

SOLID CARBIDE MILLING

Solid carbide milling

Product overview	**B350-B359**
Grade overview	**B360-B361**
System code – DIN-ISO	**B362**
System code – JIS	**B363**
System code – QCH series	**B364-B365**
GM series	**B367-B420**
PM series	**B421-B442**
PM Micro series	**B443-B452**
VPM series	**B453-B456**
EPM series	**B457-B472**
HM series	**B473-B494**
NM series	**B495-B500**
AL series	**B501-B512**
ALG/ALP series	**B513-B524**
TM series	**B525-B542**
HPC series	**B543-B548**
UM series	**B549-B558**
UMC series	**B559-B560**
VSM series	**B561-B564**
Deburring cutters – FM series	**B565-B568**
QCH series	**B569-B581**
Recommended cutting data	**B582-B616**
Technical information	**B617-B632**
Special tools	**B633**

B

High performance milling

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
PM-2E		2	1.0-20.0	✓	✓	✓			✓	End mills	B421
PM-2EL		2	3.0-20.0	✓	✓	✓			✓	End mills	B422
PM-4E-G		4	1.0-20.0	✓	✓	✓			✓	End mills	B423
PM-4EL-G		4	3.0-20.0	✓	✓	✓			✓	End mills	B424
PM-4EX-G		4	3.0-20.0	✓	✓	✓			✓	End mills	B425
PM-4E		4	1.0-20.0	✓	✓	✓			✓	End mills	B426
PM-4EL		4	3.0-20.0	✓	✓	✓			✓	End mills	B427
PM-6E		6	6.0-20.0	✓	✓	✓			✓	End mills	B428
PM-6EL		6	6.0-20.0	✓	✓	✓			✓	End mills	B429
PM-2B		2	1.0-20.0	✓	✓	✓			✓	Ball nose cutters	B430
PM-2BL		2	2.0-20.0	✓	✓	✓			✓	Ball nose cutters	B431
PM-2BFP		2	1.0-20.0	✓	✓	✓			✓	Ball nose cutters	B432
PM-2BC		2	0.5-4.0	✓	✓	✓			✓	Ball nose cutter with conical neck	B433
PM-4B		4	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B436
PM-4BL		4	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B437
PM-2R		2	1.0-12.0	✓	✓	✓			✓	Torus mills	B438
PM-4H		4	3.0-12.0	✓	✓	✓			✓	High-feed mills	B439
PM-4HL		4	4.0-12.0	✓	✓	✓			✓	High-feed mills	B440
PM-4R		4	3.0-12.0	✓	✓	✓			✓	Torus mills	B441
PM-4RL		4	6.0-16.0	✓	✓	✓			✓	Torus mills	B442
PM-2EP		2	0.5-5.0	✓	✓	✓			✓	End mills	B444

✓ Very suitable ✓ Suitable

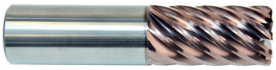
High performance milling

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
PM-2ES		2	0.3-3.0	✓	✓	✓			✓	End mills	B443
PM-2BS		2	0.3-3.0	✓	✓	✓			✓	Ball nose cutters	B446
PM-2BP		2	0.5-5.0	✓	✓	✓			✓	Ball nose cutters	B447
PM-2RP		2	0.5-5.0	✓	✓	✓			✓	Torus mills	B449
EPM-2E		2	3.0-20.0	✓	✓	✓			✓	End mills	B457
EPM-2E-W		2	3.0-20.0	✓	✓	✓			✓	End mills	B458
EPM-2EL		2	3.0-20.0	✓	✓	✓			✓	End mills	B459
EPM-2EL-W		2	3.0-20.0	✓	✓	✓			✓	End mills	B460
EPM-4E		4	3.0-20.0	✓	✓	✓			✓	End mills	B461
EPM-4E-W		4	3.0-20.0	✓	✓	✓			✓	End mills	B462
EPM-4EL		4	3.0-20.0	✓	✓	✓			✓	End mills	B463
EPM-4EL-W		4	3.0-20.0	✓	✓	✓			✓	End mills	B464
EPM-2B		2	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B465
EPM-2B-W		2	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B466
EPM-2BL		2	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B467
EPM-2BL-W		2	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B468
EPM-4B		4	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B469
EPM-4B-W		4	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B470
EPM-4BL		4	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B471
EPM-4BL-W		4	3.0-20.0	✓	✓	✓			✓	Ball nose cutters	B472
VPM-4E		4	1.0-20.0	✓	✓	✓			✓	End mills	B453

✓ Very suitable ✓ Suitable

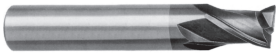
Solid carbide milling Product overview

High performance milling

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
VPM-4E-W		4	5.0-20.0	✓	✓	✓			✓	End mills	B454
VPM-4R		4	3.0-12.0	✓	✓	✓			✓	Torus mills	B455
TM-4B		4	6.0-20.0		✓			✓		Ball nose cutters	B525
TM-4BL		4	6.0-20.0		✓			✓		Ball nose cutters	B526
TM-4BP		4	6.0-20.0		✓			✓		Ball nose cutters	B527
TM-5B		5	6.0-20.0		✓			✓		Ball nose cutters	B528
TM-5BL		5	6.0-20.0		✓			✓		Ball nose cutters	B529
TM-5BP		5	6.0-20.0		✓			✓		Ball nose cutters	B530
TM-2R		2	1.0-5.0		✓			✓		Torus mills	B531
TM-3R		3	3.0-5.0		✓			✓		Torus mills	B532
TM-4R		4	6.0-25.0		✓			✓		Torus mills	B533
TM-4RP		4	8.0-25.0		✓			✓		Torus mills	B535
TM-5R		5	6.0-10.0		✓			✓		Torus mills	B537
TM-7R		7	12.0-21.0		✓			✓		Torus mills	B538
TM-9R		9	25.0		✓			✓		Torus mills	B539
TM-5RP		5	8.0-16.0		✓			✓		Torus mills	B540
TM-7RP		7	12.0-20.0		✓			✓		Torus mills	B541
TM-9RP		9	25.0		✓			✓		Torus mills	B542

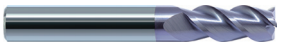
✓ Very suitable ✓ Suitable

General machining

5501R302GM		2	3.0-20.0	✓	✓	✓				End mills	B367
5502R302GM		2	1.0-20.0	✓	✓	✓				End mills	B368

✓ Very suitable ✓ Suitable

General machining

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
GM-2E		2	1.0-20.0	✓	✓	✓				End mills	B369
GM-2EL		2	3.0-20.0	✓	✓	✓				End mills	B370
GM-2EX		2	3.0-20.0	✓	✓	✓				End mills	B371
GM-2EFP		2	6.0-16.0	✓	✓	✓				End mills	B372
GM-2F		2	1.0-20.0	✓	✓	✓				End mills	B373
GM-2FL		2	3.0-20.0	✓	✓	✓				End mills	B374
GM-2EP		2	0.5-5.0	✓	✓	✓				Mini end mills	B375
GM-2ES		2	0.3-3.0	✓	✓	✓				Mini end mills	B377
GM-3E		3	1.0-20.0	✓	✓	✓				End mills	B378
GM-3EL		3	3.0-20.0	✓	✓	✓				End mills	B379
5501R303GM		3	3.0-20.0	✓	✓	✓				End mills	B380
5601R303GM		3	3.0-20.0	✓	✓	✓				End mills	B381
5502R303GM		3	2.0-20.0	✓	✓	✓				End mills	B382
5602R303GM		3	3.0-20.0	✓	✓	✓				End mills	B383
5502R453GM		3	3.0-20.0	✓	✓	✓				End mills	B384
5602R453GM		3	3.0-20.0	✓	✓	✓				End mills	B385
GM-4F-G		4	1.0-20.0	✓	✓	✓				End mills	B386
GM-4EL-G		4	3.0-20.0	✓	✓	✓				End mills	B387
GM-4FL-G		4	3.0-20.0	✓	✓	✓				End mills	B388
GM-4EX-G		4	3.0-20.0	✓	✓	✓				End mills	B389
GM-4E		4	1.0-20.0	✓	✓	✓				End mills	B390

✓ Very suitable ✓ Suitable

Solid carbide milling Product overview

General machining

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
GM-4E-G		4	1.0-20.0	✓	✓	✓				End mills	B391
GM-4EL		4	3.0-20.0	✓	✓	✓				End mills	B392
GM-4EFP		4	6.0-20.0	✓	✓	✓				End mills	B393
5501R304GF		4	3.0-20.0	✓	✓	✓				End mills	B394
5601R304GF		4	3.0-20.0	✓	✓	✓				End mills	B395
5502R304GF		4	3.0-20.0	✓	✓	✓				End mills	B396
5602R304GF		4	3.0-20.0	✓	✓	✓				End mills	B397
5508R454GM		4	3.0-20.0	✓	✓	✓				End mills	B398
5602R454GM		4	3.0-20.0	✓	✓	✓				End mills	B399
5589R45MGFR		6-10	6.0-20.0	✓	✓	✓				End mills	B400
GM-6E		6	6.0-20.0	✓	✓	✓				End mills	B401
GM-6EL		6	6.0-20.0	✓	✓	✓				End mills	B402
5565R302GF		2	3.0-20.0	✓	✓	✓				Ball nose cutters	B403
5665R202GM		2	3.0-20.0	✓	✓	✓				Ball nose cutters	B404
5566R302GF		2	3.0-12.0	✓	✓	✓				Ball nose cutters	B405
GM-2B		2	1.0-20.0	✓	✓	✓				Ball nose cutters	B406
GM-2BL		2	1.0-20.0	✓	✓	✓				Ball nose cutters	B407
GM-2BFP		2	1.0-20.0	✓	✓	✓				Ball nose cutters	B408
GM-2BS		2	0.3-3.0	✓	✓	✓				Mini ball nose cutters	B409
GM-2BP		2	0.5-5.0	✓	✓	✓				Mini ball nose cutters	B410
GM-4B		4	3.0-20.0	✓	✓	✓				Ball nose cutters	B412

✓ Very suitable ✓ Suitable

General machining

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
GM-4BL		4	3.0-20.0	✔	✔	✔				Ball nose cutters	B413
GM-2R		2	1.0-12.0	✔	✔	✔				Torus mills	B414
GM-4R		4	3.0-12.0	✔	✔	✔				Torus mills	B415
GM-4RL		4	6.0-16.0	✔	✔	✔				Torus mills	B416
5602R303GR		3	6.0-8.0	✔	✔	✔				Rippers	B417
5602R304GR		4	10.0-20.0	✔	✔	✔				Rippers	B418
5602R305GR		5	25.0	✔	✔	✔				Rippers	B419
GM-4W		4	3.0-20.0	✔	✔	✔				Rippers	B420

✔ Very suitable ✔ Suitable

Machining high hardness steel

HM-2E		2	1.0-20.0						✔	End mills	B473
HM-2EFP		2	6.0-20.0						✔	End mills	B474
HM-2EP		2	0.5-5.0						✔	Mini end mills	B475
HM-2ES		2	0.3-3.0						✔	Mini end mills	B477
HM-4E		4	1.0-20.0						✔	End mills	B478
HM-4EL		4	3.0-20.0						✔	End mills	B479
HM-4EFP		4	6.0-20.0						✔	End mills	B480
5502R55MHH		4-8	3.0-20.0						✔	End mills	B481
HM-6E		6	6.0-20.0						✔	End mills	B482
HM-6EL		6	6.0-25.0						✔	End mills	B483
HM-2B		2	1.0-20.0						✔	Ball nose cutters	B484
HM-2BL		2	2.0-20.0						✔	Ball nose cutters	B485

✔ Very suitable ✔ Suitable

Solid carbide milling Product overview

Machining high hardness steel

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
HM-2BFP		2	1.0-20.0						✔	Ball nose cutters	B486
HM-2BS		2	0.3-3.0						✔	Mini ball nose cutters	B487
HM-2BP		2	0.5-5.0						✔	Mini ball nose cutters	B488
HM-4B		4	2.0-20.0						✔	Ball nose cutters	B490
HM-4BL		4	3.0-20.0						✔	Ball nose cutters	B491
HM-4R		4	3.0-12.0						✔	Torus mills	B492
HM-4RF		4	6.0-12.0						✔	Torus mills	B493
HM-4RP		4	3.0-16.0						✔	Torus mills	B494

✔ Very suitable ✔ Suitable

Copper and copper alloys

5502R402NM		2	3.0-20.0				✔			End mills	B495
NM-2E		2	1.0-12.0				✔			End mills	B496
NM-2EP		2	0.5-5.0				✔			Mini end mills	B497
NM-4E		4	3.0-12.0				✔			End mills	B498
NM-2B		2	1.0-12.0				✔			Ball nose cutters	B499
NM-2BP		2	0.5-5.0				✔			Mini ball nose cutters	B500

✔ Very suitable ✔ Suitable

Aluminium and aluminium alloys

AL-2E		2	1.0-20.0				✔			End mills	B501
AL-2EL		2	3.0-20.0				✔			End mills	B502
AL-3E		3	1.0-20.0				✔			End mills	B503
AL-3EL		3	3.0-20.0				✔			End mills	B504
AL-3W		3	6.0-20.0				✔			Rippers	B505

✔ Very suitable ✔ Suitable

Aluminium and aluminium alloys

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
5565R302NH		2	3.0-16.0				✔			Ball nose cutters	B506
5566R302NH		2	3.0-16.0				✔			Ball nose cutters	B507
AL-2B		2	2.0-12.0				✔			Ball nose cutters	B508
AL-2R-AIR		2	6.0-20.0				✔			High performance torus mills	B509
AL-2RL-AIR		2	6.0-20.0				✔			High performance torus mills	B510
AL-3R-AIR		3	12.0-20.0				✔			High performance torus mills	B511
AL-3RL-AIR		3	12.0-20.0				✔			High performance torus mills	B512
ALP-1EP			2.0-10.0				✔			End mills	B513
ALG-2E		2	1.0-20.0				✔			End mills	B514
ALP-2E		2	1.0-12.0				✔			End mills	B515
ALG-3E		3	1.0-20.0				✔			End mills	B516
ALG-3E-W		3	3.0-20.0				✔			End mills	B517
ALP-3E		3	1.0-20.0				✔			End mills	B518
ALP-3E-W		3	3.0-20.0				✔			End mills	B519
ALP-4E		4	3.0-20.0				✔			End mills	B520
ALP-4E-W		4	3.0-20.0				✔			End mills	B521
ALG-2R		2	6.0-25.0				✔			Torus mills	B522
ALG-2R-W		2	6.0-25.0				✔			Torus mills	B523

✔ Very suitable ✔ Suitable

HPC with unequal helix angle

5501R38414GM		4	3.0-20.0	✔	✔	✔			✔	End mills	B543
5502R38414GM		4	3.0-20.0	✔	✔	✔			✔	End mills	B544

✔ Very suitable ✔ Suitable

HPC with unequal helix angle

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
5601R38414GM		4	4.0-20.0	✓	✓	✓			✓	End mills	B545
5602R38414GM		4	3.0-25.0	✓	✓	✓			✓	End mills	B546
5502R38414GM-R		4	4.0-20.0	✓	✓	✓			✓	Torus mills	B547
5602R38414GM-R		4	4.0-20.0	✓	✓	✓			✓	Torus mills	B548
UM-4E		4	4.0-20.0	✓	✓	✓			✓	End mills	B549
UM-4E-W		4	4.0-20.0	✓	✓	✓			✓	End mills	B550
UM-4EL		4	4.0-20.0	✓	✓	✓			✓	End mills	B551
UM-4EL-W		4	4.0-20.0	✓	✓	✓			✓	End mills	B552
UM-4ELP-W		4	4.0-20.0	✓	✓	✓			✓	End mills	B553
UM-4EFP		4	6.0-20.0	✓	✓	✓			✓	End mills	B554
UM-4R		4	4.0-20.0	✓	✓	✓			✓	Torus mills	B555
UM-4RL		4	6.0-16.0	✓	✓	✓			✓	Torus mills	B556
UM-4RFP		4	6.0-16.0	✓	✓	✓			✓	Torus mills	B557
UM-5EP-W		5	6.0-25.0	✓	✓	✓			✓	End mills	B558
UMC-4E		4	6.0-20.0	✓	✓	✓			✓	End mills	B559
UMC-4E-W		4	6.0-20.0	✓	✓	✓			✓	End mills	B560
VSM-4E		4	4.0-20.0	✓	✓			✓		End mills	B561
VSM-4E-C		4	10.0-20.0	✓	✓			✓		End mills	B562
VSM-4R		4	4.0-20.0	✓	✓			✓		Torus mills	B563

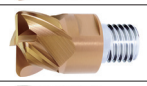
✓ Very suitable ✓ Suitable

Deburring cutter

Products	Solid carbide cutters	Teeth	Ø	Application						Type	Page
				P	M	K	N	S	H		
5501/5601		3-4	0.2-0.7	✔	✔	✔	✔			Deburring cutters	B565
5501/5601		3-4	0.2-0.7	✔	✔	✔	✔			Deburring cutters	B566
5501/5601		3-4	0.2-0.7	✔	✔	✔	✔			Deburring cutters	B567
5601		4	5.2-10.0	✔	✔	✔	✔			Deburring cutters	B568

✔ Very suitable ✔ Suitable

Replacinghead millinghigh hardness steelHigh performance milling

PM-2B		2	10.0-32.0	✔	✔	✔			✔	Ball nose cutters	B569
PM-4B		4	10.0-32.0	✔	✔	✔			✔	Ball nose cutters	B570
PM-4E		4	10.0-32.0	✔	✔	✔			✔	End mills	B571
PM-4R		4	10.0-32.0	✔	✔	✔			✔	Torus mills	B572
HMX-2B		2	10.0-32.0						✔	Ball nose cutters	B575
HMX-4B		4	12.0-32.0						✔	Ball nose cutters	B576
HMX-4E		4	10.0-32.0						✔	End mills	B577
HMX-4R		4	10.0-32.0						✔	Torus mills	B578
VPM-4E		4	10.0-32.0	✔	✔	✔			✔	End mills	B573
VPM-4R		4	10.0-32.0	✔	✔	✔			✔	Torus mills	B574

✔ Very suitable ✔ Suitable

Coated cemented carbide PVD

Grade	Grade description
KMD401	PVD coated carbide substrate for high performance milling application of non-ferrous metals, CFRP and GFRP and organic materials. The DLC layer has very good wear protection and high thermal stability.
KMG303	PVD coated carbide substrate for universal milling application of steel (up to HRC<=48), stainless steel and cast iron.
KMG405	PVD coated carbide substrate for high performance milling application of steel (up to HRC <55), stainless steel, super alloy material and cast iron. High wear resistance and toughness for a wide application field.
KMG406	PVD coated carbide substrate for entry into high performance machining. Universal range of application for steel and cast materials up to 55 HRC as well as stainless steel.
KMG555	PVD coated carbide substrate for hard milling application of steel (HRC 55–68), highest wear resistance and toughness for best cutting result.
KMG309	PVD coated carbide substrate for non ferrous materials. High wear resistance even in abrasive materials.

Uncoated cemented carbide

Grade	Grade description
YK30F	Uncoated K30 carbide substrate for steel, stainless steel, cast iron and non ferrous materials.

Uncoated cemented carbide

Grade	Grade description
YK40F	Uncoated K20–K30/N20–N30 carbide substrate for cast iron and non ferrous materials.

Solid carbide milling System code – DIN-ISO

5	5	0	1	R	30	2	GM	R05	0800
1	2	3	4	5	6	7	8	9	10

1 Type

Code	Description
5	Milling cutter

2 Shank type

Code	Description
1	Shank
5	DIN 6535 HA
6	Weldon shank DIN 6535 HB
7	Whistle Notch DIN 6535 HE
9	Morse taper shank

3 Cutting edge type

Code	Description
0	Square shoulder mill
6	Ball nose cutter
8	Torus mill

4 Tool length

Code	Description
1	DIN 6527 K
2	DIN 6527 L
5	Factory standard ZCC-A
6	Factory standard ZCC-B
8	DIN 6528
9	Factory standard ZCC-D

5 Rotation direction

Code	Description
R	Right
L	Left

6 Helix angle

Code	Description
20	20°
30	30°
3841	38°/41°
45	45°
55	55°
60	60°

7 Number of teeth

Code	Description
2	2
...	
M	Indicated when different diameters have a different number of teeth

8 Application

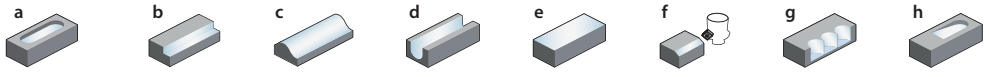
Code	Description
GM	Semi-finishing
GF	Finishing
HM	Hard machining
MHH	High-speed hard machining
NH	High-performance machining of heat-resistant alloys

9 Radius [mm]

Code	Description
R03	0,3
R15	1,5
R30	3,0
...	

10 Diameter [mm]

Code	Description
0100	1,0
0800	8,0
2000	20,0
...	



a Groove milling
b Square shoulder milling
c Profile milling
d Slot milling
e Face milling
f Chamfer milling
g Plunge milling
h Circular milling/Ramping

PM – 2 R L P – D12 R0.5 – M08

1	2	3	4	5	6	7	8

Application	
Code	Description
GR	General roughing
GM	Semi-finishing
GF	Finishing
PM	High-performance machining
EPM	«Ecoline» – High-performance machining
VPM	Full-slot applications
HM	Hard machining
NM	General machining of non-ferrous metals
AL	General machining of Al and Al alloys
ALP	High-performance machining of Al and Al alloys
ALG	General machining of Al and Al alloys
UM	HSC/HPC machining
UMC	HSC machining with chip splitter geometry
VSM	General machining of heat-resistant alloys
TM	General machining of heat-resistant alloys

1

Number of teeth

2

Cutting edge type	
Code	Description
E	Square shoulder mill with protective chamfer
F	Square shoulder mill with sharp cutting edges
B	Ball nose cutter
R	Torus mill
W	Ripper
H	High-feed mill

3

Cutting edge length	
Code	Description
L	Long
X	Extra long
F	Short

4

Type	
Code	Description
S	Mini diameter
P	Ground neck
C	Conical neck

5

Diameter [mm]	
Code	Description
D3.0	3,0
D20.0	20,0
...	

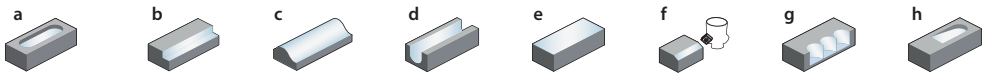
6

Radius [mm]	
Code	Description
R0.5	0,5
R3.0	3,0
...	

7

Features	
Code	Description
G	Spiral angle 30°
M	Neck length [mm]
S	Thin shank
AIR	For aerospace industry

8



a Groove milling **b** Square shoulder milling **c** Profile milling **d** Slot milling **e** Face milling **f** Chamfer milling **g** Plunge milling **h** Circular milling/Ramping

Q 08 – PM – 2 B – D12 R0.5

1	2	3	4	5	6	7

Thread type

1

Thread diametre [mm]	
Code	Description
08	8,0
10	10,0
12	12,0
14	14,0
18	18,0

2

Application	
Code	Description
PM	High-performance machining
VPM	Full-slot applications
HMX	Hard machining

3

Number of teeth

4

Cutting edge type	
Code	Description
E	Square shoulder mill with protective chamfer
B	Ball nose cutter
R	Torus mill

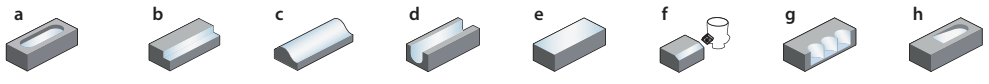
5

Diametre [mm]	
Code	Description
D3.0	3,0
D8.0	8,0
D20.0	20,0

6

Radius [mm]	
Code	Description
R0.5	0,5
R1.0	1,5
R3.0	3,0
...	

7



a Groove milling **b** Square shoulder milling **c** Profile milling **d** Slot milling **e** Face milling **f** Chamfer milling **g** Plunge milling **h** Circular milling/Ramping

G 25 – QCH – Q 12 – 250 C – (ZJ) (115)

1	2	3	4	5	6	7	8	9

Clamping form

Code	Description
G	Cylindrical
XP	Weldon

1

Clamping diameter [mm]

Code	Description
12	12
16	16
20	20
25	25
32	32

2

Series [mm]

Code	Description
QCH	Indexable head system

3

Thread type

Code	Description
M	Metric
Q	Q thread

4

Thread size [mm]

Code	Description
8	8
10	10
12	12
14	14
...	

5

Total length [mm]

Code	Description
85	85
150	150
200	200
...	

6

Material

Code	Description
C	Solid carbide
S	Steel

7

Shank

Code	Description
ZJ	Conical
–	Cylindrically stepped

8

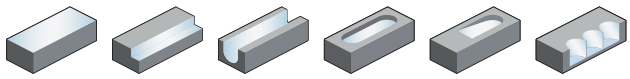
Taper length [mm]

Code	Description
90	90
115	115
...	

9

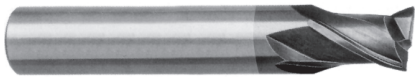
Notizen

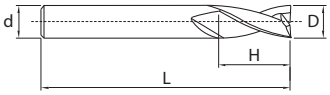
End mill Semi-finishing

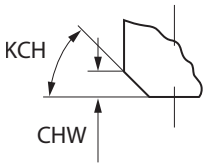


5501R302GM

– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5501R302GM-0300		3	6	4	50	0	0	2	●
5501R302GM-0400		4	6	5	54	0	0	2	●
5501R302GM-0500		5	6	6	54	0	0	2	●
5501R302GM-0600		6	6	7	54	45	0.1	2	●
5501R302GM-0800		8	8	9	58	45	0.1	2	●
5501R302GM-1000		10	10	11	66	45	0.1	2	●
5501R302GM-1200		12	12	12	73	45	0.1	2	●
5501R302GM-1400		14	14	14	75	45	0.15	2	●
5501R302GM-1600		16	16	16	82	45	0.15	2	●
5501R302GM-1800		18	18	18	84	45	0.15	2	●
5501R302GM-2000		20	20	20	92	45	0.15	2	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

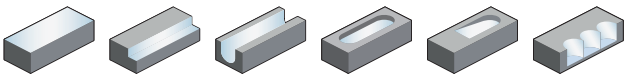
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

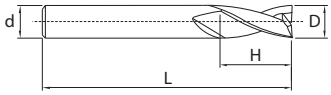
End mill long cutting edge Semi-finishing

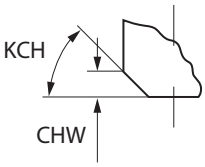
5502R302GM



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5502R302GM-0100		1	3	2	38	0	0	2	●	○
5502R302GM-0150		1.5	3	3	38	0	0	2	●	○
5502R302GM-0200		2	6	6	57	0	0	2	●	
5502R302GM-0250		2.5	6	7	57	0	0	2	●	
5502R302GM-0280		2.8	6	7	57	0	0	2	●	
5502R302GM-0300		3	6	7	57	0	0	2	●	
5502R302GM-0350		3.5	6	7	57	0	0	2	●	○
5502R302GM-0380		3.8	6	8	57	0	0	2	●	
5502R302GM-0400		4	6	8	57	0	0	2	●	
5502R302GM-0450		4.5	6	8	57	0	0	2	●	
5502R302GM-0480		4.8	6	8	57	0	0	2	●	
5502R302GM-0500		5	6	10	57	0	0	2	●	○
5502R302GM-0550		5.5	6	10	57	0	0	2	●	
5502R302GM-0575		5.75	6	10	57	0	0	2	●	
5502R302GM-0600		6	6	10	57	45	0.1	2	●	○
5502R302GM-0650		6.5	8	13	63	45	0.1	2	●	
5502R302GM-0675		6.75	8	13	63	45	0.1	2	○	○
5502R302GM-0700		7	8	13	63	45	0.1	2	●	
5502R302GM-0750		7.5	8	16	63	45	0.1	2	●	
5502R302GM-0775		7.75	8	16	63	45	0.1	2	●	
5502R302GM-0800		8	8	16	63	45	0.1	2	●	○
5502R302GM-0870		8.7	10	16	72	45	0.1	2	●	
5502R302GM-0900		9	10	16	72	45	0.1	2	●	
5502R302GM-0950		9.5	10	16	72	45	0.1	2	○	
5502R302GM-1000		10	10	19	72	45	0.1	2	●	○
5502R302GM-1100		11	12	22	83	45	0.1	2	●	
5502R302GM-1170		11.7	12	22	83	45	0.1	2	●	
5502R302GM-1200		12	12	22	83	45	0.1	2	●	○
5502R302GM-1370		13.7	14	22	83	45	0.1	2	●	
5502R302GM-1400		14	14	22	83	45	0.15	2	●	
5502R302GM-1500		15	16	26	92	45	0.15	2	●	
5502R302GM-1570		15.7	16	26	92	45	0.15	2	●	
5502R302GM-1600		16	16	26	92	45	0.15	2	●	○
5502R302GM-1700		17	18	26	92	45	0.15	2	○	
5502R302GM-1800		18	18	26	92	45	0.15	2	●	
5502R302GM-2000		20	20	32	104	45	0.15	2	●	

● Ex stock ○ On demand
✻ With internal cooling

Application field

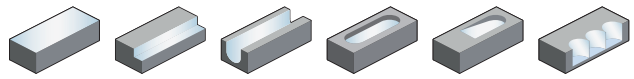
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

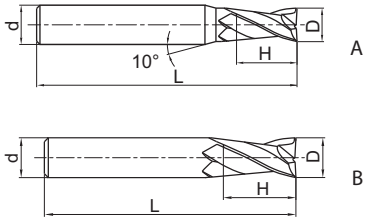
End mill Semi-finishing

GM-2E



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-2E-D1.0S		1	4	3	50	2	A	●
GM-2E-D1.5S		1.5	4	4	50	2	A	●
GM-2E-D2.0S		2	4	6	50	2	A	●
GM-2E-D2.5S		2.5	4	8	50	2	A	●
GM-2E-D3.0S		3	4	8	50	2	A	●
GM-2E-D4.0S		4	4	11	50	2	B	●
GM-2E-D1.0		1	6	3	50	2	A	●
GM-2E-D1.5		1.5	6	4	50	2	A	●
GM-2E-D2.0		2	6	6	50	2	A	●
GM-2E-D2.5		2.5	6	8	50	2	A	●
GM-2E-D3.0		3	6	8	50	2	A	●
GM-2E-D3.5		3.5	6	10	50	2	A	●
GM-2E-D4.0		4	6	11	50	2	A	●
GM-2E-D4.5		4.5	6	11	50	2	A	●
GM-2E-D5.0		5	6	13	50	2	A	●
GM-2E-D5.5		5.5	6	16	50	2	A	●
GM-2E-D6.0		6	6	16	50	2	B	●
GM-2E-D7.0		7	8	20	60	2	A	●
GM-2E-D8.0		8	8	20	60	2	B	●
GM-2E-D9.0		9	10	22	75	2	A	●
GM-2E-D10.0		10	10	25	75	2	B	●
GM-2E-D11.0		11	12	26	75	2	A	●
GM-2E-D12.0		12	12	30	75	2	B	●
GM-2E-D14.0		14	14	32	75	2	B	●
GM-2E-D16.0		16	16	45	100	2	B	●
GM-2E-D18.0		18	18	45	100	2	B	●
GM-2E-D20.0		20	20	45	100	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

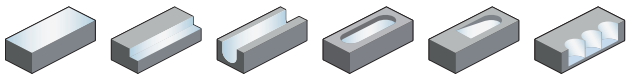
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

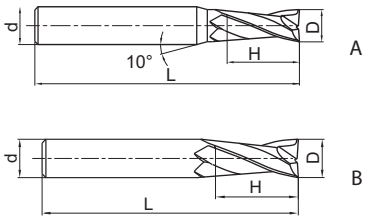
End mill long cutting edge Semi-finishing

GM-2EL



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-2EL-D3.0		3	6	12	75	2	A	●
GM-2EL-D4.0		4	6	15	75	2	A	●
GM-2EL-D5.0		5	6	20	75	2	A	●
GM-2EL-D6.0		6	6	20	75	2	B	●
GM-2EL-D8.0		8	8	25	100	2	B	●
GM-2EL-D10.0		10	10	30	100	2	B	●
GM-2EL-D12.0		12	12	35	100	2	B	●
GM-2EL-D14.0		14	14	40	100	2	B	●
GM-2EL-D16.0		16	16	50	150	2	B	●
GM-2EL-D20.0		20	20	55	150	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

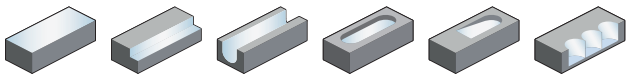
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

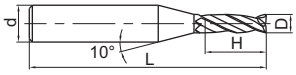
End mill extra long cutting edge Semi-finishing

GM-2EX

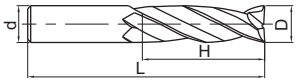


– Factory standard
– Centre cutting
– Helix angle 35°





A



B

Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-2EX-D3.0		3	6	20	75	2	A	●
GM-2EX-D4.0		4	6	25	75	2	A	●
GM-2EX-D5.0		5	6	30	75	2	A	●
GM-2EX-D6.0		6	6	30	75	2	B	○
GM-2EX-D8.0		8	8	40	100	2	B	○
GM-2EX-D10.0		10	10	50	110	2	B	○
GM-2EX-D12.0		12	12	50	110	2	B	○
GM-2EX-D16.0		16	16	70	150	2	B	○
GM-2EX-D20.0		20	20	75	150	2	B	○

● Ex stock ○ On demand

✻ With internal cooling

Application field

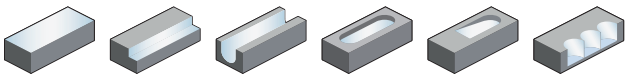
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

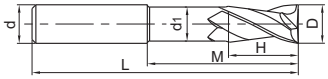
End mill short cutting edge Semi-finishing

GM-2EFP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG303
GM-2EFP-D6.0		6	6	5.8	9	30	75	2	○
GM-2EFP-D8.0		8	8	7.8	12	40	100	2	○
GM-2EFP-D10.0		10	10	9.6	15	50	100	2	○
GM-2EFP-D12.0		12	12	11.5	18	50	100	2	○
GM-2EFP-D16.0		16	16	15.5	24	50	150	2	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

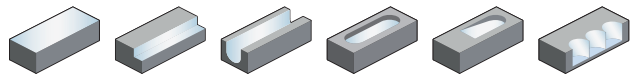
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

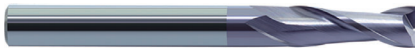
System code B362 Cutting data B582 Nonstandard order B633

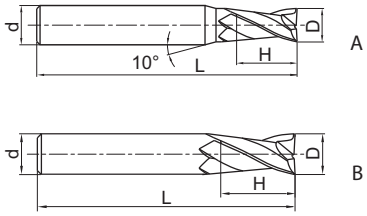
End mill Semi-finishing

GM-2F



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-2F-D1.0		1	6	3	50	2	A	○
GM-2F-D1.5		1.5	6	4	50	2	A	○
GM-2F-D2.0		2	6	6	50	2	A	○
GM-2F-D2.5		2.5	6	8	50	2	A	○
GM-2F-D3.0		3	6	8	50	2	A	●
GM-2F-D3.5		3.5	6	10	50	2	A	○
GM-2F-D4.0		4	6	11	50	2	A	●
GM-2F-D4.5		4.5	6	11	50	2	A	●
GM-2F-D5.0		5	6	13	50	2	A	●
GM-2F-D5.5		5.5	6	16	50	2	A	○
GM-2F-D6.0		6	6	16	50	2	B	●
GM-2F-D7.0		7	8	20	60	2	A	●
GM-2F-D8.0		8	8	20	60	2	B	●
GM-2F-D9.0		9	10	22	75	2	A	○
GM-2F-D10.0		10	10	25	75	2	B	○
GM-2F-D11.0		11	12	26	75	2	A	○
GM-2F-D14.0		14	14	32	75	2	B	○
GM-2F-D16.0		16	16	45	100	2	B	○
GM-2F-D18.0		18	18	45	100	2	B	○
GM-2F-D20.0		20	20	45	100	2	B	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

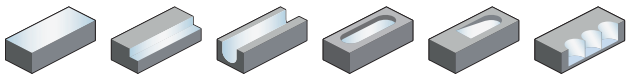
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

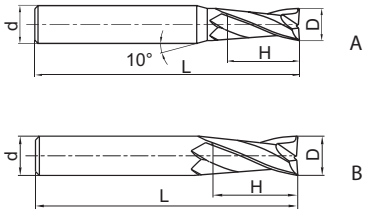
End mill long cutting edge Semi-finishing

GM-2FL



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-2FL-D3.0		3	6	12	75	2	A	○
GM-2FL-D4.0		4	6	15	75	2	A	○
GM-2FL-D5.0		5	6	20	75	2	A	○
GM-2FL-D6.0		6	6	20	75	2	B	○
GM-2FL-D8.0		8	8	25	100	2	B	○
GM-2FL-D10.0		10	10	30	100	2	B	○
GM-2FL-D12.0		12	12	35	100	2	B	○
GM-2FL-D14.0		14	14	40	100	2	B	○
GM-2FL-D16.0		16	16	50	150	2	B	○
GM-2FL-D20.0		20	20	55	150	2	B	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

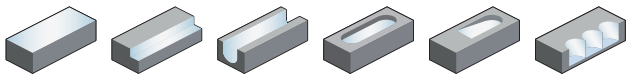
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

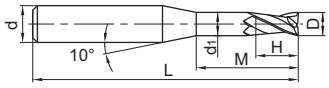
End mill Semi-finishing

GM-2EP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG303
GM-2EP-D0.5-M04		0.5	4	0.45	0.7	4	50	2	●
GM-2EP-D0.5-M06		0.5	4	0.45	0.7	6	50	2	●
GM-2EP-D0.5-M08		0.5	4	0.45	0.7	8	50	2	●
GM-2EP-D0.6-M04		0.6	4	0.56	0.7	4	50	2	○
GM-2EP-D0.6-M06		0.6	4	0.56	0.7	6	50	2	●
GM-2EP-D0.8-M04		0.8	4	0.75	1.2	4	50	2	●
GM-2EP-D0.8-M06		0.8	4	0.75	1.2	6	50	2	●
GM-2EP-D0.8-M08		0.8	4	0.75	1.2	8	50	2	●
GM-2EP-D0.8-M10		0.8	4	0.75	1.2	10	50	2	●
GM-2EP-D1.0-M04		1	4	0.95	1.5	4	50	2	●
GM-2EP-D1.0-M06		1	4	0.95	1.5	6	50	2	●
GM-2EP-D1.0-M08		1	4	0.95	1.5	8	50	2	●
GM-2EP-D1.0-M10		1	4	0.95	1.5	10	50	2	●
GM-2EP-D1.0-M12		1	4	0.95	1.5	12	50	2	●
GM-2EP-D1.0-M14		1	4	0.95	1.5	14	50	2	●
GM-2EP-D1.0-M20		1	4	0.95	1.5	20	50	2	●
GM-2EP-D1.2-M04		1.2	4	1.15	1.8	4	50	2	○
GM-2EP-D1.2-M06		1.2	4	1.15	1.8	6	50	2	●
GM-2EP-D1.2-M08		1.2	4	1.15	1.8	8	50	2	●
GM-2EP-D1.2-M10		1.2	4	1.15	1.8	10	50	2	●
GM-2EP-D1.2-M12		1.2	4	1.15	1.8	12	50	2	○
GM-2EP-D1.5-M06		1.5	4	1.45	2.3	6	50	2	●
GM-2EP-D1.5-M08		1.5	4	1.45	2.3	8	50	2	●
GM-2EP-D1.5-M10		1.5	4	1.45	2.3	10	50	2	●
GM-2EP-D1.5-M12		1.5	4	1.45	2.3	12	50	2	●
GM-2EP-D1.5-M14		1.5	4	1.45	2.3	14	50	2	●
GM-2EP-D2.0-M06		2	4	1.95	3	6	50	2	●
GM-2EP-D2.0-M08		2	4	1.95	3	8	50	2	●
GM-2EP-D2.0-M10		2	4	1.95	3	10	50	2	●
GM-2EP-D2.0-M12		2	4	1.95	3	12	50	2	●
GM-2EP-D2.0-M14		2	4	1.95	3	14	50	2	●
GM-2EP-D2.0-M16		2	4	1.95	3	16	50	2	●
GM-2EP-D2.0-M20		2	4	1.95	3	20	50	2	○
GM-2EP-D2.5-M08		2.5	4	2.4	3.7	8	50	2	●
GM-2EP-D2.5-M10		2.5	4	2.4	3.7	10	50	2	●
GM-2EP-D2.5-M12		2.5	4	2.4	3.7	12	50	2	●
GM-2EP-D2.5-M14		2.5	4	2.4	3.7	14	50	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

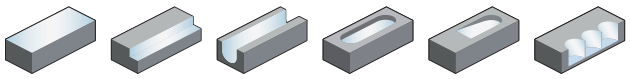
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

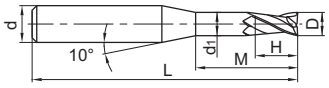
End mill Semi-finishing

GM-2EP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG303
GM-2EP-D2.5-M16		2.5	4	2.4	3.7	16	60	2	●
GM-2EP-D2.5-M18		2.5	4	2.4	3.7	18	60	2	●
GM-2EP-D2.5-M20		2.5	4	2.4	3.7	20	60	2	●
GM-2EP-D3.0-M06		3	6	2.85	4.5	6	50	2	●
GM-2EP-D3.0-M08		3	6	2.85	4.5	8	50	2	●
GM-2EP-D3.0-M10		3	6	2.85	4.5	10	50	2	●
GM-2EP-D3.0-M12		3	6	2.85	4.5	12	50	2	●
GM-2EP-D3.0-M14		3	6	2.85	4.5	14	60	2	●
GM-2EP-D3.0-M16		3	6	2.85	4.5	16	60	2	●
GM-2EP-D3.0-M18		3	6	2.85	4.5	18	60	2	●
GM-2EP-D3.0-M20		3	6	2.85	4.5	20	60	2	●
GM-2EP-D4.0-M12		4	6	3.85	6	12	50	2	●
GM-2EP-D4.0-M14		4	6	3.85	6	14	60	2	●
GM-2EP-D4.0-M16		4	6	3.85	6	16	60	2	●
GM-2EP-D4.0-M20		4	6	3.85	6	20	60	2	●
GM-2EP-D4.0-M25		4	6	3.85	6	25	60	2	●
GM-2EP-D5.0-M16		5	6	4.85	7.5	16	60	2	●
GM-2EP-D5.0-M25		5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

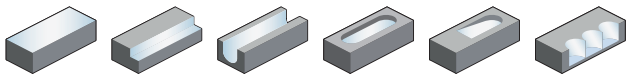
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

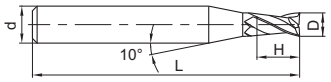
End mill Semi-finishing

GM-2ES



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG303
GM-2ES-D0.3		0.3	4	0.6	50	2	●
GM-2ES-D0.4		0.4	4	0.8	50	2	●
GM-2ES-D0.5		0.5	4	1	50	2	●
GM-2ES-D0.6		0.6	4	1.2	50	2	●
GM-2ES-D0.7		0.7	4	1.4	50	2	●
GM-2ES-D0.8		0.8	4	1.6	50	2	●
GM-2ES-D0.9		0.9	4	1.8	50	2	●
GM-2ES-D1.0		1	4	2	50	2	●
GM-2ES-D1.1		1.1	4	2	50	2	●
GM-2ES-D1.2		1.2	4	2.5	50	2	●
GM-2ES-D1.3		1.3	4	2.5	50	2	●
GM-2ES-D1.4		1.4	4	3	50	2	●
GM-2ES-D1.5		1.5	4	3	50	2	●
GM-2ES-D1.6		1.6	4	3.5	50	2	●
GM-2ES-D1.7		1.7	4	3.5	50	2	●
GM-2ES-D1.8		1.8	4	4	50	2	●
GM-2ES-D1.9		1.9	4	4	50	2	●
GM-2ES-D2.0		2	4	4	50	2	●
GM-2ES-D2.1		2.1	4	4	50	2	●
GM-2ES-D2.2		2.2	4	4.5	50	2	●
GM-2ES-D2.3		2.3	4	4.5	50	2	●
GM-2ES-D2.4		2.4	4	5	50	2	●
GM-2ES-D2.5		2.5	4	5	50	2	●
GM-2ES-D2.6		2.6	4	5	50	2	●
GM-2ES-D2.7		2.7	4	5.5	50	2	●
GM-2ES-D2.8		2.8	4	5.5	50	2	●
GM-2ES-D2.9		2.9	4	6	50	2	●
GM-2ES-D3.0		3	4	6	50	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

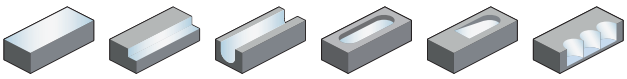
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

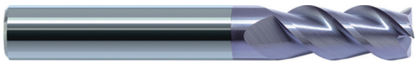
System code B362 Cutting data B582 Nonstandard order B633

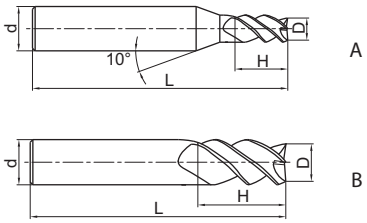
End mill Semi-finishing

GM-3E



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✲	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-3E-D1.0S		1	4	3	50	3	A	○
GM-3E-D1.5S		1.5	4	4	50	3	A	○
GM-3E-D2.0S		2	4	6	50	3	A	○
GM-3E-D2.5S		2.5	4	8	50	3	A	○
GM-3E-D3.0S		3	4	8	50	3	A	○
GM-3E-D4.0S		4	4	11	50	3	B	○
GM-3E-D1.0		1	6	3	50	3	A	○
GM-3E-D1.5		1.5	6	4	50	3	A	○
GM-3E-D1.8		1.8	6	6	50	3	A	○
GM-3E-D2.0		2	6	6	50	3	A	○
GM-3E-D2.5		2.5	6	8	50	3	A	○
GM-3E-D3.0		3	6	8	50	3	A	○
GM-3E-D3.5		3.5	6	10	50	3	A	○
GM-3E-D4.0		4	6	11	50	3	A	○
GM-3E-D4.5		4.5	6	11	50	3	A	○
GM-3E-D5.0		5	6	13	50	3	A	○
GM-3E-D5.5		5.5	6	16	50	3	A	○
GM-3E-D6.0		6	6	16	50	3	B	○
GM-3E-D7.0		7	8	20	60	3	A	○
GM-3E-D8.0		8	8	20	60	3	B	○
GM-3E-D9.0		9	10	22	75	3	A	○
GM-3E-D10.0		10	10	25	75	3	B	○
GM-3E-D11.0		11	12	26	75	3	A	○
GM-3E-D12.0		12	12	30	75	3	B	○
GM-3E-D14.0		14	14	32	75	3	B	○
GM-3E-D16.0		16	16	45	100	3	B	○
GM-3E-D18.0		18	18	45	100	3	B	○
GM-3E-D20.0		20	20	45	100	3	B	○

● Ex stock ○ On demand
✲ With internal cooling

Application field

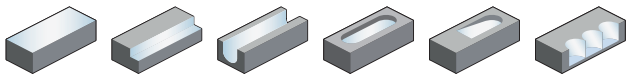
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

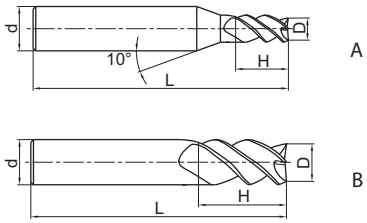
End mill long cutting edge | Semi-finishing

GM-3EL



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-3EL-D3.0		3	6	12	75	3	A	●
GM-3EL-D4.0		4	6	15	75	3	A	●
GM-3EL-D5.0		5	6	20	75	3	A	●
GM-3EL-D6.0		6	6	20	75	3	B	●
GM-3EL-D8.0		8	8	25	100	3	B	●
GM-3EL-D10.0		10	10	30	100	3	B	●
GM-3EL-D12.0		12	12	35	100	3	B	●
GM-3EL-D14.0		14	14	40	100	3	B	●
GM-3EL-D16.0		16	16	50	150	3	B	●
GM-3EL-D20.0		20	20	55	150	3	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

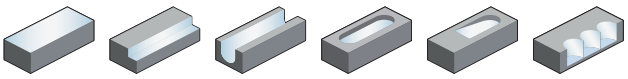
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

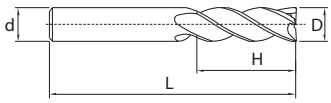
End mill Semi-finishing

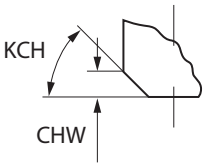
5501R303GM



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5501R303GM-0300		3	6	4	50	0	0	3	●	
5501R303GM-0400		4	6	5	54	0	0	3	●	
5501R303GM-0500		5	6	6	54	0	0	3	●	
5501R303GM-0600		6	6	7	54	45	0.1	3	●	○
5501R303GM-0800		8	8	9	58	45	0.1	3	●	
5501R303GM-1000		10	10	11	66	45	0.1	3	●	
5501R303GM-1200		12	12	12	73	45	0.1	3	●	
5501R303GM-1400		14	14	14	75	45	0.15	3	●	
5501R303GM-1600		16	16	16	82	45	0.15	3	●	
5501R303GM-1800		18	18	18	84	45	0.15	3	●	
5501R303GM-2000		20	20	20	92	45	0.15	3	●	

● Ex stock ○ On demand
✻ With internal cooling

Application field

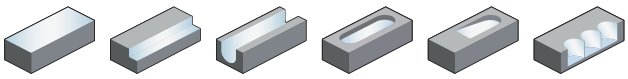
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

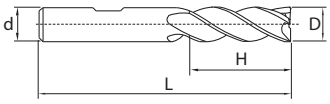
End mill Semi-finishing

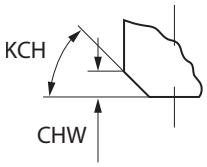
5601R303GM



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5601R303GM-0300		3	6	4	50	0	0	3	●
5601R303GM-0400		4	6	5	54	0	0	3	●
5601R303GM-0500		5	6	6	54	0	0	3	●
5601R303GM-0600		6	6	7	54	45	0.1	3	●
5601R303GM-0800		8	8	9	58	45	0.1	3	●
5601R303GM-1000		10	10	11	66	45	0.1	3	●
5601R303GM-1200		12	12	12	73	45	0.1	3	●
5601R303GM-1400		14	14	14	75	45	0.15	3	●
5601R303GM-1600		16	16	16	82	45	0.15	3	●
5601R303GM-1800		18	18	18	84	45	0.15	3	●
5601R303GM-2000		20	20	20	92	45	0.15	3	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

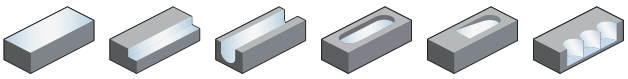
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

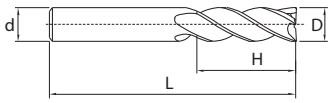
End mill long cutting edge Semi-finishing

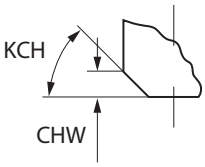
5502R303GM



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5502R303GM-0200		2	6	6	57	0	0	3	●	
5502R303GM-0300		3	6	7	57	0	0	3	●	○
5502R303GM-0400		4	6	8	57	0	0	3	●	○
5502R303GM-0500		5	6	10	57	0	0	3	●	○
5502R303GM-0600		6	6	10	57	45	0.1	3	●	○
5502R303GM-0800		8	8	16	63	45	0.1	3	●	○
5502R303GM-1000		10	10	19	72	45	0.1	3	●	○
5502R303GM-1200		12	12	22	83	45	0.1	3	●	○
5502R303GM-1300		13	14	22	83	45	0.1	3	○	
5502R303GM-1400		14	14	22	83	45	0.15	3	●	○
5502R303GM-1600		16	16	26	92	45	0.15	3	●	○
5502R303GM-1800		18	18	26	92	45	0.15	3	●	○
5502R303GM-2000		20	20	32	104	45	0.15	3	●	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

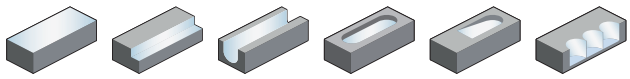
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

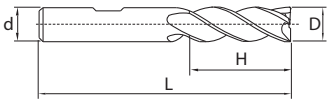
End mill long cutting edge — Semi-finishing

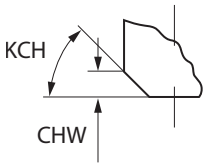
5602R303GM



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5602R303GM-0300		3	6	7	57	0	0	3	●
5602R303GM-0400		4	6	8	57	0	0	3	●
5602R303GM-0500		5	6	10	57	0	0	3	●
5602R303GM-0600		6	6	10	57	45	0.1	3	●
5602R303GM-0800		8	8	16	63	45	0.1	3	●
5602R303GM-1000		10	10	19	72	45	0.1	3	●
5602R303GM-1200		12	12	22	83	45	0.1	3	●
5602R303GM-1400		14	14	22	83	45	0.15	3	●
5602R303GM-1600		16	16	26	92	45	0.15	3	●
5602R303GM-1800		18	18	26	92	45	0.15	3	●
5602R303GM-2000		20	20	32	104	45	0.15	3	●

● Ex stock ○ On demand

✻ With internal cooling

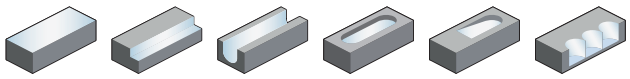
Application field

P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

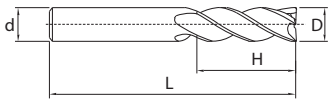
End mill long cutting edge — Semi-finishing

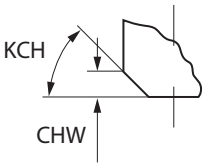


5502R453GM

– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 45°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG405
5502R453GM-0300		3	6	7	57	0	0	3	●
5502R453GM-0400		4	6	8	57	0	0	3	●
5502R453GM-0500		5	6	10	57	0	0	3	●
5502R453GM-0600		6	6	10	57	45	0.1	3	●
5502R453GM-0800		8	8	16	63	45	0.1	3	●
5502R453GM-1000		10	10	19	72	45	0.1	3	●
5502R453GM-1200		12	12	22	83	45	0.1	3	●
5502R453GM-1400		14	14	22	83	45	0.15	3	●
5502R453GM-1600		16	16	26	92	45	0.15	3	●
5502R453GM-1800		18	18	26	92	45	0.15	3	●
5502R453GM-2000		20	20	32	104	45	0.15	3	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

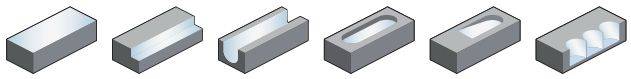
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

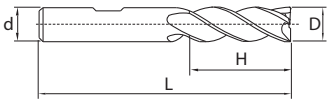
End mill long cutting edge — Semi-finishing

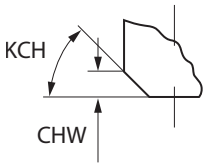
5602R453GM



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 45°







Article	✻	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	KMG405
5602R453GM-0300		3	6	7	57	0	0	3	○	●
5602R453GM-0400		4	6	8	57	0	0	3	○	●
5602R453GM-0500		5	6	10	57	0	0	3	○	●
5602R453GM-0600		6	6	10	57	45	0.1	3	○	●
5602R453GM-0800		8	8	16	63	45	0.1	3	○	●
5602R453GM-1000		10	10	19	72	45	0.1	3	○	●
5602R453GM-1200		12	12	22	83	45	0.1	3	○	●
5602R453GM-1400		14	14	22	83	45	0.15	3	○	●
5602R453GM-1600		16	16	26	92	45	0.15	3	○	●
5602R453GM-1800		18	18	26	92	45	0.15	3	○	●
5602R453GM-2000		20	20	32	104	45	0.15	3	○	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

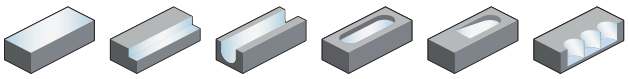
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

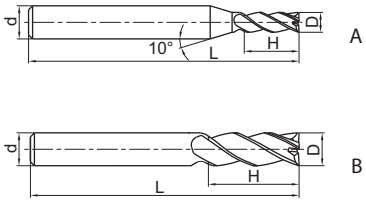
End mill Semi-finishing

GM-4F-G



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4F-D2.0S-G		2	4	6	50	4	A	○
GM-4F-D2.5S-G		2.5	4	8	50	4	A	○
GM-4F-D4.0S-G		4	4	11	50	4	B	○
GM-4F-D1.0-G		1	6	3	50	4	A	○
GM-4F-D1.5-G		1.5	6	4	50	4	A	○
GM-4F-D2.0-G		2	6	6	50	4	A	○
GM-4F-D2.5-G		2.5	6	8	50	4	A	○
GM-4F-D3.0-G		3	6	8	50	4	A	○
GM-4F-D3.5-G		3.5	6	10	50	4	A	○
GM-4F-D4.0-G		4	6	11	50	4	A	○
GM-4F-D4.5-G		4.5	6	11	50	4	A	○
GM-4F-D5.0-G		5	6	13	50	4	A	○
GM-4F-D5.5-G		5.5	6	16	50	4	A	○
GM-4F-D6.0-G		6	6	16	50	4	B	○
GM-4F-D7.0-G		7	8	20	60	4	A	○
GM-4F-D8.0-G		8	8	20	60	4	B	○
GM-4F-D9.0-G		9	10	22	75	4	A	○
GM-4F-D10.0-G		10	10	25	75	4	B	○
GM-4F-D11.0-G		11	12	26	75	4	A	○
GM-4F-D12.0-G		12	12	30	75	4	B	○
GM-4F-D14.0-G		14	14	32	75	4	B	○
GM-4F-D16.0-G		16	16	45	100	4	B	○
GM-4F-D18.0-G		18	18	45	100	4	B	○
GM-4F-D20.0-G		20	20	45	100	4	B	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

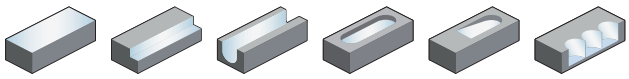
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

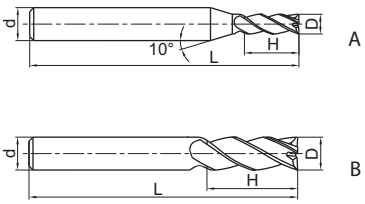
End mill long cutting edge | Semi-finishing

GM-4EL-G



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4EL-D3.0-G		3	6	12	75	4	A	○
GM-4EL-D4.0-G		4	6	15	75	4	A	○
GM-4EL-D5.0-G		5	6	20	75	4	A	○
GM-4EL-D6.0-G		6	6	20	75	4	B	○
GM-4EL-D8.0-G		8	8	25	100	4	B	○
GM-4EL-D10.0-G		10	10	30	100	4	B	○
GM-4EL-D12.0-G		12	12	35	100	4	B	○
GM-4EL-D14.0-G		14	14	40	100	4	B	○
GM-4EL-D16.0-G		16	16	50	150	4	B	○
GM-4EL-D20.0-G		20	20	55	150	4	B	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

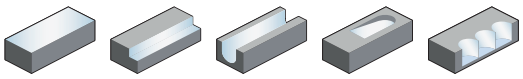
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

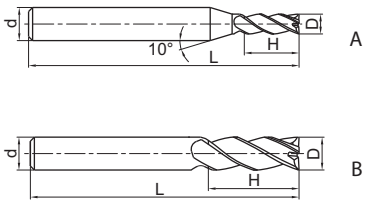
End mill long cutting edge Semi-finishing

