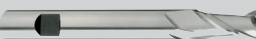
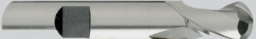
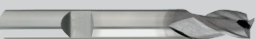
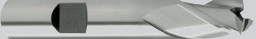
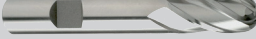


FRÄSEN HSSE MILLING HSSE

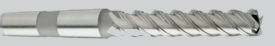
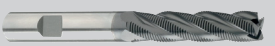
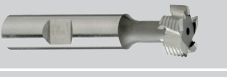
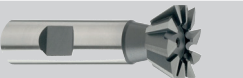
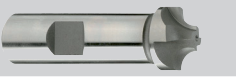
	ARTIKEL-BESCHREIBUNG ARTICLE-DESCRIPTION	ARTIKEL-NR. ARTICLE-NO.	SEITE PAGE	STAHL	INOX	NE-METALLE	GUSS	TITAN	HRC	GRAPHIT	
1-SCHNEIDER 1-FLUTE END MILLS											
	HSS-E	Z=1	TYP W	E.6601.0	3			✓			
2-SCHNEIDER 2-FLUTES END MILLS											
	HSS-E	Z=2	TYP N	E.9601.0	3	✓	✓	✓	✓		
	HSS-E	Z=2	TYP N	E.9602.0	4	✓	✓	✓	✓		
	HSS-E	Z=2	TYP N	E.9669.0	5	✓	✓	✓	✓		
	HSS-E	Z=2	TYP N	E.9605.0	6	✓	✓	✓	✓		
	HSS-E	Z=2	TYP N	E.9606.0	7	✓	✓	✓	✓		
	HSS-E	Z=2		E.9674.0	7	✓	✓	✓	✓		
	HSS-E	Z=2	TYP W	E.9673.0	8	✓	✓	✓	✓		
3-SCHNEIDER 3-FLUTES END MILLS											
	HSS-E	Z=3	TYP N	E.9607.1	9	✓	✓	✓	✓		
	HSS-E	Z=3	TYP N	E.9608.1	10	✓	✓	✓	✓		
	HSS-E	Z=3	TYP N	E.9609.0	11	✓	✓	✓	✓		
	HSS-E	Z=3	TYP N	E.9675.0	11	✓	✓	✓	✓		
	HSS-E	Z=3	TYP W	E.9676.0	12	✓	✓	✓	✓		
	HSS-E	Z=3	TYP W	E.9670.0	12	✓	✓	✓	✓		
4- UND MEHRSCHEIDER 4- AND MULTIFLUTE END MILLS											
	HSS-E	MEHR-SCHNEIDER	TYP W	E.9677.0	13	✓	✓	✓	✓		
	HSS-E	MEHR-SCHNEIDER	TYP N	E.9678.0	14	✓	✓	✓	✓		
	HSS-E	Z=4	TYP N	E.9680.0	15	✓	✓	✓	✓		
	HSS-E	Z=4		E.9681.0	15	✓	✓	✓	✓		
	HSS-E	Z=4	TYP N	E.9671.0	16	✓		✓	✓		

Die angegebenen Einsatzgebiete sind Richtlinien. Die genauen Einsatzdaten finden Sie im jeweiligen Artikel!

The indicated operational areas are estimated guide lines. The exact dates of use please find at the specified articles!

Gewindbohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

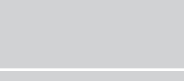
FRÄSEN HSSE MILLING HSSE

	ARTIKEL-BESCHREIBUNG ARTICLE-DESCRIPTION	ARTIKEL-NR. ARTICLE-NO.	SEITE PAGE	STAHL	INOX	NE-METALLE	GUSS	TITAN	HRC	GRAPHIT	
	HSS-E  TYP N	E.9672.0	16	✓	✓	✓	✓				
	HSS-E  TYP N	E.9682.0	17	✓	✓	✓	✓				
	HSS-E  TYP N	E.9614.0	18	✓	✓	✓	✓				
	HSS-E  TYP N	E.9646.0	18	✓	✓	✓	✓				
	HSS-E  TYP N	E.9683.0	19	✓	✓	✓	✓				
SCHRUPPFRÄSER ROUGHING END MILLS											
	HSS-E  TYP HR	E.9684.1	19	✓	✓	✓	✓				
	PM  TYP HR	E.9617.1	20	✓	✓	✓	✓				
	HSS-E  TYP HR	E.9618.1	20	✓	✓	✓	✓				
	HSS-E  TYP NR	E.9615.1	21	✓	✓	✓	✓				
	HSS-E  TYP NF	E.9616.1	21	✓	✓	✓	✓				
	HSS-E  TYP NR	E.9619.0	22	✓	✓	✓	✓				
	HSS-E  TYP NF	E.9685.0	22	✓	✓	✓	✓				
SCHLITZ- UND T-NUTENFRÄSER WOODRUFF KEYSEAT AND T-SLOT CUTTERS											
	HSS-E  TYP N	E.9620.0	23	✓	✓	✓	✓				
	HSS-E  TYP N	E.9621.0	24	✓	✓	✓	✓				
	HSS-E  TYP NR	E.9622.0	24	✓	✓	✓	✓				
	HSS-E  TYP NF	E.9686.0	25	✓	✓	✓	✓				
WINKELFRÄSER ANGLE CUTTERS											
	HSS-E  TYP NF	E.9623.0	25	✓	✓	✓	✓				
	HSS-E  TYP N	E.9624.0	26	✓	✓	✓	✓				
SCHAFT-PROFILFRÄSER SHANK-PROFILE MILLING CUTTER											
	HSS-E  TYP N	E.9625.0	27	✓	✓	✓	✓				

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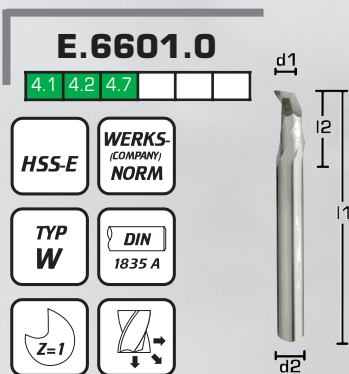
FRÄSEN HSSE MILLING HSSE

ARTIKEL-BESCHREIBUNG ARTICLE-DESCRIPTION				ARTIKEL-NR. ARTICLE-NO.	SEITE PAGE	STAHL	INOX	NE-METALLE	GUSS	TITAN	HRC	GRAPHIT	
WALZENSTIRNFRÄSER <i>SHELL END MILLS</i>													
	HSS-E		TYP N	E.9628.0	28	✓	✓	✓	✓				
	HSS-E		TYP NF	E.9629.0	28	✓	✓	✓	✓				
	HSS-E		TYP NR	E.9630.0	29	✓	✓	✓	✓				
	HSS-E		TYP HR	E.9631.0	29	✓	✓		✓				
	HSS-E		TYP HR	E.9631.1	29	✓	✓	✓	✓				
	HSS-E		TYP W	E.9632.0	30			✓		✓			
BOHRUNGSFRÄSER <i>BORE END MILLS</i>													
	HSS-E		TYP N	E.9687.0	30	✓	✓	✓	✓				
	HSS-E		TYP N	E.9633.0	31	✓	✓	✓	✓				
	HSS-E			E.9634.0	32-33	✓	✓	✓	✓				
	HSS-E			E.9644.0	32-33	✓	✓	✓	✓				
	HSS			E.9688.0	34	✓	✓	✓	✓				
	HSS			E.9689.0	35	✓	✓	✓	✓				
	HSS-E			E.9690.0	36	✓	✓	✓	✓				
	HSS-E			E.9691.0	36	✓	✓	✓	✓				
	HSS-E			E.9692.0	37	✓	✓	✓	✓				
	HSS		TYP N	E.9635.0	37	✓	✓	✓	✓				
	HSS		TYP N	E.9636.0	38	✓	✓	✓	✓				
ROHLINGE <i>TOOL BITS</i>													
	PM			E.9693.0	39								
	PM			E.9694.0	39								

Gewindbohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

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HSSE-1 flute end mills for aluminium

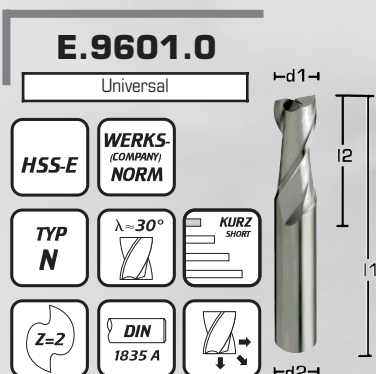
Frezy jednostrzowe HSS-E do aluminium

Frese monotaglienti HSSE per alluminio

Fresas HSSE de un diente para aluminio

Artikel-Nr. Article-No.				E.6601.0 € Stück piece
d1	l2	l1	d2 h6	
3,00	12	60	8,0	
4,00	12	60	8,0	
5,00	14	60	8,0	
5,00	40	100	8,0	
6,00	14	60	8,0	
8,00	14	80	8,0	
10,00	14	80	8,0	

HSSE-Universal-Mikro-Bohrnutenfräser



HSSE-Universal-Micro-Center cut end mills

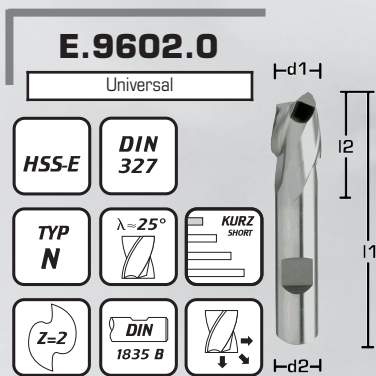
Frezy miniaturowe dwustrzowe HSS-E centrujące uniwersalne

Microfresse universali, HSSE

Microfresas de ranurar en HSSE, uso universal

Artikel-Nr. Article-No.				E.9601.0 € Stück piece
d1	l2	l1	d2	
0,30 - 0,40	1	37	3,0	
0,50 - 0,60	1	37	3,0	
0,70 - 0,90	2	37	4,0	
1,00 - 1,10	3	37	4,0	
1,20 - 1,40	4	37	4,0	
1,50 - 1,60	4	37	4,0	
1,70 - 1,90	5	37	4,0	
2,00 - 2,20	5	37	4,0	
2,30 - 2,70	7	40	4,0	
2,80 - 2,90	8	44	5,0	
3,00 - 3,20	8	44	5,0	
3,30 - 3,70	10	44	5,0	
3,80 - 4,70	12	51	6,0	
4,80 - 5,70	14	52	6,0	
5,80 - 7,70	16	60	8,0	
7,80 - 8,00	18	61	8,0	
8,10 - 9,70	18	69	10,0	
9,80 - 10,00	20	69	10,0	
10,10 - 11,00	22	70	12,0	
11,10 - 12,00	26	79	12,0	
12,10 - 14,00	26	83	12,0	

HSSE-Langlochfräser kurz

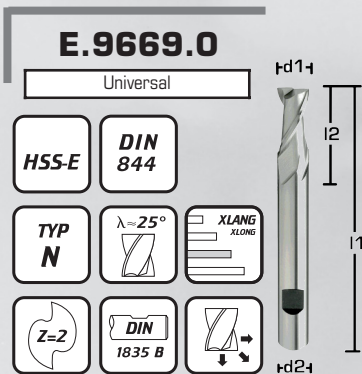


- HSSE-Slot drill end mills short
- Frezy dwuostrzowe krótkie HSS-E do rowkowania
- Frese per cave, HSSE
- Fresas de dos labios, serie corta, HSSE

