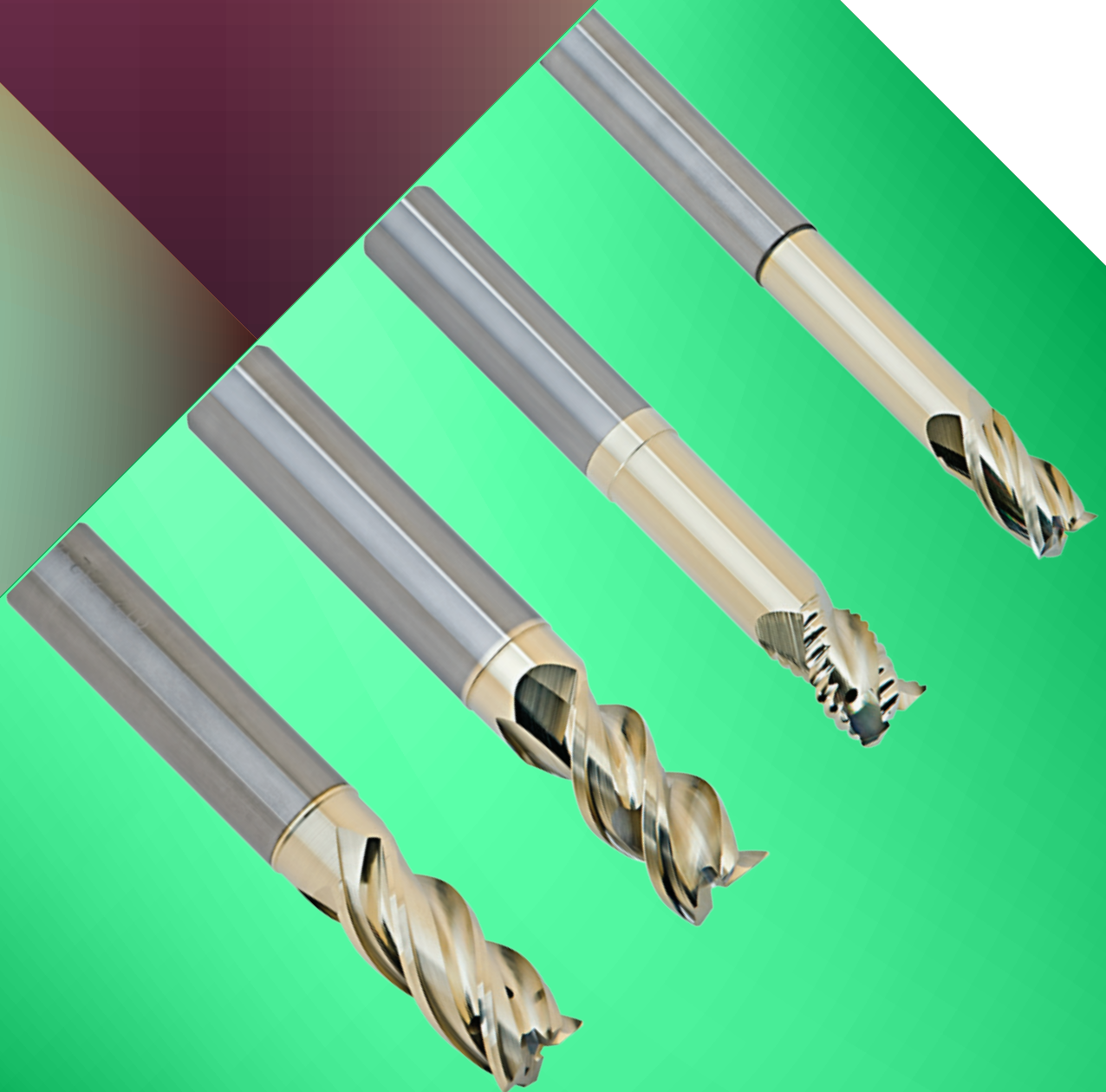


**SOLID CARBIDE
END MILLS**
Aluminium HPC

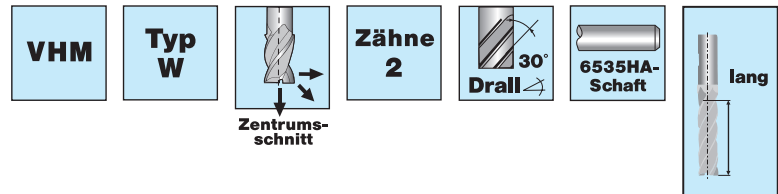


G e r m a n y | I n d i a | R u s s i a



36100

Micro/Radius



d1 h10	d2 h6	d3	AP	l2	l1	Teeth	Art.Nr.
0,6	3	0,58	5	3	54	2	060
0,8	3	0,77	5	3	54	2	080
1,0	3	0,95	5	3	54	2	100
1,2	3	1,15	6	4	54	2	120
1,5	3	1,44	8	4	54	2	150
2,0	3	1,92	10	4	54	2	200