GM-4FL-G



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4FL-D3.0-G		3	6	12	75	4	A	○
GM-4FL-D4.0-G		4	6	15	75	4	A	○
GM-4FL-D5.0-G		5	6	20	75	4	A	●
GM-4FL-D6.0-G		6	6	20	75	4	B	●
GM-4FL-D8.0-G		8	8	25	100	4	B	●
GM-4FL-D10.0-G		10	10	30	100	4	B	●
GM-4FL-D12.0-G		12	12	35	100	4	B	●
GM-4FL-D14.0-G		14	14	40	100	4	B	○
GM-4FL-D16.0-G		16	16	50	150	4	B	○
GM-4FL-D20.0-G		20	20	55	150	4	B	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

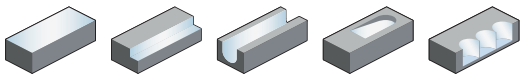
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

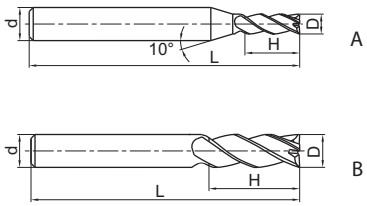
End mill extra long cutting edge Semi-finishing

GM-4EX-G



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4EX-D3.0-G		3	6	20	75	4	A	●
GM-4EX-D4.0-G		4	6	25	75	4	A	●
GM-4EX-D5.0-G		5	6	30	75	4	A	●
GM-4EX-D6.0-G		6	6	30	75	4	B	●
GM-4EX-D8.0-G		8	8	40	100	4	B	●
GM-4EX-D10.0-G		10	10	50	110	4	B	●
GM-4EX-D12.0-G		12	12	50	110	4	B	●
GM-4EX-D14.0-G		14	14	70	150	4	B	○
GM-4EX-D16.0-G		16	16	70	150	4	B	●
GM-4EX-D20.0-G		20	20	75	150	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

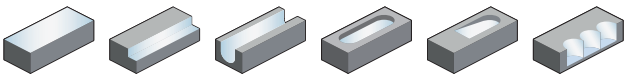
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

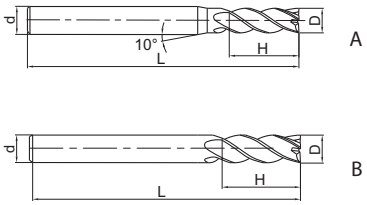
End mill Semi-finishing

GM-4E



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✲	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4E-D1.0S		1	4	3	50	4	A	●
GM-4E-D1.5S		1.5	4	4	50	4	A	●
GM-4E-D2.0S		2	4	6	50	4	A	●
GM-4E-D2.5S		2.5	4	8	50	4	A	●
GM-4E-D3.0S		3	4	8	50	4	A	●
GM-4E-D4.0S		4	4	11	50	4	B	●
GM-4E-D1.0		1	6	3	50	4	A	●
GM-4E-D1.5		1.5	6	4	50	4	A	●
GM-4E-D2.0		2	6	6	50	4	A	●
GM-4E-D2.5		2.5	6	8	50	4	A	●
GM-4E-D3.0		3	6	8	50	4	A	●
GM-4E-D3.5		3.5	6	10	50	4	A	●
GM-4E-D4.0		4	6	11	50	4	A	●
GM-4E-D4.5		4.5	6	11	50	4	A	●
GM-4E-D5.0		5	6	13	50	4	A	●
GM-4E-D5.5		5.5	6	16	50	4	A	●
GM-4E-D6.0		6	6	16	50	4	B	●
GM-4E-D7.0		7	8	20	60	4	A	●
GM-4E-D8.0		8	8	20	60	4	B	●
GM-4E-D9.0		9	10	22	75	4	A	●
GM-4E-D10.0		10	10	25	75	4	B	●
GM-4E-D11.0		11	12	26	75	4	A	●
GM-4E-D12.0		12	12	30	75	4	B	●
GM-4E-D14.0		14	14	32	75	4	B	●
GM-4E-D16.0		16	16	45	100	4	B	●
GM-4E-D18.0		18	18	45	100	4	B	●
GM-4E-D20.0		20	20	45	100	4	B	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

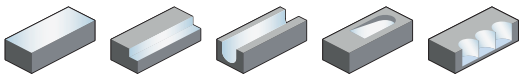
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

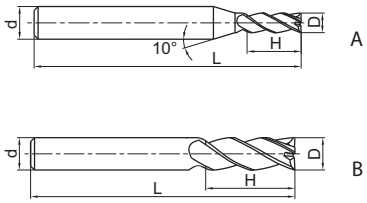
End mill Semi-finishing

GM-4E-G



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4E-D1.0S-G		1	4	3	50	4	A	●
GM-4E-D1.5S-G		1.5	4	4	50	4	A	●
GM-4E-D2.0S-G		2	4	6	50	4	A	●
GM-4E-D2.5S-G		2.5	4	8	50	4	A	●
GM-4E-D3.0S-G		3	4	8	50	4	A	●
GM-4E-D4.0S-G		4	4	11	50	4	B	●
GM-4E-D1.0-G		1	6	3	50	4	A	●
GM-4E-D1.5-G		1.5	6	4	50	4	A	●
GM-4E-D2.0-G		2	6	6	50	4	A	●
GM-4E-D2.5-G		2.5	6	8	50	4	A	●
GM-4E-D3.0-G		3	6	8	50	4	A	●
GM-4E-D3.5-G		3.5	6	10	50	4	A	●
GM-4E-D3.5S-G		3.5	6	10	50	4	A	●
GM-4E-D4.0-G		4	6	11	50	4	A	●
GM-4E-D4.5-G		4.5	6	11	50	4	A	○
GM-4E-D5.0-G		5	6	13	50	4	A	●
GM-4E-D5.5-G		5.5	6	16	50	4	A	●
GM-4E-D6.0-G		6	6	16	50	4	B	●
GM-4E-D7.0-G		7	8	20	60	4	A	●
GM-4E-D8.0-G		8	8	20	60	4	B	●
GM-4E-D9.0-G		9	10	22	75	4	A	●
GM-4E-D10.0-G		10	10	25	75	4	B	●
GM-4E-D11.0-G		11	12	26	75	4	A	●
GM-4E-D12.0-G		12	12	30	75	4	B	●
GM-4E-D14.0-G		14	14	32	75	4	B	●
GM-4E-D16.0-G		16	16	45	100	4	B	●
GM-4E-D18.0-G		18	18	45	100	4	B	●
GM-4E-D20.0-G		20	20	45	100	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

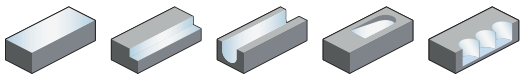
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

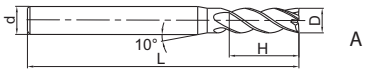
End mill long cutting edge — Semi-finishing

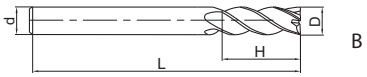
GM-4EL



– Factory standard
– Centre cutting
– Helix angle 45°







Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG303
GM-4EL-D3.0		3	6	12	75	4	A	●
GM-4EL-D4.0		4	6	15	75	4	A	●
GM-4EL-D5.0		5	6	20	75	4	A	●
GM-4EL-D6.0		6	6	20	75	4	B	●
GM-4EL-D8.0		8	8	25	100	4	B	●
GM-4EL-D10.0		10	10	30	100	4	B	●
GM-4EL-D12.0		12	12	35	100	4	B	●
GM-4EL-D14.0		14	14	40	100	4	B	●
GM-4EL-D16.0		16	16	50	150	4	B	●
GM-4EL-D20.0		20	20	55	150	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

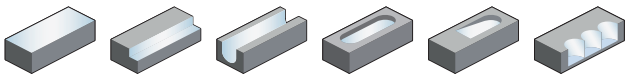
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

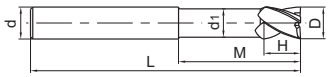
End mill short cutting edge — Semi-finishing

GM-4EFP



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG303
GM-4EFP-D6.0		6	6	5.8	9	30	75	4	○
GM-4EFP-D8.0		8	8	7.8	12	40	100	4	○
GM-4EFP-D10.0		10	10	9.6	15	50	100	4	○
GM-4EFP-D12.0		12	12	11.5	18	50	100	4	○
GM-4EFP-D16.0		16	16	15.5	24	50	150	4	○
GM-4EFP-D20.0		20	20	19.5	30	60	150	4	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

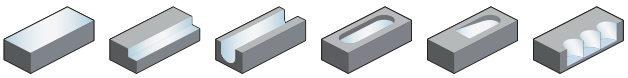
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

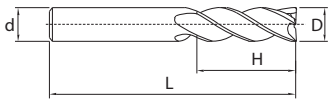
End mill Finishing

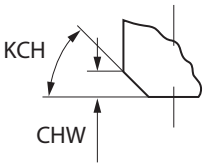
5501R304GF



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5501R304GF-0300		3	6	5	50	0	0	4	●	
5501R304GF-0400		4	6	8	54	0	0	4	●	
5501R304GF-0500		5	6	9	54	0	0	4	●	
5501R304GF-0600		6	6	10	54	45	0.1	4	●	
5501R304GF-0800		8	8	12	58	45	0.1	4	●	○
5501R304GF-1000		10	10	14	66	45	0.1	4	●	
5501R304GF-1200		12	12	16	73	45	0.1	4	●	
5501R304GF-1400		14	14	18	75	45	0.15	4	●	
5501R304GF-1600		16	16	22	82	45	0.15	4	●	
5501R304GF-1800		18	18	24	84	45	0.15	4	●	
5501R304GF-2000		20	20	26	92	45	0.15	4	●	

● Ex stock ○ On demand
✻ With internal cooling

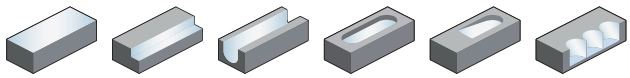
Application field

P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

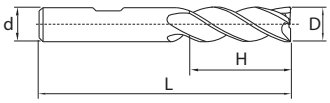
End mill Finishing

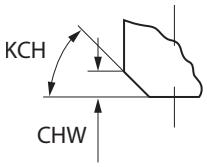


5601R304GF

– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5601R304GF-0300		3	6	5	50	0	0	4	●
5601R304GF-0400		4	6	8	54	0	0	4	●
5601R304GF-0500		5	6	9	54	0	0	4	●
5601R304GF-0600		6	6	10	54	45	0.1	4	●
5601R304GF-0800		8	8	12	58	45	0.1	4	●
5601R304GF-1000		10	10	14	66	45	0.1	4	●
5601R304GF-1200		12	12	16	73	45	0.1	4	●
5601R304GF-1400		14	14	18	75	45	0.15	4	●
5601R304GF-1600		16	16	22	82	45	0.15	4	●
5601R304GF-1800		18	18	24	84	45	0.15	4	●
5601R304GF-2000		20	20	26	92	45	0.15	4	●

● Ex stock ○ On demand

✻ With internal cooling

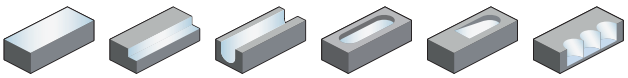
Application field

P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

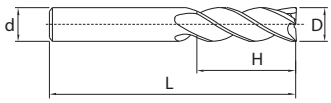
End mill long cutting edge Finishing

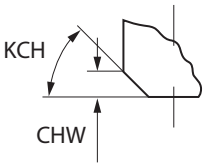


5502R304GF

– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5502R304GF-0300		3	6	8	57	0	0	4	●
5502R304GF-0400		4	6	11	57	0	0	4	●
5502R304GF-0500		5	6	13	57	0	0	4	●
5502R304GF-0600		6	6	13	57	45	0.1	4	●
5502R304GF-0800		8	8	19	63	45	0.1	4	●
5502R304GF-1000		10	10	22	72	45	0.1	4	●
5502R304GF-1200		12	12	26	83	45	0.1	4	●
5502R304GF-1400		14	14	26	83	45	0.15	4	●
5502R304GF-1600		16	16	32	92	45	0.15	4	●
5502R304GF-1800		18	18	32	92	45	0.15	4	●
5502R304GF-2000		20	20	38	104	45	0.15	4	●

● Ex stock ○ On demand
✻ With internal cooling

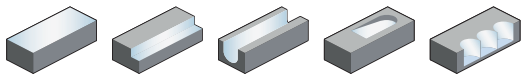
Application field

P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

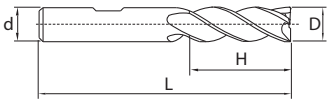
End mill long cutting edge **Finishing**

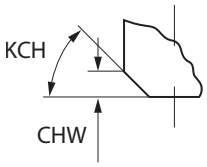


5602R304GF

– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5602R304GF-0300		3	6	8	57	0	0	4	●	
5602R304GF-0400		4	6	11	57	0	0	4	●	
5602R304GF-0500		5	6	13	57	0	0	4	●	
5602R304GF-0600		6	6	13	57	45	0.1	4	●	○
5602R304GF-0800		8	8	19	63	45	0.1	4	●	○
5602R304GF-1000		10	10	22	72	45	0.1	4	●	
5602R304GF-1200		12	12	26	83	45	0.1	4	●	
5602R304GF-1400		14	14	26	83	45	0.15	4	●	
5602R304GF-1600		16	16	32	92	45	0.15	4	●	
5602R304GF-1800		18	18	32	92	45	0.15	4	●	
5602R304GF-2000		20	20	38	104	45	0.15	4	●	

● Ex stock ○ On demand
✻ With internal cooling

Application field

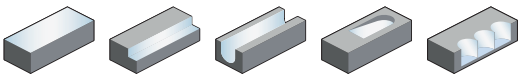
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

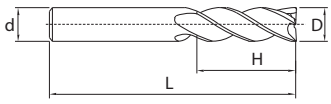
End mill long cutting edge — Semi-finishing

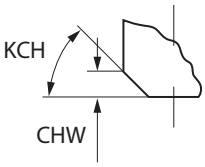
5508R454GM



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 45°







Article	✲	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG303	YK30F
5508R454GM-0300		3	3	8	45	0	0	4	●	○
5508R454GM-0400		4	4	11	50	0	0	4	●	○
5508R454GM-0500		5	5	13	50	0	0	4	●	○
5508R454GM-0600		6	6	13	57	45	0.1	4	●	
5508R454GM-0800		8	8	19	63	45	0.1	4	●	○
5508R454GM-1000		10	10	22	72	45	0.1	4	●	○
5508R454GM-1200		12	12	26	83	45	0.1	4	●	○
5508R454GM-1400		14	14	26	83	45	0.15	4	●	○
5508R454GM-1500		15	16	32	92	0	0	4	○	
5508R454GM-1600		16	16	32	92	45	0.15	4	●	○
5508R454GM-1800		18	18	32	92	45	0.15	4	●	
5508R454GM-2000		20	20	38	104	45	0.15	4	●	○

● Ex stock ○ On demand
✲ With internal cooling

Application field

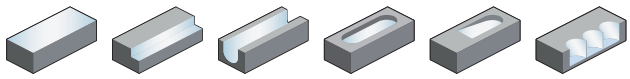
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

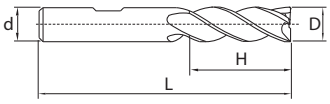
End mill long cutting edge — Semi-finishing

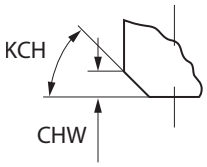
5602R454GM



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 45°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5602R454GM-0300		3	6	8	57	0	0	4	●
5602R454GM-0400		4	6	11	57	0	0	4	●
5602R454GM-0500		5	6	13	57	0	0	4	●
5602R454GM-0600		6	6	13	57	45	0.1	4	●
5602R454GM-0800		8	8	19	63	45	0.1	4	●
5602R454GM-1000		10	10	22	72	45	0.1	4	●
5602R454GM-1200		12	12	26	83	45	0.1	4	●
5602R454GM-1400		14	14	26	83	45	0.15	4	●
5602R454GM-1600		16	16	32	92	45	0.15	4	●
5602R454GM-1800		18	18	32	92	45	0.15	4	●
5602R454GM-2000		20	20	38	104	45	0.15	4	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

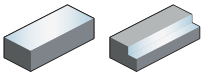
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

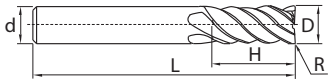
Torus mill long cutting edge Finishing

5589R45MGFR



– Type of shank DIN 6535HA
– Helix angle 45°





Article	✲	Dimensions [mm]					Teeth	Grade
		D	R	d (h6)	H	L		KMG405
5589R45MGFR02-0600		6	0.2	6	19	63	6	●
5589R45MGFR02-0800		8	0.2	8	28	72	6	●
5589R45MGFR02-1000		10	0.2	10	34	84	6	●
5589R45MGFR02-1200		12	0.2	12	40	97	6	●
5589R45MGFR03-1600		16	0.3	16	48	108	8	●
5589R45MGFR03-2000		20	0.3	20	56	122	10	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

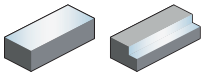
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

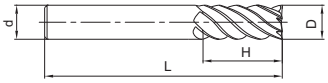
End mill Semi-finishing

GM-6E



– Factory standard
– Non-centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG303
GM-6E-D6.0		6	6	18	60	6	●
GM-6E-D8.0		8	8	20	60	6	●
GM-6E-D10.0		10	10	30	75	6	●
GM-6E-D12.0		12	12	32	75	6	●
GM-6E-D16.0		16	16	40	100	6	●
GM-6E-D20.0		20	20	45	100	6	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

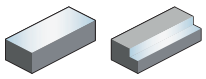
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

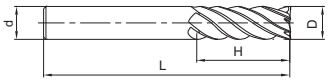
End mill long cutting edge — Semi-finishing

GM-6EL



– Factory standard
– Non-centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm] D	d (h6)	H	L	Teeth	Grade KMG303
GM-6EL-D6.0		6	6	24	75	6	●
GM-6EL-D8.0		8	8	32	75	6	●
GM-6EL-D10.0		10	10	40	100	6	●
GM-6EL-D12.0		12	12	45	100	6	●
GM-6EL-D16.0		16	16	64	150	6	●
GM-6EL-D20.0		20	20	75	150	6	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

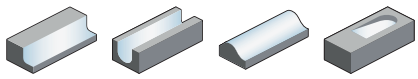
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

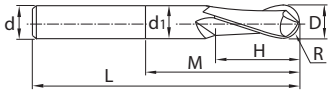
Ball nose cutter **Finishing**

5565R302GF



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d_1	H	M	L		KMG303
5565R302GF-0300		3	1.5	6	2.8	4	9	57	2	●
5565R302GF-0400		4	2	6	3.7	5	12	57	2	●
5565R302GF-0500		5	2.5	6	4.6	6	15	57	2	●
5565R302GF-0600		6	3	6	5.5	7	20	57	2	●
5565R302GF-0800		8	4	8	7.4	9	26	63	2	●
5565R302GF-1000		10	5	10	9.2	11	31	72	2	●
5565R302GF-1200		12	6	12	11	12	37	83	2	●
5565R302GF-1600		16	8	16	15	16	43	92	2	●
5565R302GF-2000		20	10	20	19	20	50	104	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

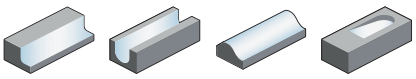
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

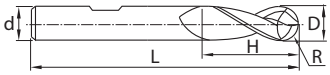
Ball nose cutter Semi-finishing

5665R202GM



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 20°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	R	d (h6)	d_1	H	L		KMG303
5665R202GM-0300		3	1.5	6	2.8	4	57	2	●
5665R202GM-0400		4	2	6	3.7	5	57	2	●
5665R202GM-0500		5	2.5	6	4.6	6	57	2	●
5665R202GM-0600		6	3	6	5.5	7	57	2	●
5665R202GM-0800		8	4	8	7.4	9	63	2	●
5665R202GM-1000		10	5	10	9.2	11	72	2	●
5665R202GM-1200		12	6	12	11	12	83	2	●
5665R202GM-1600		16	8	16	15	16	92	2	●
5665R202GM-2000		20	10	20	19	20	104	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

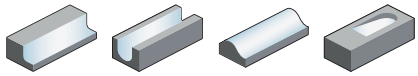
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

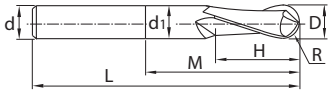
Ball nose cutter long shank **Finishing**

5566R302GF



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d_1	H	M	L		KMG303
5566R302GF-0300		3	1.5	6	2.8	4	15	75	2	●
5566R302GF-0400		4	2	6	3.7	5	20	75	2	●
5566R302GF-0500		5	2.5	6	4.6	6	25	80	2	●
5566R302GF-0600		6	3	6	5.5	7	60	80	2	●
5566R302GF-0800		8	4	8	7.4	9	65	90	2	●
5566R302GF-1000		10	5	10	9.2	11	40	100	2	●
5566R302GF-1200		12	6	12	11	12	50	120	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

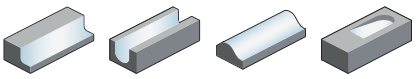
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

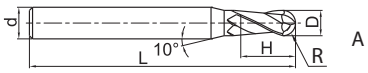
Ball nose cutter Semi-finishing

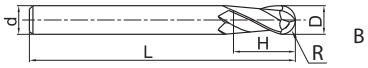
GM-2B



– Factory standard
– Centre cutting
– Helix angle 35°







Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG303
GM-2B-R0.5S		0.5	1	4	2	50	2	A	●
GM-2B-R0.75S		0.75	1.5	4	3	50	2	A	●
GM-2B-R1.0S		1	2	4	4	50	2	A	●
GM-2B-R1.25S		1.25	2.5	4	5	50	2	A	●
GM-2B-R1.5S		1.5	3	4	6	50	2	A	●
GM-2B-R2.0S		2	4	4	8	50	2	B	●
GM-2B-R0.5		0.5	1	6	2	50	2	A	○
GM-2B-R0.75		0.75	1.5	6	3	50	2	A	○
GM-2B-R1.0		1	2	6	4	50	2	A	●
GM-2B-R1.25		1.25	2.5	6	5	50	2	A	○
GM-2B-R1.5		1.5	3	6	6	50	2	A	●
GM-2B-R1.75		1.75	3.5	6	8	50	2	A	○
GM-2B-R2.0		2	4	6	8	50	2	A	●
GM-2B-R2.5		2.5	5	6	10	50	2	A	●
GM-2B-R2.75		2.75	5.5	6	12	50	2	A	○
GM-2B-R3.0		3	6	6	12	50	2	B	●
GM-2B-R3.5		3.5	7	8	14	60	2	A	○
GM-2B-R4.0		4	8	8	16	60	2	B	●
GM-2B-R4.5		4.5	9	10	18	75	2	A	○
GM-2B-R5.0		5	10	10	20	75	2	B	●
GM-2B-R6.0		6	12	12	24	75	2	B	●
GM-2B-R7.0		7	14	14	28	75	2	B	●
GM-2B-R8.0		8	16	16	32	100	2	B	●
GM-2B-R9.0		9	18	18	36	100	2	B	●
GM-2B-R10.0		10	20	20	40	100	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

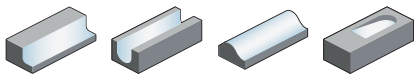
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

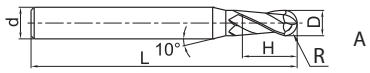
Ball nose cutter long shank **Semi-finishing**

GM-2BL

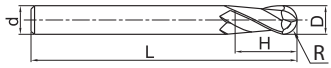


– Factory standard
– Centre cutting
– Helix angle 35°





A



B

Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG303
GM-2BL-R0.5		0.5	1	6	1.5	75	2	A	○
GM-2BL-R0.75		0.75	1.5	6	2.3	75	2	A	○
GM-2BL-R1.0		1	2	6	4	75	2	A	●
GM-2BL-R1.25		1.25	2.5	6	5	75	2	A	●
GM-2BL-R1.5		1.5	3	6	6	75	2	A	●
GM-2BL-R1.75		1.75	3.5	6	8	75	2	A	●
GM-2BL-R2.0		2	4	6	8	75	2	A	●
GM-2BL-R2.5		2.5	5	6	10	75	2	A	●
GM-2BL-R3.0		3	6	6	12	75	2	B	●
GM-2BL-R3.5		3.5	7	8	14	75	2	A	●
GM-2BL-R4.0		4	8	8	16	100	2	B	●
GM-2BL-R4.5		4.5	9	10	18	100	2	A	●
GM-2BL-R5.0		5	10	10	20	100	2	B	●
GM-2BL-R6.0		6	12	12	24	100	2	B	●
GM-2BL-R7.0		7	14	14	28	100	2	B	●
GM-2BL-R8.0		8	16	16	32	150	2	B	●
GM-2BL-R10.0		10	20	20	40	150	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

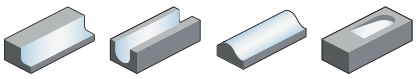
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

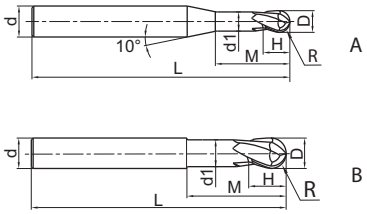
Ball nose cutter short cutting edge — Semi-finishing

GM-2BFP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✲	Dimensions [mm]							Teeth	Geometry	Grade
		R	D	d (h6)	d_1	H	M	L			KMG303
GM-2BFP-R0.5		0.5	1	6	0.95	1	2.5	75	2	A	○
GM-2BFP-R0.75		0.75	1.5	6	1.45	1	3	75	2	A	○
GM-2BFP-R1.0		1	2	6	1.95	2	4	75	2	A	●
GM-2BFP-R1.5		1.5	3	6	2.85	3	6	75	2	A	○
GM-2BFP-R2.0		2	4	6	3.85	4	8	75	2	A	○
GM-2BFP-R2.5		2.5	5	6	4.85	5	10	75	2	A	○
GM-2BFP-R3.0		3	6	6	5.8	6	12	75	2	B	○
GM-2BFP-R4.0		4	8	8	7.8	8	16	100	2	B	○
GM-2BFP-R5.0		5	10	10	9.6	10	20	100	2	B	○
GM-2BFP-R6.0		6	12	12	11.5	12	24	100	2	B	○
GM-2BFP-R8.0		8	16	16	15.5	16	32	150	2	B	○
GM-2BFP-R10.0		10	20	20	19.5	20	40	150	2	B	○

● Ex stock ○ On demand
✲ With internal cooling

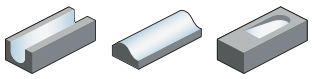
Application field

P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

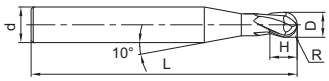
Ball nose cutter Semi-finishing



GM-2BS

– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Grade KMG303
GM-2BS-R0.15		0.15	0.3	4	0.5	50	2	●
GM-2BS-R0.20		0.2	0.4	4	0.6	50	2	●
GM-2BS-R0.25		0.25	0.5	4	0.8	50	2	●
GM-2BS-R0.30		0.3	0.6	4	0.9	50	2	●
GM-2BS-R0.35		0.35	0.7	4	1	50	2	●
GM-2BS-R0.40		0.4	0.8	4	1.2	50	2	●
GM-2BS-R0.45		0.45	0.9	4	1.3	50	2	●
GM-2BS-R0.50		0.5	1	4	1.5	50	2	●
GM-2BS-R0.60		0.6	1.2	4	1.8	50	2	●
GM-2BS-R0.70		0.7	1.4	4	2	50	2	●
GM-2BS-R0.75		0.75	1.5	4	2.3	50	2	●
GM-2BS-R0.80		0.8	1.6	4	2.5	50	2	●
GM-2BS-R0.90		0.9	1.8	4	2.7	50	2	●
GM-2BS-R1.00		1	2	4	3	50	2	●
GM-2BS-R1.25		1.25	2.5	4	3.7	50	2	●
GM-2BS-R1.50		1.5	3	4	4.5	50	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔			

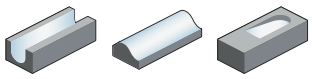
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Solid carbide milling GM series

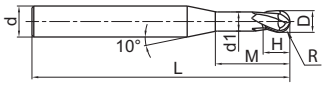
Ball nose cutter Semi-finishing

GM-2BP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMG303
GM-2BP-R0.25-M04		0.25	0.5	4	0.45	0.7	4	50	2	●
GM-2BP-R0.25-M06		0.25	0.5	4	0.45	0.7	6	50	2	●
GM-2BP-R0.3-M04		0.3	0.6	4	0.55	0.9	4	50	2	●
GM-2BP-R0.3-M06		0.3	0.6	4	0.55	0.9	6	50	2	●
GM-2BP-R0.3-M08		0.3	0.6	4	0.55	0.9	8	50	2	●
GM-2BP-R0.4-M04		0.4	0.8	4	0.75	1.2	4	50	2	●
GM-2BP-R0.4-M06		0.4	0.8	4	0.75	1.2	6	50	2	●
GM-2BP-R0.4-M08		0.4	0.8	4	0.75	1.2	8	50	2	●
GM-2BP-R0.4-M10		0.4	0.8	4	0.75	1.2	10	50	2	●
GM-2BP-R0.5-M04		0.5	1	4	0.95	1.5	4	50	2	●
GM-2BP-R0.5-M06		0.5	1	4	0.95	1.5	6	50	2	●
GM-2BP-R0.5-M08		0.5	1	4	0.95	1.5	8	50	2	●
GM-2BP-R0.5-M10		0.5	1	4	0.95	1.5	10	50	2	●
GM-2BP-R0.5-M12		0.5	1	4	0.95	1.5	12	50	2	●
GM-2BP-R0.5-M20		0.5	1	4	0.95		20	50	2	●
GM-2BP-R0.6-M06		0.6	1.2	4	1.15	1.8	6	50	2	●
GM-2BP-R0.6-M08		0.6	1.2	4	1.15	1.8	8	50	2	●
GM-2BP-R0.6-M12		0.6	1.2	4	1.15	1.8	12	50	2	●
GM-2BP-R0.6-M16		0.6	1.2	4	1.15	1.8	16	50	2	●
GM-2BP-R0.75-M08		0.75	1.5	4	1.45	2.3	8	50	2	●
GM-2BP-R0.75-M12		0.75	1.5	4	1.45	2.3	12	50	2	●
GM-2BP-R0.75-M16		0.75	1.5	4	1.45	2.3	16	50	2	●
GM-2BP-R1.0-M06		1	2	4	1.95	3	6	50	2	○
GM-2BP-R1.0-M08		1	2	4	1.95	3	8	50	2	●
GM-2BP-R1.0-M10		1	2	4	1.95	3	10	50	2	●
GM-2BP-R1.0-M12		1	2	4	1.95	3	12	50	2	●
GM-2BP-R1.0-M16		1	2	4	1.95	3	16	50	2	●
GM-2BP-R1.0-M20		1	2	4	1.95	3	20	50	2	●
GM-2BP-R1.25-M08		1.25	2.5	4	2.4	3.7	8	50	2	●
GM-2BP-R1.25-M12		1.25	2.5	4	2.4	3.7	12	50	2	●
GM-2BP-R1.25-M16		1.25	2.5	4	2.4	3.7	16	60	2	●
GM-2BP-R1.25-M20		1.25	2.5	4	2.4	3.7	20	60	2	●
GM-2BP-R1.5-M08		1.5	3	6	2.85	4.5	8	50	2	●
GM-2BP-R1.5-M10		1.5	3	6	2.85	4.5	10	50	2	●
GM-2BP-R1.5-M12		1.5	3	6	2.85	4.5	12	50	2	●
GM-2BP-R1.5-M16		1.5	3	6	2.85	4.5	16	60	2	●
GM-2BP-R1.5-M20		1.5	3	6	2.85	4.5	20	60	2	●

● Ex stock ○ On demand
✻ With internal cooling

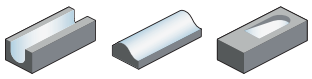
Application field

P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

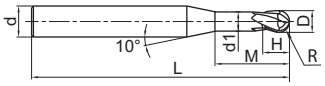
Ball nose cutter Semi-finishing



GM-2BP

– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMG303
GM-2BP-R2.0-M10		2	4	6	3.85	6	10	60	2	●
GM-2BP-R2.0-M16		2	4	6	3.85	6	16	60	2	●
GM-2BP-R2.0-M20		2	4	6	3.85	6	20	60	2	●
GM-2BP-R2.0-M25		2	4	6	3.85	6	25	60	2	●
GM-2BP-R2.5-M16		2.5	5	6	4.85	7.5	16	60	2	●
GM-2BP-R2.5-M25		2.5	5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

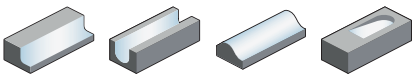
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

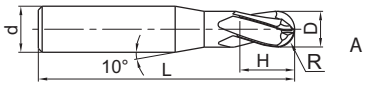
Ball nose cutter Semi-finishing

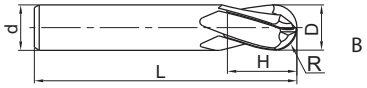
GM-4B



– Factory standard
– Centre cutting
– Helix angle 35°







Article	✲	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Geometry	Grade KMG303
GM-4B-R1.5		1.5	3	6	6	50	4	A	●
GM-4B-R2.0		2	4	6	8	50	4	A	●
GM-4B-R2.5		2.5	5	6	10	50	4	A	●
GM-4B-R3.0		3	6	6	12	50	4	B	●
GM-4B-R4.0		4	8	8	16	60	4	B	●
GM-4B-R5.0		5	10	10	20	75	4	B	●
GM-4B-R6.0		6	12	12	24	75	4	B	●
GM-4B-R7.0		7	14	14	28	75	4	B	●
GM-4B-R8.0		8	16	16	32	100	4	B	●
GM-4B-R9.0		9	18	18	36	100	4	B	●
GM-4B-R10.0		10	20	20	40	100	4	B	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

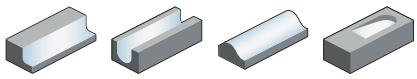
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

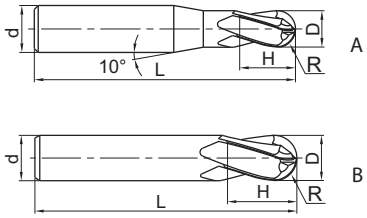
Ball nose cutter long shank **Semi-finishing**

GM-4BL



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG303
GM-4BL-R1.5		1.5	3	6	6	75	4	A	○
GM-4BL-R2.0		2	4	6	8	75	4	A	○
GM-4BL-R2.5		2.5	5	6	10	75	4	A	○
GM-4BL-R3.0		3	6	6	12	75	4	B	○
GM-4BL-R4.0		4	8	8	16	100	4	B	○
GM-4BL-R5.0		5	10	10	20	100	4	B	○
GM-4BL-R6.0		6	12	12	24	100	4	B	○
GM-4BL-R7.0		7	14	14	28	100	4	B	○
GM-4BL-R8.0		8	16	16	32	150	4	B	○
GM-4BL-R10.0		10	20	20	40	150	4	B	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

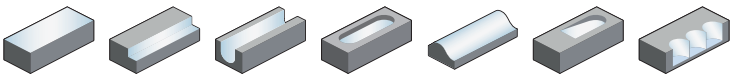
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

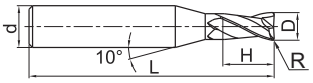
Torus mill Semi-finishing

GM-2R



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMG303
GM-2R-D1.0R0.2		0.2	1	4	3	50	2	○
GM-2R-D1.5R0.2		0.2	1.5	4	4	50	2	○
GM-2R-D2.0R0.2		0.2	2	4	6	50	2	○
GM-2R-D2.0R0.5		0.5	2	4	6	50	2	○
GM-2R-D2.5R0.2		0.2	2.5	4	8	50	2	○
GM-2R-D2.5R0.5		0.5	2.5	4	8	50	2	○
GM-2R-D3.0R0.2		0.2	3	4	8	50	2	○
GM-2R-D3.0R0.3		0.3	3	4	8	50	2	○
GM-2R-D3.0R0.5		0.5	3	4	8	50	2	○
GM-2R-D4.0R0.2		0.2	4	4	11	50	2	○
GM-2R-D4.0R0.3		0.3	4	4	11	50	2	○
GM-2R-D4.0R0.5		0.5	4	4	11	50	2	○
GM-2R-D4.0R1.0		1	4	4	11	50	2	○
GM-2R-D5.0R0.3		0.3	5	6	13	50	2	○
GM-2R-D5.0R0.5		0.5	5	6	13	50	2	○
GM-2R-D5.0R1.0		1	5	6	13	50	2	○
GM-2R-D6.0R0.3		0.3	6	6	16	50	2	○
GM-2R-D6.0R0.5		0.5	6	6	16	50	2	○
GM-2R-D6.0R1.0		1	6	6	16	50	2	○
GM-2R-D8.0R0.3		0.3	8	8	20	60	2	○
GM-2R-D8.0R0.5		0.5	8	8	20	60	2	○
GM-2R-D8.0R1.0		1	8	8	20	60	2	○
GM-2R-D10.0R0.5		0.5	10	10	25	75	2	○
GM-2R-D10.0R1.0		1	10	10	25	75	2	○
GM-2R-D10.0R1.5		1.5	10	10	25	75	2	●
GM-2R-D10.0R2.0		2	10	10	25	75	2	○
GM-2R-D12.0R0.5		0.5	12	12	30	75	2	○
GM-2R-D12.0R1.0		1	12	12	30	75	2	○
GM-2R-D12.0R1.5		1.5	12	12	30	75	2	○
GM-2R-D12.0R2.0		2	12	12	30	75	2	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

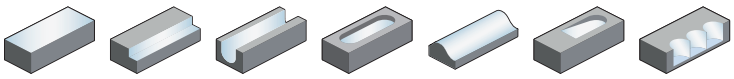
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

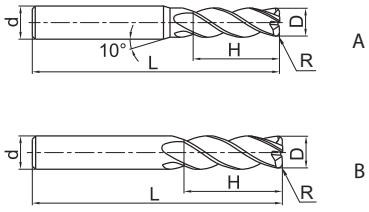
Torus mill | Semi-finishing

GM-4R



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Geometry	Grade KMG303
GM-4R-D3.0R0.2		0.2	3	4	8	50	4	A	●
GM-4R-D4.0R0.3		0.3	4	4	10	50	4	B	○
GM-4R-D4.0R0.5		0.5	4	4	10	50	4	B	●
GM-4R-D5.0R0.3		0.3	5	6	13	50	4	A	○
GM-4R-D5.0R0.5		0.5	5	6	13	50	4	A	●
GM-4R-D5.0R1.0		1	5	6	13	50	4	A	●
GM-4R-D6.0R0.5		0.5	6	6	16	50	4	B	●
GM-4R-D6.0R1.0		1	6	6	16	50	4	B	●
GM-4R-D8.0R0.5		0.5	8	8	20	60	4	B	●
GM-4R-D8.0R1.0		1	8	8	20	60	4	B	●
GM-4R-D10.0R0.5		0.5	10	10	25	75	4	B	●
GM-4R-D10.0R1.0		1	10	10	25	75	4	B	●
GM-4R-D10.0R2.0		2	10	10	25	75	4	B	●
GM-4R-D10.0R3.0		3	10	10	25	75	4	B	●
GM-4R-D12.0R0.5		0.5	12	12	30	75	4	B	●
GM-4R-D12.0R1.0		1	12	12	30	75	4	B	●
GM-4R-D12.0R2.0		2	12	12	30	75	4	B	●
GM-4R-D12.0R3.0		3	12	12	30	75	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

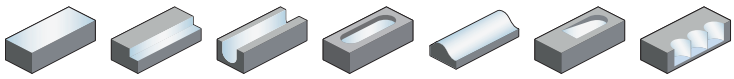
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

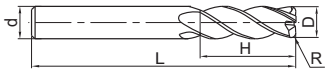
Torus mill long shank Semi-finishing

GM-4RL



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMG303
GM-4RL-D6.0R0.5		0.5	6	6	16	75	4	●
GM-4RL-D6.0R1.0		1	6	6	16	75	4	●
GM-4RL-D8.0R0.5		0.5	8	8	20	100	4	●
GM-4RL-D8.0R1.0		1	8	8	20	100	4	●
GM-4RL-D10.0R0.5		0.5	10	10	25	100	4	●
GM-4RL-D10.0R1.0		1	10	10	25	100	4	●
GM-4RL-D10.0R2.0		2	10	10	25	100	4	●
GM-4RL-D12.0R0.5		0.5	12	12	30	100	4	○
GM-4RL-D12.0R1.0		1	12	12	30	100	4	●
GM-4RL-D12.0R2.0		2	12	12	30	100	4	●
GM-4RL-D16.0R1.0		1	16	16	45	150	4	●
GM-4RL-D16.0R2.0		2	16	16	45	150	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

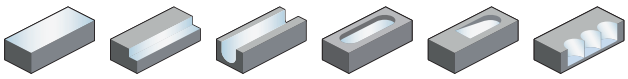
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

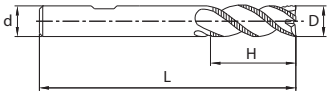
End mill long cutting edge | General roughing

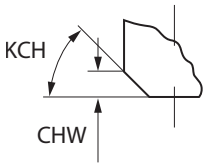
5602R303GR



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5602R303GR-0600		6	6	13	57	45	0.25	3	●
5602R303GR-0800		8	8	19	63	45	0.25	3	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

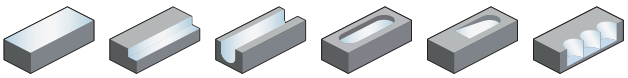
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

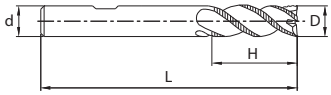
End mill long cutting edge | General roughing

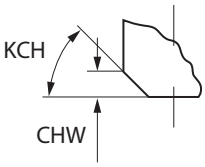
5602R304GR



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5602R304GR-1000		10	10	22	72	45	0.5	4	●
5602R304GR-1200		12	12	26	83	45	0.5	4	●
5602R304GR-1400		14	14	30	90	45	0.5	4	○
5602R304GR-1600		16	16	32	92	45	0.5	4	●
5602R304GR-2000		20	20	38	104	45	0.5	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

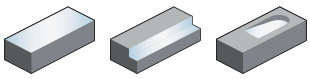
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

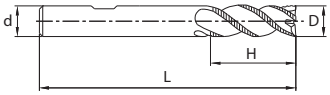
End mill long cutting edge | General roughing

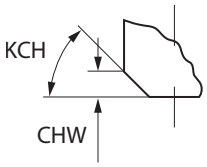
5602R305GR



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 30°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		KMG303
5602R305GR-2500		25	25	45	121	45	0.5	5	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

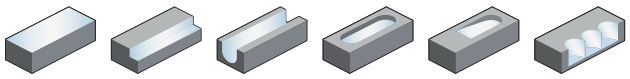
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

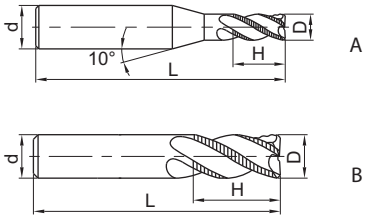
End mill serrated teeth Semi-finishing

GM-4W



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✲	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
GM-4W-D3.0		3	6	8	50	4	A	○
GM-4W-D4.0		4	6	11	50	4	A	○
GM-4W-D5.0		5	6	13	50	4	A	○
GM-4W-D6.0		6	6	16	50	4	B	●
GM-4W-D7.0		7	8	20	60	4	A	●
GM-4W-D8.0		8	8	20	60	4	B	●
GM-4W-D9.0		9	10	22	75	4	A	●
GM-4W-D10.0		10	10	25	75	4	B	●
GM-4W-D11.0		11	12	26	75	4	A	●
GM-4W-D12.0		12	12	30	75	4	B	●
GM-4W-D16.0		16	16	45	100	4	B	●
GM-4W-D20.0		20	20	45	100	4	B	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

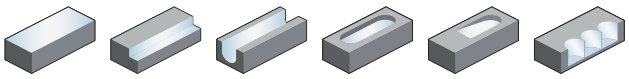
P	M	K	N	S	H
✔	✔	✔			

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

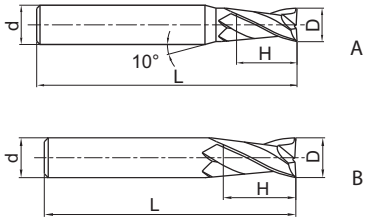
End mill High-performance machining

PM-2E



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-2E-D1.0S		1	4	3	50	2	A	●
PM-2E-D1.5S		1.5	4	4	50	2	A	●
PM-2E-D2.0S		2	4	6	50	2	A	●
PM-2E-D2.5S		2.5	4	8	50	2	A	●
PM-2E-D3.0S		3	4	8	50	2	A	●
PM-2E-D4.0S		4	4	11	50	2	B	●
PM-2E-D1.0		1	6	3	50	2	A	●
PM-2E-D1.5		1.5	6	4	50	2	A	●
PM-2E-D2.0		2	6	6	50	2	A	●
PM-2E-D2.5		2.5	6	8	50	2	A	●
PM-2E-D3.0		3	6	8	50	2	A	●
PM-2E-D3.5		3.5	6	10	50	2	A	●
PM-2E-D4.0		4	6	11	50	2	A	●
PM-2E-D4.5		4.5	6	11	50	2	A	●
PM-2E-D5.0		5	6	13	50	2	A	●
PM-2E-D5.5		5.5	6	16	50	2	A	●
PM-2E-D6.0		6	6	16	50	2	B	●
PM-2E-D7.0		7	8	20	60	2	A	●
PM-2E-D8.0		8	8	20	60	2	B	●
PM-2E-D9.0		9	10	22	75	2	A	●
PM-2E-D10.0		10	10	25	75	2	B	●
PM-2E-D11.0		11	12	26	75	2	A	○
PM-2E-D12.0		12	12	30	75	2	B	●
PM-2E-D14.0		14	14	32	75	2	B	●
PM-2E-D16.0		16	16	45	100	2	B	●
PM-2E-D18.0		18	18	45	100	2	B	○
PM-2E-D20.0		20	20	45	100	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

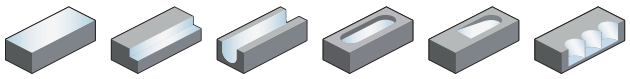
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

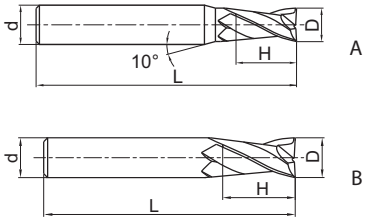
End mill long cutting edge | High-performance machining

PM-2EL



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-2EL-D3.0		3	6	12	75	2	A	●
PM-2EL-D4.0		4	6	15	75	2	A	●
PM-2EL-D5.0		5	6	20	75	2	A	●
PM-2EL-D6.0		6	6	20	75	2	B	●
PM-2EL-D8.0		8	8	25	100	2	B	●
PM-2EL-D10.0		10	10	30	100	2	B	●
PM-2EL-D12.0		12	12	35	100	2	B	●
PM-2EL-D14.0		14	14	40	100	2	B	○
PM-2EL-D16.0		16	16	50	150	2	B	●
PM-2EL-D20.0		20	20	55	150	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

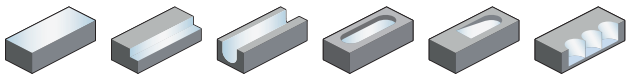
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

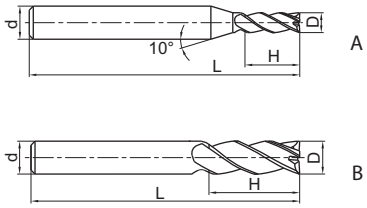
End mill High-performance machining

PM-4E-G



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-4E-D1.0S-G		1	4	3	50	4	A	●
PM-4E-D1.5S-G		1.5	4	4	50	4	A	●
PM-4E-D2.0S-G		2	4	6	50	4	A	●
PM-4E-D2.5S-G		2.5	4	8	50	4	A	●
PM-4E-D3.0S-G		3	4	8	50	4	A	●
PM-4E-D4.0S-G		4	4	11	50	4	B	●
PM-4E-D1.0-G		1	6	3	50	4	A	●
PM-4E-D1.5-G		1.5	6	4	50	4	A	●
PM-4E-D2.0-G		2	6	6	50	4	A	●
PM-4E-D2.5-G		2.5	6	8	50	4	A	●
PM-4E-D3.0-G		3	6	8	50	4	A	●
PM-4E-D3.5-G		3.5	6	10	50	4	A	●
PM-4E-D4.0-G		4	6	11	50	4	A	●
PM-4E-D4.5-G		4.5	6	11	50	4	A	●
PM-4E-D5.0-G		5	6	13	50	4	A	●
PM-4E-D5.5-G		5.5	6	16	50	4	A	●
PM-4E-D6.0-G		6	6	16	50	4	B	●
PM-4E-D7.0-G		7	8	20	60	4	A	●
PM-4E-D8.0-G		8	8	20	60	4	B	●
PM-4E-D9.0-G		9	10	22	75	4	A	●
PM-4E-D10.0-G		10	10	25	75	4	B	●
PM-4E-D11.0-G		11	12	26	75	4	A	●
PM-4E-D12.0-G		12	12	30	75	4	B	●
PM-4E-D14.0-G		14	14	32	75	4	B	●
PM-4E-D16.0-G		16	16	45	100	4	B	●
PM-4E-D18.0-G		18	18	45	100	4	B	●
PM-4E-D20.0-G		20	20	45	100	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

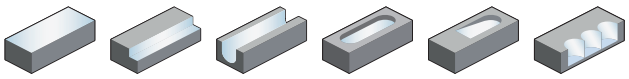
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

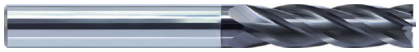
System code B362 Cutting data B582 Nonstandard order B633

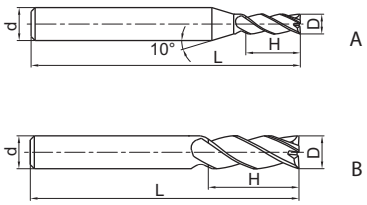
End mill long cutting edge | High-performance machining

PM-4EL-G



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm] D	d (h6)	H	L	Teeth	Geometry	Grade KMG405
PM-4EL-D3.0-G		3	6	12	75	4	A	○
PM-4EL-D4.0-G		4	6	15	75	4	A	○
PM-4EL-D5.0-G		5	6	20	75	4	A	○
PM-4EL-D6.0-G		6	6	20	75	4	B	○
PM-4EL-D8.0-G		8	8	25	100	4	B	○
PM-4EL-D10.0-G		10	10	30	100	4	B	○
PM-4EL-D12.0-G		12	12	35	100	4	B	○
PM-4EL-D14.0-G		14	14	40	100	4	B	○
PM-4EL-D16.0-G		16	16	50	150	4	B	○
PM-4EL-D20.0-G		20	20	55	150	4	B	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

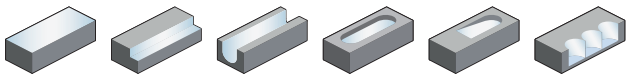
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

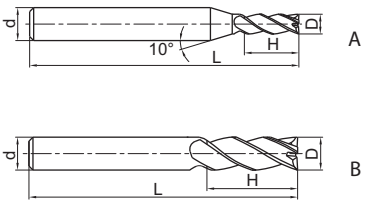
End mill extra long cutting edge | High-performance machining

PM-4EX-G



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-4EX-D3.0-G		3	6	20	75	4	A	●
PM-4EX-D4.0-G		4	6	25	75	4	A	●
PM-4EX-D5.0-G		5	6	30	75	4	A	●
PM-4EX-D6.0-G		6	6	30	75	4	B	●
PM-4EX-D8.0-G		8	8	40	100	4	B	●
PM-4EX-D10.0-G		10	10	50	110	4	B	●
PM-4EX-D12.0-G		12	12	50	110	4	B	●
PM-4EX-D16.0-G		16	16	70	150	4	B	●
PM-4EX-D20.0-G		20	20	75	150	4	B	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

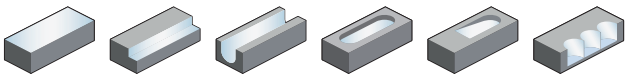
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

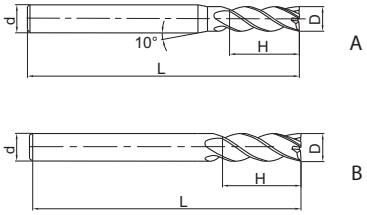
End mill High-performance machining

PM-4E



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✲	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-4E-D1.0S		1	4	3	50	4	A	●
PM-4E-D1.5S		1.5	4	4	50	4	A	●
PM-4E-D2.0S		2	4	6	50	4	A	●
PM-4E-D2.5S		2.5	4	8	50	4	A	●
PM-4E-D3.0S		3	4	8	50	4	A	●
PM-4E-D4.0S		4	4	11	50	4	B	●
PM-4E-D1.0		1	6	3	50	4	A	●
PM-4E-D1.5		1.5	6	4	50	4	A	●
PM-4E-D2.0		2	6	6	50	4	A	●
PM-4E-D2.5		2.5	6	8	50	4	A	●
PM-4E-D3.0		3	6	8	50	4	A	●
PM-4E-D3.5		3.5	6	10	50	4	A	●
PM-4E-D4.0		4	6	11	50	4	A	●
PM-4E-D4.5		4.5	6	11	50	4	A	●
PM-4E-D5.0		5	6	13	50	4	A	●
PM-4E-D5.5		5.5	6	16	50	4	A	●
PM-4E-D6.0		6	6	16	50	4	B	●
PM-4E-D7.0		7	8	20	60	4	A	●
PM-4E-D8.0		8	8	20	60	4	B	●
PM-4E-D9.0		9	10	22	75	4	A	●
PM-4E-D10.0		10	10	25	75	4	B	●
PM-4E-D11.0		11	12	26	75	4	A	●
PM-4E-D12.0		12	12	30	75	4	B	●
PM-4E-D14.0		14	14	32	75	4	B	●
PM-4E-D16.0		16	16	45	100	4	B	●
PM-4E-D18.0		18	18	45	100	4	B	●
PM-4E-D20.0		20	20	45	100	4	B	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

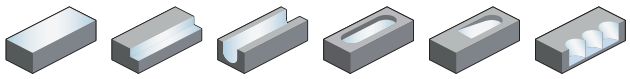
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

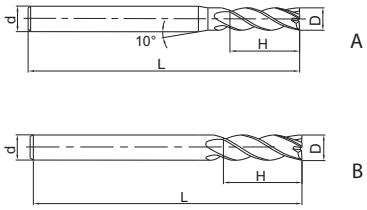
End mill long cutting edge | High-performance machining

PM-4EL



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG405
PM-4EL-D3.0		3	6	12	75	4	A	●
PM-4EL-D4.0		4	6	15	75	4	A	●
PM-4EL-D5.0		5	6	20	75	4	A	●
PM-4EL-D6.0		6	6	20	75	4	B	●
PM-4EL-D8.0		8	8	25	100	4	B	●
PM-4EL-D10.0		10	10	30	100	4	B	●
PM-4EL-D12.0		12	12	35	100	4	B	●
PM-4EL-D14.0		14	14	40	100	4	B	●
PM-4EL-D16.0		16	16	50	150	4	B	●
PM-4EL-D20.0		20	20	55	150	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

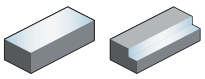
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

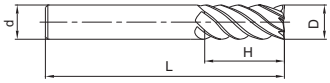
End mill High-performance machining

PM-6E



– Factory standard
– Non-centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG405
PM-6E-D6.0		6	6	18	60	6	●
PM-6E-D8.0		8	8	20	60	6	●
PM-6E-D10.0		10	10	30	75	6	●
PM-6E-D12.0		12	12	32	75	6	●
PM-6E-D16.0		16	16	40	100	6	●
PM-6E-D20.0		20	20	45	100	6	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

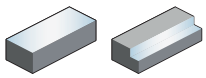
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

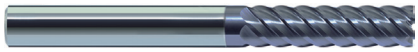
System code B362 Cutting data B582 Nonstandard order B633

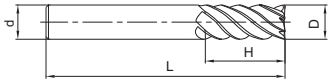
End mill long cutting edge | High-performance machining

PM-6EL



– Factory standard
– Non-centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG405
PM-6EL-D6.0		6	6	24	75	6	●
PM-6EL-D8.0		8	8	32	75	6	●
PM-6EL-D10.0		10	10	40	100	6	●
PM-6EL-D12.0		12	12	45	100	6	●
PM-6EL-D16.0		16	16	64	150	6	●
PM-6EL-D20.0		20	20	75	150	6	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔			✔

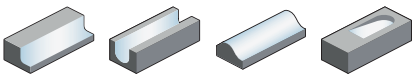
✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

Ball nose cutter

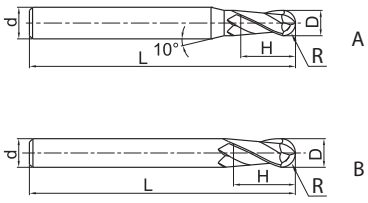
High-performance machining

PM-2B



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG405
PM-2B-R0.5S		0.5	1	4	2	50	2	A	●
PM-2B-R0.75S		0.75	1.5	4	3	50	2	A	●
PM-2B-R1.0S		1	2	4	4	50	2	A	●
PM-2B-R1.25S		1.25	2.5	4	5	50	2	A	●
PM-2B-R1.5S		1.5	3	4	6	50	2	A	●
PM-2B-R2.0S		2	4	4	8	50	2	B	●
PM-2B-R0.5		0.5	1	6	2	50	2	A	●
PM-2B-R0.75		0.75	1.5	6	3	50	2	A	●
PM-2B-R1.0		1	2	6	4	50	2	A	●
PM-2B-R1.25		1.25	2.5	6	5	50	2	A	●
PM-2B-R1.5		1.5	3	6	6	50	2	A	●
PM-2B-R1.75		1.75	3.5	6	8	50	2	A	●
PM-2B-R2.0		2	4	6	8	50	2	A	●
PM-2B-R2.5		2.5	5	6	10	50	2	A	●
PM-2B-R2.75		2.75	5.5	6	12	50	2	A	●
PM-2B-R3.0		3	6	6	12	50	2	B	●
PM-2B-R3.5		3.5	7	8	14	60	2	A	●
PM-2B-R4.0		4	8	8	16	60	2	B	●
PM-2B-R4.5		4.5	9	10	18	75	2	A	●
PM-2B-R5.0		5	10	10	20	75	2	B	●
PM-2B-R6.0		6	12	12	24	75	2	B	●
PM-2B-R7.0		7	14	14	28	75	2	B	●
PM-2B-R8.0		8	16	16	32	100	2	B	●
PM-2B-R10.0		10	20	20	40	100	2	B	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

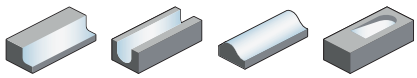
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

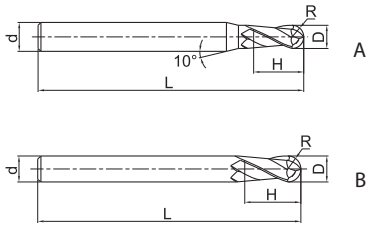
Ball nose cutter long shank | High-performance machining

PM-2BL



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG405
PM-2BL-R1.0		1	2	6	4	75	2	A	●
PM-2BL-R1.25		1.25	2.5	6	5	75	2	A	●
PM-2BL-R1.5		1.5	3	6	6	75	2	A	●
PM-2BL-R1.75		1.75	3.5	6	8	75	2	A	●
PM-2BL-R2.0		2	4	6	8	75	2	A	●
PM-2BL-R2.5		2.5	5	6	10	75	2	A	●
PM-2BL-R2.75		2.75	5.5	6	12	75	2	A	●
PM-2BL-R3.0		3	6	6	12	75	2	B	●
PM-2BL-R3.5		3.5	7	8	14	75	2	A	●
PM-2BL-R4.0		4	8	8	16	100	2	B	●
PM-2BL-R4.5		4.5	9	10	18	100	2	A	●
PM-2BL-R5.0		5	10	10	20	100	2	B	●
PM-2BL-R6.0		6	12	12	24	100	2	B	●
PM-2BL-R7.0		7	14	14	28	100	2	B	●
PM-2BL-R8.0		8	16	16	32	150	2	B	●
PM-2BL-R10.0		10	20	20	40	150	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