* = nach Werksnorm
* = according company norm

Artikel-Nr. Article-No.				E.9602.0 € Stück piece
d1e8	l2	l1	d2 h6	
2,00	4	48	6,0	
2,50	5	49	6,0	
3,00	5	49	6,0	
3,50	6	50	6,0	
4,00	7	51	6,0	
4,50	7	51	6,0	
5,00	8	52	6,0	
5,50	8	52	6,0	
6,00	8	52	10,0	
6,50	10	60	10,0	
7,00	10	60	10,0	
7,50	10	60	10,0	
8,00	11	61	10,0	
8,50	11	61	10,0	
9,00	11	61	10,0	
9,50	11	61	10,0	
10,00	13	63	10,0	
10,50	13	70	12,0	
11,00	13	70	12,0	
11,50	13	70	12,0	
12,00	16	73	12,0	
13,00	16	73	12,0	
14,00	16	73	12,0	
15,00	16	73	12,0	
16,00	19	79	16,0	
17,00	19	79	16,0	
18,00	19	79	16,0	
19,00	19	79	16,0	
20,00	22	88	20,0	
22,00	22	88	20,0	
24,00	26	102	25,0	
25,00	26	96	25,0	
25,00	26	102	20,0*	
26,00	26	102	25,0	
28,00	26	96	25,0	
28,00	26	102	20,0*	
30,00	26	102	25,0	
32,00	32	112	32,0	
36,00	32	112	32,0	
40,00	38	118	32,0*	

- 1 Gewindebohrer
- 2 Bohren HSSE
- 3 Bohren VHM
- 4 Reiben HSSE
- 5 Reiben VHM
- 6 Frässtifte VHM
- 7 Fräsen VHM
- 8 WP-Werkzeuge
- 9 Fräsen HSSE
- 10 Sägen
- 11 Lehren
- 12 Nachschleifen
- 13 Sonstiges



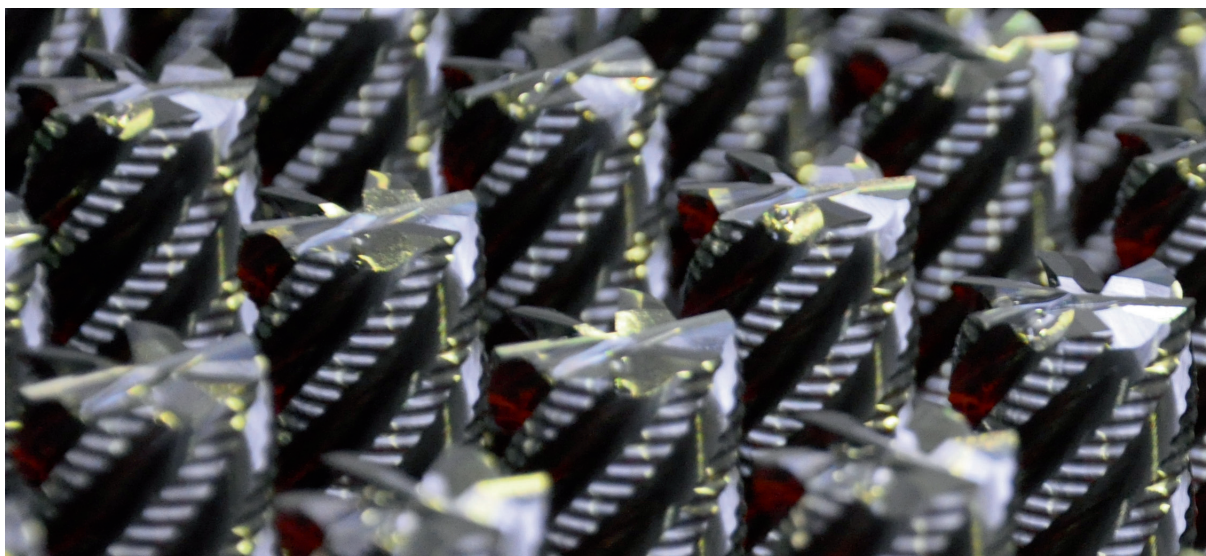
HSSE-Slot drill end mills extra long

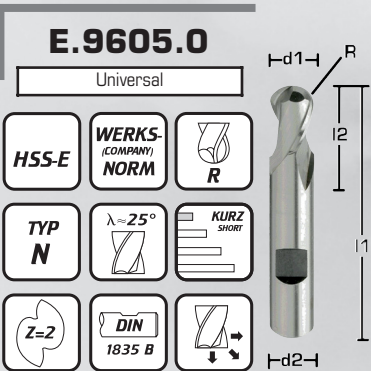
Frezy dwuostrzowe bardzo długie
HSS-E do rowkowania

Frese per cave HSSE, serie lunga

Fresas de dos labios, serie extra
larga, HSSE

Artikel-Nr. Article-No.				E.9669.0 € Stück piece
d1e8	l2	l1	d2 h6	
4,00	11	63	6,0	
5,00	13	68	6,0	
6,00	13	68	6,0	
7,00	16	80	10,0	
8,00	19	88	10,0	
9,00	19	88	10,0	
10,00	22	95	10,0	
11,00	22	102	12,0	
12,00	26	110	12,0	
13,00	26	110	12,0	
14,00	26	110	12,0	
15,00	26	110	12,0	
16,00	32	123	16,0	
18,00	32	123	16,0	
20,00	38	141	20,0	
22,00	38	141	20,0	
24,00	45	166	25,0	
25,00	45	166	25,0	
28,00	45	166	25,0	
30,00	45	166	25,0	
32,00	53	186	32,0	

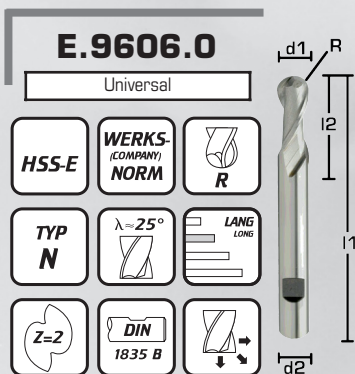




- HSSE-Ball nose end mills short
- Frezy dwuostrzowe krótkie HSS-E z czolem kulistym
- Frese raggrate HSSE, serie corta
- Fresas con punta semiésférica, serie corta, HSSE

Artikel-Nr. Article-No.					E.9605.0 € Stück piece
d1 h10	R	l2	l1	d2 h6	
4,00	2,00	7	51	6,0	
5,00	2,50	8	52	6,0	
6,00	3,00	8	52	6,0	
7,00	3,50	10	60	10,0	
8,00	4,00	11	61	10,0	
9,00	4,50	11	61	10,0	
10,00	5,00	13	63	10,0	
11,00	5,50	13	70	12,0	
12,00	6,00	16	73	12,0	
13,00	6,50	16	73	12,0	
14,00	7,00	16	73	12,0	
15,00	7,50	16	73	12,0	
16,00	8,00	19	79	16,0	
18,00	9,00	19	79	16,0	
20,00	10,00	22	88	20,0	
22,00	11,00	22	88	20,0	
24,00	12,00	26	102	25,0	
25,00	12,50	26	102	25,0	
28,00	14,00	26	102	25,0	
30,00	15,00	26	102	25,0	
32,00	16,00	32	112	32,0	

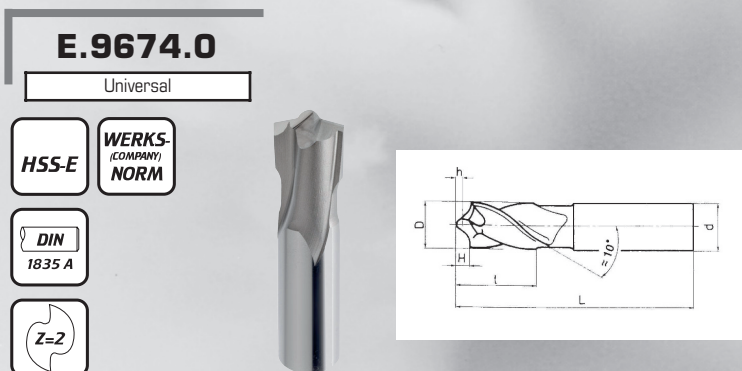
Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13



- HSSE-Ball nose end mills long
- Frezy dwuostrzowe długie HSS-E z czółem kulistym
- Frese raggrate lunghe, HSSE
- Fresas con punta semiésférica, serie larga, HSSE

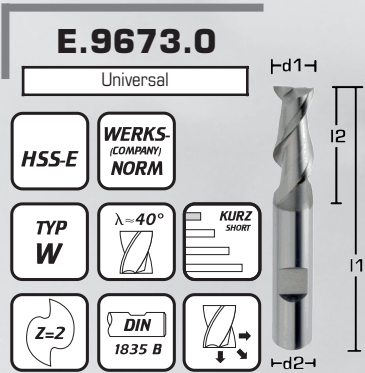
Artikel-Nr. Article-No.					E.9606.0 € Stück piece
d1 h10	R	l2	l1	d2 h6	
4,00	2,00	11	63	6,0	
5,00	2,50	13	68	6,0	
6,00	3,00	13	68	6,0	
7,00	3,50	16	80	10,0	
8,00	4,00	19	88	10,0	
9,00	4,50	19	88	10,0	
10,00	5,00	22	95	10,0	
11,00	5,50	22	102	12,0	
12,00	6,00	26	110	12,0	
13,00	6,50	26	110	12,0	
14,00	7,00	26	110	12,0	
15,00	7,50	26	110	12,0	
16,00	8,00	32	123	16,0	
18,00	9,00	32	123	16,0	
20,00	10,00	38	141	20,0	
22,00	11,00	38	141	20,0	
24,00	12,00	45	166	25,0	
25,00	12,50	45	166	25,0	
28,00	14,00	45	166	25,0	
30,00	15,00	45	166	25,0	
32,00	16,00	53	186	32,0	

HSSE-Schaftfräser für Schmiernuten



- HSSE-End mills for oil grooves
- Frezy dwuostrzowe HSS-E do rowków smarnych
- Frese per filtri olio, HSSE
- Fresas para ranuras de engrase, HSSE

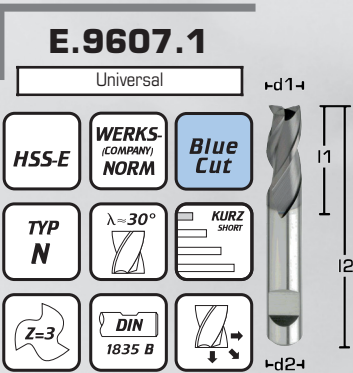
Artikel-Nr. Article-No.						E.9674.0 € Stück piece
h	H	D js16	S js16	L js16	d H8	
0,8	1,0	8	11	61	10,0	
1,2	1,6	12	16	73	12,0	
2,0	2,5	16	19	79	16,0	
3,0	4,0	22	22	88	20,0	
5,0	6,0	28	26	96	20,0	



- HSSE-Center cut end mills short
- Frezy dwuostrzowe krótkie centrujące HSS-E
- Frese per cave, HSSE
- Fresas, serie corta, HSSE

