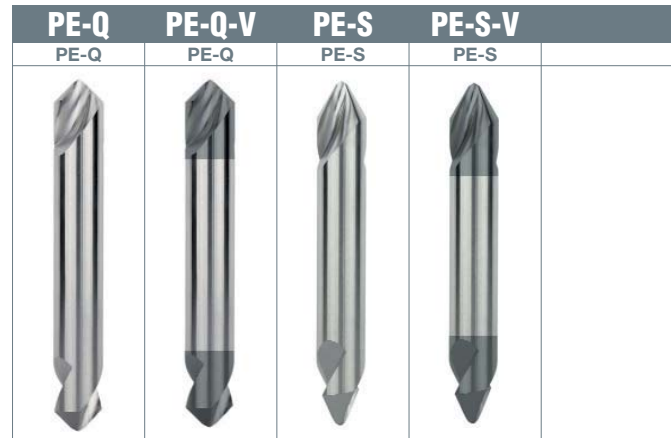


60° - 90°

YAMAWA
NORM



MATERIAL GROUPS / GRUPPI MATERIALE WERKSTOFFEGRUPPE / GROUPES MATIÈRE				1-5 9 10 15 16	1-5 9 10 15 16	1-5 9 10 15 16	1-5 9 10 15 16
				 HSS BR	 HSS TICN	 HSS BR	 HSS TICN
				Stock	Stock	Stock	Stock
D	d	L	Stock	Stock	Stock	Stock	Stock
3	0.5	40	○	○	○	○	○
4	1	45	○	○	○	○	○
6	2	55	○	○	○	○	○
8	2.5	65	○	○	○	○	○
10	3	75	○	○	○	○	○
12	3.5	85	○	○	○	○	○
16	4	90	○	○	○	○	○
20	5	100	○	○	○	○	○

● stock standard ○ non-standard stock △ on request EX stock exhaustion

MATERIALE MATERIAL WERKSTOFF MATIERE	1 2	3	4 5	9 10	15 16
N/mm ²	~700	600-900	600-1000		
Vc(m/min)	30-40	22-30	20-25	10-15	70-100
Ø mm.	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)
3	0.04 ~ 0.08	0.04 ~ 0.08	0.04 ~ 0.08	0.04 ~ 0.08	0.10 ~ 0.22
4	0.05 ~ 0.10	0.05 ~ 0.10	0.05 ~ 0.10	0.05 ~ 0.10	0.12 ~ 0.26
6	0.06 ~ 0.12	0.06 ~ 0.12	0.06 ~ 0.12	0.06 ~ 0.12	0.15 ~ 0.30
8	0.08 ~ 0.15	0.08 ~ 0.15	0.08 ~ 0.15	0.08 ~ 0.15	0.18 ~ 0.35
10	0.10 ~ 0.18	0.10 ~ 0.18	0.10 ~ 0.18	0.10 ~ 0.18	0.21 ~ 0.40
12	0.12 ~ 0.22	0.12 ~ 0.22	0.12 ~ 0.22	0.12 ~ 0.22	0.25 ~ 0.45
16	0.16 ~ 0.26	0.16 ~ 0.26	0.16 ~ 0.26	0.16 ~ 0.26	0.32 ~ 0.50
20	0.20 ~ 0.35	0.20 ~ 0.35	0.20 ~ 0.35	0.20 ~ 0.35	0.40 ~ 0.60

TICN: Vc = +30% ~ +50%



90° - 125°

YAMAWA
NORM



MATERIAL GROUPS / GRUPPI MATERIALE WERKSTOFFEGRUPPE / GROUPES MATIÈRE					1-5 9 10 13 14 15-19	1-5 9 10 13 14 15-19	1-5 9 10 13 14 15-19	1-5 9 10 13 14 15-19
					 HSS/Co BR	 HSS/Co TiCN	 HSS/Co BR	 HSS/Co TiCN
					Stock	Stock	Stock	Stock
D	d	L	l					
3	3	46	12	○	○	○	○	
4	4	55	15	○	○	○	○	
5	5	62	18	○	○	○	○	
6	6	66	20	●	●	●	●	
8	8	79	26	●	●	●	●	
10	10	89	30	●	●	●	●	
12	12	102	36	●	●	●	●	
16	16	115	41	●	●	●	●	
20	20	131	46	●	●	○	○	
25	25	151	52	○	○	○	○	

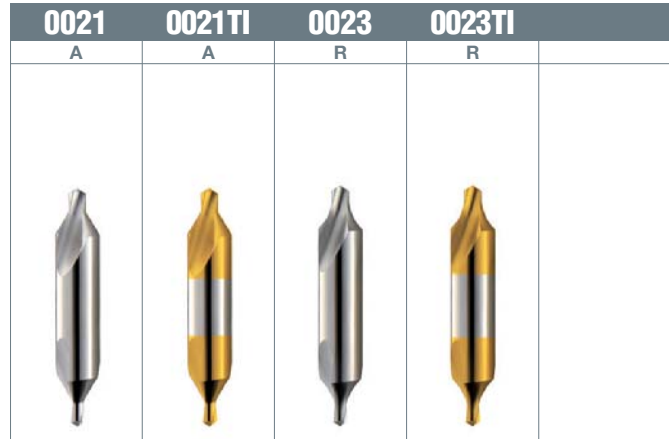
● stock standard ○ non-standard stock △ on request EX stock exhaustion