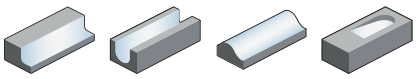
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

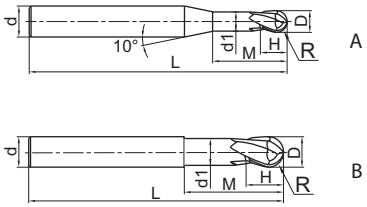
Ball nose cutter short cutting edge | High-performance machining

PM-2BFP



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✲	Dimensions [mm]							Teeth	Geometry	Grade
		R	D	d (h6)	d_1	H	M	L			KMG405
PM-2BFP-R0.5		0.5	1	6	0.95	1	2.5	75	2	A	●
PM-2BFP-R0.75		0.75	1.5	6	1.45	1.5	3	75	2	A	●
PM-2BFP-R1.0		1	2	6	1.95	2	4	75	2	A	●
PM-2BFP-R1.5		1.5	3	6	2.85	3	6	75	2	A	●
PM-2BFP-R2.0		2	4	6	3.85	4	8	75	2	A	●
PM-2BFP-R2.5		2.5	5	6	4.85	5	10	75	2	A	●
PM-2BFP-R3.0		3	6	6	5.8	6	12	75	2	B	●
PM-2BFP-R4.0		4	8	8	7.8	8	16	100	2	B	●
PM-2BFP-R5.0		5	10	10	9.6	10	20	100	2	B	●
PM-2BFP-R6.0		6	12	12	11.5	12	24	100	2	B	●
PM-2BFP-R8.0		8	16	16	15.5	16	32	150	2	B	●
PM-2BFP-R10.0		10	20	20	19.5	20	40	150	2	B	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

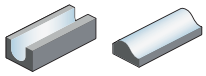
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

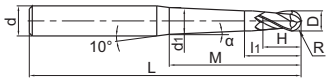
Ball nose cutter conical neck | High-performance machining

PM-2BC



– Straight shank
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]									Teeth	Grade
		R	D	d (h6)	d_1	H	M	L	α	l_1		KMG405
PM-2BC05-R0.25-M03		0.25	0.5	4	0.49	0.5	3	50	0.5	1.5	2	○
PM-2BC05-R0.25-M05		0.25	0.5	4	0.53	0.5	5	50	0.5	1.5	2	○
PM-2BC10-R0.25-M03		0.25	0.5	4	0.52	0.5	3	50	1	1.5	2	○
PM-2BC10-R0.25-M05		0.25	0.5	4	0.59	0.5	5	50	1	1.5	2	○
PM-2BC15-R0.25-M03		0.25	0.5	4	0.54	0.5	3	50	1.5	1.5	2	○
PM-2BC15-R0.25-M05		0.25	0.5	4	0.65	0.5	5	50	1.5	1.5	2	○
PM-2BC05-R0.30-M05		0.3	0.6	4	0.62	0.6	5	50	0.5	1.6	2	○
PM-2BC05-R0.30-M08		0.3	0.6	4	0.68	0.6	8	50	0.5	1.6	2	○
PM-2BC10-R0.30-M05		0.3	0.6	4	0.68	0.6	5	50	1	1.6	2	○
PM-2BC10-R0.30-M08		0.3	0.6	4	0.79	0.6	8	50	1	1.6	2	○
PM-2BC10-R0.30-M10		0.3	0.6	4	0.86	0.6	10	50	1	1.6	2	○
PM-2BC10-R0.30-M12		0.3	0.6	4	0.93	0.6	12	50	1	1.6	2	○
PM-2BC10-R0.30-M15		0.3	0.6	4	1.03	0.6	15	50	1	1.6	2	○
PM-2BC15-R0.30-M05		0.3	0.6	4	0.74	0.6	5	50	1.5	1.6	2	○
PM-2BC15-R0.30-M08		0.3	0.6	4	0.9	0.6	8	50	1.5	1.6	2	○
PM-2BC05-R0.40-M08		0.4	0.8	4	0.87	0.8	8	50	0.5	1.8	2	○
PM-2BC10-R0.40-M08		0.4	0.8	4	0.98	0.8	8	50	1	1.8	2	○
PM-2BC15-R0.40-M08		0.4	0.8	4	1.09	0.8	8	50	1.5	1.8	2	○
PM-2BC05-R0.40-M12		0.4	0.8	4	0.94	0.8	12	60	0.5	1.8	2	○
PM-2BC10-R0.40-M12		0.4	0.8	4	1.12	0.8	12	60	1	1.8	2	○
PM-2BC15-R0.40-M12		0.4	0.8	4	1.3	0.8	12	60	1.5	1.8	2	○
PM-2BC05-R0.50-M10		0.5	1	6	1.08	1	10	60	0.5	2.5	2	○
PM-2BC05-R0.50-M15		0.5	1	6	1.16	1	15	60	0.5	2.5	2	○
PM-2BC10-R0.50-M10		0.5	1	6	1.21	1	10	60	1	2.5	2	○
PM-2BC10-R0.50-M15		0.5	1	6	1.38	1	15	60	1	2.5	2	○
PM-2BC15-R0.50-M10		0.5	1	6	1.34	1	10	60	1.5	2.5	2	○
PM-2BC15-R0.50-M15		0.5	1	6	1.6	1	15	60	1.5	2.5	2	○
PM-2BC20-R0.50-M15		0.5	1	6	1.82	1	15	60	2	2.5	2	○
PM-2BC05-R0.50-M20		0.5	1	6	1.25	1	20	70	0.5	2.5	2	○
PM-2BC05-R0.50-M25		0.5	1	6	1.34	1	25	70	0.5	2.5	2	○
PM-2BC05-R0.50-M30		0.5	1	6	1.42	1	30	70	0.5	2.5	2	○
PM-2BC10-R0.50-M20		0.5	1	6	1.56	1	20	70	1	2.5	2	○
PM-2BC10-R0.50-M25		0.5	1	6	1.73	1	25	70	1	2.5	2	○
PM-2BC10-R0.50-M30		0.5	1	6	1.91	1	30	70	1	2.5	2	○
PM-2BC15-R0.50-M20		0.5	1	6	1.86	1	20	70	1.5	2.5	2	○
PM-2BC20-R0.50-M20		0.5	1	6	2.17	1	20	70	2	2.5	2	○
PM-2BC30-R0.50-M20		0.5	1	6	2.78	1	20	70	3	2.5	2	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔			✔

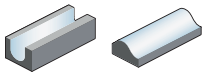
✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

Ball nose cutter conical neck

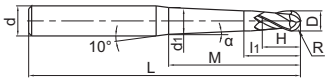
High-performance machining

PM-2BC



– Straight shank
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]									Teeth	Grade
		R	D	d (h6)	d_1	H	M	L	α	l_1		KMG405
PM-2BC50-R0.50-M20		0.5	1	6	4.01	1	20	70	5	2.5	2	○
PM-2BC10-R0.50-M35		0.5	1	6	2.08	1	35	80	1	2.5	2	○
PM-2BC05-R0.60-M12		0.6	1.2	6	1.31	1.2	12	60	0.5	2.7	2	○
PM-2BC10-R0.60-M12		0.6	1.2	6	1.47	1.2	12	60	1	2.7	2	○
PM-2BC15-R0.60-M12		0.6	1.2	6	1.63	1.2	12	60	1.5	2.7	2	○
PM-2BC05-R0.60-M24		0.6	1.2	6	1.52	1.2	24	70	0.5	2.7	2	○
PM-2BC10-R0.60-M24		0.6	1.2	6	1.89	1.2	24	70	1	2.7	2	○
PM-2BC15-R0.60-M24		0.6	1.2	6	2.26	1.2	24	70	1.5	2.7	2	○
PM-2BC05-R0.75-M10		0.75	1.5	6	1.57	1.5	10	60	0.5	3	2	○
PM-2BC05-R0.75-M15		0.75	1.5	6	1.65	1.5	15	60	0.5	3	2	○
PM-2BC10-R0.75-M10		0.75	1.5	6	1.69	1.5	10	60	1	3	2	○
PM-2BC10-R0.75-M15		0.75	1.5	6	1.86	1.5	15	60	1	3	2	○
PM-2BC15-R0.75-M10		0.75	1.5	6	1.81	1.5	10	60	1.5	3	2	○
PM-2BC15-R0.75-M15		0.75	1.5	6	2.07	1.5	15	60	1.5	3	2	○
PM-2BC05-R0.75-M30		0.75	1.5	6	1.92	1.5	30	70	0.5	3	2	○
PM-2BC10-R0.75-M20		0.75	1.5	6	2.04	1.5	20	70	1	3	2	○
PM-2BC10-R0.75-M30		0.75	1.5	6	2.39	1.5	30	70	1	3	2	○
PM-2BC15-R0.75-M30		0.75	1.5	6	2.86	1.5	30	70	1.5	3	2	○
PM-2BC05-R1.0-M20		1	2	6	2.18	2	20	60	0.5	4	2	○
PM-2BC10-R1.0-M20		1	2	6	2.46	2	20	60	1	4	2	○
PM-2BC10-R1.0-M25		1	2	6	2.64	2	25	60	1	4	2	○
PM-2BC15-R1.0-M20		1	2	6	2.74	2	20	60	1.5	4	2	○
PM-2BC05-R1.0-M30		1	2	6	2.36	2	30	70	0.5	4	2	○
PM-2BC10-R1.0-M30		1	2	6	2.81	2	30	70	1	4	2	○
PM-2BC15-R1.0-M30		1	2	6	3.27	2	30	70	1.5	4	2	○
PM-2BC20-R1.0-M30		1	2	6	3.72	2	30	70	2	4	2	○
PM-2BC30-R1.0-M30		1	2	6	4.63	2	30	70	3	4	2	○
PM-2BC05-R1.0-M40		1	2	6	2.53	2	40	80	0.5	4	2	○
PM-2BC10-R1.0-M35		1	2	6	2.99	2	35	80	1	4	2	○
PM-2BC10-R1.0-M40		1	2	6	3.16	2	40	80	1	4	2	○
PM-2BC15-R1.0-M40		1	2	6	3.79	2	40	80	1.5	4	2	○
PM-2BC20-R1.0-M40		1	2	6	4.42	2	40	80	2	4	2	○
PM-2BC30-R1.0-M40		1	2	6	5.68	2	40	80	3	4	2	○
PM-2BC10-R1.0-M50		1	2	6	3.51	2	50	90	1	4	2	○
PM-2BC05-R1.5-M30		1.5	3	6	3.32	3	30	70	0.5	6	2	○
PM-2BC10-R1.5-M30		1.5	3	6	3.74	3	30	70	1	6	2	○
PM-2BC15-R1.5-M30		1.5	3	6	4.16	3	30	70	1.5	6	2	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔			✔

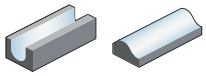
✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

Ball nose cutter conical neck

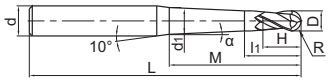
High-performance machining

PM-2BC



– Straight shank
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]									Teeth	Grade
		R	D	d (h6)	d_1	H	M	L	α	l_1		KMG405
PM-2BC05-R1.5-M40		1.5	3	6	3.5	3	40	80	0.5	6	2	○
PM-2BC10-R1.5-M40		1.5	3	6	4.09	3	40	80	1	6	2	○
PM-2BC15-R1.5-M40		1.5	3	6	4.69	3	40	80	1.5	6	2	○
PM-2BC05-R1.5-M50		1.5	3	6	3.67	3	50	90	0.5	6	2	○
PM-2BC10-R1.5-M50		1.5	3	6	4.44	3	50	90	1	6	2	○
PM-2BC15-R1.5-M50		1.5	3	6	5.21	3	50	90	1.5	6	2	○
PM-2BC05-R2.0-M60		2	4	6	4.83	4	60	110	0.5	7	2	○
PM-2BC10-R2.0-M60		2	4	6	5.76	4	60	110	1	7	2	○

● Ex stock ○ On demand

✻ With internal cooling

Application field

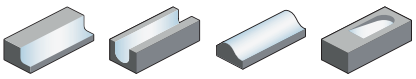
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

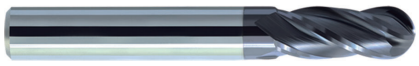
System code B362 Cutting data B582 Nonstandard order B633

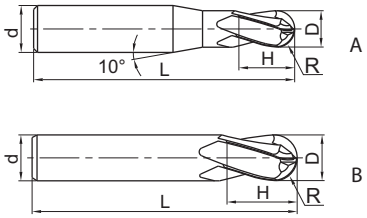
Ball nose cutter High-performance machining

PM-4B



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✲	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Geometry	Grade KMG405
PM-4B-R1.5		1.5	3	6	6	50	4	A	●
PM-4B-R2.0		2	4	6	8	50	4	A	●
PM-4B-R2.5		2.5	5	6	10	50	4	A	●
PM-4B-R3.0		3	6	6	12	50	4	B	●
PM-4B-R4.0		4	8	8	16	60	4	B	●
PM-4B-R5.0		5	10	10	20	75	4	B	●
PM-4B-R6.0		6	12	12	24	75	4	B	●
PM-4B-R7.0		7	14	14	28	75	4	B	●
PM-4B-R8.0		8	16	16	32	100	4	B	●
PM-4B-R9.0		9	18	18	36	100	4	B	●
PM-4B-R10.0		10	20	20	40	100	4	B	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

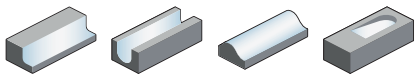
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

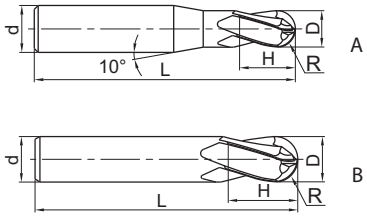
Ball nose cutter long shank | High-performance machining

PM-4BL



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG405
PM-4BL-R1.5		1.5	3	6	6	75	4	A	●
PM-4BL-R2.0		2	4	6	8	75	4	A	●
PM-4BL-R2.5		2.5	5	6	10	75	4	A	●
PM-4BL-R3.0		3	6	6	12	75	4	B	●
PM-4BL-R4.0		4	8	8	16	100	4	B	●
PM-4BL-R5.0		5	10	10	20	100	4	B	●
PM-4BL-R6.0		6	12	12	24	100	4	B	●
PM-4BL-R7.0		7	14	14	28	100	4	B	●
PM-4BL-R8.0		8	16	16	32	150	4	B	●
PM-4BL-R9.0		9	18	18	36	150	4	B	●
PM-4BL-R10.0		10	20	20	40	150	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

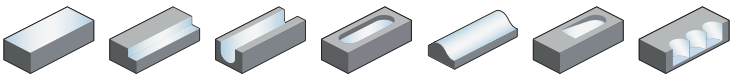
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

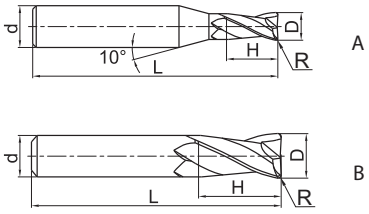
Torus mill High-performance machining

PM-2R



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Geometry	Grade KMG405
PM-2R-D1.0R0.2		0.2	1	4	3	50	2	A	●
PM-2R-D1.5R0.2		0.2	1.5	4	4	50	2	A	●
PM-2R-D2.0R0.2		0.2	2	4	6	50	2	A	●
PM-2R-D2.0R0.5		0.5	2	4	6	50	2	A	●
PM-2R-D2.5R0.2		0.2	2.5	4	8	50	2	A	●
PM-2R-D2.5R0.5		0.5	2.5	4	8	50	2	A	●
PM-2R-D3.0R0.2		0.2	3	4	8	50	2	A	●
PM-2R-D3.0R0.3		0.3	3	4	8	50	2	A	○
PM-2R-D3.0R0.5		0.5	3	4	8	50	2	A	●
PM-2R-D4.0R0.2		0.2	4	4	11	50	2	B	●
PM-2R-D4.0R0.3		0.3	4	4	11	50	2	B	●
PM-2R-D4.0R0.5		0.5	4	4	11	50	2	B	●
PM-2R-D4.0R1.0		1	4	4	11	50	2	B	●
PM-2R-D5.0R0.3		0.3	5	6	13	50	2	A	○
PM-2R-D5.0R0.5		0.5	5	6	13	50	2	A	●
PM-2R-D5.0R1.0		1	5	6	13	50	2	A	●
PM-2R-D6.0R0.3		0.3	6	6	16	50	2	B	●
PM-2R-D6.0R0.5		0.5	6	6	16	50	2	B	●
PM-2R-D6.0R1.0		1	6	6	16	50	2	B	●
PM-2R-D8.0R0.3		0.3	8	8	20	60	2	B	○
PM-2R-D8.0R0.5		0.5	8	8	20	60	2	B	●
PM-2R-D8.0R1.0		1	8	8	20	60	2	B	●
PM-2R-D10.0R0.5		0.5	10	10	25	75	2	B	●
PM-2R-D10.0R1.0		1	10	10	25	75	2	B	●
PM-2R-D10.0R1.5		1.5	10	10	25	75	2	B	●
PM-2R-D10.0R2.0		2	10	10	25	75	2	B	●
PM-2R-D12.0R0.5		0.5	12	12	30	75	2	B	●
PM-2R-D12.0R1.0		1	12	12	30	75	2	B	●
PM-2R-D12.0R1.5		1.5	12	12	30	75	2	B	●
PM-2R-D12.0R2.0		2	12	12	30	75	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

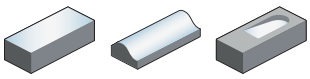
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

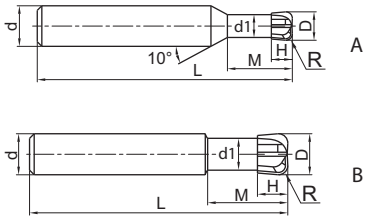
End mill | High-performance machining

PM-4H



– Factory standard
– Centre cutting
– Helix angle 0°





Article	✻	Dimensions [mm]							Teeth	Geometry	Grade
		R	D	d (h6)	d_1	H	M	L			KMG405
PM-4H-D3.0R0.8		0.8	3	6	2.7	1.2	8	50	4	A	●
PM-4H-D4.0R1.0		1	4	6	3.6	1.6	10	50	4	A	●
PM-4H-D5.0R1.2		1.2	5	6	4.5	2	12.5	50	4	A	●
PM-4H-D6.0R1.0		1	6	6	5.4	2.5	12	50	4	B	●
PM-4H-D6.0R1.5		1.5	6	6	5.4	2.5	12	50	4	B	●
PM-4H-D6.0R2.0		2	6	6	5.4	2.5	12	50	4	B	●
PM-4H-D8.0R1.0		1	8	8	7	3.5	16	60	4	B	●
PM-4H-D8.0R2.0		2	8	8	7	3.5	16	60	4	B	●
PM-4H-D10.0R1.0		1	10	10	9	4	20	75	4	B	●
PM-4H-D10.0R2.0		2	10	10	9	4	20	75	4	B	●
PM-4H-D10.0R3.0		3	10	10	9	4	20	75	4	B	●
PM-4H-D12.0R2.0		2	12	12	11	5	24	75	4	B	●
PM-4H-D12.0R3.0		3	12	12	11	5	24	75	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

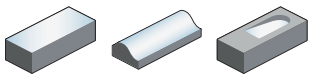
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

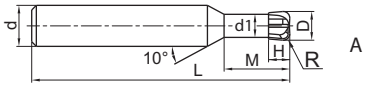
End mill long shank | High-performance machining

PM-4HL

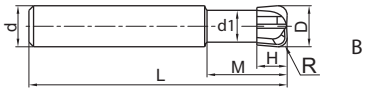


– Factory standard
– Centre cutting
– Helix angle 0°





A



B

Article	✻	Dimensions [mm]							Teeth	Geometry	Grade
		R	D	d (h6)	d_1	H	M	L			KMG405
PM-4HL-D4.0R1.0		1	4	6	3.6	1.6	10	75	4	A	●
PM-4HL-D5.0R1.2		1.2	5	6	4.5	2	12.5	75	4	A	●
PM-4HL-D6.0R1.0		1	6	6	5.4	2.5	12	75	4	B	●
PM-4HL-D6.0R1.5		1.5	6	6	5.4	2.5	12	75	4	B	●
PM-4HL-D6.0R2.0		2	6	6	5.4	2.5	12	75	4	B	●
PM-4HL-D8.0R1.0		1	8	8	7	3.5	16	100	4	B	●
PM-4HL-D8.0R2.0		2	8	8	7	3.5	16	100	4	B	●
PM-4HL-D10.0R1.0		1	10	10	9	4	20	100	4	B	●
PM-4HL-D10.0R2.0		2	10	10	9	4	20	100	4	B	●
PM-4HL-D10.0R3.0		3	10	10	9	4	20	100	4	B	●
PM-4HL-D12.0R2.0		2	12	12	11	5	24	100	4	B	●
PM-4HL-D12.0R3.0		3	12	12	11	5	24	100	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

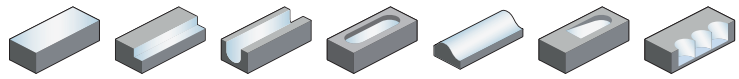
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

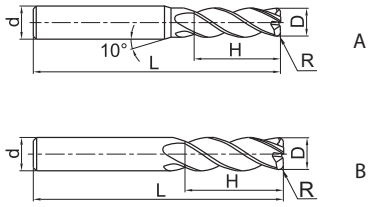
Torus mill | High-performance machining

PM-4R



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Geometry	Grade KMG405
PM-4R-D3.0R0.2		0.2	3	6	8	50	4	A	●
PM-4R-D3.0-R0.5		0.5	3	6	8	50	4	A	●
PM-4R-D4.0R0.3		0.3	4	6	10	50	4	A	●
PM-4R-D4.0R0.5		0.5	4	6	10	50	4	A	●
PM-4R-D5.0R0.5		0.5	5	6	13	50	4	A	●
PM-4R-D5.0R1.0		1	5	6	13	50	4	A	●
PM-4R-D6.0R0.5		0.5	6	6	16	50	4	B	●
PM-4R-D6.0R1.0		1	6	6	16	50	4	B	●
PM-4R-D8.0R0.5		0.5	8	8	20	60	4	B	●
PM-4R-D8.0R1.0		1	8	8	20	60	4	B	●
PM-4R-D10.0R0.5		0.5	10	10	25	75	4	B	●
PM-4R-D10.0R1.0		1	10	10	25	75	4	B	●
PM-4R-D10.0R2.0		2	10	10	25	75	4	B	●
PM-4R-D10.0R3.0		3	10	10	25	75	4	B	●
PM-4R-D12.0R0.5		0.5	12	12	30	75	4	B	●
PM-4R-D12.0R1.0		1	12	12	30	75	4	B	●
PM-4R-D12.0R2.0		2	12	12	30	75	4	B	●
PM-4R-D12.0R3.0		3	12	12	30	75	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

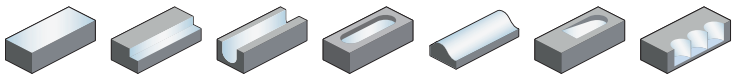
Application field

P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

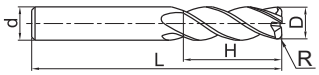
Torus mill long shank | High-performance machining



PM-4RL

– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Grade KMG405
PM-4RL-D6.0R0.5		0.5	6	6	16	75	4	●
PM-4RL-D6.0R1.0		1	6	6	16	75	4	●
PM-4RL-D8.0R0.5		0.5	8	8	20	100	4	●
PM-4RL-D8.0R1.0		1	8	8	20	100	4	○
PM-4RL-D10.0R0.5		0.5	10	10	25	100	4	○
PM-4RL-D10.0R1.0		1	10	10	25	100	4	●
PM-4RL-D10.0R2.0		2	10	10	25	100	4	●
PM-4RL-D12.0R0.5		0.5	12	12	30	100	4	●
PM-4RL-D12.0R1.0		1	12	12	30	100	4	●
PM-4RL-D12.0R2.0		2	12	12	30	100	4	●
PM-4RL-D16.0R1.0		1	16	16	45	150	4	●
PM-4RL-D16.0R2.0		2	16	16	45	150	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

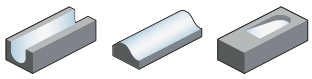
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

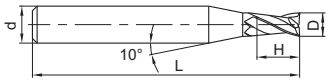
End mill | High-performance machining

PM-2ES



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Grade
		D	d (h5)	H	L		KMG405
PM-2ES-D0.3		0.3	4	0.6	50	2	●
PM-2ES-D0.4		0.4	4	0.8	50	2	●
PM-2ES-D0.5		0.5	4	1	50	2	●
PM-2ES-D0.6		0.6	4	1.2	50	2	●
PM-2ES-D0.7		0.7	4	1.4	50	2	●
PM-2ES-D0.8		0.8	4	1.6	50	2	●
PM-2ES-D0.9		0.9	4	1.8	50	2	○
PM-2ES-D1.0		1	4	2	50	2	●
PM-2ES-D1.1		1.1	4	2	50	2	○
PM-2ES-D1.2		1.2	4	2.5	50	2	●
PM-2ES-D1.3		1.3	4	2.5	50	2	●
PM-2ES-D1.4		1.4	4	3	50	2	●
PM-2ES-D1.5		1.5	4	3	50	2	●
PM-2ES-D1.6		1.6	4	3.5	50	2	●
PM-2ES-D1.7		1.7	4	3.5	50	2	●
PM-2ES-D1.8		1.8	4	4	50	2	●
PM-2ES-D1.9		1.9	4	4	50	2	○
PM-2ES-D2.0		2	4	4	50	2	●
PM-2ES-D2.1		2.1	4	4	50	2	●
PM-2ES-D2.2		2.2	4	4.5	50	2	●
PM-2ES-D2.3		2.3	4	4.5	50	2	●
PM-2ES-D2.4		2.4	4	5	50	2	●
PM-2ES-D2.5		2.5	4	5	50	2	●
PM-2ES-D2.6		2.6	4	5	50	2	○
PM-2ES-D2.7		2.7	4	5.5	50	2	○
PM-2ES-D2.8		2.8	4	5.5	50	2	○
PM-2ES-D2.9		2.9	4	6	50	2	○
PM-2ES-D3.0		3	4	6	50	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

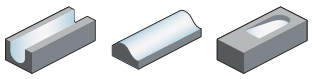
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

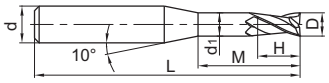
End mill High-performance machining

PM-2EP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm] D	d (h5)	d_1	H	M	L	Teeth	Grade KMG405
PM-2EP-D0.5-M06		0.5	4	0.45	0.7	6	50	2	●
PM-2EP-D0.5-M08		0.5	4	0.45	0.7	8	50	2	○
PM-2EP-D0.5-M04		0.5	4	0.45	0.6	4	50	2	●
PM-2EP-D0.8-M04		0.8	4	0.75	1.2	4	50	2	●
PM-2EP-D0.8-M10		0.8	4	0.75	1.2	10	50	2	○
PM-2EP-D0.8-M06		0.8	4	0.75	1.2	6	50	2	○
PM-2EP-D0.8-M08		0.8	4	0.75	1.2	8	50	2	○
PM-2EP-D1.0-M14		1	4	0.95	1.5	14	50	2	●
PM-2EP-D1.0-M20		1	4	0.95	1.5	20	50	2	●
PM-2EP-D1.0-M12		1	4	0.95	1.5	12	50	2	●
PM-2EP-D1.0-M04		1	4	0.95	1.5	4	50	2	●
PM-2EP-D1.0-M16		1	4	0.95	1.5	16	50	2	●
PM-2EP-D1.0-M06		1	4	0.95	1.5	6	50	2	●
PM-2EP-D1.0-M10		1	4	0.95	1.5	10	50	2	●
PM-2EP-D1.0-M08		1	4	0.95	1.5	8	50	2	●
PM-2EP-D1.2-M10		1.2	4	1.15	1.8	10	50	2	○
PM-2EP-D1.2-M06		1.2	4	1.15	1.8	6	50	2	●
PM-2EP-D1.2-M16		1.2	4	1.15	1.8	16	50	2	○
PM-2EP-D1.2-M12		1.2	4	1.15	1.8	12	50	2	○
PM-2EP-D1.2-M08		1.2	4	1.15	1.8	8	50	2	○
PM-2EP-D1.5-M14		1.5	4	1.45	2.3	14	50	2	●
PM-2EP-D1.5-M20		1.5	4	1.45	2.3	20	50	2	●
PM-2EP-D1.5-M10		1.5	4	1.45	2.3	10	50	2	●
PM-2EP-D1.5-M18		1.5	4	1.45	2.3	18	50	2	●
PM-2EP-D1.5-M08		1.5	4	1.45	2.3	8	50	2	●
PM-2EP-D1.5-M06		1.5	4	1.45	2.3	6	50	2	●
PM-2EP-D1.5-M16		1.5	4	1.45	2.3	16	50	2	●
PM-2EP-D1.5-M12		1.5	4	1.45	2.3	12	50	2	●
PM-2EP-D2.0-M10		2	4	1.95	3	10	50	2	●
PM-2EP-D2.0-M18		2	4	1.95	3	18	50	2	●
PM-2EP-D2.0-M20		2	4	1.95	3	20	50	2	●
PM-2EP-D2.0-M14		2	4	1.95	3	14	50	2	●
PM-2EP-D2.0-M06		2	4	1.95	3	6	50	2	●
PM-2EP-D2.0-M12		2	4	1.95	3	12	50	2	●
PM-2EP-D2.0-M08		2	4	1.95	3	8	50	2	●
PM-2EP-D2.0-M16		2	4	1.95	3	16	50	2	●
PM-2EP-D2.5-M08		2.5	4	2.4	3.7	8	50	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

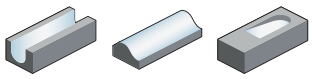
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

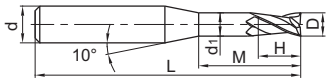
End mill High-performance machining

PM-2EP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h5)	d_1	H	M	L		KMG405
PM-2EP-D2.5-M14		2.5	4	2.4	3.7	14	50	2	○
PM-2EP-D2.5-M12		2.5	4	2.4	3.7	12	50	2	○
PM-2EP-D2.5-M18		2.5	4	2.4	3.7	18	60	2	○
PM-2EP-D2.5-M20		2.5	4	2.4	3.7	20	60	2	○
PM-2EP-D2.5-M10		2.5	4	2.4	3.7	10	50	2	○
PM-2EP-D2.5-M16		2.5	4	2.4	3.7	16	60	2	○
PM-2EP-D3.0-M18		3	6	2.85	4.5	18	60	2	○
PM-2EP-D3.0-M12		3	6	2.85	4.5	12	50	2	●
PM-2EP-D3.0-M10		3	6	2.85	4.5	10	50	2	●
PM-2EP-D3.0-M08		3	6	2.85	4.5	8	50	2	○
PM-2EP-D3.0-M14		3	6	2.85	4.5	14	60	2	○
PM-2EP-D3.0-M20		3	6	2.85	4.5	20	60	2	●
PM-2EP-D3.0-M16		3	6	2.85	4.5	16	60	2	●
PM-2EP-D3.0-M06		3	6	2.85	4.5	6	50	2	○
PM-2EP-D4.0-M16		4	6	3.85	6	16	60	2	○
PM-2EP-D4.0-M20		4	6	3.85	6	20	60	2	●
PM-2EP-D4.0-M12		4	6	3.85	6	12	50	2	●
PM-2EP-D4.0-M14		4	6	3.85	6	14	60	2	○
PM-2EP-D4.0-M25		4	6	3.85	6	25	60	2	●
PM-2EP-D5.0-M14		5	6	4.85	7.5	14	60	2	●
PM-2EP-D5.0-M25		5	6	4.85	7.5	25	70	2	●
PM-2EP-D5.0-M20		5	6	4.85	7.5	20	70	2	●
PM-2EP-D5.0-M12		5	6	4.85	7.5	12	60	2	●
PM-2EP-D5.0-M16		5	6	4.85	7.5	16	60	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

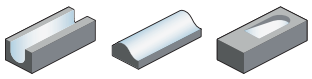
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

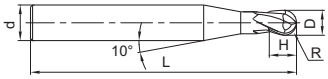
Ball nose cutter High-performance machining

PM-2BS



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]					Teeth	Grade
		R	D	d (h5)	H	L		KMG405
PM-2BS-R0.15		0.15	0.3	4	0.5	50	2	●
PM-2BS-R0.20		0.2	0.4	4	0.6	50	2	●
PM-2BS-R0.25		0.25	0.5	4	0.8	50	2	●
PM-2BS-R0.30		0.3	0.6	4	0.9	50	2	●
PM-2BS-R0.35		0.35	0.7	4	1	50	2	○
PM-2BS-R0.40		0.4	0.8	4	1.2	50	2	●
PM-2BS-R0.45		0.45	0.9	4	1.3	50	2	○
PM-2BS-R0.50		0.5	1	4	1.5	50	2	●
PM-2BS-R0.60		0.6	1.2	4	1.8	50	2	●
PM-2BS-R0.70		0.7	1.4	4	2	50	2	○
PM-2BS-R0.75		0.75	1.5	4	2.3	50	2	●
PM-2BS-R0.80		0.8	1.6	4	2.5	50	2	○
PM-2BS-R0.90		0.9	1.8	4	2.7	50	2	○
PM-2BS-R1.00		1	2	4	3	50	2	●
PM-2BS-R1.25		1.25	2.5	4	3.7	50	2	○
PM-2BS-R1.50		1.5	3	4	4.5	50	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔			✔

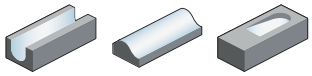
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Ball nose cutter

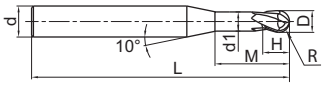
High-performance machining

PM-2BP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h5)	d_1	H	M	L		KMG405
PM-2BP-R0.25-M04		0.25	0.5	4	0.45	0.7	4	50	2	●
PM-2BP-R0.25-M06		0.25	0.5	4	0.45	0.7	6	50	2	●
PM-2BP-R0.3-M04		0.3	0.6	4	0.55	0.9	4	50	2	●
PM-2BP-R0.3-M06		0.3	0.6	4	0.55	0.9	6	50	2	●
PM-2BP-R0.3-M08		0.3	0.6	4	0.55	0.9	8	50	2	●
PM-2BP-R0.4-M04		0.4	0.8	4	0.75	1.2	4	50	2	●
PM-2BP-R0.4-M06		0.4	0.8	4	0.75	1.2	6	50	2	●
PM-2BP-R0.4-M08		0.4	0.8	4	0.75	1.2	8	50	2	●
PM-2BP-R0.4-M10		0.4	0.8	4	0.75	1.2	10	50	2	●
PM-2BP-R0.5-M04		0.5	1	4	0.95	1.5	4	50	2	●
PM-2BP-R0.5-M06		0.5	1	4	0.95	1.5	6	50	2	●
PM-2BP-R0.5-M08		0.5	1	4	0.95	1.5	8	50	2	●
PM-2BP-R0.5-M10		0.5	1	4	0.95	1.5	10	50	2	●
PM-2BP-R0.5-M12		0.5	1	4	0.95	1.5	12	50	2	●
PM-2BP-R0.5-M15		0.5	1	4	0.95	1.5	15	50	2	○
PM-2BP-R0.6-M06		0.6	1.2	4	1.15	1.8	6	50	2	●
PM-2BP-R0.6-M08		0.6	1.2	4	1.15	1.8	8	50	2	○
PM-2BP-R0.6-M12		0.6	1.2	4	1.15	1.8	12	50	2	○
PM-2BP-R0.6-M16		0.6	1.2	4	1.15	1.8	16	50	2	○
PM-2BP-R0.75-M06		0.75	1.5	4	1.45	2.3	6	50	2	○
PM-2BP-R0.75-M08		0.75	1.5	4	1.45	2.3	8	50	2	●
PM-2BP-R0.75-M12		0.75	1.5	4	1.45	2.3	12	50	2	●
PM-2BP-R0.75-M16		0.75	1.5	4	1.45	2.3	16	50	2	●
PM-2BP-R1.0-M06		1	2	4	1.95	3	6	50	2	●
PM-2BP-R1.0-M08		1	2	4	1.95	3	8	50	2	●
PM-2BP-R1.0-M10		1	2	4	1.95	3	10	50	2	●
PM-2BP-R1.0-M12		1	2	4	1.95	3	12	50	2	●
PM-2BP-R1.0-M16		1	2	4	1.95	3	16	50	2	●
PM-2BP-R1.0-M20		1	2	4	1.95	3	20	50	2	●
PM-2BP-R1.25-M08		1.25	2.5	4	2.4	3.7	8	50	2	○
PM-2BP-R1.25-M10		1.25	2.5	4	2.4	3.7	10	50	2	○
PM-2BP-R1.25-M12		1.25	2.5	4	2.4	3.7	12	50	2	●
PM-2BP-R1.25-M16		1.25	2.5	4	2.4	3.7	16	60	2	○
PM-2BP-R1.25-M20		1.25	2.5	4	2.4	3.7	20	60	2	○
PM-2BP-R1.5-M08		1.5	3	6	2.85	4.5	8	50	2	●
PM-2BP-R1.5-M10		1.5	3	6	2.85	4.5	10	50	2	●
PM-2BP-R1.5-M12		1.5	3	6	2.85	4.5	12	50	2	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

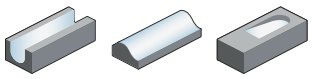
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

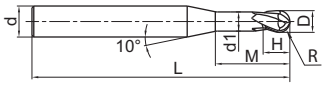
Ball nose cutter High-performance machining

PM-2BP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h5)	d_1	H	M	L		KMG405
PM-2BP-R1.5-M16		1.5	3	6	2.85	4.5	16	60	2	●
PM-2BP-R1.5-M20		1.5	3	6	2.85	4.5	20	60	2	●
PM-2BP-R2.0-M10		2	4	6	3.85	6	10	60	2	●
PM-2BP-R2.0-M16		2	4	6	3.85	6	16	60	2	●
PM-2BP-R2.0-M20		2	4	6	3.85	6	20	60	2	●
PM-2BP-R2.0-M25		2	4	6	3.85	6		60	2	○
PM-2BP-R2.5-M16		2.5	5	6	4.85	7.5	16	60	2	●
PM-2BP-R2.5-M25		2.5	5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

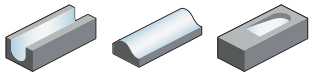
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

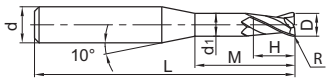
Torus mill | High-performance machining

PM-2RP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h5)	d_1	H	M	L		KMG405
PM-2RP-D0.5-R0.05-M04		0.05	0.5	4	0.45	0.6	4	50	2	●
PM-2RP-D0.5-R0.1-M04		0.1	0.5	4	0.45	0.6	4	50	2	●
PM-2RP-D0.5-R0.05-M06		0.05	0.5	4	0.45	0.7	6	50	2	●
PM-2RP-D0.5-R0.1-M06		0.1	0.5	4	0.45	0.7	6	50	2	●
PM-2RP-D0.5-R0.05-M08		0.05	0.5	4	0.45	0.7	8	50	2	○
PM-2RP-D0.5-R0.1-M08		0.1	0.5	4	0.45	0.7	8	50	2	○
PM-2RP-D0.8-R0.1-M04		0.1	0.8	4	0.75	1.2	4	50	2	●
PM-2RP-D0.8-R0.2-M04		0.2	0.8	4	0.75	1.2	4	50	2	●
PM-2RP-D0.8-R0.1-M06		0.1	0.8	4	0.75	1.2	6	50	2	●
PM-2RP-D0.8-R0.2-M06		0.2	0.8	4	0.75	1.2	6	50	2	●
PM-2RP-D0.8-R0.1-M08		0.1	0.8	4	0.75	1.2	8	50	2	●
PM-2RP-D0.8-R0.2-M08		0.2	0.8	4	0.75	1.2	8	50	2	●
PM-2RP-D0.8-R0.1-M10		0.1	0.8	4	0.75	1.2	10	50	2	○
PM-2RP-D0.8-R0.2-M10		0.2	0.8	4	0.75	1.2	10	50	2	○
PM-2RP-D1.0-R0.1-M04		0.1	1	4	0.95	1.5	4	50	2	●
PM-2RP-D1.0-R0.2-M04		0.2	1	4	0.95	1.5	4	50	2	●
PM-2RP-D1.0-R0.3-M04		0.3	1	4	0.95	1.5	4	50	2	●
PM-2RP-D1.0-R0.1-M06		0.1	1	4	0.95	1.5	6	50	2	●
PM-2RP-D1.0-R0.2-M06		0.2	1	4	0.95	1.5	6	50	2	●
PM-2RP-D1.0-R0.3-M06		0.3	1	4	0.95	1.5	6	50	2	●
PM-2RP-D1.0-R0.1-M08		0.1	1	4	0.95	1.5	8	50	2	●
PM-2RP-D1.0-R0.2-M08		0.2	1	4	0.95	1.5	8	50	2	●
PM-2RP-D1.0-R0.3-M08		0.3	1	4	0.95	1.5	8	50	2	●
PM-2RP-D1.0-R0.1-M10		0.1	1	4	0.95	1.5	10	50	2	●
PM-2RP-D1.0-R0.2-M10		0.2	1	4	0.95	1.5	10	50	2	●
PM-2RP-D1.0-R0.3-M10		0.3	1	4	0.95	1.5	10	50	2	●
PM-2RP-D1.0-R0.1-M12		0.1	1	4	0.95	1.5	12	50	2	●
PM-2RP-D1.0-R0.2-M12		0.2	1	4	0.95	1.5	12	50	2	●
PM-2RP-D1.0-R0.3-M12		0.3	1	4	0.95	1.5	12	50	2	●
PM-2RP-D1.0-R0.1-M14		0.1	1	4	0.95	1.5	14	50	2	○
PM-2RP-D1.0-R0.2-M14		0.2	1	4	0.95	1.5	14	50	2	○
PM-2RP-D1.0-R0.1-M16		0.1	1	4	0.95	1.5	16	60	2	●
PM-2RP-D1.0-R0.2-M16		0.2	1	4	0.95	1.5	16	60	2	●
PM-2RP-D1.0-R0.1-M20		0.1	1	4	0.95	1.5	20	60	2	●
PM-2RP-D1.0-R0.2-M20		0.2	1	4	0.95	1.5	20	60	2	●
PM-2RP-D1.2-R0.1-M06		0.1	1.2	4	1.15	1.8	6	50	2	●
PM-2RP-D1.2-R0.2-M06		0.2	1.2	4	1.15	1.8	6	50	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

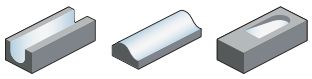
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

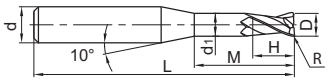
Torus mill High-performance machining

PM-2RP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h5)	d_1	H	M	L		KMG405
PM-2RP-D1.2-R0.1-M08		0.1	1.2	4	1.15	1.8	8	50	2	●
PM-2RP-D1.2-R0.2-M08		0.2	1.2	4	1.15	1.8	8	50	2	●
PM-2RP-D1.2-R0.1-M10		0.1	1.2	4	1.15	1.8	10	50	2	●
PM-2RP-D1.2-R0.2-M10		0.2	1.2	4	1.15	1.8	10	50	2	●
PM-2RP-D1.2-R0.1-M12		0.1	1.2	4	1.15	1.8	12	50	2	●
PM-2RP-D1.2-R0.2-M12		0.2	1.2	4	1.15	1.8	12	50	2	●
PM-2RP-D1.2-R0.1-M16		0.1	1.2	4	1.5	1.8	16	60	2	○
PM-2RP-D1.2-R0.2-M16		0.2	1.2	4	1.5	1.8	16	60	2	○
PM-2RP-D1.5-R0.2-M06		0.2	1.5	4	1.45	2.3	6	50	2	●
PM-2RP-D1.5-R0.3-M06		0.3	1.5	4	1.45	2.3	6	50	2	●
PM-2RP-D1.5-R0.2-M08		0.2	1.5	4	1.45	2.3	8	50	2	●
PM-2RP-D1.5-R0.3-M08		0.3	1.5	4	1.45	2.3	8	50	2	●
PM-2RP-D1.5-R0.2-M10		0.2	1.5	4	1.45	2.3	10	50	2	●
PM-2RP-D1.5-R0.3-M10		0.3	1.5	4	1.45	2.3	10	50	2	●
PM-2RP-D1.5-R0.2-M12		0.2	1.5	4	1.45	2.3	12	50	2	●
PM-2RP-D1.5-R0.3-M12		0.3	1.5	4	1.45	2.3	12	50	2	●
PM-2RP-D1.5-R0.2-M14		0.2	1.5	4	1.45	2.3	14	50	2	○
PM-2RP-D1.5-R0.3-M14		0.3	1.5	4	1.45	2.3	14	50	2	○
PM-2RP-D1.5-R0.2-M16		0.2	1.5	4	1.45	2.3	16	50	2	●
PM-2RP-D1.5-R0.3-M16		0.3	1.5	4	1.45	2.3	16	50	2	●
PM-2RP-D1.5-R0.2-M18		0.2	1.5	4	1.45	2.3	18	50	2	○
PM-2RP-D1.5-R0.3-M18		0.3	1.5	4	1.45	2.3	18	50	2	○
PM-2RP-D1.5-R0.2-M20		0.2	1.5	4	1.45	2.3	20	50	2	○
PM-2RP-D1.5-R0.3-M20		0.3	1.5	4	1.45	2.3	20	50	2	○
PM-2RP-D2.0-R0.2-M06		0.2	2	4	1.95	3	6	50	2	●
PM-2RP-D2.0-R0.5-M06		0.5	2	4	1.95	3	6	50	2	●
PM-2RP-D2.0-R0.2-M08		0.2	2	4	1.95	3	8	50	2	●
PM-2RP-D2.0-R0.5-M08		0.5	2	4	1.95	3	8	50	2	●
PM-2RP-D2.0-R0.2-M10		0.2	2	4	1.95	3	10	50	2	●
PM-2RP-D2.0-R0.5-M10		0.5	2	4	1.95	3	10	50	2	●
PM-2RP-D2.0-R0.2-M12		0.2	2	4	1.95	3	12	50	2	●
PM-2RP-D2.0-R0.5-M12		0.5	2	4	1.95	3	12	50	2	●
PM-2RP-D2.0-R0.2-M14		0.2	2	4	1.95	3	14	50	2	○
PM-2RP-D2.0-R0.5-M14		0.5	2	4	1.95	3	14	50	2	○
PM-2RP-D2.0-R0.2-M16		0.2	2	4	1.95	3	16	50	2	●
PM-2RP-D2.0-R0.5-M16		0.5	2	4	1.95	3	16	50	2	●
PM-2RP-D2.0-R0.2-M18		0.2	2	4	1.96	3	18	50	2	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

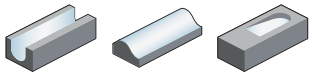
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

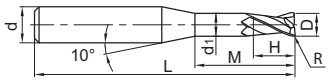
Torus mill | High-performance machining

PM-2RP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h5)	d_1	H	M	L		KMG405
PM-2RP-D2.0-R0.5-M18		0.5	2	4	1.96	3	18	50	2	○
PM-2RP-D2.0-R0.2-M20		0.2	2	4	1.97	3	20	50	2	●
PM-2RP-D2.0-R0.5-M20		0.5	2	4	1.97	3	20	50	2	●
PM-2RP-D2.5-R0.2-M08		0.2	2.5	4	2.4	3.7	8	50	2	●
PM-2RP-D2.5-R0.5-M08		0.5	2.5	4	2.4	3.7	8	50	2	●
PM-2RP-D2.5-R0.2-M10		0.2	2.5	4	2.4	3.7	10	50	2	●
PM-2RP-D2.5-R0.5-M10		0.5	2.5	4	2.4	3.7	10	50	2	●
PM-2RP-D2.5-R0.2-M12		0.2	2.5	4	2.4	3.7	12	50	2	○
PM-2RP-D2.5-R0.5-M12		0.5	2.5	4	2.4	3.7	12	50	2	○
PM-2RP-D2.5-R0.2-M14		0.2	2.5	4	2.4	3.7	14	50	2	○
PM-2RP-D2.5-R0.5-M14		0.5	2.5	4	2.4	3.7	14	50	2	○
PM-2RP-D2.5-R0.2-M16		0.2	2.5	4	2.4	3.7	16	60	2	○
PM-2RP-D2.5-R0.5-M16		0.5	2.5	4	2.4	3.7	16	60	2	○
PM-2RP-D2.5-R0.2-M18		0.2	2.5	4	2.4	3.7	18	60	2	○
PM-2RP-D2.5-R0.5-M18		0.5	2.5	4	2.4	3.7	18	60	2	○
PM-2RP-D2.5-R0.2-M20		0.2	2.5	4	2.4	3.7	20	60	2	●
PM-2RP-D2.5-R0.5-M20		0.5	2.5	4	2.4	3.7	20	60	2	●
PM-2RP-D3.0-R0.2-M06		0.2	3	6	2.85	4.5	6	50	2	○
PM-2RP-D3.0-R0.5-M06		0.5	3	6	2.85	4.5	6	50	2	○
PM-2RP-D3.0-R0.2-M08		0.2	3	6	2.85	4.5	8	50	2	●
PM-2RP-D3.0-R0.5-M08		0.5	3	6	2.85	4.5	8	50	2	●
PM-2RP-D3.0-R0.2-M10		0.2	3	6	2.85	4.5	10	50	2	●
PM-2RP-D3.0-R0.5-M10		0.5	3	6	2.85	4.5	10	50	2	●
PM-2RP-D3.0-R0.2-M12		0.2	3	6	2.85	4.5	12	50	2	●
PM-2RP-D3.0-R0.5-M12		0.5	3	6	2.85	4.5	12	50	2	●
PM-2RP-D3.0-R0.2-M14		0.2	3	6	2.85	4.5	14	60	2	○
PM-2RP-D3.0-R0.5-M14		0.5	3	6	2.85	4.5	14	60	2	○
PM-2RP-D3.0-R0.2-M16		0.2	3	6	2.85	4.5	16	60	2	●
PM-2RP-D3.0-R0.5-M16		0.5	3	6	2.85	4.5	16	60	2	●
PM-2RP-D3.0-R0.2-M18		0.2	3	6	2.85	4.5	18	60	2	○
PM-2RP-D3.0-R0.5-M18		0.5	3	6	2.85	4.5	18	60	2	○
PM-2RP-D3.0-R0.2-M20		0.2	3	6	2.85	4.5	20	60	2	●
PM-2RP-D3.0-R0.5-M20		0.5	3	6	2.85	4.5	20	60	2	●
PM-2RP-D4.0-R0.2-M12		0.2	4	6	3.85	6	12	50	2	●
PM-2RP-D4.0-R0.5-M12		0.5	4	6	3.85	6	12	50	2	●
PM-2RP-D4.0-R0.2-M14		0.2	4	6	3.85	6	14	60	2	○
PM-2RP-D4.0-R0.5-M14		0.5	4	6	3.85	6	14	60	2	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

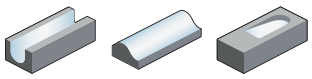
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

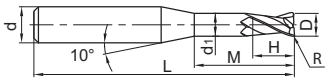
Torus mill High-performance machining

PM-2RP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h5)	d_1	H	M	L		KMG405
PM-2RP-D4.0-R0.2-M16		0.2	4	6	3.85	6	16	60	2	●
PM-2RP-D4.0-R0.5-M16		0.5	4	6	3.85	6	16	60	2	●
PM-2RP-D4.0-R0.2-M20		0.2	4	6	3.85	6	20	60	2	●
PM-2RP-D4.0-R0.5-M20		0.5	4	6	3.85	6	20	60	2	●
PM-2RP-D4.0-R0.2-M25		0.2	4	6	3.85	6	25	60	2	●
PM-2RP-D4.0-R0.5-M25		0.5	4	6	3.85	6	25	60	2	●
PM-2RP-D5.0-R0.5-M12		0.5	5	6	4.85	7.5	12	60	2	●
PM-2RP-D5.0-R1.0-M12		1	5	6	4.85	7.5	12	60	2	●
PM-2RP-D5.0-R0.5-M14		0.5	5	6	4.85	7.5	14	60	2	○
PM-2RP-D5.0-R1.0-M14		1	5	6	4.85	7.5	14	60	2	○
PM-2RP-D5.0-R0.5-M16		0.5	5	6	4.85	7.5	16	60	2	●
PM-2RP-D5.0-R1.0-M16		1	5	6	4.85	7.5	16	60	2	●
PM-2RP-D5.0-R0.5-M20		0.5	5	6	4.85	7.5	20	70	2	●
PM-2RP-D5.0-R1.0-M20		1	5	6	4.85	7.5	20	70	2	●
PM-2RP-D5.0-R0.5-M25		0.5	5	6	4.85	7.5	25	70	2	●
PM-2RP-D5.0-R1.0-M25		1	5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

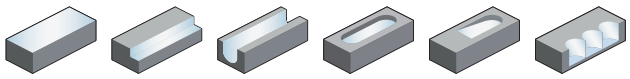
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

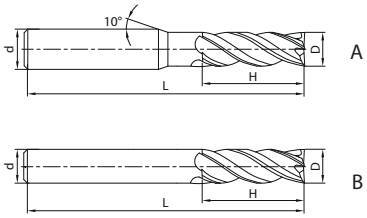
End mill High-performance machining

VPM-4E



– Factory standard
– Centre cutting
– Helix angle 36°/38°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG406
VPM-4E-D1.0S		1	4	3	50	4	A	○
VPM-4E-D1.5S		1.5	4	4	50	4	A	○
VPM-4E-D2.0S		2	4	6	50	4	A	○
VPM-4E-D2.5S		2.5	4	8	50	4	A	○
VPM-4E-D3.0S		3	4	8	50	4	A	○
VPM-4E-D3.5S		3.5	4	10	50	4	A	○
VPM-4E-D4.0S		4	4	11	50	4	A	○
VPM-4E-D3.0		3	6	8	50	4	A	●
VPM-4E-D3.5		3.5	6	10	50	4	A	○
VPM-4E-D4.0		4	6	11	50	4	A	●
VPM-4E-D4.5		4.5	6	11	50	4	A	○
VPM-4E-D5.0		5	6	13	50	4	A	●
VPM-4E-D5.5		5.5	6	16	50	4	A	○
VPM-4E-D6.0		6	6	16	50	4	B	●
VPM-4E-D7.0		7	8	20	60	4	A	●
VPM-4E-D8.0		8	8	20	60	4	B	●
VPM-4E-D9.0		9	10	22	75	4	A	●
VPM-4E-D10.0		10	10	25	75	4	B	●
VPM-4E-D11.0		11	12	26	75	4	A	●
VPM-4E-D12.0		12	12	30	75	4	B	●
VPM-4E-D14.0		14	14	32	75	4	B	●
VPM-4E-D16.0		16	16	45	100	4	B	●
VPM-4E-D18.0		18	18	45	100	4	B	●
VPM-4E-D20.0		20	20	45	100	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

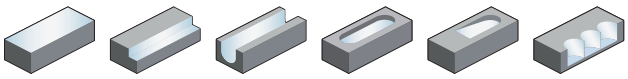
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

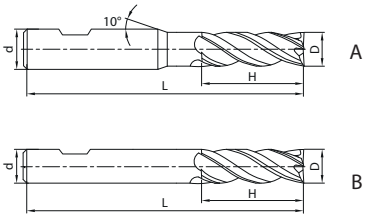
End mill High-performance machining

VPM-4E-W



– Factory standard
– Centre cutting
– Helix angle 36°/38°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG406
VPM-4E-D5.0-W		5	6	13	50	4	A	○
VPM-4E-D6.0-W		6	6	16	50	4	B	●
VPM-4E-D7.0-W		7	8	20	60	4	A	○
VPM-4E-D8.0-W		8	8	20	60	4	B	●
VPM-4E-D9.0-W		9	10	22	75	4	A	○
VPM-4E-D10.0-W		10	10	25	75	4	B	●
VPM-4E-D11.0-W		11	12	26	75	4	A	○
VPM-4E-D12.0-W		12	12	30	75	4	B	●
VPM-4E-D14.0-W		14	14	32	75	4	B	●
VPM-4E-D16.0-W		16	16	45	100	4	B	●
VPM-4E-D18.0-W		18	18	45	100	4	B	●
VPM-4E-D20.0-W		20	20	45	100	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

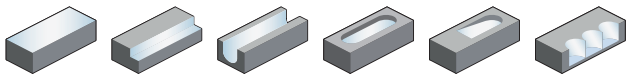
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

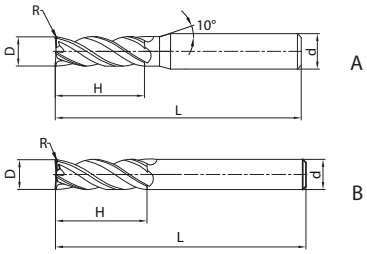
End mill High-performance machining

VPM-4R



– Factory standard
– Centre cutting
– Helix angle 36°/38°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG406
VPM-4R-D3.0R0.2S		0.2	3	4	8	50	4	A	○
VPM-4R-D3.0R0.3S		0.3	3	4	8	50	4	A	○
VPM-4R-D4.0R0.2S		0.2	4	4	11	50	4	A	○
VPM-4R-D4.0R0.3S		0.3	4	4	11	50	4	A	○
VPM-4R-D4.0R0.5S		0.5	4	4	11	50	4	A	○
VPM-4R-D3.0R0.2		0.2	3	6	8	50	4	A	●
VPM-4R-D3.0R0.3		0.3	3	6	8	50	4	A	○
VPM-4R-D3.0R0.5		0.5	3	6	8	50	4	A	●
VPM-4R-D4.0R0.2		0.2	4	6	11	50	4	A	●
VPM-4R-D4.0R0.3		0.3	4	6	11	50	4	A	○
VPM-4R-D4.0R0.5		0.5	4	6	11	50	4	A	●
VPM-4R-D5.0R0.3		0.3	5	6	13	50	4	A	○
VPM-4R-D5.0R0.5		0.5	5	6	13	50	4	A	●
VPM-4R-D5.0R1.0		1	5	6	13	50	4	A	●
VPM-4R-D6.0R0.1		0.1	6	6	16	50	4	B	○
VPM-4R-D6.0R0.2		0.2	6	6	16	50	4	B	○
VPM-4R-D6.0R0.3		0.3	6	6	16	50	4	B	○
VPM-4R-D6.0R0.5		0.5	6	6	16	50	4	B	●
VPM-4R-D6.0R1.0		1	6	6	16	50	4	B	●
VPM-4R-D6.0R1.4		1.4	6	6	16	50	4	B	○
VPM-4R-D6.0R1.5		1.5	6	6	16	50	4	B	○
VPM-4R-D8.0R0.3		0.3	8	8	20	60	4	B	○
VPM-4R-D8.0R0.5		0.5	8	8	20	60	4	B	●
VPM-4R-D8.0R1.0		1	8	8	20	60	4	B	●
VPM-4R-D10.0R0.3		0.3	10	10	25	75	4	B	○
VPM-4R-D10.0R0.5		0.5	10	10	25	75	4	B	●
VPM-4R-D10.0R1.0		1	10	10	25	75	4	B	●
VPM-4R-D10.0R1.5		1.5	10	10	25	75	4	B	○
VPM-4R-D10.0R2.0		2	10	10	25	75	4	B	●
VPM-4R-D12.0R0.3		0.3	12	12	30	75	4	B	○
VPM-4R-D12.0R0.5		0.5	12	12	30	75	4	B	○
VPM-4R-D12.0R1.0		1	12	12	30	75	4	B	●
VPM-4R-D12.0R1.5		1.5	12	12	30	75	4	B	○
VPM-4R-D12.0R2.0		2	12	12	30	75	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔			✔

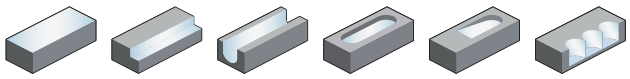
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Notes