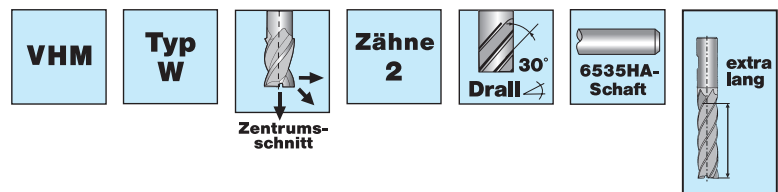


Solid Carbide end mills for Aluminum machining /long version /polished/ ZrN coated

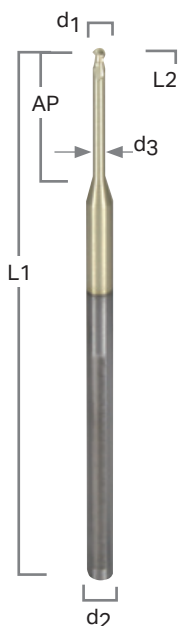
Order sample

36100-020

36101



d1 h10	d2 h6	d3	AP	l2	l1	Teeth	Art.Nr.
0,6	3	0,58	7	5	63	2	060
0,8	3	0,77	8	5	63	2	080
1,0	3	0,95	10	5	63	2	100
1,2	3	1,15	12	5	63	2	120
1,5	3	1,44	15	5	63	2	150
2,0	3	1,92	20	6	63	2	200



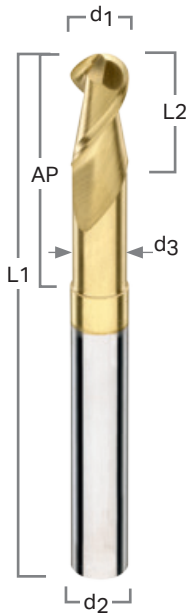
Solid Carbide end mills for Aluminum machining /long version /polished/ ZrN coated

Order sample

36101-020

36152

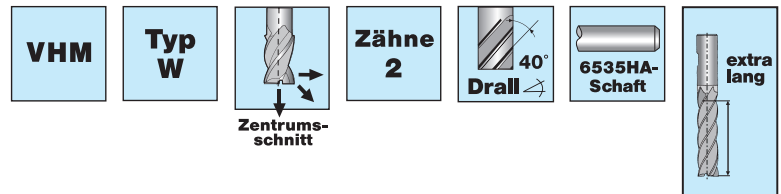
Radius



Solid Carbide end mills for Aluminum machining /extra long version /polished/ ZrN coated

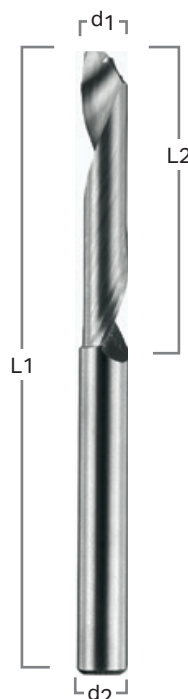
Order sample

36152-060



d1 h10	d2 h6	d3	AP	l2	l1	Teeth	Art.Nr.
1,0	6	0,9	15	2	60	2	010
2,0	6	1,8	20	4	60	2	020
3,0	6	2,8	25	6	70	2	030
4,0	6	3,7	25	8	70	2	040
5,0	6	4,6	25	10	70	2	050
6,0	6	5,5	35	12	80	2	060
8,0	8	7,4	35	16	80	2	080
10,0	10	9,2	45	20	90	2	100
12,0	12	11,0	50	24	100	2	120
14,0	14	13,2	60	26	100	2	140
16,0	16	15,0	92	30	150	2	160
20,0	20	19,0	92	40	150	2	200

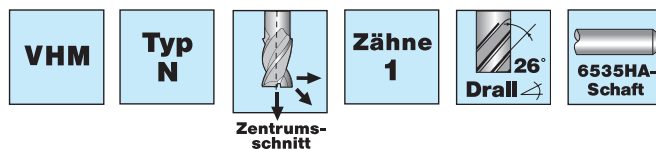
20100



Solid Carbide end mill / single tooth

Order sample

20100-060



d1 h10	d2 h6	l2	l1	Teeth	Art.-Nr.
1,5	3	6	50	1	015
2,0	3	8	50	1	020
3,0	3	12	50	1	030
4,0	4	15	60	1	040
5,0	5	17	60	1	050
6,0	6	20	65	1	060
8,0	8	22	65	1	080
10,0	10	25	75	1	100
12,0	12	30	80	1	120

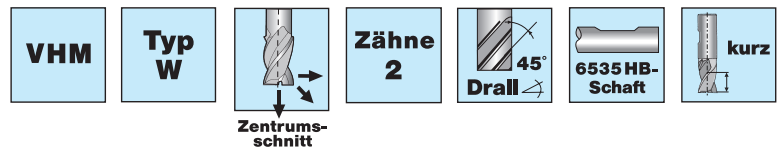
31045



Solid Carbide end mill for Aluminum machining/short version

Order sample

31045-060



d1 h10	d2 h6	l2	l1	Teeth	Art.Nr.
2,0	6	5	50	2	020
3,0	6	5	50	2	030
4,0	6	8	54	2	040
5,0	6	9	54	2	050
6,0	6	10	54	2	060
8,0	8	12	58	2	080
10,0	10	14	66	2	100
12,0	12	16	73	2	120
14,0	14	18	75	2	140
16,0	16	22	82	2	160
18,0	18	24	84	2	180
20,0	20	26	92	2	200

