117	0,118	0,024	0,027	0,016	0,018
16	0,056	0,062	0,056	0,062	0,135	0,135	0,028	0,031	0,019	0,021
18	0,065	0,072	0,065	0,072	0,151	0,151	0,033	0,036	0,022	0,024
20	0,071	0,078	0,071	0,078	0,167	0,167	0,035	0,039	0,024	0,026
22	0,080	0,088	0,080	0,088	0,184	0,184	0,040	0,044	0,027	0,029
25	0,089	0,098	0,089	0,098	0,208	0,208	0,044	0,049	0,030	0,033
28	0,103	0,113	0,103	0,113	0,233	0,233	0,051	0,056	0,034	0,037
32	0,118	0,130	0,118	0,130	0,260	0,260	0,060	0,065	0,040	0,043
36	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
40	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
45	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043
50	0,130	0,143	0,130	0,143	0,260	0,260	0,060	0,065	0,040	0,043



Attention:

In the case of uncoated milling cutters climb milling is preferred to conventional milling. When using coated milling cutters climb milling is necessary in order to achieve optimum results.



Feed rate correction:

Please multiply the f_z value in the table above with the corresponding **correction factor Kf f_z** from the table on → page 40.

In general the following is valid:

$$f_z \text{ (milling)} = f_z \times Kf f_z$$

$$f_z \text{ (drilling)} = f_z \text{ (milling)} \div \text{no. of teeth}$$

Cutting data standard values – Form cutters

Index	V _c m/min	50 241 ...			50 240 ...					50 234 ...				50 248 ...				1st choice suitable		
		Ø DC = 21–25 mm	Ø DC = 28–36 mm	Ø DC = 40–45 mm	Ø DC = 11–16 mm	Ø DC = 18–22 mm	Ø DC = 25–32 mm	Ø DC = 36–45 mm	Ø DC = 50–60 mm	Ø DC = 10–17 mm	Ø DC = 19–26 mm	Ø DC = 28–33 mm	Ø DC = 33–46 mm	Ø DC = 8–11 mm	Ø DC = 12–24 mm	Ø DC = 26–34 mm	Ø DC = 46–48 mm	Emulsion	Compressed air	MMS
		f _z mm			f _z mm					f _z mm				f _z mm						
P.1.1	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●	
P.1.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●	
P.1.3	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●	
P.1.4	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●	
P.1.5	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●	
P.2.1	22	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	22	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●	
P.2.2	28	0,07	0,1	0,12	0,015	0,03	0,03	0,03	0,04	28	0,02	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●	
P.2.3	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●	
P.2.4	20	0,06	0,08	0,1	0,015	0,03	0,03	0,03	0,04	20	0,02	0,03	0,035	0,045	0,025	0,055	0,08	0,1	●	
P.3.1																				
P.3.2																				
P.3.3																				
P.4.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●	
P.4.2	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●	
M.1.1	10	0,06	0,08	0,1	0,01	0,025	0,025	0,025	0,03	10	0,02	0,025	0,03	0,04	0,02	0,045	0,08	0,09	●	
M.2.1																				
M.3.1																				
K.1.1	28	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	24	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●	
K.1.2																				
K.2.1	22	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	22	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●	
K.2.2	20	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	20	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●	
K.3.1	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●	
K.3.2	15	0,07	0,1	0,12	0,015	0,03	0,025	0,04	0,035	15	0,025	0,03	0,04	0,05	0,03	0,06	0,1	0,12	●	
N.1.1	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●	
N.1.2	100	0,1	0,12	0,15	0,02	0,045	0,045	0,045	0,055	90	0,03	0,04	0,06	0,07	0,035	0,07	0,14	0,15	●	
N.2.1	80	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	80	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●	
N.2.2	60	0,09	0,11	0,13	0,015	0,04	0,035	0,04	0,045	60	0,03	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●	
N.2.3																				
N.3.1	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03	0,035	25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●	
N.3.2	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●	
N.3.3	25	0,08	0,1	0,12	0,015	0,04	0,035	0,03		25	0,02	0,035	0,045	0,055	0,03	0,06	0,12	0,12	●	
N.4.1	70	0,1	0,12	0,15	0,018	0,04	0,03	0,035	0,045	70	0,03	0,035	0,05	0,06	0,025	0,06	0,1	0,12	●	
S.1.1																				
S.1.2																				
S.2.1																				
S.2.2																				
S.2.3																				
S.3.1	20	0,06	0,08	0,1	0,012	0,025	0,025	0,025	0,035	20	0,015	0,025	0,035	0,045	0,02	0,05	0,07	0,09	●	
S.3.2																				
S.3.3																				
H.1.1																				
H.1.2																				
H.1.3																				
H.1.4																				
H.2.1																				
H.3.1																				
O.1.1	65	0,12	0,15	0,18		0,06	0,055	0,055	0,07	65	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●	
O.1.2	80	0,12	0,15	0,18		0,06	0,055	0,055	0,07	80	0,04	0,05	0,07	0,09	0,045	0,1	0,18	0,18	●	
O.2.1																				
O.2.2																				
O.3.1																				