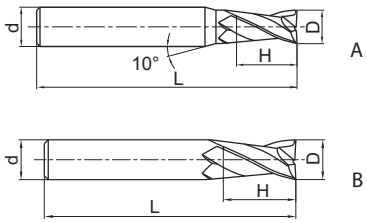
End mill High-performance machining

EPM-2E



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG406
EPM-2E-D3.0		3	6	8	50	2	A	●
EPM-2E-D4.0		4	6	11	50	2	A	●
EPM-2E-D5.0		5	6	13	50	2	A	●
EPM-2E-D6.0		6	6	16	50	2	B	●
EPM-2E-D8.0		8	8	20	60	2	B	●
EPM-2E-D10.0		10	10	25	75	2	B	●
EPM-2E-D12.0		12	12	30	75	2	B	●
EPM-2E-D14.0		14	14	32	75	2	B	●
EPM-2E-D16.0		16	16	45	100	2	B	●
EPM-2E-D18.0		18	18	45	100	2	B	●
EPM-2E-D20.0		20	20	45	100	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

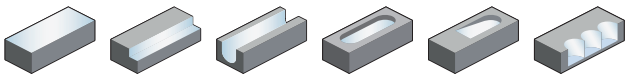
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

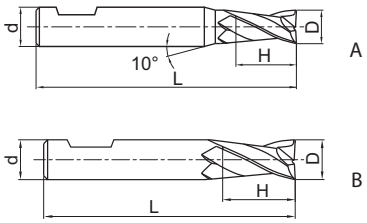
End mill High-performance machining

EPM-2E-W



– Type of shank DIN 6535HB
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG406
EPM-2E-D3.0-W		3	6	4	50	2	A	●
EPM-2E-D4.0-W		4	6	5	54	2	A	●
EPM-2E-D5.0-W		5	6	6	54	2	A	●
EPM-2E-D6.0-W		6	6	7	54	2	B	●
EPM-2E-D8.0-W		8	8	9	58	2	B	●
EPM-2E-D10.0-W		10	10	11	66	2	B	●
EPM-2E-D12.0-W		12	12	12	73	2	B	●
EPM-2E-D14.0-W		14	14	14	75	2	B	●
EPM-2E-D16.0-W		16	16	16	82	2	B	●
EPM-2E-D18.0-W		18	18	18	84	2	B	●
EPM-2E-D20.0-W		20	20	20	92	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

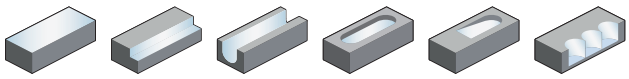
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

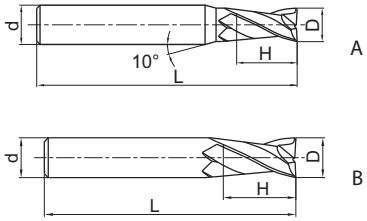
End mill long cutting edge | High-performance machining

EPM-2EL



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG406
EPM-2EL-D3.0		3	6	12	75	2	A	●
EPM-2EL-D4.0		4	6	15	75	2	A	●
EPM-2EL-D5.0		5	6	20	75	2	A	●
EPM-2EL-D6.0		6	6	20	75	2	B	●
EPM-2EL-D8.0		8	8	25	100	2	B	●
EPM-2EL-D10.0		10	10	30	100	2	B	●
EPM-2EL-D12.0		12	12	35	100	2	B	●
EPM-2EL-D14.0		14	14	40	100	2	B	●
EPM-2EL-D16.0		16	16	50	150	2	B	●
EPM-2EL-D20.0		20	20	55	150	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

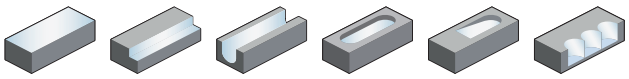
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

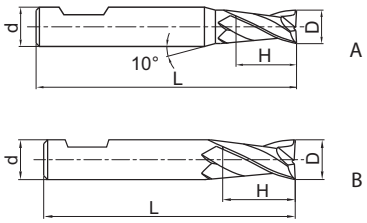
End mill long cutting edge | High-performance machining

EPM-2EL-W



– Type of shank DIN 6535HB
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG406
EPM-2EL-D3.0-W		3	6	6	57	2	A	●
EPM-2EL-D4.0-W		4	6	8	57	2	A	●
EPM-2EL-D5.0-W		5	6	10	57	2	A	●
EPM-2EL-D6.0-W		6	6	10	57	2	B	●
EPM-2EL-D8.0-W		8	8	16	63	2	B	●
EPM-2EL-D10.0-W		10	10	19	72	2	B	●
EPM-2EL-D12.0-W		12	12	22	83	2	B	●
EPM-2EL-D14.0-W		14	14	22	83	2	B	●
EPM-2EL-D16.0-W		16	16	26	92	2	B	●
EPM-2EL-D18.0-W		18	18	26	92	2	B	●
EPM-2EL-D20.0-W		20	20	32	104	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

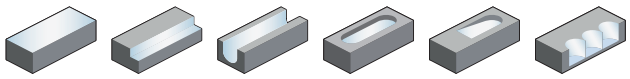
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

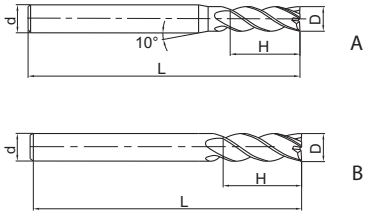
End mill High-performance machining

EPM-4E



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG406
EPM-4E-D3.0		3	6	8	50	4	A	●
EPM-4E-D4.0		4	6	11	50	4	A	●
EPM-4E-D5.0		5	6	13	50	4	A	●
EPM-4E-D6.0		6	6	16	50	4	B	●
EPM-4E-D8.0		8	8	20	60	4	B	●
EPM-4E-D10.0		10	10	25	75	4	B	●
EPM-4E-D12.0		12	12	30	75	4	B	●
EPM-4E-D14.0		14	14	32	75	4	B	●
EPM-4E-D16.0		16	16	45	100	4	B	●
EPM-4E-D18.0		18	18	45	100	4	B	●
EPM-4E-D20.0		20	20	45	100	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

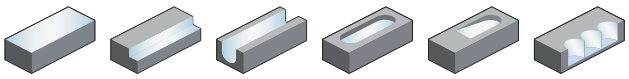
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

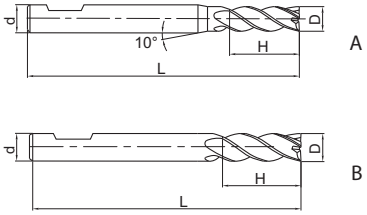
End mill High-performance machining

EPM-4E-W



– Type of shank DIN 6535HB
– Centre cutting
– Helix angle 45°





Article	✲	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG406
EPM-4E-D3.0-W		3	6	4	50	4	A	●
EPM-4E-D4.0-W		4	6	5	54	4	A	●
EPM-4E-D5.0-W		5	6	6	54	4	A	●
EPM-4E-D6.0-W		6	6	7	54	4	B	●
EPM-4E-D8.0-W		8	8	9	58	4	B	●
EPM-4E-D10.0-W		10	10	11	66	4	B	●
EPM-4E-D12.0-W		12	12	12	73	4	B	●
EPM-4E-D14.0-W		14	14	14	75	4	B	●
EPM-4E-D16.0-W		16	16	16	82	4	B	●
EPM-4E-D18.0-W		18	18	18	84	4	B	●
EPM-4E-D20.0-W		20	20	20	92	4	B	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

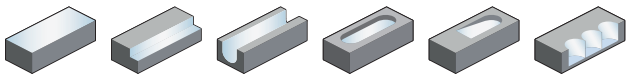
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

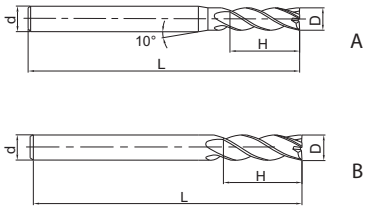
End mill long cutting edge | High-performance machining

EPM-4EL



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG406
EPM-4EL-D3.0		3	6	12	75	4	A	●
EPM-4EL-D4.0		4	6	15	75	4	A	●
EPM-4EL-D5.0		5	6	20	75	4	A	●
EPM-4EL-D6.0		6	6	20	75	4	B	●
EPM-4EL-D8.0		8	8	25	100	4	B	●
EPM-4EL-D10.0		10	10	30	100	4	B	●
EPM-4EL-D12.0		12	12	35	100	4	B	●
EPM-4EL-D14.0		14	14	40	100	4	B	●
EPM-4EL-D16.0		16	16	50	150	4	B	●
EPM-4EL-D20.0		20	20	55	150	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

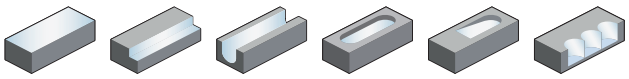
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

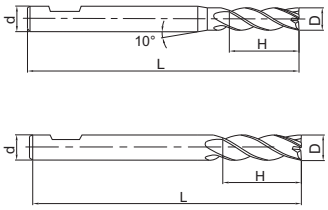
End mill long cutting edge | High-performance machining

EPM-4EL-W



– Type of shank DIN 6535HB
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG406
EPM-4EL-D3.0-W		3	6	8	57	4	A	●
EPM-4EL-D4.0-W		4	6	11	57	4	A	●
EPM-4EL-D5.0-W		5	6	13	57	4	A	●
EPM-4EL-D6.0-W		6	6	13	57	4	B	●
EPM-4EL-D8.0-W		8	8	19	63	4	B	●
EPM-4EL-D10.0-W		10	10	22	72	4	B	●
EPM-4EL-D12.0-W		12	12	26	83	4	B	●
EPM-4EL-D14.0-W		14	14	26	83	4	B	●
EPM-4EL-D16.0-W		16	16	32	92	4	B	●
EPM-4EL-D18.0-W		18	18	32	92	4	B	●
EPM-4EL-D20.0-W		20	20	38	104	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔			✔

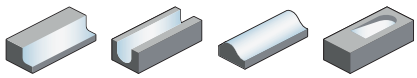
✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

Ball nose cutter

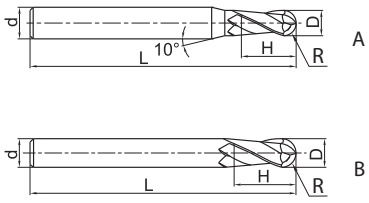
High-performance machining

EPM-2B



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Geometry	Grade KMG406
EPM-2B-R1.5		1.5	3	6	6	50	2	A	●
EPM-2B-R2.0		2	4	6	8	50	2	A	●
EPM-2B-R2.5		2.5	5	6	10	50	2	A	●
EPM-2B-R3.0		3	6	6	12	50	2	B	●
EPM-2B-R4.0		4	8	8	16	60	2	B	●
EPM-2B-R5.0		5	10	10	20	75	2	B	●
EPM-2B-R6.0		6	12	12	24	75	2	B	●
EPM-2B-R7.0		7	14	14	28	75	2	B	●
EPM-2B-R8.0		8	16	16	32	100	2	B	●
EPM-2B-R10.0		10	20	20	40	100	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

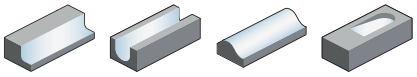
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

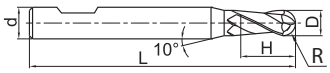
Ball nose cutter High-performance machining

EPM-2B-W

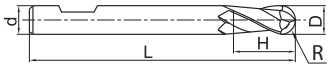


– Type of shank DIN 6535HB
– Centre cutting
– Helix angle 30°





A



B

Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG406
EPM-2B-R1.5-W		1.5	3	6	4	50	2	A	●
EPM-2B-R2.0-W		2	4	6	5	54	2	A	●
EPM-2B-R2.5-W		2.5	5	6	6	54	2	A	●
EPM-2B-R3.0-W		3	6	6	7	54	2	B	●
EPM-2B-R4.0-W		4	8	8	9	58	2	B	●
EPM-2B-R5.0-W		5	10	10	11	66	2	B	●
EPM-2B-R6.0-W		6	12	12	12	73	2	B	●
EPM-2B-R8.0-W		8	16	16	16	83	2	B	●
EPM-2B-R10.0-W		10	20	20	20	92	2	B	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

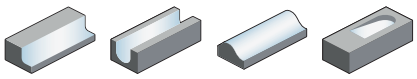
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

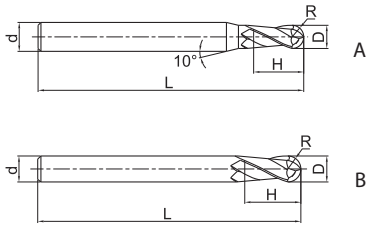
Ball nose cutter long shank | High-performance machining

EPM-2BL



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG406
EPM-2BL-R1.5		1.5	3	6	6	75	2	A	●
EPM-2BL-R2.0		2	4	6	8	75	2	A	●
EPM-2BL-R2.5		2.5	5	6	10	75	2	A	●
EPM-2BL-R3.0		3	6	6	12	75	2	B	●
EPM-2BL-R4.0		4	8	8	16	100	2	B	●
EPM-2BL-R5.0		5	10	10	20	100	2	B	●
EPM-2BL-R6.0		6	12	12	24	100	2	B	●
EPM-2BL-R7.0		7	14	14	28	100	2	B	●
EPM-2BL-R8.0		8	16	16	32	150	2	B	●
EPM-2BL-R10.0		10	20	20	40	150	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

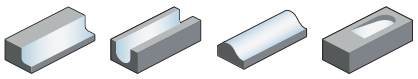
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

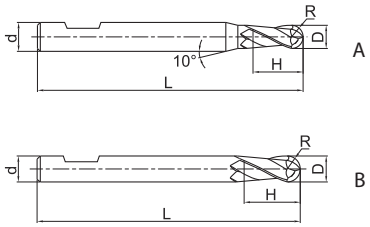
Ball nose cutter long shank | High-performance machining

EPM-2BL-W



– Type of shank DIN 6535HB
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG406
EPM-2BL-R1.5-W		1.5	3	6	4	57	2	A	●
EPM-2BL-R2.0-W		2	4	6	5	57	2	A	●
EPM-2BL-R2.5-W		2.5	5	6	6	57	2	A	●
EPM-2BL-R3.0-W		3	6	6	7	57	2	B	●
EPM-2BL-R4.0-W		4	8	8	9	63	2	B	●
EPM-2BL-R5.0-W		5	10	10	11	72	2	B	●
EPM-2BL-R6.0-W		6	12	12	12	83	2	B	●
EPM-2BL-R8.0-W		8	16	16	16	92	2	B	●
EPM-2BL-R10.0-W		10	20	20	20	104	2	B	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔			✔

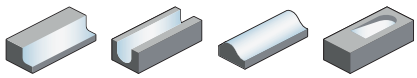
✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

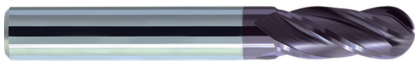
Ball nose cutter

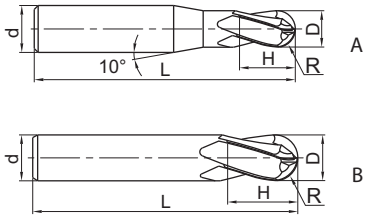
High-performance machining

EPM-4B



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG406
EPM-4B-R1.5		1.5	3	6	6	50	4	A	●
EPM-4B-R2.0		2	4	6	8	50	4	A	●
EPM-4B-R2.5		2.5	5	6	10	50	4	A	●
EPM-4B-R3.0		3	6	6	12	50	4	B	●
EPM-4B-R4.0		4	8	8	16	60	4	B	●
EPM-4B-R5.0		5	10	10	20	75	4	B	●
EPM-4B-R6.0		6	12	12	24	75	4	B	●
EPM-4B-R7.0		7	14	14	28	75	4	B	●
EPM-4B-R8.0		8	16	16	32	100	4	B	●
EPM-4B-R9.0		9	18	18	36	100	4	B	●
EPM-4B-R10.0		10	20	20	40	100	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

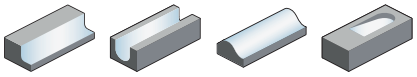
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

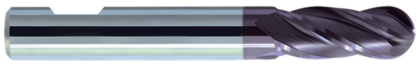
System code B362 Cutting data B582 Nonstandard order B633

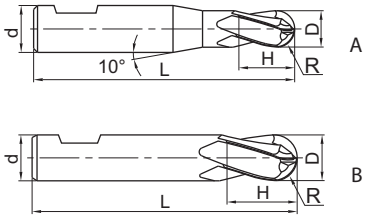
Ball nose cutter High-performance machining

EPM-4B-W



– Type of shank DIN 6535HB
– Centre cutting
– Helix angle 30°





Article	✲	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG406
EPM-4B-R1.5-W		1.5	3	6	4	50	4	A	●
EPM-4B-R2.0-W		2	4	6	5	54	4	A	●
EPM-4B-R2.5-W		2.5	5	6	6	54	4	A	●
EPM-4B-R3.0-W		3	6	6	7	54	4	B	●
EPM-4B-R4.0-W		4	8	8	9	58	4	B	●
EPM-4B-R5.0-W		5	10	10	11	66	4	B	●
EPM-4B-R6.0-W		6	12	12	12	73	4	B	●
EPM-4B-R7.0-W		7	14	14	14	75	4	B	●
EPM-4B-R8.0-W		8	16	16	16	83	4	B	●
EPM-4B-R9.0-W		9	18	18	18	84	4	B	●
EPM-4B-R10.0-W		10	20	20	20	92	4	B	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

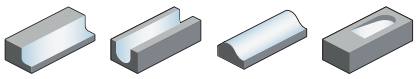
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

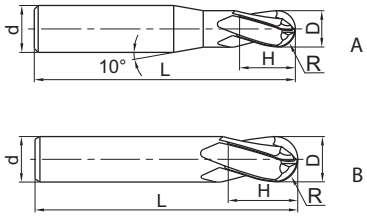
Ball nose cutter long shank | High-performance machining

EPM-4BL



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG406
EPM-4BL-R1.5		1.5	3	6	6	75	4	A	●
EPM-4BL-R2.0		2	4	6	8	75	4	A	●
EPM-4BL-R2.5		2.5	5	6	10	75	4	A	●
EPM-4BL-R3.0		3	6	6	12	75	4	B	●
EPM-4BL-R4.0		4	8	8	16	100	4	B	●
EPM-4BL-R5.0		5	10	10	20	100	4	B	●
EPM-4BL-R6.0		6	12	12	24	100	4	B	●
EPM-4BL-R7.0		7	14	14	28	100	4	B	●
EPM-4BL-R8.0		8	16	16	32	150	4	B	●
EPM-4BL-R10.0		10	20	20	40	150	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

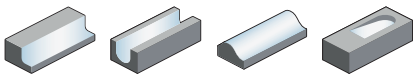
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

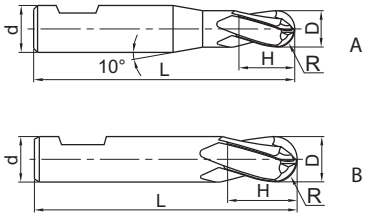
Ball nose cutter long shank | High-performance machining

EPM-4BL-W



– Type of shank DIN 6535HB
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG406
EPM-4BL-R1.5-W		1.5	3	6	4	57	4	A	●
EPM-4BL-R2.0-W		2	4	6	5	57	4	A	●
EPM-4BL-R2.5-W		2.5	5	6	6	57	4	A	●
EPM-4BL-R3.0-W		3	6	6	7	57	4	B	●
EPM-4BL-R4.0-W		4	8	8	9	63	4	B	●
EPM-4BL-R5.0-W		5	10	10	11	72	4	B	●
EPM-4BL-R6.0-W		6	12	12	12	83	4	B	●
EPM-4BL-R8.0-W		8	16	16	16	92	4	B	●
EPM-4BL-R10.0-W		10	20	20	20	104	4	B	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

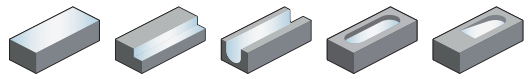
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

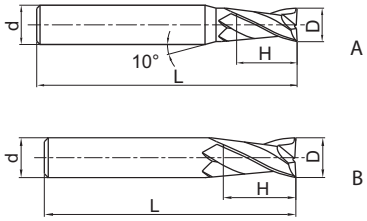
End mill | Hard machining

HM-2E



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG555
HM-2E-D1.0S		1	4	3	50	2	A	●
HM-2E-D1.5S		1.5	4	4	50	2	A	●
HM-2E-D2.0S		2	4	6	50	2	A	●
HM-2E-D2.5S		2.5	4	8	50	2	A	●
HM-2E-D3.0S		3	4	8	50	2	A	●
HM-2E-D4.0S		4	4	11	50	2	B	○
HM-2E-D1.0		1	6	3	50	2	A	●
HM-2E-D1.5		1.5	6	4	50	2	A	●
HM-2E-D2.0		2	6	6	50	2	A	●
HM-2E-D2.5		2.5	6	8	50	2	A	●
HM-2E-D3.0		3	6	8	50	2	A	●
HM-2E-D3.5		3.5	6	10	50	2	A	○
HM-2E-D4.0		4	6	11	50	2	A	●
HM-2E-D4.5		4.5	6	11	50	2	A	○
HM-2E-D5.0		5	6	13	50	2	A	●
HM-2E-D5.5		5.5	6	16	50	2	A	○
HM-2E-D6.0		6	6	16	50	2	B	●
HM-2E-D7.0		7	8	20	60	2	A	○
HM-2E-D8.0		8	8	20	60	2	B	●
HM-2E-D10.0		10	10	25	75	2	B	●
HM-2E-D11.0		11	12	26	75	2	A	○
HM-2E-D12.0		12	12	30	75	2	B	●
HM-2E-D14.0		14	14	32	100	2	B	●
HM-2E-D16.0		16	16	45	100	2	B	○
HM-2E-D18.0		18	18	45	100	2	B	○
HM-2E-D20.0		20	20	45	100	2	B	○

● Ex stock ○ On demand
✻ With internal cooling

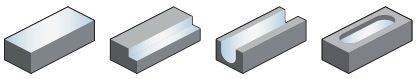
Application field

P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

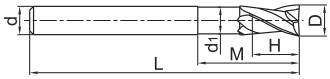
End mill short cutting edge | Hard machining



HM-2EFP

– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG555
HM-2EFP-D6.0		6	6	5.8	9	30	75	2	○
HM-2EFP-D8.0		8	8	7.8	12	40	100	2	○
HM-2EFP-D10.0		10	10	9.6	15	50	100	2	○
HM-2EFP-D12.0		12	12	11.5	18	50	100	2	○
HM-2EFP-D16.0		16	16	15.5	24	50	150	2	○
HM-2EFP-D20.0		20	20	19.5	30	60	150	2	○

● Ex stock ○ On demand
✻ With internal cooling

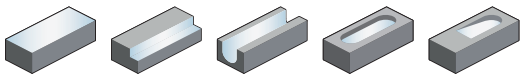
Application field

P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

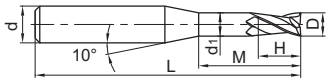
End mill | Hard machining



HM-2EP

– Straight shank
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG555
HM-2EP-D0.5-M04		0.5	4	0.45	0.7	4	50	2	●
HM-2EP-D0.5-M06		0.5	4	0.45	0.7	6	50	2	●
HM-2EP-D0.5-M08		0.5	4	0.45	0.7	8	50	2	●
HM-2EP-D0.8-M04		0.8	4	0.75	1.2	4	50	2	●
HM-2EP-D0.8-M06		0.8	4	0.75	1.2	6	50	2	●
HM-2EP-D0.8-M08		0.8	4	0.75	1.2	8	50	2	●
HM-2EP-D0.8-M10		0.8	4	0.75	1.2	10	50	2	●
HM-2EP-D1.0-M04		1	4	0.95	1.5	4	50	2	●
HM-2EP-D1.0-M06		1	4	0.95	1.5	6	50	2	●
HM-2EP-D1.0-M08		1	4	0.95	1.5	8	50	2	●
HM-2EP-D1.0-M10		1	4	0.95	1.5	10	50	2	●
HM-2EP-D1.0-M12		1	4	0.95	1.5	12	50	2	●
HM-2EP-D1.0-M14		1	4	0.95	1.5	14	50	2	●
HM-2EP-D1.2-M06		1.2	4	1.15	1.8	6	50	2	○
HM-2EP-D1.2-M08		1.2	4	1.15	1.8	8	50	2	○
HM-2EP-D1.2-M10		1.2	4	1.15	1.8	10	50	2	●
HM-2EP-D1.2-M12		1.2	4	1.15	1.8	12	50	2	○
HM-2EP-D1.5-M06		1.5	4	1.45	2.3	6	50	2	●
HM-2EP-D1.5-M08		1.5	4	1.45	2.3	8	50	2	●
HM-2EP-D1.5-M10		1.5	4	1.45	2.3	10	50	2	●
HM-2EP-D1.5-M12		1.5	4	1.45	2.3	12	50	2	●
HM-2EP-D1.5-M14		1.5	4	1.45	2.3	14	50	2	●
HM-2EP-D2.0-M06		2	4	1.95	3	6	50	2	●
HM-2EP-D2.0-M08		2	4	1.95	3	8	50	2	●
HM-2EP-D2.0-M10		2	4	1.95	3	10	50	2	●
HM-2EP-D2.0-M12		2	4	1.95	3	12	50	2	●
HM-2EP-D2.0-M14		2	4	1.95	3	14	50	2	●
HM-2EP-D2.0-M16		2	4	1.95	3	16	50	2	●
HM-2EP-D2.5-M08		2.5	4	2.4	3.7	8	50	2	●
HM-2EP-D2.5-M10		2.5	4	2.4	3.7	10	50	2	●
HM-2EP-D2.5-M12		2.5	4	2.4	3.7	12	50	2	●
HM-2EP-D2.5-M14		2.5	4	2.4	3.7	14	50	2	○
HM-2EP-D2.5-M16		2.5	4	2.4	3.7	16	60	2	○
HM-2EP-D2.5-M18		2.5	4	2.4	3.7	18	60	2	●
HM-2EP-D2.5-M20		2.5	4	2.4	3.7	20	60	2	●
HM-2EP-D3.0-M06		3	6	2.85	4.5	6	50	2	○
HM-2EP-D3.0-M08		3	6	2.85	4.5	8	50	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

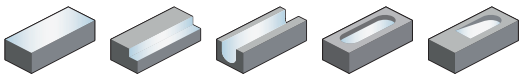
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

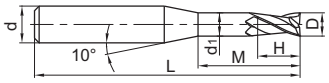
End mill Hard machining

HM-2EP



– Straight shank
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm] D	d (h6)	d_1	H	M	L	Teeth	Grade KMG555
HM-2EP-D3.0-M10		3	6	2.85	4.5	10	50	2	●
HM-2EP-D3.0-M12		3	6	2.85	4.5	12	50	2	●
HM-2EP-D3.0-M14		3	6	2.85	4.5	14	60	2	○
HM-2EP-D3.0-M16		3	6	2.85	4.5	16	60	2	●
HM-2EP-D3.0-M18		3	6	2.85	4.5	18	60	2	○
HM-2EP-D3.0-M20		3	6	2.85	4.5	20	60	2	●
HM-2EP-D4.0-M12		4	6	3.85	6	12	60	2	●
HM-2EP-D4.0-M16		4	6	3.85	6	16	60	2	●
HM-2EP-D4.0-M20		4	6	3.85	6	20	60	2	●
HM-2EP-D4.0-M25		4	6	3.85	6	25	60	2	●
HM-2EP-D5.0-M16		5	6	4.85	7.5	16	60	2	●
HM-2EP-D5.0-M25		5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

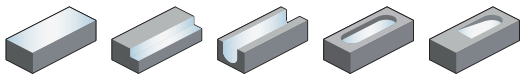
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

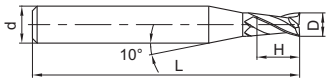
End mill | Hard machining

HM-2ES



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG555
HM-2ES-D0.3		0.3	4	0.6	50	2	●
HM-2ES-D0.4		0.4	4	0.8	50	2	○
HM-2ES-D0.5		0.5	4	1	50	2	●
HM-2ES-D0.6		0.6	4	1.2	50	2	○
HM-2ES-D0.7		0.7	4	1.4	50	2	○
HM-2ES-D0.8		0.8	4	1.6	50	2	●
HM-2ES-D0.9		0.9	4	1.8	50	2	○
HM-2ES-D1.0		1	4	2	50	2	○
HM-2ES-D1.1		1.1	4	2	50	2	○
HM-2ES-D1.2		1.2	4	2.5	50	2	○
HM-2ES-D1.3		1.3	4	2.5	50	2	○
HM-2ES-D1.4		1.4	4	3	50	2	○
HM-2ES-D1.5		1.5	4	3	50	2	○
HM-2ES-D1.6		1.6	4	3.5	50	2	○
HM-2ES-D1.7		1.7	4	3.5	50	2	○
HM-2ES-D1.8		1.8	4	4	50	2	○
HM-2ES-D1.9		1.9	4	4	50	2	○
HM-2ES-D2.0		2	4	4	50	2	○
HM-2ES-D2.1		2.1	4	4	50	2	○
HM-2ES-D2.2		2.2	4	4.5	50	2	○
HM-2ES-D2.3		2.3	4	4.5	50	2	○
HM-2ES-D2.4		2.4	4	5	50	2	○
HM-2ES-D2.5		2.5	4	5	50	2	○
HM-2ES-D2.6		2.6	4	5	50	2	○
HM-2ES-D2.7		2.7	4	5.5	50	2	○
HM-2ES-D2.8		2.8	4	5.5	50	2	○
HM-2ES-D2.9		2.9	4	6	50	2	○
HM-2ES-D3.0		3	4	6	50	2	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
					✔

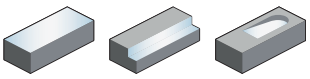
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

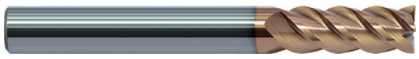
Solid carbide milling HM series

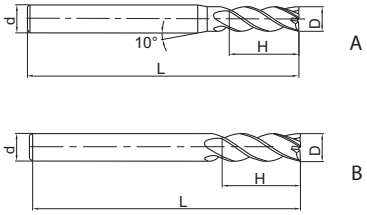
End mill Hard machining

HM-4E



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✲	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG555
HM-4E-D1.0S		1	4	3	50	4	A	●
HM-4E-D1.5S		1.5	4	4	50	4	A	●
HM-4E-D2.0S		2	4	6	50	4	A	●
HM-4E-D2.5S		2.5	4	8	50	4	A	●
HM-4E-D3.0S		3	4	8	50	4	A	●
HM-4E-D4.0S		4	4	11	50	4	B	●
HM-4E-D1.0		1	6	3	50	4	A	●
HM-4E-D1.5		1.5	6	4	50	4	A	●
HM-4E-D2.0		2	6	6	50	4	A	●
HM-4E-D2.5		2.5	6	8	50	4	A	●
HM-4E-D3.0		3	6	8	50	4	A	●
HM-4E-D3.5		3.5	6	10	50	4	A	●
HM-4E-D4.0		4	6	11	50	4	A	●
HM-4E-D4.5		4.5	6	11	50	4	A	●
HM-4E-D5.0		5	6	13	50	4	A	●
HM-4E-D5.5		5.5	6	16	50	4	A	●
HM-4E-D6.0		6	6	16	50	4	B	●
HM-4E-D7.0		7	8	20	60	4	A	●
HM-4E-D8.0		8	8	20	60	4	B	●
HM-4E-D9.0		9	10	22	75	4	A	●
HM-4E-D10.0		10	10	25	75	4	B	●
HM-4E-D11.0		11	12	26	75	4	A	●
HM-4E-D12.0		12	12	30	75	4	B	●
HM-4E-D14.0		14	14	32	75	4	B	●
HM-4E-D16.0		16	16	45	100	4	B	●
HM-4E-D18.0		18	18	45	100	4	B	●
HM-4E-D20.0		20	20	45	100	4	B	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

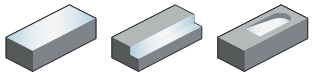
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

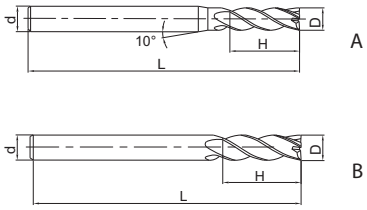
End mill long shank | Hard machining

HM-4EL



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG555
HM-4EL-D3.0		3	6	12	75	4	A	●
HM-4EL-D4.0		4	6	15	75	4	A	●
HM-4EL-D5.0		5	6	20	75	4	A	●
HM-4EL-D6.0		6	6	20	75	4	B	●
HM-4EL-D8.0		8	8	25	100	4	B	●
HM-4EL-D10.0		10	10	30	100	4	B	●
HM-4EL-D12.0		12	12	35	100	4	B	●
HM-4EL-D14.0		14	14	40	100	4	B	●
HM-4EL-D16.0		16	16	50	150	4	B	●
HM-4EL-D20.0		20	20	55	150	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

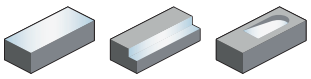
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

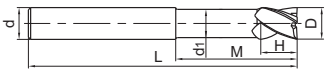
End mill short cutting edge | Hard machining

HM-4EFP



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG555
HM-4EFP-D6.0		6	6	5.8	9	30	75	4	●
HM-4EFP-D8.0		8	8	7.8	12	40	100	4	●
HM-4EFP-D10.0		10	10	9.6	15	50	100	4	●
HM-4EFP-D12.0		12	12	11.5	18	50	100	4	●
HM-4EFP-D16.0		16	16	15.5	24	50	150	4	●
HM-4EFP-D20.0		20	20	19.5	30	60	150	4	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

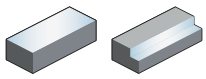
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

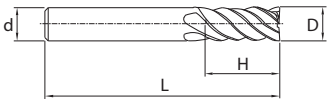
End mill long cutting edge | High-speed hard machining

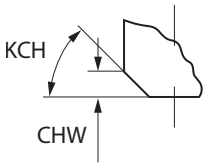
5502R55MHH



– Type of shank DIN 6535HA
– Non-centre cutting
– Helix angle 55°







Article	✻	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	H	L	KCH	CHW		KMG405	KMG555
5502R55MHH-0300		3	6	8	57	0	0	4	○	○
5502R55MHH-0400		4	6	11	57	0	0	4	○	○
5502R55MHH-0500		5	6	13	57	0	0	5	○	○
5502R55MHH-0600		6	6	13	57	45	0.1	6	○	○
5502R55MHH-0800		8	8	19	63	45	0.1	6	○	○
5502R55MHH-1000		10	10	22	72	45	0.1	6	○	○
5502R55MHH-1200		12	12	26	83	45	0.1	6	○	○
5502R55MHH-1600		16	16	32	92	45	0.1	6	○	○
5502R55MHH-2000		20	20	38	104	45	0.1	8	○	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

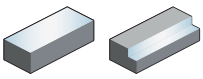
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

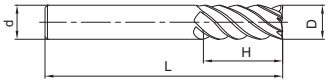
End mill Hard machining

HM-6E



– Factory standard
– Non-centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm] D	d (h6)	H	L	Teeth	Grade KMG555
HM-6E-D6.0		6	6	18	60	6	○
HM-6E-D8.0		8	8	20	60	6	○
HM-6E-D10.0		10	10	30	75	6	○
HM-6E-D12.0		12	12	32	75	6	○
HM-6E-D16.0		16	16	40	100	6	○
HM-6E-D20.0		20	20	45	100	6	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

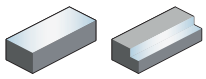
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

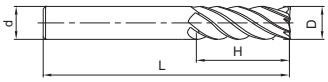
End mill long shank | Hard machining

HM-6EL



– Factory standard
– Non-centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG555
HM-6EL-D6.0		6	6	24	75	6	●
HM-6EL-D8.0		8	8	32	75	6	●
HM-6EL-D10.0		10	10	40	100	6	●
HM-6EL-D12.0		12	12	45	100	6	●
HM-6EL-D16.0		16	16	64	150	6	●
HM-6EL-D20.0		20	20	75	150	6	●
HM-6EL-D25.0		25	25	92	180	6	○

● Ex stock ○ On demand
✻ With internal cooling

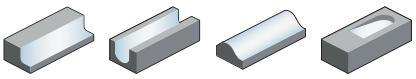
Application field

P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

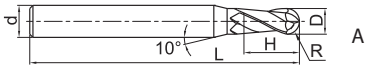
Ball nose cutter Hard machining

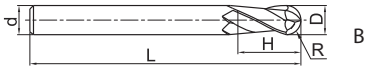


HM-2B

– Factory standard
– Centre cutting
– Helix angle 35°







Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG555
HM-2B-R0.5S		0.5	1	4	2	50	2	A	●
HM-2B-R0.75S		0.75	1.5	4	3	50	2	A	●
HM-2B-R1.0S		1	2	4	4	50	2	A	●
HM-2B-R1.25S		1.25	2.5	4	5	50	2	A	○
HM-2B-R1.5S		1.5	3	4	6	50	2	A	○
HM-2B-R2.0S		2	4	4	8	50	2	B	●
HM-2B-R0.5		0.5	1	6	2	50	2	A	●
HM-2B-R0.75		0.75	1.5	6	3	50	2	A	●
HM-2B-R1.0		1	2	6	4	50	2	A	●
HM-2B-R1.25		1.25	2.5	6	5	50	2	A	○
HM-2B-R1.5		1.5	3	6	6	50	2	A	●
HM-2B-R1.75		1.75	3.5	6	8	50	2	A	●
HM-2B-R2.0		2	4	6	8	50	2	A	●
HM-2B-R2.5		2.5	5	6	10	50	2	A	●
HM-2B-R2.75		2.75	5.5	6	12	50	2	A	●
HM-2B-R3.0		3	6	6	12	50	2	B	●
HM-2B-R3.5		3.5	7	8	14	60	2	A	○
HM-2B-R4.0		4	8	8	16	60	2	B	●
HM-2B-R4.5		4.5	9	10	18	75	2	A	○
HM-2B-R5.0		5	10	10	20	75	2	B	●
HM-2B-R6.0		6	12	12	24	75	2	B	●
HM-2B-R7.0		7	14	14	28	75	2	B	○
HM-2B-R8.0		8	16	16	32	100	2	B	●
HM-2B-R10.0		10	20	20	40	100	2	B	○

● Ex stock ○ On demand

✻ With internal cooling

Application field

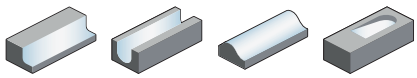
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

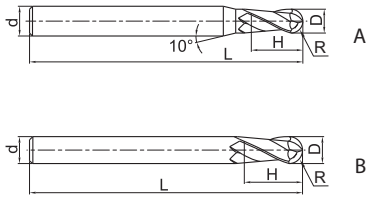
Ball nose cutter long shank | Hard machining

HM-2BL



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Geometry	Grade KMG555
HM-2BL-R1.0		1	2	6	4	75	2	A	●
HM-2BL-R1.25		1.25	2.5	6	6	75	2	A	●
HM-2BL-R1.5		1.5	3	6	6	75	2	A	●
HM-2BL-R1.75		1.75	3.5	6	8	75	2	A	●
HM-2BL-R2.0		2	4	6	8	75	2	A	●
HM-2BL-R2.5		2.5	5	6	10	75	2	A	●
HM-2BL-R2.75		2.75	5.5	6	12	75	2	A	○
HM-2BL-R3.0		3	6	6	12	75	2	B	●
HM-2BL-R3.5		3.5	7	8	14	75	2	A	●
HM-2BL-R4.0		4	8	8	16	100	2	B	●
HM-2BL-R4.5		4.5	9	10	18	100	2	A	○
HM-2BL-R5.0		5	10	10	20	100	2	B	●
HM-2BL-R6.0		6	12	12	24	100	2	B	●
HM-2BL-R7.0		7	14	14	28	100	2	B	○
HM-2BL-R8.0		8	16	16	32	150	2	B	○
HM-2BL-R10.0		10	20	20	40	150	2	B	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
					✔

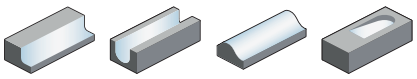
✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

Ball nose cutter short cutting edge

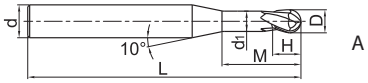
Hard machining

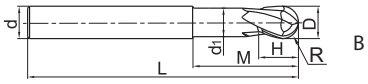
HM-2BFP



– Factory standard
– Centre cutting
– Helix angle 35°







Article	✲	Dimensions [mm]							Teeth	Geometry	Grade
		R	D	d (h6)	d_1	H	M	L			KMG555
HM-2BFP-R0.5		0.5	1	6	0.95	1	2.5	75	2	A	●
HM-2BFP-R0.75		0.75	1.5	6	1.45	1.5	3	75	2	A	●
HM-2BFP-R1.0		1	2	6	1.95	2	4	75	2	A	●
HM-2BFP-R1.5		1.5	3	6	2.85	3	6	75	2	A	●
HM-2BFP-R2.0		2	4	6	3.85	4	8	75	2	A	●
HM-2BFP-R2.5		2.5	5	6	4.85	5	10	75	2	A	●
HM-2BFP-R3.0		3	6	6	5.8	6	12	75	2	B	●
HM-2BFP-R4.0		4	8	8	7.8	8	16	100	2	B	●
HM-2BFP-R5.0		5	10	10	9.6	10	20	100	2	B	●
HM-2BFP-R6.0		6	12	12	11.5	12	24	100	2	B	●
HM-2BFP-R8.0		8	16	16	15.5	16	32	150	2	B	●
HM-2BFP-R10.0		10	20	20	19.5	20	40	150	2	B	○

● Ex stock ○ On demand

✲ With internal cooling

Application field

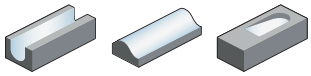
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

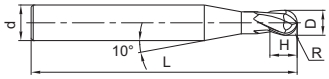
Ball nose cutter | Hard machining

HM-2BS



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMG555
HM-2BS-R0.15		0.15	0.3	4	0.5	50	2	●
HM-2BS-R0.20		0.2	0.4	4	0.6	50	2	●
HM-2BS-R0.25		0.25	0.5	4	0.8	50	2	●
HM-2BS-R0.30		0.3	0.6	4	0.9	50	2	●
HM-2BS-R0.35		0.35	0.7	4	1	50	2	○
HM-2BS-R0.40		0.4	0.8	4	1.2	50	2	●
HM-2BS-R0.45		0.45	0.9	4	1.3	50	2	●
HM-2BS-R0.50		0.5	1	4	1.5	50	2	●
HM-2BS-R0.60		0.6	1.2	4	1.8	50	2	●
HM-2BS-R0.70		0.7	1.4	4	2	50	2	○
HM-2BS-R0.75		0.75	1.5	4	2.3	50	2	●
HM-2BS-R0.80		0.8	1.6	4	2.5	50	2	○
HM-2BS-R0.90		0.9	1.8	4	2.7	50	2	●
HM-2BS-R1.00		1	2	4	3	50	2	●
HM-2BS-R1.25		1.25	2.5	4	3.7	50	2	●
HM-2BS-R1.50		1.5	3	4	4.5	50	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
					✔

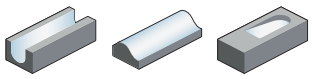
✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

Solid carbide milling HM series

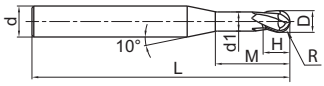
Ball nose cutter Hard machining

HM-2BP



– Straight shank
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMG555
HM-2BP-R0.25-M04		0.25	0.5	4	0.45	0.7	4	50	2	●
HM-2BP-R0.25-M06		0.25	0.5	4	0.45	0.7	6	50	2	●
HM-2BP-R0.3-M04		0.3	0.6	4	0.55	0.9	4	50	2	●
HM-2BP-R0.3-M06		0.3	0.6	4	0.55	0.9	6	50	2	●
HM-2BP-R0.3-M08		0.3	0.6	4	0.55	0.9	8	50	2	●
HM-2BP-R0.4-M04		0.4	0.8	4	0.75	1.2	4	50	2	●
HM-2BP-R0.4-M06		0.4	0.8	4	0.75	1.2	6	50	2	●
HM-2BP-R0.4-M08		0.4	0.8	4	0.75	1.2	8	50	2	●
HM-2BP-R0.4-M10		0.4	0.8	4	0.75	1.2	10	50	2	○
HM-2BP-R0.5-M04		0.5	1	4	0.95	1.5	4	50	2	●
HM-2BP-R0.5-M06		0.5	1	4	0.95	1.5	6	50	2	●
HM-2BP-R0.5-M08		0.5	1	4	0.95	1.5	8	50	2	●
HM-2BP-R0.5-M10		0.5	1	4	0.95	1.5	10	50	2	●
HM-2BP-R0.5-M12		0.5	1	4	0.95	1.5	12	50	2	●
HM-2BP-R0.6-M06		0.6	1.2	4	1.15	1.8	6	50	2	●
HM-2BP-R0.6-M08		0.6	1.2	4	1.15	1.8	8	50	2	●
HM-2BP-R0.6-M12		0.6	1.2	4	1.15	1.8	12	50	2	●
HM-2BP-R0.6-M16		0.6	1.2	4	1.15	1.8	16	50	2	○
HM-2BP-R0.75-M08		0.75	1.5	4	1.45	2.3	8	50	2	●
HM-2BP-R0.75-M12		0.75	1.5	4	1.45	2.3	12	50	2	●
HM-2BP-R0.75-M16		0.75	1.5	4	1.45	2.3	16	50	2	●
HM-2BP-R1.0-M06		1	2	4	1.95	3	6	50	2	●
HM-2BP-R1.0-M08		1	2	4	1.95	3	8	50	2	●
HM-2BP-R1.0-M10		1	2	4	1.95	3	10	50	2	●
HM-2BP-R1.0-M12		1	2	4	1.95	3	12	50	2	●
HM-2BP-R1.0-M16		1	2	4	1.95	3	16	50	2	●
HM-2BP-R1.0-M20		1	2	4	1.95	3	20	50	2	●
HM-2BP-R1.25-M08		1.25	2.5	4	2.4	3.7	8	50	2	●
HM-2BP-R1.25-M12		1.25	2.5	4	2.4	3.7	12	50	2	○
HM-2BP-R1.25-M16		1.25	2.5	4	2.4	3.7	16	60	2	●
HM-2BP-R1.25-M20		1.25	2.5	4	2.4	3.7	20	60	2	○
HM-2BP-R1.5-M08		1.5	3	6	2.85	4.5	8	50	2	●
HM-2BP-R1.5-M10		1.5	3	6	2.85	4.5	10	50	2	●
HM-2BP-R1.5-M12		1.5	3	6	2.85	4.5	12	50	2	●
HM-2BP-R1.5-M16		1.5	3	6	2.85	4.5	16	60	2	●
HM-2BP-R1.5-M20		1.5	3	6	2.85	4.5	20	60	2	●
HM-2BP-R2.0-M10		2	4	6	3.85	6	10	60	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

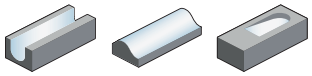
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

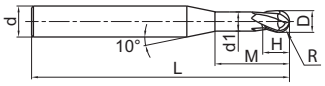
Ball nose cutter **Hard machining**

HM-2BP



– Straight shank
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMG555
HM-2BP-R2.0-M16		2	4	6	3.85	6	16	60	2	●
HM-2BP-R2.0-M20		2	4	6	3.85	6	20	60	2	●
HM-2BP-R2.0-M25		2	4	6	3.85	6	25	60	2	●
HM-2BP-R2.5-M16		2.5	5	6	4.85	7.5	16	60	2	●
HM-2BP-R2.5-M25		2.5	5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

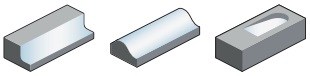
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

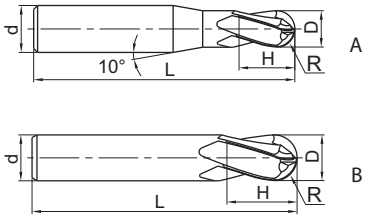
Ball nose cutter Hard machining

HM-4B



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✲	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG555
HM-4B-R1.0		1	2	6	4	50	4	A	●
HM-4B-R1.5		1.5	3	6	6	50	4	A	●
HM-4B-R2.0		2	4	6	8	50	4	A	●
HM-4B-R2.5		2.5	5	6	10	50	4	A	●
HM-4B-R3.0		3	6	6	12	50	4	B	●
HM-4B-R4.0		4	8	8	16	60	4	B	●
HM-4B-R5.0		5	10	10	20	75	4	B	●
HM-4B-R6.0		6	12	12	24	75	4	B	●
HM-4B-R7.0		7	14	14	28	75	4	B	●
HM-4B-R8.0		8	16	16	32	100	4	B	●
HM-4B-R9.0		9	18	18	36	100	4	B	○
HM-4B-R10.0		10	20	20	40	100	4	B	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

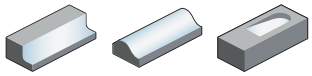
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

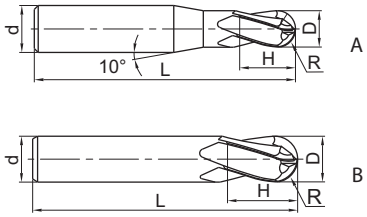
Ball nose cutter long shank | Hard machining

HM-4BL



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Geometry	Grade KMG555
HM-4BL-R1.5		1.5	3	6	6	75	4	A	●
HM-4BL-R2.0		2	4	6	8	75	4	A	●
HM-4BL-R2.5		2.5	5	6	10	75	4	A	●
HM-4BL-R3.0		3	6	6	12	75	4	B	●
HM-4BL-R4.0		4	8	8	16	100	4	B	●
HM-4BL-R5.0		5	10	10	20	100	4	B	●
HM-4BL-R6.0		6	12	12	24	100	4	B	●
HM-4BL-R7.0		7	14	14	28	100	4	B	○
HM-4BL-R8.0		8	16	16	32	150	4	B	●
HM-4BL-R9.0		9	18	18	36	150	4	B	○
HM-4BL-R10.0		10	20	20	40	150	4	B	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

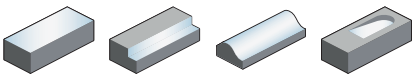
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

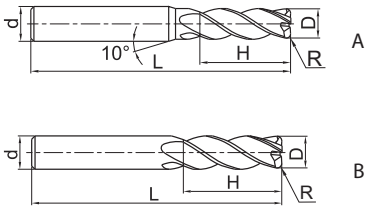
Torus mill Hard machining

HM-4R



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Geometry	Grade KMG555
HM-4R-D3.0R0.2		0.2	3	4	8	50	4	A	●
HM-4R-D4.0R0.1		0.1	4	4	10	50	4	B	○
HM-4R-D4.0R0.2		0.2	4	4	10	50	4	B	○
HM-4R-D4.0R0.3		0.3	4	4	10	50	4	B	●
HM-4R-D4.0R0.5		0.5	4	4	10	50	4	B	●
HM-4R-D5.0R0.5		0.5	5	6	13	50	4	A	●
HM-4R-D5.0R1.0		1	5	6	13	50	4	A	●
HM-4R-D6.0R0.2		0.2	6	6	16	50	4	B	○
HM-4R-D6.0R0.5		0.5	6	6	16	50	4	B	●
HM-4R-D6.0R1.0		1	6	6	16	50	4	B	●
HM-4R-D8.0R0.5		0.5	8	8	20	60	4	B	●
HM-4R-D8.0R1.0		1	8	8	20	60	4	B	●
HM-4R-D10.0R0.5		0.5	10	10	25	75	4	B	●
HM-4R-D10.0R1.0		1	10	10	25	75	4	B	●
HM-4R-D10.0R2.0		2	10	10	25	75	4	B	●
HM-4R-D10.0R3.0		3	10	10	25	75	4	B	●
HM-4R-D12.0R0.5		0.5	12	12	30	75	4	B	●
HM-4R-D12.0R1.0		1	12	12	30	75	4	B	●
HM-4R-D12.0R2.0		2	12	12	30	75	4	B	●
HM-4R-D12.0R3.0		3	12	12	30	75	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
					✔

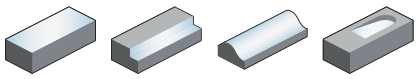
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Torus mill short cutting edge

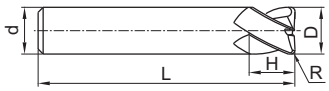
Hard machining

HM-4RF



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMG555
HM-4RF-D6.0R0.5		0.5	6	6	6	50	4	○
HM-4RF-D6.0R1.0		1	6	6	6	50	4	○
HM-4RF-D8.0R0.5		0.5	8	8	8	60	4	○
HM-4RF-D8.0R1.0		1	8	8	8	60	4	○
HM-4RF-D10.0R0.5		0.5	10	10	10	75	4	○
HM-4RF-D10.0R1.0		1	10	10	10	75	4	○
HM-4RF-D10.0R2.0		2	10	10	10	75	4	○
HM-4RF-D12.0R0.5		0.5	12	12	12	75	4	○
HM-4RF-D12.0R1.0		1	12	12	12	75	4	○
HM-4RF-D12.0R2.0		2	12	12	12	75	4	○

● Ex stock ○ On demand

✻ With internal cooling

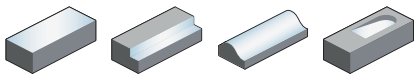
Application field

P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

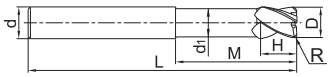
Torus mill long shank | Hard machining



HM-4RP

– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm] R	D	d (h6)	d_1	H	M	L	Teeth	Grade KMG555
HM-4RP-D3.0R0.5		0.5	3	6	2.8	3	25	75	4	○
HM-4RP-D4.0R0.5		0.5	4	6	3.8	4	30	75	4	○
HM-4RP-D4.0R1.0		1	4	6	3.8	4	30	75	4	○
HM-4RP-D5.0R0.5		0.5	5	6	4.8	5	30	75	4	○
HM-4RP-D6.0R0.5		0.5	6	6	5.8	6	18	75	4	○
HM-4RP-D6.0R1.0		1	6	6	5.8	6	18	75	4	○
HM-4RP-D8.0R0.5		0.5	8	8	7.8	8	24	100	4	○
HM-4RP-D8.0R1.0		1	8	8	7.8	8	24	100	4	○
HM-4RP-D10.0R0.5		0.5	10	10	9.6	10	30	100	4	○
HM-4RP-D10.0R1.0		1	10	10	9.6	10	30	100	4	○
HM-4RP-D10.0R2.0		2	10	10	9.6	10	30	100	4	○
HM-4RP-D12.0R0.5		0.5	12	12	11.5	12	36	100	4	○
HM-4RP-D12.0R1.0		1	12	12	11.5	12	36	100	4	○
HM-4RP-D12.0R2.0		2	12	12	11.5	12	36	100	4	○
HM-4RP-D16.0R1.0		1	16	16	15.5	16	40	150	4	●
HM-4RP-D16.0R2.0		2	16	16	15.5	16	40	150	4	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

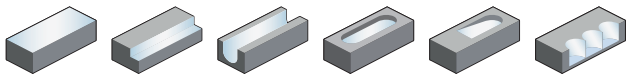
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

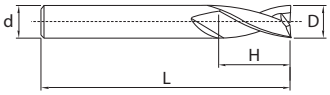
End mill — General machining of non-ferrous metals

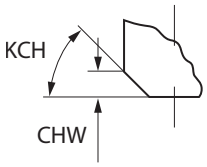
5502R402NM



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 40°







Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	H	L	KCH	CHW		YK30F
5502R402NM-0300		3	6	8	57	0	0	2	●
5502R402NM-0400		4	6	11	57	0	0	2	●
5502R402NM-0500		5	6	13	57	0	0	2	●
5502R402NM-0600		6	6	13	57	45	0.1	2	●
5502R402NM-0800		8	8	19	63	45	0.1	2	●
5502R402NM-1000		10	10	22	72	45	0.1	2	●
5502R402NM-1200		12	12	26	83	45	0.1	2	●
5502R402NM-1400		14	14	26	83	45	0.15	2	●
5502R402NM-1600		16	16	32	92	45	0.15	2	●
5502R402NM-1800		18	18	32	92	45	0.15	2	●
5502R402NM-2000		20	20	38	104	45	0.15	2	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

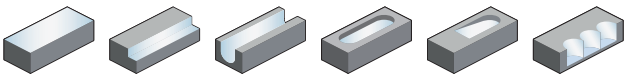
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

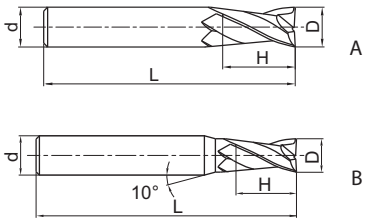
End mill General machining of non-ferrous metals

NM-2E



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMG309
NM-2E-D1.0		1	4	3	50	2	A	●
NM-2E-D2.0		2	4	6	50	2	A	●
NM-2E-D3.0		3	6	8	50	2	A	●
NM-2E-D4.0		4	6	11	50	2	A	●
NM-2E-D5.0		5	6	13	50	2	A	●
NM-2E-D6.0		6	6	16	50	2	B	●
NM-2E-D8.0		8	8	20	60	2	B	●
NM-2E-D10.0		10	10	25	75	2	B	●
NM-2E-D12.0		12	12	30	75	2	B	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

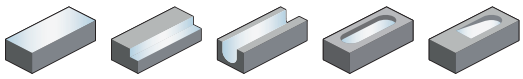
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

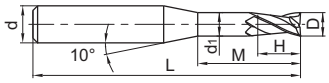
End mill General machining of non-ferrous metals

NM-2EP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG309
NM-2EP-D0.5-M04		0.5	4	0.45	0.7	4	50	2	●
NM-2EP-D0.5-M06		0.5	4	0.45	0.7	6	50	2	●
NM-2EP-D0.5-M08		0.5	4	0.45	0.7	8	50	2	●
NM-2EP-D0.8-M04		0.8	4	0.75	1.2	4	50	2	●
NM-2EP-D0.8-M06		0.8	4	0.75	1.2	6	50	2	●
NM-2EP-D0.8-M08		0.8	4	0.75	1.2	8	50	2	●
NM-2EP-D0.8-M10		0.8	4	0.75	1.2	10	50	2	●
NM-2EP-D1.0-M04		1	4	0.95	1.5	4	50	2	●
NM-2EP-D1.0-M06		1	4	0.95	1.5	6	50	2	●
NM-2EP-D1.0-M08		1	4	0.95	1.5	8	50	2	●
NM-2EP-D1.0-M10		1	4	0.95	1.5	10	50	2	●
NM-2EP-D1.0-M12		1	4	0.95	1.5	12	50	2	●
NM-2EP-D1.0-M14		1	4	0.95	1.5	14	50	2	●
NM-2EP-D1.5-M08		1.5	4	1.45	2.3	8	50	2	●
NM-2EP-D1.5-M16		1.5	4	1.45	2.3	16	50	2	●
NM-2EP-D2.0-M06		2	4	1.95	3	6	50	2	●
NM-2EP-D2.0-M08		2	4	1.95	3	8	50	2	●
NM-2EP-D2.0-M10		2	4	1.95	3	10	50	2	●
NM-2EP-D2.0-M12		2	4	1.95	3	12	50	2	●
NM-2EP-D2.0-M14		2	4	1.95	3	14	50	2	●
NM-2EP-D2.0-M16		2	4	1.95	3	16	50	2	●
NM-2EP-D2.5-M10		2.5	4	2.4	3.7	10	50	2	●
NM-2EP-D2.5-M20		2.5	4	2.4	3.7	20	60	2	●
NM-2EP-D3.0-M10		3	6	2.85	4.5	10	50	2	●
NM-2EP-D3.0-M20		3	6	2.85	4.5	20	60	2	●
NM-2EP-D4.0-M16		4	6	3.85	6	16	60	2	●
NM-2EP-D4.0-M25		4	6	3.85	6	25	60	2	●
NM-2EP-D5.0-M16		5	6	4.85	7.5	16	60	2	●
NM-2EP-D5.0-M25		5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