Artikel-Nr. Article-No.				E.9673.0
d1e8	l2	l1	d2 h6	€ Stück piece
2,00	7	51	6,0	
2,50	8	52	6,0	
3,00	8	52	6,0	
3,50	10	54	6,0	
4,00	11	55	6,0	
4,50	11	55	6,0	
5,00	13	57	6,0	
5,50	13	57	6,0	
6,00	13	57	6,0	
6,50	16	66	10,0	
7,00	16	66	10,0	
7,50	16	66	10,0	
8,00	19	69	10,0	
8,50	19	69	10,0	
9,00	19	69	10,0	
9,50	19	69	10,0	
10,00	22	72	10,0	
11,00	22	79	12,0	
12,00	26	83	12,0	
13,00	26	83	12,0	
14,00	26	83	12,0	
15,00	26	83	12,0	
16,00	32	92	16,0	
17,00	32	92	16,0	
18,00	32	92	16,0	
19,00	32	92	16,0	
20,00	38	104	20,0	
21,00	38	104	20,0	
22,00	38	104	20,0	
23,00	38	104	20,0	
24,00	45	121	25,0	
25,00	45	121	25,0	
26,00	45	121	25,0	
28,00	45	121	25,0	
30,00	45	121	25,0	
32,00	53	133	32,0	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

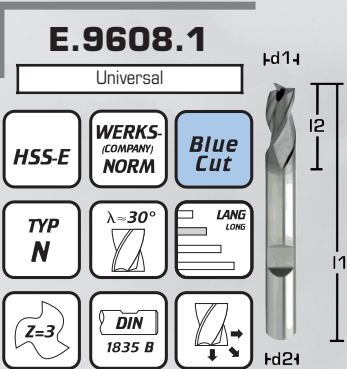


- HSSE-Throw away center cut end mills short
- Frezy trzyostrowe krótkie HSS-E z ostrzem centralnym na czole
- Frese a gettare, serie corta, HSSE
- Fresas para chaveteros de un solo uso, serie corta, HSSE

*=Auslaufartikel
 *=no future article anymore

Artikel-Nr. Article-No.				E.9607.1 € Stück piece
d1k12	l2	l1	d2 h6	
1,00*	2	34	6,0	
1,50*	3	34	6,0	
1,80*	3	34	6,0	
2,00	4	35	6,0	
2,30*	4	35	6,0	
2,50	5	36	6,0	
2,80*	5	36	6,0	
3,00	5	36	6,0	
3,50	6	37	6,0	
4,00	7	38	6,0	
4,50	7	38	6,0	
5,00	8	39	6,0	
5,50	8	39	6,0	
5,75*	8	39	6,0	
6,00	8	39	6,0	
6,50*	10	42	8,0	
7,00*	10	42	8,0	
7,75*	10	42	8,0	
9,50*	11	48	10,0	
10,00*	13	50	10,0	
12,00*	16	58	12,0	

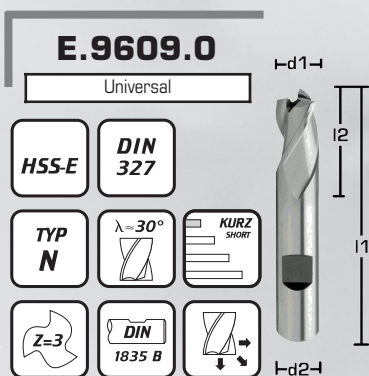




- HSSE-Throw away center cut end mills long
- Frezy trzyostrzowe długie HSS-E z ostrzem centralnym na czole
- Frese a gettare, serie lunga, HSSE
- Fresas para chaveteros de un solo uso, serie larga, HSSE

Artikel-Nr. Article-No.				E.9608.1 € Stück piece
d1e8	l2	l1	d2 h6	
1,50	5	36	6,0	
2,00	7	38	6,0	
2,50	8	39	6,0	
3,00	8	39	6,0	
3,50	10	41	6,0	
4,00	11	42	6,0	
4,50	11	42	6,0	
5,00	13	44	6,0	
5,50	13	44	6,0	
6,00	13	44	6,0	
6,50	16	48	8,0	
7,00	16	48	8,0	
7,50	16	48	8,0	
8,00	19	51	8,0	
8,50	19	56	10,0	
9,00	19	56	10,0	
9,50	19	56	10,0	
10,00	22	59	10,0	

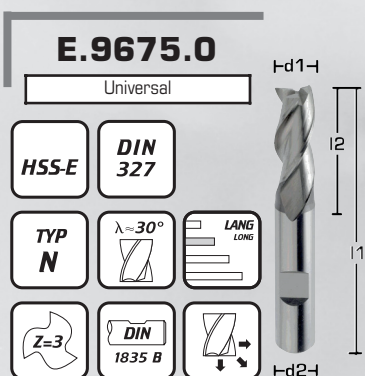
Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13



- HSSE-Center cut end mills short
- Frezy trzyostrzowe centrujące krókie HSS-E
- Frese HSSE, serie corta
- Fresas para chaveteros, serie corta, HSSE

*=Auslaufartikel
*=no future production anymore

Artikel-Nr. Article-No.				E.9609.0 € Stück piece
d1e8	l2	l1	d2 h6	
3,00	5	49	6,0	
4,00	7	51	6,0	
5,00	8	52	6,0	
5,50*	8	52	6,0	
6,00	8	52	6,0	
7,00	10	60	10,0	
8,00	11	61	10,0	8
10,00	13	63	10,0	
12,00	16	73	12,0	
14,00	16	73	12,0	
16,00	19	79	16,0	
18,00	19	79	16,0	
20,00	22	88	20,0	



- HSSE-Center cut end mills long
- Frezy trzyostrzowe długie centrujące HSS-E
- Frese HSSE, serie lunga
- Fresas para chaveteros, serie larga, HSSE

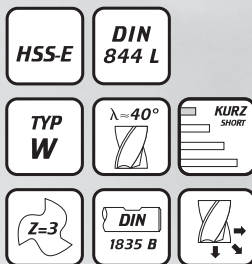
Artikel-Nr. Article-No.				E.9675.0 € Stück piece
d1e8	l2	l1	d2 h6	
3,00	8	52	6,0	
4,00	11	55	6,0	
5,00	13	57	6,0	
6,00	13	57	6,0	
7,00	16	66	10,0	
8,00	19	69	10,0	
10,00	22	72	10,0	
12,00	26	83	12,0	
14,00	26	83	12,0	
16,00	32	92	16,0	
18,00	32	92	16,0	
20,00	38	104	20,0	

HSSE-Bohrnutenfräser kurz



E.9676.0

Universal



- HSSE-Center cut end mills short
- Frezytrzyostrzowe krótkie centrujące HSS-E
- Frese HSSE, serie corta
- Fresas para chaveteros, serie corta, HSSE

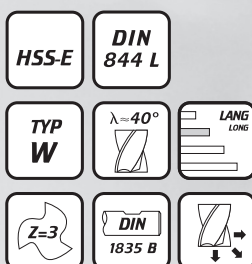
Artikel-Nr. Article-No.				E.9676.0 € Stück piece
d1k10	l2	l1	d2 h6	
6,00	13	57	6,0	
7,00	16	66	10,0	
8,00	19	69	10,0	
9,00	19	69	10,0	
10,00	22	72	10,0	
12,00	26	83	12,0	
14,00	26	83	12,0	
16,00	32	92	16,0	
18,00	32	92	16,0	
20,00	38	104	20,0	

HSSE-Bohrnutenfräser lang



E.9670.0

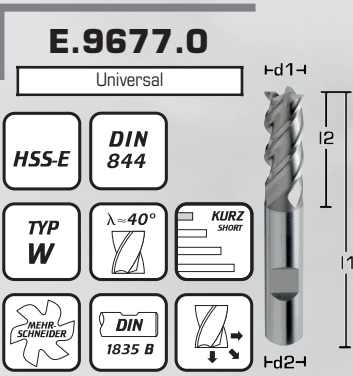
Universal



- HSSE-Center cut end mills long
- Frezy trzyostrzowe długie centrujące HSS-E
- Frese HSSE, serie lunga
- Fresas de chaveteros, serie larga, HSSE

Artikel-Nr. Article-No.				E.9670.0 € Stück piece
d1k10	l2	l1	d2 h6	
6,00	24	68	6,0	
7,00	30	80	10,0	
8,00	38	88	10,0	
9,00	38	88	10,0	
10,00	45	95	10,0	
12,00	53	110	12,0	
14,00	53	110	12,0	
16,00	63	123	16,0	
18,00	63	123	16,0	
20,00	75	141	20,0	

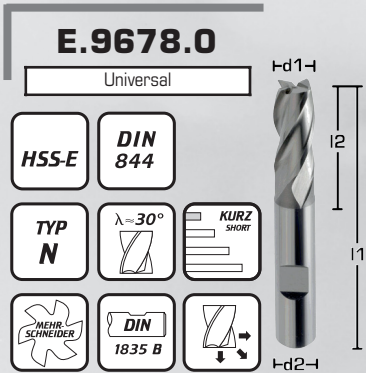
- 1 Gewindebohrer
- 2 Bohren HSSE
- 3 Bohren VHM
- 4 Reiben HSSE
- 5 Reiben VHM
- 6 Frässtifte VHM
- 7 Fräsen VHM
- 8 WP-Werkzeuge
- 9 Fräsen HSSE
- 10 Sägen
- 11 Lehren
- 12 Nachschleifen
- 13 Sonstiges



- HSSE-End mills short
- Frezy wieloostrzowe krótkie HSS-E ekonomiczne
- Frese a finire, HSSE, serie corta
- Fresas de mango, serie corta, HSSE

Artikel-Nr. Article-No.					E.9677.0 € Stück piece
d1k10	l2	l1	d2 h6	Zähne flutes	
2,00	7	51	6,0	3	
2,50	8	52	6,0	3	
3,00	8	52	6,0	4	
3,50	10	54	6,0	4	
4,00	11	55	6,0	4	
4,50	11	55	6,0	4	
5,00	13	57	6,0	4	
6,00	13	57	6,0	4	
7,00	16	66	10,0	4	
8,00	19	69	10,0	4	
9,00	19	69	10,0	4	
10,00	22	72	10,0	4	
11,00	22	79	12,0	4	
12,00	26	83	12,0	4	
13,00	26	83	12,0	4	
14,00	26	83	12,0	4	
15,00	26	83	12,0	4	
16,00	32	92	16,0	4	
18,00	32	92	16,0	4	
20,00	38	104	20,0	4	
22,00	38	104	20,0	4	
24,00	45	121	25,0	5	
25,00	45	121	25,0	5	



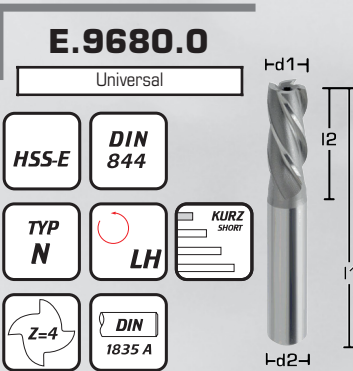


- HSSE-End mills short
- Frezy wieloostrzowe krótkie HSS-E
- Frese a finire, HSSE, serie corta
- Fresas de mango, serie corta, HSSE

