SOLID CARBIDE END MILLS

Tooling systems and application consulting for the milling of complex 2.5 and 3D geometries

pokolm

PREMIUMTOOLS. WE KNOW HOW.

SOLID CARBIDE END MILLS

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SOLID CARBIDE END MILLS

PRODUCT OVERVIEW

Product lines	Page	Types of machining										Material to be machined					
												P	M	K	N	S	H
End mills for steel, universal up to 52 HRC																	
BALL NOSE	18																
2 flutes	18												-		-	-	
2 flutes | taper neck	22												-		-	-	
2 flutes | spheric	24		-	-		-		-	-				-		-	-	
4 flutes	25												-		-	-	
4 flutes | taper neck	28												-		-	-	
TORIC / CORNER RADIUS	30																
2 flutes	30												-		-	-	
2 flutes | taper neck	34												-		-	-	
2 flutes | spheric	36		-			-					-		-		-	-	
3 flutes	38												-		-	-	-
4 flutes	40												-		-	-	
4 flutes | taper neck	43												-		-	-	
SQUARE	45																
2 flutes	45					-				-	-		-		-	-	
4 flutes	48												-		-	-	
End mills for steel up to 58 HRC																	
BALL NOSE	52																
2 flutes	52		-	-		-		-	-						-		
TORIC / CORNER RADIUS	56																
2 flutes	56		-			-					-						
6 and 8 flutes	61												-	-	-	-	
END MILLS	62																
4 and 8 flutes	62					-				-	-		-		-	-	
End mills for steel with more than 58 HRC																	
BALL NOSE	66																
2 flutes	66		-	-		-		-	-			-	-	-	-	-	
TORIC / CORNER RADIUS	68																
5 flutes	68		-			-					-		-	-	-	-	
End mills for micro machining up to 2.5 mm																	
BALL NOSE	70																
2 flutes	70		-	-		-		-	-								-
SQUARE	71																
2 flutes	71					-				-	-				-	-	-

Major application
- roughing
- pre-finishing
- finishing

Minor application
- roughing
- pre-finishing
- finishing

Machining modes
- plunging
- chamfering
- face milling
- circular milling
- axial plunging
- slotting
- pocketing
- square shoulder milling
- copying
- c-slotting

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SOLID CARBIDE END MILLS

PRODUCT OVERVIEW

Product lines	Page	Types of machining										Material to be machined					
												P	M	K	N	S	H
End mills for stainless steel | titanium alloys																	
TORIC / CORNER RADIUS	74																
4 flutes | uneven cutting pitch	74	●	-	●	●	-	●	●	●	●	-	-	▼	-	-	▼	▽
SQUARE	76																
4 flutes | uneven cutting pitch	76	●	●	●	●	-	●	●	●	-	-	-	▼	-	-	▼	▽
End mills for aluminium | copper | plastics | synthetics																	
BALL NOSE	80																
2 flutes	80	●	-	-	●	-	●	-	-	●	●	-	▽	-	▼	▽	-
TORIC / CORNER RADIUS	86																
2 flutes	86	●	-	●	●	-	●	●	●	●	-	-	▽	-	▼	▽	-
SQUARE	91																
1 flute for aluminium	91											-	-	-	▼	-	-
1 flute for plastics	93											-	-	-	▼	-	-
2 flutes	95	●	●	●	●	-	●	●	●	-	-	-	▽	-	▼	▽	-
3 flutes for aluminium	98											-	▽	-	▼	▽	-
4 flutes for aluminium	100											-	▽	-	▼	▽	-
End mills for graphite | GRP | CFRP																	
BALL NOSE	104																
2 flutes	104	●	-	-	●	-	●	-	-	●	●	-	▽	-	▼	-	-
3 flutes	108											-	-	-	▼	-	-
TORIC / CORNER RADIUS	110																
2 flutes	110	●	-	●	●	-	●	●	●	●	-	-	-	-	▼	-	-
3 flutes	112											-	-	-	▼	-	-
SQUARE	116																
2 flutes	116	●	●	●	●	-	●	●	●	-	-	-	-	-	▼	-	-
End mills for extreme machining | HPC																	
3 and 4 flutes	118											▼	-	▼	-	-	▽
4 flutes with corner radius	121											▼		▽	-	-	▽
4 flutes with corner radius	123											-	▼	-	▽	▼	-
4 flutes with corner radius	123	●	●	●	●	-	●	●	●	-	-	-	▽	-	▼	▽	-
4 flutes for HPC machining	125											▽	▼	-	▽	▼	-
4 flutes for HPC machining	125											▼	▽	-	▼	▽	-
4 flutes | working depth (wd.)	127											▼	▽	▽	-	-	-
End mills for high feed machining | TRIGAWORX® | HSC																	
3 flutes	130											▼	-	▽	-	-	▼
4 flutes	132											▼	▽	▽	-	▽	▼
4 flutes with corner radius	132	●	-	●	●	-	●	●	●	-	-	▼	▽	▽	-	▽	▼
4 flutes | internal coolant supply	134											▼	▽	▽	-	▽	▽

Major application
- ▼ roughing
- ▼ pre-finishing
- ▼ finishing

Minor application
- ▽ roughing
- ▽ pre-finishing
- ▽ finishing

Machining modes
- plunging
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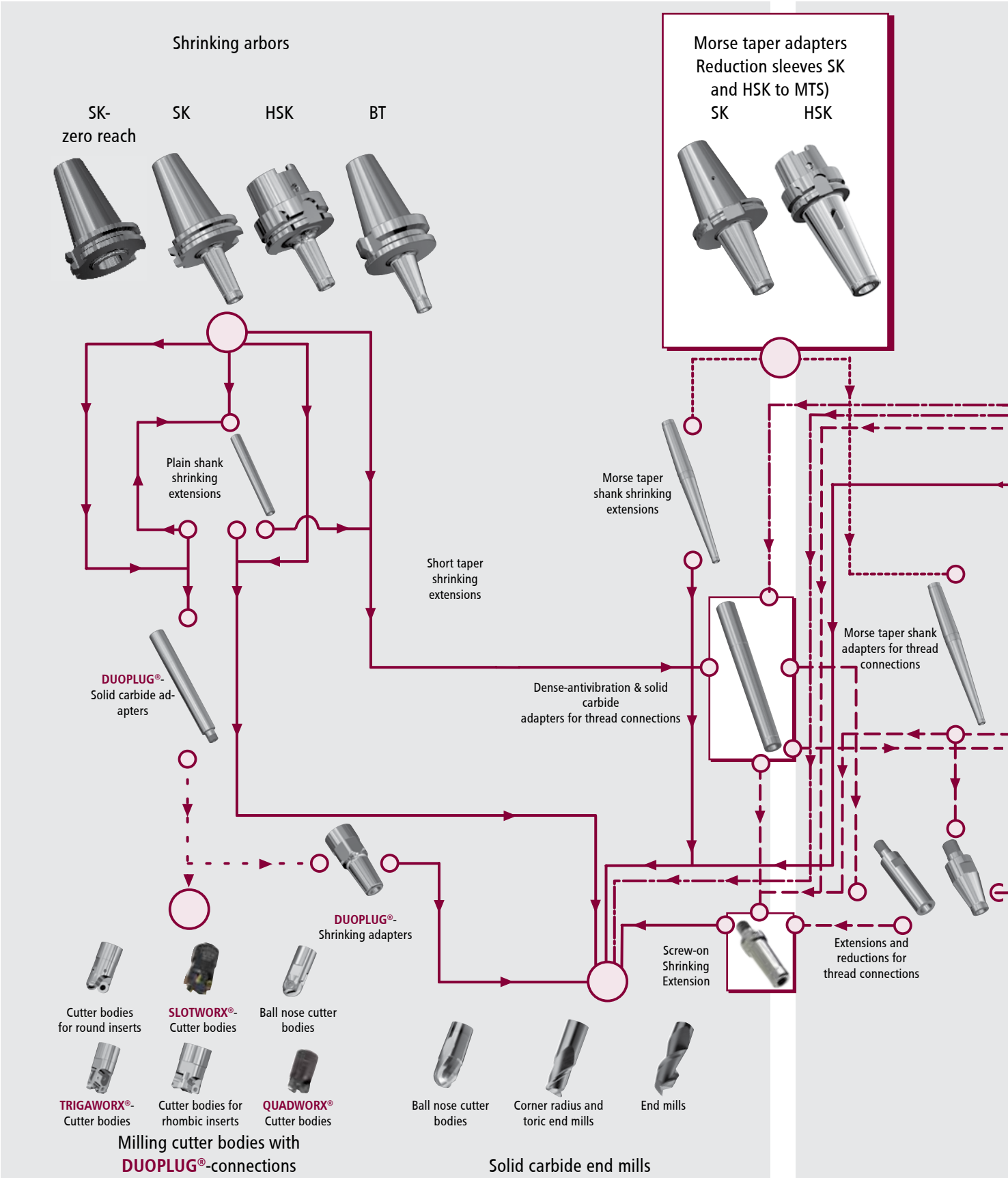
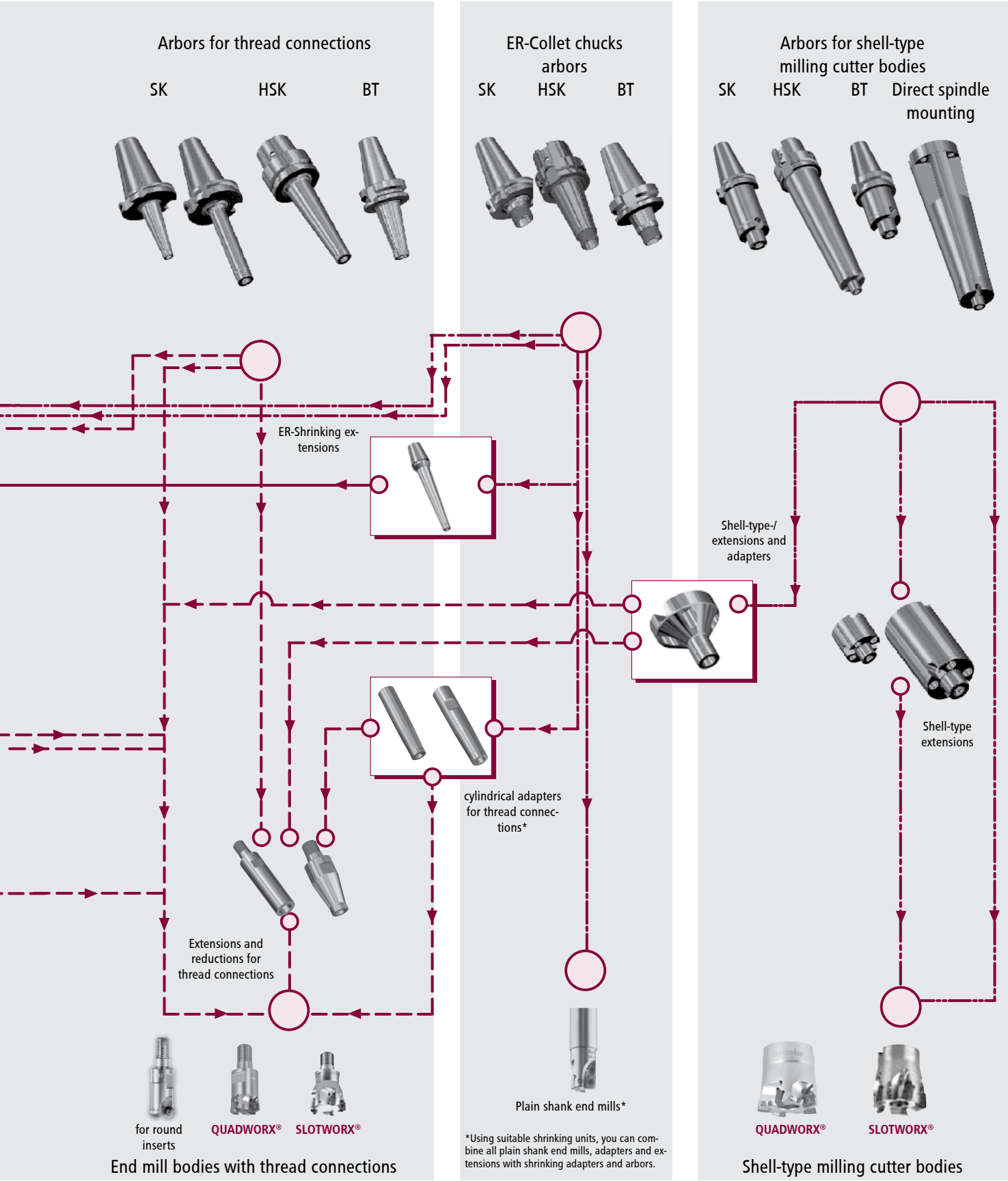
THE POKOLM TOOL SYSTEM

over 500000 combination possibilities



Shrinking combinations
Morse taper combinations
Thread connected combinations
Shell-type combinations
ER-Collet combinations
DUOPLUG®-combinations

The listed options are applications examples. Do not hasitate to contact our technical field service for a huge number of further possible combinations.



*Using suitable shrinking units, you can combine all plain shank end mills, adapters and extensions with shrinking adapters and arbors.

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SOLID CARBIDE END MILLS

A complete line of products, full of systematic advantages.

Here is the best argument straight away for POKOLM solid carbide end mills: we use our own end mills to produce a large proportion of our milling cutter bodies and arbors - and for good reason. Our own solid carbide end mills are famous for its precise concentricity, plus it is suitable for shrinking processes and have a full range of advantages in high-speed and extreme milling operations.

We use specially selected materials and have suppliers and coasting partners, who are integrated in our developmental and production process. This creates the most favourable environment for our highly specialized staff to produce first class, high-quality end mills using the latest high-tech grinding machines. A wide variety of differentiated cutter geometries and corresponding coatings and a broad range of diamters and working lengths make up a comprehensive product range in order to handle almost any task you can think of.

The entire range of our Solid Carbide End Mills is a part of our tool system and each one is precisely coordinated with all the other tools in our catalogue.

Right from the developmental stage, our tools are conceived and planned in detail together with our suppliers. We also maintain a close partnership and intensive collaboration with our raw materials suppliers and coating partners.

We understand the development of individual products as a process and thus, we guarantee high-quality final products. Furthermore, our solid carbide tools are created almost exclusively as a result of our close customer relations and are almost always developed out of individual solutions, that we devise into catalogue tools.

END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

		Page
Ball nose end mills	2 flutes	18
	2 flutes | taper neck	22
	2 flutes | spheric	24
	4 flutes	25
	4 flutes | taper neck	28
Toric / corner radius end mills	2 flutes	30
	2 flutes | taper neck	34
	2 flutes | spheric	36
	3 flutes	38
	4 flutes	40
	4 flutes | taper neck	43
End mills	2 flutes	45
	4 flutes	48

pokolm PREMIUMTOOLS. WE KNOW HOW.

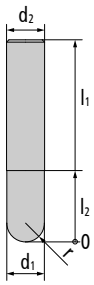
END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

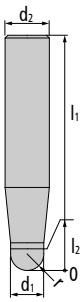
Ball nose end mills | 2 flutes

2 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- short l long l extra long version
- with and without clearance between shank and flute

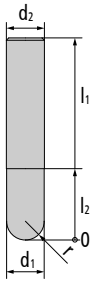
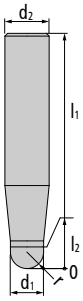
Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short | long | extra long																		
	NVV 1222 56 0041	0.4	0.6	-	-	50	0.2	4	2	0.84	0.97	1.08	1.19	1.39	9	30		MGC PVTi
	NVV 1222 56 0051	0.5	0.8	-	-	50	0.25	4	2	1.07	1.21	1.33	1.45	1.66	9	30		MGC PVTi
	NVV 1222 56 0061	0.6	0.9	-	-	50	0.3	4	2	1.18	1.32	1.45	1.56	1.78	9	30		MGC PVTi
	NVV 1222 56 0081	0.8	1.2	-	-	50	0.4	4	2	1.51	1.67	1.81	1.93	2.16	9	30		MGC PVTi
	NVV 1222 56 011	1	1.5	-	-	50	0.5	4	2	1.84	2.01	2.16	2.29	2.53	9	30		MGC PVTi
	NVV 1222 56 0101	1	1.5	-	-	57	0.5	6	2	1.84	2.01	2.16	2.29	2.53	9	30		MGC PVTi
	NVV 1232 56 010	1	1.5	-	-	75	0.5	6	2	1.84	2.01	2.16	2.29	2.53	9	30		MGC PVTi
	NVV 1222 56 0121	1.2	1.8	-	-	50	0.6	4	2	2.17	2.35	2.51	2.64	2.89	9	30		MGC PVTi
	NVV 1222 56 0152	1.5	2.2	-	-	50	0.75	4	2	2.60	2.80	2.96	3.11	3.37	9	30		MGC PVTi
	NVV 1222 56 0151	1.5	2.2	-	-	57	0.75	6	2	2.60	2.80	2.96	3.11	3.37	9	30		MGC PVTi
	NVV 1222 56 0161	1.6	2.4	-	-	50	0.8	4	2	2.82	3.02	3.19	3.34	3.61	9	30		MGC PVTi
	NVV 1222 56 0181	1.8	2.7	-	-	50	0.9	4	2	3.14	3.35	3.53	3.68	3.96	9	30		MGC PVTi
	NVV 1222 56 0201	2	3	-	-	50	1	4	2	3.46	3.68	3.87	4.03	4.31	9	30		MGC PVTi
	NVV 1222 56 021	2	3	-	-	57	1	6	2	3.46	3.68	3.87	4.03	4.31	9	30		MGC PVTi
	NVV 1232 56 020	2	3	-	-	75	1	6	2	3.46	3.68	3.87	4.03	4.31	9	30		MGC PVTi
	NVV 1222 56 0301	3	4.5	-	-	50	1.5	4	2	5.06	5.32	5.52	5.71	6.06	9	30		MGC PVTi
	NVV 1222 56 030	3	4.5	-	-	57	1.5	6	2	5.06	5.32	5.52	5.71	6.06	9	30		MGC PVTi
	NVV 1132 56 030	3	30	-	-	60	1.5	3	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1232 56 030	3	4.5	-	-	75	1.5	6	2	5.06	5.32	5.52	5.71	6.06	9	30		MGC PVTi
	NVV 1132 56 031	3	30	-	-	75	1.5	3	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1222 56 0401	4	6	-	-	50	2	4	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1222 56 040	4	6	-	-	57	2	6	2	6.64	6.93	7.16	7.36	7.80	9	30		MGC PVTi
	NVV 1132 56 040	4	30	-	-	60	2	4	2	-	-	-	-	-	8	30		MGC PVTi





toric tool

clamping flat

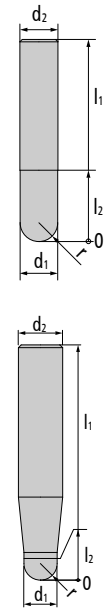
Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short | long | extra long																		
	NVV 1232 56 040	4	6	-	-	75	2	6	2	6.64	6.93	7.16	7.36	7.80	9	30		MGC PVTi
	NVV 1132 56 041	4	30	-	-	75	2	4	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1222 56 050	5	7.5	-	-	57	2.5	6	2	8.20	8.52	8.79	9.01	9.55	9	30		MGC PVTi
	NVV 1132 56 050	5	35	-	-	70	2.5	5	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1232 56 050	5	7.5	-	-	75	2.5	6	2	8.20	8.52	8.77	9.01	9.55	9	30		MGC PVTi
	NVV 1132 56 051	5	40	-	-	100	2.5	5	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1232 56 055	5.5	8.5	-	-	75	2.75	6	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1222 56 060	6	9	-	-	57	3	6	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1232 56 060	6	9	-	-	75	3	6	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1132 56 060	6	40	-	-	100	3	6	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1132 56 061	6	50	-	-	150	3	6	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1222 56 080	8	12	-	-	63	4	8	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1232 56 080	8	12	-	-	90	4	8	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1132 56 080	8	40	-	-	100	4	8	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1132 56 081	8	50	-	-	150	4	8	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1222 56 100	10	15	-	-	72	5	10	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1232 56 100	10	15	-	-	100	5	10	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1132 56 100	10	45	-	-	100	5	10	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1132 56 101	10	60	-	-	150	5	10	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1222 56 120	12	18	-	-	83	6	12	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1132 56 120	12	45	-	-	100	6	12	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1232 56 120	12	18	-	-	110	6	12	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1132 56 121	12	75	-	-	150	6	12	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1222 56 160	16	24	-	-	92	8	16	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1132 56 160	16	45	-	-	100	8	16	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1232 56 160	16	24	-	-	140	8	16	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1132 56 161	16	75	-	-	150	8	16	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1222 56 200	20	30	-	-	104	10	20	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1132 56 200	20	55	-	-	125	10	20	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 1232 56 200	20	30	-	-	150	10	20	2	-	-	-	-	-	9	30		MGC PVTi

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

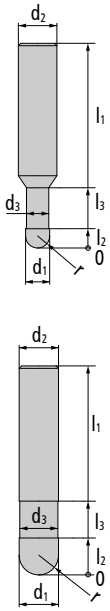
Ball nose end mills

no wd. | short | long | extra long



catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1132 56 201	20	75	-	-	150	10	20	2	-	-	-	-	-	8	30		MGC PVTi

wd. | short | long



catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1322 56 020	2	3	10	1.9	75	1	6	2	11.17	11.51	11.80	12.08	12.71	9	30		MGC PVTi
NVV 1322 56 030	3	4.5	12	2.9	75	1.5	6	2	13.23	13.60	13.91	14.24	14.96	9	30		MGC PVTi
NVV 1322 56 040	4	6	12	3.8	75	2	6	2	13.40	13.72	14.02	14.34	15.04	9	30		MGC PVTi
NVV 1322 56 050	5	7.5	15	4.8	75	2.5	6	2	16.47	16.85	17.22	-	-	9	30		MGC PVTi
NVV 1322 56 060	6	9	20	5.8	75	3	6	2	-	-	-	-	-	9	30		MGC PVTi
NVV 1322 56 080	8	12	26	7.8	90	4	8	2	-	-	-	-	-	9	30		MGC PVTi
NVV 1322 56 100	10	15	31	9.8	100	5	10	2	-	-	-	-	-	9	30		MGC PVTi
NVV 1322 56 120	12	18	37	11.8	110	6	12	2	-	-	-	-	-	9	30		MGC PVTi
NVV 1322 56 160	16	24	43	15.8	140	8	16	2	-	-	-	-	-	9	30		MGC PVTi

toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
0.4-0.8	f_z (mm) a_p (mm)	0.005-0.0125 0.005-0.055	-	0.005-0.02 0.01-0.1	-	-	0.005-0.015 0.005-0.05
1-2	f_z (mm) a_p (mm)	0.01-0.025 0.05-0.13	-	0.01-0.04 0.06-0.2	-	-	0.01-0.03 0.04-0.1
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	-	0.04-0.07 0.06-0.4	-	-	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.12 0.12-0.6	-	-	0.08-0.15 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.15 0.15-0.8	-	0.08-0.15 0.15-0.8	-	-	0.08-0.15 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.15 0.2-1	-	0.08-0.15 0.3-1	-	-	0.08-0.2 0.2-0.5
12	f_z (mm) a_p (mm)	0.08-0.15 0.2-1.2	-	0.08-0.15 0.3-1.2	-	-	0.08-0.25 0.2-0.6
16	f_z (mm) a_p (mm)	0.1-0.25 0.2-1.6	-	0.1-0.25 0.3-1.6	-	-	0.08-0.25 0.2-0.8
20	f_z (mm) a_p (mm)	0.1-0.25 0.2-2	-	0.1-0.25 0.3-2	-	-	0.08-0.25 0.2-0.8

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100* ***225*** *350* *180* ***290*** *400*	-	-	*80* ***140*** *200* *100* ***175*** *250*

major application minor application roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

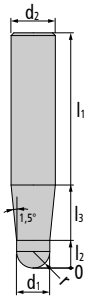
Ball nose end mills | 2 flutes | taper neck

2 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- ball nose
- long version
- l3: tapered 1.5°

1.5° taper neck | strong shank

Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
	NVV 1162 56 0041	0.4	0.6	25	-	75	0.2	6	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 1162 56 010	1	1.5	25	-	75	0.5	6	2	5.00	9.51	26.14	27.06	28.14	9	30		MGC PVTi
	NVV 1162 56 0101	1	1.5	39	-	75	0.5	6	2	5.00	9.51	39.82	41.07	42.38	9	30		MGC PVTi
	NVV 1162 56 015	1.5	2.3	25	-	75	0.75	6	2	7.13	13.51	26.32	27.15	28.19	9	30		MGC PVTi
	NVV 1162 56 020	2	3	25	-	75	1	6	2	8.50	16.01	26.41	27.20	28.21	9	30		MGC PVTi
	NVV 1162 56 021	2	3	50	-	100	1	6	2	8.50	16.01	51.41	52.73	-	9	30		MGC PVTi
	NVV 1162 56 025	2.5	4	25	-	75	1.25	6	2	9.88	18.52	26.50	27.25	28.23	9	30		MGC PVTi
	NVV 1162 56 030	3	4.5	25	-	75	1.5	6	2	9.75	18.02	26.47	27.23	28.21	9	30		MGC PVTi
	SVV 1162 56 034	3	4.5	39	-	75	1.5	6	2	9.75	18.02	40.47	41.53	-	9	30		MGC PVTi
	NVV 1162 56 031	3	4.5	50	-	100	1.5	6	2	9.75	18.02	51.47	-	-	9	30		MGC PVTi
	NVV 1162 56 040	4	6	25	-	75	2	6	2	12.50	23.03	26.11	26.56	-	9	30		MGC PVTi
	NVV 1162 56 0401	4	6	39	-	75	2	6	2	12.50	23.03	40.11	-	-	9	30		MGC PVTi
	NVV 1162 56 041	4	6	44	-	100	2	6	2	12.50	23.03	-	-	-	9	30		MGC PVTi
	NVV 1162 56 050	5	7.5	25	-	75	2.5	6	2	15.25	25.45	-	-	-	9	30		MGC PVTi
	NVV 1162 56 051	5	7.5	50	-	90	2.5	8	2	15.25	25.45	51.21	-	-	9	30		MGC PVTi
	NVV 1162 56 060	6	9	35	-	75	3	8	2	18.00	33.05	36.30	-	-	9	30		MGC PVTi
	NVV 1162 56 061	6	9	50	-	100	3	10	2	19.51	36.04	51.36	52.01	-	9	30		MGC PVTi
	NVV 1162 56 080	8	12	50	-	100	4	10	2	22.01	40.06	-	-	-	9	30		MGC PVTi
	NVV 1162 56 081	8	12	90	-	150	4	12	2	23.51	43.06	-	-	-	9	30		MGC PVTi
	NVV 1162 56 100	10	15	50	-	110	5	12	2	27.51	50.08	-	-	-	9	30		MGC PVTi
	NVV 1162 56 101	10	15	50	-	150	5	12	2	27.51	50.08	-	-	-	9	30		MGC PVTi
	NVV 1162 56 121	12	18	90	-	150	6	16	2	31.51	57.09	-	-	-	9	30		MGC PVTi



toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
0.4	f_z (mm) a_p (mm)	0.005-0.0125 0.005-0.055	-	0.005-0.02 0.01-0.1	-	-	0.005-0.015 0.005-0.05
1-2.5	f_z (mm) a_p (mm)	0.01-0.025 0.05-0.13	-	0.01-0.04 0.06-0.2	-	-	0.01-0.03 0.04-0.1
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	-	0.04-0.07 0.06-0.4	-	-	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.12 0.12-0.6	-	-	0.08-0.15 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.15 0.15-0.8	-	0.08-0.15 0.15-0.8	-	-	0.08-0.15 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.15 0.2-1	-	0.08-0.15 0.3-1	-	-	0.08-0.2 0.2-0.5
12	f_z (mm) a_p (mm)	0.08-0.15 0.2-1.2	-	0.08-0.15 0.3-1.2	-	-	0.08-0.25 0.2-0.6

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100* ***225*** *350* *180* ***290*** *400*	-	-	*80* ***140*** *200* *100* ***175*** *250*

major application | minor application | roughing | pre-finishing | finishing

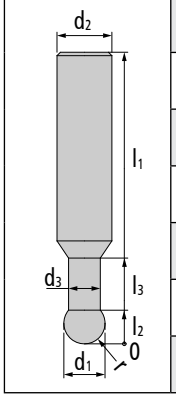
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

Ball nose end mills | 2 flutes | spheric

2 flutes, plain shank, straight grooved

- center cutting end mill
- ball nose
- for bidirectional plunshing
- with clearance between shank and flute

Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | spherical																		
	NVV 1342 56 030	3	4	12	2.9	75	1.5	6	2	12.18	12.28	12.38	12.48	12.68	8	-1		MGC PVTi
	NVV 1342 56 040	4	5	16	3.8	75	2	6	2	16.25	16.37	16.50	16.63	16.90	8	-1		MGC PVTi
	NVV 1342 56 050	5	6	20	4.8	100	2.5	6	2	20.35	20.51	20.67	-	-	8	-1		MGC PVTi
	NVV 1342 56 060	6	7	24	5.8	100	3	6	2	-	-	-	-	-	8	-1		MGC PVTi
	NVV 1342 56 080	8	9	32	7.8	100	4	8	2	-	-	-	-	-	8	-1		MGC PVTi
	NVV 1342 56 100	10	11	40	9.8	125	5	10	2	-	-	-	-	-	8	-1		MGC PVTi
	NVV 1342 56 120	12	13	40	11.8	125	6	12	2	-	-	-	-	-	8	-1		MGC PVTi

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	Feed per tooth | d.o.c.						
copy milling 3D							
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	-	0.04-0.07 0.06-0.4	-	-	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.12 0.12-0.6	-	-	0.08-0.15 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.15 0.15-0.8	-	0.08-0.15 0.15-0.8	-	-	0.08-0.15 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.15 0.2-1	-	0.08-0.15 0.3-1	-	-	0.08-0.2 0.2-0.5
12	f_z (mm) a_p (mm)	0.08-0.15 0.2-1.2	-	0.08-0.15 0.3-1.2	-	-	0.08-0.25 0.2-0.6

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	Application						
MGC PVTi	roughing finishing	- 200 **275** 350	-	- *180* ***290*** *400*	-	-	- *100* ***175*** *250*

toric tool

clamping flat

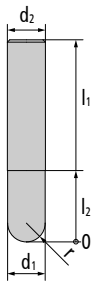
END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

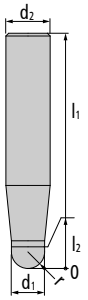
Ball nose end mills | 4 flutes

4 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- ball nose
- short I long I extra long version
- with and without clearance between shank and flute

Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short | long | extra long																		
	NVV 1224 56 020	2	3	-	-	57	1	6	4	3.46	3.68	3.87	4.03	4.31	9	30		MGC PVTi
	NVV 1224 56 030	3	4.5	-	-	57	1.5	6	4	5.06	5.32	5.52	5.71	6.06	9	30		MGC PVTi
	NVV 1224 56 0301	3	6	-	-	57	1.5	6	4	6.67	6.97	7.22	7.44	7.92	9	30		MGC PVTi
	NVV 1134 56 030	3	30	-	-	60	1.5	3	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1134 56 031	3	30	-	-	75	1.5	3	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1224 56 040	4	6	-	-	57	2	6	4	6.64	6.93	7.16	7.36	7.80	9	30		MGC PVTi
	NVV 1134 56 040	4	30	-	-	60	2	4	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1134 56 041	4	30	-	-	75	2	4	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1224 56 050	5	7.5	-	-	57	2.5	6	4	8.20	8.52	8.78	9.01	9.55	9	30		MGC PVTi
	NVV 1134 56 050	5	35	-	-	70	2.5	5	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1134 56 051	5	40	-	-	100	2.5	5	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1224 56 060	6	9	-	-	57	3	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 1224 56 0601	6	12	-	-	57	3	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 1134 56 060	6	40	-	-	100	3	6	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1134 56 061	6	50	-	-	150	3	6	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1224 56 080	8	12	-	-	63	4	8	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 1134 56 080	8	40	-	-	100	4	8	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1134 56 081	8	50	-	-	150	4	8	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1224 56 100	10	15	-	-	72	5	10	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 1224 56 1001	10	20	-	-	72	5	10	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 1134 56 100	10	45	-	-	100	5	10	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1134 56 101	10	60	-	-	150	5	10	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 1224 56 120	12	18	-	-	83	6	12	4	-	-	-	-	-	9	30		MGC PVTi



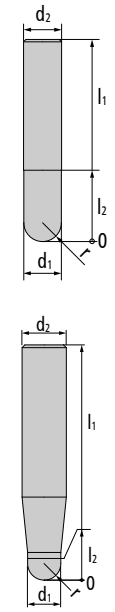


major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

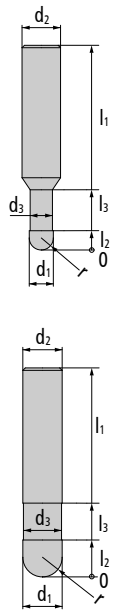
Ball nose end mills

no wd. | short | long | extra long



catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1224 56 1201	12	24	-	-	83	6	12	4	-	-	-	-	-	9	30		MGC PVTi
NVV 1134 56 120	12	45	-	-	100	6	12	4	-	-	-	-	-	8	30		MGC PVTi
NVV 1134 56 121	12	75	-	-	150	6	12	4	-	-	-	-	-	8	30		MGC PVTi
NVV 1224 56 160	16	24	-	-	92	8	16	4	-	-	-	-	-	9	30		MGC PVTi
NVV 1134 56 160	16	45	-	-	100	8	16	4	-	-	-	-	-	8	30		MGC PVTi
NVV 1134 46 160	16	50	-	-	100	8	16	4	-	-	-	-	-	8	30		MGC PVTi
NVV 1134 56 161	16	75	-	-	150	8	16	4	-	-	-	-	-	8	30		MGC PVTi
NVV 1134 56 200	20	40	-	-	100	10	20	4	-	-	-	-	-	8	30		MGC PVTi
NVV 1224 56 200	20	30	-	-	104	10	20	4	-	-	-	-	-	9	30		MGC PVTi
NVV 1134 56 201	20	75	-	-	150	10	20	4	-	-	-	-	-	8	30		MGC PVTi

wd. | long



catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1324 56 020	2	3	10	1.9	75	1	6	4	11.17	11.51	11.80	12.08	12.71	9	30		MGC PVTi
NVV 1324 56 030	3	4.5	12	2.9	75	1.5	6	4	13.23	13.60	13.91	14.24	14.96	9	30		MGC PVTi
NVV 1324 56 040	4	6	12	3.8	75	2	6	4	13.40	13.72	14.02	14.34	15.04	9	30		MGC PVTi
NVV 1324 56 050	5	7.5	15	4.8	75	2.5	6	4	16.47	16.85	17.22	-	-	9	30		MGC PVTi
NVV 1324 56 060	6	9	20	5.8	75	3	6	4	-	-	-	-	-	9	30		MGC PVTi
NVV 1324 56 061	6	9	20	5.8	100	3	6	4	-	-	-	-	-	9	30		MGC PVTi
NVV 1324 56 080	8	12	26	7.8	90	4	8	4	-	-	-	-	-	9	30		MGC PVTi
NVV 1324 56 100	10	15	31	9.8	100	5	10	4	-	-	-	-	-	9	30		MGC PVTi
NVV 1324 56 120	12	18	37	11.8	110	6	12	4	-	-	-	-	-	9	30		MGC PVTi
NVV 1324 56 160	16	24	43	15.8	110	8	16	4	-	-	-	-	-	9	30		MGC PVTi
NVV 1324 56 200	20	30	53	19.8	150	10	20	4	-	-	-	-	-	9	30		MGC PVTi

toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
2	f_z (mm) a_p (mm)	0.01-0.025 0.05-0.13	-	0.01-0.04 0.06-0.2	-	-	0.01-0.03 0.04-0.1
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	-	0.04-0.07 0.06-0.4	-	-	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.12 0.12-0.6	-	-	0.08-0.15 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.15 0.15-0.8	-	0.08-0.15 0.15-0.8	-	-	0.08-0.15 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.15 0.2-1	-	0.08-0.15 0.3-1	-	-	0.08-0.2 0.2-0.5
12	f_z (mm) a_p (mm)	0.08-0.15 0.2-1.2	-	0.08-0.15 0.3-1.2	-	-	0.08-0.25 0.2-0.6
16	f_z (mm) a_p (mm)	0.1-0.25 0.2-1.6	-	0.1-0.25 0.3-1.6	-	-	0.08-0.25 0.2-0.8
20	f_z (mm) a_p (mm)	0.1-0.25 0.2-2	-	0.1-0.25 0.3-2	-	-	0.08-0.25 0.2-0.8

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100* ***225*** *350* *180* ***290*** *400*	-	-	*80* ***140*** *200* *100* ***175*** *250*

major application **minor application** roughing pre-finishing finishing

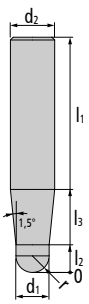
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

Ball nose end mills | 4 flutes | taper neck

4 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- ball nose
- long version
- l3: tapered 1,5°

Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
1.5° taper neck | strong shank																		
	NVV 1164 56 030	3	4.5	25	-	75	1.5	6	4	9.75	18.02	26.47	27.23	28.21	9	30		MGC PVTi
	NVV 1164 56 031	3	4.5	50	-	100	1.5	6	4	9.75	18.02	51.47	-	-	9	30		MGC PVTi
	NVV 1164 56 040	4	6	25	-	75	2	6	4	12.50	23.03	26.11	26.56	-	-	-		MGC PVTi
	NVV 1164 56 041	4	6	50	-	100	2	6	4	12.50	23.03	-	-	-	9	30		MGC PVTi
	NVV 1164 56 050	5	7.5	25	-	75	2.5	6	4	15.25	25.45	-	-	-	9	30		MGC PVTi
	NVV 1164 56 051	5	7.5	50	-	90	2.5	8	4	15.25	25.45	51.21	-	-	9	30		MGC PVTi
	NVV 1164 56 060	6	9	35	-	75	3	8	4	18.00	33.05	36.30	-	-	9	30		MGC PVTi
	NVV 1164 56 061	6	9	50	-	100	3	10	4	19.51	36.04	51.36	52.01	-	9	30		MGC PVTi
	NVV 1164 56 080	8	12	50	-	100	4	10	4	22.01	40.06	-	-	-	9	30		MGC PVTi
	NVV 1164 56 081	8	12	90	-	150	4	12	4	23.51	43.06	-	-	-	9	30		MGC PVTi
	NVV 1164 56 100	10	15	50	-	110	5	12	4	27.51	50.08	-	-	-	9	30		MGC PVTi
	NVV 1164 56 101	10	15	50	-	150	5	12	4	27.51	50.08	-	-	-	9	30		MGC PVTi

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	Feed per tooth | d.o.c.						
copy milling 3D							
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	-	0.04-0.07 0.06-0.4	-	-	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.12 0.12-0.6	-	-	0.08-0.15 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.15 0.15-0.8	-	0.08-0.15 0.15-0.8	-	-	0.08-0.15 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.15 0.2-1	-	0.08-0.15 0.3-1	-	-	0.08-0.2 0.2-0.5

toric tool

clamping flat

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100 **225** 350* *180 **290** 400*	-	-	*80 **140** 200* *100 **175** 250*

major application minor application roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

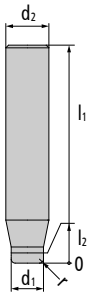
Toric / corner radius end mills | 2 flutes

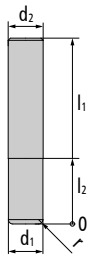
2 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- corner radius end mill
- short l long version
- with and without clearance between shank and flute

no wd. | short

Toric / corner radius end mills – catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0332 56 00501	0.5	0.8	-	-	50	0.1	4	2	0.74	0.87	0.98	1.09	1.29	9	30		MGC PVTi
NVV 0332 56 01001	1	1.5	-	-	50	0.1	4	2	1.90	2.09	2.25	2.39	2.65	9	30		MGC PVTi
NVV 0332 56 01002	1	1.5	-	-	50	0.2	4	2	1.88	2.07	2.23	2.37	2.62	9	30		MGC PVTi
NVV 0332 56 01502	1.5	2.3	-	-	50	0.2	4	2	2.77	3.00	3.18	3.34	3.63	9	30		MGC PVTi
NVV 0332 56 02002	2	3	-	-	50	0.2	4	2	3.54	3.79	3.99	4.17	4.50	9	30		MGC PVTi
NVV 0332 56 02003	2	3	-	-	50	0.3	4	2	3.53	3.78	3.98	4.15	4.48	9	30		MGC PVTi
NVV 0332 56 020	2	3	-	-	50	0.5	4	2	3.51	3.75	3.95	4.12	4.43	9	30		MGC PVTi
NVV 0172 56 020	2	3	-	-	57	0.6	6	2	3.50	3.74	3.93	4.10	4.41	2	30		MGC PVTi
NVV 0332 56 03002	3	4.5	-	-	50	0.2	4	2	5.16	5.45	5.69	5.90	6.36	9	30		MGC PVTi
NVV 0332 56 03003	3	4.5	-	-	50	0.3	4	2	5.15	5.44	5.68	5.89	6.34	9	30		MGC PVTi
NVV 0332 56 030	3	4.5	-	-	50	0.5	4	2	5.14	5.42	5.66	5.86	6.29	9	30		MGC PVTi
NVV 0332 56 031	3	4.5	-	-	50	1	4	2	5.10	5.37	5.59	5.78	6.18	9	30		MGC PVTi
NVV 0332 56 0311	3	4.5	-	-	57	1	6	2	5.10	5.37	5.59	5.78	6.18	9	30		MGC PVTi
NVV 0332 56 04002	4	6	-	-	50	0.2	4	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 040021	4	6	-	-	57	0.2	6	2	6.75	7.09	7.36	7.63	8.23	9	30		MGC PVTi
NVV 0332 56 040	4	6	-	-	50	0.5	4	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 0401	4	6	-	-	57	0.5	6	2	6.74	7.07	7.33	7.58	8.16	9	30		MGC PVTi
NVV 0332 56 041	4	6	-	-	50	1	4	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 0411	4	6	-	-	57	1	6	2	6.70	7.02	7.27	7.51	8.04	9	30		MGC PVTi
NVV 0172 56 040	4	6	-	-	57	1.5	6	2	6.67	6.97	7.22	7.44	7.92	2	30		MGC PVTi
NVV 0332 56 05002	5	7.5	-	-	57	0.2	6	2	8.34	8.71	9.02	9.35	-	9	30		MGC PVTi
NVV 0332 56 050	5	7.5	-	-	57	0.5	6	2	8.32	8.69	8.99	9.31	10.02	9	30		MGC PVTi
NVV 0332 56 051	5	7.5	-	-	57	1	6	2	8.30	8.65	8.94	9.23	9.91	9	30		MGC PVTi

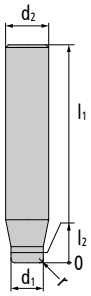


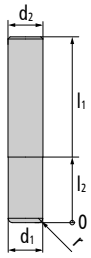


toric tool clamping flat

Toric / corner radius end mills

no wd. | short



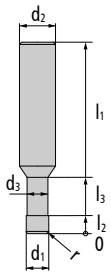


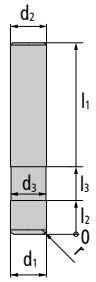
catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0332 56 06003	6	9	-	-	57	0.3	6	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 060	6	9	-	-	57	0.5	6	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 061	6	9	-	-	57	1	6	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 062	6	9	-	-	57	1.5	6	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0172 56 060	6	9	-	-	57	2	6	2	-	-	-	-	-	2	30		MGC PVTi
NVV 0172 56 061	6	9	-	-	57	2.5	6	2	-	-	-	-	-	2	30		MGC PVTi
NVV 0332 56 080	8	12	-	-	63	0.5	8	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 081	8	12	-	-	63	1	8	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 082	8	12	-	-	63	1.5	8	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 083	8	12	-	-	63	2	8	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0172 56 080	8	12	-	-	63	2.5	8	2	-	-	-	-	-	2	30		MGC PVTi
NVV 0332 56 100	10	15	-	-	72	0.5	10	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 101	10	15	-	-	72	1	10	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 102	10	15	-	-	72	1.5	10	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 103	10	15	-	-	72	2	10	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0172 56 100	10	15	-	-	72	2.5	10	2	-	-	-	-	-	2	30		MGC PVTi
NVV 0172 56 101	10	15	-	-	72	3	10	2	-	-	-	-	-	2	30		MGC PVTi
NVV 0172 56 103	10	15	-	-	72	4	10	2	-	-	-	-	-	2	30		MGC PVTi
NVV 0332 56 120	12	18	-	-	83	0.5	12	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 1206	12	18	-	-	83	0.6	12	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 121	12	18	-	-	83	1	12	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 122	12	18	-	-	83	1.5	12	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0332 56 123	12	18	-	-	83	2	12	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0172 56 121	12	18	-	-	83	3	12	2	-	-	-	-	-	2	30		MGC PVTi
NVV 0172 56 123	12	18	-	-	83	4	12	2	-	-	-	-	-	2	30		MGC PVTi
NVV 0172 56 124	12	18	-	-	83	5	12	2	-	-	-	-	-	2	30		MGC PVTi

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

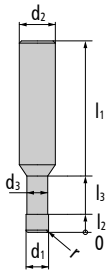
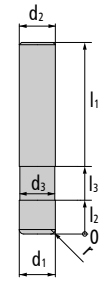
Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | short | long																		
	NVV 0362 56 020	2	3	10	1.9	75	0.5	6	2	11.19	11.54	11.83	12.14	12.79	9	30		MGC PVTi
	NVV 0362 56 030	3	4.5	12	2.9	75	0.5	6	2	13.26	13.65	14.00	14.35	15.13	9	30		MGC PVTi
	NVV 0362 56 031	3	4.5	12	2.9	75	1	6	2	13.24	13.62	13.95	14.30	15.05	9	30		MGC PVTi
	NVV 0362 56 040	4	6	12	3.8	75	0.5	6	2	13.44	13.79	14.14	14.50	15.29	9	30		MGC PVTi
	NVV 0362 56 041	4	6	12	3.8	75	1	6	2	13.43	13.77	14.10	14.45	15.21	9	30		MGC PVTi
	NVV 0362 56 050	5	7.5	15	4.8	75	0.5	6	2	16.53	16.95	17.37	-	-	9	30		MGC PVTi
	NVV 0362 56 051	5	7.5	15	4.8	75	1	6	2	16.52	16.92	17.33	-	-	9	30		MGC PVTi
	NVV 0362 56 060	6	9	20	5.8	75	0.5	6	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 061	6	9	20	5.8	75	1	6	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 0611	6	9	20	5.8	100	1	6	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 062	6	9	20	5.8	75	1.5	6	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0182 56 060	6	9	20	5.8	75	2	6	2	-	-	-	-	-	1	30		MGC PVTi
	NVV 0182 56 061	6	9	20	5.8	75	2.5	6	2	-	-	-	-	-	1	30		MGC PVTi
	NVV 0362 56 080	8	12	26	7.8	90	0.5	8	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 081	8	12	26	7.8	90	1	8	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 082	8	12	26	7.8	90	1.5	8	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 083	8	12	26	7.8	90	2	8	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0182 56 080	8	12	26	7.8	90	2.5	8	2	-	-	-	-	-	1	30		MGC PVTi
	NVV 0182 56 081	8	12	26	7.8	90	3	8	2	-	-	-	-	-	1	30		MGC PVTi
	NVV 0362 56 100	10	15	31	9.8	100	0.5	10	2	-	-	-	-	-	9	30		MGC PVTi
	SVV 0362 56 10061	10	15	61	9.8	100	0.5	10	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 101	10	15	31	9.8	100	1	10	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 102	10	15	31	9.8	100	1.5	10	2	-	-	-	-	-	9	30		MGC PVTi





toric tool

clamping flat

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | short | long																		
	NVV 0362 56 103	10	15	31	9.8	100	2	10	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0182 56 100	10	15	31	9.8	100	2.5	10	2	-	-	-	-	-	1	30		MGC PVTi
	NVV 0182 56 101	10	15	31	9.8	100	3	10	2	-	-	-	-	-	1	30		MGC PVTi
	NVV 0182 56 103	10	15	31	9.8	100	4	10	2	-	-	-	-	-	1	30		MGC PVTi
	NVV 0362 56 120	12	18	37	11.8	110	0.5	12	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 121	12	18	37	11.8	110	1	12	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 122	12	18	37	11.8	110	1.5	12	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0362 56 123	12	18	37	11.8	110	2	12	2	-	-	-	-	-	9	30		MGC PVTi
	SVV 0362 56 12370	12	18	37	11.8	110	2	12	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0182 56 123	12	18	37	11.8	110	4	12	2	-	-	-	-	-	1	30		MGC PVTi
	NVV 0182 56 124	12	18	37	11.8	110	5	12	2	-	-	-	-	-	1	30		MGC PVTi

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	Feed per tooth | d.o.c.						
copy milling 3D							
0.5	f_z (mm) a_p (mm)	0.005-0.02 0.005-0.1	-	0.005-0.02 0.01-0.1	-	-	0.005-0.015 0.005-0.05
1-2	f_z (mm) a_p (mm)	0.01-0.04 0.05-0.2	-	0.01-0.04 0.06-0.2	-	-	0.01-0.03 0.04-0.1
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	-	0.04-0.07 0.06-0.4	-	-	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.12 0.12-0.6	-	-	0.08-0.15 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.115 0.15-0.525	-	0.08-0.15 0.15-0.8	-	-	0.08-0.15 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.115 0.2-0.65	-	0.08-0.15 0.3-1	-	-	0.08-0.2 0.2-0.5
12	f_z (mm) a_p (mm)	0.08-0.115 0.2-0.75	-	0.08-0.15 0.3-1.2	-	-	0.08-0.25 0.2-0.6

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	Application						
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100* ***225*** *350* *180* ***290*** *400*	-	-	*80* ***140*** *200* *100* ***175*** *250*

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

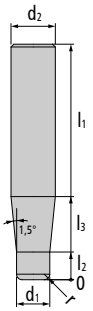
END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

Toric / corner radius end mills | 2 flutes | taper neck

2 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- long version
- l3: tapered 1.5°

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
1.5° taper neck | strong shank																		
	NVV 0162 56 020	2	3	25	-	75	0.2	6	2	6.65	13.10	26.32	27.17	28.21	9	30		MGC PVTi
	NVV 0162 56 0206	2	3	39	-	75	0.2	6	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0162 56 022	2	3	25	-	75	0.5	6	2	6.50	12.51	26.28	27.10	28.18	9	30		MGC PVTi
	NVV 0162 56 0221	2	3	39	-	75	0.5	6	2	6.50	12.51	39.97	41.14	-	9	30		MGC PVTi
	NVV 0162 56 021	2	3	50	-	100	0.5	6	2	6.50	12.51	51.28	52.68	-	9	30		MGC PVTi
	NVV 0162 56 03005	3	4.5	25	-	75	0.5	6	2	8.75	17.00	26.15	26.93	27.92	9	30		MGC PVTi
	NVV 0162 56 030	3	4.5	25	-	75	1	6	2	8.50	16.01	26.10	26.88	27.88	9	30		MGC PVTi
	NVV 0162 56 0301	3	4.5	39	-	75	1	6	2	8.50	16.01	40.10	41.19	-	9	30		MGC PVTi
	NVV 0162 56 031	3	4.5	50	-	100	1	6	2	8.50	16.01	50.87	-	-	9	30		MGC PVTi
	NVV 0162 56 04005	4	6	25	-	75	0.5	6	2	11.00	21.50	26.11	26.58	-	9	30		MGC PVTi
	NVV 0162 56 040	4	6	25	-	75	1	6	2	10.75	20.51	26.07	26.56	-	9	30		MGC PVTi
	NVV 0162 56 041	4	6	44	-	100	1	6	2	10.75	20.51	-	-	-	9	30		MGC PVTi
	NVV 0162 56 050	5	7.5	25	-	75	1	6	2	13.75	25.34	-	-	-	9	30		MGC PVTi
	NVV 0162 56 051	5	7.5	50	-	90	1	8	2	13.75	26.51	51.21	-	-	9	30		MGC PVTi
	NVV 0162 56 060	6	9	35	-	75	1	8	2	16.00	31.01	36.30	-	-	9	30		MGC PVTi
	NVV 0162 56 061	6	9	50	-	100	1	10	2	16.00	31.01	51.21	52.00	-	9	30		MGC PVTi
	NVV 0162 56 080	8	12	50	-	100	2	10	2	20.00	38.03	-	-	-	9	30		MGC PVTi
	NVV 0162 56 081	8	12	90	-	150	2	12	2	20.00	38.03	-	-	-	9	30		MGC PVTi
	NVV 0162 56 100	10	15	50	-	110	2	12	2	24.50	47.02	-	-	-	9	30		MGC PVTi
	NVV 0162 56 101	10	15	50	-	150	2	12	2	24.50	47.02	-	-	-	9	30		MGC PVTi



toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
2	f_z (mm) a_p (mm)	0.01-0.04 0.05-0.2	-	0.01-0.04 0.06-0.2	-	-	0.01-0.03 0.04-0.1
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	-	0.04-0.07 0.06-0.4	-	-	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.12 0.12-0.6	-	-	0.08-0.15 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.115 0.15-0.525	-	0.08-0.15 0.15-0.8	-	-	0.08-0.15 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.115 0.2-0.65	-	0.08-0.15 0.3-1	-	-	0.08-0.2 0.2-0.5

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100* ***225*** *350* *180* ***290*** *400*	-	-	*80* ***140*** *200* *100* ***175*** *250*

major application | minor application | roughing | pre-finishing | finishing

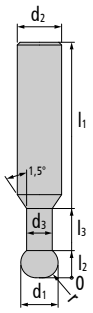
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

Toric / corner radius end mills | 2 flutes | spheric

2 flutes, plain shank, straight grooved

- corner radius end mill
- for bidirectional plunshing
- long version
- with clearance between shank and flute

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | long																		
	NVV 1362 56 020	2	2	8	1.9	75	0.5	6	2	8.12	8.18	8.25	8.32	8.47	6	-1		MGC PVTi
	NVV 1362 56 030	3	3	12	2.9	75	0.75	6	2	12.15	12.25	12.35	12.46	12.68	6	-1		MGC PVTi
	NVV 1362 56 040	4	4	16	3.8	75	1	6	2	16.23	16.37	16.51	16.65	16.94	6	-1		MGC PVTi
	NVV 1362 56 050	5	5	20	4.8	100	1.25	6	2	20.27	20.44	-	-	-	6	-1		MGC PVTi
	NVV 1362 56 060	6	6	24	5.8	100	1.5	6	2	-	-	-	-	-	6	-1		MGC PVTi
	NVV 1362 56 080	8	8	32	7.8	100	2	8	2	-	-	-	-	-	6	-1		MGC PVTi
	NVV 1362 56 100	10	10	40	9.8	125	2.5	10	2	-	-	-	-	-	6	-1		MGC PVTi
	NVV 1362 56 120	12	12	48	11.8	125	3	12	2	-	-	-	-	-	6	-1		MGC PVTi
	NVV 1362 56 160	16	16	56	15.8	165	4	16	2	-	-	-	-	-	6	-1		MGC PVTi

Feed per tooth (fz) | d.o.c. (ap)

Material / Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
2	f_z (mm) a_p (mm)	0.01-0.04 0.05-0.2	-	0.01-0.025 0.06-0.13	-	-	0.01 0.04
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	-	0.04-0.055 0.06-0.26	-	-	0.04 0.08
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.1 0.12-0.375	-	-	0.08-0.1 0.1-0.2
8	f_z (mm) a_p (mm)	0.08-0.15 0.15-0.8	-	0.08-0.115 0.15-0.525	-	-	0.08-0.1 0.15-0.275
10	f_z (mm) a_p (mm)	0.08-0.15 0.2-1	-	0.08-0.115 0.3-0.65	-	-	0.08-0.1 0.2-0.35
12	f_z (mm) a_p (mm)	0.08-0.15 0.2-1.2	-	0.08-0.115 0.3-0.75	-	-	0.08-0.115 0.2-0.4
16	f_z (mm) a_p (mm)	0.1-0.175 0.2-0.95	-	0.1-0.175 0.3-0.95	-	-	0.08-0.115 0.2-0.5

toric tool clamping flat

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	▼ - 200 **275** 350	-	▼ - 180 **290** 400	-	-	▽ - *100* ***175*** *250*

▼ major application ▽ minor application ▼▽ roughing ▼▽ pre-finishing ▼▽ finishing

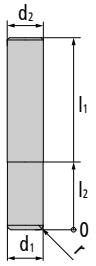
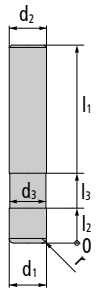
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

Toric / corner radius end mills | 3 flutes

3 flutes, plain shank, 30° right hand helix angle

- corner radius end mill
- short l long version
- with and without clearance between shank and flute

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short																		
	NVV 0163 57 060	6	12	-	-	57	2.5	6	3	-	-	-	-	-	1	30		MGC PVCC
	NVV 0163 57 080	8	16	-	-	63	3	8	3	-	-	-	-	-	2	30		MGC PVCC
	NVV 0163 57 100	10	20	-	-	72	4	10	3	-	-	-	-	-	2	30		MGC PVCC
	NVV 0163 57 120	12	24	-	-	83	5	12	3	-	-	-	-	-	2	30		MGC PVCC
	NVV 0163 57 160	16	24	-	-	92	7	16	3	-	-	-	-	-	2	30		MGC PVCC
wd. l long																		
	NVV 0183 57 060	6	12	20	5.8	75	2	6	3	-	-	-	-	-	1,5	30		MGC PVCC
	NVV 0183 57 061	6	12	20	5.8	75	2.5	6	3	-	-	-	-	-	1,5	30		MGC PVCC
	NVV 0183 57 080	8	16	26	7.8	90	2.5	8	3	-	-	-	-	-	1,5	30		MGC PVCC
	NVV 0183 57 081	8	16	26	7.8	90	3	8	3	-	-	-	-	-	1,5	30		MGC PVCC
	NVV 0183 57 100	10	20	31	9.8	100	2.5	10	3	-	-	-	-	-	1,5	30		MGC PVCC
	NVV 0183 57 101	10	20	31	9.8	100	3	10	3	-	-	-	-	-	1,5	30		MGC PVCC
	NVV 0183 57 103	10	20	31	9.8	100	4	10	3	-	-	-	-	-	1,5	30		MGC PVCC
	NVV 0183 57 120	12	24	37	11.8	110	2.5	12	3	-	-	-	-	-	1,5	30		MGC PVCC
	NVV 0183 57 123	12	24	37	11.8	110	4	12	3	-	-	-	-	-	1,5	30		MGC PVCC
	NVV 0183 57 124	12	24	37	11.8	110	5	12	3	-	-	-	-	-	1,5	30		MGC PVCC

toric tool clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.1 0.12-0.375	-	-	-
8	f_z (mm) a_p (mm)	0.08-0.15 0.15-0.8	-	0.08-0.115 0.15-0.525	-	-	-
10	f_z (mm) a_p (mm)	0.08-0.15 0.2-1	-	0.08-0.115 0.3-0.65	-	-	-
12	f_z (mm) a_p (mm)	0.08-0.15 0.2-1.2	-	0.08-0.115 0.3-0.75	-	-	-
16	f_z (mm) a_p (mm)	0.1-0.175 0.2-0.95	-	0.1-0.175 0.3-0.95	-	-	-

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVCC	roughing finishing	- *150* ***250*** *350*	-	- 150 ***275*** 400	-	-	-

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

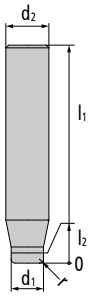
END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

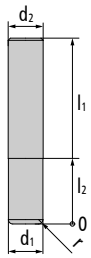
Toric / corner radius end mills | 4 flutes

4 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- short l long version
- with and without clearance between shank and flute

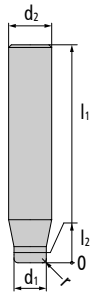
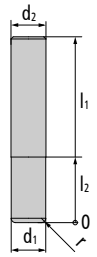
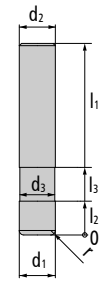
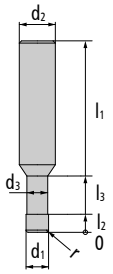
Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short																		
	NVV 0334 56 02002	2	3	-	-	50	0.2	4	4	3.54	3.79	3.99	4.17	4.50	9	30		MGC PVTi
	NVV 0334 56 020	2	3	-	-	50	0.5	4	4	3.51	3.75	3.95	4.12	4.43	9	30		MGC PVTi
	NVV 0334 56 03002	3	4.5	-	-	50	0.2	4	4	5.16	5.45	5.69	5.90	6.36	9	30		MGC PVTi
	NVV 0334 56 03003	3	4.5	-	-	50	0.3	4	4	5.15	5.44	5.68	5.89	6.34	9	30		MGC PVTi
	NVV 0334 56 030	3	4.5	-	-	50	0.5	4	4	5.14	5.42	5.66	5.86	6.29	9	30		MGC PVTi
	NVV 0334 56 03005	3	4.5	-	-	57	0.5	6	4	5.14	5.42	5.66	5.86	6.29	9	30		MGC PVTi
	NVV 0334 56 031	3	4.5	-	-	50	1	4	4	5.10	5.37	5.59	5.78	6.18	9	30		MGC PVTi
	NVV 0334 56 04002	4	6	-	-	50	0.2	4	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 040	4	6	-	-	50	0.5	4	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 041	4	6	-	-	50	1	4	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 05002	5	7.5	-	-	57	0.2	6	4	8.34	8.71	9.02	9.35	-	9	30		MGC PVTi
	NVV 0334 56 050	5	7.5	-	-	57	0.5	6	4	8.32	8.69	8.99	9.31	10.02	9	30		MGC PVTi
	NVV 0334 56 051	5	7.5	-	-	57	1	6	4	8.30	8.65	8.94	9.23	9.91	9	30		MGC PVTi
	NVV 0334 56 06002	6	9	-	-	57	0.2	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 06003	6	9	-	-	57	0.3	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 060	6	9	-	-	57	0.5	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 061	6	9	-	-	57	1	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 062	6	9	-	-	57	1.5	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 080	8	12	-	-	63	0.5	8	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 081	8	12	-	-	63	1	8	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 082	8	12	-	-	63	1.5	8	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 083	8	12	-	-	63	2	8	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 100	10	15	-	-	72	0.5	10	4	-	-	-	-	-	9	30		MGC PVTi





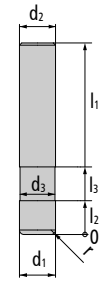
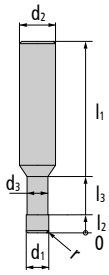
toric tool

clamping flat

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short																		
	NVV 0334 56 101	10	15	-	-	72	1	10	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 102	10	15	-	-	72	1.5	10	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 103	10	15	-	-	72	2	10	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 120	12	18	-	-	83	0.5	12	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 121	12	18	-	-	83	1	12	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 122	12	18	-	-	83	1.5	12	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 123	12	18	-	-	83	2	12	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0334 56 163	16	24	-	-	92	2	16	4	-	-	-	-	-	9	30		MGC PVTi
wd. | long																		
	NVV 0364 56 020	2	3	10	1.9	75	0.5	6	4	11.19	11.54	11.83	12.14	12.79	9	30		MGC PVTi
	NVV 0364 56 030	3	4.5	12	2.9	75	0.5	6	4	13.26	13.65	14.00	14.35	15.13	9	30		MGC PVTi
	NVV 0364 56 031	3	4.5	12	2.9	75	1	6	4	13.24	13.62	13.95	14.30	15.05	9	30		MGC PVTi
	NVV 0364 56 040	4	6	12	3.8	75	0.5	6	4	13.44	13.79	14.14	14.50	15.29	9	30		MGC PVTi
	NVV 0364 56 041	4	6	12	3.8	75	1	6	4	13.43	13.77	14.10	14.45	15.21	9	30		MGC PVTi
	NVV 0364 56 050	5	7.5	15	4.8	75	0.5	6	4	16.53	16.95	17.37	-	-	9	30		MGC PVTi
	NVV 0364 56 051	5	7.5	15	4.8	75	1	6	4	16.52	16.92	17.33	-	-	9	30		MGC PVTi
	NVV 0364 56 060	6	9	20	5.8	75	0.5	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0364 56 061	6	9	20	5.8	75	1	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0364 56 062	6	9	20	5.8	75	1.5	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0364 56 080	8	12	26	7.8	90	0.5	8	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0364 56 081	8	12	26	7.8	90	1	8	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0364 56 082	8	12	26	7.8	90	1.5	8	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0364 56 083	8	12	26	7.8	90	2	8	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0364 56 100	10	15	31	9.8	100	0.5	10	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0364 56 101	10	15	31	9.8	100	1	10	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0364 56 102	10	15	31	9.8	100	1.5	10	4	-	-	-	-	-	9	30		MGC PVTi

major application minor application roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | long																		
	NVV 0364 56 103	10	15	31	9.8	100	2	10	4	-	-	-	-	-	9	30		**MGC PVTi**
	NVV 0364 56 120	12	18	37	11.8	110	0.5	12	4	-	-	-	-	-	9	30		**MGC PVTi**
	NVV 0364 56 121	12	18	37	11.8	110	1	12	4	-	-	-	-	-	9	30		**MGC PVTi**
	NVV 0364 56 122	12	18	37	11.8	110	1.5	12	4	-	-	-	-	-	9	30		**MGC PVTi**
	NVV 0364 56 123	12	18	37	11.8	110	2	12	4	-	-	-	-	-	9	30		**MGC PVTi**
																		

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	**Feed per tooth | d.o.c.**	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
2	f_z (mm) a_p (mm)	0.01-0.04 0.05-0.2	-	0.01-0.04 0.06-0.2	-	-	0.01-0.03 0.04-0.1
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	-	0.04-0.07 0.06-0.4	-	-	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.12 0.12-0.6	-	-	0.08-0.15 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.115 0.15-0.525	-	0.08-0.15 0.15-0.8	-	-	0.08-0.15 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.115 0.2-0.65	-	0.08-0.15 0.3-1	-	-	0.08-0.2 0.2-0.5
12	f_z (mm) a_p (mm)	0.08-0.115 0.2-0.75	-	0.08-0.15 0.3-1.2	-	-	0.08-0.25 0.2-0.6
16	f_z (mm) a_p (mm)	0.1-0.175 0.2-0.95	-	0.1-0.25 0.3-1.6	-	-	0.08-0.25 0.2-0.8

Cutting speed (Vc in m/min)

Material							
Quality Coating	**Application**	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100 **225** 350* *180 **290** 400*	-	-	*80 **140** 200* *100 **175** 250*

toric tool

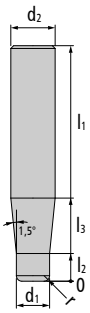
clamping flat

END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

Toric / corner radius end mills | 4 flutes | taper neck

4 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- long version
- l3: tapered 1.5°

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
1.5° taper neck | strong shank																		
	NVV 0164 56 030	3	4.5	25	-	75	1	6	4	8.50	16.01	26.10	26.88	27.88	9	30		MGC PVTi
	NVV 0164 56 031	3	4.5	50	-	100	1	6	4	8.50	16.01	50.87	-	-	9	30		MGC PVTi
	NVV 0164 56 040	4	6	25	-	75	1	6	4	10.75	20.51	26.07	26.56	-	9	30		MGC PVTi
	NVV 0164 56 041	4	6	50	-	100	1	6	4	10.75	20.51	-	-	-	9	30		MGC PVTi
	NVV 0164 56 050	5	7.5	25	-	75	1	6	4	13.75	25.34	-	-	-	9	30		MGC PVTi
	NVV 0164 56 051	5	7.5	50	-	90	1	8	4	13.75	26.51	51.21	-	-	9	30		MGC PVTi
	NVV 0164 56 052	5	6	25	-	75	1.5	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0164 56 060	6	9	35	-	75	1	8	4	16.00	31.01	36.30	-	-	9	30		MGC PVTi
	NVV 0164 56 061	6	9	50	-	100	1	10	4	16.00	31.01	51.21	52.00	-	9	30		MGC PVTi
	NVV 0164 56 080	8	12	50	-	100	2	10	4	20.00	38.03	-	-	-	9	30		MGC PVTi
	NVV 0164 56 081	8	12	90	-	150	2	12	4	20.00	38.03	-	-	-	9	30		MGC PVTi
	NVV 0164 56 100	10	15	50	-	110	2	12	4	24.50	47.02	-	-	-	9	30		MGC PVTi
	NVV 0164 56 101	10	15	50	-	150	2	12	4	24.50	47.02	-	-	-	9	30		MGC PVTi

Feed per tooth (fz) | d.o.c. (ap)

Material / Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	-	0.04-0.07 0.06-0.4	-	-	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	0.08-0.12 0.12-0.6	-	-	0.08-0.15 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.115 0.15-0.525	-	0.08-0.15 0.15-0.8	-	-	0.08-0.15 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.115 0.2-0.65	-	0.08-0.15 0.3-1	-	-	0.08-0.2 0.2-0.5

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100 **225** 350* *180 **290** 400*	-	-	*80 **140** 200* *100 **175** 250*

toric tool

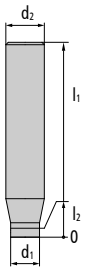
clamping flat

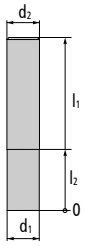
END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

End mills | 2 flutes

2 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- straight face
- with chamfer
- short I long I extra long version
- with and without clearance between shank and flute





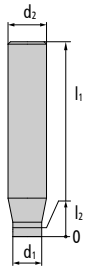
End mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short | extra long																		
	NVV 0222 56 0041	0.4	0.6	-	-	50	-	4	2	0.88	1.02	1.14	1.26	1.47	9	30		MGC PVTi
	NVV 0222 56 0051	0.5	0.75	-	-	50	-	4	2	1.05	1.21	1.34	1.46	1.68	9	30		MGC PVTi
	NVV 0222 56 0061	0.6	0.9	-	-	50	-	4	2	1.23	1.39	1.53	1.66	1.89	9	30		MGC PVTi
	NVV 0222 56 0081	0.8	1.2	-	-	50	-	4	2	1.60	1.75	1.90	2.04	2.29	9	30		MGC PVTi
	NVV 0222 56 0101	1	1.5	-	-	50	-	4	2	1.91	2.10	2.27	2.41	2.67	9	30		MGC PVTi
	NVV 0222 56 0152	1.5	2.5	-	-	50	-	4	2	2.74	2.97	3.15	3.32	3.61	9	30		MGC PVTi
	NVV 0222 56 0151	1.5	2.5	-	-	57	-	6	2	3.01	3.25	3.44	3.62	3.92	9	30		MGC PVTi
	NVV 0222 56 020	2	3	-	-	50	-	4	2	3.55	3.81	4.02	4.20	4.54	9	30		MGC PVTi
	NVV 0222 56 022	2	3	-	-	57	-	6	2	3.55	3.81	4.02	4.20	4.54	9	30		MGC PVTi
	NVV 0222 56 0251	2.5	4	-	-	50	-	4	2	4.63	4.92	5.15	5.35	5.78	9	30		MGC PVTi
	NVV 0222 56 025	2.5	4	-	-	57	-	6	2	4.63	4.92	5.15	5.35	5.78	9	30		MGC PVTi
	NVV 0222 56 030	3	4.5	-	-	50	-	4	2	5.17	5.47	5.71	5.93	6.40	9	30		MGC PVTi
	NVV 0222 56 031	3	4.5	-	-	57	-	6	2	5.17	5.47	5.71	5.93	6.40	9	30		MGC PVTi
	NVV 0132 56 030	3	30	-	-	60	-	3	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 0132 56 031	3	30	-	-	75	-	3	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 0222 56 041	4	6	-	-	50	-	4	2	-	-	-	-	-	9	30		MGC PVTi
	NVV 0222 56 040	4	6	-	-	57	-	6	2	6.76	7.10	7.38	7.65	8.27	9	30		MGC PVTi
	NVV 0132 56 040	4	30	-	-	60	-	4	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 0132 56 041	4	30	-	-	75	-	4	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 0222 56 050	5	7.5	-	-	57	-	6	2	8.35	8.72	9.04	9.38	-	9	30		MGC PVTi
	NVV 0132 56 050	5	35	-	-	70	-	5	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 0132 56 051	5	40	-	-	100	-	5	2	-	-	-	-	-	8	30		MGC PVTi
	NVV 0222 56 060	6	9	-	-	57	-	6	2	-	-	-	-	-	9	30		MGC PVTi

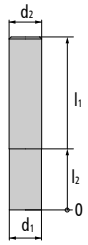
major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