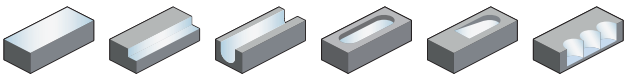
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

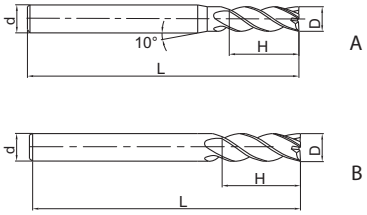
End mill General machining of non-ferrous metals

NM-4E



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm] D	d (h6)	H	L	Teeth	Geometry	Grade KMG309
NM-4E-D3.0		3	6	8	50	4	A	●
NM-4E-D4.0		4	6	11	50	4	A	●
NM-4E-D5.0		5	6	13	50	4	A	●
NM-4E-D6.0		6	6	16	50	4	B	●
NM-4E-D8.0		8	8	20	60	4	B	●
NM-4E-D10.0		10	10	25	75	4	B	●
NM-4E-D12.0		12	12	30	75	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
			✔		

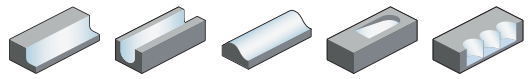
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Ball nose cutter

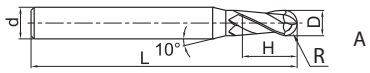
General machining of non-ferrous metals

NM-2B

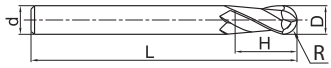


– Factory standard
– Centre cutting
– Helix angle 35°





A



B

Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		R	D	d (h6)	H	L			KMG309
NM-2B-R0.5		0.5	1	4	2	50	2	A	●
NM-2B-R0.75		0.75	1.5	4	3	50	2	A	●
NM-2B-R1.0		1	2	4	4	50	2	A	●
NM-2B-R1.25		1.25	2.5	4	5	50	2	A	●
NM-2B-R1.5		1.5	3	6	6	50	2	A	●
NM-2B-R1.75		1.75	3.5	6	8	50	2	A	●
NM-2B-R2.0		2	4	6	8	50	2	A	●
NM-2B-R2.5		2.5	5	6	10	50	2	A	●
NM-2B-R3.0		3	6	6	12	50	2	B	●
NM-2B-R4.0		4	8	8	16	60	2	B	●
NM-2B-R5.0		5	10	10	20	75	2	B	●
NM-2B-R6.0		6	12	12	24	75	2	B	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

P	M	K	N	S	H
			✔		

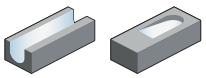
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Ball nose cutter

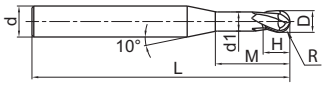
General machining of non-ferrous metals

NM-2BP



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMG309
NM-2BP-R0.25-M04		0.25	0.5	4	0.45	0.7	4	50	2	●
NM-2BP-R0.25-M06		0.25	0.5	4	0.45	0.7	6	50	2	●
NM-2BP-R0.3-M04		0.3	0.6	4	0.55	0.9	4	50	2	●
NM-2BP-R0.3-M06		0.3	0.6	4	0.55	0.9	6	50	2	●
NM-2BP-R0.3-M08		0.3	0.6	4	0.55	0.9	8	50	2	●
NM-2BP-R0.4-M04		0.4	0.8	4	0.75	1.2	4	50	2	●
NM-2BP-R0.4-M06		0.4	0.8	4	0.75	1.2	6	50	2	●
NM-2BP-R0.4-M08		0.4	0.8	4	0.75	1.2	8	50	2	●
NM-2BP-R0.4-M10		0.4	0.8	4	0.75	1.2	10	50	2	●
NM-2BP-R0.5-M04		0.5	1	4	0.95	1.5	4	50	2	●
NM-2BP-R0.5-M06		0.5	1	4	0.95	1.5	6	50	2	●
NM-2BP-R0.5-M08		0.5	1	4	0.95	1.5	8	50	2	●
NM-2BP-R0.5-M10		0.5	1	4	0.95	1.5	10	50	2	●
NM-2BP-R0.5-M12		0.5	1	4	0.95	1.5	12	50	2	●
NM-2BP-R0.75-M08		0.75	1.5	4	1.45	2.3	8	50	2	●
NM-2BP-R0.75-M16		0.75	1.5	4	1.45	2.3	16	50	2	●
NM-2BP-R1.0-M06		1	2	4	1.95	3	6	50	2	●
NM-2BP-R1.0-M08		1	2	4	1.95	3	8	50	2	●
NM-2BP-R1.0-M10		1	2	4	1.95	3	10	50	2	●
NM-2BP-R1.0-M12		1	2	4	1.95	3	12	50	2	●
NM-2BP-R1.0-M16		1	2	4	1.95	3	16	50	2	●
NM-2BP-R1.0-M20		1	2	4	1.95	3	20	60	2	●
NM-2BP-R1.5-M10		1.5	3	6	2.85	4.5	10	50	2	●
NM-2BP-R1.5-M20		1.5	3	6	2.85	4.5	20	60	2	●
NM-2BP-R2.0-M10		2	4	6	3.85	6	10	60	2	●
NM-2BP-R2.0-M16		2	4	6	3.85	6	16	60	2	●
NM-2BP-R2.0-M20		2	4	6	3.85	6	20	60	2	●
NM-2BP-R2.0-M25		2	4	6	3.85	6	25	60	2	●
NM-2BP-R2.5-M16		2.5	5	6	4.85	7.5	16	60	2	●
NM-2BP-R2.5-M25		2.5	5	6	4.85	7.5	25	70	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

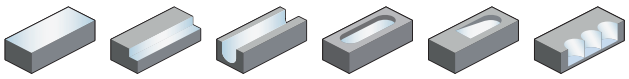
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

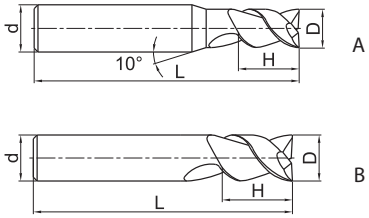
End mill General machining of Al and Al alloys

AL-2E



– Factory standard
– Centre cutting
– Helix angle 55°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			YK30F
AL-2E-D1.0		1	4	3	50	2	A	●
AL-2E-D1.5		1.5	4	4	50	2	A	●
AL-2E-D2.0		2	4	6	50	2	A	●
AL-2E-D2.5		2.5	4	7	50	2	A	●
AL-2E-D3.0		3	6	9	50	2	A	●
AL-2E-D4.0		4	6	12	50	2	A	●
AL-2E-D5.0		5	6	15	50	2	A	●
AL-2E-D6.0		6	6	18	60	2	B	●
AL-2E-D8.0		8	8	20	60	2	B	●
AL-2E-D10.0		10	10	30	75	2	B	●
AL-2E-D12.0		12	12	32	75	2	B	●
AL-2E-D16.0		16	16	45	100	2	B	●
AL-2E-D20.0		20	20	45	100	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
			✔		

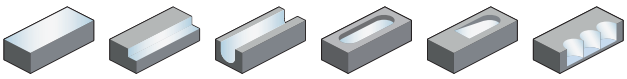
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

End mill long cutting edge

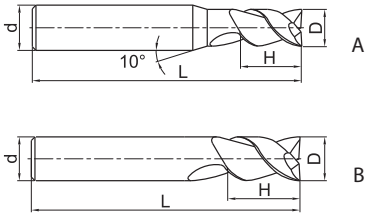
General machining of Al and Al alloys

AL-2EL



– Factory standard
– Centre cutting
– Helix angle 55°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			YK30F
AL-2EL-D3.0		3	6	12	60	2	A	●
AL-2EL-D4.0		4	6	16	60	2	A	●
AL-2EL-D5.0		5	6	20	60	2	A	●
AL-2EL-D6.0		6	6	25	75	2	B	●
AL-2EL-D8.0		8	8	32	75	2	B	○
AL-2EL-D10.0		10	10	45	100	2	B	●
AL-2EL-D12.0		12	12	45	100	2	B	●
AL-2EL-D16.0		16	16	65	150	2	B	●
AL-2EL-D20.0		20	20	75	150	2	B	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

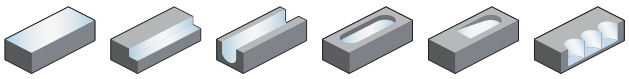
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

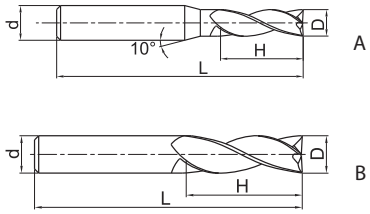
End mill General machining of Al and Al alloys

AL-3E



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			YK30F
AL-3E-D1.0		1	4	3	50	3	A	●
AL-3E-D1.5		1.5	4	4	50	3	A	●
AL-3E-D2.0		2	4	6	50	3	A	●
AL-3E-D2.5		2.5	4	7	50	3	A	●
AL-3E-D3.0		3	6	9	50	3	A	●
AL-3E-D4.0		4	6	12	50	3	A	●
AL-3E-D5.0		5	6	15	50	3	A	●
AL-3E-D6.0		6	6	18	60	3	B	●
AL-3E-D8.0		8	8	20	60	3	B	●
AL-3E-D10.0		10	10	30	75	3	B	●
AL-3E-D12.0		12	12	32	75	3	B	●
AL-3E-D16.0		16	16	45	100	3	B	●
AL-3E-D20.0		20	20	45	100	3	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
			✔		

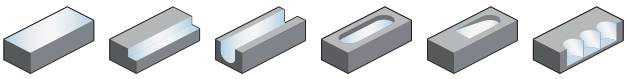
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

End mill long cutting edge

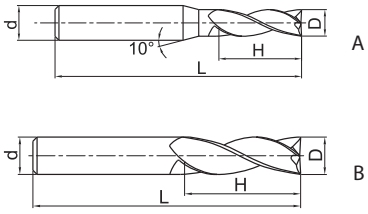
General machining of Al and Al alloys

AL-3EL



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✲	Dimensions [mm] D	d (h6)	H	L	Teeth	Geometry	Grade YK30F
AL-3EL-D3.0		3	6	12	60	3	A	●
AL-3EL-D4.0		4	6	16	60	3	A	●
AL-3EL-D5.0		5	6	20	60	3	A	●
AL-3EL-D6.0		6	6	25	75	3	B	●
AL-3EL-D8.0		8	8	32	75	3	B	●
AL-3EL-D10.0		10	10	45	100	3	B	●
AL-3EL-D12.0		12	12	45	100	3	B	●
AL-3EL-D16.0		16	16	65	150	3	B	●
AL-3EL-D20.0		20	20	75	150	3	B	●

● Ex stock ○ On demand

✲ With internal cooling

Application field

P	M	K	N	S	H
			✔		

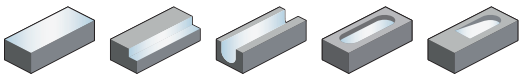
✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

End mill serrated teeth

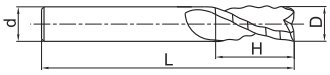
General machining of Al and Al alloys

AL-3W



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		YK30F
AL-3W-D6.0		6	6	16	50	3	●
AL-3W-D8.0		8	8	20	60	3	●
AL-3W-D10.0		10	10	25	75	3	●
AL-3W-D12.0		12	12	30	75	3	●
AL-3W-D16.0		16	16	45	100	3	●
AL-3W-D18.0		18	18	45	100	3	○
AL-3W-D20.0		20	20	45	100	3	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

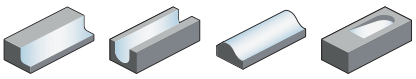
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

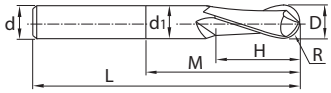
Ball nose cutter — High performance machining of non-ferrous metals

5565R302NH



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d_1	H	M	L		YK40F
5565R302NH-0300		3	1.5	6	2.8	6	9	57	2	●
5565R302NH-0400		4	2	6	3.7	8	12	57	2	●
5565R302NH-0500		5	2.5	6	4.6	10	15	57	2	●
5565R302NH-0600		6	3	6	5.5	12	20	57	2	●
5565R302NH-0800		8	4	8	7.4	16	26	63	2	●
5565R302NH-1000		10	5	10	9.2	20	31	72	2	●
5565R302NH-1200		12	6	12	11	24	37	83	2	●
5565R302NH-1600		16	8	16	15	32	43	92	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
			✔		

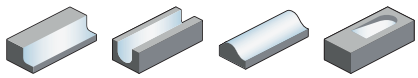
✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

Ball nose cutter long shank

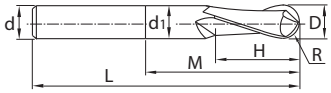
High performance machining of non-ferrous metals

5566R302NH



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d_1	H	M	L		YK40F
5566R302NH-0300		3	1.5	6	2.8	6	9	75	2	●
5566R302NH-0400		4	2	6	3.7	8	12	75	2	●
5566R302NH-0500		5	2.5	6	4.6	10	15	80	2	●
5566R302NH-0600		6	3	6	5.5	12	20	80	2	●
5566R302NH-0800		8	4	8	7.4	16	26	90	2	●
5566R302NH-1000		10	5	10	9.2	20	31	100	2	●
5566R302NH-1200		12	6	12	11	24	37	120	2	●
5566R302NH-1600		16	8	16	15	32	43	140	2	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

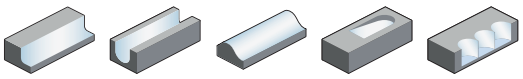
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

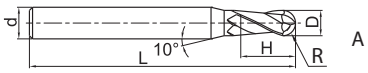
Ball nose cutter — General machining of Al and Al alloys

AL-2B

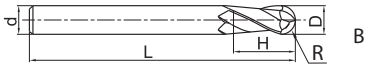


– Factory standard
– Centre cutting
– Helix angle 35°





A



B

Article	✲	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Geometry	Grade YK30F
AL-2B-R1.0		1	2	6	4	60	2	A	○
AL-2B-R1.5		1.5	3	6	6	60	2	A	○
AL-2B-R2.0		2	4	6	8	60	2	A	○
AL-2B-R2.5		2.5	5	6	10	60	2	A	○
AL-2B-R3.0		3	6	6	12	60	2	B	○
AL-2B-R4.0		4	8	8	16	75	2	B	○
AL-2B-R5.0		5	10	10	20	75	2	B	○
AL-2B-R6.0		6	12	12	24	75	2	B	○

● Ex stock ○ On demand
✲ With internal cooling

Application field

P	M	K	N	S	H
			✔		

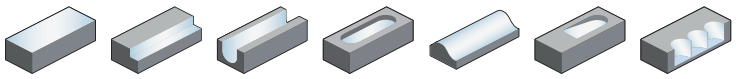
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Torus mill

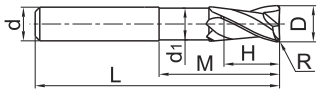
General machining of Al and Al alloys

AL-2R-AIR



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		YK40F
AL-2R-D6.0R1.0-AIR		1	6	6	5.5	7	20	57	2	●
AL-2R-D8.0R1.0-AIR		1	8	8	7.4	9	26	63	2	●
AL-2R-D10.0R1.0-AIR		1	10	10	9.2	11	31	72	2	○
AL-2R-D10.0R2.0-AIR		2	10	10	9.2	11	31	72	2	○
AL-2R-D12.0R1.0-AIR		1	12	12	11	12	37	83	2	●
AL-2R-D12.0R2.0-AIR		2	12	12	11	12	37	83	2	○
AL-2R-D12.0R3.0-AIR		3	12	12	11	12	37	83	2	○
AL-2R-D16.0R1.0-AIR		1	16	16	15	16	43	92	2	○
AL-2R-D16.0R2.0-AIR		2	16	16	15	16	43	92	2	○
AL-2R-D16.0R3.0-AIR		3	16	16	15	16	43	92	2	○
AL-2R-D16.0R4.0-AIR		4	16	16	15	16	43	92	2	○
AL-2R-D20.0R1.0-AIR		1	20	20	19	20	53	104	2	●
AL-2R-D20.0R2.0-AIR		2	20	20	19	20	53	104	2	○
AL-2R-D20.0R3.0-AIR		3	20	20	19	20	53	104	2	○
AL-2R-D20.0R4.0-AIR		4	20	20	19	20	53	104	2	○
AL-2R-D20.0R5.0-AIR		5	20	20	19	20	53	104	2	●
AL-2R-D20.0R6.0-AIR		6	20	20	19	20	53	104	2	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

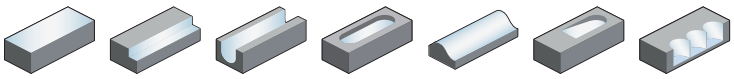
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

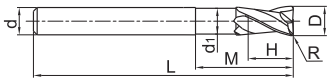
Torus mill long shank — General machining of Al and Al alloys

AL-2RL-AIR



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		YK40F
AL-2RL-D6.0R1.0-AIR		1	6	6	5.5	7	43	80	2	●
AL-2RL-D8.0R1.0-AIR		1	8	8	7.4	9	53	90	2	●
AL-2RL-D10.0R1.0-AIR		1	10	10	9.2	11	59	100	2	●
AL-2RL-D10.0R2.0-AIR		2	10	10	9.2	11	59	100	2	●
AL-2RL-D12.0R1.0-AIR		1	12	12	11	12	74	120	2	●
AL-2RL-D12.0R2.0-AIR		2	12	12	11	12	74	120	2	●
AL-2RL-D12.0R3.0-AIR		3	12	12	11	12	74	120	2	●
AL-2RL-D16.0R1.0-AIR		1	16	16	15	16	84	140	2	●
AL-2RL-D16.0R2.0-AIR		2	16	16	15	16	84	140	2	●
AL-2RL-D16.0R3.0-AIR		3	16	16	15	16	84	140	2	●
AL-2RL-D16.0R4.0-AIR		4	16	16	15	16	84	140	2	●
AL-2RL-D20.0R1.0-AIR		1	20	20	19	20	89	140	2	○
AL-2RL-D20.0R2.0-AIR		2	20	20	19	20	89	140	2	●
AL-2RL-D20.0R3.0-AIR		3	20	20	19	20	89	140	2	●
AL-2RL-D20.0R4.0-AIR		4	20	20	19	20	89	140	2	●
AL-2RL-D20.0R5.0-AIR		5	20	20	19	20	89	140	2	○
AL-2RL-D20.0R6.0-AIR		6	20	20	19	20	89	140	2	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

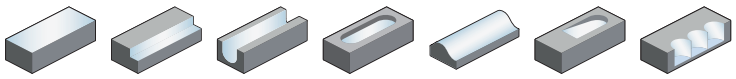
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

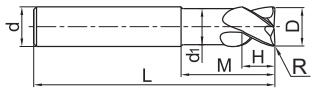
Torus mill — General machining of Al and Al alloys

AL-3R-AIR



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		YK40F
AL-3R-D12.0R1.0-AIR		1	12	12	11	12	37	83	3	●
AL-3R-D12.0R2.0-AIR		2	12	12	11	12	37	83	3	●
AL-3R-D12.0R3.0-AIR		3	12	12	11	12	37	83	3	●
AL-3R-D16.0R1.0-AIR		1	16	16	15	16	43	92	3	●
AL-3R-D16.0R2.0-AIR		2	16	16	15	16	43	92	3	●
AL-3R-D16.0R3.0-AIR		3	16	16	15	16	43	92	3	●
AL-3R-D16.0R4.0-AIR		4	16	16	15	16	43	92	3	●
AL-3R-D20.0R1.0-AIR		1	20	20	19	20	53	104	3	●
AL-3R-D20.0R2.0-AIR		2	20	20	19	20	53	104	3	○
AL-3R-D20.0R3.0-AIR		3	20	20	19	20	53	104	3	○
AL-3R-D20.0R4.0-AIR		4	20	20	19	20	53	104	3	○
AL-3R-D20.0R5.0-AIR		5	20	20	19	20	53	104	3	●
AL-3R-D20.0R6.0-AIR		6	20	20	19	20	53	104	3	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

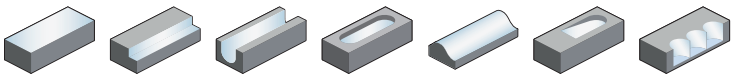
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

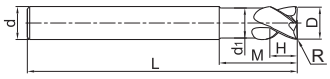
Torus mill long shank — General machining of Al and Al alloys

AL-3RL-AIR



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		YK40F
AL-3RL-D12.0R1.0-AIR		1	12	12	11	12	74	120	3	●
AL-3RL-D12.0R2.0-AIR		2	12	12	11	12	74	120	3	●
AL-3RL-D12.0R3.0-AIR		3	12	12	11	12	74	120	3	●
AL-3RL-D16.0R1.0-AIR		1	16	16	15	16	84	140	3	●
AL-3RL-D16.0R2.0-AIR		2	16	16	15	16	84	140	3	○
AL-3RL-D16.0R3.0-AIR		3	16	16	15	16	84	140	3	●
AL-3RL-D16.0R4.0-AIR		4	16	16	15	16	84	140	3	●
AL-3RL-D20.0R1.0-AIR		1	20	20	19	20	89	140	3	●
AL-3RL-D20.0R2.0-AIR		2	20	20	19	20	89	140	3	○
AL-3RL-D20.0R3.0-AIR		3	20	20	19	20	89	140	3	○
AL-3RL-D20.0R4.0-AIR		4	20	20	19	20	89	140	3	○
AL-3RL-D20.0R5.0-AIR		5	20	20	19	20	89	140	3	○
AL-3RL-D20.0R6.0-AIR		6	20	20	19	20	89	140	3	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

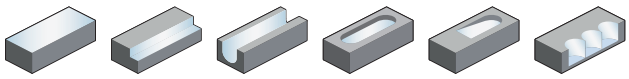
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

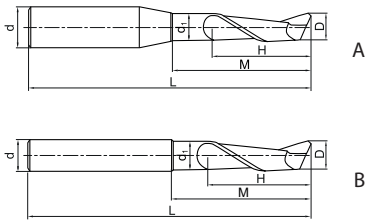
End mill High-performance machining of Al and Al alloys

ALP-1EP



– Factory standard
– Centre cutting
– Helix angle 23°





Article	✻	Dimensions [mm]						Teeth	Geometry	Grade	
		D	d (h6)	d_1	H	M	L			KMD401	YK40F
ALP-1EP-D2.0-M08S		2	4	1.8	6	8	45	1	A	○	
ALP-1EP-D2.0-M12S		2	4	1.8	6	12	45	1	A	○	○
ALP-1EP-D3.0-M12S		3	4	2.8	8	12	45	1	A	○	○
ALP-1EP-D3.0-M18S		3	4	2.8	8	18	45	1	A	○	○
ALP-1EP-D4.0-M16S		4	4	3.8	10	16	45	1	B	○	○
ALP-1EP-D4.0-M24S		4	4	3.8	10	24	45	1	B	○	○
ALP-1EP-D2.0-M08		2	6	1.8	6	8	45	1	A	●	●
ALP-1EP-D2.0-M12		2	6	1.8	6	12	45	1	A	●	●
ALP-1EP-D3.0-M12		3	6	2.8	8	12	45	1	A	●	●
ALP-1EP-D3.0-M18		3	6	2.8	8	18	45	1	A	●	●
ALP-1EP-D4.0-M16		4	6	3.8	10	16	45	1	A	●	●
ALP-1EP-D4.0-M24		4	6	3.8	10	24	55	1	A	●	●
ALP-1EP-D5.0-M20		5	6	4.8	13	20	55	1	A	●	●
ALP-1EP-D5.0-M30		5	6	4.8	13	30	65	1	A	●	●
ALP-1EP-D6.0-M24		6	6	5.8	16	24	55	1	B	●	●
ALP-1EP-D6.0-M36		6	6	5.8	16	36	75	1	B	●	●
ALP-1EP-D8.0-M32		8	8	7.7	22	32	75	1	B	●	●
ALP-1EP-D8.0-M48		8	8	7.7	22	48	90	1	B	●	●
ALP-1EP-D10.0-M40		10	10	9.6	27	40	80	1	B	●	●
ALP-1EP-D10.0-M60		10	10	9.6	27	60	100	1	B	●	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

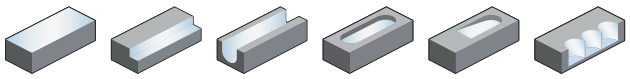
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

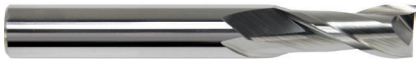
System code B362 Cutting data B582 Nonstandard order B633

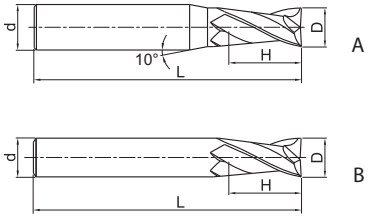
End mill General machining of Al and Al alloys

ALG-2E



– Factory standard
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			YK40F
ALG-2E-D1.0		1	4	3	50	2	A	●
ALG-2E-D1.5		1.5	4	4	50	2	A	○
ALG-2E-D2.0		2	4	6	50	2	A	●
ALG-2E-D2.5		2.5	4	8	50	2	A	○
ALG-2E-D3.0S		3	4	8	50	2	A	●
ALG-2E-D3.5S		3.5	4	10	50	2	A	○
ALG-2E-D4.0S		4	4	11	50	2	B	○
ALG-2E-D3.0		3	6	8	50	2	A	●
ALG-2E-D3.5		3.5	6	10	50	2	A	○
ALG-2E-D4.0		4	6	11	50	2	A	●
ALG-2E-D4.5		4.5	6	11	50	2	A	○
ALG-2E-D5.0		5	6	13	50	2	A	●
ALG-2E-D5.5		5.5	6	16	50	2	A	○
ALG-2E-D6.0		6	6	16	50	2	B	●
ALG-2E-D7.0		7	8	20	60	2	A	○
ALG-2E-D8.0		8	8	20	60	2	B	●
ALG-2E-D9.0		9	10	22	75	2	A	○
ALG-2E-D10.0		10	10	25	75	2	B	●
ALG-2E-D11.0		11	12	26	75	2	A	○
ALG-2E-D12.0		12	12	30	75	2	B	●
ALG-2E-D14.0		14	14	32	75	2	B	●
ALG-2E-D16.0		16	16	45	100	2	B	●
ALG-2E-D18.0		18	18	45	100	2	B	○
ALG-2E-D20.0		20	20	45	100	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

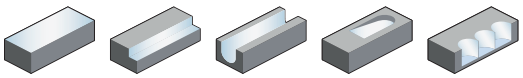
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

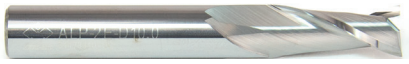
System code B362 Cutting data B582 Nonstandard order B633

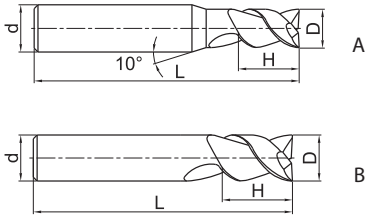
End mill High-performance machining of Al and Al alloys

ALP-2E



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			YK40F
ALP-2E-D1.0		1	4	3	50	2	A	●
ALP-2E-D1.5		1.5	4	4	50	2	A	●
ALP-2E-D2.0		2	4	6	50	2	A	●
ALP-2E-D2.5		2.5	4	8	50	2	A	●
ALP-2E-D3.0S		3	4	8	50	2	A	●
ALP-2E-D3.5S		3.5	4	10	50	2	A	○
ALP-2E-D4.0S		4	4	11	50	2	B	●
ALP-2E-D3.0		3	6	8	50	2	A	●
ALP-2E-D3.5		3.5	6	10	50	2	A	○
ALP-2E-D4.0		4	6	11	50	2	A	●
ALP-2E-D4.5		4.5	6	11	50	2	A	○
ALP-2E-D5.0		5	6	13	50	2	A	●
ALP-2E-D5.5		5.5	6	16	50	2	A	○
ALP-2E-D6.0		6	6	16	50	2	B	●
ALP-2E-D7.0		7	8	20	60	2	A	●
ALP-2E-D8.0		8	8	20	60	2	B	●
ALP-2E-D9.0		9	10	22	75	2	A	●
ALP-2E-D10.0		10	10	25	75	2	B	●
ALP-2E-D11.0		11	12	26	75	2	A	●
ALP-2E-D12.0		12	12	30	75	2	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

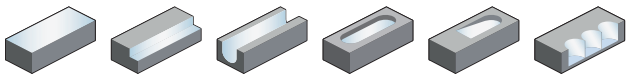
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

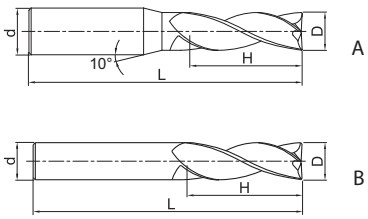
End mill General machining of Al and Al alloys

ALG-3E



– Factory standard
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade	
		D	d (h6)	H	L			KMD401	YK40F
ALG-3E-D1.0		1	4	3	50	3	A	○	●
ALG-3E-D1.5		1.5	4	4	50	3	A	○	●
ALG-3E-D2.0		2	4	6	50	3	A	○	●
ALG-3E-D2.5		2.5	4	8	50	3	A	○	○
ALG-3E-D3.0S		3	4	8	50	3	A	○	●
ALG-3E-D3.5S		3.5	4	10	50	3	A	○	○
ALG-3E-D4.0S		4	4	11	50	3	B	○	●
ALG-3E-D3.0		3	6	8	50	3	A	●	●
ALG-3E-D3.5		3.5	6	10	50	3	A	●	○
ALG-3E-D4.0		4	6	11	50	3	A	●	●
ALG-3E-D4.5		4.5	6	11	50	3	A	●	○
ALG-3E-D5.0		5	6	13	50	3	A	●	●
ALG-3E-D5.5		5.5	6	16	50	3	A	●	○
ALG-3E-D6.0		6	6	16	50	3	B	●	●
ALG-3E-D7.0		7	8	20	60	3	A	●	○
ALG-3E-D8.0		8	8	20	60	3	B	●	●
ALG-3E-D9.0		9	10	22	75	3	A	●	○
ALG-3E-D10.0		10	10	25	75	3	B	●	●
ALG-3E-D11.0		11	12	26	75	3	A	●	○
ALG-3E-D12.0		12	12	30	75	3	B	●	●
ALG-3E-D14.0		14	14	32	75	3	B	●	●
ALG-3E-D16.0		16	16	45	100	3	B	●	●
ALG-3E-D18.0		18	18	45	100	3	B	●	○
ALG-3E-D20.0		20	20	45	100	3	B	○	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

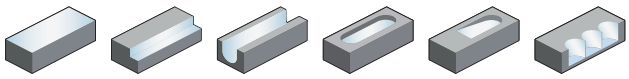
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

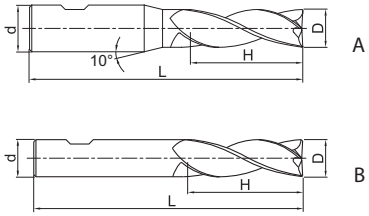
End mill General machining of Al and Al alloys

ALG-3E-W



– Factory standard with weldon clamping surface
– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMD401
ALG-3E-D3.0-W		3	6	8	50	3	A	●
ALG-3E-D3.5-W		3.5	6	10	50	3	A	●
ALG-3E-D4.0-W		4	6	11	50	3	A	●
ALG-3E-D4.5-W		4.5	6	11	50	3	A	●
ALG-3E-D5.0-W		5	6	13	50	3	A	●
ALG-3E-D5.5-W		5.5	6	16	50	3	A	●
ALG-3E-D6.0-W		6	6	16	50	3	B	●
ALG-3E-D7.0-W		7	8	20	60	3	A	●
ALG-3E-D8.0-W		8	8	20	60	3	B	●
ALG-3E-D9.0-W		9	10	22	75	3	A	●
ALG-3E-D10.0-W		10	10	25	75	3	B	●
ALG-3E-D11.0-W		11	12	26	75	3	A	●
ALG-3E-D12.0-W		12	12	30	75	3	B	●
ALG-3E-D14.0-W		14	14	32	75	3	B	●
ALG-3E-D16.0-W		16	16	45	100	3	B	●
ALG-3E-D18.0-W		18	18	45	100	3	B	●
ALG-3E-D20.0-W		20	20	45	100	3	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

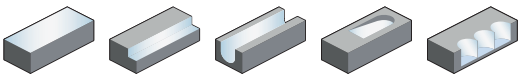
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

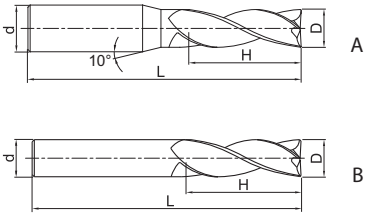
End mill High-performance machining of Al and Al alloys

ALP-3E



– Factory standard
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade	
		D	d (h6)	H	L			KMD401	YK40F
ALP-3E-D1.0		1	4	3	50	3	A	○	○
ALP-3E-D1.5		1.5	4	4	50	3	A	○	●
ALP-3E-D2.0		2	4	6	50	3	A	○	●
ALP-3E-D2.5		2.5	4	8	50	3	A	○	○
ALP-3E-D3.0S		3	4	8	50	3	A	○	●
ALP-3E-D4.0S		4	4	11	50	3	B	○	●
ALP-3E-D3.0		3	6	8	50	3	A	●	●
ALP-3E-D4.0		4	6	11	50	3	A	●	●
ALP-3E-D4.5		4.5	6	11	50	3	A	●	○
ALP-3E-D5.0		5	6	13	50	3	A	●	●
ALP-3E-D5.5		5.5	6	16	50	3	A	●	○
ALP-3E-D6.0		6	6	16	50	3	B	●	●
ALP-3E-D7.0		7	8	20	60	3	A	●	○
ALP-3E-D8.0		8	8	20	60	3	B	●	●
ALP-3E-D9.0		9	10	22	75	3	A	●	○
ALP-3E-D10.0		10	10	25	75	3	B	●	●
ALP-3E-D11.0		11	12	26	75	3	A	●	●
ALP-3E-D12.0		12	12	30	75	3	B	●	●
ALP-3E-D14.0		14	14	32	75	3	B	●	●
ALP-3E-D16.0		16	16	45	100	3	B	●	●
ALP-3E-D20.0		20	20	45	100	3	B	●	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

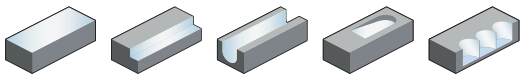
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

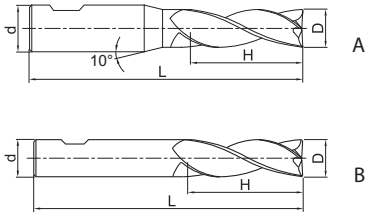
End mill High-performance machining of Al and Al alloys

ALP-3E-W



– Factory standard with weldon clamping surface
– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMD401
ALP-3E-D3.0-W		3	6	8	50	3	A	●
ALP-3E-D4.0-W		4	6	11	50	3	A	●
ALP-3E-D4.5-W		4.5	6	11	50	3	A	●
ALP-3E-D5.0-W		5	6	13	50	3	A	●
ALP-3E-D5.5-W		5.5	6	16	50	3	A	●
ALP-3E-D6.0-W		6	6	16	50	3	B	●
ALP-3E-D7.0-W		7	8	20	60	3	B	●
ALP-3E-D8.0-W		8	8	20	60	3	B	●
ALP-3E-D9.0-W		9	10	22	75	3	B	●
ALP-3E-D10.0-W		10	10	25	75	3	B	●
ALP-3E-D11.0-W		11	12	26	75	3	B	●
ALP-3E-D12.0-W		12	12	30	75	3	B	●
ALP-3E-D14.0-W		14	14	32	75	3	B	●
ALP-3E-D16.0-W		16	16	45	100	3	B	●
ALP-3E-D20.0-W		20	20	45	100	3	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

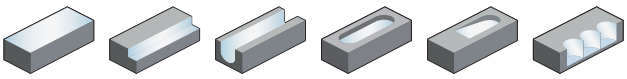
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

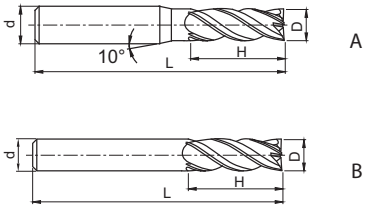
End mill High-performance machining of Al and Al alloys

ALP-4E



– Factory standard
– Centre cutting
– Helix angle 38°





Article	✲	Dimensions [mm]				Teeth	Geometry	Grade	
		D	d (h6)	H	L			KMD401	YK40F
ALP-4E-D3.0S		3	4	9	50	4	A	○	●
ALP-4E-D4.0S		4	4	11	50	4	B	○	●
ALP-4E-D3.0		3	6	9	50	4	A	●	●
ALP-4E-D4.0		4	6	11	50	4	A	●	●
ALP-4E-D5.0		5	6	13	50	4	A	●	●
ALP-4E-D6.0		6	6	16	50	4	B	●	●
ALP-4E-D8.0		8	8	20	60	4	B	●	●
ALP-4E-D10.0		10	10	25	75	4	B	●	●
ALP-4E-D12.0		12	12	30	75	4	B	●	●
ALP-4E-D16.0		16	16	45	100	4	B	●	●
ALP-4E-D18.0		18	18	45	100	4	B	●	○
ALP-4E-D20.0		20	20	45	100	4	B	●	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

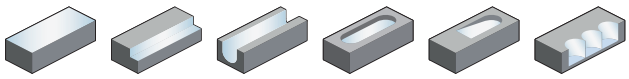
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

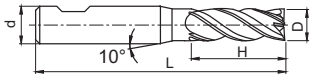
End mill High-performance machining of Al and Al alloys

ALP-4E-W

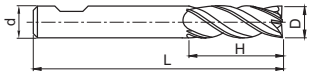


– Factory standard with weldon clamping surface
– Centre cutting
– Helix angle 38°





A



B

Article	✻	Dimensions [mm]				Teeth	Geometry	Grade
		D	d (h6)	H	L			KMD401
ALP-4E-D3.0-W		3	6	9	50	4	A	●
ALP-4E-D4.0-W		4	6	11	50	4	A	●
ALP-4E-D5.0-W		5	6	13	50	4	A	●
ALP-4E-D6.0-W		6	6	16	50	4	B	●
ALP-4E-D8.0-W		8	8	20	60	4	B	●
ALP-4E-D10.0-W		10	10	25	75	4	B	●
ALP-4E-D12.0-W		12	12	30	75	4	B	●
ALP-4E-D16.0-W		16	16	45	100	4	B	●
ALP-4E-D18.0-W		18	18	45	100	4	B	●
ALP-4E-D20.0-W		20	20	45	100	4	B	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

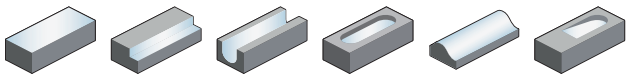
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

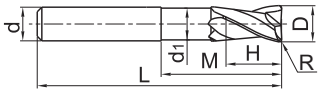
Torus mill — General machining of Al and Al alloys

ALG-2R



– Straight shank
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]							Teeth	Grade	
		R	D	d (h6)	d_1	H	M	L		KMD401	YK40F
ALG-2R-D6.0R0.3		0.3	6	6	5.7	8	29	75	2	●	●
ALG-2R-D6.0R0.5		0.5	6	6	5.7	8	29	75	2	●	●
ALG-2R-D6.0R1.0		1	6	6	5.7	8	29	75	2	●	●
ALG-2R-D8.0R0.3		0.3	8	8	7.4	10	29	75	2	●	●
ALG-2R-D8.0R0.5		0.5	8	8	7.4	10	29	75	2	●	●
ALG-2R-D8.0R1.0		1	8	8	7.4	10	29	75	2	●	●
ALG-2R-D10.0R0.5		0.5	10	10	9.4	12	50	100	2	●	●
ALG-2R-D10.0R1.0		1	10	10	9.4	12	50	100	2	●	●
ALG-2R-D10.0R1.6		1.6	10	10	9.4	12	50	100	2	●	●
ALG-2R-D10.0R2.5		2.5	10	10	9.4	12	50	100	2	●	●
ALG-2R-D12.0R0.5		0.5	12	12	11.4	15	50	100	2	●	●
ALG-2R-D12.0R1.0		1	12	12	11.4	15	50	100	2	●	●
ALG-2R-D12.0R1.6		1.6	12	12	11.4	15	50	100	2	●	●
ALG-2R-D12.0R2.5		2.5	12	12	11.4	15	50	100	2	●	●
ALG-2R-D12.0R3.2		3.2	12	12	11.4	15	50	100	2	●	●
ALG-2R-D12.0R4.0		4	12	12	11.4	15	50	100	2	●	●
ALG-2R-D16.0R1.0		1	16	16	15.4	15	67	125	2	●	●
ALG-2R-D16.0R1.6		1.6	16	16	15.4	15	67	125	2	●	●
ALG-2R-D16.0R2.5		2.5	16	16	15.4	15	67	125	2	●	●
ALG-2R-D16.0R3.2		3.2	16	16	15.4	15	67	125	2	●	●
ALG-2R-D16.0R4.0		4	16	16	15.4	15	67	125	2	●	●
ALG-2R-D16.0R6.3		6.3	16	16	15.4	15	67	125	2	○	○
ALG-2R-D20.0R1.0		1	20	20	18	20	65	125	2	●	●
ALG-2R-D20.0R1.6		1.6	20	20	18	20	65	125	2	●	●
ALG-2R-D20.0R2.5		2.5	20	20	18	20	65	125	2	●	●
ALG-2R-D20.0R3.2		3.2	20	20	18	20	65	125	2	●	●
ALG-2R-D20.0R4.0		4	20	20	18	20	65	125	2	●	●
ALG-2R-D20.0R6.3		6.3	20	20	18	20	65	125	2	○	○
ALG-2R-D25.0R6.3		6.3	25	25	23	25	75	150	2	○	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

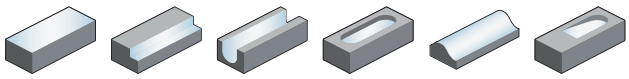
P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

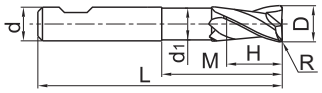
Torus mill — General machining of Al and Al alloys

ALG-2R-W



– Factory standard with weldon clamping surface
– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMD401
ALG-2R-D6.0R0.3-W		0.3	6	6	5.7	8	29	75	2	●
ALG-2R-D6.0R0.5-W		0.5	6	6	5.7	8	29	75	2	●
ALG-2R-D6.0R1.0-W		1	6	6	5.7	8	29	75	2	●
ALG-2R-D8.0R0.3-W		0.3	8	8	7.4	10	29	75	2	●
ALG-2R-D8.0R0.5-W		0.5	8	8	7.4	10	29	75	2	●
ALG-2R-D8.0R1.0-W		1	8	8	7.4	10	29	75	2	●
ALG-2R-D10.0R0.5-W		0.5	10	10	9.4	12	50	100	2	●
ALG-2R-D10.0R1.0-W		1	10	10	9.4	12	50	100	2	●
ALG-2R-D10.0R1.6-W		1.6	10	10	9.4	12	50	100	2	●
ALG-2R-D10.0R2.5-W		2.5	10	10	9.4	12	50	100	2	●
ALG-2R-D12.0R0.5-W		0.5	12	12	11.4	15	50	100	2	●
ALG-2R-D12.0R1.0-W		1	12	12	11.4	15	50	100	2	●
ALG-2R-D12.0R1.6-W		1.6	12	12	11.4	15	50	100	2	●
ALG-2R-D12.0R2.5-W		2.5	12	12	11.4	15	50	100	2	●
ALG-2R-D12.0R3.2-W		3.2	12	12	11.4	15	50	100	2	●
ALG-2R-D12.0R4.0-W		4	12	12	11.4	15	50	100	2	●
ALG-2R-D16.0R1.0-W		1	16	16	15.4	15	67	125	2	●
ALG-2R-D16.0R1.6-W		1.6	16	16	15.4	15	67	125	2	●
ALG-2R-D16.0R2.5-W		2.5	16	16	15.4	15	67	125	2	●
ALG-2R-D16.0R3.2-W		3.2	16	16	15.4	15	67	125	2	●
ALG-2R-D16.0R4.0-W		4	16	16	15.4	15	67	125	2	●
ALG-2R-D16.0R6.3-W		6.3	16	16	15.4	15	67	125	2	○
ALG-2R-D20.0R1.0-W		1	20	20	18	20	65	125	2	●
ALG-2R-D20.0R1.6-W		1.6	20	20	18	20	65	125	2	●
ALG-2R-D20.0R2.5-W		2.5	20	20	18	20	65	125	2	●
ALG-2R-D20.0R3.2-W		3.2	20	20	18	20	65	125	2	●
ALG-2R-D20.0R4.0-W		4	20	20	18	20	65	125	2	●
ALG-2R-D20.0R6.3-W		6.3	20	20	18	20	65	125	2	○
ALG-2R-D25.0R6.3-W		6.3	25	25	23	25	75	150	2	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
			✔		

✔ Very suitable
✔ Suitable

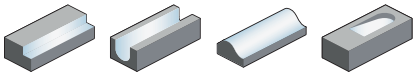
System code > B362 Cutting data > B582 Nonstandard order > B633

Notes

Ball nose cutter

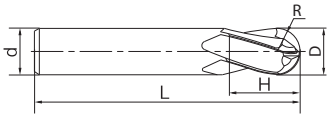
High-performance machining

TM-4B



– Factory standard
– Centre cutting
– Helix angle 38°





Article	✻	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMS405
TM-4B-R3.0		3	6	6	9	50	4	●
TM-4B-R4.0		4	8	8	12	60	4	●
TM-4B-R5.0		5	10	10	15	75	4	●
TM-4B-R6.0		6	12	12	18	75	4	●
TM-4B-R7.0		7	14	14	21	85	4	○
TM-4B-R8.0		8	16	16	24	85	4	●
TM-4B-R10.0		10	20	20	30	100	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

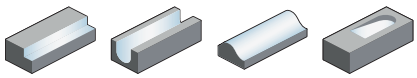
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

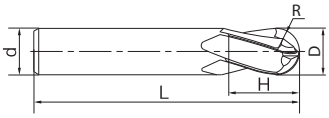
Ball nose cutter High-performance machining

TM-4BL



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 38°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Grade KMS405
TM-4BL-R3.0		3	6	6	16	57	4	●
TM-4BL-R4.0		4	8	8	20	63	4	●
TM-4BL-R5.0		5	10	10	22	72	4	●
TM-4BL-R6.0		6	12	12	25	83	4	●
TM-4BL-R8.0		8	16	16	32	92	4	●
TM-4BL-R10.0		10	20	20	38	104	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
	✔			✔	

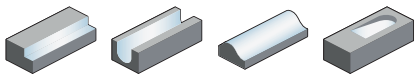
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Ball nose cutter

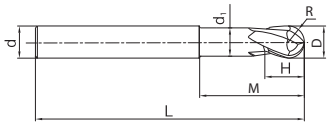
High-performance machining

TM-4BP



– Factory standard
– Centre cutting
– Helix angle 38°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMS405
TM-4BP-R3.0		3	6	6	5.5	9	18	60	4	●
TM-4BP-R4.0		4	8	8	7.4	12	24	75	4	●
TM-4BP-R5.0		5	10	10	9.4	15	30	75	4	●
TM-4BP-R6.0		6	12	12	11.4	18	35	90	4	●
TM-4BP-R8.0		8	16	16	15.4	24	40	90	4	●
TM-4BP-R10.0		10	20	20	19.4	35	50	110	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

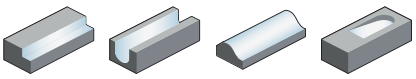
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

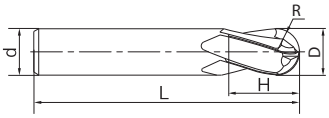
Ball nose cutter High-performance machining

TM-5B



– Factory standard
– Helix angle 38°





Article	✲	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Grade KMS405
TM-5B-R3.0		3	6	6	9	50	5	●
TM-5B-R4.0		4	8	8	12	60	5	●
TM-5B-R5.0		5	10	10	15	75	5	●
TM-5B-R6.0		6	12	12	18	75	5	●
TM-5B-R7.0		7	14	14	21	85	5	○
TM-5B-R8.0		8	16	16	24	85	5	●
TM-5B-R10.0		10	20	20	35	100	5	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

P	M	K	N	S	H
	✔			✔	

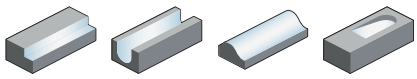
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Ball nose cutter

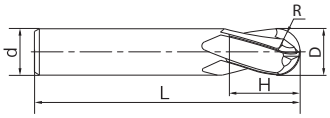
High-performance machining

TM-5BL



– Type of shank DIN 6535HA
– Helix angle 38°





Article	✻	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMS405
TM-5BL-R3.0		3	6	6	16	57	5	●
TM-5BL-R4.0		4	8	8	20	63	5	●
TM-5BL-R5.0		5	10	10	22	72	5	●
TM-5BL-R6.0		6	12	12	25	83	5	●
TM-5BL-R8.0		8	16	16	32	92	5	●
TM-5BL-R10.0		10	20	20	38	104	5	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

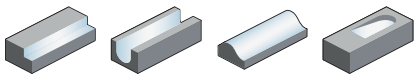
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

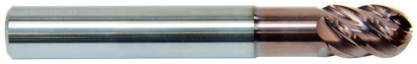
System code B362 Cutting data B582 Nonstandard order B633

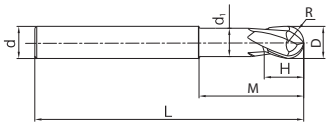
Ball nose cutter High-performance machining

TM-5BP



– Factory standard
– Helix angle 38°





Article	✲	Dimensions [mm] R	D	d (h6)	d_1	H	M	L	Teeth	Grade KMS405
TM-5BP-R3.0		3	6	6	5.5	9	18	60	5	●
TM-5BP-R4.0		4	8	8	7.4	12	24	75	5	●
TM-5BP-R5.0		5	10	10	9.4	15	30	75	5	●
TM-5BP-R6.0		6	12	12	11.4	18	35	90	5	●
TM-5BP-R8.0		8	16	16	15.4	24	40	90	5	●
TM-5BP-R10.0		10	20	20	19.4	35	50	110	5	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

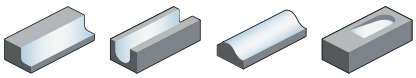
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

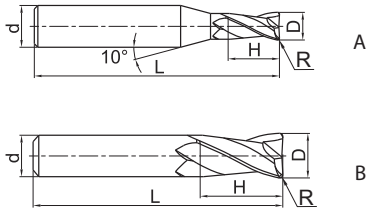
Torus mill | High-performance machining

TM-2R



– Factory standard
– Centre cutting
– Helix angle 40°





Article	✻	Dimensions [mm] R	D	d (h5)	H	L	Teeth	Geometry	Grade KMS405
TM-2R-D1.0R0.05		0.05	1	4	3	50	2	A	●
TM-2R-D1.0R0.30		0.3	1	4	3	50	2	A	●
TM-2R-D2.0R0.05		0.05	2	4	6	50	2	A	●
TM-2R-D2.0R0.30		0.3	2	4	6	50	2	A	●
TM-2R-D2.5R0.05		0.05	2.5	4	8	50	2	A	○
TM-2R-D2.5R0.30		0.3	2.5	4	8	50	2	A	○
TM-2R-D3.0R0.05		0.05	3	4	8	50	2	A	●
TM-2R-D3.0R0.30		0.3	3	4	8	50	2	A	○
TM-2R-D4.0R0.10		0.1	4	4	11	50	2	B	●
TM-2R-D4.0R0.30		0.3	4	4	11	50	2	B	○
TM-2R-D4.0R0.50		0.5	4	4	11	50	2	B	○
TM-2R-D5.0R0.10		0.1	5	6	13	50	2	A	●
TM-2R-D5.0R0.30		0.3	5	6	13	50	2	A	○
TM-2R-D5.0R0.50		0.5	5	6	13	50	2	A	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

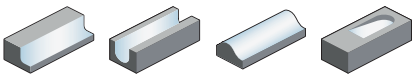
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

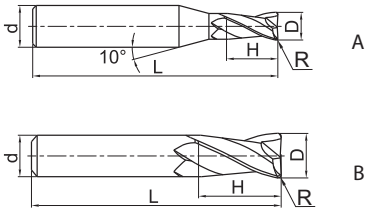
Torus mill High-performance machining

TM-3R



– Factory standard
– Centre cutting
– Helix angle 40°





Article	✲	Dimensions [mm] R	D	d (h5)	H	L	Teeth	Geometry	Grade KMS405
TM-3R-D3.0R0.1		0.1	3	4	8	50	2	A	●
TM-3R-D3.0R0.3		0.3	3	4	8	50	2	A	○
TM-3R-D3.0R0.5		0.5	3	4	8	50	2	A	●
TM-3R-D4.0R0.1		0.1	4	4	11	50	2	B	●
TM-3R-D4.0R0.3		0.3	4	4	11	50	2	B	○
TM-3R-D4.0R0.5		0.5	4	4	11	50	2	B	●
TM-3R-D5.0R0.1		0.1	5	6	13	50	2	A	●
TM-3R-D5.0R0.3		0.3	5	6	13	50	2	A	○
TM-3R-D5.0R0.5		0.5	5	6	13	50	2	A	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

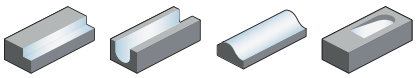
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

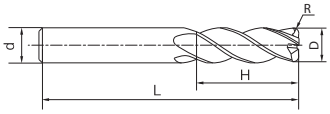
Torus mill | High-performance machining

TM-4R



– Factory standard
– Centre cutting
– Helix angle 38°





Article	✻	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMS405
TM-4R-D6.0R0.2		0.2	6	6	16	50	4	○
TM-4R-D6R0.3		0.3	6	6	16	50	4	●
TM-4R-D6R0.5		0.5	6	6	16	50	4	●
TM-4R-D6R 0.75		0.75	6	6	16	50	4	○
TM-4R-D6R1.0		1	6	6	16	50	4	●
TM-4R-D8.0R0.2		0.2	8	8	20	60	4	○
TM-4R-D8R0.3		0.3	8	8	20	60	4	●
TM-4R-D8R0.5		0.5	8	8	20	60	4	●
TM-4R-D8R0.75		0.75	8	8	20	60	4	○
TM-4R-D8R1.0		1	8	8	20	60	4	●
TM-4R-D10.0R0.2		0.2	10	10	25	75	4	○
TM-4R-D10R0.5		0.5	10	10	25	75	4	●
TM-4R-D10R1.0		1	10	10	25	75	4	●
TM-4R-D10R1.5		1.5	10	10	25	75	4	●
TM-4R-D10R1.6		1.6	10	10	25	75	4	●
TM-4R-D10R2.0		2	10	10	25	75	4	●
TM-4R-D10R2.5		2.5	10	10	25	75	4	○
TM-4R-D10R3.0		3	10	10	25	75	4	●
TM-4R-D12.0R0.2		0.2	12	12	30	75	4	○
TM-4R-D12R0.5		0.5	12	12	30	75	4	●
TM-4R-D12R0.75		0.75	12	12	30	75	4	○
TM-4R-D12R1.0		1	12	12	30	75	4	●
TM-4R-D12R1.25		1.25	12	12	30	75	4	○
TM-4R-D12R1.5		1.5	12	12	30	75	4	●
TM-4R-D12R1.6		1.6	12	12	30	75	4	●
TM-4R-D12R2.0		2	12	12	30	75	4	●
TM-4R-D12R2.5		2.5	12	12	30	75	4	●
TM-4R-D12R3.0		3	12	12	30	75	4	●
TM-4R-D12R3.2		3.2	12	12	30	75	4	●
TM-4R-D12R4.0		4	12	12	30	75	4	●
TM-4R-D16.0R0.2		0.2	16	16	35	90	4	○
TM-4R-D16R1.0		1	16	16	35	90	4	●
TM-4R-D16R1.25		1.25	16	16	35	90	4	●
TM-4R-D16R1.5		1.5	16	16	35	90	4	●
TM-4R-D16R1.6		1.6	16	16	35	90	4	●
TM-4R-D16R2.0		2	16	16	35	90	4	●
TM-4R-D16R2.5		2.5	16	16	35	90	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

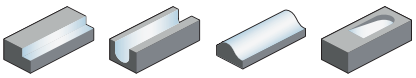
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

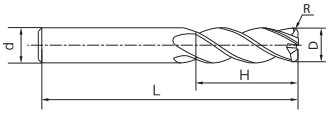
Torus mill High-performance machining

TM-4R



– Factory standard
– Centre cutting
– Helix angle 38°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Grade KMS405
TM-4R-D16R3.0		3	16	16	35	90	4	●
TM-4R-D16R3.2		3.2	16	16	35	90	4	●
TM-4R-D16R4.0		4	16	16	35	90	4	●
TM-4R-D16R5.0		5	16	16	35	90	4	●
TM-4R-D16R6.3		6.3	16	16	35	90	4	○
TM-4R-D20.0R0.2		0.2	20	20	45	100	4	○
TM-4R-D20R1.0		1	20	20	45	100	4	●
TM-4R-D20R1.5		1.5	20	20	45	100	4	●
TM-4R-D20R1.6		1.6	20	20	45	100	4	●
TM-4R-D20R2.0		2	20	20	45	100	4	●
TM-4R-D20R2.5		2.5	20	20	45	100	4	●
TM-4R-D20R3.0		3	20	20	45	100	4	●
TM-4R-D20R3.2		3.2	20	20	45	100	4	●
TM-4R-D20R4.0		4	20	20	45	100	4	●
TM-4R-D20R5.0		5	20	20	45	100	4	●
TM-4R-D20R6.3		6.3	20	20	45	100	4	●
TM-4R-D20R1.25		1.25	21	20	45	100	4	●
TM-4R-D25.0R0.2		0.2	25	25	50	110	4	○
TM-4R-D25R1.0		1	25	25	50	110	4	●
TM-4R-D25R1.25		1.25	25	25	50	110	4	○
TM-4R-D25R1.5		1.5	25	25	50	110	4	●
TM-4R-D25R1.6		1.6	25	25	50	110	4	●
TM-4R-D25R2.0		2	25	25	50	110	4	●
TM-4R-D25R2.5		2.5	25	25	50	110	4	○
TM-4R-D25R3.0		3	25	25	50	110	4	●
TM-4R-D25R3.2		3.2	25	25	50	110	4	●
TM-4R-D25R4.0		4	25	25	50	110	4	●
TM-4R-D25R5.0		5	25	25	50	110	4	●
TM-4R-D25R6.3		6.3	25	25	50	110	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

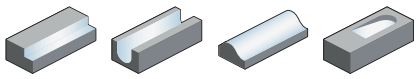
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