The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data standard values – Form cutters

		50 245 ... / 50 246 ...				50 360 ...				50 362 ...				1st choice		
		Ø DC = 16 mm a _s = 3,2	Ø DC = 20 mm a _s = 4	Ø DC = 25 mm a _s = 5		Ø DC = 50 mm a _s = 5	Ø DC = 63 mm a _s = 6,3	Ø DC = 80 mm a _s = 8	Ø DC = 100 mm a _s = 10	Ø DC = 40–50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm	suitable		
														Emulsion	Compressed air	MMS
Index	v _c m/min	f _z mm			v _c m/min	f _z mm				f _z mm						
P.1.1	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.2	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.3	28	0,01	0,015	0,018	22	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.1.4	22	0,01	0,015	0,018	20	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.1.5	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.1	22	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.2	28	0,01	0,015	0,018	22	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.2.3	20	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.2.4	20	0,01	0,015	0,018	20	0,01	0,01	0,015	0,02	0,005	0,008	0,01	0,012	●		
P.3.1																
P.3.2																
P.3.3																
P.4.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
P.4.2	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.1.1	10	0,007	0,01	0,012	10	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
M.2.1																
M.3.1																
K.1.1	24	0,01	0,012	0,015	19	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.1.2					12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.2.1	22	0,01	0,012	0,015	15	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.2.2	20	0,01	0,012	0,015	12	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.3.1	15	0,01	0,012	0,015	16	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
K.3.2	15	0,01	0,012	0,015	13	0,008	0,01	0,012	0,018	0,005	0,008	0,01	0,012	●		
N.1.1	90	0,01	0,015	0,02										●		
N.1.2	90	0,01	0,015	0,02	70	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.1	80	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.2	60	0,01	0,015	0,02	60	0,012	0,015	0,02	0,024	0,008	0,012	0,014	0,018	●		
N.2.3																
N.3.1	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.2	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.3.3	25	0,01	0,015	0,02	20	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,012	●		
N.4.1	70	0,01	0,015	0,0175	45	0,01	0,012	0,015	0,018	0,005	0,008	0,01	0,01	●		
S.1.1																
S.1.2																
S.2.1																
S.2.2																
S.2.3																
S.3.1	20	0,008	0,01	0,015	20	0,008	0,01	0,012	0,016	0,005	0,007	0,009	0,012	●		
S.3.2																
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1	65	0,018	0,02	0,025	60	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.1.2	80	0,018	0,02	0,025	65	0,015	0,02	0,025	0,03	0,008	0,012	0,018	0,022	●		
O.2.1																
O.2.2																
O.3.1																



The cutting data depends largely on the external conditions, e.g. stability of the tools and tool clamping, material and machine type. The indicated values are possible cutting data which have to be increased or reduced according to the application conditions.