End mills

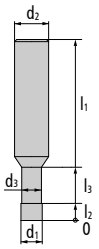
no wd. | short | extra long

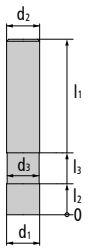




catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0132 56 060	6	40	-	-	100	-	6	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0132 56 061	6	50	-	-	150	-	6	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0222 56 080	8	12	-	-	63	-	8	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0132 56 080	8	40	-	-	100	-	8	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0132 56 081	8	50	-	-	150	-	8	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0222 56 100	10	15	-	-	72	-	10	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0132 56 100	10	45	-	-	100	-	10	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0132 56 101	10	60	-	-	150	-	10	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0222 56 120	12	18	-	-	83	-	12	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0132 56 120	12	45	-	-	100	-	12	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0132 56 121	12	75	-	-	150	-	12	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0222 56 160	16	24	-	-	92	-	16	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0132 56 160	16	45	-	-	100	-	16	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0132 56 161	16	75	-	-	150	-	16	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0132 56 200	20	40	-	-	100	-	20	2	-	-	-	-	-	8	30		MGC PVTi
NVV 0222 56 200	20	30	-	-	104	-	20	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0132 56 201	20	75	-	-	150	-	20	2	-	-	-	-	-	8	30		MGC PVTi

wd. | long





catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0322 56 020	2	3	10	1.9	75	-	6	2	11.21	11.57	11.87	12.19	12.87	9	30		MGC PVTi
NVV 0322 56 030	3	4.5	12	2.9	75	-	6	2	13.28	13.67	14.03	14.40	15.20	9	30		MGC PVTi
NVV 0322 56 040	4	6	12	3.8	75	-	6	2	13.46	13.82	14.17	14.55	15.36	9	30		MGC PVTi
NVV 0322 56 050	5	7.5	15	4.8	75	-	6	2	16.54	16.97	17.41	-	-	9	30		MGC PVTi
NVV 0322 56 060	6	9	20	5.8	75	-	6	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0322 56 080	8	12	26	7.8	90	-	8	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0322 56 100	10	15	31	9.8	100	-	10	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0322 56 120	12	18	37	11.8	110	-	12	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0322 56 160	16	24	43	15.8	140	-	16	2	-	-	-	-	-	9	30		MGC PVTi
NVV 0322 56 200	20	30	53	19.8	150	-	20	2	-	-	-	-	-	9	30		MGC PVTi

toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
pocket and slot milling							
0.4-0.8	f_z (mm) a_p (mm)	0.005-0.01 0.02-0.1	-	0.005-0.01 0.02-0.1	-	-	0.005-0.01 0.02-0.05
1-2.5	f_z (mm) a_p (mm)	0.01-0.02 0.1-0.3	-	0.01-0.02 0.1-0.3	-	-	0.01-0.02 0.05-0.2
3-4	f_z (mm) a_p (mm)	0.03-0.05 0.2-0.7	-	0.03-0.05 0.2-0.7	-	-	0.02-0.03 0.1-0.2
5-6	f_z (mm) a_p (mm)	0.03-0.05 0.2-1	-	0.03-0.05 0.2-1	-	-	0.03-0.04 0.1-0.3
8	f_z (mm) a_p (mm)	0.04-0.06 0.2-1.1	-	0.04-0.06 0.2-1.1	-	-	0.04-0.05 0.1-0.4
10	f_z (mm) a_p (mm)	0.05-0.08 0.2-1.3	-	0.05-0.08 0.2-1.3	-	-	0.05-0.06 0.1-0.4
12	f_z (mm) a_p (mm)	0.06-0.1 0.2-1.5	-	0.06-0.1 0.2-1.5	-	-	0.06-0.07 0.1-0.4
16	f_z (mm) a_p (mm)	0.06-0.1 0.2-1.9	-	0.06-0.1 0.2-1.9	-	-	0.06-0.07 0.1-0.4
20	f_z (mm) a_p (mm)	0.07-0.12 0.2-2.1	-	0.07-0.12 0.2-2.1	-	-	0.06-0.08 0.1-0.4

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100* ***225*** *350* *180* ***290*** *400*	-	-	*120* ***160*** *200* *100* ***175*** *250*

major application **minor application** roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL UNIVERSAL UP TO 52 HRC

End mills | 4 flutes

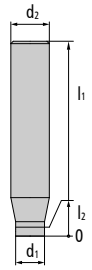
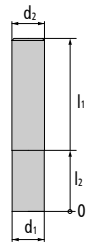
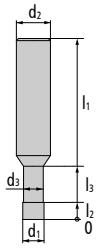
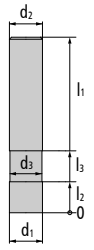
4 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- straight face
- with chamfer
- short I long I extra long version
- with and without clearance between shank and flute

End mills | **no wd. | short | extra long**

catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0224 56 015	1.5	2.5	-	-	50	-	4	4	3.01	3.25	3.44	3.62	3.92	9	30		MGC PVTi
NVV 0224 56 021	2	3	-	-	50	-	4	4	3.55	3.81	4.02	4.20	4.54	9	30		MGC PVTi
NVV 0224 56 022	2	3	-	-	57	-	6	4	3.55	3.81	4.02	4.20	4.54	9	30		MGC PVTi
NVV 0224 56 031	3	4.5	-	-	50	-	4	4	5.17	5.47	5.71	5.93	6.40	9	30		MGC PVTi
NVV 0224 56 030	3	4.5	-	-	57	-	6	4	5.17	5.47	5.71	5.93	6.40	9	30		MGC PVTi
NVV 0134 56 030	3	30	-	-	60	-	3	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0134 56 031	3	30	-	-	75	-	3	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0224 56 040	4	6	-	-	57	-	6	4	6.76	7.10	7.38	7.65	8.27	9	30		MGC PVTi
NVV 0134 56 040	4	30	-	-	60	-	4	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0134 56 041	4	30	-	-	75	-	4	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0224 56 050	5	7.5	-	-	57	-	6	4	8.35	8.72	9.04	9.38	-	9	30		MGC PVTi
NVV 0134 56 050	5	35	-	-	70	-	5	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0134 56 051	5	40	-	-	100	-	5	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0224 56 060	6	9	-	-	57	-	6	4	-	-	-	-	-	9	30		MGC PVTi
NVV 0134 56 060	6	40	-	-	100	-	6	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0134 56 061	6	50	-	-	150	-	6	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0224 56 080	8	12	-	-	63	-	8	4	-	-	-	-	-	9	30		MGC PVTi
NVV 0134 56 080	8	40	-	-	100	-	8	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0134 56 081	8	50	-	-	150	-	8	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0224 56 100	10	15	-	-	72	-	10	4	-	-	-	-	-	9	30		MGC PVTi
NVV 0134 56 100	10	45	-	-	100	-	10	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0134 56 101	10	60	-	-	150	-	10	4	-	-	-	-	-	8	30		MGC PVTi
NVV 0224 56 120	12	18	-	-	83	-	12	4	-	-	-	-	-	9	30		MGC PVTi

toric tool clamping flat

End mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short | extra long																		
	NVV 0134 56 120	12	45	-	-	100	-	12	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 0134 56 121	12	75	-	-	150	-	12	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 0224 56 160	16	24	-	-	92	-	16	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0134 56 160	16	45	-	-	100	-	16	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 0134 56 161	16	75	-	-	150	-	16	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 0134 56 200	20	40	-	-	100	-	20	4	-	-	-	-	-	8	30		MGC PVTi
	NVV 0224 56 200	20	30	-	-	104	-	20	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0134 56 201	20	75	-	-	150	-	20	4	-	-	-	-	-	8	30		MGC PVTi
wd. | long																		
	NVV 0324 56 020	2	4	10	1.9	75	-	6	4	11.21	11.57	11.87	12.19	12.87	9	30		MGC PVTi
	NVV 0324 56 030	3	4.5	12	2.9	75	-	6	4	13.28	13.67	14.03	14.40	15.20	9	30		MGC PVTi
	NVV 0324 56 040	4	6	12	3.8	75	-	6	4	13.46	13.82	14.17	14.55	15.36	9	30		MGC PVTi
	NVV 0324 56 050	5	7.5	15	4.8	75	-	6	4	16.54	16.97	17.41	-	-	9	30		MGC PVTi
	NVV 0324 56 060	6	9	20	5.8	75	-	6	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0324 56 080	8	12	26	7.8	90	-	8	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0324 56 100	10	15	31	9.8	100	-	10	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0324 56 120	12	18	37	11.8	110	-	12	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0324 56 160	16	24	43	15.8	140	-	16	4	-	-	-	-	-	9	30		MGC PVTi
	NVV 0324 56 200	20	30	53	19.8	150	-	20	4	-	-	-	-	-	9	30		MGC PVTi

major application minor application roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
pocket and slot milling							
1.5-2	f_z (mm) a_p (mm)	0.01-0.02 0.1-0.3	-	0.01-0.02 0.1-0.3	-	-	0.01-0.02 0.05-0.2
3-4	f_z (mm) a_p (mm)	0.03-0.05 0.2-0.7	-	0.03-0.05 0.2-0.7	-	-	0.02-0.03 0.1-0.2
5-6	f_z (mm) a_p (mm)	0.03-0.05 0.2-1	-	0.03-0.05 0.2-1	-	-	0.03-0.04 0.1-0.3
8	f_z (mm) a_p (mm)	0.04-0.06 0.2-1.1	-	0.04-0.06 0.2-1.1	-	-	0.04-0.05 0.1-0.4
10	f_z (mm) a_p (mm)	0.05-0.08 0.2-1.3	-	0.05-0.08 0.2-1.3	-	-	0.05-0.06 0.1-0.4
12	f_z (mm) a_p (mm)	0.06-0.1 0.2-1.5	-	0.06-0.1 0.2-1.5	-	-	0.06-0.07 0.1-0.4
16	f_z (mm) a_p (mm)	0.06-0.1 0.2-1.9	-	0.06-0.1 0.2-1.9	-	-	0.06-0.07 0.1-0.4
20	f_z (mm) a_p (mm)	0.07-0.12 0.2-2.1	-	0.07-0.12 0.2-2.1	-	-	0.06-0.08 0.1-0.4

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	100 **225** 350 180 **290** 400	-	-	*120 **160** 200* *100 **175** 250*

toric tool

clamping flat

END MILLS FOR STEEL UP TO 58 HRC

		Page
Ball nose end mills	2 flutes	52
Toric / corner radius end mills	2 flutes	56
	6 and 8 flutes	61
End mills	4 - 8 flutes	62

pokolm PREMIUMTOOLS. WE KNOW HOW.

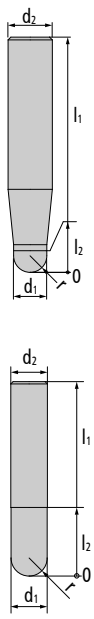
END MILLS FOR STEEL UP TO 58 HRC

Ball nose end mills | 2 flutes

2 flutes, plain shank, right hand helix angle

- center cutting end mill
- ball nose
- with and without clearance between shank and flute up to 20 x d
- high precise: r = +/- 0.005 ; d1 = -0.015

no wd. | high precise

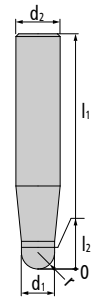


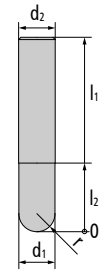
Ball nose end mills catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1722 85 001	0.1	0.1	-	-	50	0.05	4	2	0.22	0.32	0.41	0.49	0.67	4	30		UMGC PVTiH
NVV 1722 85 002	0.2	0.2	-	-	50	0.1	4	2	0.35	0.45	0.54	0.63	0.81	4	30		UMGC PVTiH
NVV 1722 85 003	0.3	0.3	-	-	50	0.15	4	2	0.47	0.57	0.67	0.76	0.95	4	30		UMGC PVTiH
NVV 1722 85 004	0.4	0.4	-	-	50	0.2	4	2	0.56	0.65	0.74	0.82	0.97	4	30		UMGC PVTiH
NVV 1722 85 005	0.5	0.5	-	-	50	0.25	4	2	0.67	0.77	0.86	0.94	1.10	4	30		UMGC PVTiH
NVV 1722 85 006	0.6	0.6	-	-	50	0.3	4	2	0.78	0.89	0.98	1.06	1.22	4	30		UMGC PVTiH
NVV 1722 85 008	0.8	0.8	-	-	50	0.4	4	2	1.01	1.12	1.21	1.30	1.47	4	30		UMGC PVTiH
NVV 1722 85 010	1	1	-	-	50	0.5	4	2	1.26	1.34	1.45	1.54	1.72	4	30		UMGC PVTiH
NVV 1722 85 0101	1	1	-	-	75	0.5	4	2	1.26	1.34	1.45	1.54	1.72	4	30		UMGC PVTiH
NVV 1722 85 015	1.5	1.5	-	-	50	0.75	4	2	1.77	1.90	2.02	2.12	2.31	4	20		UMGC PVTiH
NVV 1722 85 0151	1.5	1.5	-	-	75	0.75	4	2	1.77	1.90	2.02	2.12	2.31	4	20		UMGC PVTiH
NVV 1722 85 020	2	2	-	-	50	1	4	2	2.30	2.45	2.58	2.69	2.89	4	20		UMGC PVTiH
NVV 1722 85 0201	2	2	-	-	75	1	4	2	2.30	2.45	2.58	2.69	2.89	4	20		UMGC PVTiH
NVV 1722 85 030	3	3	-	-	57	1.5	6	2	3.36	3.53	3.68	3.80	4.03	4	20		UMGC PVTiH
NVV 1722 85 0301	3	3	-	-	75	1.5	6	2	3.36	3.53	3.68	3.80	4.03	4	20		UMGC PVTiH
NVV 1722 85 040	4	4	-	-	57	2	6	2	4.41	4.60	4.76	4.90	5.15	4	20		UMGC PVTiH
NVV 1722 85 0401	4	4	-	-	75	2	6	2	4.41	4.60	4.76	4.90	5.15	4	20		UMGC PVTiH
NVV 1722 85 050	5	5	-	-	57	2.5	6	2	5.45	5.67	5.84	5.99	6.25	4	20		UMGC PVTiH
NVV 1722 85 0501	5	5	-	-	75	2.5	6	2	5.45	5.67	5.84	5.99	6.25	4	20		UMGC PVTiH
NVV 1722 85 060	6	6	-	-	57	3	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1722 85 0601	6	6	-	-	75	3	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1722 85 080	8	8	-	-	63	4	8	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1722 85 0801	8	8	-	-	90	4	8	2	-	-	-	-	-	4	20		UMGC PVTiH

toric tool clamping flat

Ball nose end mills

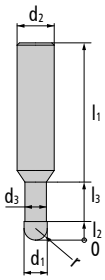
no wd. | high precise

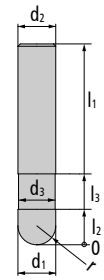




catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1722 85 100	10	10	-	-	72	5	10	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1722 85 1001	10	10	-	-	100	5	10	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1722 85 120	12	12	-	-	83	6	12	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1722 85 1201	12	12	-	-	110	6	12	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1722 85 160	16	16	-	-	92	8	16	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1722 85 1601	16	16	-	-	150	8	16	2	-	-	-	-	-	4	20		UMGC PVTiH

wd. | high precise





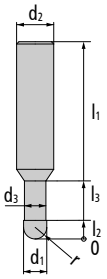
catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1192 85 0033	0.3	0.3	1.5	0.27	50	0.15	4	2	2.06	2.21	2.35	2.48	2.71	4	30		UMGC PVTiH
NVV 1192 85 0041	0.4	0.4	1.5	0.385	50	0.2	4	2	1.92	2.07	2.19	2.30	2.51	4	30		UMGC PVTiH
NVV 1192 85 0042	0.4	0.4	3	0.385	50	0.2	4	2	3.54	3.74	3.91	4.06	4.32	4	30		UMGC PVTiH
NVV 1192 85 0043	0.4	0.4	5	0.385	50	0.2	4	2	5.66	5.92	6.13	6.31	6.62	4	30		UMGC PVTiH
NVV 1192 85 0051	0.5	0.5	3	0.48	50	0.25	4	2	3.56	3.75	3.92	4.06	4.32	4	30		UMGC PVTiH
NVV 1192 85 0052	0.5	0.5	5	0.48	50	0.25	4	2	5.68	5.93	6.13	6.31	6.62	4	30		UMGC PVTiH
NVV 1192 85 0053	0.5	0.5	10	0.48	50	0.25	4	2	10.90	11.26	11.53	11.77	12.70	4	30		UMGC PVTiH
NVV 1192 85 0061	0.6	0.6	3	0.58	50	0.3	4	2	3.55	3.75	3.90	4.05	4.31	4	30		UMGC PVTiH
NVV 1192 85 0062	0.6	0.6	5	0.58	50	0.3	4	2	5.67	5.92	6.13	6.31	6.62	4	30		UMGC PVTiH
NVV 1192 85 0063	0.6	0.6	10	0.58	50	0.3	4	2	10.90	11.25	11.53	11.77	12.65	4	30		UMGC PVTiH
NVV 1192 85 0081	0.8	0.8	3	0.78	50	0.4	4	2	3.55	3.74	3.90	4.04	4.29	4	30		UMGC PVTiH
NVV 1192 85 0082	0.8	0.8	5	0.78	50	0.4	4	2	5.67	5.92	6.12	6.30	6.60	4	30		UMGC PVTiH
NVV 1192 85 0083	0.8	0.8	10	0.78	50	0.4	4	2	10.89	11.25	11.52	11.76	12.62	4	30		UMGC PVTiH
NVV 1192 85 0101	1	1	5	0.98	50	0.5	4	2	5.66	5.91	6.11	6.29	6.59	4	30		UMGC PVTiH
NVV 1192 85 0102	1	1	10	0.98	50	0.5	4	2	10.89	11.24	11.52	11.75	12.59	4	30		UMGC PVTiH
NVV 1192 85 0103	1	1	15	0.98	50	0.5	4	2	16.07	16.49	16.82	17.38	19.22	4	30		UMGC PVTiH
NVV 1192 85 0151	1.5	1.5	5	1.45	50	0.75	4	2	5.74	5.96	6.14	6.31	6.60	4	20		UMGC PVTiH

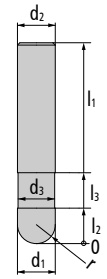
major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Ball nose end mills

wd. | high precise





catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1192 85 0152	1.5	1.5	10	1.45	50	0.75	4	2	10.95	11.28	11.54	11.76	12.54	4	20		UMGC PVTiH
NVV 1192 85 0153	1.5	1.5	15	1.45	50	0.75	4	2	16.12	16.52	16.84	17.36	19.18	4	20		UMGC PVTiH
NVV 1192 85 0154	1.5	1.5	20	1.45	75	0.75	4	2	21.26	21.73	22.28	23.34	-	4	20		UMGC PVTiH
NVV 1192 85 0201	2	2	5	1.95	50	1	4	2	5.73	5.94	6.12	6.28	6.56	4	20		UMGC PVTiH
NVV 1192 85 0202	2	2	10	1.95	50	1	4	2	10.94	11.26	11.52	11.75	12.46	4	20		UMGC PVTiH
NVV 1192 85 0203	2	2	15	1.95	50	1	4	2	16.11	16.51	16.82	17.31	19.10	4	20		UMGC PVTiH
NVV 1192 85 0204	2	2	20	1.95	75	1	4	2	21.25	21.72	22.25	23.29	-	4	20		UMGC PVTiH
NVV 1192 85 0302	3	3	10	2.95	57	1.5	6	2	10.92	11.23	11.49	11.71	12.30	4	20		UMGC PVTiH
NVV 1192 85 0303	3	3	15	2.95	57	1.5	6	2	16.09	16.49	16.80	17.22	18.94	4	20		UMGC PVTiH
NVV 1192 85 0304	3	3	20	2.95	75	1.5	6	2	21.24	21.70	22.18	23.20	25.57	4	20		UMGC PVTiH
NVV 1192 85 0305	3	3	25	2.95	75	1.5	6	2	26.37	26.88	27.88	29.18	-	4	20		UMGC PVTiH
NVV 1192 85 0402	4	4	10	3.9	57	2	6	2	11.01	11.29	11.52	11.72	12.20	4	20		UMGC PVTiH
NVV 1192 85 0403	4	4	15	3.9	57	2	6	2	16.17	16.53	16.82	17.17	18.84	4	20		UMGC PVTiH
NVV 1192 85 0404	4	4	20	3.9	75	2	6	2	21.30	21.73	22.16	23.15	-	4	20		UMGC PVTiH
NVV 1192 85 0405	4	4	25	3.9	75	2	6	2	26.43	26.91	27.86	29.14	-	4	20		UMGC PVTiH
NVV 1192 85 0502	5	5	10	4.9	57	2.5	6	2	10.99	11.26	11.49	11.69	-	4	20		UMGC PVTiH
NVV 1192 85 0503	5	5	15	4.9	57	2.5	6	2	16.15	16.51	16.80	-	-	4	20		UMGC PVTiH
NVV 1192 85 0504	5	5	20	4.9	75	2.5	6	2	21.29	21.71	-	-	-	4	20		UMGC PVTiH
NVV 1192 85 0505	5	5	25	4.9	75	2.5	6	2	26.42	26.89	-	-	-	4	20		UMGC PVTiH
NVV 1192 85 0602	6	6	10	5.85	57	3	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1192 85 0603	6	6	15	5.85	57	3	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1192 85 0604	6	6	20	5.85	75	3	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 1192 85 0605	6	6	25	5.85	75	3	6	2	-	-	-	-	-	4	20		UMGC PVTiH

toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
0.1-0.8	f_z (mm) a_p (mm)	0.005-0.02 0.005-0.1	0.005-0.02 0.005-0.08	0.005-0.02 0.01-0.1	-	0.005-0.02 0.005-0.08	0.005-0.015 0.005-0.05
1-2	f_z (mm) a_p (mm)	0.01-0.04 0.05-0.2	0.01-0.04 0.05-0.15	0.01-0.04 0.06-0.2	-	0.01-0.04 0.05-0.15	0.01-0.03 0.04-0.1
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	0.04-0.07 0.08-0.3	0.04-0.07 0.12-0.4	-	0.04-0.07 0.08-0.3	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	0.08-0.12 0.1-0.4	0.08-0.12 0.15-0.6	-	0.08-0.12 0.1-0.4	0.08-0.12 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.15 0.15-0.8	0.08-0.15 0.15-0.6	0.08-0.15 0.25-0.8	-	0.08-0.15 0.15-0.6	0.08-0.12 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.15 0.2-1	0.08-0.15 0.2-0.7	0.08-0.15 0.3-1	-	0.08-0.15 0.2-0.7	0.08-0.12 0.2-0.5
12	f_z (mm) a_p (mm)	0.08-0.15 0.2-1.2	0.08-0.15 0.2-0.8	0.08-0.15 0.3-1.2	-	0.08-0.15 0.2-0.8	0.08-0.15 0.2-0.6
16	f_z (mm) a_p (mm)	0.1-0.21 0.4-1.6	0.1-0.175 0.3-1.2	0.1-0.21 0.45-1.6	-	0.1-0.175 0.3-1.2	0.08-0.165 0.2-0.8

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
UMGC PVTiH	roughing finishing	- 120 **235** 350	- *110* ***130*** *150*	- 100 **250** 400	-	- *50* ***65*** *80*	150 **170** 190 80 **165** 250

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

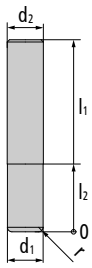
END MILLS FOR STEEL UP TO 58 HRC

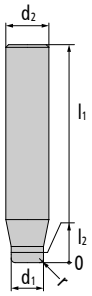
Toric / corner radius end mills | 2 flutes

2 flutes, plain shank, right hand helix angle

- center cutting end mill
- with and without clearance between shank and flute up to 20 x d
- high precise r = +/- 0.005 ; d1 = - 0.015

no wd. | high precise



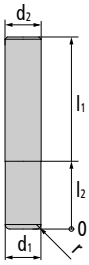


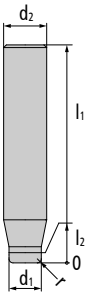
Toric / corner radius end mills catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0722 85 001	0.1	0.1	-	-	50	0.02	4	2	0.24	0.33	0.43	0.52	0.69	4	30		UMGC PVTiH
NVV 0722 85 002	0.2	0.2	-	-	50	0.05	4	2	0.37	0.47	0.57	0.66	0.84	4	30		UMGC PVTiH
NVV 0722 85 003	0.3	0.3	-	-	50	0.05	4	2	0.50	0.61	0.72	0.82	1.01	4	30		UMGC PVTiH
NVV 0722 85 004	0.4	0.4	-	-	50	0.1	4	2	0.58	0.69	0.78	0.86	1.02	4	30		UMGC PVTiH
NVV 0722 85 005	0.5	0.5	-	-	50	0.1	4	2	0.71	0.82	0.91	1.00	1.17	4	30		UMGC PVTiH
NVV 0722 85 006	0.6	0.6	-	-	50	0.1	4	2	0.83	0.94	1.04	1.14	1.31	4	30		UMGC PVTiH
NVV 0722 85 008	0.8	0.8	-	-	50	0.1	4	2	1.06	1.19	1.30	1.40	1.59	4	30		UMGC PVTiH
NVV 0722 85 010	1	1	-	-	50	0.2	4	2	1.27	1.41	1.53	1.63	1.82	4	30		UMGC PVTiH
NVV 0722 85 0101	1	1	-	-	75	0.2	4	2	1.27	1.41	1.53	1.63	1.82	4	30		UMGC PVTiH
NVV 0722 85 015	1.5	1.5	-	-	50	0.2	4	2	1.84	2.00	2.14	2.26	2.47	4	20		UMGC PVTiH
NVV 0722 85 0151	1.5	1.5	-	-	75	0.2	4	2	1.84	2.00	2.14	2.26	2.47	4	20		UMGC PVTiH
NVV 0722 85 02002	2	2	-	-	50	0.2	4	2	2.39	2.58	2.73	2.86	3.09	4	20		UMGC PVTiH
NVV 0722 85 02102	2	2	-	-	75	0.2	4	2	2.39	2.58	2.73	2.86	3.09	4	20		UMGC PVTiH
NVV 0722 85 02005	2	2	-	-	50	0.5	4	2	2.36	2.53	2.67	2.80	3.02	4	20		UMGC PVTiH
NVV 0722 85 02105	2	2	-	-	75	0.5	4	2	2.36	2.53	2.67	2.80	3.02	4	20		UMGC PVTiH
NVV 0722 85 03002	3	3	-	-	57	0.2	6	2	3.48	3.70	3.87	4.03	4.29	4	20		UMGC PVTiH
NVV 0722 85 03102	3	3	-	-	75	0.2	6	2	3.48	3.70	3.87	4.03	4.29	4	20		UMGC PVTiH
NVV 0722 85 03005	3	3	-	-	57	0.5	6	2	3.45	3.66	3.83	3.98	4.24	4	20		UMGC PVTiH
NVV 0722 85 03105	3	3	-	-	75	0.5	6	2	3.45	3.66	3.83	3.98	4.24	4	20		UMGC PVTiH
NVV 0722 85 04002	4	4	-	-	57	0.2	6	2	4.55	4.80	5.00	5.17	5.46	4	20		UMGC PVTiH
NVV 0722 85 04102	4	4	-	-	75	0.2	6	2	4.55	4.80	5.00	5.17	5.46	4	20		UMGC PVTiH
NVV 0722 85 04005	4	4	-	-	57	0.5	6	2	4.53	4.77	4.96	5.13	5.41	4	20		UMGC PVTiH
NVV 0722 85 04105	4	4	-	-	75	0.5	6	2	4.53	4.77	4.96	5.13	5.41	4	20		UMGC PVTiH

toric tool clamping flat

Toric / corner radius end mills

no wd. | high precise





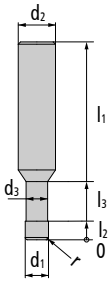
catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0722 85 05002	5	5	-	-	57	0.2	6	2	5.61	5.87	6.10	6.29	6.61	4	20		UMGC PVTiH
NVV 0722 85 05102	5	5	-	-	75	0.2	6	2	5.61	5.87	6.10	6.29	6.61	4	20		UMGC PVTiH
NVV 0722 85 05005	5	5	-	-	57	0.5	6	2	5.59	5.86	6.07	6.25	6.56	4	20		UMGC PVTiH
NVV 0722 85 05105	5	5	-	-	75	0.5	6	2	5.59	5.86	6.07	6.25	6.56	4	20		UMGC PVTiH
NVV 0722 85 06002	6	6	-	-	57	0.2	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 06102	6	6	-	-	75	0.2	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 06005	6	6	-	-	57	0.5	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 06105	6	6	-	-	75	0.5	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 06010	6	6	-	-	57	1	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 06110	6	6	-	-	75	1	6	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 08005	8	8	-	-	63	0.5	8	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 08105	8	8	-	-	90	0.5	8	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 08010	8	8	-	-	63	1	8	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 08110	8	8	-	-	90	1	8	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 10010	10	10	-	-	72	1	10	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 10110	10	10	-	-	100	1	10	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 10015	10	10	-	-	72	1.5	10	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 10115	10	10	-	-	100	1.5	10	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 12010	12	12	-	-	83	1	12	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 12110	12	12	-	-	110	1	12	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 12020	12	12	-	-	83	2	12	2	-	-	-	-	-	4	20		UMGC PVTiH
NVV 0722 85 12120	12	12	-	-	110	2	12	2	-	-	-	-	-	4	20		UMGC PVTiH

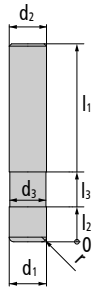
major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Toric / corner radius end mills

wd. | high precise

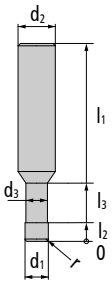
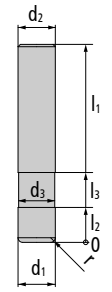




catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0192 85 00411	0.4	0.4	1.5	0.385	50	0.1	4	2	1.93	2.08	2.21	2.32	2.53	4	30		UMGC PVTiH
NVV 0192 85 00412	0.4	0.4	3	0.385	50	0.1	4	2	3.55	3.75	3.92	4.07	4.34	4	30		UMGC PVTiH
NVV 0192 85 00413	0.4	0.4	5	0.385	50	0.1	4	2	5.67	5.93	6.14	6.32	6.64	4	30		UMGC PVTiH
NVV 0192 85 00511	0.5	0.5	1.5	0.48	50	0.1	4	2	1.96	2.10	2.22	2.34	2.54	4	30		UMGC PVTiH
NVV 0192 85 00512	0.5	0.5	3	0.48	50	0.1	4	2	3.57	3.77	3.93	4.08	4.34	4	30		UMGC PVTiH
NVV 0192 85 00513	0.5	0.5	5	0.48	50	0.1	4	2	5.68	5.94	6.15	6.33	6.64	4	30		UMGC PVTiH
NVV 0192 85 00514	0.5	0.5	10	0.48	50	0.1	4	2	10.91	11.26	11.54	11.78	12.71	4	30		UMGC PVTiH
NVV 0192 85 00612	0.6	0.6	3	0.58	50	0.1	4	2	3.57	3.77	3.93	4.08	4.34	4	30		UMGC PVTiH
NVV 0192 85 00613	0.6	0.6	5	0.58	50	0.1	4	2	5.68	5.94	6.15	6.33	6.64	4	30		UMGC PVTiH
NVV 0192 85 00614	0.6	0.6	10	0.58	50	0.1	4	2	10.91	11.26	11.54	11.78	12.71	4	30		UMGC PVTiH
NVV 0192 85 00811	0.8	0.8	3	0.78	50	0.1	4	2	3.57	3.77	3.93	4.08	4.34	4	30		UMGC PVTiH
NVV 0192 85 00812	0.8	0.8	5	0.78	50	0.1	4	2	5.68	5.94	6.15	6.33	6.64	4	30		UMGC PVTiH
NVV 0192 85 00813	0.8	0.8	10	0.78	50	0.1	4	2	10.91	11.26	11.54	11.78	12.71	4	30		UMGC PVTiH
NVV 0192 85 00814	0.8	0.8	15	0.78	50	0.1	4	2	16.08	16.51	16.84	17.45	19.35	4	30		UMGC PVTiH
NVV 0192 85 01021	1	1	5	0.98	50	0.2	4	2	5.68	5.93	6.14	6.32	6.63	4	30		UMGC PVTiH
NVV 0192 85 01022	1	1	10	0.98	50	0.2	4	2	10.90	11.26	11.54	11.77	12.68	4	30		UMGC PVTiH
NVV 0192 85 01023	1	1	15	0.98	50	0.2	4	2	16.08	16.51	16.84	17.43	19.32	4	30		UMGC PVTiH
NVV 0192 85 01024	1	1	20	0.98	75	0.2	4	2	21.23	21.71	22.33	23.42	25.95	4	30		UMGC PVTiH
NVV 0192 85 01521	1.5	1.5	5	1.45	50	0.2	4	2	5.76	6.00	6.19	6.37	6.67	4	20		UMGC PVTiH
NVV 0192 85 01522	1.5	1.5	10	1.45	50	0.2	4	2	10.97	11.31	11.58	11.81	12.72	4	20		UMGC PVTiH
NVV 0192 85 01523	1.5	1.5	15	1.45	50	0.2	4	2	16.13	16.55	16.87	17.47	19.35	4	20		UMGC PVTiH
NVV 0192 85 01524	1.5	1.5	20	1.45	75	0.2	4	2	21.28	21.75	22.36	23.45	-	4	20		UMGC PVTiH
NVV 0192 85 02021	2	2	5	1.95	50	0.2	4	2	5.76	6.00	6.19	6.37	6.67	4	20		UMGC PVTiH
NVV 0192 85 02022	2	2	10	1.95	50	0.2	4	2	10.97	11.31	11.58	11.81	12.72	4	20		UMGC PVTiH
NVV 0192 85 02023	2	2	15	1.95	50	0.2	4	2	16.13	16.55	16.87	17.47	-	4	20		UMGC PVTiH
NVV 0192 85 02024	2	2	20	1.95	75	0.2	4	2	21.28	21.75	22.36	23.45	-	4	20		UMGC PVTiH

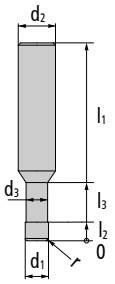
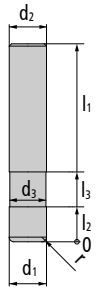
toric tool

clamping flat

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | high precise																		
	NVV 0192 85 02025	2	2	25	1.95	75	0.2	4	2	26.40	26.92	28.06	-	-	4	20		**UMGC PVTiH**
	NVV 0192 85 02051	2	2	5	1.95	50	0.5	4	2	5.75	5.98	6.17	6.33	6.63	4	20		**UMGC PVTiH**
	NVV 0192 85 02052	2	2	10	1.95	50	0.5	4	2	10.96	11.29	11.56	11.78	12.62	4	20		**UMGC PVTiH**
	NVV 0192 85 02053	2	2	15	1.95	50	0.5	4	2	16.13	16.53	16.85	17.41	19.26	4	20		**UMGC PVTiH**
	NVV 0192 85 02054	2	2	20	1.95	75	0.5	4	2	21.27	21.74	22.32	23.39	-	4	20		**UMGC PVTiH**
	NVV 0192 85 02055	2	2	25	1.95	75	0.5	4	2	26.40	26.91	28.02	-	-	4	20		**UMGC PVTiH**
	NVV 0192 85 03021	3	3	10	2.95	57	0.2	6	2	10.97	11.31	11.58	11.81	12.72	4	20		**UMGC PVTiH**
	NVV 0192 85 03022	3	3	15	2.95	57	0.2	6	2	16.13	16.55	16.87	17.47	19.35	4	20		**UMGC PVTiH**
	NVV 0192 85 03023	3	3	20	2.95	75	0.2	6	2	21.28	21.75	22.36	23.45	25.99	4	20		**UMGC PVTiH**
	NVV 0192 85 03024	3	3	25	2.95	75	0.2	6	2	26.40	26.92	28.06	29.43	-	4	20		**UMGC PVTiH**
	NVV 0192 85 03051	3	3	10	2.95	57	0.5	6	2	10.96	11.29	11.56	11.78	12.62	4	20		**UMGC PVTiH**
	NVV 0192 85 03052	3	3	15	2.95	57	0.5	6	2	16.13	16.53	16.85	17.41	19.26	4	20		**UMGC PVTiH**
	NVV 0192 85 03053	3	3	20	2.95	75	0.5	6	2	21.27	21.74	22.32	23.39	25.89	4	20		**UMGC PVTiH**
	NVV 0192 85 03054	3	3	25	2.95	75	0.5	6	2	26.40	26.91	28.02	29.37	-	4	20		**UMGC PVTiH**
	NVV 0192 85 04021	4	4	10	3.9	57	0.2	6	2	11.07	11.38	11.64	11.86	12.77	4	20		**UMGC PVTiH**
	NVV 0192 85 04022	4	4	15	3.9	57	0.2	6	2	16.22	16.61	16.91	17.52	-	4	20		**UMGC PVTiH**
	NVV 0192 85 04023	4	4	20	3.9	75	0.2	6	2	21.35	21.80	22.41	23.50	-	4	20		**UMGC PVTiH**
	NVV 0192 85 04024	4	4	25	3.9	75	0.2	6	2	26.47	26.97	28.11	-	-	4	20		**UMGC PVTiH**
	NVV 0192 85 04051	4	4	10	3.9	57	0.5	6	2	11.05	11.36	11.62	11.84	12.68	4	20		**UMGC PVTiH**
	NVV 0192 85 04052	4	4	15	3.9	57	0.5	6	2	16.21	16.59	16.90	17.46	19.31	4	20		**UMGC PVTiH**
	NVV 0192 85 04053	4	4	20	3.9	75	0.5	6	2	21.34	21.79	22.37	23.44	-	4	20		**UMGC PVTiH**
	NVV 0192 85 04054	4	4	25	3.9	75	0.5	6	2	26.46	26.96	28.07	-	-	4	20		**UMGC PVTiH**

major application **minor application** roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | high precise																		
	NVV 0192 85 05021	5	5	10	4.9	57	0.2	6	2	11.07	11.38	11.64	11.86	-	4	20		UMGC PVTiH
	NVV 0192 85 05023	5	5	20	4.9	75	0.2	6	2	21.35	21.80	-	-	-	4	20		UMGC PVTiH
	NVV 0192 85 05051	5	5	10	4.9	57	0.5	6	2	11.06	11.36	11.62	11.84	-	4	20		UMGC PVTiH
	NVV 0192 85 05053	5	5	20	4.9	75	0.5	6	2	21.34	21.79	-	-	-	4	20		UMGC PVTiH
	NVV 0192 85 06021	6	6	10	5.85	57	0.2	6	2	-	-	-	-	-	4	20		UMGC PVTiH
	NVV 0192 85 06023	6	6	20	5.85	75	0.2	6	2	-	-	-	-	-	4	20		UMGC PVTiH
	NVV 0192 85 06051	6	6	10	5.85	57	0.5	6	2	-	-	-	-	-	4	20		UMGC PVTiH
	NVV 0192 85 06053	6	6	20	5.85	75	0.5	6	2	-	-	-	-	-	4	20		UMGC PVTiH

Feed per tooth (fz) | d.o.c. (ap)

Material / Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
0.1-0.8	f_z (mm) a_p (mm)	0.005-0.02 0.005-0.1	0.005-0.02 0.005-0.08	0.005-0.02 0.01-0.1	0.01-0.03 0.01-0.3	0.005-0.02 0.005-0.08	0.005-0.015 0.005-0.05
1-2	f_z (mm) a_p (mm)	0.01-0.04 0.05-0.2	0.01-0.04 0.05-0.15	0.01-0.04 0.06-0.2	0.02-0.08 0.1-0.7	0.01-0.04 0.05-0.15	0.01-0.03 0.04-0.1
3-4	f_z (mm) a_p (mm)	0.04-0.07 0.08-0.4	0.04-0.07 0.08-0.3	0.04-0.07 0.12-0.4	0.04-0.1 0.15-1.4	0.04-0.07 0.08-0.3	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	0.08-0.12 0.1-0.4	0.08-0.12 0.15-0.6	0.06-0.15 0.2-2	0.08-0.12 0.1-0.4	0.08-0.12 0.1-0.3
8	f_z (mm) a_p (mm)	0.08-0.15 0.15-0.8	0.08-0.15 0.15-0.6	0.08-0.15 0.25-0.8	-	0.08-0.15 0.15-0.6	0.08-0.12 0.15-0.4
10	f_z (mm) a_p (mm)	0.08-0.15 0.2-1	0.08-0.15 0.2-0.7	0.08-0.15 0.3-1	-	0.08-0.15 0.2-0.7	0.08-0.12 0.2-0.5
12	f_z (mm) a_p (mm)	0.08-0.15 0.2-1.2	0.08-0.15 0.2-0.8	0.08-0.15 0.3-1.2	-	0.08-0.15 0.2-0.8	0.08-0.15 0.2-0.6

Cutting speed (Vc in m/min)

Material / Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
UMGC PVTiH	roughing finishing	- 120 **235** 350	- *70* ***110*** *150*	- *100* ***250*** *400*	- *200* ***400*** *600*	- 30 **55** 80	150 **170** 190 80 **165** 250

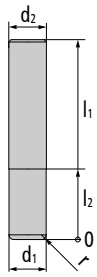
toric tool clamping flat

END MILLS FOR STEEL UP TO 58 HRC

Toric / corner radius end mills | 6 and 8 flutes

multiple flutes, plain shank, 50° right hand helix angle

- center cutting end mill
- corner radius for more stability
- short version
- without clearance between shank and flute

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short																		
	NVV 0280 56 060	6	12	-	-	57	1	6	6	-	-	-	-	-	6	50		MGC PVTi
	NVV 0280 56 080	8	16	-	-	63	1	8	6	-	-	-	-	-	6	50		MGC PVTi
	NVV 0280 56 100	10	20	-	-	72	1.5	10	6	-	-	-	-	-	6	50		MGC PVTi
	NVV 0280 56 120	12	24	-	-	83	1.5	12	6	-	-	-	-	-	6	50		MGC PVTi
	NVV 0280 56 160	16	32	-	-	92	2	16	6	-	-	-	-	-	6	50		MGC PVTi
	NVV 0280 56 200	20	40	-	-	104	2	20	8	-	-	-	-	-	6	50		MGC PVTi

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
contour milling							
6	f_z (mm) a_p (mm)	0.03 12	-	-	-	-	0.02 12
8	f_z (mm) a_p (mm)	0.04 16	-	-	-	-	0.02 16
10	f_z (mm) a_p (mm)	0.04 20	-	-	-	-	0.03 20
12	f_z (mm) a_p (mm)	0.05 24	-	-	-	-	0.03 24
16	f_z (mm) a_p (mm)	0.05 32	-	-	-	-	0.04 32
20	f_z (mm) a_p (mm)	0.06 40	-	-	-	-	0.04 40

The data above refer to a maximum cutting width ae of 2 % of the cutting diameter d1.