Artikel-Nr. Article-No.					E.9678.0 € Stück piece
d1k10	l2	l1	d2 h6	Zähne flutes	
3,00	8	52	6,0	4	
4,00	11	55	6,0	4	
5,00	13	57	6,0	4	
6,00	13	57	6,0	4	
7,00	16	66	10,0	4	
8,00	19	69	10,0	4	
9,00	19	69	10,0	4	
10,00	22	72	10,0	4	
11,00	22	79	12,0	4	
12,00	26	83	12,0	4	
13,00	26	83	12,0	4	
14,00	26	83	12,0	4	
15,00	26	83	12,0	4	
16,00	32	92	16,0	4	
18,00	32	92	16,0	4	
20,00	38	104	20,0	4	
22,00	38	104	20,0	5	
24,00	45	121	25,0	5	
25,00	45	121	25,0	5	
26,00	45	121	25,0	5	
28,00	45	121	25,0	5	
30,00	45	121	25,0	5	
32,00	53	133	32,0	6	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

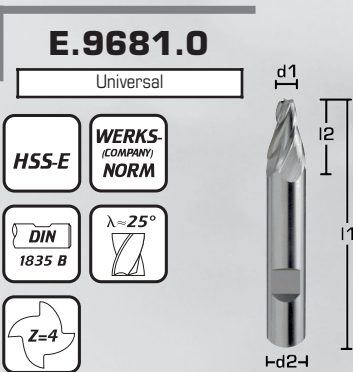
HSSE-Schaftfräser linksschneidend



- HSSE-End mills left hand cutting
- Frezy czterostrzowe lewe HSS-E
- Frese a finire elica sx, HSSE
- Fresas de mango, corte izquierdo, HSSE

Artikel-Nr. Article-No.				E.9680.0 € Stück piece
d1 js14	l2	l1	d2 h8	
4,00	11	55	6,0	
5,00	13	57	6,0	
6,00	13	57	6,0	
8,00	19	69	10,0	
10,00	22	72	10,0	
12,00	26	83	12,0	
16,00	32	92	16,0	

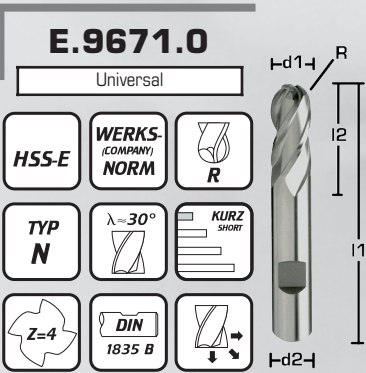
HSSE-Gesenkfräser konisch



- HSSE-Taper end mill
- Frezy czterostrzowe zbieżne HSS-E
- Frese coniche, HSSE
- Fresas cónicas, HSSE

Artikel-Nr. Article-No.					E.9681.0 € Stück piece
Grad degree	d1 js14	l2	l1	d2 h6	
1°	5	20	73	10,0	
1°	8	32	95	12,0	
1°	12	50	118	16,0	
1°	20	80	155	20,0	
2°	5	20	74	10,0	
2°	8	32	95	12,0	
2°	12	50	118	16,0	
2°	20	80	160	25,0	
3°	5	20	74	10,0	
3°	8	32	95	12,0	
3°	12	50	120	20,0	
3°	20	80	160	25,0	
5°	5	20	74	10,0	
5°	8	32	98	16,0	
5°	12	50	120	20,0	
5°	20	80	165	32,0	
7°	5	20	80	12,0	
7°	8	32	98	16,0	
7°	12	50	130	25,0	
7°	20	80	165	32,0	
10°	5	20	80	12,0	
10°	8	32	100	20,0	
10°	12	50	130	25,0	

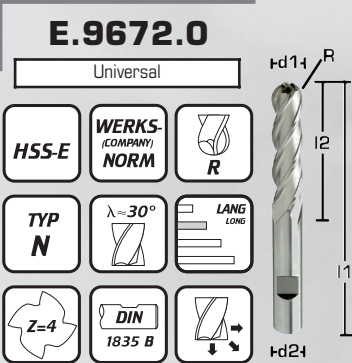
HSSE-Radius-Schaftfräser kurz



- HSSE-Ball nose end mills short
- Frezy czterostrzowe krótkie HSS-E z czolem kulistym
- Frese 4 tagli raggriate serie corta, HSSE
- Fresas con punta semiésférica, serie corta, HSSE

Artikel-Nr. Article-No.					E.9671.0 € Stück piece
d1 k12	R	l2	l1	d2 h6	
4,00	2,00	11	55	6,0	
5,00	2,50	13	57	6,0	
6,00	3,00	13	57	6,0	
8,00	4,00	19	69	10,0	
10,00	5,00	22	72	10,0	
12,00	6,00	26	83	12,0	
16,00	8,00	32	92	16,0	
20,00	10,00	38	104	20,0	

HSSE-Radius-Schaftfräser lang



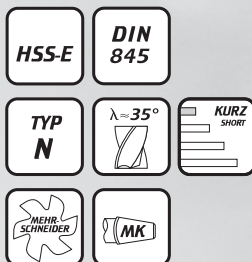
- HSSE-Ball nose end mills long
- Frezy 4-ostrowe długie HSS-E z czolem kulistym
- Frese 4 tagli raggriate serie lunga, HSSE
- Fresas con punta semiésférica, serie larga, HSSE

Artikel-Nr. Article-No.					E.9672.0 € Stück piece
d1 k12	R	l2	l1	d2 h6	
4,00	2,00	19	63	6,0	
5,00	2,50	24	68	6,0	
6,00	3,00	24	68	6,0	
8,00	4,00	38	88	10,0	
10,00	5,00	45	95	10,0	
12,00	6,00	53	110	12,0	
16,00	8,00	63	123	16,0	
20,00	10,00	75	141	20,0	

- Gewindebohrer 1
- Bohren HSSE 2
- Bohren VHM 3
- Reiben HSSE 4
- Reiben VHM 5
- Frässtifte VHM 6
- Fräsen VHM 7
- WP-Werkzeuge 8
- Fräsen HSSE 9
- Sägen 10
- Lehren 11
- Nachschleifen 12
- Sonstiges 13

E.9682.0

Universal



 HSSE-End mills short

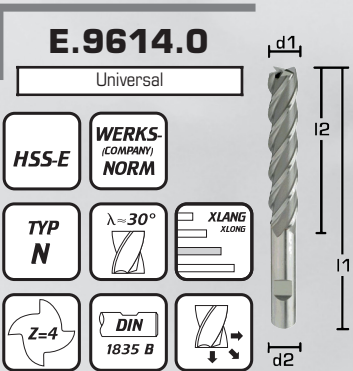
 Frezy wieloostrowe krótkie HSS-E

 Frese a finire, gambo MK, serie corta, HSSE

 Fresas de mango, serie corta, HSSE

Artikel-Nr. Article-No.					E.9682.0 € Stück piece
d1k10	l2	l1	d2 MK	Zähne flutes	
10,00	22	92	1	4	
12,00	26	111	2	4	
14,00	26	111	2	4	
16,00	32	117	2	4	
18,00	32	117	2	4	
20,00	38	123	2	4	
22,00	38	123	2	5	
25,00	45	147	3	5	
28,00	45	147	3	5	
30,00	45	147	3	6	
32,00	53	178	4	6	
36,00	53	178	4	6	
40,00	63	188	4	6	
45,00	63	188	4	6	
50,00	75	233	5	6	
56,00	75	233	5	8	
63,00	90	248	5	8	

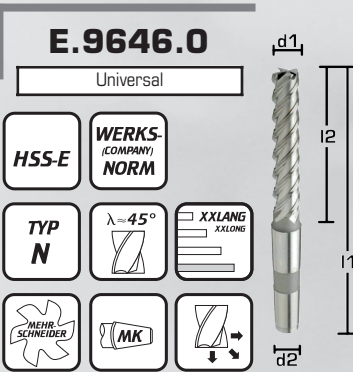
HSSE-Schaftfräser XL



- HSSE-End mills extra long
- Frezy czterostrzowe bardzo długie HSS-E
- Frese a finire serie extra lunga, HSSE
- Fresas de mango, serie extra larga, HSSE

Artikel-Nr. Article-No.				E.9614.0 € Stück piece
d1js14	l2	l1	d2 h6	
6,00	56	106	10,0	
8,00	63	113	10,0	
10,00	70	120	10,0	
12,00	80	137	12,0	
14,00	80	137	12,0	
16,00	90	150	16,0	
18,00	100	166	20,0	
20,00	110	176	20,0	
22,00	110	176	20,0	

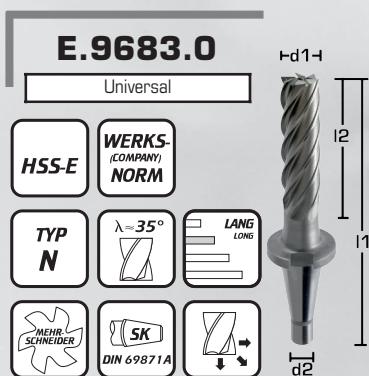
HSSE-Schaftfräser XXL



- HSSE-End mills extra long
- Frezy wielostrzowe bardzo długie HSS-E
- Frese a finire serie extra lunga, HSSE
- Fresas de mango, serie extra larga, HSSE

Artikel-Nr. Article-No.					E.9646.0 € Stück piece
d1 js14	l2	l1	d2 MK	Zähne flutes	
16,00	90	170	2	4	
18,00	100	200	3	4	
20,00	110	210	3	4	
22,00	110	210	3	4	
25,00	125	225	3	5	
28,00	140	265	4	5	
30,00	140	265	4	5	
32,00	160	285	4	5	
35,00	180	305	4	5	
40,00	200	335	4	5	

- 1 Gewindebohrer
- 2 Bohren HSSE
- 3 Bohren VHM
- 4 Reiben HSSE
- 5 Reiben VHM
- 6 Frässtifte VHM
- 7 Fräsen VHM
- 8 WP-Werkzeuge
- 9 Fräsen HSSE
- 10 Sägen
- 11 Lehren
- 12 Nachschleifen
- 13 Sonstiges



HSSE-End mills long

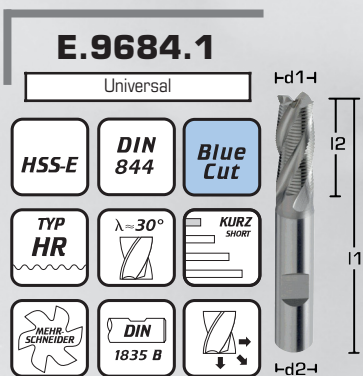
Frezy wielostrzowe długie HSS-E

Frese a finire, gambo MK, serie lunga, HSSE

Fresas de mango, serie larga, HSSE

Artikel-Nr. Article-No.					E.9683.0 € Stück piece
d1 z13	l2	l1	d2 SK	Zähne flutes	
25,00	80	195	30	4	
28,00	90	205	30	6	
32,00	100	240	40	6	
36,00	110	255	40	6	
40,00	125	270	40	6	
45,00	130	275	40	6	
50,00	140	290	40	6	
56,00	150	340	50	8	
63,00	160	350	50	8	