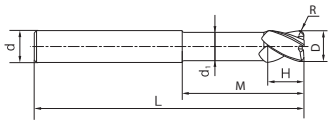
Torus mill | High-performance machining

TM-4RP



– Factory standard
– Centre cutting
– Helix angle 38°





Article	✻	Dimensions [mm] R	D	d (h6)	d_1	H	M	L	Teeth	Grade KMS405
TM-4RP-D8R0.3		0.3	8	8	7.4	16	25	75	4	●
TM-4RP-D8R0.5		0.5	8	8	7.4	16	25	75	4	●
TM-4RP-D8R0.75		0.75	8	8	7.4	16	25	75	4	○
TM-4RP-D8R1.0		1	8	8	7.4	16	25	75	4	●
TM-4RP-D10R0.5		0.5	10	10	9.4	20	32	75	4	●
TM-4RP-D10R0.75		0.75	10	10	9.4	20	32	75	4	○
TM-4RP-D10R1.0		1	10	10	9.4	20	32	75	4	●
TM-4RP-D10R1.25		1.25	10	10	9.4	20	32	75	4	●
TM-4RP-D10R1.5		1.5	10	10	9.4	20	32	75	4	●
TM-4RP-D10R1.6		1.6	10	10	9.4	20	32	75	4	●
TM-4RP-D10R2.0		2	10	10	9.4	20	32	75	4	●
TM-4RP-D10R2.5		2.5	10	10	9.4	20	32	75	4	○
TM-4RP-D10R3.0		3	10	10	9.4	20	32	75	4	●
TM-4RP-D12R0.5		0.5	12	12	11.4	24	40	90	4	●
TM-4RP-D12R0.75		0.75	12	12	11.4	24	40	90	4	○
TM-4RP-D12R1.0		1	12	12	11.4	24	40	90	4	●
TM-4RP-D12R1.25		1.25	12	12	11.4	24	40	90	4	●
TM-4RP-D12R1.5		1.5	12	12	11.4	24	40	90	4	●
TM-4RP-D12R1.6		1.6	12	12	11.4	24	40	90	4	●
TM-4RP-D12R2.0		2	12	12	11.4	24	40	90	4	●
TM-4RP-D12R2.5		2.5	12	12	11.4	24	40	90	4	○
TM-4RP-D12R3.0		3	12	12	11.4	24	40	90	4	●
TM-4RP-D12R3.2		3.2	12	12	11.4	24	40	90	4	●
TM-4RP-D12R4.0		4	12	12	11.4	24	40	90	4	●
TM-4RP-D16R1.0		1	16	16	15	32	50	100	4	●
TM-4RP-D16R1.25		1.25	16	16	15	32	50	100	4	●
TM-4RP-D16R1.5		1.5	16	16	15	32	50	100	4	●
TM-4RP-D16R1.6		1.6	16	16	15	32	50	100	4	●
TM-4RP-D16R2.0		2	16	16	15	32	50	100	4	●
TM-4RP-D16R2.5		2.5	16	16	15	32	50	100	4	○
TM-4RP-D16R3.0		3	16	16	14	32	50	100	4	●
TM-4RP-D16R3.2		3.2	16	16	15	32	50	100	4	●
TM-4RP-D16R4.0		4	16	16	15	32	50	100	4	●
TM-4RP-D16R5.0		5	16	16	15	32	50	100	4	●
TM-4RP-D16R6.3		6.3	16	16	15	32	50	100	4	○
TM-4RP-D20R1.0		1	20	20	19	35	60	110	4	●
TM-4RP-D20R1.25		1.25	20	20	19	35	60	110	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

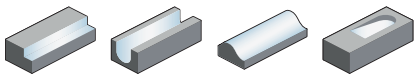
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

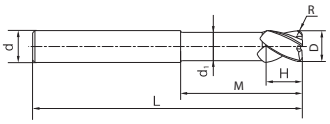
Torus mill High-performance machining

TM-4RP



– Factory standard
– Centre cutting
– Helix angle 38°





Article	✲	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMS405
TM-4RP-D20R1.5		1.5	20	20	19	35	60	110	4	●
TM-4RP-D20R1.6		1.6	20	20	19	35	60	110	4	●
TM-4RP-D20R2.0		2	20	20	19	35	60	110	4	●
TM-4RP-D20R2.5		2.5	20	20	19	35	60	110	4	○
TM-4RP-D20R3.0		3	20	20	19	35	60	110	4	●
TM-4RP-D20R3.2		3.2	20	20	19	35	60	110	4	●
TM-4RP-D20R4.0		4	20	20	19	35	60	110	4	●
TM-4RP-D20R5.0		5	20	20	19	35	60	110	4	●
TM-4RP-D20R6.3		6.3	20	20	19	35	60	110	4	●
TM-4RP-D25R1.0		1	25	25	24	45	75	150	4	●
TM-4RP-D25R1.25		1.25	25	25	24	45	75	150	4	○
TM-4RP-D25R1.5		1.5	25	25	24	45	75	150	4	●
TM-4RP-D25R1.6		1.6	25	25	24	45	75	150	4	●
TM-4RP-D25R2.0		2	25	25	24	45	75	150	4	●
TM-4RP-D25R2.5		2.5	25	25	24	45	75	150	4	●
TM-4RP-D25R3.0		3	25	25	24	45	75	150	4	●
TM-4RP-D25R3.2		3.2	25	25	24	45	75	150	4	●
TM-4RP-D25R4.0		4	25	25	24	45	75	150	4	●
TM-4RP-D25R5.0		5	25	25	24	45	75	150	4	●
TM-4RP-D25R6.3		6.3	25	25	24	45	75	150	4	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

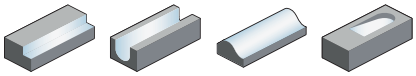
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

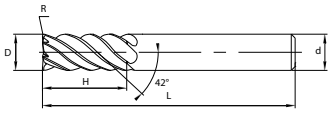
Torus mill | High-performance machining

TM-5R



– Factory standard
– Helix angle 42°





Article	✻	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMS405
TM-5R-D6R0.3		0.3	6	6	16	50	5	●
TM-5R-D6R0.5		0.5	6	6	16	50	5	●
TM-5R-D6R0.75		0.75	6	6	16	50	5	○
TM-5R-D6R1.0		1	6	6	16	50	5	●
TM-5R-D8R0.3		0.3	8	8	20	60	5	●
TM-5R-D8R0.5		0.5	8	8	20	60	5	●
TM-5R-D8R0.75		0.75	8	8	20	60	5	○
TM-5R-D8R1.0		1	8	8	20	60	5	●
TM-5R-D10R0.5		0.5	10	10	25	75	5	●
TM-5R-D10R0.75		0.75	10	10	25	75	5	○
TM-5R-D10R1.0		1	10	10	25	75	5	●
TM-5R-D10R1.25		1.25	10	10	25	75	5	○
TM-5R-D10R1.5		1.5	10	10	25	75	5	●
TM-5R-D10R1.6		1.6	10	10	25	75	5	●
TM-5R-D10R2.0		2	10	10	25	75	5	●
TM-5R-D10R2.5		2.5	10	10	25	75	5	○
TM-5R-D10R3.0		3	10	10	25	75	5	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

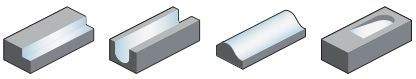
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

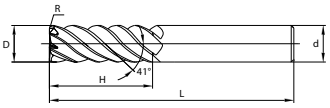
Torus mill High-performance machining

TM-7R



– Factory standard
– Helix angle 41°





Article	✻	Dimensions [mm] R	D	d (h6)	H	L	Teeth	Grade KMS405
TM-7R-D12R0.5		0.5	12	12	30	75	7	●
TM-7R-D12R0.75		0.75	12	12	30	75	7	○
TM-7R-D12R1.0		1	12	12	30	75	7	●
TM-7R-D12R1.25		1.25	12	12	30	75	7	○
TM-7R-D12R1.5		1.5	12	12	30	75	7	●
TM-7R-D12R1.6		1.6	12	12	30	75	7	●
TM-7R-D12R2.0		2	12	12	30	75	7	●
TM-7R-D12R2.5		2.5	12	12	30	75	7	●
TM-7R-D12R3.0		3	12	12	30	75	7	●
TM-7R-D12R3.2		3.2	12	12	30	75	7	●
TM-7R-D12R4.0		4	12	12	30	75	7	●
TM-7R-D16R1.0		1	16	16	35	90	7	●
TM-7R-D16R1.25		1.25	16	16	35	90	7	○
TM-7R-D16R1.5		1.5	16	16	35	90	7	●
TM-7R-D16R1.6		1.6	16	16	35	90	7	●
TM-7R-D16R2.0		2	16	16	35	90	7	●
TM-7R-D16R2.5		2.5	16	16	35	90	7	●
TM-7R-D16R3.0		3	16	16	35	90	7	●
TM-7R-D16R3.2		3.2	16	16	35	90	7	●
TM-7R-D16R4.0		4	16	16	35	90	7	●
TM-7R-D16R5.0		5	16	16	35	90	7	●
TM-7R-D16R6.3		6.3	16	16	35	90	7	○
TM-7R-D20R1.0		1	20	20	45	100	7	●
TM-7R-D20R1.5		1.5	20	20	45	100	7	●
TM-7R-D20R1.6		1.6	20	20	45	100	7	●
TM-7R-D20R2.0		2	20	20	45	100	7	●
TM-7R-D20R2.5		2.5	20	20	45	100	7	●
TM-7R-D20R3.0		3	20	20	45	100	7	●
TM-7R-D20R3.2		3.2	20	20	45	100	7	●
TM-7R-D20R4.0		4	20	20	45	100	7	●
TM-7R-D20R5.0		5	20	20	45	100	7	●
TM-7R-D20R6.3		6.3	20	20	45	100	7	●
TM-7R-D20R1.25		1.25	21	20	45	100	7	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

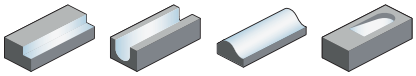
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

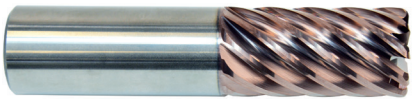
System code B362 Cutting data B582 Nonstandard order B633

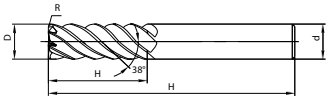
Torus mill | High-performance machining

TM-9R



– Factory standard
– Helix angle 38°





Article	✻	Dimensions [mm]					Teeth	Grade
		R	D	d (h6)	H	L		KMS405
TM-9R-D25R1.0		1	25	25	50	110	9	●
TM-9R-D25R1.25		1.25	25	25	50	110	9	○
TM-9R-D25R1.5		1.5	25	25	50	110	9	●
TM-9R-D25R1.6		1.6	25	25	50	110	9	●
TM-9R-D25R2.0		2	25	25	50	110	9	●
TM-9R-D25R2.5		2.5	25	25	50	110	9	○
TM-9R-D25R3.0		3	25	25	50	110	9	●
TM-9R-D25R3.2		3.2	25	25	50	110	9	●
TM-9R-D25R4.0		4	25	25	50	110	9	●
TM-9R-D25R5.0		5	25	25	50	110	9	●
TM-9R-D25R6.3		6.3	25	25	50	110	9	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

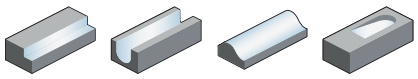
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 | Cutting data B582 | Nonstandard order B633

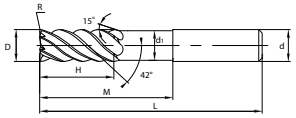
Torus mill High-performance machining

TM-5RP



– Factory standard
– Helix angle 42°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMS405
TM-5RP-D8R0.3		0.3	8	8	7.4	16	25	75	5	●
TM-5RP-D8R0.5		0.5	8	8	7.4	16	25	75	5	●
TM-5RP-D8R0.75		0.75	8	8	7.4	16	25	75	5	○
TM-5RP-D8R1.0		1	8	8	7.4	16	25	75	5	●
TM-5RP-D10R0.5		0.5	10	10	9.4	20	32	75	5	●
TM-5RP-D10R0.75		0.75	10	10	9.4	20	32	75	5	○
TM-5RP-D10R1.0		1	10	10	9.4	20	32	75	5	●
TM-5RP-D10R1.25		1.25	10	10	9.4	20	32	75	5	○
TM-5RP-D10R1.5		1.5	10	10	9.4	20	32	75	5	●
TM-5RP-D10R1.6		1.6	10	10	9.4	20	32	75	5	●
TM-5RP-D10R2.0		2	10	10	9.4	20	32	75	5	●
TM-5RP-D10R2.5		2.5	10	10	9.4	20	32	75	5	●
TM-5RP-D10R3.0		3	10	10	9.4	20	32	75	5	●
TM-5RP-D12.0-R1.0		1	12	12	11.4	24	40	90	5	○
TM-5RP-D16.0-R1.0		1	16	16	15	32	50	100	5	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

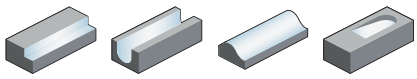
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

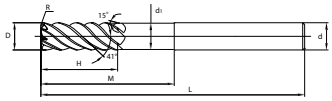
Torus mill | High-performance machining

TM-7RP



– Factory standard
– Helix angle 41°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMS405
TM-7RP-D12R0.5		0.5	12	12	11.4	24	40	90	7	●
TM-7RP-D12R0.75		0.75	12	12	11.4	24	40	90	7	○
TM-7RP-D12R1.0		1	12	12	11.4	24	40	90	7	●
TM-7RP-D12R1.25		1.25	12	12	11.4	24	40	90	7	○
TM-7RP-D12R1.5		1.5	12	12	11.4	24	40	90	7	●
TM-7RP-D12R1.6		1.6	12	12	11.4	24	40	90	7	●
TM-7RP-D12R2.0		2	12	12	11.4	24	40	90	7	●
TM-7RP-D12R2.5		2.5	12	12	11.4	24	40	90	7	●
TM-7RP-D12R3.0		3	12	12	11.4	24	40	90	7	●
TM-7RP-D12R3.2		3.2	12	12	11.4	24	40	90	7	●
TM-7RP-D12R4.0		4	12	12	11.4	24	40	90	7	●
TM-7RP-D16R1.0		1	16	16	15	32	50	100	7	●
TM-7RP-D16R1.25		1.25	16	16	15	32	50	100	7	○
TM-7RP-D16R1.5		1.5	16	16	15	32	50	100	7	●
TM-7RP-D16R1.6		1.6	16	16	15	32	50	100	7	●
TM-7RP-D16R2.0		2	16	16	15	32	50	100	7	●
TM-7RP-D16R2.5		2.5	16	16	15	32	50	100	7	●
TM-7RP-D16R3.0		3	16	16	15	32	50	100	7	●
TM-7RP-D16R3.2		3.2	16	16	15	32	50	100	7	●
TM-7RP-D16R4.0		4	16	16	15	32	50	100	7	●
TM-7RP-D16R5.0		5	16	16	15	32	50	100	7	●
TM-7RP-D16R6.3		6.3	16	16	15	32	50	100	7	○
TM-7RP-D20R1.0		1	20	20	19	35	60	110	7	●
TM-7RP-D20R1.25		1.25	20	20	19	35	60	110	7	○
TM-7RP-D20R1.5		1.5	20	20	19	35	60	110	7	●
TM-7RP-D20R1.6		1.6	20	20	19	35	60	110	7	●
TM-7RP-D20R2.0		2	20	20	19	35	60	110	7	●
TM-7RP-D20R2.5		2.5	20	20	19	35	60	110	7	●
TM-7RP-D20R3.0		3	20	20	19	35	60	110	7	●
TM-7RP-D20R3.2		3.2	20	20	19	35	60	110	7	●
TM-7RP-D20R4.0		4	20	20	19	35	60	110	7	●
TM-7RP-D20R5.0		5	20	20	19	35	60	110	7	●
TM-7RP-D20R6.3		6.3	20	20	19	35	60	110	7	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

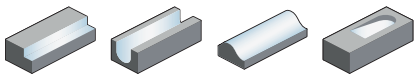
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

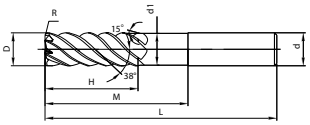
Torus mill High-performance machining

TM-9RP



– Factory standard
– Helix angle 38°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMS405
TM-9RP-D25R1.0		1	25	25	24	45	75	150	9	●
TM-9RP-D25R1.25		1.25	25	25	24	45	75	150	9	○
TM-9RP-D25R1.5		1.5	25	25	24	45	75	150	9	●
TM-9RP-D25R1.6		1.6	25	25	24	45	75	150	9	●
TM-9RP-D25R2.0		2	25	25	24	45	75	150	9	●
TM-9RP-D25R2.5		2.5	25	25	24	45	75	150	9	●
TM-9RP-D25R3.0		3	25	25	24	45	75	150	9	●
TM-9RP-D25R3.2		3.2	25	25	24	45	75	150	9	●
TM-9RP-D25R4.0		4	25	25	24	45	75	150	9	●
TM-9RP-D25R5.0		5	25	25	24	45	75	150	9	●
TM-9RP-D25R6.3		6.3	25	25	24	45	75	150	9	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

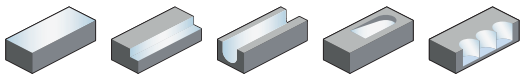
P	M	K	N	S	H
	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

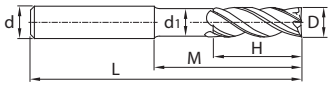
End mill HSC/HPC machining

5501R38414GM



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG405
5501R38414GM-0300		3	6	2.7	5	12	54	4	○
5501R38414GM-0400		4	6	3.7	8	16	54	4	●
5501R38414GM-0500		5	6	4.7	9	17	54	4	●
5501R38414GM-0600		6	6	5.7	10	18	54	4	●
5501R38414GM-0800		8	8	7.7	12	22	58	4	●
5501R38414GM-1000		10	10	9.5	14	26	66	4	●
5501R38414GM-1200		12	12	11.5	16	28	73	4	●
5501R38414GM-1400		14	14	13.5	18	30	75	4	●
5501R38414GM-1600		16	16	15.5	22	34	82	4	●
5501R38414GM-1800		18	18	17.5	24	36	84	4	●
5501R38414GM-2000		20	20	19.5	26	42	92	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

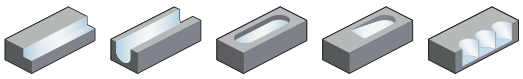
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

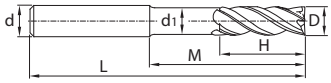
End mill long cutting edge HSC/HPC machining

5502R38414GM



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	d_1	H	M	L		KMG405	KMG406
5502R38414GM-0300		3	6	2.7	7	12	57	4	○	●
5502R38414GM-0400		4	6	3.7	11	19	57	4	●	●
5502R38414GM-0500		5	6	4.7	13	21	57	4	●	●
5502R38414GM-0600		6	6	5.7	13	21	57	4	●	●
5502R38414GM-0800		8	8	7.7	19	27	63	4	●	●
5502R38414GM-1000		10	10	9.5	22	32	72	4	●	●
5502R38414GM-1200		12	12	11.5	26	38	83	4	●	●
5502R38414GM-1400		14	14	13.5	26	38	83	4	●	●
5502R38414GM-1600		16	16	15.5	32	44	92	4	●	●
5502R38414GM-1800		18	18	17.5	32	44	92	4	●	●
5502R38414GM-2000		20	20	19.5	38	54	104	4	●	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

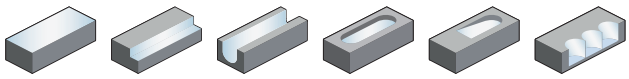
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

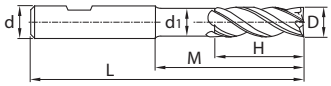
End mill HSC/HPC machining

5601R38414GM



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG405
5601R38414GM-0400		4	6	3.7	8	16	54	4	●
5601R38414GM-0500		5	6	4.7	9	17	54	4	●
5601R38414GM-0600		6	6	5.7	10	18	54	4	●
5601R38414GM-0800		8	8	7.7	12	22	58	4	●
5601R38414GM-1000		10	10	9.5	14	26	66	4	●
5601R38414GM-1200		12	12	11.5	16	28	73	4	●
5601R38414GM-1400		14	14	13.5	18	30	75	4	●
5601R38414GM-1600		16	16	15.5	22	34	82	4	●
5601R38414GM-1800		18	18	17.5	24	36	84	4	●
5601R38414GM-2000		20	20	19.5	26	42	92	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

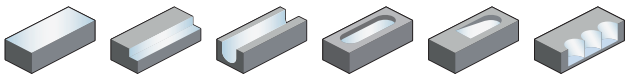
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

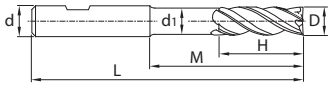
End mill long cutting edge HSC/HPC machining

5602R38414GM



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]						Teeth	Grade	
		D	d (h6)	d_1	H	M	L		KMG405	KMG406
5602R38414GM-0300		3	6	2.7	7	12	57	4	○	●
5602R38414GM-0300L		3	6	2.7	6.5	15	58	4	○	○
5602R38414GM-0400		4	6	3.7	11	19	57	4	●	●
5602R38414GM-0400L		4	6	3.7	8.5	20	62	4	○	○
5602R38414GM-0500L		5	6	4.7	10.5	25	70	4	○	○
5602R38414GM-0500		5	6	4.7	13	21	57	4	●	●
5602R38414GM-0600L		6	6	5.7	13	30	70	4	○	○
5602R38414GM-0600		6	6	5.7	13	21	57	4	●	●
5602R38414GM-0800L		8	8	7.7	17	40	80	4	○	○
5602R38414GM-0800		8	8	7.7	19	27	63	4	●	●
5602R38414GM-1000		10	10	9.5	22	32	72	4	●	●
5602R38414GM-1000L		10	10	9.5	21	50	94	4	○	○
5602R38414GM-1200L		12	12	11.5	25	60	109	4	○	○
5602R38414GM-1200		12	12	11.5	26	38	83	4	●	●
5602R38414GM-1400		14	14	13.5	26	38	83	4	●	●
5602R38414GM-1600L		16	16	15.5	33	80	132	4	○	○
5602R38414GM-1600		16	16	15.5	32	44	92	4	●	●
5602R38414GM-1800		18	18	17.5	32	44	92	4	●	●
5602R38414GM-2000		20	20	19.5	38	54	104	4	●	●
5602R38414GM-2500		25	25	24	52	62	121	4	○	

● Ex stock ○ On demand
✻ With internal cooling

Application field

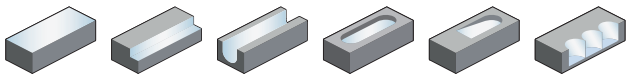
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

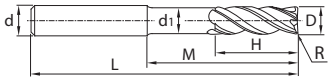
Torus mill long cutting edge HSC/HPC machining

5502R38414GM-R



– Type of shank DIN 6535HA
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d_1	H	M	L		KMG405
5502R38414GM-R02-0400		4	0.2	6	3.7	11	19	57	4	●
5502R38414GM-R05-0400		4	0.5	6	3.7	11	19	57	4	●
5502R38414GM-R02-0500		5	0.2	6	4.7	13	21	57	4	●
5502R38414GM-R05-0500		5	0.5	6	4.7	13	21	57	4	●
5502R38414GM-R02-0600		6	0.2	6	5.7	13	21	57	4	●
5502R38414GM-R05-0600		6	0.5	6	5.7	13	21	57	4	●
5502R38414GM-R10-0600		6	1	6	5.7	13	21	57	4	●
5502R38414GM-R02-0800		8	0.2	8	7.7	19	27	63	4	●
5502R38414GM-R05-0800		8	0.5	8	7.7	19	27	63	4	●
5502R38414GM-R10-0800		8	1	8	7.7	19	27	63	4	●
5502R38414GM-R15-0800		8	1.5	8	7.7	19	27	63	4	●
5502R38414GM-R20-0800		8	2	8	7.7	19	27	63	4	●
5502R38414GM-R02-1000		10	0.2	10	9.5	22	32	72	4	●
5502R38414GM-R05-1000		10	0.5	10	9.5	22	32	72	4	●
5502R38414GM-R10-1000		10	1	10	9.5	22	32	72	4	●
5502R38414GM-R15-1000		10	1.5	10	9.5	22	32	72	4	●
5502R38414GM-R20-1000		10	2	10	9.5	22	32	72	4	●
5502R38414GM-R05-1200		12	0.5	12	11.5	26	38	83	4	●
5502R38414GM-R10-1200		12	1	12	11.5	26	38	83	4	●
5502R38414GM-R15-1200		12	1.5	12	11.5	26	38	83	4	●
5502R38414GM-R20-1200		12	2	12	11.5	26	38	83	4	●
5502R38414GM-R10-1600		16	1	16	15.5	32	44	92	4	●
5502R38414GM-R15-1600		16	1.5	16	15.5	32	44	92	4	●
5502R38414GM-R20-1600		16	2	16	15.5	32	44	92	4	●
5502R38414GM-R30-1600		16	3	16	15.5	32	44	92	4	●
5502R38414GM-R10-2000		20	1	20	19.5	38	54	104	4	●
5502R38414GM-R15-2000		20	1.5	20	19.5	38	54	104	4	●
5502R38414GM-R20-2000		20	2	20	19.5	38	54	104	4	●
5502R38414GM-R30-2000		20	3	20	19.5	38	54	104	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

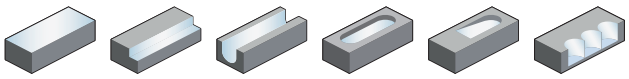
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

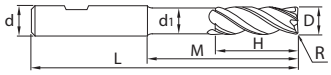
Torus mill long cutting edge HSC/HPC machining

5602R38414GM-R



– Type of shank: DIN 6535HB
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]							Teeth	Grade
		D	R	d (h6)	d_1	H	M	L		KMG405
5602R38414GM-R02-0400		4	0.2	6	3.7	11	19	57	4	●
5602R38414GM-R05-0400		4	0.5	6	3.7	11	19	57	4	●
5602R38414GM-R02-0500		5	0.2	6	4.7	13	21	57	4	●
5602R38414GM-R05-0500		5	0.5	6	4.7	13	21	57	4	●
5602R38414GM-R02-0600		6	0.2	6	5.7	13	21	57	4	●
5602R38414GM-R05-0600		6	0.5	6	5.7	13	21	57	4	●
5602R38414GM-R10-0600		6	1	6	5.7	13	21	57	4	●
5602R38414GM-R02-0800		8	0.2	8	7.7	19	27	63	4	●
5602R38414GM-R05-0800		8	0.5	8	7.7	19	27	63	4	●
5602R38414GM-R10-0800		8	1	8	7.7	19	27	63	4	●
5602R38414GM-R15-0800		8	1.5	8	7.7	19	27	63	4	●
5602R38414GM-R20-0800		8	2	8	7.7	19	27	63	4	●
5602R38414GM-R02-1000		10	0.2	10	9.5	22	32	72	4	●
5602R38414GM-R05-1000		10	0.5	10	9.5	22	32	72	4	●
5602R38414GM-R10-1000		10	1	10	9.5	22	32	72	4	●
5602R38414GM-R15-1000		10	1.5	10	9.5	22	32	72	4	●
5602R38414GM-R20-1000		10	2	10	9.5	22	32	72	4	●
5602R38414GM-R05-1200		12	0.5	12	11.5	26	38	83	4	●
5602R38414GM-R10-1200		12	1	12	11.5	26	38	83	4	●
5602R38414GM-R15-1200		12	1.5	12	11.5	26	38	83	4	●
5602R38414GM-R20-1200		12	2	12	11.5	26	38	83	4	●
5602R38414GM-R25-1200		12	2.5	12	11.5	26	38	83	4	○
5602R38414GM-R10-1400		14	1	14	13.5	26	38	83	4	○
5602R38414GM-R10-1600		16	1	16	15.5	32	44	92	4	●
5602R38414GM-R15-1600		16	1.5	16	15.5	32	44	92	4	●
5602R38414GM-R20-1600		16	2	16	15.5	32	44	92	4	●
5602R38414GM-R30-1600		16	3	16	15.5	32	44	92	4	●
5602R38414GM-R10-2000		20	1	20	19.5	38	54	104	4	●
5602R38414GM-R15-2000		20	1.5	20	19.5	38	54	104	4	●
5602R38414GM-R20-2000		20	2	20	19.5	38	54	104	4	●
5602R38414GM-R30-2000		20	3	20	19.5	38	54	104	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

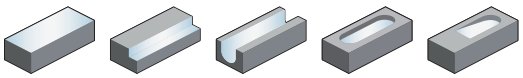
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

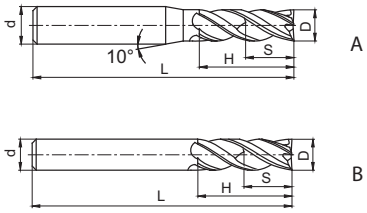
End mill HSC/HPC machining

UM-4E



– Factory standard
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade	
		D	d (h6)	H	L	S			KMG405	YK40F
UM-4E-D4.0S		4	4	11	50	6	4	B	●	
UM-4E-D4.0		4	6	11	50	6	4	A	●	
UM-4E-D4.5		4.5	6	11	50	6.75	4	A	●	
UM-4E-D5.0		5	6	13	50	7.5	4	A	●	
UM-4E-D5.5		5.5	6	16	50	8.25	4	A	●	
UM-4E-D6.0		6	6	16	50	9	4	B	●	○
UM-4E-D7.0		7	8	20	60	10.5	4	A	●	
UM-4E-D8.0		8	8	20	60	12	4	B	●	○
UM-4E-D9.0		9	10	22	75	13.5	4	A	●	
UM-4E-D10.0		10	10	25	75	15	4	B	●	○
UM-4E-D11.0		11	12	26	75	16.5	4	A	●	
UM-4E-D12.0		12	12	30	75	18	4	B	●	○
UM-4E-D14.0		14	14	32	75	21	4	B	●	
UM-4E-D16.0		16	16	45	100	24	4	B	●	○
UM-4E-D18.0		18	18	45	100	27	4	B	●	
UM-4E-D20.0		20	20	45	100	30	4	B	●	

● Ex stock ○ On demand
✻ With internal cooling

Application field

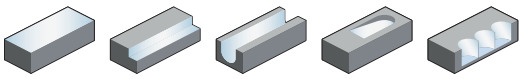
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

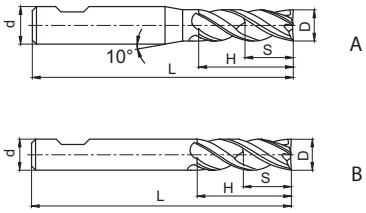
End mill HSC/HPC machining

UM-4E-W



– Factory standard with weldon clamping surface
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade	
		D	d (h6)	H	L	S			KMG405	YK40F
UM-4E-D4.0-W		4	6	11	50	6	4	A	●	
UM-4E-D4.5-W		4.5	6	11	50	6.75	4	A	●	
UM-4E-D5.0-W		5	6	13	50	7.5	4	A	●	
UM-4E-D5.5-W		5.5	6	16	50	8.25	4	A	●	
UM-4E-D6.0-W		6	6	16	50	9	4	B	●	○
UM-4E-D7.0-W		7	8	20	60	10.5	4	A	●	
UM-4E-D8.0-W		8	8	20	60	12	4	B	●	○
UM-4E-D9.0-W		9	10	22	75	13.5	4	A	●	
UM-4E-D10.0-W		10	10	25	75	15	4	B	●	○
UM-4E-D11.0-W		11	12	26	75	16.5	4	A	●	
UM-4E-D12.0-W		12	12	30	75	18	4	B	●	○
UM-4E-D14.0-W		14	14	32	75	21	4	B	●	
UM-4E-D16.0-W		16	16	45	100	24	4	B	●	○
UM-4E-D18.0-W		18	18	45	100	27	4	B	●	
UM-4E-D20.0-W		20	20	45	100	30	4	B	●	

● Ex stock ○ On demand

✻ With internal cooling

Application field

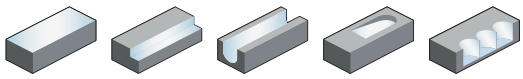
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

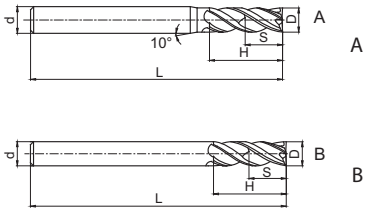
End mill long cutting edge HSC/HPC machining

UM-4EL



– Factory standard
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		D	d (h6)	H	L	S			KMG405
UM-4EL-D4.0		4	6	15	75	6	4	A	●
UM-4EL-D5.0		5	6	20	75	7.5	4	A	●
UM-4EL-D6.0		6	6	20	75	9	4	B	●
UM-4EL-D8.0		8	8	25	100	12	4	B	●
UM-4EL-D10.0		10	10	30	100	15	4	B	●
UM-4EL-D12.0		12	12	35	100	18	4	B	●
UM-4EL-D14.0		14	14	40	100	21	4	B	●
UM-4EL-D16.0		16	16	50	150	24	4	B	●
UM-4EL-D20.0		20	20	55	150	30	4	B	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

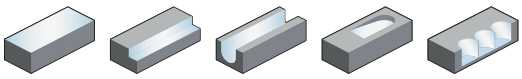
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

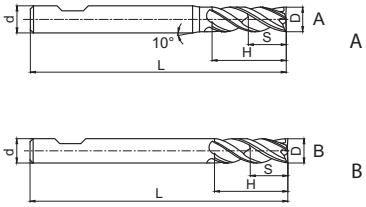
End mill long cutting edge HSC/HPC machining

UM-4EL-W



– Factory standard with weldon clamping surface
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]					Teeth	Geometry	Grade
		D	d (h6)	H	L	S			KMG405
UM-4EL-D4.0-W		4	6	15	75	6	4	A	●
UM-4EL-D5.0-W		5	6	20	75	7.5	4	A	●
UM-4EL-D6.0-W		6	6	20	75	9	4	B	●
UM-4EL-D8.0-W		8	8	25	100	12	4	B	●
UM-4EL-D10.0-W		10	10	30	100	15	4	B	●
UM-4EL-D12.0-W		12	12	35	100	18	4	B	●
UM-4EL-D14.0-W		14	14	40	100	21	4	B	●
UM-4EL-D16.0-W		16	16	50	150	24	4	B	●
UM-4EL-D20.0-W		20	20	55	150	30	4	B	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

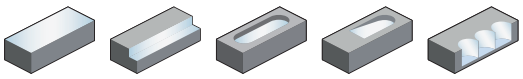
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

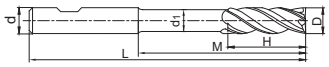
End mill reduced neck HSC/HPC machining

UM-4ELP-W



– Factory standard with weldon clamping surface
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG405
UM-4ELP-D4.0-W		4	6	3.8	15	36	75	4	●
UM-4ELP-D5.0-W		5	6	4.8	20	36	75	4	●
UM-4ELP-D6.0-W		6	6	5.7	20	36	75	4	●
UM-4ELP-D8.0-W		8	8	7.7	25	60	100	4	●
UM-4ELP-D10.0-W		10	10	9.5	30	55	100	4	●
UM-4ELP-D12.0-W		12	12	11.5	35	50	100	4	●
UM-4ELP-D14.0-W		14	14	13.5	40	50	100	4	●
UM-4ELP-D16.0-W		16	16	15.5	50	100	150	4	●
UM-4ELP-D20.0-W		20	20	19.5	55	98	150	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

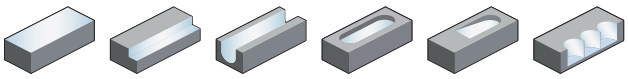
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

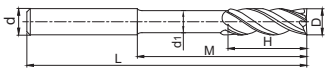
End mill short cutting edge HSC/HPC machining

UM-4EFP



– Factory standard
– Centre cutting
– Helix angle 38°/41°





Article	✲	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG405
UM-4EFP-D6.0		6	6	5.8	9	30	75	4	●
UM-4EFP-D8.0		8	8	7.8	12	40	100	4	●
UM-4EFP-D10.0		10	10	9.6	15	50	100	4	●
UM-4EFP-D12.0		12	12	11.5	18	50	100	4	●
UM-4EFP-D16.0		16	16	15.5	24	50	150	4	●
UM-4EFP-D18.0		18	18	17.5	27	60	150	4	○
UM-4EFP-D20.0		20	20	19.5	30	60	150	4	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

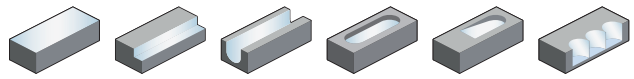
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

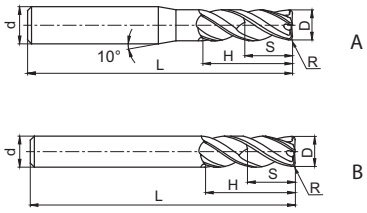
End mill HSC/HPC machining

UM-4R



– Factory standard
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]						Teeth	Geometry	Grade
		R	D	d (h6)	H	L	S			KMG405
UM-4R-D4.0R0.3		0.3	4	6	10	50	6	4	A	●
UM-4R-D4.0R0.5		0.5	4	6	10	50	6	4	A	●
UM-4R-D5.0R0.5		0.5	5	6	13	50	7.5	4	A	●
UM-4R-D5.0R1.0		1	5	6	13	50	7.5	4	A	●
UM-4R-D6.0R0.5		0.5	6	6	16	50	9	4	B	●
UM-4R-D6.0R1.0		1	6	6	16	50	9	4	B	●
UM-4R-D8.0R0.5		0.5	8	8	20	60	12	4	B	●
UM-4R-D8.0R1.0		1	8	8	20	60	12	4	B	●
UM-4R-D10.0R0.5		0.5	10	10	25	75	15	4	B	●
UM-4R-D10.0R1.0		1	10	10	25	75	15	4	B	●
UM-4R-D10.0R2.0		2	10	10	25	75	15	4	B	●
UM-4R-D10.0R3.0		3	10	10	25	75	15	4	B	●
UM-4R-D12.0R0.5		0.5	12	12	30	75	18	4	B	●
UM-4R-D12.0R1.0		1	12	12	30	75	18	4	B	●
UM-4R-D12.0R2.0		2	12	12	30	75	18	4	B	●
UM-4R-D12.0R3.0		3	12	12	30	75	18	4	B	●
UM-4R-D14.0R1.5		1.5	14	14	32	75	21	4	B	●
UM-4R-D16.0R0.5		0.5	16	16	45	100	24	4	B	●
UM-4R-D16.0R0.8		0.8	16	16	45	100	24	4	B	○
UM-4R-D16.0R1.0		1	16	16	45	100	24	4	B	●
UM-4R-D16.0R2.0		2	16	16	45	100	24	4	B	●
UM-4R-D16.0R3.0		3	16	16	45	100	24	4	B	●
UM-4R-D20.0R1.0		1	20	20	45	100	30	4	B	●
UM-4R-D20.0R2.0		2	20	20	45	100	30	4	B	●
UM-4R-D20.0R3.0		3	20	20	45	100	30	4	B	●
UM-4R-D20.0R5.0		5	20	20	45	100	30	4	B	○
UM-4R-D20.0R6.0		6	20	20	45	100	30	4	B	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

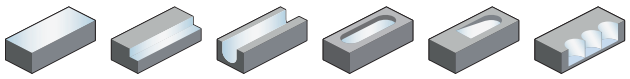
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

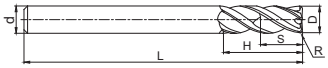
Torus mill long shank HSC/HPC machining

UM-4RL



– Factory standard
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]						Teeth	Grade
		R	D	d (h6)	H	L	S		KMG405
UM-4RL-D6.0R0.5		0.5	6	6	16	75	9	4	●
UM-4RL-D6.0R1.0		1	6	6	16	75	9	4	●
UM-4RL-D8.0R0.5		0.5	8	8	20	100	12	4	●
UM-4RL-D8.0R1.0		1	8	8	20	100	12	4	●
UM-4RL-D10.0R0.5		0.5	10	10	25	100	15	4	●
UM-4RL-D10.0R1.0		1	10	10	25	100	15	4	●
UM-4RL-D10.0R2.0		2	10	10	25	100	15	4	●
UM-4RL-D12.0R0.5		0.5	12	12	30	100	18	4	●
UM-4RL-D12.0R1.0		1	12	12	30	100	18	4	●
UM-4RL-D12.0R2.0		2	12	12	30	100	18	4	●
UM-4RL-D16.0R1.0		1	16	16	45	150	24	4	●
UM-4RL-D16.0R2.0		2	16	16	45	150	24	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

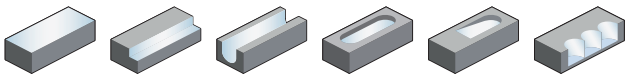
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

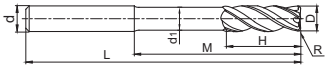
Torus mill short cutting edge HSC/HPC machining

UM-4RFP



– Factory standard
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]							Teeth	Grade
		R	D	d (h6)	d_1	H	M	L		KMG405
UM-4RFP-D6.0R0.5		0.5	6	6	5.8	6	18	75	4	●
UM-4RFP-D6.0R1.0		1	6	6	5.8	6	18	75	4	●
UM-4RFP-D8.0R0.5		0.5	8	8	7.7	8	24	100	4	●
UM-4RFP-D8.0R1.0		1	8	8	7.7	8	24	100	4	●
UM-4RFP-D10.0R0.5		0.5	10	10	9.6	10	30	100	4	●
UM-4RFP-D10.0R1.0		1	10	10	9.6	10	30	100	4	●
UM-4RFP-D10.0R2.0		2	10	10	9.6	10	30	100	4	●
UM-4RFP-D12.0R0.5		0.5	12	12	11.5	12	36	100	4	●
UM-4RFP-D12.0R1.0		1	12	12	11.5	12	36	100	4	●
UM-4RFP-D12.0R2.0		2	12	12	11.5	12	36	100	4	●
UM-4RFP-D16.0R1.0		1	16	16	15.5	16	40	150	4	●
UM-4RFP-D16.0R2.0		2	16	16	15.5	16	40	150	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

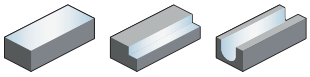
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

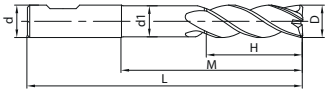
End mill HSC/HPC machining

UM-5EP-W



– Factory standard with weldon clamping surface
– Non-centre cutting
– Helix angle 38°/39°/40°





Article	✲	Dimensions [mm]						Teeth	Grade
		D	d (h6)	d_1	H	M	L		KMG405
UM-5EP-D6.0-W		6	6	5.7	16	22	58	5	●
UM-5EP-D8.0-W		8	8	7.7	21	27	63	5	●
UM-5EP-D10.0-W		10	10	9.5	24	35	75	5	●
UM-5EP-D12.0-W		12	12	11.5	31	43	88	5	●
UM-5EP-D16.0-W		16	16	15.5	36	52	100	5	●
UM-5EP-D20.0-W		20	20	19.5	41	72	126	5	●
UM-5EP-D25.0-W		25	25	24	51	102	160	5	○

● Ex stock ○ On demand

✲ With internal cooling

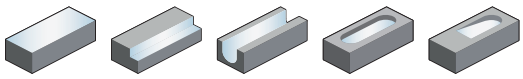
Application field

P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

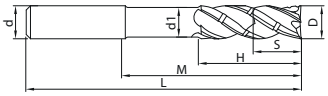
End mill HSC/HPC machining



UMC-4E

– Factory standard
– Centre cutting
– Helix angle 38°/40°





Article	✻	Dimensions [mm]							Teeth	Grade
		D	d (h6)	d_1	H	M	L	S		KMG405
UMC-4E-D6.0		6	6	5.8	18	24	60	9	4	○
UMC-4E-D8.0		8	8	7.8	24	34	70	12	4	○
UMC-4E-D10.0		10	10	9.6	30	40	80	15	4	○
UMC-4E-D12.0		12	12	11.5	36	45	90	18	4	○
UMC-4E-D16.0		16	16	15.5	48	62	110	24	4	○
UMC-4E-D20.0		20	20	19.5	60	80	130	30	4	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

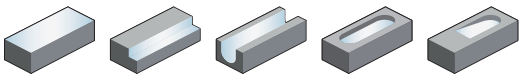
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

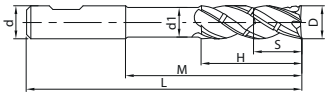
End mill HSC/HPC machining

UMC-4E-W



– Factory standard with weldon clamping surface
– Centre cutting
– Helix angle 38°/40°





Article	✻	Dimensions [mm]							Teeth	Grade
		D	d (h6)	d_1	H	M	L	S		KMG405
UMC-4E-D6.0-W		6	6	5.8	18	24	60	9	4	○
UMC-4E-D8.0-W		8	8	7.8	24	34	70	12	4	○
UMC-4E-D10.0-W		10	10	9.6	30	40	80	15	4	○
UMC-4E-D12.0-W		12	12	11.5	36	45	90	18	4	○
UMC-4E-D16.0-W		16	16	15.5	48	62	110	24	4	○
UMC-4E-D20.0-W		20	20	19.5	60	80	130	30	4	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

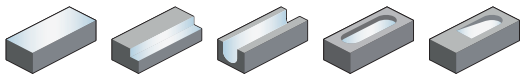
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

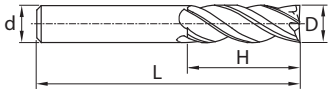
End mill General machining of heat-resistant alloys

VSM-4E



– Factory standard
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG405
VSM-4E-D4.0		4	6	11	50	4	●
VSM-4E-D5.0		5	6	13	50	4	●
VSM-4E-D6.0		6	6	16	50	4	●
VSM-4E-D8.0		8	8	20	60	4	●
VSM-4E-D10.0		10	10	25	75	4	●
VSM-4E-D12.0		12	12	30	75	4	●
VSM-4E-D14.0		14	14	40	100	4	○
VSM-4E-D16.0		16	16	45	100	4	●
VSM-4E-D20.0		20	20	45	100	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

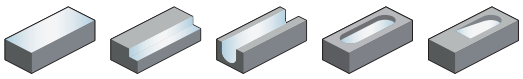
P	M	K	N	S	H
✔	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

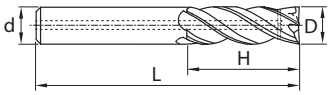
End mill General machining of heat-resistant alloys

VSM-4E-C



– Factory standard
– Coolant exit, radial
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]				Teeth	Grade
		D	d (h6)	H	L		KMG405
VSM-4E-C-D10.0	✻	10	10	25	75	4	○
VSM-4E-C-D12.0	✻	12	12	30	75	4	○
VSM-4E-C-D16.0	✻	16	16	45	100	4	○
VSM-4E-C-D20.0	✻	20	20	45	100	4	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔			✔	

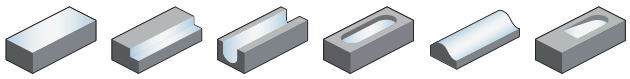
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

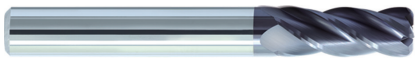
Torus mill

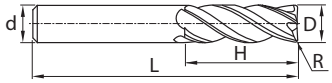
General machining of heat-resistant alloys

VSM-4R



– Factory standard
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]					Teeth	Grade
		D	R	d (h6)	H	L		KMG405
VSM-4R-D4.0R0.2		4	0.2	6	11	50	4	●
VSM-4R-D4.0R0.5		4	0.5	6	11	50	4	●
VSM-4R-D5.0R0.2		5	0.2	6	13	50	4	●
VSM-4R-D5.0R0.5		5	0.5	6	13	50	4	●
VSM-4R-D6.0R0.2		6	0.2	6	16	50	4	●
VSM-4R-D6.0R0.5		6	0.5	6	16	50	4	●
VSM-4R-D6.0R1.0		6	1	6	16	50	4	●
VSM-4R-D6.0R1.5		6	1.5	6	16	50	4	●
VSM-4R-D8.0R0.5		8	0.5	8	20	63	4	●
VSM-4R-D8.0R0.8		8	0.8	8	20	63	4	●
VSM-4R-D8.0R1.0		8	1	8	20	63	4	●
VSM-4R-D8.0R1.5		8	1.5	8	20	63	4	●
VSM-4R-D8.0R2.0		8	2	8	20	63	4	●
VSM-4R-D10.0R0.5		10	0.5	10	25	75	4	●
VSM-4R-D10.0R0.8		10	0.8	10	25	75	4	●
VSM-4R-D10.0R1.0		10	1	10	25	75	4	●
VSM-4R-D10.0R1.5		10	1.5	10	25	75	4	●
VSM-4R-D10.0R2.0		10	2	10	25	75	4	●
VSM-4R-D12.0R0.3		12	0.3	12	30	75	4	●
VSM-4R-D12.0R0.5		12	0.5	12	30	75	4	●
VSM-4R-D12.0R0.8		12	0.8	12	30	75	4	●
VSM-4R-D12.0R1.0		12	1	12	30	75	4	●
VSM-4R-D12.0R1.5		12	1.5	12	30	75	4	●
VSM-4R-D12.0R2.0		12	2	12	30	75	4	●
VSM-4R-D12.0R2.5		12	2.5	12	30	75	4	●
VSM-4R-D12.0R3.0		12	3	12	30	75	4	●
VSM-4R-D12.0R4.0		12	4	12	30	75	4	●
VSM-4R-D14.0R0.5		14	0.5	14	32	75	4	○
VSM-4R-D16.0R0.5		16	0.5	16	45	100	4	●
VSM-4R-D16.0R0.8		16	0.8	16	45	100	4	●
VSM-4R-D16.0R1.0		16	1	16	45	100	4	●
VSM-4R-D16.0R1.5		16	1.5	16	45	100	4	●
VSM-4R-D16.0R2.0		16	2	16	45	100	4	●
VSM-4R-D16.0R2.5		16	2.5	16	45	100	4	●
VSM-4R-D16.0R3.0		16	3	16	45	100	4	●
VSM-4R-D16.0R4.0		16	4	16	45	100	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔			✔	

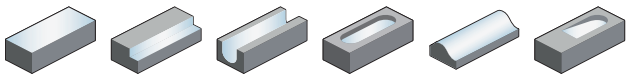
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

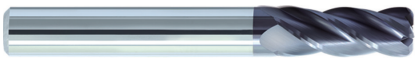
Torus mill

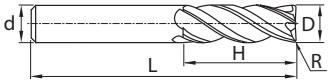
General machining of heat-resistant alloys

VSM-4R



– Factory standard
– Centre cutting
– Helix angle 38°/41°





Article	✻	Dimensions [mm]					Teeth	Grade
		D	R	d (h6)	H	L		KMG405
VSM-4R-D20.0R0.5		20	0.5	20	45	100	4	●
VSM-4R-D20.0R1.0		20	1	20	45	100	4	●
VSM-4R-D20.0R1.5		20	1.5	20	45	100	4	●
VSM-4R-D20.0R2.0		20	2	20	45	100	4	●
VSM-4R-D20.0R2.5		20	2.5	20	45	100	4	●
VSM-4R-D20.0R3.0		20	3	20	45	100	4	●
VSM-4R-D20.0R4.0		20	4	20	45	100	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔			✔	

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

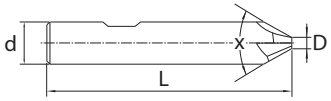
Deburring cutter 60° General machining

5501/5601R60*FM



– Type of shank DIN 6535HA
– Type of shank: DIN 6535HB
– Non-centre cutting
– Helix angle 0°





Article	✻	Dimensions [mm]					Teeth	Grade
		d(h6)	L	D	Shank	X		KMG303
5501R603FM-0300		3	48	0.2	HA	60	3	●
5501R604FM-0400		4	48	0.2	HA	60	4	●
5601R604FM-0600		6	55	0.2	HB	60	4	●
5601R604FM-0800		8	58	0.5	HB	60	4	●
5601R604FM-1000		10	65	0.5	HB	60	4	●
5601R606FM-1000		10	65	0.7	HB	60	6	○
5601R604FM-1200		12	75	0.5	HB	60	4	●
5601R606FM-1200		12	75	0.7	HB	60	6	○
5601R604FM-1600		16	85	0.7	HB	60	4	●
5601R606FM-1600		16	85	0.7	HB	60	6	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔	✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

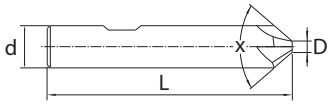
Deburring cutter 90° General machining

5501/5601R90*FM



– Type of shank DIN 6535HA
– Type of shank: DIN 6535HB
– Non-centre cutting
– Helix angle 0°





Article	✻	Dimensions [mm]					Teeth	Grade
		d(h6)	L	D	Shank	X		KMG303
5501R903FM-0300		3	48	0.2	HA	90	3	●
5501R904FM-0400		4	48	0.2	HA	90	4	●
5501R904FM-0600		6	55	0.2	HA	90		○
5601R904FM-0600		6	55	0.2	HB	90	4	●
5501R904FM-0800		8	58	0.5	HA	90		○
5601R904FM-0800		8	58	0.5	HB	90	4	●
5501R904FM-1000		10	65	0.5	HA	90		○
5601R904FM-1000		10	65	0.5	HB	90	4	●
5601R906FM-1000		10	65	0.7	HB	90	6	○
5501R904FM-1200		12	75	0.5	HA	90		○
5601R904FM-1200		12	75	0.5	HB	90	4	●
5601R906FM-1200		12	75	0.7	HB	90	6	○
5501R904FM-1600		16	85	0.7	HA	90	4	○
5601R904FM-1600		16	85	0.7	HB	90	4	●
5601R906FM-1600		16	85	0.7	HB	90	6	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔	✔		

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

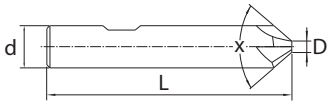
Deburring cutter General machining

5501/5601R120*FM



– Type of shank DIN 6535HA
– Type of shank: DIN 6535HB
– Non-centre cutting
– Helix angle 0°





Article	✻	Dimensions [mm]					Teeth	Grade
		d(h6)	L	D	Shank	X		KMG406
5501R1203FM-0300		3	48	0.2	HA	120	3	○
5501R1204FM-0400		4	48	0.2	HA	120	4	○
5601R1204FM-0600		6	55	0.2	HB	120	4	○
5501R1204FM-0600		6	55	0.2	HA	120	4	○
5601R1204FM-0800		8	58	0.5	HB	120	4	○
5501R1204FM-0800		8	58	0.5	HA	120	4	○
5501R1204FM-1000		10	65	0.5	HA	120	4	○
5601R1204FM-1000		10	65	0.5	HB	120	4	○
5601R1206FM-1000		10	65	0.7	HB	120	6	○
5501R1206FM-1000		10	65	0.7	HA	120	6	○
5601R1204FM-1200		12	75	0.5	HB	120	4	○
5501R1204FM-1200		12	75	0.5	HA	120	4	○
5601R1206FM-1200		12	75	0.7	HB	120	6	○
5501R1206FM-1200		12	75	0.7	HA	120	6	○
5501R1206FM-1600		16	85	0.7	HA	120	6	○
5501R1204FM-1600		16	85	0.7	HA	120	4	○
5601R1204FM-1600		16	85	0.7	HB	120	4	○
5601R1206FM-1600		16	85	0.7	HB	120	6	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔	✔		

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

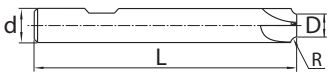
Quarter round profile mill General machining

5601R90*FM-R



– Type of shank: DIN 6535HB
– Non-centre cutting
– Helix angle 0°





Article	✻	Dimensions [mm] d(h6)	L	D	R	Teeth	Grade KMG303
5601R904FM-R02-0600		6	60	5.6	0.2	4	●
5601R904FM-R03-0600		6	60	5.4	0.3	4	●
5601R904FM-R04-0600		6	60	5.2	0.4	4	●
5601R904FM-R05-0800		8	70	7	0.5	4	●
5601R904FM-R06-0800		8	70	6.8	0.6	4	●
5601R904FM-R075-0800		8	70	6.5	0.75	4	●
5601R904FM-R08-0800		8	70	6.4	0.8	4	●
5601R904FM-R10-0800		8	70	6	1	4	●
5601R904FM-R15-1000		10	75	7	1.5	4	●
5601R904FM-R20-1000		10	75	6	2	4	●
5601R904FM-R25-1200		12	75	7	2.5	4	●
5601R904FM-R30-1200		12	75	6	3	4	●
5601R904FM-R40-1600		16	80	8	4	4	●
5601R904FM-R50-2000		20	80	10	5	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
✔	✔	✔	✔		

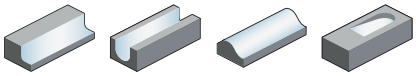
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Ball nose cutter

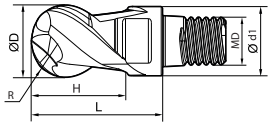
High-performance machining

PM-2B



– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]						Teeth	Grade
		R	D	d1	H	L	MD(Q)		KMG405
Q07-PM-2B-D10.0		5	10	9.5	6	16	7	2	●
Q08-PM-2B-D12.0		6	12	11.5	7	17	8	2	●
Q10-PM-2B-D16.0		8	16	15.2	9	21.5	10	2	●
Q12-PM-2B-D20.0		10	20	19	11	25.5	12	2	●
Q14-PM-2B-D25.0		12.5	25	24	13.5	31.5	14	2	●
Q18-PM-2B-D32.0		16	32	30	17	36	18	2	●

● Ex stock ○ On demand

✻ With internal cooling

Application field

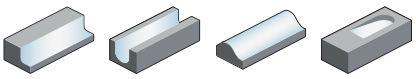
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

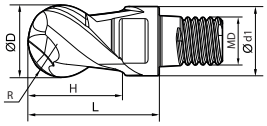
Ball nose cutter High-performance machining

PM-4B



– Centre cutting
– Helix angle 30°





Article	✲	Dimensions [mm] R	D	d1	H	L	MD(Q)	Teeth	Grade KMG405
Q07-PM-4B-D10.0		5	10	9.5	6	16	7	4	●
Q08-PM-4B-D12.0		6	12	11.5	7	17	8	4	●
Q10-PM-4B-D16.0		8	16	15.2	9	21.5	10	4	●
Q12-PM-4B-D20.0		10	20	19	11	25.5	12	4	●
Q14-PM-4B-D25.0		12.5	25	24	13.5	31.5	14	4	●
Q18-PM-4B-D32.0		16	32	30	17	36	18	4	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

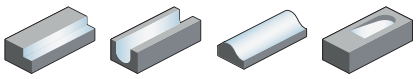
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

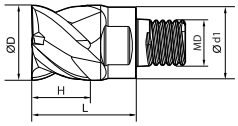
Square shoulder mill | High-performance machining

PM-4E



– Centre cutting
– Helix angle 45°





Article	✻	Dimensions [mm]					Teeth	Grade
		D	d1	H	L	MD(Q)		KMG405
Q07-PM-4E-D10.0		10	9.5	6	16	7	4	●
Q08-PM-4E-D12.0		12	11.5	7	17	8	4	●
Q10-PM-4E-D16.0		16	15.2	9	21.5	10	4	●
Q12-PM-4E-D20.0		20	19	11	25.5	12	4	●
Q14-PM-4E-D25.0		25	24	13.5	31.5	14	4	●
Q18-PM-4E-D32.0		32	30	17	36	18	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

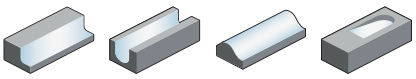
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

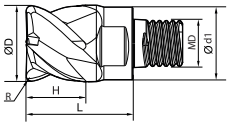
Torus mill High-performance machining

PM-4R



– Centre cutting
– Helix angle 30°





Article	✻	Dimensions [mm]						Teeth	Grade
		R	D	d1	H	L	MD(Q)		KMG405
Q07-PM-4R-D10.0R0.5		0.5	10	9.5	6	16	7	4	●
Q07-PM-4R-D10.0R1.0		1	10	9.5	6	16	7	4	●
Q08-PM-4R-D12.0R1.0		1	12	11.5	7	17	8	4	●
Q08-PM-4R-D12.0R2.0		2	12	11.5	7	17	8	4	●
Q10-PM-4R-D16.0R1.0		1	16	15.2	9	21.5	10	4	●
Q10-PM-4R-D16.0R1.5		1.5	16	15.2	9	21.5	10	4	●
Q10-PM-4R-D16.0R2.0		2	16	15.2	9	21.5	10	4	●
Q12-PM-4R-D20.0R1.0		1	20	19	11	25.5	12	4	●
Q12-PM-4R-D20.0R2.0		2	20	19	11	25.5	12	4	●
Q14-PM-4R-D25.0R1.0		1	25	24	13.5	31.5	14	4	●
Q14-PM-4R-D25.0R2.0		2	25	24	13.5	31.5	14	4	●
Q14-PM-4R-D25.0R2.5		2.5	25	24	13.5	31.5	14	4	●
Q18-PM-4R-D32.0R1.0		1	32	30	17	36	18	4	●
Q18-PM-4R-D32.0R2.0		2	32	30	17	36	18	4	●
Q18-PM-4R-D32.0R3.0		3	32	30	17	36	18	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