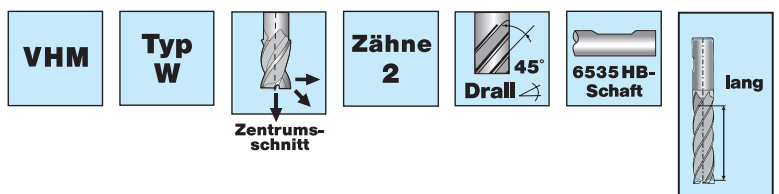
31145



Solid Carbide end mill for Aluminum machining/long version

Order sample

31145-060



d1 h10	d2 h6	l2	l1	Teeth	Art.Nr.
2,0	6	8	57	2	020
3,0	6	8	57	2	030
4,0	6	11	57	2	040
5,0	6	13	57	2	050
6,0	6	13	57	2	060
8,0	8	19	63	2	080
10,0	10	22	72	2	100
12,0	12	26	83	2	120
14,0	14	26	83	2	140
16,0	16	32	92	2	160
18,0	18	32	92	2	180
20,0	20	38	104	2	200

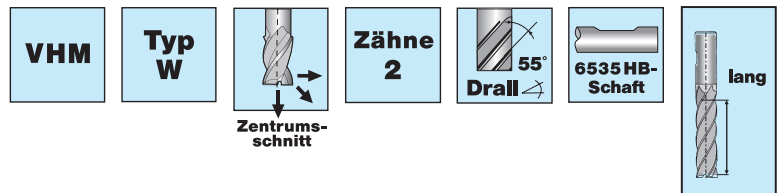
31055



Solid Carbide end mill for Aluminum machining/long version

Order sample

31055-060



d1 h10	d2 h6	l2	l1	Teeth	Art.Nr.
3,0	6	8	57	2	030
4,0	6	11	57	2	040
5,0	6	13	57	2	050
6,0	6	13	57	2	060
8,0	8	19	63	2	080
10,0	10	22	72	2	100
12,0	12	26	83	2	120
14,0	14	26	83	2	140
16,0	16	32	92	2	160
18,0	18	32	92	2	180
20,0	20	38	104	2	200

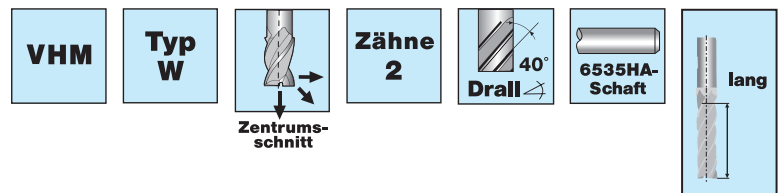
31400



Solid Carbide end mills for Aluminum machining /long version /polished/ ZrN coated

Order sample

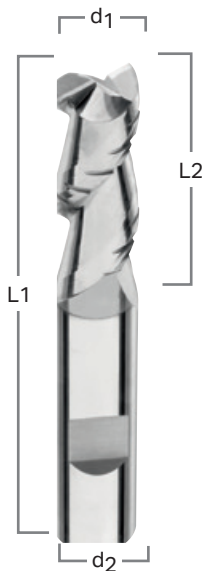
31400-060



d1 h10	d2 h6	l2	l1	Teeth	Art.Nr.
6,0	6	13	57	2	060
8,0	8	19	63	2	080
10,0	10	22	72	2	100
12,0	12	26	83	2	120
16,0	16	32	92	2	160
20,0	20	42	104	2	200
25,0	25	42	110	2	250

31245

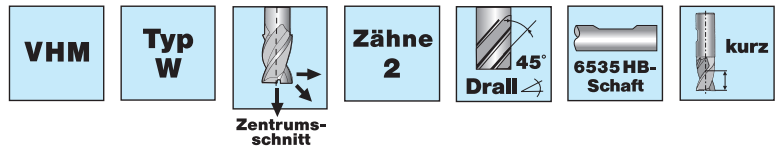
Chip breaker



Solid Carbide end mill for Aluminum machining/short version with chip breaker (coated Balzers Hardlube)

Order sample

31245-060



d1 h10	d2 h6	l2	l1	Teeth	Art.Nr.
4,0	6	8	54	2	040
5,0	6	9	54	2	050
6,0	6	10	54	2	060
8,0	8	12	58	2	080
10,0	10	14	66	2	100
12,0	12	16	73	2	120
16,0	16	22	82	2	160
20,0	20	26	92	2	200