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
MGC PVTi	roughing finishing	- 200 **275** 350	-	-	-	-	- 100 **175** 250

major application **minor application** roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL UP TO 58 HRC

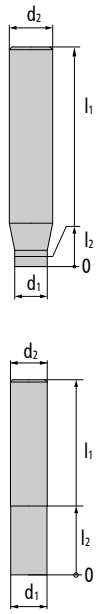
End mills | 4 - 8 flutes

end mill multiple flutes, plain shank, 50° right hand helix angle

- center cutting end mill
- straight face
- short l long version
- with and without clearance between shank and flute

End mills

no wd. | short | long



catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0259 56 040	4	8	-	-	57	-	6	4	8.88	9.26	9.60	9.96	10.76	6	50		MGC PVTi
NVV 0359 56 040	4	12	-	-	57	-	6	4	13.06	13.54	14.03	14.56	15.74	6	50		MGC PVTi
NVV 0259 56 050	5	10	-	-	57	-	6	5	10.97	11.40	11.81	12.26	-	6	50		MGC PVTi
NVV 0359 56 050	5	15	-	-	57	-	6	5	16.18	16.75	17.35	-	-	6	50		MGC PVTi
NVV 0259 56 060	6	12	-	-	57	-	6	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0258 56 061	6	12	-	-	57	-	6	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0359 56 060	6	18	-	-	57	-	6	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0259 56 080	8	16	-	-	63	-	8	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0359 56 080	8	24	-	-	63	-	8	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0259 56 100	10	20	-	-	72	-	10	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0258 56 101	10	20	-	-	72	-	10	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0359 56 100	10	30	-	-	72	-	10	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0259 56 120	12	24	-	-	83	-	12	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0258 56 121	12	24	-	-	83	-	12	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0359 56 120	12	36	-	-	83	-	12	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0359 56 140	14	42	-	-	100	-	14	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0259 56 160	16	32	-	-	92	-	16	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0359 56 160	16	48	-	-	92	-	16	6	-	-	-	-	-	6	50		MGC PVTi
NVV 0259 56 200	20	40	-	-	104	-	20	8	-	-	-	-	-	6	50		MGC PVTi
NVV 0359 56 200	20	60	-	-	125	-	20	8	-	-	-	-	-	6	50		MGC PVTi

toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
contour milling							
4	f_z (mm) a_p (mm)	0.03 8	-	0.03 8	-	-	0.01 8
5-6	f_z (mm) a_p (mm)	0.03 10	-	0.03 10	-	-	0.02 10
8	f_z (mm) a_p (mm)	0.04 16	-	0.04 16	-	-	0.02 16
10	f_z (mm) a_p (mm)	0.04 20	-	0.04 20	-	-	0.03 20
12	f_z (mm) a_p (mm)	0.05 24	-	0.05 24	-	-	0.03 24
14	f_z (mm) a_p (mm)	0.05 42	-	0.05 42	-	-	0.03 42
16	f_z (mm) a_p (mm)	0.05 32	-	0.05 32	-	-	0.04 32
20	f_z (mm) a_p (mm)	0.06 40	-	0.06 40	-	-	0.04 40

The data above refer to a maximum cutting width ae of 2 % of the cutting diameter d1.

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	- 200 **275** 350	-	- *180* ***290*** *400*	-	-	- 100 **175** 250

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL MORE THAN 58 HRC

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Ball nose end mills	2 flutes	66
Toric / corner radius end mills	5 flutes	68

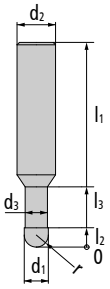
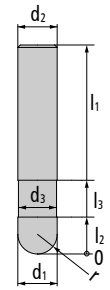
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL MORE THAN 58 HRC

Ball nose end mills | 2 flutes

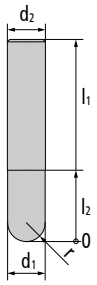
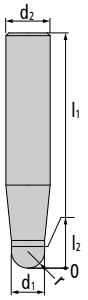
2 flutes, plain shank, 15° right hand helix angle

- center cutting end mill
- short l long version
- with and without clearance between shank and flute
- **extrem strong core diameter**

Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | short | long																		
	NVV 1313 59 011	1	1	6	0.95	75	0.5	6	2	6.90	7.18	7.42	7.63	8.04	0	15		**MGC PVAT**
	NVV 1313 59 016	1.5	1.5	8	1.4	75	0.75	6	2	9.10	9.40	9.66	9.90	10.41	0	15		**MGC PVAT**
	NVV 1313 59 021	2	2	10	1.9	75	1	6	2	11.17	11.51	11.80	12.08	12.71	0	15		**MGC PVAT**
	NVV 1313 59 031	3	3	12	2.9	75	1.5	6	2	13.23	13.60	13.91	14.24	14.96	0	15		**MGC PVAT**
	NVV 1313 59 041	4	4	15	3.8	75	2	6	2	16.49	16.87	17.26	17.66	18.55	0	15		**MGC PVAT**
	NVV 1313 59 051	5	5	18	4.8	75	2.5	6	2	19.56	20.00	20.45	-	-	0	15		**MGC PVAT**
	NVV 1313 59 061	6	6	20	5.8	75	3	6	2	-	-	-	-	-	0	15		**MGC PVAT**
	NVV 1313 59 081	8	8	26	7.8	90	4	8	2	-	-	-	-	-	0	15		**MGC PVAT**
	NVV 1313 59 101	10	10	31	9.8	100	5	10	2	-	-	-	-	-	0	15		**MGC PVAT**
	NVV 1313 59 121	12	12	37	11.8	110	6	12	2	-	-	-	-	-	0	15		**MGC PVAT**

toric tool

clamping flat

Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short																		
	NVV 1312 59 011	1	1	-	-	57	0.5	6	2	1.26	1.40	1.52	1.63	1.84	0	15		MGC PVAT
	NVV 1312 59 016	1.5	1.5	-	-	57	0.75	6	2	1.80	1.96	2.09	2.22	2.44	0	15		MGC PVAT
	NVV 1312 59 021	2	2	-	-	57	1	6	2	2.34	2.52	2.66	2.79	3.03	0	15		MGC PVAT
	NVV 1312 59 031	3	3	-	-	57	1.5	6	2	3.41	3.61	3.77	3.92	4.19	0	15		MGC PVAT
	NVV 1312 59 041	4	4	-	-	57	2	6	2	4.46	4.69	4.87	5.03	5.32	0	15		MGC PVAT
	NVV 1312 59 051	5	5	-	-	57	2.5	6	2	5.51	5.75	5.95	6.13	6.44	0	15		MGC PVAT
	NVV 1312 59 061	6	6	-	-	57	3	6	2	-	-	-	-	-	0	15		MGC PVAT
	NVV 1312 59 081	8	8	-	-	63	4	8	2	-	-	-	-	-	0	15		MGC PVAT
	NVV 1312 59 101	10	10	-	-	72	5	10	2	-	-	-	-	-	0	15		MGC PVAT
	NVV 1312 59 121	12	12	-	-	83	6	12	2	-	-	-	-	-	0	15		MGC PVAT

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
copy milling 3D							
1-2	f_z (mm) a_p (mm)	-	-	-	-	-	0.01-0.03 0.04-0.1
3-4	f_z (mm) a_p (mm)	-	-	-	-	-	0.04-0.07 0.08-0.2
5-6	f_z (mm) a_p (mm)	-	-	-	-	-	0.08-0.15 0.1-0.3
8	f_z (mm) a_p (mm)	-	-	-	-	-	0.08-0.15 0.15-0.4
10	f_z (mm) a_p (mm)	-	-	-	-	-	0.08-0.2 0.2-0.5
12	f_z (mm) a_p (mm)	-	-	-	-	-	0.08-0.25 0.2-0.6

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
MGC PVAT	roughing finishing	-	-	-	-	-	70 **145** 220 100 **175** 250

major application **minor application** roughing pre-finishing finishing

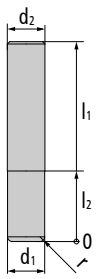
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STEEL MORE THAN 58 HRC

corner radius end mill | 5 flutes

5 flutes, plain shank, 30° right hand helix angle

- corner radius end mill
- without clearance between shank and flute
- **extrem strong core diameter**

corner radius end mill		d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°				
no wd. | short																		
	NVV 0275 59 060	6	4.5	-	-	57	2	6	5	-	-	-	-	-	2	30		MGC PVAT
	NVV 0275 59 080	8	5.5	-	-	63	2.5	8	5	-	-	-	-	-	2	30		MGC PVAT
	NVV 0275 59 101	10	7.5	-	-	72	3	10	5	-	-	-	-	-	2	30		MGC PVAT
	NVV 0275 59 100	10	7.5	-	-	72	3.5	10	5	-	-	-	-	-	2	30		MGC PVAT
	NVV 0275 59 120	12	9	-	-	83	3.5	12	5	-	-	-	-	-	2	30		MGC PVAT
	NVV 0275 59 160	16	10.5	-	-	92	5	16	5	-	-	-	-	-	2	30		MGC PVAT

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
copy milling 3D							
6	f_z (mm) a_p (mm)	0.08-0.12 0.1-0.6	-	-	-	-	0.08-0.1 0.1-0.2
8	f_z (mm) a_p (mm)	0.08-0.15 0.15-0.8	-	-	-	-	0.08-0.1 0.15-0.275
10	f_z (mm) a_p (mm)	0.08-0.15 0.2-1	-	-	-	-	0.08-0.1 0.2-0.35
12	f_z (mm) a_p (mm)	0.08-0.15 0.2-1.2	-	-	-	-	0.08-0.115 0.2-0.4
16	f_z (mm) a_p (mm)	0.1-0.175 0.2-0.95	-	-	-	-	0.08-0.115 0.2-0.5

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
MGC PVAT	roughing finishing	- *120* ***235*** *350*	-	-	-	-	80 **150** 220 100 **175** 250

toric tool

clamping flat

END MILLS FOR MICRO MACHINING UP TO 2.5 MM

		Page
Ball nose end mills	2 flutes	70
End mills	2 flutes	71

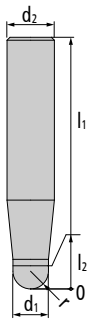
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR MICRO MACHINING UP TO 2.5 MM

Ball nose end mills | 2 flutes

2 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- ball nose
- 3 mm shank-diameter
- short version
- without clearance between shank and flute

Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short																		
	NVV 1142 56 002	0.2	0.5	-	-	39	0.1	3	2	0.73	0.76	0.79	0.83	0.92	9	30		**MGC PVTi**
	NVV 1142 56 003	0.3	1	-	-	39	0.15	3	2	0.83	0.86	0.90	0.94	1.04	9	30		**MGC PVTi**
	NVV 1142 56 004	0.4	1	-	-	39	0.2	3	2	1.35	1.41	1.47	1.54	1.71	9	30		**MGC PVTi**
	NVV 1142 56 005	0.5	1.5	-	-	39	0.25	3	2	1.56	1.62	1.70	1.78	1.96	9	30		**MGC PVTi**
	NVV 1142 56 006	0.6	1.5	-	-	39	0.3	3	2	1.77	1.84	1.92	2.01	2.22	9	30		**MGC PVTi**
	NVV 1142 56 008	0.8	2	-	-	39	0.4	3	2	2.18	2.27	2.37	2.47	2.73	9	30		**MGC PVTi**
	NVV 1142 56 010	1	3	-	-	39	0.5	3	2	2.59	2.70	2.81	2.94	3.24	9	30		**MGC PVTi**
	NVV 1142 56 012	1.2	3.6	-	-	38	0.6	3	2	4.27	4.45	4.65	4.87	5.40	9	30		**MGC PVTi**
	NVV 1142 56 015	1.5	4	-	-	39	0.75	3	2	5.66	5.83	6.02	6.21	6.66	9	30		**MGC PVTi**
	NVV 1142 56 020	2	5	-	-	39	1	3	2	7.20	7.42	7.65	7.90	8.47	9	30		**MGC PVTi**

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	**Feed per tooth | d.o.c.**	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
0.2-0.8	f_z (mm) a_p (mm)	0.005-0.02 0.005-0.1	0.005-0.02 0.005-0.08	0.005-0.02 0.01-0.1	0.01-0.03 0.01-0.3	0.005-0.02 0.005-0.08	-
1-2	f_z (mm) a_p (mm)	0.01-0.04 0.05-0.2	0.01-0.04 0.05-0.15	0.01-0.04 0.06-0.2	0.02-0.08 0.1-0.7	0.01-0.04 0.05-0.15	-

Cutting speed (Vc in m/min)

Material							
Quality Coating	**Application**	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	150 **225** 300 200 **275** 350	- *120 **135** 150*	- *180 **290** 400*	- *300 **450** 600*	- *70 **75** 80*	-

toric tool

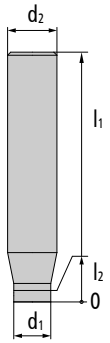
clamping flat

END MILLS FOR MICRO MACHINING UP TO 2.5 MM

End mills | 2 flutes

2 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- straight face
- 3 mm shank-diameter
- short version
- without clearance between shank and flute

End mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short																		
	NVV 0142 56 001	0.1	0.2	-	-	39	-	3	2	0.38	0.49	0.59	0.69	0.88	9	30		**MGC PVTi**
	NVV 0142 56 002	0.2	0.5	-	-	39	-	3	2	0.94	0.99	1.04	1.10	1.23	9	30		**MGC PVTi**
	NVV 0142 56 003	0.3	1	-	-	39	-	3	2	1.23	1.39	1.53	1.66	1.89	9	30		**MGC PVTi**
	NVV 0142 56 004	0.4	1	-	-	39	-	3	2	1.57	1.75	1.90	2.04	2.29	9	30		**MGC PVTi**
	NVV 0142 56 005	0.5	1.5	-	-	39	-	3	2	1.91	2.11	2.27	2.41	2.68	9	30		**MGC PVTi**
	NVV 0142 56 006	0.6	1.5	-	-	39	-	3	2	2.24	2.45	2.63	2.78	3.06	9	30		**MGC PVTi**
	NVV 0142 56 008	0.8	2	-	-	39	-	3	2	2.90	3.14	3.33	3.50	3.80	9	30		**MGC PVTi**
	NVV 0142 56 010	1	3	-	-	39	-	3	2	3.56	3.81	4.02	4.20	4.55	9	30		**MGC PVTi**
	NVV 0142 56 012	1.2	3	-	-	39	-	3	2	4.21	4.48	4.70	4.90	5.29	9	30		**MGC PVTi**
	NVV 0142 56 015	1.5	4	-	-	39	-	3	2	5.17	5.47	5.71	5.93	6.41	9	30		**MGC PVTi**
	NVV 0142 56 020	2	5	-	-	39	-	3	2	6.77	7.11	7.38	7.66	8.28	9	30		**MGC PVTi**

Feed per tooth (fz) | d.o.c. (ap)

Material / Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
pocket and slot milling							
0.1-0.8	f_z (mm) a_p (mm)	0.005-0.02 0.01-0.1	0.005-0.02 0.005-0.08	0.005-0.02 0.01-0.1	-	-	-
1-2	f_z (mm) a_p (mm)	0.02-0.04 1-1.5	0.02-0.04 0.3-0.7	0.02-0.04 1-1.5	-	-	-

Cutting speed (Vc in m/min)

Material / Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVTi	roughing finishing	- 150 **250** 350	- *120* ***135*** *150*	- *180* ***290*** *400*	-	-	-

major application **minor application** roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STAINLESS STEEL | TITANIUM ALLOYS

		Page
Toric / corner radius end mills	4 flutes | uneven cutting pitch	74
End mills	4 flutes | uneven cutting pitch	76

pokolm PREMIUMTOOLS. WE KNOW HOW.

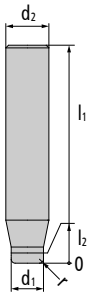
END MILLS FOR STAINLESS STEEL | TITANIUM ALLOYS

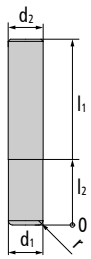
Toric / corner radius end mills | 4 flutes | uneven cutting pitch

4 flutes, plain shank, right hand helix angle

- center cutting end mill
- straight face
- unequal helix angle
- uneven cutting pitch

no wd. | short





Toric / corner radius end mills catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0514 56 030	3	8	-	-	57	0.2	6	4	8.87	9.25	9.58	9.93	10.72	10	37.5		UMGC PVST
NVV 0514 56 040	4	10	-	-	57	0.3	6	4	10.96	11.38	11.78	12.21	13.18	10	37.5		UMGC PVST
NVV 0514 56 050	5	12	-	-	57	0.4	6	4	13.05	13.51	13.99	14.50	-	10	37.5		UMGC PVST
NVV 0514 56 060	6	16	-	-	57	0.5	6	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0514 56 080	8	20	-	-	63	0.5	8	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0514 56 100	10	26	-	-	72	1	10	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0514 56 120	12	30	-	-	83	1	12	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0514 56 160	16	37	-	-	92	2	16	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0514 56 200	20	44	-	-	104	2	20	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0514 56 250	25	50	-	-	104	3	25	4	-	-	-	-	-	10	37.5		UMGC PVST

toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
contour milling							
3-4	f_z (mm) a_p (mm)	-	0.025-0.04 3-6	-	-	0.01-0.04 3-6	
5-6	f_z (mm) a_p (mm)	-	0.045-0.055 6-9	-	-	0.025-0.055 6-9	
8	f_z (mm) a_p (mm)	-	0.06-0.075 8-12	-	-	0.04-0.075 8-12	
10	f_z (mm) a_p (mm)	-	0.08-0.1 10-15	-	-	0.06-0.1 10-15	
12	f_z (mm) a_p (mm)	-	0.1-0.13 12-18	-	-	0.07-0.13 12-18	
16	f_z (mm) a_p (mm)	-	0.13-0.15 16-24	-	-	0.09-0.15 16-24	
20	f_z (mm) a_p (mm)	-	0.16-0.18 20-30	-	-	0.1-0.18 20-30	
25	f_z (mm) a_p (mm)	-	0.16-0.18 25-38	-	-	0.1-0.18 25-38	
pocket and slot milling							
3-4	f_z (mm) a_p (mm)	-	0.015-0.02 0.5-1.6	-	-	0.006-0.02 0.5-1.6	0.03-0.04 0.1-0.2
5-6	f_z (mm) a_p (mm)	-	0.025-0.03 0.5-3	-	-	0.01-0.03 0.5-3	0.05-0.08 0.1-0.3
8	f_z (mm) a_p (mm)	-	0.04-0.045 0.5-4	-	-	0.025-0.045 0.5-4	0.05-0.08 0.1-0.4
10	f_z (mm) a_p (mm)	-	0.05-0.06 0.5-5	-	-	0.03-0.06 0.5-5	0.07-0.1 0.1-0.4
12	f_z (mm) a_p (mm)	-	0.06-0.065 0.5-6	-	-	0.04-0.065 0.5-6	0.07-0.1 0.1-0.4
16	f_z (mm) a_p (mm)	-	0.085-0.09 0.5-8	-	-	0.06-0.09 0.5-8	0.08-0.12 0.1-0.4
20	f_z (mm) a_p (mm)	-	0.09-0.095 0.5-8	-	-	0.08-0.095 0.5-8	0.08-0.12 0.1-0.4
25	f_z (mm) a_p (mm)	-	0.09-0.095 0.5-8	-	-	0.08-0.095 0.5-8	0.08-0.12 0.1-0.4

The data above refer to a maximum cutting width ae of 2 % of the cutting diameter d1.

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
UMGC PVST	roughing finishing	-	40 **60** 80 80 **90** 100	-	-	15 **43** 70 20 **50** 80	- *100* ***175*** *250*

Detailed technical information on page 138.

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR STAINLESS STEEL | TITANIUM ALLOYS

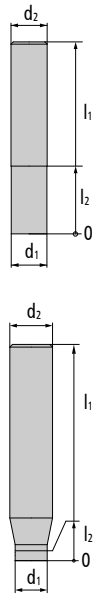
End mills | 4 flutes | uneven cutting pitch

4 flutes, plain shank, right hand helix angle

- center cutting end mill
- straight face
- unequal helix angle
- uneven cutting pitch

End mills

no wd. | short



catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0504 56 030	3	8	-	-	57	-	6	4	8.88	9.26	9.60	9.96	10.76	10	37.5		UMGC PVST
NVV 0504 56 040	4	10	-	-	57	-	6	4	10.97	11.40	11.81	12.26	13.25	10	37.5		UMGC PVST
NVV 0504 56 050	5	12	-	-	57	-	6	4	13.06	13.54	14.03	-	-	10	37.5		UMGC PVST
NVV 0504 56 060	6	16	-	-	57	-	6	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0504 56 080	8	20	-	-	63	-	8	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0504 56 100	10	26	-	-	72	-	10	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0504 56 120	12	30	-	-	83	-	12	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0504 56 160	16	37	-	-	92	-	16	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0504 56 200	20	44	-	-	104	-	20	4	-	-	-	-	-	10	37.5		UMGC PVST
NVV 0504 56 250	25	50	-	-	104	-	25	4	-	-	-	-	-	10	37.5		UMGC PVST

toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
contour milling							
3-4	f_z (mm) a_p (mm)	-	0.025-0.04 3-6	-	-	0.01-0.04 3-6	
5-6	f_z (mm) a_p (mm)	-	0.045-0.055 6-9	-	-	0.025-0.055 6-9	
8	f_z (mm) a_p (mm)	-	0.06-0.075 8-12	-	-	0.04-0.075 8-12	
10	f_z (mm) a_p (mm)	-	0.08-0.1 10-15	-	-	0.06-0.1 10-15	
12	f_z (mm) a_p (mm)	-	0.1-0.13 12-18	-	-	0.07-0.13 12-18	
16	f_z (mm) a_p (mm)	-	0.13-0.15 16-24	-	-	0.09-0.15 16-24	
20	f_z (mm) a_p (mm)	-	0.16-0.18 20-30	-	-	0.1-0.18 20-30	
25	f_z (mm) a_p (mm)	-	0.16-0.18 25-38	-	-	0.1-0.18 25-38	
pocket and slot milling							
3-4	f_z (mm) a_p (mm)	-	0.015-0.02 0.5-1.6	-	-	0.006-0.02 0.5-1.6	0.03-0.04 0.1-0.2
5-6	f_z (mm) a_p (mm)	-	0.025-0.03 0.5-3	-	-	0.01-0.03 0.5-3	0.05-0.08 0.1-0.3
8	f_z (mm) a_p (mm)	-	0.04-0.045 0.5-4	-	-	0.025-0.045 0.5-4	0.05-0.08 0.1-0.4
10	f_z (mm) a_p (mm)	-	0.05-0.06 0.5-5	-	-	0.03-0.06 0.5-5	0.07-0.1 0.1-0.4
12	f_z (mm) a_p (mm)	-	0.06-0.065 0.5-6	-	-	0.04-0.065 0.5-6	0.07-0.1 0.1-0.4
16	f_z (mm) a_p (mm)	-	0.085-0.09 0.5-8	-	-	0.06-0.09 0.5-8	0.08-0.12 0.1-0.4
20	f_z (mm) a_p (mm)	-	0.09-0.095 0.5-8	-	-	0.08-0.095 0.5-8	0.08-0.12 0.1-0.4
25	f_z (mm) a_p (mm)	-	0.09-0.095 0.5-8	-	-	0.08-0.095 0.5-8	0.08-0.12 0.1-0.4

The data above refer to a maximum cutting width ae of 2 % of the cutting diameter d1.

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
UMGC PVST	roughing finishing	-	40 **60** 80 80 **90** 100	-	-	15 **43** 70 20 **50** 80	- *100* ***175*** *250*

Detailed technical information on page 138.

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR ALUMINIUM | COPPER | PLASTIC | SYNTHETIC

		Page
Ball nose end mills	2 flutes	80
Toric / corner radius end mills	2 flutes	86
End mills	1 flute for aluminium	91
	1 flute for plastic	93
	2 flutes	95
	3 flutes for aluminium	98
	4 flutes for aluminium	100

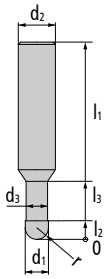
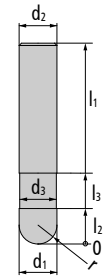
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR ALUMINIUM | COPPER | PLASTIC | SYNTHETIC

Ball nose end mills | 2 flutes

2 flutes, plain shank, 30° right hand helix angle

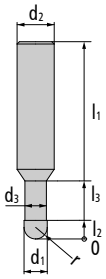
- center cutting end mill
- short l long version
- with and without clearance between shank and flute

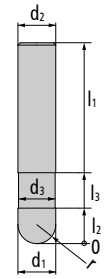
Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | short | long																		
	NVV 1432 47 0101	1	1.5	6	0.95	50	0.5	4	2	6.90	7.18	7.42	7.63	8.04	9	30		KAC PVAS
	NVV 1432 47 0102	1	1.5	10	0.95	50	0.5	4	2	11.07	11.46	11.76	12.06	12.71	9	30		KAC PVAS
	NVV 1432 47 0103	1	1.5	15	0.95	50	0.5	4	2	16.27	16.73	17.15	17.59	18.55	9	30		KAC PVAS
	NVV 1432 47 0104	1	1.5	20	0.95	75	0.5	4	2	21.43	21.98	22.54	23.12	24.39	9	30		KAC PVAS
	NVV 1432 47 0105	1	1.5	25	0.95	75	0.5	4	2	26.57	27.23	27.92	28.65	-	9	30		KAC PVAS
	NVV 1432 47 0106	1	1.5	30	0.95	75	0.5	4	2	31.71	32.48	33.31	34.18	-	9	30		KAC PVAS
	NVV 1432 47 0152	1.5	2.5	10	1.4	50	0.75	4	2	11.18	11.53	11.82	12.11	12.75	9	30		KAC PVAS
	NVV 1432 47 0153	1.5	2.5	15	1.4	50	0.75	4	2	16.35	16.79	17.20	17.64	18.59	9	30		KAC PVAS
	NVV 1432 47 0154	1.5	2.5	20	1.4	75	0.75	4	2	21.50	22.04	22.59	23.17	24.43	9	30		KAC PVAS
	NVV 1432 47 0155	1.5	2.5	25	1.4	75	0.75	4	2	26.64	27.29	27.98	28.70	-	9	30		KAC PVAS
	NVV 1432 47 0156	1.5	2.5	30	1.4	75	0.75	4	2	31.76	32.54	33.37	34.23	-	9	30		KAC PVAS
	NVV 1432 47 0212	2	3	10	1.9	50	1	4	2	11.17	11.51	11.80	12.08	12.71	9	30		KAC PVAS
	NVV 1432 47 0213	2	3	15	1.9	50	1	4	2	16.34	16.78	17.18	17.62	18.55	9	30		KAC PVAS
	NVV 1432 47 0214	2	3	20	1.9	75	1	4	2	21.50	22.03	22.57	23.15	-	9	30		KAC PVAS
	NVV 1432 47 02141	2	3	25	1.9	75	1	4	2	26.63	27.28	27.96	28.68	-	9	30		KAC PVAS
	NVV 1432 47 0215	2	3	30	1.9	75	1	4	2	31.76	32.53	33.35	-	-	9	30		KAC PVAS
	NVV 1432 47 02151	2	3	35	1.9	75	1	4	2	36.87	37.78	38.74	-	-	9	30		KAC PVAS
	NVV 1432 47 0253	2.5	4	15	2.4	50	1.25	4	2	16.34	16.76	17.17	17.59	-	9	30		KAC PVAS
	NVV 1432 47 0254	2.5	4	20	2.4	75	1.25	4	2	21.49	22.02	22.55	-	-	9	30		KAC PVAS
	NVV 1432 47 02551	2.5	4	35	2.4	75	1.25	4	2	36.87	37.77	-	-	-	9	30		KAC PVAS
	NVV 1432 47 0302	3	4.5	10	2.9	57	1.5	6	2	11.15	11.48	11.76	12.03	12.63	9	30		KAC PVAS
	NVV 1432 47 0304	3	4.5	20	2.9	57	1.5	6	2	21.48	22.00	22.53	23.09	24.31	9	30		KAC PVAS
	NVV 1432 47 0305	3	4.5	30	2.9	75	1.5	6	2	31.74	32.51	33.31	34.16	-	9	30		KAC PVAS

toric tool

clamping flat

Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | short | long																		
	NVV 1432 47 0306	3	4.5	40	2.9	75	1.5	6	2	42.00	43.01	44.08	-	-	9	30		KAC PVAS
	NVV 1432 47 0402	4	6	10	3.8	57	2	6	2	11.34	11.62	11.87	12.13	12.71	9	30		KAC PVAS
	NVV 1432 47 0404	4	6	20	3.8	57	2	6	2	21.63	22.12	22.64	23.19	-	9	30		KAC PVAS
	NVV 1432 47 0405	4	6	30	3.8	75	2	6	2	31.87	32.63	33.42	-	-	9	30		KAC PVAS
	NVV 1432 47 0406	4	6	40	3.8	75	2	6	2	42.12	43.13	-	-	-	9	30		KAC PVAS
	NVV 1432 47 0604	6	6	20	5.8	57	3	6	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 0605	6	6	30	5.8	75	3	6	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 0606	6	6	40	5.8	75	3	6	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 0607	6	6	50	5.8	100	3	6	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 0608	6	6	70	5.8	100	3	6	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 08051	8	12	35	7.8	90	4	8	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 0807	8	12	50	7.8	100	4	8	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 0808	8	12	70	7.8	100	4	8	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 1006	10	15	40	9.8	72	5	10	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 1007	10	15	50	9.8	100	5	10	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 1008	10	15	70	9.8	100	5	10	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 1009	10	15	100	9.8	150	5	10	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 1206	12	18	40	11.8	83	6	12	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 1207	12	18	50	11.8	110	6	12	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 1208	12	18	70	11.8	110	6	12	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 1209	12	18	100	11.8	150	6	12	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 1609	16	24	100	15.8	150	8	16	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 1432 47 2009	20	30	100	19.8	150	10	20	2	-	-	-	-	-	9	30		KAC PVAS



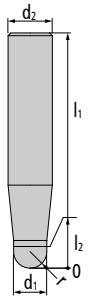


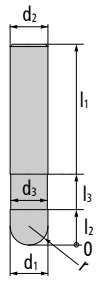
major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Ball nose end mills

no wd. | short | long





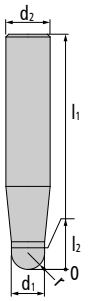
catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1462 43 004	0.4	0.6	-	-	50	0.2	4	2	0.84	0.97	1.08	1.19	1.39	9	30		KAC PVCN
NVV 1412 47 010	1	1.5	-	-	50	0.5	4	2	1.84	2.01	2.16	2.29	2.53	9	30		KAC PVAS
NVV 1462 43 010	1	1.5	-	-	50	0.5	4	2	1.84	2.01	2.16	2.29	2.53	9	30		KAC PVCN
NVV 1412 47 015	1.5	2.5	-	-	50	0.75	4	2	2.94	3.15	3.32	3.47	3.75	9	30		KAC PVAS
NVV 1462 43 015	1.5	2.5	-	-	57	0.75	6	2	2.94	3.15	3.32	3.47	3.75	9	30		KAC PVCN
NVV 1412 47 021	2	3	-	-	50	1	4	2	3.46	3.68	3.87	4.03	4.31	9	30		KAC PVAS
NVV 1412 47 020	2	3	-	-	57	1	6	2	3.46	3.68	3.87	4.03	4.31	9	30		KAC PVAS
NVV 1462 43 020	2	3	-	-	57	1	6	2	3.46	3.68	3.87	4.03	4.31	9	30		KAC PVCN
NVV 1422 47 020	2	4	-	-	75	1	4	2	4.56	4.81	5.02	5.21	5.55	9	30		KAC PVAS
NVV 1462 43 025	2.5	4	-	-	57	1.25	6	2	4.54	4.78	4.99	5.16	5.50	9	30		KAC PVCN
NVV 1412 47 030	3	4.5	-	-	57	1.5	6	2	5.06	5.32	5.52	5.71	6.06	9	30		KAC PVAS
NVV 1462 43 030	3	4.5	-	-	57	1.5	6	2	5.06	5.32	5.52	5.71	6.06	9	30		KAC PVCN
NVV 1422 47 030	3	15	-	-	60	1.5	4	2	16.12	16.65	17.19	-	-	9	30		KAC PVAS
NVV 1422 47 031	3	15	-	-	75	1.5	4	2	16.12	16.65	17.19	-	-	9	30		KAC PVAS
NVV 1462 43 040	4	6	-	-	57	2	6	2	6.64	6.93	7.16	7.36	7.80	9	30		KAC PVCN
NVV 1412 47 040	4	6	-	-	57	2	6	2	6.64	6.93	7.16	7.36	7.80	9	30		KAC PVAS
NVV 1422 47 040	4	20	-	-	60	2	4	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1422 47 041	4	20	-	-	75	2	4	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1472 43 041	4	20	-	-	75	2	4	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1412 47 050	5	7.5	-	-	57	2.5	6	2	8.20	8.52	8.77	9.01	9.55	9	30		KAC PVAS
NVV 1462 43 050	5	7.5	-	-	57	2.5	6	2	8.20	8.52	8.77	9.01	9.55	9	30		KAC PVCN
NVV 1422 47 0501	5	20	-	-	75	2.5	6	2	21.27	21.93	-	-	-	9	30		KAC PVAS
NVV 1472 43 051	5	20	-	-	100	2.5	5	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1422 47 0511	5	20	-	-	100	2.5	6	2	21.27	21.93	-	-	-	9	30		KAC PVAS
NVV 1462 43 060	6	9	-	-	57	3	6	2	-	-	-	-	-	9	30		KAC PVCN