Cutting data – side and face cutters

		50 340 ... / 50 341 ... / 50 342 ... / 50 348 ... / 50 349 ...						1st choice suitable		
		Ø DC = 50 mm	Ø DC = 63 mm	Ø DC = 80 mm	Ø DC = 100 mm	Ø DC = 125 mm	Ø DC = 160 mm	Emulsion	Compressed air	MMS
Index	v _c in m/min	f _z mm								
P.1.1	30	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
P.1.2	20	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
P.1.3	20	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,095–0,12	0,1–0,13	●		
P.1.4	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.1.5	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.1	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.2	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.2.3	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.2.4	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.3.1	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.3.2	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.3.3	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
P.4.1	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
P.4.2	10	0,04–0,06	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,09–0,2	●		
M.1.1	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
M.2.1	10	0,03–0,04	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	●		
M.3.1	8	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.1.1	20	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.1.2	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.2.1	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.2.2	15	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.3.1	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
K.3.2	18	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
N.1.1	150	0,06–0,075	0,075–0,09	0,009–0,1	0,01–0,12	0,12–0,135	0,135–0,15	●		
N.1.2	100	0,06–0,075	0,075–0,09	0,009–0,1	0,01–0,12	0,12–0,135	0,135–0,15	●		
N.2.1	80	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.2.2	40	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.2.3										
N.3.1	80	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
N.3.2	30	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12	●		
N.3.3	30	0,05–0,07	0,06–0,08	0,07–0,09	0,08–0,10	0,095–0,12	0,1–0,13	●		
N.4.1	90	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,095–0,11	0,1–0,12		●	
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
S.3.2	10	0,04–0,05	0,05–0,06	0,06–0,07	0,07–0,08	0,08–0,09	0,09–0,1	●		
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1	30	0,08–0,1	0,1–0,12	0,12–0,14	0,14–0,16	0,16–0,18	0,18–0,2	●		
O.1.2	20	0,08–0,1	0,1–0,12	0,12–0,14	0,14–0,16	0,16–0,18	0,18–0,2	●		
O.2.1										
O.2.2										
O.3.1										



Feed correction factor
(Kf f_z) for side and face
cutters in relation to the
cutting depth (a_e)

a _e	Kf f _z
0,05 x DC	1,4
0,1 x DC	1,0
0,15 x DC	0,8
0,2 x DC	0,7
0,25 x DC	0,6



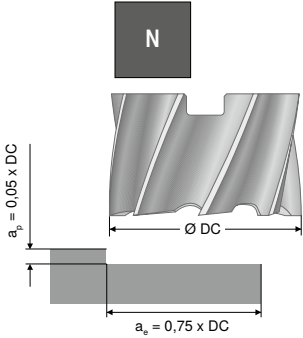
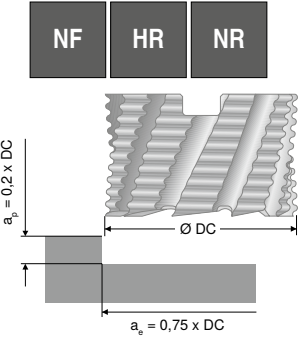
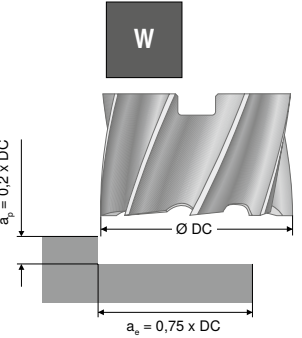
The indicated feed rates apply to straight pitched cutters with a cutting depth of 0,1 x DC! With cross-pitched cutters the feed rate is to be reduced by 50 %!