31345

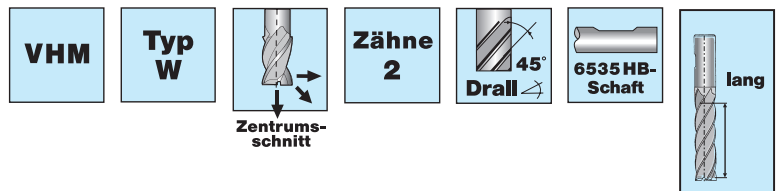
Chip breaker



Solid Carbide end mill for Aluminum machining/short version with chip breaker (coated Balzers Hardlube)

Order sample

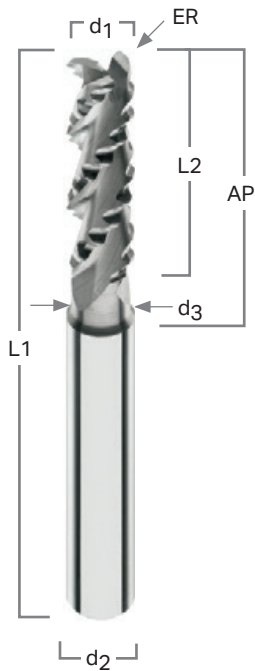
31345-060



d1 h10	d2 h6	l2	l1	Teeth	Art.Nr.
4,0	6	13	57	2	040
5,0	6	15	57	2	050
6,0	6	16	57	2	060
8,0	8	22	63	2	080
10,0	10	25	72	2	100
12,0	12	28	83	2	120
16,0	16	35	92	2	160
20,0	20	40	104	2	200

31445

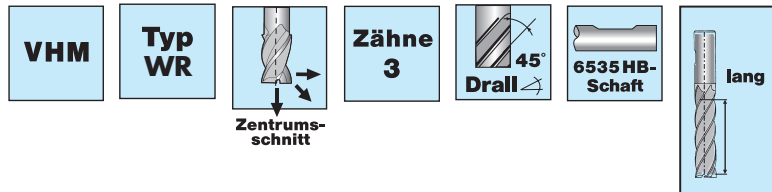
Corner Radius / NR



Solid Carbide end mill for aluminum /roughing/long version/Type NR

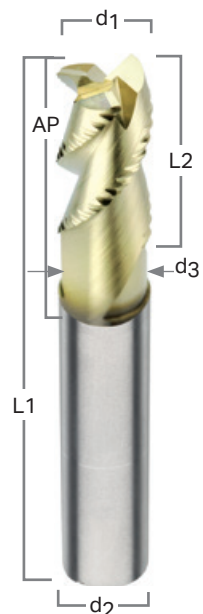
Order sample

31445-060



d1 h10	d2 h6	ER	d3	AP	l2	l1	Teeth	Art.Nr.
6,0	6	0,4	4,7	25	16	60	3	060
8,0	8	0,5	6,3	33	25	78	3	080
10,0	10	0,6	8,2	35	28	78	3	100
12,0	12	0,8	10,2	40	32	89	3	120
14,0	14	1,0	12,0	40	32	89	3	140
16,0	16	1,0	14,0	45	36	96	3	160
20,0	20	1,2	17,5	60	45	111	3	200

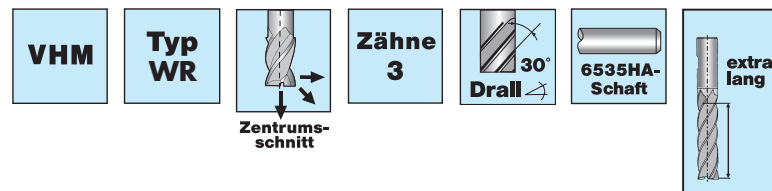
31901



Solid Carbide end mill for aluminum / roughing/extra long version/polished/ZrN coated

Order sample

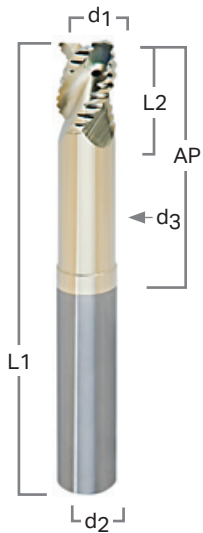
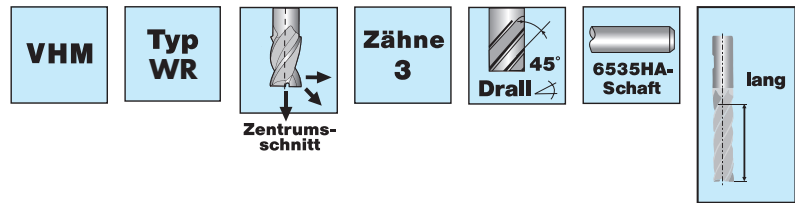
31901-060



d1 h10	d2 h6	Solid Carbi- dehutzfase	d3	AP	l2	l1	Teeth	Art.Nr.
6,0	6	0,4	5,7	18	13	70	3	060
8,0	8	0,4	7,4	25	21	80	3	080
10,0	10	0,4	9,2	30	22	80	3	100
12,0	12	0,4	11	36	26	90	3	120
16,0	16	0,4	15	42	36	100	3	160
20,0	20	0,4	19	52	41	120	3	200