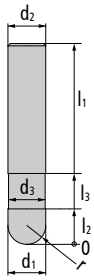
toric tool

clamping flat

Ball nose end mills

no wd. | short | long





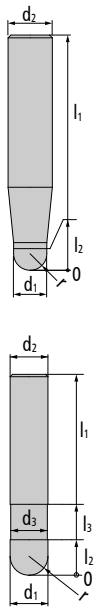
catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1412 47 060	6	9	-	-	57	3	6	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1422 47 060	6	20	-	-	100	3	6	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1472 43 060	6	20	-	-	100	3	6	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1472 43 061	6	20	-	-	150	3	6	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1422 47 061	6	20	-	-	150	3	6	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1462 43 080	8	12	-	-	63	4	8	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1412 47 080	8	12	-	-	63	4	8	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1472 43 080	8	25	-	-	100	4	8	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1422 47 080	8	25	-	-	100	4	8	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1422 47 081	8	25	-	-	150	4	8	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1472 43 081	8	25	-	-	150	4	8	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1472 30 81	8	25	-	-	150	4	8	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1462 43 090	9	13.5	-	-	72	4.5	10	2	14.43	14.83	15.21	15.62	-	9	30		KAC PVCN
NVV 1462 43 100	10	15	-	-	72	5	10	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1412 47 100	10	15	-	-	72	5	10	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1422 47 100	10	25	-	-	100	5	10	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1422 47 101	10	25	-	-	150	5	10	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1472 43 101	10	25	-	-	150	5	10	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1412 47 120	12	18	-	-	83	6	12	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1462 43 120	12	18	-	-	83	6	12	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1422 47 120	12	30	-	-	100	6	12	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1472 43 121	12	30	-	-	150	6	12	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1422 47 121	12	30	-	-	150	6	12	2	-	-	-	-	-	9	30		KAC PVAS

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Ball nose end mills

no wd. | short | long



catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1462 43 140	14	21	-	-	83	7	14	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1412 47 140	14	28	-	-	83	7	14	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1422 47 140	14	30	-	-	100	7	14	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1422 47 141	14	30	-	-	150	7	14	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1472 43 141	14	30	-	-	150	7	14	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1462 43 160	16	24	-	-	92	8	16	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1412 47 160	16	24	-	-	92	8	16	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1422 47 160	16	30	-	-	100	8	16	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1472 43 161	16	30	-	-	150	8	16	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1422 47 161	16	30	-	-	150	8	16	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1462 43 180	18	27	-	-	92	9	18	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1412 47 180	18	36	-	-	92	9	18	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1472 43 181	18	30	-	-	150	9	18	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1412 47 200	20	30	-	-	104	10	20	2	-	-	-	-	-	9	30		KAC PVAS
NVV 1462 43 200	20	30	-	-	104	10	20	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1472 43 201	20	35	-	-	150	10	20	2	-	-	-	-	-	9	30		KAC PVCN
NVV 1422 47 201	20	35	-	-	150	10	20	2	-	-	-	-	-	9	30		KAC PVAS

toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
0.4	f_z (mm) a_p (mm)	-	-	-	0.01-0.03 0.01-0.3	0.005 0.005	-
1-2.5	f_z (mm) a_p (mm)	-	0.01-0.025 0.05-0.1	-	0.02-0.08 0.1-0.7	0.01 0.05	-
3-4	f_z (mm) a_p (mm)	-	0.04-0.055 0.08-0.19	-	0.04-0.1 0.15-1.4	0.04 0.08	-
5-6	f_z (mm) a_p (mm)	-	0.08-0.1 0.1-0.25	-	0.06-0.15 0.2-2	0.08 0.1	-
8	f_z (mm) a_p (mm)	-	0.08-0.115 0.15-0.375	-	0.08-0.2 0.3-2.8	0.08 0.15	-
9-10	f_z (mm) a_p (mm)	-	0.08-0.115 0.2-0.45	-	0.08-0.25 0.4-3.5	0.08 0.2	-
12	f_z (mm) a_p (mm)	-	0.08-0.115 0.2-0.5	-	0.1-0.3 0.4-4.2	0.08 0.2	-
14	f_z (mm) a_p (mm)	-	-	-	0.1-0.3 0.4-5	0.08 0.2	-
16	f_z (mm) a_p (mm)	-	0.1-0.175 0.2-0.7	-	0.1-0.3 0.4-5.6	0.1 0.2	-
18	f_z (mm) a_p (mm)	-	-	-	0.1-0.3 0.4-6.5	0.1 0.2	-
20	f_z (mm) a_p (mm)	-	0.1-0.175 0.2-0.8	-	0.1-0.35 0.4-7	0.1 0.2	-

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
KAC PVAS	roughing finishing	-	▽ - *100* ***110*** *120*	-	▼ 200 **400** 600 400 **700** 1000	▼ - 50 **55** 60	-
KAC PVCN	roughing finishing	-	-	-	▼ 200 **500** 800 200 **600** 1000	▼ - 50 **55** 60	-

▼ major application ▽ minor application ▼▽ roughing ▼▽ pre-finishing ▼▽ finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

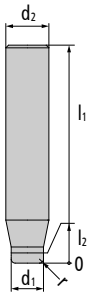
END MILLS FOR ALUMINIUM | COPPER | PLASTIC | SYNTHETIC

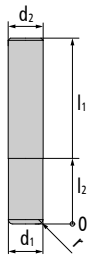
Toric / corner radius end mills | 2 flutes

2 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- corner radius end mill
- short l long version
- with and without clearance between shank and flute

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short | long																		
	NVV 0442 47 004	0.4	1	-	-	50	0.12	4	2	1.32	1.49	1.63	1.75	1.98	9	30		KAC PVAS
	NVV 0442 47 006	0.6	1	-	-	50	0.2	4	2	1.20	1.35	1.48	1.60	1.82	9	30		KAC PVAS
	NVV 0442 47 008	0.8	1.2	-	-	50	0.25	4	2	1.54	1.70	1.85	1.98	2.21	9	30		KAC PVAS
	NVV 0462 43 011	1	1	-	-	50	0.2	4	2	1.31	1.47	1.61	1.73	1.96	9	30		KAC PVCN
	NVV 0442 47 010	1	1.5	-	-	50	0.3	4	2	1.87	2.05	2.21	2.34	2.59	9	30		KAC PVAS
	NVV 0462 43 0151	1.5	1.5	-	-	50	0.2	4	2	1.88	2.07	2.23	2.37	2.62	9	30		KAC PVCN
	NVV 0442 47 015	1.5	2.3	-	-	50	0.3	4	2	2.76	2.98	3.16	3.32	3.61	9	30		KAC PVAS
	NVV 0462 43 021	2	2	-	-	50	0.2	4	2	2.44	2.65	2.83	2.98	3.26	9	30		KAC PVCN
	NVV 0432 47 021	2	2	-	-	50	0.2	4	2	2.44	2.65	2.83	2.98	3.26	9	30		KAC PVAS
	NVV 0432 47 02011	2	2	-	-	50	0.5	4	2	2.41	2.61	2.77	2.92	3.18	9	30		KAC PVAS
	NVV 0462 43 02105	2	2	-	-	50	0.5	4	2	2.41	2.61	2.77	2.92	3.18	9	30		KAC PVCN
	NVV 0442 47 020	2	3	-	-	50	0.5	4	2	3.51	3.75	3.95	4.12	4.43	9	30		KAC PVAS
	NVV 0462 43 031	3	3	-	-	50	0.2	4	2	3.54	3.79	4.00	4.17	4.50	9	30		KAC PVCN
	NVV 0432 47 031	3	3	-	-	50	0.2	4	2	3.54	3.79	4.00	4.17	4.50	9	30		KAC PVAS
	NVV 0462 43 03105	3	3	-	-	50	0.5	4	2	3.51	3.75	3.95	4.12	4.43	9	30		KAC PVCN
	NVV 0432 47 03011	3	3	-	-	50	0.5	4	2	3.51	3.75	3.95	4.12	4.43	9	30		KAC PVAS
	NVV 0442 47 030	3	4	-	-	50	0.5	4	2	4.60	4.87	5.09	5.28	5.67	9	30		KAC PVAS
	NVV 0432 47 041	4	4	-	-	50	0.2	4	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0462 43 041	4	4	-	-	50	0.2	4	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0432 47 04011	4	4	-	-	50	0.5	4	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0462 43 04105	4	4	-	-	50	0.5	4	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0442 47 040	4	6	-	-	50	0.5	4	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0462 43 051	5	5	-	-	57	0.2	6	2	5.68	6.00	6.24	6.47	6.98	9	30		KAC PVCN



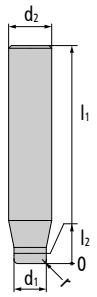


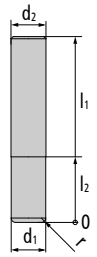
toric tool

clamping flat

Toric / corner radius end mills

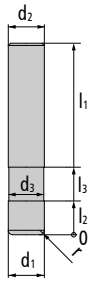
no wd. | short | long

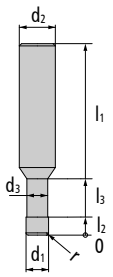




catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0462 43 05105	5	5	-	-	57	0.5	6	2	5.66	5.97	6.21	6.42	6.91	9	30		KAC PVCN
NVV 0442 47 050	5	7	-	-	57	1	6	2	7.77	8.11	8.38	8.66	9.28	9	30		KAC PVAS
NVV 0462 43 06105	6	6	-	-	57	0.5	6	2	-	-	-	-	-	9	30		KAC PVCN
NVV 0462 43 061	6	6	-	-	57	0.7	6	2	-	-	-	-	-	9	30		KAC PVCN
NVV 0462 43 06110	6	6	-	-	57	1	6	2	-	-	-	-	-	9	30		KAC PVCN
NVV 0442 47 060	6	8	-	-	57	1	6	2	-	-	-	-	-	9	30		KAC PVAS
NVV 0462 43 0811	8	8	-	-	63	0.5	8	2	-	-	-	-	-	9	30		KAC PVCN
NVV 0462 43 081	8	8	-	-	63	0.7	8	2	-	-	-	-	-	9	30		KAC PVCN
NVV 0462 43 0812	8	8	-	-	63	1	8	2	-	-	-	-	-	9	30		KAC PVCN
NVV 0442 47 080	8	10	-	-	63	1.5	8	2	-	-	-	-	-	9	30		KAC PVAS
NVV 0462 43 101	10	10	-	-	72	0.7	10	2	-	-	-	-	-	9	30		KAC PVCN
NVV 0442 47 100	10	12	-	-	72	2	10	2	-	-	-	-	-	9	30		KAC PVAS
NVV 0462 43 121	12	12	-	-	83	0.7	12	2	-	-	-	-	-	9	30		KAC PVCN
NVV 0462 43 1213	12	12	-	-	83	1.5	12	2	-	-	-	-	-	9	30		KAC PVCN
NVV 0442 47 120	12	15	-	-	83	2.5	12	2	-	-	-	-	-	9	30		KAC PVAS
NVV 0462 43 161	16	16	-	-	92	0.7	16	2	-	-	-	-	-	9	30		KAC PVCN
NVV 0462 43 201	20	20	-	-	104	0.7	20	2	-	-	-	-	-	9	30		KAC PVCN

wd. | short | long





catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0462 43 010	1	1	10	0.95	50	0.2	4	2	11.09	11.47	11.78	12.09	12.76	9	30		KAC PVCN
NVV 0462 43 015	1.5	1.5	10	1.4	50	0.2	4	2	11.20	11.56	11.86	12.17	12.84	9	30		KAC PVCN
NVV 0432 47 020	2	2	10	1.9	50	0.2	4	2	11.20	11.56	11.86	12.17	12.84	9	30		KAC PVAS
NVV 0462 43 020	2	2	10	1.9	50	0.2	4	2	11.20	11.56	11.86	12.17	12.84	9	30		KAC PVCN
NVV 0432 47 0201	2	2	10	1.9	50	0.5	4	2	11.19	11.54	11.84	12.14	12.79	9	30		KAC PVAS
NVV 0462 43 02005	2	2	10	1.9	50	0.5	4	2	11.20	11.54	11.84	12.14	12.79	9	30		KAC PVCN
NVV 0432 47 030	3	3	12	2.9	50	0.2	4	2	13.27	13.66	14.01	14.38	-	9	30		KAC PVAS
NVV 0462 43 030	3	3	12	2.9	50	0.2	4	2	13.27	13.66	14.01	14.38	-	9	30		KAC PVCN
NVV 0432 47 0301	3	3	12	2.9	50	0.5	4	2	13.26	13.65	13.99	14.35	-	9	30		KAC PVAS
NVV 0462 43 03005	3	3	12	2.9	50	0.5	4	2	13.26	13.65	14.00	14.35	-	9	30		KAC PVCN
NVV 0432 47 040	4	4	15	3.8	50	0.2	4	2	-	-	-	-	-	9	30		KAC PVAS
NVV 0462 43 040	4	4	15	3.8	50	0.2	4	2	-	-	-	-	-	9	30		KAC PVCN

major application | minor application | roughing | pre-finishing | finishing

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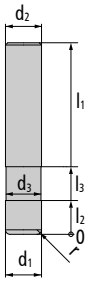
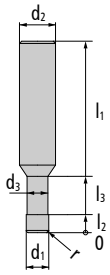
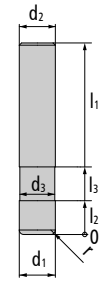
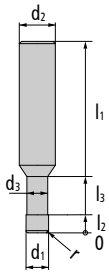
Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | short | long																		
	NVV 0432 47 0401	4	4	15	3.8	50	0.5	4	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0462 43 04005	4	4	15	3.8	50	0.5	4	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0432 47 050	5	5	21	4.8	57	0.2	6	2	22.70	23.26	-	-	-	9	30		KAC PVAS
	NVV 0462 43 050	5	5	21	4.8	57	0.2	6	2	22.70	23.26	-	-	-	9	30		KAC PVCN
	NVV 0462 43 05005	5	5	21	4.8	57	0.5	6	2	22.69	23.25	-	-	-	9	30		KAC PVCN
	NVV 0432 47 0501	5	5	21	4.8	57	0.5	6	2	22.69	23.25	-	-	-	9	30		KAC PVAS
	NVV 0432 47 060	6	6	21	5.8	57	0.2	6	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 0601	6	6	21	5.8	57	0.5	6	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0462 43 06005	6	6	21	5.8	57	0.5	6	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0462 43 060	6	6	21	5.8	57	0.7	6	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0462 43 06010	6	6	21	5.8	57	1	6	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0432 47 0612	6	6	21	5.8	57	1	6	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 0613	6	6	30	5.8	75	1	6	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 081	8	8	27	7.8	63	0.5	8	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0462 43 0801	8	8	27	7.8	63	0.5	8	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0462 43 080	8	8	27	7.8	63	0.7	8	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0462 43 0802	8	8	27	7.8	63	1	8	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0432 47 080	8	8	30	7.8	63	1	8	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 0805	8	8	50	7.8	90	1	8	2	-	-	-	-	-	9	30		KAC PVAS
	SVV 0432 47 101135	10	10	-	9.8	72	0.5	10	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 1011	10	10	32	9.8	72	0.5	10	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0462 43 100	10	10	32	9.8	72	0.7	10	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0462 43 1002	10	10	32	9.8	72	1	10	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0432 47 101	10	10	32	9.8	72	1	10	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 1014	10	10	40	9.8	100	1	10	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 1016	10	10	60	9.8	100	1	10	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 100	10	10	32	9.8	72	1.5	10	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 1201	12	12	38	11.8	83	0.5	12	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0462 43 120	12	12	38	11.8	83	0.7	12	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0432 47 120	12	12	38	11.8	83	1.5	12	2	-	-	-	-	-	9	30		KAC PVAS

toric tool

clamping flat

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | short | long																		
	NVV 0462 43 1203	12	12	38	11.8	83	1.5	12	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0432 47 1206	12	12	60	11.8	110	1.5	12	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 1208	12	12	80	11.8	110	1.5	12	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0462 43 160	16	16	44	15.8	92	0.7	16	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0432 47 1615	16	16	50	15.8	92	1.5	16	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 1619	16	16	100	15.8	150	1.5	16	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 160	16	16	44	15.8	92	2	16	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0462 43 200	20	20	54	19.8	104	0.7	20	2	-	-	-	-	-	9	30		KAC PVCN
	NVV 0432 47 2009	20	20	100	19.8	150	1.5	20	2	-	-	-	-	-	9	30		KAC PVAS
	NVV 0432 47 200	20	20	54	19.8	104	2	20	2	-	-	-	-	-	9	30		KAC PVAS

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	Feed per tooth | d.o.c.						
copy milling 3D							
0.4-0.8	f_z (mm) a_p (mm)	-	0.005-0.02 0.005-0.08	-	0.01-0.03 0.01-0.3	0.005 0.005	-
1-2	f_z (mm) a_p (mm)	-	0.01-0.04 0.05-0.15	-	0.02-0.08 0.1-0.7	0.01-0.04 0.05-0.15	-
3-4	f_z (mm) a_p (mm)	-	0.04-0.07 0.08-0.3	-	0.04-0.1 0.15-1.4	0.04-0.07 0.08-0.3	-
5-6	f_z (mm) a_p (mm)	-	0.08-0.12 0.1-0.4	-	0.06-0.15 0.2-2	0.08-0.12 0.1-0.4	-
8	f_z (mm) a_p (mm)	-	0.08-0.15 0.15-0.6	-	0.08-0.2 0.3-2.8	0.08-0.115 0.15-0.375	-
10	f_z (mm) a_p (mm)	-	0.08-0.15 0.2-0.7	-	0.08-0.25 0.4-3.5	0.08-0.115 0.2-0.45	-
12	f_z (mm) a_p (mm)	-	0.08-0.15 0.2-0.8	-	0.1-0.3 0.4-4.2	0.08-0.115 0.2-0.5	-
16	f_z (mm) a_p (mm)	-	0.1 0.2	-	0.1-0.3 0.4-5.6	0.1 0.2	-
20	f_z (mm) a_p (mm)	-	0.1 0.2	-	0.1-0.35 0.4-7	0.1 0.2	-

major application | minor application | roughing | pre-finishing | finishing

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Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
KAC PVAS	roughing finishing	-	- *100* ***110*** *120*	-	200 **400** 600 400 **700** 1000	- *50* ***55*** *60*	-
KAC PVCN	roughing finishing	-	-	-	200 **500** 800 200 **600** 1000	- *50* ***55*** *60*	-

toric tool

clamping flat

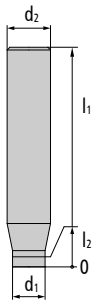
END MILLS FOR ALUMINIUM | COPPER | PLASTIC | SYNTHETIC

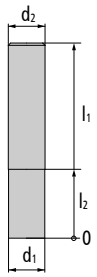
End mills | 1 flute for aluminium

single flute, plain shank, right hand helix angle

- polished

no wd. | short





End mills catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0401 40 010	1	5	-	-	38	-	3	1	8.61	8.72	8.83	8.95	9.19	-	-		KAC polished
NVV 0401 40 020	2	10	-	-	38	-	3	1	12.56	13.79	14.81	-	-	-	-		KAC polished
NVV 0401 40 030	3	10	-	-	38	-	3	1	-	-	-	-	-	-	-		KAC polished
NVV 0401 40 040	4	14	-	-	50	-	4	1	-	-	-	-	-	-	-		KAC polished
NVV 0401 40 050	5	16	-	-	60	-	6	1	20.76	21.02	-	-	-	-	-		KAC polished
NVV 0401 40 060	6	20	-	-	60	-	6	1	-	-	-	-	-	-	-		KAC polished
NVV 0401 40 080	8	20	-	-	75	-	8	1	-	-	-	-	-	-	-		KAC polished
NVV 0401 40 100	10	22	-	-	64	-	10	1	-	-	-	-	-	-	-		KAC polished
NVV 0401 40 120	12	22	-	-	64	-	12	1	-	-	-	-	-	-	-		KAC polished

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
pocket and slot milling							
1	f_z (mm) a_p (mm)	-	-	-	0.005-0.03 0.1-2	-	-
2	f_z (mm) a_p (mm)	-	-	-	0.005-0.04 0.2-4	-	-
3	f_z (mm) a_p (mm)	-	-	-	0.01-0.06 0.3-6	-	-
4	f_z (mm) a_p (mm)	-	-	-	0.01-0.08 0.4-8	-	-
5	f_z (mm) a_p (mm)	-	-	-	0.01-0.09 0.5-10	-	-
6	f_z (mm) a_p (mm)	-	-	-	0.015-0.1 0.6-12	-	-
8	f_z (mm) a_p (mm)	-	-	-	0.02-0.12 0.6-16	-	-
10	f_z (mm) a_p (mm)	-	-	-	0.025-0.14 1-16	-	-
12	f_z (mm) a_p (mm)	-	-	-	0.03-0.17 1-18	-	-

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
KAC polished	roughing finishing	-	-	-	400 **500** 600 800 **900** 1000	-	-

toric tool

clamping flat

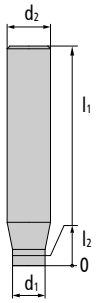
END MILLS FOR ALUMINIUM | COPPER | PLASTIC | SYNTHETIC

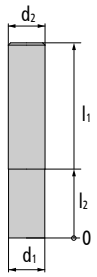
End mills | 1 flute for plastic

end mill single flute, plain shank, right hand helix angle

- polished

no wd. | short





End mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
	NVV 0411 40 010	1	5	-	-	38	-	3	1	8.61	8.72	8.83	8.95	9.19	-	-		KAC polished
	NVV 0411 40 015	1.5	5	-	-	38	-	3	1	8.61	8.72	8.83	8.95	9.19	-	-		KAC polished
	NVV 0411 40 020	2	10	-	-	38	-	3	1	13.16	13.33	13.51	13.68	-	-	-		KAC polished
	NVV 0411 40 030	3	10	-	-	38	-	3	1	-	-	-	-	-	-	-		KAC polished
	NVV 0411 40 040	4	14	-	-	50	-	4	1	-	-	-	-	-	-	-		KAC polished
	NVV 0411 40 050	5	16	-	-	60	-	5	1	-	-	-	-	-	-	-		KAC polished
	NVV 0411 40 060	6	20	-	-	60	-	6	1	-	-	-	-	-	-	-		KAC polished
	NVV 0411 40 080	8	20	-	-	75	-	8	1	-	-	-	-	-	-	-		KAC polished

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
pocket and slot milling							
1	f_z (mm) a_p (mm)	-	-	-	0.005-0.03 0.1-2	-	-
1.5	f_z (mm) a_p (mm)	-	-	-	0.005-0.03 0.1-2	-	-
2	f_z (mm) a_p (mm)	-	-	-	0.005-0.04 0.2-4	-	-
3	f_z (mm) a_p (mm)	-	-	-	0.01-0.06 0.3-6	-	-
4	f_z (mm) a_p (mm)	-	-	-	0.01-0.08 0.4-8	-	-
5	f_z (mm) a_p (mm)	-	-	-	0.01-0.09 0.5-10	-	-
6	f_z (mm) a_p (mm)	-	-	-	0.015-0.1 0.6-12	-	-
8	f_z (mm) a_p (mm)	-	-	-	0.02-0.12 0.6-16	-	-

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
KAC polished	roughing finishing	-	-	-	200 **300** 400 350 **425** 500	-	-

toric tool

clamping flat

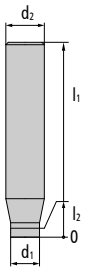
END MILLS FOR ALUMINIUM | COPPER | PLASTIC | SYNTHETIC

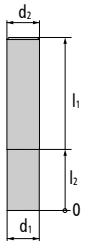
End mills | 2 flutes

2 flutes, plain shank, 45° right hand helix angle

- center cutting end mill
- straight face
- short l long version
- with and without clearance between shank and flute

End mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short | long																		
	NVV 0412 47 010	1	2	-	-	50	-	4	2	2.46	2.68	2.86	3.02	3.31	16	45		KAC PVAS
	NVV 0412 47 015	1.5	3	-	-	50	-	4	2	3.56	3.81	4.02	4.20	4.52	16	45		KAC PVAS
	NVV 0412 47 021	2	4	-	-	50	-	4	2	4.64	4.92	5.15	5.36	5.79	16	45		KAC PVAS
	NVV 0412 47 020	2	4	-	-	57	-	6	2	4.64	4.92	5.15	5.36	5.79	16	45		KAC PVAS
	NVV 0412 47 030	3	6	-	-	57	-	6	2	9.62	10.31	10.52	10.92	11.80	16	45		KAC PVAS
	NVV 0422 47 030	3	15	-	-	60	-	3	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0422 47 031	3	15	-	-	75	-	3	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 041	4	8	-	-	50	-	4	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 040	4	8	-	-	57	-	6	2	11.99	12.29	12.74	13.21	14.28	16	45		KAC PVAS
	NVV 0422 47 040	4	20	-	-	60	-	4	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0422 47 041	4	20	-	-	75	-	4	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0422 47 042	4	20	-	-	100	-	4	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 050	5	10	-	-	57	-	6	2	14.60	15.12	15.67	-	-	16	45		KAC PVAS
	NVV 0422 47 050	5	20	-	-	70	-	5	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 060	6	12	-	-	57	-	6	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0422 47 060	6	20	-	-	100	-	6	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 080	8	16	-	-	63	-	8	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0422 47 080	8	25	-	-	100	-	8	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 100	10	20	-	-	72	-	10	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0422 47 100	10	25	-	-	100	-	10	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0422 47 101	10	25	-	-	150	-	10	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 120	12	24	-	-	83	-	12	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0422 47 120	12	30	-	-	100	-	12	2	-	-	-	-	-	16	45		KAC PVAS



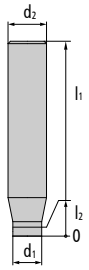


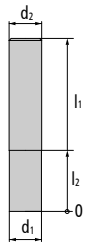
major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

End mills

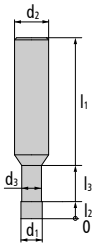
no wd. | short | long

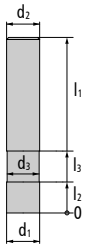




catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0422 47 121	12	30	-	-	150	-	12	2	-	-	-	-	-	16	45		KAC PVAS
NVV 0412 47 160	16	32	-	-	92	-	16	2	-	-	-	-	-	16	45		KAC PVAS
NVV 0422 47 161	16	30	-	-	150	-	16	2	-	-	-	-	-	16	45		KAC PVAS
NVV 0412 47 200	20	40	-	-	104	-	20	2	-	-	-	-	-	16	45		KAC PVAS
NVV 0422 47 201	20	35	-	-	150	-	20	2	-	-	-	-	-	16	45		KAC PVAS

wd. | short | long

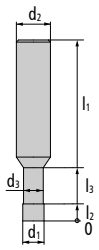
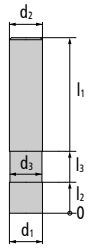




catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0412 47 0102	1	2	10	0.95	50	-	4	2	11.10	11.49	11.80	12.11	12.79	16	45		KAC PVAS
NVV 0412 47 0103	1	2	15	0.95	50	-	4	2	16.28	16.75	17.19	17.64	18.63	16	45		KAC PVAS
NVV 0412 47 0152	1.5	3	10	1.4	50	-	4	2	11.10	11.49	11.80	12.11	12.79	16	45		KAC PVAS
NVV 0412 47 0153	1.5	3	15	1.4	50	-	4	2	16.28	16.75	17.19	17.64	18.63	16	45		KAC PVAS
NVV 0412 47 0212	2	4	10	1.9	50	-	4	2	11.10	11.49	11.80	12.11	12.79	16	45		KAC PVAS
NVV 0412 47 0214	2	4	20	1.9	50	-	4	2	21.44	22.01	22.57	23.17	-	16	45		KAC PVAS
NVV 0412 47 0302	3	6	10	2.9	57	-	6	2	10.89	11.34	11.68	11.99	12.66	16	45		KAC PVAS
NVV 0412 47 0304	3	6	20	2.9	57	-	6	2	21.44	22.00	22.46	23.17	24.35	16	45		KAC PVAS
NVV 0412 47 0305	3	6	30	2.9	75	-	6	2	31.59	32.51	33.23	34.23	-	16	45		KAC PVAS
NVV 0412 47 0404	4	8	20	3.8	57	-	6	2	21.56	22.11	22.68	23.28	-	16	45		KAC PVAS
NVV 0412 47 0405	4	8	30	3.8	75	-	6	2	31.81	32.61	33.45	-	-	16	45		KAC PVAS
NVV 0412 47 0406	4	8	40	3.8	75	-	6	2	42.06	43.23	-	-	-	16	45		KAC PVAS
NVV 0412 47 0505	5	10	30	4.8	75	-	6	2	31.81	-	-	-	-	16	45		KAC PVAS
NVV 0412 47 0604	6	12	20	5.8	57	-	6	2	-	-	-	-	-	16	45		KAC PVAS
NVV 0412 47 0605	6	12	30	5.8	75	-	6	2	-	-	-	-	-	16	45		KAC PVAS
NVV 0412 47 0606	6	12	40	5.8	75	-	6	2	-	-	-	-	-	16	45		KAC PVAS
NVV 0412 47 0804	8	16	20	7.8	63	-	8	2	-	-	-	-	-	16	45		KAC PVAS
NVV 0412 47 0805	8	16	40	7.8	90	-	8	2	-	-	-	-	-	16	45		KAC PVAS
NVV 0412 47 0807	8	16	60	7.8	100	-	8	2	-	-	-	-	-	16	45		KAC PVAS

toric tool

clamping flat

End mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | short | long																		
	NVV 0412 47 1006	10	20	40	9.8	100	-	10	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 1008	10	20	60	9.8	100	-	10	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 1205	12	24	30	11.8	83	-	12	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 1207	12	24	60	11.8	110	-	12	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 1208	12	24	80	11.8	110	-	12	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 1605	16	32	50	15.8	92	-	16	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 1606	16	32	70	15.8	120	-	16	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 1607	16	32	100	15.8	150	-	16	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 1608	16	32	110	15.8	150	-	16	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 2006	20	40	60	19.8	104	-	20	2	-	-	-	-	-	16	45		KAC PVAS
	NVV 0412 47 2008	20	40	100	19.8	150	-	20	2	-	-	-	-	-	16	45		KAC PVAS

Feed per tooth (fz) | d.o.c. (ap)

Material: Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
pocket and slot milling							
1-2	f_z (mm) a_p (mm)	-	0.01-0.02 0.2-0.3	-	0.01-0.03 0.1-0.7	0.01-0.02 0.2-0.3	-
3-4	f_z (mm) a_p (mm)	-	0.03-0.05 0.2-0.4	-	0.04-0.09 0.15-1.4	0.03-0.05 0.2-0.4	-
5-6	f_z (mm) a_p (mm)	-	0.03-0.05 0.2-0.6	-	0.05-0.1 0.15-2	0.03-0.05 0.2-0.6	-
8	f_z (mm) a_p (mm)	-	0.04-0.06 0.3-0.7	-	0.06-0.15 0.15-2.8	0.04-0.06 0.3-0.7	-
10	f_z (mm) a_p (mm)	-	0.05-0.08 0.4-0.8	-	0.08-0.17 0.2-3.5	0.05-0.08 0.4-0.8	-
12	f_z (mm) a_p (mm)	-	0.06-0.1 0.5-0.8	-	0.09-0.2 0.2-4.2	0.06-0.1 0.5-0.8	-
16	f_z (mm) a_p (mm)	-	0.06-0.1 0.7-1.1	-	0.1-0.27 0.2-5.6	0.06-0.1 0.7-1.1	-
20	f_z (mm) a_p (mm)	-	0.07-0.12 0.9-1.3	-	0.12-0.35 0.2-7	0.07-0.12 0.9-1.3	-

Cutting speed (Vc in m/min)

Material: Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
KAC PVAS	roughing finishing	-	- *100* ***110*** *120*	-	200 **400** 600 400 **700** 1000	- *50* ***55*** *60*	-

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

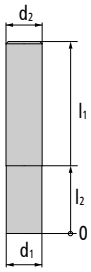
END MILLS FOR ALUMINIUM | COPPER | PLASTIC | SYNTHETIC

End mills | 3 flutes for aluminium

3 flutes, plain shank, right hand helix angle

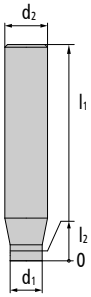
- center cutting
- short version
- uneven cutting pitch
- without clearance between shank and flute
- straight face

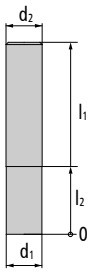
no wd. | short | long



End mills catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
SVV 0253 45 030	3	6	-	-	50	-	4	3	-	-	-	-	-	9	35		MGC PVCS
SVV 0253 45 040	4	8	-	-	50	-	4	3	-	-	-	-	-	9	35		MGC PVCS
SVV 0253 45 050	5	10	-	-	57	-	6	3	-	-	-	-	-	9	35		MGC PVCS
SVV 0253 45 060	6	12	-	-	57	-	6	3	-	-	-	-	-	9	35		MGC PVCS
SVV 0253 45 080	8	16	-	-	63	-	8	3	-	-	-	-	-	9	35		MGC PVCS
SVV 0253 45 100	10	20	-	-	72	-	10	3	-	-	-	-	-	9	35		MGC PVCS
SVV 0253 45 120	12	24	-	-	83	-	12	3	-	-	-	-	-	9	35		MGC PVCS
SVV 0253 45 160	16	32	-	-	92	-	16	3	-	-	-	-	-	9	35		MGC PVCS

no wd. | long





NVV 0423 40 0201	2	8	-	-	38	-	3	3	-	-	-	-	-	-	30		KAC polis-hed
NVV 0423 40 040	4	10	-	-	38	-	4	3	-	-	-	-	-	-	30		KAC polis-hed
NVV 0423 40 080	8	16	-	-	60	-	8	3	-	-	-	-	-	-	30		KAC polis-hed
NVV 0423 40 100	10	20	-	-	65	-	10	3	-	-	-	-	-	-	30		KAC polis-hed
NVV 0423 40 120	12	24	-	-	75	-	12	3	-	-	-	-	-	-	30		KAC polis-hed
NVV 0423 40 160	16	32	-	-	88	-	16	3	-	-	-	-	-	-	30		KAC polis-hed

toric tool

clamping flat

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	**Feed per tooth | d.o.c.**	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
pocket and slot milling							
2	f_z (mm) a_p (mm)	-	-	-	0.01-0.03 0.1-0.7	-	-
3-4	f_z (mm) a_p (mm)	-	0.03-0.05 0.2-0.4	-	0.04-0.09 0.15-1.4	0.03-0.05 0.2-0.4	-
5-6	f_z (mm) a_p (mm)	-	0.03-0.05 0.2-0.6	-	0.05-0.1 0.15-2	0.03-0.05 0.2-0.6	-
8	f_z (mm) a_p (mm)	-	0.04-0.06 0.3-0.7	-	0.06-0.15 0.15-2.8	0.04-0.06 0.3-0.7	-
10	f_z (mm) a_p (mm)	-	0.05-0.08 0.4-0.8	-	0.08-0.17 0.2-3.5	0.05-0.08 0.4-0.8	-
12	f_z (mm) a_p (mm)	-	0.06-0.1 0.5-0.8	-	0.09-0.2 0.2-4.2	0.06-0.1 0.5-0.8	-
16	f_z (mm) a_p (mm)	-	0.06-0.1 0.7-1.1	-	0.1-0.27 0.2-5.6	0.06-0.1 0.7-1.1	-

Cutting speed (Vc in m/min)

Material							
Quality Coating	**Application**	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVCS	roughing finishing	-	- *60* ***80*** *100*	-	200 **400** 600 350 **575** 800	- *20* ***30*** *40*	-
KAC polished	roughing finishing	-	-	-	200 **400** 600 350 **675** 1000	-	-

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

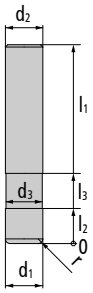
END MILLS FOR ALUMINIUM | COPPER | PLASTIC | SYNTHETIC

End mills | 4 flutes for aluminium

4 flutes, plain shank, 50° right hand helix angle

- center cutting
- straight face
- short version
- uneven cutting pitch
- corner radius
- with clearance between shank and flute
- < Ø 12 mm clamping surface is available on demand, ≥ Ø 12 mm with clamping surface by default

wd. | short



End mills catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0394 45 06005	6	6	21	5.8	57	0.5	6	4	-	-	-	-	-	8	50		UMGC PVCS
NVV 0394 45 06010	6	6	21	5.8	57	1	6	4	-	-	-	-	-	8	50		UMGC PVCS
NVV 0394 45 08005	8	8	27	7.8	63	0.5	8	4	-	-	-	-	-	8	50		UMGC PVCS
NVV 0394 45 08010	8	8	27	7.8	63	1	8	4	-	-	-	-	-	8	50		UMGC PVCS
NVV 0394 45 10005	10	10	32	9.8	72	0.5	10	4	-	-	-	-	-	8	50		UMGC PVCS
NVV 0394 45 10010	10	10	32	9.8	72	1	10	4	-	-	-	-	-	8	50		UMGC PVCS
NVV 0394 45 12010	12	12	38	11.8	83	1	12	4	-	-	-	-	-	8	50	[	UMGC PVCS
NVV 0394 45 12020	12	12	38	11.8	83	2	12	4	-	-	-	-	-	8	50	[	UMGC PVCS
NVV 0394 45 16010	16	16	44	15.8	92	1	16	4	-	-	-	-	-	8	50	[	UMGC PVCS
NVV 0394 45 16020	16	16	44	15.8	92	2	16	4	-	-	-	-	-	8	50	[	UMGC PVCS

Feed per tooth (fz) | d.o.c. (ap)

Material: Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
pocket and slot milling							
6	f_z (mm) a_p (mm)	-	0.05-0.08 1.5-1.8	-	0.05-0.1 0.15-2	0.025-0.05 0.2-1	-
8	f_z (mm) a_p (mm)	-	0.05-0.08 2-2.5	-	0.06-0.15 0.15-2.8	0.04-0.06 0.3-1	-
10	f_z (mm) a_p (mm)	-	0.06-0.1 2.5-3	-	0.08-0.17 0.2-3.5	0.05-0.08 0.4-1	-
12	f_z (mm) a_p (mm)	-	0.07-0.12 3-3.5	-	0.09-0.2 0.2-4.2	0.06-0.1 0.5-1	-
16	f_z (mm) a_p (mm)	-	0.08-0.12 4-4.5	-	0.1-0.27 0.2-5.6	0.06-0.1 0.5-1.5	-

toric tool

[clamping flat

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
UMGC PVCS	roughing finishing	-	- *70* ***95*** *120*	-	220 **410** 600 400 **700** 1000	- *30* ***50*** *70*	-

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

toric tool

clamping flat

END MILLS FOR GRAPHITE | GRP | CFRP

		Page
Ball nose end mills	2 flutes	104
	3 flutes	108
Toric / corner radius end mills	2 flutes	110
	3 flutes	112
End mills	2 flutes	116

pokolm PREMIUMTOOLS. WE KNOW HOW.