MATERIALE MATERIAL WERKSTOFF MATIÈRE	1	2	3	4	5	9 10	13 14	15 16	18 19
N/mm ²	~700	450~700	600~900	600~1000	700~1000				
Vc(m/min)	20~26	15~20	10~15	9~15	5~9	5~15	15~25	50~70	40~60
Ø mm.	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)
1~3	0.03~0.06	0.03~0.06	0.03~0.06	0.03~0.06	0.03~0.06	0.03~0.06	0.03~0.06	0.03~0.06	0.03~0.06
3~4	0.05~0.10	0.05~0.10	0.05~0.10	0.05~0.10	0.05~0.10	0.05~0.10	0.05~0.10	0.05~0.10	0.05~0.10
4~6	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15	0.08~0.15
6~8	0.10~0.20	0.10~0.20	0.10~0.20	0.10~0.20	0.10~0.20	0.10~0.20	0.10~0.20	0.10~0.20	0.10~0.20
8~11	0.15~0.25	0.15~0.25	0.15~0.25	0.15~0.25	0.15~0.25	0.15~0.25	0.15~0.25	0.15~0.25	0.15~0.25
11~15	0.20~0.30	0.20~0.30	0.20~0.30	0.20~0.30	0.20~0.30	0.20~0.30	0.20~0.30	0.20~0.30	0.20~0.30
15~18	0.23~0.33	0.23~0.33	0.23~0.33	0.23~0.33	0.23~0.33	0.23~0.33	0.23~0.33	0.23~0.33	0.23~0.33
18~21	0.25~0.36	0.25~0.36	0.25~0.36	0.25~0.36	0.25~0.36	0.25~0.36	0.25~0.36	0.25~0.36	0.25~0.36
21~24	0.28~0.38	0.28~0.38	0.28~0.38	0.28~0.38	0.28~0.38	0.28~0.38	0.28~0.38	0.28~0.38	0.28~0.38

TiCN: Vc = +30%~+50%

60° A - R

DIN333



MATERIAL GROUPS / GRUPPI MATERIALE WERKSTOFFEGRUPPE / GROUPES MATIÈRE								1-5 6 13 14 18-20	1-5 6 13 14 18-20	1-5 6 13 14 18-20	1-5 6 13 14 18-20
0021 ~ mm.0.8											
0021 mm.1 ~											
0023											
D	d	L	l	l1	r-max	r-min	Stock	Stock	Stock	Stock	
0.5	3.15	25	0.8				○	○	○	○	
0.8	3.15	25	1.1				○	○	○	○	
1	3.15	31.5	1.3	3	3.15	2.5	●	○	○	○	
1.25	3.15	31.5	1.6	3.35	4	3.15	○	○	○	○	
1.6	4	35.5	2	4.25	5	4	●	○	○	○	
2	5	40	2.5	5.3	6.3	5	●	●	○	○	
2.5	6.3	45	3.1	6.7	8	6.3	●	●	○	○	
3.15	8	50	3.9	8.5	10	8	●	●	●	○	
4	10	56	5	10.6	12.5	10	●	●	●	○	
5	12.5	63	6.3	13.2	16	12.5	●	●	●	○	
6.3	16	71	8	17	20	16	●	○	●	○	
8	20	80	10.1	21.2	25	20	●	○	○	○	
10	25	100	12.8	26.5	31.5	25	●	○	○	○	

● stock standard ○ non-standard stock △ on request EX stock exhaustion

MATERIALE MATERIAL WERKSTOFF MATIERE	1 2	3 4	5	9 10	13 14	18 19	20
N/mm ²	~700	600~1000	700~1000				
Vc(m/min)	15~30	10~25	10~20	5~12	8~15	20~40	20~40
Ø mm.	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)	fn(mm/rev)
1~3	0.02~0.07	0.02~0.07	0.02~0.07	0.02~0.07	0.02~0.07	0.02~0.07	0.02~0.07
3~4	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12	0.04~0.12
4~6	0.06~0.17	0.06~0.17	0.06~0.17	0.06~0.17	0.06~0.17	0.06~0.17	0.06~0.17
6~8	0.10~0.20	0.10~0.20	0.10~0.20	0.10~0.20	0.10~0.20	0.10~0.20	0.10~0.20
8~10	0.14~0.23	0.14~0.23	0.14~0.23	0.14~0.23	0.14~0.23	0.14~0.23	0.14~0.23
10~12	0.18~0.26	0.18~0.26	0.18~0.26	0.18~0.26	0.18~0.26	0.18~0.26	0.18~0.26

TIN: Vc = +30%~+50%

60° A

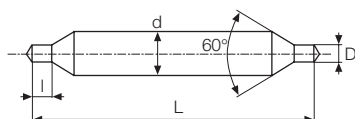
YAMAWA
NORM



MATERIAL GROUPS / GRUPPI MATERIALE
WERKSTOFFEGRUPPE / GROUPES MATIÈRE

1-5 6
13 14 18-20

1-5 6
13 14 18-20



HSS
BR



HSS
BR

D	d	L	l	Stock	Stock
1	4	100	1	○	○
1	4	150	1	○	○
1.5	5	100	1.5	○	○
1.5	5	150	1.5	○	○
2	6	100	2	●	○
2	6	150	2	○	○
2.5	8	100	2.5	●	○
2.5	8	150	2.5	○	○
3	8	100	3	●	○
3	8	150	3	○	○
4	10	100	4.5	●	○
4	10	150	4.5	○	○
5	12	100	5.5	●	○
5	12	150	5.5	○	○

● stock standard ○ non-standard stock △ on request EX stock exhaustion