HSSE-Schruppfräser kurz



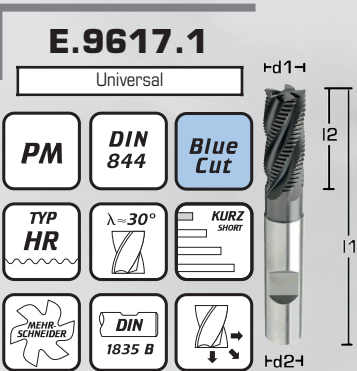
HSSE-Roughing end mills short

Frezy wielostrzowe krótkie HSS-E do obróbki zgrubnej

Frese con rompitruciolo, a sgrossare, serie corta, HSSE

Fresas de desbaste, serie corta, HSSE

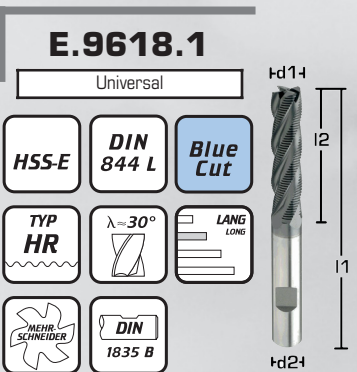
Artikel-Nr. Article-No.					E.9684.1 € Stück piece
d1k12	l2	l1	d2 h6	Zähne flutes	
6,00	13	57	6,0	4	
7,00	16	66	10,0	4	
8,00	19	69	10,0	4	
9,00	19	69	10,0	4	
10,00	22	72	10,0	4	
11,00	22	79	12,0	4	
12,00	26	83	12,0	4	
13,00	26	83	12,0	4	
14,00	26	83	12,0	4	
15,00	26	83	12,0	4	
16,00	32	92	16,0	4	
17,00	32	92	16,0	4	
18,00	32	92	16,0	4	
20,00	38	104	20,0	4	
22,00	38	104	20,0	5	
25,00	45	121	25,0	5	
26,00	45	121	25,0	5	
28,00	45	121	25,0	5	
30,00	45	121	25,0	5	
32,00	53	133	32,0	6	



- PM-Roughing end mills
- Frezy wieloostrowe PM do obróbki zgrubnej
- Frese con rompitruciolo, a sgrossare, PM
- Fresas de desbaste, PM

Artikel-Nr. Article-No.					E.9617.1 € Stück piece
d1 js12	l2	l1	d2 h6	Zähne flutes	
6,00	13	57	6,0	4	
7,00	16	66	10,0	4	
8,00	19	69	10,0	4	
9,00	19	69	10,0	5	
10,00	22	72	10,0	5	
11,00	22	79	12,0	5	
12,00	26	83	12,0	5	
13,00	26	83	12,0	5	
14,00	26	83	12,0	5	
15,00	26	83	12,0	5	
16,00	32	92	16,0	5	
18,00	32	92	16,0	5	
20,00	38	104	20,0	5	
25,00	45	121	25,0	5	
30,00	45	121	25,0	5	

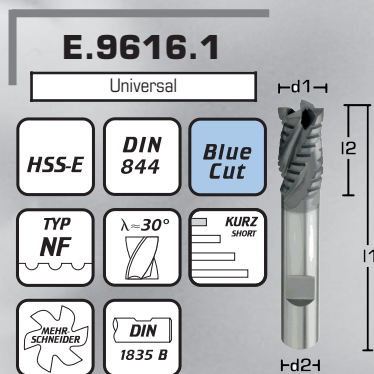
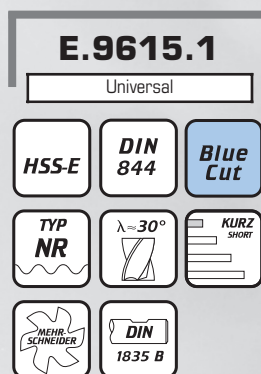
HSSE-Schruppfräser lang



- HSSE-Roughing end mills long
- Frezy wieloostrowe długie HSS-E do obróbki zgrubnej
- Frese con rompitruciolo, a sgrossare, HSSE, serie lunga
- Fresas de desbaste, serie larga, HSSE

Artikel-Nr. Article-No.					E.9618.1 € Stück piece
d1 k12	l2	l1	d2 h6	Zähne flutes	
6,00	24	68	6,0	4	
8,00	38	88	10,0	4	
10,00	45	95	10,0	4	
12,00	53	110	12,0	4	
14,00	53	110	12,0	4	
16,00	63	123	16,0	4	
18,00	63	123	16,0	4	
20,00	75	141	20,0	4	
22,00	75	141	20,0	5	
24,00	90	166	25,0	5	
25,00	90	166	25,0	5	
26,00	90	166	25,0	5	
28,00	90	166	25,0	5	
30,00	90	166	25,0	5	
32,00	106	186	32,0	6	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

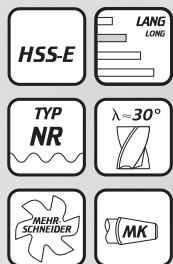


- HSSE-Roughing- and roughing finishing end mills short
- Frezy wieloostrowe krótkie HSS-E do obróbki zgrubnej i półwykańczającej
- Frese con rompitruciolo a sgrossare e a finire, serie corta, HSSE
- Fresas de desbaste y desbaste fino, serie corta, HSSE

Artikel-Nr. Article-No.					E.9615.1 € Stück piece	E.9616.1 € Stück piece
d1 k12	l2	l1	d2 h6	Zähne flutes		
6,00	13	57	6,0	4		
7,00	16	66	10,0	4		
8,00	19	69	10,0	4		
9,00	19	69	10,0	4		
10,00	22	72	10,0	4		
11,00	22	79	12,0	4		
12,00	26	83	12,0	4		
13,00	26	83	12,0	4		
14,00	26	83	12,0	4		
15,00	26	83	12,0	4		
16,00	32	92	16,0	4		
17,00	32	92	16,0	4		
18,00	32	92	16,0	4		
20,00	38	104	20,0	4		
22,00	38	104	20,0	5		
24,00	45	121	25,0	5		
25,00	45	121	25,0	5		
26,00	45	121	25,0	5		
28,00	45	121	25,0	5		
30,00	45	121	25,0	5		
32,00	53	133	32,0	6		

E.9619.0

Universal



HSSE-Roughing end mills

Frezy wielostrzowe krótkie HSS-E do obróbki zgrubnej

Frese con rompitrucolo a sgrossare, cambio MK, HSSE

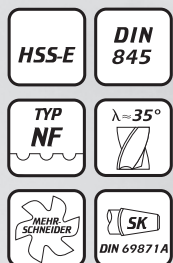
Fresas de desbaste, HSSE

Artikel-Nr. Article-No.					E.9619.0 € Stück piece
d1 k10	l2	l1	d2 MK	Zähne flutes	
25,00	45	147	3	5	
28,00	45	147	3	5	
32,00	53	178	4	6	
36,00	53	178	4	6	
40,00	63	188	4	6	
45,00	63	188	4	6	
50,00	75	233	5	6	
63,00	90	248	5	8	
lang long					E.9619.0L
32,00	106	231	4	6	
36,00	106	231	4	6	
40,00	125	250	4	6	
45,00	125	250	4	6	
50,00	150	308	5	6	
63,00	180	338	5	8	
überlang extended long					E.9619.0XL
32,00	150	275	4	6	
35,00	150	275	4	6	
40,00	180	305	4	6	
45,00	190	315	4	7	
50,00	200	360	5	7	

HSSE-Schruppschlichtfräser

E.9685.0

Universal



HSSE-Roughing finishing end mills

Frezy wielostrzowe HSS-E do obróbki zgrubnej i półwykańczającej

Frese con rompitrucolo a finire, HSSE

Fresas de desbaste fino, HSSE

Artikel-Nr. Article-No.					E.9685.0 € Stück piece
d1 z13	l2	l1	d2 SK	Zähne flutes	
25,00	80	195	30	4	
28,00	90	205	30	6	
32,00	100	240	40	6	
36,00	110	255	40	6	
40,00	125	270	40	6	
45,00	130	275	40	6	
50,00	140	290	40	6	
56,00	150	340	50	8	
63,00	160	350	50	8	

E.9620.0

Universal

HSS-E

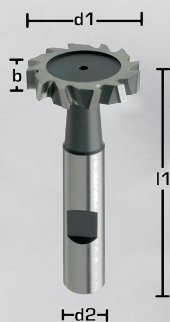
DIN
1833

TYP
N

DIN
1835 B



kreuzverzahnt
staggered tooth



HSSE-Woodruff: keyseat cutters



Frezy wielostrzowe HSS-E do rowków Woodrufta



Frese per chiavette, HSSE



Fresas de ranurar Woodruff, HSSE

* = nicht nach DIN

* = not according DIN

Artikel-Nr. Article-No.					E.9620.0 € Stück piece
d1 h12	b e8	l1	d2 h6	Zähne flutes	
4,50	1,0	50	6,0	6	
7,50	1,5	50	6,0	6	
7,50	2,0	50	6,0	6	
10,50	2,0	50	6,0	6	
10,50	2,5	50	6,0	6	
10,50	3,0	50	6,0	6	
13,50*	2,0	56	10,0	6	
13,50	3,0	56	10,0	6	
13,50	4,0	56	10,0	6	
16,50	3,0	56	10,0	6	
16,50	4,0	56	10,0	6	
16,50	5,0	56	10,0	6	
19,50*	3,0	63	10,0	8	
19,50	4,0	63	10,0	8	
19,50	5,0	63	10,0	8	
19,50	6,0	63	10,0	8	
22,50*	4,0	63	10,0	8	
22,50	5,0	63	10,0	8	
22,50	6,0	63	10,0	8	
22,50	8,0	63	10,0	8	
25,50*	5,0	63	10,0	10	
25,50	6,0	63	10,0	10	
28,50	6,0	63	10,0	10	
28,50	8,0	63	10,0	10	
28,50	10,0	71	12,0	10	
32,50*	6,0	71	12,0	10	
32,50*	7,0	71	12,0	10	
32,50	8,0	71	12,0	10	
32,50	10,0	71	12,0	10	
38,50*	8,0	71	12,0	10	
45,50*	8,0	71	12,0	12	
45,50	10,0	71	12,0	12	

HSSE-T-Nuten-Fräser

E.9621.0

Universal

HSS-E

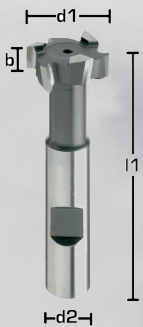
DIN 851

TYP N

DIN 1835 B



kreuzverzahnt
staggered tooth



 HSSE-T-Slot-Cutters

 Frezy wieloostrzowe HSS-E do rowków teowych

 Frese a T, HSSE

 Fresas para ranurar en T, HSSE

Artikel-Nr. Article-No.					E.9621.0 € Stück piece
d1 d11	b d11	l1	d2 h6	Zähne flutes	
11,00	4	54	10,0	6	
12,50	6	57	10,0	6	
16,00	8	62	10,0	6	
18,00	8	70	12,0	6	
19,00	9	71	12,0	6	
21,00	9	74	12,0	6	
22,00	10	75	12,0	6	
25,00	11	82	16,0	8	
28,00	12	85	16,0	8	
32,00	14	90	16,0	8	
36,00	16	103	25,0	8	
40,00	18	108	25,0	10	
45,00	20	113	25,0	10	
50,00	22	124	32,0	10	
60,00	28	139	32,0	10	