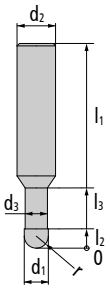
END MILLS FOR GRAPHITE | GRP | CFRP

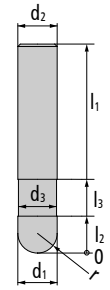
Ball nose end mills | 2 flutes

2 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- short l long version
- with and without clearance between shank and flute
- < Ø 3 mm: PVDiaG-Diamond treated
- ≥ Ø 3 mm: PVDiaN-Diamond

wd. | high precise | short | long





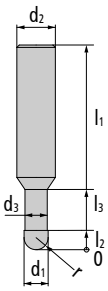
Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
	NVV 1462 49 0031	0.3	0.3	1	0.285	50	0.15	4	2	1.38	1.50	1.60	1.70	1.88	4	30		KAC PVDiaG
	NVV 1462 49 0041	0.4	0.4	1	0.385	50	0.2	4	2	1.38	1.49	1.59	1.69	1.87	4	30		KAC PVDiaG
	NVV 1462 49 0051	0.5	0.5	2	0.48	50	0.25	4	2	2.49	2.64	2.78	2.90	3.12	4	30		KAC PVDiaG
	NVV 1462 49 0061	0.6	0.6	2	0.58	50	0.3	4	2	2.48	2.64	2.77	2.89	3.11	4	30		KAC PVDiaG
	NVV 1462 49 0081	0.8	0.8	4	0.78	50	0.4	4	2	4.61	4.83	5.02	5.18	5.46	4	30		KAC PVDiaG
	NVV 1462 49 011	1	1	5	0.98	50	0.5	4	2	5.66	5.91	6.11	6.29	6.59	4	30		KAC PVDiaG
	NVV 1462 49 0151	1.5	1.5	10	1.45	50	0.75	4	2	10.95	11.28	11.54	11.76	12.54	4	20		KAC PVDiaG
	NVV 1462 49 021	2	2	10	1.95	50	1	4	2	10.94	11.26	11.52	11.75	12.46	4	20		KAC PVDiaG
	NVV 1462 49 031	3	3	10	2.95	57	1.5	6	2	10.92	11.23	11.49	11.71	12.30	4	20		KAC PVDiaN
	NVV 1462 49 0411	4	4	15	3.9	57	2	6	2	16.17	16.53	16.82	17.17	18.84	4	20		KAC PVDiaN
	NVV 1462 49 0511	5	5	20	4.9	57	2.5	6	2	21.29	21.71	-	-	-	4	20		KAC PVDiaN
	NVV 1462 49 0611	6	6	20	5.85	57	3	6	2	-	-	-	-	-	4	20		KAC PVDiaN
	NVV 1462 49 0614	6	6	40	5.85	75	3	6	2	-	-	-	-	-	4	20		KAC PVDiaN
	NVV 1462 49 0811	8	8	20	7.85	63	4	8	2	-	-	-	-	-	4	20		KAC PVDiaN
	NVV 1462 49 1001	10	10	20	9.85	72	5	10	2	-	-	-	-	-	4	20		KAC PVDiaN

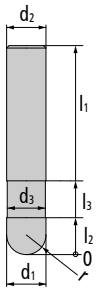
toric tool

clamping flat

Ball nose end mills

wd. and no wd. | short | long





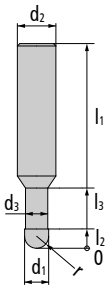
catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
SVV 1452 48 00403	0.4	0.6	2.5	0.37	50	0.2	4	2	3.14	3.33	3.50	3.66	3.94	9	30		KAC PVDiaG
SVV 1452 48 00404	0.4	0.6	5	0.37	50	0.2	4	2	5.80	6.08	6.31	6.52	6.89	9	30		KAC PVDiaG
NVV 1452 48 0050	0.5	0.8	-	-	50	0.25	4	2	1.07	1.21	1.33	1.45	1.66	9	30		KAC PVDiaG
SVV 1452 48 00503	0.5	0.8	3.5	0.45	50	0.25	4	2	4.27	4.49	4.68	4.85	5.16	9	30		KAC PVDiaG
NVV 1452 48 00510	0.5	0.8	5	0.45	50	0.25	4	2	5.86	6.12	6.35	6.55	6.91	9	30		KAC PVDiaG
SVV 1452 48 00504	0.5	0.8	7	0.45	50	0.25	4	2	7.96	8.27	8.54	8.77	9.25	9	30		KAC PVDiaG
NVV 1452 48 0052	0.5	0.8	10	0.45	50	0.25	4	2	11.09	11.47	11.78	12.09	12.75	9	30		KAC PVDiaG
SVV 1452 48 00603	0.6	0.9	3.5	0.55	50	0.3	4	2	4.16	4.40	4.60	4.78	5.10	9	30		KAC PVDiaG
SVV 1452 48 00604	0.6	0.9	7	0.55	50	0.3	4	2	7.87	8.21	8.48	8.72	9.19	9	30		KAC PVDiaG
SVV 1452 48 00803	0.8	1.2	5	0.75	50	0.4	4	2	5.85	6.11	6.33	6.53	6.89	9	30		KAC PVDiaG
SVV 1452 48 00804	0.8	1.2	10	0.75	50	0.4	4	2	11.08	11.46	11.77	12.07	12.73	9	30		KAC PVDiaG
NVV 1452 48 010	1	1.5	-	-	50	0.5	4	2	1.84	2.01	2.16	2.29	2.53	9	30		KAC PVDiaG
NVV 1452 48 01000	1	1.5	5	0.95	50	0.5	4	2	5.84	6.10	6.32	6.52	6.87	9	30		KAC PVDiaG
NVV 1452 48 0101	1	1.5	10	0.95	50	0.5	4	2	11.08	11.46	11.76	12.06	12.71	9	30		KAC PVDiaG
NVV 1452 48 0102	1	1.5	15	0.95	50	0.5	4	2	16.27	16.73	17.15	17.59	18.55	9	30		KAC PVDiaG
NVV 1452 48 0103	1	1.5	20	0.95	50	0.5	4	2	21.43	21.98	22.54	23.12	24.39	9	30		KAC PVDiaG
NVV 1452 48 01510	1.5	2.3	-	-	50	0.75	4	2	2.71	2.91	3.08	3.23	3.50	9	30		KAC PVDiaG
NVV 1452 48 0152	1.5	2.3	10	1.4	50	0.75	4	2	11.18	11.53	11.82	12.11	12.75	9	30		KAC PVDiaG
NVV 1452 48 0153	1.5	2.3	25	1.4	75	0.75	4	2	26.64	27.29	27.98	28.70	-	9	30		KAC PVDiaG
NVV 1452 48 0200	2	3	-	-	50	1	4	2	3.46	3.68	3.86	4.03	4.31	9	30		KAC PVDiaG
NVV 1452 48 0201	2	3	5	1.9	50	1	4	2	5.96	6.18	6.37	6.54	6.87	9	30		KAC PVDiaG
NVV 1452 48 0202	2	3	10	1.9	50	1	4	2	11.17	11.51	11.80	12.08	12.71	9	30		KAC PVDiaG
NVV 1452 48 0203	2	3	15	1.9	50	1	4	2	16.34	16.78	17.18	17.62	18.55	9	30		KAC PVDiaG
NVV 1452 48 0204	2	3	20	1.9	75	1	4	2	21.50	22.03	22.57	23.15	-	9	30		KAC PVDiaG
NVV 1452 48 0205	2	3	25	1.9	75	1	4	2	26.63	27.28	27.96	28.68	-	9	30		KAC PVDiaG
NVV 1452 48 0301	3	4.5	5	2.9	50	1.5	4	2	5.94	6.14	6.32	6.48	6.79	9	30		KAC PVDiaN

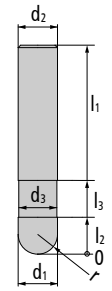
major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Ball nose end mills

wd. and no wd. | short | long

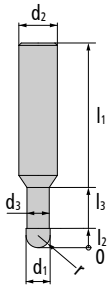
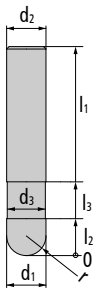




catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 1452 48 0302	3	4.5	10	2.9	50	1.5	4	2	11.15	11.48	11.76	12.03	-	9	30		KAC PVDiaN
NVV 1452 48 0303	3	4.5	15	2.9	50	1.5	4	2	16.33	16.75	17.15	-	-	9	30		KAC PVDiaN
NVV 1452 48 0304	3	4.5	20	2.9	75	1.5	4	2	21.48	22.00	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0305	3	4.5	25	2.9	75	1.5	4	2	26.62	27.26	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0306	3	4.5	30	2.9	100	1.5	4	2	31.74	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0402	4	6	10	3.8	50	2	4	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0403	4	6	15	3.8	50	2	4	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0404	4	6	20	3.8	75	2	4	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0405	4	6	25	3.8	75	2	4	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0406	4	6	45	3.8	100	2	4	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0502	5	7.5	10	4.8	57	2.5	5	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0503	5	7.5	25	4.8	75	2.5	5	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0504	5	7.5	45	4.8	100	2.5	5	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0601	6	9	10	5.8	57	3	6	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0603	6	9	15	5.8	57	3	6	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0604	6	9	20	5.8	75	3	6	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0605	6	9	25	5.8	75	3	6	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0606	6	9	30	5.8	75	3	6	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0607	6	9	45	5.8	100	3	6	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0608	6	9	60	5.8	150	3	6	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0800	8	12	-	-	63	4	8	2	-	-	-	-	-	9	30		KAC PVDiaN
NVV 1452 48 0801	8	12	20	7.8	63	4	8	2	-	-	-	-	-	9	30		KAC PVDiaN

toric tool

clamping flat

Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. and no wd. | short | long																		
	NVV 1452 48 0802	8	12	25	7.8	63	4	8	2	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1452 48 081	8	12	45	7.8	100	4	8	2	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1452 48 082	8	12	60	7.8	150	4	8	2	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1452 48 1009	10	15	25	9.8	72	5	10	2	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1452 48 1010	10	15	45	9.8	100	5	10	2	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1452 48 1209	12	18	25	11.8	83	6	12	2	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1452 48 1210	12	18	45	11.8	110	6	12	2	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1452 48 1220	12	18	60	11.8	150	6	12	2	-	-	-	-	-	9	30		KAC PVDiaN

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
copy milling 3D							
0.3-0.8	f_z (mm) a_p (mm)	-	0.005-0.0125 0.005-0.0425	-	0.01-0.03 0.01-0.3	-	-
1-2	f_z (mm) a_p (mm)	-	0.01-0.025 0.05-0.1	-	0.02-0.08 0.1-0.7	-	-
3-4	f_z (mm) a_p (mm)	-	0.04-0.055 0.08-0.19	-	0.04-0.1 0.15-1.4	-	-
5-6	f_z (mm) a_p (mm)	-	0.08-0.1 0.1-0.25	-	0.06-0.15 0.2-2	-	-
8	f_z (mm) a_p (mm)	-	0.08-0.115 0.15-0.375	-	0.08-0.2 0.3-2.8	-	-
10	f_z (mm) a_p (mm)	-	0.08-0.115 0.2-0.45	-	0.08-0.25 0.4-3.5	-	-
12	f_z (mm) a_p (mm)	-	0.08-0.115 0.2-0.5	-	0.1-0.3 0.4-4.2	-	-

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
KAC PVDiaG	roughing finishing	-	- *100* ***110*** *120*	-	200 **550** 900 400 **700** 1000	-	-
KAC PVDiaN	roughing finishing	-	- *100* ***110*** *120*	-	200 **400** 600 400 **700** 1000	-	-

major application **minor application** roughing pre-finishing finishing

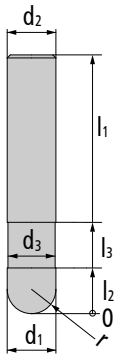
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR GRAPHITE | GRP | CFRP

Ball nose end mills | 3 flutes

3 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- short l long version
- with clearance between shank and flute
- ≥ Ø 3 mm: PVDiaN-Diamond

Ball nose end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. and no wd. | short | long																		
	NVV 1453 48 1009	10	15	25	9.8	72	5	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1453 48 1010	10	15	45	9.8	100	5	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1453 48 1020	10	15	60	9.8	150	5	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1453 48 1209	12	18	25	11.8	83	6	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1453 48 1210	12	18	45	11.8	100	6	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1453 48 1220	12	18	60	11.8	150	6	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1453 48 1610	16	24	45	15.8	100	8	16	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1453 48 162	16	24	60	15.8	150	8	16	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1453 48 2000	20	30	45	19.8	100	10	20	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 1453 48 2010	20	30	60	19.8	150	10	20	3	-	-	-	-	-	9	30		KAC PVDiaN

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	Feed per tooth | d.o.c.						
copy milling 3D							
10	f_z (mm) a_p (mm)	-	-	-	0.08-0.25 0.4-3.5	-	-
12	f_z (mm) a_p (mm)	-	-	-	0.1-0.3 0.4-4.2	-	-
16	f_z (mm) a_p (mm)	-	-	-	0.1-0.3 0.4-5.6	-	-
20	f_z (mm) a_p (mm)	-	-	-	0.1-0.35 0.4-7	-	-

toric tool

clamping flat

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
KAC PVDiaN	roughing finishing	-	-	-	200 **400** 600 -	-	-

major application minor application roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

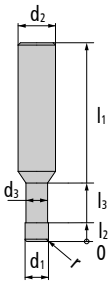
END MILLS FOR GRAPHITE | GRP | CFRP

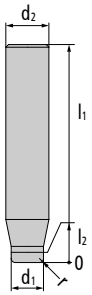
Toric / corner radius end mills | 2 flutes

2 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- short I long version
- with and without clearance between shank and flute
- corner radius
- < Ø 3 mm: PVDiaN-Diamond treated
- ≥ Ø 3 mm: PVDiaN-Diamond

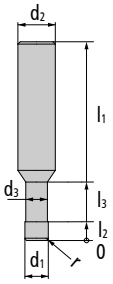
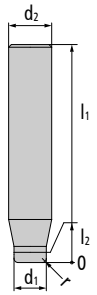
no wd. | short | long





Toric / corner radius end mills – catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
SVV 0452 48 00403	0.4	0.6	2.5	0.37	50	0.05	4	2	3.15	3.35	3.52	3.68	3.97	9	30		KAC PVDiaG
SVV 0452 48 00404	0.4	0.6	5	0.37	50	0.05	4	2	5.81	6.09	6.33	6.54	6.91	9	30		KAC PVDiaG
SVV 0452 48 00503	0.5	0.8	3.5	0.45	50	0.05	4	2	4.29	4.51	4.70	4.88	5.19	9	30		KAC PVDiaG
NVV 0452 48 0052	0.5	0.8	10	0.45	50	0.05	4	2	10.97	11.31	11.58	11.82	12.76	9	30		KAC PVDiaG
SVV 0452 48 00603	0.6	0.9	3.5	0.55	50	0.05	4	2	4.29	4.51	4.70	4.89	5.19	9	30		KAC PVDiaG
SVV 0452 48 00604	0.6	0.9	7	0.55	50	0.05	4	2	7.97	8.29	8.55	8.79	9.28	9	30		KAC PVDiaG
SVV 0452 48 00803	0.8	1.2	5	0.75	50	0.05	4	2	5.87	6.14	6.39	6.67	7.31	9	30		KAC PVDiaG
SVV 0452 48 00804	0.8	1.2	10	0.75	50	0.05	4	2	11.10	11.54	12.03	12.55	13.76	9	30		KAC PVDiaG
NVV 0452 48 01000	1	1.5	5	0.95	50	0.1	4	2	5.77	6.00	6.21	6.38	6.68	9	30		KAC PVDiaG
NVV 0452 48 01010	1	1.5	10	0.95	50	0.1	4	2	10.97	11.31	11.58	11.81	12.75	9	30		KAC PVDiaG
NVV 0452 48 01011	1	1.5	20	0.95	75	0.1	4	2	21.28	21.75	22.37	23.47	26.02	9	30		KAC PVDiaG
NVV 0452 48 01020	1	1.5	10	0.95	50	0.2	4	2	10.97	11.31	11.58	11.81	12.72	9	30		KAC PVDiaG
NVV 0452 48 0102	1	1.5	15	0.95	50	0.2	4	2	16.13	16.55	16.87	17.47	19.35	9	30		KAC PVDiaG
SVV 0452 48 0152	1.5	2.3	10	1.4	50	0.1	4	2	11.20	11.56	11.87	12.18	12.86	9	30		KAC PVDiaG
NVV 0452 48 0151	1.5	2.3	-	-	50	0.15	4	2	2.72	2.92	3.08	3.22	3.47	9	30		KAC PVDiaG
NVV 0452 48 0152	1.5	2.3	10	1.4	50	0.15	4	2	11.05	11.38	11.64	11.86	12.78	9	30		KAC PVDiaG
NVV 0452 48 01521	1.5	2.3	15	1.4	50	0.15	4	2	16.22	16.61	16.92	17.53	19.43	9	30		KAC PVDiaG
SVV 0452 48 01521	1.5	2.3	10	1.4	50	0.2	4	2	11.20	11.56	11.86	12.17	12.84	9	30		KAC PVDiaG
NVV 0452 48 01520	1.5	2.3	15	1.4	50	0.2	4	2	16.22	16.61	16.91	17.52	19.41	9	30		KAC PVDiaG
SVV 0452 48 0154	1.5	2.3	25	1.4	75	0.2	4	2	26.65	27.32	28.02	28.76	-	9	30		KAC PVDiaG
SVV 0452 48 0202	2	3	10	1.9	50	0.1	4	2	11.20	11.56	11.87	12.18	12.86	9	30		KAC PVDiaG
NVV 0452 48 0200	2	3	-	-	50	0.2	4	2	3.48	3.70	3.87	4.03	4.29	9	30		KAC PVDiaG

toric tool clamping flat

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short | long																		
	NVV 0452 48 0201	2	3	5	1.9	50	0.2	4	2	5.89	6.10	6.28	6.44	6.73	9	30		KAC PVDiaG
	NVV 0452 48 0202	2	3	10	1.9	50	0.2	4	2	11.07	11.38	11.64	11.86	12.77	9	30		KAC PVDiaG
	NVV 0452 48 0203	2	3	15	1.9	50	0.2	4	2	16.22	16.61	16.91	17.52	19.41	9	30		KAC PVDiaG
	NVV 0452 48 0204	2	3	20	1.9	75	0.2	4	2	21.35	21.80	22.41	23.50	-	9	30		KAC PVDiaG
	NVV 0452 48 0205	2	3	25	1.9	75	0.2	4	2	26.47	26.97	28.11	29.48	-	9	30		KAC PVDiaG
	NVV 0452 48 021	2	3	10	1.9	50	0.3	4	2	11.05	11.37	11.63	11.85	12.74	9	30		KAC PVDiaG
	NVV 0452 48 0214	2	3	20	1.9	75	0.3	4	2	21.35	21.80	22.39	23.48	-	9	30		KAC PVDiaG
	NVV 0452 48 0301	3	4.5	15	2.9	75	0.2	4	2	16.37	16.82	17.25	-	-	9	30		KAC PVDiaN

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
copy milling 3D							
0.4-0.8	f_z (mm) a_p (mm)	-	-	-	0.01-0.03 0.01-0.3	-	-
1-2	f_z (mm) a_p (mm)	-	-	-	0.02-0.08 0.1-0.7	-	-
3	f_z (mm) a_p (mm)	-	-	-	0.04-0.1 0.15-1.4	-	-

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
KAC PVDiaG	roughing finishing	-	-	-	200 **550** 900 400 **700** 1000	-	-
KAC PVDiaN	roughing finishing	-	-	-	200 **400** 600 400 **700** 1000	-	-

major application | minor application | roughing | pre-finishing | finishing

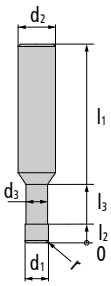
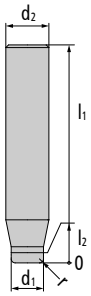
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR GRAPHITE | GRP | CFRP

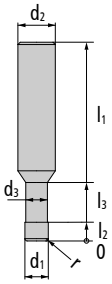
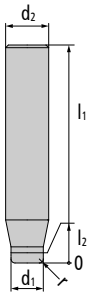
Toric / corner radius end mills | 3 flutes

3 flutes, plain shank, 30° right hand helix angle

- center cutting end mill
- short l long version
- with and without clearance between shank and flute
- < Ø 3 mm: PVDiaG-Diamond treated
- ≥ Ø 3 mm: PVDiaN-Diamond

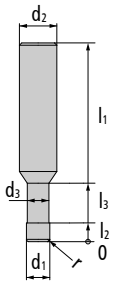
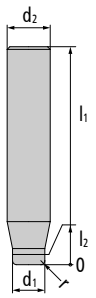
Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. and no wd. | short | long																		
	NVV 0453 48 0300	3	4.5	-	-	50	0.3	4	3	5.15	5.44	5.68	5.88	6.24	9	30		KAC PVDiaN
	NVV 0453 48 0302	3	4.5	10	2.9	50	0.3	4	3	11.20	11.55	11.85	12.16	-	9	30		KAC PVDiaN
	NVV 0453 48 0303	3	4.5	15	2.9	50	0.3	4	3	16.37	16.81	17.24	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0304	3	4.5	20	2.9	75	0.3	4	3	21.52	22.06	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0305	3	4.5	25	2.9	75	0.3	4	3	26.65	27.32	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 031	3	30	-	-	100	0.3	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0400	4	6	-	-	50	0.3	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0402	4	6	10	3.8	50	0.3	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0403	4	6	15	3.8	50	0.3	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0404	4	6	20	3.8	75	0.3	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0405	4	6	25	3.8	75	0.3	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0406	4	6	45	3.8	100	0.3	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 04020	4	6	10	3.8	50	0.5	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 04001	4	6	-	-	50	1	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 04021	4	6	10	3.8	50	1	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 04031	4	6	15	3.8	50	1	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 04041	4	6	20	3.8	75	1	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 04051	4	6	25	3.8	75	1	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 04061	4	6	45	3.8	100	1	4	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0502	5	7.5	10	4.8	57	0.3	5	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0503	5	7.5	20	4.8	75	0.3	5	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 050	5	35	-	-	75	0.3	5	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0504	5	7.5	45	4.8	100	0.3	5	3	-	-	-	-	-	9	30		KAC PVDiaN

toric tool clamping flat

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. and no wd. | short | long																		
	NVV 0453 48 051	5	40	-	-	100	0.3	5	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 067	6	50	-	-	150	0.2	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0600	6	9	-	-	57	0.3	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0603	6	9	15	5.8	57	0.3	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0604	6	9	20	5.8	75	0.3	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0605	6	9	25	5.8	75	0.3	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0606	6	9	30	5.8	75	0.3	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0607	6	9	45	5.8	100	0.3	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0608	6	9	60	5.8	150	0.3	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 060	6	60	-	-	150	0.3	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 06030	6	9	15	5.8	57	0.5	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	SVV 0453 48 06073	6	9	45	5.8	100	0.7	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 06001	6	9	-	-	57	1	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 06031	6	9	15	5.8	57	1	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 06041	6	9	20	5.8	75	1	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 06051	6	9	25	5.8	75	1	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 06061	6	9	30	5.8	75	1	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 06071	6	9	45	5.8	100	1	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 06081	6	9	60	5.8	150	1	6	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0800	8	12	-	-	63	0.5	8	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0801	8	12	20	7.8	63	0.5	8	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0810	8	12	45	7.8	100	0.5	8	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 0820	8	12	60	7.8	150	0.5	8	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 08001	8	12	-	-	63	1	8	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 08011	8	12	20	7.8	63	1	8	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 083	8	20	-	-	75	1	8	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 08101	8	12	45	7.8	100	1	8	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 08201	8	12	60	7.8	150	1	8	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1000	10	15	-	-	72	0.5	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1009	10	15	25	9.8	100	0.5	10	3	-	-	-	-	-	9	30		KAC PVDiaN

major application minor application roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Toric / corner radius end mills	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. and no wd. | short | long																		
	NVV 0453 48 1010	10	15	45	9.8	100	0.5	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 102	10	15	60	9.8	150	0.5	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	SVV 0453 48 10102	10	15	45	9.8	100	0.7	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1001	10	15	-	-	72	1	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1002	10	15	25	9.8	100	1	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1011	10	15	45	9.8	100	1	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1021	10	15	60	9.8	150	1	10	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1200	12	18	-	-	83	0.5	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1209	12	18	25	11.8	83	0.5	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1210	12	18	45	11.8	100	0.5	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1220	12	18	60	11.8	150	0.5	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 12091	12	18	25	11.8	83	0.7	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1201	12	18	-	-	83	1	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1202	12	18	25	11.8	83	1	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1211	12	18	45	11.8	100	1	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1221	12	18	60	11.8	150	1	12	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 160	16	24	-	-	92	1	16	3	-	-	-	-	-	9	30		KAC PVDiaN
	NVV 0453 48 1610	16	24	45	15.8	100	1	16	3	-	-	-	-	-	9	30		KAC PVDiaN

Feed per tooth (fz) | d.o.c. (ap)

Material / Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
copy milling 3D							
3-4	f_z (mm) a_p (mm)	-	-	-	0.04-0.1 0.15-1.4	-	-
5-6	f_z (mm) a_p (mm)	-	-	-	0.06-0.15 0.2-2	-	-
8	f_z (mm) a_p (mm)	-	-	-	0.08-0.2 0.3-2.8	-	-
10	f_z (mm) a_p (mm)	-	-	-	0.08-0.25 0.4-3.5	-	-
12	f_z (mm) a_p (mm)	-	-	-	0.1-0.3 0.4-4.2	-	-
16	f_z (mm) a_p (mm)	-	-	-	0.1-0.3 0.4-5.6	-	-

toric tool clamping flat

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
KAC PVDiaN	roughing finishing	-	-	-	- 350 **675** 1000	-	-

major application minor application roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

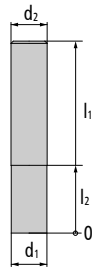
END MILLS FOR GRAPHITE | GRP | CFRP

End mills | 2 flutes

X-Cut flutes, for machining graphite and composites, plain shank

- center cutting end mill
- straight face
- 2 cutting face teeth
- without clearance between shank and flute

no wd. | short



End mills catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0108 48 030	3	10	-	-	50	-	3	2	-	-	-	-	-	-	-		KAC PVDiaN
NVV 0108 48 040	4	10	-	-	50	-	4	2	-	-	-	-	-	-	-		KAC PVDiaN
NVV 0108 48 060	6	20	-	-	57	-	6	2	-	-	-	-	-	-	-		KAC PVDiaN
NVV 0108 48 080	8	20	-	-	60	-	8	2	-	-	-	-	-	-	-		KAC PVDiaN
NVV 0108 48 100	10	25	-	-	70	-	10	2	-	-	-	-	-	-	-		KAC PVDiaN
NVV 0108 48 120	12	30	-	-	85	-	12	2	-	-	-	-	-	-	-		KAC PVDiaN

Cutting speed (Vc in m/min)

d1	V_c (m/min) graphite with fine grain size	V_c (m/min) graphite with mean grain size	V_c (m/min) graphite with coarse grain size	V_f (mm/min)	a_p max.	a_e max.
3	400	600	800	3000 - 5000	10	3
4	400	600	800	3500 - 5500	10	4
5	400	600	800	3750 - 6250	10	5
6	400	600	800	4000 - 7000	20	6
8	400	600	800	4500 - 8000	20	8
10	400	600	800	5000 - 8500	25	10
12	400	600	800	6000 - 9000	30	10

toric tool

clamping flat

END MILLS FOR EXTREME MACHINING | HPC

		Page
3 and 4 flutes	no wd. | short | long	118
4 flutes with corner radius, Steel | Cast iron	no wd. | short | long	121
4 flutes with corner radius, RSH | Non ferrous materials	wd. | short | long	123
	wd. | short	100
4 flutes for HPC machining	no wd. | short	125
	no wd. | short	125
4 flutes | with working depth	with chamfer	127
	with corner radius	127

pokolm PREMIUMTOOLS. WE KNOW HOW.

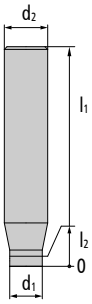
END MILLS FOR EXTREME MACHINING | HPC

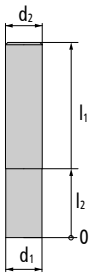
3 and 4 flutes

3 and 4 flutes, plain shank, 50° right hand helix angle

- center cutting end mill
- straight face
- short l long version
- without clearance between shank and flute
- < Ø 12 mm clamping surface is available on demand, ≥ Ø 12 mm with clamping surface by default

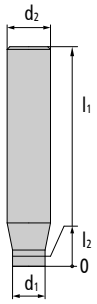
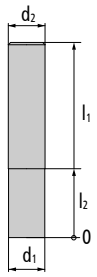
3 and 4 flutes	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short | long																		
	NVV 0370 56 020	2	4	-	-	57	-	6	3	4.64	4.92	5.15	5.36	5.79	-15	50		MGC PVTi
	NVV 0370 56 025	2.5	5	-	-	57	-	6	3	5.70	6.02	6.27	6.51	7.03	-15	50		MGC PVTi
	NVV 0370 56 030	3	6	-	-	57	-	6	4	6.77	7.11	7.38	7.66	8.28	-15	50		MGC PVTi
	NVV 0370 56 035	3.5	7	-	-	57	-	6	4	7.82	8.19	8.49	8.81	9.52	-15	50		MGC PVTi
	NVV 0370 56 040	4	8	-	-	57	-	6	4	8.88	9.26	9.60	9.96	10.76	-15	50		MGC PVTi
	NVV 0370 56 045	4.5	9	-	-	57	-	6	4	9.93	10.33	10.70	11.11	12.01	-15	50		MGC PVTi
	NVV 0370 56 050	5	10	-	-	57	-	6	4	10.97	11.40	11.81	12.26	-	-15	50		MGC PVTi
	NVV 0294 56 060	6	6	21	5.8	57	-	6	4	-	-	-	-	-	-15	50		UMGC PVTi
	NVV 0370 56 060	6	12	-	-	57	-	6	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0290 56 061	6	18	-	-	75	-	6	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0370 56 070	7	14	-	-	63	-	8	4	15.14	15.68	16.25	-	-	-15	50		MGC PVTi
	NVV 0294 56 080	8	8	27	7.8	63	-	8	4	-	-	-	-	-	-15	50		UMGC PVTi
	NVV 0370 56 080	8	16	-	-	63	-	8	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0290 56 081	8	24	-	-	90	-	8	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0370 56 090	9	18	-	-	72	-	10	4	19.29	19.91	-	-	-	-15	50		MGC PVTi
	NVV 0294 56 100	10	10	32	9.8	72	-	10	4	-	-	-	-	-	-15	50		UMGC PVTi
	NVV 0370 56 100	10	20	-	-	72	-	10	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0290 56 101	10	30	-	-	100	-	10	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0294 56 120	12	12	38	11.8	83	-	12	4	-	-	-	-	-	-15	50	[	UMGC PVTi
	NVV 0370 56 120	12	24	-	-	83	-	12	4	-	-	-	-	-	-15	50	[	MGC PVTi
	NVV 0290 56 121	12	36	-	-	110	-	12	4	-	-	-	-	-	-15	50	[	MGC PVTi
	NVV 0294 56 160	16	16	44	15.8	92	-	16	4	-	-	-	-	-	-15	50	[	MGC PVTi
	NVV 0370 56 160	16	32	-	-	92	-	16	4	-	-	-	-	-	-15	50	[	MGC PVTi





toric tool

[clamping flat

3 and 4 flutes	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short | long																		
	NVV 0290 56 161	16	48	-	-	140	-	16	4	-	-	-	-	-	-15	50	[	MGC PVTi
	NVV 0370 56 200	20	40	-	-	104	-	20	4	-	-	-	-	-	-15	50	[	MGC PVTi
	NVV 0290 56 201	20	60	-	-	150	-	20	4	-	-	-	-	-	-15	50	[	MGC PVTi
																		

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
contour milling							
2-2.5	f_z (mm) a_p (mm)	0.05-0.09 4	-	0.05-0.09 4	-	-	0.03-0.045 4
3-4.5	f_z (mm) a_p (mm)	0.09-0.12 6	-	0.05-0.12 6	-	-	0.07-0.085 6
5-6	f_z (mm) a_p (mm)	0.12-0.18 6	-	0.09-0.18 6	-	-	0.1-0.125 6
7-8	f_z (mm) a_p (mm)	0.12-0.18 8	-	0.12-0.18 8	-	-	0.1-0.125 8
9-10	f_z (mm) a_p (mm)	0.15-0.2 10	-	0.12-0.2 10	-	-	0.12-0.145 10
12	f_z (mm) a_p (mm)	0.15-0.2 12	-	0.15-0.2 12	-	-	0.12-0.145 12
16	f_z (mm) a_p (mm)	0.2-0.25 16	-	0.15-0.25 16	-	-	0.17-0.195 16
20	f_z (mm) a_p (mm)	0.25-0.3 40	-	0.2-0.3 40	-	-	0.2-0.225 40
pocket and slot milling							
2-2.5	f_z (mm) a_p (mm)	0.02-0.04 1-1.5	-	0.02-0.04 1-1.5	-	-	0.02-0.03 0.04-0.07
3-4.5	f_z (mm) a_p (mm)	0.03-0.06 1.5-2	-	0.03-0.06 1.5-2	-	-	0.03-0.045 0.08-0.14
5-6	f_z (mm) a_p (mm)	0.05-0.08 2.5-3	-	0.05-0.08 2.5-3	-	-	0.05-0.065 0.1-0.2
7-8	f_z (mm) a_p (mm)	0.05-0.08 3.5-4	-	0.05-0.08 3.5-4	-	-	0.05-0.065 0.15-0.275
9-10	f_z (mm) a_p (mm)	0.06-0.1 4.5-5	-	0.06-0.1 4.5-5	-	-	0.06-0.08 0.2-0.35
12	f_z (mm) a_p (mm)	0.07-0.12 5-6	-	0.07-0.12 5-6	-	-	0.07-0.095 0.2-0.4
16	f_z (mm) a_p (mm)	0.08-0.12 6-8	-	0.08-0.12 6-8	-	-	0.08-0.1 0.2-0.5
20	f_z (mm) a_p (mm)	0.08-0.12 6-8	-	0.08-0.12 6-8	-	-	0.08-0.1 0.2-0.5

The data above refer to a maximum cutting width ae of 2 % of the cutting diameter d1.