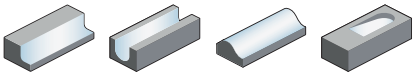
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

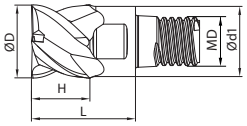
Square shoulder mill | High-performance machining

VPM-4E



– Centre cutting
– Helix angle 38°





Article	✲	Dimensions [mm]					Teeth	Grade
		D	d1	H	L	MD(Q)		KMG406
Q07-VPM-4E-D10.0		10	9.5	6	16	7	4	●
Q08-VPM-4E-D12.0		12	11.5	7	17	8	4	●
Q10-VPM-4E-D16.0		16	15.2	9	21.5	10	4	●
Q12-VPM-4E-D20.0		20	19	11	25.5	12	4	●
Q14-VPM-4E-D25.0		25	24	13.5	31.5	14	4	●
Q18-VPM-4E-D32.0		32	30	17	36	18	4	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

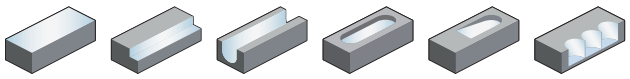
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

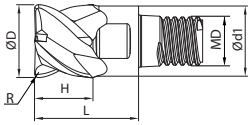
Square shoulder mill High-performance machining

VPM-4R



– Factory standard
– Centre cutting
– Helix angle 36°/38°





Article	✻	Dimensions [mm]						Teeth	Grade
		R	D	d1	H	L	MD(Q)		KMG406
Q07-VPM-4R-D10.0R0.3		0.3	10	9.5	6	16	7	4	○
Q07-VPM-4R-D10.0R0.5		0.5	10	9.5	6	16	7	4	●
Q07-VPM-4R-D10.0R1.0		1	10	9.5	6	16	7	4	○
Q07-VPM-4R-D10.0R1.5		1.5	10	9.5	6	16	7	4	○
Q07-VPM-4R-D10.0R2.0		2	10	9.5	6	16	7	4	○
Q08-VPM-4R-D12.0R0.3		0.3	12	11.5	7	17	8	4	○
Q08-VPM-4R-D12.0R0.5		0.5	12	11.5	7	17	8	4	●
Q08-VPM-4R-D12.0R1.5		1.5	12	11.5	7	17	8	4	○
Q08-VPM-4R-D12.0R2.0		2	12	11.5	7	17	8	4	●
Q10-VPM-4R-D16.0R0.5		0.5	16	15.2	9	21.5	10	4	○
Q10-VPM-4R-D16.0R1.0		1	16	15.2	9	21.5	10	4	●
Q10-VPM-4R-D16.0R1.5		1.5	16	15.2	9	21.5	10	4	○
Q10-VPM-4R-D16.0R2.0		2	16	15.2	9	21.5	10	4	●
Q10-VPM-4R-D16.0R3.0		3	16	15.2	9	21.5	10	4	●
Q12-VPM-4R-D20.0R1.0		1	20	18.5	11	25.5	12	4	●
Q12-VPM-4R-D20.0R1.5		1.5	20	18.5	11	25.5	12	4	○
Q12-VPM-4R-D20.0R2.0		2	20	18.5	11	25.5	12	4	●
Q12-VPM-4R-D20.0R3.0		3	20	18.5	11	25.5	12	4	●
Q14-VPM-4R-D25.0R1.5		1.5	25	24	13.5	31.5	14	4	○
Q14-VPM-4R-D25.0R2.0		2	25	24	13.5	31.5	14	4	●
Q14-VPM-4R-D25.0R2.5		2.5	25	24	13.5	31.5	14	4	○
Q14-VPM-4R-D25.0R3.0		3	25	24	13.5	31.5	14	4	●
Q18-VPM-4R-D32.0R2.0		2	32	30	17	36	18	4	○
Q18-VPM-4R-D32.0R2.5		2.5	32	30	17	36	18	4	○
Q18-VPM-4R-D32.0R4.0		4	32	30	17	36	18	4	○

● Ex stock ○ On demand
✻ With internal cooling

Application field

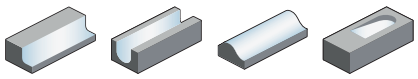
P	M	K	N	S	H
✔	✔	✔			✔

✔ Very suitable
✔ Suitable

System code > B362 Cutting data > B582 Nonstandard order > B633

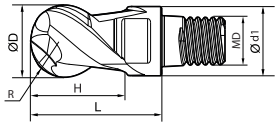
Ball nose cutter **Hard machining**

HMX-2B



– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]						Teeth	Grade
		R	D	d1	H	L	MD(Q)		KMG5515
Q07-HMX-2B-D10.0		5	10	9.5	6	16	7	2	●
Q08-HMX-2B-D12.0		6	12	11.5	7	17	8	2	●
Q10-HMX-2B-D16.0		8	16	15.2	9	21.5	10	2	●
Q12-HMX-2B-D20.0		10	20	19	11	25.5	12	2	●
Q14-HMX-2B-D25.0		12.5	25	24	13.5	31.5	14	2	●
Q18-HMX-2B-D32.0		16	32	30	17	36	18	2	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

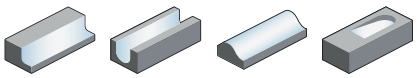
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

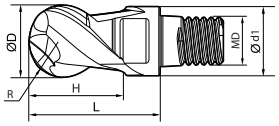
Ball nose cutter Hard machining

HMX-4B



– Centre cutting
– Helix angle 35°





Article	✲	Dimensions [mm] R	D	d1	H	L	MD(Q)	Teeth	Grade KMG5515
Q08-HMX-4B-D12.0		6	12	11.5	7	17	8	4	●
Q10-HMX-4B-D16.0		8	16	15.2	9	21.5	10	4	●
Q12-HMX-4B-D20.0		10	20	19	11	25.5	12	4	●
Q14-HMX-4B-D25.0		12.5	25	24	13.5	31.5	14	4	●
Q18-HMX-4B-D32.0		16	32	30	17	36	18	4	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

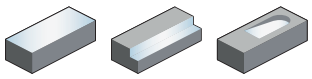
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

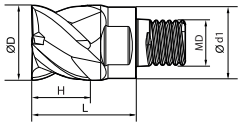
Square shoulder mill | Hard machining

HMX-4E



– Centre cutting
– Helix angle 45°





Article	✲	Dimensions [mm]					Teeth	Grade
		D	d1	H	L	MD(Q)		KMG5515
Q07-HMX-4E-D10.0		10	9.5	6	16	7	4	●
Q08-HMX-4E-D12.0		12	11.5	7	17	8	4	●
Q10-HMX-4E-D16.0		16	15.2	9	21.5	10	4	●
Q12-HMX-4E-D20.0		20	19	11	25.5	12	4	●
Q14-HMX-4E-D25.0		25	24	13.5	31.5	14	4	●
Q18-HMX-4E-D32.0		32	30	17	36	18	4	●

● Ex stock ○ On demand
✲ With internal cooling

Application field

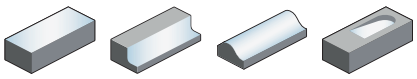
P	M	K	N	S	H
					✔

✔ Very suitable
✔ Suitable

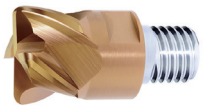
System code B362 Cutting data B582 Nonstandard order B633

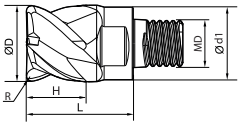
Torus mill Hard machining

HMX-4R



– Centre cutting
– Helix angle 35°





Article	✻	Dimensions [mm]						Teeth	Grade
		R	D	d1	H	L	MD(Q)		KMG5515
Q07-HMX-4R-D10.0R0.5		0.5	10	9.5	6	16	7	4	●
Q07-HMX-4R-D10.0R1.0		1	10	9.5	6	16	7	4	●
Q08-HMX-4R-D12.0R1.0		1	12	11.5	7	17	8	4	●
Q08-HMX-4R-D12.0R2.0		2	12	11.5	7	17	8	4	●
Q10-HMX-4R-D16.0R1.0		1	16	15.2	9	21.5	10	4	●
Q10-HMX-4R-D16.0R1.5		1.5	16	15.2	9	21.5	10	4	●
Q10-HMX-4R-D16.0R2.0		2	16	15.2	9	21.5	10	4	●
Q12-HMX-4R-D20.0R1.0		1	20	19	11	25.5	12	4	●
Q12-HMX-4R-D20.0R2.0		2	20	19	11	25.5	12	4	●
Q14-HMX-4R-D25.0R1.0		1	25	24	13.5	31.5	14	4	●
Q14-HMX-4R-D25.0R2.0		2	25	24	13.5	31.5	14	4	●
Q14-HMX-4R-D25.0R2.5		2.5	25	24	13.5	31.5	14	4	●
Q18-HMX-4R-D32.0R1.0		1	32	30	17	36	18	4	●
Q18-HMX-4R-D32.0R2.0		2	32	30	17	36	18	4	●
Q18-HMX-4R-D32.0R3.0		3	32	30	17	36	18	4	●

● Ex stock ○ On demand
✻ With internal cooling

Application field

P	M	K	N	S	H
					✔

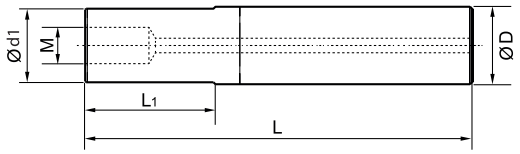
✔ Very suitable
✔ Suitable

System code B362 Cutting data B582 Nonstandard order B633

Notes

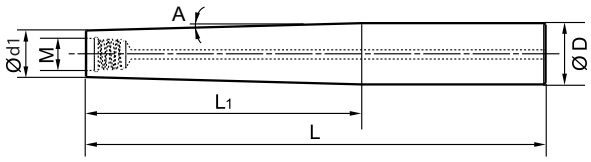
Indexable heads shanks

Solid carbide shank, stepped, Q thread



Article	Dimensions [mm]				Thread (M)	Stock
	D	d1	L	L1		
G12-QCH-Q08-80C	12	11,5	80	30	Q8	●
G12-QCH-Q08-100C	12	11,5	100	50	Q8	●
G12-QCH-Q08-120C	12	11,5	120	70	Q8	●
G16-QCH-Q10-90C	16	15,2	90	40	Q10	●
G16-QCH-Q10-120C	16	15,2	120	70	Q10	●
G16-QCH-Q10-150C	16	15,2	150	100	Q10	●
G20-QCH-Q12-100C	20	19	100	40	Q12	●
G20-QCH-Q12-140C	20	19	140	80	Q12	●
G20-QCH-Q12-180C	20	19	180	120	Q12	●
G25-QCH-Q14-120C	25	24	120	50	Q14	●
G25-QCH-Q14-170C	25	24	170	100	Q14	●
G25-QCH-Q14-220C	25	24	220	150	Q14	●
G32-QCH-Q18-140C	32	30	140	70	Q18	●
G32-QCH-Q18-200C	32	30	200	130	Q18	●
G32-QCH-Q18-260C	32	30	260	190	Q18	●
G32-QCH-Q18-320C	32	30	320	250	Q18	●

Solid carbide shank, tapered, Q thread



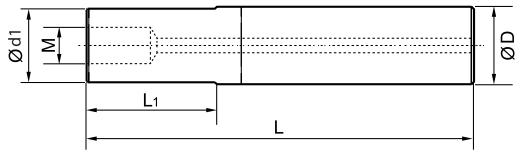
Article	Dimensions [mm]				Thread (M)	Angle (A)	Stock
	D	d1	L	L1			
G16-QCH-Q08-140C-ZJ90	16	11,5	140	90	Q8	1,0	●
G20-QCH-Q10-200C-ZJ140	20	15,2	200	140	Q8	0,8	●
G25-QCH-Q12-250C-ZJ180	25	19	250	180	Q8	0,8	●
G32-QCH-Q14-270C-ZJ200	32	30	270	200	Q10	0,8	●

Spare parts

	Thread	Q8 / Q10	Q12 / Q14	Q18
	Wrench	QCH-10×13	QCH-16×20	QCH-26

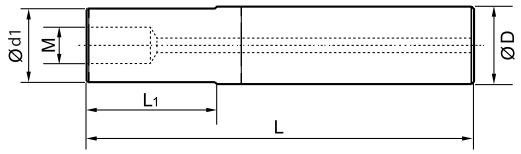
Indexable heads shanks

Steel shank, stepped, Q thread



Article	Dimensions [mm]				Thread (M)	Stock
	D	d1	L	L1		
G12-QCH-Q08-65S	12	11,5	65	19	Q08	●
G16-QCH-Q10-100S	16	15,2	100	42	Q10	●
G20-QCH-Q12-110S	20	19	110	54	Q12	●

Solid carbide shank, stepped, metric thread



Article	Dimensions [mm]				Thread (M)	Stock
	D	d1	L	L1		
G16-QCH-M8-90C-125	16	12,5	90	35	M8	○
G16-QCH-M8-110C-125	16	12,5	110	55	M8	○
G16-QCH-M8-130C-125	16	12,5	130	75	M8	○
G16-QCH-M8-90C	16	15	90	35	M8	○
G16-QCH-M8-110C	16	15	110	55	M8	○
G16-QCH-M8-130C	16	15	130	75	M8	○
G16-QCH-M8-170C	16	15	170	115	M8	○
G16-QCH-M8-200C	16	15	200	145	M8	○
G20-QCH-M10-87C	20	18,5	87	30	M10	○
G20-QCH-M10-107C	20	18,5	107	50	M10	○
G20-QCH-M10-127C	20	18,5	127	70	M10	○
G20-QCH-M10-167C	20	18,5	167	110	M10	○
G20-QCH-M10-197C	20	18,5	197	140	M10	○
G25-QCH-M12-128C	25	23	128	65	M12	○
G25-QCH-M12-148C	25	23	148	85	M12	○
G25-QCH-M12-168C	25	23	168	105	M12	○
G25-QCH-M12-198C	25	23	198	135	M12	○
G25-QCH-M12-228C	25	23	228	165	M12	○
G32-QCH-M16-161C	32	29	161	95	M16	○
G32-QCH-M16-211C	32	29	211	145	M16	○
G32-QCH-M16-281C	32	29	281	215	M16	○
G32-QCH-M16-311C	32	29	311	245	M16	○
G32-QCH-M16-361C	32	29	361	295	M16	○

Guide for recommended cutting data – solid carbide milling

End mill – GM series

1 2 3 4

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min] 5501R302GM 5601R302GM 5502R302GM 5602R302GM				GM-2E GM-2EFP GM-2F			
						Slot milling		Shoulder milling		Slot milling		Shoulder milling	
						Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
						0<x<3	0,1 x D	0<x≤20	<0,5 x D	0<x<3	0,1 x D	0<x≤20	<0,5 x D
						3≤x≤20	0,8 x D			3≤x≤20	0,8 x D		
						KMG303				KMG303			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	ca. 0,15 % C	annealed	125	1	150	200	270	2	150	200	270	2
		ca. 0,45 % C	annealed	190	2	145	190	260	2	145	190	260	2
		ca. 0,45 % C	tempered	250	3	105	140	190	2	105	140	190	2
		ca. 0,75 % C	annealed	270	4	90	120	165	2	90	120	165	2
		ca. 0,75 % C	tempered	300	5	85	110	150	2	85	110	150	2
	Low-alloyed steel		annealed	180	6	115	150	205	2	115	150	205	2
			tempered	275	7	90	120	165	2	90	120	165	2
			tempered	300	8	85	110	150	2	85	110	150	2
			tempered	350	9	80	105	145	2	80	105	145	2
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	105	140	190	2	105	140	190	2
			hardened and tempered	325	11	80	110	145	2	80	110	145	2
M	Stainless steel	ferritic/martensitic	annealed	200	12	50	65	90	2	50	65	90	2
		martensitic	tempered	240	13	45	60	80	2	45	60	80	2
		austenitic	quench hardened	180	14	55	70	95	2	55	70	95	2
		austenitic-ferritic		230	15	45	60	80	2	45	60	80	2
K	Grey cast iron	perlitic/ferritic		180	16	110	150	200	2	110	150	200	2
		perlitic (martensitic)		260	17	90	120	165	2	90	120	165	2
	Cast iron with spheroidal graphite	ferritic		160	18	135	180	245	2	135	180	245	2
		perlitic		250	19	105	140	190	2	105	140	190	2
	Malleable cast iron	ferritic		130	20	150	200	270	2	150	200	270	2
		perlitic		230	21	120	160	220	2	120	160	220	2
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditons.
The values have to be adapted in individual cases.
Feed rate recommendations on page B460
For examples of material for cutting tool groups view page D22.

Recommend feed rate

Solid carbide milling group 2 – Square shoulder mills GM *series*

4

	a_e / D	Feed rate per cutting edge (f_z) [mm]																	
		Ø0,5	Ø0,8	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20			
P	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09			
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,05	0,08	0,09	0,09	0,10	0,10	0,12			
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,12	0,14	0,14	0,16	0,16	0,18			
M	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,05	0,06	0,06	0,06	0,06	0,07			
	1/2	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09			
	1/10	0,02	0,03	0,03	0,03	0,03	0,03	0,05	0,05	0,06	0,10	0,11	0,11	0,13	0,13	0,15			
K	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09			
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,05	0,08	0,09	0,09	0,10	0,10	0,12			
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,12	0,14	0,14	0,16	0,16	0,18			

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Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

1. Select the appropriate product series.
2. Determine the immersion.
3. Select the used material and read the cutting speed.
4. Determine the feed rate group and have a look at the appropriate feed rate recommendations.
5. Select the diameter of tool and determine the immersion.

Solid carbide milling Recommended cutting data

End mill – GM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						5501R302GM 5601R302GM 5502R302GM 5602R302GM				GM-2E GM-2EFP GM-2F			
						Slot milling		Shoulder milling		Slot milling		Shoulder milling	
						Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
						0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D
						3 ≤ x ≤ 20	0,8 x D			3 ≤ x ≤ 20	0,8 x D		
						KMG303				KMG303			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	150	200	270	2	150	200	270	2
		approx. 0,45 % C	annealed	190	2	145	190	260	2	145	190	260	2
		approx. 0,45 % C	tempered	250	3	105	140	190	2	105	140	190	2
		approx. 0,75 % C	annealed	270	4	90	120	165	2	90	120	165	2
		approx. 0,75 % C	tempered	300	5	85	110	150	2	85	110	150	2
	Low-alloyed steel		annealed	180	6	115	150	205	2	115	150	205	2
			tempered	275	7	90	120	165	2	90	120	165	2
			tempered	300	8	85	110	150	2	85	110	150	2
			tempered	350	9	80	105	145	2	80	105	145	2
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	105	140	190	2	105	140	190	2
			hardened and tempered	325	11	80	110	145	2	80	110	145	2
M	Stainless steel	ferritic/martensitic	annealed	200	12	50	65	90	2	50	65	90	2
		martensitic	tempered	240	13	45	60	80	2	45	60	80	2
		austenitic	quench hardened	180	14	55	70	95	2	55	70	95	2
		austenitic-ferritic		230	15	45	60	80	2	45	60	80	2
K	Grey cast iron	perlitic/ferritic		180	16	110	150	200	2	110	150	200	2
		perlitic (martensitic)		260	17	90	120	165	2	90	120	165	2
	Cast iron with spheroidal graphite	ferritic		160	18	135	180	245	2	135	180	245	2
		perlitic		250	19	105	140	190	2	105	140	190	2
	Malleable cast iron	ferritic		130	20	150	200	270	2	150	200	270	2
		perlitic		230	21	120	160	220	2	120	160	220	2
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

	Starting values for cutting speed v_c [m/min]																			
	GM-2EL GM-2EX GM-2FL				GM-2EP GM-2ES				GM-3E GM-4E GM-4E-G				GM-2EL GM-4EL-G				5501R303GM 5601R303GM 5502R303GM 5602R303GM			
	Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling	
	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D
	3 ≤ x ≤ 20	0,8 x D			3 ≤ x ≤ 20	0,8 x D			3 ≤ x ≤ 20	0,8 x D			3 ≤ x ≤ 20	0,8 x D			3 ≤ x ≤ 20	0,8 x D		
	KMG303				KMG303				KMG303				KMG303				KMG303			
	a_e / D				a_e / D				a_e / D				a_e / D				a_e / D			
	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
	130	170	230	2	150	200	270	2	150	200	270	2	130	170	230	2	140	185	245	2
	125	165	220	2	145	190	260	2	145	190	260	2	125	165	220	2	135	180	235	2
	95	120	165	2	105	140	190	2	105	140	190	2	95	120	165	2	100	130	175	2
	80	105	140	2	90	120	165	2	90	120	165	2	80	105	140	2	85	115	150	2
	75	95	130	2	85	110	150	2	85	110	150	2	75	95	130	2	80	105	135	2
	100	130	175	2	115	150	205	2	115	150	205	2	100	130	175	2	105	140	185	2
	80	105	140	2	90	120	165	2	90	120	165	2	80	105	140	2	85	115	150	2
	75	95	130	2	85	110	150	2	85	110	150	2	75	95	130	2	80	105	135	2
	70	90	120	2	80	105	145	2	80	105	145	2	70	90	120	2	75	100	130	2
	95	120	165	2	105	140	190	2	105	140	190	2	95	120	165	2	100	130	175	2
	70	95	125	2	80	110	145	2	80	110	145	2	70	95	125	2	75	100	130	2
	45	55	75	2	50	65	90	2	50	65	90	2	45	55	75	2	45	60	80	2
	40	50	65	2	45	60	80	2	45	60	80	2	40	50	65	2	40	55	70	2
	45	60	80	2	55	70	95	2	55	70	95	2	45	60	80	2	50	65	85	2
	40	50	65	2	45	60	80	2	45	60	80	2	40	50	65	2	40	55	70	2
	95	125	170	2	110	150	200	2	110	150	200	2	95	125	170	2	105	140	180	2
	80	105	140	2	90	120	165	2	90	120	165	2	80	105	140	2	85	115	150	2
	120	155	210	2	135	180	245	2	135	180	245	2	120	155	210	2	130	170	225	2
	95	120	165	2	105	140	190	2	105	140	190	2	95	120	165	2	100	130	175	2
	130	170	230	2	150	200	270	2	150	200	270	2	130	170	230	2	140	185	245	2
	105	140	185	2	120	160	220	2	120	160	220	2	105	140	185	2	115	150	200	2

Solid carbide milling Recommended cutting data

End mill – GM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						5501R304GF 5601R304GF 5502R304GF 5602R304GF				GM-4F-G GM-4EFP			
						Slot milling		Shoulder milling		Slot milling		Shoulder milling	
						Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
						0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D
						3 ≤ x ≤ 20	0,8 x D			3 ≤ x ≤ 20	0,8 x D		
						KMG303				KMG303			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	155	200	265	2	150	200	270	2
		approx. 0,45 % C	annealed	190	2	150	190	255	2	145	190	260	2
		approx. 0,45 % C	tempered	250	3	110	140	190	2	105	140	190	2
		approx. 0,75 % C	annealed	270	4	95	120	160	2	90	120	165	2
		approx. 0,75 % C	tempered	300	5	90	110	150	2	85	110	150	2
	Low-alloyed steel		annealed	180	6	120	150	200	2	115	150	205	2
			tempered	275	7	95	120	160	2	90	120	165	2
			tempered	300	8	90	110	150	2	85	110	150	2
			tempered	350	9	85	105	140	2	80	105	145	2
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	110	140	190	2	105	140	190	2
			hardened and tempered	325	11	85	110	145	2	80	110	145	2
M	Stainless steel	ferritic/martensitic	annealed	200	12	50	65	85	2	50	65	90	2
		martensitic	tempered	240	13	45	60	75	2	45	60	80	2
		austenitic	quench hardened	180	14	55	70	95	2	55	70	95	2
		austenitic-ferritic		230	15	45	60	75	2	45	60	80	2
K	Grey cast iron	perlitic/ferritic		180	16	115	150	195	2	110	150	200	2
		perlitic (martensitic)		260	17	95	120	160	2	90	120	165	2
	Cast iron with spheroidal graphite	ferritic		160	18	140	180	240	2	135	180	245	2
		perlitic		250	19	110	140	190	2	105	140	190	2
	Malleable cast iron	ferritic		130	20	155	200	265	2	150	200	270	2
		perlitic		230	21	125	160	215	2	120	160	220	2
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

	Starting values for cutting speed v_c [m/min]																			
	GM-4FL-G GM-4EX-G				GM-6E				GM-6E 5589R45MGFR				5565R302GF 5565R302GM 5566R302GF				GM-2B GM-4B GM-2BS GM-2BP			
	Slot milling		Shoulder milling				Shoulder milling				Shoulder milling		Slot milling		Shoulder milling					
	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$			Ø [mm]	$a_{e\,max}$			Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$				
	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D			0 < x ≤ 20	< 0,5 x D			0 < x ≤ 20	< 0,5 x D	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D				
	3 ≤ x ≤ 20	0,8 x D											3 ≤ x ≤ 20	0,8 x D						
	KMG303				KMG303				KMG303				KMG303				KMG303			
	a_e / D				a_e / D				a_e / D				a_e / D				a_e / D			
	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/10	1/20	f-group	1/1	1/10	1/20	f-group
	130	170	230	2	–	–	270	2	–	–	230	2	–	250	280	5	–	250	280	5
	125	165	220	2	–	–	260	2	–	–	220	2	–	240	270	5	–	240	270	5
	95	120	165	2	–	–	190	2	–	–	165	2	–	175	200	5	–	175	200	5
	80	105	140	2	–	–	165	2	–	–	140	2	–	150	170	5	–	150	170	5
	75	95	130	2	–	–	150	2	–	–	130	2	–	140	155	5	–	140	155	5
	100	130	175	2	–	–	205	2	–	–	175	2	–	190	210	5	–	190	210	5
	80	105	140	2	–	–	165	2	–	–	140	2	–	150	170	5	–	150	170	5
	75	95	130	2	–	–	150	2	–	–	130	2	–	140	155	5	–	140	155	5
	70	90	120	2	–	–	145	2	–	–	120	2	–	130	150	5	–	130	150	5
	95	120	165	2	–	–	190	2	–	–	165	2	–	175	200	5	–	175	200	5
	70	95	125	2	–	–	145	2	–	–	125	2	–	135	150	5	–	135	150	5
	45	55	75	2	–	–	90	2	–	–	75	2	–	80	90	5	–	80	90	5
	40	50	65	2	–	–	80	2	–	–	65	2	–	70	80	5	–	70	80	5
	45	60	80	2	–	–	95	2	–	–	80	2	–	85	100	5	–	85	100	5
	40	50	65	2	–	–	80	2	–	–	65	2	–	70	80	5	–	70	80	5
	95	125	170	2	–	–	200	2	–	–	170	2	–	185	205	5	–	185	205	5
	80	105	140	2	–	–	165	2	–	–	140	2	–	150	170	5	–	150	170	5
	120	155	210	2	–	–	245	2	–	–	210	2	–	225	255	5	–	225	255	5
	95	120	165	2	–	–	190	2	–	–	165	2	–	175	200	5	–	175	200	5
	130	170	230	2	–	–	270	2	–	–	230	2	–	250	280	5	–	250	280	5
	105	140	185	2	–	–	220	2	–	–	185	2	–	200	225	5	–	200	225	5

End mill – GM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						GM-2BL GM-4BL GM-2BFP				GM-2R GM-4R			
										Slot milling		Shoulder milling	
										Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
										0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D
										3 ≤ x ≤ 20	0,8 x D		
						KMG303				KMG303			
						a_e / D				a_e / D			
						1/1	1/10	1/20	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	–	220	250	5	160	215	275	2
		approx. 0,45 % C	annealed	190	2	–	210	240	5	155	205	265	2
		approx. 0,45 % C	tempered	250	3	–	155	175	5	115	155	195	2
		approx. 0,75 % C	annealed	270	4	–	135	150	5	100	130	165	2
		approx. 0,75 % C	tempered	300	5	–	125	140	5	90	120	155	2
	Low-alloyed steel		annealed	180	6	–	165	190	5	120	165	210	2
			tempered	275	7	–	135	150	5	100	130	165	2
			tempered	300	8	–	125	140	5	90	120	155	2
			tempered	350	9	–	115	130	5	85	115	145	2
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	–	155	175	5	115	155	195	2
			hardened and tempered	325	11	–	120	135	5	85	115	150	2
M	Stainless steel	ferritic/martensitic	annealed	200	12	–	75	80	5	55	70	90	2
		martensitic	tempered	240	13	–	65	70	5	45	65	80	2
		austenitic	quench hardened	180	14	–	75	85	5	55	75	95	2
		austenitic-ferritic		230	15	–	65	70	5	45	65	80	2
K	Grey cast iron	perlitic/ferritic		180	16	–	165	185	5	120	160	205	2
		perlitic (martensitic)		260	17	–	135	150	5	100	130	165	2
	Cast iron with spheroidal graphite	ferritic		160	18	–	200	225	5	145	195	250	2
		perlitic		250	19	–	155	175	5	115	155	195	2
	Malleable cast iron	ferritic		130	20	–	220	250	5	160	215	275	2
		perlitic		230	21	–	180	200	5	130	175	220	2
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

	Starting values for cutting speed v_c [m/min]								
	GM-4RL				5602R303GR 5602R304GR 5602R305GR GM-4W				
	Slot milling		Shoulder milling		Slot milling		Shoulder milling		
	Ø [mm]	$a_{p\ max}$	Ø [mm]	$a_{e\ max}$	Ø [mm]	$a_{p\ max}$	Ø [mm]	$a_{e\ max}$	
	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D	0 < x < 3	0,1 x D	0 < x ≤ 20	< 0,5 x D	
	3 ≤ x ≤ 20	0,8 x D			3 ≤ x ≤ 20	0,8 x D			
	KMG303				KMG303				
	a_e / D				a_e / D				
	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	
	145	200	240	2	135	180	240	2	
	140	190	230	2	130	175	230	2	
	105	140	170	2	95	130	170	2	
	90	120	145	2	85	110	145	2	
	80	110	135	2	75	100	135	2	
	110	150	180	2	105	135	180	2	
	90	120	145	2	85	110	145	2	
	80	110	135	2	75	100	135	2	
	80	105	125	2	75	95	125	2	
	105	140	170	2	95	130	170	2	
	80	110	130	2	75	100	130	2	
	50	65	80	2	45	60	80	2	
	45	60	70	2	40	55	70	2	
	50	70	85	2	50	65	85	2	
	45	60	70	2	40	55	70	2	
	110	150	180	2	100	135	180	2	
	90	120	145	2	85	110	145	2	
	135	180	220	2	125	165	220	2	
	105	140	170	2	95	130	170	2	
	145	200	240	2	135	180	240	2	
	120	160	195	2	110	145	195	2	

End mill – HM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						HM-2E HM-2EP HM-2ES HM-4E				HM-2EFP HM-4EL HM-4EFP			
								Shoulder milling				Shoulder milling	
								Ø [mm]	$a_{e\,max}$			Ø [mm]	$a_{e\,max}$
								0 < x ≤ 20	0,05 x D			0 < x ≤ 20	0,05 x D
						KMG555				KMG555			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1								
		approx. 0,45 % C	annealed	190	2								
		approx. 0,45 % C	tempered	250	3								
		approx. 0,75 % C	annealed	270	4								
		approx. 0,75 % C	tempered	300	5								
	Low-alloyed steel		annealed	180	6								
			tempered	275	7								
			tempered	300	8								
			tempered	350	9								
	High-alloyed steel and high-alloyed tool steel		annealed	200	10								
			hardened and tempered	325	11								
M	Stainless steel	ferritic/martensitic	annealed	200	12								
		martensitic	tempered	240	13								
		austenitic	quench hardened	180	14								
		austenitic-ferritic		230	15								
K	Grey cast iron	perlitic/ferritic		180	16								
		perlitic (martensitic)		260	17								
	Cast iron with spheroidal graphite	ferritic		160	18								
		perlitic		250	19								
	Malleable cast iron	ferritic		130	20								
		perlitic		230	21								
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37	55	100	125	3	50	95	115	3
			hardened and tempered	60 HRC	38	55	95	120	3	50	95	110	3
	Hard cast iron		cast	400	39	70	125	160	3	65	120	145	3
	Hardened cast iron		hardened and tempered	55 HRC	40	55	100	125	3	50	95	115	3
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
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Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

	Starting values for cutting speed v_c [m/min]																			
	HM-6E				HM-6EL				HM-2B HM-2BP HM-2BS HM-4B				HM-2BL HM-4BL				HM-4R HM-4RP HM-4RF			
			Shoulder milling				Shoulder milling												Shoulder milling	
			Ø [mm]	$a_{e\,max}$			Ø [mm]	$a_{e\,max}$											Ø [mm]	$a_{e\,max}$
			0 < x ≤ 20	0,05 x D			0 < x ≤ 20	0,05 x D											0 < x ≤ 20	0,05 x D
	KMG555				KMG555				KMG555				KMG555				KMG555			
	a_e / D				a_e / D				a_e / D				a_e / D				a_e / D			
	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/10	1/20	f-group	1/1	1/10	1/20	f-group	1/1	1/2	1/10	f-group
	–	–	125	3	–	–	115	3	–	130	145	7	–	125	140	7	55	100	125	3
	–	–	120	3	–	–	110	3	–	80	90	7	–	80	90	7	55	95	120	3
	–	–	160	3	–	–	145	3	–	163	181	7	–	156	175	7	70	125	160	3
	–	–	125	3	–	–	115	3	–	109	145	7	–	105	140	7	55	100	125	3

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End mill – NM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						5502R402NM NM-2E NM-4E NM-2EP				NM-2B NM-4BP			
						Slot milling		Shoulder milling					
						Ø [mm]	$a_{p\ max}$	Ø [mm]	$a_{e\ max}$				
						0<x<12	0,5xD	0<x≤20	<0,5xD				
						12≤x≤20	1,0xD						
						KMG309				KMG309			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/10	1/20	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1								
		approx. 0,45 % C	annealed	190	2								
		approx. 0,45 % C	tempered	250	3								
		approx. 0,75 % C	annealed	270	4								
		approx. 0,75 % C	tempered	300	5								
	Low-alloyed steel		annealed	180	6								
			tempered	275	7								
			tempered	300	8								
			tempered	350	9								
	High-alloyed steel and high-alloyed tool steel		annealed	200	10								
			hardened and tempered	325	11								
M	Stainless steel	ferritic/martensitic	annealed	200	12								
		martensitic	tempered	240	13								
		austenitic	quench hardened	180	14								
		austenitic-ferritic		230	15								
K	Grey cast iron	perlitic/ferritic		180	16								
		perlitic (martensitic)		260	17								
	Cast iron with spheroidal graphite	ferritic		160	18								
		perlitic		250	19								
	Malleable cast iron	ferritic		130	20								
		perlitic		230	21								
N	Aluminium wrought alloys	cannot be hardened		60	22	920	1100	1200	4	–	1400	1550	4
		hardenable	hardened	100	23	555	660	720	4	–	840	930	4
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24	370	440	480	4	–	560	620	4
		≤ 12 % Si, hardenable	hardened	90	25	460	550	600	4	–	700	775	4
		> 12 % Si, cannot be hardened		130	26	140	165	180	4	–	210	235	4
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27	280	330	360	4	–	420	465	4
		CuZn, CuSnZn		90	28	325	385	420	4	–	490	545	4
		CuSn, Pb-free copper, electrolytic copper		100	29	280	330	360	4	–	420	465	4
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

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Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

End mill – AL series, ALP/ALG series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						ALP-1EP				AL-1E, AL-2E, AL-3E (W), ALG-2E			
						Slot milling		Shoulder milling		Slot milling		Shoulder milling	
						Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
						0<x<12	0,5xD	0<x≤20	<0,5xD	0<x<12	0,5xD	0<x≤20	<0,5xD
						12≤x≤20	1,0xD			12≤x≤20	1,0xD		
						YK40F / KMD401				YK30F / YK40F			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1								
		approx. 0,45 % C	annealed	190	2								
		approx. 0,45 % C	tempered	250	3								
		approx. 0,75 % C	annealed	270	4								
		approx. 0,75 % C	tempered	300	5								
	Low-alloyed steel		annealed	180	6								
			tempered	275	7								
			tempered	300	8								
			tempered	350	9								
	High-alloyed steel and high-alloyed tool steel		annealed	200	10								
			hardened and tempered	325	11								
M	Stainless steel	ferritic/martensitic	annealed	200	12								
		martensitic	tempered	240	13								
		austenitic	quench hardened	180	14								
		austenitic-ferritic		230	15								
K	Grey cast iron	perlitic/ferritic		180	16								
		perlitic (martensitic)		260	17								
	Cast iron with spheroidal graphite	ferritic		160	18								
		perlitic		250	19								
	Malleable cast iron	ferritic		130	20								
		perlitic		230	21								
N	Aluminium wrought alloys	cannot be hardened		60	22	300	345	375	12	920	1100	1200	4
		hardenable	hardened	100	23	250	290	315	12	555	660	720	4
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24	250	280	315	12	370	440	480	4
		≤ 12 % Si, hardenable	hardened	90	25	210	240	265	12	460	550	600	4
		> 12 % Si, cannot be hardened		130	26	180	210	225	12	140	165	180	4
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27	280	320	350	12	280	330	360	4
		CuZn, CuSnZn		90	28	310	360	390	12	325	385	420	4
		CuSn, Pb-free copper, electrolytic copper		100	29	280	320	350	12	280	330	360	4
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

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Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

Starting values for cutting speed v_c [m/min]																			
AL-2EL AL-3EL				ALG-3E ALP-3E ALP-4E				ALG-3E (W) ALP-3E (W) ALP-4E (W)				5566R302NH AL-2B				AL-2R-AIR AL-3R-AIR			
Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling	
Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
0<x<12	0,5xD	0<x≤20	<0,5xD	0<x<12	0,5xD	0<x≤20	<0,5xD	0<x<12	0,5xD	0<x≤20	<0,5xD	0<x<12	0,5xD	0<x≤20	<0,5xD	0<x<12	0,5xD	0<x≤20	<0,5xD
12≤x≤20	1,0xD			12≤x≤20	1,0xD			12≤x≤20	1,0xD			12≤x≤20	1,0xD			12≤x≤20	1,0xD		
YK30F				YK40F				KMD401				YK30F / YK40F				YK40F			
a_e / D				ae / D				a_e / D				a_e / D				ae / D			
1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/10	1/20	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
830	990	1080	4	920	1100	1200	4	1200	1430	1560	4	–	1400	1550	4	1150	1380	1500	8
500	595	650	4	555	660	720	4	725	860	940	4	–	840	930	4	690	830	900	8
335	400	435	4	370	440	480	4	485	575	625	4	–	560	620	4	460	555	600	8
415	495	540	4	460	550	600	4	600	715	780	4	–	700	775	4	575	690	750	8
125	150	165	4	140	165	180	4	185	215	235	4	–	210	235	4	175	210	225	8
250	300	325	4	280	330	360	4	365	430	470	4	–	420	465	4	345	415	450	8
295	350	380	4	325	385	420	4	425	505	550	4	–	490	545	4	405	485	525	8
250	300	325	4	280	330	360	4	365	430	470	4	–	420	465	4	345	415	450	8

End mill – AL series, ALP/ALG series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						ALG-2R (W)				AL-2RL-AIR AL-3RL-AIR			
						Slot milling		Shoulder milling		Slot milling		Shoulder milling	
						Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
						0<x<12	0,5xD	0<x≤20	<0,5xD	0<x<12	0,5xD	0<x≤20	<0,5xD
						12≤x≤20	1,0xD			12≤x≤20	1,0xD		
						KMD401				YK40F			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1								
		approx. 0,45 % C	annealed	190	2								
		approx. 0,45 % C	tempered	250	3								
		approx. 0,75 % C	annealed	270	4								
		approx. 0,75 % C	tempered	300	5								
	Low-alloyed steel		annealed	180	6								
			tempered	275	7								
			tempered	300	8								
			tempered	350	9								
	High-alloyed steel and high-alloyed tool steel		annealed	200	10								
			hardened and tempered	325	11								
M	Stainless steel	ferritic/martensitic	annealed	200	12								
		martensitic	tempered	240	13								
		austenitic	quench hardened	180	14								
		austenitic-ferritic		230	15								
K	Grey cast iron	perlitic/ferritic		180	16								
		perlitic (martensitic)		260	17								
	Cast iron with spheroidal graphite	ferritic		160	18								
		perlitic		250	19								
	Malleable cast iron	ferritic		130	20								
		perlitic		230	21								
N	Aluminium wrought alloys	cannot be hardened		60	22	1495	1795	1950	8	1035	1250	1350	8
		hardenable	hardened	100	23	900	1080	1170	8	625	750	810	8
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24	600	725	780	8	415	500	540	8
		≤ 12 % Si, hardenable	hardened	90	25	750	900	975	8	520	625	675	8
		> 12 % Si, cannot be hardened		130	26	230	275	295	8	160	190	205	8
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27	450	540	585	8	315	375	405	8
		CuZn, CuSnZn		90	28	530	635	685	8	365	440	475	8
		CuSn, Pb-free copper, electrolytic copper		100	29	450	540	585	8	315	375	405	8
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

Solid carbide milling Recommended cutting data

End mill – TM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						TM-2R / TM-3R / TM-4R / TM-4RP TM-5R / TM-5RP TM-7R / TM-7RP TM-9R / TM-9RP				TM-4B / TM-4BP TM-5B / TM-5BP			
						Slot milling		Shoulder milling					
						Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$				
						0 < x < 3	0,3 x D	0 < x < 3					
						3 ≤ x < 12	0,7 x D	3 ≤ x < 20	0,3 x D				
						12 ≤ x ≤ 20	1,5 x D						
						KMS405				KMS405			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/10	1/20	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1								
		approx. 0,45 % C	annealed	190	2								
		approx. 0,45 % C	tempered	250	3								
		approx. 0,75 % C	annealed	270	4								
		approx. 0,75 % C	tempered	300	5								
	Low-alloyed steel		annealed	180	6								
			tempered	275	7								
			tempered	300	8								
			tempered	350	9								
	High-alloyed steel and high-alloyed tool steel		annealed	200	10								
			hardened and tempered	325	11								
M	Stainless steel	ferritic/martensitic	annealed	200	12								
		martensitic	tempered	240	13								
		austenitic	quench hardened	180	14								
		austenitic-ferritic		230	15								
K	Grey cast iron	perlitic/ferritic		180	16								
		perlitic (martensitic)		260	17								
	Cast iron with spheroidal graphite	ferritic		160	18								
		perlitic		250	19								
	Malleable cast iron	ferritic		130	20								
		perlitic		230	21								
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30	45	55	85	10	–	85	90	10
			hardened	280	31	25	30	45	10	–	45	50	10
		Ni or Co bass	annealed	250	32	45	55	85	10	–	85	90	10
			hardened	350	33	25	30	45	10	–	45	50	10
			cast	320	34	25	30	45	10	–	45	50	10
	Titanium alloys	pure titanium		R_m 400	35	75	90	135	10	–	135	145	10
		α and β alloys	hardened	R_m 1050	36	45	55	85	10	–	85	90	10
H	Hardened steel		hardened and tempered	55 HRC	37								
			hardened and tempered	60 HRC	38								
	Hard cast iron		cast	400	39								
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

End mill – PM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						PM-2E, PM-2ES / PM-2EP / PM-2RP, PM-4E, PM-4E-G				PM-4EL, PM-4EL-G, PM-4EX-G			
						Slot milling		Shoulder milling		Slot milling		Shoulder milling	
						Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
						0 < x < 3	0,1 5 x D	0 < x ≤ 20	0,15 x D	0 < x < 3	0,1 5 x D	0 < x ≤ 20	0,15 x D
						3 ≤ x < 6	0,3 x D			3 ≤ x < 6	0,3 x D		
						6 ≤ x ≤ 20	0,5 x D			6 ≤ x ≤ 20	0,5 x D		
						KMG405				KMG405			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	165	220	300	1	140	190	255	1
		approx. 0,45 % C	annealed	190	2	160	210	285	1	135	185	245	1
		approx. 0,45 % C	tempered	250	3	120	155	210	1	100	135	180	1
		approx. 0,75 % C	annealed	270	4	100	135	180	1	85	115	155	1
		approx. 0,75 % C	tempered	300	5	95	125	165	1	80	105	145	1
	Low-alloyed steel		annealed	180	6	125	165	225	1	110	145	195	1
			tempered	275	7	100	135	180	1	85	115	155	1
			tempered	300	8	95	125	165	1	80	105	145	1
			tempered	350	9	90	115	160	1	75	100	135	1
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	120	155	210	1	100	135	180	1
			hardened and tempered	325	11	90	120	160	1	75	105	140	1
M	Stainless steel	ferritic/martensitic	annealed	200	12	55	75	100	1	45	65	85	1
		martensitic	tempered	240	13	50	65	85	1	40	55	75	1
		austenitic	quench hardened	180	14	60	75	105	1	50	65	90	1
		austenitic-ferritic		230	15	50	65	85	1	40	55	75	1
K	Grey cast iron	perlitic/ferritic		180	16	125	165	220	1	105	140	190	1
		perlitic (martensitic)		260	17	100	135	180	1	85	115	155	1
	Cast iron with spheroidal graphite	ferritic		160	18	150	200	270	1	130	175	230	1
		perlitic		250	19	120	155	210	1	100	135	180	1
	Malleable cast iron	ferritic		130	20	165	220	300	1	145	190	255	1
		perlitic		230	21	135	180	240	1	115	155	205	1
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37	80	105	140	1	65	90	120	1
			hardened and tempered	60 HRC	38	–	–	–	–	–	–	–	–
	Hard cast iron		cast	400	39	105	140	185	1	85	120	160	1
	Hardened cast iron		hardened and tempered	55 HRC	40	–	–	–	–	–	–	–	–
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

	Starting values for cutting speed v_c [m/min]																			
	PM-6E				PM-6EL				PM-2B PM-2BS / PM-2BP PM-4B				PM-2BL PM-2BFP PM-4BL				PM-2BC			
			Shoulder milling				Shoulder milling													
			Ø [mm]	$a_{p\ max}$			Ø [mm]	$a_{p\ max}$												
			0 < x ≤ 20	0.15 x D			0 < x ≤ 20	0.15 x D												
	KMG405				KMG405				KMG405				KMG405				KMG405			
	a_e / D				a_e / D				a_e / D				a_e / D				a_e / D			
	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/10	1/20	f-group	1/1	1/10	1/20	f-group	1/1	1/10	1/20	f-group
	–	220	300	1	–	190	255	1	–	270	300	5	–	230	255	5	–	230	255	5
	–	210	285	1	–	185	245	1	–	260	285	5	–	220	245	5	–	220	245	5
	–	155	210	1	–	135	180	1	–	190	210	5	–	165	180	5	–	165	180	5
	–	135	180	1	–	115	155	1	–	165	180	5	–	140	155	5	–	140	155	5
	–	125	165	1	–	105	145	1	–	150	165	5	–	130	145	5	–	130	145	5
	–	165	225	1	–	145	195	1	–	205	225	5	–	175	195	5	–	175	195	5
	–	135	180	1	–	115	155	1	–	165	180	5	–	140	155	5	–	140	155	5
	–	125	165	1	–	105	145	1	–	150	165	5	–	130	145	5	–	130	145	5
	–	115	160	1	–	100	135	1	–	145	160	5	–	120	135	5	–	120	135	5
	–	155	210	1	–	135	180	1	–	190	210	5	–	165	180	5	–	165	180	5
	–	120	160	1	–	105	140	1	–	145	160	5	–	125	140	5	–	125	140	5
	–	75	100	1	–	65	85	1	–	90	100	5	–	75	85	5	–	75	85	5
	–	65	85	1	–	55	75	1	–	80	85	5	–	65	75	5	–	65	75	5
	–	75	105	1	–	65	90	1	–	95	105	5	–	80	90	5	–	80	90	5
	–	65	85	1	–	55	75	1	–	80	85	5	–	65	75	5	–	65	75	5
	–	165	220	1	–	140	190	1	–	200	220	5	–	170	190	5	–	170	190	5
	–	135	180	1	–	115	155	1	–	165	180	5	–	140	155	5	–	140	155	5
	–	200	270	1	–	175	230	1	–	245	270	5	–	210	230	5	–	210	230	5
	–	155	210	1	–	135	180	1	–	190	210	5	–	165	180	5	–	165	180	5
	–	220	300	1	–	190	255	1	–	270	300	5	–	230	255	5	–	230	255	5
	–	180	240	1	–	155	205	1	–	220	240	5	–	185	205	5	–	185	205	5
	–	105	140	1	–	90	120	1	–	125	140	5	–	110	120	5	–	110	120	5
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	–	140	185	1	–	120	160	1	–	165	185	1	–	145	160	1	–	145	160	1
	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–

End mill – PM series, VPM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						PM-2R PM-4R				PM-4RL			
						Slot milling		Shoulder milling		Slot milling		Shoulder milling	
						Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
						0 < x < 3	0,1 5x D	0 < x ≤ 20	0.15 x D	0 < x < 3	0,1 5x D	0 < x ≤ 20	0.15 x D
						3 ≤ x < 6	0,3 x D			3 ≤ x < 6	0,3 x D		
						6 ≤ x ≤ 20	0,5 x D			6 ≤ x ≤ 20	0,5 x D		
						KMG405				KMG405			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	165	220	300	1	150	200	265	1
		approx. 0,45 % C	annealed	190	2	160	210	285	1	145	190	255	1
		approx. 0,45 % C	tempered	250	3	120	155	210	1	105	140	190	1
		approx. 0,75 % C	annealed	270	4	100	135	180	1	90	120	160	1
		approx. 0,75 % C	tempered	300	5	95	125	165	1	85	110	150	1
	Low-alloyed steel		annealed	180	6	125	165	225	1	115	150	200	1
			tempered	275	7	100	135	180	1	90	120	160	1
			tempered	300	8	95	125	165	1	85	110	150	1
			tempered	350	9	90	115	160	1	80	105	140	1
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	120	155	210	1	105	140	190	1
			hardened and tempered	325	11	90	120	160	1	80	110	145	1
M	Stainless steel	ferritic/martensitic	annealed	200	12	55	75	100	1	50	65	85	1
		martensitic	tempered	240	13	50	65	85	1	45	60	75	1
		austenitic	quench hardened	180	14	60	75	105	1	55	70	95	1
		austenitic-ferritic		230	15	50	65	85	1	45	60	75	1
K	Grey cast iron	perlitic/ferritic		180	16	125	165	220	1	110	150	195	1
		perlitic (martensitic)		260	17	100	135	180	1	90	120	160	1
	Cast iron with spheroidal graphite	ferritic		160	18	150	200	270	1	135	180	240	1
		perlitic		250	19	120	155	210	1	105	140	190	1
	Malleable cast iron	ferritic		130	20	165	220	300	1	150	200	265	1
		perlitic		230	21	135	180	240	1	120	160	215	1
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37	85	110	145	1	70	95	125	1
			hardened and tempered	60 HRC	38	–	–	–	–	–	–	–	–
	Hard cast iron		cast	400	39	115	145	190	1	95	125	165	1
	Hardened cast iron		hardened and tempered	55 HRC	40	–	–	–	–	–	–	–	–
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
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Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

	Starting values for cutting speed v_c [m/min]								
	PM-4H PM-4HL				VPM-4E VPM-4R				
			Shoulder milling						
			Ø [mm]	$a_{e\,max}$					
			0 < x ≤ 20	0.15 x D	0 < x < 3	0,5x D	0 < x < 3	0.15 x D	
					3 ≤ x < 12	1,5x D	3 ≤ x < 20	0,5 x D	
					12≤x≤20	20x D			
	KMG405				KMG406				
	a_e / D				a_e / D				
	1/1	1/2	1/10	f-group	1/1	1/2	1/10		
	–	210	270	6	230	280	350	9	
	–	200	260	6	220	270	340	9	
	–	150	190	6	160	190	250	9	
	–	130	165	6	140	160	210	9	
	–	120	150	6	130	150	200	9	
	–	160	205	6	180	215	270	9	
	–	130	165	6	130	170	220	9	
	–	120	150	6	125	150	190	9	
	–	110	145	6	120	150	190	9	
	–	150	190	6	160	190	250	9	
	–	115	145	6	115	140	190	9	
	–	70	90	6	70	90	110	9	
	–	60	80	6	60	80	100	9	
	–	75	95	6	75	90	120	9	
	–	60	80	6	65	80	100	9	
	–	155	200	6	160	200	260	9	
	–	130	165	6	140	170	220	9	
	–	190	245	6	215	250	330	9	
	–	150	190	6	160	200	250	9	
	–	210	270	6	230	280	360	9	
	–	170	220	6	180	230	290	9	
	–	100	125	1	100	120	150	9	
	–	–	–	–	–	–	–	–	
	–	130	165	1	110	150	180	9	
	–	–	–	–	–	–	–	–	

End mills – EPM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						EPM-2E EPM-4E				EPM-2EL EPM-4EL			
						Slot milling		Shoulder milling		Slot milling		Shoulder milling	
						Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$
						0 < x < 3	0,1 5 x D	0 < x ≤ 20	0,15 x D	0 < x < 3	0,1 5 x D	0 < x ≤ 20	0,15 x D
						3 ≤ x < 6	0,3 x D			3 ≤ x < 6	0,3 x D		
						6 ≤ x ≤ 20	0,5 x D			6 ≤ x ≤ 20	0,5 x D		
						KMG406				KMG406			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	165	220	300	1	140	190	255	1
		approx. 0,45 % C	annealed	190	2	160	210	285	1	135	185	245	1
		approx. 0,45 % C	tempered	250	3	120	155	210	1	100	135	180	1
		approx. 0,75 % C	annealed	270	4	100	135	180	1	85	115	155	1
		approx. 0,75 % C	tempered	300	5	95	125	165	1	80	105	145	1
	Low-alloyed steel		annealed	180	6	125	165	225	1	110	145	195	1
			tempered	275	7	100	135	180	1	85	115	155	1
			tempered	300	8	95	125	165	1	80	105	145	1
			tempered	350	9	90	115	160	1	75	100	135	1
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	120	155	210	1	100	135	180	1
			hardened and tempered	325	11	90	120	160	1	75	105	140	1
M	Stainless steel	ferritic/martensitic	annealed	200	12	55	75	100	1	45	65	85	1
		martensitic	tempered	240	13	50	65	85	1	40	55	75	1
		austenitic	quench hardened	180	14	60	75	105	1	50	65	90	1
		austenitic-ferritic		230	15	50	65	85	1	40	55	75	1
K	Grey cast iron	perlitic/ferritic		180	16	125	165	220	1	105	140	190	1
		perlitic (martensitic)		260	17	100	135	180	1	85	115	155	1
	Cast iron with spheroidal graphite	ferritic		160	18	150	200	270	1	130	175	230	1
		perlitic		250	19	120	155	210	1	100	135	180	1
	Malleable cast iron	ferritic		130	20	165	220	300	1	145	190	255	1
		perlitic		230	21	135	180	240	1	115	155	205	1
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37	80	105	140	1	65	90	120	1
			hardened and tempered	60 HRC	38	–	–	–	–	–	–	–	–
	Hard cast iron		cast	400	39	105	140	185	1	85	120	160	1
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.
Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

	Starting values for cutting speed v_c [m/min]																			
	EPM-2B EPM-4B				EPM-2BL EPM-4BL															
	KMG406				KMG406															
	a_e / D				a_e / D															
	1/1	1/10	1/20	f-group	1/1	1/10	1/20	f-group												
	–	270	300	5	–	230	255	5												
	–	260	285	5	–	220	245	5												
	–	190	210	5	–	165	180	5												
	–	165	180	5	–	140	155	5												
	–	150	165	5	–	130	145	5												
	–	205	225	5	–	175	195	5												
	–	165	180	5	–	140	155	5												
	–	150	165	5	–	130	145	5												
	–	145	160	5	–	120	135	5												
	–	190	210	5	–	165	180	5												
	–	145	160	5	–	125	140	5												
	–	90	100	5	–	75	85	5												
	–	80	85	5	–	65	75	5												
	–	95	105	5	–	80	90	5												
	–	80	85	5	–	65	75	5												
	–	200	220	5	–	170	190	5												
	–	165	180	5	–	140	155	5												
	–	245	270	5	–	210	230	5												
	–	190	210	5	–	165	180	5												
	–	270	300	5	–	230	255	5												
	–	220	240	5	–	185	205	5												
	–	125	140	5	–	110	120	5												
	–	–	–	–	–	–	–	–												
	–	165	185	1	–	145	160	1												

End mill – HPC series, UM/UMC series, VSM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						5501R38414GM (-R) 5502R38414GM (-R) 5602R38414GM (-R)				5501R38414GM 5502R38414GM 5602R38414GM			
						Slot milling		Shoulder milling		Slot milling		Shoulder milling	
						Ø [mm]	$a_{p\ max}$	Ø [mm]	$a_{e\ max}$	Ø [mm]	$a_{p\ max}$	Ø [mm]	$a_{e\ max}$
						0 < x < 3	0,3x D	0 < x < 3	0.15 x D	0 < x < 3	0,3x D	0 < x < 3	0.15 x D
						3 ≤ x < 12	0,7 x D	3 ≤ x < 20	0,3 x D	3 ≤ x < 12	0,7 x D	3 ≤ x < 20	0,3 x D
						12≤x≤20	1,5xD			12≤x≤20	1,5xD		
						KMG405				KMG406			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	250	300	380	9	230	280	350	9
		approx. 0,45 % C	annealed	190	2	240	285	365	9	220	270	340	9
		approx. 0,45 % C	tempered	250	3	175	210	270	9	160	190	250	9
		approx. 0,75 % C	annealed	270	4	150	180	230	9	140	160	210	9
		approx. 0,75 % C	tempered	300	5	140	165	210	9	130	150	200	9
	Low-alloyed steel		annealed	180	6	190	225	285	9	180	215	270	9
			tempered	275	7	150	180	230	9	130	170	220	9
			tempered	300	8	140	165	210	9	125	150	190	9
			tempered	350	9	130	160	200	9	120	150	190	9
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	175	210	270	9	160	190	250	9
			hardened and tempered	325	11	135	160	205	9	115	140	190	9
M	Stainless steel	ferritic/martensitic	annealed	200	12	80	100	125	9	70	90	110	9
		martensitic	tempered	240	13	70	85	110	9	60	80	100	9
		austenitic	quench hardened	180	14	85	105	130	9	75	90	120	9
		austenitic-ferritic		230	15	70	85	110	9	65	80	100	9
K	Grey cast iron	perlitic/ferritic		180	16	185	220	280	9	160	200	260	9
		perlitic (martensitic)		260	17	150	180	230	9	140	170	220	9
	Cast iron with spheroidal graphite	ferritic		160	18	225	270	345	9	215	250	330	9
		perlitic		250	19	175	210	270	9	160	200	250	9
	Malleable cast iron	ferritic		130	20	250	300	380	9	230	280	360	9
		perlitic		230	21	200	240	305	9	180	230	290	9
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36								
H	Hardened steel		hardened and tempered	55 HRC	37	115	140	175	9	100	120	150	9
			hardened and tempered	60 HRC	38	–	–	–	–	–	–	–	–
	Hard cast iron		cast	400	39	135	165	205	9	110	150	180	9
	Hardened cast iron		hardened and tempered	55 HRC	40	–	–	–	–	–	–	–	–
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

Note: The given cutting values are guide values, which were determined under ideal conditions.
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Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

	Starting values for cutting speed v_c [m/min]																			
	UM-4E UM-4E-W UM-4R UM-5EP				UM-4EL UM-4EL-W UM-4ELP UM-4EFP				UM-4RL UM-4RFP				UMC-4E UMC-4E-W				VSM-4E VSM-4R			
	Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling		Slot milling		Shoulder milling	
	Ø [mm]	$a_{p\ max}$	Ø [mm]	$a_{e\ max}$	Ø [mm]	$a_{p\ max}$	Ø [mm]	$a_{e\ max}$	Ø [mm]	$a_{p\ max}$	Ø [mm]	$a_{e\ max}$	Ø [mm]	$a_{p\ max}$	Ø [mm]	$a_{e\ max}$	Ø [mm]	$a_{p\ max}$	Ø [mm]	$a_{e\ max}$
	0 < x < 3	0,3xD	0 < x < 3	0.15xD	0 < x < 3	0,3xD	0 < x < 3	0.15xD	0 < x < 3	0,3xD	0 < x < 3	0.15xD	0 < x < 3	0,3xD	0 < x < 3	0.15xD	0 < x < 3	0,3xD	0 < x < 3	0.15xD
	3 ≤ x < 12	0,7xD	3 ≤ x < 20	0,3xD	3 ≤ x < 12	0,7xD	3 ≤ x < 20	0,3xD	3 ≤ x < 12	0,7xD	3 ≤ x < 20	0,3xD	3 ≤ x < 12	0,7xD	3 ≤ x < 20	0,3xD	3 ≤ x < 12	0,7xD	3 ≤ x < 20	0,3xD
	12≤x≤20	1,5xD			12≤x≤20	1,5xD			12≤x≤20	1,5xD			12≤x≤20	1,5xD			12≤x≤20	1,5xD		
	KMG405				KMG405				KMG405				KMG405				KMG405			
	a_e / D				a_e / D				a_e / D				a_e / D				a_e / D			
	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group	1/1	1/2	1/10	
	250	300	380	9	150	180	230	9	150	180	230	9	–	–	300	9	145	180	250	10
	240	285	365	9	145	175	220	9	145	175	220	9	–	–	285	9	140	175	240	10
	175	210	270	9	105	130	165	9	105	130	165	9	–	–	210	9	105	130	175	10
	150	180	230	9	90	110	140	9	90	110	140	9	–	–	180	9	90	110	150	10
	140	165	210	9	85	100	130	9	85	100	130	9	–	–	165	9	80	100	140	10
	190	225	285	9	115	135	175	9	115	135	175	9	–	–	225	9	110	135	190	10
	150	180	230	9	90	110	140	9	90	110	140	9	–	–	180	9	90	110	150	10
	140	165	210	9	85	100	130	9	85	100	130	9	–	–	165	9	80	100	140	10
	130	160	200	9	80	95	120	9	80	95	120	9	–	–	160	9	80	95	130	10
	175	210	270	9	105	130	165	9	105	130	165	9	–	–	210	9	105	130	175	10
	135	160	205	9	80	100	125	9	80	100	125	9	–	–	160	9	80	100	135	10
	80	100	125	9	50	60	75	9	50	60	75	9	–	–	100	9	50	60	80	10
	70	85	110	9	45	55	65	9	45	55	65	9	–	–	85	9	45	55	70	10
	85	105	130	9	55	65	80	9	55	65	80	9	–	–	105	9	50	65	85	10
	70	85	110	9	45	55	65	9	45	55	65	9	–	–	85	9	45	55	70	10
	185	220	280	9	110	135	170	9	110	135	170	9	–	–	220	9				
	150	180	230	9	90	110	140	9	90	110	140	9	–	–	180	9				
	225	270	345	9	135	165	210	9	135	165	210	9	–	–	270	9				
	175	210	270	9	105	130	165	9	105	130	165	9	–	–	210	9				
	250	300	380	9	150	180	230	9	150	180	230	9	–	–	300	9				
	200	240	305	9	120	145	185	9	120	145	185	9	–	–	240	9				
																	45	55	85	10
																	25	30	45	10
																	45	55	85	10
																	25	30	45	10
																	25	30	45	10
																	75	90	135	10
																	45	55	85	10
	115	140	175	9	70	85	110	9	70	85	110	9								
	–	–	–	–	–	–	–	–	–	–	–	–								
	135	165	205	9	85	100	130	9	85	100	130	9								
	–	–	–	–	–	–	–	–	–	–	–	–								

Deburring cutters – FM series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min] 5501 / 5601 5501 / 5601 5601 KMG303 a_e / D 1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	–	–	230	11
		approx. 0,45 % C	annealed	190	2	–	–	220	11
		approx. 0,45 % C	tempered	250	3	–	–	165	11
		approx. 0,75 % C	annealed	270	4	–	–	140	11
		approx. 0,75 % C	tempered	300	5	–	–	130	11
	Low-alloyed steel		annealed	180	6	–	–	175	11
			tempered	275	7	–	–	140	11
			tempered	300	8	–	–	130	11
			tempered	350	9	–	–	120	11
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	–	–	165	11
			hardened and tempered	325	11	–	–	125	11
M	Stainless steel	ferritic/martensitic	annealed	200	12	–	–	75	11
		martensitic	tempered	240	13	–	–	65	11
		austenitic	quench hardened	180	14	–	–	80	11
		austenitic-ferritic		230	15	–	–	65	11
K	Grey cast iron	perlitic/ferritic		180	16	–	–	170	11
		perlitic (martensitic)		260	17	–	–	140	11
	Cast iron with spheroidal graphite	ferritic		160	18	–	–	210	11
		perlitic		250	19	–	–	165	11
	Malleable cast iron	ferritic		130	20	–	–	230	11
		perlitic		230	21	–	–	185	11
N	Aluminium wrought alloys	cannot be hardened		60	22	–	–	1200	11
		hardenable	hardened	100	23	–	–	720	11
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24	–	–	480	11
		≤ 12 % Si, hardenable	hardened	90	25	–	–	600	11
		> 12 % Si, cannot be hardened		130	26	–	–	180	11
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27	–	–	360	11
		CuZn, CuSnZn		90	28	–	–	420	11
		CuSn, Pb-free copper, electrolytic copper		100	29	–	–	360	11
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30				
			hardened	280	31				
		Ni or Co bass	annealed	250	32				
			hardened	350	33				
			cast	320	34				
	Titanium alloys	pure titanium		R_m 400	35				
		α and β alloys	hardened	R_m 1050	36				
H	Hardened steel		hardened and tempered	55 HRC	37				
			hardened and tempered	60 HRC	38				
	Hard cast iron		cast	400	39				
	Hardened cast iron		hardened and tempered	55 HRC	40				
X	Non-metallic materials	Thermoplasts			41				
		Thermosetting plastics			42				
		Plastic, glass-fibre reinforced GFRP			43				
		Plastic, carbon fibre reinforced CFRP			44				
		Graphite			45				
		Wood			46				

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Feed rate recommendations on page B612.
For examples of material for cutting tool groups view page D11.