HSSE-T-Nuten-Fräser

E.9622.0

Universal

HSS-E

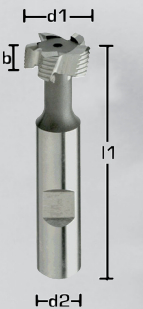
DIN 851

TYP NR

DIN 1835 B



kreuzverzahnt
staggered tooth



 HSSE-T-Slot-Cutters

 Frezy wieloostrzowe HSS-E do rowków teowych

 Frese a T a sgrossare, HSSE

 Fresas ranurar en T, HSSE

Artikel-Nr. Article-No.					E.9622.0 € Stück piece
d1	b	l1	d2 h6	Zähne flutes	
12,50	6	57	10,0	4	
16,00	8	62	10,0	5	
18,00	8	70	12,0	5	
19,00	9	70	12,0	5	
21,00	9	74	12,0	5	
22,00	10	74	12,0	5	
25,00	11	82	16,0	5	
28,00	12	85	16,0	6	
32,00	14	90	16,0	6	
36,00	16	108	25,0	6	
40,00	18	108	25,0	8	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

HSSE-T-Nuten-Fräser

E.9686.0

Universal

HSS-E

DIN 851

TYP NF

DIN 1835 B

 kreuzverzahnt
staggered tooth



Artikel-Nr. Article-No.					E.9686.0 € Stück piece
d1 d11	b d11	l1	d2 h6	Zähne flutes	
21,00	9	74	12,0	6	
25,00	11	82	16,0	6	
32,00	14	90	16,0	6	
40,00	18	108	25,0	8	

-  HSSE-T-Slot-Cutters
-  Frezy wieloostrzowe HSS-E do rowków teowych
-  Frese a T a finire, HSSE
-  Fresas ranurar en T, HSSE

HSSE-Winkelfräser

E.9623.0

Universal

HSS-E

DIN 1833

TYP N

DIN 1835 B





Artikel-Nr. Article-No.						E.9623.0 € Stück piece
d1 js16	Winkel + - 30° angle + - 30°	b js14	l1	d2 h6	Zähne flutes	
16,00	45°	4,0	60	12,0	6	
16,00	60°	6,3	60	12,0	6	
20,00	45°	5,0	63	12,0	6	
20,00	60°	8,0	63	12,0	6	
25,00	45°	6,3	67	16,0	8	
25,00	60°	10,0	67	16,0	8	
32,00	45°	8,0	71	16,0	10	
32,00	60°	12,5	71	16,0	10	
38,00	45°	10,0	80	16,0	12	
38,00	60°	16,0	80	16,0	12	
40,00	60°	13,0	85	25,0	12	
50,00	60°	16,0	100	25,0	16	

-  HSSE-Angle cutters
-  Frezy wieloostrzowe HSS-E katowe
-  Frese per scanalature ad angolo, HSSE
-  Fresas angulares, HSSE

HSSE-Winkel-Stirnfäser

E.9624.0

Universal

HSS-E

DIN 1833

TYP N

DIN 1835 B





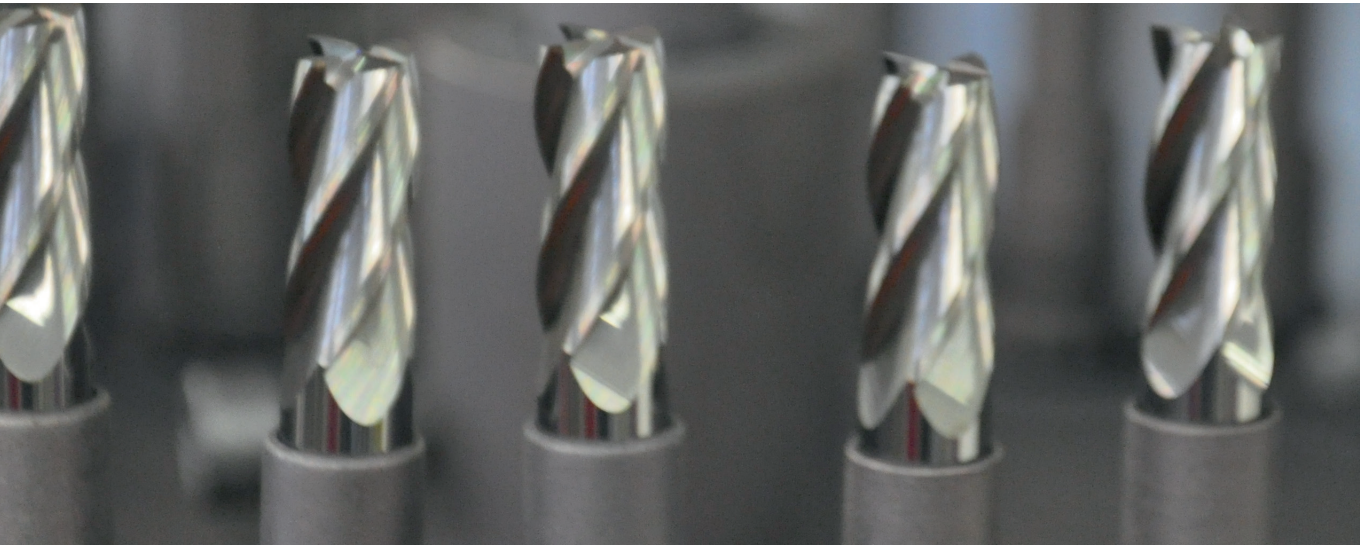
 HSSE-Single angle shell end mills

 Frezy wielostrzowe nasadzone
HSS-E pojedyncze kątowe

 Frese per scanalature ad angolo,
HSSE

 Fresas angulares frontales, HSSE

Artikel-Nr. Article-No.						E.9624.0 € Stück piece
d1 js16	Winkel + - 30° angle + - 30°	b js14	l1	d2 h6	Zähne flutes	
16,00	45°	4,0	60	12,0	10	
16,00	50°	5,0	60	12,0	12	
16,00	55°	5,6	60	12,0	10	
16,00	60°	6,3	60	12,0	10	
16,00	65°	6,3	60	12,0	10	
16,00	70°	7,0	60	12,0	10	
16,00	75°	8,0	60	12,0	10	
20,00	45°	5,0	63	12,0	10	
20,00	50°	6,3	63	12,0	12	
20,00	55°	7,1	63	12,0	10	
20,00	60°	8,0	63	12,0	10	
20,00	70°	9,0	63	12,0	10	
25,00	45°	6,3	67	12,0	10	
25,00	50°	8,0	67	12,0	12	
25,00	55°	9,0	67	12,0	12	
25,00	60°	10,0	67	12,0	10	
25,00	65°	10,0	67	12,0	12	
25,00	70°	11,0	67	16,0	10	
25,00	75°	10,0	67	12,0	12	
32,00	45°	8,0	71	16,0	12	
32,00	60°	12,5	71	16,0	12	



Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

E.9625.0

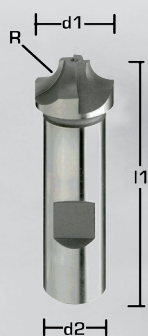
Universal

HSS-E

DIN
6518

TYP
N

DIN
1835 B



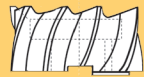
HSSE-Corner rounding and profile milling cutters

Frezy kształtowe wieloostrowe HSS-E do frezowania krawędzi oraz profilowania

Frese per profilo 1/4 di raggio, HSSE

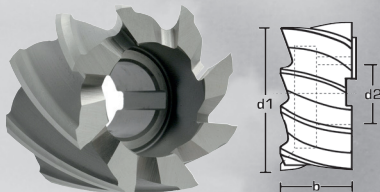
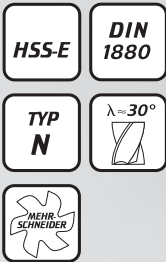
Fresas de perfil de un cuarto radio, HSSE

Artikel-Nr. Article-No.					E.9625.0 € Stück piece
R H11	d1 js16	l1	d2 h6	Zähne flutes	
1,00	8	60	10,0	4	
1,50	10	60	10,0	4	
1,60	10	60	10,0	4	
2,00	10	60	10,0	4	
2,50	10	60	10,0	4	
3,00	12	60	12,0	4	
3,50	14	60	12,0	4	
4,00	14	60	12,0	4	
4,50	15	60	12,0	4	
5,00	16	60	12,0	4	
5,50	21	67	16,0	4	
6,00	21	67	16,0	4	
6,50	24	71	16,0	4	
7,00	24	71	16,0	4	
7,50	24	71	16,0	4	
8,00	24	71	16,0	4	
8,50	28	85	25,0	4	
9,00	28	85	25,0	4	
9,50	28	85	25,0	4	
10,00	28	85	25,0	4	
10,50	35	90	25,0	4	
11,00	35	90	25,0	4	
12,00	35	90	25,0	4	
12,50	42	100	25,0	4	
13,00	42	100	25,0	4	
14,00	42	100	25,0	4	
15,00	48	100	25,0	6	
16,00	48	100	25,0	6	
18,00	54	112	32,0	6	
20,00	58	112	32,0	6	



E.9628.0

Universal

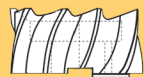


- HSSE-Shell end mills
- Frezy wieloostrzowe nasadzone HSS-E
- Frese a manicotto, HSSE
- Fresas frontales de dos cortes, HSSE

Artikel-Nr. Article-No.					E.9628.0 € Stück piece
d1 js16	b k16	d2 H7	DIN	Zähne flutes	
40,00	32	16	1880	8	
50,00	36	22	1880	8	
63,00	40	27	1880	8	
80,00	45	27	1880	10	
100,00	50	32	1880	12	
125,00	56	40	1880	14	
30,00	30	13	841	6	
35,00	35	16	841	6	
40,00	20	16	841	8	
40,00	40	16	841	8	
50,00	25	22	841	8	
50,00	50	22	841	8	
60,00	30	27	841	8	
60,00	60	27	841	8	
75,00	35	27	841	10	
75,00	75	27	841	10	
90,00	35	27	841	10	
110,00	35	32	841	10	

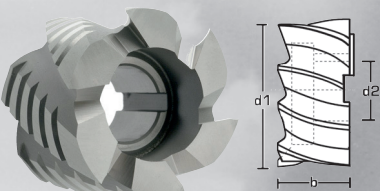
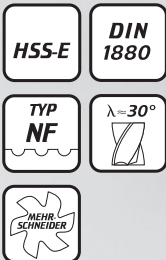
- Gewindebohrer 1
- Bohren HSSE 2
- Bohren VHM 3
- Reiben HSSE 4
- Reiben VHM 5
- Frässtifte VHM 6
- Fräsen VHM 7
- WP-Werkzeuge 8
- Fräsen HSSE 9
- Sägen 10
- Lehren 11
- Nachschleifen 12
- Sonstiges 13