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100* ***225*** *350* *180* ***290*** *400*	-	-	*120* ***160*** *200* *100* ***175*** *250*
UMGC PVTi	roughing finishing	120 **185** 250 200 **240** 280	-	*100* ***225*** *350* *180* ***290*** *400*	-	-	-

toric tool

clamping flat

END MILLS FOR EXTREME MACHINING | HPC

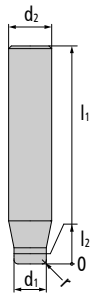
4 flutes with corner radius, Steel | Cast iron

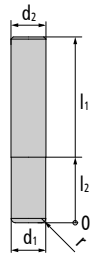
4 flutes, plain shank, 50° right hand helix angle, Steel | Cast iron

- center cutting
- straight face
- short I long version
- without clearance between shank and flute
- < Ø 12 mm clamping surface is available on demand, ≥ Ø 12 mm with clamping surface by default

4 flutes with corner radius, Steel | Cast iron

no wd. | short | long





catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0380 56 030	3	6	-	-	57	0.3	6	4	6.75	7.08	7.35	7.61	8.21	-15	50		MGC PVTi
NVV 0380 56 040	4	8	-	-	57	0.3	6	4	8.86	9.24	9.56	9.91	10.69	-15	50		MGC PVTi
NVV 0380 56 050	5	10	-	-	57	0.3	6	4	10.96	11.38	11.78	12.21	-	-15	50		MGC PVTi
NVV 0380 56 060	6	12	-	-	57	0.3	6	4	-	-	-	-	-	-15	50		MGC PVTi
NVV 0390 56 061	6	18	-	-	75	0.3	6	4	-	-	-	-	-	-15	50		MGC PVTi
NVV 0380 56 080	8	16	-	-	63	0.5	8	4	-	-	-	-	-	-15	50		MGC PVTi
NVV 0390 56 081	8	24	-	-	90	0.5	8	4	-	-	-	-	-	-15	50		MGC PVTi
NVV 0380 56 100	10	20	-	-	72	0.5	10	4	-	-	-	-	-	-15	50		MGC PVTi
NVV 0390 56 101	10	30	-	-	100	0.5	10	4	-	-	-	-	-	-15	50		MGC PVTi
NVV 0380 56 120	12	24	-	-	83	1	12	4	-	-	-	-	-	-15	50	[	MGC PVTi
NVV 0390 56 121	12	36	-	-	110	1	12	4	-	-	-	-	-	-15	50	[	MGC PVTi
NVV 0380 56 160	16	32	-	-	92	1	16	4	-	-	-	-	-	-15	50	[	MGC PVTi
NVV 0390 56 161	16	48	-	-	140	1	16	4	-	-	-	-	-	-15	50	[	MGC PVTi
NVV 0380 56 200	20	40	-	-	104	1	20	4	-	-	-	-	-	-15	50	[	MGC PVTi
NVV 0390 56 201	20	60	-	-	150	1	20	4	-	-	-	-	-	-15	50	[	MGC PVTi

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
contour milling							
3-4	f_z (mm) a_p (mm)	0.09-0.12 6	-	0.05-0.12 6	-	-	0.07-0.085 6
5-6	f_z (mm) a_p (mm)	0.12-0.18 10	-	0.09-0.18 10	-	-	0.1-0.125 10
8	f_z (mm) a_p (mm)	0.12-0.18 16	-	0.12-0.18 16	-	-	0.1-0.125 16
10	f_z (mm) a_p (mm)	0.15-0.2 20	-	0.12-0.2 20	-	-	0.12-0.145 20
12	f_z (mm) a_p (mm)	0.15-0.2 24	-	0.15-0.2 24	-	-	0.12-0.145 24
16	f_z (mm) a_p (mm)	0.2-0.25 32	-	0.15-0.25 32	-	-	0.17-0.195 32
20	f_z (mm) a_p (mm)	0.25-0.3 40	-	0.2-0.3 40	-	-	0.2-0.225 40
pocket and slot milling							
3-4	f_z (mm) a_p (mm)	0.03-0.06 1.5-2	-	0.03-0.06 1.5-2	-	-	0.03-0.045 0.08-0.14
5-6	f_z (mm) a_p (mm)	0.05-0.08 2.5-3	-	0.05-0.08 2.5-3	-	-	0.05-0.065 0.1-0.2
8	f_z (mm) a_p (mm)	0.05-0.08 3.5-4	-	0.05-0.08 3.5-4	-	-	0.05-0.065 0.15-0.275
10	f_z (mm) a_p (mm)	0.06-0.1 4.5-5	-	0.06-0.1 4.5-5	-	-	0.06-0.08 0.2-0.35
12	f_z (mm) a_p (mm)	0.07-0.12 5-6	-	0.07-0.12 5-6	-	-	0.07-0.095 0.2-0.4
16	f_z (mm) a_p (mm)	0.08-0.12 6-8	-	0.08-0.12 6-8	-	-	0.08-0.1 0.2-0.5
20	f_z (mm) a_p (mm)	0.08-0.12 6-8	-	0.08-0.12 6-8	-	-	0.08-0.1 0.2-0.5

The data above refer to a maximum cutting width ae of 2 % of the cutting diameter d1.

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	-	*100 **225** 350* *180 **290** 400*	-	-	*120 **160** 200* *100 **175** 250*

toric tool

clamping flat

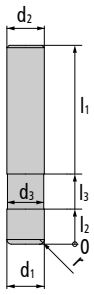
END MILLS FOR EXTREME MACHINING | HPC

4 flutes with corner radius, RSH | Non ferrous materials

4 flutes, plain shank, 50° right hand helix angle, RSH | Non ferrous materials

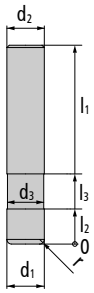
- center cutting
- straight face
- short I long version
- with clearance between shank and flute
- < Ø 12 mm clamping surface is available on demand, ≥ Ø 12 mm with clamping surface by default

wd. | short | long



4 flutes corner radius, RSH | Non ferrous materials	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
	NVV 0394 56 06005	6	6	21	5.8	57	0.5	6	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0394 56 06010	6	6	21	5.8	57	1	6	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0394 56 08005	8	8	27	7.8	63	0.5	8	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0394 56 08010	8	8	27	7.8	63	1	8	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0394 56 10005	10	10	32	9.8	72	0.5	10	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0394 56 10010	10	10	32	9.8	72	1	10	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0394 56 12010	12	12	38	11.8	83	1	12	4	-	-	-	-	-	8	50	[	UMGC PVTi
	NVV 0394 56 12020	12	12	38	11.8	83	2	12	4	-	-	-	-	-	8	50	[	UMGC PVTi
	NVV 0394 56 16010	16	16	44	15.8	92	1	16	4	-	-	-	-	-	8	50	[	UMGC PVTi
	NVV 0394 56 16020	16	16	44	15.8	92	2	16	4	-	-	-	-	-	8	50	[	UMGC PVTi

wd. | short



	NVV 0394 45 06005	6	6	21	5.8	57	0.5	6	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0394 45 06010	6	6	21	5.8	57	1	6	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0394 45 08005	8	8	27	7.8	63	0.5	8	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0394 45 08010	8	8	27	7.8	63	1	8	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0394 45 10005	10	10	32	9.8	72	0.5	10	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0394 45 10010	10	10	32	9.8	72	1	10	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0394 45 12010	12	12	38	11.8	83	1	12	4	-	-	-	-	-	8	50	[	UMGC PVCS
	NVV 0394 45 12020	12	12	38	11.8	83	2	12	4	-	-	-	-	-	8	50	[	UMGC PVCS
	NVV 0394 45 16010	16	16	44	15.8	92	1	16	4	-	-	-	-	-	8	50	[	UMGC PVCS
	NVV 0394 45 16020	16	16	44	15.8	92	2	16	4	-	-	-	-	-	8	50	[	UMGC PVCS

major application minor application roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
pocket and slot milling							
6	f_z (mm) a_p (mm)	-	0.05-0.08 1.5-1.8	-	0.05-0.1 0.15-2	0.025-0.05 0.2-1	-
8	f_z (mm) a_p (mm)	-	0.05-0.08 2-2.5	-	0.06-0.15 0.15-2.8	0.04-0.06 0.3-1	-
10	f_z (mm) a_p (mm)	-	0.06-0.1 2.5-3	-	0.08-0.17 0.2-3.5	0.05-0.08 0.4-1	-
12	f_z (mm) a_p (mm)	-	0.07-0.12 3-3.5	-	0.09-0.2 0.2-4.2	0.06-0.1 0.5-1	-
16	f_z (mm) a_p (mm)	-	0.08-0.12 4-4.5	-	0.1-0.27 0.2-5.6	0.06-0.1 0.5-1.5	-

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
UMGC PVTi	roughing finishing	-	70 **90** 110 110 **130** 150	-	200 **350** 500 400 **500** 600	15 **33** 50 40 **60** 80	-
UMGC PVCS	roughing finishing	-	- 70 **95** 120	-	220 **410** 600 400 **700** 1000	- 30 **50** 70	-

Detailed technical information on page 139.

toric tool

clamping flat

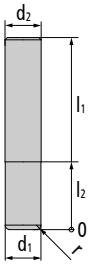
END MILLS FOR EXTREME MACHINING | HPC

4 flutes for HPC machining

4 flutes, plain shank, 50° right hand helix angle

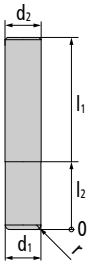
- center cutting end mill
- straight face
- short version
- with corner radius
- unequal division
- < Ø 12 mm clamping surface is available on demand, ≥ Ø 12 mm with clamping surface by default
- with clearance between shank and flute on demand

no wd. | short



4 flutes for HPC machining	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
	NVV 0384 56 060	6	12	-	-	57	0.5	6	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0384 56 061	6	12	-	-	57	1	6	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0384 56 080	8	16	-	-	63	0.5	8	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0384 56 081	8	16	-	-	63	1	8	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0384 56 100	10	20	-	-	72	0.5	10	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0384 56 101	10	20	-	-	72	1	10	4	-	-	-	-	-	8	50		UMGC PVTi
	NVV 0384 56 120	12	24	-	-	83	1	12	4	-	-	-	-	-	8	50	[	UMGC PVTi
	NVV 0384 56 121	12	24	-	-	83	2	12	4	-	-	-	-	-	8	50	[	UMGC PVTi
	NVV 0384 56 160	16	32	-	-	92	1	16	4	-	-	-	-	-	8	50	[	UMGC PVTi
	NVV 0384 56 161	16	32	-	-	92	2	16	4	-	-	-	-	-	8	50	[	UMGC PVTi
	NVV 0384 56 200	20	40	-	-	104	1	20	4	-	-	-	-	-	8	50	[	UMGC PVTi
	NVV 0384 56 201	20	40	-	-	104	2	20	4	-	-	-	-	-	8	50	[	UMGC PVTi

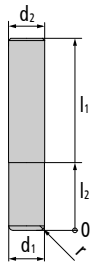
no wd. | short



	NVV 0384 45 060	6	12	-	-	57	0.5	6	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0384 45 061	6	12	-	-	57	1	6	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0384 45 080	8	16	-	-	63	0.5	6	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0384 45 081	8	16	-	-	63	1	6	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0384 45 100	10	20	-	-	72	0.5	10	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0384 45 101	10	20	-	-	72	1	10	4	-	-	-	-	-	8	50		UMGC PVCS
	NVV 0384 45 120	12	24	-	-	83	1	12	4	-	-	-	-	-	8	50	[	UMGC PVCS
	NVV 0384 45 121	12	24	-	-	83	2	12	4	-	-	-	-	-	8	50	[	UMGC PVCS

major application minor application roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

4 flutes for HPC machining	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
no wd. | short																		
	NVV 0384 45 160	16	32	-	-	92	1	16	4	-	-	-	-	-	8	50	[	UMGC PVCS
	NVV 0384 45 161	16	32	-	-	92	2	16	4	-	-	-	-	-	8	50	[	UMGC PVCS
	NVV 0384 45 200	20	40	-	-	104	1	20	4	-	-	-	-	-	8	50	[	UMGC PVCS
	NVV 0384 45 201	20	40	-	-	104	2	20	4	-	-	-	-	-	8	50	[	UMGC PVCS

Feed per tooth (fz) | d.o.c. (ap)

Material							
Diameter	**Feed per tooth | d.o.c.**	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
contour milling							
6	f_z (mm) a_p (mm)	0.12-0.18 12	0.12-0.18 12	-	0.08-0.14 12	0.03-0.05 12	-
8	f_z (mm) a_p (mm)	0.12-0.18 16	0.12-0.18 16	-	0.12-0.19 16	0.04-0.055 16	-
10	f_z (mm) a_p (mm)	0.15-0.2 20	0.15-0.2 20	-	0.14-0.22 20	0.045-0.06 20	-
12	f_z (mm) a_p (mm)	0.15-0.2 24	0.15-0.2 24	-	0.16-0.24 24	0.05-0.065 24	-
16	f_z (mm) a_p (mm)	0.2-0.25 32	0.2-0.25 32	-	0.2-0.3 32	0.055-0.075 32	-
20	f_z (mm) a_p (mm)	0.25-0.3 40	0.25-0.3 40	-	0.22-0.35 40	0.065-0.095 40	-
pocket and slot milling							
6	f_z (mm) a_p (mm)	0.035-0.08 2.5-4.8	0.02-0.04 1.2-4.8	-	0.06-0.1 0.4-2	0.02-0.04 3-7.5	-
8	f_z (mm) a_p (mm)	0.045-0.08 3.5-6.4	0.03-0.05 1.6-6.4	-	0.08-0.15 0.4-2.8	0.03-0.05 4-10	-
10	f_z (mm) a_p (mm)	0.055-0.1 4.5-8	0.04-0.06 2-8	-	0.11-0.17 0.4-3.5	0.035-0.055 6-12.5	-
12	f_z (mm) a_p (mm)	0.06-0.12 5-9.6	0.045-0.07 2.4-9.6	-	0.12-0.2 0.4-4.2	0.04-0.06 8-15	-
16	f_z (mm) a_p (mm)	0.075-0.12 6-12.8	0.06-0.085 3.2-12.8	-	0.13-0.27 0.4-5.6	0.045-0.065 11-20	-
20	f_z (mm) a_p (mm)	0.08-0.15 6-16	0.07-0.1 4-16	-	0.15-0.3 0.5-6.5	0.055-0.085 15-25	-

The data above refer to a maximum cutting width ae of 2 % of the cutting diameter d1.

Cutting speed (Vc in m/min)

Material							
Quality Coating	**Application**	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
UMGC PVTi	roughing finishing	120 **185** 250 200 **240** 280	*70* ***90*** *110* *110* ***130*** *150*	-	200 **350** 500 400 **500** 600	*15* ***33*** *50* *40* ***60*** *80*	-
UMGC PVCS	roughing finishing	90 **155** 220 170 **210** 250	*50* ***75*** *100* *90* ***105*** *120*	-	400 **500** 600 500 **750** 1000	*15* ***33*** *50* *30* ***50*** *70*	-

Detailed technical information on page 139.

toric tool [clamping flat

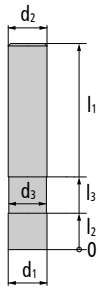
END MILLS FOR EXTREME MACHINING | HPC

4 flutes | with working depth

4 flutes, plain shank, 50° right hand helix angle

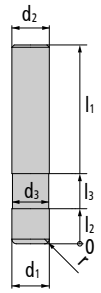
- center cutting end mill
- straight face
- short version
- 1 x d cuttingedge length
- with corner radius or chamfer
- unequal division
- < Ø 12 mm clamping surface is available on demand, ≥ Ø 12 mm with clamping surface by default

with chamfer



4 flutes | with working depth	catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
	NVV 0350 56 060	6	6	21	5.8	57	-	6	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0350 56 080	8	8	27	7.8	63	-	8	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0350 56 100	10	10	32	9.8	72	-	10	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0350 56 120	12	12	38	11.8	83	-	12	4	-	-	-	-	-	-15	50	[	MGC PVTi
	NVV 0350 56 160	16	16	44	15.8	92	-	16	4	-	-	-	-	-	-15	50	[	MGC PVTi
	NVV 0350 56 200	20	20	54	19.8	104	-	20	4	-	-	-	-	-	-15	50	[	MGC PVTi

with corner radius



	NVV 0360 56 060	6	6	21	5.8	57	0.3	6	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0360 56 080	8	8	27	7.8	63	0.5	8	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0360 56 100	10	10	32	9.8	72	0.5	10	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0360 56 120	12	12	38	11.8	83	1	12	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0360 56 160	16	16	44	15.8	92	1	16	4	-	-	-	-	-	-15	50		MGC PVTi
	NVV 0360 56 200	20	20	54	19.8	104	1	20	4	-	-	-	-	-	-15	50	[	MGC PVTi

major application | minor application | roughing | pre-finishing | finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
pocket and slot milling							
6	f_z (mm) a_p (mm)	0.035-0.08 2.5-4.8	0.02-0.04 1.2-4.8	0.035-0.08 2.5-4.8	-	-	-
8	f_z (mm) a_p (mm)	0.045-0.08 3.5-6.4	0.03-0.05 1.6-6.4	0.045-0.08 3.5-6.4	-	-	-
10	f_z (mm) a_p (mm)	0.055-0.1 4.5-8	0.04-0.06 2-8	0.055-0.1 4.5-8	-	-	-
12	f_z (mm) a_p (mm)	0.06-0.12 5-9.6	0.045-0.7 2.4-9.6	0.06-0.12 5-9.6	-	-	-
16	f_z (mm) a_p (mm)	0.075-0.12 6-12.8	0.06-0.85 3.2-12.8	0.075-0.12 6-12.8	-	-	-
20	f_z (mm) a_p (mm)	0.08-0.15 6-16	0.07-0.1 4-16	0.08-0.15 6-16	-	-	-

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
MGC PVTi	roughing finishing	120 **210** 300 200 **275** 350	*70* ***95*** *120* *120* ***135*** *150*	*100* ***225*** *350* *180* ***290*** *400*	-	-	-

toric tool

clamping flat

END MILLS FOR HIGH FEED MACHINING | TRIGAWORX® | HSC

		Page
3 flutes	wd. | short	130
4 flutes	wd. | short | long	132
	wd. | real corner radius	132
4 flutes | with internal coolant supply	wd. | short | long	134

pokolm PREMIUMTOOLS. WE KNOW HOW.

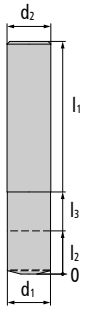
END MILLS FOR HIGH FEED MACHINING | TRIGAWORX® | HSC

3 flutes

3 flutes, plain shank, special style of face teeth

- short version
- roughing at great depths possible, extremely smooth operation
- with clearance between shank and flute
- **Note: r* = corner radius to be programmed**

3 flutes | wd. | short



Catalogue no.	d_1	l_2	l_3	d_3	l_1	r*	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
NVV 0373 55 023	2	2	10	1.9	57	0,15*	6	3	11.20	11.56	11.86	12.17	12.85	5	5		MGC PVALSA
NVV 0373 55 032	3	3	16	2.9	57	0,2*	6	3	17.40	17.87	18.32	18.64	19.85	5	5		MGC PVALSA
NVV 0373 55 042	4	4	18	3.8	57	0,3*	6	3	19.62	20.11	20.62	21.16	-	5	5		MGC PVALSA
NVV 0373 55 052	5	5	21	4.8	57	0,4*	6	3	22.69	23.25	-	-	-	5	5		MGC PVALSA
NVV 0373 55 062	6	6	21	5.8	57	0,5*	6	3	-	-	-	-	-	5	5		MGC PVALSA
NVV 0373 55 082	8	8	27	7.8	63	0,7*	8	3	-	-	-	-	-	5	5		MGC PVALSA
NVV 0373 55 102	10	10	32	9.8	72	0,85*	10	3	-	-	-	-	-	5	5		MGC PVALSA
NVV 0373 55 122	12	12	38	11.8	83	1*	12	3	-	-	-	-	-	5	5		MGC PVALSA
NVV 0373 55 162	16	16	50	15.8	92	1,4*	16	3	-	-	-	-	-	5	5		MGC PVALSA

Feed per tooth (fz) | d.o.c. (ap)

Material: Diameter	Feed per tooth | d.o.c.	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
roughing operations 2D/3D							
3-4	f_z (mm) a_p (mm)	0.08-0.25 0.1-0.2	-	0.08-0.25 0.1-0.2	-	-	0.08-0.25 0.1-0.2
5-6	f_z (mm) a_p (mm)	0.1-0.35 0.1-0.3	-	0.1-0.35 0.1-0.3	-	-	0.1-0.35 0.1-0.3
8	f_z (mm) a_p (mm)	0.1-0.5 0.1-0.3	-	0.1-0.5 0.1-0.3	-	-	0.1-0.5 0.1-0.3
10	f_z (mm) a_p (mm)	0.1-0.7 0.1-0.3	-	0.1-0.7 0.1-0.3	-	-	0.1-0.7 0.1-0.3
12	f_z (mm) a_p (mm)	0.1-0.8 0.1-0.3	-	0.1-0.8 0.1-0.3	-	-	0.1-0.8 0.1-0.3
16	f_z (mm) a_p (mm)	0.1-0.8 0.1-0.4	-	0.1-0.8 0.1-0.4	-	-	0.1-0.8 0.1-0.4

toric tool clamping flat * corner radius to be programmed

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVALSA	roughing finishing	120 **210** 300 -	-	*100* ***225*** *350* -	-	-	80 **140** 200 -

major application | minor application | roughing | pre-finishing | finishing

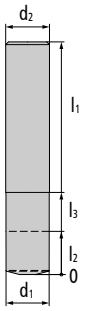
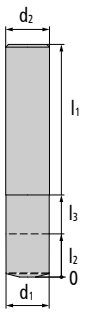
pokolm PREMIUMTOOLS. WE KNOW HOW.

END MILLS FOR HIGH FEED MACHINING | TRIGAWORX® | HSC

4 flutes

4 flutes, plain shank, special style of face teeth

- short version I long version
- roughing at great depths possible, extremely smooth operation
- with clearance between shank and flute
- **Note NVV 0374 ... : r* = corner radius to be programmed**

4 flutes	Catalogue no.	d_1	l_2	l_3	d_3	l_1	r	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | short | long																		
	NVV 0374 55 032	3	3	16	2.9	57	0,2*	6	4	17.40	17.87	18.32	18.64	19.85	5	5		MGC PVALSA
	NVV 0374 55 042	4	4	18	3.8	57	0,3*	6	4	19.62	20.11	20.62	21.16	-	5	5		MGC PVALSA
	NVV 0374 55 052	5	5	21	4.8	57	0,4*	6	4	22.69	23.25	-	-	-	5	5		MGC PVALSA
	NVV 0374 55 062	6	6	21	5.8	57	0,5*	6	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0374 55 0622	6	6	64	5.8	100	0,5*	6	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0374 55 082	8	8	27	7.8	63	0,7*	8	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0374 55 0822	8	8	64	7.8	100	0,7*	8	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0374 55 102	10	10	32	9.8	72	0,85*	10	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0374 55 1022	10	10	60	9.8	100	0,85*	10	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0374 55 122	12	12	38	11.8	83	1*	12	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0374 55 1222	12	12	65	11.8	110	1*	12	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0374 55 162	16	16	50	15.8	92	1,4*	16	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0374 55 1622	16	16	65	15.8	150	1,4*	16	4	-	-	-	-	-	5	5		MGC PVALSA
wd. | real corner radius																		
	NVV 0274 55 06015	6	6	21	5.8	57	1,5	6	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0274 55 08020	8	8	27	7.8	63	2	8	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0274 55 10020	10	10	32	9.8	72	2	10	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0274 55 12030	12	12	38	11.8	83	3	12	4	-	-	-	-	-	5	5		MGC PVALSA

toric tool

clamping flat

* corner radius to be programmed

Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	**Feed per tooth | d.o.c.**						
roughing operations 2D/3D							
3-4	f_z (mm) a_p (mm)	0.08-0.25 0.1-0.2	0.08-0.25 0.1-0.2	0.08-0.25 0.1-0.2	-	0.08-0.25 0.1-0.2	0.08-0.25 0.1-0.2
5-6	f_z (mm) a_p (mm)	0.1-0.35 0.1-0.3	0.1-0.35 0.1-0.3	0.1-0.35 0.1-0.3	-	0.1-0.35 0.1-0.3	0.1-0.35 0.1-0.3
8	f_z (mm) a_p (mm)	0.1-0.5 0.1-0.3	0.1-0.4 0.1-0.3	0.1-0.5 0.1-0.3	-	0.1-0.5 0.1-0.3	0.1-0.5 0.1-0.3
10	f_z (mm) a_p (mm)	0.1-0.7 0.1-0.3	0.1-0.4 0.1-0.3	0.1-0.7 0.1-0.3	-	0.1-0.7 0.1-0.3	0.1-0.7 0.1-0.3
12	f_z (mm) a_p (mm)	0.1-0.8 0.1-0.3	0.1-0.6 0.1-0.3	0.1-0.8 0.1-0.3	-	0.1-0.8 0.1-0.3	0.1-0.8 0.1-0.3
16	f_z (mm) a_p (mm)	0.1-0.8 0.1-0.4	0.1-0.6 0.1-0.3	0.1-0.8 0.1-0.4	-	0.1-0.8 0.1-0.4	0.1-0.8 0.1-0.4

Cutting speed (Vc in m/min)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Quality Coating	**Application**						
MGC PVALSA	roughing finishing	120 **210** 300 -	*70* ***95*** *120* -	*100* ***225*** *350* -	-	*30* ***50*** *70* -	80 **140** 200 -

major application **minor application** roughing pre-finishing finishing

pokolm PREMIUMTOOLS. WE KNOW HOW.

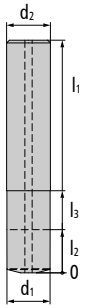
HIGH FEED MACHINING | TRIGAWORX® | HSC

4 flutes | with internal coolant supply

4 flutes, plain shank, special style of face teeth

- short version I long version
- roughing at great depths possible, extremely smooth operation
- with clearance between shank and flute
- with internal coolant supply
- **Note: r* = corner radius to be programmed**

4 flutes | with internal coolant supply	Catalogue no.	d_1	l_2	l_3	d_3	l_1	r*	d_2	z	Effective working length at X° of draft 0.5°	1°	1.5°	2°	3°	γ (chip angle)	λ (helix angle)	Features	Q/C
wd. | short | long																		
	NVV 0474 55 041	4	4	12	3.8	57	0,3*	6	4	13.45	13.80	14.15	14.52	15.32	5	5		MGC PVALSA
	NVV 0474 55 061	6	6	21	5.8	57	0,5*	6	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0474 55 0611	6	6	64	5.8	100	0,5*	6	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0474 55 081	8	8	27	7.8	63	0,7*	8	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0474 55 0811	8	8	64	7.8	100	0,7*	8	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0474 55 101	10	10	32	9.8	72	0,85*	10	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0474 55 1011	10	10	60	9.8	100	0,85*	10	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0474 55 121	12	12	38	11.8	83	1*	12	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0474 55 1211	12	12	65	11.8	110	1*	12	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0474 55 162	16	16	50	15.8	92	1,4*	16	4	-	-	-	-	-	5	5		MGC PVALSA
	NVV 0474 55 1621	16	16	65	15.8	150	1,4*	16	4	-	-	-	-	-	5	5		MGC PVALSA



Feed per tooth (fz) | d.o.c. (ap)

Material		steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
Diameter	Feed per tooth | d.o.c.						
roughing operations 2D/3D							
4	f_z (mm) a_p (mm)	0.08-0.25 0.1-0.2	0.08-0.25 0.1-0.2	0.08-0.25 0.1-0.2	-	0.08-0.25 0.1-0.2	0.08-0.25 0.1-0.2
6	f_z (mm) a_p (mm)	0.1-0.35 0.1-0.3	0.1-0.35 0.1-0.3	0.1-0.35 0.1-0.3	-	0.1-0.35 0.1-0.3	0.1-0.35 0.1-0.3
8	f_z (mm) a_p (mm)	0.1-0.5 0.1-0.3	0.1-0.4 0.1-0.3	0.1-0.5 0.1-0.3	-	0.1-0.5 0.1-0.3	0.1-0.5 0.1-0.3
10	f_z (mm) a_p (mm)	0.1-0.7 0.1-0.3	0.1-0.4 0.1-0.3	0.1-0.7 0.1-0.3	-	0.1-0.7 0.1-0.3	0.1-0.7 0.1-0.3
12	f_z (mm) a_p (mm)	0.1-0.8 0.1-0.3	0.1-0.6 0.1-0.3	0.1-0.8 0.1-0.3	-	0.1-0.8 0.1-0.3	0.1-0.8 0.1-0.3
16	f_z (mm) a_p (mm)	0.1-0.8 0.1-0.4	0.1-0.6 0.1-0.3	0.1-0.8 0.1-0.4	-	0.1-0.8 0.1-0.4	0.1-0.8 0.1-0.4

toric tool clamping flat * corner radius to be programmed

Cutting speed (Vc in m/min)

Material							
Quality Coating	Application	steel	stainless steel	cast iron	non-ferrous materials	high-temperature alloys	hardened steel
MGC PVALSA	roughing finishing	120 **210** 300 -	*70* ***95*** *120* -	*100* ***225*** *350* -	-	*30* ***50*** *70* -	*80* ***140*** *200* -

major application | minor application | roughing | pre-finishing | finishing

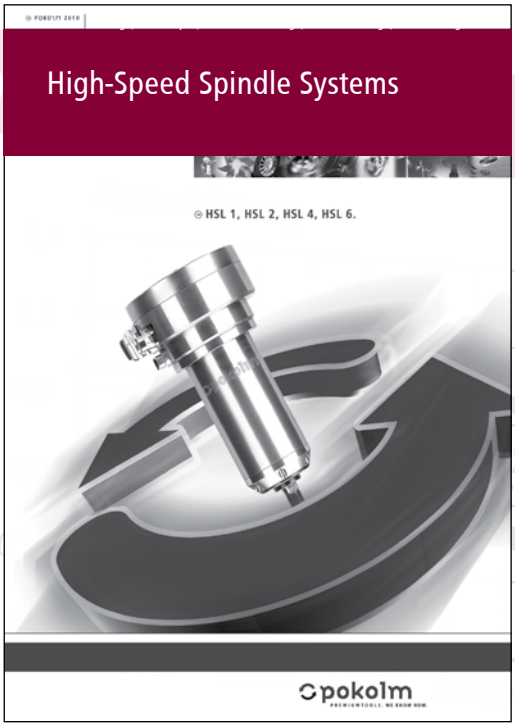
pokolm PREMIUMTOOLS. WE KNOW HOW.

HIGH-SPEED SPINDLE SYSTEMS

MODERN SPINDLE UNITS FOR EFFECTIVE MILLINGS RESULTS

Many milling machines – both old and new – have a relatively low maximum speed. Low maximum speed does have advantages in roughing operations, but are a big drawback for achieving effective feed rates.Low speed also greatly limits the advantages of modern CNC applications. The results: much longer machining times and loss of valuable production capacities.

We offer a convincing solution for this situation:Pokolm high-speed spindle systems for the most profitable machining results.



BETTER SURFACE FINISH RESULTS AND GREATLY IMPROVED CYCLE TIME

The advantages are impressive: higher cutting speeds, utilization of maximum feed rates – even with the smallest end mills – better surface finish and a great reduction in the need for EDM. Results: much shorter machining times and full utilization of the CNC advantages.

Pokolm provides various spindle systems for individual adaptation to existing machines and operation requirements. Operating with an approach angle of these spindles in A and C direction by using our swivel device, increases the variety of applications of your milling machine.

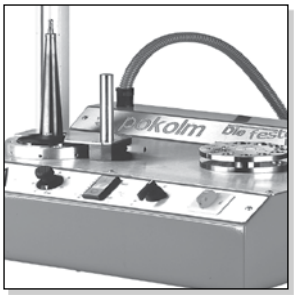
Get the maximum speed from your machines with Pokolm-spindle systems. The result: You save time!

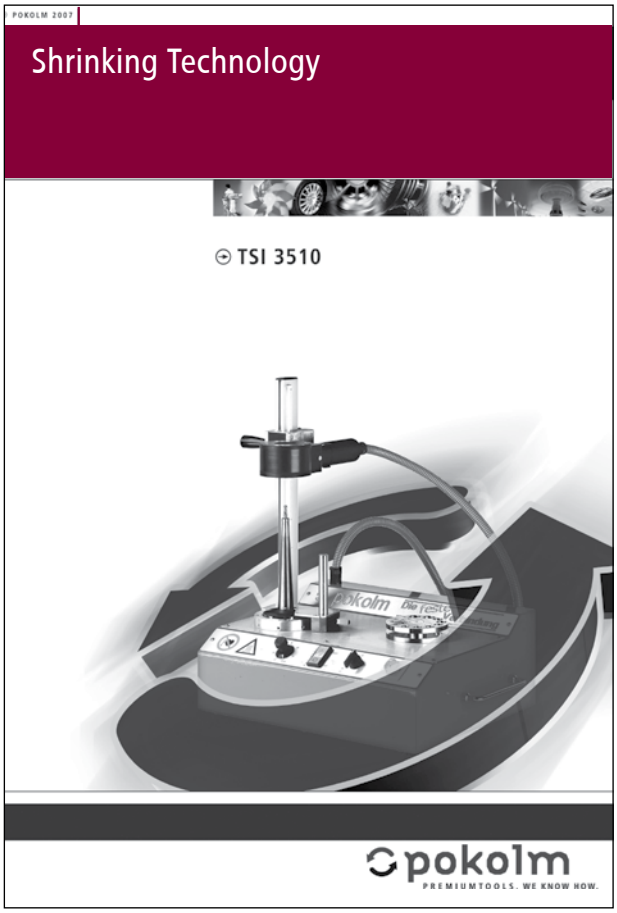
Ask our service centre about spindles:

- spare parts
- repairs
- inspection
- maintenance
- swivel devices
- CNC machine connection

Please contact us!

INDUCTIVE SHRINKING TECHNOLOGY





FIRST OPERATION: SHRINKING, THEN MILLING

Shrinking Technology convinces everybody compared with conventional chucking methods from the past. What counts? Absolute concentricity and highest precision with extensive extended tool life. Shrinking technology offers a safe friction-locked connection between tool and tool holder and povides an increased transferable torque. And the qualification for maximum revolutions is the best precondition for an optimum surface finish and for reducing costs for expensive finishing processes.

Compared to coventional milling chucks, shrinking arbors allow the use of distinctly slim adaptors for machining components with narrow situations, which would be unexecutable with other tool-holding systems.

Pokolm offers a substantial range of tooling for shrinking technology: several top-class Induction Shrinking Units, shrinking arbors for all possible machine connections and our patent-protected connection system **DUOPLUG®** in combination with our "zero-reach"-shrinking arbors. (Additional information about the Pokolm **DUOPLUG®** System can be found under chapter "Milling Cutter Bodies" of this catalogue.)

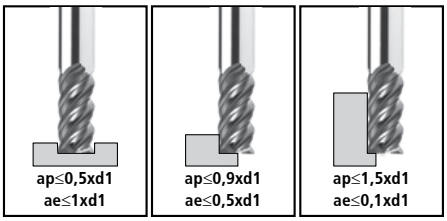
SPEED / FEED PER TOOTH / DEPTH OF CUT

HPC

UGT-end mills for pocket-, slot- and copy-milling 0504/0514

Stainless steel

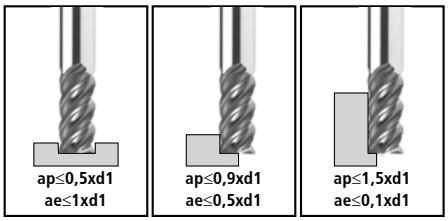
1.4301, 1.4541, 1.4307 etc.:



feed per tooth f_z
speed V_c=80 m/min

d_1	fz	fz	fz
3	0.015	0.018	0.015
4	0.020	0.023	0.020
5	0.025	0.029	0.025
6	0.030	0.035	0.040
8	0.040	0.047	0.054
10	0.055	0.064	0.073
12	0.065	0.075	0.085
16	0.085	0.100	0.115
20	0.105	0.120	0.135
25	0.120	0.140	0.160

1.4401, 1.4571, 1.4404 etc.:

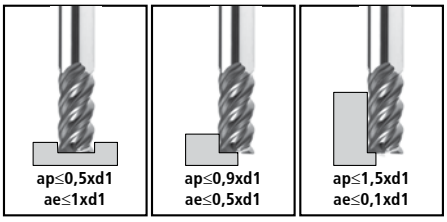


feed per tooth f_z
speed V_c=40 m/min

d_1	fz	fz	fz
3	0.010	0.015	0.018
4	0.013	0.020	0.025
5	0.019	0.025	0.031
6	0.024	0.030	0.036
8	0.034	0.040	0.053
10	0.044	0.055	0.071
12	0.056	0.065	0.077
16	0.071	0.085	0.089
20	0.087	0.950	0.100
25	0.100	0.120	0.140

High-temperature alloys:

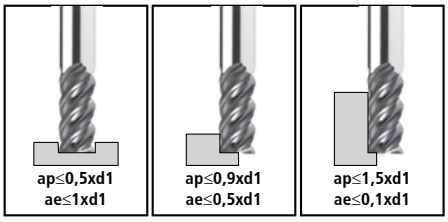
1.4542 etc.:



feed per tooth f_z
speed V_c=25 m/min

d_1	fz	fz	fz
3	0.004	0.007	0.010
4	0.006	0.010	0.015
5	0.010	0.014	0.020
6	0.015	0.020	0.025
8	0.025	0.030	0.035
10	0.030	0.035	0.040
12	0.040	0.045	0.050
16	0.050	0.060	0.065
20	0.060	0.070	0.075
25	0.070	0.080	0.085

Inconel 718 etc.:



feed per tooth f_z
speed V_c=15 m/min

d_1	fz	fz	fz
3	0.004	0.007	0.010
4	0.006	0.010	0.015
5	0.010	0.014	0.020
6	0.015	0.020	0.025
8	0.025	0.030	0.035
10	0.030	0.035	0.040
12	0.040	0.045	0.050
16	0.050	0.060	0.065
20	0.060	0.070	0.075
25	0.070	0.080	0.850

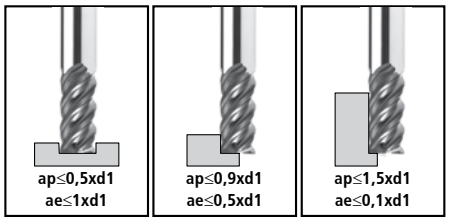
These speed and feed values are approximate. Customer specific factors such as input power, machine stability, tool overhang, etc. are not taken into account. In order to guarantee optimum and economic cutting conditions with our tools, please ask our office or one of our aplication engineers.