End mills – QCH series

Material group		Composition / structure / heat treatment		Brinell hardness HB	Machining group	Starting values for cutting speed v_c [m/min]							
						Q**-PM-4E Q**-PM-4R Q**-VPM-4E Q**-VPM-4R				Q**PM-2B Q**PM-4B			
						Slot milling		Shoulder milling					
						Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$				
						0 < x < 3	0,3 x D	0 < x < 20	0,15xD				
						3 ≤ x < 6	0,3 x D						
						6 ≤ x ≤ 20	0,5 x D						
						KMG405				KMG405			
						a_e / D				a_e / D			
						1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group
P	Unalloyed steel	approx. 0,15 % C	annealed	125	1	165	220	300	1	–	270	300	5
		approx. 0,45 % C	annealed	190	2	160	210	285	1	–	260	285	5
		approx. 0,45 % C	tempered	250	3	120	155	210	1	–	190	210	5
		approx. 0,75 % C	annealed	270	4	100	135	180	1	–	165	180	5
		approx. 0,75 % C	tempered	300	5	95	125	165	1	–	150	165	5
	Low-alloyed steel		annealed	180	6	125	165	225	1	–	205	225	5
			tempered	275	7	100	135	180	1	–	165	180	5
			tempered	300	8	95	125	165	1	–	150	165	5
			tempered	350	9	90	115	160	1	–	145	160	5
	High-alloyed steel and high-alloyed tool steel		annealed	200	10	120	155	210	1	–	190	210	5
			hardened and tempered	325	11	90	120	160	1	–	145	160	5
M	Stainless steel	ferritic/martensitic	annealed	200	12	55	75	100	1	–	90	100	5
		martensitic	tempered	240	13	50	65	85	1	–	80	85	5
		austenitic	quench hardened	180	14	60	75	105	1	–	95	105	5
		austenitic-ferritic		230	15	50	65	85	1	–	80	85	5
K	Grey cast iron	perlitic/ferritic		180	16	125	165	220	1	–	200	220	5
		perlitic (martensitic)		260	17	100	135	180	1	–	165	180	5
	Cast iron with spheroidal graphite	ferritic		160	18	150	200	270	1	–	245	270	5
		perlitic		250	19	120	155	210	1	–	190	210	5
	Malleable cast iron	ferritic		130	20	165	220	300	1	–	270	300	5
		perlitic		230	21	135	180	240	1	–	220	240	5
N	Aluminium wrought alloys	cannot be hardened		60	22								
		hardenable	hardened	100	23								
	Cast aluminium alloys	≤ 12 % Si, cannot be hardened		75	24								
		≤ 12 % Si, hardenable	hardened	90	25								
		> 12 % Si, cannot be hardened		130	26								
	Copper and copper alloys (bronze/brass)	machining steel, PB> 1%		110	27								
		CuZn, CuSnZn		90	28								
		CuSn, Pb-free copper, electrolytic copper		100	29								
S	Heat-resistant alloys	Fe-based alloys	annealed	200	30								
			hardened	280	31								
		Ni or Co bass	annealed	250	32								
			hardened	350	33								
			cast	320	34								
	Titanium alloys	pure titanium		R_m 400	35								
		α and β alloys	hardened	R_m 1050	36	–	–	–	–				
H	Hardened steel		hardened and tempered	55 HRC	37	80	105	140	1				
			hardened and tempered	60 HRC	38	–	–	–	–				
	Hard cast iron		cast	400	39	105	140	185	1				
	Hardened cast iron		hardened and tempered	55 HRC	40								
X	Non-metallic materials	Thermoplasts			41								
		Thermosetting plastics			42								
		Plastic, glass-fibre reinforced GFRP			43								
		Plastic, carbon fibre reinforced CFRP			44								
		Graphite			45								
		Wood			46								

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Feed rate recommendations on page B612.
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	Starting values for cutting speed v_c [m/min]																			
	Q**-HMX-4E Q**-HMX-4R				Q**-HMX-2B Q**-HMX-4B															
			Shoulder milling																	
	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$	Ø [mm]	$a_{p\,max}$	Ø [mm]	$a_{e\,max}$												
			0 < x ≤ 20	0.15 x D																
	KMG5515				KMG5515															
	a_e / D				a_e / D															
	1/1	1/2	1/10	f-group	1/1	1/2	1/10	f-group												
	–	–	–	–	–	–	–	–												
	55	100	125	3	–	130	145	7												
	55	95	120	3	–	80	90	7												
	70	125	160	3	–	163	181	7												
	55	100	125	3	–	109	145	7												

Recommended feed rate

Solid carbide milling group 1 – Square shoulder mills PM series, QCH series, EPM series

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø0,5	Ø0,8	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20					
P	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,05	0,07	0,08	0,08	0,09	0,09	0,10					
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,09	0,10	0,10	0,12	0,12	0,13					
	1/10	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,20					
M	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,06	0,07	0,07	0,08					
	1/2	0,01	0,02	0,02	0,02	0,02	0,02	0,04	0,04	0,05	0,07	0,08	0,08	0,10	0,10	0,11					
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,07	0,11	0,13	0,13	0,15	0,15	0,16					
K	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,05	0,07	0,08	0,08	0,09	0,09	0,10					
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,06	0,09	0,10	0,10	0,12	0,12	0,13					
	1/10	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,20					
H	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,05	0,06	0,06	0,07	0,07	0,08					
	1/2	0,01	0,02	0,02	0,02	0,02	0,02	0,04	0,04	0,05	0,07	0,08	0,08	0,10	0,10	0,11					
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,07	0,11	0,13	0,13	0,15	0,15	0,16					

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Solid carbide milling group 2 – Square shoulder mills GM series

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø0,5	Ø0,8	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20					
P	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09					
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,05	0,08	0,09	0,09	0,10	0,10	0,12					
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,12	0,14	0,14	0,16	0,16	0,18					
M	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,05	0,06	0,06	0,06	0,06	0,07					
	1/2	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09					
	1/10	0,02	0,03	0,03	0,03	0,03	0,03	0,05	0,05	0,06	0,10	0,11	0,11	0,13	0,13	0,15					
K	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09					
	1/2	0,01	0,03	0,03	0,03	0,03	0,03	0,04	0,04	0,05	0,08	0,09	0,09	0,10	0,10	0,12					
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,12	0,14	0,14	0,16	0,16	0,18					

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Solid carbide milling group 3 – Square shoulder mills HM series, QCH series

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø0,5	Ø0,8	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20					
H	1/1	0,01	0,02	0,02	0,02	0,02	0,02	0,02	0,02	0,03	0,05	0,06	0,06	0,06	0,06	0,07					
	1/2	0,01	0,02	0,02	0,02	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09					
	1/10	0,02	0,03	0,03	0,03	0,03	0,03	0,05	0,05	0,06	0,10	0,11	0,11	0,13	0,13	0,15					

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Solid carbide milling group 4 – Square shoulder mills AL series, NM series

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø0,5	Ø0,8	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20					
N	1/1	0,02	0,03	0,03	0,03	0,03	0,03	0,05	0,05	0,06	0,09	0,11	0,11	0,12	0,12	0,14					
	3/4	0,02	0,04	0,04	0,04	0,04	0,04	0,06	0,06	0,08	0,12	0,14	0,14	0,16	0,16	0,18					
	1/10	0,03	0,06	0,06	0,06	0,06	0,06	0,09	0,09	0,12	0,19	0,22	0,22	0,25	0,25	0,28					
	1/20	0,04	0,08	0,08	0,08	0,08	0,08	0,12	0,12	0,16	0,23	0,27	0,27	0,31	0,31	0,35					

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Recommended feed rate

Solid carbide milling group 5 – Ball nose cutters GM series, QCH series, EPM series

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø0,5	Ø0,8	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20					
P	1/1																				
	1/10	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,20					
	1/20	0,03	0,06	0,06	0,06	0,06	0,06	0,08	0,08	0,11	0,17	0,20	0,20	0,23	0,23	0,25					
M	1/1																				
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,07	0,11	0,13	0,13	0,15	0,15	0,16					
	1/20	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,21					
K	1/1																				
	1/10	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,20					
	1/20	0,03	0,06	0,06	0,06	0,06	0,06	0,08	0,08	0,11	0,17	0,20	0,20	0,23	0,23	0,25					
H	1/1																				
	1/10	0,02	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,07	0,11	0,13	0,13	0,15	0,15	0,16					
	1/20	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,21					

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Solid carbide milling group 6 – High feed mills PM series

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12													
P	1/1																				
	1/10																				
	1/20	0,15	0,25	0,28	0,33	0,44	0,55	0,66													
M	1/1																				
	1/10																				
	1/20	0,12	0,22	0,25	0,30	0,41	0,52	0,63													
K	1/1																				
	1/10																				
	1/20	0,15	0,25	0,28	0,33	0,44	0,55	0,66													
H	1/1																				
	1/10																				
	1/20	0,12	0,22	0,25	0,30	0,41	0,52	0,63													

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Solid carbide milling group 7 – Ball nose cutters HM series, QCH series

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø0,5	Ø0,8	Ø 1	Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20					
H	1/1																				
	1/2	0,02	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,07	0,11	0,13	0,13	0,15	0,15	0,16					
	1/10	0,02	0,05	0,05	0,05	0,05	0,05	0,07	0,07	0,09	0,14	0,16	0,16	0,18	0,18	0,21					

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Solid carbide milling group 8 – High feed mills AL series, ALP/ALG series

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20												
N	1/1	0,04	0,05	0,08	0,09	0,11	0,13	0,16	0,18												
	3/4	0,05	0,07	0,10	0,12	0,14	0,16	0,20	0,23												
	1/10	0,08	0,11	0,16	0,19	0,22	0,25	0,31	0,36												

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Recommended feed rate

Solid carbide milling group 9 – Square shoulder mills UM/UMC series, VPM series HSC/HPC

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20										
P	1/1	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,08	0,08	0,08										
	1/2	0,08	0,08	0,08	0,09	0,09	0,09	0,09	0,10	0,10	0,10										
	1/10	0,14	0,14	0,16	0,18	0,22	0,25	0,27	0,3	0,32	0,36										
M	1/1	0,05	0,05	0,05	0,05	0,05	0,05	0,05	0,06	0,06	0,06										
	1/2	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,08	0,08	0,08										
	1/10	0,10	0,10	0,10	0,12	0,12	0,14	0,16	0,16	0,18	0,18										
K	1/1	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,08	0,08	0,08										
	1/2	0,08	0,08	0,08	0,09	0,09	0,09	0,09	0,10	0,10	0,10										
	1/10	0,14	0,14	0,16	0,18	0,22	0,25	0,27	0,3	0,32	0,36										
H	1/1	0,045	0,045	0,045	0,053	0,053	0,053	0,053	0,06	0,06	0,06										
	1/2	0,06	0,06	0,06	0,07	0,07	0,07	0,07	0,08	0,08	0,08										
	1/10	0,10	0,10	0,10	0,12	0,12	0,14	0,16	0,16	0,18	0,18										

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Solid carbide milling group 10 – Square shoulder mills VSM series, TM series

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20										
P	1/1	0,03	0,04	0,05	0,05	0,05	0,05	0,06	0,06	0,07	0,08										
	1/2	0,04	0,06	0,07	0,07	0,07	0,07	0,08	0,09	0,10	0,11										
	1/10	0,05	0,08	0,09	0,09	0,09	0,09	0,11	0,12	0,14	0,15										
M	1/1	0,02	0,03	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,06										
	1/2	0,03	0,05	0,05	0,05	0,05	0,05	0,06	0,07	0,08	0,08										
	1/10	0,04	0,06	0,07	0,07	0,07	0,07	0,08	0,09	0,10	0,11										
S	1/1	0,02	0,03	0,04	0,04	0,04	0,04	0,04	0,05	0,05	0,06										
	1/2	0,03	0,05	0,05	0,05	0,05	0,05	0,06	0,07	0,08	0,08										
	1/10	0,04	0,06	0,07	0,07	0,07	0,07	0,08	0,09	0,10	0,11										

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Solid carbide milling group 11 – Deburring cutters FM series

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10	Ø 12	Ø 14	Ø 16	Ø 18	Ø 20									
P	1/1																				
	1/2																				
	1/10	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09									
M	1/1																				
	1/2																				
	1/10	0,02	0,02	0,02	0,02	0,03	0,05	0,06	0,06	0,06	0,06	0,07									
K	1/1																				
	1/2																				
	1/10	0,02	0,02	0,03	0,03	0,04	0,06	0,07	0,07	0,08	0,08	0,09									
N	1/1																				
	1/2																				
	1/10	0,03	0,03	0,05	0,05	0,06	0,09	0,11	0,11	0,12	0,12	0,14									

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Recommended feed rate

Solid carbide milling group 12 – ALP-1EP single-edged cutters

	a_e / D	Feed rate per cutting edge (f_z) [mm]																			
		Ø 2	Ø 3	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10													
N	1/1	0,03	0,05	0,07	0,09	0,11	0,14	0,18													
	1/2	0,04	0,07	0,10	0,13	0,15	0,20	0,25													
	1/10	0,06	0,11	0,15	0,19	0,23	0,29	0,38													

Note: The given cutting values are guide values, which were determined under ideal conditions.
The values have to be adapted in individual cases.

Notes

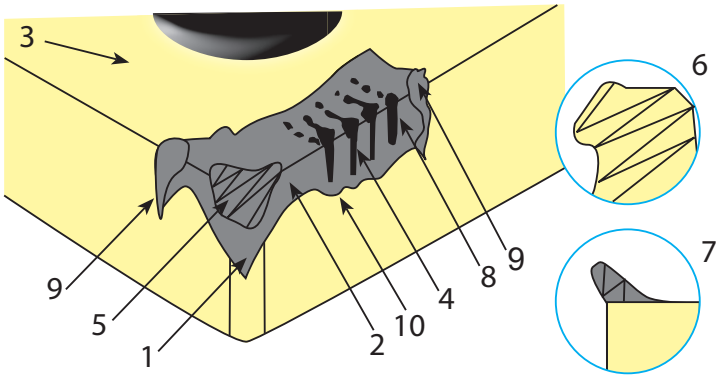
Technical information

Trouble shooting – milling	**B618**
Technical information – milling	**B619-B632**
Special tools – milling	**B633**

B

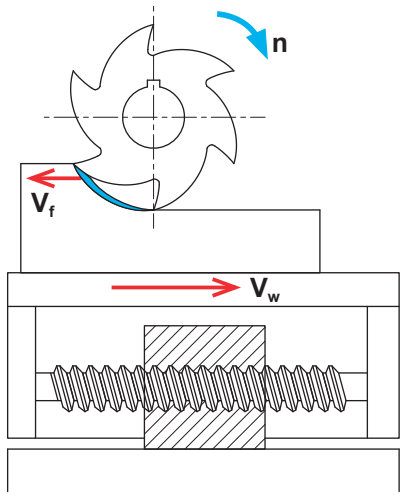
Trouble shooting – indexable milling

Fig.	Type of wear	Effects	Reason	Countermeasure
1+2	Flank wear	– Bad surface quality and dimensional stability – Increase of cutting force	– Grade not wear-resistant enough – Cutting speed too high – Clearance angle too small – Feed rate too low	– Grade with higher wear-resistance – Reduce cutting speed – Increase clearance angle – Reduce feed rate
3	Crater wear	– Bad surface quality and chip control	– Grade not wear-resistant enough – Cutting speed too high – Feed rate too low	– Grade with higher wear-resistance – Reduce cutting speed – Reduce feed rate
4	Chipping	– Unstable tool life – Sudden breakage of cutting edge	– Grade too hard – Feed rate too high – Cutting edge not stable enough – Stability of the holder or tension insufficient	– Grade with higher toughness – Reduce feed rate – Change honing of cutting edge – Use a more stable tool holder
5	Breakage	– Increase of cutting force – Bad surface quality and dimensional stability	– Grade too hard – Feed rate too high – Cutting edge not stable enough – Stability of the holder or tension insufficient	– Grade with higher toughness – Reduce feed rate – Change honing of cutting edge – Use a more stable tool holder
6	Plastic deformation	– Bad dimensional stability – Damage to cutting edge	– Grade not wear-resistant enough – Cutting speed too high – Cutting depth and/or feed rate too high – Temperature on the cutting edge too high	– Grade with higher toughness – Reduce cutting speed – Reduce cutting depth and feed rate – Grade with higher heat-resistance
7	Welding	– Increase of cutting force – Bad surface quality	– Cutting speed too low – Cutting edge not sharp enough – Grade not suitable	– Increase cutting speed – Increase rake angle – Use a more suitable grade
8	Thermal cracks	– Breakage due to thermal interaction, often caused when cutting is interrupted (milling)	– Temperature fluctuation when machining – Grade too hard	– Dry machining – Grade with higher toughness
9	Notch wear	– Burr formation – Increase of cutting force	– Damage through chips (jagged edges) – Feed rate and cutting speed too high	– Grade with higher wear-resistance – Increase rake angle to get a sharper cutting edge – Reduce cutting speed
10	Flaking (coating)	– Often appears when machining hardened materials or caused by vibration	– Cutting edge adhesion and chipping – Bad chip removal	– Increase rake angle to get a sharper cutting edge – Chip breaker with bigger chip space

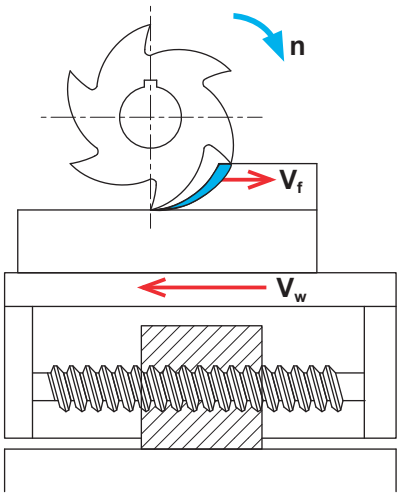


Indexable milling

Difference between up-milling and down-milling



Up-milling



Down-milling

V_f Feed rate tool
V_w Feed rate work piece
n Rotation

Up-milling: the feed direction of the work piece is opposite to that of the milling rotation at the connecting position.

Down-milling: the feed direction of the work piece is the same as that of the milling rotation at the connecting position.

Advantages and disadvantages

Direction	Advantages	Disadvantages
Up-milling	– Prevents hooking of tool – More smooth cut	– Bigger stress on cutting edge – Shorter tool life
Down-milling	– Higher tool life – Less thermal stress	– Hooking of tool possible

Indexable milling

Pitch selection

The pitch is the distance between one point on one cutting edge and the same point on the next edge.
Milling cutters are mainly classified into wide, normal and fine pitches.

Operational stability		
L (low)	M (medium)	H (high)
Wide pitch	Normal pitch	Fine pitch
		
When the milling width is equal to the diameter of the cutter, the machining system is stable and main power of machine is sufficient, selecting a wide pitch can achieve high productive efficiency.	General milling function and multiple mixed productions.	When the milling width is less than the diameter of cutter, cutting by maximum edges can achieve high productive efficiency.

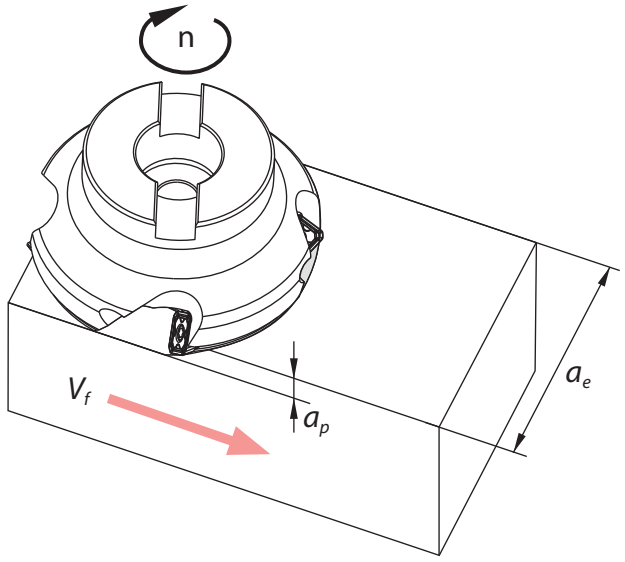
Approach angle

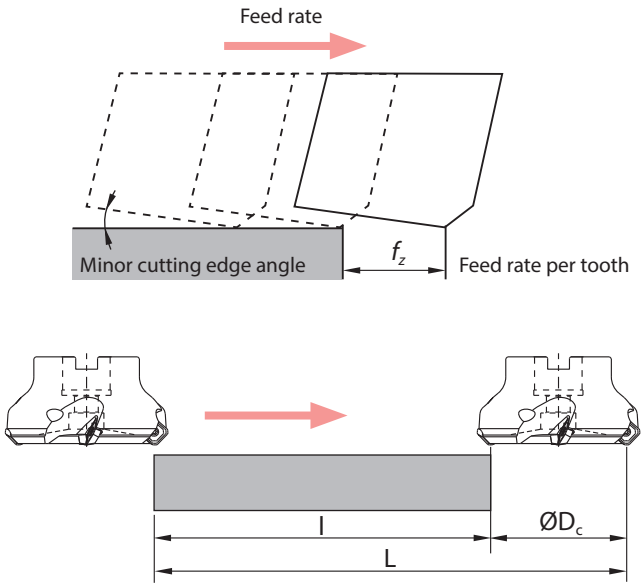
The approach angle is composed by insert. Tool body, chip thickness, cutting forces and tool life are affected especially by the approach angle. Decreasing the approach angle reduces chip thickness and spreads the cutting area between cutting edge and work piece for a given feed rate.
A smaller approach angle also guarantees stable entering or exiting the work piece, to protect the cutting edge and extend tool life. However this will increase higher axial cutting forces on the work piece, thus it is not suitable for machining thin work piecees such as thin plates.

Approach angle	Feed rate per tooth	Max. cutting depth
90°	f_z	$h_{ex} = f_z \times sin_{kr}$
75°		$h_{ex} = 0{,}96 \times f_z$
60°		$h_{ex} = 0{,}86 \times f_z$
45°		$h_{ex} = 0{,}707 \times f_z$
Round		$h_{ex} = \frac{\sqrt{iC^2 \times (iC - 2a_p)^2}}{iC} \times f_z$

Indexable milling

General formulas





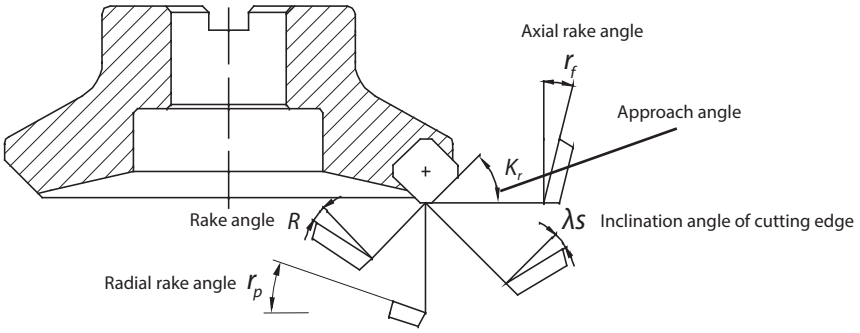
V_c: Feed rate [m/min]
D_c: Nominal diameter of milling tool [mm]
n: Spindle speed [u/min]
z_n: Number of teeth
Q: Metal removal rate [cm^3/min]

V_f: Feed rate of worktable (feed speed) [mm/min]
f_z: Feed rate per tooth [mm/z]
π: ~3,14
T_c: Machining time [min]
f_n: Feed rate per revolution [mm/u]

Cutting speed	$V_c = \frac{\pi \times D_c \times n}{1000}$ [m/min]
Spindle speed	$n = \frac{1000 \times V_c}{\pi \times D_c}$ [rev/min]
Feed rate of work table	$V_f = f_z \times n \times z_n$ [mm/min]
Feed rate per tooth	$f_z = \frac{V_f}{n \times Z_n}$ [mm/z]
Feed rate per revolution	$f_n = \frac{V_f}{n}$ [mm/rev]
Machining time	$T_c = \frac{1000 \times V_c}{\pi \times D_c}$ [min]
Metal removal rate	$Q = \frac{a_p \times a_e \times V_f}{1000}$ [cm^3/min]

Indexable milling

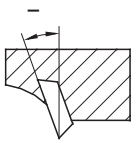
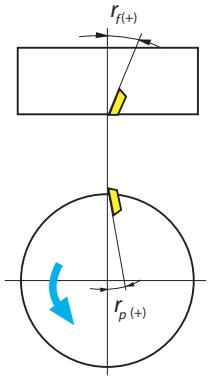
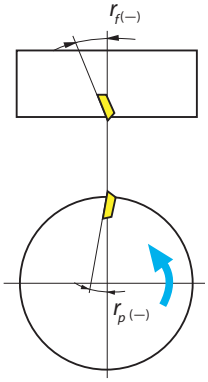
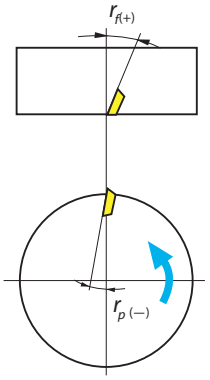
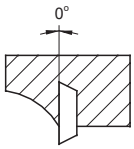
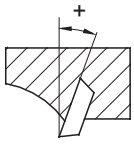
Function of angles when face milling



Main angles

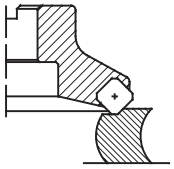
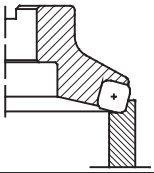
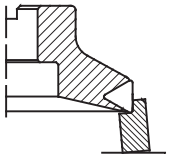
Angle	Feature	Effet		
Axial rake angle r_f	Influences chip direction	Negative angle, good chip removal		
Radial rake angle r_p	Influences cutting edge sharpness	Positive angle, good cutting performance		
Approach angle ***Kr***	Influences chip thickness	Kr↑, chip thickness↑, Kr↓, chip thickness↓;		
Rake angle ***R***	Influences cutting force	Poor cutting performance, stable cutting edge	(−)←0→(+)	Good cutting performance, unstable cutting edge
Inclination angle ***λs***	Influences chip flow direction	Poor cutting performance, stable cutting edge	(−)←0→(+)	Good cutting performance, unstable cutting edge

Combination of different rake angles

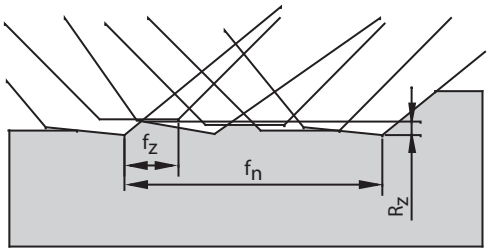
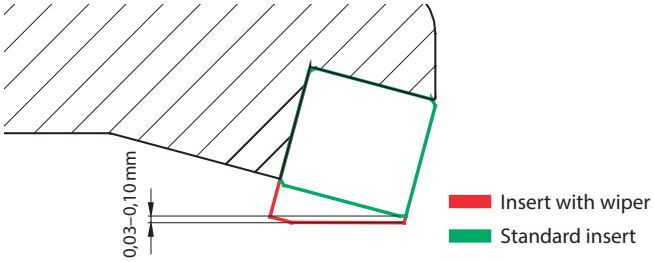
		Double positive	Double negative	Positive/Negative
Negative rake angle				
Neutral angle				
Positive angle				
Axial rake angle r_f		+	−	+
Radial rake angle r_p		+	−	−
Application field	**P**	√		√
	M	√		√
	K		√	√
	N	√		
	S	√		√

Indexable milling

Cutting performances of different approach angles

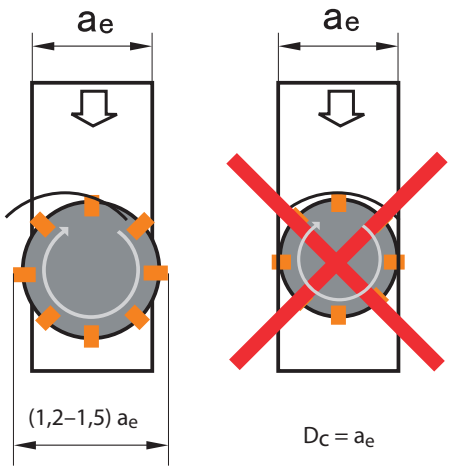
Approach angle	Depiction	Explanation
45°		Axial force is largest. It will bend when machining thin-wall work piece, and reduces the precision of work piece. It is benefit to avoid fringe breakage of work piece when machining cast iron.
75°		The main purpose is to resolve the radial cutting force, it is often used for general face milling.
90°		The axial force is zero in theory, suitable for milling thin plate workpiece.

Inserts with wiper

Using standard inserts	Using inserts with wiper
	
Normal surface quality	High surface quality

The wiper insert must protrude below the other inserts by 0.03–0.10 mm at axial direction, only that the wiping function can take into effect. Generally speaking, a cutter can assemble only one wiper insert. If the diameter of cutter is much bigger or cutter's feed rate per revolution is bigger than the length of wiper edge, 2 to 3 wiper inserts can be assembled.

Cutting width



Generally speaking, the relation between cutting width and tool cutting diameter is $D_c = (1.2–1.5)\ a_e$.

In the machining practice, it needs to avoid coincidence of tool center and workpiece center as much as possible.

D_c: Tool diameter
a_e: Lateral infeed

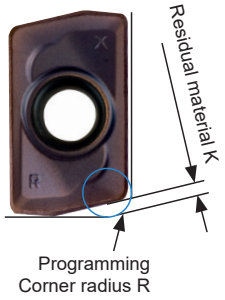
Indexable milling

Plunging and circular milling with insert APKT

Approx. programmed radius

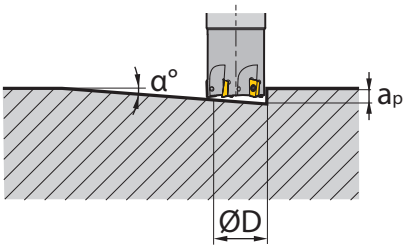
Insert	approx. R [mm]	Residual material K [mm]	a_p [mm]	f_z / mm
APKT0702-XR	0,8	0,291	0,2–0,5	0,25–0,7
APKT0702-XR	1,0	0,257	0,2–0,5	0,25–0,7
APKT11T3-XR	1,0	0,689	0,3–1,1	0,4–1,5
APKT11T3-XR	1,5	0,594	0,3–1,1	0,4–1,5
APKT11T3-XR	2,0	0,499	0,3–1,1	0,4–1,5

APKT



Insert APKT

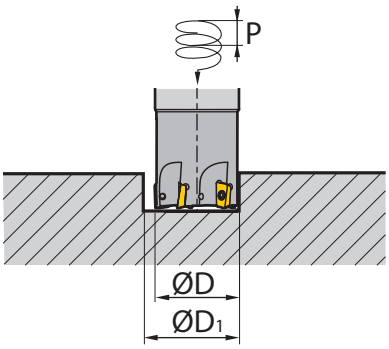
Plunging



$$L_m = \frac{a_p}{\tan_\alpha}$$

α : Plunge angle

Circular milling



$$P = \tan_\alpha \times \pi \times D_1$$

α : Helix angle

Insert	Diameter ØD [mm]	Max. cutting depth a_p [mm]	Max. plunge angle α°	Min. diameter $ØD_1$ [mm]	Max. diameter [mm]
AP**0702**	10	6	6	12	18
	12	6	4	15	22
	14	6	3	18	26
	16	6	2,5	21	30
AP**11**	16	10	10	20	30
	20	10	5	28	38
	25	10	4	40	48
	32	10	3	56	60
	40	10	2	70	76
AP**1604**	25	15	6	32	48
	30	15	5	40	58
	32	15	4,5	45	62
	40	15	2,5	60	78
	50	15	1,5	80	98
	63	15	1	105	124

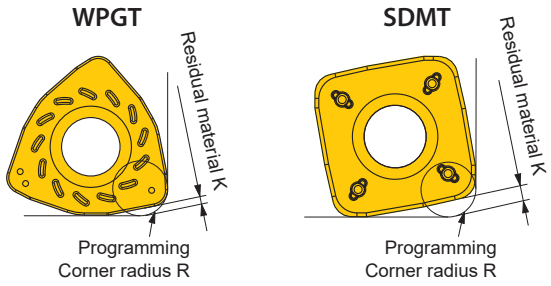
Reduce the feed rate when plunging and circular milling.
For drilling operations (axial) set the feed rate under 0.2 mm.
„Attention" – drilling can form long chips.

Indexable milling

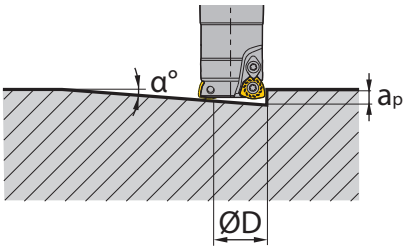
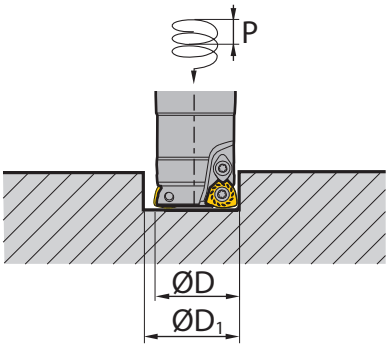
Plunging and circular milling with insert WPGT and SDMT

Approx. programmed radius

Insert	approx. R [mm]	Residual material K [mm]
WPGT050315ZSR	2,0	0,5
WPGT060415ZSR	2,5	0,7
WPGT080615ZSR	2,5	0,7
WPGT090725ZSR	4,5	1,2
SDMT06T208	1,6	0,5
SDMT09T312	2,5	0,87
SDMT120412	4,0	0,93
SDMT150620	4,0	1,38



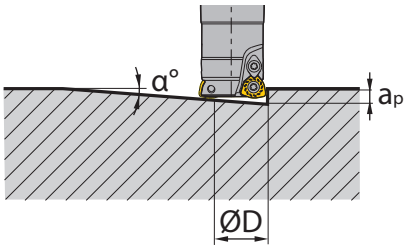
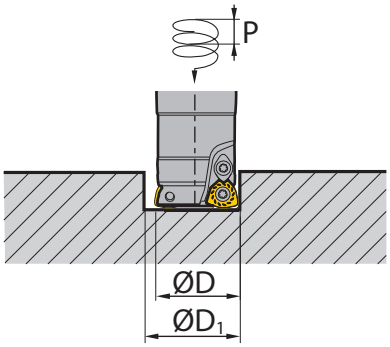
Insert WPGT

		Plunging		Circular milling	
		 $L_m = \frac{a_p}{\tan_\alpha}$ α : Plunge angle		 $P = \tan_\alpha \times \pi \times D_1$ α : Helix angle	
Insert	Diameter ØD [mm]	Max. cutting depth a_p [mm]	Max. plunge angle α°	Min. diameter $ØD_1$ [mm]	Max. diameter [mm]
WP**05**	20	1,5	12	24	37
WP**06**	25	1,5	8,8	31	47
	32	1,5	5	45	61
	40	1,5	3,2	61	77
	50	1,5	2,8	81	97
WP**08**	40	1,5	9	52	77
	50	1,5	5,4	71	97
	63	1,5	4,3	97	123
	80	1,5	2,9	131	157
	100	1,5	2,1	171	197
	125	1,5	1,3	221	247
	160	1,5	1,1	291	317
WP**09**	50	3,0	7,2	70	96
	63	3,0	4,5	96	122
	80	3,0	2,8	130	156
	100	3,0	2,2	170	196
	125	3,0	1,6	220	246
	160	3,0	1,2	290	316

Reduce the feed rate when plunging and circular milling.
For drilling operations (axial) set the feed rate under 0.2 mm.
„Attention" – drilling can form long chips.

Indexable milling

Insert SDMT

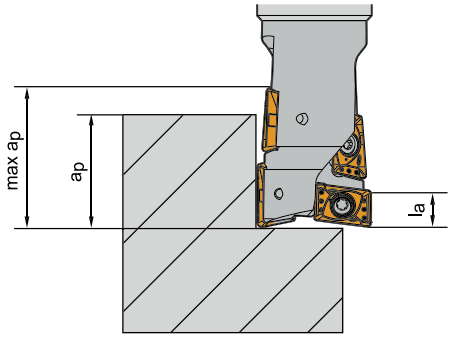
		Plunging		Circular milling	
					
		$L_m = \frac{a_p}{\tan_\alpha}$ α: Plunge angle		$P = \tan_\alpha x \pi x D_1$ α: Helix angle	
Insert	Diameter ØD (mm)	Max. cutting depth a_p [mm]	Max. plunge angle α°	Min. diameter $ØD_1$ [mm]	Max. diameter [mm]
SD**06**	20	0,8	3,6	30	38
	25	0,8	2,8	40	48
	32	0,8	1,6	52	60
	40	0,8	1,1	70	78
	50	0,8	0,8	90	98
	63	0,8	0,7	114	122
SD**09**	25	1,4	6,5	34	48
	32	1,4	4,5	48	62
	35	1,4	3,6	54	68
	50	1,4	1,8	84	98
	63	1,4	1,3	110	124
SD**12**	32	1,8	10,4	44	60
	40	1,8	5,7	60	76
	50	1,8	3,5	80	96
	63	1,8	2,5	106	122
	80	1,8	1,6	140	156
	100	1,8	1,2	180	196
SD**15**	40	2,2	7,3	54	76
	80	2,2	1,4	134	156
	100	2,2	1,0	174	196
	125	2,2	0,9	234	246
	160	2,2	0,6	304	316

Reduce the feed rate when plunging and circular milling.
For drilling operations (axial) set the feed rate under 0.2 mm.
„Attention“ – drilling can form long chips.

Indexable milling cutters

EMP05 milling strategies

Shoulder milling



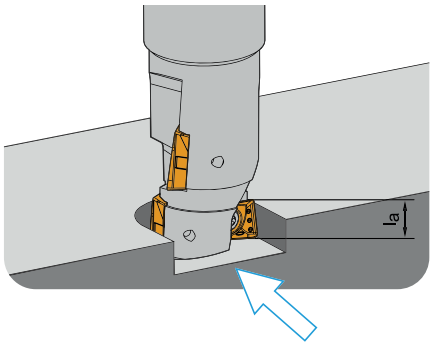
– If the cutting depth is less than l_a, the left and right cutting edges are both active in the cutting operation.

– If the cutting depth is greater than l_a, the right cutting edge is active in the cutting operation.

– If cutting depth a_p increases, the cutting speed and feed rate must be reduced.

– The longer the milling cutter's overhang, the greater the likelihood that vibrations will occur during machining. If you experience any vibrations, reduce the machining parameters until no significant vibrations occur.

Groove milling

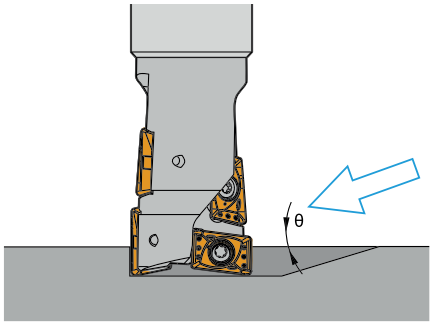


– It is recommended that the cutting depth in groove milling operations not exceed l_a.

– It is recommended that the feed rate in slot milling operations not exceed 70 per cent of the feed rate for shoulder milling.

– The longer the milling cutter's overhang, the greater the likelihood that vibrations will occur during machining. If you experience any vibrations, reduce the machining parameters until no significant vibrations occur.

Ramping



– It is recommended that the ramp angle not exceed 3° when ramp milling standard P materials.

– It is recommended that the feed rate in ramp milling operations not exceed 70 per cent of the feed rate for shoulder milling applications with the identical parameters.

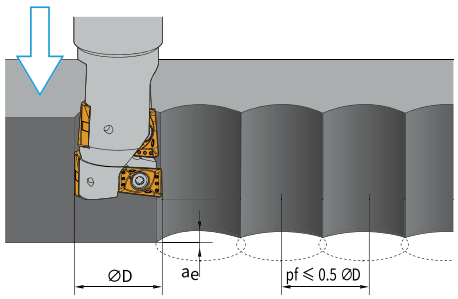
– It is recommended that the ramp angle for P materials with a hardness greater than HRC45 not exceed 1°.

– The longer the milling cutter's overhang, the greater the likelihood that vibrations will occur during machining. If you experience any vibrations, reduce the machining parameters until no significant vibrations occur.

Indexable milling cutters

EMP05 milling strategies

Plunge milling

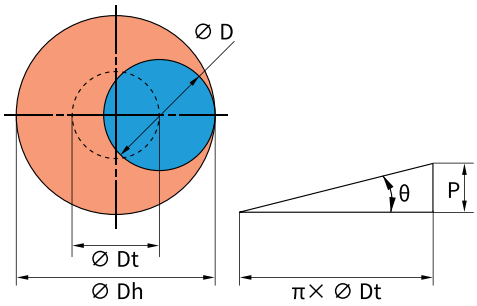


– If you select the 'Plunge Milling' strategy, the feed rate should be 1.5 to 1.8 times higher than the feed rate in the 'Bore Milling' strategy.

– If the stepover is ≤ 0.5 ΦD, the radial cutting width ae refers to the following table:

ØD	Ø16	Ø20	Ø25	Ø32	Ø40	Ø50
ae	4,5	6	7,5	8,5	7,5	8,5

Helical interpolation milling



– The cutting parameters relate to the shoulder milling strategy; the feed rate is roughly 70 per cent of the feed rate for the shoulder milling strategy.

– The outer diameter of the helical cutter is 1.2 to 1.8 times larger than the diameter of the cutter.

– The angle of inclination refers to the angle range of the ramp milling strategy.

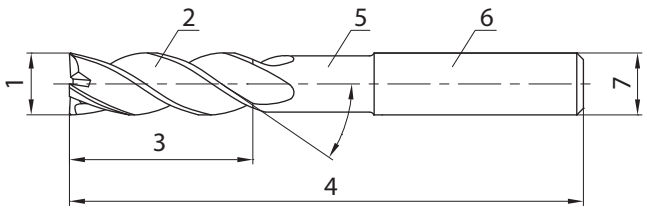
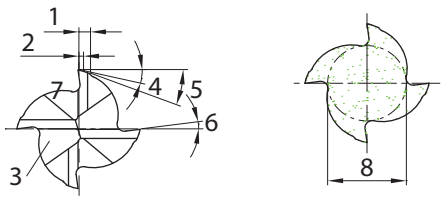
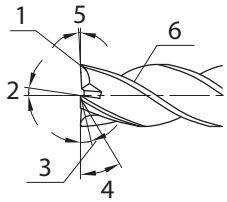
– Use compressed air to remove chips from the machined hole.

– The tool's central path is calculated as follows: ΦDt=ΦDh-ΦDc
Tool spiral = 1x rotation (feed rate + ramp angle)

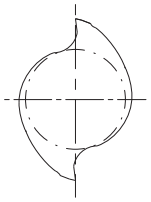
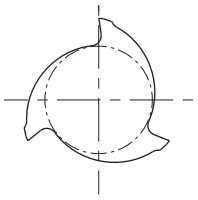
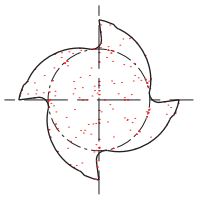
– The depth of the hole increases once the tool has completed one helical rotation.

Solid carbide mills

Terminology

A		1. Cutting edge diameter 2. Chip pocket 3. Length of cutting edge 4. Total length 5. Neck 6. Shank 7. Shank diameter
B		1. Chamfer width, main cutting edge 2. Chamfer width, diameter 3. Neck, front side 4. Primary radial clearance angle 5. Secondary radial clearance angle 6. Radial rake angle 7. Axial main cutting edge 8. Core diameter
C		1. Cutting edge 2. Axial rake angle 3. Primary axial clearance angle 4. Secondary axial clearance angle 5. Inclination angle 6. Radial cutting edge

Teeth, chip pocket and tool rigidity

Teeth	2 flutes	3 flutes	4 flutes
Cross section			
Cutting edge ratio	54 %	56 %	60 %
Advantages	– Large chip pocket – Good chip removal	– Good chip removal – Good surface quality	– Good rigidity – Good surface
Application	– Slot milling – Square shoulder milling – Drilling	– Slot milling – Square shoulder milling – Finishing	– Slot milling (flat) – Square shoulder milling – Finishing

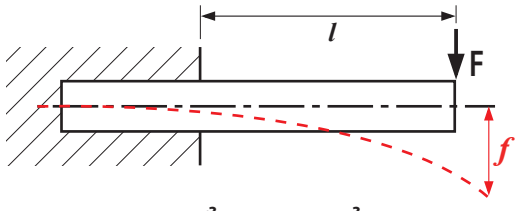
Length of cutting edge (overhang) and cutting diameter

The shorter the overhang, the stronger the rigidity. This isn't easy to generate. Bend and vibration in the cutting process may occur.

Length (overhang) increases by 1 time, the deflection degree (f) will be 8 times of the former one.

Reduce the overhang by 20 %
the deflection degree (f) will decrease by 50 %

Increase the diameter by 20 %
the deflection degree (f) will decrease by 50 %

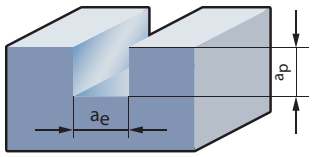


$$f = \frac{F \times l^3}{3 \times E \times I} = \frac{F \times l^3 \times 64}{3 \times E \times I}$$

Solid carbide mills

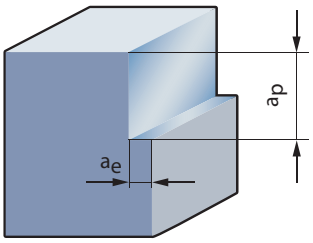
Machining strategy – HPC/UM (HSC) milling cutters

HPC = High Performance Cutting
Machining with significantly increased metal removal rate through higher cutting speeds and feed rates compared with conventional machine cutting processes.

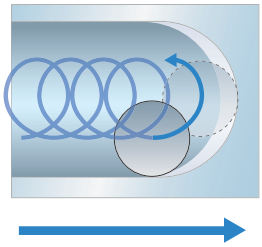


Full-slot milling

HSC (UM) = High Speed Cutting
High cutting speeds and feed rates in combination with low cutting depths lead to lower chip thickness as in normal machining.

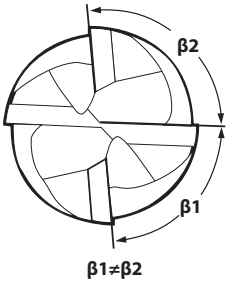


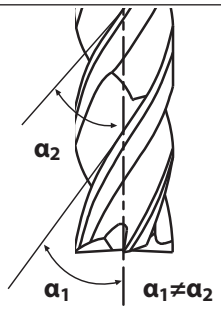
Profiling



Trochoidal milling

The UM milling cutter is specifically optimised for HSC machining.



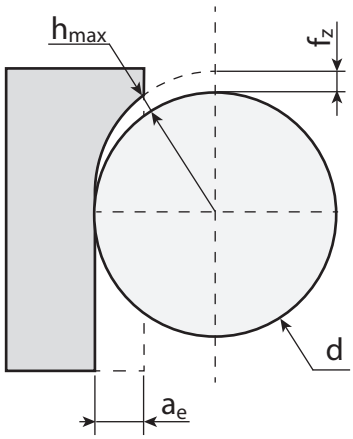


High metal removal rates can be realised with this tool.
Especially on highly dynamic machines with optimised tool paths this milling cutter shows its full potential.

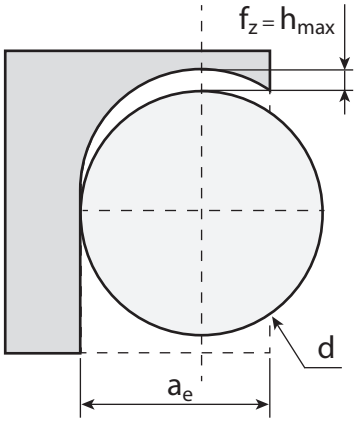
Solid carbide mills

HSC strategy

It's important to use the right strategy. When programming make sure the width of cut is kept. The width of cut is usually not higher than 15 %. Regarding the depth of cut, the total length of the cutting edge can be used.



$a_e < d/2 \quad h_{max} < f_z$

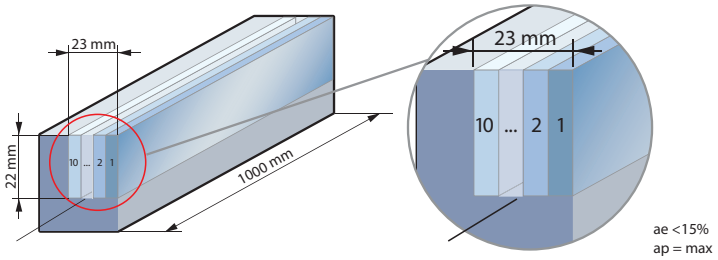


$a_e \geq d/2 \quad h_{max} = f_z$

$$h_{max} = 2f_z\sqrt{\frac{a_e}{d}\left(1-\frac{a_e}{d}\right)}$$

When changing the width of cut the cutting data needs to be adjusted.
As calculating size applies a chip thickness from approx. 0.15 –0.2 mm on basis of the usual steel types.

Example

Tool	Machining
	
UM-4E-D20.0-W KMG405	HSC strategy

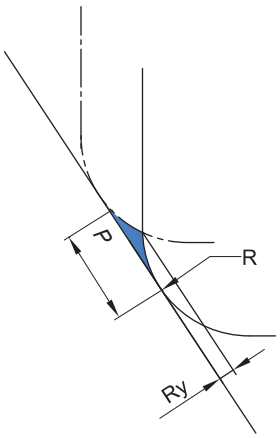
Workpiece material
16MnCr5 (1.7131) ca. 700 N/mm³

Cutting data	
V_c	550 m/min
n	8750 1/min
f_z	0,3 mm (**h_{max} = 0,19 mm**)
V_f	10500 mm/min
a_p	22 mm
a_e	2,3 mm

Result
Chip removal rate **530 cm³/min**! Machining time 58 seconds! The maximum chip thickness is 0.19 mm.

Solid carbide mills

Feed rate selecting table for profile machining with ball nose cutters and torus mills



$$Ry = R \times \{1-\cos [\arcsin(fr/2R)]\}$$

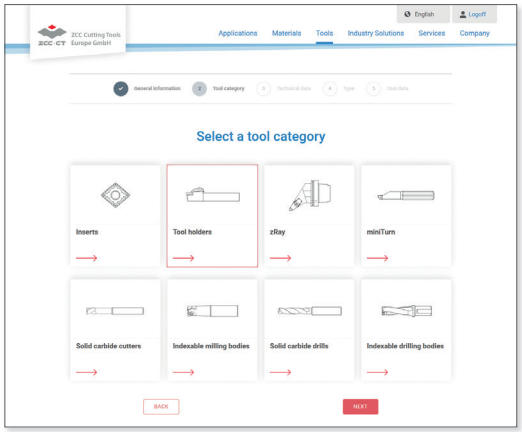
Ry: Theoretical values of surface quality
P: Feed rate
R: Radius of the ball nose cutter or torus mill

R \ Ry	Feed rate									
	0,1	0,2	0,3	0,4	0,5	0,6	0,7	0,8	0,9	1,0
0,5	0,003	0,010	0,023	0,042	0,067	0,100				
1,0	0,001	0,005	0,011	0,020	0,032	0,046	0,063	0,083	0,107	
1,5	0,001	0,003	0,008	0,013	0,021	0,030	0,041	0,054	0,069	0,086
2,0	0,001	0,003	0,006	0,010	0,015	0,023	0,031	0,040	0,051	0,064
2,5	0,001	0,002	0,005	0,008	0,013	0,018	0,025	0,032	0,041	0,051
3,0		0,001	0,004	0,007	0,010	0,015	0,020	0,027	0,034	0,042
4,0		0,001	0,003	0,005	0,008	0,011	0,015	0,020	0,025	0,031
5,0		0,001	0,002	0,004	0,006	0,009	0,012	0,016	0,020	0,025
6,0			0,002	0,003	0,005	0,008	0,010	0,013	0,017	0,021
8,0			0,001	0,003	0,004	0,006	0,008	0,010	0,013	0,016
10,0			0,001	0,002	0,003	0,005	0,006	0,008	0,010	0,013
12,5			0,001	0,002	0,003	0,004	0,005	0,006	0,008	0,010

R \ Ry	Feed rate									
	1,1	1,2	1,3	1,4	1,5	1,6	1,7	1,8	1,9	2,0
0,5										
1,0										
1,5	0,104									
2,0	0,077	0,092	0,109							
2,5	0,061	0,073	0,086	0,100						
3,0	0,051	0,061	0,071	0,083	0,095	0,109				
4,0	0,038	0,045	0,053	0,062	0,071	0,081	0,091	0,103		
5,0	0,030	0,036	0,042	0,049	0,057	0,064	0,073	0,082	0,091	0,101
6,0	0,025	0,030	0,035	0,041	0,047	0,054	0,061	0,068	0,076	0,084
8,0	0,019	0,023	0,026	0,031	0,035	0,040	0,045	0,051	0,057	0,063
10,0	0,015	0,018	0,021	0,025	0,028	0,032	0,036	0,041	0,045	0,050
12,5	0,012	0,014	0,017	0,020	0,023	0,026	0,029	0,032	0,036	0,040

Go directly to the special tool tailored for your milling applications

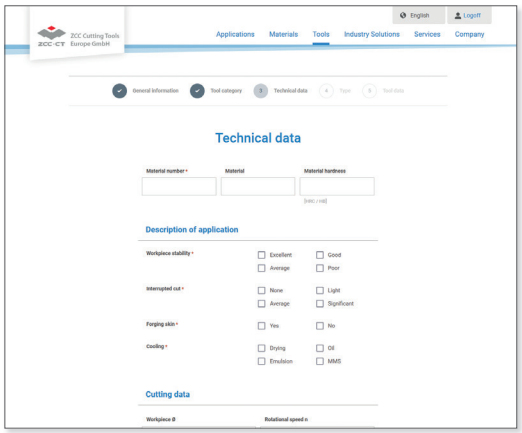
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Defining the tool parameters

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