31955

High Performance Cutting



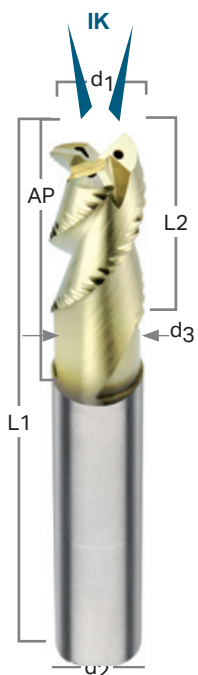
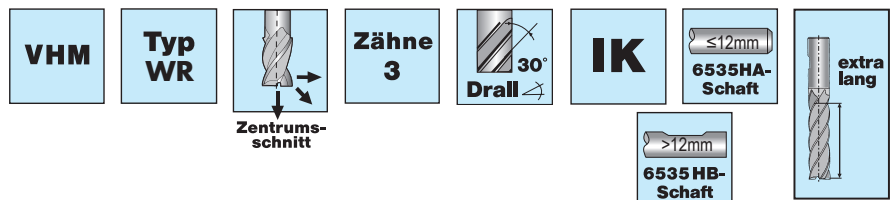
Solid Carbide end mill for aluminum /ZrN coated

Order sample

31955-060

d1 h10	d2 h6	d3	AP	l2	l1	Teeth	Art.-Nr.
6,0	6	5,5	24	10	63	3	060
8,0	8	7,5	29	12	72	3	080
10,0	10	9,5	35	14	83	3	100
12,0	12	11,4	50	16	100	3	120
16,0	16	15,2	63	20	115	3	160
20,0	20	19,0	70	20	125	3	200
25,0	25	23,8	75	25	135	3	250

31900



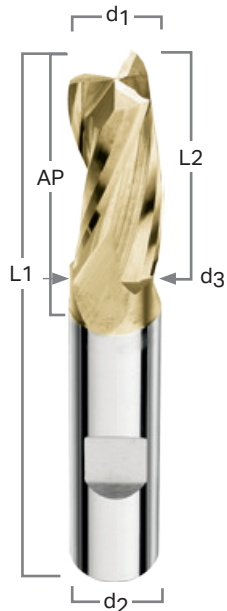
Solid Carbide end mills for Aluminum machining /extra long version /polished/ ZrN coated

Order sample

31900-060

d1 h10	d2 h6	Solid Carbi- dehutzfase	d3	AP	l2	l1	Teeth	Art.Nr.
6,0	6	0,4	5,7	18	13	70	3	060
8,0	8	0,4	7,4	25	21	80	3	080
10,0	10	0,4	9,2	30	22	80	3	100
12,0	12	0,4	11	36	26	90	3	120
16,0	16	0,4	15	42	36	100	3	160
20,0	20	0,4	19	52	41	120	3	200

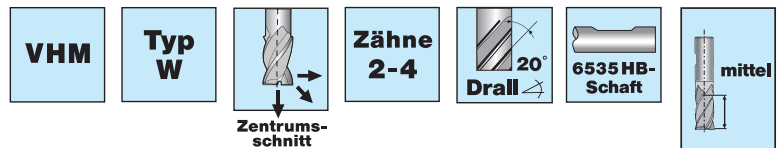
31520



Solid Carbide end mills for Aluminum machining /normal version /polished/ ZrN coated

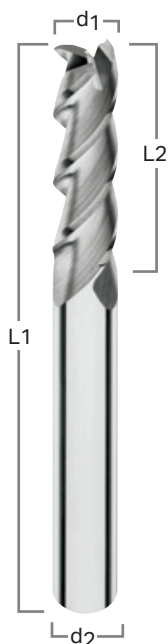
Order sample

31520-060



d1 h10	d2 h6	d3	AP	l2	l1	Teeth	Art.Nr.
4,0	4	3,8	16	13	54	2	040
5,0	5	4,8	18	15	54	2	050
6,0	6	5,5	21	16	64	2	060
8,0	8	7,5	27	22	70	2	080
10,0	10	9,5	32	25	72	2	100
12,0	12	11,5	38	28	83	3	120
14,0	14	13,5	41	30	83	3	140
16,0	16	15,5	44	36	92	3	160
18,0	18	17,5	50	36	92	3	180
20,0	20	19,5	54	41	104	4	200
25,0	25	24,5	63	43	110	4	250

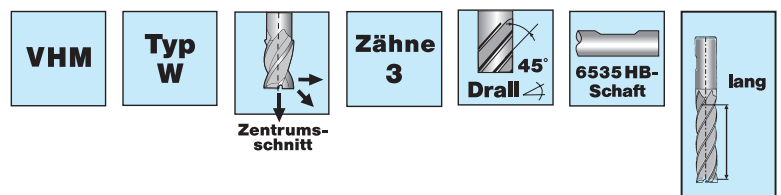
31545



Solid Carbide end mill for Aluminum machining/long version

Order sample

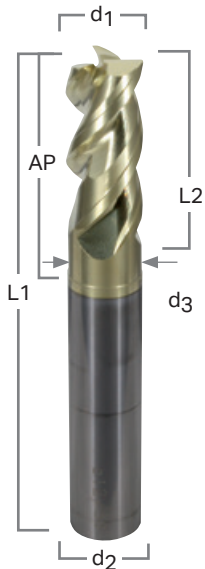
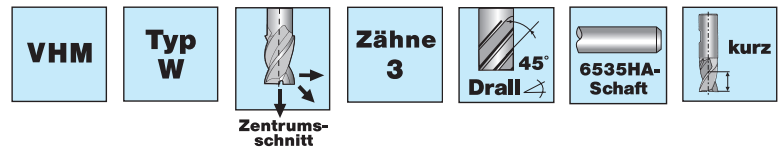
31545-060