SPEED / FEED PER TOOTH / DEPTH OF CUT

HPC

HGT-end mills for pocket- and slot-milling 0384/0394

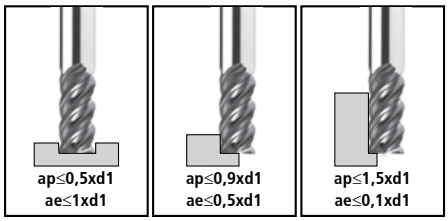
High-temperature alloys:
1.4542 etc.:



feed per tooth f_z
speed V_c=25 m/min

d_1	fz	fz	fz	
6	0.020	0.025	0.025	
8	0.030	0.035	0.035	
10	0.035	0.045	0.045	
12	0.040	0.050	0.050	
16	0.060	0.075	0.070	
20	0.070	0.080	0.075	

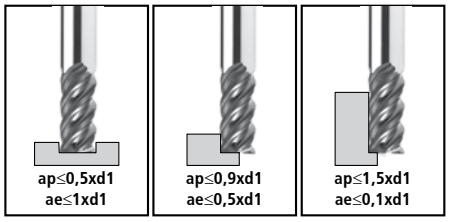
High-nickel alloys (inconel):
718 etc.:



feed per tooth f_z
speed V_c=15 m/min

d_1	fz	fz	fz
6	0.020	0.025	0.025
8	0.030	0.035	0.035
10	0.035	0.045	0.045
12	0.040	0.050	0.050
16	0.060	0.075	0.070
20	0.070	0.080	0.075

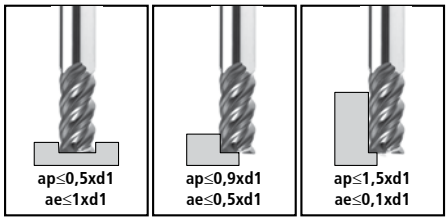
Stainless steel
1.4401, 1.4571, 1.4404 (Cr-Ni-Mo) etc.:



feed per tooth f_z
speed V_c=40 m/min

d_1	fz	fz	fz	
6	0.025	0.025	0.035	
8	0.035	0.035	0.050	
10	0.045	0.045	0.070	
12	0.050	0.050	0.080	
16	0.075	0.075	0.090	
20	0.080	0.080	0.100	

Stainless steel
1.4301, 1.4541, 1.4307 (Cr-Ni) etc.:



feed per tooth f_z
speed V_c=80 m/min

d_1	fz	fz	fz
6	0.025	0.025	0.040
8	0.035	0.035	0.055
10	0.045	0.045	0.075
12	0.050	0.050	0.085
16	0.075	0.075	0.100
20	0.080	0.080	0.125

These speed and feed values are approximate. Customer specific factors such as input power, machine stability, tool overhang, etc. are not taken into account. In order to guarantee optimum and economic cutting conditions with our tools, please ask our office or one of our aplication engineers.

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MATERIAL GROUP CROSS REFERENCES

		M. No.	DIN	European Standard	France AFNOR	Great Britain BS	Japan JIS	Italia UNI	Sweden SS	Spain U.N.E./I.H.A	USA AISI/SAE
Steel	Free Machining Steel/ Mild Steel	1.0037	St37-2	S235JR	E34-2	37/23 HR	SN 400 B	Fe 360 B FU	1311	AE 235 B	1015
		1.0044	St44-2	S275JR	E28-2	43/25 HR	SN 400 B	Fe 430 B FN	1412	AE 275 B	1020
		1.0050	St50-2G	E295	A50-2	4360	SS 490	Fe 490	1550/2172	A 490	-
		1.0070	St70-2G	E360	A70-2	4360	-	Fe 690	1655	A 690	-
		1.0570	St52-3	S355J2G3	E36-3	50/35 HR	SM490 A;B;C;YA;YB	Fe 510/Fe52B FN/Fe52 CFN	2132/2134	AE 355 D	1024
		1.1141	Ck15	C15E	XC 18	080 M 15	S15C	C16	1370	C15K	1015 / 1017
		1.1191	Ck45	C45E	XC 45	080 M 46	S45C	C45	1672	C45E	1042 / 1045
		1.1730	C45W	C45U	Y3 42 / Y3 48	EN 43 B	-	-	1672	F.114	1045
		1.7131	16MnCr5	16MnCr5	16 MC 5	527 M 17	-	16MnCr5	2173/2511	F.1516	5115 / 5117
	Normal Tool Steels/ Steel Castings	1.2067	100Cr6	102Cr6	Y100C6	BL 3	SUJ 2	-	-	100Cr6	L3
		1.2162	21MnCr5	21MnCr5	-	-	-	-	-	-	-
		1.2307	29CrMoV9	29CrMoV9	-	-	-	-	-	-	-
		1.2311	40CrMnMo7	35CrMo 8	-	-	-	35CrMo8KU	-	F.5263	P20
		1.2312	40CrMn MoS8-6	-	-	-		-	-	X210CrW12	P20+1
		1.2323	48CrMoV6-7	-	-	-	-	-	-	-	-
		1.2341	6CrMo15-5	5CrMo16	-	-	-	-	-	-	P4
		1.2343	X37CrMoV5-1	X37CrMoV5-1	Z38CDV5	BH 11	SKD 6	X37Cr MoV51KU	X37CrMo V5-1	X37Cr MoV5-1	H11
		1.2344	X40CrMoV5-1	X40CrMoV5-1	Z40CDV5	BH 13	SKD 61	X40CrMo V511KU	2242	X40Cr MoV5-1	H13
		1.2842	90MnCrV8	90MnCrV8	90MV 8	BO 2	-	90 MnCrV 8 KU	-	F.5229	O2
	Tools Steels, Chrome-Nickel Alloys, Steel castings, difficult to machine	1.2080	X210Cr12	X210Cr12	Z200C12	BD 3	SKD 1	-	X210Cr12	X210Cr12	D3
		1.2363	X100CrMoV5	X100CrMoV5	Z100CDV5	BA 2	SKD 12	X205 Cr12KU	2260	X100CrMoV5	A2
		1.2369	81MoCr V42-16	-	-	-	-	X100CrMoV5 1KU	-	-	613
		1.2379	X153CrMoV12	X153CrMoV12	Z 160 CDV 12	BD 2	SKD10/ SKD11	X155CrV Mo121KU	2310	X153CrMoV12	D2
		1.2567	30WCrV17-2	X30WCrV53	-	-	SKD 4	-	-	-	-
		1.2708	54NiCrMoS 6	-	-	-	-	-	-	-	-
		1.2713	55NiCrMoV6	55 NiCrMoV 7	-	-	(SKT4)	-	-	F.520.S	L6

		M.-No.	DIN	European Standard	France AFNOR	Großbritannien BS	Japan JIS	Italia UNI	Sweden SS	Spain U.N.E./I.H.A	USA AISI/SAE
Steel	Tools Steels, Chrome-Nickel Alloys, Steel castings	1.2738	40CrMnNi Mo8-6-4	40CrMnNi Mo8-6-4	-	-	-	-	-	-	-
		1.2767	45NiCrMo16	45NiCrMo16	-	-	SKT 6	40NiCrMo V16KU	-	-	-
		1.6358	XNiCo Mo18-9-5	-	-	-	-	-	-	-	-
High-temperature Alloys	Heat-resistence Alloys	1.3401	X120Mn12	-	Z120M12	BW 10	SCMnH 1	G-X120Mn12	2183	F.8251	-
		1.4865	GX40NiCr Si38-19	GX40NiCr Si38-19	GX40NiCr Si38-19	3330 C 11 / 331 C 40	SCH 15	GX40NiCr Si38-19	GX40NiCr Si38-19	GX40NiCr Si38-19	-
		2.4375	NiCu30Al (Monel K-500)	-	(NU30AT)	NA 18	-	-	-	-	Monel K-500
		2.4610	NiMo16Cr16Ti (Almenit 4610)	-	-	NA 45	-	-	-	-	Hastelloy C-4
		2.4619	NiCr22Mo7Cu (Coralloy 4619)	-	-	-	-	-	-	-	Hastelloy G-3
		2.4631	NiCr20TiAl (Nimonic 80A)	Ni-P95-HAT (AECMA)	NC 20 TA	(2HR201; HR401,601)	NCF 80A	-	-		Nimonic 80 A; HEV 5
		2.4636	NiCo15Cr15Mo AlTi (Dux 4636)	-	-	HR 4	-	-	-	-	Nimonic 115
		2.4648	EL-NiCr19Nb (FoxNibas 70/20)	-	-	-	-	-	-	-	-
		2.4668	NiCr19NbMo (Inconel 718)	NiCr19Fe19 Nb5Mo3	NC19FeNb	NiCr19Fe19 Nb5Mo3	NCF 718	NiCr19Fe19 Nb5Mo3	NiCr19Fe19 Nb5Mo3	NiCr19Fe19 Nb5Mo3	Inconel 718 XEV-I
		2.4856	NiCr22Mo9Nb (Inconel 625)	NiCr22MO9Nb	NC22FeDNb	NA 43/Na 21	NCF 625	NiCr22MO9Nb	NiCr22MO9Nb	NiCr22MO9Nb	Inconel 625
	Titanium Alloys	-	Ti99,5 HB 30-200	-	-	-	-	-	-	-	-
		-	Ti99,6 HB 30-170	-	-	-	-	-	-	-	-
		-	Ti99,7 HB 30-150	-	-	-	-	-	-	-	-
		-	Ti99,8 HB 30-120	-	-	-	-	-	-	-	-
		-	TiAl6V4ELI	-	-	TA11	-	-	-	-	AMS R56401
		-	TiAl5Sn2.5	-	T-A5E	TA14/17	-	-	-	-	AMS 54520
		3.7025	Ti 1	-	-	2 TA 1	-	-	-	-	AMS R50250
		3.7124	TiCu2	-	-	2 TA21-24	-	-	-	-	-
		3.7145	TiAl6Sn2 Zr4Mo2Si	-	-	-	-	-	-	-	AMS R54620
		3.7165	TiAl6V4	-	T-A6V	TA10-13 / TA28	-	-	-	-	AMS R56400
		3.7175	TiAl6V6Sn2	-	-	-	-	-	-	-	-
		3.7184	TiAl4Mo4Sn2	-	-	-	-	-	-	-	-
		3.7185	TiAl4Mo4Sn2	-	-	TA 45-51; TA57	-	-	-	-	-
		3.7225	Ti 1 Pd	-	-	TP1	-	-	-	-	AMS 52250

pokolm PREMIUMTOOLS. WE KNOW HOW.

MATERIAL GROUP CROSS REFERENCES (continued)

		M.-No.	DIN	European Standard	France AFNOR	Great Britain BS	Japan JIS	Italia UNI	Sweden SS	Spain U.N.E./I.H.A	USA AISI/SAE
Stainless Steel	all sorts	1.2316	X36CrMo17	X38CrMo16	Z38CD16-01	X38CrMo16	-	X38CrMo16	-	F.5267	-
		1.2367	X38CrMoV5-3	X38CrMoV5-3	Z38CDV5-3	X38CrMoV5-3	-	X38CrMoV5-3	X38CrMoV5-3	X38CrMoV5-3	-
		1.3543	X102CrMo17	X108CrMo17	Z100CD17	X108CrMo17	SUS 440C	X105CrMo17	X108CrMo17	F.3425	440 C
		1. 4059	GX22CrNi17	-	Z20CN 17.2M	ANC 2	-	-	-	-	-
		1.4122	GX35CrMo17	X39CrMo17-1	Z38CD 16.1CI	X39CrMo17-1	-	X39CrMo17-1	X39CrMo17-1	X39CrMo17-1	-
		1.4301	X5CrNi18-10	X5CrNi18-10	Z6CN18.09	304 S 15	SUS 304	X5CrNi1810	2332	F.3504	304
		1.4305	X12CrNiS18-8	X8CrNiS18-9	Z8CNF18-09	303 S 31	SUS 303	X10CrNiS18-9	2346	F.310.C	303
		1.4340	GX40CrNi27-4	-	-	-	-	G X 35 CrNi 28 05	-	-	-
		1.4401	X5CrNiMo 17-12-2	X5CrNiMo 17-12-2	Z7CND 17-11-02	316 S 33	SUS 316	X5CrNiMo 17 12	2347	F.3534	316
		1.4462	X2CrNiMoN 22-5-3	X2CrNiMoN 22-5-3	Z2CND 22-06-03	318 S 13	SUS 329J3L	X2CrNiMoN 22-5-3	2377	X2CrNiMoN 22-5-3	S31803/ S32205
		1.4541	X10CrNiTi18-9	X6CrNiTi18-10	Z6CNT 18-10	321 S 31	SUS 321	X6CrNiTi18-10	2337	F.3523	321
		1.4551	X10CrNi 18-9	X5CrNiNb 20 10 KE	Z6CNNb 20-10	-	SUS Y 374	-	-	-	-
		1.4571	X10CrNiMo Ti18-10	X6CrNiMo Ti17-12-2	Z6 CNDT 17-12	320 S 31	SUS 316Ti	X6CrNiMo Ti17-12	2350	F.3535	316Ti
		1.4712	X10CrSi6	-	-	-	-	-	-	-	-
		1.4742	X10CrAl18	X10CrSi18	Z10CAS18	430 S 15	SUS 430	X8Cr17	-	F.3113	430
Cast Iron	Grey Cast Iron	0.6010	GG10	EN-GJL-100	Ft10D	GRADE100	FC 10	G10	0110-00	FG 10	N0 20 B
		0.6020	GG20	EN-GJL-200	Ft20D	GRADE200	FC 20	G20	0120-00	FG 20	No 30 B
		0.6030	GG30	EN-GJL-300	Ft30D	GRADE300	FC 30	G30	0130-00	FG 30	No 45 B
		0.6040	GG40	EN-GJL-350	Ft35D	GRADE350	FC 35	G35	0135-00	FG 35	-
	Spheroidal Graphite	0.7040	GGG-40	EN-GJS-400-15	FGS 400-12	SNG 420/12	FCD 400	GS 400/12	07 17-02	FGE 38-17	60-40-18
		0.7050	GGG-50	EN-GJS-500-7	FGS 500-7	SNG 500/7	FCD 500	GS 500/7	07 27-02	FGD 50-7	65-45-12
		0.7060	GGG-60	EN-GJS-600-3	FGS 600-7	SNG 600/3	FCD 600	GS 600/3	07 32-03	FGE 60-2	80-55-06
		0.7070	GGG-70	EN-GJS-700-2U	FGS 700-2	SNG 700/2	FCD 700	GS 700/2	07 37-01	FGS 70-2	100-70-03
		0.7080	GGG-80	E8N-GJS-800-2	FGS 800-2	SNG 800/2	FCD 800	GS 800/2	-	-	120-90-02
	Tempered Castings	GTS 35-10	EN-GJMB-350-10	MN 35-10	B 340/12	-	-	08 15	-	32510	-
		GTS 45-06	EN-GJMB-450-6	-	P 440/7	-	-	08 52	-	40010	-
		GTS 55-04	EN-GJMB-550-4	MP 50-5	P 510/4	-	-	08 54	-	50005	-
		GTS 65-02	EN-GJMB-650-2	MP 60-3	P 570/3	-	-	08 85	-	70003	-

		M.-No.	DIN	European Standard	France AFNOR	Great Britain BS	Japan JIS	Italia UNI	Sweden SS	Spain U.N.E./I.H.A	USA AISI/SAE
Non-ferrous Materials	Aluminum	3.0255	Al99.5	EN-AW-1050A	A59050C	L31/L34/L36	-	-	-	-	1000
		3.1325	AlCuMg1	EN-AW-2017A	-	-	-	-	-	-	-
		3.2163	G-AlSi9Cu3	EN-AC-46200	-	-	-	-	-	-	-
		3.2315	AlMgSi1	EN-AW-6082	-	-	-	-	-	-	-
		3.2383	G-AlSi10Mg	-	-	LM 9	-	-	4253	-	A 360.2
		3.2581	G-AlSi12	EN-AW-2017A	-	LM 6	-	-	4261	-	A 413.2
		3.3535	AlMg3	EN-AW-5754	-	-	-	-	-	-	-
		3.4345	AlZnMgCu0,5	EN-AW-7022	AZ4GU/9051	L 86	-	-	-	-	7050
		3.5105	GMgZn4 SE1Zr1	-	G-Z4TR	MAG 5	-	-	-	-	ZE 41
		3.5812	G-MgAl8Zn1	-	G-A9	MAG 1	-	-	-	-	AZ 81
	Copper	-	CuMn5F36	-	-	-	-	-	-	-	-
		-	CuSi2MnF34	-	-	-	-	-	-	-	-
		-	E-Cu57	-	-	-	-	-	-	-	-
		-	CuZn15	-	CuZn 15	CZ 102	-	-	-	-	C 23000
		-	CuZn30	-	CuZn 30	CZ 106	-	-	-	-	C 26000
		-	CuZn37	-	CuZn 37	CZ 108	-	C2720	-	-	C 27700
		-	CuZn36Pb3	-	-	-	-	-	-	-	-
		-	G-CuZn34Al2	-	U-Z36N 3	HTB 1	-	-	-	-	C 86200
		-	G-CuSn5ZnPb	-	U-E5Pb5Z5	LG 2	-	-	-	-	C 83600
		-	G-CuPb10Sn	-	U-E10Pb10	LB 2	-	-	-	-	C 93700
		-	CuCrZr	-	U-Cr 0,8 Zr	CC 102	-	-	-	-	C 18200
	Graphite	-	ISO-63	-	-	-	-	-	-	-	-
		-	ISO-90	-	-	-	-	-	-	-	-
		-	ISO-93	-	-	-	-	-	-	-	-
		-	ISO-95	-	-	-	-	-	-	-	-
	Plastics	-	Ureol® 5211 A/B	-	-	-	-	-	-	-	-
		-	Ureol® 5212 A/B	-	-	-	-	-	-	-	-
		-	Ureol® 5213 A/B	-	-	-	-	-	-	-	-
		-	Ureol® 5214 A/B	-	-	-	-	-	-	-	-
		-	Ureol® 5215 A/B	-	-	-	-	-	-	-	-
		-	Ureol® 5216 A/B	-	-	-	-	-	-	-	-
		-	Ureol® 5217 A/B	-	-	-	-	-	-	-	-
		-	Ureol® 5218 A/B	-	-	-	-	-	-	-	-
		-	Ureol® 5219 A/B	-	-	-	-	-	-	-	-

pokolm PREMIUMTOOLS. WE KNOW HOW.

MATERIAL GROUP CROSS REFERENCES (continued)

		M.-No.	DIN	European Standard	France AFNOR	Great Britain BS	Japan JIS	Italia UNI	Sweden SS	Spain U.N.E./I.H.A	USA AISI/SAE
Hardened Steel	up to 48HRC	1.2311	40CrMnMo7	35CrMo 8	-	-	-	35CrMo 8 KU	-	-	-
		1.2312	40CrMn-MoS8-6	-	-	-	-	-	-	-	-
		1.2323	48CrMoV6-7	-	-	-	-	-	-	-	-
		1.2343	X38CrMoV5-1	X37CrMoV5-1	Z38CDV 5	BH 11	SKD 6	X37CrMo V51 KUa	X37CrMoV5-1	F.520.G	H 11
		1.2344	X40CrMoV51	X40CrMoV5-1	Z40CDV 5	BH 13	SKD 61	X40CrMo V 5 1 1 KU	2242	X40CrMo V 5-1	H 13
		1.2708	54NiCrMoS6	-	-	-	-	-	-	-	-
		1.2842	90MnCrV8	90MnCrV8	90Mv8	BO 2	-	90MnVCr 8 KU	90MnCrV8	F.5229	O 2
	up to 55HRC	1.2080	X210Cr12	X210Cr12	Z200C12	BD 3	SKD 1	X210Cr12	X210Cr12	F.521	D 3
		1.2323	48CrMoV6-7	-	-	-	-	-	-	-	-
		1.2344	X40CrMoV5-1	X40CrMoV5-1	Z40CDV5	BH 13	SKD 61	X40CrMoV5-1	2242	X40CrMoV5-1	H 13
		1.2363	X100CrMoV51	X100CrMoV5	Z100CDV5	BA 2	SKD 12	X100CrMoV5	2260	X100CrMoV5	A 2
		1.2369	81MoCrV 42-16	-	-	-	-	-	-	-	613
		1.2379	X155CrV-Mo12-1	X153CrMoV12	Z160CDV12	BD 2	SKD 11	X153CrMoV12	2310	X153CrMoV12	D 2
		1.2567	30WCrV17-2	X30WCrV53	-	-	SKD 4	-	-	-	-
		1.2708	54NiCrMoS6	-	-	-	-	-	-	-	-
		1.2713	55NiCrMoV6	55NiCrMoV7	55NCDV7	-	SKT 4	-	-	F.520.S	L 6
		1.2738	40CrMnNi Mo8-6-4	40CrMnNi Mo8-6-4	40CrMnNi Mo8-6-4	40CrMnNi Mo8-6-4	40CrMnNi Mo8-6-4	40CrMnNi Mo8-6-4	40CrMnNi Mo8-6-4	40CrMnNi Mo8-6-4	40CrMnNi Mo8-6-4
		1.2767	X45NiCrMo4	45NiCrMo16	45NiCrMo16	45NiCrMo16	SKT 6	45NiCrMo16	45NiCrMo16	45NiCrMo16	-
		1.2842	90MnCrV8	90MnCrV8	90MnCrV8	BO 2	-	90MnCrV8	90MnCrV8	90MnCrV8	O 2
	up to 65HRC	1.2080	X210Cr12	X210Cr12	Z200C12	BD 3	SKD 1	X210Cr12	X210Cr12	X210Cr12	D 3
		1.2363	X100CrMoV5	X100CrMoV5	Z100CDV5	BA 2	SKD 12	X100CrMoV5	2260	X100CrMoV5	A 2
		1.2369	81MoCrV 42-16	-	-	-	-	-	-	-	613
		1.2379	X153CrMoV12	X153CrMoV12	Z160CDV12	BD 2	SKD 10	X153CrMoC12	2310	X153CrMoC12	D 2
		1.2767	45NiCrMo16	45NiCrMo16	45NiCrMo16	45NiCrMo16	SKT 6	45NiCrMo16	45NiCrMo16	45NiCrMo16	-
		1.2842	90MnCrV8	90MnCrV8	90MnCrV8	BO 2	-	90MnCrV8	90MnCrV8	90MnCrV8	O2

HARDNESS CONVERSION TABLE

Tensile Strength, Vickers-, Brinell- und Rockwell Hardness

Tensile Strength R_m N/mm²	Vickers Hardness HV10	Brinell Hardness HB	Rockwell Hardness HRC
255	80	76,0	
270	85	80,7	
285	90	85,5	
305	95	90,2	
320	100	95,0	
335	105	99,8	
350	110	105	
370	115	109	
385	120	114	
400	125	119	
415	130	124	
430	135	128	
450	140	133	
465	145	138	
480	150	143	
495	155	147	
510	160	152	
530	165	156	
545	170	162	
560	175	166	
575	180	171	
595	185	176	
610	190	181	
625	195	185	
640	200	190	
660	205	195	
675	210	199	
690	215	204	
705	220	209	
720	225	214	
740	230	219	
755	235	223	
770	240	228	20,3
785	245	233	21,3
800	250	238	22,2
820	255	242	23,1
835	260	247	24,0
850	265	252	24,8
865	270	257	25,6
880	275	261	26,4
900	280	266	27,1
915	285	271	27,8
930	290	276	28,5
950	295	280	29,2
965	300	285	29,8
995	310	295	310
1030	320	304	32,2
1060	330	314	33,3
1095	340	323	34,4
1125	350	333	35,5

Tensile Strength R_m N/mm²	Vickers Hardness HV10	Brinell Hardness HB	Rockwell Hardness HRC
1155	360	342	36,6
1190	370	352	37,7
1220	380	361	38,8
1255	390	371	39,8
1290	400	380	40,8
1320	410	390	41,8
1350	420	399	42,7
1385	430	409	43,6
1420	440	418	44,5
1455	450	428	45,3
1485	460	437	46,1
1520	470	447	46,9
1555	480	456*	47,7
1595	490	466*	48,4
1630	500	475*	49,1
1665	510	485*	49,8
1700	520	494*	50,5
1740	530	504*	51,1
1775	540	513*	51,7
1810	550	523*	52,3
1845	560	532*	53,0
1880	570	542*	53,6
1920	580	551*	54,1
1955	590	561*	54,7
1995	600	570*	55,2
2030	610	580*	55,7
2070	620	589*	56,3
2105	630	599*	56,8
2145	640	608*	57,3
2180	650	618*	57,8
	660		58,3
	670		58,8
	680		59,2
	690		59,7
	700		60,1
	720		61,0
	740		61,8
	760		62,5
	780		63,3
	800		64,0
	820		64,7
	840		65,3
	860		65,9
	880		66,4
	900		67,0
	920		67,5
	940		68,0

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COATINGS AND CUTTING MATERIALS

COATING SUMMARY

Description		Colour	Vickers Hardness HV	Maximum Temperature in Centigrade	Type of Coating	Thickness of Coating in µm
PVTi	TiAlN	blue/grey	3600	up to 850°	PVD	2 to 4
PVAT	Modified Titanium-Aluminium-Nitride	metallic/golden	3600	up to 1000°	PVD	2 to 4
PVCC	Titanium-Aluminium-Nitride + lubricating properties	black	800	up to 850°	PVD	2 to 4
PVCN	CrNi	metallic/silver	1800	up to 700°	PVD	2 to 3
PVAS	Special Coating for Aluminium	light grey	2800	up to 700°	PVD	2 to 3
PVDiaN	Diamond-coating, normal	dull grey	10000	up to 600°	CVD	6 to 8
PVDiaG	Diamond-coating, thin	bright grey	10000	up to 700°	CVD	4 to 6
PVALSA	TiAlN	blue/grey	3600	up to 950°	PVD	2 to 4
PVTiH	TiAlN Multilayer	violet/brown	3600	up to 1100°	PVD	4 to 5
PVST	ALTiN	blue/grey	3300	up to 950°	PVD	2 to 4
PVC5	CrN-mod	spectral colors	2700	up to 700°	PVD	1 to 1,5

CUTTING MATERIALS

Material	Coatings	Steel	High-temperature Alloys	Stainless Steel	Cast Iron	Non - ferrous Materials	Hardened Steel	
MGC	PVTi PVAT PVCC	▼▼▼	▼▼▼	▼▼▼	▼▼▼	▼▼▼	▼▼▼	Coated micrograin carbide for high-speed, high-performance Roughing, pre-finishing and finishing of steel, hardened steel, Stainless steel, high-temperature-alloys and Aluminium-alloys.
KAC **UKAC**	PVCN PVAS PVDiaN PVDiaG		▽▽▽	▼▼▼		▼▼▼		Coated ultra-micrograin and micrograin carbide for high speed, high performance roughing, pre-finishing and finishing of cast iron, non-ferrous materials, graphites and titanium-alloys.
UMGC	PVTiH PVAT	▼▼▼	▼▼▼	▼▼▼	▼▼▼	▼▼▼	▼▼▼	Coated ultra-micrograin carbide for high-speed, high-performance roughing, pre-finishing and finishing of steel, hardened steel, stainless steel, and high-temperature alloys.

FORMULAS AND CALCULATION EXAMPLES

Formulas

Calculation of revolutions of main spindle in [min-1]:*

$$n = \frac{V_c \cdot 1000}{\pi \cdot D_{c/eff}}$$

Calculation of cutting speed in [m/min]:*

$$V_c = \frac{\pi \cdot D_{c/eff} \cdot n}{1000}$$

* Please note: For flat contours use true mill diameter to calculate cutting speed (see Surface Finish section).

Calculation of feed per tooth in [mm/tooth]:

$$f_z = \frac{V_f}{n \cdot z}$$

Calculation of machining time in [min]:

$$f_n = z \cdot f_z$$

$$f_n = \frac{V_f}{n}$$

Calculation of feed per min. in [mm/min.]:

$$V_f = n \cdot z \cdot f_z$$

Calculation of machining time in [min]:

$$T = \frac{l_f}{V_f}$$

Calculation of power requirement in [kW]:*

$$P = \frac{a_e \cdot a_p \cdot V_f}{18000}$$

Calculation of chip volume in [cm3/min]:

$$Q = \frac{a_e \cdot a_p \cdot V_f}{1000}$$

* Please note: The formula given for calculating the power requirement is valid for machining steel only.

Definitions:

a_e	width of cut [mm]	D_{eff}	true tool diameter in [mm]	n	revolution in [rpm]	V_c	cutting speed in [m/min]
a_p	depth of cut in [mm]	f_z	feed per tooth in [mm]	P	power requirement in [kW]	V_f	feed per min. in [mm/min]
D_c	cutter diameter in [mm]	l_f	milling length in [mm]	Q	chip volume in [cm3/min]	z	no. of effective teeth
		f_n	feed per revolution in [mm/U]	T	machining time in [min]		

formulas for calculating the true mill diameter can be found in the Surface Finish selection.

Calculation Example

Milling cutter:	NVV 1192 85 0602
Milling cutter diam.:	6 mm
no. of effective teeth:	2
Depth of cut (a_p):	0.2 mm
Width of cut:	$a_e = f_z$
Material to be machined:	1.2343
Selected cutting speed (V_c):	100 m/min
Selected feed per tooth (f_z):	0.1 mm

Calculatoin of true cutting diameter:

$$d_{eff} = 2\sqrt{0.2 \cdot (6 - 0.2)} = 2.15 \text{ mm}$$

Calculation of revolutions

$$n = \frac{100 \cdot 1{,}000}{\pi \cdot 2.15} = 14{,}805 \text{ U/min}$$

Calculation of feed per min.:

$$V_f = 14{,}805 \cdot 2 \cdot 0.1 = 2{,}961 \text{ mm/min}$$

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PURCHASE

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You can of course also place your order with one of our applications engineers.

Catalogue no.	Description of item	Quantity	Price per item	Total price
			Total	

Address:

Company:

Department:

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customer number (if known)

street

zip code, city

Different delivery address

Company:

street

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Our terms of sale are valid for this faxed purchase order.

PURCHASE/INQUIRY FORM

Customized Solid Carbide/CBN and PKD Tools

(please copy prior to completion)

Please fax to:
+49 5247 9361-99

Inquiry No./P.O. No.: Date:

Company:

Address:

Department: person in charge:

Phone: Fax: Email:

☐ Requested delivery date

We adapt our basic substrate and coating optimally to your requirements and to the material to be machined. Please mark any special requirements:

Solid Carbide:

☐ KAC ☐ CBN ☐ UMGC
☐ MGC ☐ PKD

☐ left-hand cutting

Shank Style DIN 6535:

☐ Form HA (plain)
☐ Form HB (with clamping flats)

☐ Qty. required

Coating:

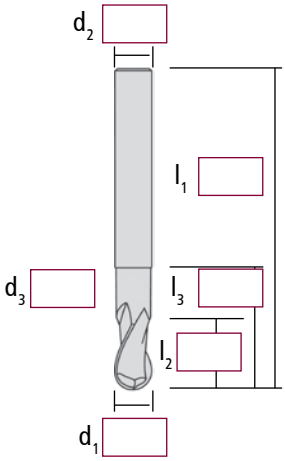
☐ PVAT
☐ PVAS
☐ PVCC
☐ PVCN
☐ PVDiaG
☐ PVCS
☐ PVALSA
☐ PVTi
☐ PVDiaN
☐ PVTiH
☐ Other: _____

Material to be machined: _____

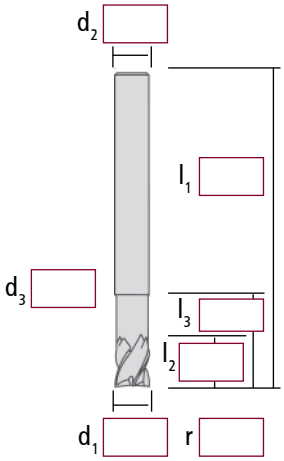
Further details:

☐ No. of teeth
☐ Angle of helix
☐ Straight teeth

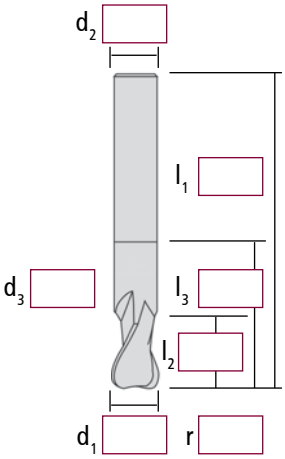
Ball Nose End Mills:



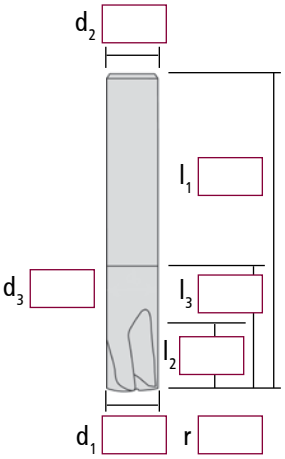
Corner Radius End Mills:



Toric End Mills:



TRIGAWORX®:



Please fill in your required dimensions.

Indoor service: Field service:

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TEST REPORT OF MILLING CONDITIONS

Company:

Street:

City:

Contact:

Machine: HP: [kW]

Type: n(s): [min-1]

Arbor System: V_f: [mm/min]

Material No.: Date:

DIN Code: Analysis [%]

C	Si	Mn	P	S	Cr	Ni	Mo	V	W		

N/mm²	HB	HV	HRC

CNC Control:

	Test	Actual Status	Test 1	Test 2	Test 3
Tool	Milling conditions				
	Manufacturer				
	Type				
	Arbor				
	Overhang				
	Kind of cooling (air / water?)				
Cutting Mater.	Kind				
	Manufacturer				
	Cutting Material Code				
	Coating				
Operation Data	V_c [m/min]				
	V_f [mm/min]				
	n(s) [min^{-1}]				
	D_c [mm]				
	f_z [mm/Zahn]				
	a_p [mm]				
	a_e [mm]				
	T [min]				
Results	No. of tests				
	Tool life [min]				
	Life in length [m]				
	Chip volume [cm3/min]				
	Energy consumption [kW]				
	Performance Evaluation:	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10	1 2 3 4 5 6 7 8 9 10

Illlustration / Remarks:

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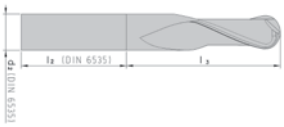
QUICKFINDER

General-purpose tolerances for Solid Carbide End Mills			
Type	d_1	d_2	r
FGT	h_8	h_s	+/- 0,005
CGT	+0 / -0,12	h_6	
UGT / HGT	e_8	h_6	+0,02 / -0,025 / -0,035
Ball nose- and corner radius end mills	f_8	h_6	f_8
straight face	e_8	h_6	

Theoretical d_4 and l_3:



diam. of shank (DIN 6535) d_2 h_5	2 - 5	6 + 8	10	12 + 14	16 + 18
length of shank (DIN 6535) l_2 $^{+2}_{-0}$	28	36	40	45	48
diam. of shank (DIN 6535) d_2 h_5	20	25	32 + 36		
length of shank (DIN 6535) l_2 $^{+2}_{-0}$	50	56	60		

*this usable length appears through deduction of the DIN-shank-length (l2 according to DIN 6535) from the overall length l1 of the end mill or of the solid carbide adapters. See table above.

Dimensions according DIN			
d_1 = cutting diameter	d_2 = diameter of shank	d_3 = working depth diameter (neck)	r = radius
l_1 = total length	l_2 = cutting length	l_3 = working depth length	z = number of teeth

Features:			
	toric tool		clamping flat

Tip:

CAM-Data of all listed Solid carbide End Mills are available in the product data base on our website www.pokolm.de/en/vollhartmetallfraeser.
The QR-Code is the quickest way to our website.

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