Cutting data – face mills

		50 250 ... / 50 255 ... / 50 260 ... / 50 297 ...	54 035 ... / 54 036 ... / 54 037 ...	● 1st choice ○ suitable		
		uncoated	Ti100 Pro	Emulsion	Compressed air	MMS
Index	Kff _z					
P.1.1	1,2	25	45	●		
P.1.2	1,2	20	40	●		
P.1.3	1,2	20	40	●		
P.1.4	1,0	15	30	●		
P.1.5	1,0	15	30	●		
P.2.1	1,2	20	40	●		
P.2.2	1,0	20	40	●		
P.2.3	0,8	10	20	●		
P.2.4	0,8	10	20	●		
P.3.1	1,0	15	30	●		
P.3.2	0,8	10	20	●		
P.3.3	0,8	10	20	●		
P.4.1	1,0	10	15	●		
P.4.2	1,0	10	15	●		
M.1.1	1,0	10	15	●		
M.2.1	0,9	7	15	●		
M.3.1	1,0	5	10	●		
K.1.1	1,0	20	30	●		
K.1.2	1,0	18	30	●		
K.2.1	1,0	18	30	●		
K.2.2	1,0	15	25	●		
K.3.1	1,0	18	30	●		
K.3.2	1,0	18	30	●		
N.1.1	1,5	150				
N.1.2	1,5	100				
N.2.1	1,3	80				
N.2.2	1,3	40				
N.2.3						
N.3.1	1,1	80	110	●		
N.3.2	1,2	30	60	●		
N.3.3	1,2	30	60	●		
N.4.1	1,3	90	120		●	
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1	1,0	10	15	●		
S.3.2	1,1	10	15	●		
S.3.3	0,8		10	●		
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1	2,0	30	50	●		
O.1.2	2,0	20	25	●		
O.2.1						
O.2.2						
O.3.1						

Feed per tooth for HSS face mills

Approximate values (in mm) for the feed per tooth (f_z)

N			NF HR NR			W	
							
f_z in mm			f_z in mm			f_z in mm	
Ø DC mm	uncoated	Ti100 Pro	uncoated	Ti100 Pro		uncoated	
40	0,049	0,054	0,064	0,070		0,060	
50	0,055	0,060	0,071	0,078		0,066	
63	0,061	0,067	0,079	0,087		0,074	
80	0,065	0,071	0,084	0,092		0,078	
100	0,059	0,065	0,076	0,084		0,071	



Feed rate correction:

Please multiply the f_z value in the table above with the corresponding **correction factor $K_f f_z$** from the table on → **page 46**.

In general the following is valid:

$$f_z \text{ (milling)} = f_z \times K_f f_z$$

$$f_z \text{ (drilling)} = f_z \text{ (milling)} \div \text{no. of teeth}$$

Formula for cutting data calculation

Designation	Abbreviation	Unit	Formula
Number of revolutions	n	min ⁻¹	$n = \frac{v_c \times 1000}{DC \times \pi}$
Cutting speed	v_c	m/min	$v_c = \frac{DC \times \pi \times n}{1000}$
Feed per tooth	f_z	mm	$f_z = \frac{v_f}{ZEFP \times n} \quad f_z = h_m \times \sqrt{\frac{DC}{a_e}}$
Feed per revolution	f	mm	$f = f_z \times ZEFP$
Feed rate	v_f	mm/min.	$v_f = f_z \times ZEFP \times n$
Average chip thickness	h_m	mm	$h_m = f_z \times \sqrt{\frac{a_e}{DC}}$

ZEFP = Number of flutes

a_e = cutting width (for side milling cutter cutting depth)

DC = Cutting diameter

Version description

H	For high-strength steels and tempered materials	NR	For machining steel and cast materials, as well as stainless steels – with roughing profile
HF	For high-strength steels and tempered materials – with roughing-finishing profile	NTI	For machining steel and cast materials, as well as stainless steels – with medium chip breaker
HR	For high-strength steels and tempered materials – with roughing profile	W	For soft materials and non-ferrous metals (aluminium, copper, brass)
HS	For high-strength steels and tempered materials – with fine chip breaker especially for cast and nickel alloys	WF	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing-finishing profile
N	For machining steel and cast materials, as well as stainless steels	WR	For soft materials and non-ferrous metals (aluminium, copper, brass) – with roughing profile
NF	For machining steel and cast materials, as well as stainless steels – with roughing-finishing profile		

Coating

Ti100 Pro	▲ Ti multilayer coating ▲ HV0.05 = 3500 ▲ Coefficient of friction (against steel) = 0.7 ▲ Maximum application temperature: 900°C
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