d1 h10	d2 h6	l2	l1	Teeth	Art.Nr.
6,0	6	16	60	3	060
8,0	8	25	78	3	080
10,0	10	28	78	3	100
12,0	12	32	89	3	120
14,0	14	32	89	3	140
16,0	16	36	96	3	160
20,0	20	45	111	3	200

31645

High Performance Cutting



Solid Carbide end mill
for Aluminum machining/
polished/ZrN coated

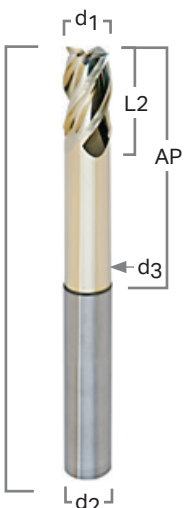
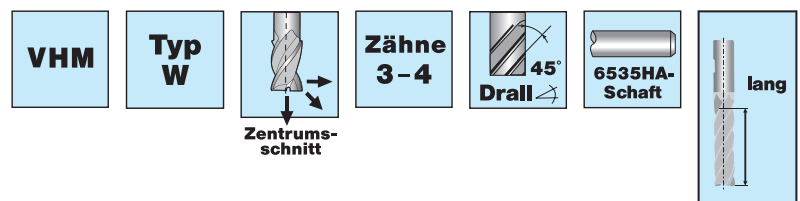
Order sample

31645-060

d1 h10	d2 h6	Solid Carbide hutzfase	d3	AP	l2	l1	Teeth	Art.Nr.
3,0	6	0,1	2,8	12	8	57	3	30
4,0	6	0,1	3,8	18	11	57	3	40
5,0	6	0,1	4,8	18	13	57	3	50
6,0	6	0,2	5,8	18	13	57	3	60
6,0	6	0,2	5,8	42	13	80	3	61
8,0	8	0,2	7,8	25	21	63	3	80
8,0	8	0,2	7,8	62	21	100	3	81
10,0	10	0,2	9,7	30	22	72	3	100
10,0	10	0,2	9,7	58	22	100	3	101
12,0	12	0,2	11,7	36	26	83	3	120
12,0	12	0,2	11,7	73	26	120	3	121
16,0	16	0,2	15,7	42	36	92	3	160
16,0	16	0,2	15,7	100	36	150	3	161
18,0	18	0,2	17,6	42	36	92	3	180
18,0	18	0,2	17,6	100	36	150	3	181
20,0	20	0,2	19,5	52	41	104	3	200
20,0	20	0,2	19,5	98	41	150	3	201
25,0	25	0,3	24,5	65	50	125	3	250

31940

High Performance Cutting



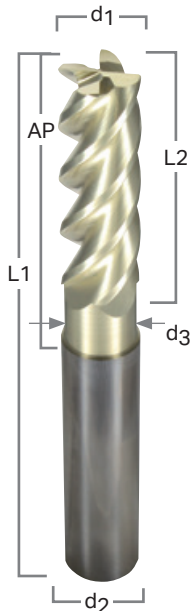
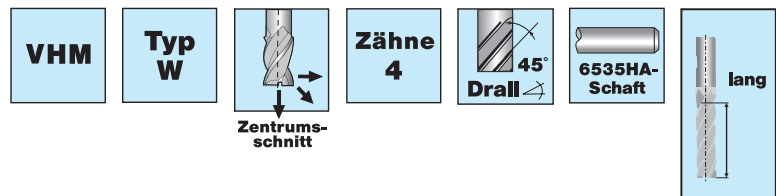
Solid Carbide end mill for
Aluminum machining/ZrN
coated

Order sample

31940-060

d1 h10	d2 h6	d3	AP	l2	l1	Teeth	Art.-Nr.
3,0	6	5,7	20	8	70	3	030
4,0	6	5,7	25	11	70	3	040
5,0	6	5,7	30	13	70	3	050
6,0	6	5,7	30	13	70	3	060
8,0	8	7,4	35	20	80	3	080
10,0	10	9,2	45	22	90	3	100
12,0	12	11,0	55	26	100	4	120
16,0	16	15,0	65	36	115	4	160
20,0	20	19,0	75	41	125	4	200
25,0	25	24,0	95	52	150	4	250