HSSE-Schruppschicht-Walzenstirnfräser



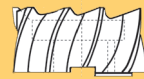
E.9629.0

Universal



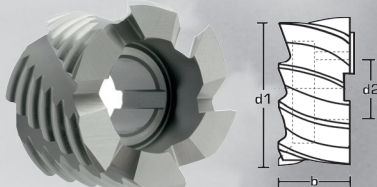
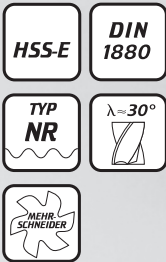
- HSSE-Roughing-Finishing shell end mills
- Frezy wieloostrzowe nasadzone HSS-E do obróbki zgrubno-wykańczającej
- Frese a manicotto a finire, HSSE
- Fresas frontales de dos cortes de desbaste fino, HSSE

Artikel-Nr. Article-No.					E.9629.0 € Stück piece
d1 js16	b k16	d2 H7	Zähne flutes		
40,00	32	16	6		
50,00	36	22	6		
63,00	40	27	8		
80,00	45	27	8		
100,00	50	32	10		



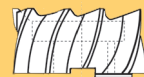
E.9630.0

Universal



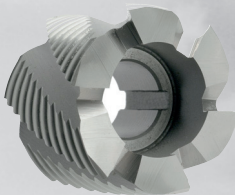
- HSSE-Roughing shell end mills
- Frezy wielostrzowe nasadzone HSS-E do obróbki zgrubnej
- Frese a manicotto a sgrossare, HSSE
- Fresas frontales de dos cortes de desbaste, HSSE

Artikel-Nr. Article-No.				E.9630.0 € Stück piece
d1 js16	b k16	d2 H7	Zähne flutes	
40,00	32	16	6	
50,00	36	22	6	
63,00	40	27	8	
80,00	45	27	8	
100,00	50	32	10	



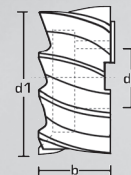
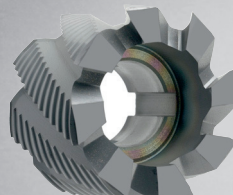
E.9631.0

Universal



E.9631.1

Universal



- HSSE-Roughing shell end mills
- Frezy wielostrzowe nasadzone HSS-E do obróbki zgrubnej
- Frese a manicotto sgrossare, HSSE
- Fresas frontales de dos cortes de desbaste, HSSE

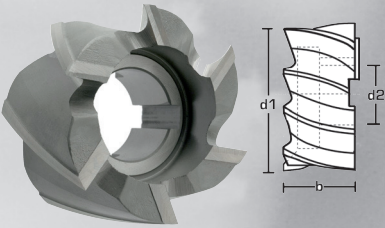
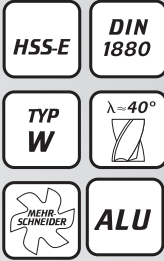
Artikel-Nr. Article-No.				E.9631.0 € Stück piece	E.9631.1 € Stück piece
d1 js16	b k16	d2 H7	Zähne flutes		
40,00	32	16	6		
50,00	36	22	8		
63,00	40	27	8		
80,00	45	27	10		
100,00	50	32	10		

HSSE-Walzenstirnfräser für Aluminium



E.9632.0

4.1 4.2 4.3 4.4



- HSSE-Shell end mills for aluminium
- Frezy wielostrzowe nasadzone HSS-E do aluminium
- Frese a manicotto a finire per alluminio, HSSE
- Fresas frontales de dos cortes, HSSE, para aluminio

Artikel-Nr. Article-No.				E.9632.0 € Stück piece
d1 js16	b k16	d2 H7	Zähne flutes	
50,00	36	22	6	
63,00	40	27	6	
80,00	45	27	6	
100,00	50	32	6	

HSSE-Metallkreisfräser

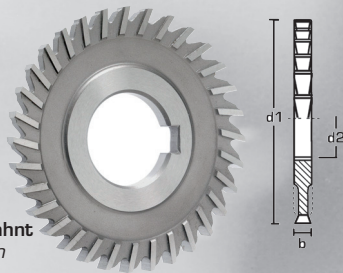


E.9687.0

Universal



gerade verzahnt
straight tooth



- HSSE-Side and face cutters
- Frezy wielostrzowe tarczowe HSS-E
- Frese a disco, taglio laterale e frontale, HSSE
- Fresas circulares para metales, HSSE

Artikel-Nr. Article-No.				E.9687.0 € Stück piece
d1 js16	b k11	d2 H7	Zähne flutes	
63,00	1,6	22	32	
63,00	2,0	22	32	
63,00	2,5	22	32	
63,00	3,0	22	32	
63,00	4,0	22	32	
80,00	1,6	27	36	
80,00	2,0	27	36	
80,00	2,5	27	36	
80,00	3,0	27	36	
80,00	4,0	27	36	
100,00	1,6	32	40	
100,00	2,0	32	40	
100,00	2,5	32	40	
100,00	3,0	32	40	
100,00	4,0	32	40	
125,00	1,6	32	44	
125,00	2,0	32	44	
125,00	2,5	32	44	
125,00	3,0	32	44	
125,00	4,0	32	44	
160,00	2,0	40	52	
160,00	2,5	40	52	
160,00	3,0	40	52	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13



E.9633.0

Universal

HSS-E

DIN
1834A

TYP
N



kreuzverzahnt,
mit Längs- und Quernut
staggered tooth,
with standard keyway and drive slot



HSSE-Side and face cutters



Frezy wielostrzowe tarczowe
trójstronne naprzemiennie skośne
HSS-E



Frese a disco, taglio laterale e
frontale, HSSE



Fresas circulares para metales,
HSSE

Artikel-Nr. Article-No.				E.9633.0 € Stück piece
d1 js16	b k11	d2 H7	Zähne flutes	
63,00	1,6	22	28	
63,00	2,0	22	28	
63,00	2,5	22	28	
63,00	3,0	22	28	
63,00	4,0	22	28	
63,00	5,0	22	28	
63,00	6,0	22	28	
80,00	1,6	27	32	
80,00	2,0	27	32	
80,00	2,5	27	32	
80,00	3,0	27	32	
80,00	4,0	27	32	
80,00	5,0	27	32	
80,00	6,0	27	32	
100,00	1,6	32	32	
100,00	2,0	32	36	
100,00	2,5	32	36	
100,00	3,0	32	36	
100,00	4,0	32	36	
100,00	5,0	32	36	
100,00	6,0	32	36	
100,00	8,0	32	28	
125,00	1,6	32	40	
125,00	2,0	32	40	
125,00	2,5	32	40	
125,00	3,0	32	40	
125,00	4,0	32	40	
125,00	5,0	32	40	
125,00	6,0	32	40	
125,00	8,0	32	32	
125,00	10,0	32	32	
160,00	2,0	40	48	
160,00	2,5	40	48	
160,00	3,0	40	48	
160,00	4,0	40	48	
160,00	5,0	40	48	
160,00	6,0	40	48	
160,00	8,0	40	36	
160,00	10,0	40	36	
160,00	12,0	40	36	
200,00	2,0	40	52	
200,00	2,5	40	52	
200,00	3,0	40	52	
200,00	4,0	40	52	
200,00	5,0	40	52	
200,00	6,0	40	52	



E.9634.0

Universal

HSS-E

DIN 885

Typ N



kreuzverzahnt (kv)
staggered tooth (kv)

E.9644.0

Universal

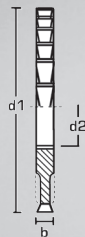
HSS-E

DIN 885

Typ H



gerade verzahnt (gv)
straight tooth (gv)



HSSE-Side and face cutters



Frezy tarczowe HSS-E, ząb naprzemiennie skośny. / ząb prosty



Frese a disco, taglio laterale e frontale, HSSE



Fresas de tres cortes, HSSE

Artikel-Nr. Article-No.				E.9634.0	E.9644.0
d1 js16	b k11	d2 H7	Zähne flutes kv / gv	€ Stück piece	€ Stück piece
50,00	4	16	16		
50,00	5	16	16		
50,00	6	16	16		
50,00	8	16	16		
50,00	10	16	16		
63,00	4	22	18		
63,00	5	22	18		
63,00	6	22	18		
63,00	8	22	18		
63,00	10	22	18		
63,00	12	22	18		
63,00	14	22	18		
63,00	16	22	18		
80,00	4	27	20		
80,00	5	27	20		
80,00	6	27	20		
80,00	8	27	20		
80,00	10	27	18/20		
80,00	12	27	18/20		
80,00	14	27	18/20		
80,00	16	27	18/20		
80,00	18	27	18/20		
80,00	20	27	18/20		
100,00	4	32	20/24		
100,00	5	32	20/24		
100,00	6	32	20/24		
100,00	8	32	20/24		
100,00	10	32	20/24		
100,00	12	32	20/24		
100,00	14	32	20/24		
100,00	16	32	20/24		
100,00	18	32	20/24		
100,00	20	32	20/24		
100,00	25	32	20/24		
125,00	5	32	24		
125,00	6	32	24		
125,00	8	32	24		
125,00	10	32	22/24		
125,00	12	32	22/24		
125,00	14	32	22/24		
125,00	16	32	22/24		

Fortsetzung nächste Seite to be continued

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Fräsen VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13



E.9634.0

Universal

HSS-E
DIN 885
TYP N

kreuzverzahnt (kv)
staggered tooth (kv)

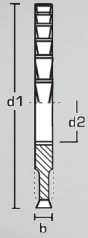
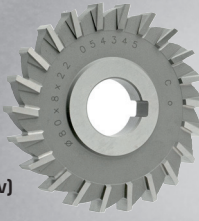


E.9644.0

Universal

HSS-E
DIN 885
Typ H

gerade verzahnt (gv)
straight tooth (gv)



- HSSE-Side and face cutters
- Frezy tarczowe HSS-E, ząb naprzemiennie skośny. / ząb prosty
- Frese a disco, taglio laterale e frontale, HSSE
- Fresas de tres cortes, HSSE

Artikel-Nr. Article-No.				E.9634.0 € Stück piece	E.9644.0 € Stück piece
d1 js16	b k11	d2 H7	Zähne flutes kv / gv		
125,00	18	32	22/24		
125,00	20	32	22/24		
125,00	25	32	22/24		
125,00	28	32	22/24		
160,00	6	40	26/24		
160,00	8	40	26/24		
160,00	10	40	26/24		
160,00	12	40	26/24		
160,00	14	40	26/24		
160,00	16	40	26/24		
160,00	18	40	26/24		
160,00	20	40	26/24		
160,00	25	40	26/24		
160,00	32	40	26/24		
200,00	8	40	32		
200,00	10	40	32		
200,00	12	40	32		
200,00	14	40	32		
200,00	16	40	32		
200,00	18	40	32		
200,00	20	40	32		
200,00	25	40	32		
200,00	32	40	32		
250,00	8	40	38		
250,00	10	40	38		
250,00	12	40	38		

HSS-Halbrund-Profilfräser konvex



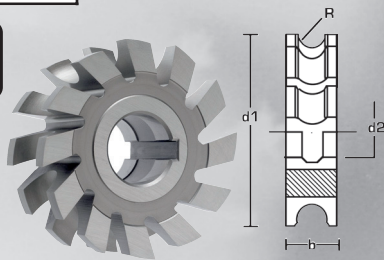
- HSS-half circle milling cutters convex
- Frezy tarczowe półokrągłe wypukłe HSS-E
- Frese a disco convesse, HSS
- Fresas convexas de semi-círculo, HSS

Artikel-Nr. Article-No.					E.9688.0 € Stück piece
R k11	d1 js16	b	d2 H7	Zähne flutes	
1,00	50	2,0	16	14	
1,25	50	2,5	16	14	
1,50	50	3,0	16	14	
1,60	50	3,2	16	14	
2,00	50	4,0	16	14	
2,50	63	5,0	22	12	
3,00	63	6,0	22	12	
3,15	63	6,3	22	12	
3,50	63	7,0	22	12	
4,00	63	8,0	22	12	
4,50	63	9,0	22	12	
5,00	63	10,0	22	12	
5,50	80	11,0	27	12	
6,00	80	12,0	27	12	
6,30	80	12,6	27	12	
6,50	80	13,0	27	12	
7,00	80	14,0	27	12	
7,50	80	15,0	27	12	
8,00	80	16,0	27	12	
8,50	100	17,0	32	12	
9,00	100	18,0	32	12	
9,50	100	19,0	32	12	
10,00	100	20,0	32	12	
11,00	100	22,0	32	12	
12,00	100	24,0	32	12	
12,50	100	25,0	32	12	
14,00	125	28,0	32	12	
15,00	125	30,0	32	12	
16,00	125	32,0	32	12	
18,00	125	36,0	40	12	
20,00	125	40,0	32	12	
25,00	160	50,0	40	12	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

HSS-Halbrund-Profilfräser konkav

E.9689.0
Universal



- HSS-half circle milling cutters concave
- Frezy tarczowe półokrągłe wklęsłe HSS-E
- Frese a disco concave, HSS
- Fresas cóncavas de semi-círculo, HSS

Artikel-Nr. Article-No.					E.9689.0 € Stück piece
R H11	d1 js16	b	d2 H7	Zähne flutes	
1,00	50	6	16	14	
1,25	50	6	16	14	
1,60	50	8	16	14	
2,00	50	9	16	14	
2,50	63	10	22	12	
3,00	63	12	22	12	
3,15	63	12	22	12	
3,50	63	16	22	12	
4,00	63	16	22	12	
4,50	63	18	22	12	
5,00	63	20	22	12	
6,00	80	24	27	12	
6,30	80	24	27	12	
7,00	80	24	27	12	
8,00	80	32	27	12	
9,00	100	32	32	12	
10,00	100	36	32	12	
12,00	100	40	32	12	
12,50	100	40	32	12	
16,00	125	50	32	10	
20,00	125	60	32	10	



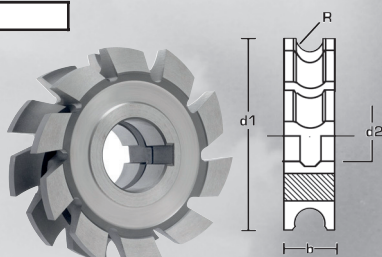
HSSE-Halbrund-Profilfräser konkav gekuppelt

E.9690.0

Universal

HSS-E

WERKS-
(COMPANY)
NORM



HSS-half circle milling cutters concave coupled

Frezy tarczowe półokrągłe wklęsłe HSS-E o zawężonej tolerancji do pracy w układzie sprzężonym

Frese a disco accoppiate concave, HSS

Fresas de perfil cóncavas acopladas, HSS

Artikel-Nr. Article-No.						E.9690.0 € Stück piece
R	Toleranz tolerance	d1 js16	b js16	d2 H7	Zähne flutes	
11,00	+ 0,12	100	36	32	10	
12,00	+ 0,12	100	38	32	10	
12,50	+ 0,12	100	40	32	10	
14,00	+ 0,12	125	44	40	10	
16,00	+ 0,12	125	48	40	10	
18,00	+ 0,12	125	52	40	10	
20,00	+ 0,12	125	58	40	10	
22,50	+ 0,20	160	63	40	12	
25,00	+ 0,20	160	68	40	12	

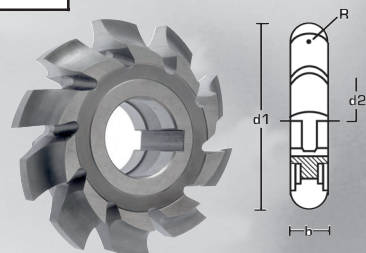
HSSE-Viertelrund-Profilfräser konvex

E.9691.0

Universal

HSS-E

WERKS-
(COMPANY)
NORM



HSSE-corner rounding milling cutters concave

Frezy tarczowe wklęsłe HSS-E o zawężonej tolerancji do pracy w układzie sprzężonym

Frese a disco concave di un quarto di giro HSS

Fresas cóncavas de cuarto-círculo, HSS

Artikel-Nr. Article-No.						E.9691.0 € Stück piece
R	Toleranz tolerance	d1 js16	b js16	d2 H7	Zähne flutes	
1,00	+ 0,05	63	4	22	20	
1,60	+ 0,05	63	5	22	18	
2,00	+ 0,05	63	6	22	16	
2,50	+ 0,05	63	8	22	14	
3,00	+ 0,08	63	10	22	12	
4,00	+ 0,08	63	12	22	12	
5,00	+ 0,08	80	14	27	12	
6,00	+ 0,08	80	16	27	12	
8,00	+ 0,12	80	22	27	12	
10,00	+ 0,12	100	26	32	12	
12,00	+ 0,12	100	32	32	10	
14,00	+ 0,12	125	36	40	10	
16,00	+ 0,12	125	40	40	10	
18,00	+ 0,12	125	45	40	10	
20,00	+ 0,12	125	50	40	10	
25,00	+ 0,20	160	60	40	12	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

HSSE-Scheibenfräser feinverzahnt gekuppelt



E.9692.0

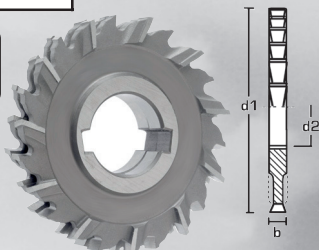
Universal

HSS-E

WERKS-
(COMPANY)
NORM



Typ
H



HSSE-side and face milling cutters
fine-teeth coupled

Frezy tarczowe HSS-E drobne zęby

Frese a disco, dentatura fine, HSSE

Fresas de tres cortes, dentado fino,
acopladas, HSSE

Artikel-Nr. Article-No.				E.9692.0 € Stück piece
d1 js16	b s10	d2 H7	Zähne flutes	
80,00	16	27	22	
80,00	18	27	22	
80,00	20	27	22	
100,00	20	27	24	
100,00	22	27	24	
125,00	22	32	26	
125,00	25	32	26	
125,00	28	32	26	
160,00	25	40	28	
160,00	28	40	28	
160,00	32	40	28	

HSS-Prismenfräser

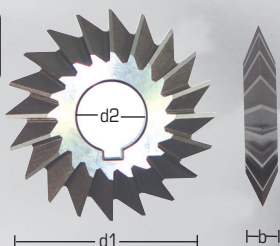
E.9635.0

Universal

HSS

DIN
847

TYP
N



HSS-Prism cutters

Frezy tarczowe kątowe symetryczne
HSS-E

Frese a disco prismatiche, HSS

Fresas angulares isosceles, HSS

* = nicht nach DIN

* = not according DIN

Artikel-Nr. Article-No.					E.9635.0 € Stück piece
Winkel + - 30° angle + - 30°	d1 js16	b js16	d2 H7	Zähne flutes	
45°	50	8	16	22	
45°	63	10	22	24	
45°	80	12	27	26	
45°	100	18	32	28	
60°	50	10	16	18	
60°	63	14	22	20	
60°	80	18	27	22	
60°	100	25	32	24	
90°	50	14	16	16	
90°	63	20	22	18	
90°	80	22	27	20	
90°	100	32	32	24	
120° *	50	14	16	16	
120° *	63	20	22	16	
120° *	80	25	27	20	
120° *	100	36	32	24	

E.9636.0

Universal

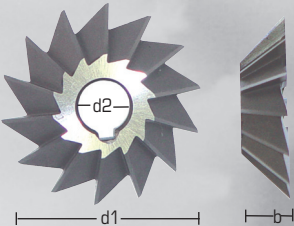
HSS

DIN 842

TYP

N

MEHR-SCHNEIDER



 HSS-Angle cutters

 Frezy tarczowe kątowe jednostronne HSS-E

 Frese a disco ad angolo, HSS

 Fresas angulares, HSS

Artikel-Nr. Article-No.					E.9636.0 € Stück piece
Winkel + - 25° angle + - 25°	d1 js16	b js14	d2 H7	Zähne flutes	
45°	40	10	10	14	
45°	50	13	13	16	
45°	63	18	16	18	
45°	80	22	22	20	
45°	100	28	27	22	
45°	125	36	32	24	
45°	160	45	40	28	
50°	40	13	10	14	
50°	50	16	13	16	
50°	63	20	16	18	
50°	80	25	22	20	
50°	100	32	27	22	
50°	125	40	32	24	
50°	160	50	40	28	
55°	40	13	10	14	
55°	50	16	13	16	
55°	63	20	16	18	
55°	80	25	22	20	
55°	100	32	27	22	
55°	125	40	32	24	
60°	40	13	10	14	
60°	50	16	13	16	
60°	63	20	16	18	
60°	80	25	22	20	
60°	100	32	27	22	
60°	125	40	32	26	
60°	160	50	40	28	

Gewindebohrer	1
Bohren HSSE	2
Bohren VHM	3
Reiben HSSE	4
Reiben VHM	5
Frässtifte VHM	6
Fräsen VHM	7
WP-Werkzeuge	8
Fräsen HSSE	9
Sägen	10
Lehren	11
Nachschleifen	12
Sonstiges	13

PM-Drehlinge zum Drehen, Ausbohren, Fräsen, behandelt - rund

E.9693.0

PM



PM-Tool bits treated to be turned, bored, milled, round



PM-półfabrykat, do toczenia, wytaczania, frezowania, okrągły



Barrette trattate PM per tornitura, barenatura, fresatura, tonda



Barras en PM, tratadas, para torneear, taladrar y fresar redondas

Artikel-Nr. Article-No.		E.9693.0 € Stück piece
d1 h8	l1	
4,00	100	
6,00	57	
6,00	100	
6,00	200	
8,00	69	
8,00	100	
8,00	200	
10,00	72	
10,00	100	
10,00	200	
12,00	83	
12,00	100	
12,00	200	
14,00	83	
14,00	200	
16,00	92	
16,00	200	
18,00	92	
18,00	200	
20,00	104	
20,00	200	
22,00	104	
25,00	121	
30,00	121	

PM-Drehlinge zum Drehen, Ausbohren, Fräsen, behandelt - eckig

E.9694.0

PM



PM-Tool bits treated to be turned, bored, milled, square



PM-półfabrykat, do toczenia, wytaczania, frezowania, kwadratowy



Barrette trattate PM per tornitura, barenatura, fresatura, quadrate



Barras en PM, tratadas, para torneear, taladrar y fresar cuadradas

Artikel-Nr. Article-No.		E.9694.0 € Stück piece
d1 h8	l1	
8 x 8	100	
8 x 8	200	
10 x 10	100	
10 x 10	200	
12 x 12	100	
12 x 12	200	
14 x 14	200	
16 x 16	200	
18 x 18	200	
20 x 20	200	