31450



Solid Carbide end mill for Aluminum machining/long version/polished/ZrN coated

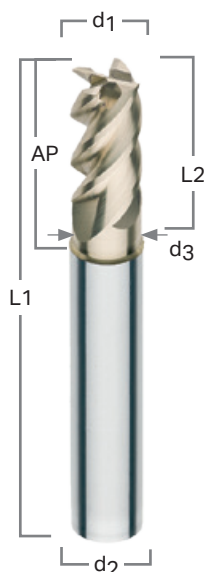
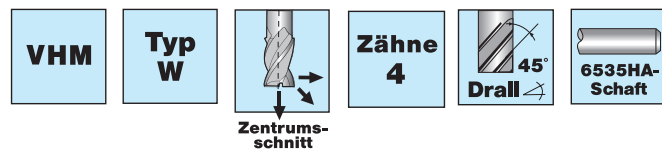
Order sample

31450-060

d1 h10	d2 h6	Solid Carbi- dehutfase	d3	AP	l2	l1	Teeth	Art.Nr.
3,0	6	0,13	2,8	12	8	57	4	030
4,0	6	0,18	3,8	15	11	57	4	040
5,0	6	0,2	4,8	17	13	57	4	050
6,0	6	0,2	5,5	21	13	57	4	060
8,0	8	0,2	7,5	27	19	63	4	080
10,0	10	0,3	9,5	32	22	72	4	100
12,0	12	0,3	11,5	38	26	83	4	120
16,0	16	0,4	15,5	44	32	92	4	160
20,0	20	0,5	19,2	54	38	104	4	200

31745

Protection Chamfer /HPC



Solid Carbide end mill for Aluminum machining/polished/ZrN coated

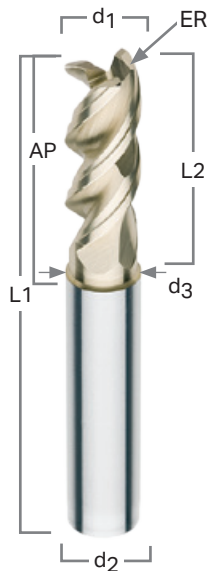
Order sample

31745-060

d1 h10	d2 h6	Solid Carbi- dehutfase	d3	AP	l2	l1	Teeth	Art.Nr.
3,0	6	0,1	2,8	12	8	57	4	030
4,0	6	0,1	3,8	18	11	57	4	040
5,0	6	0,1	4,8	18	13	57	4	050
6,0	6	0,2	5,8	18	13	57	4	060
6,0	6	0,2	5,8	42	13	80	4	061
7,0	8	0,2	7,8	25	21	63	4	070
8,0	8	0,2	7,8	25	21	63	4	080
8,0	8	0,2	7,8	62	21	100	4	081
10,0	10	0,2	9,7	30	22	72	4	100
10,0	10	0,2	9,7	58	22	100	4	101
12,0	12	0,2	11,7	36	26	83	4	120
12,0	12	0,2	11,7	73	26	120	4	121
16,0	16	0,2	15,7	42	36	92	4	160
16,0	16	0,2	15,7	100	36	150	4	161
18,0	18	0,2	17,6	42	36	92	4	180
18,0	18	0,2	17,6	100	36	150	4	181
20,0	20	0,2	19,5	52	41	104	4	200
20,0	20	0,2	19,5	98	41	150	4	201
25,0	25	0,3	24,5	65	50	125	4	250

31845

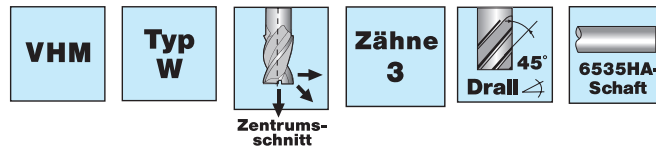
Corner radius HPC



Solid Carbide end mill
for Aluminum machining/
polished/ZrN coated

Order sample

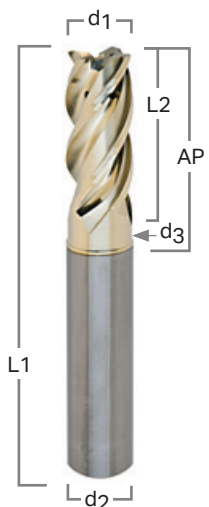
31845-060



d1 h10	d2 h6	ER	d3	AP	l2	l1	Teeth	Art.Nr.
5,0	6	1,0	4,8	18	13	57	3	50
6,0	6	0,5	5,8	18	13	57	3	60
6,0	6	1,0	5,8	18	13	57	3	61
8,0	8	0,5	7,8	25	21	63	3	80
8,0	8	1,0	7,8	25	21	63	3	81
10,0	10	0,5	9,7	30	22	72	3	100
10,0	10	1,0	9,7	30	22	72	3	101
12,0	12	0,5	11,7	36	26	83	3	120
12,0	12	1,0	11,7	36	26	83	3	121
16,0	16	2,0	15,7	42	36	92	3	160
16,0	16	4,0	15,7	42	36	92	3	161
20,0	20	4,0	19,5	52	41	104	3	200
25,0	25	5,0	24,5	65	50	125	3	250

60408

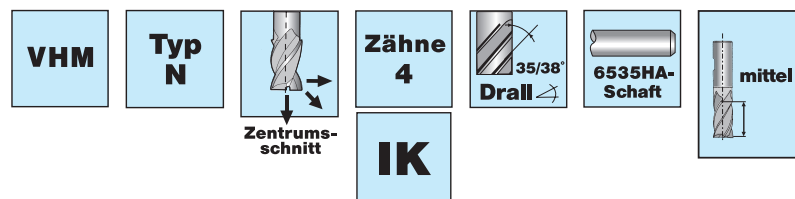
HPC with internal coolant



Solid Carbide end mill for
Aluminum machining/
polished/ZrN coated/
with corner radius/run
out 0,0005mm, shank
tolerance h5,

Order sample

60408-060

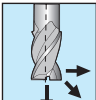


d1 h10	d2 h6	Corner Chamfer	l2	l1	AP	d3	Teeth	Art.-Nr.
3,0	6	0,15x45°	11	57	18	2,8	4	030
4,0	6	0,15x45°	12	57	21	3,6	4	040
5,0	6	0,15x45°	15	57	21	4,5	4	050
6,0	6	0,2x45°	15	57	21	5,5	4	060
8,0	8	0,2x45°	21	63	28	7,5	4	080
10,0	10	0,3x45°	22	72	32	9,5	4	100
12,0	12	0,3x45°	28	83	38	11,5	4	120
14,0	14	0,3x45°	30	83	42	13,5	4	140
16,0	16	0,4x45°	35	92	45	15,5	4	160
20,0	20	0,5x45°	41	104	55	19,5	4	200
25,0	25	0,5x45°	51	110	65	24	4	250


36645


VHM

Typ
W

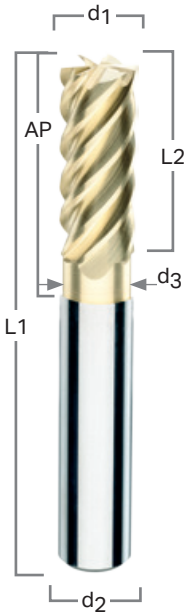

Zentrums-
schnitt

Zähne
6


45°
Drall


6535HA-
Schaft

d1 h10	d2 h6	d3	AP	l2	l1	Teeth	Art.Nr.
6,0	6	5,7	20	15	57	6	060
6,0	6	5,7	43	15	80	6	061
8,0	8	7,4	26	20	63	6	080
8,0	8	7,4	62	20	100	6	081
10,0	10	9,2	32	25	73	6	100
10,0	10	9,2	58	25	100	6	101
12,0	12	11	37	30	83	6	120
12,0	12	11	73	30	120	6	121
16,0	16	15	45	40	93	6	160
16,0	16	15	100	40	150	6	161
20,0	20	19	53	50	104	6	200
20,0	20	19	100	50	150	6	201
25,0	25	24	92	56	150	6	250



Solid Carbide end mill for
Aluminum machining/ZrN
coated/polished


Order sample
36645-060


36646


VHM

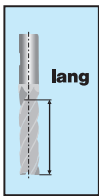
Typ
W

Zähne
6

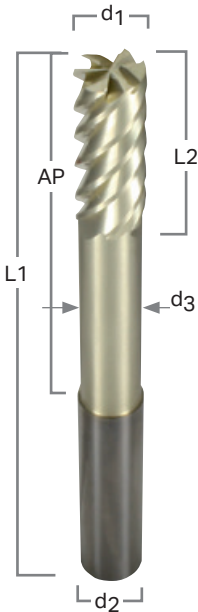



45°
Drall


6535HA-
Schaft


lang

d1 h10	d2 h6	d3	AP	l2	l1	Teeth	Art.Nr.
6,0	6	5,5	29	22	63	6	060
8,0	8	7,5	36	28	80	6	080
10,0	10	9,5	43	33	80	6	100
12,0	12	11,5	54	33	100	6	120
16,0	16	15,5	69	53	125	6	160
20,0	20	19,5	84	68	150	6	200
25,0	25	24,5	84	75	150	6	250



Solid Carbide end mill for
Aluminum machining/ZrN
coated/polished

Order sample
36646-060

CUTTING DATA RECOMMENDATION

Material designation	Vc (m/min)	fz (mm/ Teeth)
Aluminum and AL alloys till 6% Si	500	01
Aluminum and AL alloys till 12% Si	350 - 450	01
Aluminum and AL alloys more than 12% Si	190 - 290	01
Copper	135	02
Braze	180 - 240	02
Bronze	150 - 170	02

Feed rate table fz/mm/z 20100

	Row	Ø 3-4	Ø 5-6	Ø 8	Ø 10	Ø 12	Ø 16	Ø 20	Ø 25
ae 1,0 x D	01	0,035	0,06	0,06	0,07	0,07	0,09	0,12	0,18
ap 1,0 x D	02	0,02	0,04	0,04	0,06	0,06	0,08	0,12	0,18

Correction factor for extra long version x 0,85xVc

Correction factor for uncoated tools x 0,5xVc

FEED RATE CORRECTION FACTOR FOR SC END MILLS

